STRENGTH plus EFFICIENT INSULATION

... Enables Architects to Give Today's Clients

EXTRA VALUE!

Architects Who Specify Celotex Vapor-seal Sheathing Avoid Delays—Give Owners Extra Strength—Plus Insulation—At No Extra Cost!

WHEN so many architects meet the current sheathing lumber situation by using Celotex Vapor-seal Sheathing, they are doing more for owners than merely avoiding annoying delays. This material in large boards, by actual test, provides structural strength equal to that of diagonal wood sheathing. It provides three times the insulation of wood. It permits tight wall construction. It is permanently protected against termites and dry rot by the patented Ferox Process. And it is guaranteed in writing for the life of the building.

Yet all these extra advantages represent, in most cases, practically no extra investment for the owner. For nineteen years Celotex Sheathing has provided structural strength, insulating efficiency, and all-around satisfaction to thousands of homes. Increasing numbers of architects are using Celotex Vapor-seal Sheathing today. Celotex is the brand preferred by 8 out of 10 insulation board buyers, according to a recent survey. Available in vertical boards 4' wide and in the new 2' x 8' horizontal center-matched units.

*When issued, applies only within Continental United States.

THE FAMOUS CELOTEX TURNBUCKLE TEST

Celotex Sheathing provides bracing strength equal to diagonal wood sheathing and greater than horizontal wood sheathing, as proved by tests conducted by Columbia University, the University of Minnesota and independent testing laboratories.

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ASPHALT SHINGLES, SIDING, ROLL ROOFING
HARD BOARDS • ROCK WOOL BATTING, BLANKETS
GYPSUM PLASTERS, LATH, WALL BOARDS

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* WE FAVOR ADEQUATE PREPAREDNESS FOR NATIONAL DEFENSE *

THE CELOTEX CORPORATION • 919 NORTH MICHIGAN AVENUE • CHICAGO, ILLINOIS
FARM SECURITY ADMINISTRATION
Decentralized, regional design set-up of this little-known U. S. home building agency proves its advantages over centralized bureaucracy in a series of stimulating, low cost projects for farmers and farm laborers. A prime illustration of the contribution the architect is prepared to make to defense—Migratory Labor Camps—Chandler Farms, Ariz.—Community Buildings—Individual Houses.

POST OFFICE, NEW YORK CITY
Federal architecture and federal art housed in glistening granite. A chest-high counter screen replaces the traditional peep holes.

BUILDING FOR DEFENSE
Headway and Headaches—a candid view of what the defense program is doing for Building and vice versa. Raw Materials Aplenty, Fabrication a Problem—an expert on trends examines the staples in Building's basket. Defense Housing program gets under way with the Navy far out in the lead; weather, cloudy; track, slow.

HOUSES
More case histories in the small house series. Interior-exterior photographs . . . floor plans . . . critical comment . . . cost data . . . construction outlines.

THE ARCHITECT'S WORLD
Thoughts on mural painting, architecture during and after the war, and St. Paul's under the bombs.

THE DIARY
Random thoughts and observations from a personal viewpoint.

STUDENT ALUMNAE BUILDING, WHEATON COLLEGE
The winners of the Wheaton College competition for a library and art center demonstrate their ability and the advantages of the functional approach with a combined recreation and office building.

BUILDING MONEY
Building activity forecast for 1941—The Forum considers the governing factors, collects informed opinions, concludes that total construction will advance 19 per cent to $77,795 million, then shows where the money will go . . . An attractive Boston subdivision comprised solely of Life houses—sponsors: a builder and a lumber dealer who know the value of smart promotion and get it for nothing.

MONTH IN BUILDING
FORUM OF EVENTS
Defense jobs to architects and engineers . . . medals for architects . . . awards to plastics . . . Stuff and Guff.

BOOKS
LETTERS
TRENDS. After a comparatively poor record the month before, when the residential classification alone tried vainly to uphold the total, building permits during October were almost double the volume for the corresponding month of 1939 (see tabulation, right). Most of the glory went to the non-residential building types, particularly industrial, which advanced 235 per cent over last year's comparable figure. Only laggards: additions, alterations and repairs. At October's end, total 1940 construction activity was 13 per cent above last year's mark. For a summary of complete year-end estimates and 1941 forecasts, see below.

BEST YET. Last week Building rang out the best year it had enjoyed since 1930, rang in still better one. Thus, according to preliminary year-end statistics released by the Department of Commerce, $6,565 million was spent on building materials and labor last year—an increase of 8 per cent over the 1939 level. Private residential construction was up 13 per cent to $2,100 million.

Patching itself on the back for having predicted a year ago that these figures would be $6,538 million and $2,105 million, respectively, the New York Times this month crosses its fingers, climbs out on another limb and forecasts construction trends for 1941 (see p. 68, et seq.). Highlights:

- Private residential building, up 4 per cent to $2,184 million.
- Private manufacturing building, up 31 per cent to $439 million.
- Public housing, up 108 per cent to $416 million.
- Military and naval construction, up 131 per cent to $890 million.
- Total publicly financed construction, up 39 per cent to $3,600 million—the most Government has allotted to the industry in the nation's 163-year history.
- Total construction, up 18 per cent to $87,755 million, the biggest splash in Building's bucket since 1930 when Government tried to stem the Depression tide by spending its second largest building sum.

Obvious stimulus behind these predicted upward trends is the national defense program which promises to be one of Building's major markets in 1941.

HOUSES AND FAMILIES. Although they have just begun their colossal task, Census Bureau tabulation machines have already ground out many a significant statistic for Building. Among them are the facts that, as of April 1, 1940, there were 37,311,463 dwelling units in the entire nation and that 2,438,790 or 6.6 per cent of them were vacant. Since the latter figure includes resort houses normally unoccupied in April, farm houses, dilapidated houses, etc., it does not shed true light upon the housing problem. More informative is the census finding that in the 337 cities of 25,000-and-up population only 4.8 per cent of all dwelling units were unoccupied.

Closely related to the dwelling unit supply are statistics on the number and size of U. S. families. While the population increased only 7 per cent between 1930 and 1940, the number of families expanded 16.3 per cent to about 54.7 million. Thus, the average number of persons per family dropped from 4.1 to 3.8 during the decade. Result: today it takes 7.9 per cent more dwelling units than in 1930 to accommodate the same number of people. Looking still farther back, it now takes 70 per cent more dwelling units than it did in 1930 (when the average family was comprised of 6.5 persons) to house the same number of people.

FHA HORSE SWAP. For one reason or another, the Federal Housing Administration seems to make more news than any other Government building agency—and most of it is good news. Last month came announcement that FHA's mortgage insurance capacity had been hocked up to 81 billion (Arch. Forum, Dec. 1940, p. 2). This month comes word of FHA's mid-stream horse changing. Out on his own accord went ex-Administrator Stewart McDonald; in on the President's nomination went new Administrator Abner Ferguson (see cut, p. 1).

Although less colorful and imposing than his two predecessors—"Big Jim" M. Moffett, now a Standard Oil and "Salesman Sam" McDonald, one automaker and now at Jesse Jones' hand as Assistant Federal Loan Administrator—FHA's new boss is equal to his task. Born 60 years ago in the town of Paris, Va., at the foot of the Blue Ridge Mountains about 30 miles southeast of Washington, Abner Ferguson has since been further away from the Nation's Capital—at least in a business sense—than his two predecessors. Still, he was educated a lawyer (LL.B in 1909, Washington's Georgetown University, until December 1934 was a member of Washington's legal quartet of Ellis, Ferguson, Houghton & Gary. At that time when FHA's machinery was just being put together, he was appointed its assistant General Counsel and nine months later was raised to General Counsel. Through both his private and public experiences Lawyer Ferguson has earned a reputation of being one of the foremost authorities on home finance laws and foreclosure proceedings. As a member of the Central Housing Committee of the American Bar Assn., has approved and recommended for adoption by every state legislature.

Transfer of the FHA driver's seat to Ferguson marks the beginning of the mortgage insurance agency's third phase. It was the formative period when Jim Moffett looked well to FHA's organization and the development of skilled personnel. Then came the promotional stage with the building industry and the public needed to be sold on FHA. To job McDonald brought those talents in salesmanship which had long characterized his successful business affiliations, including the directorships of two banks and industrial companies. One of the latter is the Moon Motor Co., which he developed from a bankrupt carriage concern, sold it for $4 million in 1927. A better story than public speaker, McDonald fortunately made but few speeches, at least...
A BATHROOM with lots of space. The walls are Presdwood Temprtile with eight-inch squares. The board's smooth, hard surface can be painted white with a dark color in the grooves. It's easy to fit Presdwood Temprtile in such odd-shaped spaces as the tub alcove because it can be cut or sawed to any size or shape with ordinary carpenters' tools.

CONVENIENCE is the word for this kitchen. Here Presdwood Temprtile with twelve-inch squares is used. You may also have this smart tile-effect material with four-inch squares, so that interesting patterns can be devised. In the kitchen, Presdwood Temprtile does not absorb cooking odors... and can be kept spotless by an occasional rub-down with a damp cloth.

THE WOnder WOOD OF A THOUSAND USES

SOLD BY LUMBER DEALERS EVERYWHERE

THE ARCHITECTURAL FORUM

Published monthly by Time Inc., One Ave., P & G St., Phila., Pa. Yearly Subscription: $6.00. Single copy of this December issue, $1.00. Single copies of this December issue, $1.00. Entered as second-class matter at the Post Office at Philadelphia, Pa., under Act of March 3, 1879. ©Masonite Corporation, New York, N.Y. All rights reserved. The contents of this issue may not be reproduced in any manner without permission of the Publisher. Copyright, 1941, by Time Inc. The contents of this issue may not be reproduced in any manner without permission of the Publisher. Copyright, 1941, by Time Inc.
plished his salesmanship by building up a press-wise public relations department—a trick some other Government housing agencies have yet to learn.

With FHA sold to financial institutions, builders and buyers the country over, the agency's promotional phase is about complete. And, thanks to Salesman McDonald's energetic push, the program is running at a fast clip—with enough momentum to carry it for many months to come.

At the helm of this high-speed organization today is a level-headed, deliberate lawyer who, if he put on striped pants would look like a plate passer in church, and has more tenaciousness than one would expect upon first encounter. Courteous and impartial to all his underlings, Abner Ferguson is the kind of man who keeps plugging, and it is a sure bet that if once he launches a new policy he will not back down at the first sign of criticism. Before making a move, he will deliberate long and, afterwards, will not easily be diverted.

Meanwhile, his close friend McDonald may keep a finger or at least an eye on FHA—one of the Federal Loan Agency's children. But probably not for long, McDonald for several months has itched to return to private business. When he originally suggested resigning his FHA responsibilities, President Roosevelt begged him to sit tight until after the election and, later, until after Congressional adjournment. When it began to look as though Congress would hang on until the bitter end, McDonald decided to move immediately. His next move will undoubtedly take him completely out of the Government circle, put him in the Maryland Casualty Co. where he has already served as Chairman of the Board without salary.

