THE ARCHITECTURAL FORUM

SEPTEMBER 1941

Announcing . . . A NEW AND COMPLETE TREATISE ON

Architectural Acoustics

★

SPECIFICALLY DESIGNED FOR PRACTICING ARCHITECTS AND ENGINEERS

★

93 Pages of Authoritative Data Profusely Illustrated with Photographs and Charts Representing Years of Research and Experiment.

IN the preparation of "LESS NOISE—BETTER HEARING," it has been our purpose to include a complete fund of practical information for the architect concerned with acoustics.

Consider the chapter headings: *"Physics of Sound," "Sound Absorbing Materials," "Sound Waves in a Room," "Acoustics of Auditoriums," "Acoustical Correction of Different Types of Room," "Noise Quieting with Acoustical Treatment,"* and *"Sound Insulation."*

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ARCHITECTURAL FORUM

SEPTEMBER 1941

Editor, Howard Myers; *Managing Editor*, Ruth Goodhue; *Associates*, Paul Grotz, Joseph C. Hazen, Jr., C. Theodore Larson, George Nelson, Henry Wright; *Assistants*, John Be'nert, Anna De Cormis, Richard E. Saunders, Madelaine Thatcher, Nadia Williams, THE ARCHITECTURAL FORUM is published by Time Inc., Henry R. Luce, Chairman; Roy E. Larsen, President; Charles L. St'llman, Vice President and Treasurer; Howard Black, Allen Grover, Er'c Hodgins, P. I. Prentice, Vice Presidents; David W. Brumbaugh, Secretary. Publication and Subscription Office, Orange, Conn. Subscript'ons may also be sent to 330 East 22nd Street, Ch'cago, Illinois. Executive, Editorial and Advertising Offices, Time & Life Building, Rockefeller Center, New York. Business Manager, H. A. Richter. Advertising Manager, George P. Shutt. Address all editorial correspondence to Time & Life Building, Rockefeller Center, New York. Yearly subscription, payable in advance, U. S. and Possessions, Canada, Cuba, Mexico, South America, $4.00. Elsewhere $6.00. Single issues, including Reference Numbers, $1.00. All copies Mailed Flat.

VOLUME 75—NUMBER THREE

THE MONTH IN BUILDING

TRENDS. As measured by permit statistics (right), building activity in June continued to surge ahead of last year, although the erratic course of defense-dominated non-residential permits depressed the monthly total 9 per cent below the May figure. (For a forward look at estimated full-year building activity, see col. 2 below). Wholesale building material costs again raised their ugly head in July, advanced 2.1 per cent—more than in any other 1941 month to date. Principal culprits: lumber, paint, brick and tile. Rents continued slowly up, prompted Federal action (see p. 190).

PERMITS (Source: U. S. Department of Labor)

	Monthly Data			First Six Months	
	June 1941 (millions)	Comparison with May '41	Comparison with June '40	1941 (millions)	Comparison with 1940
Residential	$147.1	+ 8%	+56%	$724.7	+26%
Non-residential	65.4	−36	+32	478.4	+87
Additions, repairs	37.4	+ 2	+ 6	184.6	+10
Total	249.9	− 9	+39	1,387.7	+39

INSTALLMENT BUYING CURB

Month ago the White House issued an Executive Order giving the Governors of the Federal Reserve Board control over installment buying. It directed the Board to work closely with a Coordinating Committee consisting of Treasury Secretary Henry Morgenthau, Federal Loan Administrator Jesse Jones and Price Administrator Leon Henderson and to consult the Committee in formulating policies regarding down payments, maturities and terms of payment of installment loans. Thus, Government set out on a program to curb inflation by curbing consumer credit.

Fortunately for Building, Government has indicated that it will except from its anti-installment buying drive money borrowed for real estate and new home building, despite the fact that it accounted for about $19.6 billion of the total $27.6 billion consumer indebtedness at the end of 1940. (Compare with total 1940 national income: $76 billion). For the time being at least, the Federal Reserve Board will concentrate its controls on the other two smaller credit fields: 1) items purchased at retail via the installment plan and 2) cash loans. The former, which accounted for about $5.1 billion of all consumer debt at year-end, is comprised primarily of automobile credit and retail store charge accounts; the latter, which amounted to $2.3 billion, is comprised largely of personal loans.

Only place where the forthcoming action of the FRBoard may pinch Building is in FHA's Title I program whereby home owners may obtain Government-insured loans to cover the cost of repairing or modernizing their houses. Even FHA, which this month plans to launch a "repair for defense" program, did not know where it stood last month. Indication was that big repair jobs involving loans of $1,000 or more would be exempt from the credit curb. This would permit the comparatively costly conversion of large houses into rentable apartments to proceed unhampered. But it would certainly put a crimp in the regular FHA repair program under which loans have averaged about $400 in principal amount.

1941: SECOND GUESS

In January THE FORUM surveyed expert opinion in the building field, forecast that total 1941 construction activity would involve an expenditure of $7,555 million, better 1940 by 18 per cent. (ARCH. FORUM, Jan. 1941, p. 63). Last month the Commerce Department surveyed 1941 activity to date, forecast that the year's total would come to $10,200, up a booming 49 per cent from 1940. Blushing with conservatism, THE FORUM presents below its forecasts for each classification of construction along with the mid-year estimates of the Commerce Department. Note that privately financed residential construction, to be up an estimated 15 per cent, has done considerably better than originally anticipated by the industry, that most classifications of publicly financed defense construction have expanded further than even Government experts were willing to predict nine months ago.

Pertinent are the conclusions reached by the Commerce Department after it had tallied its preliminary 1941 construction estimates: "Governmental expenditures alone, directly related to defense, will be over $3 billion in 1941 as compared with less than $600 million in 1940. The increase over 1940 accounts for 75 per cent of the increase in all new construction activity . . . Direct military and naval expenditures within the U. S., excluding industrial facilities and defense family dwellings, will be about $1,700 million this year. This approaches the peak twelve-month activity of the first World War . . . Contracts outstanding on private work and the amount of defense construction now scheduled indicate that activity during the second six months (of 1941) will exceed that of the first half of the year. Furthermore, since future defense needs will probably take up most of the slack occasioned by completion of projects already under way, this high level may be expected to continue well into next year. . . ."

BIGGEST OFFICE BUILDING

"It is to be doubted if any single act of Congress ever changed, quite so radically, the future picture of Washington, or caught so many people, supposedly concerned with planning for the city, completely off guard." Thus did the Washington *Evening Star* refer last month to the hastily conceived, hastily offered plans of the War Department to build for itself a new building at the very gates of the Arlington National Cemetery across the Potomac from other Capital buildings. No mean building, the proposed structure would be $35 million worth of brick veneered reenforced concrete, cover 34 acres, provide 4 million sq. ft. of office space for 40,000 people, be three stories high with escalators instead of elevators —

(Continued on page 4)

TYPE OF CONSTRUCTION	1940 Actual*	1941 Forum Forecast	1941 Estimate#	Commerce Department Change
TOTAL PRIVATE	$4,183	+ 9%	$4,900	+ 17%
Residential	2,085	+ 4	2,400	+ 15
Non-residential	985	+ 16	1,050	+ 7
Manufacturing	445	+ 31	500	+ 12
All other	540	+ 7	550	+ 2
Public Utility	645	+ 17	925	+ 43
Farm	468	+ 9	525	+ 12
TOTAL PUBLIC	$2,667	+ 32%	$5,300	+ 99%
Residential	207	+108	550	+ 165
Defense	7	+800	375	+5,257
Other	200	+ 31	175	− 13
Non-residential	375	+ 5	350	− 7
Military & Naval	585	+131	2,750	+ 370
Manufacturing	110	+340	1,000	+ 810
Other	475	+ 85	1,750	+ 268
Public Works, etc.	1,500	+ 2	1,650	+ 10
TOTAL PRIVATE AND PUBLIC	$6,850	+ 18%	$10,200	+ 49%

* Expressed in millions—revised. # Expressed in millions—preliminary.

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VOLUME 75 Number 3

THE MONTH IN BUILDING

in brief, the world's largest office building.

Although the War Department admits that, despite its tremendous recent expansion, "at the present we do not think we will use it for more than 30,000" people, size of the proposed building did not kick up as big a fuss as did its proposed location and the manner in which it was conceived. As for the location, the Fine Arts Commission understood that the site (Hoover airport, recently vacated in favor of a new, larger safer project—see p. 169) had been reserved since 1901 as open territory to be used either as a public park or as an extension of Arlington Cemetery. Other criticism of the location arose from the facts: 1) that 75 per cent of the War Department's employes live on the other side of the river in Washington; 2) that 18 per cent of them now walk to work; 3) that public transportation facilities (buses) would be overtaxed; 4) that the three bridges spanning the Potomac may be inadequate to carry the traffic; 5) that between $7 million and $8 million in new roads, approaches and other outside facilities would be required; 6) that when the war clouds subsided, Government agencies now renting private office space in Washington would move out of town to fill the vast War Department building; 7) that the RFC Mortgage Co., a Government subsidiary, has invested about $10 million in Washington office buildings which would thus hold a big bag.

As for the manner in which the plan was conceived and presented—no one in Washington, it seems, knew about the proposal until it had been passed by the House as a small but integral part of a big $7 billion defense appropriation bill. Quickly the Fine Arts Commission flatly objected to the project, and the President and the National Capital Parks and Planning Commission advised, not against its location, but against the construction of such a large building. Also ignored by the War Department was the Bureau of the Budget and the Senate's Buildings and Grounds Committee.

The War Department building proposal came from the office of Brig. Gen. Brehon B. Somervell, an engineer officer in charge of Army construction whose judgment is usually right. But, there are plenty of planners who think he is wrong this time, that the War Department is about to beget the biggest white elephant in creation. One of these is the President who fortnight ago indicated that he might veto the vital $7 billion defense bill just to block the plans for the War Department building. By so doing, he said that he might square himself for having desecrated Potomac Park in 1917 by authorizing, as Assistant Secretary of the Navy, the construction there of a huge "temporary" Navy building which is still standing.

DOWN PAYMENT CLUB

A year and a half ago the U. S. Savings and Loan League devised a plan, dual in purpose: 1) to help the public plan its houses and accumulate the cash down payments necessary to pay for them and 2) to help its member savings and loan associations attract and maintain business. The plan: as members of an "Own-a-Home Savings Club," prospective home builders would salt away part of their earnings each month in the sponsoring local institution which would teach them the rudiments of good home building while they were thus painlessly accumulating their down payments—usually over a period of three to five years.

This summer the first Own-a-Home Club, organized by Peoples Federal Savings and Loan Assn. of Peoria, Ill., graduated its first Own-a-Homers, Mr. and Mrs. Don C. McDonald. An exceptional couple, Insurance Salesman McDonald and his stenographer wife had been plunking $50 a month into the Association out of their combined monthly salary of $300, had thus accumulated the down payment on their $6,800 dream house (see photograph below) in less than half the scheduled time.

How exceptional were the McDonalds is indicated by a look at the rest of the club which has grown at the rate of a couple a week and passed the 50 mark in early summer. Half of the couples are not yet married, but, being engaged, are already pooling their savings. Most of the men fall between the ages of 22 and 26; majority of the women are between 22 and 24. The average couple is saving $29 a month toward the down payment three years hence on a five-room frame house of Colonial design. The youngest couple, each 20, is anteing $15 each month out of its $150 combined earnings. An unengaged girl is saving to build a house for her mother and herself; a 29-year-old bachelor is saving to build a two-family house for a "home and income."

Vice-President G. Hicks Fallin of Peoples Federal—a $9 million, 5,000 member, 79-year-old association—is sold on the Own-a-Home plan. His reasons:

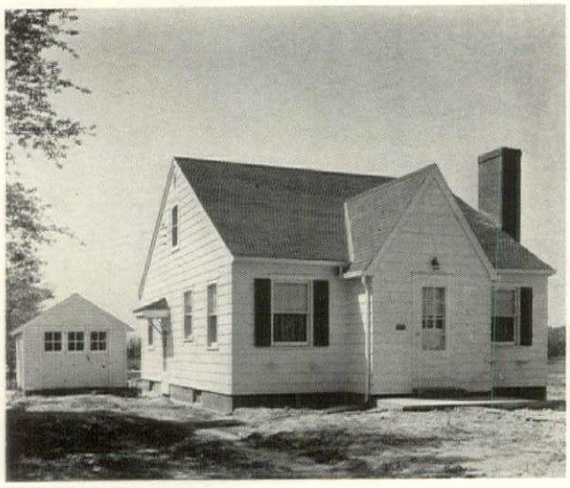
►It eliminates home builder headaches, in that during the down payment accumulation period the prospects have ample time to determine the type of house to be built, the size, the location, the cost, the amortization period of the mortgage, etc. Peoples' Fallin sends his club members each month a house organ featuring house plans, pictures, and vital facts.

►It permits couples to embark on home ownership with more than a 10 per cent shoestring. Like most savings and loan associations, Peoples Federal is not enthusiastic about FHA's 90 per cent, 25-year insured mortgages. Thus, half the members of its Own-a-Home Club propose to pay off their mortgages in ten to twelve years, and, if they save $29 per month for three years, they will make a cash down payment of more than $1,000 each.

►It will tend to maintain the demand for houses on a more even level. When a couple completes its down payment savings program, it will go ahead and buy or build "whether the real estate cycle is at the peak or in the trough—at least that is the theory." And, G. Hicks Fallin is eager to try the theory, for, while his Association made 456 loans totaling $1.7 million in 1940, it remembers well the lean period of 1933 and 1934 when loans numbered only ten a year.

►"We do not have to worry about some other type of institution getting the loans of those folks who have saved and become mutually acquainted with us during the embryo period of home ownership."

That these reasons are weighty is indicated by the fact that the Own-a-Home Club costs Peoples Federal "possibly ten times as much" to operate as does its ordinary savings account. Long ago, before such savings accounts were made available, membership in building and loan associations was limited for the most part to people who actually planned to build. Today, the membership is comprised of purposeless savers as well, and the constant change in the names of local associations from "building and loan" to "savings and loan" reflects the change.

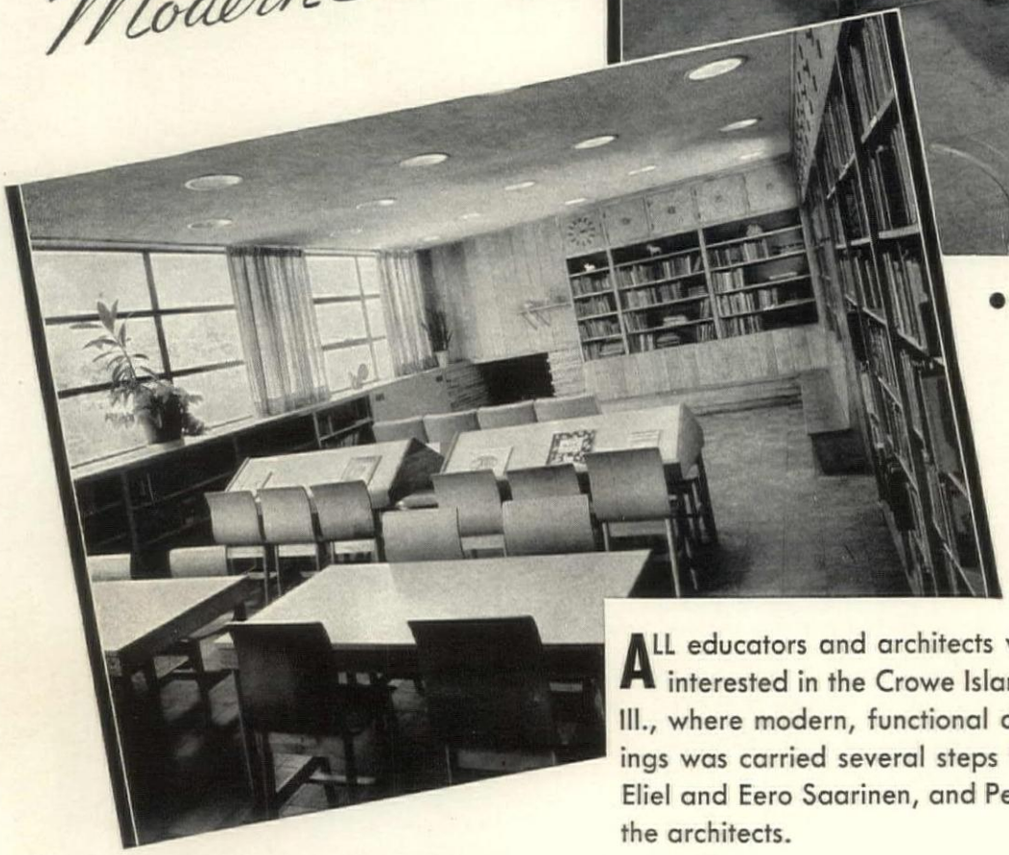


Frank Oberkoetter Studios

First "Own-a-Home" house; paid for with the Peoria McDonald's $50-a-month savings. Cost: $5,800, excluding the $1,000 lot.

All DESKS AND TABLE TOPS are FORMICA in this Modern School!

● Formica Desk Tops with H 901 linen finished Formica Surfaces. This surface will stand washing with strong antiseptics if necessary; it is very easily kept clean.



● This photo shows Formica Table Tops in the school library. Formica was used for this purpose also in the annex to the Library of Congress.

ALL educators and architects who design schools are interested in the Crowe Island School at Winnetka, Ill., where modern, functional design for school buildings was carried several steps forward in the work of Eliel and Eero Saarinen, and Perkins Wheeler and Hill, the architects.

We think it is significant that in this outstanding modern school Formica top surfaces were used on the table tops and desks throughout the building. It was used because of its attractive appearance, depth of color, the ease with which it is kept clean, and its long life without maintenance. The color used at Crowe Island was tan linen pattern.

Let us send you literature showing colors and methods of applying Formica.

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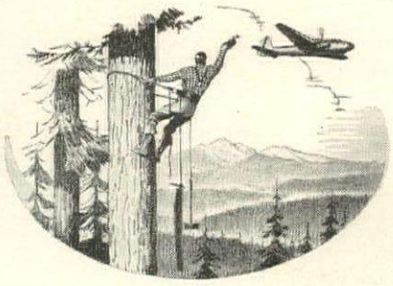

Team-mates in Defense

THE High Climber in the forest scaling the giant spar tree and the aviator patrolling the sky are team-mates in defense. Both are fearlessly performing essential jobs.

The High Climber, 20 stories in the air, with axe and saw tops the tree. The spar is ready, a 200 foot tower of strength to which he attaches great cables. These are the sky lines of the forest along which enormous logs are carried to flat cars for transportation to the lumber, pulp and ply-wood mills, frequently many miles away. The High Climber is a symbol of the men of the lumber industry, always ready for the challenge of difficult demands. The efficient manner in which they are meeting the demands of America for lumber is a bright spot in the record of the nation.

Almost overnight the industry produced billions of feet of lumber for national defense, for the housing of soldiers and workmen—billions of feet of lumber to meet more than normal requirements for new homes, farm buildings, shops and factories—millions of feet for new and wider uses, often releasing other materials for defense needs.

Lumber is shouldering its greater responsibilities quickly, efficiently and economically because lumber is America's most adaptable building material. Its uses are many and varied. It is serving essential needs in aviation. It is fashioned into massive timbers for use in shipyards and in the construction of docks, bridges and vessels. Lumber is also indispensable to many other industries.

Lumber is abundantly available, and will continue to be available because the seeding and planting of new trees is replacing those that are harvested, assuring a continuing supply. Timber is a crop. It is America's greatest renewable natural resource.

Published on behalf of the Lumber Industry by

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FIRST COST

WEIGH YOUR COSTS CAREFULLY

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ONE COST ONLY—on a Featherweight PRECAST CONCRETE ROOF DECK

EMERGENCY BUILDINGS

that are planned now for temporary service, are frequently used later for permanent industry. A Federal Roof installed now, will not only be safe and economical for the present, but will be ready for permanent occupancy any time in the future, *without repair or replacement.* This is fact, proven by experience.

WHY burden your initial roof deck investment with unending *future* expense for painting, repairs and replacements? Every dollar spent unnecessarily for maintenance simply eats into the annual net of the business.

No buyer can afford to overlook these *added costs.* They are bound to occur with an impermanent roof deck. Rot, rust and disintegration follow the action of heat, moisture, smoke and fumes—and nothing can prevent it. A roof deck of this kind is nothing more than a *liability.*

On the other hand, a *Featherweight* Precast Concrete Roof Deck never requires a dollar of expense for painting, repairs or replacements throughout the entire life of the building. It is permanent, lightweight, fireproof—the *only* roof deck that can be rightly termed *investment.* And most important right now, this roof deck enables you to get under cover FAST, and into production immediately.

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TAKE THE SHADOWS OUT OF SHAVING---
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MIAMI LIGHTED CABINETS

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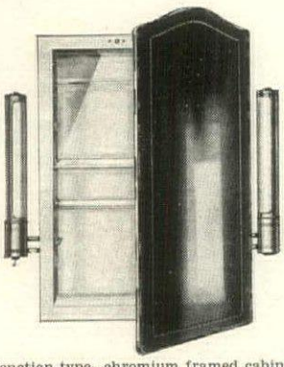
MIAMI has pioneered basic improvements in materials and design—added new features that widen usefulness . . . has glorified the cabinet with sparkling plate glass mirrors and chrome frames, with the lasting beauty of "Crystal Snow" finish—"The finish that will not retain a stain." No wonder MIAMI Cabinets are the most widely used cabinets in the world!

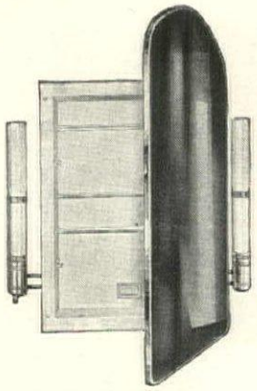
Build the eye appeal of your finer bathrooms around a MIAMI Cabinet or Ensemble. This is sound practice, for these matchless creations can do more to heighten the effect of bathroom beauty and luxury than any other detail of bathroom equipment.

There is a MIAMI Cabinet that is correct in equipment and cost for every bathroom. See the MIAMI Catalog in Sweet's, or write for specific information to Dept. A.F.

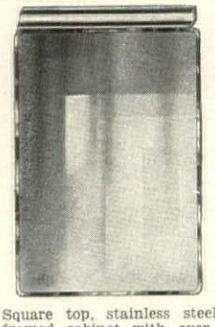


Venetian type, chromium framed cabinet equipped with No. 5 tubular light brackets with revolving shields that direct light onto mirror or into room. Lighted interior. Open door—light switches on. Close door—light switches off. For night light, leave cabinet door open.

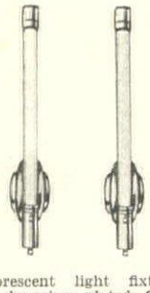
MIAMI tubular lighted cabinets are completely wired at the factory—save cost of several electric outlets.



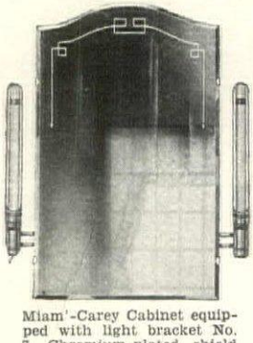
Gothic top model with stainless-steel framed, mirror door. Equipped with tubular light brackets No. 6.



Square top, stainless steel framed cabinet with overhead light bracket No. 9.



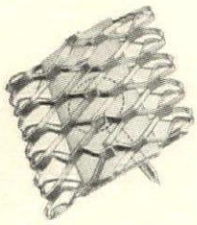
Fluorescent light fixtures are chromium plated. Completely wired at factory, ready to install.



Miami-Carey Cabinet equipped with light bracket No. 7. Chromium-plated shield revolves in complete 360 degree circle.

MIAMI CABINET DIVISION
THE PHILIP CAREY MFG. COMPANY - MIDDLETOWN, OHIO

THIS ODD LITTLE NAIL
IS THE REASON



GOLD BOND FLOATING WALLS RESIST PLASTER-CRACKS

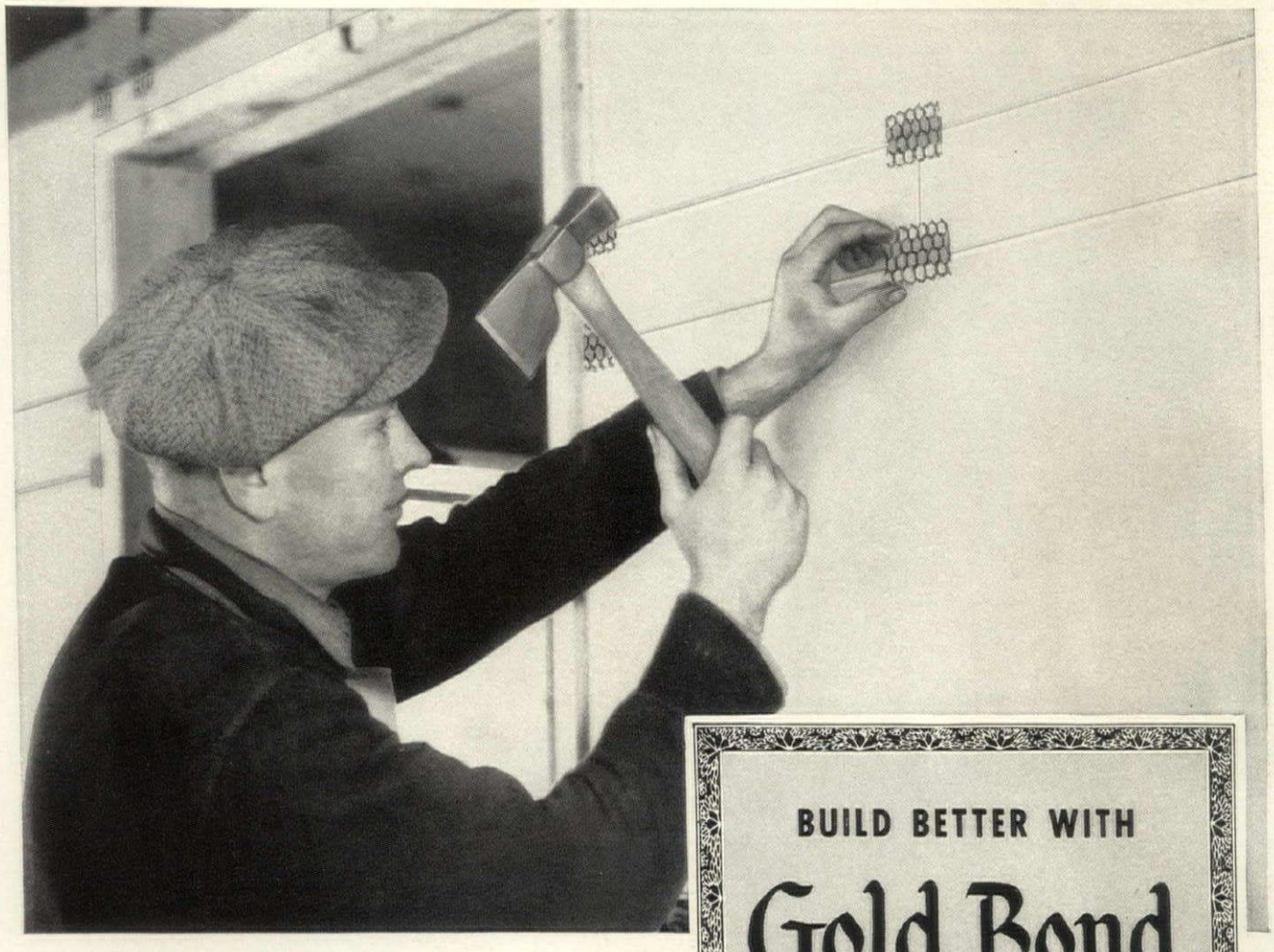
IT'S a simple thing. Just a nail, a strip of felt, and a square of metal lath. But until Gold Bond research engineers developed the patented "Floating Wall" nail, plaster walls and ceilings that would not crack were thought impossible. Now every architect and builder who uses the "Floating Wall" nail with Gold Bond gypsum lath and plaster eliminates nine-tenths of the causes for plaster cracking.

The Gold Bond "Floating Wall" System offers other distinct advantages, too. It provides effective reduction of room-to-room noise, and complete fire-resistance. Yet the cost is so low this finer complete wall system can be used in everything from a deluxe apartment hotel to the most modest country cottage.

This exclusive Gold Bond development is additional proof that you build *better with Gold Bond.* Gold Bond's active research and dependable service have made National Gypsum Company the largest exclusive wall and ceiling material manufacturer in the world, serving the entire country through 21 model plants. There are 150 *better* Gold Bond products for every type interior—including wallboard, plaster, lime, metal lath, wall paint, insulation and sound control materials.

More than 300 trained Gold Bond representatives are at your service—and when you specify Gold Bond exclusively, National Gypsum Company stands squarely behind the complete wall and ceiling job.

Consult the Gold Bond Section of Sweet's or write today for detailed specifications on the "Floating Wall" and other Gold Bond Wall Systems. NATIONAL GYPSUM COMPANY, BUFFALO, NEW YORK.



NO SPECIAL EQUIPMENT IS NEEDED TO APPLY GOLD BOND FLOATING WALLS. Any good lather can drive the patented nails between the panels of gypsum lath—leaving plaster base free from rigid attachment to framing. Plastering is done in the usual manner. In spite of these advantages the only extra cost is the price of the nails.

BUILD BETTER WITH

Gold Bond

Everything - for walls & ceilings

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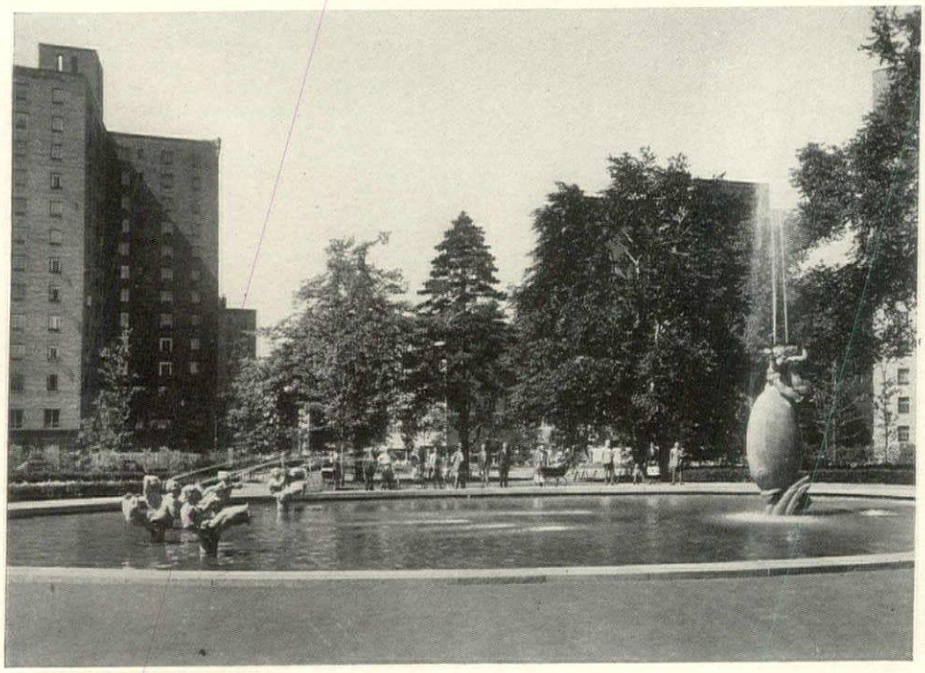
FORUM OF EVENTS

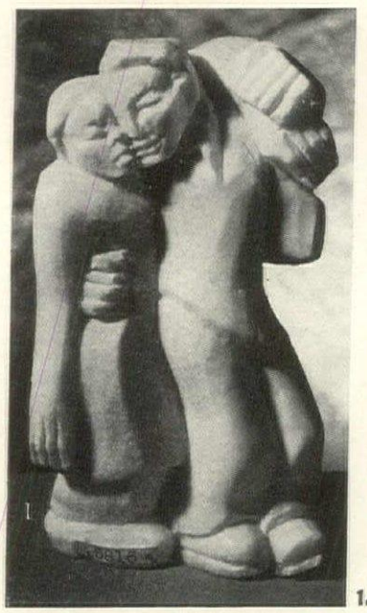


Photos, Courtesy of Metropolitan Life Ins. Co.

SCULPTURE

The handmaiden of architecture made last month's news columns in three ways: as an adjunct of investment housing, as a super-successful promotional stunt for a common household necessity, and as new subject matter for the burgeoning television industry. In the oval pool at the focal center of their nearly finished 12,200 family development in the Bronx—Parkchester—officials of the Metropolitan Life Insurance Co. planted a playful bronze group (above) of spouting water urchins astride a plunging fish, work of 34-year-old Raymond Barger. Exhibited in New York were the winners (left) in the seventeenth annual $2,200 contest for soap sculpture, ranging from the socially significant grand prize winner, "Flight from Foreign" (as awkward as its title), through the romantic to the amusing and satirical. And at the august Metropolitan, Gilbert Seldes, CBS director of television programs, began a series of telecasts (below) of the Museum's huge collection designed to "bring art to the masses."

Courtesy, Metropolitan Museum of Art



1.

2.

3.

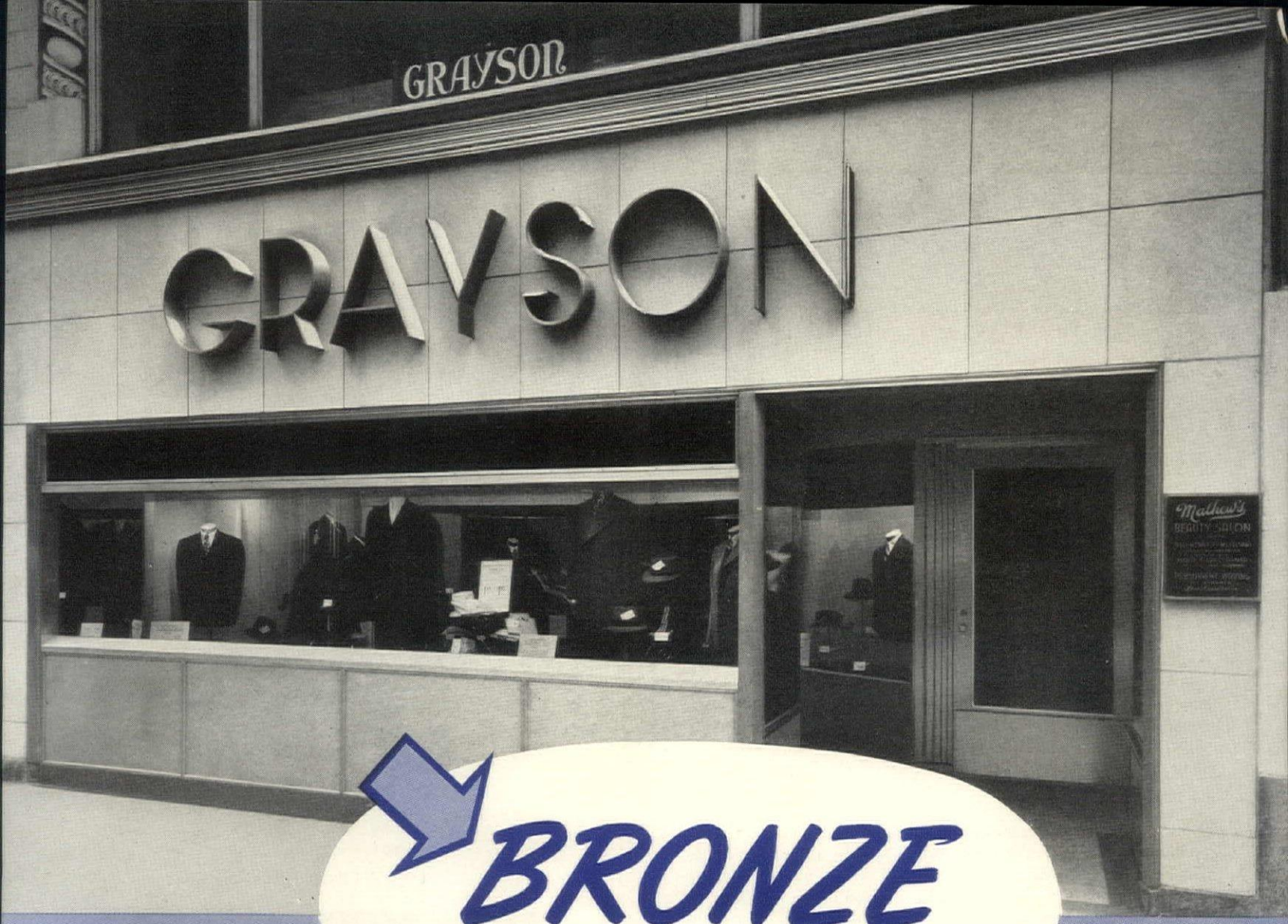
Arthur S. Siegel Photos

4.

1. Grand prize, Advanced Amateur Class, Edward Anthony, Detroit, Mich. 2. Mention, William Goldstein, Bronx, N. Y. 3. Mention, William G. Trimble, New Castle, Pa. 4. Mention, James Parr, Dorchester, Mass. 5. First prize, Senior Class, Vincent De Palma, Roxbury, Mass.

5.

(Continued on page 12)



BRONZE

C. F. Rosborg, Arch.

FOR PERMANENCE

Long famous for beauty, dependability and lifetime service, bronze has again become one of the most popular metals for store front members. Fortunately, too—for this durable metal lends an air of richness and permanence that means increased sales and prestige to any establishment.

Equally important, Kawneer bronze members offer many possibilities for distinctive store front design. And, when Kawneer Rolled Construction (with fully resilient sash) is used throughout, architect and contractor can safely assure the owner low maintenance, and trouble-free service.

Get latest data from the Kawneer distributor, from SWEETS, or by writing THE KAWNEER COMPANY, NILES, MICH.

★ *NEW FULL-SIZE DETAILS on Kawneer Rolled Construction—simplified for present day requirements. Write for your copy today.*

IT'S EASY TO DESIGN AND INSTALL

Kawneer STORE FRONTS

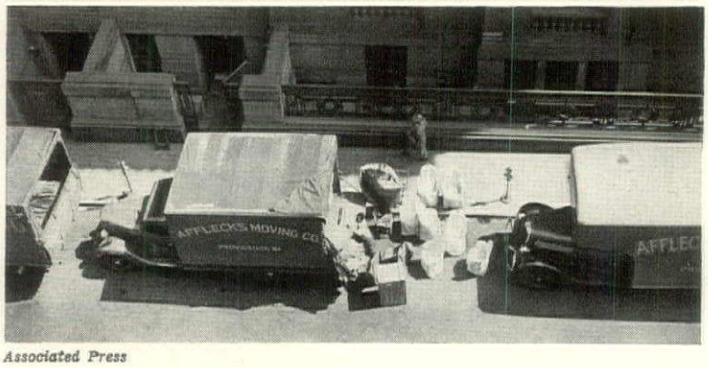
Brown Bros.

LAST VANDERBILT LEAVES 5TH AVE.

Six-forty Fifth Avenue (above), one of the three remaining private dwellings on Fifth Avenue between 34th and 59th Streets, and one of the grandest of New York's mansions in the grand manner, has finally succumbed to the city tax assessor (valuation, $2,400,000, taxes $197 per day) will be torn down in the near future. Purchased by the English Astor family, the site, which adjoins Rockefeller Center on the north, will probably be used for a single-story store building. Built by the grandfather of the present Cornelius Vanderbilt, William H., in 1879, the house was originally one of a pair designed by Herter Brothers (above, right), and was modernized by Horace Trumbauer in 1916. Opened to the public at $20 a couple for the USO June 4, it attracted 1,800 guests (below) decked in $300 million worth of jewels. Mrs. Vanderbilt's personal effects had previously been moved (3 vans, 2 trips) to her estate in Newport, R. I. What will become of the bronze vestibule doors, $20,000 reproductions of Ghiberti doors in the Baptistry, Florence, has not been announced.

Acme

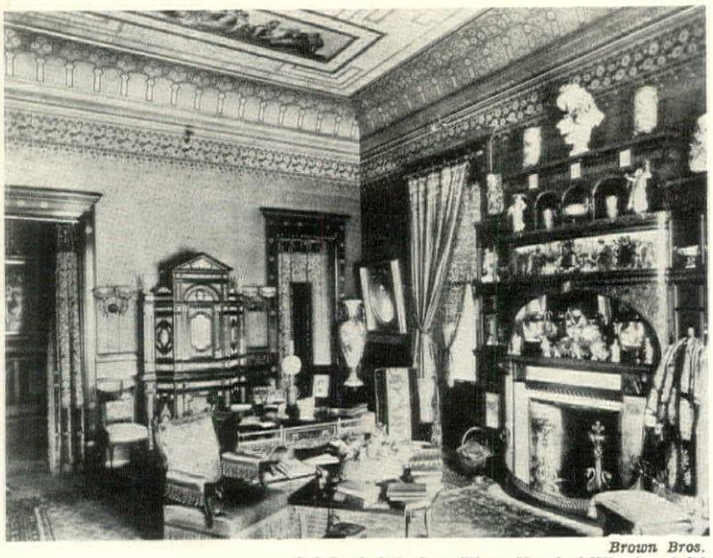
Cornelius I. Associated Press



Associated Press

Culver Service

Original design by Herter Bros.



Brown Bros.

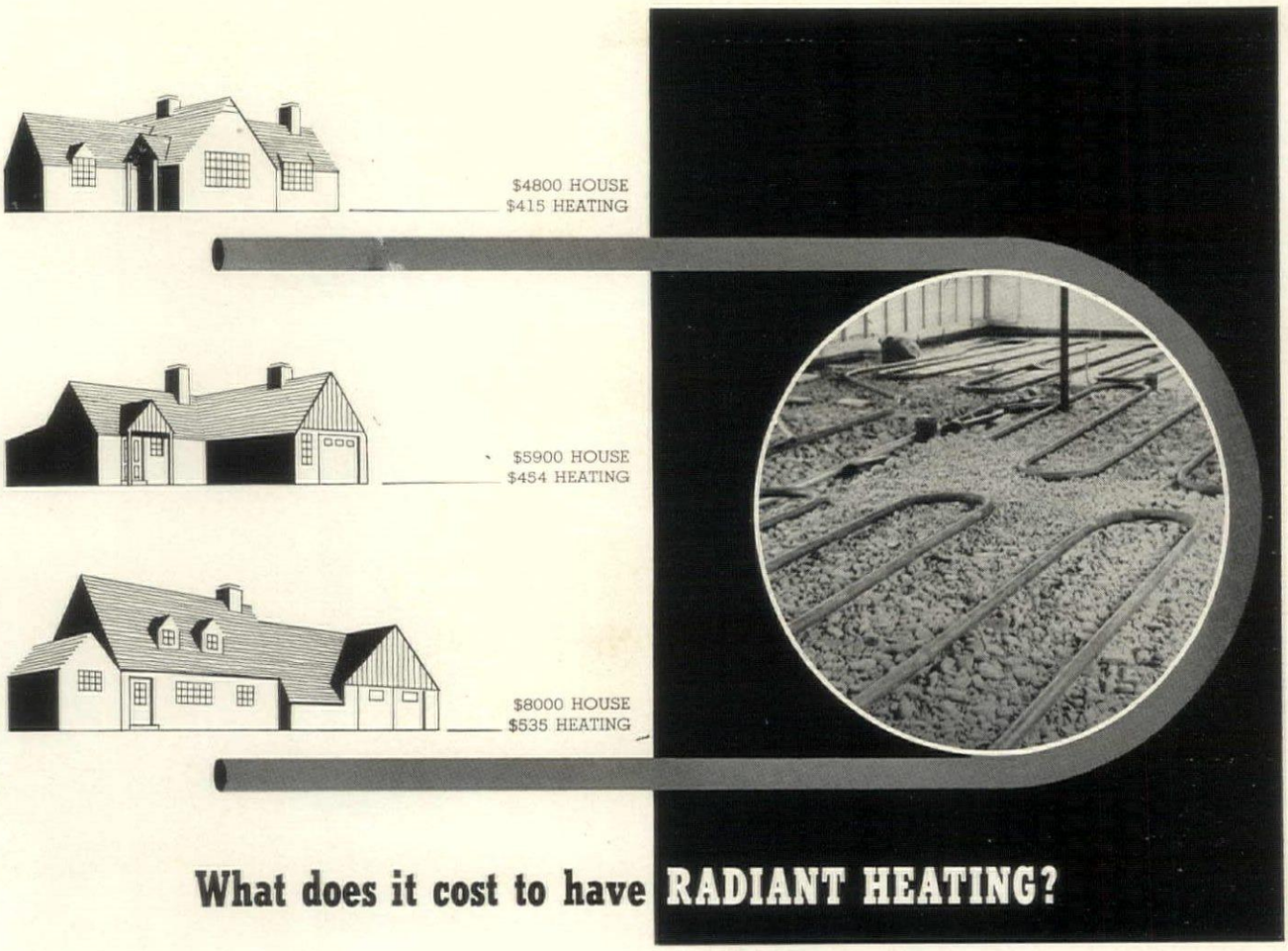
Original interior (Mrs. Vanderbilt's boudoir)

Culver Service

"Modernized," 1916

Culver Service

(Continued on page 14)



What does it cost to have RADIANT HEATING?

here are some specific answers

The increasing number of radiant heating installations has now built up a sufficient volume of price information to provide a practical gauge of the probable cost of new projects. The three homes illustrated are from a group of eight erected during 1940 in a mid-western city. All are equipped with radiant heating. The price range was from $4800 to $8000, and proportionate heating costs are suggested by the representative examples cited.

FIVE ROOM, $4800. Cost of heating plant with wrought iron floor coils—$415. This home was FHA financed, and is heated with a gas boiler. Monthly gas bills run about $14.00 during the cold weather. The occupants "like radiant heating very much."

FIVE ROOM, $5900. Cost of heating plant with wrought iron floor coils—$454. Three-ply parquet-type floor glued to fibre-board backing and set in mastic cement was laid over the concrete topping that covers the coils. A gas-fired boiler is used. The heating system has been very satisfactory to the owners, and they have had no trouble at all in maintaining comfortable conditions.

SIX ROOM, $8000. Cost of heating plant with wrought iron floor coils—$535. This home has 1144 feet of floor area. Floor coils are 1¼" pipe, 30" on centers. Rugs are used, except on the strip of floor near the walls, and an oil fired boiler provides the heat. The owner has not had an opportunity to observe the operation throughout an entire winter, but is very much impressed with the possibilities.

The flexibility of radiant heating (it can be installed alone or supplemented with conventional heating units), its simplicity of construction, its economy in first and operating cost, and its comfort qualities, have been confirmed by actual experience in many installations. For *sustained* savings and satisfaction, careful selection of piping material is essential. The pipe must have a combination of corrosion resistance, proper thermal properties, and ease of fabrication. Byers Wrought Iron meets these triple requirements to an unusual degree. For a helpful digest of information on the design, installation, and characteristics of radiant heating, ask for our bulletin, "Byers Wrought Iron for Radiant Heating Installations."

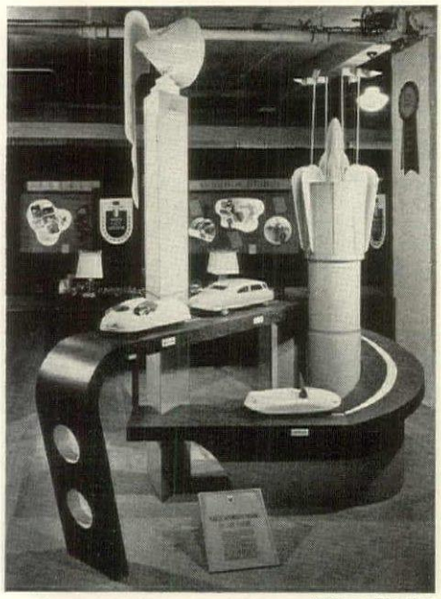
A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

BYERS WROUGHT IRON

FOR EXTRA SERVICE
IN CORROSIVE APPLICATIONS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

FORUM OF EVENTS



Modern Plastics

Touring exhibit. America's Modern Plastics Exposition, composed entirely of winners in the recent Modern Plastics competition, is currently appearing in large department stores and civic centers from coast to coast. Designed to bring directly to the consumer a comprehension of what plastics are and how they are made, it includes model molding machines in actual operation. Composed of standardized shadow-box display units 4 ft. by 8 ft., 17 in. deep, it is easily transported and assembled.

Press Assn.

Press Assn.

Historic Washington Market, in business in downtown New York under various names and in various structures since 1771, has had its 19th Century ornamental glass, iron, and terra cotta replaced by mid-20th Century porcelain enamel steel, projected windows, and skylights, looks good for another fifty years before another major remodeling job will be necessary. Work was done by WPA.

Architectural wedding. When Anne Westbrook Gould, daughter of the late Carl F. Gould, Seattle architect and designer of the University of Washington, married John Henry Hauberg, Jr., decorations were in the best architectural tradition. An architect in her own right, Mrs. Hauberg was assisted in working out the decorations by her architect-brother, Carl F., Jr. and students from the University School of Architecture. Result: two-thirds of the flowers were ruled out, church was lit from the outside except for candles set in auger-holes in pine boards.

Acme

Mobile buildings, successful and unsuccessful, illustrated by two of the month's news-pictures. Left is an arc welded, all steel radio station built by R. G. Le Tourneau going into place at Toccoa, Ga. Right shows what happened when Architect Walter K. Pleuthner of Scarsdale, N. Y. bought a model house from the Westchester Lighting Co., cut it into three pieces, and attempted to move it to his own lot about a mile from its original location. The first section was shifted successfully, but the second and largest section toppled in the ditch after striking the branch of a sturdy tree on a steep grade. "These wooden houses are all the better for a little stress and strain," said Mr. Pleuthner, who had part of the slate roof removed to facilitate righting the house again, "You can see it was a well-built job."

(Continued on page 72)

PENBERTHY INJECTOR COMPANY

Manufacturers of QUALITY PRODUCTS *Since 1886*
DETROIT, MICHIGAN • *Canadian Plant,* Windsor, Ont.

How often should homes be painted?

Ralph Huszagh, Architect

THAT'S a little like asking how high is up. But not quite. Architects, builders and maintenance men know that homes must be painted often enough to keep them new-looking. Otherwise they will be hard to rent or sell.

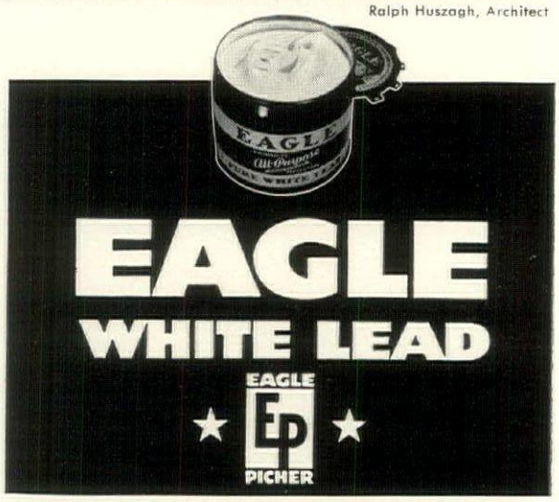
Naturally, a paint that wears supremely well can cut paint maintenance costs drastically. Such a paint is Eagle White Lead mixed with linseed oil. This paint brushes out into a tough, elastic film that protects against cracking and scaling. It weathers slowly and evenly leaving a perfect surface for low-cost repainting.

No wonder Eagle White Lead has been protecting and beautifying American homes since 1843!

Do you specify two-coat paint jobs?

If you do, you'll want the new booklet, "Quick Facts About Two-Coat Painting." Write for your copy.

THE EAGLE-PICHER LEAD COMPANY · CINCINNATI, OHIO



when it comes to choosing a Home – THE "LITTLE WOMAN" BECOMES THE BIG BOSS

and Every Woman Will Vote for Multi-breaker Convenience and Protection

Show any woman two houses of comparable appearance and quality—one equipped with the Square D Multi-breaker; the other with ordinary switch and fuses. Ask which house she prefers. Her answer is the best reason we can think of, why more and more architects are specifying Multi-breakers for every house they design—are merchandising them to every prospective customer.

Square D Multi-breakers cost little, if any, more than the fusible equipment they replace. Ask your electrical contractor for the complete story. Or write for Bulletin CA-4000.

See our Catalog in SWEET'S 23/11

The Multi-breaker eliminates fuses completely. When a short circuit or dangerous overload occurs, the circuit is cut off automatically. A simple movement of the circuit breaker lever restores current after the cause of the overload has been removed. No delay. Nothing to replace.

The Multi-breaker is neat and compact—can be installed in any convenient wall. One on each floor ends long trips to restore current.

SQUARE D COMPANY

DETROIT – MILWAUKEE – LOS ANGELES

IN CANADA: SQUARE D COMPANY CANADA LIMITED, TORONTO, ONTARIO

Space differs  *so*  *do people*

CRANE KITCHEN UNITS FIT ALL

TWO things govern the architect in planning a kitchen: the size and shape of the space available, and the individual desires of the client.

With Crane kitchen units, you can easily satisfy both spatial and human requirements. These sink and cabinet units, arranged in individual groups, save the architect's time in planning adequate and livable kitchens to meet every requirement.

In specifying a Crane kitchen unit, you are assured of three things: First, storage space will be adequate, but not wasteful. Second, your client will have the latest scientific features in sink and cabinets. Third, the Crane sink, regardless of type, will have the quality and convenience for which Crane is famous . . . the acid-resisting, porcelain enameled cast iron construction which stands long wear.

At your request, we'll gladly send complete information about Crane kitchen units.

APPROVED BY QUALITY TESTED STEEL KITCHEN CABINET INSTITUTE

Crane kitchen cabinets bear the quality seal of approval of the Steel Kitchen Cabinet Institute.

CRANE

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

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

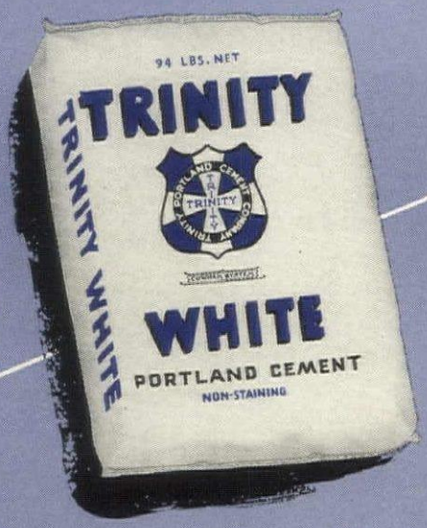
NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

THE PHOTOMETER SAYS "TRINITY WHITE IS WHITEST"

To the untrained eye there may appear to be little difference between various brands of white portland cement. But to the sensitive eye of the Zeiss Pulfric Photometer there *is* a difference—to it Trinity White Portland Cement is the whitest of white portland cements.

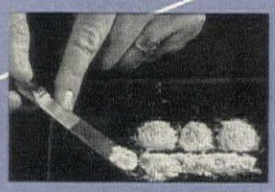
To the architect who wants a stucco that seems to glow from within—a terrazzo where the natural beauty of the colorful marble granules is given full play—cast stone that is radiantly alive—the answer is Trinity White.

For Trinity White is not only "the whitest white." It has a scarcely discernible rubescence that gives any product made from it warmth and life. TRINITY PORTLAND CEMENT CO., Republic Bank Bldg., Dallas, Texas.



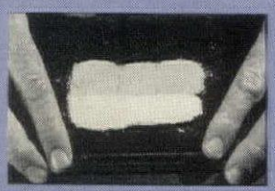
FREE—*A Sample of Trinity White!*
So that you can prove to yourself that Trinity White is "the whitest white" portland cement, we'll gladly send you, free of charge, a full quart can of this *new* white cement. The coupon below will bring it to you. Send for it today.

PROVE TO YOURSELF THAT TRINITY WHITE IS "THE WHITEST WHITE" WITH THIS SIMPLE TEST

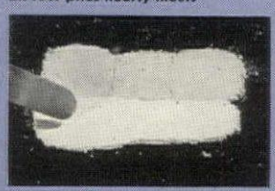


Make small pyramidal piles of the 3 other "white" cements side by side. Parallel them with a ridge of Trinity White.

Flatten them with a spatula or letter opener so that each pile is approximately 3/8" thick and the edges of all four piles nearly meet.



Place a piece of smooth, dry glass lightly on top of the dry samples to obtain complete contact with entire area of samples.



In good light, compare colors of samples. Note the exceptional whiteness of Trinity and its faint, hardly discernible rubescence.

TRINITY WHITE
PORTLAND CEMENT
PLAIN OR WATERPROOFED

Trinity Portland Cement Co.
Dept. AF-9, 111 West Monroe St., Chicago, Ill.

Send me, free of charge, a sample of Trinity White Portland Cement—so that I can prove to myself it is "the whitest white." I am an ☐ architect ☐ draftsman ☐ contractor ☐ dealer

Name _____

Address _____

City _____ *State* _____

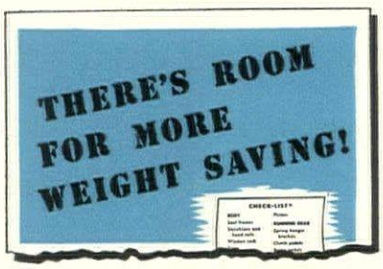
6 ALUMINUM, DEFENSE, AND YOU

DEFENSE ISN'T JUST AIRPLANES!

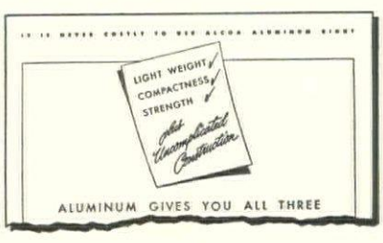
They are first in the hearts of the people and first in the headlines. But Defense is also ten thousand other military necessities, clear across the board, and Alcoa Aluminum goes all the way across with it.

Sheets and shapes and wire; castings and extrusions and forgings, nuts and bolts and tubing and rivets; all these and more forms of Alcoa Aluminum are being chewed up by scores of industries in military applications as varied as the peacetime applications of aluminum used to be.

AND FOR THE SAME REASONS.



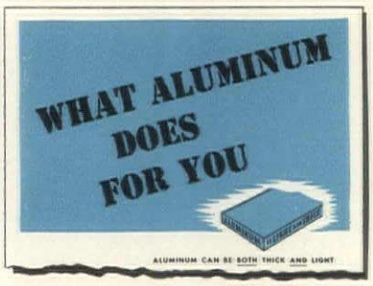
Before Defense, one of our advertisements to civilians started off with the headline reproduced at the right. A whole volume of economic and engineering common sense was distilled into those six words. Now, Defense is taking all the aluminum we can make because that headline is a fact.



THIS IS WHAT we were saying, *Before Defense,* to prospective buyers of Diesel engines. A great new industry was feel-

ing its way. Properly, it was weighing the advantages of using Alcoa Aluminum. But Defense had to have those advantages right away, and civilian users of Diesels now have to wait for their aluminum.

THE FIVE WORDS in the headline of this advertisement (B.D.) introduced straight talk about the fundamentals of



weight saving with Alcoa Aluminum: vital reasons we thought (and think) that everybody should know. Defense hasn't time to explain that these are precisely its reasons for using aluminum; it just takes all it can get.

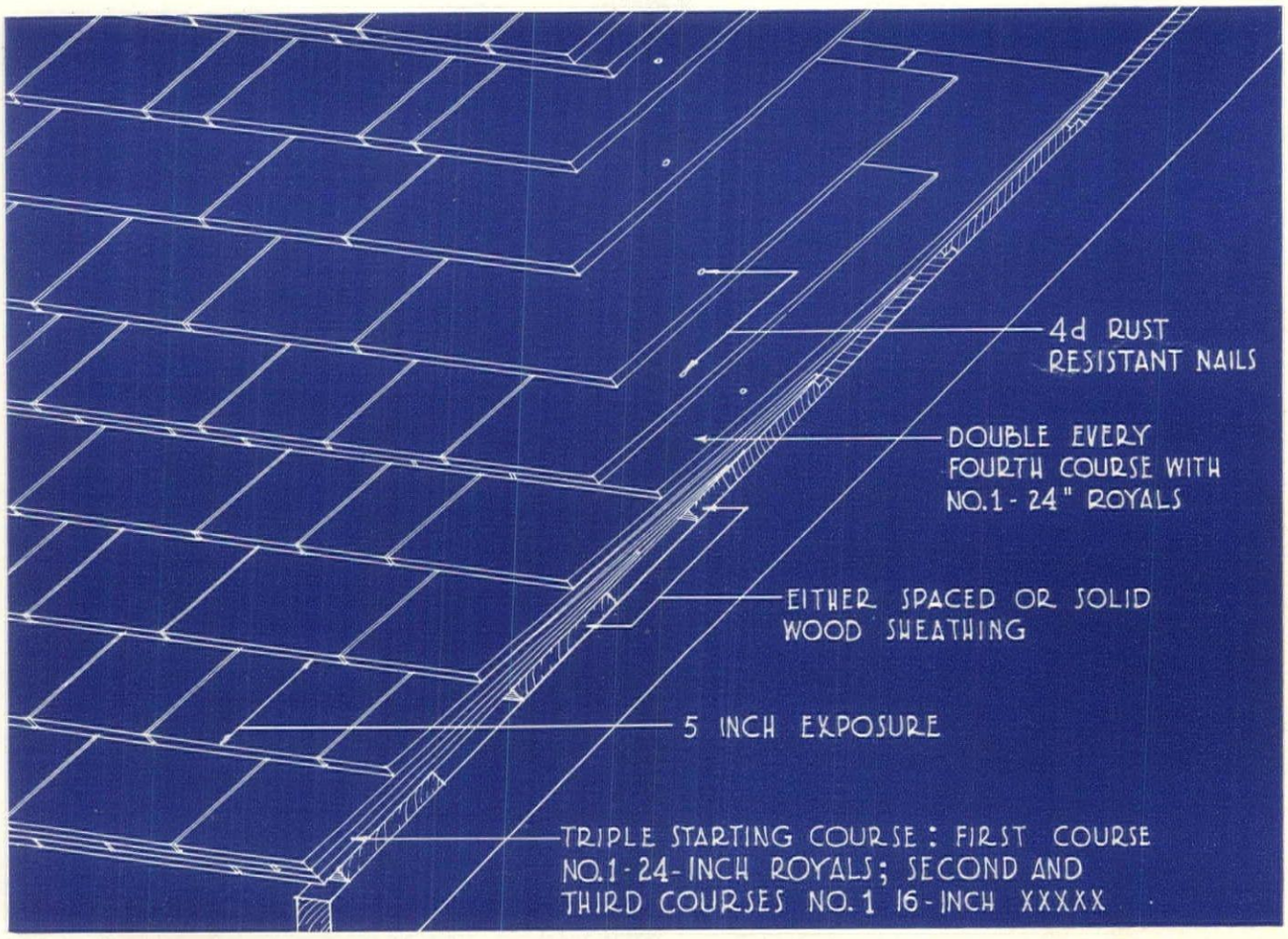
LAST MONTH DEFENSE TOOK over 50 million pounds of Alcoa Aluminum, for the simple and clear reason that certain advantages of aluminum are fundamental.

When the emergency is over, Alcoa is going to be talking the same simple language, selling the same fundamentals. And it will have still better techniques and new uses of Alloys of Alcoa Aluminum for you to put to work.

RIGHT NOW, we are in high gear for defense; our foot is on the floor board; we intend to keep it there for the duration.

ALUMINUM COMPANY OF AMERICA

ALCOA ALUMINUM ★



A Red Cedar Shingle Four-Ply Roof

FOR all practical purposes, a standard roof of Red Cedar Shingles, properly applied with rust resistant nails and providing three layers of shingles, is as good a roof as money can buy. However, the designer of this Four-Ply Roof wanted to give "that something extra" to both the appearance and the sturdiness of his roof. He called it the Four-Ply Roof, and by doubling *only every fourth course* of 16" Shingles with a course of 24" Royals he obtained four thicknesses throughout.

This roof is artistic as well as practical, for the serrated appearance of the doubled courses proves to be most attractive.

CONSTRUCTION BLUEPRINTS FREE ON REQUEST

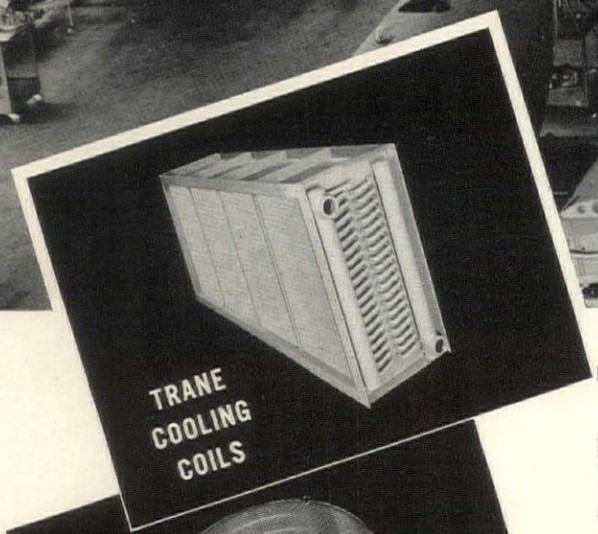
We will be glad to send you a copy of the authentic Certigrade Handbook, together with a convenient envelope of architectural blueprints of various types of Shingle application, including the *Standard Roof, Double-coursing, Over-roofing, Four-ply Roof* and *Staggered Roof*. The Handbook gives complete working drawings and information on the varied uses of Red Cedar Shingles. Address the Red Cedar Shingle Bureau, Seattle, Wash., or Vancouver, B. C., Canada.

CERTIGRADE
Red Cedar 

Shingles

SOLD EVERYWHERE BY LUMBER DEALERS

TRANE *TURNS ON THE HEAT FOR Lockheed*



THERE are 900,000 square feet of Trane heated manufacturing space in the new $7,000,000 plant of the Vega Airplane Company, affiliate of Lockheed Aircraft Corporation in Burbank, California. Over 183 Trane Unit Heaters create comfortable conditions for workers busy making one of the most important items in the national defense picture—airplanes! In addition, the vital engineering, experimental and office sections of this magnificent plant are air conditioned with Trane Cooling Coils, while a Trane Self-Contained Air Conditioner takes care of the hospital.

Trane is big enough, has the field representation and the manufacturing facilities to assist you in the *prompt* solution of your heating, cooling and air conditioning problem—whether it be large or small, for national defense or for all types of normal peacetime construction. The nation's number one line at your service.

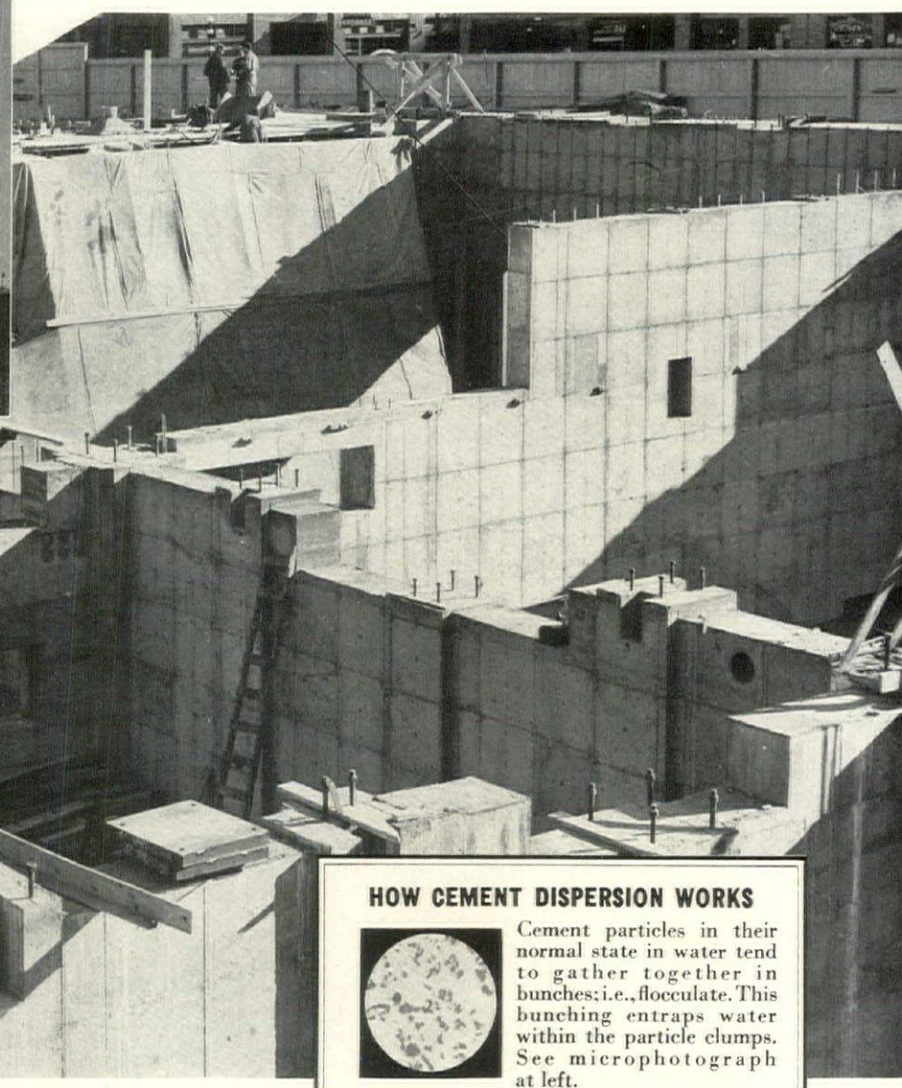
THE TRANE COMPANY

LA CROSSE, (AIR) WISCONSIN

Also TRANE COMPANY OF CANADA, LTD. • TORONTO, ONTARIO

HEATING • COOLING • AIR CONDITIONING EQUIPMENT FROM 85 OFFICES

Pozzolith used throughout all concrete and Omicron Mortarproofing for all masonry mortar in the Bankers Life Home Office Building, Des Moines, Iowa. Architect — Tinsley, McBroom & Higgins, Des Moines, Iowa. Contractor — Arthur H. Neumann Bros. & Co., Inc., Des Moines, Iowa.



LEADING ARCHITECTS EMPLOY

CEMENT DISPERSION

TO INSURE BEST RESULTS IN CONCRETE AND MORTAR

Recognizing the great advantages of Cement Dispersion, Tinsley, McBroom & Higgins used POZZOLITH for all concrete and OMICRON MORTARPROOFING for all masonry mortar throughout this notable building. Here's what they say about results achieved:

"In addition to the permanent improvement in the quality of the concrete through the use of less water, contractors advise us that they are able to place Pozzolith concrete more easily and obtain a better appearing job.

"Omicron Mortarproofing was also used, and we found that the ideal workability and reduced shrinkage of 'O. M.' mortar, combined with its strength and weather resisting qualities was the solution to a problem which has been a source of considerable grief to architects and contractors."

TECHNOLOGIC ACHIEVEMENT THAT BENEFITS ALL CONCRETE AND MASONRY MORTAR

In 1930 the Master Builders Research Labortories discovered a cement dispersing agent which appeared to have great promise for the construction industry. After 10 years devoted to introducing this dispersing principle through the medium of POZZOLITH for concrete and OMICRON MORTARPROOFING for masonry mortar it has *proved* to be an important construction aid. Tinsley, McBroom & Higgins are representative of the many leading architects who now recognize in this technologic achievement another important aid in their profession.

SPEED AND ECONOMY

On giant defense projects and small and large construction of all kinds, POZZOLITH is producing better concrete and OMICRON MORTARPROOFING tighter masonry walls. In addition to the five advantages listed at the right, both of these products speed up the job and effect important savings.

The complete story of Cement Dispersion, POZZOLITH and OMICRON MORTARPROOFING will be sent on request.

THE MASTER BUILDERS COMPANY

CLEVELAND, OHIO **TORONTO, CANADA**

HOW CEMENT DISPERSION WORKS

Cement particles in their normal state in water tend to gather together in bunches; i.e., flocculate. This bunching entraps water within the particle clumps. See microphotograph at left.

UNDISPERSED

With Master Builders' dispersing agent these bunches are broken up into individual cement particles distributed throughout the water; i.e., dispersed or deflocculated. See microphotograph at right.

DISPERSED

This dispersion makes the cement usable to its full efficiency; all the cement surface is made available for hydration and all the water for lubrication of the mix. (Water held within the particle clumps is released).

FIVE ADVANTAGES

As a result of adding Pozzolith and Omicron Mortarproofing to cement mixes there occur these five advantages: —

1. **Durability increased 50% or more.**
2. **High Early Strength — 20% or more increase in compressive strength at all ages.**
3. **Water reduction, up to 20% — slump increased 150% or more for given water ratio.**
4. **Increased water-tightness — 20% or more reduction in absorption and permeability.**
5. **Reduced shrinkage, bleeding and segregation.**

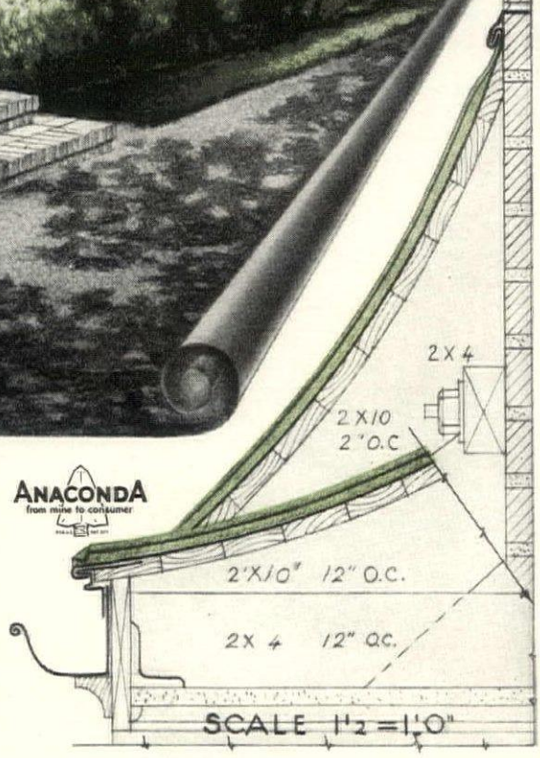
Other Jobs Designed by Tinsley, McBroom & Higgins where POZZOLITH and OMICRON MORTARPROOFING were used:—

Iowa State College, Women's Gymnasium Building, Ames, Iowa.
Senior High School, Ames, Iowa.
Municipal Hospital, Clarinda, Iowa.
United Benefit Life Insurance Office Building, Omaha, Nebraska.

MASTER BUILDERS

TYPIFYING the manner standing seam sheet copper roofing may be used over multiple dwelling entrances to impart warmth and color . . . and to accentuate the structure's individuality.

ANACONDA
from mine to consumer

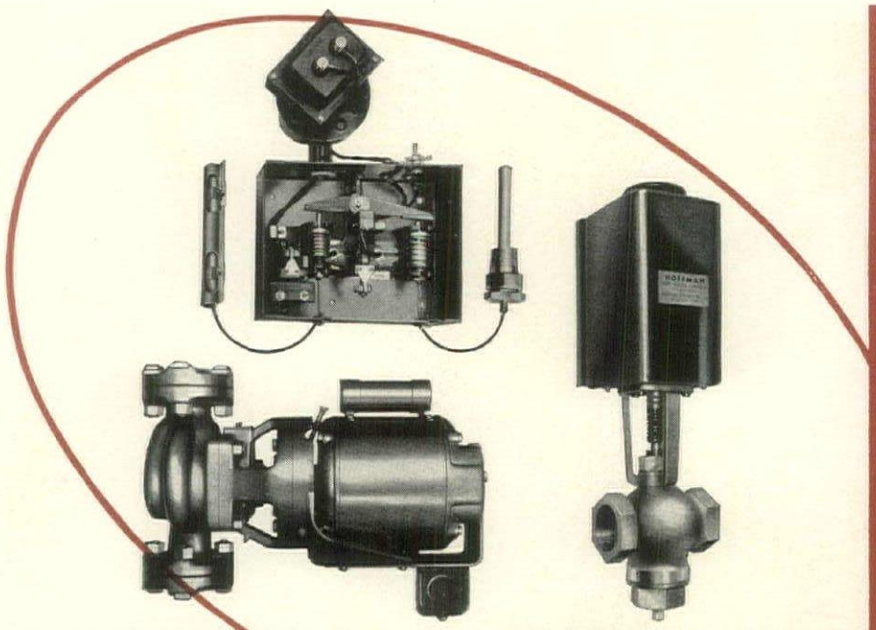


Anaconda Copper

THE AMERICAN BRASS COMPANY, General Offices: Waterbury, Connecticut

Subsidiary of Anaconda Copper Mining Company • In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.