READY-CUT. Even when spread over two dozen years, the production of 10,000 houses is big business. Such is the business experience of the latest contender for a place in the prefabrication sun—Houston Ready-Cut House Co. Up until last month Ready-Cut had contented itself with producing only the pre-cut lumber parts of houses, had worried little about their de-

THE MONTH IN BUILDING

placement financing and merchandising. Prominent among its many customers have been the Southwest's large oil companies; 400 Ready-Cut houses were built in Baytown, Tex., a few years ago, and 60 went to the Caribbean Islands in August.

This year, however, Houston Ready-Cut has also experimented with total prefabrication for more sophisticated markets, now produces three complete houses of four to six rooms with "ready-installed" heating, plumbing and wiring. Known as "Liberty Homes," the three models feature bolted plywood panel construction and steel casement windows. The smallest model (see cut) boasts a sales price of $2,185 in Houston, a field erection period of only one-and-a-half days, is denetable and 90 per cent salvageable.

Last month, Ready-Cut's line of prefabricated houses was approved by FHA for mortgage insurance, one prerequisite to participation in the prefabricator's field soon to be sponsored by the Government's defense housing program at Indian Head, Md. (see p. 29).

2 HOURS AT $7 MILLION. One of the most powerful local building organizations in the country, New York City's Building Trades Employers Assn. fights for and against many industrial reforms and through its monthly mouthpiece, News and Opinion, chants many a battle cry. The current slogan is "Labor Beware Your Friends." To show what it means, Consensus of employers of both labor is that eight hours is the most productive way. The application of a uniform six-hour day would result in an increase in costs of construction in New York City of approximately 15 per cent over existing under an eight-hour day.

The market for construction is elastic, and increased costs diminish demand. "While the current effects of a reduction in hours would be spread without any substantial increase in man hours, the longer-term effects of present conditions would be to curtail volume of construction and reduce employment in the industry.

"Wage rates in the building trades in New York City are already high in comparison to wages paid similar trades in other cities. Rates in skilled building trades are now about 30 per cent above the Jan. 1926 level; the purchasing power of wages has advanced 62 per cent." (3) While building activity dropped 20 per cent, building costs, about 6 per cen-
FORMICA TOPS, REALWOOD PANELING

In commercial installations where attractiveness must be combined with durability andurdiness, Formica becomes steadily more popular. The picture shows the new Bickford Restaurant, 505 Fifth Avenue, New York.
The wainscoting is "Realwood," a sheet in which an actual veneer of wood is incorporated in the Formica plastic sheet and attains thereby all the hardness and durability, resistance to staining, and the permanent finish that are characteristic of Formica. The table tops are Formica also—as they are in nearly all of the leading trains, ships, hotels and restaurants. Ask for color cards and erection details.
The Formica Insulation Company, 4620 Spring Grove Avenue, Cincinnati, Ohio.
Trane Teamwork at N. U.

COMPACTLY located in a small equipment room is the Trane Turbo-Vacuum Compressor which furnishes chilled water to meet the air conditioning needs of beautiful Scott Hall at Northwestern University, Evanston, Ill. The cylindrical casing is visible behind the pillar. In the foreground are the gentlemen who teamed to achieve the desired results. (L to R) D. Warren, Trane Company; C. E. Crane, Jr., of Charles E. Crane Co., Ventilating Contractors; R. E. Wray, Jr., Davis Construction Co., Heating Contractors; W. A. Marriott, Supt., for R. C. Wieboldt Co., General Contractors; M. F. Hayford (kneeling), Supt. of Buildings and Grounds, Northwestern; R. E. Hazell, Consulting Engineer; G. F. Mannion, Trane Chicago Manager.

Trane has what it takes to translate your blueprints into profitable, workable applications of heating, cooling, and air conditioning equipment of every description.

Trane offers you "on the spot service" rendered by eighty-five ably staffed offices throughout the country. The Trane representative near you is a man trained to collaborate with architects, engineers, contractors, and industrials, and complement your efforts with his broad knowledge of equipment applications.

And Trane has the equipment to do your big job as well as your small one—the most complete line of heating, cooling, and air conditioning products commercially available. There's the Trane Turbo-Vacuum Compressor for large cooling and air conditioning work. There's Trane Warm Water Heating for low cost housing developments. There are Trane Unit Heaters, Climate Changers, Air Conditioners, Convector, Coils, and Specialties in a multitude of sizes for every conceivable heating, cooling, or air conditioning requirement, residential, commercial, or industrial, comfort or process.

The Architects, Engineers, and Contractors for American industry are looking to Trane more and more to meet industry's needs at a time when those needs are playing such a vital role in our national existence. . .
ARCHITECTS find that Goodyear Wingfoot Rubber Flooring provides such a wide variety of design and color combinations that it can be made to harmonize with practically any decorative motif.

And you can specify it with confidence—for its colors do not "walk-off." Its handsome appearance is not permanently marred by alcohol, cigarette burns, inks or even by most acids.

Wingfoot Rubber Flooring presents a smooth, resilient surface that is always comfortable and quiet underfoot. And once installed, it stays in place without stretching, creeping or buckling.

It is so durable that it is ideally suitable for all kinds of public buildings, offices and private homes.

It can be installed in either tile or sheet form.

For complete specifications, see Sweet's Catalog or write to Goodyear, Akron, Ohio—or Los Angeles, California.
"PRODUCTION LINE" CUTS COSTS

BRONZE WINDOWS priced within ready reach for many types of buildings—due to standardized production

FOR lasting good appearance, weather-tightness and easy, positive operation ... plus minimum maintenance ... bronze windows have long been regarded as ideal.

Because designs and production have recently been standardized, windows of Anaconda Architectural Bronze...both casement and double-hung types...are now speedily available in a range of sizes and at a price which makes them worthy of consideration whenever good, lasting, low-upkeep construction is sought.

For public buildings, hospitals, schools and better residences, bronze offers a practical fulfillment of all that may be wished for in quality window construction.

The American Brass Company does not make windows, but supplies Anaconda Architectural Bronze in extruded and drawn shapes to leading window manufacturers.

THE AMERICAN BRASS CO., General Offices: Waterbury, Conn.

In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.—Subsidiary of Anaconda Copper Mining Co.
A typical toilet room in the Union Central Life building. After 27 years of service, the Carrara Glass walls and partitions are just as good as new. That's why Carrara is being specified for a new addition to the old building.

Cincinnati's first large skyscraper, the Central Union Life Building, erected in 1913.

AS GOOD AS NEW after 27 years of service!

Carrara toilet room walls and partitions stand test of time in Cincinnati's Union Central Life Building

In 1913, Carrara Structural Glass was specified for the walls and partitions of the toilet rooms in Cincinnati's first large skyscraper... the 20-story Union Central Life Building. Today, Architect Frederick W. Garber is specifying Carrara for a new addition to the old building, because, "while other materials in the old building had been replaced, the Carrara, after twenty-seven years of service, is just as good as new."

Such long life is not surprising when you consider how Carrara is made. Every piece of Carrara is mechanically ground and polished* so a true, flat surface. It is a product that is precision-made. Carrara joints are smooth and perfect, without lip-page. Warpage never disfigures a Carrara installation. Carrara's colors are rich and enduring, and the material provides a depth of color impossible to obtain in a glass product which is not finely-machined.

Carrara does not check, craze, stain or fade. It will not absorb odors. It is impervious to moisture, chemicals and oils. And it never loses its excellent reflective qualities. We urge you to write for our free booklet entitled "Carrara, the Modern Structural Glass," which contains information about this material. Address Pittsburgh Plate Glass Co., 2026-1 Grant Building, Pittsburgh, Pa.

*The new Suede-finish Carrara is subjected to a special treatment after grinding and polishing to soften its surface reflections.

"PITTSBURGH" stands for Quality Glass and Paint

CARRARA
The modern Structural Glass

PITTSBURGH PLATE GLASS COMPANY

JANUARY 1941
Washington at long last learns that decentralization is the road to speed. Launching the defense program without much outside professional advice, the Federal departments and bureaus are now showing some recognition of the independent practitioner, whether architect or engineer. Hope persists that others will follow Navy’s lead, which Department, as usual, got off on the right foot.

Hereewith is an unofficial and possibly incomplete list of Army and Navy projects entrusted to private practitioners up to December 20, 1940.

Allen & Webster, Chicago—Swimming Pool, Great Lakes Naval Training Station.

Alford, Burdick & Howson, Chicago—7th Corps Area Training Center, Newburg, Mo.

Archer & Co., E. T., Kansas City, Mo.—Camp Claiborne, La.


Benham Engineering Corp., Oklahoma City—Camp Livingston, La.

Betchel, McConnell & Buss, Los Angeles—Heating Plant for Base, Anchorage, Alaska.


Buell, Temple M.; Prouty Bros., Denver—Ordnance Department, Fort Wingate, N. M.

Burge & Stevens, Atlanta—Savannah Airport.


Constantine, Augustus E., Charleston—Addition to Administration Building, Fire and Police Station, Navy Yard, Charleston, S. C.

Cret, Paul P., Philadelphia—Navy and other changes in Naval Academy, Annapolis, Md. Ward Buildings, Officers’ Quarters, Hospital. Corps Quarters, Medical Center, Bethesda, D. C.

Delano & Aldrich, New York—Hunters Building, Balboa, C. Z.

Dickey, C. E., Honolulu, T. H.—Detachment Building, Dispensary and Officers’ Quarters, Pearl Harbor.

Edmunds, Jr., James R.; Lucia H. Jr., Baltimore—Additional Building, Juan P. R.

Francisco & Jacobs, New York—New lunatory Arsenal, Dover, N. J.

Fraser-Brace Engineering Co., New Windsor Spring Ordnance Works, Spring, Mo.

Freese & Nichols, Fort Worth—Hulen, Tex.


Greiner Co., J. E., Baltimore—Fort G. Mende, Md.


Harrison & Foulhoux, New York—NATIONAL AVIATION SHORE FACILITIES, AND COCO SOLO, CANAL ZONE PROVINCIA.

Havens & Emerson, Cleveland—Knox, Ky.

Hedman, Ferguson & Carroll, Phila—Fort Huachuca, Ariz.

Hedrick, Wyatt C., Fort Worth—900, Fort Bliss, Tex. Power Engine Storage, A. & R. Shop, Building, Barracks, Quarters and Services, Roads and Services, Port, Fla.

Holland, R. R. F.; F. D. Drought, Antonio—Galveston Replacement, Tex.


Holabird & Root, Chicago—Camp III

(Continued on page 44)

Other Forum of Events pages—12
New streamlined face piece is rolled from heavy gauge aluminum, bronze or stainless steel.

**View!**

**ROLLED STORE FRONT SASH No. 85**

This new Kawneer Sash introduces a distinguished, modern face piece, yet retains all the time-tested principles of Kawneer construction. Exterior appearance reveals recent design trends and fully resilient functioning protects show window glass. Face piece cannot be removed from the outside. The Kawneer line is not static—new mouldings are constantly being added to this complete, up-to-date, and *practical* line of store front construction. *Fundamentals* are stressed; full resiliency defeats glass breakage; shapes fit standard sizes of lumber; ventilation and drainage are provided.

You can create effective store fronts with Kawneer construction; you can depend on Kawneer for lasting beauty, low maintenance, and trouble-free service. Consult SWEET'S, or write for latest data. THE KAWNEER COMPANY, NILES, MICHIGAN. Branches: New York City; Chicago, Illinois; Berkeley, California.

**Kawneer**

**RESILIENT STORE FRONT SASH**

*Protect show window glass!*
From an exhibition in the Museum of the American Numismatic Society, New York City, these examples speak for the hundreds in the Collection. Gathered over many years by Mrs. Robert J. Eidlitz and recorded in a printed folio volume, the bulk of the collection now been presented to the Society.
Interested in Radiant Heating?

Here's NEW information to share...

You may have seen the first edition of the bulletin, "Wrought Iron for Radiant Heating," as over 5000 copies were distributed to Architects and Engineers. A revised and enlarged edition has just come off the press. Sections on theory and design have been expanded. A number of recent installations are illustrated and described. And a new "Question and Answer" section, based on queries from the field, has been added. We will gladly send you a complimentary copy.

WHY WAS THIS BULLETIN PRODUCED? As a matter of policy, Byers investigates any new developments that promise a market for corrosion-resisting piping materials. The study of radiant heating revealed much information not directly connected with corrosion, but of interest to architects and engineers.

WHY IS BYERS INTERESTED IN RADIANT HEATING? For best results, the pipe coils used in Radiant Heating must have certain physical, thermal and corrosion-resisting qualities, which we know from many years' experience wrought iron possesses to an unusual degree.

WHY SHOULD WROUGHT IRON BE USED FOR RADIANT HEATING? First—for corrosion resistance. Repairs to imbedded pipe are difficult and costly. Service records of Byers wrought iron pipe in skating rinks (where external corrosion problems are similar) and heating lines (where internal corrosion is similar) prove wrought iron is the safest material.

Second—because wrought iron transmits maximum heat to the heating surfaces.

Third—because wrought iron's excellent forming properties, superior weldability and thread-ability facilitate economical fabrication and field assembly.

* * *

A letter will bring you the new bulletin, "Wrought Iron for Radiant Heating."


BYERS WROUGHT IRON

FOR EXTRA SERVICE
IN CORROSION APPLICAIONS

CORROSION COSTS YOU MORE THAN WROUGHT IRON
Recuprest, a Durrez resin-bonded plywood, brought the only Special Award to M & M Wood Working Co., Portland, Ore. Orville Johnson, architect.

Plastics Winners. In Modern Plastics' 1940 Competition, main awards in lighting group went to John C. Virden Co. for their "Fluorogrill" (top), designed by Norman H. Vacha; and to Miller Co. for their fluorescent fixture of embossed cellulose acetate, designed by Edward Weber of the Company's staff.

In the business and office equipment group, a main award went to Speed-O-Scop bottom-lighted tracing desk of Bakelite, designed by David Lammi. Crystalite design knobs in color (Rohm & Haas Co., Inc. and Standard Products Co.) received honorable mention in the architectural group. Knobs designed by H. A. Husted.

Stuff & Guff, bell ringers for 26 years atop McKim, Mead & White's former Herald Building, together with Minerva and the owls, are back in Herald Square, in a new setting provided by the Park Department (a man by the name of Moses) and designed by Aynar Embury II.
A DISTINGUISHED NAME . . .
A DISTINGUISHED PRODUCT

**Constructed of Copper and Bronze Throughout**

THE name "Penberthy" has been distinguished for fifty-two years as representative of highest quality products.

Penberthy Automatic Electric Sump Pumps are distinguished for their dependability and long life wherever seepage water accumulates.

Penberthy Automatic Electric Sump Pumps are available in six sizes.

**JOBBERS EVERYWHERE CARRY PENBERTHY PRODUCTS IN STOCK**

**PENBERTHY INJECTOR COMPANY**

*Manufacturers of Quality Products Since 1886*

Canadian Plant, WINDSOR, ONTARIO

DETONT, MIGHGAN

JANUARY 1941
Here are the makings of any single or multiple-gang Wiring Devices your plans require. Any arrangement or combination of Switches, Receptacles, Radio Outlets, Pilot Lights or Night Lights to achieve ADEQUATE wiring.

Unified, harmonious design is gained by these various groupings. They are less conspicuous on walls, — occupying one-half to one-third the wall space taken by conventional types.

Styled in white IVORYLITE and brown BAKELITE, with Plates of "UNILINE" design matching other standard makes ... Economy of installation favors your moderate-price residential jobs. Please refer to — or write for — our Architects' Catalog listing all the Interchangeable Units, to simplify your specification-writing.

HART & HEGEMAN DIVISION
THE ARROW-HART & HEGEMAN ELECTRIC CO. HARTFORD, CONN.
The new FB series provides heating and air conditioning in one compact, efficient unit.

This gas-fired winter air conditioning furnace, Series SHP, is modern, compact, attractive — and economical to buy and to operate.

The Series 50 oil-fired winter air conditioning furnace provides "de luxe comfort" — economically.

You help to make "boosters" of your clients — when you give them the genuine satisfaction of a

MUELLER furnace

... it's MUELLER for all 3 fuels ... for homes of any size or price ...

Mueller furnaces are specially designed for each type of fuel — therefore cost less to operate, bringing the benefits of modern heating and air conditioning within reach of even modest budgets ... Unbiased — offering the industry's most complete range of sizes, types, and prices — Mueller is the logical place to turn for information about home heating.

Mueller heating equipment helps you reconcile your client's ambitions with the size of his pocketbook.

Each Mueller furnace is specifically designed to burn a particular fuel. This design feature assures maximum efficiency from the fuel burned with resultant remarkably low cost of operation.

You want your clients to enjoy the advantages of modern heating and air conditioning with its comfort, convenience, and healthfulness. Here is a good way to do it: specify Mueller furnaces on every job.

You can do this safely, because there is a Mueller furnace to fit every local condition and type of fuel — and Mueller performance never lets you down. 84 years of heating specialization assures you of that. Mueller's handsome designs make your jobs showplaces for other prospective clients.

Send for Mueller's illustrated literature.
GUIDE TO MODERN ARCHITECTURE: NORTHEAST STATES.

In bringing out this guide to modern buildings, the first to be published in America, the Museum of Modern Art has not only performed a service whose importance requires no elaboration, but it has also produced concrete evidence of the impressively rapid growth of the contemporary movement in architecture. The book covers only the Northeast States, from Maine to Maryland, and lists 297 buildings. Few of these structures existed before 1930, and the overwhelming majority are less than five years old. When it is considered that California alone could show at least an equal number of examples, and that work of excellent quality is being done throughout the Middle West and Pacific Northwest, the total number of modern buildings in the country becomes a very substantial figure. The Guide is subdivided according to States, and the towns in which examples are located are also arranged alphabetically. Information given includes owner’s name, address if it is located in a city and road directions if outside, name of the architect, and procedure for obtaining permission to visit. In addition there is generally a brief description, indicating the general character and salient features of the building, and occasionally a plan or a photograph. The alphabetical arrangement and a judicious selection of type faces makes its use exceedingly simple.

An unfortunate omission, from the architect’s point of view, is the absence of magazine references, since most of the buildings have been published in the various architectural magazines. Since the book was designed primarily for the use of laymen, and since the price of twenty-five cents put a premium on space the lack cannot be considered a serious defect. Also admirably designed for the intelligent layman is Mr. McAndrew’s introduction, which in a few pages gives the background of modern architecture, its essential aims, and the fields in which it has had the greatest influence. The quality of the Guide and its low cost remove the two major obstacles to wide circulation. In the foreword Mr. Philip Goodwin states: “It is only by seeing a good deal of modern design that one can really come to understand and like it.” If extensively used, the Guide can materially increase this appreciation and become an important aid to architectural progress.

A picture book for children, illustrating all stages of the construction of a conventional frame house. An excellent pictorial and photographic reporting, and suitable for use by the layman, it wishes to become familiar with the details of house construction. The quality of the reproductions is extremely poor.

MANUAL DE URBANISMO, by Karl H. Brunner. Vol. 2. Prentice Municipal, Bogota, Colombia. 364 pp., Illustrated. 10 x 7 1/2. $8.00.

The second volume of Professor Brunner’s work on city planning, covering urban building types, land subdivision, streets and parking places. About 113 illustrations refer to examples in the U. S., and the 550 which remain show examples in Europe and South America. The book contains a quantity of information useful to the planner, and it is unfortunate that the only edition is in Spanish. A third volume is in preparation.

FRANCE WILL LIVE AGAIN, by Samuel Chamberlain. Houghton Mifflin, Boston. 173 pp., illustrated with etchings, lithographs, sketches and photographs. 7 x 9 1/2. $3.00.

A collection of Samuel Chamberlain’s sketches and photographs of French architecture, with an introduction by Donald McInerny. Much of the material has been previously published in building and architectural magazines, but the volume amply illustrates the character of rural and urban France and Mr. Chamberlain’s extraordinary virtuosity in the various pictorial media.


A practical book for the city dweller interested in country week ends on a limited budget. Using her personal experience with a Connecticut farmhouse as a basis, the author describes how to make an old house comfortable without too great expense or experience. There is no attempt to detail actual remodeling operations, but the book is confined to sensible suggestions on finding the house, selection of agents and local contractors, financing, heating, and the score of other problems which the urban house hunter. There are excellent chapters on decoration, week end housekeeping, gardening, and “Guests, or, How to Please Your Pests.” Also included are recipes, a glossary of garden terms, specific information on “the costs of a double life,” a four-year plan for remodeling and landscaping. At the end of each section is a check list in tabular form of what to look for and what to buy, ranging from furnaces to five and ten cent store utensils. A selective bibliography is appended.


A thorough discussion, by a recognized authority on woodwork. It covers proper methods of preparing wood surfaces and the use of abrasives. Every type of paint, stain, lacquer and varnish is described. A valuable feature is the bibliography which follows each chapter. Designed primarily for the cabinet maker and manufacturer, it is nevertheless a very useful manual for the architect who makes extensive use of wood walls and floors in furniture.

(Continued on page 58)
CE IN BOULDER, COLORADO

Ark Huntington, Architect

ONE OF A SERIES OF OUTSTANDING INSTALLATIONS OF ANDERSEN LIFETIME WINDOWS IN ARCHITECT-DESIGNED HOMES.

ANDERSEN CASEMENTS With Horizontal Bar Sash Add Emphasis To The Modern Lines Of This Western Home.