4166



CONTINUOUS CIRCULATION

FORCED HOT WATER HEAT

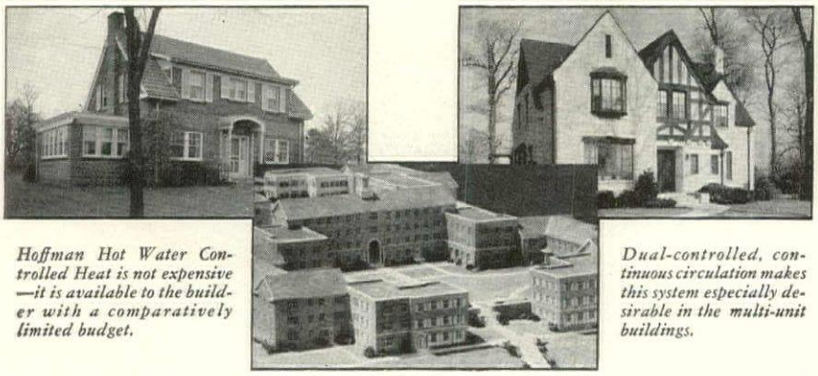
PAYS ITS OWN WAY

For the first time, *positive, automatic modulation of the heat supply to match any and all weather conditions!* An outside control, in conjunction with a bulb in the hot water line, *automatically* selects the water temperature necessary to keep the house at any predetermined degree. For new or modernized residences, apartments and factories, Hoffman Hot Water Controlled Heat offers an entirely new standard of comfort and convenience. It provides accurate control of zoned installations, assuring a distribution of heat in direct relation to either personal temperature preference or to the functional activities of the building.

Properly designed, Hoffman Hot Water Controlled Heat is no more expensive than the conventional forced hot water system on many installations. *All the marvelous control of temperature afforded by this continuously circulated, dual-controlled system is available at no extra cost!*

This is why. The system can be designed for a 240 BTU heat emission (the same as steam) thereby assuring minimum radiator sizes. Accurate figuring of radiation by the "infiltration method," further cuts radiation costs by as much as 50%. Additional savings can be made in boiler and automatic firing unit sizes because no pick-up allowance need be made.

Complete design and installation data is given in the Hoffman Hot Water Controlled Heat Manual. Write for a copy today. Hoffman Specialty Co., Inc., Dept. AF-9, Waterbury, Conn.



Hoffman Hot Water Controlled Heat is not expensive—it is available to the builder with a comparatively limited budget.

Dual-controlled, continuous circulation makes this system especially desirable in the multi-unit buildings.

SAVINGS MADE HERE PAY THE COST OF HOFFMAN CONTROLS

SMALLER RADIATORS

Radiator sizes and costs can be materially reduced by using the modern "infiltration" rather than the "air change" method of figuring. This more accurate method of calculation prevents over-sizing and is fully explained in Hoffman's Calculation Guide, available upon request.

SMALLER BOILERS

Maintenance of a constant boiler water temperature enables the boiler to handle any load within its capacity at a moment's notice. It is unnecessary to make any allowance for boiler pick-up or piping heat losses.

SMALLER AUTOMATIC FIRING UNITS

A constant boiler water temperature also eliminates sudden, heavy demands on the firing unit. A smaller size can be used, therefore, than on the ordinary system.

NATIONALLY ADVERTISED

The story of Hoffman Hot Water Controlled Heat is presented to the public in a regular schedule of advertising in nationally circulated magazines.

HOFFMAN

Hoffman Valves, Traps, Pumps and Hot Water Specialties are sold everywhere by leading wholesalers of Heating and Plumbing equipment.

Hot Water

CONTROLLED HEAT

Your Client will say... "Many Thanks!"

Wouldn't even your hardest-to-please clients appreciate your saving one third of their fuel bills each year in their new homes? Certainly! And you can do it simply by specifying that homes be equipped completely with Window Conditioning—double Libbey-Owens-Ford Glass in windows and exterior doors.

Window Conditioning has been sponsored by Libbey-Owens-Ford for the last four years. This season, the idea has been backed by a national advertising campaign on Glass Designed for Happiness. The advantages of double glass insulation have been put before nearly eight million families. That's 25 per cent of the nation's total—families in a position to build and afford architectural service.

Other glass features promoted in this activity and on which you will find a ready-made client acceptance include built-in mirrors, picture windows, Vitrolite baths and kitchens. Yes, there's a new appreciation of glass today—particularly of Libbey-Owens-Ford Glass Designed for Happiness. Libbey-Owens-Ford Glass Company, Dept. AF-941, Nicholas Building, Toledo, Ohio.

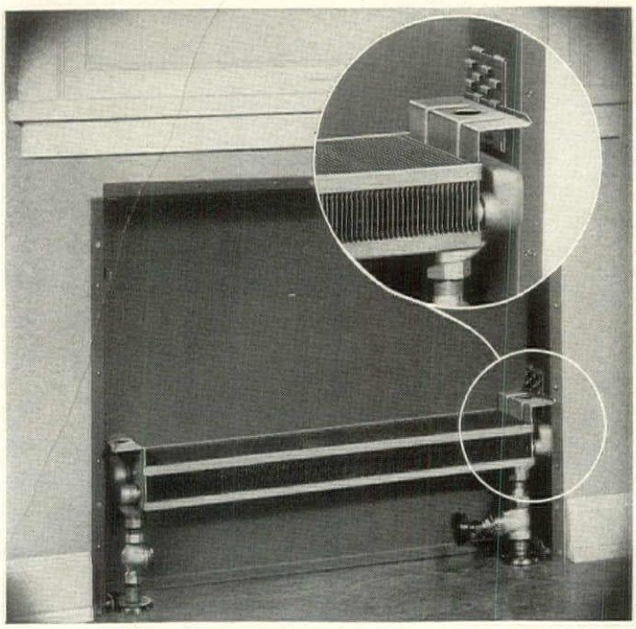
"SAVED $38 ON FUEL last winter." Many are the statements, like this one of a family in Illinois, to prove definitely the economy of Window Conditioning with L·O·F Quality Glass.

ALL TYPES OF WINDOWS can be Window Conditioned without spoiling their beauty. In the large front window of this attractive home, storm window muntins match original window design.

LIBBEY·OWENS·FORD *Glass* Designed for Happiness

MODINE MAKES

PERFORMANCE GAINS ALONG ENTIRE CONVECTOR LINE



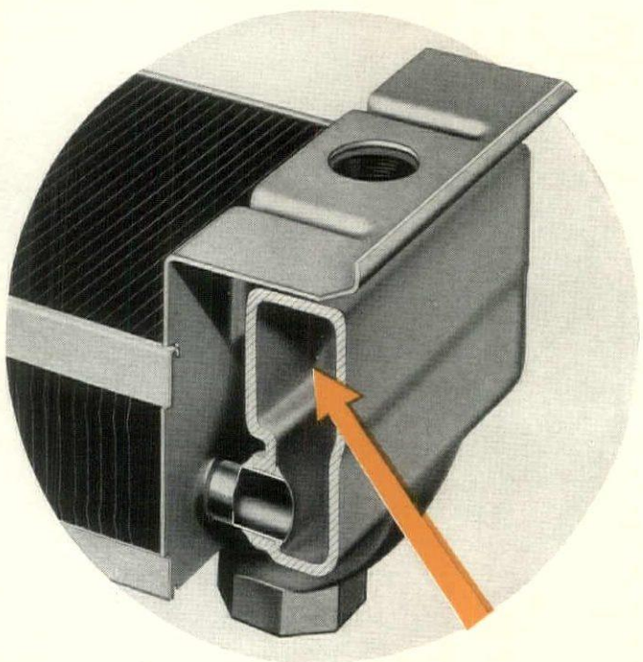
★ In keeping with today's fast tempo, Modine production is at top speed. And Modine designers and engineers have more than kept pace. In new convector developments, Modine is far ahead of the field—with a completely new line of convectors—with four separate and distinct types of heating units specifically designed to meet the requirements of the different types of hot water systems, and of steam systems. And an extraordinary combination of *plus-value* features—basically big improvements . . . . .

New Heating Unit Support Built Into Every Enclosure Cuts Installation Labor Costs

No tools and less time are needed to adjust Modine Convector heating units for pitch. Every enclosure has the new, built-in slotted supporting clips that receive the steel supporting brackets at both ends of the heating unit. Unit slides right into place, as pictured above. This design feature permits the heating unit to be installed at any one of *several different elevations and degrees of pitch.* And *nothing rests on the floor.* There are no legs or other supports to complicate installation or hinder cleaning of the floor. This new Modine feature not only simplifies installation; it substantially reduces labor costs.

Heating Unit Shipped in Enclosure . . . . Ready for Piping . . . . Saves Time

All Modine heating units are shipped in their steel enclosures—*ready for piping.* Held securely by the built-in supports, there's no chance of heating units being damaged in transit. Unit and its enclosure are "matched" at the factory; come to the job as a single assembled item. Less handling and hunting; much simpler and faster installation. An all-around saving in labor time. Another Modine feature that costs *you* no more.

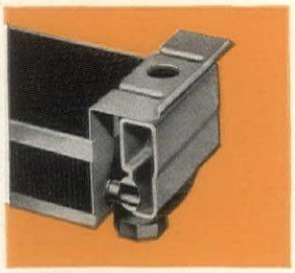


Built-In Air Chamber on Hot Water Heating Units Eliminates Accessory Equipment

Here is an important *new* development *exclusively Modine.* Every new Modine hot water type heating unit has a built-in air chamber. With its ½-in. vent tapping, it is an integral part of the return header. It is *not* a separate accessory, costing an extra 50¢ or more per unit. It does *not* have to be installed. It saves considerable in money, time and labor. Modine built-in air chambers cannot be lost in shipment or mislaid on the job to cause annoying and costly delays.

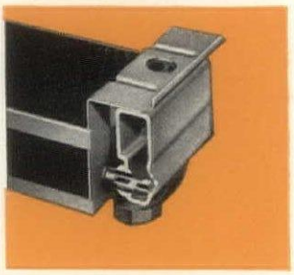
BIG ADVANCE!

Now 4 Types of Heating Units Tailor-Made for Different Systems



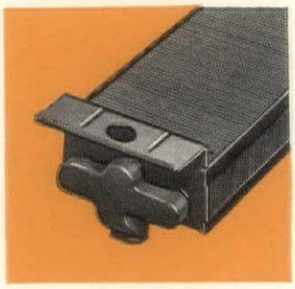
Hiflo FOR 1-PIPE AND GRAVITY HOT WATER

Large 5/8 in. O.D. tubes, free of internal ferrules and other restrictions, lower frictional resistance and induce high rate of water-flow. Built-in air chamber eliminates need for accessory air storage equipment.



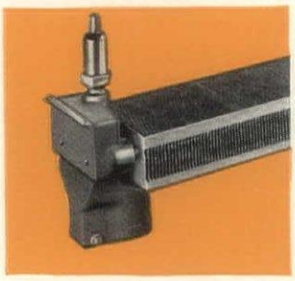
Turboflo FOR 2-PIPE FORCED HOT WATER

A turbulator in each tube breaks up film of cooled water on inside surface of tube . . . keeps hot water in constant contact with tube. Turbulator design is such that it will not trap air in the tubes (which causes air binding with resultant loss in capacity). Also has built-in air chamber.



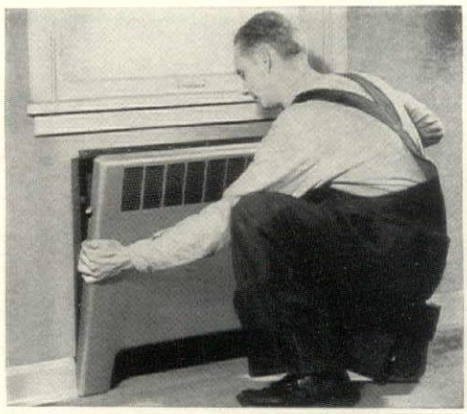
Standard FOR VAPOR AND VACUUM STEAM

has proved its sound design and accurate rating in thousands of installations. Full 5/8 in. O.D. tubes, with no internal ferrules or orifices, accelerate elimination of condensate. Has the metallic bonding of tubes to fins and the heavy steel corner strips which distinguish all Modine heating units.



Quiet-Seal FOR 1-PIPE STEAM

Developed for 1-pipe steam systems *exclusively*. Gives all economies without "troubles" of older systems. Built-in Water Seal permits free venting, prevents air-binding or waterlogging. Operates on one-way flow principle. Thousands in use are giving completely satisfactory and noiseless performance.



Only 30 Seconds and 2 Hands to Attach Enclosure Front

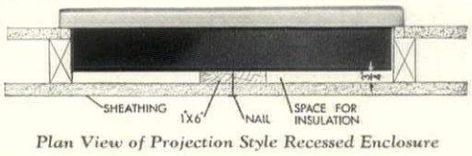
It takes only 30 seconds time . . . and no tools . . . to install the front of a Modine Convector enclosure. Any workman can do it . . . using only his two hands. The front is placed in position . . . two thumb catches snapped . . . and it's on! Another Modine feature . . . as ingenious as it is practical . . . and it means a clear saving of from 10 to 25 minutes' installation time. At today's hourly labor rates, that's a big money saving even on small jobs.

BONDERIZING . . . Assures Paint Retention on Enclosures

Every Modine enclosure is Parker-Bonderized at the Factory before being prime painted. Bonderizing *anchors the paint to the metal*, prevents moisture penetrating through paint film . . . protects against blistering and peeling. Any applied finish wears longer, keeps its fine appearance.

Now—Apply Insulation Easily . . . "On the Job"

—The new Modine recessed enclosure backs are so dimensioned that when recessed in a 2 x 4" stud-wall, there is a 3/4" space between sheathing and enclosure back. While this air space, being "dead," is a good insulator in itself, it permits the setting-in of fibre board sheathing *for additional insulation* on all Modine jobs.



Plan View of Projection Style Recessed Enclosure

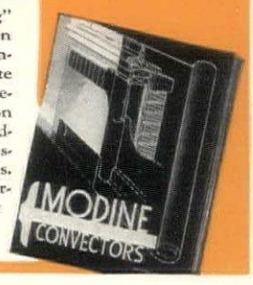
Look in your phone book for Modine representative's name—"Where to Buy It" section under Heating Apparatus.

modine *Convectors*

MODINE MANUFACTURING CO., 1736 RACINE ST., RACINE, WIS.

Get This NEW 32-Page BOOK For Practical Ideas

not a "selling catalog" but practical information on every phase of convector heating. Complete with capacity data, specifications, and pages on installation tips and modernization. Helpful illustrations and diagrams. A request on your letterhead brings it without charge.



PRATT & LAMBERT PAINT AND VARNISH

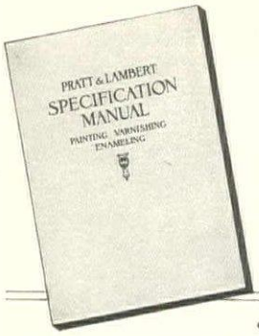
REGISTERED PL TRADE MARK

Photos, Hedrich-Blessing Studio
Courtesy of Norton Lasier Co.

TENNESSEE SUPREME COURT BUILDING, NASHVILLE
MARR & HOLMAN, Architects, Nashville · ROCK CITY CONSTRUCTION CO., General Contractors, Nashville · NASHVILLE DECORATING CO.

DESCRIBED as "one of the most beautiful buildings in the entire South," the Tennessee Supreme Court Building, Doric in design, is modern throughout, including air-conditioning. Tennessee marble was used on the exterior and interior. In contrast to the stately, polished marble, is the generous use of rich, black walnut paneling, further set off by the soft, painted wall borders and ceilings.

Included in the Pratt & Lambert Paint and Varnish used to enhance the architectural beauty of the interior were Tona-Wall (Flat Wall Finish) and "38" Preservative Varnish — rubbed. Maintenance of the decorative portions is therefore simplified, because these durable finishes are easily washed or cleaned and "38" Preservative Varnish mellows beautifully with the years. The Pratt & Lambert Architectural Service Department nearest you will gladly cooperate with you in achieving maximum decorative effects in any project, large or small.



PRATT & LAMBERT-INC., Paint & Varnish Makers
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• WRITE FOR THIS SIMPLIFIED, TIME-SAVING SPECIFICATION MANUAL •

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KOPPERS
THE INDUSTRY THAT SERVES ALL INDUSTRY

HOW TO BUILD COAL TAR PITCH AND FELT ROOFS

HOW WATER COOLED ROOFS AIR CONDITION WINDOWLESS FACTORIES

HOW PRESSURE-TREATED TIMBER CAN CUT CONSTRUCTION COSTS

HOW TO GET REAL DAMPPROOFING ACTION FROM PAINT

HOW TO TEST DEPTH OF PENETRATION IN PRESSURE-TREATED TIMBER

An Architect Looks At A Roof

Here's an architect looking at a roof. It's a roof on a building that he designed. His reputation is tied up in that building . . . every part of it . . . and he wants *the roof to last.*

It will last. It's a Koppers roof . . . of Koppers Coal Tar Pitch and Koppers Approved Tarred Felt.

Most of the records for long life and trouble-free service have been made by the built-up roofs of coal tar pitch. Records of 20, 30 and even 40 years are not uncommon because of the remarkable resistance of coal tar pitch to the disintegrating effects of sunlight, wind and water.

SPECIFY KOPPERS FOR ROOFING AND WATERPROOFING

Koppers Company ***Tar and Chemical Division*** **Pittsburgh, Pa.**

use **KOPPERS** *products*

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Please send me copies of these folders:

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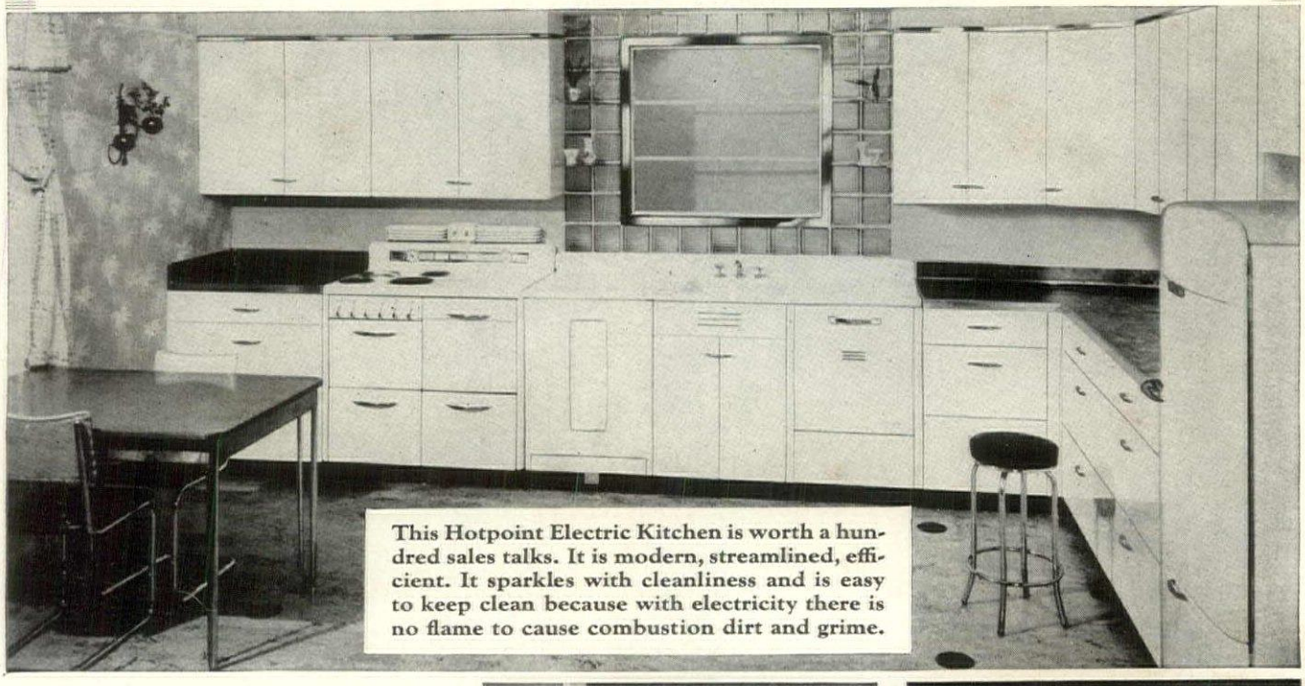
- ☐ "Waterproofing and Dampproofing Waterworks"
- ☐ "Waterproofing and Gasproofing Sewage Disposal Plants"
- ☐ "Where to Use Pressure-Treated Timber"
- ☐ "How to Measure Depth of Penetration in Pressure-treated Timber"
- ☐ "Pressure-treated Poles"
- ☐ "Painting of Creosoted Wood"
- ☐ "Creosote"
- ☐ "Creosote-Coal Tar Solutions"
- ☐ "Disinfectants"
- ☐ "Paving with Tarmac"

HOW A HOTPOINT ELECTRIC KITCHEN
Boosts Your Home Sales



This Hotpoint Electric Kitchen is worth a hundred sales talks. It is modern, streamlined, efficient. It sparkles with cleanliness and is easy to keep clean because with electricity there is no flame to cause combustion dirt and grime.

A HOTPOINT Electric Kitchen boosts home sales by enabling you to sell your houses as complete packages. Thus, you not only give the buyer a big dollar value but earn an extra profit for yourself at the same time.

Convert prospects into buyers by showing them modern all-electric kitchen units with a Hotpoint Range, Refrigerator, Water Heater, Cabinets, and Automatic Electric Dishwasher or Electrasink in a Hotpoint kitchen scientifically designed to save time and labor. Buyers quickly realize too, that a Hotpoint Electric Kitchen enhances property value by keeping it modern and efficient for years to come.

Boost your home sales with the Hotpoint Electric Kitchen. We'll gladly cooperate with architects, contractors and builders on planning. Write Edison General Electric Appliance Co., Inc., 5651 W. Taylor Street, Chicago, Illinois.

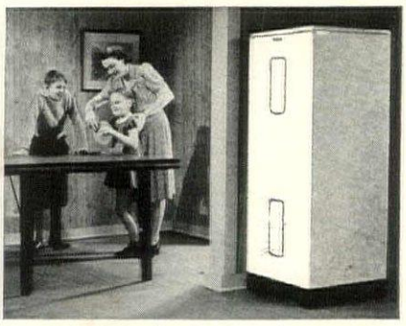
Hotpoint

REFRIGERATORS • RANGES • WATER HEATERS • WASHERS AND IRONERS • CLOTHES DRYERS • AUTOMATIC DISHWASHERS • ELECTRASINK • STEEL KITCHEN CABINETS

HOTPOINT ELECTRIC RANGE with new Calrod Units provides MEASURED HEAT cooking. Starts faster, cooks more economically, clean, safe, durable, dependable. Many other great features.

HOTPOINT REFRIGERATOR brings advanced features of electric refrigeration such as: 7 Food Storage Zones, New Butter Conditioner, Measured Humidity, and scores of other advantages.

AUTOMATIC HOTPOINT ELECTRASINK banishes dishpan and messy garbage pail. Kitchen Waste Exit flushes food waste away quickly. Automatic dishwasher saves hands by washing dishes at the press of a button.



HOTPOINT WATER HEATER can be installed anywhere; closet, kitchen or basement. Provides 24 hour hot water service for a few pennies a day. Clean because it's flameless. Completely automatic, dependable and safe.

WITH FRATERNAL GREETINGS FROM ... *Terrazzo!*

AFTER the ball is over . . . or the banquet . . . or business meeting . . . in fact, *after a lifetime* the Fraternal Order of Eagles in Pittsburgh will still find this floor as fresh and vivid as today.

Yes, it's *FINE TERRAZZO* made with Atlas White portland cement. See how it releases you from the limitations of usual flooring materials. It reproduces *any* pattern, functional or decorative. It keeps colors fresh and vivid. And keeps down the upkeep cost.

So for your next floor, plan on *FINE TERRAZZO*. Be sure that its colors will glow brilliantly by using white portland cement — Atlas White cement. It comes plain or waterproofed. Turn to Sweet's Catalog for more details and 24 true-color illustrations of *FINE TERRAZZO*, or write us for free book. Universal Atlas Cement Co. (United States Steel Corp. Subsidiary), Chrysler Bldg., N. Y. C.

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

FINE TERRAZZO gave the Fraternal Order of Eagles in Pittsburgh this fine floor. Marble aggregates used were — Red Verona with red pigment; Yellow Verona with and without pigment; Royal Green; Botticino with 30% Red Verona Marble and red pigment; Red Verona with red pigment mixed with Turkish Red Marble. Terrazzo Contractor, Chas. C. Guenther Marble Co., Inc., Pittsburgh, Penna.

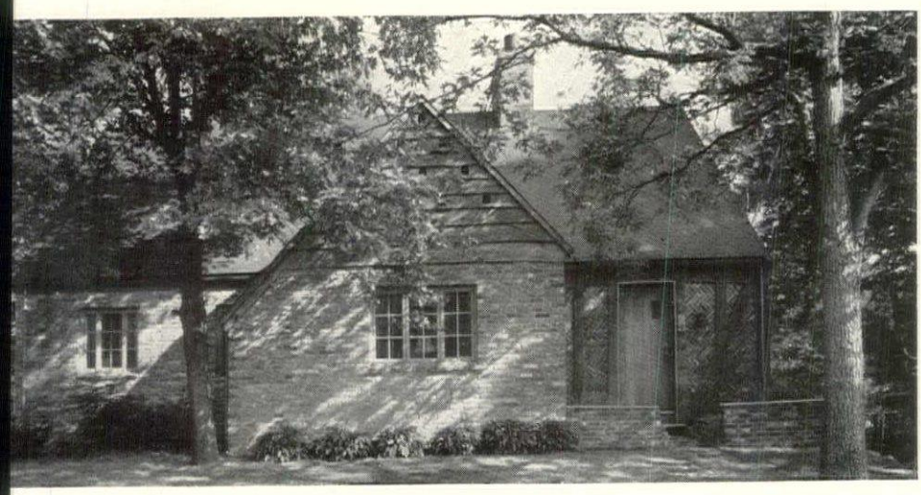
FOR *FINE TERRAZZO* SPECIFY ATLAS WHITE PORTLAND CEMENT

THE BEAUTY OF ANDERSEN WOOD CASEMENT WINDOW UNITS GRACES THE DESIGN OF THIS HOME IN MELROSE, MASSACHUSETTS

ROYAL BARRY WILLS, ARCHITECT

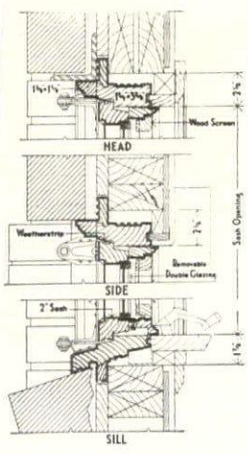
DINING ROOM BAY, INTERIOR

TRIPLE INSTALLATION, EXTERIOR



To accentuate the quiet charm of this comfortable New England home, the architect specified Andersen Casement Window Units. Note the distinctive beauty of design of these windows that blends perfectly with the unassuming character of the home. Their narrow lines, their deep shadows, their true proportions, all convey a feeling of restfulness and serenity.

Their contribution to design is not the only reason the architect specified Andersen Wood Casements. Known for years as the most weathertight windows available, Andersen Casements are especially adaptable to homes with modern air-conditioning. They are completely and efficiently weatherstripped, and equipped with inside double glazing. They swing out, operated independently of the inside screen. Andersen Casements are everywhere the choice of architects who are looking for functional superiority combined with beauty of window design.



Detail drawing, left, shows a typical installation of Andersen Casement Window Units. Same standard unit is used in any type of wall. Note extension hinges, which swing sash away from frame, permitting full ventilation from all directions and easy cleaning of outside pane of glass from the inside. Extra thick sash provide strength without bulkiness. Special two-point contact of sash to frame and weatherstrip achieves superior weathertightness. Note also the positions of removable double glazing and of the inside screen. Steep sill slope hastens drainage, and exclusive lock sill joint provides leak-proof feature. Wood is chemically treated to prevent damage by termites or decay.

This is one of a series of outstanding homes designed by architects in which Andersen Lifetime Window Units have been specified.

Andersen Corporation

BAYPORT, MINNESOTA

Only the Rich Can Afford Poor Windows

For further details see Sweet's Architectural Catalog, Section 15/24, or write for complete set of installation details.

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TO BE SURE OF GETTING DEPENDABLE FLUORESCENT LIGHTING FIXTURES

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These 3 SAFEGUARDS ASSURE YOU OF SAFE, SATISFACTORY PERFORMANCE

TESTED! Famous Electrical Testing Laboratories put FLEUR-O-LIER fixtures through exhaustive tests, which include such vital points as FLICKER CORRECTION, DURABILITY AND SAFETY, EASE OF MAINTENANCE, DEPENDABLE BALLASTS AND STARTERS, EFFICIENT LIGHTING PERFORMANCE, AND HIGH POWER FACTOR (OVER 85%).

CERTIFIED! Based on these tests, Electrical Testing Laboratories gives the FLEUR-O-LIER manufacturer the right to affix the label of certification to all fixtures identical to the sample submitted. This label is your assurance that the fixture wearing it meets the 50 rigid specifications set up by MAZDA lamp manufacturers for better light, better service. E.T.L. maintains a constant check-up of random sample fixtures—thus assuring *uniform quality.* You can buy Certified FLEUR-O-LIERS with confidence!

GUARANTEED!

FLEUR-O-LIER Manufacturers

GUARANTEE

This certified Fleur-O-Lier, when properly installed and equipped, is guaranteed to be free from defects in material, workmanship or assembly for a period of ninety (90) days from date of delivery to purchaser. Should any such defects appear within that time and under normal conditions of use, the undersigned company will furnish new material or parts in exchange for any found defective and will correct any faulty workmanship or improper assembly. Fleur-O-Lier specifications require the use of certified auxiliary parts.

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IMPORTANT!
Before you buy fluorescent, check with your local electric service company. They will give you expert advice on how to install fluorescent fitted to your specific needs.

WIDE VARIETY! You can get Certified FLEUR-O-LIERS in over 100 different designs and in a wide range of prices.

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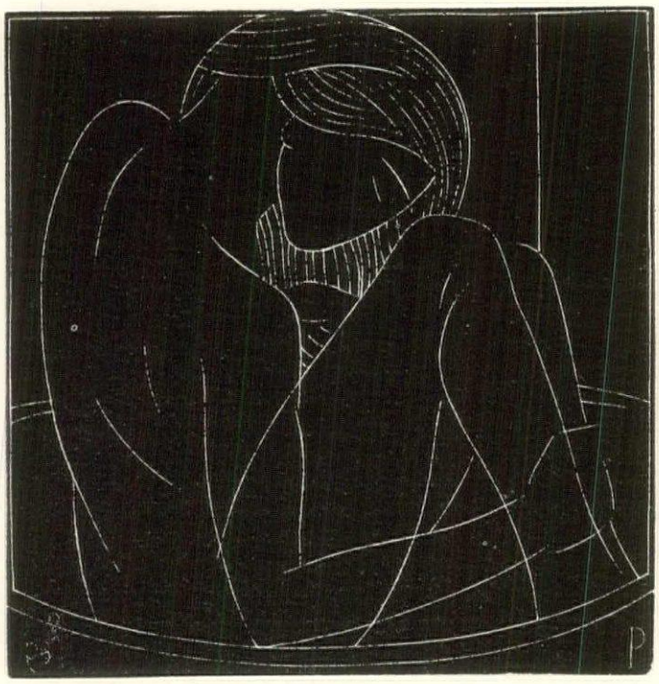
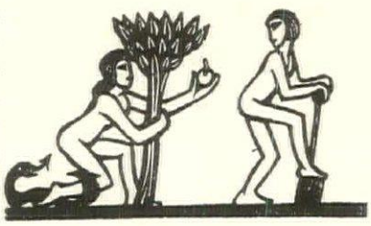
BOOKS

Autobiography of a sculptor . . . Small houses . . .

Bird's-eye view of landscape architecture . . . Mr. Chamberlain's England.



ERIC GILL: Autobiography. The Devin-Adair Company. 300 pp., illustrated. 6 x 8½. $3.50.



Eric Gill was one of the great typographers of our time. He was also a first-rate illustrator, a sensitive draftsman and an important sculptor. Add to this his vigorous and unconventional views on life and art, his profound religious convictions and his cultural background, so broad in some respects and so limited in others, and one has an autobiography that is an absorbing revelation of a rather remarkable personality.

It is generally assumed that artists are less capable than other people when it comes to putting ideas down on paper, and this notion has frequently been strengthened by the artists themselves, who sometimes insist that in their executed work is story enough for anyone who cares to take the trouble to read. Applied to Gill's work the idea certainly has some validity, for two of the dominant interests of his life—religion and the contemporary social order—are continually expressed in his productions as an artist. Fortunately, however, he had a lot more to say than could be drawn or carved, and he had an unusually felicitous knack of saying it. In all of Gill's writing, and notably in this autobiography, there is a furious outpouring of ideas and anecdotes, uninhibited by any fears of the English language. He was also quite unrestrained when it came to discussing subjects carefully avoided in polite society. The result is writing that is exceedingly personal and thoroughly charming, for despite Gill's seeming indifference to the complexities of contemporary prose, he was quite the master of this trade as well as the many others in which he excelled.

Eric Gill died last year, at the age of 58. The son of an indigent country parson, and one of a very large family, he was raised in an atmosphere of respectable poverty and given a schooling that was indifferent at best. At one point in his youth he spent most of his time making endless and intricate drawings of locomotives; this expression of the normal boy's craving to grow up to be an engine driver led his family to assume that he was going to be an engineer. His first talk with a civil engineer changed his mind, however, and he was apprenticed to an architect instead. A good part of his time was spent in detailing imitation Gothic tracery and he very quickly rebelled at the idiocy of the prevailing eclecticism as he later rebelled at so many other things, and he walked out on his profession-to-be. Having studied lettering and stone carving, he set himself up in this business and offered his services to architects. Because hiring Gill meant a good job of carved lettering on buildings and monuments without the expense of making full-size drawings, many architects took advantage of his offers. His success, though modest, was immediate, and it led to work in sign-painting, typography, illustration and book design. He became a sculptor more or less by accident. Having carved a figure out of a piece of stone in his shop, he was much surprised when his friends among the critics hailed it as a significant piece of work. The controversy which attended the unveiling of some of his later commissions did much to establish his name in the public mind. An accomplished craftsman in these many fields, it is not surprising that he had all the work he could handle until the day he died.

To the architect who has frequently been dismayed by the lack of a common understanding between himself on the one hand and the sculptor and painter on the other, certain sections of this book will come as something of a surprise, for Gill, more than most of his contemporaries in architecture, understood architecture. Referring to the office he left, he wrote, "Architecture in such a place was (once you'd got the job) simply a business of 'designing' and, with the aid of building contractors, getting somehow erected, striking visual effects. Truly houses are places to live in and churches are places to pray and preach and play organs in, but that's only the necessary and more or less humdrum condition of human life. Architecture begins where that sort of thing leaves off!" And again, speaking of the relationship between architecture and society, ". . . nothing could be clearer than that the manner of living in Victorian or Georgian England determined the existence of Victorian or Georgian architecture. Pretentious architecture fitted a pretentious age. The architecture of the 1920's is no less appropriate to its period. . . . The sham Gothic church, scholarly or otherwise, may affront you with its pretentious nonsense, but you've no business to be thus affronted unless you are equally affronted by the whole civilization which it so admirably portrays and advertises and shows up. Good taste, as understood by the genteel, is no remedy for corruption. The Bank of England and the Royal Exchange and hosts of other such places, and Town Halls and St. Paul's Cathedral are all built with pillars and porticoes copied from Greek and Roman temples and thousands of little dwelling houses followed the fashion. The whole thing is just play-acting. Perhaps very often the play-acting was very good. . . But there does

(Continued on page 68)

The All-Purpose Flooring FOR ALL PREMISES!

THE architect who is looking for a floor covering that provides an attractive and durable surface will find that once he specifies Goodyear Wingfoot Rubber Flooring his problem will be solved.

In fact, Goodyear builds so *many* desirable qualities into Wingfoot Rubber Flooring that it may be recommended with confidence for all kinds of installations — including hotels, stores, hospitals, office buildings and private homes.

It provides a wide variety of designs and color combinations — and its colors last the lifetime of the flooring.

It is not permanently disfigured by alcohol, cigarette burns, inks or even by most acids.

Its long-wearing surface is always comfortable and quiet underfoot and it does not creep, stretch or buckle.

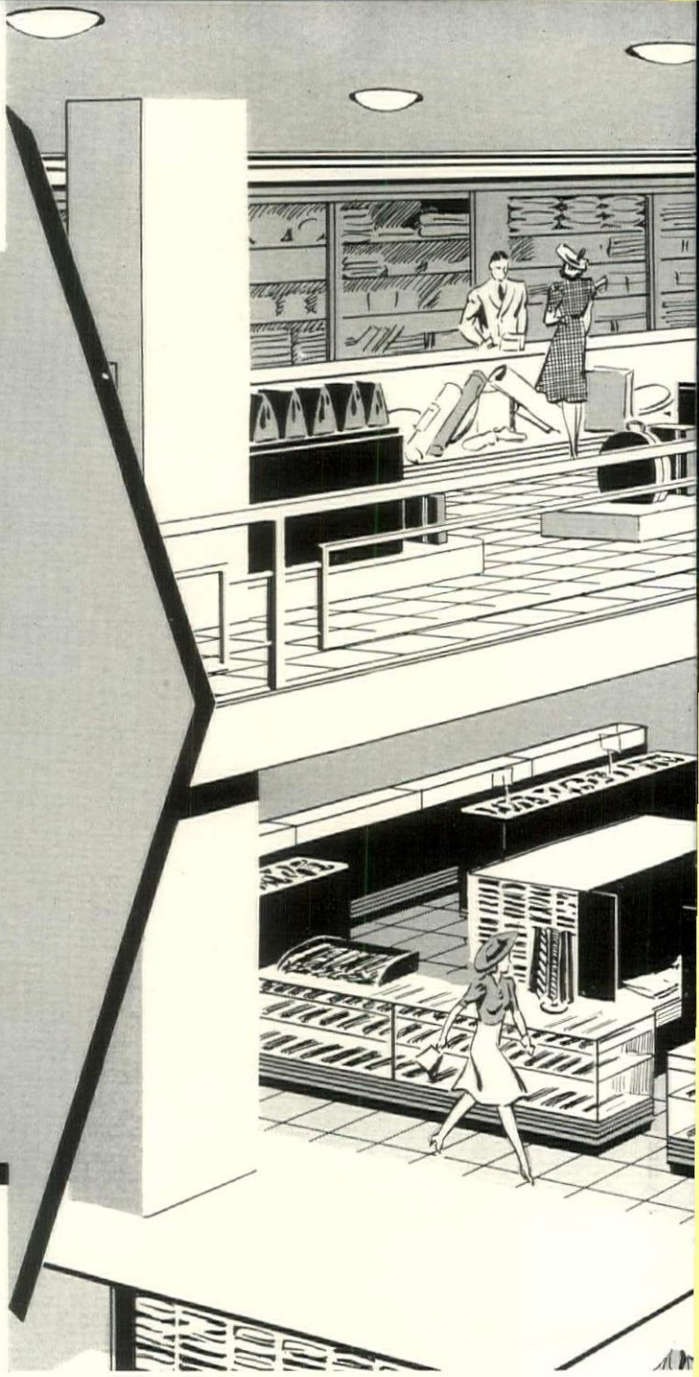
And to make it even more adaptable to the needs of your clients, it can be installed in either sheet or tile form.

For further information, see Sweet's Catalog or write to Goodyear, Akron, Ohio — or Los Angeles, California.

THE GREATEST NAME IN RUBBER
GOODYEAR
Wingfoot Rubber Flooring

Wingfoot — T.M. The Goodyear Tire & Rubber Company

GET THAT *much needed* EXTRA FLOOR SPACE WITH A Q-FLOOR MEZZANINE



TO THOSE OF YOUR CLIENTS who are in urgent need of extra floor space, suggest Q-FLOORS . . . as mezzanines, intermediate or additional floors or in light wells and courts. At amazingly low cost these wasted areas can be put to work. Since Q-FLOORS are shallow and require little head room they can be utilized where other types of floors are impractical.

A Q-Floor job is "QUICK-IN" . . . two men can lay a 32 square foot section in 30 seconds. When first laid, Q-Floors immediately form safe and solid platforms for all other trades. They speed up the entire job.

A Q-Floor job is CLEAN and DRY . . . there are no forms to erect or tear down. No waiting for concrete to set, no muss and dirt.

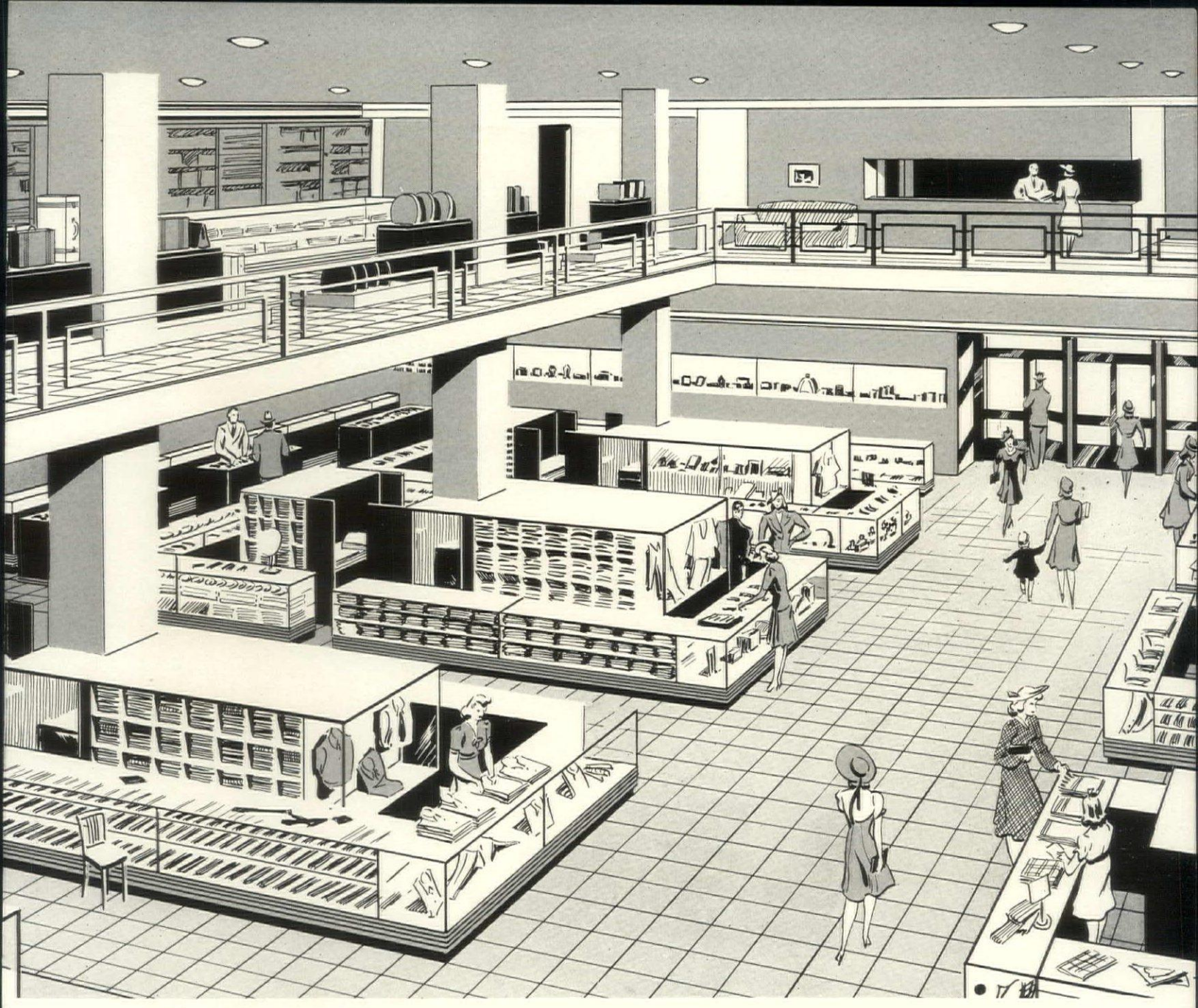
A Q-Floor job is QUIET . . . cellular steel sections are noiselessly welded or bolted to the structural steel.

A Q-Floor job does not interfere with normal operations. Business goes on "as usual."

And Q-Floors are always electrically alive . . . never can become obsolete, for they provide 100 per cent electrical availability, this year, next year and every year after. Of themselves they form

QUICK-IN

ROBERTSON Q



a series of cellular steel wiring raceways which are easily accessible through a system of headers or cross channels. Every type of wiring, for telephones, lights, (high and low voltage) can be carried through floor cells to any 6-inch square over the entire floor area whenever needed.

Ask Robertson Representatives for suggestions, detailed information and cost estimates.

H. H. ROBERTSON COMPANY

FARMERS BANK BUILDING • PITTSBURGH, PA.

Q-PANELS

SPEED DEFENSE BUILDING

North American Aviation, Inc., Dallas Plant, J. Gordon Turnbull, Consulting Engineer, Citizens Bldg., Cleveland, O.

In 105 days this 23-acre plant for North American Aviation, Inc., at Dallas was built and put into production. 1,105,000 square feet of Robertson Q-Panels were used. Beside speed in construction Q-Panels combine attractive appearance with great strength and durability.

Q-FLOORS

QUICK-CHANGE

Weather Tested since the Birth of the Nation!

Back in '76 "Home Defense" meant defense not only against mortal foes but against the enemies architects still fight today—the elements themselves.

Out of those early storms a nation was born—a nation of homes. Prim Cape Cod cottages . . . rambling farmhouses . . . stately Colonial mansions. And many of those Early American homes live on today, landmarks to those who planned them well, and protected them with Pure White Lead.

America's first home guard, sturdy white lead, has stood faithful watch through the years—keeping houses sound, staunch—and young in appearance. Today it is still America's first line of home defense. The Dutch Boy is the dependable ally of the architect who builds for the future.

Dutch Boy Pure White Lead hugs tight, hugs long. And its gleaming beauty actually costs less by the year. For Dutch Boy wears slowly, *smoothly*—does not crack and scale—thus saving the expense of burning and scraping when it finally is time to repaint.

Make your work live on . . . protect it with Dutch Boy Pure White Lead—either the famous paste form or the new ready-to-use paint described at the right.

NATIONAL LEAD COMPANY

111 Broadway, New York; 116 Oak St., Buffalo; 900 West 18th St., Chicago; 659 Freeman Ave., Cincinnati; 1213 West Third St., Cleveland; 722 Chestnut St., St. Louis; 2240 24th St., San Francisco; National-Boston Lead Co., 800 Albany St., Boston; National Lead & Oil Co. of Penna., 1376 River Ave., Pittsburgh; John T. Lewis & Bros. Co., Widener Bldg., Philadelphia.

SPECIFY *Dutch Boy White Lead*

NOW—THE NEW DUTCH BOY

Ready-to-use!

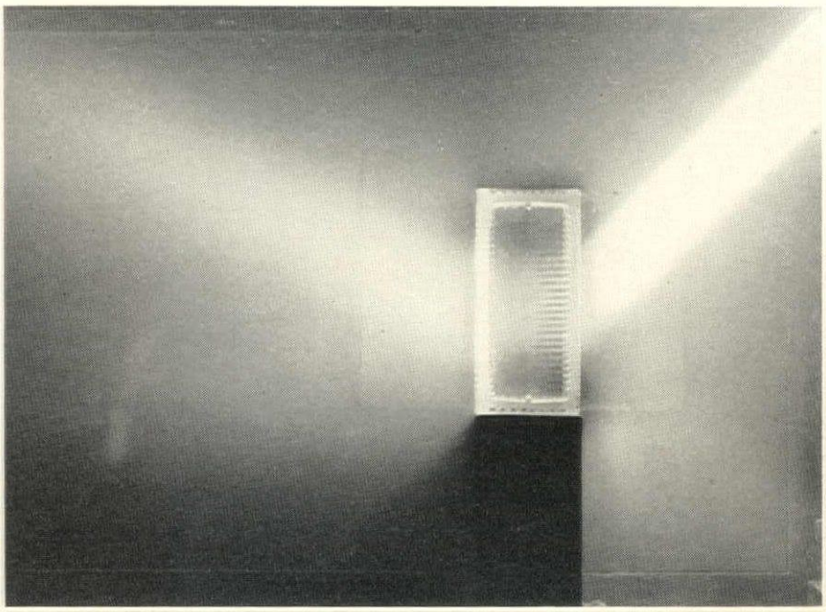
PURE WHITE LEAD PAINT

It's news! Pure White Lead—all ready to spread! Combining the proven durability of Dutch Boy with new, ready-to-use convenience.

2 COAT JOB—on New or Old Work!
2 FORMS—Exterior Primer & Outside White

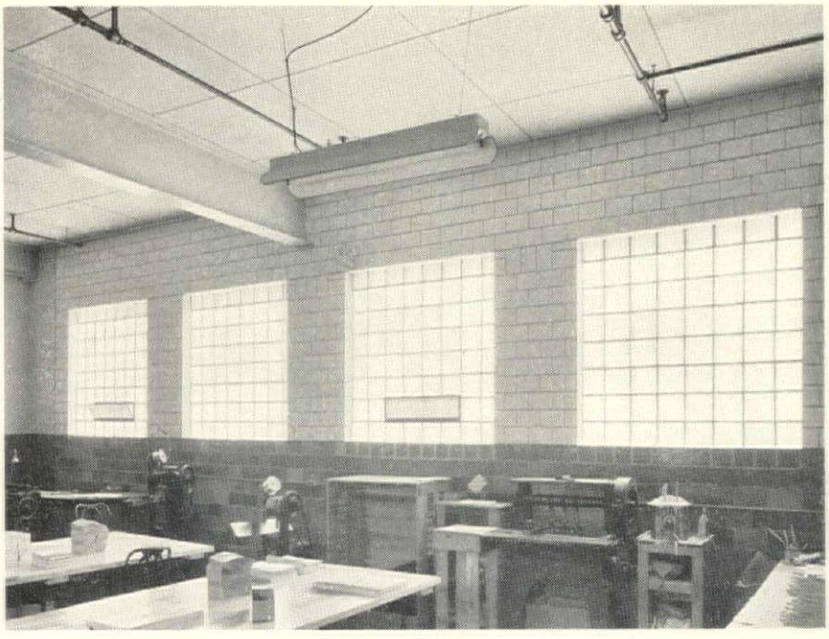
The new Dutch Boy comes in 2 forms—Exterior Primer and Outside White—specially designed to do a real white lead job on old or new work in 2 coats. You have never specified a 2-coat combination that gives better sealing or hiding. And you'll find its whiteness, gloss and finish worthy of your proudest work.

THE PRODUCT: This unretouched photograph shows how INSULUX Prismatic Glass Block No. 351 refracts light upward to the ceiling, giving indirect daylighting that provides more usable light throughout an interior. Note angle at which light is refracted upward at left—also the diffusion. No. 351 blocks are used above eye-level to light deep interiors without objectionable glare. A companion block, the No. 350 No-Glare, is used below eye line.



INDIRECT DAYLIGHTING: INSULUX PRISMATIC BLOCKS REFRACT LIGHT TO CEILING, PROVIDE MORE USABLE DAYLIGHT

APPLICATION: Photograph at right shows INSULUX Prismatic Blocks used to give good distribution of daylight in bindery of printing plant. Photograph taken at 2:30 p. m., April 22, in St. Louis, with sun shining directly on panels. Top five courses are INSULUX Prismatic Blocks, No. 351; bottom three courses are INSULUX No-Glare Blocks, No. 350. Result: an abundance of light directed to the ceiling where it is reflected downward to provide efficient, even daylighting of entire bindery, without objectionable glare even though panels get intense sunlight. Owens-Illinois Glass Company, INSULUX Division, Toledo.



YOU GET IMMEDIATE DELIVERY ON INSULUX GLASS BLOCKS!

OWENS-ILLINOIS
INSULUX
Glass Block

3 NEW FOLDERS ON INDUSTRIAL PROBLEMS

Mail coupon for 3 *new*, informative folders on the use of INSULUX Glass Blocks in solving problems in (1) Light, (2) Heating, (3) Maintenance. All are crammed with factual data that aids in industrial planning.

OWENS-ILLINOIS GLASS COMPANY,
INSULUX Division,
25th Floor, Ohio Bldg., Toledo, Ohio

Gentlemen: Please send, without obligation, your 3 *new* folders on (1) Light, (2) Heating, (3) Maintenance.

Name_____

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THERE'S NO TRICK TO WORKING WITH THIS LUMBER WITH A *Plus*

Wolmanized Lumber* is ordinary lumber to which has been added this plus—ability to withstand decay and termite attack. Vacuum-pressure impregnation with Wolman Salts* preservative does the trick.

Wolmanized Lumber is handled on the job just like ordinary, untreated wood; the preservative has no corrosive effect on tools or metal fastenings. It is clean, paintable and odorless. All of the other advantages of wood construction are retained.

Wolmanized Lumber is produced in nineteen treating plants, strategically located throughout the country. All are under the direction of one central laboratory, assuring uniformity of product. It is distributed by retail lumber dealers, under the one trade name, Wolmanized Lumber. AMERICAN LUMBER & TREATING COMPANY, 1647 McCormick Building, Chicago, Illinois.

*Registered Trade-Mark

Wolmanized

LUMBER

FIVE specialists in one! Yes, every architect who designs a public building must be an authority on at least five different subjects—design, engineering, heating and ventilating, acoustics—and SEATING.

Of course no architect can be expected to know everything about all these subjects. That's why we offer our help on the important problem of seating.

Behind us are years and years of experience with seating problems of all kinds—for theatres, churches, schools, auditoriums, stadiums! We know the answers, frankly, to every seating problem that might arise—such problems as floor slope, sight lines, seating arrangements, etc.—problems that might very well puzzle you.

So—next time you need help on public seating problems—don't wish you were twins or quintuplets. Simply call on us for help. Our experts are at your command—without obligation.

AMERICAN SEATING COMPANY · GRAND RAPIDS, MICH. · REG. U.S. PAT. OFFICE

American Seating Company

GRAND RAPIDS, MICHIGAN

World's leader in public seating. Manufacturers of Theatre, School, Church, Auditorium, Stadium and Transportation Seating. *Branch Offices and Distributors in 73 Principal Cities*

LETTERS

PRIORITIES

Forum:

. . . Undoubtedly other readers will agree with me that this is a timely and brilliant piece of editorial research (ARCH. FORUM, August, p. 73). But I wonder how many will have stopped to ponder its conclusion that "tailor-madeness" is what saves Building now from being pinched to the point of suffocation. And, having duly pondered the statement, gone on to compare it with another conclusion expressed in the same issue to the effect that defense needs have already caused the prefabrication of houses to expand "from a group of experimenters into a fledgling industry-within-an-industry."

Here indeed is a paradox that would have tickled the intellectual palate of such a gourmand of contradictions as G. K. Chesterton. But, seriously, what's the likely outcome? Is the war going to make Building even more a "tailor-made" business? Or, will standardization and mechanization become the order of the day?

HORACE P. JONES

New York, N. Y.

No paradox this but using the right technique in the right place. In no visible future will prefabrication eliminate all custom-building. —ED.

AUSTRALIAN HOUSING

Forum:

. . . Housing has become a national issue of party dimensions and in this State, the Parliamentary Elections resulted in throwing out a government largely on a housing program. The Conservative government has been following a policy of masterly and masterful inactivity for nine years . . . A mild poll before the elections gave every indication of a landslide, although the press almost unanimously predicted a return of the existing government, on the ground a) that it was unnecessary to hold an election during such a crisis; b) that it was unwise to change the government at such a period; and c) that the Labor Party is not organized to assume the responsibility of government at this stage of the war.

Although our population is so very much smaller than yours, some of us have been very conscious of our housing problems, for many years. The war has intensified the old housing problems and created fresh difficulties. The new munitions industries have brought together numbers of workmen and their families in centers where there is not only poor housing but no housing at all. In some cases private enterprise has tried to turn this condition into a profit-making enterprise with the result that one would expect. In some cases private enterprise is just as diffident here as with you, to risk money in what might be mushroom growth. The Federal Government has been all too slow to appreciate the relation between satisfactory food, clothing and shelter, and production, with the result that our war effort has been considerably smaller than we anticipated. Now, however, the government officials are prepared to concede this important relation, and to recognize too, the need for adequate transport communications and roads as part of a housing program.

Australia has one characteristic in which she differs from any other country I know. We do not live in cities but around them. Industries therefore tend to be centralized, and at great distances from the homes of their employes. We are beginning to think through this and its implications. . . .

A. FITZPATRIC

Australian American Cooperation Movement
Sydney, Australia

NEW DIMENSION

Forum:

Your presentation of the Winnetka school (ARCH. FORUM, August, p. 79) was well handled. So often in the press editors show skillfully enough in photograph and drawing the completed building, but your Crow Island story adds another dimension to publishing. The architects' problem, so challengingly stated in the letter from the Director of Activities, sets the stage for the answer which follows. All credit to the Saarinens, Perkins, Wheeler and Will, but equal credit to the school authorities who so ably articulated their needs.

R. MATTHEW DUNCAN

Schenectady, N. Y.

MODULAR SYSTEM

Forum:

The entire problem, (ARCH. FORUM, July, p. 31), shows that a country of such high technical standards as the U.S. tries indirectly to get rid of the awful measurement-unit: the foot and the inch.

Try to get a Meter-Scaleruler, and you will understand: The FOUR INCHES as the basic unit in the building and construction line is nothing but TEN CENTIMETERS—one tenth of a "METER." And the basic unit is the CENTIMETER—one hundred centimeters are one Meter, one thousand Meters are one Kilometer. And for smaller measurements the Centimeter is subdivided in ten Millimeters.

This metrical system, used in France for more than 100 years, in Germany for more than 50, even in Russia since the revolution, solves all the problems of the architects, the engineers, the surveyors.

If you disregard for a moment custom and tradition, you will find that nobody really may have a feeling for a scale like: 3/8 in. to 1 ft. 0 in., or 3/16 in. to 1 ft. 0 in.

And instead of using a scale as 3/4 in. to 1 ft. 00 in. everybody would, after a short while, prefer a clean and clear scale as: 1/50, or one to fifty, in other words 1/50th of a meter, or 2 centimeters to one meter.

And the multiplication — for instance for figuring the square feet of a room, or court, etc., is very complicated, by using feet and one twelfth of it — the inches, instead of the simple decimal system.

We have here in the U.S. the decimal system in our monetary system—the Dollar is subdivided in 100 cents—and not that complicated monetary system of Old England—why should we use their equally highly antiquated measurements?

All those publications, tables, all the waste of hours and hours for unnecessary work would be abolished at once by adopting the METRICAL SYSTEM, which is not patented, not licensed—and extremely easy to understand and to use.

RUDOLPH JOSEPH

Forest Hills, N. Y.

SIMON PURE

Forum:

. . . In the August issue, under "Forum of Events," the design of the Presidential Library is referred to as the work of Architect William Moore. Mr. Moore was the supervising engineer, and is attached to the Supervising Engineer's office of the Public Buildings Administration. The design, I am told, is the personal work of Louis Simon.

MILES L. COLEAN

Washington, D. C.

To Architect Louis Simon editorial apologies for a stupid error.—ED.

FOR THE RECORD

Forum:

In your August issue under "Letters"—you print extracts from a letter of mine and after my name you have "Chairman, Washington Chapter, A. I. A., Washington, D. C." I do not know just how you happened to do this. I was chairman of one of the Institute committees at that time and may have used committee stationery but I am sure that I did not claim affiliation with the Washington Chapter, even if it is a splendid chapter and one I would be proud to be associated with.

For the record and for future reference, I am a member of the Baltimore Chapter, which is also a first class chapter. . . .

FREDERIC A. FLETCHER

Baltimore, Md.

Mr. Fletcher was one-time Chairman of Committee on Unification, Washington Chapter. —ED.

HERE'S THE *Proven & Guaranteed* FLUORESCENT LIGHTING SYSTEM

That's 30% to 50% cheaper to install!

That provides 50 Foot Candles or better!

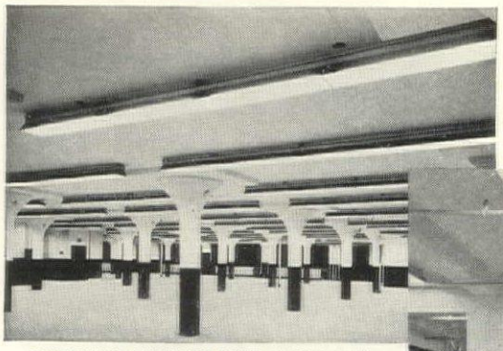
That's easier, cheaper to maintain!

IVANHOE
"50 FOOT CANDLER"
RLM *Continuous Wireway*
FLUORESCENT
LIGHTING SYSTEM

● Two years ago IVANHOE "50 FOOT CANDLER" was introduced as the first RLM Continuous Wireway Fluorescent Lighting System providing new higher levels of overhead illumination. Now its merits have been *proven* in such outstanding organizations as Fairchild Aviation Corp., Uxbridge Worsted Co., Combustion Engineering Co., General Electric Co., Curtiss-Wright Corp., and many others. Hundreds of miles of "50 FOOT CANDLERS" are today giving satisfaction in key Defense plants, industry and business.

"50 FOOT CANDLER'S" continuous wiring channel (containing all necessary auxiliaries and up to 80 per cent of conduit) means installation savings of 30 to 50 per cent. Speedy installation, too—with no slow-up of production while lighting is going in. Easy-to-remove, porcelain-enameled reflectors lick maintenance headaches.

IVANHOE "50 FOOT CANDLER" can give your clients these *proven* lighting benefits—leave a larger share of their "building dollars" for other specifications. *Write for helpful Bulletin 1C.*



FAIRCHILD AVIATION CORP. employees get 50-55 foot candles of light for fine inspection and assembly jobs with "50 FOOT CANDLER" in this new plant addition.

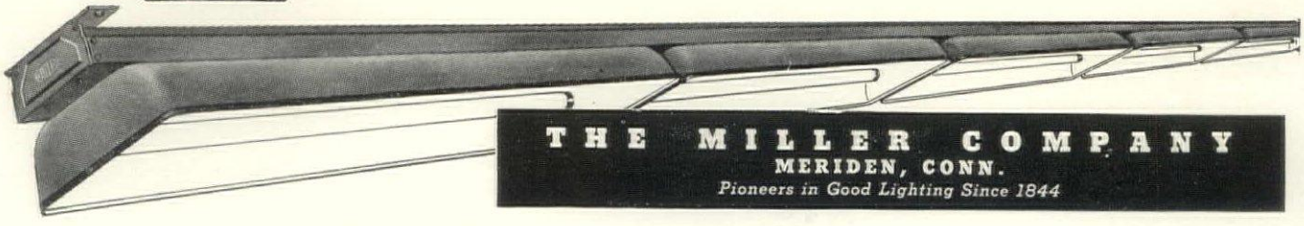
COMBUSTION ENGINEERING CO. use their new "50 FOOT CANDLER" lighting system to give draftsmen 60-65 foot candles of unmatched working light.

UXBRIDGE WORSTED CO. use many rows of "50 FOOT CANDLERS" in their weave rooms. Here workers have the production aid of 50 foot candles of well-diffused illumination.

• • •

MILLER OFFERS A COMPLETE LINE of incandescent and fluorescent lighting equipment, backed by almost 100 years of commercial and industrial lighting specialization. There is an answer to *your* problems in this *unbiased* lighting service.

IVANHOE FLUORESCENT RLM



THE MILLER COMPANY
MERIDEN, CONN.
Pioneers in Good Lighting Since 1844

Now awarded the distinction of the A. I. A. medal

Castle Village earns for George Fred. Pelham Jr., its architect, the medal bestowed by the New York Chapter of the American Institute of Architects for outstanding apartment buildings erected in New York City during the year ending Oct. 1, 1939.

IMPORTANT FACTS ABOUT CASTLE VILLAGE

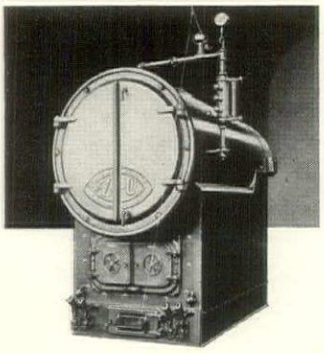
Five dominating apartment structures overlooking the famous Palisades — three of 13 stories, one of 12, one of 11. All of reinforced concrete construction. Approximately 550 apartments. Every room an outside room.

•

Architect, George Fred. Pelham, Jr., New York City. Engineer, Victor Mayper, New York City. Consulting Engineers, Daniel & Wallen, New York City. Heating Contractors, J. H. Bodinger Co., Inc., New York City.

•

All buildings heated by ten 24,200 sq. ft. oil-fired Fitzgibbons R-Z-U steel boilers.



HEATED BY

FITZGIBBONS STEEL BOILERS

Towering high above the Hudson, the boldly beautiful outline of Castle Village expresses the very best of modern living comfort. And a large part of this comfort is due to the ten Fitzgibbons R-Z-U boilers which heat these five majestic apartment buildings.

History repeats itself. The famous Paterno Castle which formerly occupied this commanding site, was also heated by Fitzgibbons Steel Boilers—so successfully, so economically, that in selecting boilers for Castle Village, the owner Dr. Chas. V. Paterno, unhesitatingly chose Fitzgibbons.

The detailed reasons for the selection of Fitzgibbons Boilers for installations like this would interest you. Ask us.

Fitzgibbons Boiler Company, Inc.

General Office: 101 PARK AVENUE, NEW YORK

Works: OSWEGO, N. Y. *Branches and Representatives in Principal Cities*

SPECIFY "PENNVERNON" . . . NOT JUST "WINDOW GLASS"

● Among architects, contractors, dealers and users, Pennvernon Window Glass has established an enviable reputation for quality . . . a reputation built solidly upon these Pennvernon properties: its clarity, its bright, reflective surface finish, its unusual freedom from flaws and imperfections for a sheet glass, and the good vision it affords. Pennvernon, in a word, is *good* glass . . . worthy of good windows. It is available from coast to coast through our many branches and thousands of dealers. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Penna.

PENNVERNON WINDOW GLASS
PITTSBURGH PLATE GLASS COMPANY
"PITTSBURGH" stands for Quality Glass and Paint

In Defense areas all over America, architects are specifying Flintkote Building Materials to . . .

"Repair

BEGINNING in September, FHA mobilizes America to "Repair for Defense." Newspapers, newsreels, magazines and broadcasts tell property owners about the urgent need for rehabilitating old dwellings and buildings to provide immediate additional housing now in defense areas. The entire building industry accepts this challenge, responsibility and opportunity.

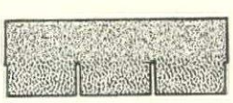
Every defense worker decently housed increases America's production. So, tie-in with this practical FHA campaign in your community. Aid your country's defense effort, and help yourself, by encouraging more property owners to "Repair for Defense."

Now is the time to go into action all along the Flintkote line. Flintkote roofing, siding and insulation products are especially designed for modernizing, improving and protecting residential and commercial structures. Use these dependable Flintkote building materials to speed the improved housing facilities so urgently needed now.

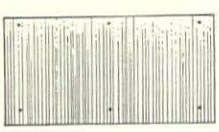
INSULATION BOARD PRODUCTS

Flintkote offers a *complete* new line of structural and decorative insulation board products made from native Southern timber. Large sheets and attractive insulating tile and plank are ideal for rehabilitation . . . building needed extra rooms in wasted attic and basement space.

ASPHALT SHINGLES



One of the world's oldest and largest asphalt roofing manufacturers, Flintkote is famous for pioneering improvements, innovations and distinctive styling in asphalt shingles. Colorful Flintkote Asphalt Shingles include styles for every roofing and re-roofing need.



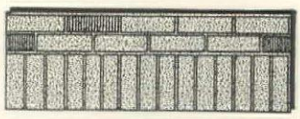
ASBESTOS SIDINGS

Cover worn out, unsightly, old walls with fireproof, permanent, beautiful Flintkote Asbestos Sidings. A wide line avoids monotonous repetition . . . fills every siding need. Three butt lines, three surface finishes, two sizes and several attractive colors are available.

COLD PROCESS ROOFING

For flat roof maintenance and new work, Flintkote has developed a tested system for the *cold application* of roofing materials, eliminating heating equipment and the hazard of fire during installation. Seven specifications available cover all types of new work and maintenance.

for Defense!"



INSULATED BRICK SIDING

Low cost insulation *plus* finished, attractive siding make Flintkote Insulated Brick Siding ideal for rehabilitating all types of residential and commercial buildings. Flintkote Insulation Board (½" thick) is saturated and coated with asphalt and surfaced with colorful mineral granules to make these easy-to-apply panels that simulate expensive brick.

★

ASBESTOS SHINGLES

Available in many attractive colors and styles, Flintkote Asbestos Shingles provide fireproof, permanent protection for roofs. They cannot rot, rust or burn.

★

ROLL AND BUILT-UP ROOFINGS

Flintkote offers a *complete* line of time-tested prepared roll roofing and built-up roofing materials. Roll roofings are available smooth or mineral surfaced in a wide variety of weights.

★

ASPHALT COATINGS AND PLASTICS

There is a product for every waterproofing, damp-proofing, protective and roofing requirement in the line of Flintkote asphalt coatings and plastics. Famous Flintkote Static Asphalt will not flow, alligator or crack . . . will outlast any known type of bituminous material exposed to the weather.

★

ROCK WOOL HOME INSULATION

Conservation of fuel needed for National Defense highlights the importance of Flintkote Rock Wool Home Insulation. Available in blanket, bat, semi-bat, granulated and natural forms for all types of application in old or new buildings.

★

ASPHALT SIDINGS

Ideal for renovating, Flintkote Asphalt Sidings are fire-resistant, attractive and easy to apply. Available in brick-type strips and rolls and many other distinctive strips and individual shingles that never require paint.

THREATENED FUEL SHORTAGES **. . . Headlines daily tell home owners the need for Flintkote home insulation *before* winter.**

• Flintkote dealers recommend and sell Flintkote nationally advertised building materials because they know every Flintkote product provides a bigger dollar's worth of protection, assures the lasting satisfaction which builds good will.

ASBESTOS SHINGLES
- Dutch Lap
- Hexagonal

ASBESTOS SIDINGS
- Waveline Sidings
- Shake Siding
- Straight-Edge Sidings
- Tapertex Siding
- Woodgrain Sidings

ASPHALT SHINGLES
- Tapered Strips
- Thikbut Strips
- Cedartex Thikbut Strips
- Stalwart Strips
- Hexagon Strips
- Square Butt Strips
- Rextab Strips
- Flintlock Shingles
- Staple-Lox Shingles
- Dutch Lap Giant Shingles
- Super Giant Shingles

ASPHALT SIDINGS
- Embossed Brick Strip Siding
- Thikbrik Siding Strips

ASPHALT PAINTS & PLASTICS

BUILDING PAPERS & FELTS

BUILT-UP ROOFING MATERIALS

COLD PROCESS BUILT-UP ROOFING

HARDBOARD PRODUCTS
- Flintboard
- DeLuxe Flintboard
- RexBoard
- HardBoard
- HardBoard Tile
- Tempered HardBoards
- Tempered Flooring

INSULATED BRICK SIDING

INSULATION BOARD
- Asphalt-Coated Sheathing
- Building Board
- Insulating Lath
- Insulating Tile
- Insulating Plank
- Roof Insulation Board
- Thriftex Wallboard

ROCK WOOL INSULATION
- Granulated Rock Wool
- Dura Bats (Paper-backed)
- Roll Bat Blankets
- Long Fibre Rock Wool

ROLL ROOFINGS
- Mineral Surfaced
- Smooth Surface

ROOFING ACCESSORIES

STATIC ASPHALT COATINGS

Products of the same high quality are sold by the Beckman-Dawson Roofing Company, and by the Richardson Roofing, affiliates of The Flintkote Co.

REMIND YOUR CUSTOMERS:

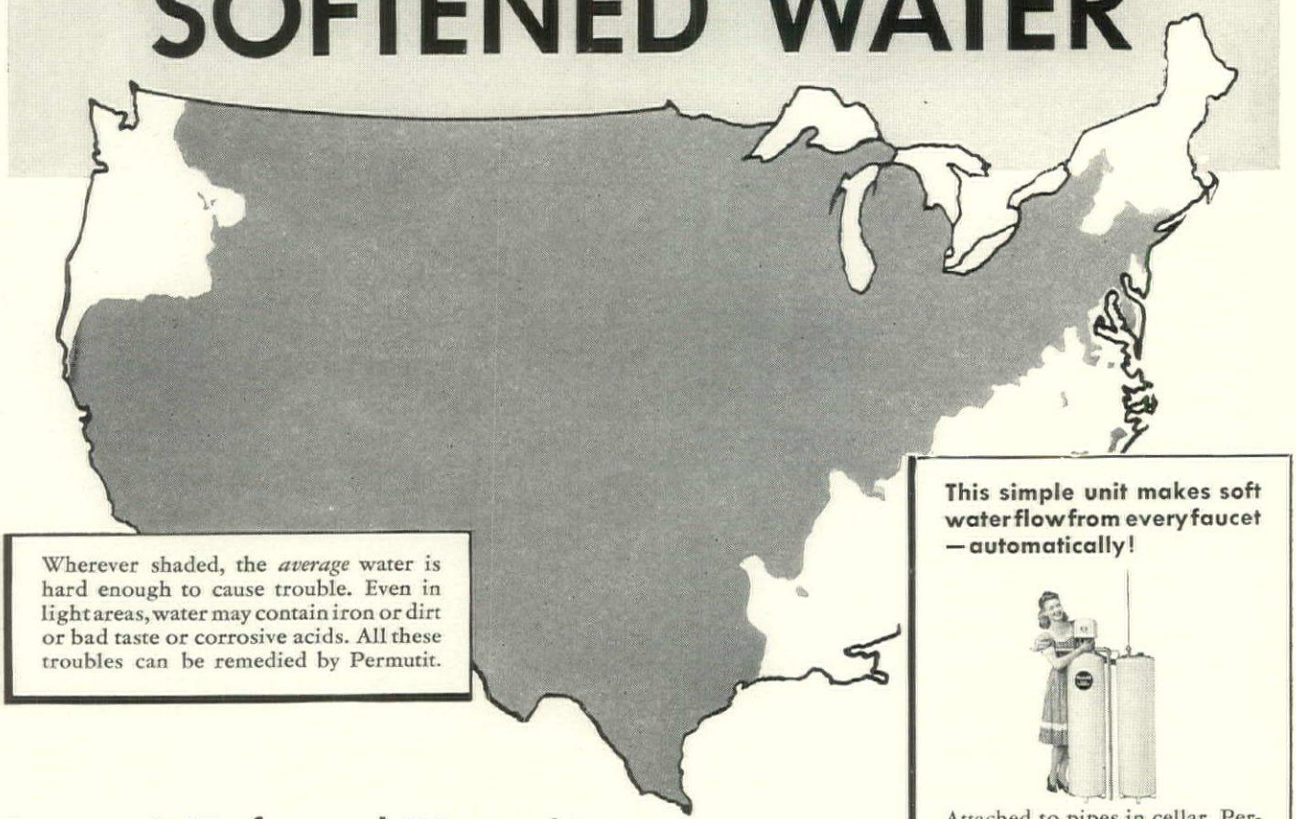
Repair for Defense, Repay by the Month through FHA Plan

The FLINTKOTE *Company*

30 ROCKEFELLER PLAZA, NEW YORK, N. Y. *Atlanta . . . Boston . . . Chicago Heights . . . Detroit . . . New Orleans . . . Waco . . . Los Angeles*

Hard-water map shows why homes in most areas need

SOFTENED WATER



Wherever shaded, the *average* water is hard enough to cause trouble. Even in light areas, water may contain iron or dirt or bad taste or corrosive acids. All these troubles can be remedied by Permutit.

Permutit *Softened Water is as necessary for comfort as gas or electricity

Over the greater part of the country, "natural" water is woefully unsuited for modern living. Skimpy suds, bathtub ring, pipe-scale are a few of the troubles caused by hardness, iron and turbidity in water supplies. That's why architects today specify "Permutit", along with other modern necessities, on both city and private water supplies. Permutit softened water gives glorious rich suds for bath, shampoo, shaving...whiter, softer washes...no scale in pipes, water heater, boilers, or air conditioners.

Adds only a few cents to financing costs . . .

Permutit may be installed on easy terms...financed with the house. And the big savings—on soap, fuel, plumbing repairs—quickly pay for the equipment. Why not specify this sound household investment?

Specifications, capacity tables and description of models upon request.

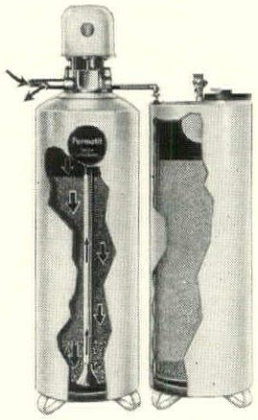
PERMUTIT

WATER CONDITIONING HEADQUARTERS

This simple unit makes soft water flow from every faucet —automatically!

Attached to pipes in cellar, Permutit instantly makes hard water soft—without adding chemicals.

HOW IT WORKS:



Water enters at top, flows downward through mineral bed, which extracts the hardness-forming calcium and magnesium, the filtered softened water passing to service. When the mineral has removed its capacity of hardness, it is automatically regenerated by salt brine from the other tank. No salt taste gets into the water.

THE PERMUTIT COMPANY
Dept. AF1, 330 W. 42d St., New York, N.Y.

*Trademark Reg. U. S. Pat. Off.

In its May issue THE FORUM said . . . **In Time of War Prepare for Peace**

"The United States is justly proud of its industrial progress, of the managers, technicians and workers who have brought it about. We make everything well except the circumstances of our lives. Man puts his foot out of bed in the morning with reasonable certainty that neither the day nor the year will produce any substantial improvement in his environment. This is not an indictment of democracy but of a mistaken idea that planning for the future (which of course implies some measure of control) is not the democratic way. Surely as a people we have now reached the point of national maturity which no longer will tolerate avoidable waste of the technical skills and instruments we have worked so hard to master. Therefore, the Editors of THE FORUM believe it will serve a useful purpose if thought is now given to the part Building must assume at the close of the War."

This statement was followed by an outline of the key problems. In the months following, THE FORUM has brought into being a PANEL OF 200 ADVISORY EDITORS (listed in the June issue) representing all of the branches of Building and interested U. S. Government Departments. This Panel will act in an advisory capacity to THE FORUM'S editors in preparing the articles for the POST-WAR PATTERN series, the first of which is published below with significant comments by members of the Panel. Each of the twelve articles to follow will be handled in this manner, thus assuring the reader that any substantial minority viewpoint of panel members will be presented for consideration along with the majority report.

Many members of the Advisory Panel as well as THE FORUM'S Editors wish to stress two points in introducing this series of articles. Without full recognition of both points any plan will prove futile.

First is the creation of the right atmosphere for conceiving and executing any plan. Many will view with skepticism, even indignation, any further encroachment by Government on individual action, just as others will welcome any step which puts increased controls in Government hands. It is impossible to generalize regarding the exact location of the line which separates desirable private initiative from desirable Government regulation. What Government, whether Federal, State or local, must provide is the maximum of leadership to implement and the minimum of control to safeguard the plan. What private enterprise must provide is the maximum of initiative and the minimum of opposition to restraints which are clearly in the public interest.

The second matter the Editors wish to emphasize, and which is closely related to the first, is the necessity of creating an informed and therefore sympathetic public opinion. Plans which leave no citizen untouched must also leave no citizen unexposed to his right to become a useful and enthusiastic participant. Well informed public opinion is the basis of effective public demand.—The Editors

BUILDING'S* POST-WAR PATTERN

NO. 1 PLANNING

Post-war U.S. must work to a plan—a plan broad enough to include the nation, minute enough to cover all its political subdivisions, bold enough to inspire respect and realistic enough to produce action. Even in these peaceless times there is a growing realization of this fundamental post-war need. The war has brought home the fact that the U.S. has come of age and must now accept the responsibilities—both national and international—of maturity. And, on the verge of actively entering the war, a people that have made a fetish of spontaneity are learning the bitter penalty of planlessness through its military equivalent—unpreparedness. It has become transparently clear that isolationism is as indefensible on the local front as it is as a national policy.

In the minds of those who have the vision and courage to look forward to the post-war future, the role which must be played by Building looms large and important—larger even than Building's gigantic role in the defense program. During the decades when mass production, transportation, communication, education, public health and a

**Because our language supplies none better, the word "Building" is used in an all-inclusive sense, embracing planning, zoning, design, construction, financing, etc.*—ED.

host of other activities made their greatest strides, Building allowed the physical plant which houses all these complex mechanisms to deteriorate. Despite undeniable progress in the design and construction of individual buildings, the total environment in which buildings play a determining part has been permitted to run down, to become crowded, noisy, dirty and generally inefficient.

Huge parts of cities and towns have worn out and are left to rot in a state of chronic blight. Feeding on itself, this spreading disease has fostered uneconomic decentralization and the consequences of high taxes, excessive transportation and other utility costs, impending municipal bankruptcy.

Without a remedial post-war program, well planned and well executed, the nation may soon see these ravages of obsolescence grow to catastrophic proportions: By 1945 one-third of all the 40 million dwelling units in the country will be more than 50 years old—well past the accepted age of efficient usefulness. By 1945, to put it another way, the 6 million dwelling units which were in need of major repairs in 1935 will probably be unfit for use, and the 18 million which then needed minor repairs will probably be ready for major reconstruction, if not demolition. By 1945 the $10 billion worth of commercial construction undertaken during the booming Twenties will be about 20 years old and ready for modernization. By 1945-50 realty owners may look back enviously at the comparatively light $30 per $1,000 tax load they complained about in 1941. By 1950 the $1.5 billions of highways built in the peak year of 1930 and already obsolete will be pock-marked with age and will demand millions of dollars of reconstruction. By 1950 disease, delinquency and discontent due to the increasing inadequacies of the U. S. physical plant, if it is permitted to deteriorate at the present rate, may have precluded forever any variety of planning except that preached by Communists, Fascists, and Nazis.

The immediate need for a post-war pattern of construction and reconstruction is independent of the effect of World War II on the U. S., but it is made more urgent because of it. The sad state of the nation's physical plant has existed for two full decades—ever since the country stopped growing and could no longer rely on a continuous expansion of population to foster automatically the reconstruction of urban areas.[1,2] Today the U. S. must go out of its way to force reconstruction upon itself. Such a program will become imperative with peace. Otherwise, the already serious problems of blight and obsolescence will be compounded by the cessation of defense activities: disrupted industrial output, idle plants, idle organizations, idle skills, idle money—all the creaks and groans of a highly organized productive enterprise suddenly turned loose to shift aimlessly for itself.

1. *"Some old buildings were, of course, torn down to provide sites for new buildings, especially in the commercial districts. I should say this was not importantly the case elsewhere and altogether affected a very small percentage of the area of any old large city. For the most part the new developments for industry and residential use were on vacant land, spreading out the city area, not reconstructing it. Where it did involve reconstruction, with increased density of occupation, as in the low rental areas, the reconstruction was creating some of our worst problems of present day slum area. Boston affords plenty of examples. One area was completely reconstructed in 1890 or thereabouts with outrageously crowded tenements that are now fortunately structurally unsound and are rapidly being demolished. If the original row house development had been left as it was then, it might well have been today a fairly decent livable neighborhood. The pressure of growth did 'automatically reconstruct' that area but not to its benefit or that of the city."*

William Stanley Parker, Architect
Boston, Mass.

2. *"As I recall the historical accounts of other periods this unhappy condition is not peculiar to the present but has characterized other rapidly growing communities in the past. It seems to me that one of the major differences between the present and earlier societies is that today, probably for the first time in human history, there exists in the United States an abundance of practically all of the factors of production—land and products of the land, labor, management and technical skills, capital, and an eager public demand for a better way of life. Our great difficulty is that we have not been able to order these elements of our society in such a manner that they may work in full harmony together. The careful preparation of present plans for future needs, as you point out, should greatly enhance the prospects for the fullest possible use of these abundant resources in the post-war period."*

Lowell J. Chawner
Bureau of Foreign & Domestic Commerce, Washington, D. C.

Paradoxically, the immense and seemingly insoluble post-war problems constitute also a prime opportunity: the chance to convert expanded industry, once it is no longer needed for national defense, to the task of rebuilding and redeveloping the U. S.—urban, suburban and rural. If there is no longer need to turn tanks into tractors, there is every need to beat the swords of modern warfare into tools for a better and healthier life: not simply new and improved buildings, but whole new communities; not simply further development on the periphery of cities and towns, but redevelopment within them to replace obsolete housing, commercial, industrial and public facilities.

To accomplish these ends efficiently and effectively, Building must work to a plan—each building to its neighborhood, each neighborhood to its community, each community to its region and ultimately each region to the nation.[3]

PLANNING DEFINED

Unfortunately, the term "planning" suffers from much abuse. It has become a handy fetish for dictators seeking such razzle-dazzle as trains that run on time or undertakings that command more Lebensraum. Spelled with a capital P, it has been weighed down with political overtones, shot through with metaphysical connotations.

To Building, however, there is nothing either sinister or occult about the term. Planning is Building's chief stock in trade; without planning, it could not function. Stripped of voodoo, planning may be defined as 1) the anticipation of *needs* and 2) the coordination of *means* toward 3) the development and execution of a *pattern* whereby the means meet the needs.

Any definition of planning is incomplete, however, unless it also covers the dimensions of space and time and recognizes the need for planning control so that each activity may be planned as an integral part of a harmonious whole. There are several shining examples of such comprehensive planning in successful operation: Ford's industrial empire, Tennessee Valley Authority's vast power project, Rockefeller Center's towering commercial city, the U. S. Navy's current expansion program, Adolph Hitler's crack military machine.

As any comprehensive plan must, the plans laid by these going enterprises are geared to mesh with the changing standards that come with advances in science and technology. New needs continue to be discovered for man and society. In the process, the existing means grow obsolete, and patterns once deemed highly desirable suddenly become worthless. To be worth its salt, a plan must be dynamic rather than static. Not only must it promote change, but it must be capable of change itself.

3. *"I can fully appreciate and understand why a neighborhood should and could regulate the number, quality, and nature of its individual buildings; similarly, I can see some possibility for a city or community regulating the number, quality, and nature of its neighborhoods or subdivisions; but when it comes to a region such as a State regulating the number or growth of its cities, the analogy begins to become a little vague; and when it comes to the type of regulation which it is proposed the Federal Government shall have over the number, type, and quality of its individual regions, your article leaves me entirely in the dark. It is true that you suggest that some future red, white, and blue suspendered Jesse Jones with a lollipop in one hand and a black snake whip in the other may be able to convince local governments that Uncle Sam knows what plans are best for little children, but whether or not this type of centralization of power in the Federal Government is the best thing in the long run for us, is, I think, still open to question."*

William B. F. Hall
Fort Wayne, Ind.

PLANNING IN THE PAST

The foregoing introduction does not imply that there has been no planning in the past. In the past 25 years, U. S. planning facilities have enjoyed a mushroom growth. There are now almost 30 national planning agencies, both public and private—from the National Resources Planning Board, which inventories the total U. S. productive energy, to the American Society of Planning Officials which, more specifically inventories the total U. S. planning brain power. Out of a representative group of the 118 large U. S. cities, all but sixteen have their own city planning commissions, most of which are municipally financed and have paid staffs. Many States and many regions within States—from New York to Oregon, from the District of Columbia to the Willamette River Valley — have sponsored planning groups and have followed their plans in some degree. Over 2,300 private trade associations provide a ceaseless flow of information concerning highways, land, building materials, fixtures, and structures—in fact, any and all kinds of particular research on the status quo of each productive effort, its troubles and its plans for remedy and for the future.

All of these organizations, national, State, local, public and private are responsible for the present degree of planning, its benefits and, in a derivative sense, its evils. For, just as all planning organizations lack integration, direction and positive powers so too, each of their planning efforts have been piecemeal and therefore often negative and anemic.

City plans and their first functional instrument, zoning regulations, are the most prevalent examples of U. S. planning. And they, too, have a record of

(Continued on next page)

PLANNING IN THE PAST

(cont'd)

at least spotty performance. Because of city plans and their attendant zoning regulations, Akron, Ohio, has effected economies in providing public utilities; Chattanooga, Tenn. has better developed business centers and sub-centers; Grand Rapids, Mich. has reduced fire losses; and in Syracuse, Albany, Omaha, Pittsburgh and many other cities, land values have been stabilized.

However, while zoning has benefitted many a municipality, its abuse has aggravated problems it was intended to solve. For in planning for the tomorrow which never came, our cities were overzoned and in consequence rehabilitation of blighted areas has been more difficult, while extension of utilities to unneeded subdivisions has increased municipal debt. Well known is the example of New York City whose residential zones, if fully developed, could accommodate 77 million people and whose business and industrial zones could provide for 340 million, or more than the combined populations of North and South America. Worcester, Mass. (pop. 195,000) recently found it had zoned enough land for business use to serve a city over 800,000. Des Moines' commercial zones can provide for all of New Orleans, a city four times its size. And these examples are not uncommon.

FAULTS

The planners of the past cannot be indicted entirely for the evils of past planning. The city fathers, confident that rising real estate values would liquidate the debts of the past, looked upon planning as a luxury and gave its authorized commissions no positive power. And as long as the public believed that congestion was a sign of prosperity, not social disorder, its attitude toward planning was apathetic.

EFFECTS

In the early Thirties, the results of short-sighted, unneeded expansion began to appear in every American city. Unheard beneath the tumult of roaring, rapid growth, the planners had long contended that it was unwise to predicate land values, building costs, public utility expansion and municipal debt upon growth which might become static. When the city boosters began to think of themselves as taxpayers and to examine the city books, they had to agree. Hindsight proved that congestion in Detroit was costing the city $12.7 million to widen two and one-half miles of Woodward Avenue, $10 million of which was for the purchase of property, damage and interest; that street widening only accentuated the decentralization and premature subdividing of 27,183 lots of which only 1,179 were used; that pyramiding of utility expansion, excessive vacancies, tax delinquency, reduced assessments finally ended with the complete bankruptcy this year of such communities as Sarasota, Fla., Clawson, Mich., and Eastland, Texas. Land, Building's essential raw material, was selling at retail with speculative profit thrown in. Operating on the fallacious thesis that the supply of land was limited and the supply of population unlimited, land was divided into small lots, re-subdivided into smaller lots. Small scale ownership blocked effective action. Finally, despite the fact that planners had proved that larger blocks save development costs and increase profit margins, subdividers continued to work for the maximum number of building plots on every acre of suburban land.

In brief, Building's post-war pattern implies large scale, long term, flexible planning in the fullest sense of the word:

►A continuous flow of information on trends in all fields of activity in which the industry operates so that new **needs** for the development of new buildings and service networks can be anticipated by Building's planners.

►Equally important, a flow of information on the availability of **means**—people, things, ideas—to satisfy such needs, qualitatively as well as quantitatively.

►The development of specific **patterns**, each necessarily restricted in space and limited in time, but all integrated within a framework so that there can be maximum flexibility in meeting the changing demands of an evolving civilization.

►The development of **controls** that will guide planning in the direction of maximum rather than minimum productivity.

►Finally, maximum **encouragement** to private initiative to function constructively wherein it can and wherever it conforms to the pattern.

SCOPE OF FUTURE PLANNING

Focus of any plan set up by Building for the rebuilding of America must be at least as broad as Building itself. Fortunately, this industry is as wide-flung and penetrating as the whole national economy. Massive, it cuts across the entire country, extends into every region, every community, every neighborhood, every side street. Indispensable, it touches every phase of U. S. life.

But, although it embraces the whole national scene, Building in the past has operated largely within continually narrowing local limits. Planning emphasis has been on geographical subdivision rather than geographical integration. Houses have been built without reference to one another, streets have been built without reference to a neighborhood plan, neighborhoods without reference to the community, and so on. Each has been laid out as a self-sufficient unit that would eventually contain other self-sufficient units.

Splitting up the country into small isolated units undoubtedly has simplified Building's earlier planning. In the process, however, the nation's larger patterns of development have become increasingly confused and distorted. And, the self-sufficient planning entities are usually in technical or economic conflict with one another.

If similar shortcomings are not to be passed on indefinitely, then it is clear that the traditional planning approach must be reversed. Each building problem must be seen also as a problem in large scale planning —the side street (if needed) as an integral part of a functional neighborhood plan, the neighborhood (if needed) as an integral part of a functional community plan, and so on, until the point is reached where every local construction job harmoniously becomes a functional unit within an integrated national pattern of development.[4]

The nation's integration into such a unified productive system is implicit in the dynamic forces of industrial growth. Cities already oversprawl their political limits to merge with other communities, forming ever-widening areas of centralized productive activity. New power, transportation and communication lines and new industries leap blithely across the arbitrarily imposed State boundaries to knit the nation ever more tightly together. The old distinction between city and country continually fades, as the latter tends to take on certain advantages of the former. These are the positive potentials of national development which challenge Building today. And, needless to say, if Building is to plan a harmonious integration of the nation's physical plant in order to obtain continually rising standards of living, then it follows that Building itself must also become integrated.

Planning for the future, however, cannot stop with just an examination of existing needs and the means of obtaining them. Beyond are needs not yet seen but whose coming may be anticipated. These also must be taken into consideration in any full-fledged, long-range program of national development.

Technically, the development and redevelopment of the U. S. plant presents no insurmountable hurdles. It should be relatively easy, for instance, to perfect a new urban pattern for Washington that would make this city (now congested with too many people, buildings and vehicles in too small an area) fully up-to-date as the nation's administrative center. Likewise for any other U. S. community, large or small: if its needs in relation to those of the whole country can be seen in sufficiently broad focus, a flexible enough pattern of development can be evolved—at least on paper. But all such planning is merely technical virtuosity in a vacuum, unless it can be activated by solutions to the economic problems that have choked initiative in the recent past.

Economically, the means by which existing obstacles are to be leveled and the technical objectives achieved is the nub of the post-war planning problem. To crack it is the most difficult of the tasks before Building's planners.[5] But unless it can be cracked, any proposal for rebuilding America, no matter how excellent technically, will be ineffectual and worthless.

4. *"We must not overlook the fact that even under present conditions, this type of planning which requires that individual ideas, interests, plans, and responsibility make way for the one big plan, tends to discourage the type of individual initiative and responsibility which in years past have been largely responsible for progress in America."*

W. M. Brock, President
Gem City Building & Loan Association
Dayton, Ohio

5. *"This seems to imply that the Building Industry is somehow to solve a formidable list of social problems. That seems to me fantastic. One can readily see that the industry has a place and a stake in the needed solutions, but the clear implication of the article is that somehow the industry can reasonably be expected to produce a new social order, by itself."*

George Young, Jr.
Professor College of Architecture, Cornell University
Ithaca, N. Y.

PLANNING IN THE FUTURE

In **transportation:** Mass - production of high-speed aircraft implies for the post-war period a phenomenally rapid development in private ownership of planes. Conceivably, the two-plane hangar can become as familiar an appendage of the American home as the two-car garage. In fact, even before streets and highways laid out originally for horse-and-buggy travel can be revamped satisfactorily for motor car travel, provision will have to be made for new landing fields and new networks of air travel.

In **power:** Current plant expansion augurs much for a post-war development of more labor-saving devices for the home. Even more significantly, current laboratory experiments on U-235 as a new source of energy suggest the possibility that eventually all buildings may be planned as units fully independent of existing fuel or power supplies.

In **agriculture:** Although it leaves in its wake the tragedy of evicted share-croppers as a social welfare problem, on its positive side large scale mechanized farming brings with it the promise of more abundantly varied foods and the attainment of new concepts of nutrition. For building this development (as does the even more revolutionary field of "tray-farming") represents a new field of opportunity—highly specialized farm structures which could never be put up in odd moments by untrained farm boys.

In **recreation:** With an age of leisure opening up as the antithesis to the lack of planning which results in unemployment, more time will be available for the enjoyment of life. Greater utilization and extension of the recreational plant can be expected. Cities, heretofore largely oblivious to the physical and mental well-being of their citizens, will have to provide recreational facilities in specialized abundance if they are to be deemed livable.

THE PLAN

It has been shown that the inventory of existing planning facilities is more encouraging than the products of these facilities. Into the spotlight have been thrown some of the troublesome obstacles to past, present and future planning. Finally, it has been demonstrated that Building's new plan for the future must be big, comprehensive and positive in its technical details and must be bound to workable solutions of the economic problems which it entails.

Now, without pretense of finality or hallucinations of divine power, THE FORUM suggests the outline of such a post-war pattern for Building—first, its objectives and, then, the methods by which they may be accomplished.

OBJECTIVES

As for the past, Building's post-war pattern aims at the correction of mistakes already made—at least insofar as remedy is physically possible and economically plausible.

For the present, it defines Building's role in the achievement of the "more abundant life"—marked improvement in the appearance and efficiency of the nation, its regions, States, counties, municipalities and rural areas; betterment of the environment of all U. S. citizens, at work, at play, at home; widening of the opportunity for private enterprise to develop national resources to the fullest extent and at fair profit. For the future, Building's post-war pattern contemplates the laying of a firm foundation for progress—flexible enough for all contingencies.

To obtain these broad objectives, the plan proposes immediate and simultaneous action on several specific fronts and in several specific directions on each front:

PLANNING

Coordination of planning activity of local, regional, and national agencies
Realistic rezoning in line with anticipated population trends
Establishment of a national "Office of Planning Management"
Expansion of existing planning facilities

BLIGHT CURE

Control of decentralization
Urban reconstruction
Expansion of public recreational facilities
Provision of adequate parking areas
Improvement and integration of transport facilities

LAND

Increased public ownership
Reclassification of use
Deflation of unreal valuations
Control of usage

NEW CONSTRUCTION

Lower material costs
More efficient techniques
Lower labor costs, but at the same time greater employment and higher annual wages
Lower construction costs

TAXES

Taxation for municipal services rendered based on income actually realized
Reduction through increased efficiency of the public "plant"

BUILDING INDUSTRY

Integration
House cleaning
Bigger business

ELIMINATION OF RESTRAINTS

Rationalized building codes
Cessation of labor racketeering
End of collusion by dealers and contractors and manufacturers

METHODS

Simple to state, the foregoing specific objectives of Building's post-war plan are difficult of accomplishment. But none is impossible, if energetically pursued by an organized industry aroused to the urgency of each objective. Most of the methods by which they may be accomplished demand hard work and much sacrifice—a different variety of the same "sweat and tears" that must be shed for the successful prosecution of a modern war. Many of the methods have been advanced before—but usually individually and by groups which have stood to benefit by the suggested actions. No claim of originality is made herein; on the contrary, a grateful nod goes to many a leader in various fields of Building. Perhaps the integration of their suggestions into a broad pattern will produce the fruit that their individual efforts—like piece-meal planning—have failed to achieve.

Herewith, then, a discussion of the first broad heading—that of Planning—to which developments in other directions must all be geared. Subsequent articles in this series will analyze each of the other subjects in similar detail.

PLANNING

The 670 planning agencies in the U. S. today must be expanded to blanket the entire country. All 3,000 counties must follow the lead of those which now have such planning facilities. All 36,000 communities —particularly the 16,000 which are incorporated municipalities—must follow the 1,200 which have established planning boards, however perfunctory. The few States without planning boards must immediately step in line. Finally, each geographic section of the country must have its regional planning agency.

But, these new agencies should not be exact duplicates of existing facilities. In fact, most of the latter must be reorganized, restaffed, reconsecrated. Effectively to direct Building's post-war pattern on local fronts, all planning agencies must be accepted as vital and big cogs in local government machinery, for planning is a logical function of government. These agencies must be rid of long-haired dreamers whose schemes make as little sense and have as little chance of execution as their scratch-pad doodles. They must be staffed with competent planning personnel —hard-headed realists,[6] practical men of prestige who are visionary only to the extent that they see in the reconstruction of the U. S. physical plant new social as well as economic horizons. They must be courageous and vigorous, and, while some will serve as "$1 a year" citizens, the others must be well paid. Planning has suffered from stingy appropriations. Since it has also suffered from lack of legal power, local planning boards or commissions should be lifted from their niches of independence, placed close to the legislative branches of local government as

6. *"While I agree that our planning agencies ought to be rid of 'long-haired dreamers' with 'scratch-pad doodles', I am not prepared to urge that the fate of our cities be left entirely in the hands of the so-called 'hard-headed realists'. Every city has some men of vision who are not too visionary to be of use as members of the planning board."*
Harold S. Buttenheim, Editor
The American City
New York, N. Y.

integral departments and given powers commensurate with their importance.[1] They must be given control over the location of *all* public improvements and public utilities—publicly owned construction projects and transportation, communication, power, water, sewage disposal facilities whether public or private. The shape of a locality's industrial and commercial development should also be in their hands rather than under the usually short-sighted eyes of chambers of commerce.

Before these planning departments can be fully effective, however, they must have completed their No. 1 task: preparation of master plans for their respective bailiwicks—towns, cities, counties, States and regions. Conceived in broad outline, these master plans of reconstruction and development must be inter-related so that they jibe with one another and when put together blanket the entire country. They must be specific and, at the same time, flexible. For this reason they should go no further than this:

1 Streets, bridges and tunnels
2 Parks and parkways
3 Public building sites
4 Public reservations
5 Zoning districts
6 Public utility lines
7 Waterfront piers
8 New real estate subdivisions

REZONING

When a network of such master plans has been developed, localities will be better able to undertake prudently the huge problem of zoning. Zoning ordinances are the teeth of master plans. While a plan must necessarily be a broad and general pattern, zoning is a precise and exact control employed to effect the master plan, to transfer it from paper to earth. In the first place, zoning must be extended to the 34,000 municipalities, towns and townships which are currently without it (less than 2,000 are now zoned) and beyond them into the hinterlands via county zoning. To this end, new enabling legislation must be enacted in the 12 States which now limit specified municipalities or classes of municipalities and in the 39 States which do not now permit the zoning of all their counties. (Seven of these permit limited county zoning.) And, existing zoning must be reviewed in the same manner.

A link between the master plan and zoning, the land use map of most communities must be revised along with their zoning regulations. The former are usually dictated merely by topography, past development and present trends and by the routes of existing transportation facilities; and the latter are deficient primarily in their area and density requirements. The land use map must be revised not only to control future development but, with the aid of retroactive legislation, to reinstate existing areas as they should be. The major factors in each case are the economic and social needs of the community and its people.

1. *"I believe that the planning function is advisory. I believe that in so far as you give the planning board powers you tend to destroy that board, and I believe that this inevitably happens (see Robert A. Walker's book,* THE PLANNING FUNCTION IN URBAN GOVERNMENT*)."*
Walter H. Blucher, Executive Director, American Society of Planning Officials Chicago, Ill.

No longer should land use maps and their activating zoning ordinances be based merely upon the recognition of the obvious and be aimed merely at the prevention of the undesirable. They must henceforth be geared to acknowledge and correct their own past mistakes and to pursue immediate and distant goals in community development. And, according to a 15-year-old decision of a State supreme court, this progressive type of zoning is legal: "Zoning in its best sense looks not only backward to protect districts already established but forward to aid in the development of districts according to a comprehensive plan having as its basis the welfare of the city as a whole."*

Working within the framework of an intelligently drawn master plan and under the direction of an intelligent planning board, zoning alone may correct or alleviate many of the evils which now plague all U. S. cities.

1) The design, architectural style and appearance of buildings may be controlled—particularly when they are close to public properties. [8, 9]

2) Overhead signs and highway billboards may be controlled, even outlawed.

3) The construction of obviously out-of-place buildings—including residences—may be prevented, particularly if the prevention will protect neighboring values.

4) Non-conforming uses—both buildings and land—may be eliminated by police power on the charge of disturbance of the economic or esthetic peace.

5) Provision of adequate offstreet parking space may be required of all new residential, commercial and industrial construction projects.

6) Use of flood plains for anything but such easily evacuated enterprises as crop agriculture and open industrial storage may be prohibited for safety's sake.

7) Water sheds may be protected.

8) Soil may be insured against erosion by prohibition of certain types of cultivation

9) Population density and land use intensity may be controlled, retroactively as well as for the future.

10) Scattered urban expansion and premature suburban development may be prevented.[10]

11) Proposed or possible rights of way and public areas in a long-range program may be protected and provided for immediately either by preventing development altogether or by permitting only low intensity use of the land which may be easily changed when the public improvements are begun. (This possibility of transitional zoning merits detailed examination by planners, for it offers a major means of flexibility in all phases of the art of zoning.)

*Zahn v. Board of Public Works, 195 Cal. 513

8. *"This is like the chloroforming of morons—dangerous. Fine Arts Commissions will unfortunately suppress Frank Lloyd Wright as happily (or more happily) as they will 'The Brown Derby'."*

John Burchard, Director
Albert Farwell Bemis Foundation
Cambridge, Mass.

9. *"God forbid. Think of the Washington Fine Arts Commission, of the Municipal Art Commission of New York, of the stuffed shirts, decayed dodos and self-important poops on various 'art' bodies everywhere!"*

Henry S. Churchill, Architect
New York, N. Y.

10. *"The idea of restricting subdivisions until their need is reasonably well established is, in my judgment, a very fine one. I have seen some evidence of its effectiveness here. In our best residential area there are some natural barriers to its extension. Should it be extended, a very important highway would have to be crossed. Consequently, there has been a revival of interest in some of the lots that were left during the era of the 20's, and some very desirable development has and is taking place. This eliminates the necessity of extending streets, light systems, sewers, and water lines, etc., and tends to balance the area in question. If some plan could restrict new subdivisions, this same thing might happen in other areas, and might conceivably cause rehabilitation in certain blighted areas. In this connection, I am of the opinion that cities should not extend the convenience and protection given to its citizens to areas not within its own jurisdiction and boundaries. I have little doubt but that this would decrease, to a certain degree, the tremendous amount of building just outside the city with the eventual result of extending the city limits and leaving many desirable areas vacant. These areas, now skipped over, could be serviced by present facilities whereas the extended boundaries require new and large expenditures for the provision of equal convenience."*

Ed Mendenhall, Realtor
High Point, N. C.

From this partial list of possibilities, it is apparent that the zoning tool may be honed to a much sharper edge than has heretofore been conceived, that, thus perfected, comprehensive zoning expertly administered under comprehensive master plans should be a major factor in Building's post-war pattern.

NATIONAL COORDINATION AND CONTROL

However comprehensive, local planning cannot approach perfection without national coordination, control and assistance. Just as rural, town and city master plans must be dove-tailed into a master county plan, and county plans into State plans, State plans into regional plans, so must regional plans compose into a vast national pattern. In fact, the development of all these plans must begin at both ends of the geographic scale—national planners should help draw the master plan of Ponca City, Okla. and vice versa.[11] Without such cooperation all up and down the line, the plan with which Building proposes to blanket the post-war U. S. will ultimately look like a giddy patchwork quilt, not skillfully woven broadloom carpet.

First off, there must be a central agency of planning, control, coordination and enforcement within the Federal Government.[12] Fortunately, its foundation is already there in the National Resources Planning Board. Organized in 1933 as the National Planning Board of the Works Progress Administration, its personnel was and still is essentially the same as that of ex-President Hoover's Committee on Recent Social Trends. It is a good foundation, for: 1) Its presidentially appointed members are not representatives of the various interests which enter into the life of a community, and objectivity is therefore possible. 2) Its present function is important; cooperation and consultation with other Federal agencies, States, municipalities and public and private planning and research institutions toward the preparation of plans for the orderly development and use of land, water, and all other national resources. Purely advisory in character, NRPB makes its reports to the President, has no legal or formal rights and works quietly on a Federal allowance of about $1 million per year, has yet to stump for the adoption or execution of any of its plans and recommendations.

NRPB, however, is only the foundation for the needed national planning agency. There must be a peacetime OPM—"Office of Planning Management"—legally empowered to put the master national plan into effect.[13] Under its wing would come all existing Federal agencies engaged in the planning, financing and construction of physical structures: the NRPB, the Federal Works Agency (including Works Projects Administration, U. S. Housing Authority, Public Buildings Administration, etc.), the Federal Home Loan Bank Board (including Home Owners Loan Corp., Fed-

11. *"I can't help admiring your optimism as indicated by your evident belief that federal, State, county, municipal, community, village and local planning boards will all so rapidly and satisfactorily cooperate one with another that any given building proposition will receive final approval and 'go ahead' sign from all of them sometime within the life of the architect making application therefor."*

Harvey Wiley Corbett, Architect New York, N. Y.

12. *"I feel strongly the need for a democratic way to distribute and decentralize planning responsibilities, some way which will bring the application of the idea down to local consciousness without laying it open to uncertain fate at the hands of local politics. In our section of the country, the local draft board idea has accomplished this sort of thing in a way—and for years the so-called Agriculture Extension program of the U. S. Department of Agriculture, administered through Land Grant Colleges (Smith-Hughes Law) has been successful in this sort of localization. In some sections I suppose the administration of parts of the PWA, WPA, and the AAA programs has approached this thing I have in mind.* LOCAL *realization of* NEED *and* RESPONSIBILITY, *it seems to me, is absolutely necessary."*

Howard Dwight Smith, Architect Columbus, Ohio

13. *"Given the authority to plan properly, the personnel is of next importance, and behind the personnel the power and integrity of a single name. I immediately think of Senator Norris at whose feet the TVA can be laid, and at his only. There was, at the time of the TVA beginning, practically no other business or political figure with the vision and political integrity to carry it to a successful conclusion. Everyone was against him. It may very well be that the aluminum it will now produce will ultimately win the war. Such a man as Norris must be found."*

George Fred Keck, Architect Chicago, Ill.

eral Savings and Loan Insurance Corp., etc.), the Federal Housing Administration, and work in close collaboration with the Reconstruction Finance Corp. and its numerous subsidiaries and, perhaps, the Department of Agriculture's Farm Security Administration. With a firm hold on the loan and grant purse strings of these agencies, the proposed national planning control agency would be in a position to foster increased local planning and encourage the local execution of the master national plan. [14] And, no new Federal powers are necessary. Thus: the mere announcement that Federal loans and grants would henceforth be reserved for communities with approved master plans and zoning ordinances would certainly achieve the first objective, and the allocation of Federal funds only to important master-planned projects would inspire local initiative and enthusiasm and hasten the execution of local plans.[15]

An excellent opportunity for just such a program of Federal planning control presents itself in the recent establishment within the Federal Works Agency of a Public Work Reserve (a file of PWA-like pump-priming projects for post-war execution—ARCH. FORUM, Aug. 1941, p. 4). If some such strings as those discussed above were tied to these prospective post-war funds, Building's post-war pattern would move quickly into gear, as local governments made themselves eligible for the funds and as Government saw to it that its loans and grants were used only for pivotal projects in local plans.

FEDERAL COOPERATION

In addition to its assumption of the control and coordination of Building's post-war pattern, the Federal government must cooperate with and, in many cases, lead the attack on the individual objectives of the program, discussed in detail below. This function will be primarily one of research, experimentation and guidance in the planning field, coordinated with similar programs covering building design, construction, finance, management and elimination.

In all its relations with the development and execution of the post-war pattern, it is imperative that the functions of Federal Government be clearly defined at the outset. In general, these functions must be limited to those fields in which private enterprise has demonstrated that it cannot or will not operate on a sufficiently large scale. Today, such fields include slum clearance, low rent housing, airport construction, large scale urban rehabilitation, rural resettlement, etc. But there is evidence that private enterprise may eventually step into these fields, in which case Government must willingly step out.[16]

It goes without saying that any plan as big as this must be moved with big money, and a big part of it must necessarily be Federal. But increased

14. *"Is this not a plan by decree rather than by education or the creation of the desire in the minds of the American people? There are indications the American people have given up thinking and are ready for regimentation. Yet, in so short a time, is it not unwise to consider that the people are ready for regimentation?"*

F. J. Plimpton, President, The Producers' Council New York, N. Y.

15. *"I am definitely opposed to further centralization of government in Washington, and I cannot subscribe to the idea that various communities should be bribed into submission by gifts from an already overburdened treasury or compelled by the power of the government. I stress this point because I think that it is a continuation of the policy adopted by the New Deal, which has already led us into dangerous waters, and however desirable the ends may be, I cannot subscribe to the means. I believe that you will make a greater contribution to the country by presenting your splendid program and relying upon educating the people to the point where success can be achieved."*

W. L. Hemingway, President, Mercantile-Commerce Bank & Trust Co. St. Louis, Mo.

16. *"I am personally convinced that the days of subsidized housing are over and that the ingenuity and courage of the American investor must be called into the front line for an attack on this problem. The perfectly ludicrous procedure of building expensive housing for the indigent and asking the average citizen to pay for it, when the average citizen cannot afford a decent house himself, is sufficient evidence that subsidized housing on this basis is certainly on the way out. However, the promoters of this idea are merrily going forward with plans to subsidize on a very large scale after the defense program is over and, unless the average man who believes in the old-fashioned idea of thrift and hard work gets busy, we may find ourselves swamped with more subsidized construction, unless we go to work with a program of the other type."*

Walter R. MacCornack, Dean School of Architecture, Massachusetts Institute of Technology Cambridge, Mass.

public spending and higher public debts are not implicit in this plan. On the contrary, Federal funds wisely *invested* in such a program will save billions in unemployment relief, and, by maintaining the national income at its peak level, provide the tax base for a pay-as-you-go policy of government spending.

MUNICIPAL COOPERATION

Since city planning and city government are blood relations, improvement in the former automatically suggests improvement in the latter. And, there is ample room for city government improvement:

► Its legal powers must be expanded to catch up with its increasingly large responsibilities and activities.

► To the same end, its sources of revenue must be expanded—by such means as a broader tax base, ground rents and building operation. A wholesale revision of the public revenue system is in order.

► Its organization must be modernized to eliminate the overlapping of duplicating and often conflicting authorities and thus to promote efficiency and economy.

► Its amateur personnel, frequently empowered by the spoils system, must be replaced with experts selected on the basis of merit. This will be no mean task for there are 1,125,000 urban government employes, one-third of the publicly employed total, one-thirtieth of the total number of gainfully employed persons in the entire U. S.

► It must recognize its problems and the necessity of planning as a solution and must adequately finance such planning.

► It must recognize that, since the U. S. has come of age, urban growth can no longer be relied upon to cause the automatic reconstruction of out-of-date structures, that the city must now force a solution to this problem.

► Finally, the municipal government must offer active cooperation toward the improvement of tax policies and building codes discussed in detail in later articles of this series.

INDUSTRY COOPERATION

As an obvious prerequisite to the launching of its program, Building must clear its own decks for action. There must be a closer integration of its many components and, perhaps, a liquidation of some of its weaker, least essential parts. It cannot be denied that the automobile industry, which places but one man, the dealer, between manufacturer and purchaser, has something besides mass production to teach the building industry. To save their own skins and promote industry-wide efficiency, the many small independent companies should consider well the possibility of grouping themselves into fewer, larger organizations.

Mandatory are these requirements for the industry as a whole:

► A general house cleaning to raise Building's reputation to the level of its importance.

Further comment by members of *The Forum's* Panel of Advisory Editors will be found on pages 80, 84, 88, 92, and 96. For an outline of subject matter to be covered by future articles in this series, see the announcement facing page 409 in the June issue.

► A realistic attitude toward progressive developments in design, construction and materials. Strict, dumb adherence to tradition—merely because it is tradition—is deadly.

► A willingness to experiment as great as its willingness to speculate.

► A spirit of intra-industry cooperation as great as its spirit of intra-industry competition.

► A conception of building not only as the construction of individual projects to serve individual purposes but as individual projects in a unified, organized pattern to serve the community.

►A better understanding of the value and technique of large scale promotion.

► An active support—with sacrifice if necessary—of all the planks in the post-war platform.

In addition to the reforms cited above, it is imperative that industry cooperation take the concrete form of private reconstruction under such legislation as New York State's new Urban Redevelopment Corporations Law (ARCH. FORUM, June, 1941, p. 449) and similar legislation just adopted in Illinois and Michigan. These bills permit a corporation which has acquired 51 per cent (60 per cent in Illinois) of a site for a publicly approved project to acquire the balance by condemnation.

PROVISION FOR ELIMINATION

One big reason for the current plight and blight of communities is that past planning has covered only new construction, has given no thought to the elimination of this construction when it has served its purpose and worn out. This mistake must not be made again. Zoning must provide for the progressive elimination of non-conforming uses. Larger buildings should be designed so as to facilitate replacement of mechanical equipment likely to become obsolete without disturbance of the basic structure. The owners of buildings of all types must write off their investments over varying but fixed periods of years and must be prepared to recondition or demolish them when their time is up.[17]

PUBLICITY AND EDUCATION

While this post-war pattern is for execution by Building and the various subdivisions of Government, it cannot be successfully achieved, nor even successfully begun, without full public support. Therefore, during the life of the national emergency, while Building is perfecting its program for launching at the declaration of world peace, it must also sell its ideas to the men in the street.[18] The public must become familiar with the future consequences of planlessness, with the social, esthetic and profit possibilities of a national master plan and with the necessity for equipping this plan with legal teeth.

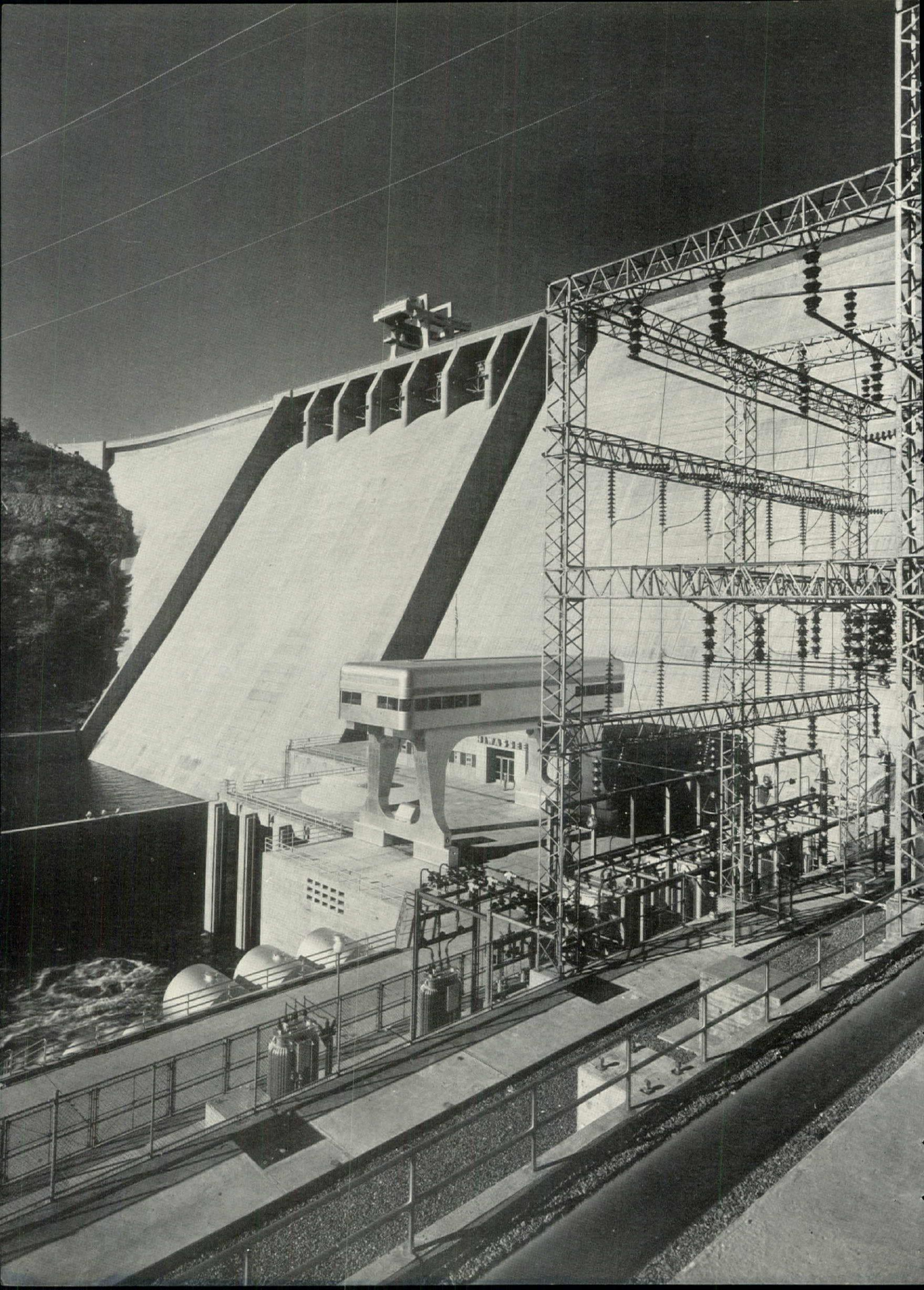
Building must work to a plan—each building to its neighborhood, each neighborhood to its community, each community to its region and ultimately each region to the nation.

17. *"Physical deterioration of buildings is minor to obsolescence. Many of the finest buildings in the world are many hundreds of years old, but the automobile, telephone, radio, shortage of service, and birth control have destroyed many residences while still in good physical condition. Those changes and their effects were not foreseen and we cannot foresee the next changes which are sure to come. Wise planning, however, could lessen the shock of such changes. I still believe that sound good construction is the best and should pay, but if a policy is adopted to condemning buildings to short lives, shoddy construction will be encouraged. Good planning should encourage good buildings and longer lives of buildings."*

Henry R. Brigham, Attorney
Boston, Mass.

18. *There is no question but that any hope of carrying out such a program as you have envisioned depends very largely on the support of an informed public and this informed public is almost non-existent at the present time. I can think of two ways in which the post-war pattern doctrine might be promulgated. One way would be to make use of the well-known chain idea by urging every one of your readers who is interested, to take the trouble to inform at least one other person of the possibilities inherent in such a plan and to persuade this other person, in turn, to inform one other person. The members of your Panel of Advisory Editors, should, of course, be the first to start this sort of education moving. Another step which might be taken would be to urge the formation of citizen groups, such as the Citizens' Housing Councils of New York and Los Angeles; the San Francisco Housing Association, and the California Housing and Planning Association, which would interest themselves in, and advocate planning for a post-war world. Such groups must be developed all over the country, even in quite small communities, it seems to me, if any large proportion of the public is to be made aware of the great value of planning and of the dire need of preparing for the post-war reconstruction period."*

Howard Moise, President
California Housing and Planning Association
San Francisco, Calif.

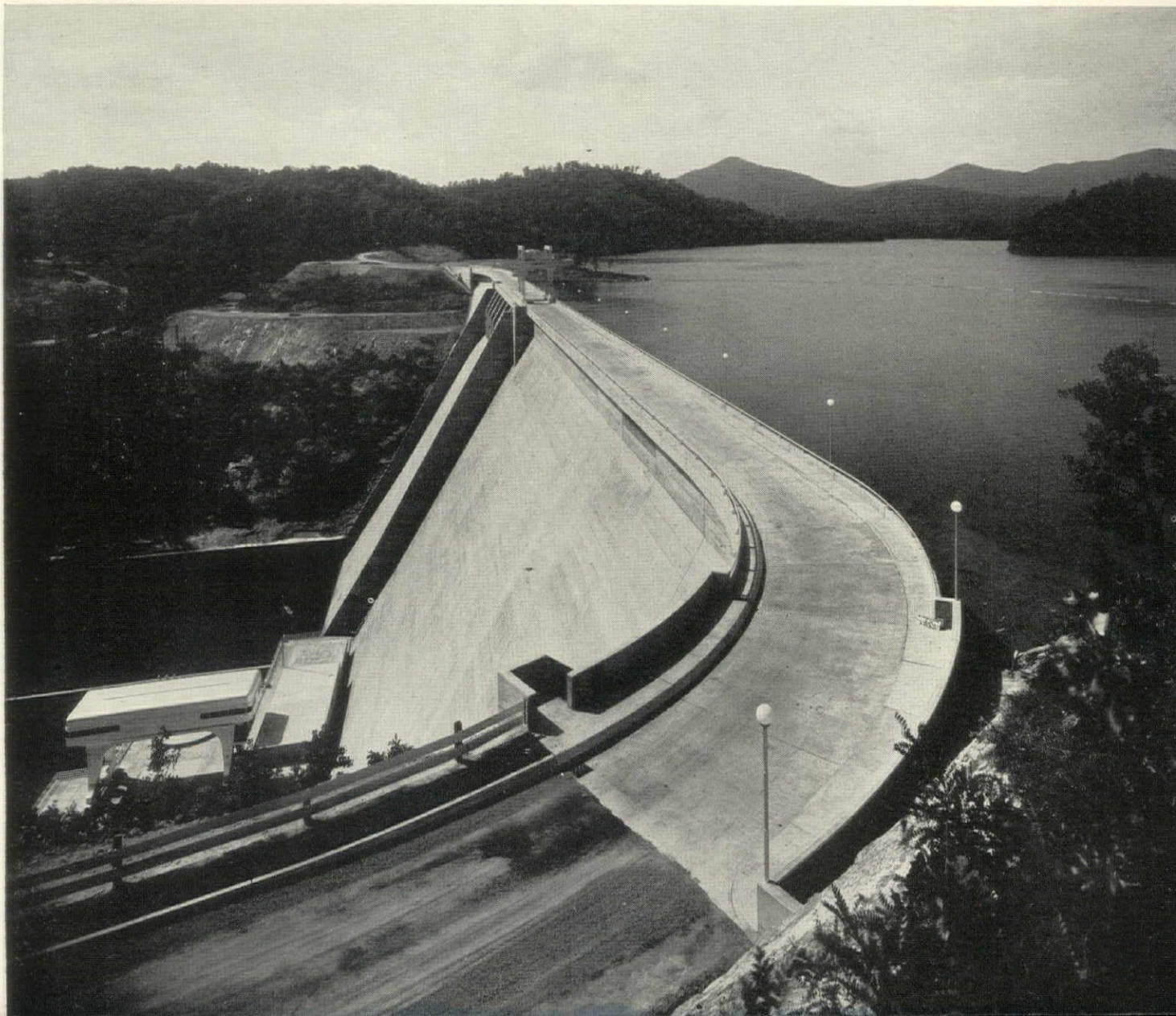


HIWASSEE DAM TENNESSEE VALLEY AUTHORITY

THEODORE B. PARKER, CHIEF ENGINEER; ROLAND A. WANK, HEAD ARCHITECT
HARRY D. TOUR, SENIOR ARCHITECT

Hiwassee is the second of the two great storage dams which help control floods and maintain water levels on the Tennessee River. Like Norris dam it is a high, enormously massive structure which powerfully expresses its major function of impounding the waters of an artificial lake. Its own power output is relatively small but released water creates power at all main river dams below. A comparison between this and the earlier work of TVA shows that the high standards of design previously established have been more than maintained. Most noticeable of the improvements are to be found in the details, in the cranes, lighting standards, railings and other minor elements. Among the more striking features of this dam is the outdoor power unit, the metal housing for which can be seen on the opposite page, just to the left of the gantry crane.

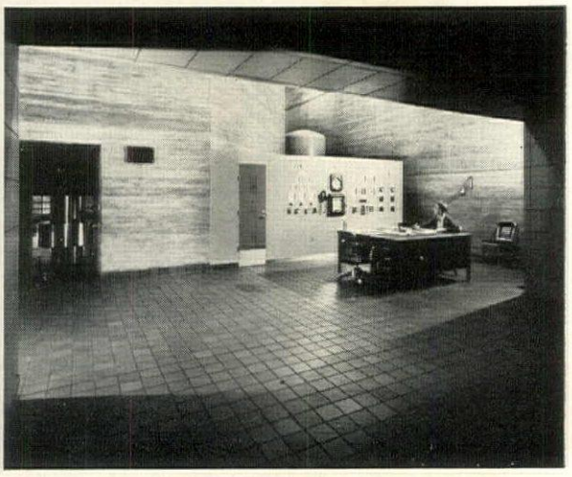
Photos. TVA—Charles Krutch



HIWASSEE DAM

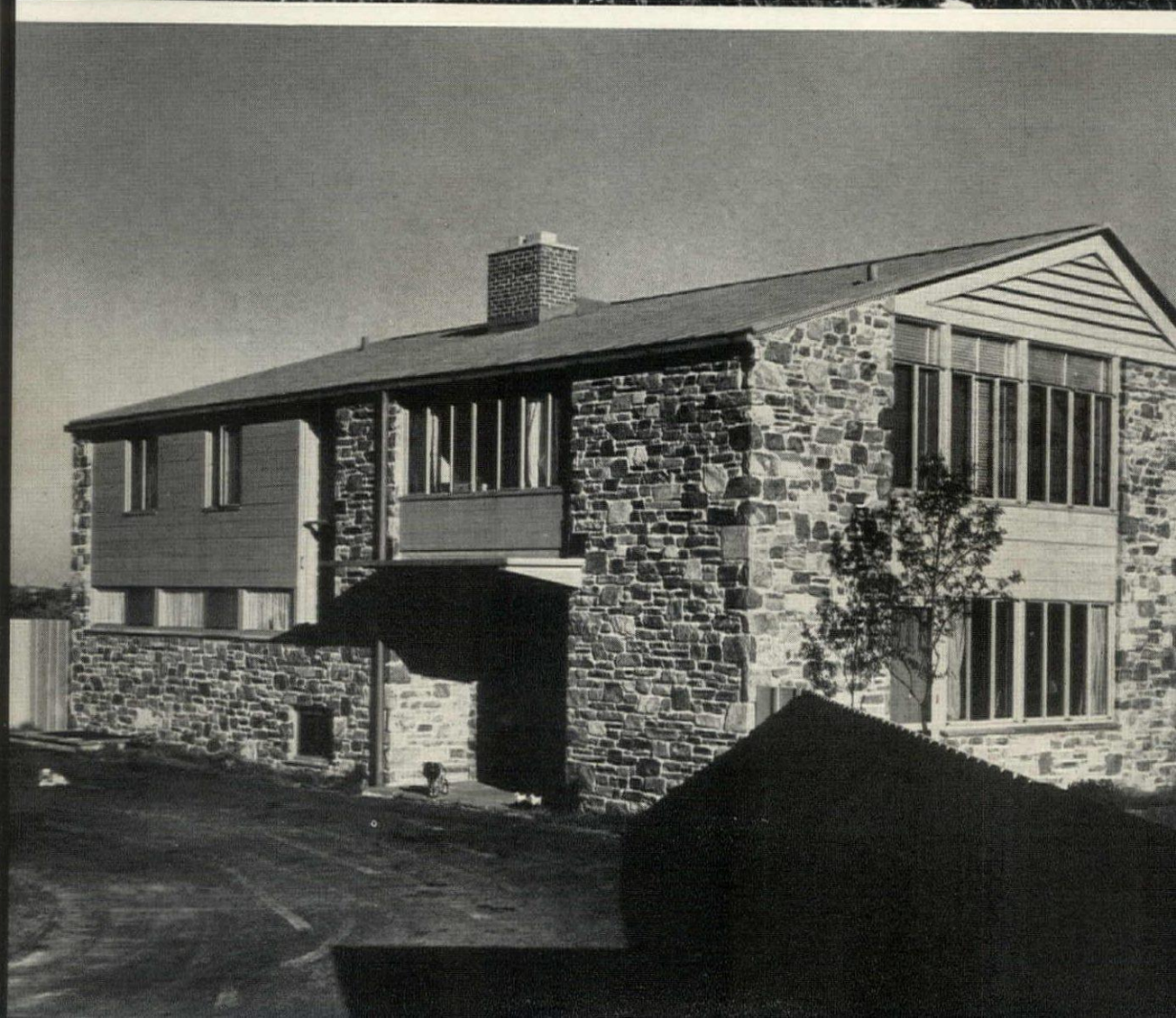
CONTROL ROOMS

The photographs above show the visitors' building and parking facilities. As in the other TVA projects, there is ample provision for unobstructed views of the dam and surrounding landscape. In the illustration showing the control room, the unsymmetrical design for cove lighting should be noted. All instruments face the source of illumination, which is sufficiently diffused by the curved ceiling to prevent the occurrence of objectionable shadows.



HOUSES

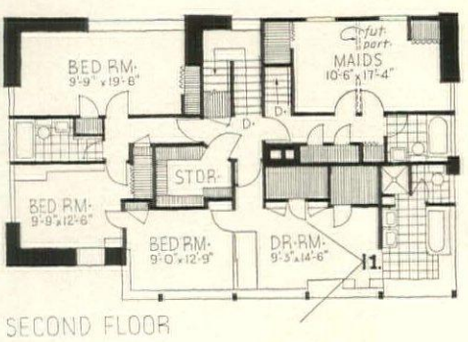
HOUSE IN WHITEMARSH VALLEY, PENN. KENNETH DAY, ARCHITECT



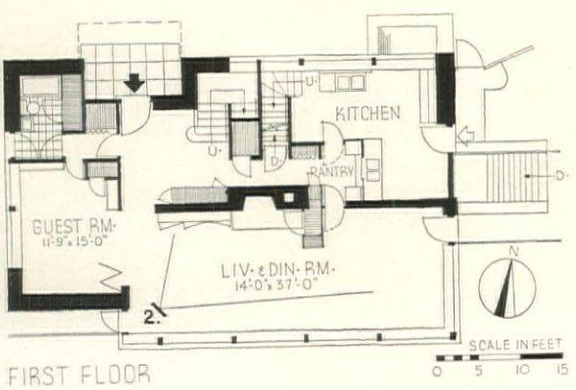
C. V. D. Hubbard

NORTH SIDE

SOUTH SIDE



SECOND FLOOR



FIRST FLOOR

HOUSE IN WHITEMARSH VALLEY, PENN. KENNETH DAY, ARCHITECT

VIEW 1. *C. V. D. Hubbard Photos*

VIEW 2.

The architect comments:

"The cockeyed roof was evolved in an effort to make the house look something like some old sheds which were on the property and which had bona fide cockeyed roofs. I also had in mind that a house which was largely solid on the north side and largely glass on the south side might well be expressed by a roof resulting from a cantilever which would throw most of the weight away from the glass side. I may say that this idea did not work out at all. But the house seems quite nice anyway.

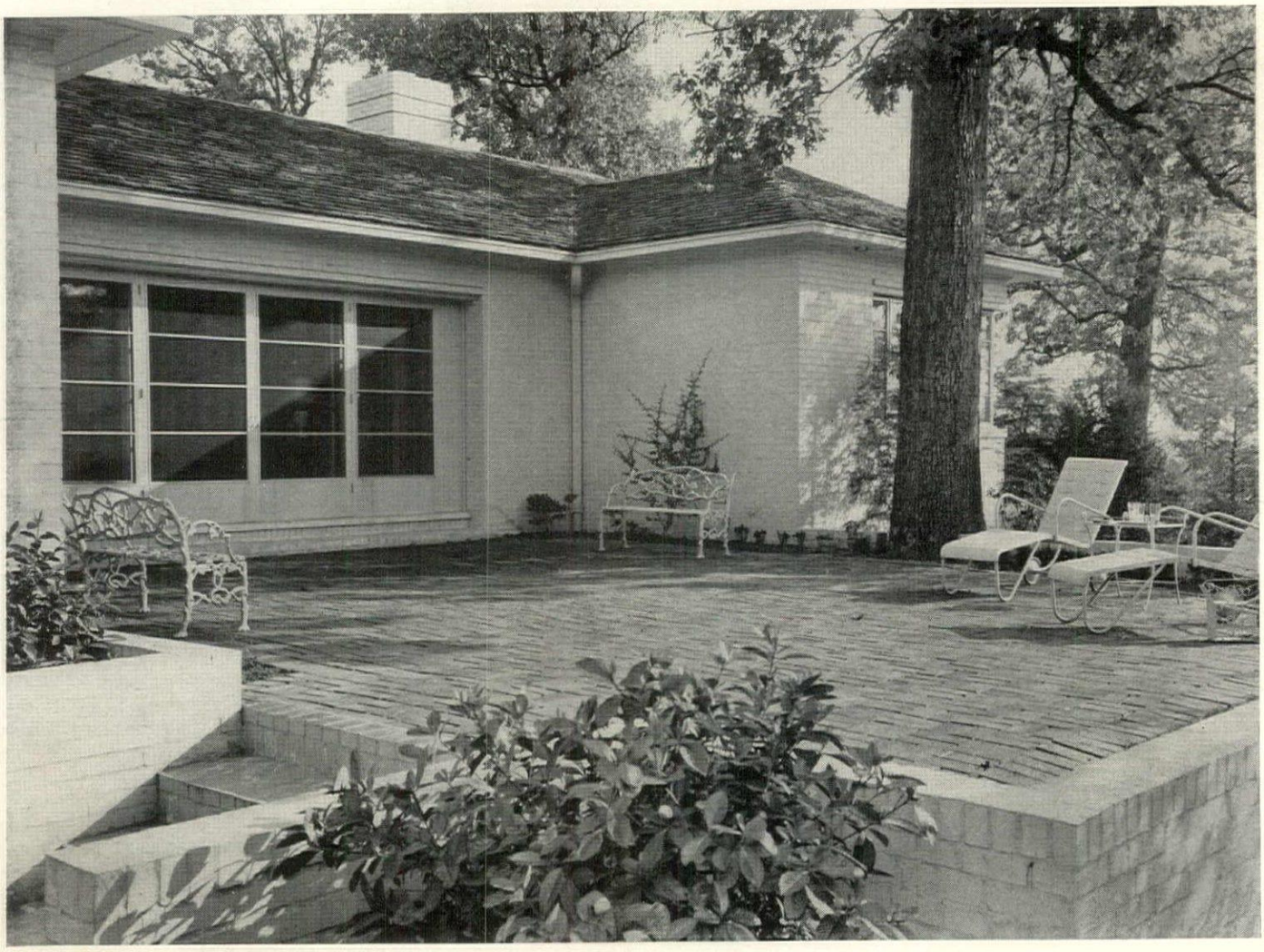
"The winter sun does its stuff on the glass to such effect that the fuel bill is no more than in the client's previous smaller house. The overhangs keep off the summer sun so that the place is cool (really). The warm air heat is poured up through continuous slots in the window sills and really works —no down drafts.

"The second floor construction consists of beams on 9 ft. centers, spanned by 3 x 8 in. planks. This makes a very handsome finished floor and finished ceiling and is, I am assured by the contractor, somewhat cheaper than conventional joists, rough and finished floor and plastered ceiling. It also has the advantage of increasing the ceiling height about a foot more than normal construction. It has the disadvantage that the 8 in. width of plank shrinks and reveals a joint of ¼ in. or more which looks very handsome but to which the clients take exception on the ground that it might fill up with dirt. Whether it does or not no one knows, certainly not the client, and no one really cares. Also, the planks leaked pitch on the client's wife's hair and so the face of this magnificently expressed floor has been covered on the bottom with insulating board and on the top with rugs, so that no money is saved and nothing expressed."

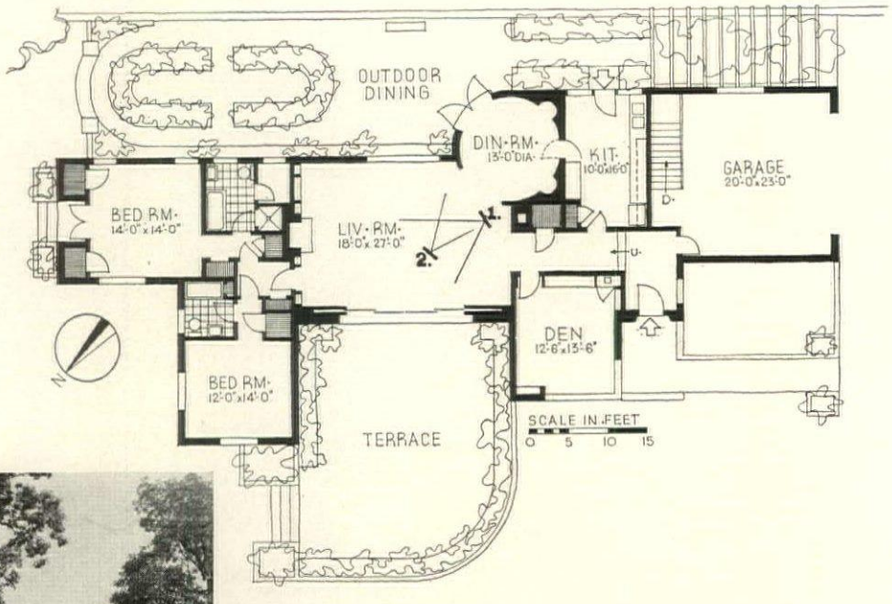
CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—local stone, wood furring, Arborite lath, Atlantic Gypsum Products Co., and plaster. Floor construction—wood joists, maple and Douglas fir plank finish.
ROOF: Covered with tin.
FIREPLACE: Damper—H. W. Covert Co.
INSULATION: Attic floor—rockwool.
WINDOWS: Sash—steel casement, Hope's Windows, Inc. Glass—quality AA and polished plate, Pittsburgh Plate Glass Co.
FLOOR COVERINGS: Main rooms—rugs. Kitchen and bathrooms—linoleum, Armstrong Cork Co.
HARDWARE: By Schlage Lock Co. and P. & F. Corbin.
ELECTRICAL INSTALLATION: Wiring system—BX. Switches—Hart & Hegeman Electric Co.
BATHROOM EQUIPMENT: By Kohler Co.
PLUMBING: Soil pipes—cast iron. Hot and cold water pipes—copper.
HEATING: Forced warm air system including filtering, humidifying, zone control, Delco Appliances Div., General Motors Corp.

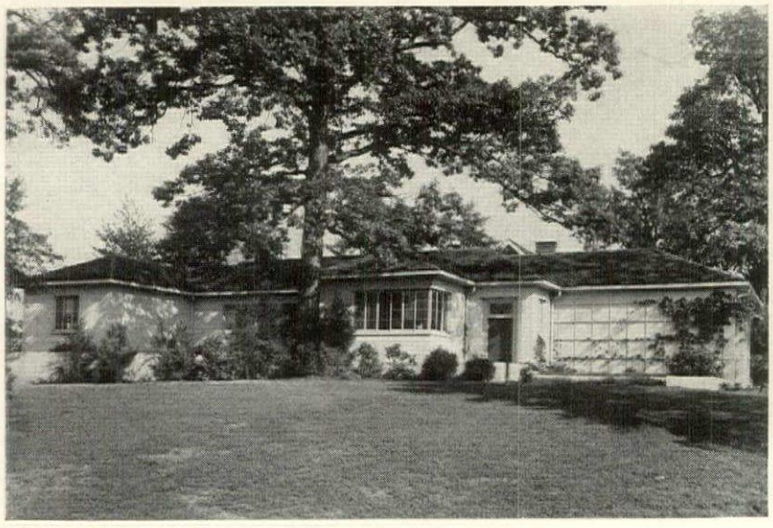
TWO BEDROOMS, TWO BATHS, DEN, SEPARATE DINING ROOM



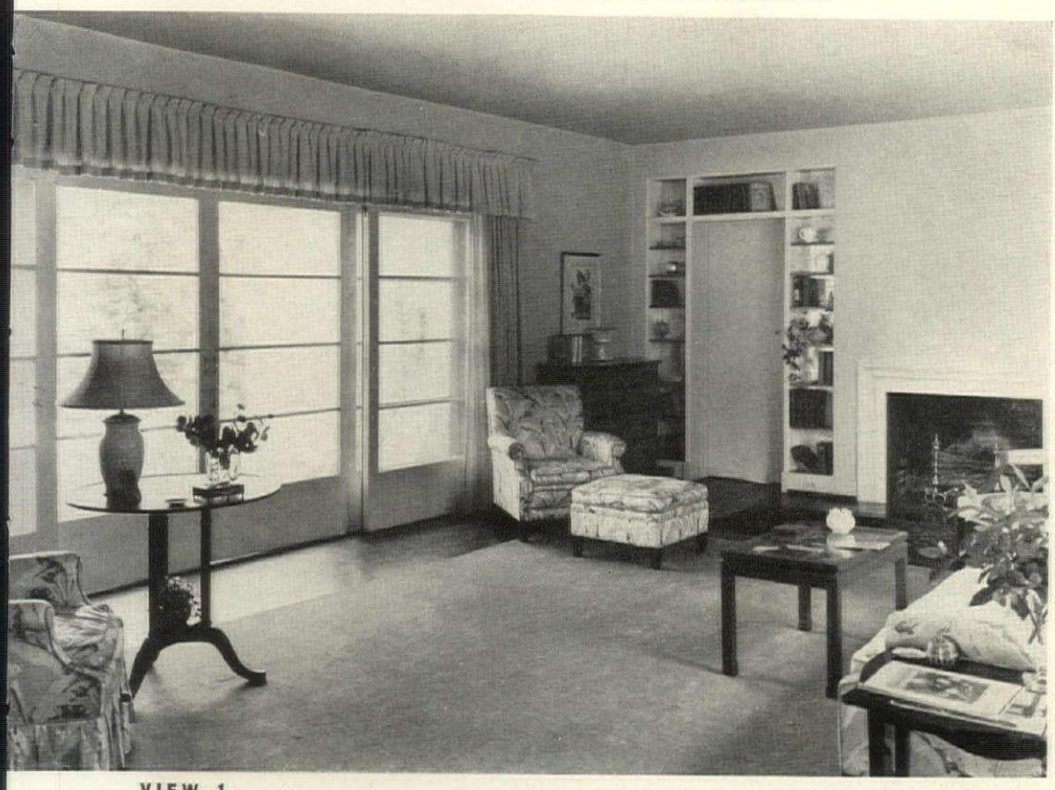
TERRACE



NORTH ELEVATION



ROME, GA. RICHARD L. AECK, ARCHITECT



VIEW 1.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—brick veneer, 1 in. air space, 30 lb. felt, sheathing; inside—studs, metal lath and plaster. Floor construction—sub-floor, felt and oak finish.
ROOF: Covered with clay shingle tile.
FIREPLACE: Damper—Donley Bros.
SHEET METAL WORK: Flashing—copper; remainder—galvanized iron.
INSULATION: Ceiling—4 in. glass wool.
WINDOWS: Sash—steel casement, Truscon Steel Co. Glass—double strength, quality B, Pittsburgh Plate Glass Co.
WALL COVERINGS: Den—white pine. Bathrooms—tile. Remainder—plaster.
HARDWARE: By Schlage Lock Co.
PAINTS: By Pratt & Lambert, Inc.
ELECTRICAL INSTALLATION: Wiring system—BX. Switches—General Electric Co.
KITCHEN EQUIPMENT: Range—Hotpoint, Edison General Electric Appliance Corp. Refrigerator—Electrolux, Servel, Inc.
BATHROOM EQUIPMENT: By Crane Co. Cabinets—Miami Cabinet Div., Philip Carey Co.
HEATING: Gas fired furnace, winter conditioning, filtering, etc., Lennox Furnace Co. Regulators—Minneapolis-Honeywell Regulator Co. Water heater—Crane Co.

VIEW 2.

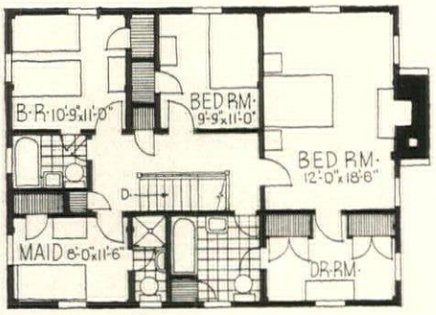
Another excellent example of the single-story plan in which the living room is used as a connecting element between living room and bedroom wings, this design shows an admirably restrained use of both modern and conventional details in a contemporary whole. Particularly interesting is the successful use of the round dining room and the two-exposure living room, opening on paved terraces on either side. Also worthy of study is the placing of the house on the lot, with garage, kitchen and den at the front, leaving the balance free for outdoor living and affording maximum privacy for the bedrooms. Cubage: 32,000. Cost: $13,500.

THREE BEDROOMS, TWO BATHS, MAID'S ROOM & BATH, GARAGE

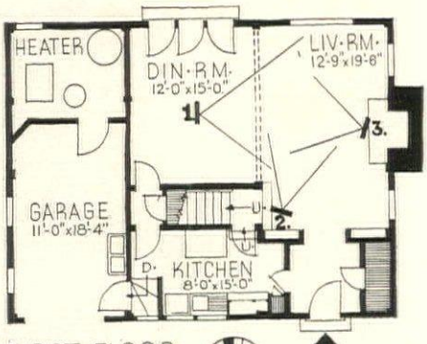
GARDEN SIDE

Samuel H. Gottscho Photos

ENTRANCE SIDE



SECOND FLOOR



FIRST FLOOR

SCALE IN FEET

0 5 10 15

N

VIEW 1.

GREENWICH, CONN.
WILLIAM F. R. BALLARD
ARCHITECT

The idea of making over a barn for residential use is not a new one in Connecticut (although the recent popularity of the summer theater must have made substantial inroads on the practice), but it is seldom done as well and as tastefully as in this example. The plan is a model of compactness and efficiency showing little effect of the limitations which must have existed in the original structure. That these have been respected, however, is demonstrated by the exposed framing in all of the rooms, as well as by the unusual fenestration resulting from a waist-high girt around the ground floor rooms. Cubage: 23,400. Cost: $9,470.

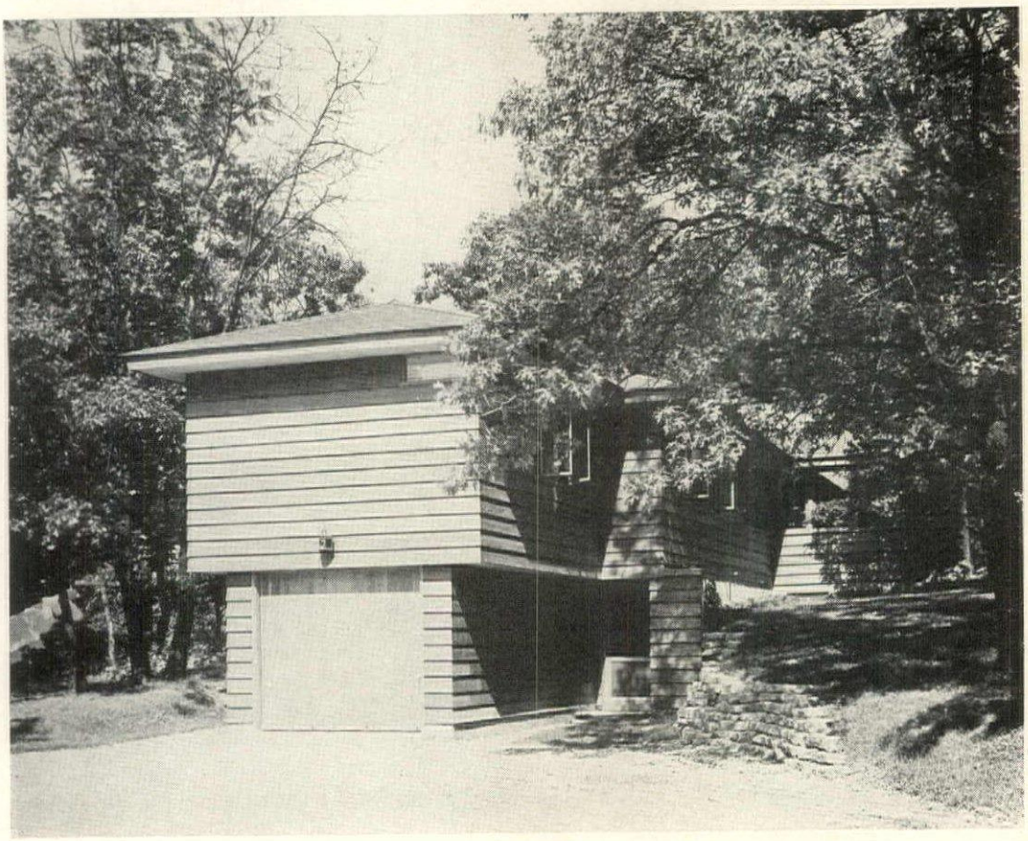
VIEW 2.