In a setting of rugged grandeur that borders on the spectacular, Architect Huntington has made excellent use of Andersen Complete Wood Casement Units in this modern home. Horizontal muntin bar sash add to the general horizontal sweep of the well-proportioned mass. The bay (left) was dictated by the breathtaking view. The deep shadow lines made possible by wood windows add a touch of character often needed in this type of design.

In this region of the United States where both extremes of temperature are the rule, the architect has selected a window unit known to the profession for its superior weathertightness. Designed by window specialists, the Andersen Casement is built on the double contact principle of a refrigerator door. Weatherstrip is Metalane. Inside double glazing and special condensation vents help to control the condensation problem. Built on the basis that windows are a Lifetime Essential in every home, the Andersen Wood Casement has justly earned its name and reputation as the "architects' window".

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2. It maintains radiating surfaces at the degree which exactly offsets the building heat loss for any given outdoor temperature. Prevents air stratification and “cold 70.”

3. Only three units of equipment are required. A Hoffman Circulator to continuously circulate the water . . . a Hoffman Control Valve to admit hot water from the boiler as required . . . and a Hoffman Temperature Controller (actuated by outdoor and circulating water temperatures) to open and close the Control Valve.

For complete design and installation data, write to the Hoffman Specialty Company, Inc., Dept. AF-1, Waterbury, Conn.

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...made Warmer in Winter, Cooler in Summer

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J. T. Davidson, Detroit builder, using KIMSUL in a 500-home project at St. Clair Shores, Michigan, says: “...the cost of installing KIMSUL is considerably lower than other types of insulation...I am thoroughly convinced KIMSUL is the best.”

How to Establish the Practical Insulation Thickness for Each Job

<table>
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<tr>
<th>Heat Loss Stopped in Walls</th>
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<td>Maximum heat loss stopped with insulation.</td>
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<tr>
<td>Heat loss stopped by Standard (Approx. 1 in. thick) KIMSUL</td>
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KIMSUL is available in three thicknesses: Commercial (nominally ¾ in. thick), Standard (nominally 1 in.), and Double Thick (nominally 2 in.). Standard KIMSUL stops the greatest proportion of heat losses in winter and of heat infiltration in summer.

In a normal frame wall, Standard KIMSUL stops 54% of the heat which would normally be lost through an uninsulated wall. Double Thick KIMSUL stops 65% of the heat loss. Wall-thick insulation stops 73%.

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Going to New York? Visit the KIMSUL insulated “House of Ideas,” Rockefeller Center, New York City. Also see KIMSUL at the Architects’ Permanent Exhibit, Architects’ Samples Corporation, Park Avenue and Fortieth Street.

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LETTERS

Building For Defense—Pro

From among the letters and telegrams which greeted the appearance of The Forum's Building For Defense issue the following have been selected to indicate the breadth and depth of the interest in our Number One National Problem.—Ed.

Forum:

Now that I have had a chance to study the November issue of The Forum, I want to tell you how very remarkable I consider it. To have collected so much pertinent material on the National Defense is an achievement which the entire profession will value. . . .

Albert Kahn
Detroit, Mich.

Forum:

. . . is literally packed full of interest, meat and thought-provoking material. I particularly marvel at the scope of the work in view of the limited time at your disposal . . . you have brought out of seeming chaos a tremendous amount of factual, to-the-point information that should be invaluable to your readers . . .

W. Burke Harmon
New York, N. Y.

Forum:

. . . what FORUM has done is something akin to marching up to a barnyard full of jumbled jackstraws and carefully selecting and arranging them into an orderly pattern . . .

Volney B. Fowler
General Motors Corp.
Detroit, Mich.

FORUM DEFENSE ISSUE TIMELY INFORMING AND COMPETENT. CONGRATULATE YOU HEARTILY ON SHOWING US ALL WHAT IT TAKES.

R. H. Shreve
New York, N. Y.

Forum:

I still think that the floor plan you have published in the upper left corner of page 373 of The Architectural Forum might, at times, prove of value to an enemy who had occasion to be interested in the facilities shown. Aside from that—and seriously—I think you did a wonderful job in your November issue.

(Col.) R. B. Lovett
Office of the Chief of Staff
War Department
Washington, D. C.

Con

Forum:

Fired not only by the great reputation of Mr. Andrews and the great reputation of your journal, but as well by the timely title, "Defense of the City," I read and studied the article under that heading. Being, so to speak, a layman in regard to such matters, I was in a position to examine with perhaps too naive admiration the letters to the "Mayor" and accompanying diagrams, etc., prepared by the Messrs. Andrews and Bennett. Thus it is no spirit of carping criticism that leads me to ask a number of questions . . .

Question 1: If a 2-mile circle is drawn around the chemical plant (which is "to be expanded to manufacture explosives") it is discovered that within the confines of this geometry the fort, the railroad station and freight yards, the power plant, clock factory (to be used for manufacture of ammunition components), the main bridge over the river, and what appears to be a nice number of gasoline storage tanks. In addition, the main traffic density falls neatly within this area. Thus, the location for this explosive plant could hardly be better for an aerial attack, sabotage by enemies of the people, or even by those more reasonable prospects—static electricity or a careless workman. Under these conditions and in view of the recent explosions in similar plants, is it quite safe to expand to manufacture explosives?

Question 2: If the answer to Question 1 is "no" it would not—in view of all the problems raised by the expansion of the plant such as pollution of the "river," etc.: in view of the fact that the chemical plant should not be expanded as much as the chemical company wishes (all as pointed out by Mr. Andrews) and, finally, in view of the fact that a considerable amount of new building is required—perhaps be a worthwhile idea to suggest moving the plant out of the city?

Question 3: Wouldn't it have been better, in fact, to have written the "Mayor" a letter pointing out the objections to creating a military objective of a town containing "94,000 people" of which perhaps not more than 15 per cent are engaged in war occupations; the objections to putting an explosives plant where it can possibly do more damage than a "Coven­try" raid; in fact, pointing out all the things which experience in the latest world war has demonstrated.

A plan might have been suggested of the sort which pointed out the absolutely treasonable character of any proposal to create such conditions as mentioned above, with a brief note covering the various elements which make this scheme undesirable by practically every social, civic, economical and military standard. Mr. Andrews might have demonstrated the present concrete value and necessity for the creation of satellite towns to house these new industries. He might have explained the even greater possibility with its future peace time implications—a method whereby the workings of the defense program could be placed at the beginnings of a regional plan for the United States; a plan which would make that great country west of the 95th Meridian of Longitude an empire to be respected.

New York, N. Y.

PERCIVAL GOODMAN

To date, but one dissenter has been heard from, Unable to believe that the discussion portrayed is truly representative of readers' reaction. The FORUM will welcome further letters from those who side with Architectural Forum—Ed.

Art Appreciation

Forum:

Recently there came into my possession a letter from the Postmaster of Pleasant Hill, Missouri, which I hope will appeal to you as it does to me.

Philip Enders
Baltimore, Md.

Treasurer Department
Procurement Division
Washington, D. C.

I wish to report that Mr. Tom Lea has installed one of his murals upon the south wall of the Pleasant Hill, Mo. post office building.

We, which is intended to include the entire office force and a goodly number of local citizens who have been in to inspect the painting, which, whether correctly or not, has been titled, "Back Home," honestly believe the Treasury did our people a splendid turn in putting this, our first work of art, within the easy eye reach of all of us and especially the students of our school. The mural has already become a matter of community pride and interest both of which will grow with the passing of time. As laymen view the work, it's great. Doubtless fellow artists and art critics would concur . . .

In behalf of the many smaller cities wholly without objects of art, as ours was, may I beseech you and the Treasury to give them some art, more of it, whenever you find it possible to do so. How can a finished citizen be made in an artless town?

Respectfully yours,

Basil V. Jones, Postmaster
Pleasant Hill, Mo.
Isn’t it logical that this “Best-Seeing” Light can be the “Best-Paying” Light for your clients?

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That is why we urge you to make a thorough engineering and cost analysis of Ivanhoe “50 Foot Candler”, the first RLM continuous fluorescent lighting system providing 50 foot candles of general illumination. This is the illumination lighting authorities prescribe for “best-seeing” conditions for most lighting needs. And even higher lighting levels can be readily worked out where desired.

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3. What sheathing material builds better sub-joists in half time... makes walls 40% more rigid than diagonally laid boards?

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5. Do you know how to build mar-proof interior walls in residences?

6. Do you know how to get flawlessly smooth concrete surfaces without costly finishing and rubbing?

7. When should 3/8" Ply-panel or Plywall be specified for interior walls instead of 1/4" Plywall?

8. Can you determine easily and quickly what grade and thickness of Douglas Fir Plywood to specify for each type of work?

9. Do you know the many new finishes that have been created, making Douglas Fir Plywood one of the most beautiful woods for interiors?

If you can't pass this quiz with flying colors, read the Douglas Fir Plywood section in Sweet's Catalog... or send for Sweet's Reprint and other literature, Douglas Fir Plywood Assn., 1500 Tacoma Bldg., Tacoma, Wn.

The MORE you know about Douglas Fir Plywood, the more problems it will solve for you. There is now a grade of this "modern miracle in wood" for every possible building and engineering use. Each panel is made in strict accordance with U.S. Commercial Standard CS45-40 and stamped with a distinctive "grade trademark" to make specification easy and identification positive.

Particularly suited to today's need for accelerated building is the Dri-Bilt with Plywood method of construction. Because the big, sturdy panels take less handling, cutting and fitting... because there is no time lost waiting for plaster to dry... residences, stores, barracks and other structures built the Dri-Bilt way are often finished as much as 6 weeks sooner than if they had been built conventionally.

This smart new Seattle, Wn., restaurant is Douglas Fir Plywood inside and out. The exterior is the waterproof outdoor grade of plywood, EXT-D.F.P.A., covered with plastic paint. George W. Groves was the architect.

The interior of this restaurant shows how walls and ceilings can be beautiful yet robust and puncture-proof. Plywood handled so that the joints are hidden by a plastic finish is highly practical for both commercial and residential work.

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Marcel Villanueva, Architect

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General Properties Inc.

December 13, 1940

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May we take this opportunity of thanking you and your organization for your planned sales approach and the efficient technical assistance furnished.

Assuring you of our continued business as well as our unreserved approval, we are,

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Director of Sales

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The remodeling of an office building offered a wiring problem which Square D answered with Meter Socket Trough and Multi-breakers. The above photograph shows the installation on one of the floors, serving twelve office suites, each separately metered and with main circuit breaker to lock out any service. The specifications originally called for fusible equipment. There were obvious difficulties because of space limitations, so Square D Multi-breakers were substituted.

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- 100,000 pounds of Revere Brass Pipe and Copper Water Tube went into the Charity Hospital Units, New Orleans, La. Illustration shows underground connecting lines between main building and nurses' home. Miles of copper or brass pipe and copper tube justify initial cost by greater service efficiency and longer life.

- Bridge between Jefferson Hospital and Nurses' Home in Birmingham, Ala., is entirely of Revere Copper—sides, top and bottom. Marquis is constructed of Revere Copper too. Utilizing copper's ability to insure weather-tight and lasting protection, architect Charles McCauley used approximately 10,000 pounds of Revere Copper.