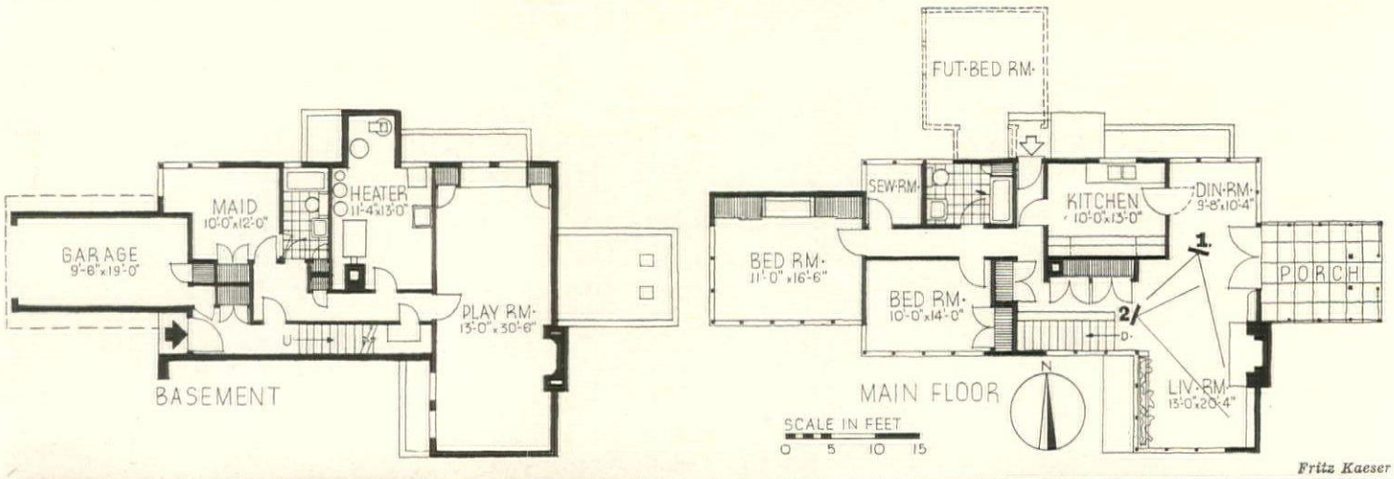
VIEW 3.

CONSTRUCTION OUTLINE

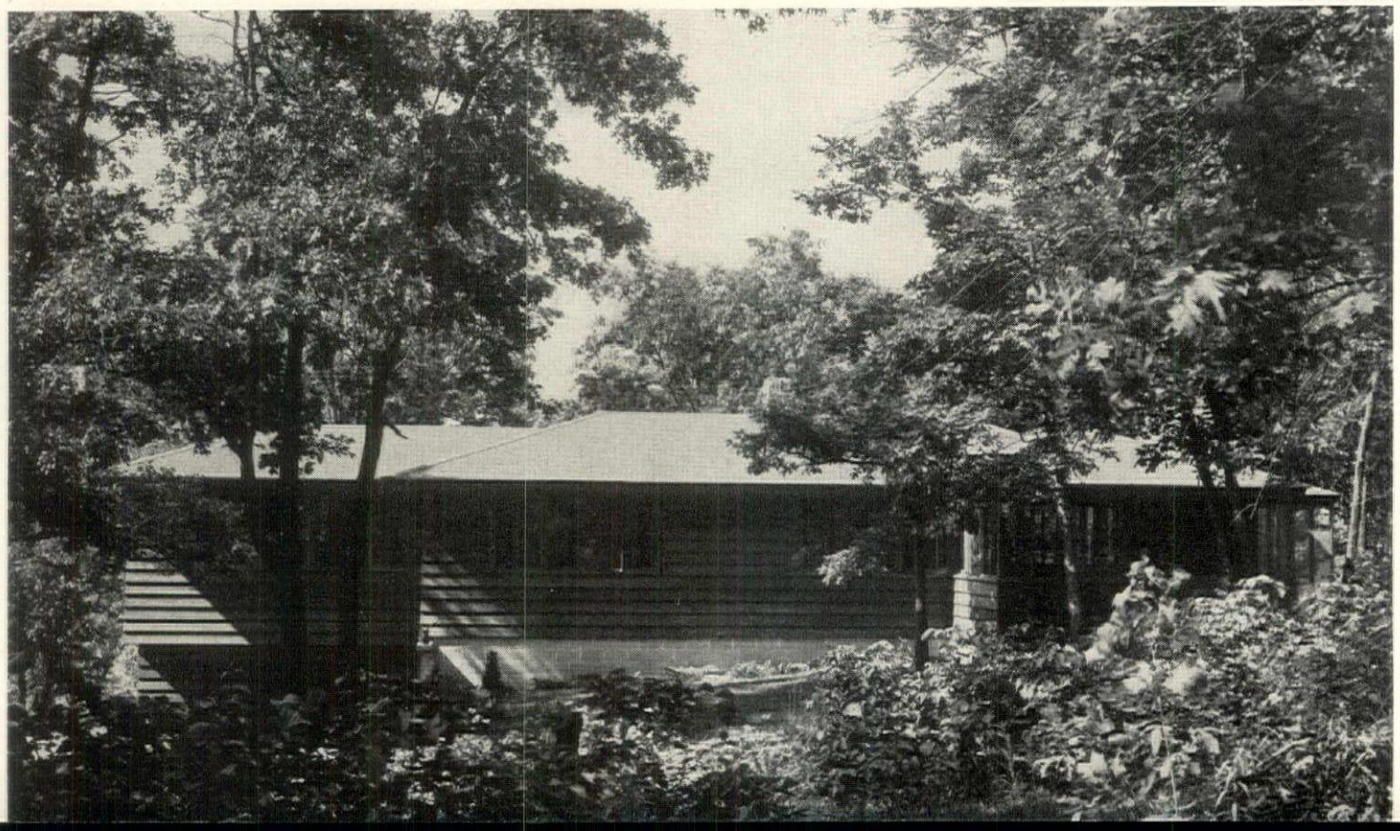
STRUCTURE: Exterior walls—vertical 1 in. boarding, rockwool, wire lath and plaster; inside—studs and plaster.
ROOF: Covered with shingles.
FIREPLACE: Damper—H. W. Covert Co.
SHEET METAL WORK: Flashing, gutters and leaders—copper.
INSULATION: Rockwool throughout.
WINDOWS: Sash—wood, casement. Glass—single strength.
FLOOR COVERINGS: Main rooms—wood. Kitchen and bathrooms—linoleum.
HARDWARE: By P. & F. Corbin.
PAINTS: By Prescott Paint Co.
ELECTRICAL INSTALLATION: Wiring system—BX. Fixtures—brass, Ward Hendrickson.
KITCHEN EQUIPMENT: Range—General Electric Co. Refrigerator—Norge Corp.
BATHROOM EQUIPMENT: By American Radiator-Standard Sanitary Corp. Cabinets—Charles Parker.
PLUMBING: Soil pipes—cast iron. Hot and cold water pipes—brass.
HEATING: Hot water system. Radiators—American Radiator-Standard Sanitary Corp. Regulator—Minneapolis-Honeywell Regulator Co.

TWO BEDROOMS, ONE BATH, MAID'S ROOM & BATH, PLAYROOM, GARAGE





Fritz Kaeser



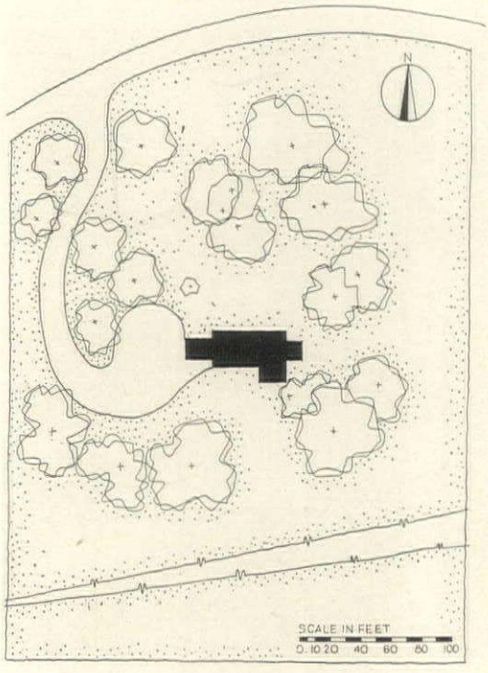
MADISON, WIS. WILLIAM KAESER, ARCHITECT

VIEW 1.

A good example of the "prairie" school of architecture originated by Frank Lloyd Wright, this house is essentially a single-floor scheme but is set on a sloping site in such a way as to provide a ground-floor garage, maid's room and bath, and playroom. Entrance from the lower level is by way of a stairway arriving at the living room at the center of the plan, with direct access to both living-room and bedroom wings. Provision of a connecting door between the kitchen and the bedroom hall also adds to the convenience of the circulation. The back of the house faces south with generous windows for all of the main rooms opening in this direction. Cubage: 24,000. Cost: $9,300.

CONSTRUCTION OUTLINE

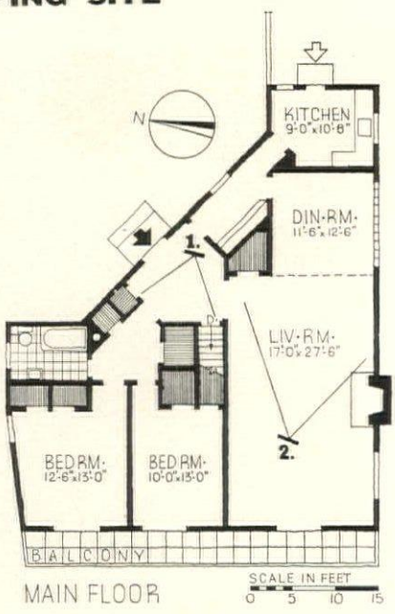
STRUCTURE: Exterior walls—redwood siding, Insulite Co. sheathing board, rockwool; inside—studs, U. S. Gypsum Co. rocklath and plaster. Floor construction—wood joist, red oak finish.
ROOF: Covered with asphalt shingles, Flintkote Co.
FIREPLACE: Damper—Donley Bros.
SHEET METAL WORK: Flashing and ducts—Armco galvanized iron, American Rolling Mill Co.
INSULATION: Outside walls and roof—Red Top rockwool, U. S. Gypsum Co.
WINDOWS: Sash—steel casement, Truscon Steel Co. Glass—double strength, quality B, Libbey-Owens-Ford Glass Co.
FLOOR COVERINGS: Main rooms—select red oak. Kitchen and bathrooms—linoleum, Armstrong Cork Co.
WOODWORK: Cypress throughout.
HARDWARE: By Schlage Lock Co.
ELECTRICAL INSTALLATION: Wiring system—BX. Switches—General Electric Co.
KITCHEN EQUIPMENT: Range—George D. Roper Corp. Refrigerator—Frigidaire Corp.
BATHROOM EQUIPMENT: By Kohler Co.
PLUMBING: Soil pipes—cast iron. Hot and cold water pipes—copper tubing.
HEATING: Warm air system, with water heater, The Timken-Detroit Axle Co. Grilles—Hart & Cooley. Regulator—Minneapolis-Honeywell Regulator Co.



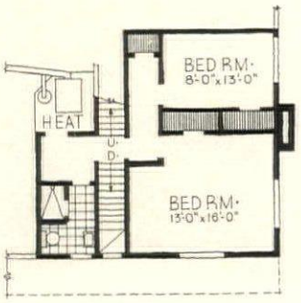
VIEW 2.

FOUR BEDROOMS, TWO BATHS, GARAGE, STEEPLY SLOPING SITE

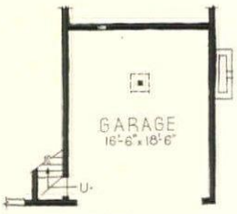
Roger Sturtevant Photos



MAIN FLOOR



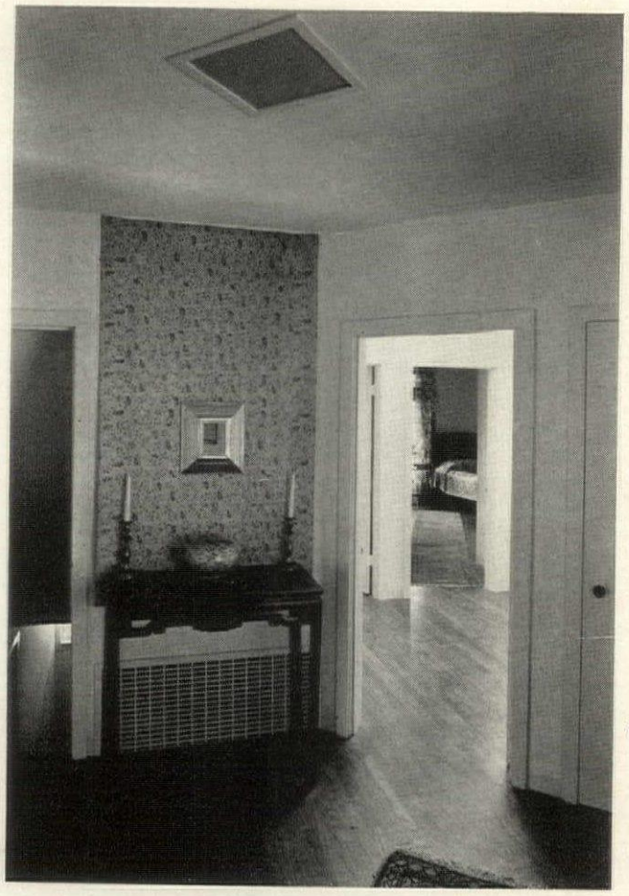
INTERMEDIATE FLOOR



BASEMENT

ENTRANCE

BERKELEY, CALIF. WILLIAM WILSON WURSTER, ARCHITECT



VIEW 1.

San Franciscans have long made a virtue of the necessity of the steeply sloping site, with results that are frequently ingenious. In this instance such a location has been used for a variation of the typical "upside-down" plan affording unusual privacy for the four bedrooms, which are divided between the main living floor and the floor below. Entrance is from the upper level, with driveway and garage two floors below, entered from the winding road at the lower end of the plot. The principal disadvantage of this type of scheme—the lack of outdoor living space on the view side—is eliminated by a generous cantilevered balcony across the full width of the house.

CONSTRUCTION OUTLINE

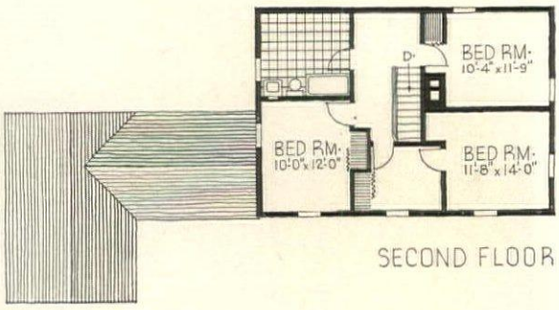
STRUCTURE: Exterior walls—wood frame with 6 in. rabbetted bevel siding, linseed oil; interior—plaster.
ROOF: Covered with tar and gravel.
WINDOWS: Sash—clear sugar pine, casement and double hung.
FLOOR COVERINGS: Main rooms—oak. Kitchen, pantry and bathrooms—linoleum.
WOODWORK: White pine throughout.
HARDWARE: By Yale & Towne Mfg. Co.
ELECTRICAL INSTALLATION: Wiring system—knob and tube.
BATHROOM AND KITCHEN EQUIPMENT: By American Radiator-Standard Sanitary Corp.
PLUMBING: Soil, waste and vent pipes—cast iron. Hot water pipes—copper tubing. Cold water pipes—galvanized steel.
HEATING: Gas fired furnace, warm air system, Aladdin Heating Co.

VIEW 2.

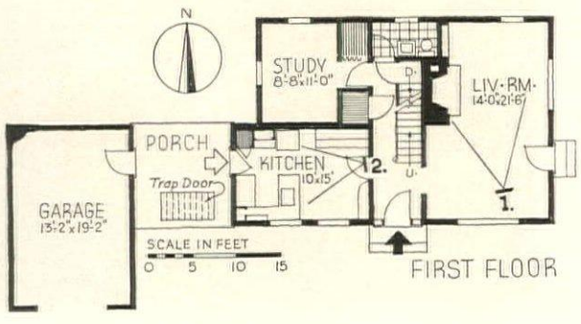
THREE BEDROOMS, ONE BATH, LAVATORY, KITCHEN-DINING ROOM

Lewis R. Brown Photos

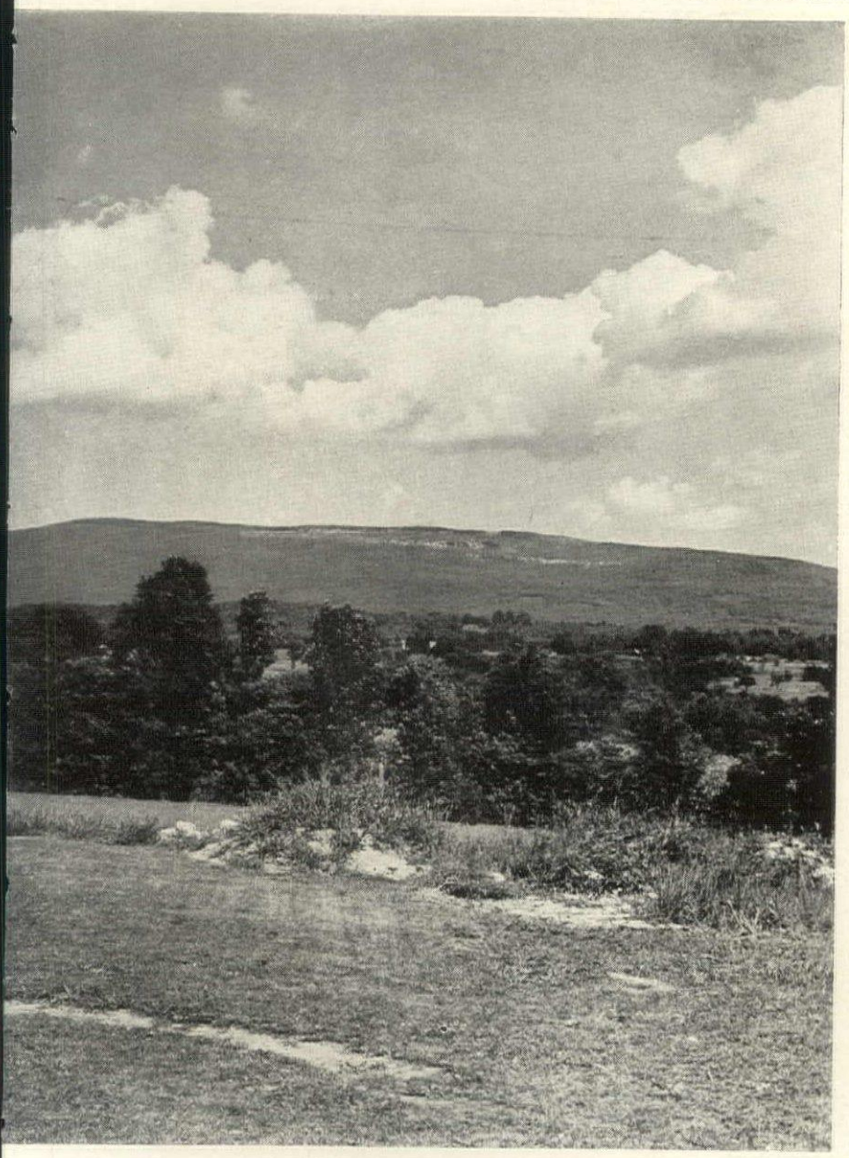
SOUTH ELEVATION



SECOND FLOOR



FIRST FLOOR



A clean, frank adaptation of the colonial house to modern living, this house employs the standard center hall plan but has its kitchen at the front and a study in place of the usual dining room. Provision is made for all but the most formal meals in the kitchen, which is divided into cooking and eating areas by a projecting sink, while use of the study as a guest room is facilitated by the provision of an adjoining lavatory and closet. Bedroom closets are without doors, can be closed off by curtains. Cubage: 19,400. Cost: $5,555.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—cedar clapboards, paper, sheathing; inside—studs, U. S. Gypsum Co. Sheetrock or pine boards. Floor construction—sub-floor, oak finish.
ROOF: Covered with cedar shingles.
SHEET METAL WORK: Flashing—zinc. Ducts—galvanized iron.
INSULATION: Outside walls and roof—rockwool bats.
WINDOWS: Sash — double hung, wood. Glass — single strength, quality B.
STAIR: Treads and risers—beech. Stringers—pine.
FLOOR COVERINGS: Main rooms—oak. Kitchen and bathrooms—linoleum.
WALL COVERINGS: Living room—vertical pine. Bedrooms—wallpaper.
WOODWORK: Cabinets—white pine. Garage doors—Overhead Door Co.
HARDWARE: By P. & F. Corbin.
BATHROOM EQUIPMENT: By Kohler Co.
PLUMBING: Soil pipes—cast iron. Waste and vent pipes—galvanized iron. Hot and cold water pipes—copper tubing.
HEATING: Warm air system. Boiler—Lennox Furnace Co.

VIEW 1.

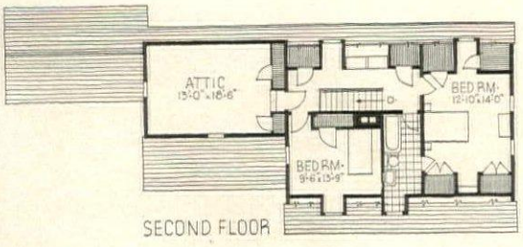
VIEW 2.

THREE BEDROOMS, TWO BATHS, MAID'S ROOM AND BATH

Lewis R. Brown Photos

BENNINGTON, VT.
IDES VAN DER GRACHT &
WALTER H. KILHAM, JR., ARCHITECTS

A skillful blending of old and new design motives, this house remains true to the American farmhouse tradition in its general massing while providing features such as a flush radio cabinet and bookshelves, and built-in furniture from the modern style. A maid's room and one of the bedrooms are on the ground floor, the other two fitted beneath the low roof without recourse to the usual bulky dormer. Cubage: 31,130. Cost: $10,583.



VIEW 1.

VIEW 2.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—cedar clapboards, paper, sheathing; inside—studs, U. S. Gypsum Co. Sheetrock or plaster and wood. Floor construction—sub-floor, oak finish.
ROOF: Covered with cedar shingles.
SHEET METAL WORK: Flashing—zinc.
INSULATION: Roof—rockwool bats.
WINDOWS: Sash—double hung, wood. Glass—double strength, quality B. Weatherstripping—Chamberlin Metal Weather Strip Co.
WALL COVERINGS: Living room—vertical Idaho pine, and plaster. Bedrooms—wallpaper. Bathrooms—Sanitas, Standard Textile Coated Products Co.
WOODWORK: Trim and cabinets—white pine. Garage doors—Overhead Door Co.
HARDWARE: By P. & F. Corbin.
KITCHEN CABINETS: By Angel Co.
BATHROOM EQUIPMENT: By Kohler Co.
PLUMBING: Soil pipes—cast iron. Waste and vent pipes—galvanized iron. Hot and cold water pipes—copper tubing.
HEATING: One pipe steam system. Boiler, radiators and thermostat—American Radiator Co. Water heater—Taco Heaters, Inc.

WASHINGTON NATIONAL AIRPORT

All photos, Horydczak

Comment by JOSEPH HUDNUT

I have always considered especially felicitous that arrangement at La Guardia Field which permits incoming passengers to go immediately after landing to a waiting automobile. The passage from airplane to automobile is so direct and so effortless that one is scarcely conscious of an architecture: an experience which would appear to be happily consistent with the nature of an organization whose merchandise is time.

It has occurred to me more than once that the next development in the design of air terminals, at least as these are related to passenger circulation, might be the provision of an equal facility of entrance and exit for outgoing passengers. Since nearly all tickets for air travel are sold in offices at the centers of cities and not at the field it seems reasonable to suppose that the large ticket offices at airports may in the course of time prove to be unnecessary; and although of course some central control of passenger traffic is essential it is possible that the development of electrical and mechanical systems of communication will presently make such control practicable without the actual physical presence of passengers at a central desk. The great areas of land which are required for airports, the wide distribution of the waiting planes to which passengers must be directed, and the fact that nearly all traffic to and from the city is by motor would seem also to encourage such a decentralization.

(Continued on page 171)

WAITING ROOM

FACADE FACING AIRFIELD

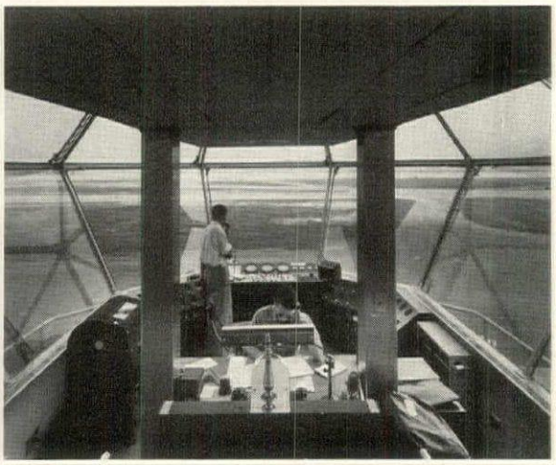
I can imagine an air terminal building, designed on this principle, in the form of a series of gates placed at intervals in a long and uniform barrier. On the one side of the barrier are the planes being made ready for flight, on the other are the motor vehicles carrying passengers to and from the several gates. Each passenger should pass through the barrier without other hindrance than the registration of ticket and baggage and there should be within a small waiting room designed for two or three dozen persons only.

Certainly such a building would be somewhat less spectacular in appearance than the structures completed at La Guardia Field and at Washington. Its design would be based necessarily upon a unit system: that is to say, upon the repetition of several elements having the same function and an equal importance. Those persons who search for the conventional effects of architecture would assuredly be disappointed in an ensemble which would admit neither the dominance of a single great crystal of space or of mass or a symmetrical or rhythmic grouping; and yet such a building might, when the newer principle has been developed by trial and error, offer even greater opportunities for architectural expression, being more intimately shaped to the actualities to which it is addressed.

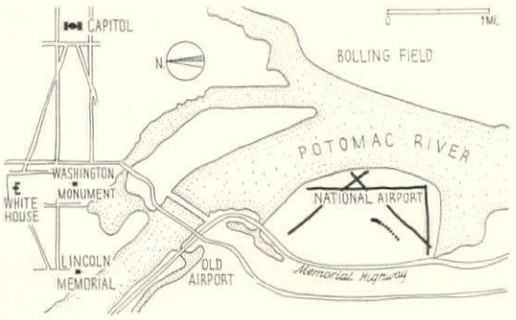
My visit to the Washington Airport seems to confirm the opinion which my experience at the La Guardia Field had taught me. The Authorities in both places have been, I think, at too great pains to provide in sumptuous waiting rooms, magnificent in scale, sources of entertainment and astonishment which, innocent in themselves, must weigh somewhat heavily upon travelers impatient of delay. Especially is this true at Washington where all passengers, outgoing and incoming, are so directed from automobile to plane or from plane to automobile that they must, willy-nilly, experience the luxury of space thus provided. I find it difficult to believe that this glorification of travel is a necessary condition of traffic control. The intention is rather to promote through architecture an arresting and favorable publicity even at the cost of some inconvenience to travelers. The architects of great railway terminals have shown us with what effect the art of building can be used as advertisement. The present designers have seized upon the technological development of modern construction to provide even more sensational opportunities for the dramatic exploitation of their theme than were dreamed of in the more plodding philosophies of railroads.

Now there is no consideration which ought to prohibit

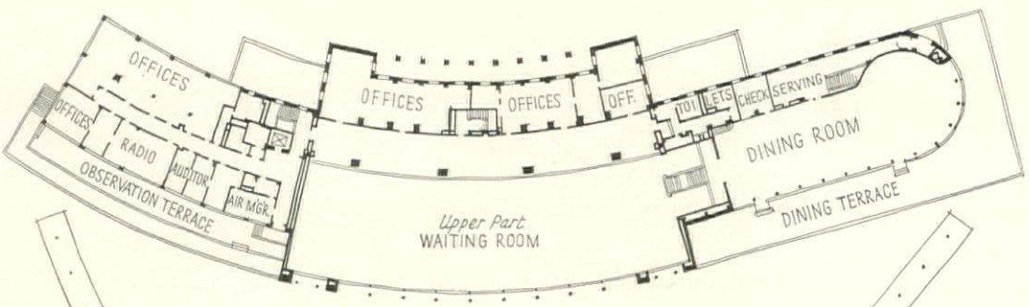
(Continued on page 173)



THE CONTROL TOWER, atop the air traffic office, is replete with latest automatic equipment, including teletype machines and a battery of telephones and radio microphones, and is glazed with blue heat-absorbing glass for protection from the hot summer sun. An open gallery surrounds the enclosed portion of the tower for use in good weather.



THIRD FLOOR



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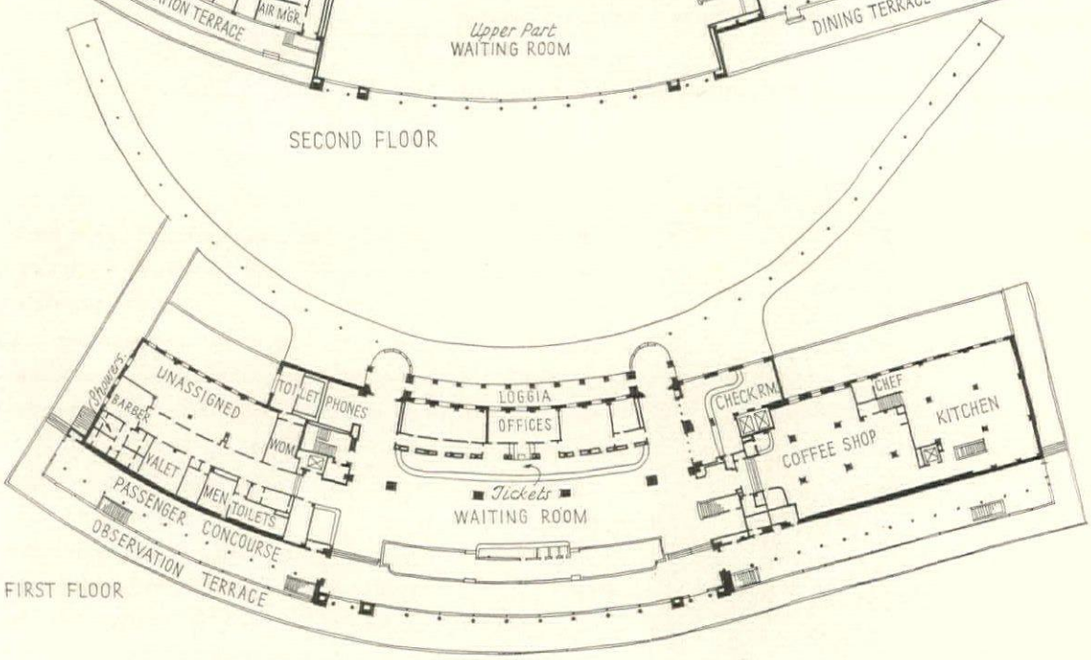
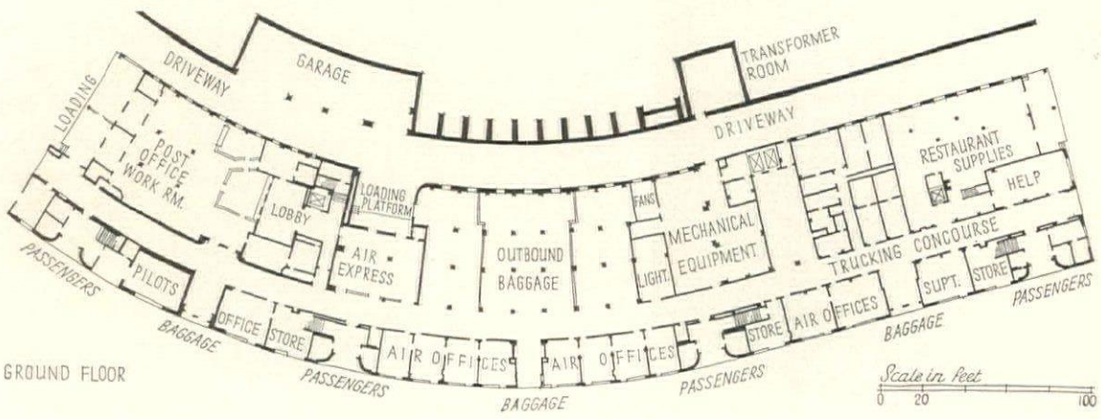
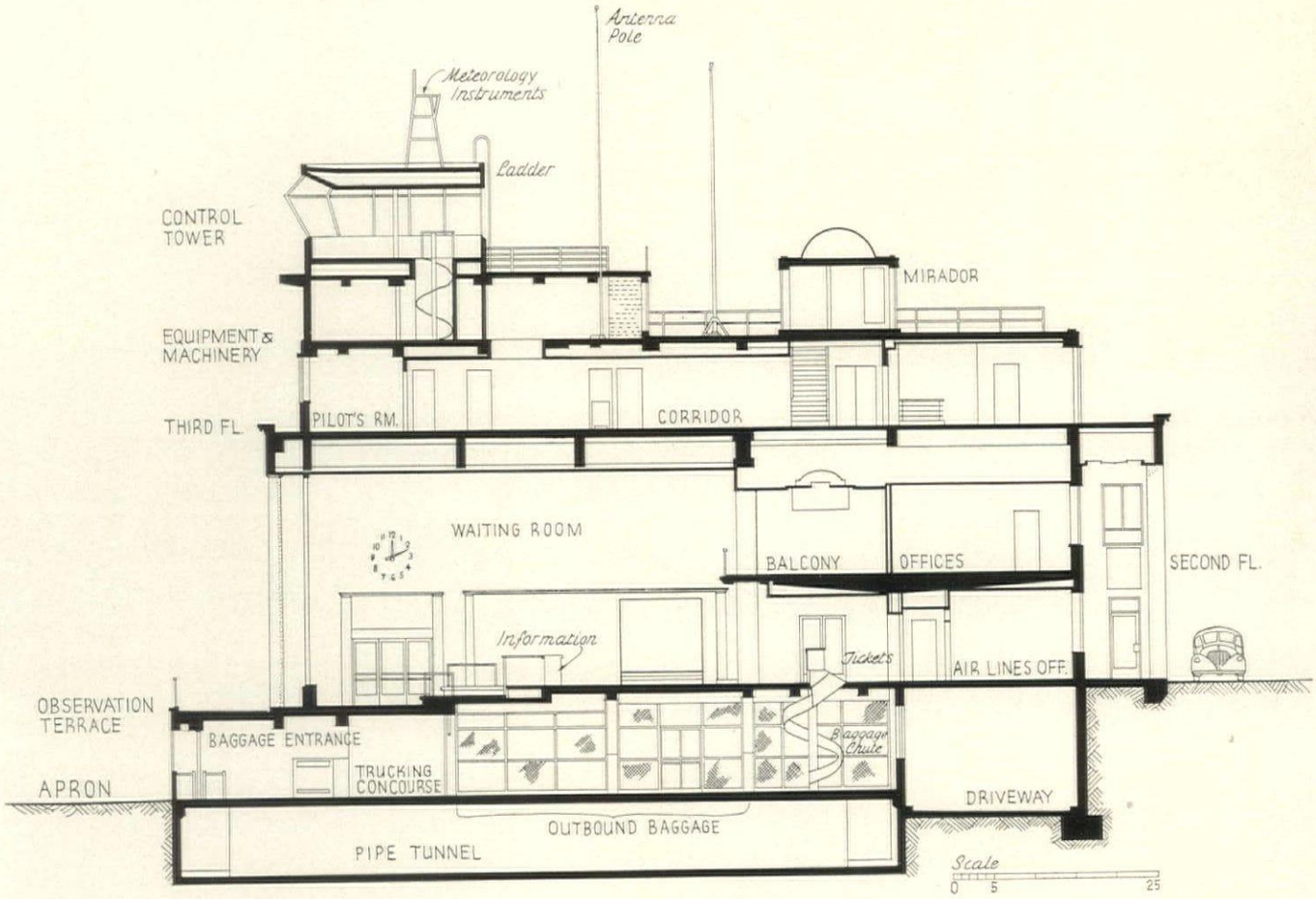


FIRST FLOOR



GROUND FLOOR



APPROACH

such a use of architecture, which is an art specifically designed for expression. If the great prism of glass, high enough to admit the sky, which is placed at the center of the Washington Airport does not capture precisely that pragmatic spirit which has made thoroughfares of the skies, nevertheless, in scale and splendor it exhibits some of the thrilling promises of aviation. The trouble lies, not with an architecture of advertisement, but with the attempt to fuse this into the more urgent business of travel.

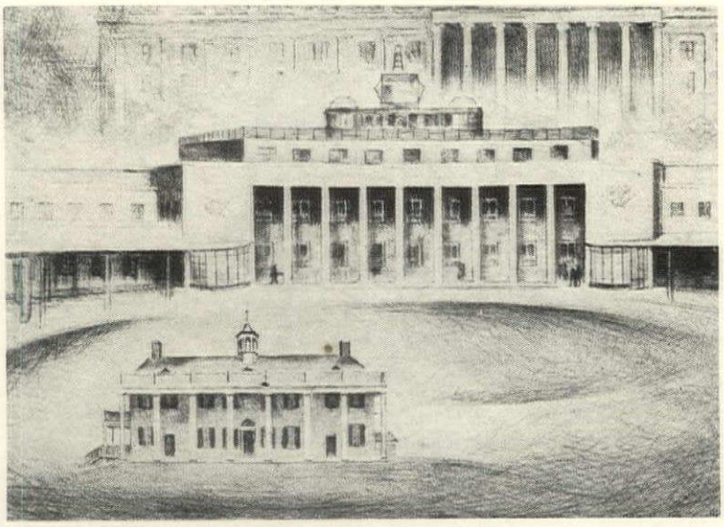
Airports have been almost from the beginning recreation centers. They are and should be entertaining structures. At Washington, where the level of the flying field is almost 20 ft. below the level of the entrance court, the conditions seem to have been specially favorable for a segregation of spectator-circulation and passenger-circulation; and yet the attempt at segregation is half-hearted and futile. It should not have been difficult to bring passenger traffic, which is almost entirely motorized, into the building at the level of the flying field, leaving all of the higher story for the great crowds to which the field is not a utility but a playground. This change will some day be made.

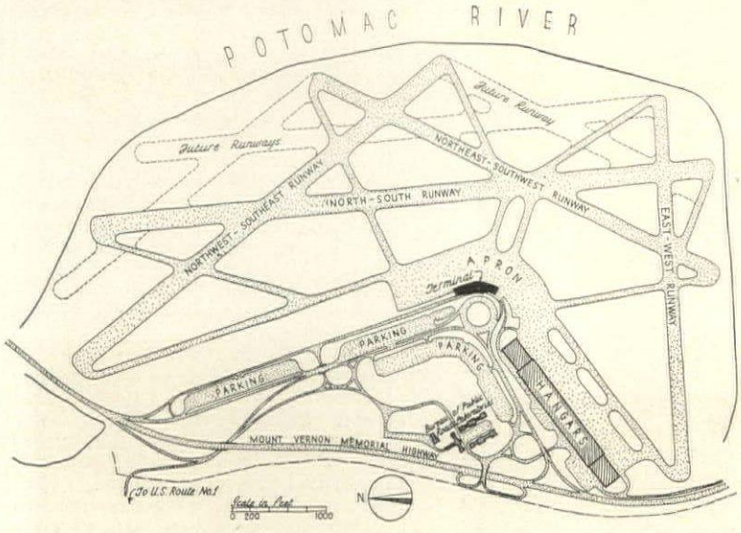
Considered as a recreation center, none will doubt the success of the airport. The site is spectacular in the ex-

(Continued on page 175)

FACADE FACING APPROACH

DINING ROOM





HANGARS

treme and is fully exploited by the observation and dining terraces. I think that a greater use might have been made of the roofs, which command views of Washington and of the beautiful southward course of the Potomac, and the dining room, excellent in itself, might have been more inviting if it had not been separated from the waiting room by an unnecessary congestion of stairway — but these considerations will not defeat the popularity of the building.

This popularity is no doubt encouraged by the somewhat naive references to Mount Vernon on the Western facade —the inescapable tincture of romance—and also by an excessive formality in the composition, a formality scarcely successful in overcoming the complication of forms made necessary by so many varied uses. The portico of Mount Vernon, translated into concrete, struggles in vain to impose its serene spirit on the long ranges of utilitarian forms at either side, and upon that strange collection of penthouses, masts, searchlights, weather vanes and vents which surround the glass control tower and ride the roof like a battleship on top of a temple.

The same conflict and the same confusion characterizes, less obviously, the plan. The search for form, balance, and architectonic sequence imposes everywhere a heavy burden upon the services, especially in the lower story where they are not only cut into fragments by passages and stairways, but are in many cases—amidst acres of open land—actually without adequate light and air. The search for form has also made difficult the future expansion of facilities, a serious fault in a structure designed for a growth so rapid and unpredictable as that of aviation. I am inclined to believe that advertisement and an academic principle of form has influenced even the disposition of the field itself: I cannot understand otherwise the wide separation of the hangars from the center of the major flying activity at the north end of the field, so that the facilities for repair and for servicing, which would seem to be related, are scattered. In the planning of traffic routes in and out the Mount Vernon highway—that unfortunate thoroughfare designed as a parkway and used as a high-speed artery—a more satisfactory transition from one speed to another might have been attained; and as for parking spaces, we know that no satisfactory solution has been anywhere found.

The Washington Air Terminal is in many respects an exciting building. Although it is encumbered by a theatricality which cannot always be explained as enthusiasm for a daring and magnificant adventure of the human spirit, it exploits, at times, persuasively, the techniques of the new architecture. It is a pity, I think, that it could not have been shaped to its useful ends with a greater immediacy and directness.

OBSERVATION TERRACE

HANGAR

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—architectural concrete; inside—plaster. Interior partitions—hollow tile, plaster. Columns—reenforced concrete. Floor construction—concrete slabs. Ceilings — acoustical plaster.

ROOF: Covered with composition, asphalt felt, Koppers Co., and quarry tile, U. S. Quarry Tile Co.

SHEET METAL WORK: By American Rolling Mill Co., Revere Copper & Brass Co. and American Brass Co.

INSULATION: Roofs—insulation board, Celotex Corp. Sound insulation—Subanite, U. S. Gypsum Co.; Spray-acoustic, Spray-O-Flake Co., Acoustic-Celotex, Celotex Co.

WINDOWS: Sash—Truscon Steel Co. Glass—Pittsburgh Plate Glass Co. Screens—Orange Screen Co.

STAIRS AND ELEVATORS: Stairs — Potts Mfg. Co. Elevators—Otis Elevator Co.

FLOOR COVERINGS: Asphalt tile, Leitch Mfg. Co.; linoleum, Sloane-Blabon Corp.; ceramic tile, Sparta Ceramic Tile Co.; terrazzo, United Marble Co.

WALL COVERINGS: Formica, Formica Insulation Co.; terra cotta, Atlantic Terra Cotta Co.; precast concrete, Deatone Stone Co.

METAL TRIM: Hollow metal, Aetna Steel Products Co.; hollow and extruded aluminum, Flour City Ornamental Iron Co.

HARDWARE: By Russell & Erwin Mfg. Co. and Lund Equipment Co.

PAINTS: By Felton Sibley Co., Inc.

ELECTRICAL INSTALLATION: Wiring system—Crescent Insulation & Wire Co. Switches—Pass & Seymour. Fixtures — Kurt Versen and Full-o-Lite Co. Special equipment—Smoot Holman Co. and Westinghouse Mfg. Co.

PLUMBING: Fixtures by American Radiator-Standard Sanitary Corp. Soil and waste pipes—cast iron. Vent pipes—galvanized. Hot and cold water pipes—brass.

HEATING AND AIR CONDITIONING: Steam system, copper and cast iron convectors, American Radiator-Standard Sanitary Corp. Air conditioning — combination chilled water summer, hot water winter, filtering, American Blower Co. equipment; Carrier Co. refrigeration machines. Boiler—Union Iron Works. Oil burner—Todd Combustion Equipment Co. Radiators—American Radiator-Standard Sanitary Corp. Grilles—Independent Register Co. Regulators—Powers Regulators Co. Valves—James P. Marsh Corp. and Stockham Pipe Fittings Co. Water heater—Patterson-Kelley Co., Inc.

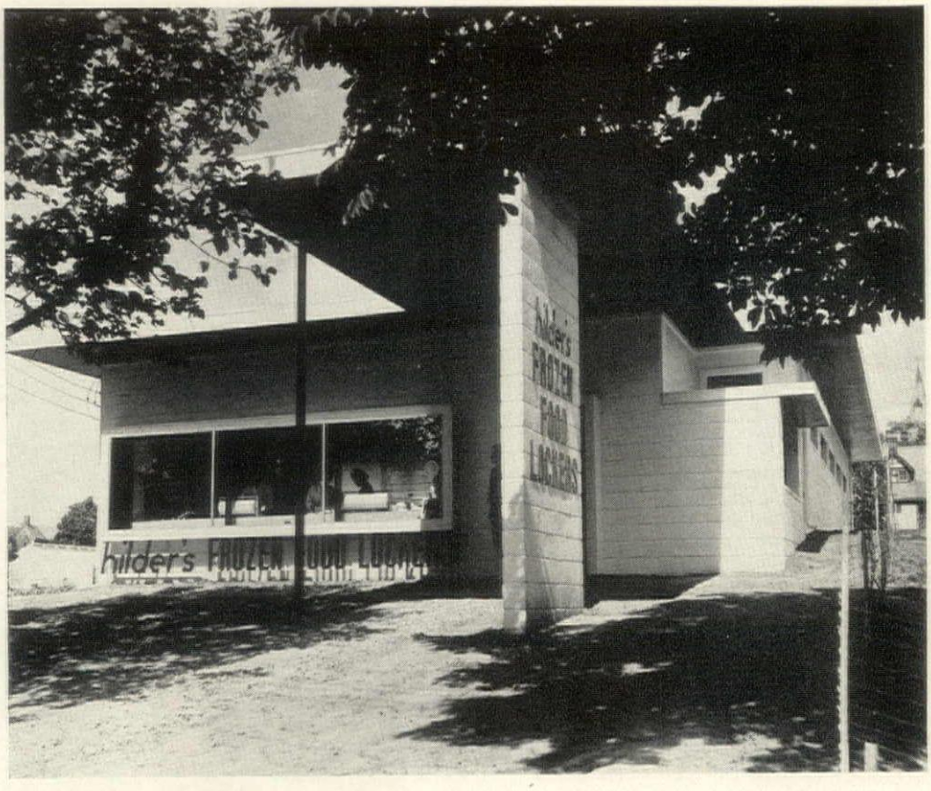
FROZEN FOOD LOCKERS

$50 million is the estimated capital investment in the 3,500 frozen food locker plants now operating in the United States. Although refrigerated locker plants were practically unknown five years ago, today there are fifty to seventy-five new plants being built every month throughout the country.

Largely responsible for the phenomenal growth of this new industry is the fact that individuals can effect savings in food costs, and avoid waste, through the use of the quick freezing method of food preservation. Before locker plants came into general use the only methods of food preservation available to the individual were canning or cold storage. Frozen food lockers offer an economic means to more abundant living. Foods, quick-frozen in a locker plant are similar to the nationally distributed frozen or frosted foods. A locker plant simply makes it possible for the individual to do for himself at lower costs what the manufacturer of frozen foods has been doing for him.

Consequently, locker plants have become enormously popular in every community where they have been established and their popularity is likely to spread as the public faces rapidly rising prices in the retail food market. With available cold storage warehouse capacity inadequate for a normal food supply during an acute national emergency, frozen food locker plants could provide the supplementary space necessary to national defense. Furthermore, such plants should be strategically located throughout the country to assure decentralized food sources.

FROZEN FOOD LOCKERS IN FLEMINGTON, N. J., ALLMON FORDYCE, ARCHITECT



Kurt Schelling Photos

Like all other locker plants this 480-locker bank has "safety deposit boxes" kept in zero temperatures where families may store fresh frozen food supplies that have been grown at home or purchased wholesale at the plant. In contrast to the garage-like design typical of other locker plants, this building is planned to dramatize the actual operations of the plant. A street front window, twenty feet long, brilliantly illuminated by an overhead skylight and shaded by the wide overhang of the roof reveals all of the operations of the processing room. The identifying sign is placed below the window so that it will be effective at the eye level of pedestrians on the street. A pylon, six feet wide and set out twenty feet from the building line, supports the overhang of the roof, the shelter of the entrance walk and serves as an additional sign board visible to motorists coming in either direction.

This building presents an interesting demonstration of the application of modern design to the merchandising needs of a new industry. A solution to the problem of "inviting the customer in" and yet keeping the sunshine out, was imperative both from a merchandising and an operating point of view. The show window, the skylight, the wide overhang of the roof, that keeps the building in maximum shadow, and complete insulation throughout the building represent a thorough-going solution of the problem.

The interior plan of the building provides for the simplest handling of meat and foodstuffs. Incoming meats are delivered

to the receiving room at the rear of the building. Here the meat is weighed, dated, stamped with the owner's name and locker number and slid on an overhead track into the pre-cooler room, where the temperature is maintained at 33°. After twenty-four hours the meat is placed in the 32° cold storage room to hang and age. After being properly aged it is brought into the normal temperatured processing room where it is cut up ready for cooking, wrapped in moisture, vapor-proof paper and stamped with its description and the owner's locker number. It is then quick frozen at 20° below zero. After several hours the frozen packages are removed from the freezer and placed in the patron's locker. Fruit and vegetables, prepared at home for freezing, are brought to the plant in quart or pint size cardboard, cellophane-lined containers. These are sealed and put immediately into the quick freezer and then stored in the patron's locker. The lockers will hold from 250-300 pounds of foodstuffs.

Originally locker plants were used largely by farmers, but it is daily being discovered that others can profit by the use of a frozen food bank. Large plants of 1,000 to 1,500 locker capacity are located in such metropolitan centers as Dayton, Ohio and St. Louis, Mo. To the metropolitan patron a locker means that he can buy meat, butter and eggs in wholesale quantities when prices are low, and use them when prices are high. The economy here is obvious. To the farmer a locker means that he can butcher his own animals when they are in their prime and have fresh meat at all seasons of the year. In this case the farmer saves on his feed costs and he doesn't have to eat the meat quickly before it spoils. The farmer also takes his surplus fruit and vegetables to the locker. Ordinarily when he has a surplus the market is flooded and prices are low, so the crop would probably be wasted or else his wife would have the hot drudgery of canning and preserving the fruits and vegetables. With a locker plant in the community he takes his surplus to the bank, freezes his assets and invites his friends to have corn-on-the-cob with him at Christmas dinner.

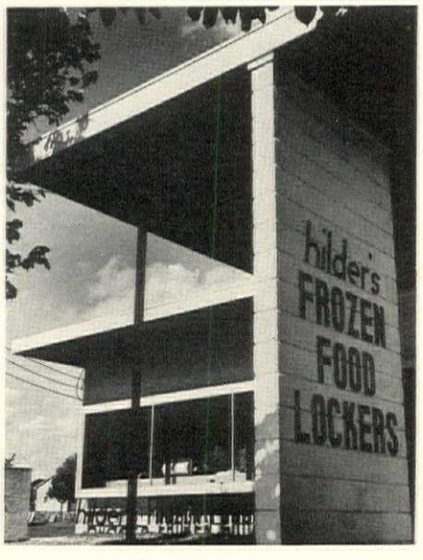
PROFIT ANALYSIS 480 Lockers, 100% Occupancy

INCOME		
Locker Rental	$7,200.00	
Processing		
480 Lockers @ 700 lbs. Meat, fruit, vegetables — 336,000 lbs. @ .015	5,040.00	
Brokerage		
480 Lockers @ 300 lbs. Meat, fruit, vegetables — 144,000 lbs. @ .02	2,880.00	
Other Sources		
Rendering lard; curing and smoking hams, bacon & sausages; dressing, freezing poultry and fresh fruits and vegetables	1,800.00	
GROSS INCOME		$16,920.00
EXPENSES		
Two Butchers @ $30.00 per week	3,120.00	
One part-time assistant	380.00	
Power & Water @ $1.30 per locker	624.00	
Paper & Misc. supplies @ $50 per month	600.00	
Depreciation @ 8½%	1,870.00	
Taxes (local) at 1%	220.00	
Insurance @ $.80 per $100.00	80.00	
Int. on investment & amortization	1,904.00	
Advertising & Promotion	600.00	
OPERATING EXPENSE		9,398.00
GROSS PROFIT		7,522.00
U. S. GOV. TAX (18%)		1,354.00
NET OPERATING PROFIT (100% occupancy)		$6,168.00

COST ANALYSIS

Land	$1,000.00	
Building	8,000.00	
Insulation, Lockers } "Polar Chest"	9,000.00	
Refrigeration equipment	4,000.00	
Butcher equipment	1,000.00	
Professional fees — Architect & Engineer	1,000.00	
		$24,000.00
Legal Fees (incorporation, etc.)	$ 200.00	
Advertising, publicity & promotion	700.00	
Expenses — until lockers are rented	2,000.00	
		$26,900.00

FRONT VIEW



ALLMON FORDYCE, ARCHITECT

CHILL ROOM

CONSTRUCTION OUTLINE: STRUCTURE: Exterior walls—8 and 12 in. concrete block. Ceilings—Panelbestos, The Ruberoid Co.

INSULATION: Roof—4 in. mineral wool, U. S. Gypsum Co. Locker room—cork, Armstrong Cork Co.

WINDOWS: Sash—Fenestra steel, Detroit Steel Products Co.

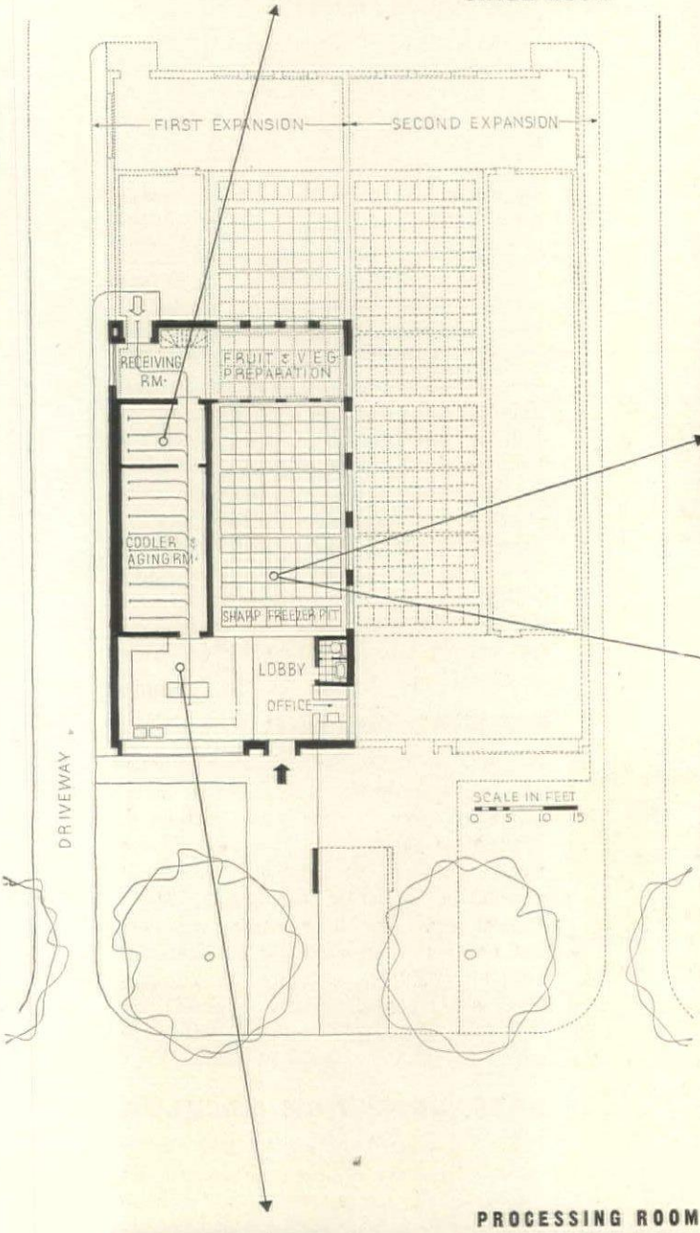
PAINTS: Concrete—The Reardon Co.; base paint—Insulmastic Co.

PLUMBING: Fixtures—Crane Co. Hot and cold water pipes—copper, Chase Brass & Copper Co.

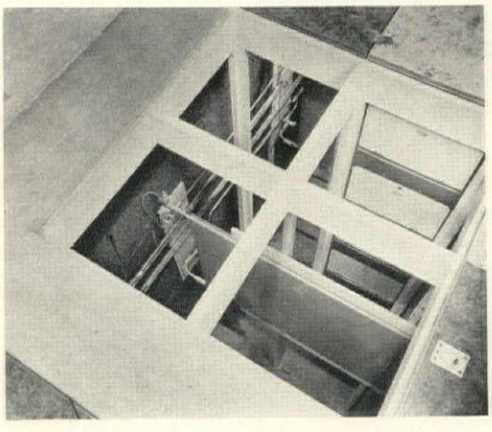
REFRIGERATION EQUIPMENT: International Harvester Co. and Peerless Co.

LOCKER EQUIPMENT: Polar Chest locker plant. Cooler, freezer, lockers and locker tops—Armstrong Cork Co.

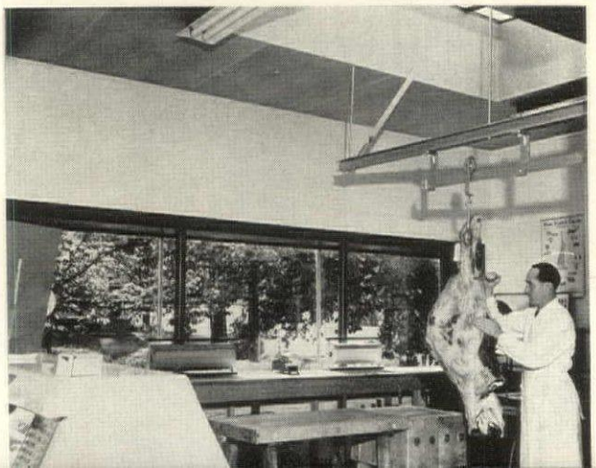
LOCKER ROOM

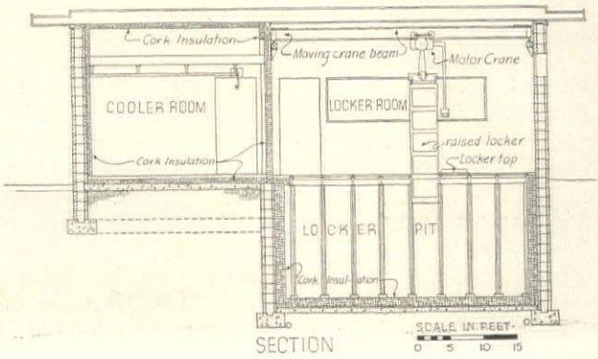


LOCKER DETAILS



PROCESSING ROOM





SECTION

HEADWAY AND HEADACHES

RENT CONTROL

To stem runaway rent rises in defense-boomed communities, 21 "fair rent communities" in 10 States have been formed by public spirited citizens. They plan to police rent profiteering by establishing local "fair rent dates" and by summoning to conference any landlords who jacked their rents above the levels prevailing on those dates. Where no committees have been formed and where the action of existing committees fails to keep rents in line, the Federal Government may step in under the rent control provisions of the Emergency Price Control Act of 1941, as significant a piece of legislation as has hit the floor of Congress this year (see p. 190).

PLYWOOD PRICES

Claiming that the recent 20 per cent rise in Douglas fir plywood prices is "unwarranted and cannot be justified by the moderate advances that have taken place in costs," Federal Price Boss Leon Henderson month ago slapped a price ceiling over the industry, announced that no manufacturer or his agent shall henceforth sell or deliver these types of plywood at prices in excess of these maxima (on a 1,000 sq. ft. basis):

1/4 in. plywall for wallboard.....$28.00
5/16 in. plyscord for sheathing.... 25.30
9/16 in. plyform for concrete forms 77.10
3/8 in. plypanel for partitions..... 41.25
1/4 in. plywood for industrial use 29.20

These maxima prices are f.o.b. mills for carload lots; maxima for smaller shipments average about 9½ per cent higher. While no restrictions have been imposed on distributors, U. S. Plywood Co. and Harbor Plywood Corp., two of the industry's biggest producers and distributors, have announced that where plywood is delivered directly to the buyer from their warehouses, rather than from their mills, the delivered price within the usual free delivery zone will not exceed the f.o.b. mill price plus freight to the warehouse, plus 20 per cent on purchases of $200 or more, or plus 25 per cent on smaller purchases. Hinted Henderson: "It is expected that other distributors and retailers will adhere to the maximum margins set up by these agreements."

OTHER PRICES

Preparatory to fixing price ceilings in other building material and equipment industries, Henderson's Office of Price Administration and Civilian Supply fortnight ago mailed out questionnaires to manufacturers seeking cost data on which to base price ceilings. While manufacturers are complaining about OPACS' detailed questions and the amount of mathematics required to answer them, chances are that all the data will be in Henderson's hands by late September, that top prices will be fixed forthwith.

HOUSING LAWS

When this went to press on the eve of Congress' hoped-for one-month vacation, The Senate, passed (as the House had already done) and sent to the President a bill which would boost from $100 million to $300 million FHA's authority to insure Title VI loans on low cost houses in specified defense areas. Likely to be delayed by the Congressional recess were pending bills to add another $300 million to the Federal housing defense chest (ARCH. FORUM, Aug. 1941, p. 93), to authorize the fixing of ceilings over prices and rents (p. 190), and to appropriate funds for the construction of vital defense highways and adjacent airplane landing strips (ARCH. FORUM, Aug. 1941, p. 93). This last bill, having sailed through both chambers of Congress, was vetoed by the President, approved over his head by the House but finally shelved by the Senate, which will probably introduce a bill with similar purposes but without the objectionable political strings which were attached to the original. The original proposal called for the allocation of the $320 million of "defense" highway funds to the States according to population, would have financed highways in the handful of States which to date do not have a single defense contract.

CAMP PROGRAM NO. 2

The Quartermaster Corps' long-rumored cantonment program No. 2 took two steps nearer actuality last month as Congress extended the selectees' training term from 12 to 30 months and as the Army announced that 15 possible camp sites had already been selected: Bastrop, Tex.; Colorado Springs, Colo.; Corvallis, Ore.; Durham, N. C; Marysville, Calif.; Morganfield, Ky.; Camp McCoy, Wis.; Ozark-Enterprise area, Ala.; Paris, Tex.; West Yellowstone, Mont.; Hopkinsville, Ky.-Clarksville, Tenn.; Waco, Tex.; Fort Huachuca, Ariz.; Venice, Fla.

While no funds have been appropriated for land acquisition and construction, Congress has long since given the Army $15 million of planning and survey money with which to avoid some of the costly mistakes of cantonment program No. 1.

LABOR GESTURE

Another in a long string of no-strike agreements came from the AFL building trades at July's end, and, like all the others, its significance was far smaller than the bold newspaper headlines which heralded it. At the time of the agreement between Government and AFL, it was announced that there would no longer be strikes or other "interruptions of work" on defense construction projects, that all grievances and disputes would be settled by conciliation and arbitration, that 800,000 workers would be directly affected by the agreement and that it might be extended to cover 1.5 million more. Within a week, however, all construction work at the huge Philadelphia Navy Yard stopped with a jolt, and 8,000 members of the AFL's International Brotherhood of Electrical Workers stopped work on all defense construction in New York City, including expansion of the Brooklyn Navy Yard and about 100 other projects. And, the much ballyhooed no-strike agreement notwithstanding, building labor last month was interrupting vital defense work on many another front.

FEDERAL HOUSING

Moving apace, the Federal Defense housing program during August's first week saw 1,200 more dwelling units completed, 2,000 more go under construction. These weekly records brought the program's cumulative totals to 26,000 and 78,000, respectively. Dwelling units approved but not yet contracted for brought the total to 109,688 units located in 420 projects in 171 communities in 49 States and territories. During July, 7,957 units were completed, 766 more than in June.

PREFABRICATION BACKLOG

In its February issue (p. 48) THE FORUM advised Government defense housers to let prefabricated house contracts "now so that when sites are acquired the prefabricators will be able to deliver the houses immediately. This possibility is one of Prefabrication's biggest assets." Last month, Government housers belatedly began to do just that. On July 31 the Farm Security Administration opened bids submitted by 20 prefabricators for the production of a total of 2,500 two-family demountable buildings to be erected at some future date on sites as yet undetermined.

(Continued on page 210)

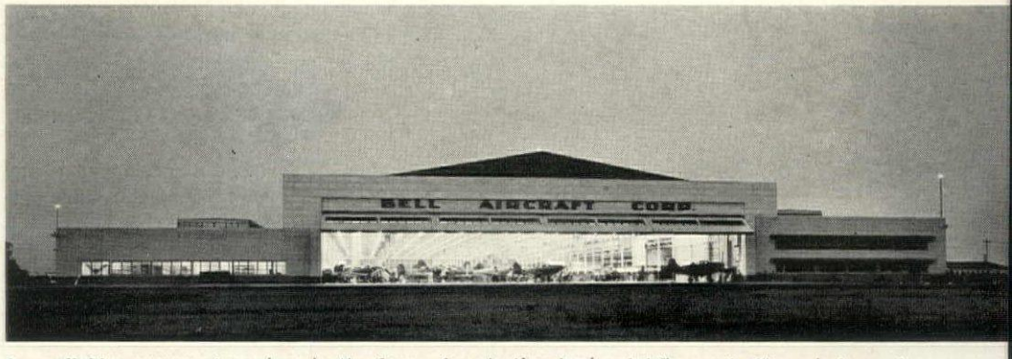
NEW TYPE AIRPLANE PLANT

features six conveyor production lines and rectified fluorescent lighting system. Austin Co. builds factory as modern as Bell's Airacobra.

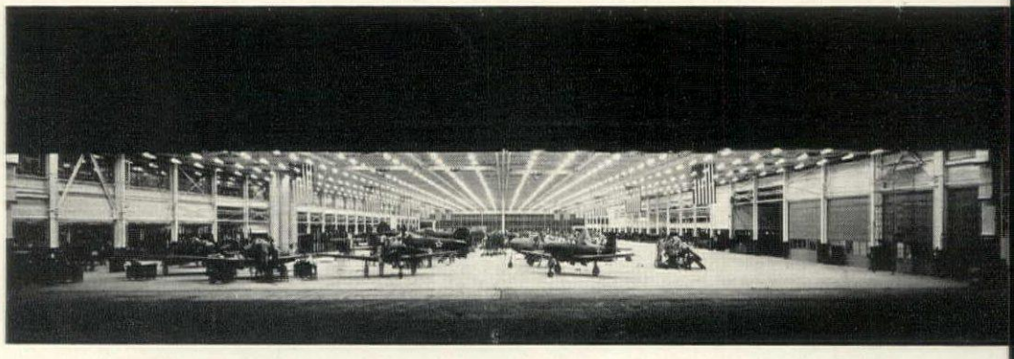
Like the construction of a house, the production of an airplane has always been a "site" operation with a minimum of prefabrication and without the economies of a systematized production line. To be sure, the "site" is inside a factory, but the planes have been divided into a few large pieces (fuselages, wings, tails, etc.), each of which is completely fabricated in one large expensive jig and finally joined together. One big reason for this old-fashioned method of producing today's most modern product has been the limited demand for airplanes.

Today, with Government orders for more than 60,000 planes, this reason no longer exists, but the aircraft industry, following established patterns, has been building more and more large expensive assembly jigs with which to meet the whopping national defense demand. One major producer, however, has decided that meeting this mass market merits a shift to the mass production methods of the automobile industry. Result: Today, the Bell Aircraft Corp.'s formidable Airacobra rolls off conveyorized production lines in a unique type of airplane assembly plant completed this summer near Niagara Falls, N. Y.

Airplane design. First step in this significant airplane production revolution was the designing of the Airacobra to eliminate the need for innumerable heavy and



In sunlight, permanent awnings in the form of projecting horizontal fins cast office windows of the new Bell Aircraft Corp. plant in shadow (top view). Unshielded windows in south wall serve fuselage assembly bays, are glazed with glare-reducing hammered glass. **At dusk** the 195 ft. four-section overhead door yawns open. Area surrounding door is buff porcelain enamel which blends with buff brick and limestone finish of the building proper.



At night the huge central bay is bathed with the practical equivalent of sunlight under the first high-bay installation of fluorescent lighting ever attempted. Two-lamp fixtures are spotted on 12 ft. centers in 720 positions 30 ft. above the reenforced concrete floor. Finished Airacobras in the foreground of the hangar or plane storage area are receiving their final inspection.

expensive jigs by breaking down the plane into many small finished parts, called "sub-assemblies." Each of these can be mass produced (frequently as a repetitive bench operation) to exact dimensions and are therefore interchangeable in their final assembly. Thus, the wing of the present Airacobra is fabricated, not in one piece complete with aerolons, wing tips, gas tanks, navigation lights, etc., but as several sub-assemblies which go together on the production line.

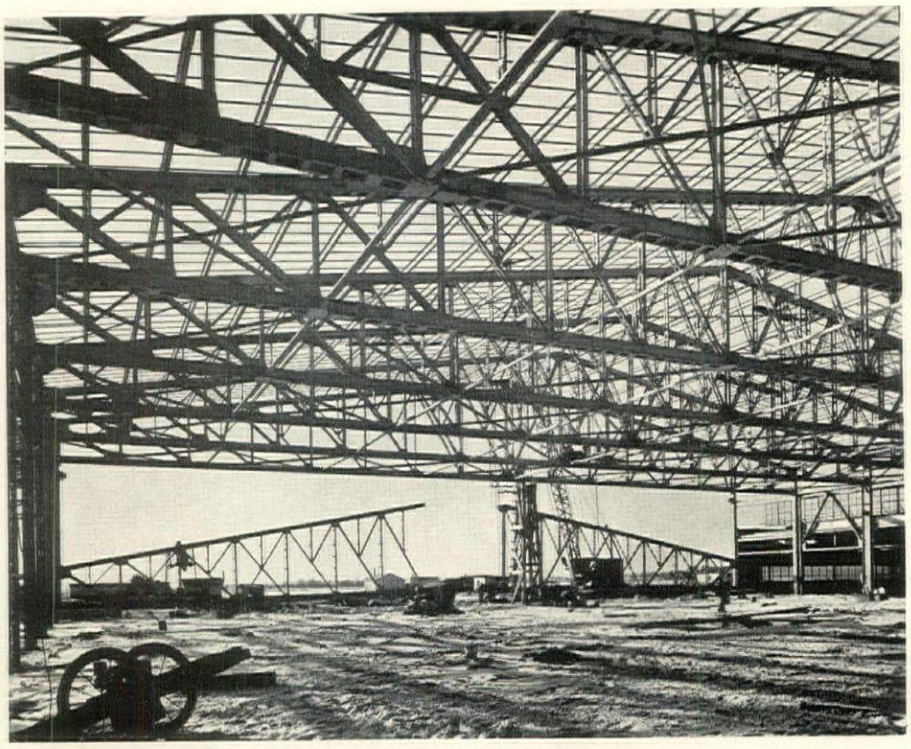
Plant design. When the U. S. Army Air Corps last September placed its first order for the new Airacobras, an order which has since grown to more than $85 million, it signed with due flourishes the No. 1 Emergency Facilities Contract, authorizing Bell Aircraft Corp. to build a $1,250,000 assembly plant. Within a week and for two good reasons a 65-acre site was purchased in the small town of Wheatfield, N. Y.: 1) Many of the Airacobra parts and sub-assemblies were to be manufactured at Bell's main plant in nearby Buffalo; 2) The local government agreed to expand the adjoining Niagara Falls Municipal Airport to cover the largest area of any landing field in the State, promised to extend all public facilities—fire, police, water, etc.—to the plant's front door.

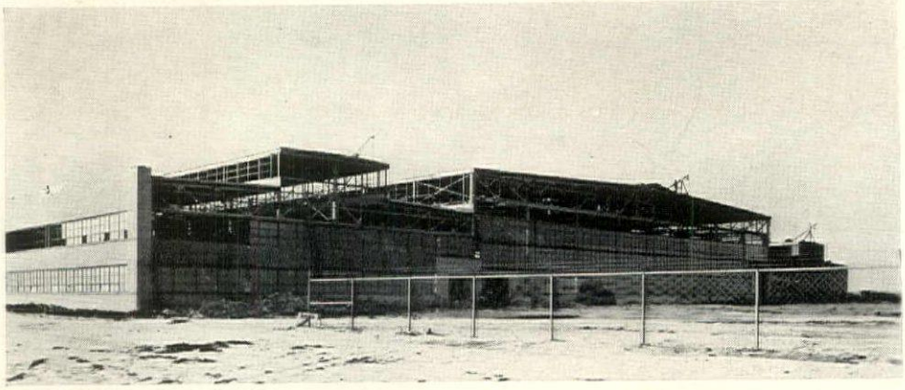
Forthwith, the Austin Co., top-flight industrial engineers and builders, were commissioned to design and erect the plant, and within 15 days after land had been purchased, the initial plans had been drawn, the ground broken. Controlling feature of the plant layout is a battery of six conveyorized production lines. Following the advice of Bell engineers, Austin ran these lines side by side, east to west down the full 400 ft. length of a 200 ft. wide central bay. While supporting steel columns run down the center of this final assembly area between the third and fourth production lines, the adjoining 200 x 200 ft. hangar or plane storage bay is roofed with huge 38 ton trusses which span the entire width. Bottom chords of all trusses over the final assembly and hangar areas are 30 ft. above the floor.

To the north of this central production and storage area are two 50 ft. wide monitor bays running the full 600 ft. length of the plant, but boasting only 13 ft. headroom. As shown in the production flow diagram (right), they make room for the service and receiving departments and for wing assemblies. Identical in area, two south monitor bays with 20 ft. headroom provide space for the riveting together of fuselage sub-assemblies and for 35 individual offices, including accounting, timekeeping, aerodynamics, inspection, production engineering, and radio control (test flights). Main offices are located in the Buffalo plant.

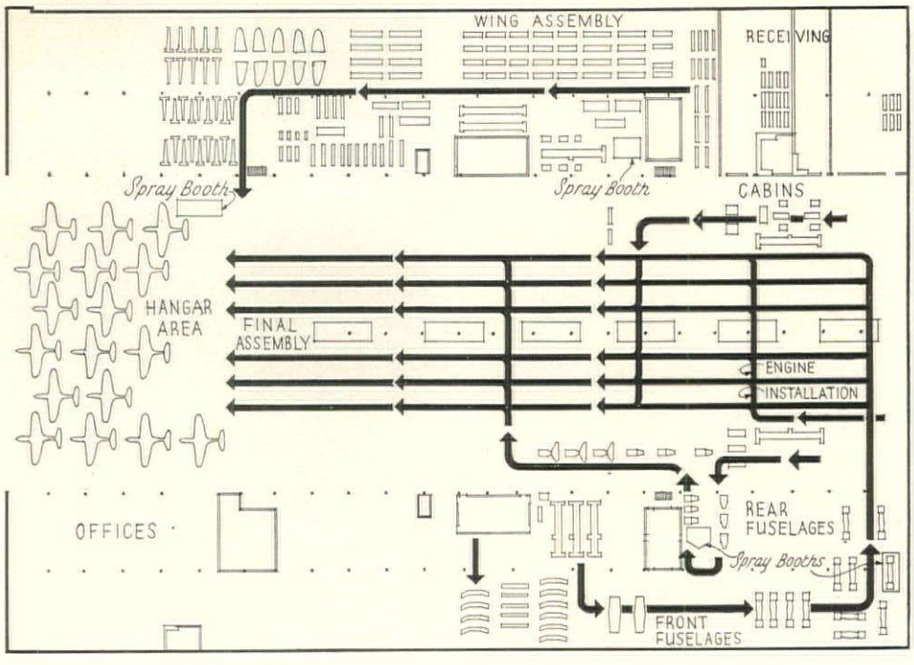
Plant operation. Adaptation of the design of the plant to its operation is best illustrated by following an Airacobra through its various production stages: 1) As men-

(Continued on page 50)





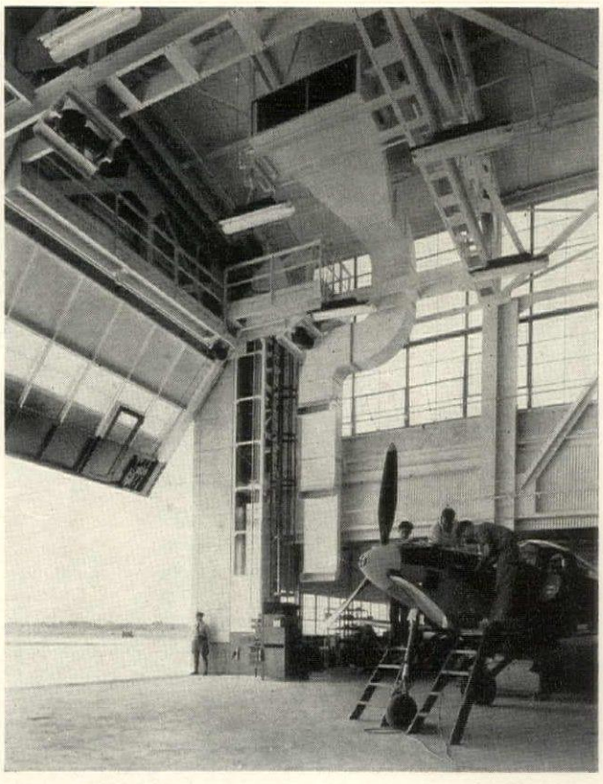
2,000 tons of structural steel went into the new Bell plant, including eight 200 ft. trusses weighing 38 tons each over the hangar area and a 45 ton truss to support the huge overhead doors. Top view shows the latter being prepared for raising at the west end of the building. View directly above shows temporarily finished east end of plant which will be knocked out to facilitate expansion already under way. This view serves as a good longitudinal "section" of the plant's construction; note difference in height of the flanking sub-assembly bays and monitors.