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Again science, through the development of a new conception of the physical chemistry of Portland cement concrete, provides the answer.

With TRUSCON ZILICON WATERPROOFING PASTE

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Increased compressive strength.
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The MIAMI All-Stainless-Steel Cabinets offer the outstanding advantages of a solid, rustless, lifetime metal, most pleasing appearance, and without coating or lathing of any kind.

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These new MIAMI Cabinets offer thrilling new decorative motifs for the modern bathroom. Each metal, being neutral in tone, blends harmoniously into any color scheme. Cabinets in both lines can be equipped with improved lighting fixtures, enhancing their practical and decorative values.

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MAN OF THE MONTH ... to the glamour agency, a quiet man

BUILDING OF THE MONTH ... in this corner, the winner

PROJECT OF THE MONTH ... less wrath, more grapes
NEW AND OLD FARM HOMES

FARM SECURITY

YUBA CITY, CALIFORNIA
Farm Security Administration was established in 1937, taking over the functions of the Division of Subsistence Homesteads, the Resettlement Administration and several other agencies. Its activities include the management of three enclaves towns and 161 other Resettlement projects, the administering of rural relief, the granting of loans to needy farm families, and to tenants and sharecroppers who are trying to become farm owners. Its broad general purpose is to help farmers to become permanently self-supporting by teaching farm-management methods, by checking the increase in tenancy, and by resettling migrants on the land. The architectural aspects of these activities are illustrated in these pages.

The most interesting of all Farm Security’s accomplishments in the building field is the quality and thoroughly American character of its design. The freshness and inventiveness displayed in its best work are due, in part, to the fact that there was no architectural precedent for Southern farm buildings to condition design, in part to the absence of bureaucratic control.

Farm Security’s organization consists of a group in Washington and twelve regional offices. The number of architects in any one regional office varies with the amount of work on hand. To Washington falls the work of allocating projects to the budget, and of checking final plans and cost estimates. All of the architectural design, engineering and site planning is handled locally, independently—and intelligently. Since the regional offices are in constant touch with local conditions, the programs are established in these offices. In addition, there is an interesting device known as a plan book, whereby all architects in the field can study the solutions arrived at in other parts of the country.

A virtually unique in Government is Farm Security’s willingness to experiment, a reflection of the large measure of local autonomy enjoyed by the planners. In five years of trying solutions to minimum house problems there have naturally been mistakes, but the large scale adoption of successful methods has more than paid for them.

F, in face of a national emergency, Farm Security stands out as the agency most experienced and successful in the art of building houses quickly and cheaply. Also, its accomplishment lends credence to the view that local architecture becomes permanent, whether private or public, achieves results in speed, quality and cost.
The Shafter Camp (below) is one of the camps for migrants. Tents on wood platforms shelter the families, while the utilities for waste water, laundry, administration and community services are housed in inexpensive, permanent structures. Where it is possible to take some farmers out of the stream of migrants and settle them with reasonably stable employment in the neighborhood, a group of permanent homes is constructed.

For the so-called portable camps, all utilities must be mobile, such as the power and shower units illustrated above. The power unit bears a diesel generator and oil is also used to fire the hot water boiler. In portable camps even the lighting standards are demountable, making it possible to follow the workers from one farming area to another with all required services. The cost of this equipment is about one-half that of permanent utilities, only a fraction of what would be needed to maintain a chain of camps otherwise required.
Current practice in the migratory labor camps is to replace tents with the metal shelter shown directly above. While an exceedingly simple structure, it has been beautifully designed: typical is the rounding of the edge of the roof for greater strength and better appearance. The community service buildings show similar examples of first-rate design under strict budgetary limitations. At the left is an interesting and economical scheme for garbage disposal: the water drains into the sewer and the rubbish is later taken away and burned.
MODEL OF CAMP, FIREBAUGH, CALIF.

MULTI-FAMILY APARTMENTS


The type of planning currently followed in Farm Security projects is clearly illustrated by the model above. Largest of the housing consists of six-family row shelters for migrants. These are equipped with the necessary parking spaces, toilets, showers, etc. The living group contains multi-family garden homes of the type used in Yuba City. A farm group for these permanent settlers is adjacent. Community services jointly used by both groups are conveniently located in between. The multi-family homes contain six apartments, each with dormitories at both ends which may be used by large families or rented to unmarried farmers. Frame construction is used with wood interiors and party walls of plasterboard. Exteriors are in redwood and wall board. The sliding doors between bedrooms provide covered play space for children and a place for laundry. Hot water heating equipment.
Chandler Farms is a community-type subsistence farming project for migrant families, with about 350 acres of land. Here is seen for the first time the unique type of multi-family dwelling subsequently used at Yuba City, Firebaugh and other localities. Each unit contains eight four-room apartments with bath, and the direct construction cost per unit, including the garage, was $2,097. Native adobe was used to produce these structures whose architectural treatment and general arrangement form a distinguished example of contemporary design. The effect, it will be noted, stems directly from the construction: the overhangs, window flaps and heavy buttresses are all essentials, part and parcel of the requirements of materials and climate.
CHANDLER FARMS, ARIZ.

GARDEN SIDE

ENTRANCE SIDE

F. H. A. Photo-Lee
The effect of spaciousness achieved in the Chandler is perhaps its most pleasant characteristic. Truly interesting, however, is the vigor of the masses which terminate the adobe party walls and window flaps which admirably solve the problems of light, shade and ventilation. The rigid economy of construction is perhaps best illustrated by the interiors shown on this page. In every instance, hardware and materials have been kept to the minimum consistent with durability.
COMMUNITY BUILDING

Structures for community services call for a typical freshness of expression. There is no arbitrary use of style or plan, location, and materials determining to a large extent the design. In the Southwest concrete has been used extensively as shown in the handsome community building at Casa Grande Valley Farms in Arizona. The building at Tulare shows an equally creative use of wood. At Sonoma is an example, admirable for its economy and flexibility. It serves as nursery, assembly room, office, and, when the barn doors are open, as the stage of an air auditorium.
1000 INDIVIDUAL HOUSES have been built to date by Farm Security and the agencies it has over. While most are of unusual interest for the quality achieved at phenomenally low prices, significant is the free- with which experiments have been conducted. Illustrated below are some of the results.

Houses at Camelback Farms are typical of many built in the Southwest in their of adobe, an eight-inch exterior wall being standard construction. Roofs are of tinum-painted sheet metal with ventilators built in at the ridge. An economical square is used, with kitchen and living room forming a single unit. The detached car er is somewhat unusual, and less successful than those designs in which it has been torated within the main body of the house.
The Mineral King development has 150 acres planted to alfalfa and cotton, operatively farmed by eighteen families. The houses, built from a standard plan which provides for five or six persons to live comfortably and sleep five or six comfortably, are arranged on the site to give an appearance of variety in the group. The unusual treatment arises from the provision of clerestory to light and ventilate the kitchen and bath. A car shed is provided with minimum expenditures. The plan shows good closet space and arrangement of sleeping porch and living room which permits considerable flexibility of use.
$490 cottage, built in southeastern Missouri. This low-cost house has not been achieved without serious sacrifice of living space. According to officials, "These buildings do not constitute really adequate homes; they are an effort to provide some kind of shelter for families with extremely low annual incomes."

Type C house, also built for Missouri sharecroppers. It is a simple wood frame construction, has a small screened front porch, a living room with kitchen alcove, a storage pantry and three small bedrooms. The house cost $750, is rented to a tenant at about $4 per month.

For a hundred prefabricated wood houses have been built in New Madrid, Missouri, for an average cost of about $700 including planning costs and overhead. Both four and five-room types were constructed, are considered by the Works Progress Administration to be among the most satisfactory yet produced. For additional technical data and construction photographs see the November 1938 issue.

A U N T L Y  1941
The cotton house was an experiment in the use of a low-cost, produced material. Cotton duck, stretched over plywood backing and painted with white lead and oil, is the exterior finish. It is estimated that the average cost of $1,280 for a house built by this method would be reduced 20 per cent by mass-production methods. The cotton house, however, is not being continued since its original cost is appreciably greater than that of a wood house. It is believed that a wood-frame house would prove cheaper to maintain, may be re-introduced.

A wood frame house built in California, at a contract price of $2.30 per square foot. The plan is typical of many of the detached garden homes built for permanent use. The rent for house and land is $8.30 a month, and in some cases this price includes utilities.

An adobe house for the Southwest, showing an interesting mass achieved through the use of shed roofs. The screen porch is used for laundry, dining and sleeping. Two bedrooms, each accommodating a double bed, are provided, and additional sleeping space could be provided in the living room if necessary. The average cost per house in the project was around $2,000.
Two elements differentiate this building from post offices of this and previous generations: 1) the material of the main front; and 2) the low counter screen in the public space. With the aim of keeping the exterior clean in spite of the inevitable city grime, a highly polished three-inch veneer of Dakota mahogany granite was chosen. Incised lettering above the piers is lined with gold leaf and the five sculpture groups in cast iron are similarly picked out from their black spandrels. Three central groups are by Amateis, the two ends by Slobodkin. Contrasting with the typical post office public space, where the counter screen extends to the ceiling and shields the working space, this one is in the nature of an experiment developed in collaboration with Floyd Williams of the Post Office Department. Although this branch office is among the busiest in the city in volume of mail—particularly in parcel post—its work space seems to lose nothing in efficiency by being exposed to public view. Banking rooms seem to have accepted the low counter screen; post offices may follow the practice.
UNITED STATES POST OFFICE
MADISON SQUARE STATION, NEW YORK, N. Y.

TREASURY DEPARTMENT:
LOUIS A. SIMON,
SUPERVISING ARCHITECT;
LORIMER RICH,
ARCHITECT
EDMOND AMATEIS and
LOUIS SLOBODKIN,
SCULPTORS
KINDRED McLEARY,
MURAL PAINTER

SPANDREL DETAIL
LOUIS SLOBODKIN, SCULPTOR

All photos, Robert M. Damora
The walls are terra cotta in color; ceiling, white; floor, black terrazzo. Light baths of glass and bronze are less obtrusive than the photograph (above) suggests.

Even the parcel post section, blood red to the commercial shipping-room and therefore seldom aspiring to cleanliness, is here opened to public view—if its broad weighing counter. On the second floor, is the pneumatic tube station, maintaining constant transfer of mail uptown, downtown and over the river to Brooklyn.

PUBLIC LOBBY

PARCEL POST SECTION
Memories of scarred wood shelves of the notorious “post office pen” stirred by the creation (above bronze and black plastic, recess the wall of the parcel post sec.

Eight mural panels along both walls of the public lobby depict typical everyday scenes in New York. Under the direction of the Fine Arts Section of the Public Buildings Administration of the Treasury Department when the building was designed, but now in Federal Works Agency, Kindred McLeary was selected after having been run up in a competition for another mural project. Subjects range widely in Manhattan: Harlem, Park Avenue, the East Side and the Docks, Street, Greenwich Village, the Great White Way. Wainscot and counter screen are of Carri green marble.
BILLIONS FOR DEFENSE, BUT . . .