Final assembly area is divided down the center by a row of supporting columns. Each half is equipped with three conveyor lines, two of which are apparent in the view above. Parts bins separate the lines, permit mechanics to remain at their stations, concentrate on their repetitive operations while the planes are dragged slowly by. Note skylight running down center of entire plant and silhouetting one of the sixteen rows of fluorescent fixtures in the final assembly area.

Drag chain conveyor recessed in the floor parallel to the production line pulls the fuselage jig from station to station at the rate of 2 ft. per hour. Note power outlet electricity and compressed air; there is one every 15 ft. down the line.

Open spray booth is ventilated with three fans which draw fumes from the paint guns down through a floor grille and exhaust them through the roof. Together, these fans move 45,000 cfm. Note that about half of the glass in the clerestory strip window is set in movable sash. Concrete floor has metallic hardener on surface.



Finished Airacobra stands in the hangar area. In the background: one of the four 50 ft. sections of the overhead door leading to the apron connecting the plant with the Niagara Falls Airport, also one of the two special unit heaters used at either side of this huge opening.

BUILDING FOR DEFENSE . . . THREE WEST COAST AIR SCHOOLS

from a selection of 100 throughout the U. S. highlight a construction category championed by private enterprise. An airview of Thunderbird, Cal-Aero and Boeing.

Aiming to produce the greatest air force in the world, the U. S. Army Air Corps last fall set as its target the construction of 100 training schools to turn out 30,000 military pilots a year. By far the biggest number of schools will be privately built and operated under Government contract; last month more than 50 such civilian schools were already in operation.

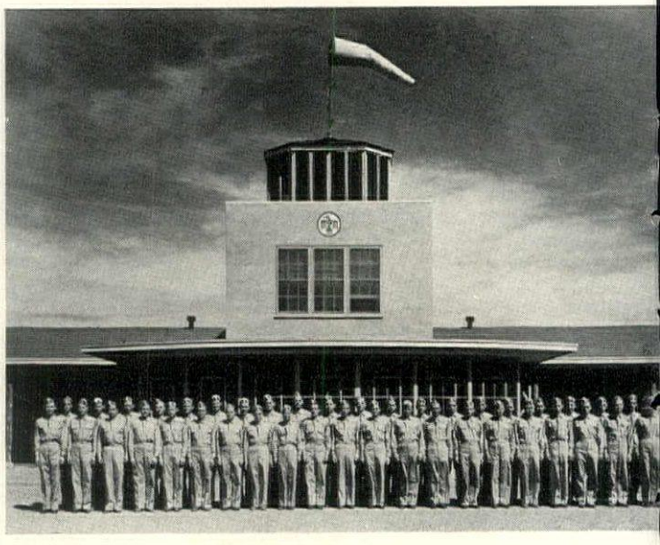
Far from the largest, but among the most interesting of this group is Thunderbird Field which has been planted in the desert sand 18 miles from Phoenix, Ariz. and is now sending 50 fundamentally trained pilots every five weeks to the Air Corps' bigger "finishing schools." Owner and operator is Southwest Airways, Inc., an organization backed principally by air-minded members of the Hollywood motion picture colony and headed by Leland Hayward, theatrical agent, private pilot and director of TWA airline.

As shown by the accompanying photographs, Thunderbird Field features far better design than is usually seen in camps of any variety—design which has covered every detail from furniture to landscaping. One man is responsible for all of it—Designer Millard Sheets, whose architectural work promises to become as well known as his water colors. His interesting site planning is apparent in the airview above which shows two 110 x 200 ft. hangars (75 planes) flanking the flight operations building. Around the diamond-shaped court, which will eventually contain a swimming pool and tennis courts, are four barracks buildings—two containing accommodations for 32 men each in two-man rooms (see plan, below) and two of the more recent type which house 64 men, eight to a room. At the right of the diamond is the classroom building; to the left, the recreation and mess building and barber shop (see plan below); in the foreground, the administration building providing office, hospital and officer apartment space. Expansion of the project to accommodate close to 1,000 student pilots is provided for—two more hangars on the edge of the field and six more parallel barracks on either side of the administration building.

Design and construction of the buildings themselves are simple: stud and stucco walls roofed with lapped insulating board covered with mastic. All rooms in the new type barracks are cross ventilated, and all windows are shielded from the desert sun by large roof overhangs attractively supported by rustic columns. Inside, the Sheets-designed light oak furniture and the Sheets-executed mural (from an 1880 original by Sioux Indian Kills-Two-Rose-Bud) blend with the pastel colored walls. Contractors: Strover and Younger.

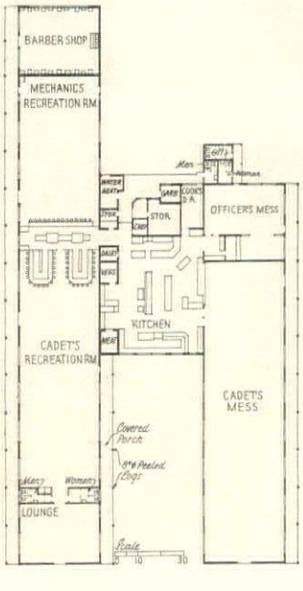
THUNDERBIRD FIELD

John Swope Photos

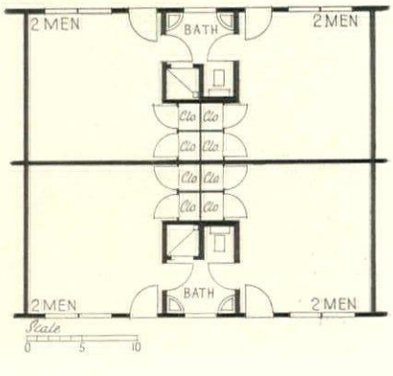


FLIGHT OPERATIONS BUILDING

RECREATION & MESS

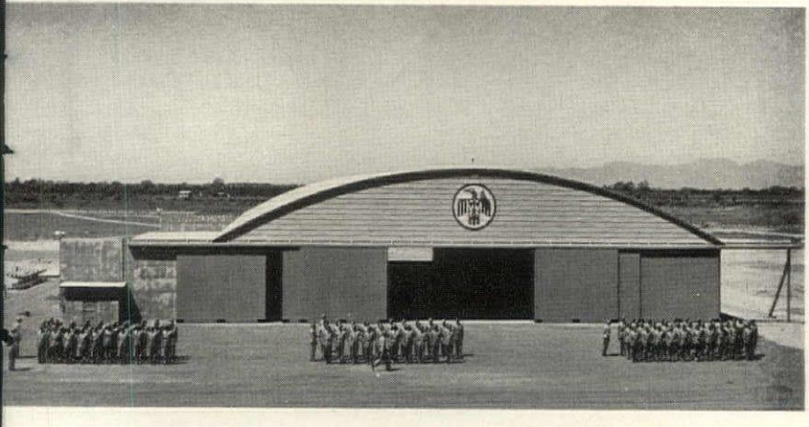


BARRACKS

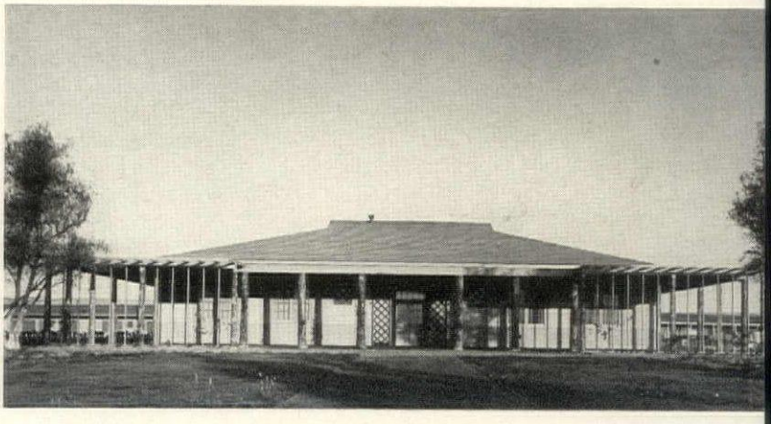


BARRACKS PORCH—RECREATION-MESS BUILDING IN BACKGROUND

HANGAR

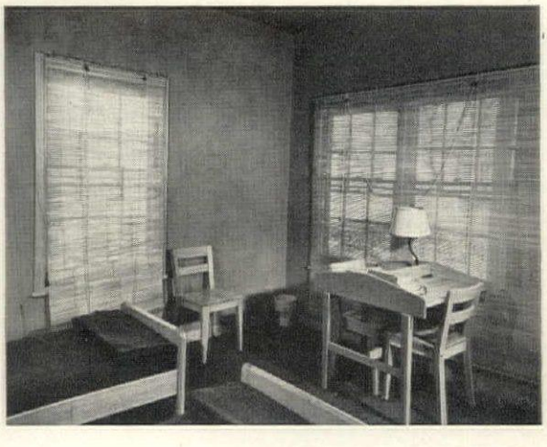


ADMINISTRATION BUILDING

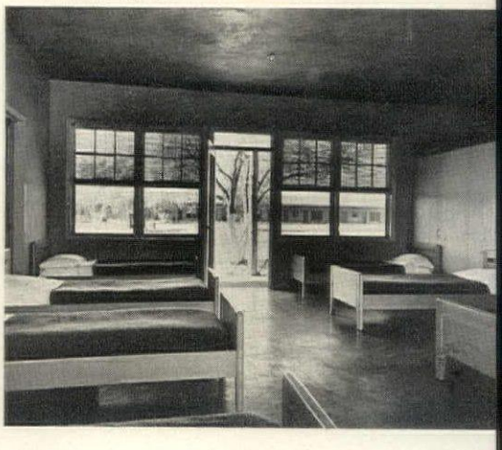


OFFICERS' MESS

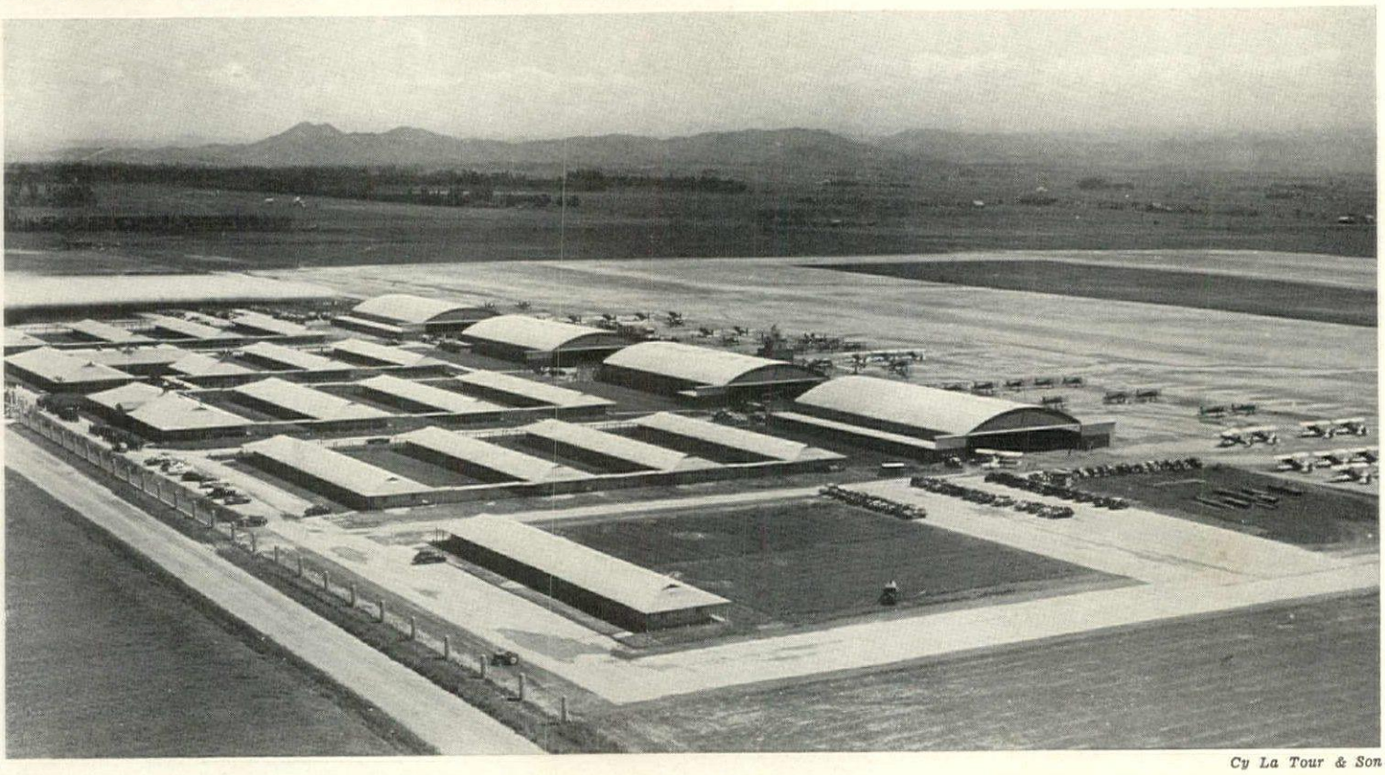
TWO-MAN ROOM



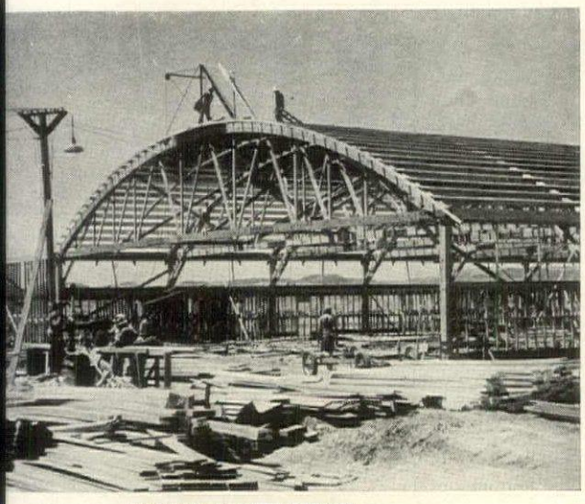
EIGHT-MAN ROOM



CAL-AERO ACADEMY ONTARIO, CALIF.



Cy La Tour & Son



HANGAR CONSTRUCTION

Like Thunderbird Field (p. 184), this pilot training center in Ontario, Calif. was designed by Water Color Artist Millard Sheets. It is operated by Cal-Aero Academy, part of the Curtiss-Wright industry which has three other such schools in California as well as the Curtiss-Wright Technical Institute.

Covering what was once a 400-acre grain field, the project is comprised of four huge hangars, 14 barracks buildings (each housing 48 cadets and identical in plan to the two-to-a-room barracks at Thunderbird), an administration and medical building, a recreation hall, a ground school building, a 700-seat mess hall and a flight control tower. Similar in design to the Thunderbird buildings, these differ primarily in the use of finished porch columns, shingle roofing and a series of interconnecting covered walks. Other noteworthy features: a formal but effective site plan; commendable landscaping; sawdust insulation packed in the exterior walls by compressed air.

Begun in June 1940 by Contractors C. T. and W. P. Strover, the first unit of the project was completed. even to landscaping, in 40 days and nights. Balance of the project was finished this spring and, at last report, was claimed to be the largest institution of its kind, the only civilian school offering basic as well as primary pilot training and, with official Air Corps endorsement, a model for pilot training schools in its classification.

BARRACKS COURT

ADMINISTRATION BUILDING

Magill Photos

BOEING OAKLAND, CAL.

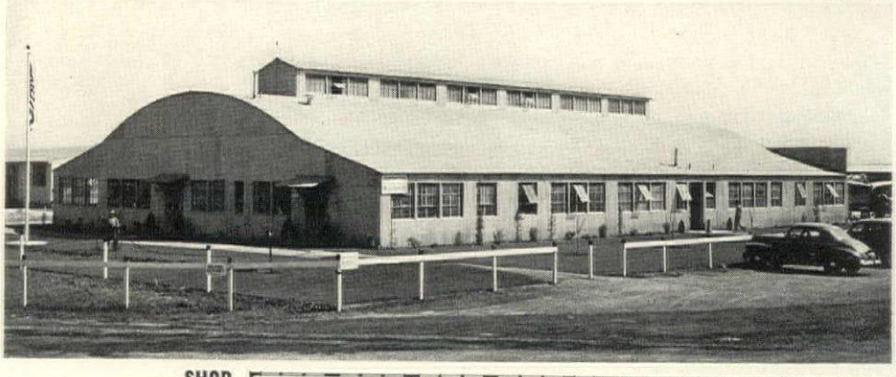
Since about 65 per cent of all the enlisted men in the Air Corps must be mechanics, the Army has embarked on a huge mechanic training program, which calls for 15 civilian operated schools in addition to the Army's three existing establishments at Chanute and Scott Fields, Ill. and Lowry Field, Tex. and two super-schools now under construction to the tune of $24 million in Wichita Falls, Okla. and Biloxi, Miss. All 20 were scheduled to be in operation by this month.

Among the first begun and completed was the $150,000 Boeing School of Aeronautics of Oakland, Calif., a division of United Airlines Transport Corp. Boeing sent the plans of Architect W. D. Peugh out for bids on August 26, 1940, awarded the contract on September 3 to Empire Construction Co. which, in turn, prepared the shop building and first barracks building for occupancy on October 7, completed the other two barracks and four accessory buildings by November 24.

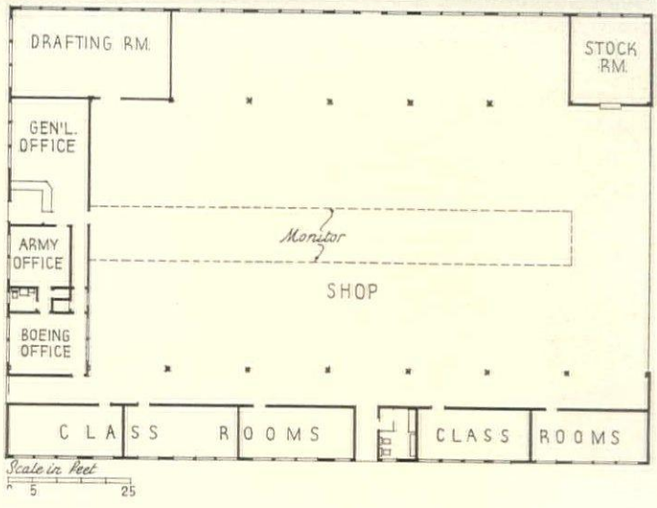
With the exception of the shop siding which is corrugated iron, all construction is wood frame on concrete footings and is covered with composition roofing. All buildings are equipped with forced air heating and ventilating equipment. Note that the barracks are of the open plan type with about 25 men to each of the buildings' four big rooms—two on either side of large toilet and shower rooms.

Situated adjacent to the Oakland Airport, the school shares with United Air Lines the two hangars nearest the new project (see air view). Facilities are provided for the simultaneous training of 300 mechanics who enter and leave the school at the rate of 27 every fortnight.

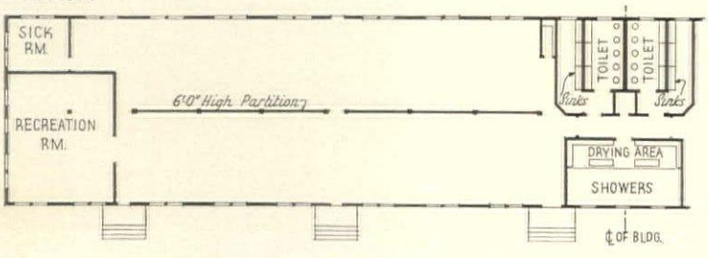
Clyde H. Sunderland



SHOP



BARRACKS



BUILDING FOR DEFENSE . . . PREFABRICATORS PUT ON A SHOW,

prove little to their Government sponsor, much to themselves. A house-by-house examination of the 650 units comprising a defense project nicknamed "Indian Headache," Md.

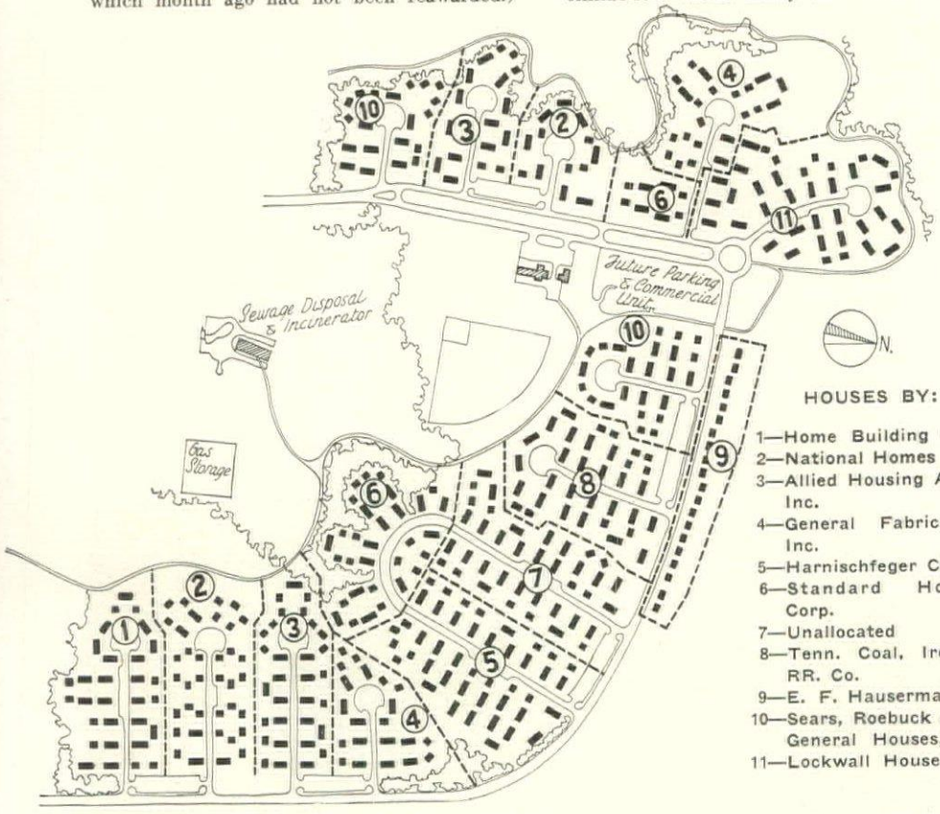
Conceived as a proving ground for prefabrication, the Public Buildings Administration's Indian Head, Md. demonstration project is near completion. Last month, the ten participating prefabricators* began taking apart their houses, toting them over rough Maryland roads, bringing them back to the site for reerection to prove their demountability.

Since other Government agencies fortunately recognized prefabrication's adaptability to the defense program long before the end of the delays, confusion and shifting policies which attended the production of these 650 houses for the nearby Navy powder plant, Indian Head is a complete flop as a demonstration. Thus, exclusive of its 650 "demonstrators," there are some 13,000 prefabricated defense houses now under construction or on order—including several hundred being produced by four of the Indian Head participants. Indian Head is, however, a significant project for, while it has not proved much to Government that was not already known or could not have been discovered more quickly and economically in other ways, it has proved a great deal to the prefabricators themselves. Good bet is that, with two or three exceptions, the participants will never again produce the same houses they put up at Indian Head.

In fairness, it must be emphasized that all Indian Head participants are not representative of the prefabrication industry; some of the companies had never prefabricated a house before, and none of them had ever been required to prefabricate a demountable one. It is no surprise therefore that the best built houses in the project have been prefabricated by the most experienced producers. Since such companies had already shown their stuff, the project is essentially a proving ground for newcomers.

Debits. This is what Indian Head has proved: Prefabrication is a specialized business not lightly to be entered into by any mail order house, box manufacturer or planing mill which has merely an idea and a Government contract. Proof of this, in turn, is the fact that one newcomer lost his financial shirt at Indian Head, and most of the others, along with some of their more experienced competitors, have put on an exhibition whose many unfortunate short-

*See names of participants under accompanying photographs. Unavailable was a photograph of the house by Hauserman Co., Cleveland, Ohio whose 20 steel panel $2,964 units were the first it had ever built. (PHC Housing Co., another newcomer, backed out of its 64-unit contract which month ago had not been reawarded.)



HOUSES BY:

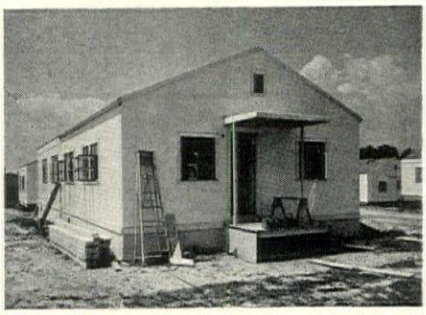
1—Home Building Corp.
2—National Homes Corp.
3—Allied Housing Assoc. Inc.
4—General Fabricators, Inc.
5—Harnischfeger Corp.
6—Standard Houses Corp.
7—Unallocated
8—Tenn. Coal, Iron & RR. Co.
9—E. F. Hauserman Co.
10—Sears, Roebuck & Co. General Houses, Inc.
11—Lockwall House, Inc.

Indian Head site plan, developed by Architect Clarence Stein, is considerably more attractive than its houses. Project was approved in November. Prefabrication contracts were let in February, March, April. George Hyman Construction Co. began roads and utilities in March.

All photos, FHA—Highton

Insulating board (Homasote) inside and out of a wood frame at an average dwelling unit cost of $2,692 for 23 single-family houses, $2,661 for 54 units in two-family buildings by Allied Housing Assoc. Inc., Langhorne, Pa. Production prior to Indian Head: 250. Subsequent Government contracts: 220 units.

Insulating board (Masonite) inside and out of wood frame partially site fabricated at $2,840 per unit for 25 singles, 36 doubles by General Fabricators, Inc., Washington, D.C. Prior production: none in U.S.; design only.



Plywood outside, plaster board inside of wood frame with steel casement windows at $2,950 per unit for 9 singles, 56 doubles by Lockwall House, Inc., New York City. Prior production: none.

Plywood on wood frame at $2,831 per unit for 21 singles, 36 doubles by Standard Houses Corp., Chicago, Ill. Prior production: 14.

Plywood on wood frame $2,531 per unit for 10 singles, 40 doubles by Home Building Corp., Kansas City, Mo. Prior production: just a "few."

Plywood on wood frame at $2,988 for 23 singles, 43 doubles by Sears, Roebuck & Co. and General Houses, Inc., Chicago, Ill. Prior production: "thousands" by former; "several hundred" precut by latter.

Plywood outside, plaster board inside steel frame at $2,295 for 16 singles, 54 doubles by Harnischfeger Corp., Milwaukee, Wis. Prior production: 450. Subsequent Government contracts: 400 units.

Steel outside, plaster board inside of steel frame at $2,770 for 10 singles, $2,796 for 48 doubles by Tennessee Coal, Iron & Railroad Co., Birmingham, Ala. Prior production: 1,460 dwelling units, 643 other buildings.

comings may boomerang on the industry as a whole. Most apparent are these:

► Always a prefabrication bugaboo, panel joints continue to give trouble. Only one type of wood frame house on the site (Lockwall) seems to have a satisfactory, positive panel locking device. In the others, anything from a maul and an old board are used as the instruments for giving panels their final set—hardly a fitting means for assembling a machine-made product.

► Methods of protecting finished panels during transit and of handling them on the site leave much to be desired. This shortcoming is, perhaps, attributable to the fact that prefabricators have habitually disassociated themselves with the site operation, have left the assembly of their panels up to local dealers and contractors.

► In several cases, the shop prefabrication process has apparently suffered from inadequate study. Thus, unnecessary site operations and lack of precision in the finished houses are too often traceable to lack of precision in the shop.

► Finally, there are some cases of faulty manufacturing. When lumber is used as it comes from the yard, without resizing it to the exact dimensions required for sound prefabrication, faults in the bond between frame and covering and imperfect alignment of adjoining panels must be expected. Such conditions are all too easily found in several house types at Indian Head, and the resultant crude exterior appearance of the houses might well shake the confidence of an uninformed observer in the soundness of their construction. Alignment difficulties are particularly noticeable in panel roof construction (apparent on the site if not in the accompanying photographs) where the joints are generally evident beneath undulations in the shingle covering. The problem of an even roof plane seems to have been solved only by two participating companies (Allied and National).

Part of the blame for these shortcomings rests on conditions peculiar to the Indian Head project: the Government-required changes in prefabrication techniques to permit demountability and the difficulty of delivering prefabricated parts to a remote, poorly serviced site. Other contributing factors were the unfamiliarity with prefabricated processes of many of the local contractors hired to erect the houses and the inexperience of most of the prefabricators themselves with the handling of large orders. (With the exception of Hauserman who produced only 20 houses, all other participants supplied from 50 to 77.) However, the most serious factors behind the site erection difficulties are inherent in the prefabrication systems themselves. On close inspection of the various "demonstration" houses, only a few reveal the engineering neatness and precision that should be characteristic of an article shop-made under controlled conditions.

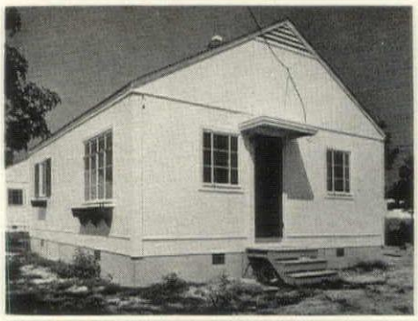
Moral of all these debits: the growing prefabrication industry must protect itself by protecting the public against low standards and inept manufacture.

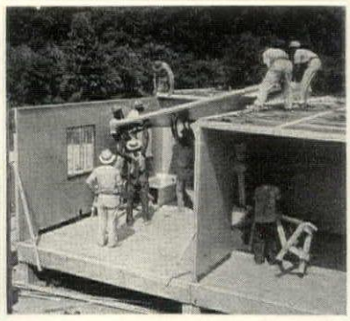
Credits. Despite its spotty amateurishness, Indian Head reveals an industry definitely on its way—well beyond the point where it requires coddling. From now on it is subject to the same kind of scrutiny that any established industry must expect. The good in the project shows that attractive livable houses can be prefabricated—even under Indian Head's adverse conditions—at prices easily competitive with conventional methods (particularly when salvageability is taken into account—see below).

Indian Head's houses cost the Government an average of $2,843 each, exclusive of site improvements and utilities (which will run to about $761 per unit according to the general contract), land and $178 worth of kitchen and bathroom fixtures supplied from Government's central purchasing pool. Lowest cost unit ($2,671) was supplied by Allied; highest cost ($2,988) by a company combining the talents of Sears, Roebuck and veteran Prefabricator Howard Fisher's General Houses, Inc.

One house of each of the ten types cost more, for, after having been selected by lot, it was demounted, trucked some 40 miles and reerected on new foundations near its original location. For the average $2,980 National house, this demonstration cost exactly $474 according to official PBA records, required 68 man hours to tear down the house, 200 more to put it together again. These figures are all inclusive, even cover the salvaging of bricks and concrete blocks in the chimney and foundation piers and the building of new ones. Estimates by National put the net loss in non-reusable

(Continued on page 56)





Plywood on wood frame at $2,976 for 39 singles, $2,981 for 24 doubles by National Homes Corp., Lafayette, Ind. Prior production: 261 units. Subsequent Government contracts: 500 units. Photos show demounting, trucking and reerection of one-family National house at Indian Head. They were taken the same day at the following times: 8:45 a.m., 10:45 a.m., 2:15 p.m.

BUILDING FOR DEFENSE . . . RENT CONTROL IN THE OFFING

as Congress studies Emergency Price Control Act. Government sees rents rise 22 per cent in defense-boomed communities, seeks power to peg them and will probably get it. THE FORUM examines the proposed law, shows why it will not work.

Probably never before in all U.S. history has building news been flagged with as large a headline as the New York *Sun* gave to the introduction in Congress last month of the Emergency Price Control Act of 1941. A far-reaching piece of legislation, the proposed Act would control residential rents along with the prices of almost every other commodity and service.

The proposal. In the form submitted, however, the bill is not as alarming for landlords as the *Sun's* bold 120 point type would indicate. Thus, its rent control provisions would apply only to "defense rental areas" specifically designated by the President and only to housing accommodations within these areas which have been rented or offered for rent at $15 per room per month or less at any time after September 1, 1940 and which have since been jacked up 10 per cent or more. Over such housing the Act would empower the President (probably via Price Administrator Leon Henderson of the OPM's Office of Price Administration and Civilian Supply and his underling Karl Borders, chief of OPACS' rent section) to establish a ceiling through which rents would not be permitted to rise—but only after State and local authorities had been given 60 days within which to remedy the situation themselves. Where rents break through the ceiling, the penalty is a $5,000 fine, a year in prison, or both. Finally, like the ceilings over all other prices, the Federal determination of maximum rents is to be subject to judicial review by a special three-judge Emergency Court of Appeals which would handle all protests.

The need. The Administration has good grounds for launching a program of selective rent control. While July rents in 56 typical U. S. cities, large and small, were only 1.8 per cent higher than the year before and only 2.4 per cent higher than in July 1939, the picture in small defense communities is quite different. Thus, OPACS has made a survey of rent trends in 77 such localities, has found that during the period from Oct. 1939-Mar. 1940 to Mar.-June, 1941, rents were boosted in an average of 35 per cent of the houses, that these increases averaged about 22 per cent. Blackest mark on the list went beside the small town of Stark, Fla. (1940 pop.: 1,480) where personnel in a new military establishment have pinched the housing demand, have prompted landlords to raise rents in seven out of ten cases and have put the May 1941 average of these rents 101 per cent above the Mar. 1940 level.

Selected from the OPACS list for their size or the currency of their latest report, the 31 rent rocketing cities tabulated below document the need for some sort of action.

The shortcomings. There is considerable question, however, whether or not the proposed Emergency Price Control Act in its present form will best accomplish its purpose. In the first place, it is the result of a hasty compromise between Price Boss Henderson, who wished to omit all mention of such limitations as $15 per room and 10 per cent, and Congressmen, who wished to tie down and specifically define any such revolutionary administrative powers as price and rent control. Result: the proposed Act is somewhat of a monstrosity which will probably run no smoother than most monstrosities. For instance:

► No consideration is given to rental housing accommodations which have entered the market since September 1, 1940. Many a home owner, in a spirit of patriotism if not business, has recently opened his whole house or a few rooms of it to defense worker tenants. He could charge any rent he pleased without fear of the presently proposed law.

► New construction entering the rental market after the President has defined defense areas would fall in the same category.

► Sublessors would, in many cases, be placed in a more favorable position than lessors. Thus, the original tenant of an old eight-room house might pay $80, or $10 per room per month, for it. He, in turn, might furnish heat, light, water, furniture and maid service and therefore be justified in subletting the rooms for $20 a month. If such an arrangement existed in a defense area at any time after September 1, 1940, the original landlord would not now be permitted to raise his house rent more than 10 per cent, while the original tenant, or sublessor, could boost his room rents sky-high, reap a handsome profit. The Act's arbitrarily established rental rate of $15 per room will exclude from rent control a large part of the nation's furnished quarters—the type of housing many defense workers seek. *(Continued on page 60)*

RENTS ROCKET IN DEFENSE COMMUNITIES

STATE & CITY		Defense Activity	Period*	% of Rents Up†	Rent Increase#
ALA.	Anniston	Military	E	38	28%
	Florence	Ordnance	E	30	30
	Sheffield	Industry	E	38	40
	Tuscumbia	Ordnance	E	36	40
CALIF.	Monterey	Military	E	30	24
	San Diego	Aircraft	B	48	14
CONN.	Bridgeport	Industry	B	42	14
	Hartford	Aircraft	B	38	9
FLA.	Tampa	Military	B	37	17
IND.	LaPorte	Ordnance	E	38	24
KANS.	Wichita	Aircraft	C	24	12
KY.	Louisville	Industry	B	36	12
MASS.	Ayer	Military	D	15	21
MICH.	Bay City	Industry	E	16	20
N. H.	Portsmouth	Shipbuilding	D	26	14
N. J.	Bayonne	Shipbuilding	D	44	10%
	Camden	Shipbuilding	B	43	12
	Paterson	Aircraft	B	20	11
N. Y.	Schenectady	Industry	A	15	14
N. C.	Fayetteville	Military	E	43	26
OHIO	Akron	Industry	B	37	12
	Canton	Industry	B	16	17
	Dayton	Industry	A	19	12
	Youngstown	Industry	B	20	16
OKLA.	Lawton	Military	E	49	31
PENN.	Beaver Co.	Industry	E	23	16
	Bethlehem & Allentown	Industry	B	26	16
TENN.	Milan-Humboldt	Ordnance	E	40	95
TEX.	Abilene	Military	E	57	30
	Brownwood	Military	E	78	69
	Mineral Wells	Military	E	64	57

* Period symbols: A, Oct. 1939-Mar. 1941; B, Oct. 1939-Apr. 1941; C, Oct. 1939-May 1941; D, Oct. 1939-June 1941; E, Mar. 1940-June 1941.

† Percent of homes reporting increased rentals.

Average percent increase in rentals for dwelling reporting increases.

Recent Work by
GRUENBAUM, KRUMMECK & AUER

Elsie Krummeck and Victor Gruenbaum began their collaboration as designers in November, 1939. Michael Auer joined the firm in 1940. Before joining forces Miss Krummeck worked in the exhibit field (metal sculpture, Chicago and New York Fairs), while Mr. Gruenbaum practiced architecture in Vienna, up to the time of the Anschluss. Mr. Auer was educated in the Universities of Budapest, Zurich, and Michigan, and got his experience in both the architectural and exhibit fields.

From two offices, one in New York and one in Hollywood, the firm has extended its activity over a great part of the country. Some idea of the reasons for this success can be gained from their analysis of the underlying principles of store design, quoted below. Commercial work, however, is not their only field of activity. Apartment interiors, residences, as well as the design of packaging materials, china, glassware, and furniture have all been handled by the new firm.

"The store is clearly divided into two main portions: the exterior, often enlarged to a vestibule or arcade, and the interior. The functions of the exterior are to serve as advertising poster and exhibit. The interior functions as a 'sales factory.'

"These are the main principles. There are, of course, great variations within this theme, depending on size, location, merchandise, and price category of the enterprise, but for all of them the desired effects of the store design on the neutral passerby are:

1. His interest should be aroused in the enterprise by a characteristic and impressive exterior, his curiosity should be awakened, his interest stimulated, up to the point where he feels impelled to take a better look at the exhibit.

2. This exhibit is gratis, but arranged with a very specific aim in mind, namely, to arouse the desire to possess some of the exhibited goods. Aim of the design has to be the most favorable frame and background for this exhibit.

3. Once the desire for possession has been excited, the purpose is to make its fulfillment as easy as possible. This can be done by making the step from the outside to the inside agreeable and inviting, psychologically as well as physically. This desire can be made still greater by making the interior visible from the outside and by assuring the prospective buyer that he will not only get what he saw in the exhibit, but that he will also have a nice time in an agreeable and interesting room.

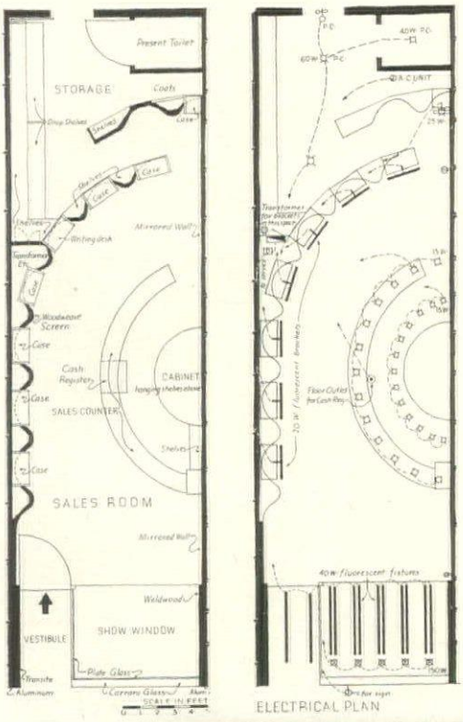
"Main characteristic of the 'sales factory' is the fact that the visitor shall not see the machinery; all the smoothly functioning gears and levers must be hidden. The buyer must feel 'at home,' and even better than at home. Great effort is made to create this feeling: air conditioning, elaborate lighting schemes, acoustically perfect walls and ceilings, warm and friendly colors, sound-absorbing floor coverings, and comfortable furniture, all are means to this end. They are all intended to make the buyer feel so well and enjoy being in this room so much that he is ready to pay for this privilege by buying more than he originally intended. Besides this, the interior continues the exhibit of the exterior: displays are grouped in glass showcases, in niches, and on tables. The purpose of this is to arouse new desire to buy, in addition to that which made the buyer enter the store in the first place.

"In our work we have tried to solve these problems in various ways. Though designer and client usually agree upon the aims of the design, it is very often hard to convince the client of the propriety of the means necessary to fulfill these aims. The typical store on our main streets all over the country shows clearly the mistakes which are made through lack of able advice and design. The mistakes made in the layout of the store fronts result usually from improper knowledge of exhibit technique. The gaudiness of materials and trimmings often kill the effect of the exhibited goods. Glass show windows are often, especially in the case of the arcade front, arranged in such a manner that they block access to the rest of the arcade and hence into the store; this is mostly born of the desire to show more goods than the exhibit area allows. Other mistakes result from insufficient knowledge of lighting and color effects. Glaring lights on outside or inside make it impossible to enjoy either looking or buying. In the same way, cold or distracting colors destroy comfort.

"More and more retail merchants are learning the value of good store design to their business. Of course, store design alone cannot be the key to success; much depends on location, merchandise, and management, but it can be said and it has been proved (as in the case of alterations to existing stores) that the influence of design is tremendous and that the business success of a store can be increased to twice or three times its original volume by improvement of this one factor alone.

"If the needs and necessities of store design become widely acknowledged and a thorough knowledge of all technical factors is achieved, good store design should be the result. There is, of course, still a step from a 'good' store to an 'outstanding' creation. How to make a store-design outstanding is a matter to which theoretical considerations just don't apply. What makes the design outstanding is the finding of an imaginative scheme which governs the entire design like a musical theme, heightening the effect of the technical and psychological devices and assuring their success."

CANDY STORE, BROOKLYN, N.Y.

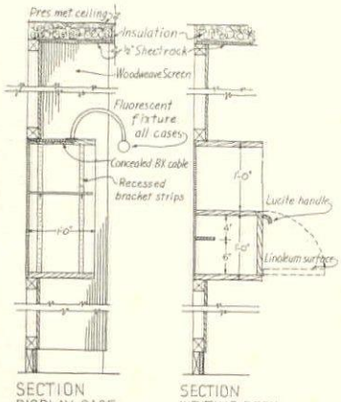


This store is one of a chain of small, popular-price candy stores, consisting of five units. Wrapping materials, packages, and trade mark were designed at the same time as the store itself. Treatment of the show window emphasizes the connection between the display and the interior, with the striped walls ingeniously reproduced in the louvered ceiling which conceals show window lighting. The interior illustrates a free and unusually effective layout of the sales area, based on the use of a curved counter and carried still further by the curving, serpentine display-wall. This arrangement affords ample storage and utility space at the back of the store without sacrifice of depth.

Materials: Walls are wood screen manufactured by Artek-Pascoe, lighting fixtures by Kurt Versen. Flooring is Armstrong Cork Co. linoleum. Show window frame and awning cover are stainless steel. Walls, ceiling, and floor of showroom gray with white stripes, entrance door magenta red. Lighting of show window combined fluorescent and incandescent lamps above wooden louvers. Cost about $3,000.

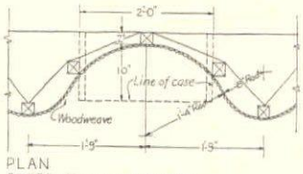
Robert M. Damora, Photos

GRUENBAUM, KRUMMECK & AUER, DESIGNERS



SECTION
DISPLAY CASE

SECTION
WRITING DESK



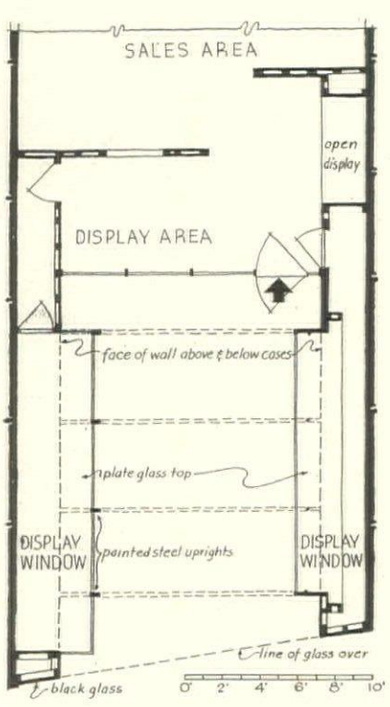
PLAN
CASES AT STRAIGHT WALL

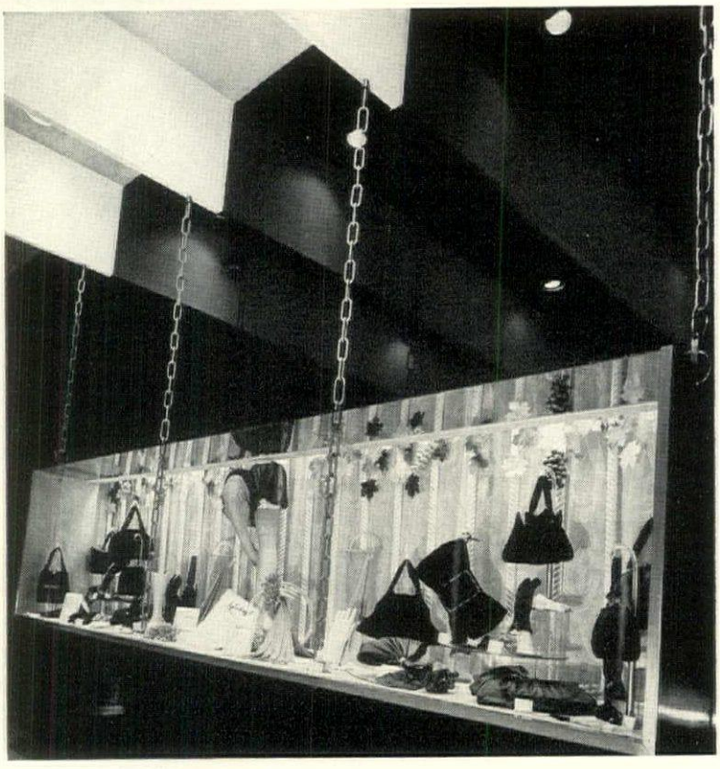
Robert M. Damora Photos

WOMEN'S SHOP
WHITE PLAINS, N.Y.

This attractive front for a women's dress, lingerie, and accessories store combines the most generous possible entrance with an abundance of display space, and establishes a smart, up-to-the-minute tone appropriate to the type of merchandise on sale. The three sides of the arcade entrance are used for three distinct display areas, each designed for a specific use. The right-hand wall, faced with black glass, carries a cantilevered glass case for accessories, partly suspended by gold-bronze chains. The wall opposite has larger cases for display mannequins, divided by fins and placed against a wall of cement stucco. The rear wall of the arcade is glazed in large squares, and opens on a feature show window. Lighting is provided by spotlights built into the ceiling, shining through the transparent tops of the show cases.

Materials: Floor, terrazzo. Herculite doors, black Carrara glass, and plate glass, all by Pittsburgh Plate Glass Co. The lettering is white fluorescent sign tubing in metal channels. Cost about $6,000.



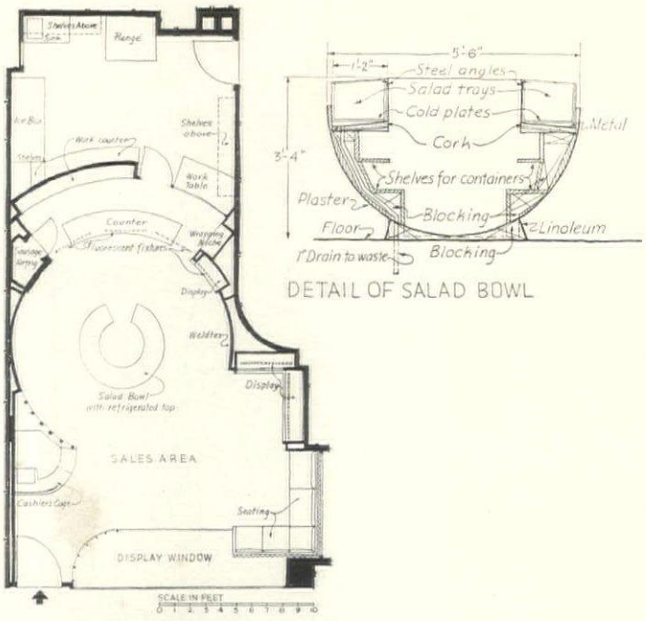


DELICATESSEN, NEW YORK CITY

GRUENBAUM, KRUMMECK & AUER, DESIGNERS

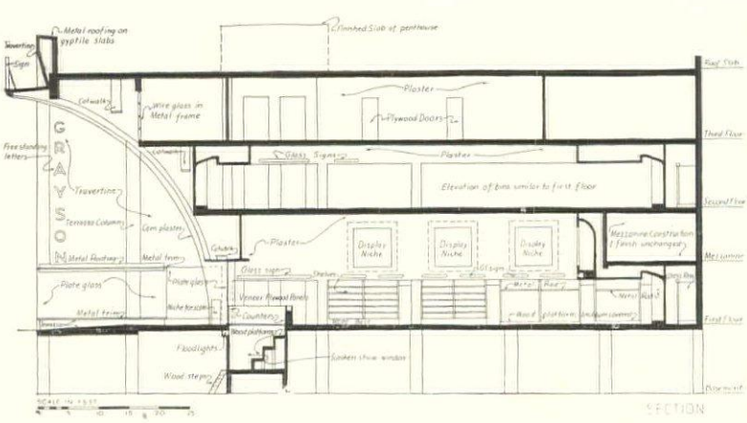
Designed to create a Danish atmosphere and thus carry out an idea which is the identifying trade mark of the store, the treatment of this delicatessen demonstrates that such an objective is not inconsistent with the requirements of modern design. Specialty of the store was fresh, homemade salads, and this was dramatized by the round, central "salad bowl" sales counter, with a refrigerated case for the display of salads in its glazed top. Color scheme is red and white, colors of the Danish flag.

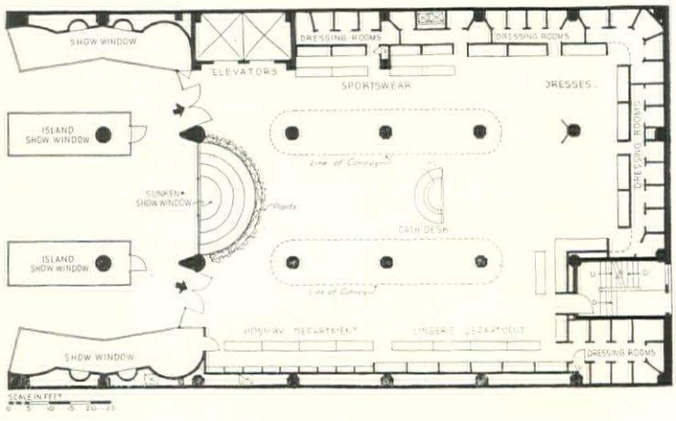
Materials: Walls are of Weldtex striated Fir Plywood, U. S. Plywood Corp. Floors are covered with Armstrong linoleum. Refrigeration, Frigidaire; lighting fixtures, Kurt Versen. Glass is by Libbey-Owens-Ford.



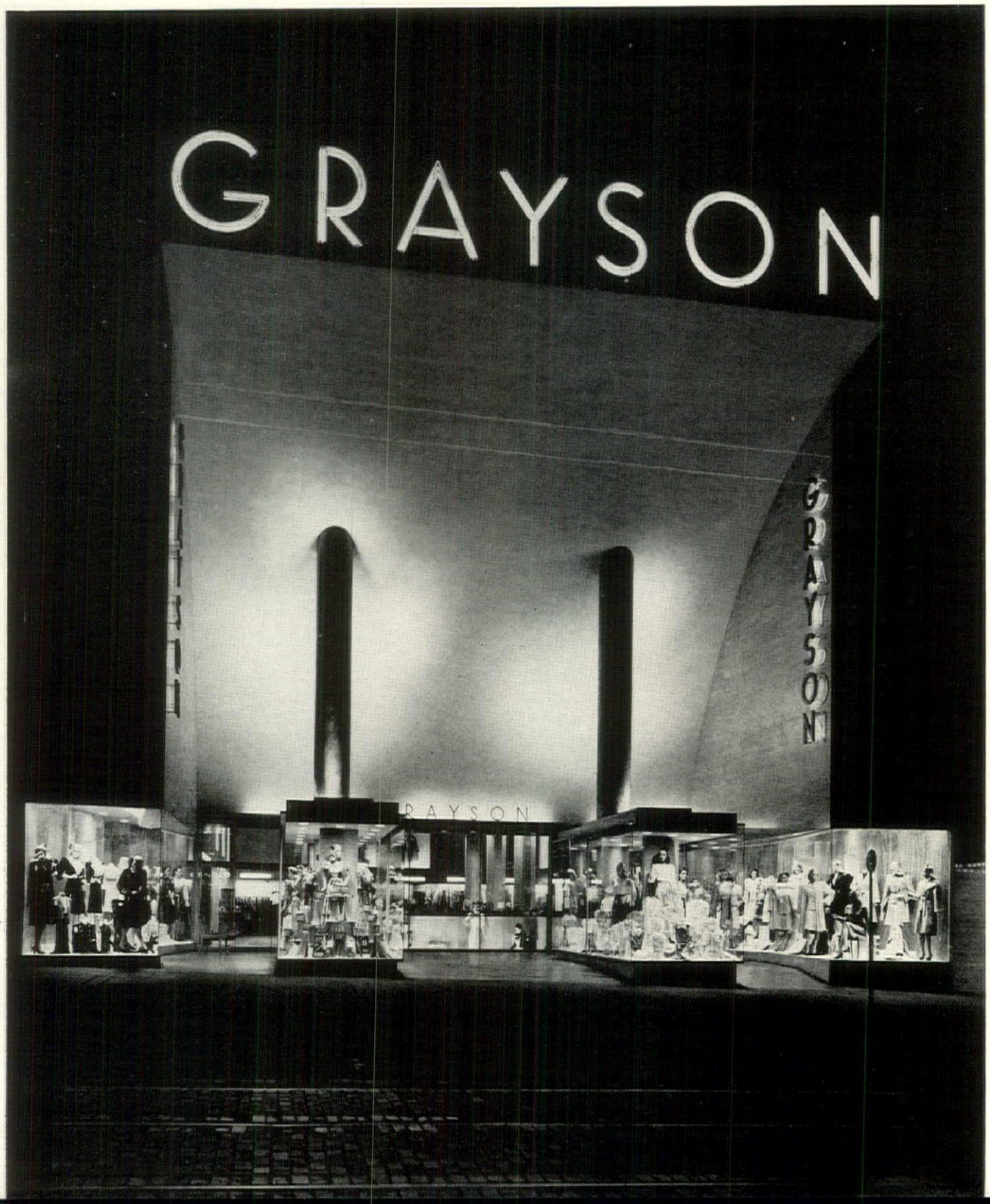
Robert M. Damora Photos

WOMEN'S READY-TO-WEAR STORE, SEATTLE, WASH.

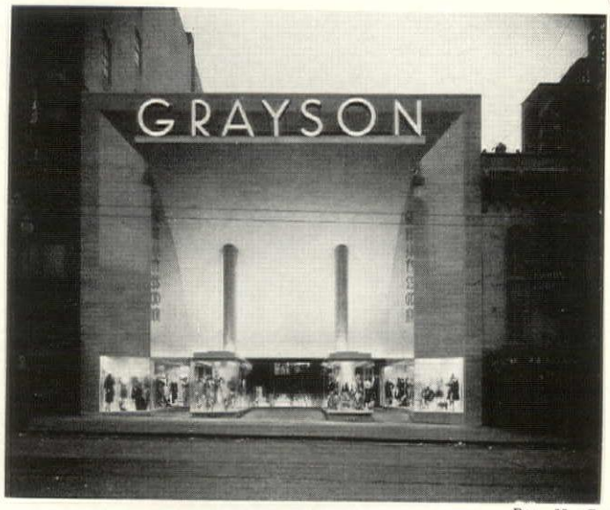




Baskerville

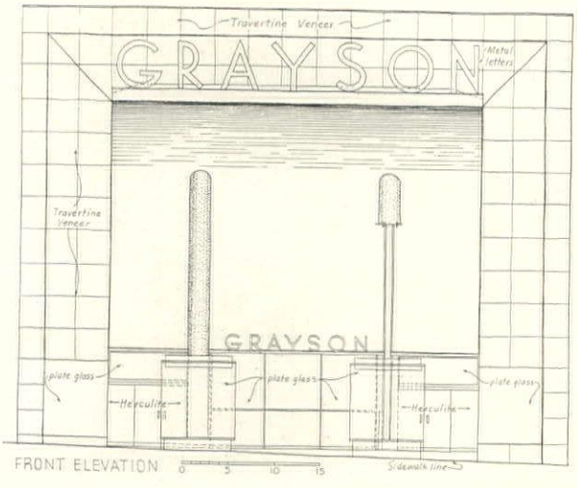


GRUENBAUM, KRUMMECK & AUER, DESIGNERS



Roy M. Peak

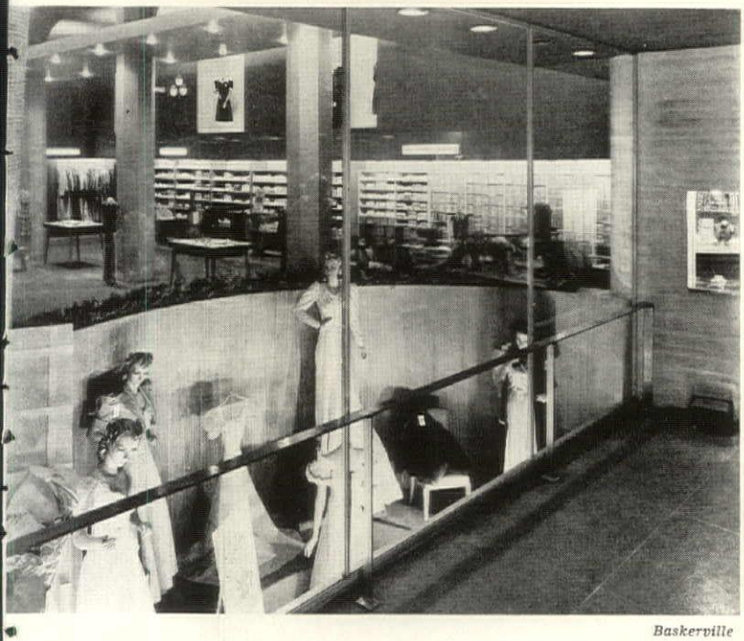
Built for a chain store organization selling women's clothes at low prices, this store is somewhat different in character from those on the preceding pages. A prime requirement of this type of selling is mass display, which has been provided in the form of double island and sidewall show windows, without, however, obstructing the shopper's view of the store interior, which is visible over the top of a sunken display space between the two entrance doors. Other special requirements which are satisfied by the design include roomy aisles for considerable floor traffic, and solid, easily supervised selling facilities. The novel curved ceiling of the arcade consists of steel framing, metal lath, and cement stucco.



FIRST FLOOR

Roy M. Peak

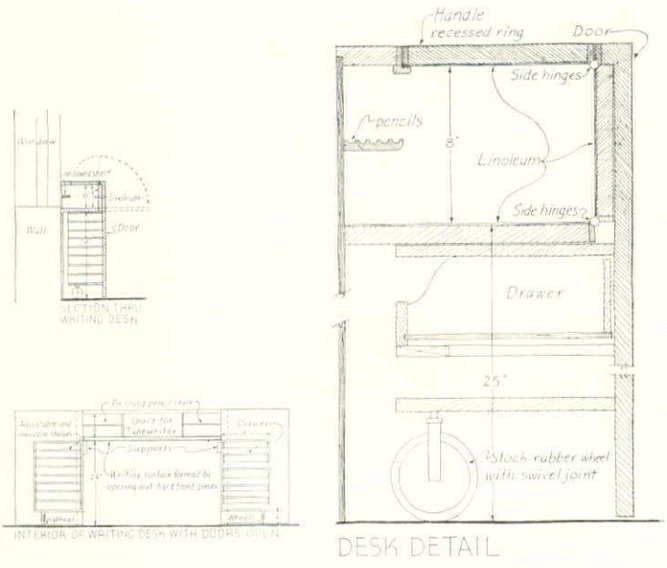
SUNKEN SHOW WINDOW



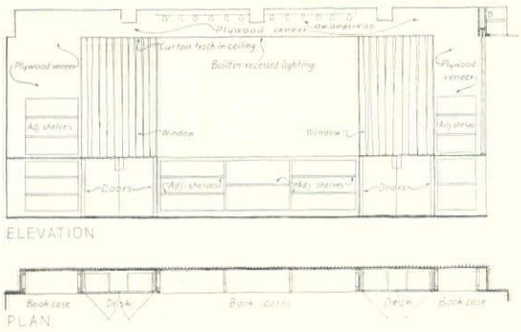
Baskerville

Materials: Arcade floor, terrazzo; walls travertine marble; entrance doors Herculite glass, Pittsburgh Plate Glass Co. Window frames specially designed in aluminum. Store fixtures are Lauan, bases linoleum. Lighting is by a combination of fluorescent and incandescent lamps, fixtures by Kurt Versen. Total cost of alterations to the three story building (originally built as a ten-cent store) was about $80,000.

APARTMENT, NEW YORK CITY



Robert M. Damora Photos



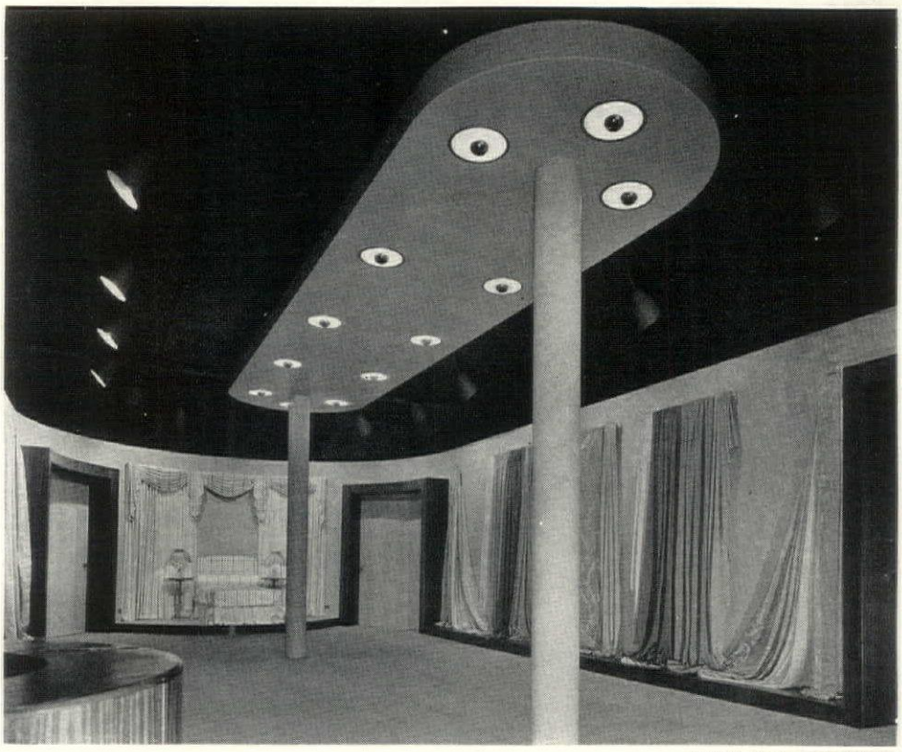
The furnishings for this apartment have been designed with an eye toward creating maximum individuality while at the same time bearing in mind the fact that a relatively short-term lease precludes too much investment in fixed equipment. The novel combination bookshelf and desk, shown in detail above, makes the most of limited space without sacrifice of utility. All furniture is the work of the designers and was executed by Thonet Brothers.

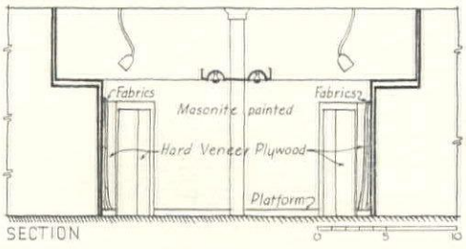
DINING

Finishes: Living room has dark walnut woodwork, beige broadloom carpet, gray draperies with yellow pattern, some accents in red. Walls painted partly grayish-green, partly off-white.

DISPLAY ROOM, NEW YORK CITY — GRUENBAUM, KRUMMECK & AUER, DESIGNERS

This fabric show room on the second floor of an office building shows how the designer can create maximum effectiveness with minimum structural alteration when called upon to do so. The budget precluded use of a suspended ceiling to conceal a high, ugly one of tin, so this was painted a dark stone green and concealed by a canopy between two existing columns and by the positioning of the lighting fixtures. Walls are hardwood plywood. Cost, about $6,000 including remodeling of offices and salesrooms not shown.

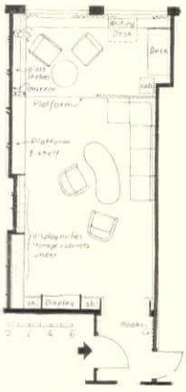




Robert M. Damora Photos

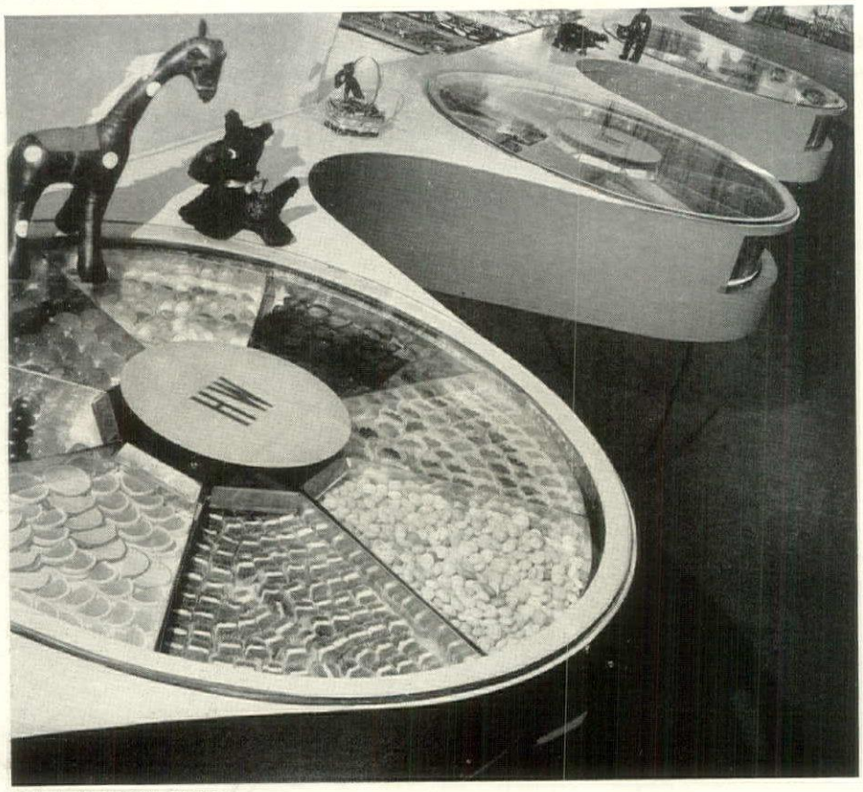
SHOWROOM, NEW YORK CITY

A converted one-room apartment for use as a sales room with work space for light handicraft. Division wall between work room and sitting room is corrugated glass (Mississippi Glass Co.), display case is painted silver-gray and white. Ceiling and carpet, maroon. Fabrics, gray and white striped satin on two metal chairs, gray fabric on settees.



CANDY STORE, NEW YORK CITY

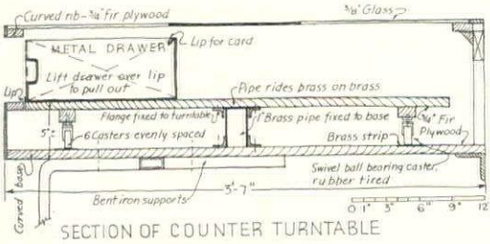
GRUENBAUM, KRUMMECK & AUER, DESIGNERS



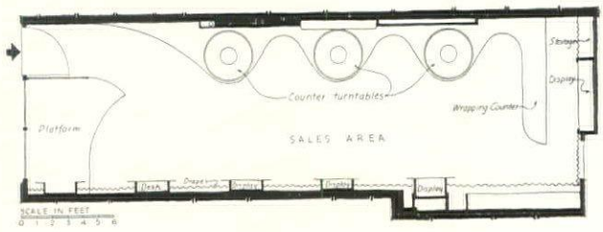
Robert M. Damora Photos

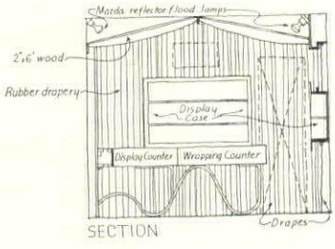
Designed as a colorful and imaginative setting for the sale of high quality candy, this shop employs an open sales area with a small wrapping counter at the rear. Turntables set into a serpentine counter facilitate the showing and selling of a wide variety of merchandise. Ceiling is glass, lighted from behind and supported by curved ribs which suggest the lines of a tent.

Materials and colors: The rafters are white, show case walls of blue rubber drapery (Arundell-Clarke, Ltd.), turntables red against a chalky lemon-yellow wall. Floor is gray Armstrong Cork Co. linoleum. Cost, about $3,000.



SECTION OF COUNTER TURNTABLE





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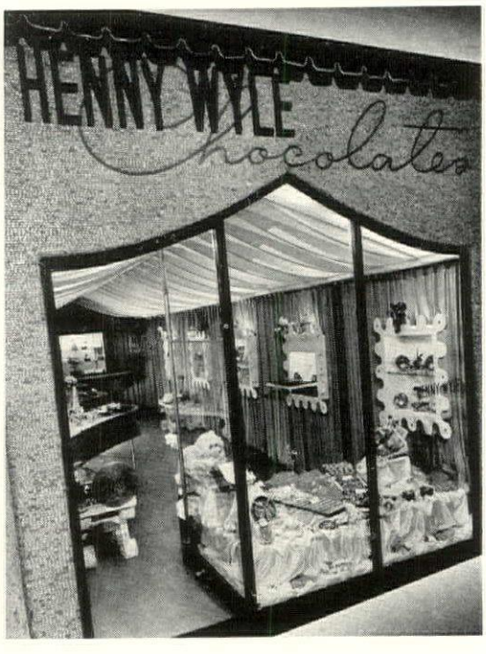
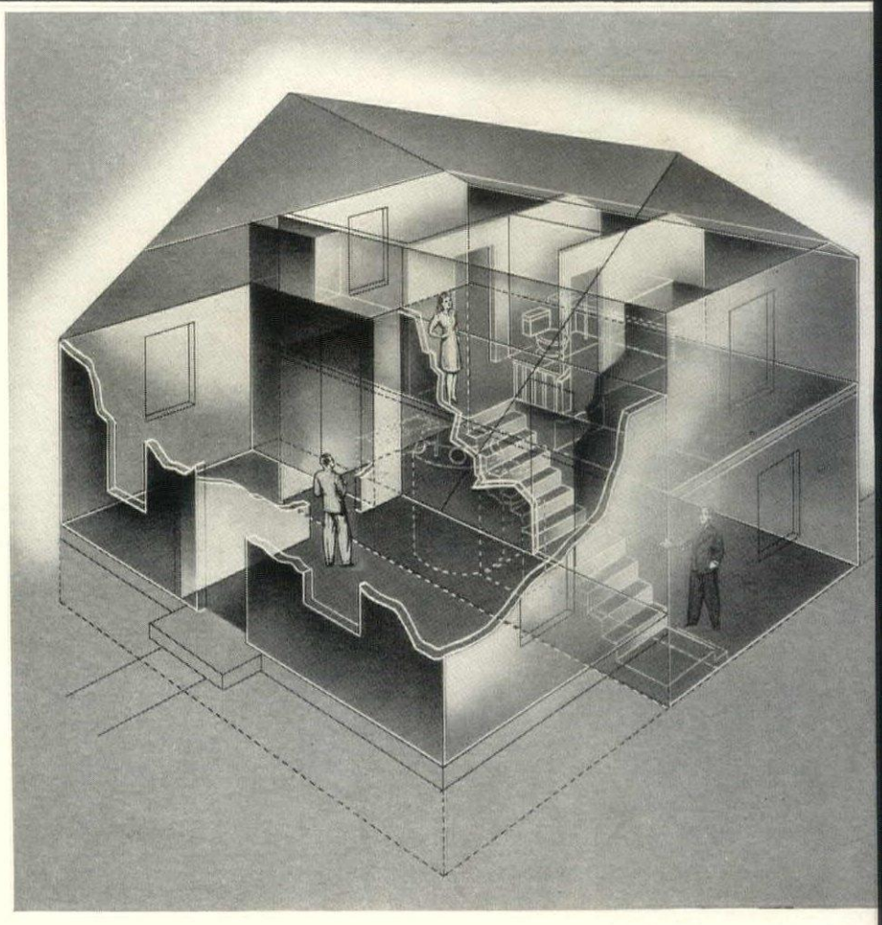


BUILDING MONEY

CONTENTS:



X-ray perspective of the Tri-Level House clearly reveals the basic room arrangement: living room and library-bedroom on grade or second level; six steps down to the dining room, kitchen, laundry and heater room; seven steps up to two bedrooms separated by a bathroom.

SIX-ROOM HOUSES ON THREE LEVELS

sell for $3,500 in Detroit, are duplicated under license in 23 other cities. Sponsors: Architect DeGree and Cooke Construction Co., who have never lost a bet.

Anyone who sells anything as big as a house on a money-back guarantee is either inanely ideal or daringly confident of the value of his merchandise. No idealist is President Bernard O. Hallis of Detroit's Cooke Construction Co. who in the past year has built and sold close to 200 houses with a standing one-year offer to refund the owner's purchase price for any or no reason. To date there have been no takers, for Cooke Construction Co. builds a lot of house for the money—six rooms at $3,500. The secret: a copyrighted three-level design which cuts waste space to the bone and whose popularity has spread under license to 23 other communities from Rochester to St. Louis.

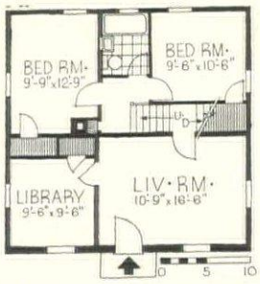
Company behind this newsworthy development was organized at the turn of the century by the Cooke Brothers of St. Louis who specialized in commercial and industrial general contracting throughout the Middle Atlantic States. When the last of the Cookes retired in 1921 the business was turned over to his nephew, Bernard O. Hallis, who subsequently became interested in manufacturing, forsook contracting and moved to Michigan. However, when FHA's mortgage insurance program was launched, Hallis immediately recognized its significance to the building business, reorganized the old company, obtained one of the first FHA commitments in the Detroit area, built some 150 houses in the $6,000-$10,000 price range during 1936-37.

Idea. After a year of comparatively small activity due to local labor difficulties, the company consulted Architect Walter B. DeGree on the possibilities of the really low cost housing field. A Notre Dame architecture and law graduate and football pupil of the late great Knute Rockne, DeGree came via Paris' Beaux-Arts, the lumber business in Detroit and Cleveland, a private architectural practice in Washington and, from 1935 to 1940, the "housing school" of Planner Rexford Guy Tugwell where he was an architect and planning coordinator for the Resettlement Administration (now the Farm Security Administration). Today, he is vice president of the Cooke Construction Co.

In his new capacity, Architect DeGree's first work was the design of several small houses of the "two bedrooms and bath honeymoon type," but he recalls, "I was not quite satisfied to start our program with such stock and concluded that it would be three bedrooms or bust. In July 1939, while struggling with cubic costs and damning the 30-40 per cent waste space in the conventional one-story house, so pathetically popular with those who can least afford it, the broken floor level idea occurred to me as a solution, and, to my knowledge and concern at least, the tri-level home was conceived."*

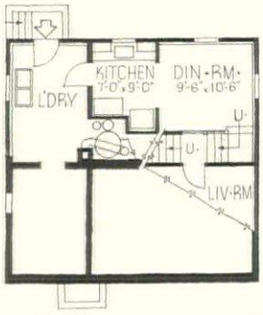
*Architect DeGree is mindful that the broken floor level principle has been used before (ARCH. FORUM, July 1938, p. 50 and Mar. 1940, p. 199), claims originality only for its application to really low cost housing and for his particular room arrangements.

Design. As shown in the phantom perspective (p. 201), the photograph, right, and floor plan below, the basic Tri-Level Home contains a living room and library or auxiliary bedroom on the ground or second floor level in the front half of the building. Up seven risers from the ground floor stair landing is the third level with two



BASIC HOUSE: SECOND & THIRD LEVELS

bedrooms and bath. Down six risers from the landing or 2½ ft. below grade is the first, or "basement" level with dining

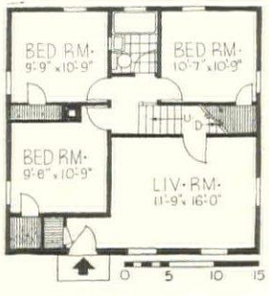


BASIC HOUSE: FIRST OR SUB-GRADE LEVEL

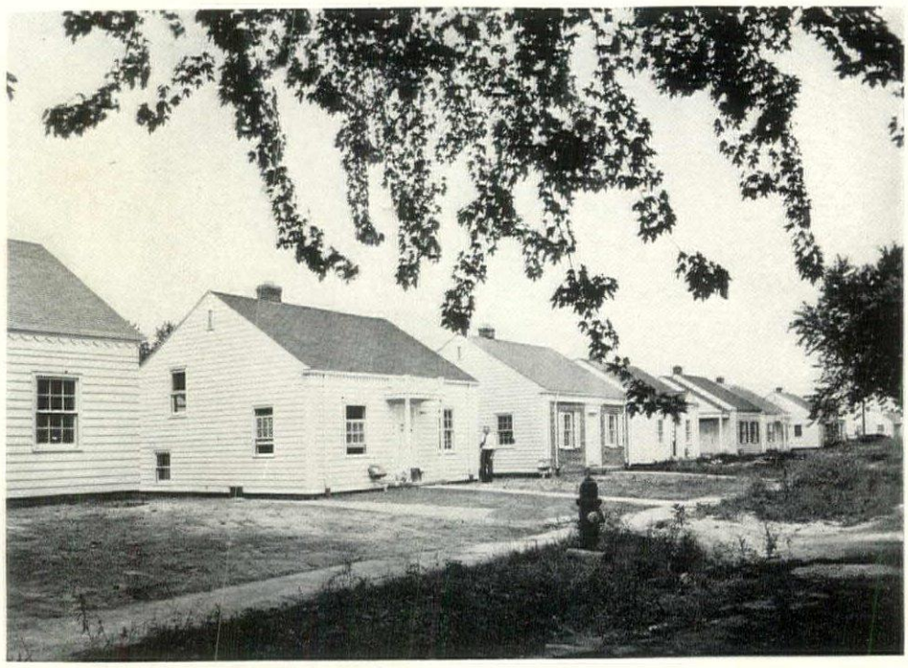
room, kitchen, laundry, heater space and fuel bin. Space below the living room is unexcavated, and, of course, the fuel bin under the library lacks head room. Note the central location of the warm air heating plant which permits a minimum amount of duct work.

Offering about one-third more livable space per dollar, all these rooms are inside a shell no larger than that of the average four-room, one-story-and-basement house. Thus, while the eaves line extends about 11 ft. and the ridge 18 ft. above grade (both more than average), an excavation only 3½ ft. deep is required for the "basement." And headroom has not been sacrificed: 8½ ft. in the "basement," 8 ft. on the ground floor, 7½ ft. "upstairs."

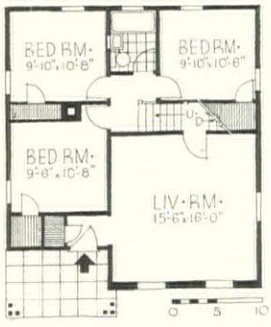
Alternate room arrangements within the Tri-Level Home have been developed since the basic unit was first built in May 1940. They show refinements in planning at slight increases in cost. Thus, one variation includes a corner porch and a 4 ft. extension of the living room (see photograph at bottom of p. 203). In another, the library or emergency bedroom has been raised to the third level where it actually becomes a bedroom, conveniently located with respect



VARIATION WITH THREE BEDROOMS ON THIRD LEVEL



to the bathroom (since this design only recently went into production, photographs are not available). In this house the "basement" utility space has also been doubled. When these two variations are combined they produce the second-third level plan shown below. A large closet



VARIATION WITH EXTENDED LIVING ROOM

serves each bedroom, and as shown in the cross section for this house (p. 203) a linen closet is provided in the attic over the living room.

"Basement" living in the Tri-Level Home is not subject to the usual objections, for lighting is ample (four 3 ft. windows plus a glazed door), and the double wood flooring with a vapor seal is raised off the concrete floor by 2 x 6 in. sleepers. The subfloor space thus created serves as a cold air return to the furnace.

Proving grounds for the Tri-Level Home design are the four Cooke subdivisions in the Northeast section of Detroit, about seven miles from the city center and within a mile and a half of one another. In these already partially developed areas Cooke Construction Co. has built 186 houses since May 1940 and plans 50 more by year-end—all of them Tri-Levels. Staggering the units from about 26 to 30 feet from the existing straight-line streets, the builders have further avoided monotonous rows by informally alternating the various house designs and by using several front entrance details and exterior trim motives.

Despite the complete absence of advertising, these subdivisions and their few model houses have attracted all the business that Cooke can handle. Company representatives sit in the model houses, merely write up the orders and direct the purchasers to the downtown office where all deals are closed.

Prices. Probably because it is the lowest in cost ($3,500, exclusive of the typical $300 40 x 100 ft. lot), the basic house with ground floor library-bedroom has proved most popular. Next in order of preference is the comparatively new variation with the third bedroom on the third level — priced $50 above the basic unit. These two models have out-sold the others three to one. Since the house with the corner porch and extended living room costs $300 more than the basic unit, its sale has been comparatively slow. In the same class is the similarly priced variation of this model with the third bedroom on the third level. Least popular of the Cooke quintet and therefore built only to add variety to the rows of houses is a variation of the basic unit with the ground floor library-bedroom replaced with an entrance porch (fifth house in general street view above). Like that of the basic unit, its price has recently been jacked up in line with production costs from $3,400 to $3,500.

While these prices are standard for the five types of Tri-Level Houses in the four Cooke subdivisions, some have run higher to cover the cost of optional extras. A brick veneer front ups the standard price $75, a small front porch (such as that seen on the second house in the general view, above) adds another $75, and the substitution of a gas- or oil-fired furnace for the standard coal-burner jacks it $150 higher. When all these extras are added to the most expensive model, the top price in the Cooke subdivision comes to $4,100 (again exclusive of the typical $300 lot) but still uncommonly low for a six-room house. Since the houses are built according to a

tight production schedule, requests for additional changes in the standard plans are rarely recognized.

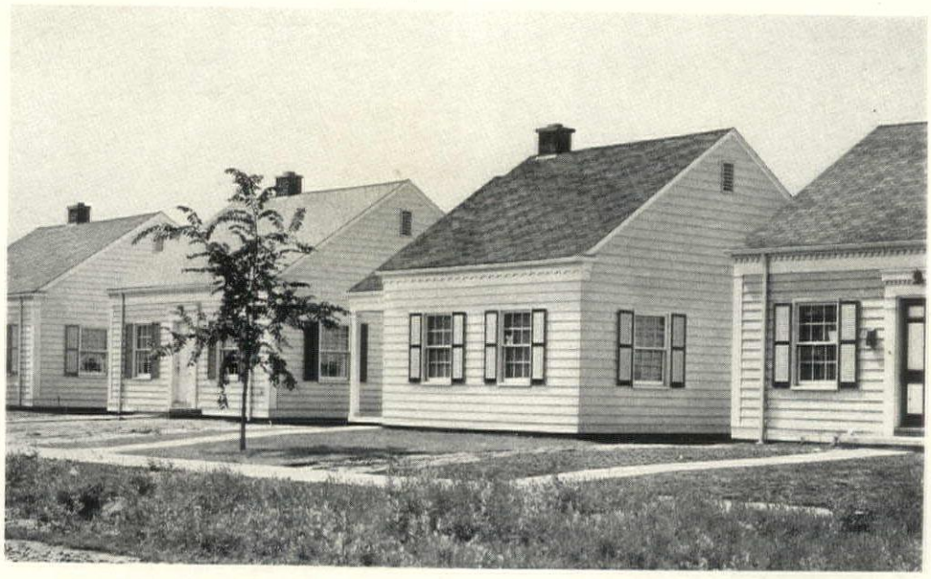
Purchasers. Reason for the popularity of the cheaper Tri-Level Homes is seen in the fact that the $300 price differential between them and the others represents about one-fifth of the average purchaser's annual income. While some of the owners of Cooke's Tri-Level Homes earn as much as $5,000 a year, the majority fall into the low income brackets.

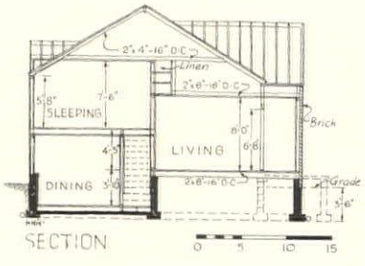
According to Cooke's file of vital statistics corralled from prospects before deeds are signed, a typical low income purchaser of a basic $3,500 house was 25 years old with a wife of 23 and two children of three years and six months, respectively. He has been a mechanic in a large automobile plant for two years. Last year he earned $1,382, and at the time of investigation, had $460 in the bank, owed $169 ($13 per month) to the Household Finance Co. He owns a 1938 Ford and his furniture, has his life insured for $1,000 at a cost of $18.50 per year. To reserve his chosen Tri-Level house he made a deposit of $100 toward the required $380 cash down payment, covered the balance of the $3,780 purchase price (house and lot) with a $3,400 FHA-insured mortgage which will require monthly payments of about $29 for interest, amortization, insurance and taxes. His former rent was $32.50 per month.

(Continued on following page)

CONSTRUCTION OUTLINE

FOUNDATION: Concrete block atop poured concrete footings with 1 in. cement parge and hot tar, Standard Building Products Co.
STRUCTURE: Exterior walls—pine studs, shiplap, 15 lb. felt and red cedar siding; inside—gypsum lath and plaster, U. S. Gypsum Co. Floor construction—joists, subfloor, 15 lb. felt and oak finish, E. L. Bruce Co. Ceilings—gypsum lath and plaster, U. S. Gypsum Co.
ROOF: Covered with asphalt shingles, Beckman & Dawson.
INSULATION: Outside walls—15 lb. saturated felt. Attic floor—Air-o-cel, Air-o-cel Industries, and 2 in. rockwool, Johns-Manville.
SHEET METAL WORK: Armco, 26 ga. galvanized, American Rolling Mill Co.
WINDOWS: Sash—sugar pine, F. M. Sibley Lumber Co. Weatherstripping—zinc. Glass—single strength, quality A, Libbey-Owens-Ford Glass Co.
FLOOR COVERINGS: Kitchen and bathrooms—Chromatile (Bird & Son) and ceramic tile, respectively.
PAINTS: By Valentine & Co. and Durable Paint Co.
DOORS: White pine, Roach & Musser Co.
HARDWARE: By Sager Lock Co., Stanley Works and Griffith.
ELECTRICAL INSTALLATION: Wiring system—non-metallic tube. Switches—General Fixture Co. Fixtures—Michigan Fixture Co.
KITCHEN SINK: Ebco Mfg. Co.
LAUNDRY SINK: Detroit Tray Co.
BATHROOM EQUIPMENT: Lavatory—Humphrey Mfg. Co. Tub—Richmond Mfg. Co. Toilet—Abington Mfg. Co. Cabinets—metal, Ohio Window Glass Co.
HEATING: Hot air system, coal-fired, gas-fired (General Electric Co.) or oil-fired (Motor Wheel Corp.). Regulator — Minneapolis-Honeywell Regulator Co.





Inside a Tri-Level House, most interesting rooms are the dining room and kitchen separated by two small spur partitions — viewed above from opposite directions. Note stairs leading from dining space to second level landing, also the sizable windows which light and ventilate this area. Section pertains to the house with the extended living room, shown in photograph below. Note linen closet in attic space opening off third level hall, also reduction in waste sub-grade and attic volume compared to houses of similar dimensions but of conventional design.

Commenting on Tri-Level purchasers in general, Cooke's Architect Vice President DeGree notes that they "are usually rather prolific and average two or three children per family, and, often, a widowed parent or an in-law is in on the deal. In one of our dwellings, believe it or not, we have a congenial dual family set-up consisting of eight individuals, a dog and two Fords. Vocationally, over half of all Tri-Level owners are skilled or semi-skilled factory workers, tapering up to foreman, plant executives, and between 5 and 10 per cent are professionals. Ages: about 60 per cent average under 30, about 20 per cent 40, and the balance up to as old as FHA will accept."

Franchise. Early in the development of the Tri-Level Home, DeGree decided to copyright and register his design "to forestall our ambitious but less ethical brethern from 'moving in' on our idea too fast." However, other builders in Detroit and elsewhere soon asked for permission to use the plans, prompted DeGree to prepare a licensing arrangement or franchise authorizing the construction of Tri-Level Homes under certain specified conditions:

►Exclusive rights are granted for one year to one builder in each territory—usually the metropolitan area of a small city or part of a larger city. Thus, the Detroit area has been divided among Cooke and four local licensees who have raised the city's Tri-Level Home building program to a total of some 300 units.

►For each house built a new set of plans must be procured from Cooke at $50 each.

►No plans may be copied either by the licensee or by others.

►The license is not assignable.

►If the licensee does not procure sets of plans and pay royalties at a specified rate, varying in line with local building activity, Cooke may terminate the agreement.

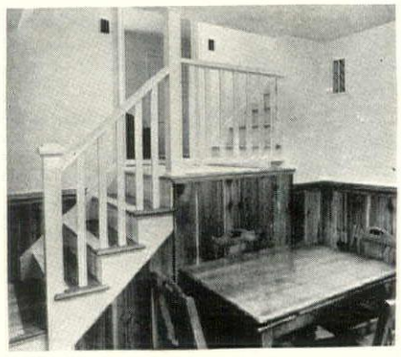
►Houses built from the Tri-Level plans must bear a sign during construction: "Notice: the plans for these homes are fully protected by U. S. Government copyright."

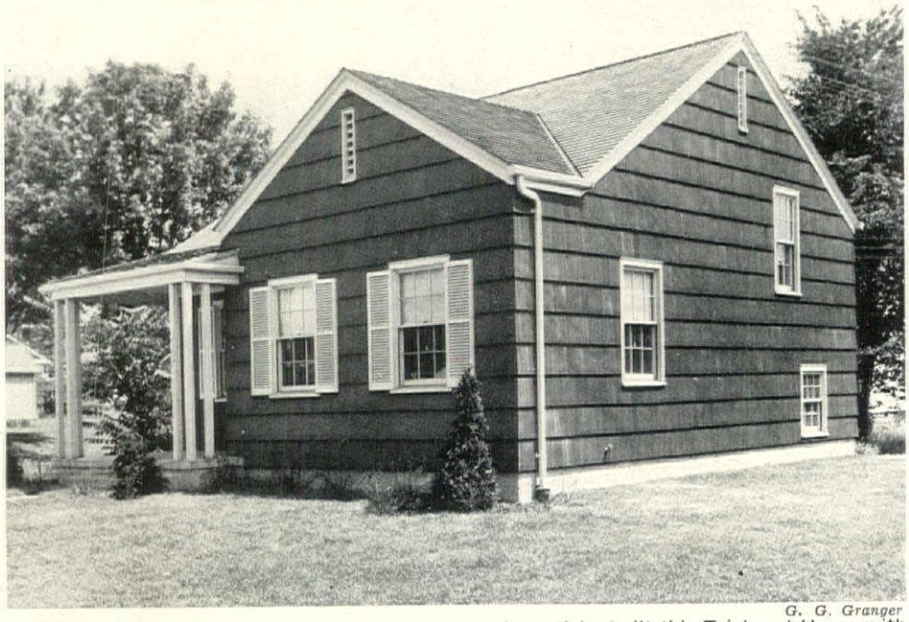
►All licensees are subject to rights previously given the Harnischfeger Corporation of Milwaukee, which has been authorized exclusively to fabricate, sell and erect through its dealers Tri-Level Homes in which the steel framing method of construction is employed. Except for its wider coverage, the Harnischfeger franchise is like that granted to local builders.

Including the Harnischfeger and four Detroit franchises, month ago there were a total of 40 in force in 24 different communities (see caption, right). This widespread repetition of the Tri-Level Home is particularly significant in view of the fact that Cooke Construction Co. at no time has advertised its houses or designs and has never solicited inquiries concerning the licensing arrangement. It is also significant as a step toward national standardization of housing design and, fortunately, the standardization of a design that is both economical and attractive.

Ann Arbor News—Eck Stanger

Under franchise from Cooke Construction Co., Builders Eugene H. Hannah and Leo P. Meyers erected this Tri-Level House of basic design (see first plan, p. 202) in Ann Arbor, Mich., showed it to 5,000 visitors on the opening day, sold it the next day. They have sold nine others, contemplate building two more. The Ann Arbor houses are more elaborately finished, inside and out, than their Detroit counterparts. Note, for instance, the paneled wainscoting in the dining room (right). Prices are commensurately higher; the twelve range from $4,350 to $4,500 exclusive of lots (averaging about $500), but are still some $1,500 lower in cost than local six-room houses of conventional design. Sign on model house: "Plans for this Tri-Level Home are Protected by United States Government Copyright Number 25832."





G. G. Granger

Another licensee, Hager & Cove Lumber Co. of Lansing, Mich., built this Tri-Level House with extended living room to sell for $4,650, plus the $600 price of the lot. (A conventionally designed six-room house sells for $6,500 and up without lot in Lansing.) During open house, some 15,000 people examined it—"by far the largest number of people who ever attended a home opening in this part of the State," according to Vice President Harold H. Hager. Reasons: 1) "The general increase of interest in new homes. 2) The unusual design of the house. The public reaction was generally very favorable, especially from the younger people who, of course, accept innovations much more readily than the older ones."

Other Michigan cities boasting Tri-Level Houses: Battle Creek, Bay City, Benton Harbor, Flint, Grand Rapids, Niles, Pontiac, Saginaw and Ypsilanti. Out-of-State licensees are building them in Ft. Wayne, Michigan City and South Bend, Ind.; Akron, Cleveland and Toledo, Ohio; Madison and Milwaukee, Wis.; Chicago, Ill.; Pittsburgh, Pa.; Rochester, N. Y.; St. Louis, Mo.

FORUM BUILDING COST INDEX spotlights rise in 53 of 80 cities.

Latest reports from 80 cities coast to coast indicate that residential building costs are continuing unabated upward. Thus, 53 of the cities registered increases during the three-month reporting interval; eight noted no change; 19 claimed lower costs. Biggest cost rise, from 85.2 to 92.7 per cent of the 1936 national average, was registered in Salisbury, N. C. Other significant rises (more than 5.0 per cent) were reported from New Haven, Conn.; Louisville, Ky.; San Francisco, Calif.; Cleveland, Ohio; Utica, N. Y.; Wichita, Kan.; Chicago, Ill. Biggest cost decrease (3.5 per cent) occurred in Grand Rapids, Mich., which was followed closely by West Palm Beach, Fla., and Fargo, N. D. with drops of 3.2 and 2.9 per cent, respectively. Average of the June reports showed an advance of 0.7 per cent —0.4 per cent in material costs and 1.4 per cent in labor wages. Chances are that the next installment of this 80-city index will show more and greater rises, for wholesale material costs in July advanced from 101.0 to 103.1 per cent of the 1926 average, registered the biggest month-to-month gain since Sept.-Oct. 1940. Largely responsible were lumber (up 5.7 per cent), brick and tile (up 1.7 per cent) and paint (up 1.3 per cent).

STATE	CITY	LATEST REPORT	PRECEDING REPORT	YEAR AGO
ALA.[3]	Birmingham	117.4	115.5	91.7
ARIZ.[3]	Phoenix	125.4	124.7	112.1
ARK.[3]	Little Rock	93.9	93.9	93.4
CALIF.[2]	Los Angeles	100.5	99.7	94.9
	San Diego	112.1	109.7	96.0
	San Francisco	120.5	115.0	113.7
COLO.[2]	Denver	116.9	117.5	110.1
CONN.[1]	Hartford	119.6	116.1	108.9
	New Haven	120.2	113.7	106.1
DEL.[3]	Wilmington	116.3	113.2	94.6
D. C.[1]	Washington	111.6	112.7	103.7
FLA.[2]	Tampa	111.2	111.3	102.5
	West Palm Beach	115.2	118.4	109.4
GA.[1]	Atlanta	108.2	105.7	88.1
IDAHO[3]	Boise	118.8	118.8	113.0
ILL.[1]	Chicago	133.2	128.2	122.4
	Peoria	131.2	131.4	128.0
	Springfield	134.9	134.9	129.2
IND.[3]	Evansville	117.1	117.7	110.4
	Indianapolis	115.8	115.2	99.2
	South Bend	117.0	117.6	106.6
IOWA[3]	Des Moines	121.0	121.0	114.6
KAN.[1]	Wichita	109.8	104.7	105.5
KY.[2]	Lexington	102.5	100.4	103.3
	Louisville	120.0	113.6	98.5
LA.[2]	New Orleans	112.2	109.9	104.2
ME.[1]	Portland	98.0	97.1	95.0
MD.[1]	Baltimore	111.3	110.0	85.9
	Cumberland	108.6	109.5	...
MASS.[1]	Boston	126.3	122.2	117.2
MICH.[3]	Detroit	111.9	112.1	105.2
	Grand Rapids	112.1	115.7	99.7
MINN.[3]	Duluth	113.2	113.2	111.9
	St. Paul	119.4	119.5	117.4
MISS.[2]	Jackson	112.6	109.6	110.0
MO.[3]	Kansas City	117.5	117.8	108.4
	St. Louis	104.7	104.6	100.8
MONT.[3]	Great Falls	132.1	129.2	124.8
NEB.[1]	Omaha	113.9	111.1	110.7
NEV.[3]	Reno	129.3	126.6	122.5
N. H.[1]	Manchester	106.3	104.9	97.4
N. J.[3]	Atlantic City	129.6	127.5	110.0
	Camden	116.1	115.9	107.7
	Newark	111.0	109.5	103.2
N. M.[3]	Albuquerque	126.8	126.1	112.3
N. Y.[3]	Albany	118.1	111.7	102.7
	Buffalo	113.5	111.2	103.1
	Utica	116.0	110.9	...
	White Plains	114.9	114.0	100.9
N. C.[1]	Asheville	103.2	104.0	90.0
	Raleigh	99.5	99.0	90.6
	Salisbury	92.7	85.2	88.5
N. D.[3]	Fargo	108.4	111.3	105.7
OHIO[2]	Cincinnati	102.7	103.6	99.5
	Cleveland	129.6	124.3	121.0
	Columbus	111.1	107.8	104.8
OKLA.[1]	Oklahoma City	118.4	119.1	110.6
ORE.[3]	Portland	98.9	97.6	96.7
PENNA.[2]	Harrisburg	121.8	121.8	105.5
	Philadelphia	114.0	114.0	102.6
	Pittsburgh	124.2	122.5	110.9
R. I.[1]	Providence	114.9	113.5	109.6
S. C.[1]	Columbia	103.4	100.1	84.2
S. D.[3]	Sioux Falls	112.8	110.1	111.5
TENN.[2]	Memphis	109.4	110.4	97.5
	Nashville	103.1	100.1	89.4
TEXAS[2]	Dallas	121.3	119.7	97.8
	Houston	120.9	119.7	106.7
	San Antonio	119.0	118.8	99.4
UTAH[3]	Salt Lake City	116.0	114.9	108.7
VT.[1]	Rutland	107.4	106.3	96.3
VA.[1]	Richmond	101.2	100.7	87.1
	Roanoke	107.3	108.8	94.1
WASH.[3]	Seattle	125.7	124.0	114.9
	Spokane	124.1	124.6	114.1
W. VA.[3]	Charleston	113.8	110.9	105.8
	Wheeling	119.5	116.2	114.7
WIS.[1]	Milwaukee	110.6	108.2	109.8
	Oshkosh	109.0	108.0	105.4
WYO.[3]	Casper	115.5	116.9	113.2

FOOTNOTES

1 Latest report—June 1941; preceding report—Mar. 1941; year ago—June 1940.
2 Latest report—May 1941; preceding report—Feb. 1941; year ago—May 1940.
3 Latest report—Apr. 1941; preceding report—Jan. 1941; year ago—Apr. 1940.

Based on Federal Home Loan Bank Board statistics covering the cost of building the same typical house in each city. This typical or standard house has six rooms, a total volume of 24,000 cu. ft. On the first floor are living and dining rooms, kitchen and lavatory; on the second floor, three bedrooms and bath. Exterior finish is wide-board siding with brick and stucco as features of design. Included in the cost of the standard house are all fundamental structural elements, an attached one-car garage, unfinished cellar and attic, fireplace, insulation, and all essential plumbing, heating and wiring. Only cost variables are materials and labor; compensation insurance, overhead and profit are included as constants. Excluded from the cost of the standard house are all items of finish and equipment such as wallpaper, lighting fixtures, refrigerator, window shades, etc. Costs do not include land, landscaping, walks and driveways, architect's fee, building permit, financing charges, etc. For a more detailed explanation, see ARCH. FORUM, Dec. 1939, p. 474.

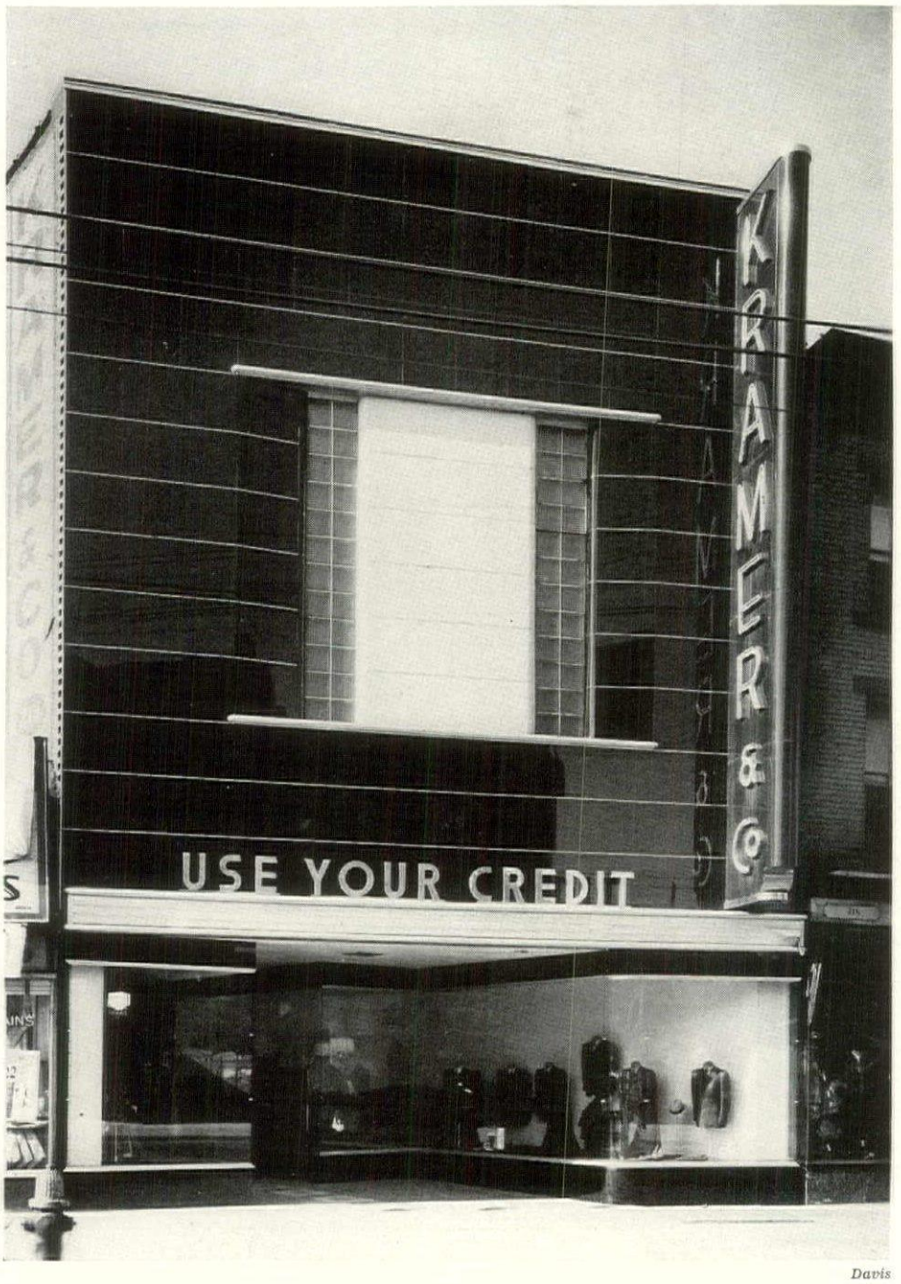
PURPOSE OF INDEX

1. To show the trend of residential building costs in each city by comparison of the first figure for that city (the "latest report") with the figures for the preceding month and the corresponding month of the preceding year.
2. To emphasize variations between cities in the cost of building the same house. Since all figures are percentages of the 1936 national average, they are directly comparable and indicate intercity cost differentials.
3. To provide a ready means of roughly estimating the cost of building a house in one city when the cost of building it in another is known. Thus, to estimate the cost in City B of a house built in City A for $5,000, multiply the "latest report" for City B (900) by the known cost of the house in City A. The result is 450,000. Then, divide 450,000 by the "latest report" for City A (110.0). The resultant $4,090 is the approximate cost of the house in City B.

Use of the index for this purpose is limited by the definition of the standard house upon which it is based (see left). The index applies to medium-to-small houses, not to large ones replete with expensive equipment. Neither does it apply to costs which include land; usually the value of a lot runs about 15 per cent of the value of the house and lot.

RENOVATION IN GLASS

ups chain store trade. Architect Davis dresses two derelicts in same clothes, designs new department store for New Jersey's Kramer & Co.

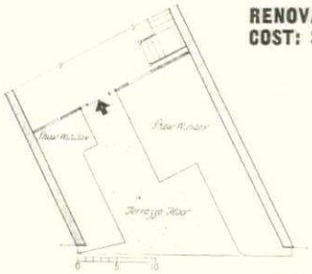


Davis

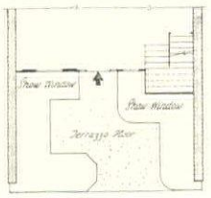
► For 25 years Architect Abraham Davis has specialized in the ever-expanding field of store remodeling. A modest man working in a modest Jersey City, N. J. office, 50-year-old Davis makes no idle boast when he claims to have rejuvenated no less than 1,000 stores. Too busy to make an accurate count of his accomplishments, he casually points to the sampling of 100-odd jobs whose photographs clutter his office walls, bulge his large scrap books. Prepared for individuals as well as chains, Davis designs extend as far inland as Erie, Pa., have changed the faces of such big-name clients as Regal, London (shoes), Loft (candy), and Fisher-Beer (5, 10, 25 cent articles). He has written newspaper articles on the economics of store modernization, has stumped for and influenced local and Federal legislation to facilitate residential reconstruction, has amply justified his reputation as an expert remodeler. And, when his drafting board is not covered with drawings for a reconstruction job, it is only because he is temporarily busy with a new store building.

► For 38 years Merchant Sydney Kramer and his father before him have specialized in the sale of clothing and home furnishings. By last year his business had grown until Kramer & Co. was rightly regarded as Hudson County's most active credit house and until it had outgrown its three outmoded stores.

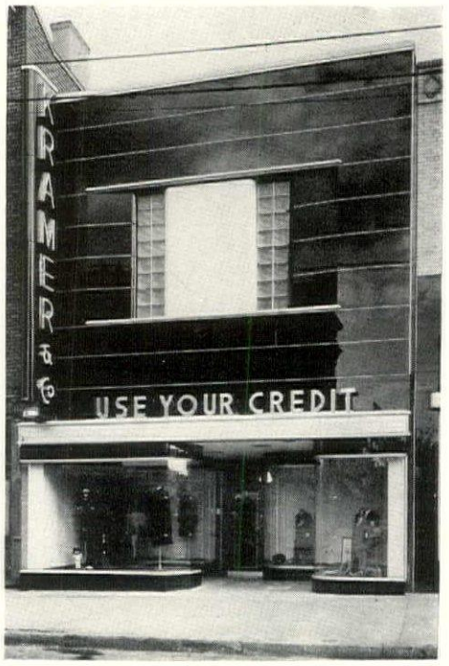
Year ago Architect Davis and Merchant Kramer got together, worked out a $61,000 construction program which would bring Kramer & Co.'s plant in line with its growing business and reputation. Decision was to remodel the front ends of the company's



RENOVATION NO. 1
COST: $6,500



RENOVATION NO. 2
COST $5,000



Davis

two small Jersey City outlets, to build a large new store in Hackensack and, later perhaps, to revamp the main Union City store and office building. With the completion this spring of the new store, the immediate program came to a successful conclusion—Merchant Kramer definitely attributes to Davis' remodeling a large part of the increased business transacted this year in his two small stores and is encouraged by the new business done in Davis' new building.

Remodeling. Identical in many respects, the two remodeling jobs may be described with the same terms. Major differences: 1) the project illustrated left cost $1,500 more than its $5,000 sister because, 2) its front is 3 ft. wider, 6 ft. taller than the 25 x 31 ft. front of the smaller store.

In each case the remodeling operation was simple; the result, simplicity. The entire first floor show window was removed along with all second floor fenestration. The former was redesigned and made deeper to create additional outdoor display space, while the latter was reduced to two small vertical panels of glass block separated by a larger panel of light gray structural glass, the new front's dominant feature. Kramer's preference to light artificially the furniture displays on the second floor explains the absence of windows which gave Architect Davis a freer hand in exterior design. And, the fire department's requirement that there be at least one movable sash on the second floor did not hinder it—the upper eight glass blocks in the right hand panel are built into a horizontally hinged steel casement.

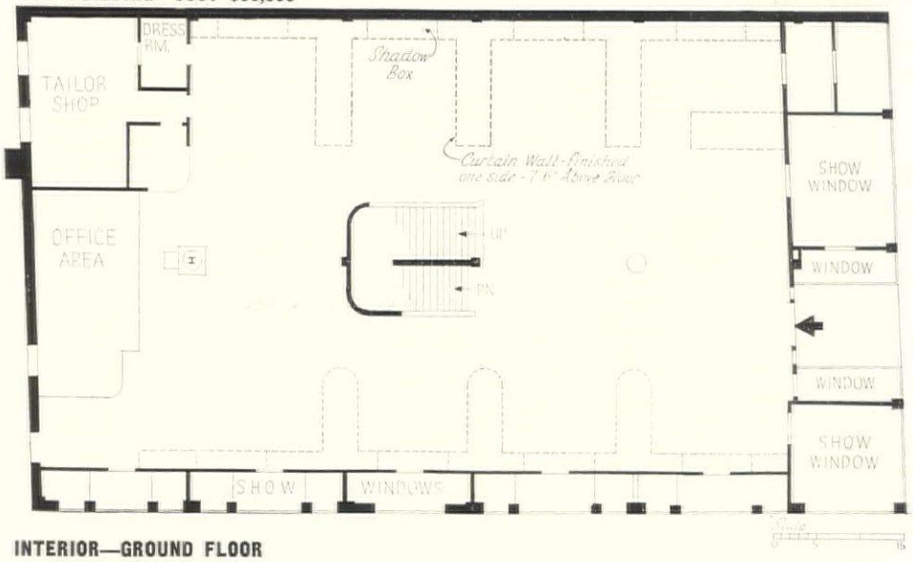
To minimize expense, all brick bearing walls were left standing but were extended to the new second floor glass areas with 6 in. hollow tile faced on the inside with three coats of plaster. Exterior finish is comprised of squares of black structural glass held in place by aluminum shelf angles which effectively emphasize the horizontal courses. All other exterior trim, including the full length awning box, is aluminum, while the show window bulkheads and valances are finished with black structural glass.

In addition to moving the staircase out of the show window of the smaller store, other major items of new construction included: plaster ceiling and terrazzo flooring (with inlaid lettering and directional ornamentation) of the outdoor display area; wood flooring, plaster ceiling and fixtures of the show windows; plywood partitions with sliding doors between the show windows and the store proper; a large but unobtrusive neon sign.

The modern exteriors of Kramer's two small stores belie their untouched interiors. However, as far as fetching new business is concerned, the exteriors are considered the more important. Today, instead of being dingy fronts, neither attractive nor related in appearance, the Davis-remodeled stores are inviting and are obviously members of the same family. Like the uniform

(Continued on page 58)

NEW BUILDING—COST $50,000 *Davis*



INTERIOR—GROUND FLOOR

Davis

PREFABRICATION PROGRESS: PORTABLE UNIT, $950;

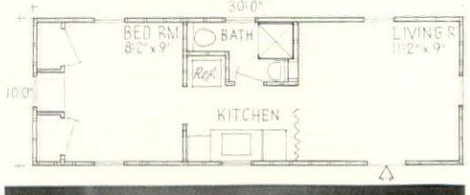
Last winter, Government began talking about the need for portable and demountable houses for use in defense-boomed communities where housing demand is temporary. Underwritten by Government contracts, several house builders and prefabricators have made their houses demountable (for some examples, see p. 188). Working with their own money and on their own time, others have also sought to solve the problem of temporary shelter. Inventor-Economist Buckminster Fuller converted a mass produced grain bin into a demountable house (ARCH. FORUM, June 1941, p. 425) but has had difficulty selling it to the Government because it is built of precious steel. Realtor-Builder Allison Dean of Portland, Ore. has prefabricated a 10 x 40 ft. three-room frame house easily trucked from site to site and selling complete with furniture for $1,800 (ARCH. FORUM, April 1941, p. 20). This summer, two other such houses were privately developed for public use; one portable (below), the other demountable (right), both prefabricated.

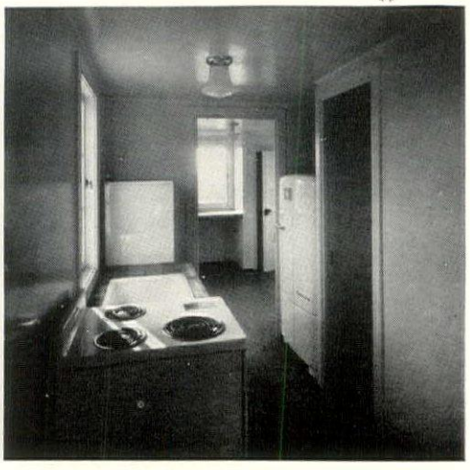
Portable. Conceived prior to publicity of the Dean house, this portable unit produced by Real Estate Inc. of Lynchburg, Va., is, by coincidence, quite similar. Its width (10 ft.) is the same, but the arrangement of a smaller kitchen and bathroom across from one another (instead of in tandem) has permitted a reduction in its length to 30 ft. Unpretentious in design, the house is not unlike a large automobile trailer without wheels, offers about the same accommodations as the duplex dwelling units designed for backlog prefabrication by the Farm Security Administration (see p. 210). Most important it sells for only $950 f.o.b. Lynchburg, exclusive of range and refrigerator, and will be delivered anywhere within a 300 mile radius of Lynchburg for a freight charge of $50 to $100.

Construction is conventional but is completed in the shop. The 2 x 3 in. studding is covered on the outside with waterproof plywood, on the inside with a dry wall finish. Double flooring is laid atop 2 x 6 in. joists; composition shingles, atop 7/8 in. sheathing and 2 x 4 in. rafters. Foundations supplied by the purchaser may either be of pier or continuous concrete construction.

Balked by FHA's minimum size requirements (four-rooms), President Alsen D. Thomas of Real Estate, Inc. has produced only ten three-room portable units, is now working on a more comfortable four-room house comprised of two portable 10 x 26 ft. sections which will meet FHA's size and construction requirements for Title I, Class III loans.

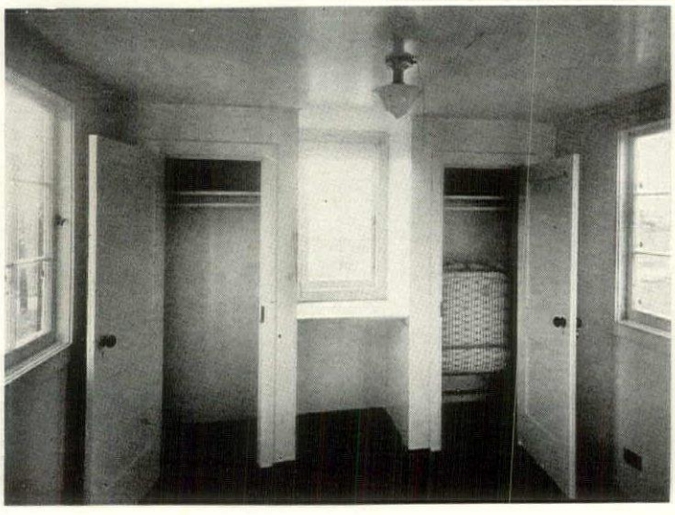
PORTABLE HOUSE



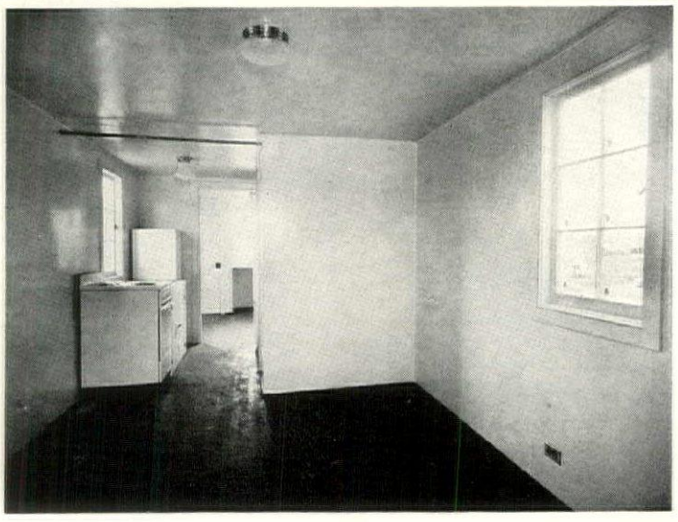


KITCHEN

BEDROOM



LIVING ROOM



A DEMOUNTABLE UNIT, $1500

Demountable. Called the "Thermal House" because it is completely enclosed in insulating board, this small prefabricated demountable house is the product of Detroit's Stout Engineering Laboratories, whose President William Bushnell Stout invented the first all-metal airplane, built Ford's famed Tri-motor airplane, organized one of the first commercial airlines, produced the first rear-engined car to be put on the market, designed one of the first high-speed, gasoline driven streamliners.

Measuring 15 x 15 ft., the Stout small house reflects the inventor's genius in its construction: sheets of insulating board and a few steel connecting pieces of uniform design which can be put together in nine man-hours with the aid of nothing but a screwdriver. The walls and roofs are comprised of two ½ in. sheets of insulating board separated by a ½ in. air space (see detail drawing below). The floor is insulating board finished with oak. While not a Stout invention, also noteworthy is the compact arrangement of all-electric kitchen equipment in one space-saving cabinet (see photograph, right).

Inventor Stout figures that the house can be produced to sell for about $1,500 complete, dreams of a marketing system whereby the units, once they had served their temporary housing purpose, could be sold back to the dealers, thus creating a second-hand house market. Meanwhile, he is catering to the Army which has shown considerable interest in his prefabricated demountable construction system for use in its barracks and to the Farm Security Administration which fortnight ago was reported to have ordered 350 of the small weatherproof, soundproof "Thermal Houses."

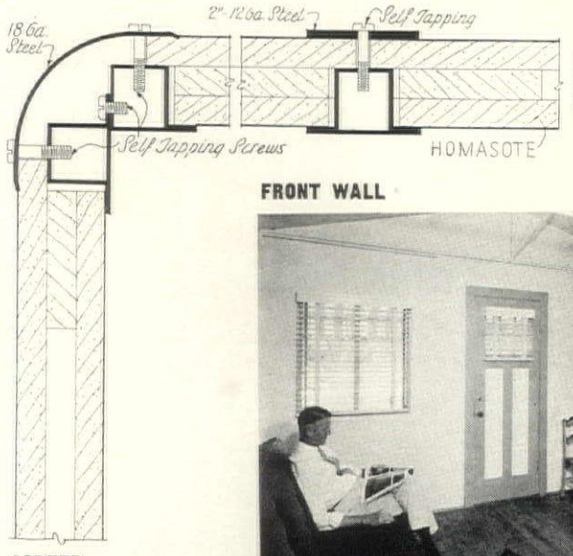
DEMOUNTABLE "THERMAL HOUSE"

MacGregor & Co.

PLAN

STOUT AT KITCHEN TABLE

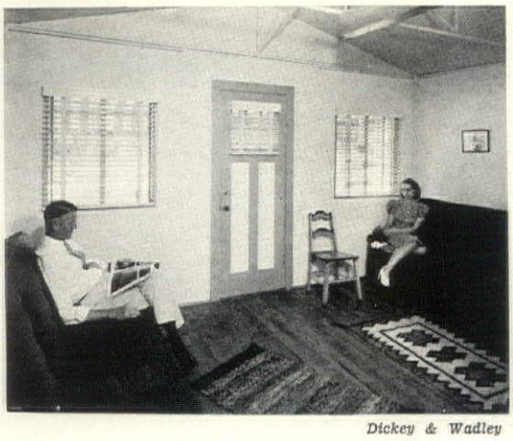
Dickey & Wadley



WALL PANEL SECTION

CORNER WALL SECTION

FRONT WALL



Dickey & Wadley

REAR WALL

MacGregor & Co.

HEADWAY AND HEADACHES

(Continued from page 180)

As significant as is this new procedure, the design of the houses is even more noteworthy. Developed by FSArchitects, the buildings are undoubtedly the most flexible structures yet designed for defense housing projects of a temporary nature. Thus, after the passing of the national emergency they may either be demounted and moved to an area where the housing demand is more permanent, or they may be left standing with their two two-room units readily combined into a comfortable four-room house.

As shown in the accompanying sketches, the original 24 x 28 ft. building is comprised of two identical dwelling units each containing a kitchen-living room, bedroom, closet and bathroom. Conversion of this two-unit building into a one-family house containing living room, kitchen, two bedrooms, five closets and bathroom is accomplished by removing 15 of the 4 x 8 ft. vertical wall and partition panels and by repositioning 14 of them "as is," by cutting the 15th panel in half and re-erecting the two pieces, by installing a new linen closet and by installing one new panel containing an interior door.

Although prefabricators had never produced a building quite like FSA's flexible duplex, they submitted encouraging bids; average of the 20 bids "for all labor and materials for 250 complete duplex units, f.o.b. cars or trucks at . . . factory locations" was $2,258 per duplex unit. Low bidder was American Houses, Inc. of New York City which offered to turn out the buildings at its three plants at a price of $1,098 per duplex unit. Only three prefabricators offered to produce 500 duplexes; only two felt that they could handle 1,000. One of the latter was Allied Housing Associates Inc. of Langhorne, Pa. (a successful participant in the Indian Head, Md. prefabrication "demonstration" project—see p. 188), and its bids for varying numbers of duplexes show that production economies do not increase in direct proportion to the size of the order. Thus, Allied bid $2,432 for 250 duplexes, $2,398 for 500, $2,378 for 1,000. Apparently, most of the economies of mass production are achieved before the 250th building is prefabricated.

Only four of the bidders took the option of quoting a price for erecting their buildings. Low bidder ($317) in this category was Hagerman Construction Co. of Fort Wayne, Ind. which, interestingly, was high bidder on the actual production of 250 buildings ($3,530). Allied offered to erect its buildings for $542 each on any sites designated by the Government.

Fortnight ago, FSA was still studying the bids, had accepted none of them. Chances are that it will split the 2,500-building order with several of the lowest bidders whose plants are geographically well distributed.

MASONRY HOUSING

When Congress passed Lanham Act II, it raised the maximum unit cost of Federal defense housing from $3,000 to $3,500, with a bow to brick, tile and concrete manufacturers.

In July, Federal Works Administrator John M. Carmody, the man who holds the defense housing purse strings, indicated under what circumstances he would open them in favor of masonry construction's extra cost: "It will be the policy to consider the use of masonry wall construction where such construction will not cost in excess of $500 per family dwelling unit more than frame construction. However, in view of the limited funds at our disposal I believe masonry construction should be confined to areas or localities where its use is clearly in the public interest. Representations made to us by the industry and alternate bids submitted from time to time indicate that these materials and this type of construction may not increase the cost more than $100 to $200 for wholly satisfactory design."

Thus, it appears that the masonry interests' Washington lobbying will bear fruit, that more Federal defense houses will be of brick and concrete block. And, the trend toward masonry construction will probably be accelerated, if 1) another cantonment building program boosts lumber to the top of the critical materials list, and 2) lumber's price continues to misbehave (see p. 205).

STANDARDIZATION

The need for standardization within the building industry was further documented last month when the U. S. Bureau of Standards saw fit to recommend that paint manufacturers reduce from 218 to 153 the number of colors of oil paints, enamels and varnishes and from 127 to 101 the number of colors of water-mixed paints. At the same time it was requested that, in the interests of national defense, paint manufacturers eliminate the use of half-gallon and 30-gallon (half-drum) containers. Less than 10 per cent of the total volume of paint sold is presently shipped in half-gallon containers.

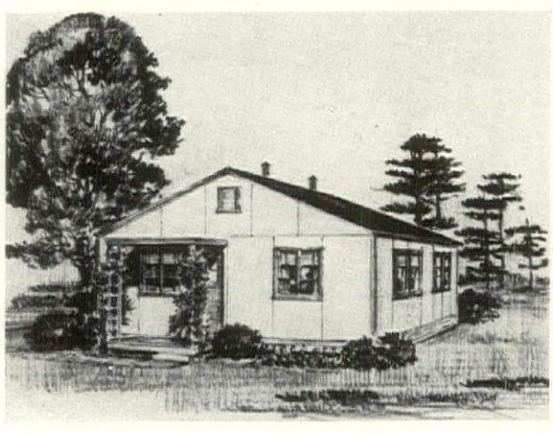
MORE PLANTS

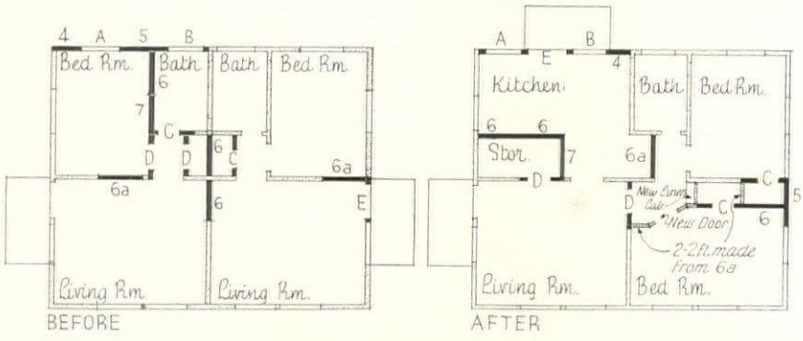
Lest the wave of publicity concerning recently finished industrial defense projects should convey the impression that the nation's armament plant is nearly complete, THE FORUM presents herewith a list of some of the whopping ($10 million plus) defense projects recently announced for immediate construction.

►To up the nation's steel ingot production capacity and finishing facilities by some 1.5 million tons per year, a group of steel companies have proposed $100 million worth of new West Coast plant construction. Biggest individual projects: $57.2 million of coke ovens, blast and open hearth furnaces, a foundry and bloom, slab, sheet bar, sheet plate and jobbing mills for U. S. Steel Corp.'s subsidiary, Columbia Steel Co. at Provo, Utah; $10 million of similar facilities for Bethlehem Steel Co. at Los Angeles; $15 million more for Colorado Fuel and Iron Corp. at Pueblo, Colorado.

►To alleviate the increasingly serious aluminum shortage, OPM has recommended the construction of eight new plants whose combined annual capacity of 600 million tons would boost U. S. aluminum output to 1,400 million tons. Biggest new plant, 100 million tons, is scheduled for Arkansas. The other seven will all

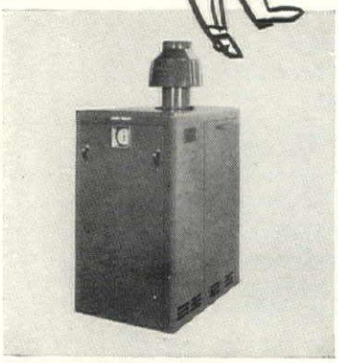
(Continued on page 60)



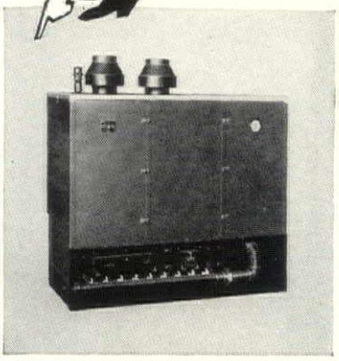


FSA's two-in-one temporary house is ingeniously flexible. Its prefabricated panels may either be completely demounted or 15 of them may be reshuffled to combine the two two-room units into one four-room house. Last month, prefabricators were asked to bid on the building, offered to produce it for an average price of $2,258 (see text above, col. 1).

"You say 23 different capacity G-E Gas boilers to choose from!"



FOR AVERAGE RESIDENTIAL INSTALLATIONS there are 8 sizes for steam or vapor systems, with capacities from 76,000 to 345,000 Btu output per hour.
ALSO: 8 boilers for hot water systems with capacities from 76,000 to 345,000 Btu per hour.



FOR COMMERCIAL, INDUSTRIAL or exceptionally large residential applications there are G-E gas furnaces in 15 sizes with capacities ranging from 422,000 Btu per hour output to 1,372,000 Btu per hour. These furnaces may also be used in multiple installations.

"What else is unique about G-E Gas Furnaces besides the fact that you have a unit to fit each and every capacity requirement?"

PLENTY!

Here are four major requirements you and your client can depend upon when you turn to General Electric:

- G-E units' installation cost is low.
- G-E units require little or no service.
- G-E units' controls are easily accessible.
- G-E units are easy to adjust.

A few of the General Electric advancements in design follow: Dependable and positive operation by combining gas regulator, snap-action valve, solenoid valve and throttling steam, vapor or water limit. Pilot valve allows gas supply to pilot to be controlled independent of Main Line Valve. Thermostatic Safety Pilot designed to provide maximum safety by shutting off gas supply if pilot light is not burning.

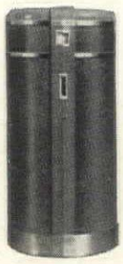
You will want to know the complete story on G-E Gas Furnaces—and other products in the G-E line. Consult Sweets' $\frac{26}{11}$, or write direct to General Electric, Div. 913, Bloomfield, N.J.

GENERAL ELECTRIC

TURN TO

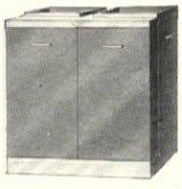
. . . for the complete line of Heating and Air Conditioning

(here are some typical examples)



G-E AUTOMATIC HEAT!

Oil or gas fired, in many sizes. For steam, hot water, vapor. Coordinated in design, self-oiling with inverted impact-expansion.



G-E WINTER AIR CONDITIONERS!

Oil or gas fired. OIL: 3 sizes, 0.95 to 1.90 gal. per hr.—100,000 to 200,000 Btu per hr. GAS: 14 sizes, 60,000 to 270,000 Btu per hr.

G-E ROOM AIR CONDITIONERS!

Three types for cooling a single room or group of rooms, and one for centrally heated and cooled commercial buildings.

G-E UNIT AIR CONDITIONERS!

Ranging from a net total room cooling effect of 19,740 Btu per hour to 113,400. All self-contained. For small stores, restaurants, offices, etc.

AIRPLANE PLANT

(Continued from page 182)

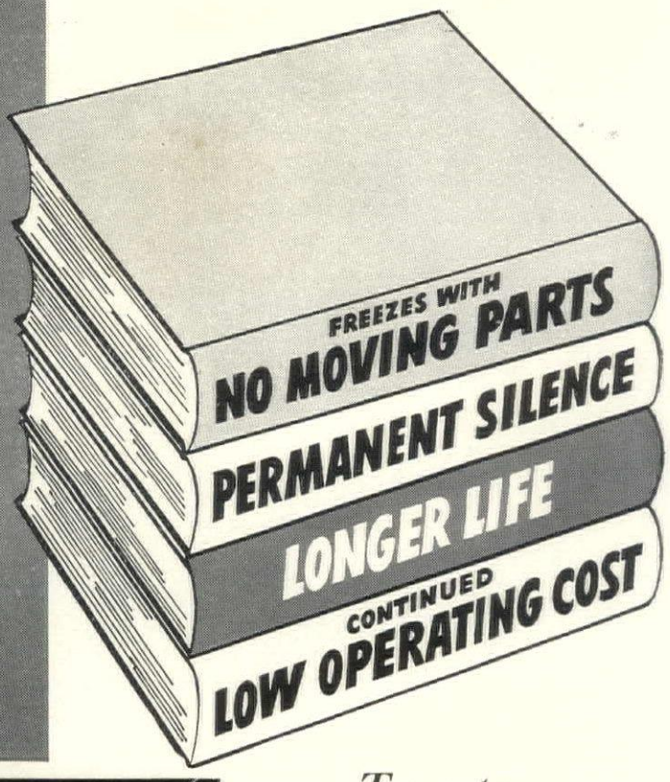
tioned above, all preliminary fabrication takes place in the Buffalo plant. 2) These parts are loaded into bins which are delivered to the Wheatfield plant's receiving rooms via company-owned trucks and trailers. 3) Parts bins are moved to the sub-assembly stock cribs alongside each department or direct to the 14 final assembly stations—ten of which are beside the conveyors. 4) Typical of the sub-assembly operations, the front fuselage sections, for instance, are produced in the south section of the plant on individual dollies which 5) are rolled to the east end of the large final assembly bay where engines are installed and 6) are then hooked into the westward moving drag chain conveyors recessed in the floor along the parallel production lines—see upper right photograph, p. 183. 7) Completed cabin sub-assemblies come from the opposite north section, are mounted on the moving fuselage about a third of the way down the line. 8) Rear fuselages, which are assembled in the south section, join the fuselage half way down the line. 9) Then come armor plate, armament, propellers, etc. 10) By this time the completed fuselage has reached the end of the conveyor chain and has been rolled on its own wheels into the hangar area where wings, which have been produced from numerous sub-assemblies in the north section, are affixed, completing the plane. 11) After it has passed inspection, the plane moves out of the hangar area through the 195 ft. four-section canopy type overhead door (see detail photograph, p. 183), is ready to taxi under its own power to the adjacent airport and take to the air.

Overhead cranes and monorails facilitate the movement of parts and sub-assemblies in the north and south sections, while four huge interlocking cranes hung from the 200 ft. trusses of the central bay pick up the sub-assemblies, deliver them to the final assembly lines. Each complete sub-assembly reaches the assembly floor already painted in one of the four open paint booths strategically located to eliminate unnecessary handling (see detail photograph, p. 183).

While fast according to airplane industry standards, the "mass" production of Airacobras is slow compared to the birth rate of automobiles. The endless chain conveyors take 16 hours to tow the final assembly jigs the 32 ft. between stations—a speed of only 1/3 in. per minute, 2 ft. per hour. Since there are 14 stations on the line, it follows that each Airacobra is 224 hours, or between nine and ten full days and nights, in the final assembly operation. However, when the plant is running full blast with its contemplated payroll of 3,000, expectation is that one finished plane a day will come from each

(Continued on page 52)

TENANTS AND BUILDERS HAVE LEARNED VOLUMES ABOUT GAS REFRIGERATION



Tenant:

"After we had used a mechanical refrigerator, a Servel Electrolux was installed in our apartment. Its silence, lack of repairs and controlled temperature make it the most satisfying refrigerator I've ever used."

Mrs. K. D. Vandervort,
824 N. Brand Blvd.
Glendale, Calif.

Builder:

"Our experience with automatics has sold us completely on Servel Electrolux gas refrigeration for our properties. Being the only refrigerator with no moving parts, it's the only one that can give permanently silent operation."

Harry A. Taylor,
520 Main Street,
East Orange, N. J.

CHANGE TO SILENCE
CHANGE TO SERVEL

Stays silent...lasts longer

SERVEL
ELECTROLUX
Gas
REFRIGERATOR

AIRPLANE PLANT

(Continued from page 50)

of the half dozen production lines. That is 2,190 Airacobras a year and a relieving fact for national defenders.

Lighting. Next to its conveyors, the Bell plant's most significant contribution to industrial design is its rectified fluorescent lighting system developed especially for the illumination of high bays and used for the first time in this plant. Installed at 720 positions 30 ft. over the final assembly and hangar areas, two-lamp units on 12 ft. centers yield a minimum of 30 ft. candles on the working plane. A special circuit in the luminaires rectifies a.c. current so that d.c. current passes through the tubes, thus smoothing out the current wave and eliminating stroboscopic effect without any special balancing. In the lower flanking bays comparable lighting intensity is obtained by two-tube fluorescent units mounted end-to-end in rows 16 ft. apart.

Natural lighting is admitted to the central area through a skylight running the full length of the building, the huge glazed door, windows at the opposite end and clerestory windows at either side. Subassembly bays are lighted naturally by monitors and strip windows. All factory windows with south and west exposures are furnished with hammered glass which offers maximum light with minimum summer heat. To the same end, the two strips of clear glass office windows at the southwest corner of the plant are shielded from the direct rays of the sun by fixed, fin-type steel "awnings."

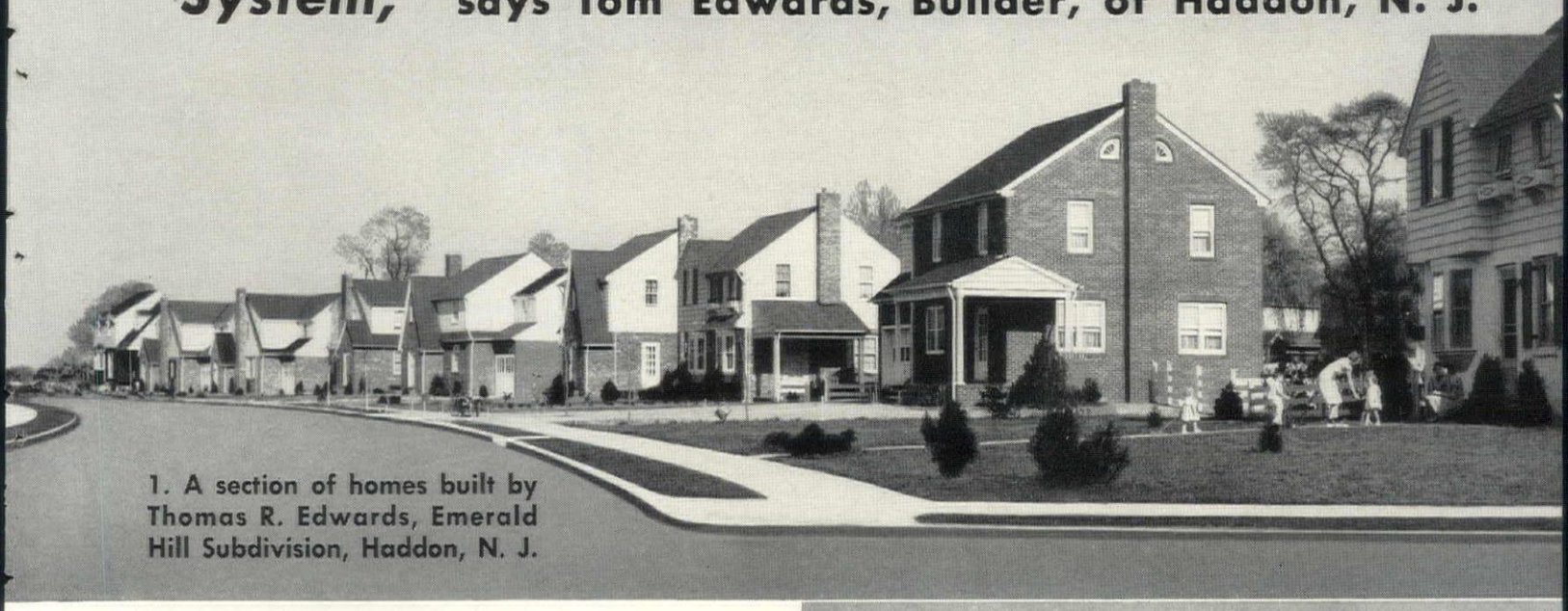
Power and heat. Equipped with two 300 horsepower oil-fired boilers and one 350 cfm. air compressor, the detached boiler house also serves as the electrical power substation. Through a network of underfloor service ducts it supplies 110 volt and high (60 and 180) cycle power and compressed air to some 300 outlet boxes. To permit a flexible machine and tool layout, these boxes are spotted on 25 ft. centers throughout most of the plant and are 15 ft. apart along each of the final assembly lines. Additional outlets are provided on columns, and a 2 in. air loop encircles the high central bay.

The boiler house also supplies steam to the plant's 76 thermostatically controlled unit heaters whose work is lightened by the insulation of the tar and gravel roof with 2½ in. of reenforced gypsum poured in place over 1 in. of insulating board. (This roof rests on 15 lb. rails welded to the steel purlins.)

Protection against fire is elaborate, a complete sprinkler system being supplemented in the hangar area by a "deluge curtain" designed to isolate any blaze. Water flow indicators on each of the eight sprinkler risers are equipped with electric gongs to sound alarm in case of fire. Portable ex-

(Continued on page 54)

"*EVERY ONE* of 72 home buyers given a choice of heating systems *decided on the* JANITROL *System,*" says Tom Edwards, Builder, of Haddon, N. J.



1. A section of homes built by Thomas R. Edwards, Emerald Hill Subdivision, Haddon, N. J.

One of the country's most interesting home projects is that of Thomas R. Edwards of Haddon, New Jersey. And one of the most interesting features of Mr. Edwards' sales methods is that of giving the buyer his choice of Heating Systems.

The Edwards' project, shown above, consists of well-built, Early American Style Homes, 6 rooms and bath, in the Emerald Hill Subdivision at Haddon, New Jersey.

"The people who purchased these homes," says Mr. Edwards, "are more than satisfied with their Janitrol fully automatic heating systems, with their average cost for heating last season being $72.00."

"After using a few other heating systems we gave buyers their choice of heat. The fact they all chose Janitrol," says Mr. Edwards, "was due not only to the fully automatic heat with no furnace tending and no furnace dirt, but also to the clean, usable basement space Janitrol made possible." The Janitrol Units located in a small corner, leave main basement space free for playroom or workshop, with concealed ducts and risers carrying the heat.

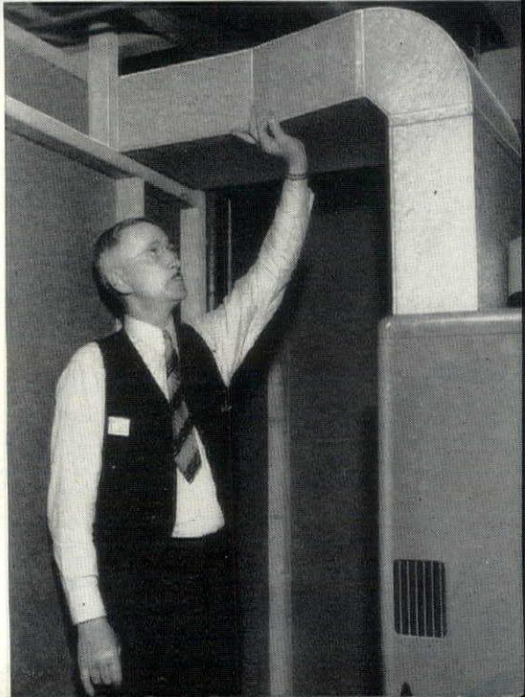
In many cities leading builders have found that offering Janitrol heat helps to sell homes and helps to keep buyers satisfied.

Write or wire for information on Janitrol Gas-Fired Heating systems, Unit Heaters, Hanging Attic Furnaces, Forced Air Conditioners and other equipment for homes of all sizes, and for stores, warehouses, public buildings and factories. Explain your project. Let us assist you with heating layouts and quotations. Offices, dealers and engineering service are available in principal cities to serve the building industry.

SURFACE COMBUSTION CORPORATION, TOLEDO, OHIO

Offices and Engineering Service in Principal Cities

2. One of Mr. Edwards' 6-room, Early American style homes.



3. Mr. Edwards inspecting the Janitrol installation. Ducts outside the heater closet are concealed between floor supports and in walls.

JANITROL

SC

WINTER AIR CONDITIONERS • CONVERSION BURNERS • UNIT HEATERS • GRAVITY FURNACES

AIRPLANE PLANT

(Continued from page 52)

tinguishers inside the plant and three hydrant houses outside complete the fire protection precautions.

Floodlights, obstruction lights, a guard house, a staff of plant police and 8,000 ft. of heavy wire fence provide protection of another variety.

Construction of the building—2,000 tons of steel frame atop 2,000 ft. of concrete foundations, 440 column footings and a 5 in. reenforced concrete floor and walled with glass, buff face brick and limestone—was completed by the Austin Co. by mid-May (seven months) with the aid of 25 subcontractors, 1,000 building mechanics and Superintendent Chester F. Appleton.

Expansion of the 240,000 sq. ft. factory to 950,000 sq. ft. was begun a fortnight ago when the Defense Plant Corporation authorized the purchase by the Government of the $1.3 million plant and the spending of $7.2 million more on its extension. Austin Co. will probably design and build it; Bell will certainly operate it.

During construction of the present unit provision was made for extension to the rear by merely knocking out the temporary glass end of the building and hooking up a similarly designed unit. All utility lines have been brought up to this end of the plant and capped to permit future expansion with a minimum of interference with plane production. Additional expansion room was provided within the existing shell where a mezzanine floor will be erected in the 20 ft. high south bays.

Housing. Meanwhile Bell officials and workers eagerly await the completion of 300 privately financed houses being built within two miles of the plant under FHA's Title VI defense housing mortgage insurance program. They will sell for $4,700 with land—nothing down, $47 per month for five years, $33 a month for the next 15. Officially approved for construction within the same radius is another 300-unit project—to be financed by the Government (Public Buildings Administration) and to rent at $25 to $35 per month or on a percentage-of-income basis.

Mindful that "unless we had a completely loyal and happy group of employes, Bell Aircraft could never attain its rightful place," company officials have helped break ground for the private housing project, have established the Bell Housing Office to assist its 3,000 new employes with their acute shelter problems. Adequate housing for its workers will help grease the gears of Bell Aircraft Corp.'s new conveyorized assembly plant whose biggest advantage, according to Engineer-Builder Austin Co., is that it permits "volume operations under a system of detailed inspection and production control which should yield a maximum output with a minimum investment in special fixtures."

WESTINGHOUSE supplies the answer

★

NEW Direct-Indirect Fluorescent Luminaire

★

• • Men and Goods Move Faster Under Fluorescent Light for SEEING

★

Westinghouse CL-110 direct-indirect fluorescent luminaires are available for either suspension or ceiling mounting or for continuous strip lighting. When suspended, light from one 30-watt lamp is directed to the ceiling, and two (or three) 40-watt lamps are arranged to direct their light downward.

★

Adjusting business to defense is requiring more efficient office workers for co-ordination of production efforts. That's why business today is placing greater emphasis on light for seeing—better vision that enables employes to work faster with fewer errors and with less fatigue.

To supply the answer for these lighting needs in commercial establishments of all kinds, Westinghouse presents the versatile new CL-110 fluorescent fixture for direct-indirect illumination. This luminaire is styled to blend with any architectural interior. It combines the utmost in modern fixture design with superior lighting effectiveness. CL-110 fluorescent units are available for ceiling or suspension mounting, with or without patented Alvax diffusing glass, and with three or four lamps. Also, they may be mounted end-to-end for continuous runs of fluorescent light.

You will want the complete story on the full line of Westinghouse fluorescent equipment for stores, offices, schools, restaurants and public buildings. Phone your local Westinghouse Lighting Distributor today for descriptive data. Or, write Westinghouse Electric & Mfg. Co., Edgewater Park, Cleveland.

117 Westinghouse Electric Supply Company offices and independent Lighting Distributors provide local stocks and services.

Westinghouse LIGHTING EQUIPMENT

PREFABRICATORS' SHOW

(Continued from page 189)

materials at only $150, indicate that its house is about 95 per cent salvageable on a dollar basis. (Only the actual statistics are newsworthy, for demountability first became a fact seven months ago—ARCH. FORUM, Mar. 1941, p. 174 et. seq.)

Materials. Only two new types of houses have made an appearance at Indian Head, and both of them are only semi-prefabricated: 1) The house by Harnischfeger—erstwhile producer of complete all-steel units—is comprised of pressed steel framing members site-finished with plywood on the exterior, plaster board on the interior. While the system is undoubtedly sound, it saves but little time over conventional construction methods. 2) The house by General Fabricators is a combination of shop prefabrication, field fabrication and on-the-job conventional construction whose most noteworthy feature is the use of wood fiber board as the inside and outside finish of a wood frame.

Also among the ten makes of houses is another metal unit, steel-sided as well as steel-framed (TCI), and another frame house finished inside and out with fibrous insulating board (Allied). By far the most popular interior and exterior covering material is plywood whose use by the other half-dozen participants testifies to its ready adaptability to prefabricated panel construction. However, there are several types of plywood (not counting the kind of wood, which at Indian Head is universally Douglas Fir) depending upon the thickness and the kind of glue, and they have been used rather indiscriminately, even where exposed to the weather. While commercial standards requiring resin bonding for exterior plywoods have been met, these standards do not specify with what wood the veneer should be faced nor how thick the veneer should be in inches and plies. Result: while National uses 5/8 in. 5-ply board on its exteriors, others use 3/8 in. and even thinner plywood. Moreover, the plywood industry, even under present emergency pressures, does not stand to gain by shipping the proportion of off-grade material that is apparent in the Indian Head houses.

Showman. While PBA has been rightfully panned for limiting its prefabricated defense housing contracts to this unnecessary "demonstration" project and for unnecessarily delaying its completion, it deserves a hand for having produced a good prefabrication show—one that has aptly been called "Indian Headache" and, more seriously, one that has revealed to the industry many things that it might well take to heart. Meanwhile, Farm Security Administration, another Federal defense housing agency, is choosing the cast for a bigger and better prefabrication show (see pp. 180 & 210).

This brilliant establishment, "powered" by Brasco Modern Store Front Construction of Alumilited Aluminum, features attractive fluted segments, both vertical and horizontal, above the transom line and framing the large entrance. Archt., R. L. Clemmer, Hickory, N. C.

For Strong, Sturdy, Vigorous Store Fronts of Permanent Beauty

The magic of medicine's new and startling discoveries has its own parallel in the development of Brasco Store Front Construction. The "build-up" of vital resistance within, to successfully withstand the constant stress and strain without—is accomplished through the application of Brasco's own exclusive patented features, expressed in heavy-gauged metals and girder-like members.

Over thirty years of experience offer their detailed records of research and trial, of sound engineering and modern materials that provide the sturdy strength, permanent beauty and assured glass safety you obtain in Brasco. The line is complete and unified, priced to suit any budget.