By mid-December, not too great encouragement had come to architects who hopefully looked to the defense program for jobs. Probably not more than fifty firms had been called by Government to siteplan, design and supervise any of the hundreds of projects which engineers, contractors and manufacturers were and are turning handsprings to produce. In Washington the notion persisted that existing Bureau personnel could do the job better, or if not better, faster. Most roundly criticized was the placing of all Army and Maritime Commission defense housing on the drafting boards of the Public Buildings Administration. This agency (formerly the Supervising Architect's Office of the Treasury), normally concerned with post offices, overnight found itself in the role of a small house expert. Willing enough but not expertly, dozens of site and house plans were produced feverishly, studied, revised, studied and revised again. Meanwhile at least five hundred architects across the nation, thoroughly qualified by experience to do this work with a complete understanding of local requirements, sat and waited. The fact that the generally delayed defense program was even further behind schedule on the PBA assignment suggested to some that they might not have to wait much longer. Paraphrased an indignant Texan: "Billions for defense, but no one sent for architects!"

CONSTRUCTION TROUBLE SHOOTER

While not circulated with the serious delays in his $1,147 million construction program (see col. 1), War Secretary Stimson is far from satisfied. Proof: Fortnight ago he called to his Department a man renowned for his effective administrative ability and his marksmanship as a keen-eyed trouble-shooter—Lt. Col. Brehon B. Somervell. He moved into the executive office in charge of construction which was vacated two days before when Brig. Gen. Charles D. Hartman entered the Walter Reed Hospital for observation and rest following a long period of overwork.

A slim, grizzled 51-year-old member of the Army's Corps of Engineers, Col. Somervell has a background of practical experience which admirably suits him for the present colossal construction job. Highlights: one-time president of the Mississippi River Commission; construction director of the controversial Florida ship canal before this pet New Deal boondoggle was cut short; Engineer Corps officer in the Washington (D.C.) district in which capacity he had charge of the construction of an additional conduit for the local water supply system and made a preliminary report to Congress on the establishment of the Gravelly Point Airport which will be opened to traffic this spring; and, most recently, WPAdministrator for New York City.

First move of Troubles-Shooter Somervell in his new position was one toward both consolidation and decentralization. Thus, he has reduced to five the eleven sections into which his organization was formerly divided: administrative, finance, engineering, construction and real estate. As the pattern for his decentralization move, Somervell tore a leaf from World War I history which showed that construction proceeds more orderly when under local direction. Soon he will have established nine construction zones coinciding with the Army's nine Corps Areas and will have appointed nine "zone representatives" who will be given power to make decisions without waiting for red tape entangled approvals from Washington.

Indication that Col. Somervell believes Labor has more than a "1 per cent" share in cantonment construction delays (see col. 1) is his announcement that an official of "wide experience" would soon be appointed to deal with labor difficulties. And, indication that even Somervell's vigor and efficiency may be unable to make up the construction program's lost time is his admission that it will take "every bit of experience, drive and energy we have" to finish the cantonments by the June 30 deadline.
CENTRALIZED BUYING

To cushion the impact of the Federal defense housing program on material and equipment manufacturers and to aid them in scheduling their production, Treasury Department's Procurement Division at mid-November launched a centralized buying program by sending to Building's manufacturers specifications for the desired items and questionnaires concerning their production.

At mid-December, the Procurement Division let the first three contracts under its centralized buying program: 1) to Briggs Manufacturing Co. of Detroit, $473,582 for steel bathtubs; 2) to Youngstown Pressed Steel Division of Mallems Manufacturing Corp. of Warren, Ohio, $35,400 for more steel bathtubs; 3) to Williamson Heater Co. of Cincinnati, $39,885 for warm air furnaces, blowers and automatic heat regulating equipment.

BUILDING LABOR AMPLE

Eagerly awaited and worth waiting for was the address of President John P. Coyle of AFL's Building and Construction Trades Department delivered last month before the U. S. Chamber of Commerce's Construction Industry Conference. After reiterating President Roosevelt's conviction that the social gains of Labor should not be sacrificed at the expense of national defense, Coyle went into the vital subject of Building's labor supply, dispelled fears frequently expressed in the press that there would not be sufficient numbers in the skilled building trades to carry out the defense construction program on time.

On the basis of a survey of all National and International Unions and 510 local Building and Construction Trades Councils, Coyle concluded that last June there were "approximately 370,000 affiliated union skilled craftsmen and building and construction laborers available for employment in the defense program." Commenting upon these men, the labor leader noted "that we have been able to supply the needs in every instance for competent skilled labor on every project on which we have been requested to aid ... and without one cent of cost to the Government for transportation expense ... while we still have a number of available skilled men, the supply is reduced radically, but there is still no danger of a shortage."

POST-WAR PICTURE

With airplanes log-bound, Johns-Manville President Lewis Thomas was accorded by the Procurement Board a chance to address the same meeting by amplified telephone from New York. Following a thorough exploration of Building's responsibilities and problems resulting from the Defense Program, Brown concluded with an appraisal of Building's part in the post-war period:

"And finally, let me say that the building industry, in keeping with other branches of industry, must embark upon a program of extensive research of a kind and character which it has not yet been utilized. I do not mean abstract or theoretical research such as has been too often indulged in by our Government "planners" for an idealistic future or Government spending which is smoke screened as research. We want to avoid any more 'Tugwell Towers.' I mean a practical kind of applied research which creates new long-range patterns which are usable in cutting through the log-jams which prevent drastic reductions in building costs—patterns which can be used in community after community to solve their local problems. We must prepare ourselves for the job of rebuilding America. We intend to put new builder, every architect, every real estate agent, every building supply manufacturer, every maker of real estate and construction loans, to think in terms of better homes can fit into better community development, into better town planning, into more wholesome neighborhoods.

"And from a modernization standpoint, we shall have to learn in terms of whole areas and whole sections which must be scrapped and completely rebuilt. Here we must think in terms of salvaging immense investments in public improvements such as streets, schools, utilities and fire protection in the great 'blighted' areas of our cities. We must do this through broad programs of building modernization in entire areas so as to revitalize the income producing power of the buildings in these areas. To move the numbers of people from these 'blighted' sections to new outlying suburbs merely evades, without solving, this serious municipal problem."

LUMBER DEMAND PEAKS

According to word last month from Steelman Edward R. Stettinius, Jr., National Defense Advisory Commissioner in charge of industrial materials, Government's wild lumber consumption spree, which hiked prices by about 10 per cent during the last half-year, has passed its peak. Practically all of the 1.5 billion ft. of lumber needed for the present cantonment construction program has been purchased. Some informed observers predict that the peak-passing will act as a tonic for jitters lumber prices, will at least cut down their upward acceleration.

A two-week survey of the industry conducted by Stettinius at year-end indicated that the 1942 lumber production ran to about 25.5 billion ft., up 3.5 billion from 1939. The increment is substantially more than the defense program requirement. Basic lumber field is the South which produced close to 8 billion ft. last year.

Next came the Oregon and Washington region with a production of 7.5 billion ft. and the western pine region which turned out 5 billion ft.

Although lumber for the Government defense housing program has not yet been purchased the demand will be spread over a period of, perhaps, twelve months and should not, therefore, present the price-boosting problem as caused by cantonment program.

Meanwhile, lumber demand for domestic furniture manufacture, for rai.

DEFENSE DOLLARS ANALYZED

With more than half the $8 billion Federal defense construction program under way, a pattern of expenditures is beginning to emerge. On the basis of this pattern, it is possible to say that by June 30, 1943 the $8 billion will have been divided about like this:

- Largest single allocation is for the construction of so-called "productive facilities" including airplane and engine plants, armoring, tank, ammunition and locomotive plants, shipways and shipyard facilities.

- It will total about $250 million.

- Air bases and their attendant hangars, repair shops, administration buildings and similar purposes will cost about $200 million.

- Second largest allocation is for the construction of so-called "productive facilities" (other than air bases) will require $280 million.

- Defense housing, including land clearance and purchase, will cost about $240 million.

At a joint dinner of the Producers Council and Building and Construction Industry Conference of the U. S. Chamber of Commerce's Crane Co.'s Director of Trade Relations Ressel G. Creviston translated these dollar estimates into impressive employment statistics: 18,000 man-years for carpenters, 8,000 for bricklayers, 4,000 for electricians, 5,400 for painters and 7,000 for the paint, windows, doors and glazing trade. With 1.3 billion man-hours of labor involved, the construction program will be completed by mid-year.

It will total about $342 million.
Will there be shortages of materials as the defense program gets really underway? If so, of what materials? Will there be fabrication or transportation bottlenecks? If so, where? These are the questions that come to mind when one examines the tremendous schedules thus far released not only for housing, but for military and naval expansion and merchant marine building. The latter three received priority over the former in the last war, and, while it is intended this time that housing shall keep abreast of the other preparedness categories, how are we to know that force or arbitrarily it will not suffer deference to the others?

There are several mandatory reasons why construction will probably not be second-fiddled in 1941 as it was in 1917. For instance the many new far-flung naval bases, small cities in themselves, to which new building is as A is to B. But also there are the wide deployment features of air defense tactics which take the production eggs out of a few vulnerable baskets and nest them widely, and individually. This necessitates much high speed house building beyond commuting access of established dwelling and distribution centers, whereas 1917 speed-ups were within the environs of going cities and towns. There is also a concomitant industrial efficiency trend toward this same deployment, or physical decentralization. It is due to industrial specialization and the desirability of placing specialized production at the strategic points most central to raw material source, power and pursuant distribution to decentralized assembly points. Thus the inefficiencies of old centers are bypassed. This trend has been vastly expedited by the tremendous network of road and utilities built during the last quarter century and by the completely new acquisition by the U.S. economy in the same period of its 25 million passenger vehicles, 88,000 miles and 5 million high speed trucks. These facilities, it will be seen by inspection of the accompanying charts, were virtually nonexistent in 1917, a fact which with many another of equally great importance is easily forgotten in the general fallacious tendency to revert mentally to a notion of reenactment of the 1917 scene as we prepare for today's contingencies.

There are virtually no physical conditions analogous to those of 1917, as we shall presently see. Even the average 31-year-old U.S. man is 5 per cent taller than in 1917 and 300 per cent better educated. One carload of coal can now produce the same kilowatt hours of electrical power that required five carloads in 1917.

And if there are to be shortages or bottlenecks, are there not alternative ways of obtaining the same end results by the use of alternative design practices employing alternative materials or equipment?

An attempt to answer these questions will be the subject matter of this and an ensuing article in The Forum. The present article will deal with the question of shortages and bottlenecks. The second will deal with design considerations springing from the first.