THERE IS NO SUBSTITUTE FOR EXPERIENCE.

Brasco
MODERN
STORE FRONTS

BRASCO MANUFACTURING CO.
HARVEY (Suburb of Chicago) — ILLINOIS
National Distribution Assures Effective Installation

Rx

BRASCO MANUFACTURING CO.
Harvey, Illinois

Send Samples and Folder of New Details of Brasco Modern Store Front Construction.

Firm .....

Address .....

Individual F941

STORE REMODELING

(Continued from page 207)

style of the neon signs, they have become readily recognizable Kramer trade marks.

New Building. While important differences in its size and proportions made it unwise to repeat on Kramer's new building the black and gray motif used in the remodeling of the store fronts, the new 15,000 sq. ft. two-story-and-basement project has much in common with them.* Thus, the light-colored solid brick walls are interrupted on the facade by a panel comprised of two toned terra cotta whose three small vertical windows are reminiscent of the glass block panels in the remodeled store fronts. As in these predecessor projects, this second floor is used exclusively for furniture display, needs no sun light.

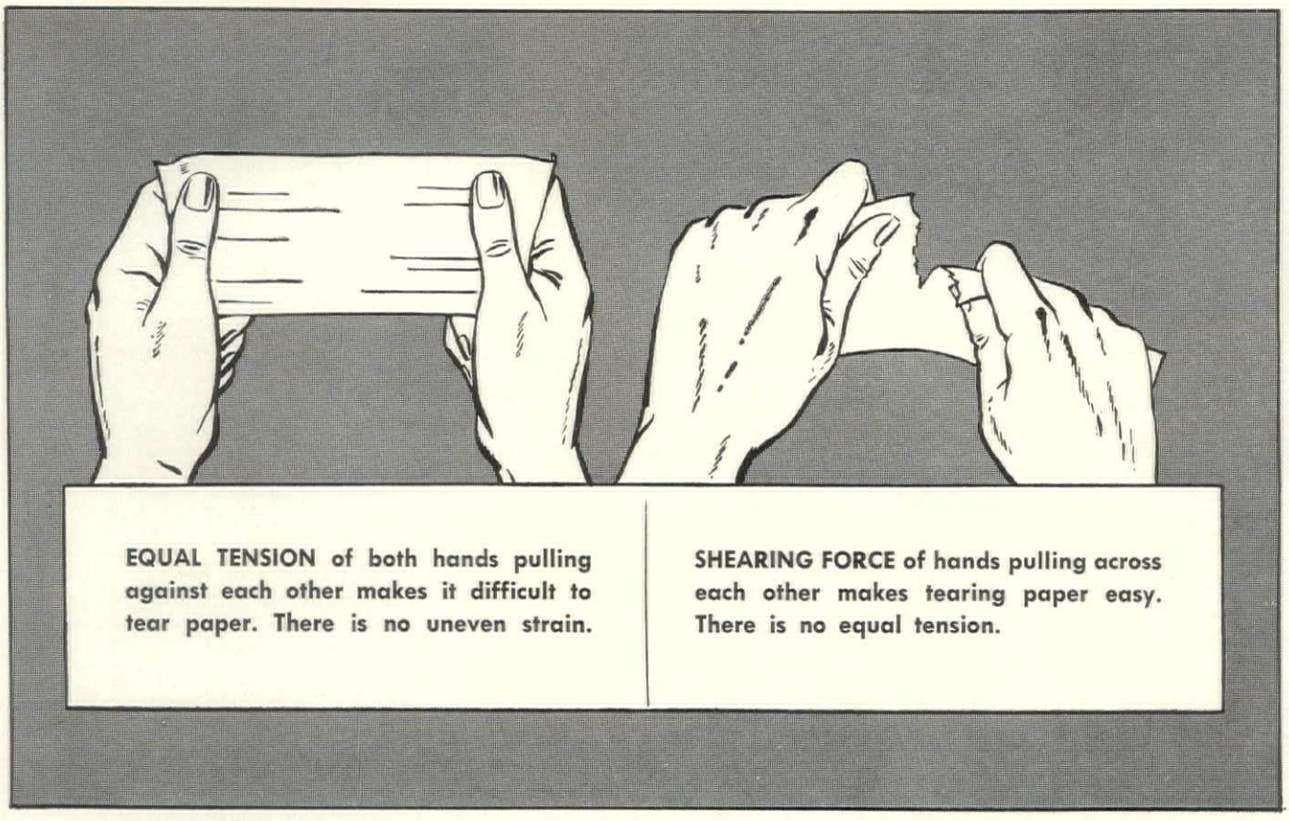
Another similarity between this and the earlier projects is the fact that the terra cotta, which replaces the structural glass, has been carried down to the show window bulkheads and valances. (Note that, since the company displays large scale merchandise, the bulkheads have been wisely depressed to a height of only 1 to 2 ft.) Finally, the awning which extends across the entire 50 ft. facade is concealed in a continuous aluminum box identical in design with that used on the remodeled fronts.

Laid out with the assistance of Kramer's Window Trimmer Willard Coward, the fluorescent lighted interior of the new Hackensack building features several interesting details: 1) On the first floor: a 5½ ft. curtain wall hung from the 13 ft. ceiling around most of the building's perimeter to form shadow boxes and projecting out to form soffits over the display counters. At the rear are two dressing rooms, a tailor shop and office space. 2) On the second floor: three walls are lined with 16 inter-connected rooms which serve as models for furniture display. On the average, they measure 12 x 14 ft., and their ceilings have been furred down from 13 ft. to a height of 8½ ft. 3) In the 10 ft. basement: utility rooms, storage rooms and additional display space are served by an elevator to the rear sidewalk as well as by the central staircase which connects all three floors.

Occupying a prominent Hackensack corner, the building boasts its own 5,000 sq. ft. parking lot in the rear—a particularly valuable drawing card since all street parkers in the neighborhood must pay tribute to municipal parking meters. The building was completed in April by General Contractor Dicarolis, Inc. Cost: $50,000, or about 23 cents for each of its 22,000 cu. ft.

* Another reason for not repeating exactly the design motif: This building, while tailor-made for Kramer & Co. is owned through the 314 Main Street Corp. by Vice President Benjamin S. Halsey of Sheffield Farms Co., Inc. It is rented to Kramer for 20 years.

A Piece of Paper Demonstrates a Feature of Pacific



EQUAL TENSION of both hands pulling against each other makes it difficult to tear paper. There is no uneven strain.

SHEARING FORCE of hands pulling across each other makes tearing paper easy. There is no equal tension.

WHEN YOU try to tear a piece of paper by grasping both sides and pulling, it is practically impossible. This is because equal tension has been applied and there is no uneven strain or weak breaking point. When a shearing force is applied to one area alone, the paper is torn easily.

The dependable efficiency and safety of Pacific boilers is based on this fundamental principle.

Pacific boiler shells are built in the shape of a perfect circle, thereby providing absolutely equal distribution of tension throughout. There is no weak point, no point where the tension force becomes a shearing force in a Pacific. You can rely on it for lasting, steady service and safety even under possible high pressure emergencies.

The perfect-circle construction of Pacific is only one of its many features. Other features include *exclusive* forced circulation; greater ease of cleaning; larger, better proportioned combustion chamber; rugged, welded construction. Plus maximum fuel economy and minimum maintenance cost.

For further information write for a complete file of catalogs.

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PACIFIC

STEEL HEATING BOILERS

DIVISION OF UNITED STATES RADIATOR CORPORATION, DETROIT, MICH.

HEADWAY AND HEADACHES

(Continued from page 210)

have capacities in excess of 40 million tons; two in the Bonneville-Grand Coulee area of Oregon and Washington, two in upper New York State, one in Alabama, California and North Carolina.

►Biggest War Department construction contract of the month, $34.0 million, went to Fruin Colnon Construction Co. and Fruco Construction Co. of St. Louis for the expansion up to $47.3 million of the St. Louis Ordnance (small arms ammunition) Plant. Mauran, Russell, Crowell & Mullgardt, St. Louis, and Giffels & Vallet, Detroit, are the architects and engineers.

►At Sylacauga, Ala. Dupont will design and build a $14.9 million TNT, DNT and Tetryl plant as part of the Alabama Ordnance Works, will then install $10.9 million worth of equipment.

►A $14.1 million expansion of the Weldon Springs (Mo.) Ordnance Works, TNT and DNT producer, has been entrusted to Frazer-Brace Engineering Co., New York.

►Also to be expanded are the Wolf Creek Ordnance Plant (shell loading) and Milan Storage Depot (ammunition) at Milan, Tenn. The $10.8 million contract went to Cleveland's H. K. Ferguson Co. and Nashville's Oman Construction Co.

►Additional Army ordnance plants on the fire include a $35.0 million shell-loading project in Labette County, Kans. and a $29.0 million shell-loading project near Minden, La. The War Department has already begun condemnation proceedings to acquire the 32,000 acres necessary for these two ordnance projects.

►Officially authorized and approved by the War Department, were three additional chemical plants: Largest: a $40 million chemical plant (smoke materials and other warfare agents) to be located on a 30,000 acre tract near Huntsville, Ala. (It will supplement the Chemical Warfare Service's other production facilities at Edgewood Arsenal, Maryland.) The others:

►A $16.8 million picric acid plant to be located about 15 miles northwest of Little Rock, Ark. and to be known as the Maumelle Ordnance Works. Peak employment: 840 men per day.

►A $16.8 anhydrous ammonia plant to be built on an as yet unselected site near Monroe, La. Employment: 150. An identical plant, to be located near Louisiana, Mo.

►Also approved by the Army were four new munitions plants and the expansion of six others at a total cost of $164.5 million. The new ones: a $33.5 million minor arms loading plant on a 8,000-acre site at Jacksonville, Ark. and $30.0 million each for small munitions plants at St. Paul, Minn., Salt Lake City, Utah, and Des Moines, Iowa. Sites comprised of about 3,000 acres each have already been selected for these three new plants, each of which will eventually employ some 8,500 people. The expansion projects: $18.5 million at the Morgantown (W. Va.) Ordnance Works; $9.0 million at the Kingsbury Ordnance Works (La Port, Ind.); $8.6 million at the Elwood Ordnance Plant (Joliet, Ill.); and $4.9 million at the Ogden (Utah) Ordnance Depot.

►Recent site selections by the Army Air Corps indicate the shape of things to come: 1) a $14.0 million depot on 2,200 acres at Weliston, Ga.; 2) a $13.2 million depot on 2,000 acres near Rome, N. Y.; 3) a $4.0 million basic flying school (some 90 buildings including 34 barracks for 2,000 airmen) at Merced, Calif. The sites for the depots are the second and third selected in the Air Corps' five-depot expansion program. The first is under construction at Oklahoma City. In addition, the Air Corps has four depots in use, two others under construction.

Interesting is the fact that most of the big new industrial and military projects listed above are scheduled for construction in the Middle West and Central South —comfortably remote from coastlines.

RENT CONTROL

(Continued from page 190)

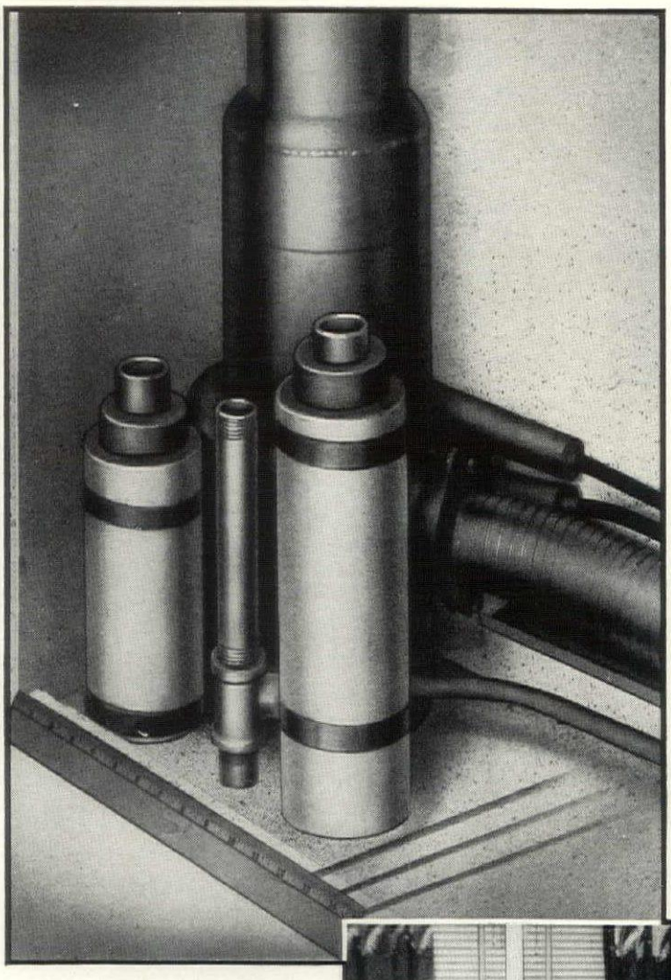
► In the country's biggest boom town, Washington, D. C., about 90 per cent of all Federal Government employes pay more than $15 per room per month for their housing accommodations, and have been for years. Reason: most of them either live in rooming houses or in small apartments whose monthly rents may be modest but are above the Act's limit on a per-room basis. Result: the proposed rent control legislation would solve only about 10 per cent of the Washington problem. And, this problem is not peculiar to the Capital.

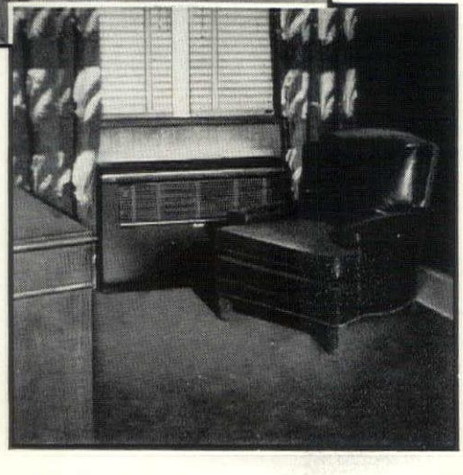
► Nowhere in the Act is a room defined. Without an official definition, the administrator of the proposed legislation will soon discover to his dismay that there is more than one way to count the rooms in a given house, particularly if it contains a dining alcove, recreation room and enclosed sleeping porch.

If the statistics on rental trends corralled by OPACS are not tainted with pro-price control propaganda and if a Federally policed ceiling is essential over rents in defense areas, then some such legislation as the Emergency Price Control Act of 1941 should soon be passed. Not, however, until Congress has given the wording of the rent control section of the Act the same study that the public has already demanded be given the legislation's two other major shortcomings: 1) the exemption of labor prices from control and 2) the braking of agricultural commodity prices only after they reach 110 per cent of parity.

Announcing

CONDITIONED AIR DISTRIBUTED THROUGH CONDUITS





(*Above*) Same space formerly required for heating pipes alone is now ample for all conduits necessary for year 'round air conditioning. Notice how the six-inch Conduit (*in corner*) reduces in diameter as it rises. The three pipes in the foreground carry water for both heating and cooling. Branch connections lead to Carrier Room Weathermasters.

(*Right*) Carrier Conduit Weathermaster installed in office for year 'round air conditioning. All parts are enclosed in cabinet. All connections concealed behind Carrier Metal Baseboard.

An Outstanding New Development in Air Conditioning

★ Up to 85% reduction in duct areas and resulting savings in rentable floor space . . . 20% to 30% reduction in capital costs . . . 15% to 25% savings in fuel . . . introduction of fresh, clean air into each room separately . . . reduction of building height without sacrificing ceiling heights . . . individual control of temperature in each room . . . no running parts in the occupied spaces—these are but the highlights of the sensational benefits which the new Carrier Conduit Weathermaster System brings to multi-room buildings—apartments, hotels, hospitals, office buildings.

★ The Carrier Conduit Weathermaster System is now proved in operation in a new building. This revolutionary development is now being adapted to bring modern utility to an existing multi-room building.

★ You may learn more about this development in a Brochure especially for architects and engineers. This Brochure covers the subject in detail—tells exactly to what type buildings it is most applicable, photographs of installations which are already operating, and other pertinent application data.

★ In order that you may be fully informed as quickly as possible, write or fill in the coupon below for a free copy of this important Brochure without delay.

Air Conditioning's *First Name*

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Without obligation, please send by return mail a free copy of the new Brochure entitled, "Carrier Conduit Weathermaster System for Multi-room Buildings."

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Resilient—comfortable and quiet—hardly ever requires a sub-base or lining.

Amazing durability — Kentile has remained perfect 15 years in busy corridors.

Colors in pigment clear through to back — *nothing* can "wear them off".

Moisture proof — is laid directly on concrete in contact with earth.

Asphalt tile is the lowest cost long wearing resilient tile flooring sold.

Requires absolutely no care—cleaned with simple mild-soap mopping.

Almost impossible to stain ordinarily—absolutely stainless when "Greaseproof" Kentile.

These are the advantages of

KENTILE *Asphalt Tile*

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Invisibly granulated surface provides non-slip sure-grip underfoot tread.

Later alterations will require replacing only tiles affected by walls moved, etc.

15 tile sizes, feature strips, 44 colors—literally billions of patterns possible.

Meets all fire underwriting requirements (almost entirely asphalt and asbestos).

These will help you use asphalt tile more efficiently

Manual giving *full* technical details of cork, rubber, asphalt tile — compiled by Kennedy, distributor of all 3.

New catalogue now believed best asphalt tile book published—lavish use of color—exhaustive analysis of product.

Grease Testing Kit — samples of greaseproof and standard Kentile with test tubes.

4" x 4" samples of all colors — sent responsible persons free (and no obligation).

Architects, builders, specifiers:

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- ☐ New Kentile catalogue
- ☐ Box of Kentile samples
- ☐ Grease Test Kit
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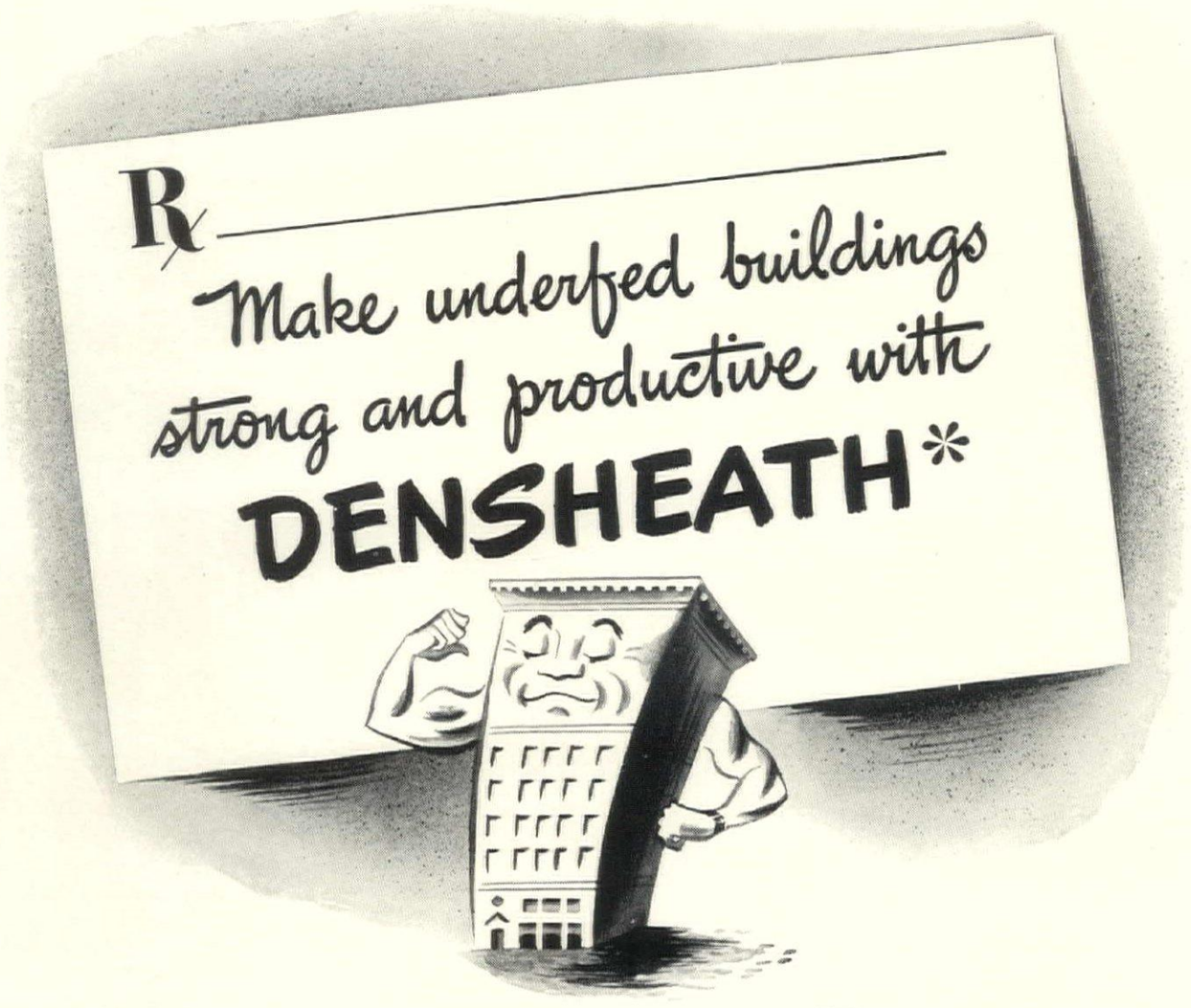
Established 1899

Asphalt, rubber, cork tiles and wall bases
Acoustical Tiles



Anaconda's small diameter building wire ideal for electrical modernization using existing raceways

BUILDINGS, LIKE PEOPLE, once in awhile need a shot in the arm to make them healthy and productive. With Anaconda's Densheath, an improved SN type of small diameter building wire, you can remedy one of the greatest deficiencies now existing in the constitution of old commercial and industrial buildings.

By rewiring existing raceways with Densheath, wattages can be increased *for the cost of only the wire and the labor!* For example, it is possible to increase wattage from 2,760 watts to 10,368 watts by using eight Densheath building wires in place of four Type R wires and changing the system from 2-wire, single-phase to 4-wire, three-phase.

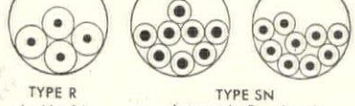
There's new life for old buildings in Anaconda Densheath. Use it in your plans for electrical modernization. *Reg. U. S. Pat. Off.

•

Anaconda Wire & Cable Company. General Offices: 25 Broadway, New York City; Chicago Office: 20 North Wacker Drive. Subsidiary of Anaconda Copper Mining Company. Sales Offices in Principal Cities. ANACONDA

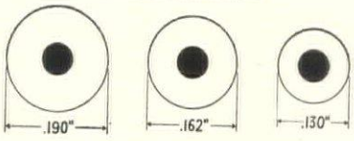
COMPARE THE NEW AND THE OLD!

NEW TYPE SN CONDUCTOR COMPARED TO OLD TYPE R



TYPE R	TYPE SN Anaconda Densheath		
4—No. 14	8—No. 12	9—No. 14	
41.3% Fill	45.3% Fill	44.3% Fill	
2 Circuits	4 Circuits	5 Circuits	
12 Amperes	16.1 Amperes	12.6 Amperes	
2,760 Watts	7,400 Watts	7,250 Watts	

INSULATION SPECIFICATIONS AND DIAMETER THICKNESSES*

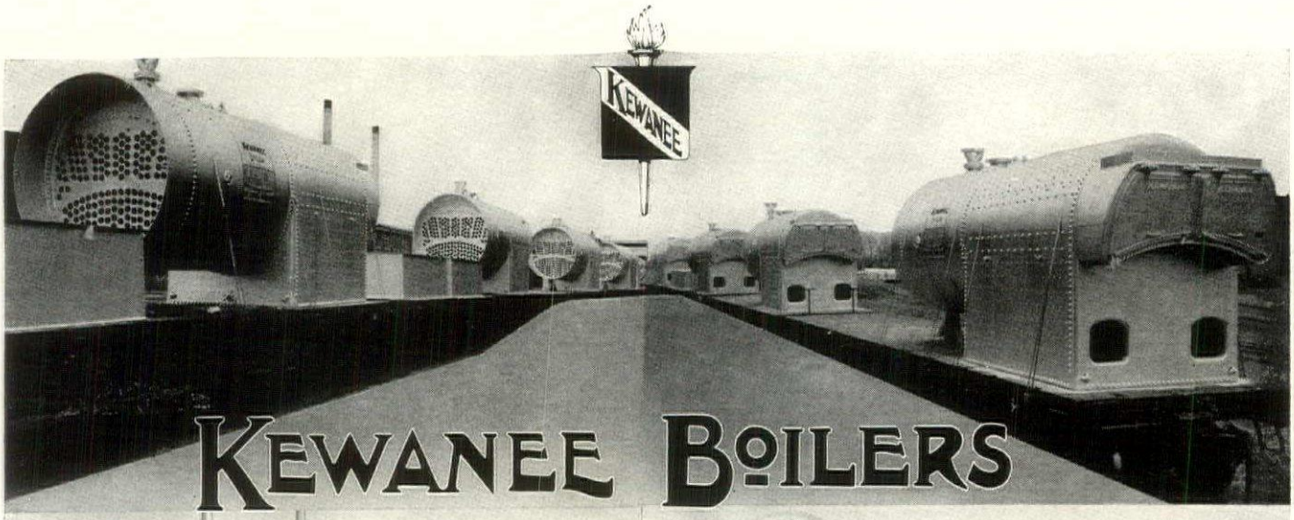


Present Type R 50°C (122°F) All Sizes	Type RHT 75°C (167°F) Sizes 14-12-10-8 for rewiring purposes	Type SN Anaconda Densheath 60°C (140°F) Sizes 14 to 4/0 inclusive for rewiring only

* From Anaconda's "The Story of 1940 Code Changes." Ask for a copy.

41366

USE MODERN IMPROVED ANACONDA WIRE & CABLE



KEWANEE BOILERS

ALL OUT FOR DEFENSE

All on the way out for Defense Projects from the capacious Kewanee factory goes heating equipment by the trainload.

The shipments comprise batteries of Boilers for high pressure and low pressure steam loads and Heaters and Tanks for hot water, storage and service.

Speedy delivery has been one of the very important factors whereby Kewanee has been able to help so materially towards completing Camp construction contracts on time.

Promises are scrupulously kept and in many cases bettered by a matter of valuable days. Production authorities are mindful of the 70-year record for dependability enjoyed by Kewanee, and so orders come in where Unlimited National Emergency demands goods delivered on the dot.

BILL OF LADING

Kewanee Firebox Boilers and Tanks

Camp Ord, 1286 hp., four #590—125#, two #577—100# Riveted Boilers
Camp Roberts, 1824 hp., six #590—125#, Riveted Boilers
Fort Knox, twenty-eight Riveted and Welded Boilers and Tanks
Fort Clayton, 912 hp., three #590—125#, Riveted Boilers
East Columbus, 712 hp., eight #584—100#, four carloads
Camp Simms, 111 ton of Storage Water Tanks, 62,000 gallons

KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS
division American Radiator & Standard Sanitary Corporation
Branches in 64 Cities—Eastern District Office: 37 West 39th St., New York City

Sound absorption of K&M Sprayed "Limpet" ceiling unaffected by painting

The lack of noise is something to marvel at in this busy Washington cafeteria. Even when crowded to capacity, Sholl's patrons dine in an atmosphere free from nerve-wracking noise.

The sound deadening ceiling of K&M Sprayed "Limpet" Asbestos in this Sholl's Cafeteria in Washington, D. C., has proved to be the ideal acoustical treatment, endorsed by the architect, his client, and the public.

THE ARCHITECT has taken full advantage of "Limpet's" adaptability and made it possible for the owner to carry out the color scheme of old rose and blue, unhindered by any geometrical pattern or other limitations. No other acoustical material would have allowed such free treatment.

THE CLIENT gained a room which attracts patrons both by its beauty and its quiet atmosphere. With a "Limpet" ceiling, repainting, if necessary, is no problem at all . . . the owner can cover it with as many as ten coats of paint without noticeably affecting its acoustical properties.

THE PUBLIC dines in this beautiful restaurant free from the distressing roar of conversation and clatter of dishes that often upset digestion and ruin proper appreciation of excellent meals. Over twenty-five hundred people a day enjoy the pleasant environment of Sholl's Cafeteria.

K&M Sprayed "Limpet" Asbestos is a modern miracle . . . compare it with any acoustical material on the market. No other offers all its advantages. It has the remarkable noise reduction coefficient of .70 for a ¾ inch thickness. Any practical degree of sound absorption can be obtained by spraying it on to the proper thickness. It needs no mechanical systems or gadgets, but sticks permanently tight to any clean surface, regardless of shape or composition. It resists fire . . . its thermal conductivity of only .31 at 75 degrees F. makes it an excellent insulator, reducing the load on heating and air conditioning equipment.

Write Dept. 23 for the new A. I. A. catalog giving full details on "Limpet." No charge, of course.

K&M best in asbestos

KEASBEY & MATTISON

COMPANY, AMBLER, PENNSYLVANIA

WHAT KEEPS PAINT JOBS AT THEIR "Sunday Best"?

EXPERT PAINTERS SAY WE LEAD MINERS SUPPLY THE ANSWER TO THAT

IF you want your work to stand the test of time — it must be protected against the relentless attacks of rain, snow, heat and cold that follow season after season.

It's a good rule to heed when ordering paint: *find out how much white lead it contains.* Good painters will tell you, the more white lead, the better the paint. You can't, for example, get a more weather-resistant paint than a 100% white lead paint. This is the kind skilled craftsmen mix from lead-in-oil.

The fact of the matter is, white lead is made from lead—and like lead, is about as tough a weather-battler as you're likely to find anywhere.

For that reason white-lead painted surfaces age slowly and smoothly without cracking and scaling. They retain their looks for years.

Colors? White lead paint can be tinted to practically any shade you desire.

Beauty — durability — economy — three qualities sure to please clients — you get them all in white lead paint. Yet you pay no more for it than for ordinary paints. It's a striking confirmation of the old saying, "The best is cheapest."

• • •

HOW ABOUT COLORS? — *You'll find a lot of helpful information on white lead tints and how best to apply them in a free booklet, "WHAT TO EXPECT FROM WHITE LEAD PAINT." Write for your copy today.*

LEAD INDUSTRIES ASSOCIATION
420 Lexington Avenue, New York, N. Y.

You're money ahead when you paint with

White Lead

Convenient **WAY TO ORDER**—*In addition to the familiar lead-in-oil paste form, pure white lead is now obtainable as a ready-to-brush paint in popular-size containers, at paint dealers' everywhere.*

For more Distinctive Floors at low cost

Use J-M Asphalt Tile

LEFT
Marbleized No. 126

RIGHT
Marbleized No. 121

LEFT
Marbleized No. 119

• The modern floor in this executive's office was designed from the three marbleized colors shown here.

HERE'S A LOW-COST flooring material that is sure to please your clients. Low in initial cost, Johns-Manville Asphalt Tile is economical to install . . . retains its original luster through years of service with little or no upkeep.

J-M Asphalt Tile has added advantages for you. Its wide range of sizes, colors and patterns gives you greater freedom of expression in creating *distinctive* floors . . . offers you the *right* combination of beauty and economy for every flooring need. *And remember:* J-M Asphalt Tile is pre-waxed at the factory to protect its polished surface from the start.

You'll find plenty of stimulating ideas in the new J-M Asphalt Tile Flooring brochure, "Ideas for Decorative Floors." For your copy, write Johns-Manville, 22 East 40th Street, New York, N. Y.

All J-M Asphalt Tile Is Factory-Waxed!

Johns-Manville ASPHALT TILE FLOORING

BOOKS

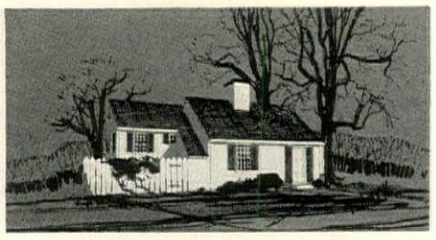
(Continued from page 34)

come a time when new life is required and then you have to forget your beloved romancing and get down to reality."

It is too bad that in architecture at least, Gill never got "down to reality." He just walked out on it. He can hardly be blamed, for in the period of which he writes he wouldn't have gotten very far anyway, but the action was one he repeated more than once during his life. Appalled by the ugliness and desolation created by England's businessmen, he walked out on the cities, fleeing ever deeper into quiet country districts. In fact, there is a curious parallel here between Gill and William Morris. Like Morris he protested—ineffectually—against the degrading effects of the existing social order; both dreamed dreams of a vague and utopian socialism; both felt that the machine and its use in factories were evils that could be overcome only by a return to agriculture and the handicrafts; both succeeded, after a fashion, in escaping to comparatively pleasant little worlds of their own devising. Because of Gill's acutely sensitive reactions to his environment, his book is more than a frank, intimate and very readable autobiography; it is a social document as well. As such it will probably evoke the same expressions of disagreement as his sculptures for Westminster Cathedral and Leeds. But the man lived fully according to his own lights, and he worked hard and was brilliantly successful in several fields. His book is a completely honest record of what he thought, how he arrived at his beliefs, and what he did. In connection with the last there is an appendix showing examples of his typographical work, drawings and sculpture. This section is rather tantalizing in its lack of completeness. The inadequacy is understandable, since the book is an autobiography and not a record of Gill's production as an artist. Such a record, however, is definitely in order and it is to be hoped that when England's critical period is over, the collected works will be published.

BETTER HOUSES FOR BUDGETEERS, by Royal Barry Wills. Architectural Book Publishing Co., Inc. 102 pp., illustrated. 9¼ x 12¼. $3.00.

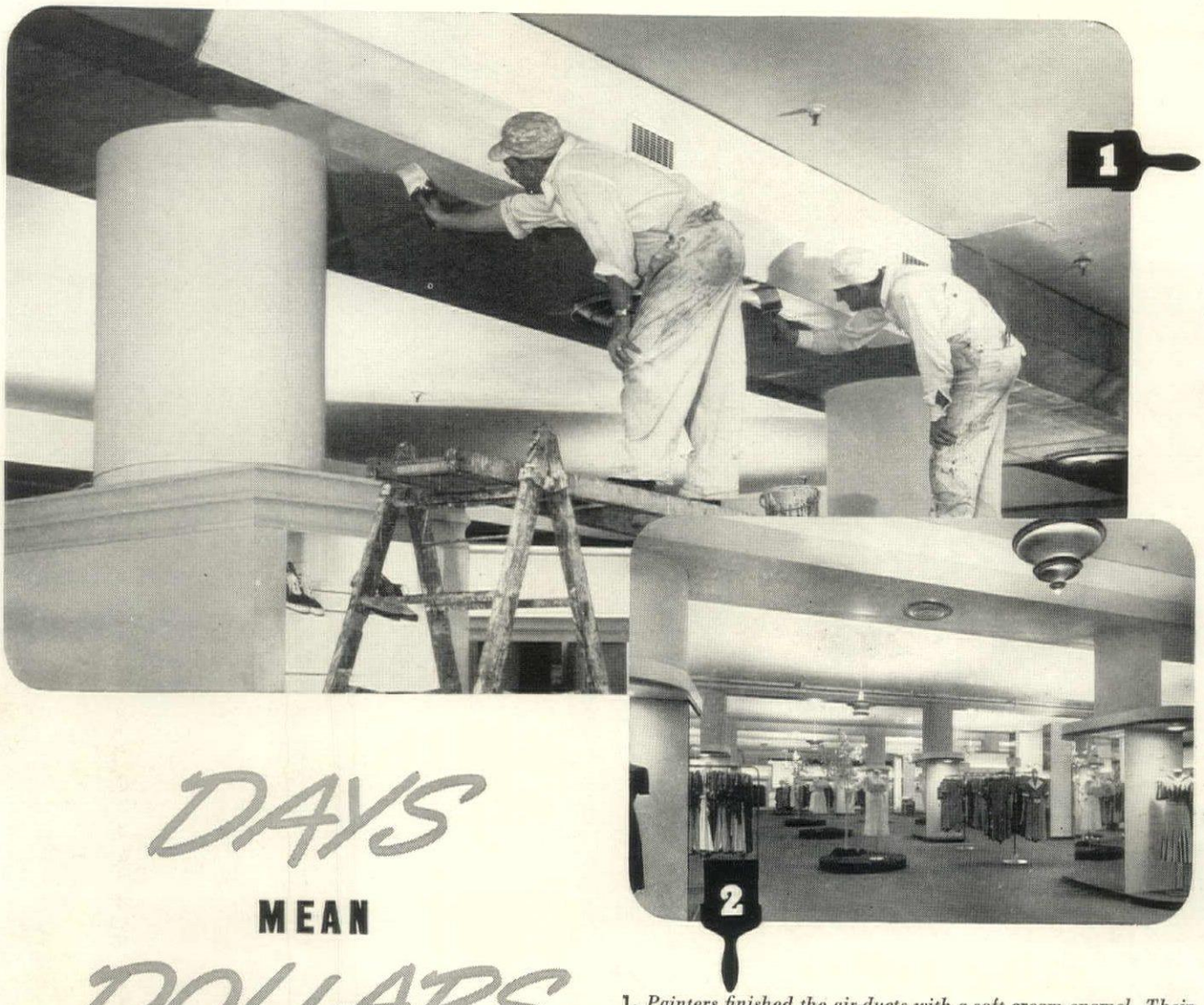
Mr. Wills, apparently, is a man who practices what he preaches. In his recently published "This Business of Architecture" a number of recommendations for snaring the elusive client are given, among them the publication of books and articles to demonstrate the architect's ability and to



make his name better known. This book seems to be Mr. Wills' latest dose of his own medicine. It is a very handsomely presented collection of houses for three income groups from $1,500 to $3,700 and up. Each house is presented on a page, in plans and perspective sketches, with a brief description. The introductory text discusses the minimum plan, materials, costs, means of saving money, etc.

LANDSCAPE ARCHITECTURE IN THE MODERN WORLD, by Karl B. Lohmann. The Garrard Press, Champaign, Ill. 165 pp., illustrated. 6¼ x 9¼. $2.50.

In his introduction to this imposingly titled book the author states that it was written to fill the need for a book dealing broadly with the field of landscape architecture, covering more than the planting phase and other details. Considering its scope the book is very brief indeed, for in under 200 pages it deals with the elements of landscape architecture, the historical background, houses, estates, farms, parks, botanical gardens, airports and cemeteries. There are bibliographical references, and an appendix containing data on landscape education, the employment of landscape architects. Illustrations are unimpressive and are very badly reproduced.



DAYS MEAN DOLLARS IN DEPARTMENT STORES

1. *Painters finished the air-ducts with a soft cream enamel. Their fast work on* PAINTGRIP *speeded remodeling.*

2. *Twenty tons of galvanized* ARMCO PAINTGRIP *Sheets were used in a recent installation at Rollman's in Cincinnati. Observe how the ducts blend into the rest of the architecture. Engineer: H. H. Pease. Contractor: The L. E. Stevens Co.*

Interruptions to store traffic mean lost sales. So because it could be painted *immediately*, galvanized ARMCO PAINTGRIP Metal was used for the ductwork of the new air-conditioning system in this Cincinnati department store. Since the metal didn't have to be etched to make the paint stick, there was no time lost in applying the acid and the water rinses.

The paint job will last longer too. A bright spangled zinc coating dries out paint oils and causes early peeling. But ARMCO PAINTGRIP Metal has a special bonderized film that insulates the paint from the galvanizing and preserves it. Exposure tests indicate that good paint lasts *three times longer than on ordinary galvanized metal.*

Consider galvanized ARMCO PAINTGRIP Metal for exposed air-ducts, for furnace casings, for metal roofs and roof-drainage—wherever you want the accepted protection of galvanizing and the extra protection and beauty of paint. Write for illustrated folder. The American Rolling Mill Company, 2531 Curtis Street, Middletown, Ohio.

ARMCO PAINTGRIP METAL

GALVANIZED INGOT IRON PAINTGRIP

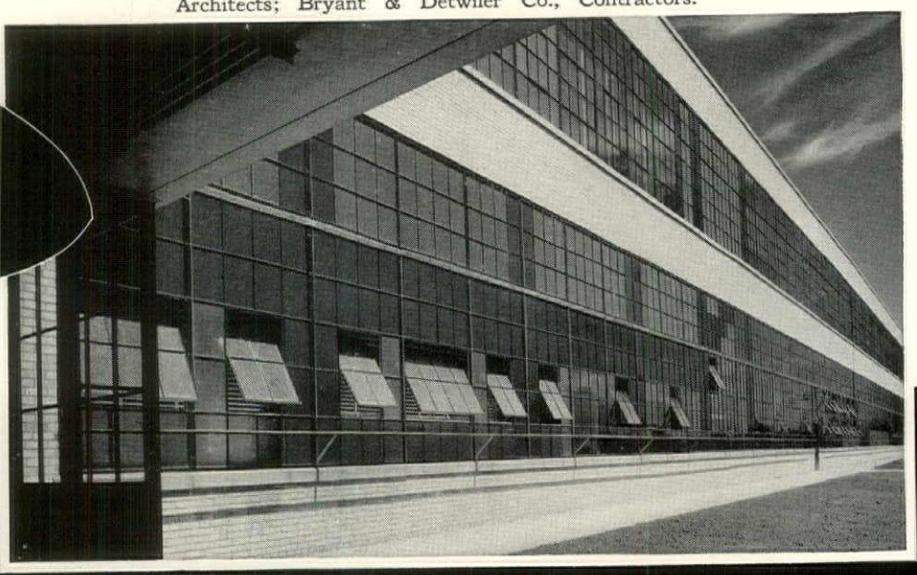
DEFENSE BUILDINGS AT LOWER COST

SAVINGS in building time as well as SAVINGS in labor, materials and over-all costs are assured when the walls of *your* building are *ready-built* Fenestra Steel Windows.

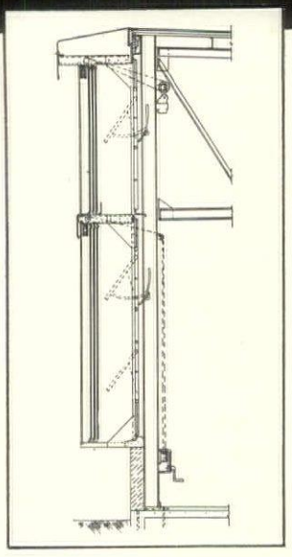
Chevrolet plant, Tonawanda, N. Y.; Albert Kahn, Inc., Architects; Bryant & Detwiler Co., Contractors.

WEEKS and MONTHS QUICKER

On hundreds of Defense Plants valuable building TIME HAS BEEN SAVED by the use of Prefabricated Fenestra Steel Windows delivered to the job, ready fitted, assembled, prime-painted, COMPLETE.



WITH Fenestra's NEW STEEL WINDOW SYSTEMS



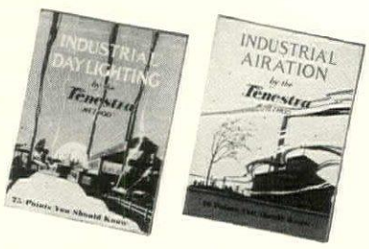
"BLACKOUT" FOR DEFENSE

This drawing (much reduced) is one of several from "Industrial Defense Buildings," a bulletin issued recently by Fenestra's Engineering Research division. Bulletin shows a number of ways of blacking out Defense Plants of standard construction and with Fenestra Steel Window Systems. It is designed to help Defense Industries to provide economically for efficient production NOW, DURING an emergency and AFTER the emergency has passed. The coupon will bring a free copy.

• Besides speeding the construction and increasing the efficiency of Defense Plants, Fenestra's Steel Window Systems make money savings—(1) in the cost of the building, (2) in the cost of equipment to supply light and air, (3) in the cost of plant operation, (4) in the cost of protection from air raids, (5) in the cost of post-emergency conversion to peacetime production . . . For many years Fenestra Products have met the exacting specifications of the U. S. Army and Navy.

NO MORE GUESSWORK ON DAYLIGHT AND VENTILATION

In collaboration with the University of Michigan (department of Engineering Research), Fenestra Research Engineers have made many studies of the needs, the supply and the control of natural light and ventilation, in industrial buildings. Of special interest, now, are two booklets, "Industrial Daylighting," and "Industrial Airation." Free—no obligation; just mail coupon.



Fenestra

STEEL WINDOW SYSTEMS FOR INDUSTRY

PREFABRICATED WINDOWS • DOORS • ROOF DECK

Detroit Steel Products Company, Dept. AF-9,
2252 East Grand Blvd., Detroit, Mich.

Please send me the latest Fenestra publications, as checked:

☐ Industrial Airation ☐ Industrial Daylighting
☐ Industrial Steel Windows ☐ Industrial Steel Doors
☐ Residence Steel Casements ☐ Residence Package Windows ☐ Heavy Casement-Type Steel Windows
☐ Holorib Steel Roof Deck.
☐ Industrial Defense Buildings Bulletin.

Name_____

Address_____

Mr. and Mrs. America want dry basements. As a sample of their interest in the subject, we reproduce a quarter page advertisement recently published in a home magazine that produced 3470 inquiries wanting to know how to prevent dampness in new and existing basements. This certainly indicates that there are thousands of damp basements and we suspect that many are in homes designed by architects.

It's to your interest, Mr. Architect, as well as ours to prevent these damp basements. You specify and we'll provide the material that will prevent them —and the cost is very low. The specification of Medusa Waterproofing, that is Medusa Waterproofed Gray Portland Cement or if not available, Medusa Concentrated Waterproofing Paste or Powder, in all concrete and mortar and as a plaster coat, stops these damp basements. Existing basements can be waterproofed by using Medusa Waterproofing in floor topping and as an interior wall plaster.

These Medusa Waterproofings line the pores of the concrete or mortar with a waterproofing material that repels all water at the surface. The coupon brings a copy of the informative book, "How To Make Good Waterproofed Concrete."

MEDUSA
WATERPROOFINGS

MEDUSA PORTLAND CEMENT CO.
1013 Midland Building, Department E • *Cleveland, Ohio*
Gentlemen: Please send me a copy of the book, "How To Make Good Waterproofed Concrete."

Name..... *Address*.....

City..... *State*.....

Medusa Products also made in Canada by Medusa Products Company of Canada, Ltd., Paris, Ontario

FORUM OF EVENTS

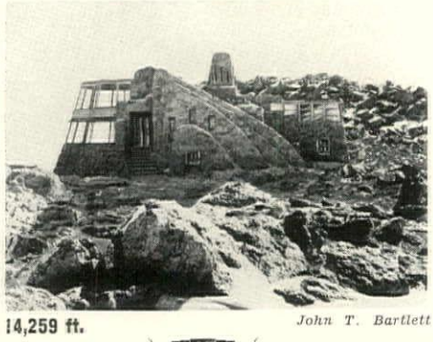
(Continued from page 14)

HIGHEST HOUSES

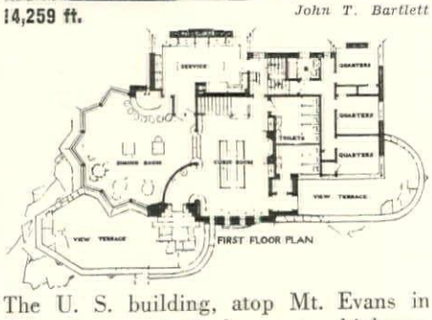
Building at high altitudes is fraught with exceptional difficulties: high cost of trucking materials, winds which blow out window panes as fast as they are set in, freezing temperatures at least once every 24 hours, frequent electrical storms, perpetually frozen subsoil, exceptionally low temperatures and unusual condensation problems. Construction above the timberline is therefore no mean achievement, so the recent completion in Europe and the U. S. of two hostelries replete with modern conveniences is a newsworthy event. Close competitors for the "highest house" title (U. S. wins by a scant 259 ft.), both designs reflect their unusual locations in unusual architecture dictated—at least in part—by the exceptional conditions they are called upon to withstand.

14,000 ft. *Sovfoto*

Definitely the more handsome, the lower of the two structures (left), known simply as Refuge No. 11, was erected on Mt. Ebrus, highest peak in Europe, for the use of Soviet Russian mountaineers. A special road had to be built to transport the largely prefabricated building to its site. Nearby, at 13,800 ft., a meteorological observation station was erected at the same time. Rounded roof is used to relieve the pressure of high winds, and reduce the amount of noise which might otherwise be a source of continuous annoyance to the occupants.



14,259 ft. *John T. Bartlett*



The U. S. building, atop Mt. Evans in Colorado, reached by auto highway, is intended for tourists and vacationists. It was designed by Edwin A. Francis, Denver architect, in consultation with the U. S. Department of Interior, and built by Justus Roehling. The Forestry Service was consulted for many of the details, as this is probably the only organization which has experienced building under comparable conditions, but on a smaller scale.

Foundations for the Mt. Evans structure were alternate ridges of granite and frozen clay, necessitating special precautions against the ever-present possibility that the ground would thaw. Walls are of huge blocks of native, sand-blasted granite, and taper inwards toward the roof. Metal work around windows and at the edging around the roof were designed to absorb heat from the sun so as to melt the ice clinging to the building.

Precautions against lightning were especially elaborate. Copper tubing (which carries more current than an equal amount of solid copper) is carried entirely around the roof and leads to an inch-thick copper plate buried 6 ft. deep in a pit filled with charcoal. Plumbing pipes are insulated and fitted with frequent taps for draining. Two tanks store 7,500 gallons of water from a spring near the building, supplemented by water hauled by truck when this proves necessary.

(Continued on page 76)

TONCAN IRON PIPE selected for new

Tiffany & Co. Building

In planning the beautiful new Tiffany & Co. Building, built at a cost of well over a million dollars as the home of the world-famous New York jewelers, Toncan* Iron—the rust- and corrosion-resistant pipe—was selected for the condenser water lines of the air conditioning system which was installed as part of the basic construction.

When Toncan Copper-Molybdenum Iron was specified for that part of the system—probably the most modern ever devised for a major store building—which is subjected to severest corrosive attack, the owners got more than just pipe. They got *insurance against early failures and costly repairs.*

Toncan Iron is an alloy of open-hearth *iron,* molybdenum and copper—twice as much copper as can be found in the finest copper-bearing steel—giving it the highest rust- and corrosion-resistance of any ferrous material in its price class. That important quality is more than skin deep; it prevails all the way through the pipe wall—for a longer life of satisfactory service.

Every building owner should be genuinely interested in these economical service features of Toncan Iron. Recommend it to your clients for all pipe installations where corrosive conditions exist.

*Reg. U. S. Pat. Off.

Tiffany & Co. Building, New York, N. Y.

Cross & Cross, Architects; J. Gordon Carr, Consulting Equipment Designer; Jaros, Baum & Bolles, Consulting Mechanical Engineers; Clifton E. Smith and Edward B. Silverman, Consulting Electrical Engineers; Weiskopf & Pickworth, Consulting Structural Engineers; Turner Construction Co., General Contractor; Baker-Smith & Co., Inc., New York, Air Conditioning Contractor.

Berger Steel Lockers—another Republic Steel product—also were installed in this building.

For all the advantages and applications of Toncan Iron Pipe in the construction field, get booklet 333-R, or see Sweet's 27/3. Facts about other products in the wide line of Republic steel and steel building materials are found in Sweet's—Republic sheets 13/6; Steel and Tubes 23/5; Berger 9/1, 21/3, 21/21, 24/1, 28/5; Truscon 15/20.

REPUBLIC STEEL CORPORATION

General Offices: Cleveland, Ohio

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

REPUBLIC TONCAN IRON

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

MENGEL BORD—

the ideal wall panel *for*

quicker, more decorative construction

If you want *economical* walls that are to be papered or painted—if you want beautiful, *panelled interiors* with a fine, natural-wood finish—in either case, the material you need is Mengel Bord!

Mengel Bord is genuine, resin-bonded, *hardwood* panels, made in big 48″x96″ sheets. Where they're to be painted or covered with wall-paper, you can secure a No. 2 Gum grade that's ideal for the use—

—where you want a good stained (or natural) wood finish, the No. 1 Gum gives excellent results at very moderate cost—

—and where you want panelling of *exquisite beauty,* you can use DeLuxe Mengel Bord—and have your choice of Mahogany, Walnut, Gum, Birch or Oak faces!

Mengel Bord is available *now,* and may be purchased through *any* building materials dealer. Ask your usual supplier, or mail the coupon below!

The Mengel Company, *Incorporated*
1126 Dumesnil Street, Louisville, Kentucky

Gentlemen: Please send me, at once, full information about Mengel Bord ☐ . . . Also about Mengel Flush Doors, the *outstanding* doors on the market today ☐.

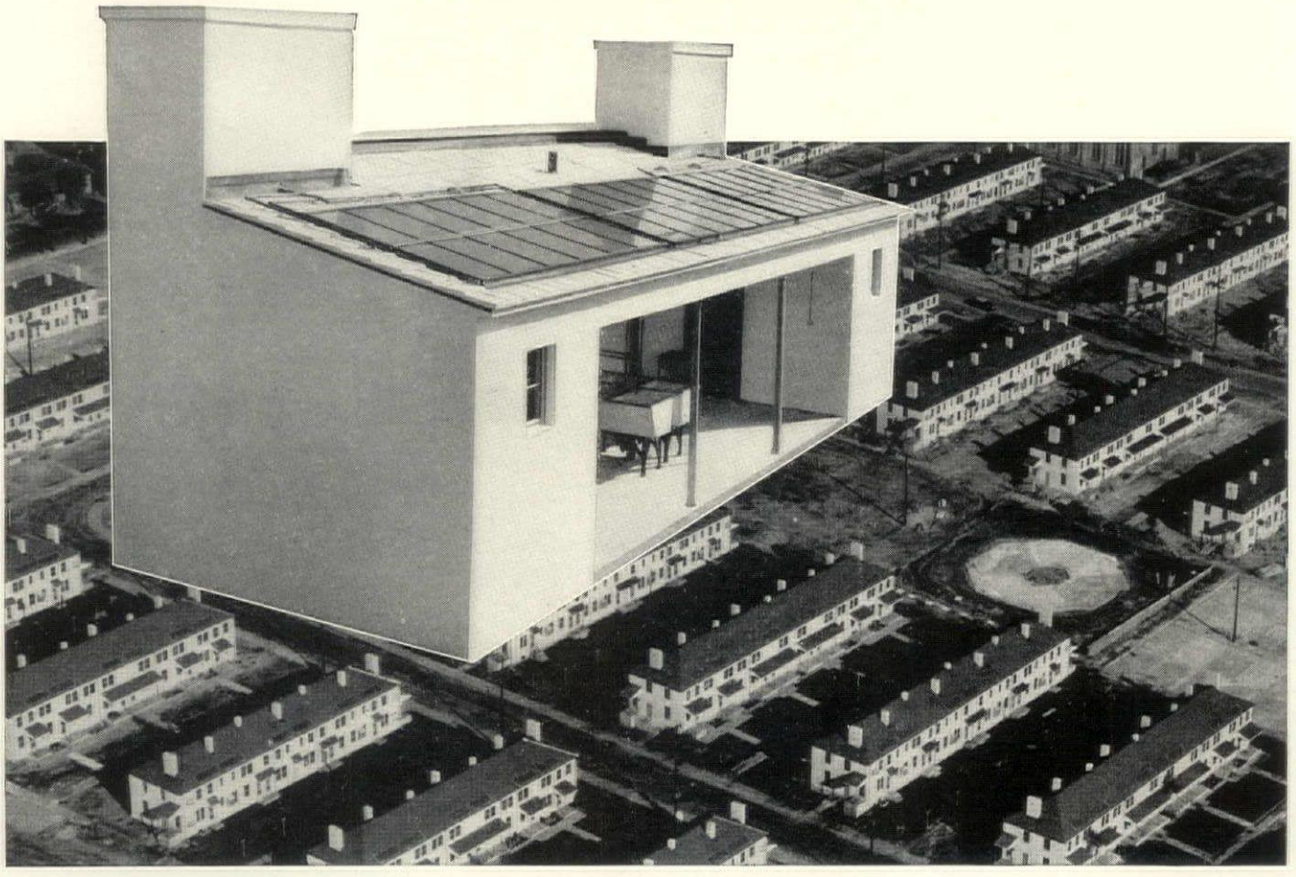
Name_____

Street_____

City_____ State_____

Hot water heating cost: $0.00 per year

. . . for Yamacraw Village, Savannah, Georgia



Using 26,370 feet of Revere oval copper tubing, 8,000 feet of Revere round copper tubing, and 2,000 pounds of Revere copper in rolls — 342 Pan-American Solar Heaters furnish a total of 35,000 gallons of hot water per day to the homes in Yamacraw Village.

WITH the help of Revere copper, 342 Pan-American Solar Heaters supply 100 gallons of hot water daily to each family in the Yamacraw Village Slum Clearance Project, Savannah, Georgia. Nearly 13,000,000 gallons of water a year are heated by the sun's radiation alone, without costing a penny for fuel.

But this is not done without skillful engineering and the use of the most efficient materials for the purpose ever developed. Pan-American Solar Heater, Inc., Miami, Florida, designers of the heaters came to Revere for the seamless oval copper tubing and the corrugated copper backing which enable these units to drink in far more of the sun's heat per square foot.

This is one of the many developments in copper bringing a higher standard of living to American families. More copper means better living . . . copper and copper-base alloys such as brass, bronze and Herculoy are at the heart of modern architectural and building techniques. Revere Technical Advisory Service is set up to help you use them to best advantage. Write us.

REVERE

COPPER AND BRASS INCORPORATED

Executive Offices: 230 Park Avenue, New York

Sales Offices and Distributors in most of America's major cities

MILLS: BALTIMORE, MD. · TAUNTON, MASS. · NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL.

FORUM OF EVENTS

(Continued from page 72)

AWARDS

First prize winner in the national home planning contest sponsored by Popular Science Magazine is Mrs. Charles T. Grace, housewife, of Champaign, Illinois. Second prize was awarded to Charles R. Hogan, Chicago and third prize to George and Margaret Mallory, Evanston, Ill. The contest, titled "HOUSE YOU'D LIKE TO BUILD," was judged by a committee including Ely Jacques Kahn, Cameron Clark and Frederick J. Woodbridge. More than 3,300 entries were received.

EDUCATION

An advisory committee composed of prominent architects, engineers and authorities on housing and city planning will supervise the BUREAU OF URBAN RESEARCH, newly established at PRINCETON UNIVERSITY to collect, organize and analyze existing data on the problems of cities. Members of the Advisory Committee are Walter C. Behrendt, Jay Downer, Charles W. Eliot, Arthur C. Holden, Lewis Mumford, Alfred Rheinstein, Winfield W. Riefler, and Stephen F. Voorhees. Melville C. Branch, Jr., a Princeton-trained architect formerly engaged in special studies for the National Resources Planning Board, has been named director of the Bureau.

Dean Gilmore D. Clarke of CORNELL UNIVERSITY, College of Architecture, announces the appointment of John Melza Sitton, New York artist and educator, to the position of Assistant Professor of Fine Arts.

PERSONALS

Lighting engineers of the W. H. LONG COMPANY, Chicago, offer a free fluorescent lighting engineering service to professionals and business men interested in remodeling. A rough, dimensioned sketch, including location of outlets, present wattage, etc., may be sent to the company, 425 N. Clark St., attention of Mr. Higgins.

"TALIESIN," magazine of the Taliesin Fellowship, edited by Frank Lloyd Wright, is about to publish its third issue. A limited number of the first two issues are still available. The magazine is published six times a year, subscription price, $3.50, single copies, 75 cents. Subscriptions may be obtained from the Secretary of the Taliesin Fellowship, Spring Green, Wisconsin.

EDGAR V. ULLRICH, Architect, and Edgar V. Ullrich, Jr. announce the opening of offices at 7608 Girard Street, La Jolla, Calif. Manufacturers' data for complete A.I.A. file appreciated.

L. MORGAN YOST, Architect, announces the removal of his offices to 363 Ridge Road, Kenilworth, Ill.

CALENDAR

September 20 to October 18: Civilian and National Defense Exposition, Grand Central Palace, New York. A comprehensive presentation of industrial and commercial activity on the U. S. defense program.

September 24 to November 9: "Organic Design in Furniture and Furnishings," exhibition at the Museum of Modern Art, New York.

October 2 to 4: Second Annual Convention of the Texas Society of Architects, Baker Hotel, Dallas.

October 16 to 18: Convention of the New York State Association of Architects, Hotel Syracuse, Syracuse, N. Y.

DIED

EDWARD H. BOUTON, 82, realtor, in Baltimore, Md. Mr. Bouton, pioneer of modern suburban development in the United States, was president of the Roland Park Company and originator of the country's first restricted district. Roland Park, on the outskirts of Baltimore, is at present celebrating its fiftieth anniversary.

ROBERT C. FARRINGTON, 59, engineer, in Fort Worth, Texas. Mr. Farrington was chief mechanical engineer of the Austin Co., whose organization he joined in 1918. At the time of his death, he was in Texas working on equipment details for two Austin-designed Army bomber plants.

ERRATUM

The metal and plywood chair illustrated on page 12 of the August issue was designed and executed by Davis Pratt, the bent plywood stool seat by Charles Niedringhaus.

DO THESE *before You Specify any Garage Door!*

LOOK — Look at the refined lines of the Ro-Way Door.

LISTEN — Listen to its quiet operation.

FEEL — Feel the husky power of its "Tailor Made" Springs.

EXAMINE — Examine the mechanism that keeps the sheave wheels always true.

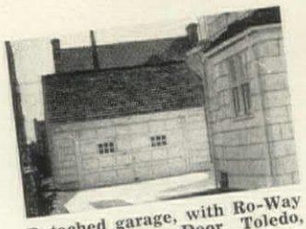
UNDERSTAND — Understand why the Ro-Way is so permanently free from sticking and binding.

NOTICE — Notice that Ro-Way uses the "Parkerizing and Painting Process" which best protects hardware parts from rust and corrosion.

DISCOVER — Discover the patented Ro-Way "Zip-Lock" feature which makes even rarely needed spring adjustments quick and easy.

REMEMBER — Remember that Ro-Way sales and installation service is nationwide and convenient to you.

AND BE GLAD! — —and be glad that you are not asked to pay one cent of extra cost for all that Ro-Way gives.



Detached garage, with Ro-Way Overhead Type Door. Toledo, Ohio, residence of Ray Shaffner. Architect, Harold Spooner.

Attached garage, equipped with Ro-Way "Two-Car" Overhead Type Door. Architect, Aldrich & Aldrich, Galesburg, Ill.

Ro-Way Garage Doors especially designed for use in Modernistic Service Station.

Bus Station, Terre Haute, Ind., using 12 Ro-Way Doors. Miller & Yeager, Terre Haute, Ind., Architect.

The Ro-Way "Time-saving Specification Book" for Architects will be sent to any architect requesting a copy on his letterhead, or by letter with professional card attached. This 72-page book shows Rowe Overhead Type Doors for Residential, Commercial and Industrial use, and offers your clients extra values without extra cost.

ROWE MANUFACTURING CO.
932 Holton St. Galesburg, Ill., U. S. A.

Rō-Way OVERHEAD TYPE DOORS

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Gentlemen: Please send me Free copy of your 72-page "Time-saving Specification Book" for Architects, as advertised in Architectural Forum.

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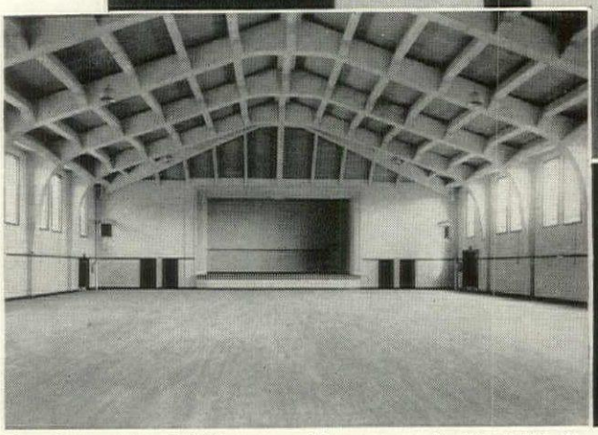
There's a Ro-Way for every Door way!



Firesafe concrete rigid-frame roof bents span the big drill halls.

Illinois Builds Eleven Armories of ARCHITECTURAL CONCRETE

General view of the armory at Pontiac, Ill., showing the pleasing appearance of these structures.

● (Top view) Even the eagles are concrete. Eleven of the 13 new Illinois armories are architectural concrete; the remaining 2 use concrete as the chief structural material. S. Milton Eichberg, supervising architect.

The new Illinois National Guard Armories in eleven Illinois cities, recently completed in concrete, are a source of pride to the people of the state. Concrete helped achieve distinctive, monumental design, interesting wall surfaces and pleasing ornamentation. First cost was low; concrete's enduring strength, low maintenance and firesafety are a guarantee of the future.

Your architect can tell you how these advantages of concrete can be applied to your new public, commercial or industrial building. See Sweet's 1941 catalog 4/49, or write us for literature, mailed free in the U. S. or Canada.

PORTLAND CEMENT ASSOCIATION
Dept. A9-7, 33 W. Grand Ave., Chicago, Ill.

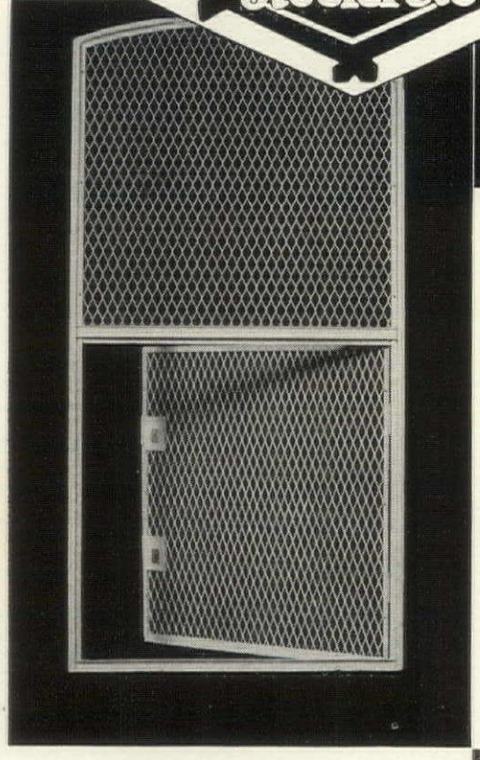
A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

IN *Defense Projects*

EXPANDED METAL

Steelcrete

PROVIDES NEEDED PROTECTION *at Low Cost*

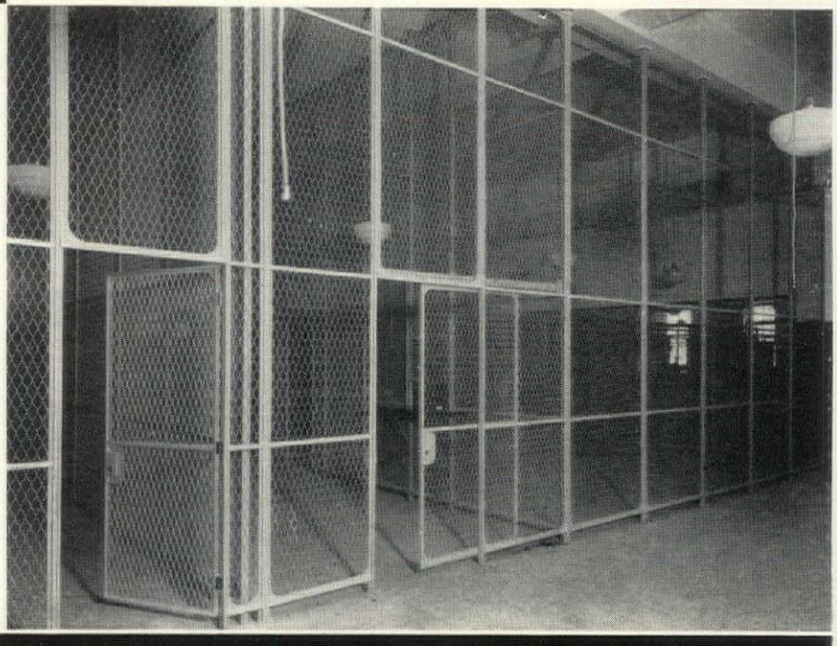


BECAUSE of its great strength, light weight, low cost, and adaptability to many uses, Steelcrete Expanded Metal is being extensively used in defense projects for protection against theft, glass breaking, illegal entry or exit, or acts of sabotage. The rigid strands of Steelcrete Expanded Metal cannot be pried apart and will not unravel. Meshes with openings of various sizes for any type of protection are available. Suitable fittings are also provided for quick installation of window guards, skylight guards, partitions lockers, and other types of enclosures.

Write for New 92-Page Handbook on Expanded Metal

Steelcrete Expanded Metal window guards are made in several styles to harmonize with any architectural design. They are finished in baked enameled paint in any color desired for use on office buildings, industrial plants, apartment houses or other types of structure. The style shown here is a combination fixed and hinged window guard, made of 1½" No. 9 Steelcrete Safe-T-Mesh and Jumbo Bar frame.

Enclosures made of Steelcrete Expanded Metal can be quickly erected and easily altered should plans change later. The open mesh of Steelcrete makes for better ventilation and better light distribution. This strong, fire-safe fabric is ideal for use in partitions, locker-rooms, storage rooms and tool-room enclosures as shown at the right. All necessary accessories, including hinges, frames and vertical supports are available.



THE CONSOLIDATED EXPANDED METAL COMPANIES

WHEELING, WEST VIRGINIA

Offices and Warehouses:

Buffalo • St. Paul • Detroit • Cincinnati

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Export Office: 330 West 42nd Street, New York, N. Y.

POST-WAR PATTERN

(Continued from page 151)

Forum:

. . . One thing the past would seem to demonstrate conclusively: Planning and Rebuilding, which now seem to be Imperative No. 1 (once Peace comes) cannot be done unless the present control of land by individual owners be so far disallowed as to give all of us, functioning through central authority, no less than freedom of action in respect to executing the aims of all of us,—that is to say, of the community. Again one may repeat, for it is important: it is utter nonsense to assume that we so rebuild our urban centers to satisfy the functions of living, which the new order of technology imposes upon us, while we maintain the absurd capitalizations which overhang them.

Two facts are of outstanding importance in the present situation. Out of a recognition of them we must formulate the framework of our future institutional scheme and plan our processes of production and distribution.

Our population growth is declining and the composition of our population is changing in ways that are predictable for decades ahead. From the viewpoint of Science and Technology—particularly the explosive technology of physics and chemistry — there is nothing in these facts which might give us the jitters. It is physically possible, with our resources and our increasing productive capacity, to tear down the decayed and obsolete, change the pattern of our man-made physical world and build a bright new one with room enough for each of us.

Given declining population growth, a decayed and obsolete man-made environment and this new, explosive economic factor which is a compound of physical science, mathematics, new ways of transforming energy, the machine process, and the new, explosive, utterly unpredictable technology of physics and chemistry — given these operating in conjunction, and we have a situation which cannot possibly be expressed in terms of "business as usual."

It seems absurd to attempt to bring into a situation such as this the concept of long term financing. Nor does the situation lend itself to short term credit transactions. It is at bottom a time-quantity situation—not one of pecuniary valuation. And the situation is so complex, or more accurately, so disorganized that—if we are to deal with it at all—we may have to resort to time quantity-pay-as-you-go methods of operating our economy.

The rate of technological change is accelerating. Out of the matter of fact procedures of the scientific laboratory issue a train of most incredible findings which tomorrow are turned into industrial processes which render great industries obsolete and their financial structures but houses built of cards. Sweeping dislocations take place within national frontiers and commercial agreements, and trade routes between continents set the Status Quo of national relations spinning like a top.

In such a setting National Plans and Reconstruction Programs must be conceived as no more than directions in an ever-changing world. The Status Quo will become, under the jurisdiction of science and technology, no more than a point of departure. There will be no place in such a world for "gilt-edged" bonds as a symbol of durability; and there will be no prospect of buying our bright new world on the installment plan.

"Without a remedial post-war program, well planned and well executed, the nation may soon see the ravages of obsolescence grow to catastrophic proportions." Anyone who has observed the changes that have occurred in our urban centers, noted the drift and the accelerating rate at which blight passes into decay and complete obsolescence, will agree with this statement from the proof sheets.

The fact that a great deal of urban building was in some degree obsolete upon completion should not be allowed to obscure the fact that the very nature of modern technology makes for an accelerating rate of obsolescence. Unless we adopt the fantastically absurd proposal—throttle change in the field of technology—we must prepare the way for the application of technological change by extinguishing capitalization at a rate of physical decay or obsolescence—whichever is the higher—thus leaving the field open for the application of new techniques.

F. L. ACKERMAN, *Architect*
New York City *(Continued on page 84)*

THE WETTER... THE BETTER!

Water doesn't trouble a seal—or a Barrett Specification Roof! Let the rain come down, year in—year out. The coal-tar pitch in a Barrett Roof is actually preserved by water.

The gravel or slag wearing surface adds still further protection—against mechanical damage, fire, hail and the harmful actinic rays of the sun. Adverse conditions which show up the weaknesses of inferior roofs merely demonstrate the superior weather protection of Barrett Roofs.

Barrett Specification Roofs are applied only by Barrett Approved Roofers in strict adherence to time-tested Barrett Specifications. Bonded against repair and maintenance expense for periods up to 20 years, they regularly outlast the period of their bonds by decades. For the utmost in roof performance specify . . . and stick to . . . Barrett.

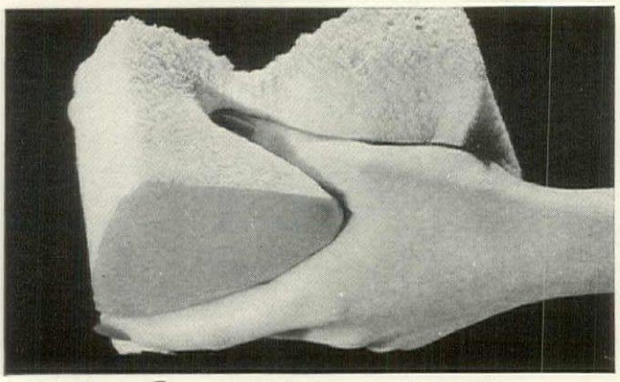
THE BARRETT COMPANY, 40 RECTOR STREET, NEW YORK, N. Y.

2800 So. Sacramento Avenue, Chicago, Illinois Birmingham, Alabama

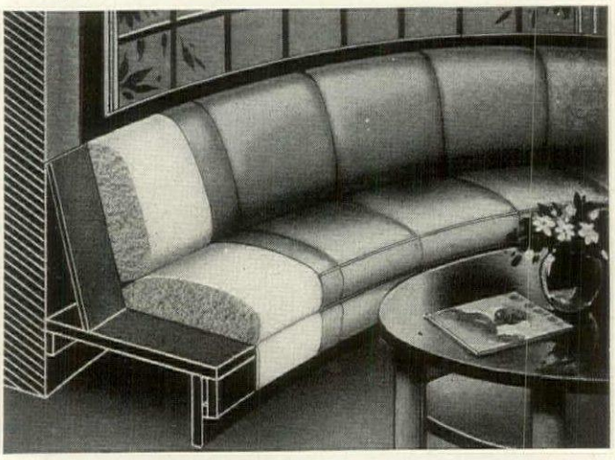
ONE OF AMERICA'S GREAT BASIC BUSINESSES

*Trademark of The Barrett Co., Reg. U. S. Pat. Off.

This is a handful of *common sense*

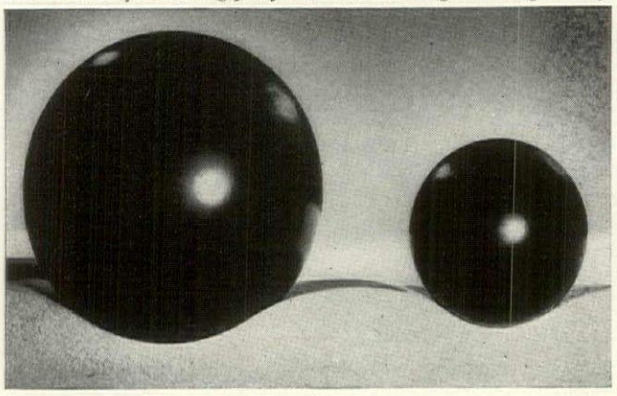


Koyalon changes complicated upholstering to one molded piece



Comfortable built-in seating simplified

Koyalon provides both *softness* and *springiness* in a single material —pre-shaped, ready to apply to any base. Does a more beautiful job because Koyalon is already *molded* to perfect form for the upholsterer. Koyalon's *sag-proof* wear means longer lasting beauty.