PLENITUTES, NOT PLATITUDES

A theoretically simple method of obtaining answers to these questions would be to call upon the Defense Commission and ask for its findings upon the subject. But for various obvious defense reasons they would not answer you. However, another means of discovering important and incontrovertible facts adequately covering the subject, without in any way giving comfort to the enemy, is open to us. It is a method indeed whose findings may well give considerable discomfort to any enemy of the ideals and will of a mobilized people of the United States—a unique people who biologically, genetically, economically, philosophically and mechanically are, even prior to martial mobilization, inherently the most mobile agglomeration of people upon earth. Yet they represent but 7 per cent of the world population. These are no platitudes; witness that this 7 per cent rides more railway miles, ships more railway-ton-miles of freight, more airway-ton-miles of express annually than all the other combined 93 per cent of the world's population; drives 3,000 times as many automobiles-passenger-miles annually; flies a million times as many peaceful airway-passenger-miles as all the rest put together; has a per capita ratio of 88 telephones, 95 radios, 97 motor vehicles, 97 motion picture houses, 98 private non-military airplanes and 99 bathtubs to one each for the persons of the rest of the world.

In a space short of volumes, it is impossible to trace the continual drift of the 92 chemical elements and the myriad of compound materials derived therefrom, from major consumption by one older type of industry to another newer one. Take, for instance, copper's sequence of major patronage first by the shipbuilding industry, next by railroads, next by building, next by communication, then by power utilities and lastly by the automobile in-
If all houses were torn down when they reached the age of 75 (and most of them should be), there would be an actual shortage of 3.6 million dwelling units in the United States today. Actually, this figure is theoretical, for families are living in these substandard houses. Assuming a less conservative obsolescence rate of 25 years per house, the theoretical shortage would come to the astounding total of 10.5 million dwelling units.

The shifts have been completed by concurrent secondary employment drifts; complicated still further by the history of increasing discovery of new resources; and complicated even further by the integrating history of improvements in the abilities of the materials through all sorts of design and development.

But it is eminently feasible to trace the history of the overall economy—its high point and low point and demonstrations of particular individual industry abilities—and to pare the trend peak loads with what is reasonably certain per capita requirements.

It is thus possible to witness copiously whether our economy is going to be adequately to supply the offensive demands. This precisely is the making of which we shall employ.

**SELF-PORTRAIT BY BUILDING**

In the large chart to the left we get the intimate portrait of the construction industry 1915 to date—through last war, through the booming Twenties. Jesse Jones’ latest defense-start figure gives a satisfactory picture of every industry in the United States which can be built, be it telegraph lines, poles, erection and maintenance of factory, dwelling or a new roof on Mary’s barn. Highways, stadiums, power plants, WPA, PWA, Rivers and Harbors, power lines, tunnels, railway tracks, elevators, removals, dams and power houses—all are there, constituting more than 50 per cent of what is known as heavy industry.

The rest of heavy industry consists of removable factory machinery, the redhead stock on the railways and shipping. Moreover, the integral machinery of the buildings, their elevators, air conditioning and heating and plumbing are part of the construction industry herewith pictured.

Number One observation is that during the unit gigantism of individual projects in the defense schedule, we shall have to gear up to compare importantly with the building peacetime Twenties or even to top 1917 figures, which date there were 30 million less people to be housed and serviced. Then, the integral mechanics of dwellings are only 15 per cent of the total general contract instead of nearly 30 per cent today. This means that more has been added to the dwellings, rather than the cost of dwelling shells has decreased.

And projected new construction estimates for 1941 show only an 18 per cent increase over 1940 (see p. 68) whereas it may be assumed that the construction industry will be far less of a tax upon the general materials supply economy than in the Twenties.

**MATERIAL SUPPLY AND USE**

Furthermore, many efficiencies have developed in production design and equipment since those previous greater peaks. There is less waste of expensive and important materials in rococo ornamentation, concrete mixers, tenfold increase in power shovel capacities are but a few straw
The possible strain upon steel tonnage capacity is offset by the considerable thinning of sections of structural elements occasioned by the design practice of paying diagonal tension rods between walls. This reduces the latter's stress requirements to satisfying only compressive loads, instead of the many former, vertical, lateral, and shear stresses—a departure less than a decade old.

The charts below and on page 28, which may the declining peaks of withdrawal of such basic resources as lumber, iron, copper and the continual increase in the occurrence of scrap from obsolete use, only serve to emphasize the obvious wide of Building's raw materials. Thus we may conclude that as far as tonnage and volume of raw materials concerned, the construction industry is no longer approach former peak requirements in the immediate future, even granting the long heralded mass production of building units were to be ushered in for long climb to family population equilibrium.

In contradistinction, the simplified and more efficient designs, can rarely be fabricated with the same equipment that fashioned identical dimensions of mild steel. All in all, the untutored critics of fabricators who now belabor the fabricators for not having kept up "capacity" production or for not having fabricated advance stocks in slow times are completely unjustified in so doing. This despite the fact that, as far as steel ingot production goes, one month's 92 per cent U. S. capacity steel operation exceeds the total tonnage of the British Merchant Fleet prior to hostilities and one week's operation could set aside ingot stocks sufficient to duplicate the U. S. and British navies combined.

It is just hard luck that the rate of evolutionary readaptation of industry to the rapidly developing scientific changes has had to be accelerated to the point of fabrication bottlenecking. For, as we can learn from the accompanying charts, this bottlenecking obtains all along the line in almost every department of fabrication, requiring changes in technique due to alloy changes and to new and far closer tolerances. These ultimately improved standards have temporarily diminished rather than increased fabrication capacities, and this despite an actual increase in output efficiency in the last decade for any established production requirement which amounts to anywhere from 1,000 to 10,000 per cent improvement in worker hourly output right across the board. The bottleneck is then to be found in the time lag required to retool approximately one third of the older fabrication industries as well as to equip major freshman industries such as that of the airplane.

From the size of the appropriations of defense sums allotted to the machine tool

<table>
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<tr>
<th>Year</th>
<th>U.S. Per-Capita Share of Iron Ore Resources</th>
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<tbody>
<tr>
<td>1920</td>
<td>25</td>
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<tr>
<td>1925</td>
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<td>1935</td>
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<td>1940</td>
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### Iron and Steel

While the fabrication of steel may not be a national defense headache, the supply of its component parts is. While it is apparent that the very fact of the U. S. population between 1930 and 1940, increased efficiency and the design and use of steel forms has cut the per capita consumption of new iron almost in half—to about 325 lbs. Also, the availability of scrap iron (which constitutes about 50 per cent of all new steel ingots) has increased each year and will continue to do so. If the trends posted on the chart above hold true for the next few years, it is apparent that lines for the availability (per capita consumption) of scrap will intersect the new iron consumption line some time in 1942. Its complete height representing 100 per cent, the column to the right shows that of the entire world's iron ore resources per capita, the U. S. has about 35 per cent.

### Domestic Consumption of New Iron Per Capita

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<tr>
<th>Year</th>
<th>USA</th>
<th>World</th>
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<tr>
<td>1925</td>
<td>100</td>
<td>120</td>
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<td>1930</td>
<td>90</td>
<td>110</td>
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<tr>
<td>1935</td>
<td>80</td>
<td>100</td>
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<td>1940</td>
<td>70</td>
<td>90</td>
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### Domestic Consumption of Old Scrap Per Capita

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<th>Year</th>
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<td>1940</td>
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### Fabrication on the Spot

That there may well be fabrication facility shortage is, however, another matter. If smaller structural sections are now being required and the older heavier sections not being called for, the older fabricating equipment which was ready to roll the heavy sections is a complete waste in the inventory of production capacity. Furthermore, it takes as long to roll a small section as a large one. And this more efficient lighter section method in building may well run into conflict with shipbuilding section requirements. Then again, new alloys have entered the field since the last war and in far increased numbers since the booming Twenties, and these new alloys, in ever greater demand for more efficient designs, can rarely be fabricated with the same equipment that fashioned identical dimensions of mild steel.

All in all, the untutored critics of fabricators who now belabor the fabricators for not having kept up "capacity" production or for not having fabricated advance...
LUMBER AND CEMENT  The house building boom of the Twenties notwithstanding, the demand for lumber has never been as great as it was in 1916 when 40 billion board feet were produced. Estimated production for 1940: about 26 billion feet. As if this were not proof enough that the U. S. lumber supply and producing equipment are ample to handle a tremendous defense demand, note that only about 57 per cent of each year's total wood "consumption" goes into lumber. Many of the lesser uses (principally fuel) could be easily reduced. And, increased attention to fire prevention might help reduce that amount of wood which is put to no use at all (13 cent in 1936, see vertical column). A note of warning is the fact the total amount of wood removed each year is about four times great as the new growth.

Despite the tremendous use of cement in the New Deal's dam, highway and big building spree, the cement curve (annual volumes magnified ten times to be visible on the lumber chart) recently risen only about three-quarters of the way up to the top of the Twenties.

COPPER  One seldom advanced reason behind the economic tailspin of the early Thirties is the fact that the U. S. supply of scrap copper for several prior years had been rapidly approaching the total copper demand. As shown in the chart above, the trend lines actually crossed each other in 1931, and a tremendous scrap excess has existed ever since (mainly for export purposes). Obviously, then, the natural supply of copper is no national defense problem. But there will be talk of a copper shortage prompted by fabrication limitations.
It suddenly cease and catch them with fabrication bottleneck. Taking the positive, not making any strides to alleviate the situation. One of the key reasons behind the bottleneck is the scarcity of adequate personnel, efficiently well informed, and skilled. Hence, coupled most importantly with the bottleneck is the obsession of the cosmic thinkers as to what to do. Here is indeed a great emergency here—emergency of an economy that has to cherish its most valuable asset—creative imagination.

**Housing, for instance**

To relieve this condition the Government would eventually have to undertake any such additions to plant capacity, a step which is liable to lead to the Government’s being in post-war competition with practically every business. That latter point presents part of the picture of the headaches now vibrating behind the scenes.

**A Typical Headache**

To explain that headache further take the contemporary bottleneck in zinc. There is no shortage of ore, U. S. producers owning and controlling almost 70 per cent of the total world production in the past. Zinc, almost a war baby, being used in the making of brass for cartridge shells and has certain other new ballistic uses. It also is the best metal for new die-casting developments essential to airplanes.

Since the last world war a new electrolytic process of producing zinc has been developed which makes a 99.9999 per cent pure zinc as contrasted with a 99.98 per cent pure product as furnished by older methods. This new purer zinc makes a considerably superior alloy in brass, rendering the brass far more workable in forming operations. It is demanded by fabricators. The bottleneck in zinc is the need for a 30 per cent increase in electrolytic tank capacity, but no one wants to put up the money for the equipment in view of the pre-war slack which might easily become even more aggravated after the present rush. This would be particularly true if the general practice of steel galvanizing by zinc were to be shifted to parkerizing or to other carburizing processes of steel sheets (such as the painting of them cheaply as in the automobile industry) simply because the zinc bottleneck as a war baby has curtailed the galvanizing operations and in turn held up much galvanized sheet metal construction. Despite customer willingness to pay premiums for guaranteed deliveries, the zinc in-
Transportation is fighting to keep its prices down. Reason: the basic metallic-zinc producers know that the large domestic resources of the metal will not justify a rise in price simply because of the fabrication bottleneck, which, if relieved by Government underwriting, might easily provoke the Government into a competitive yardstick operation, either by direct operation of the equipment as an arsenal unit or by tax measures.