WHY *Koyalon* MEANS MORE COMFORT

These bowling balls show how perfectly Koyalon adjusts itself to various weights. Weights that could be your shoulders, your hips. *Equalized support for every part of the body* makes Koyalon more restful to sit on.

• • • • • *MAIL FOR EASY WORKING DETAILS* • • • • •

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Koyalon
FOAM CUSHIONING

USE THE MARGIN BELOW FOR YOUR NAME AND ADDRESS

MEETS
FEDERAL GOVERNMENT SPECIFICATIONS
TT-P-88

To the boys who write or read "specs", TT-P-88 is destined to be as familiar as big league scores are to an ardent baseball fan. For these Federal Government Specifications call for *"paint, paste, resin emulsion, interior, light tints and white"*. ★ Any architect who knows his paints will readily agree that Super Mural-tone is a "natural" for "defense" construction jobs where Speed is the watchword. ★ "SPEED" is Super Mural-tone's middle name. No waiting around for plaster to season. "Super" is ready to go to work even when the walls are still "green". Being on friendly terms with a wide brush, Super Mural-tone just devours wall space . . . which, incidentally, is no small item in cutting costs. "Super" takes more thinner. Goes further. One coat covers and hides on most surfaces. Dries in 40 minutes to a beautiful velvet finish . . . a finish that's famous for its high percentage of light reflection. ★ And "Super" is washable—it more than meets the "wet abrasion" requirements in the Federal Government specifications. ★ For complete information about Super Mural-tone write to the Muralo Company, 574 Richmond Avenue, Staten Island, N. Y. ★ Branches: Atlanta, Boston, Chicago, Los Angeles, San Francisco.

A **MURALO** *Product*

WOMEN WANT

Steel Kitchens

WITH PLENTY OF CABINET SPACE

HOW many times have you heard a woman say, "When I build my home, I want an easy-to-clean kitchen with lots of cabinet space?"

"Easy-to-clean" is just another way of saying "steel". And "lots of cabinets" means more than two! A generous steel kitchen, like the one shown here, is worth its weight in sales talks.

If you skimp in the kitchen you cut away one of your most effective sales features.

Here are the advantages of a well-designed kitchen

RELIEF for the housewife — Steel cabinets can be obtained in baked enamel, the same high quality, easily-cleaned finish that is put on refrigerators.

CONVENIENCE — Standard cabinets are available for all special uses, from broom closets to vegetable bins.

SIZES TO FIT ANY KITCHEN — Readily obtainable in most cities.

COST NO MORE — Prices of steel cabinets compare favorably with others of comparable quality.

EASY OPERATING DRAWERS — Don't stick in damp weather.

QUIET, SOUND-INSULATED DOORS — Children can't bang them.

VERMIN-PROOF — Mice and bugs don't like steel.

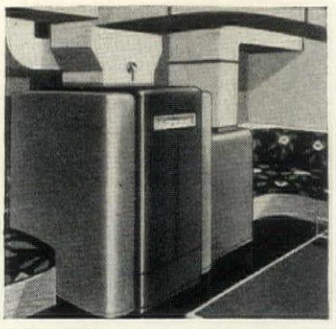
DURABLE — Last a lifetime — no rotting or shrinking.

LASTING STYLE — Steel sets the style and stays modern for years to come.

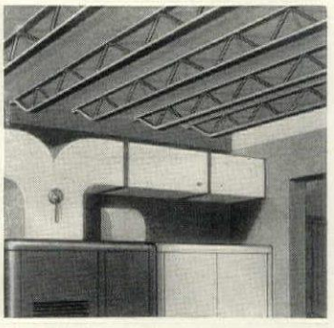
QUALITY — The U·S·S Label is a guide to superior quality for any steel product in the home. Write U·S·S Steel into your specifications and avoid arguments later.

DOWN SPOUTS, gutters, flashings, shingles and terne roofing made from U·S·S Copper Steel have 2 to 3 times the rust resistance and durability of plain steel.

CELLAR DOORS Steel makes them strong, durable and water-tight. Specify U·S·S Copper Steel for greater rust resistance.



DUCT WORK must be able to withstand the attacks of humidified air inside and damp basement air outside. The new U·S·S PAINTBOND or U·S·S DULKOTE are good choices for this work.



BAR JOISTS of U·S·S Steel add strength and rigidity to floors. Particularly desirable for large homes or for families with lively children.

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

USS

UNITED STATES STEEL

POST-WAR PATTERN

(Continued from page 80)

Forum:

. . . You chart a very interesting course of the subsequent articles and if they measure up to this one I think you will have made a great contribution to the post-war building in this country. I saw nothing in the article to which I could take exception, or in fact, make any modifying comment.

A. J. EKEN, *President*
Starrett Bros & Eken, Inc.
New York City

Forum:

. . . Individual members of THE FORUM's Panel of Advisory Editors should be invited to organize into locality groups, meet monthly, keep minutes, and submit reports. So doing would encourage a more effective group effort required to arouse local and general interest necessary for the ultimate success of your plan. . .

Chicago, Ill. A. N. REBORI, *Consulting Architect*

Forum:

. . . On page 146 under paragraph headed Planning, the following statement is made as part of the paragraph: "Conceived in broad outline, these master-plans of reconstruction and development must be inter-related so that they jibe with one another and when put together blanket the entire country." Under this statement are listed seven items, which I feel are not sufficient in scope to be consistent with the statement just quoted. These items have to do with cities of considerable scope and activity, and would not apply to the entire country. Such items as land use, major highways, railroads and undoubtedly others, would more nearly carry out the thought as expressed in the above statement. . .

New York City A. F. BRINCKERHOFF, *Landscape Architect*

Forum:

. . . It is a finely expounded and comprehensive concept of the pattern that must be assumed to even approach the ideal. Greece at its zenith, no doubt, could not claim more than approach to Beauty.

One immediate influence of the series may be psychological in raising the morale of many architects. In stating this, I am mindful of the lamentations we hear that the profession is headed for a like oblivion with the dodo. Copies of the series should be reserved for all who cry thus. . .

San Franscisco, Calif. JAMES H. MITCHELL, *Architect*

Forum:

. . . It is my belief that if a little circular were gotten up we could get the building industry suppliers to underwrite the program so every little hammer and saw contractor would get this information.

It is true that some people will think a lot of this information would go over the head of the hammer and saw contractor, but if they read it, it would set them to thinking. . .

Chicago, Ill. J. WILLIS, *Prefabricator*

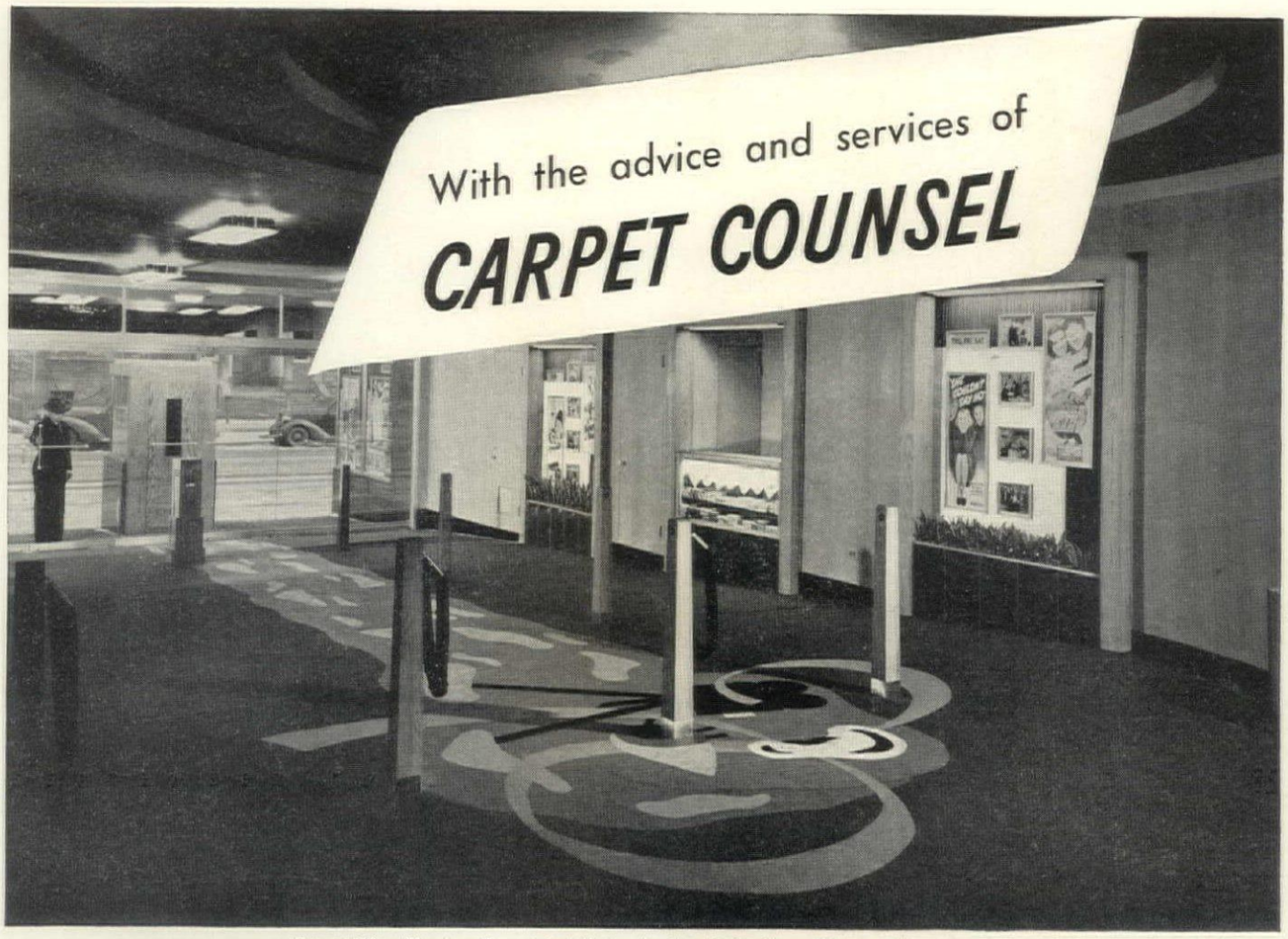
Forum:

. . . You suggest a Federal Planning Commission with power of enforcement. In my opinion, you have apparently reached the conclusion that we know something about planning—nationally—whereas while as a nation we may be reaching a stage of maturity as far as frontiers are concerned, we certainly are in the kindergarten when it comes to planning.

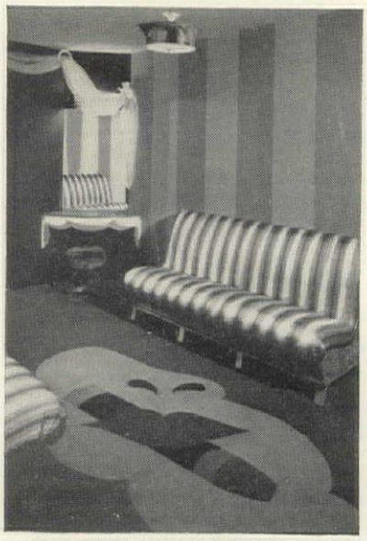
Omaha was one of the first cities to adopt city planning, and we are just now reaching the stage where we know that the first layout was 75 per cent wrong. . .

Omaha, Nebr. HIRAM S. MANVILLE, *Realtor*

(Continued on page 88)



Foyer of Ken Theatre. Carpet installation by Mandel Brothers, Chicago, for owners.



INSERT DESIGN IN WALL-TO-WALL CARPET

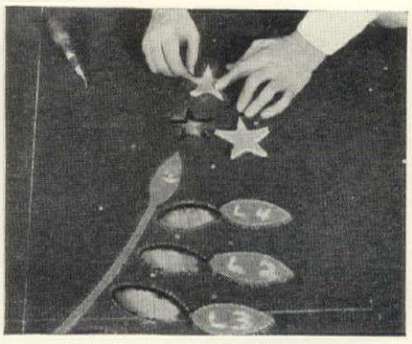
Mr. Blass has used Bigelow Lokweave Broadloom very ingeniously and amusingly in the Ladies' Lounge, with this lips-and-lipstick insert.

Unusual carpet design inserts in

BIGELOW LOKWEAVE

make Chicago's KEN THEATRE installation an outstanding success . . .

says Architect ROY B. BLASS



LOKWEAVE CUT FOR ANY SHAPE

With versatile Lokweave, you can insert contrasting colors and weaves, at any place in your carpet. By the same method, you can replace burned or stained spots.

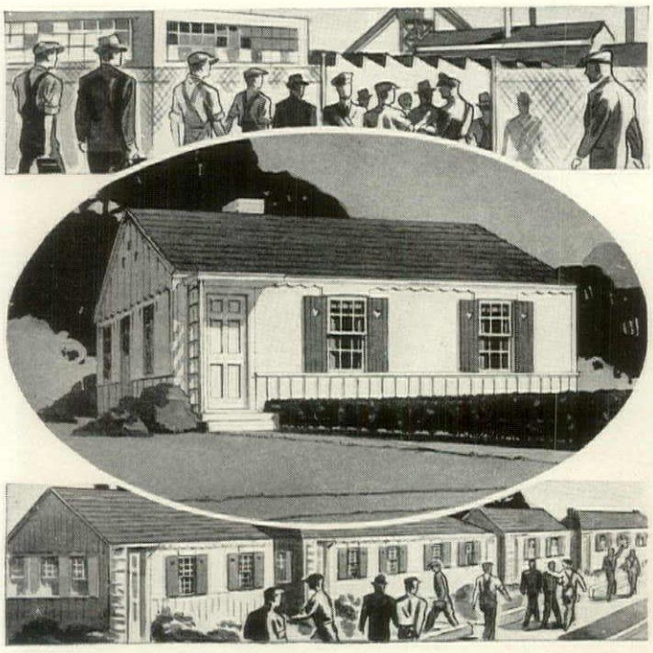
Only with Bigelow's Lokweave Broadloom could such unusual and lively design inserts be worked out . . . Because Lokweave has a patent back and an exclusive method of sealing which allows you to make contrasting inserts and to lay the carpet to any shape or size space. And Lokweave's record of wear under heavy traffic makes it the ideal carpet for theatres, department stores, hotels, restaurants and other important public buildings.

Carpet Counsel costs *nothing* extra. It includes expert help in selecting the right carpet grades, weaves and colors for the right spaces. Bigelow-Sanford Carpet Company, Inc., 140 Madison Avenue, New York, N. Y.

BIGELOW WEAVERS

Ask for Carpet Counsel by

BIGELOW WEAVERS



DEFENSE HOUSING *is selling America on* PREFABRICATION

By the end of the present national emergency, people all over the country will be familiar with prefabricated housing. They will recognize it as the ideal building method. They will see it wherever Defense Housing, military or civilian, has become necessary—near shipyards, airplane plants, munitions plants and Army camps.

Precision-Built Construction, made possible by Homasote weatherproof insulation, leads the prefabricated housing field—in speed . . . quality . . . economy . . . permanence. Precision-Built Homes are built by a method of construction proved by more than $6,000,000 of architect-designed private homes already erected. Precision-Built Construction actually widens the architect's field. While he retains complete flexibility of design, he reduces both his planning and his supervisory time; he handles even small homes, *profitably*.

Although now taxed to capacity by the demands for Defense Housing, Homasote Company, originator of Precision-Built Construction, looks forward to a return to normalcy . . . 67 fabricating plants throughout the country will be placed completely at the disposal of architects for private homes. New methods . . . improvements resulting from the building of 1000 houses in 81 working days . . . and other benefits, will all be passed on to architects. Then, more than ever before, Precision-Built Construction will open broad new markets for the architect—with more frequent, profitable demand for his services.

Today, Homasote wholesalers and retailers are cheerfully cooperating with the Defense Program—at personal sacrifice. We are operating on a 24-hour, 6½ day week, and are increasing our production facilities as rapidly as possible in order to do our part in the Defense Program. HOMASOTE COMPANY, Trenton, New Jersey.

Weatherproof
HOMASOTE
Insulating and Building Board

WHALE-BONE-ITE SEATS FOR DEFENSE!

IN 25 YEARS, NO WHALE-BONE-ITE SEAT HAS EVER WORN OUT!

CROWDED with manpower—on double and triple shifts—defense plants call for out-of-the-ordinary equipment.

Whale-Bone-Ite Seats stop replacement costs despite heaviest toilet room traffic. Their laminated core and "diamond-hard" molded composition construction, with molded-in-hinges, defy wear and abuse. They're moisture-proof—warp-free—easy to clean!

For maintenance-free service during defense and after, without increased original cost, your No. 1 choice is Whale-Bone-Ite Seats.

THE BRUNSWICK-BALKE-COLLENDER CO.
623 South Wabash Avenue, Chicago, Illinois
MAKERS OF FINE CLOSET SEATS FOR EVERY INSTALLATION

Brunswick
WHALE-BONE-ITE CLOSET SEATS

MODERNIZE *and* SANITIZE *with* VEOS *Porcelain Enamel Tile*

1. Foundation sheet applied over present walls—insulates and deadens sound.

2. Individual tiles fit into mechanically grooved spaces—in perfect alignment—securely held with special adhesive.

3. Joints are waterproofed and pointed in matching or contrasting colored grout to make a beautifully finished job.

NOW REMODELING IS QUICK, EASY AND INEXPENSIVE

VEOS is installed right over existing walls without dirt, dust, litter, or noise. Old walls are transformed into colorful, glass-smooth surfaces of enduring beauty in less time than it takes to do a good paint job.

VEOS is genuine *porcelain* enamel (not a *painted* or so-called "baked enamel" finish) fused on a steel instead of a clay base. VEOS carries a 25-year guarantee against surface crazing, cracking, or color fading. Its high gloss surface is easily kept spotlessly clean and sanitary—and maintenance cost is nil!

VEOS simplified method of installation (see illustration) is performing modernization miracles on ceilings as well as walls —and the finished installation saves 75% in weight over conventional tiling methods. Consult the Veos dealer in your classified telephone directory, or write for complete data.

DAVIDSON ENAMEL COMPANY · Dept. A · Clyde, Ohio

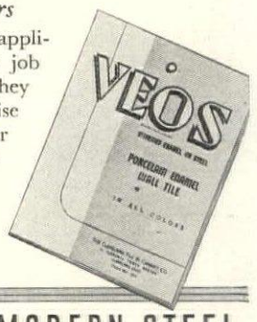
No Premium for Color

A wide choice of beautiful pastel colors in warm and cheerful combinations—at the same price as black and white—is helping many hospitals to create sanitary rooms of enduring, maintenance-free beauty.

The Wall of Today

The combined resources of the great steel and porcelain enamel industries have made possible what Architects and Builders can proudly proclaim, "The Wall of Today."

VEOS *Dealers* with factory trained applicators will do your job quickly and well. They will be glad to advise you without cost or obligation and give you complete data for your files.



VEOS *Porcelain Enamel on Steel* TILE

The Artistry of Ancient Ceramics PLUS *the Permanence of* MODERN STEEL

POST-WAR PATTERN

(Continued from page 84)

Forum:

. . . In New Haven and Connecticut, we have been going through the throes of getting a city plan functioning and a State Housing Act. The opposition encountered in both these fields is so typical of what is to be found elsewhere that I am hesitant about getting excited over a plan dependent upon local support for results.

As much as many people dislike the idea, nevertheless we must face the fact that federal action is the only way to secure this leadership. . . B. M. PETTIT, *Director*

Housing Authority of the City of New Haven, Conn.

Forum:

. . . I believe that a much more far reaching reconstitution of governmental agencies than mere regrouping them under a new leadership is necessary if a consistent program of inducement is to be held out to the municipalities on the one hand and to private operators on the other. The internal conflicts and confusions of policy seem to me at the present time to be too great to permit a mutual concentration on a given set of objectives.

MILES L. COLEAN, *Research Director*

The Twentieth Century Fund Washington, D. C.

Forum:

. . . I think the article "hits the high spots" but is almost completely lacking in discussing the difficulties that must be overcome to accomplish results. To me it seems to have been written by someone who knows what should be done but who lacks the knowledge of how it can be done. The author completely disregards the whole question of interplay of forces in a democracy by which planning is accomplished. I agree almost wholeheartedly with the great majority of objectives set forth, but they seem to have been set forth and discussed as though they are to be attained by revolution rather than by evolution. . . E. S. DRAPER, *Assistant Administrator*

Federal Housing Administration Washington, D. C.

Forum:

. . . In general, I question the wisdom of centralizing planning authority. I think an opportunity for the local communities to get advice and counsel from a well-qualified central body would be very advantageous. Community planning is such an individual problem that it seems to me that local planning is called for. . . HOWARD W. GREEN, *Director*

Real Property Inventory of Metropolitan Cleveland

Forum:

. . . You recommend that local planning boards should be "lifted from their niches of independence and placed close to the legislative branches of local government as integral departments." I am not in accord with this. When planning bodies are an integral part it seems to me that they are likely to lose their independence and to be pressed into active concern with the immediate construction projects, rather than long time planning. . . BLEECKER MARQUETTE

Better Housing League Cincinnati, Ohio

Forum:

. . . While I agree that existing agencies might form the nucleus for execution, I must ask you and myself the question —"WHO BEGINS! WHAT IS ACTUALLY FIRST!"

Your content under "PLANNING" is, in my opinion, our Achilles' Heel. As a beginning, it is not actually *first*—we

(Continued on page 92)

new furniture by

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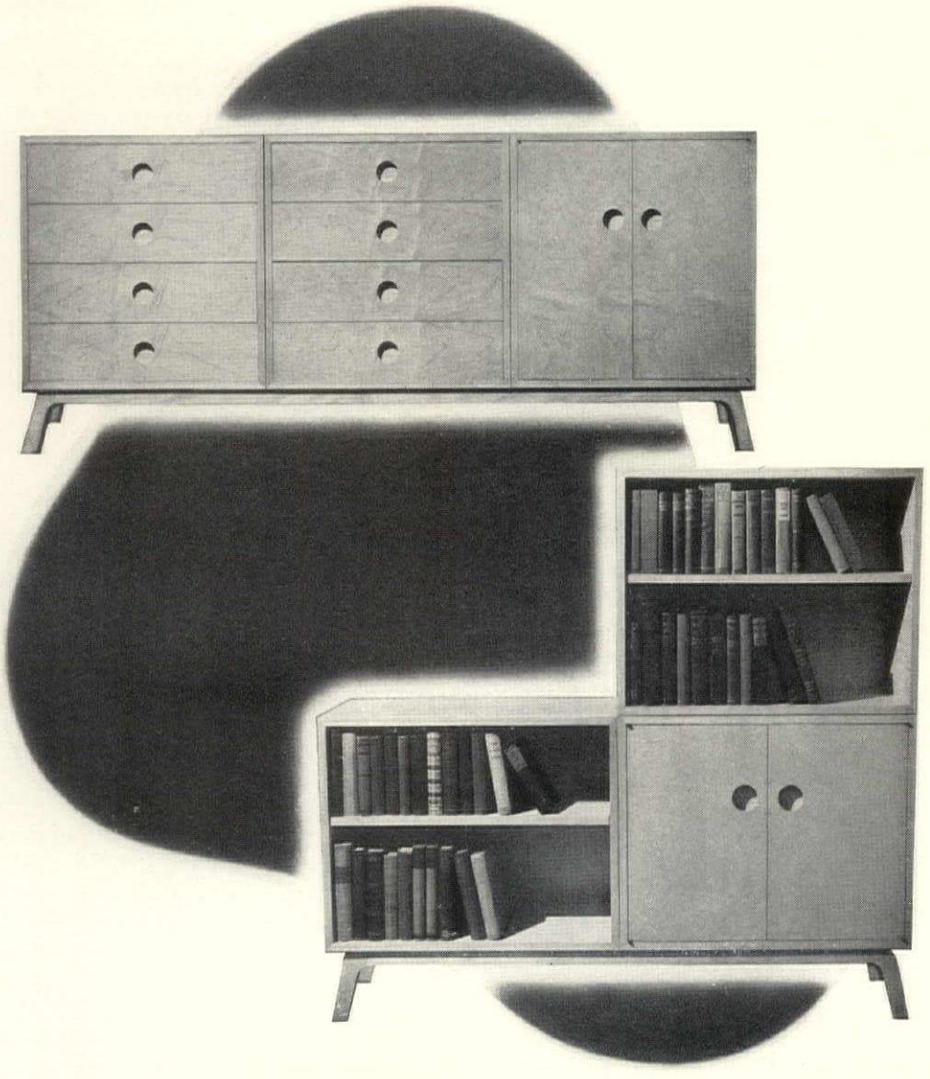

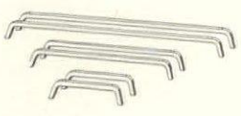

• Detachable bases in single, double, and triple unit lengths provide flexibility in arrangement and give unity to multiple unit furniture. For the dining room and bedroom there are double-door cabinets and four-drawer chests, 29" x 29" x 18". For the living room there are double-door and open units, 29" x 22½" x 12". The same bases are used on both depths of cabinet. A trade-in arrangement has been worked out for exchanging bases.

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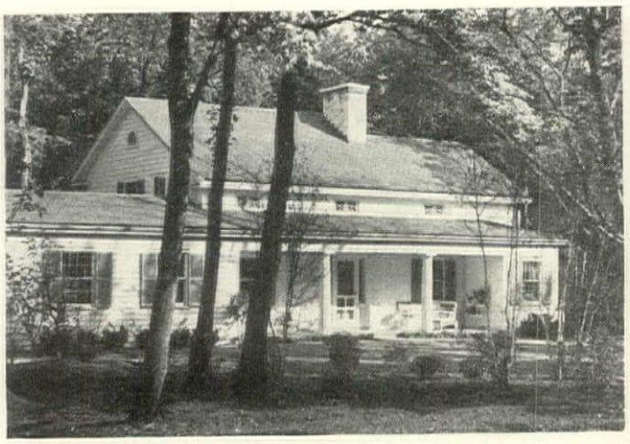

DOUBLE-WHITE house, Darien, Conn., prize-winner House Beautiful's small house competition. Architect: George T. Gillette, New York City.

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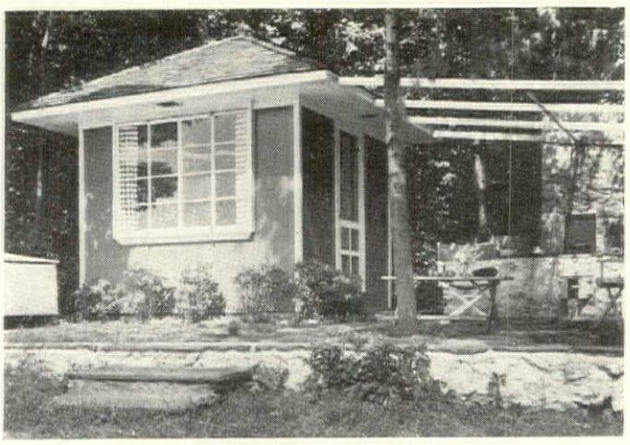

Guest House, Brookfield, Connecticut Paints: Cabot's Gloss Collopakes in Haddam Barn Red; trim Cabot's DOUBLE-WHITE. Architect Burton Ashford Bugbee.

A WORD TO THE WISE About Fluorescent Lighting

BY

Thomas J. Killian, Ph. D.

Former Instructor in Electrical Engineering and Physics at M. I. T.; pioneer in the development of gaseous tube light; and now Technical Director of The Frink Corporation.

BECAUSE it is the greatest development in illumination during the past decade, the growth of Fluorescent lighting has been phenomenal. Sales of Fluorescent lamps have jumped from 250,000 units in 1938 to an expected 20,000,000 units in 1941.

Such rapid expansion in a highly technical field has of course resulted in considerable confusion. Literally hundreds of "companies" have been organized to cash in on the demand for Fluorescent equipment. And thousands of "fluorescent experts" have sprung up to "prescribe" for Fluorescent installations. Inevitably, much money has been wasted by ill-advised purchasers who accepted misinformation as engineering facts.

To discourage the sale of inferior or unsafe Fluorescent equipment, certain standards of quality have now been established. These are met or exceeded by reputable manufacturers like The Frink Corporation. However, these standards apply only to the *fixtures* themselves. They do not cover engineering factors involved in planning a complete installation. Consequently, even so-called "approved" fixtures may produce inefficient, inappropriate or extravagant Fluorescent lighting.

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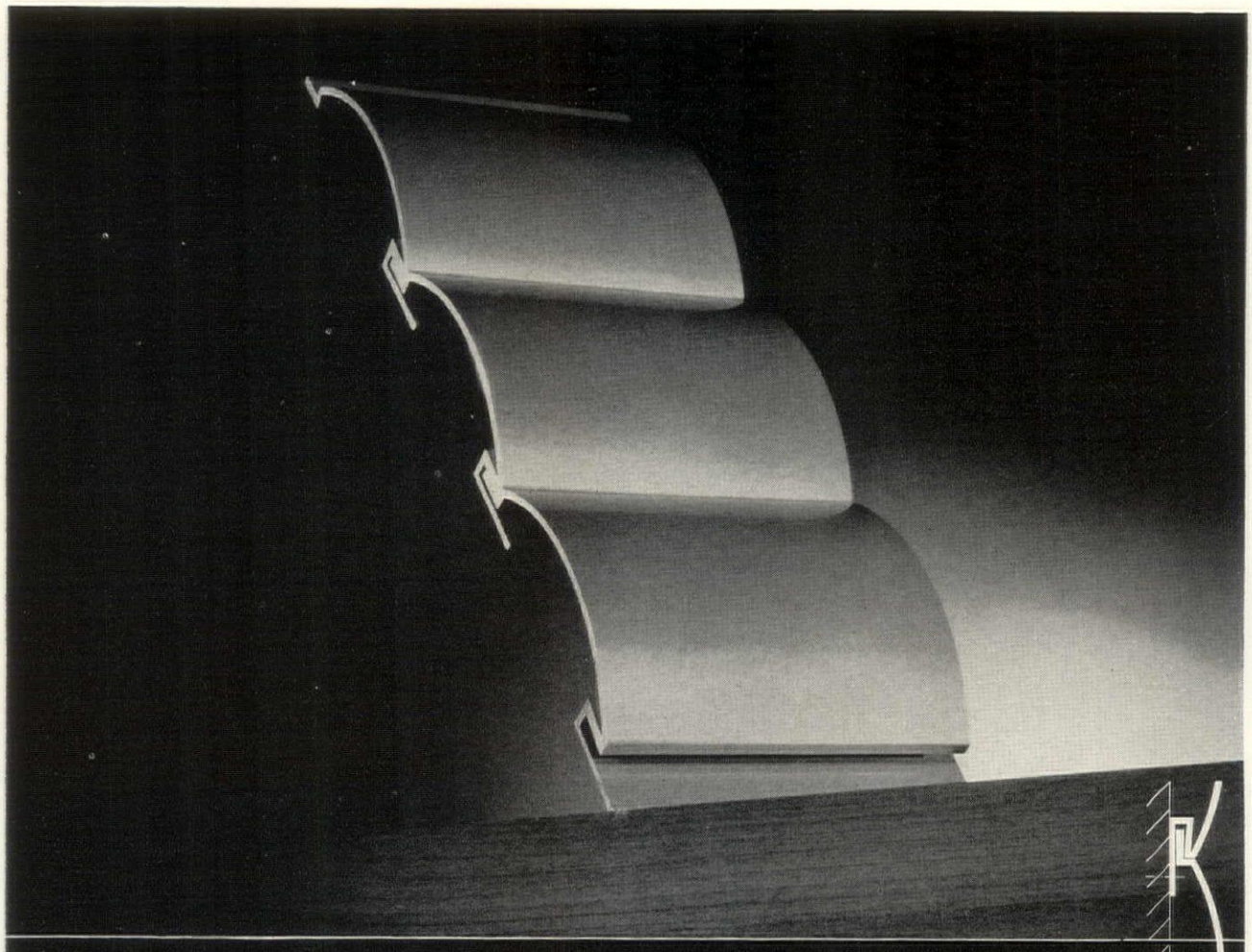

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• Pittco Store Front Metal affords the architect a new latitude in design . . . permits him to give full play to his creative imagination in designing the metal portions of a modern store front. As an example of the versatility of this quality line, many of the Pittco units may be repeated with excellent effect, as the above unretouched photograph testifies. Outwardly, this assembly appears as a single moulding. Actually, it is composed of three units. The ingenious interlocking joint which makes it possible is not only positive, but performs the added functions of providing drainage and concealing the fastenings. There is a Pittco sash, bar and moulding to meet every architectural need encountered in store front work. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pennsylvania.

DETAIL:

The graceful sweep of this moulding makes it appropriate for pilaster coverings, facia and bulkhead trim, awning bar lids, and many other purposes which your own imagination will suggest. Pittco Metal shape illustrated: PX 147.

PITTCO STORE FRONT METAL

PITTSBURGH PLATE GLASS COMPANY

"PITTSBURGH" stands for Quality Glass and Paint

POST-WAR PATTERN

(Continued from page 88)

must begin, and ultimately we, the practicing architects, should staff the planning agencies. Enough of us must form a body to promote the beginning. This body should:

1. Donate funds personally.
2. Raise funds.
3. Actually equip itself with the tools to perform.

and then:

1. Retain publicity counsel.
2. Seek political recognition and political office.
3. And above all, take the leadership.

That would surely fall to the men handling defense building—God forbid—if we do not.

I ask THE ARCHITECTURAL FORUM—since it alone has undertaken the description of Building's Post-War Pattern—to temporarily assume the burden of helping us form a National Organization to give the Pattern life in the future.

I submit to the architects of the nation that all those who are interested pledge to contribute a sum equal to 25 per cent of the total amount they pay the Federal Government in income tax annually towards the support of this body. The "OBJECTIVES" are clearly stated. We must spend our *own* money to accomplish them. It will take time, but, I for one believe it can be done. If others agree, I would like to suggest a plan for organization.

My pledge for 1941 is ready now—for '42, Jan. 1st.

WILLIAM L. PEREIRA, *Architect*
Los Angeles, Calif.

Forum:

. . . In your discussion of zoning, it might be helpful to discuss just a little bit the problem of eliminating non-conforming uses. Most zoning laws do not look backwards and try to correct previous mistakes, and in the case of those laws that do the problems of administration and securing action through the courts are tremendous. Since this is a broad program suggesting more or less the idea, it might be helpful to suggest one or several ways whereby non-conforming uses could be eliminated by zoning authorities. Certainly it is one of the big problems of planning and zoning today. I concur heartily with your statement that the zoning tool may be honed to a much sharper edge and may help accomplish a large part of building's post-war program. . . .

Your recommendation to establish a peacetime Office of Planning Management which would help to coordinate and plan the work of the various Federal and local agencies dealing with land and housing seems to me to be soundly conceived and while there may be numerous administrative difficulties, I think a great deal of good could be accomplished by your "peacetime OPM." I think in any Federal or national planning on the scale you contemplate we must be careful of over-centralization and giving too much control to a national body. My concept of planning is that it is an advisory function and I would hesitate to put my stamp of approval on anything that seeks to control or enforce plans made by centralized planning agencies upon local communities or States. The abuses might be greater than the results. It is up to the planning people literally to sell the administrative agencies on the desirability of their plan rather than to force their plan on to them. . .

MORTON BODFISH, *Executive Vice-President*
United States Savings and Loan League
Chicago, Ill.

Forum:

. . . I note the mention of a possible objection on the part of financial institutions owning large blocks of property to the changing of regulations affecting the "use"

(Continued on page 96)

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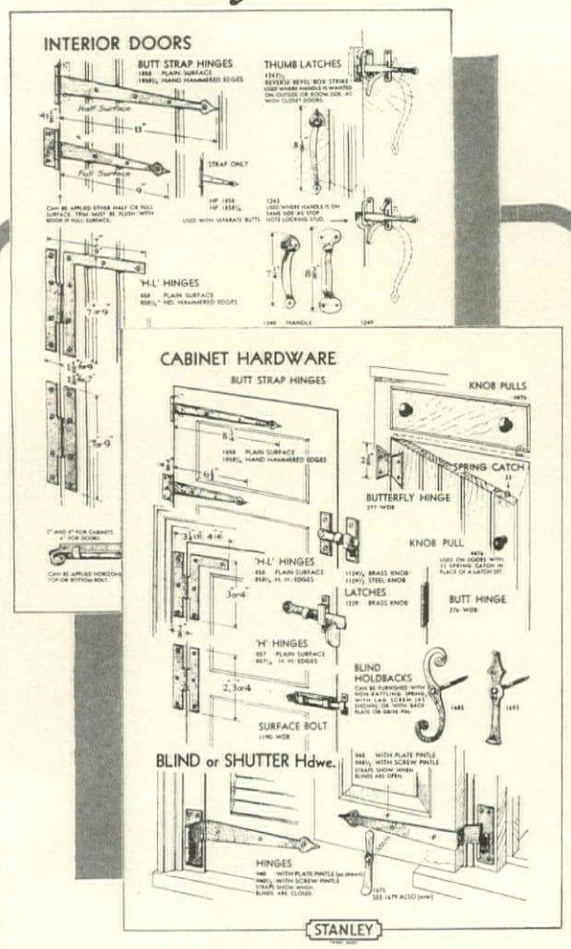

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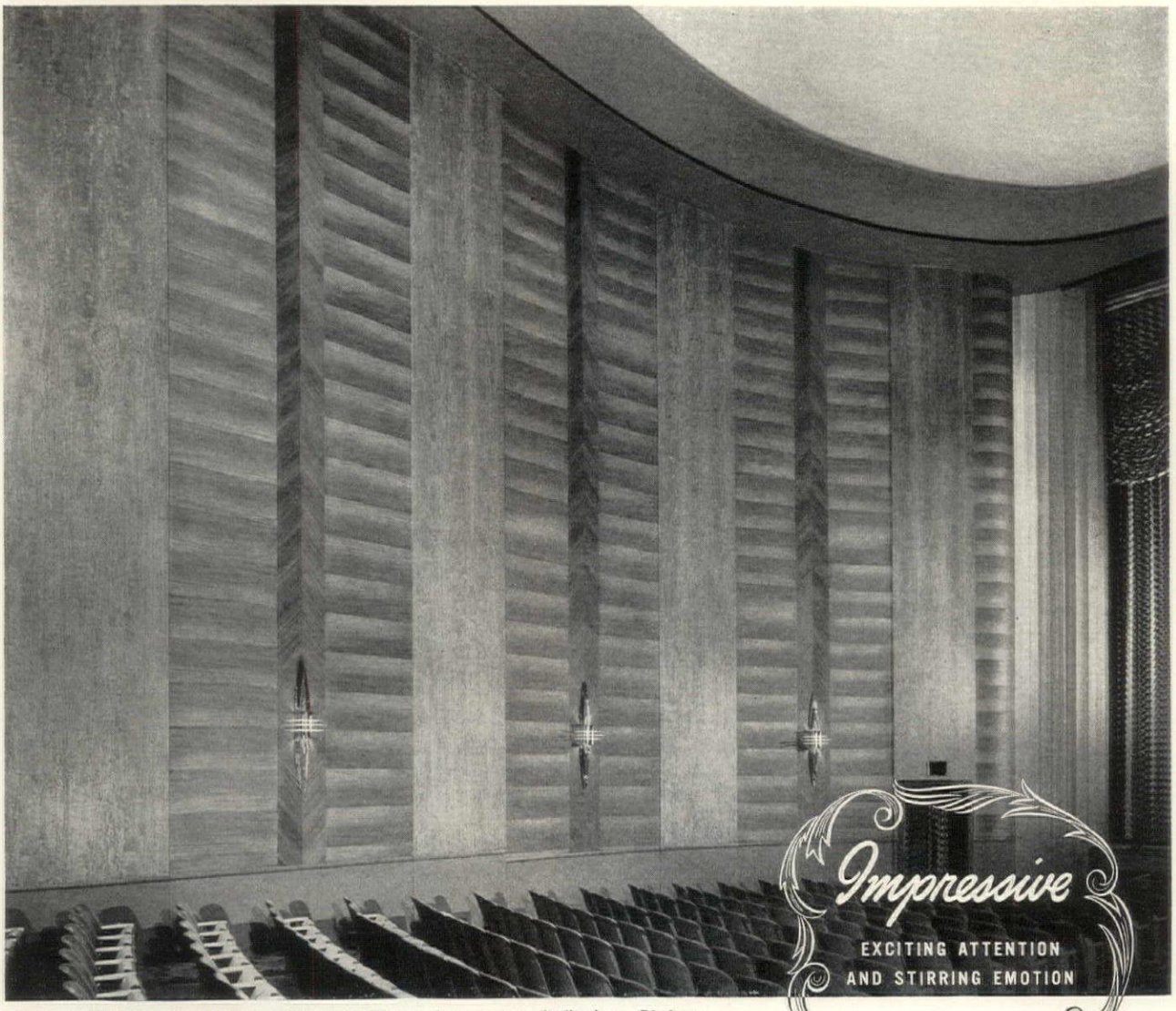

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POST-WAR PATTERN

(Continued from page 92)

and the building of additional housing. During the past few years, this condition has been changing, for most financial institutions, even those operating in large metropolitan areas. It is my opinion that mortgage financing groups would welcome a program of planned betterments of housing, both for new opportunities to increase funds and to clean up the existing properties where the costs of reconditioning are considered reasonable. This is one phase of our planning which should be carefully polled at a later date. . . . F. S. CANNON

Railroadmen's Federal Savings and Loan Assn.
Indianapolis, Ind.

Forum:

. . . Out of the two hundred names comprising THE FORUM'S Panel of Advisory Editors, not more than three or four can be said to represent rural or small town life and its needs. Does this observation indicate an inferiority complex on my part, being a country architect? Perhaps, but I believe my concern is broader and of some importance to your program.

First, about 55 per cent of the people comprising the population of these United States of America live, move and have their being in rural areas and cities or towns of less than 10,000 population. This then is the majority population bracket. Secondly, the percentage of owner occupants of both dwelling and business buildings is much higher in this population group than that of the 45 per cent bracket residing in more purely urban areas. Not only is this population group a bit short of its representation on your panel, but its problems get little emphasis in your program.

I can enter into your planning program as outlined in this first article with a good heart and strong enthusiasm, but I believe the American way can be better served by giving more consideration to the broader population base. . .

Columbus, Nebr. EMIEL J. CHRISTENSEN, *Architect*

Forum:

. . . While we all deplore the damage and waste being caused by the bombing of Europe's cities and industrial centers, there is no question that an opportunity for *planned* rebuilding is being forced upon the new Europe. I am in high hope that tradition will not prevent civic leaders from rebuilding on a practical and utilitarian scheme.

We—I pray—will be spared the bombing—and so the automatic purge. We must be big enough—strong enough—to do our own demolition.

With a new Europe arising full of fine city plans and industrial units, of prefabricated homes and efficient traffic systems, we must beware that we do not become the "old world" (without the continent's historic interest) and they the new . . . HENRY DREYFUSS, *Industrial Designer*

New York, N. Y.

Forum:

. . . In the section, "Scope of Future Planning," you suggest an extension of existing planning facilities. It is my opinion that these facilities are already too vast, especially if a unified plan is desired. Your supplementary statement that planning agencies must be reorganized and reconsecrated without question is definitely correct and would be a major aid in the final attainment of a comprehensive plan.

As to your reference to Federal cooperation and the suggestion that the Government would step out of this activity in building when private enterprise steps in, if this is the basis of the entire program, then success is seriously questioned, since past experience has not indicated a desire on the part of the Government to relinquish control . . .

PAUL GERHARDT, JR., *City Architect*

Chicago, Ill.

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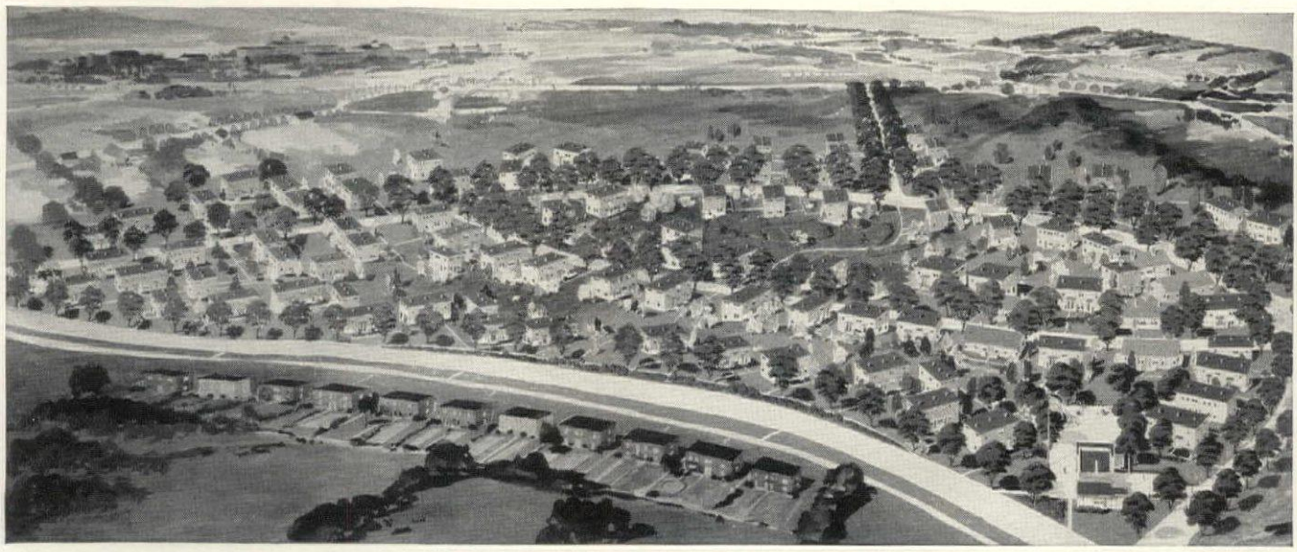

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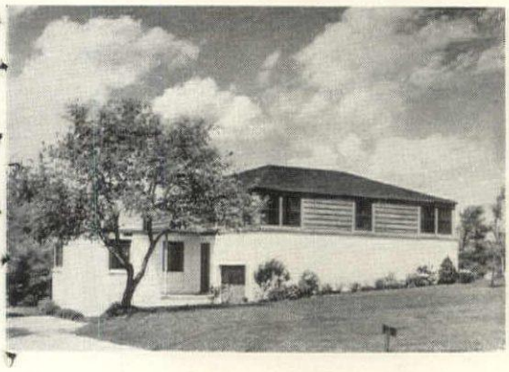

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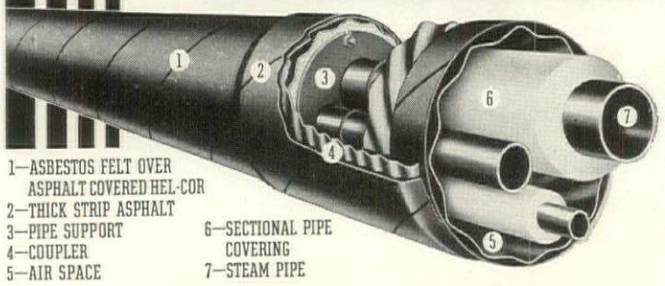

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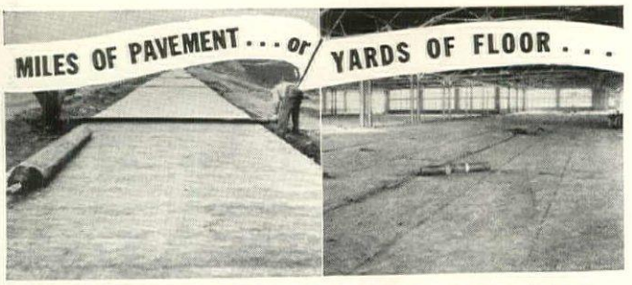

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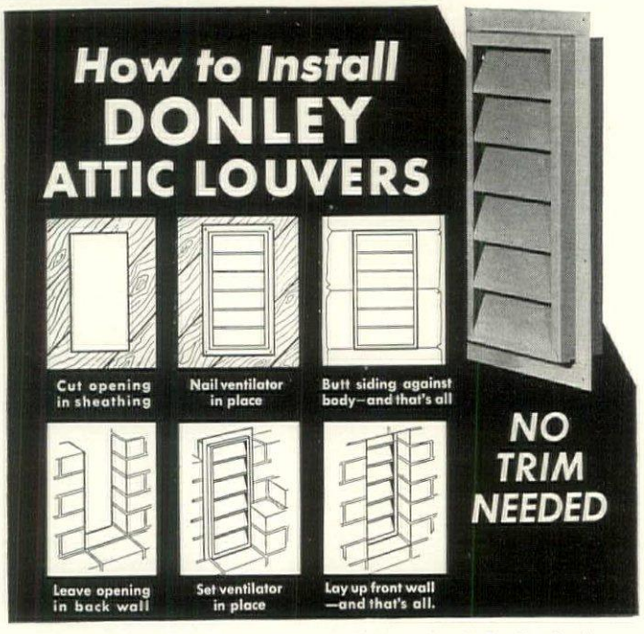
How to Install DONLEY ATTIC LOUVERS



• Drawings above show how easy it is to install Donley Steel Attic Louver Ventilators. Just three simple steps for both frame and brick construction—in each case using the style ventilator shown above, right.

These substantial, dollar-saving attic louvers are available in 10 standard rectangular sizes from 8" x 11" to 19" x 36" with a free area range of 23 to 234 square inches. Also available in one size of half-circle and one size of matching quarter-circles.

Made of 20 ga. steel, electrically welded, painted with two coats of special paint for double protection. Complete with bronze fly screen fastened to the inside.

Save money on that next job—specify Donley Steel Attic Louver Ventilators.

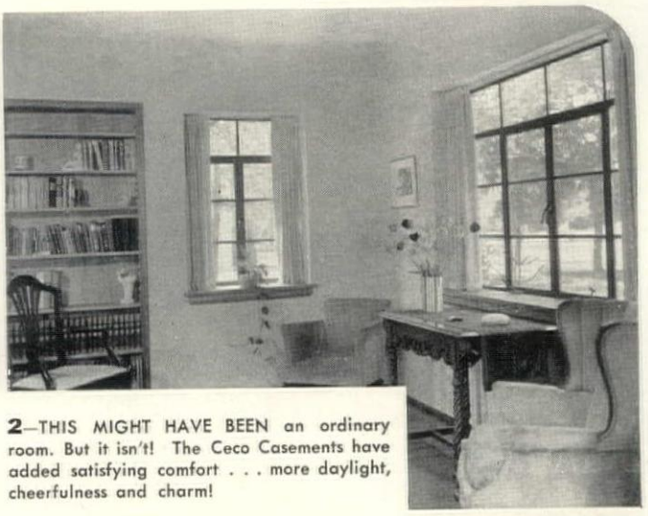
SEE OUR CATALOG IN SWEET'S

The DONLEY BROTHERS Co.
13945 Miles Avenue • Cleveland, Ohio

BEAUTIFUL WINDOWS

Turn a HOUSE Into a HOME

FIFTH of a series of advertisements on How to Design and Build Homes that Sell!

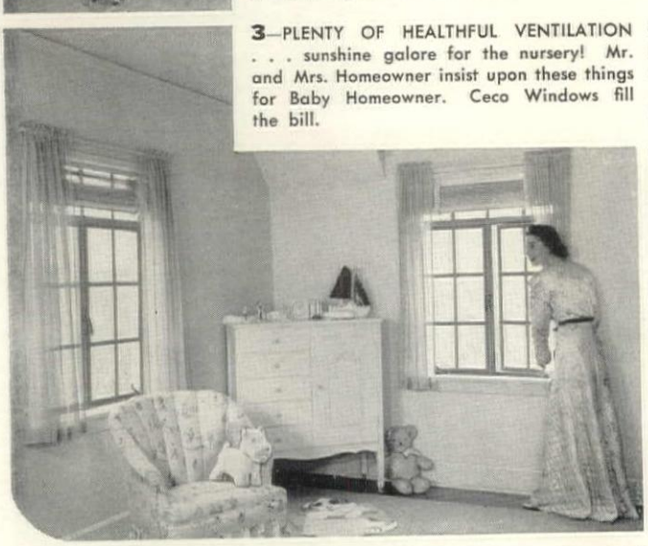


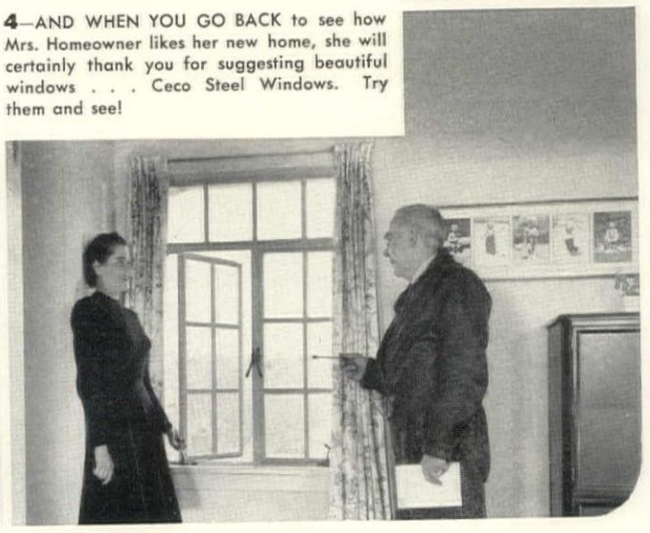
1—IN ANY TYPE OF HOME, you can be sure that Ceco Steel Casements will not only blend with the design, but will add a touch of distinctiveness and beauty.

2—THIS MIGHT HAVE BEEN an ordinary room. But it isn't! The Ceco Casements have added satisfying comfort . . . more daylight, cheerfulness and charm!

3—PLENTY OF HEALTHFUL VENTILATION . . . sunshine galore for the nursery! Mr. and Mrs. Homeowner insist upon these things for Baby Homeowner. Ceco Windows fill the bill.

4—AND WHEN YOU GO BACK to see how Mrs. Homeowner likes her new home, she will certainly thank you for suggesting beautiful windows . . . Ceco Steel Windows. Try them and see!





● Recommend . . . specify Ceco Steel Casements! Beautiful window treatments like these give the owner a lifetime of enjoyment and good service . . . yet the cost is no greater than that of ordinary windows! BONDERIZING of every Ceco Window guards against rust and weather for years. Fine hardware allows easy opening and closing. You'll turn *houses* into *homes* . . . every time!

CECO STEEL PRODUCTS CORPORATION

Manufacturing Division: 5701 W. 26th St., Chicago, Illinois

Ceco Steel Windows

Send for This Free

"BEAUTIFUL WINDOWS" BOOKLET

Contains many actual photographs of beautiful interiors and exteriors of homes with Ceco Windows. Describes the advantages of Ceco Steel Casements in terms your customers can easily understand. Get your copy today.

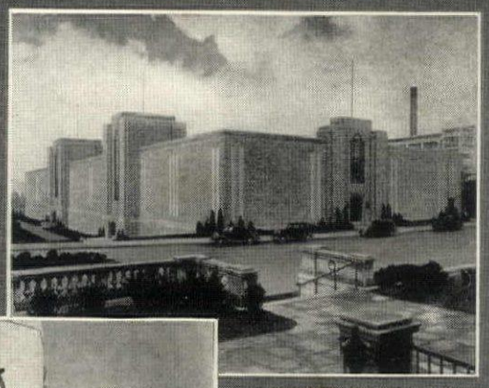
OTHER CECO PRODUCTS

MEYER STEELFORMS
ADJUSTABLE SHORES, COLUMN CLAMPS
CONCRETE REINFORCING BARS
WELDED FABRIC
METAL WEATHERSTRIPS

IN THIS OFFICE BUILDING

...THIS STORE

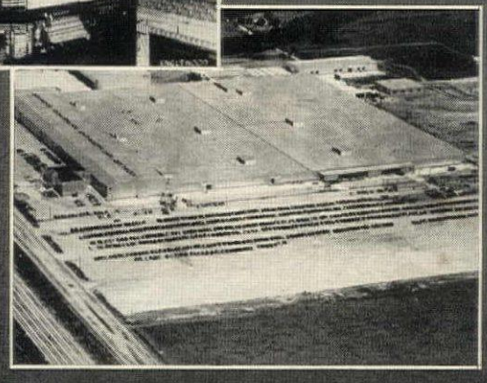
...AND THIS FACTORY



HERSHEY CHOCOLATE CORP.

SEARS, ROEBUCK AND CO.

NORTH AMERICAN AVIATION, INC.



WINDOWLESS CONSTRUCTION HAS PROVED ITS MERITS!

IF YOU HAVE any doubts about the broad utility of windowless buildings, here's convincing proof that buildings of all kinds can be better designed today—without the limitations of windows. For here are three entirely different types of constructions, each designed for a different function, yet each of which has benefited by eliminating windows.

One is a factory, another an office building, the other a retail store. And each of these buildings has eliminated high costs for heating, maintenance and repairs. Each obtains better air and light without space-wasting light wells, high ceilings, unequal rent or production values.

These buildings use modern air conditioning for winter and summer which supplies clean air at proper temperature and humidity—perfect ventilation with no need for windows that let out expensive heat, let in distracting noise.

And windowless buildings today can have bright daylight all the time, unaffected by the vagaries of the weather. Indeed, fluorescent lighting is even better than daylight—because in sunshine or rain, the illumination can be uniform throughout the building.

Consider the heat wasted by windows. In windowless buildings, *the reduction in heating costs in the winter offsets the additional cost in summer months of both air conditioning and lighting!*

Elimination of "E" and "L" construction for large buildings brings down the cost per cubic foot, increases and helps equalize rental values. Air conditioning, fluorescent lighting and proper use of color have outmoded high ceilings, permit more floors, more usable space for a building of a given height.

These are the main sources of savings and greater values in windowless buildings. Consider them carefully. Present conditions make a detailed evaluation of this modern construction more important than ever before.

Inside facts...

about windowless buildings!

- ★ **Lower Cost Heating, Maintenance and Repairs**
- ★ **More Floors for the Building Height**
- ★ **Greater Flexibility of Layout**
- ★ **Elimination of "E" and "L" Constructions**

Kinetic Chemicals, Inc., the manufacturers of "Freon"* refrigerants, specified by the careful architect because they are safe and efficient.

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

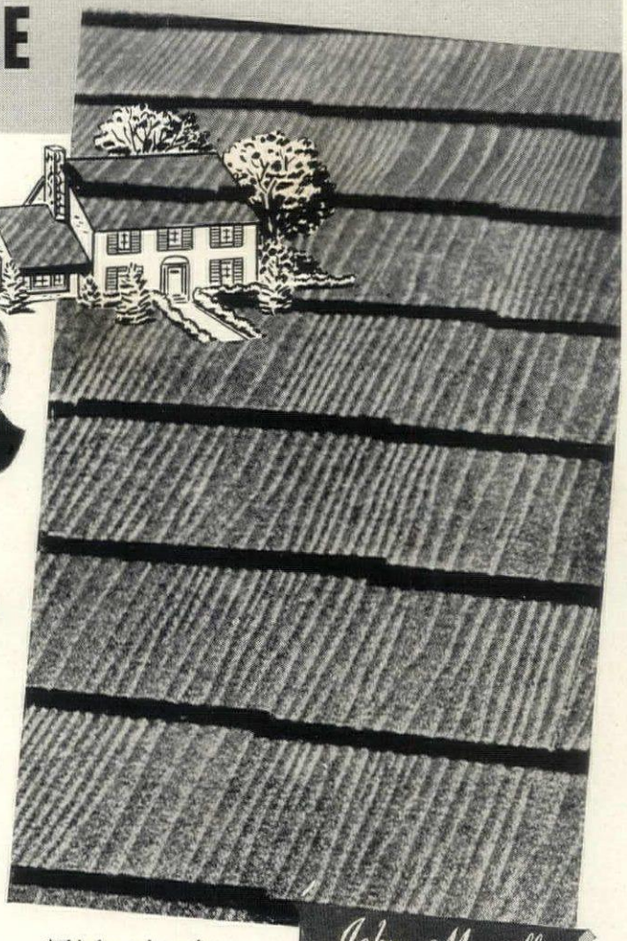
4 IMPORTANT REASONS for the *RECORD-BREAKING SUCCESS* of the new J-M AMERICAN COLONIAL ASBESTOS SHINGLE

ARCHITECTS SAY:
"We like their deep texture, beautiful colors and true American Method appearance"

BUILDERS SAY:
"This asbestos strip shingle is self-spacing, easy to lay, cuts application costs to the bone"

DEALERS SAY:
"At their new low prices, American Colonials are a profitable volume *item"*

HOMEOWNERS SAY:
"They give us fire-safety, long life and low upkeep"



NEVER BEFORE have we seen such an enthusiastic response to a new product! Introduced just a few months ago, the new Johns-Manville *American Colonial* Asbestos Shingle is already sweeping the country.

You should know the reasons why. This new shingle is built to last 30 years* *plus* . . . provides all the fire-safety and low upkeep of asbestos and cement at the lowest price in history for a textured J-M Asbestos Roof! It is available in handsome blended colors that add new beauty and charm to any home. Its texture and graining are those of weathered wood. The new, self-spacing, fast laying design cuts application costs. Combined with new low prices, this feature means that finished roofs with permanent qualities add as little as 50¢ a month to F. H. A. payments on a new home. Send for full-color brochure. Just mail the coupon.

***This is an intentional understatement.** Thousands of the very first J-M Asbestos Shingles, applied 30 years ago, are still going strong. No sign that they won't last another 30-40-50-years.

Johns-Manville
AMERICAN COLONIAL
Asbestos Shingles

● Orders for the new Johns-Manville American Colonial Shingle have reached unprecedented volume. In addition to the demand for private construction, defense projects have called for thousands of squares. As a result, delivery may be slower than during normal times. However, production is being speeded up . . . every step is being taken to assure the fastest delivery possible under the present emergency.

JOHNS-MANVILLE, Dept. AF-9,
22 East 40th Street, New York, N. Y.

Send me a copy of your new full-color brochure on J-M American Colonial Asbestos Shingles. No obligation, of course.

*Name*_____

*Address*_____

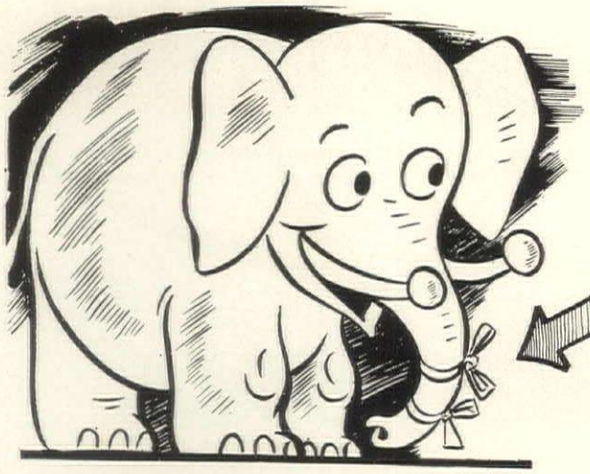
*City*_____ *State*_____

JM PRODUCTS

JOHNS-MANVILLE
Asbestos Shingles

SPECIFICATION AND BUYING INDEX

The advertising pages of THE ARCHITECTURAL FORUM have become the recognized market place for architects and all others engaged in building. Each month these pages offer the most complete guide to materials, equipment and services to be found in any magazine. A house or any other building could be built completely of products advertised in THE FORUM. While it is not possible for a magazine to certify building products, it is possible to open its pages only to those manufacturers whose reputation merits confidence. This THE FORUM does.

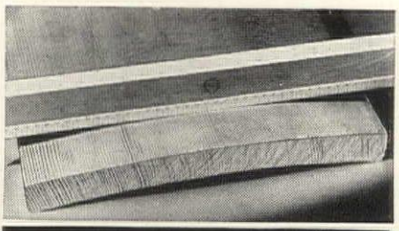


Don't Forget these 2 things...

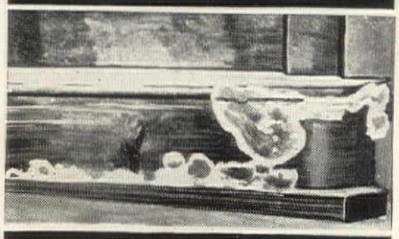
Rustproofing for Metal!

REZ for Wood!

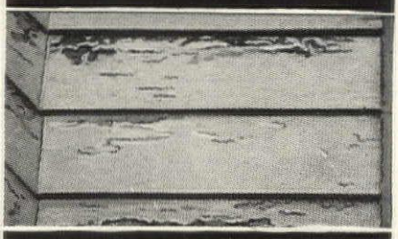
TRADE MARK REG. U. S. PAT. OFF.



REZ CONTROLS DIMENSION



REZ CONTROLS DECAY



REZ CONTROLS MOISTURE

REZ CONTROLS GRAIN RAISE

WOOD is man's most useful building material. But like all other building materials, it too, needs protection . . . protection against two agents of certain destruction: Moisture and Decay.

Laucks research chemists have now provided this *double protection* with Laux REZ. This unique synthetic resin sealer, applied in plant or on the job, protects wood against (1) Moisture, by penetrating into the wood fibre, leaving a tough, water-repellent resin deposit on cell walls, (2) against decay, by its potent fungicidal content (pentachlorphenol).

On floors, doors, fir plywood, millwork, sash, siding, trim, etc. . . . exterior or interior . . . REZ controls these twin destroyers, Moisture and Decay. And, it provides *low cost insurance* against their effects: rotting, stain, swelling, binding, grain raise, loss of dimension, weathering and wear.

REZ is proven by millions of gallons used by builders, painters, woodwork and wood product plants from coast to coast. Applied by brush, saturated cloth, spray or dip treatment, REZ is quick drying, gives a perfect base for paint or stain.

Paint, hardware or lumber dealers can supply REZ . . . or write direct to your nearest Laucks office for complete information.

REZITING—Industrial Wood Treatment

WATER-REPELLENT TOXIC-PRESERVATIVE

LAUCKS research laboratories have formulated a comprehensive series of low cost wood treatments for plant application by manufacturers of millwork, siding, plywood, sash, doors, etc. . . . REZITE 1, REZITE 2, REZITE FUNGISEAL,* REZITE TTS-176 Floor Seal, REZITE Edge Sealer, REZITE Vapor Stop, and six LAUXTOLS:**

**Meets requirements of National Door Manufacturers Association.*
***Manufactured according to Permatol formulæ of Western Pine Association.*

FREE—To architects, manufacturers, and builders, complete scientific information on industrial REZITING system. . . . Write your nearest Laucks office.

I. F. LAUCKS, Inc.

MANUFACTURING CHEMISTS

SEATTLE — 911 Western Avenue
PORTSMOUTH, Va. — Commerce and Broad Streets
LOS ANGELES — 859 East 60th Street
CHICAGO — 6 N. Michigan Boulevard
VANCOUVER, B. C. — Granville Island

DOORS, FRAMES AND WINDOWS OF

Ponderosa Pine

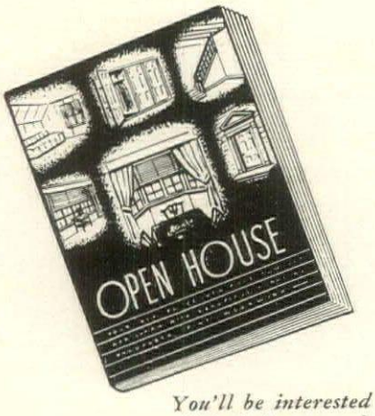
HAVE WHAT THE PUBLIC WANTS!... Did you see the August issue of GOOD HOUSEKEEPING magazine? It tells what a representative cross-section of Americans want in their homes.

"Americans want more windows," says the headline—more sun and light is a want common to dwellers in new and old homes alike, it is revealed. That people can have what they want *economically* by using *stock sizes* is made clear with "before-and-after" sketches. These important findings substantiate our story . . . add significance to our campaign . . . make it more helpful to you!

Almost any problem in design can be solved with stock doors, frames and windows of Ponderosa Pine. You may choose, for example, panel doors in a variety of designs, flush or slab doors, louvre doors, or mirror doors. By solving door, frame and window problems with Ponderosa Pine items, you can give your clients what they want yet keep door and window costs low!

Millwork manufacturers use Ponderosa Pine because it is admirably suited to precision machine production. "Ponderosa" is easy to work by hand or machine, takes paint, enamel or other finish well. It has been preferred for residential woodwork for more than 40 years.

A national advertising campaign is telling the public the stock-item Ponderosa Pine door, frame and window story. Advertisements offer "Open House," a 32-page home *idea* book that shows how people can use stock doors and windows of Ponderosa Pine to have their homes the way they want them.



You'll be interested in this book. Let us send you a free copy.

PONDEROSA PINE WOODWORK

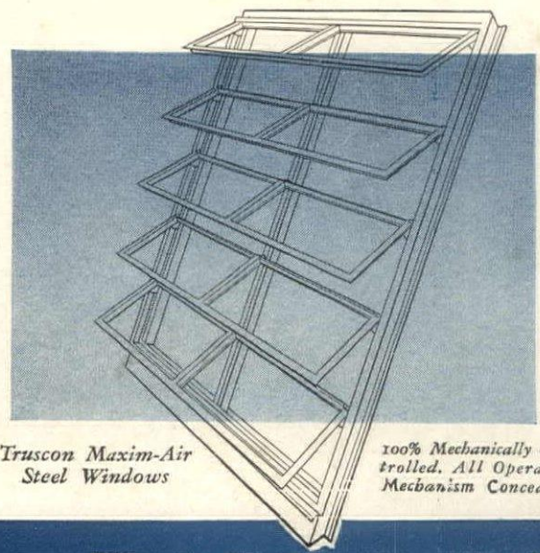
111 WEST WASHINGTON STREET • CHICAGO, ILLINOIS

Printed in U. S. A.
Press of The Wilson H. Lee Co.
Orange, Conn.

"I'll bet 500 to 1 we'll never lose another instrument now that we've got Truscon Steel Windows!"

Those people who most realize the value of good, natural lighting are most conscious of Truscon Steel Window efficiency. From this important utility angle, and from the standpoint of beautiful design, too, you can best serve your clientele by designing your structures "from the windows in"...standardizing on Truscon products.

"Let in natural daylight and air" . . . refer to Truscon's 80-page section in Sweet's for suggestions on distinctive window treatments that enable you to create prestige-building structures. Individually-bound copies of this material are available on request. And if you want further help, there's always Truscon's dependable engineering service that works with you right on your board, to iron out really tough jobs. Truscon Steel Company, Youngstown, Ohio, 51 Sales Engineering Offices, 29 Warehouses. Subsidiary of Republic Steel Corp.

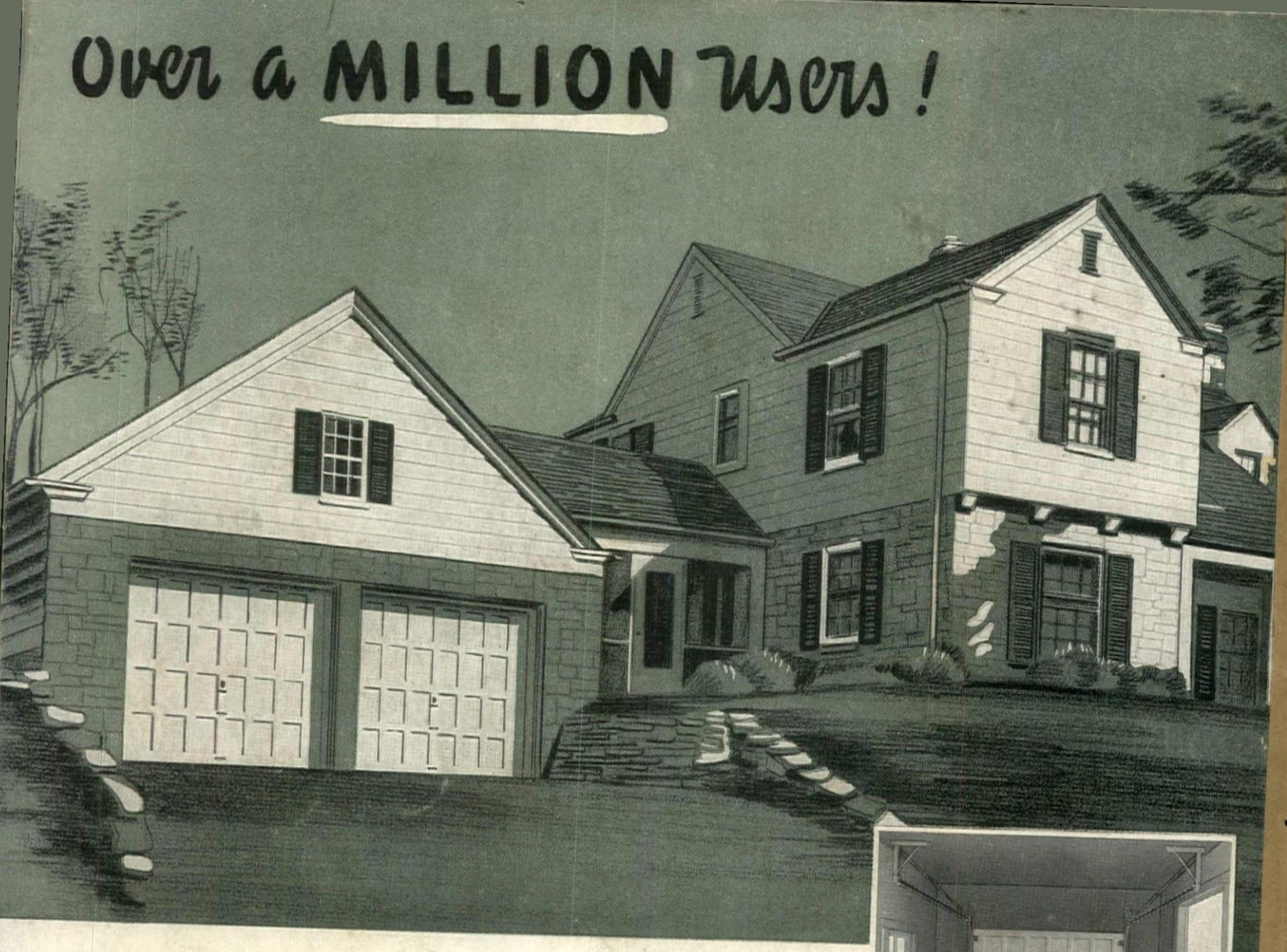


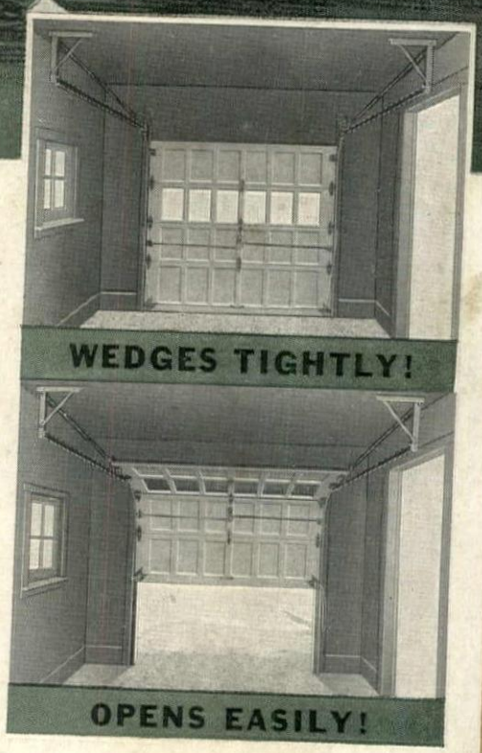
Truscon Maxim-Air Steel Windows

100% Mechanically Controlled. All Operating Mechanism Concealed.

T R U S C O N S T E E L W I N D O W S

Over a MILLION Users!





DOORS ARE IMPORTANT!

Over a million users testify that The "OVERHEAD DOOR" with the Miracle Wedge is meeting the exacting requirements of home owners and home builders for *reliable* garage doors. From coast to coast, in large homes and small, people who know what "quality" means are demanding this door that wedges tightly yet opens easily in any kind of weather, blends with every type of construction, and gives years of trouble-free service. Specify The "OVERHEAD DOOR" by name!

For Commercial Use

The "OVERHEAD DOOR" is available in wood or steel, hand operated or electric, in any size to fit any opening—for service stations, factories, warehouses, loading platforms, terminals and similar buildings. It is *efficient* because it is built as a complete unit at the factory and *sold installed* by a nation-wide sales-installation-service!

The "OVERHEAD DOOR"
TRADE MARK
WITH THE
MIRACLE WEDGE

OVERHEAD DOOR CORPORATION
HARTFORD CITY, INDIANA, U. S. A.