**TRANSPORTATION NO CHOKE**

The chart presented below portrays some of the more important data relative to transportation and communication, showing that there should be no bottleneck in this direction. The charts on page 97 show a few of the typical efficiency increases that should swing the U.S. economy into high speed of production of everything once the chokes already analyzed have been corrected, which fortunately must obviously involve or more, but which should be so faced with clearly developed public edge of their existence. If corrected given the right of way, the ultimate smooth flowing speed-up will follow.

In the meantime, Building has the light, if its projects are properly de to conform to the plenteously available materials.

TRANSPORTATION is not the problem it was during World War I. While the length of railroad track has shrunk slightly and the number of freight cars has decreased, the highway network has more than doubled, the U.S. truck fleet has multiplied 50 times and the power and efficiency of all types of vehicles have increased many-fold. By relieving the railroads of considerable passenger traffic, the expanding airlines have freed much trackage for freightment. And, they themselves are carrying an increasing load of freight. Note that communication facilities have grown in step with the transportation trend. The increase in the message carrying capacity of telephone wires is one important reason for the downward slope of copper consumption graphed at the bottom of page 26.
Washington insiders it is no secret that the Department of Defense is making a smart move: to turn all its attention to carrying most of the defense load. Strategically, however, by committing itself to providing defense housing it is turning one of the Federal agencies to help private enterprise participate in the defense assignment.

Obviously, private enterprise is expected to provide most of the defense housing. To carry most of this burden Washington officials are cagily allocating $100 million in new appropriations to the Department of Defense. This is suffering from too many bosses, and there seems to be little urgency about getting the money to cover the calculations for Army and Navy housing needs.

Washington insiders think that it is a commendable field test for leading private industrial workers. $100 million in new defense housing appropriations will be used to meet the growing demand for defense housing.

If-hearted efforts are now being made by Government to help private enterprise participate in the defense assignment. The Department of Defense is pointing out housing needs that are met by private capital and is urging several clear-cut observations. Nevertheless, out of the smog of contention over the capital and the conclusion that defense is suffering from too many bosses, the number of defense housing projects continues to be far below the demand.

The U.S. Chamber of Commerce early last month: "Our object is not to go in and build houses for the workers or for the enlisted personnel—our object is to go in and see if we can provide for the need without building new houses." If no other way can be found, "we allocate Federal funds and get one of the Federal agencies to build."

At midmonth Coordinator Palmer had flashed the signal to Federal agencies to move in on only eleven locations where private enterprise is unable to provide housing at sufficiently low rentals or is unwilling to do so because of the emergency's uncertain duration. In the majority of these places, while Government takes care of the $11 to $26 rental market, private operators are still relied on to supply additional quarters renting anywhere from $20 to $30 per dwelling unit a month.

Also aimed to give comfort to private enterprise are Palmer's two new staff appointments. In as a dollar-a-year consultant comes Chicago's Real Estate Financier Morton Bodfish (executive vice-president of U. S. Savings & Loan League) to deal with the problems of financing defense housing with private capital. Serving as a special consultant is Los Angeles' Builder Philip Norton (director of Los Angeles Realty Board and other civic organizations), who will aid in establishing the local housing authorities wherever they appear competet to do the job. In this way local architects, engineers and builders will participate in the program.

Progress. Less easily excused than the delay in cantonment construction (see p. 21), is the lag in defense housing. Outside the U.S.H.A.-financed projects—two already complete (624 dwelling units), eighteen

The Navy takes the lead, while the Army marks time and FWA experiments with prefabrication and cooperative ownership.

Early estimates of needed defense housing are being re-evaluated as U. S. industry continues to provide defense housing in addition to its war goods production. To meet this demand are available public funds totaling $340 million—$140 million for the Lanham Defense Housing Act administered by FWA and primarily for the industrial workers, $100 million appropriated for Army and Navy housing through the Defense Housing Act, and about $55 million from U.S.H.A. Financier Morton Bodfish (executive vice-president of U. S. Savings & Loan League) will participate in the program.

Progress. Less easily excused than the delay in cantonment construction (see p. 21), is the lag in defense housing. Outside the U.S.H.A.-financed projects—two already complete (624 dwelling units), eighteen

First defense housing project designed by PBA for construction with part of the Army's $49 million housing fund. Scheduled for April occupancy, the 700 dwelling units avoid traditional regimentation by being oriented to the rolling terrain of the site's 70 acres. (see next page.)
under construction (5,900 units), six more earmarked (2,100 units), plus four existing slum clearance projects converted to defense use (450 units)—first to get going are those of the Navy.

Army officials have turned their 849 million share of the $810 million Army and Navy housing appropriation over to Car- mody's Public Buildings Administration. Currently this agency has 66 Army projects under its wing, but at mid-December only twelve, costing approximately $7.5 million and totaling about 2,600 units, had hatched into contract awards. First to start construction: a 700-unit housing project at Kentucky's Fort Knox (see above.)

Elaborate buck-passing is now developing between PBA and the Army as to responsibility for the delays. PBA officials complain that Army officers change their minds almost daily, citing as an example one project which was first designed to fit an Army reservation site, then re­vamped for an outside location and finally ordered to be put back inside the reserva­tion again. Each flipflop in orders, they contend, requires a revision in building plans and causes a new delay.

Quietly doing its own work, the Navy scores a more impressive record: out of 47 projects (15,000 units) for which funds have been allocated, 38 (13,100 units) were under construction last month. In addition, the Navy is acting as agent for FWA in building a 1,900-unit project at Oahu, Hawaii.

Last to get started are the Lanham Act projects. Busy protecting the interests of private enterprise, Coordinator Palmer did not release his list of cities with acute housing shortages until November's tail-end. Four days later, before Palmer had amplified his original terse statement with additional data on the specific needs of each locality, FWA Administrator Carmody rushed out an announcement of the first construction assignments.

To PBA went three projects totaling 1,900 units—Maryland's Indian Head (650); New London (300); California's Vallejo, near the Mare Island Navy Yard (950). To local housing authorities, via USHA, were assigned six others totaling 3,550 units—Jacksonville (300); Pensacola (100); Charleston (600); Philadelphia (300); Boston (1,050); Bremerton, Wash. (800). Besides these and the 1,000-unit Oahu Island project turned over to the Navy, a 500-unit project at Camden, N. J., was set aside to be handled by Carmody's own office.

Principal significance of this batch of projects: they include the first that will become available to employees of private industry. Two hundred Electric Boat Co. workers will share the New London project with families of enlisted personnel; 1,900 from Bethlehem's Steel Corp.'s Fore River Shipbuilding Yards, the Boston project; while New York Shipbuilding Corp. workers will occupy the entire Camden project. Also coming in under Lanham Act money is a mammoth 3,000-unit project for industrial workers in San Diego's local aircraft plants. Although announced later than the others, it is the first to reach the construction stage. PBA's largest, it is going up on an 800 acre site within the city limits, will form virtually a new com­munity complete with schools, shops and other facilities when finally finished ten months hence. Two Los Angeles con­tractors, sharing a fixed fee of $800,000, are handling the construction. Estimated cost of project: over $89 million.

In addition to its present assignments, PBA hopes to get 30 more projects to de­sign and supervise. (Worth passing men­tion: PBA's regular public works operations are to be severely curtailed during the next year. Budget Bureau, in a program of conserving funds for military construction, has directed the agency not to plan more public buildings on the scale of the Lanham Act projects, which means that its next fiscal funds will be sliced to the bone.)

None of the USHA-supervised Lanham Act projects has yet been put under con­tract. Local authorities are following the usual routine. All contracts, however, will be written directly with FWA, so that USHA becomes simply an adviser to the local authorities, not a fiscal agent of the Government. New work, if expected, will be shared roughly 50-50 by PBA and USHA.

Demountable guinea pig. Perhaps more significant for defense housing's future is the Indian Head project in Maryland. In all, 7,000 units are scheduled to become a con­structive field day for rival prefabricated manufac­turers. Orders will be on hand among a dozen producers making different types of structural panels. These prefabricated units will then be assembled by a general contractor, thus providing an actual test of their relative merits.

All units are to be based on a stan­dard one-story single family house design by PBA. Measuring 24 x 28 ft., these units will contain two bedrooms, a living room, kitchen and bath, but no cellar or basement. Sloping roof and general outline will give a conventional appearance. Furthermore, a standard set of specifications will conform to governmental standards.

Prospective competitors are now being interviewed by PBA. In selecting prefabrication types, officials are depending for advice on the Bureau of Standards, which has been testing house panels for several years. As a full demonstration of the prob­ability of such housing, a few units of a

(Continued on page 40)
HOUSE IN LINCOLN, MASS. WALTER F. BOGNER, ARCHITECT
Professor Bogner, of the Harvard School of Architecture, confesses to two ulterior motives in designing his own house: to build on a restricted budget, and to show the advantages of a modern design over an equally low cost traditional one. Flexibility of space use was a necessity for the family of three and in the occasional entertainment of many guests. Northeast bedroom serves also as Mr. Bogner's dressing room; living room is divided at will by a suspended screen of wooden strips; a scrub-up room serves as laundry and maid's bath. Interior walls are of wallboard or plywood; floors of plywood covered with felt, carpet or linoleum. A sense of openness to the outdoors was sought, but without the sacrifice of privacy and opportunities for reading and concentration—as in the living room and its library alcove.
CONSTRUCTION OUTLINE


STRUCTURE: Exterior walls—framing grid of 2 x 4 in. studs vertically and horizontally at about 3 ft. intervals; where solid wall secondary studs for stiffness of exterior and interior surfaces; redwood outside finish. Interior finish—variety of wallboard glued to studs. Floor construction—joists with plywood underfloors, linoleum or carpet finish.

ROOF: Roof joists and boarding covered with tar and gravel.

INSULATION: Outside walls—variety of insulating wallboards. Roof—4 in. rockwool bats, Johns-Manville Corp.


BATHROOM EQUIPMENT: All fixtures by American Radiator-Standard Sanitary Corp.

PLUMBING: Hot and cold water pipes—copper tubing.

HEATING: Warm air including filtering and humidifying, Superfex unit, Perfection Stove Co. Water heater—Lochinvar.
Orthodox elements of plan are exemplified by the fact that this house was designed for a bachelor. Except for the door from living room to garage, there is but one entrance and it leads directly into the living room, near enough to the kitchen to obviate the need for a service door. Clean lines and restful surfaces in treatment, with an austere avoidance of ornament, confirm the bachelorship. Even the trim around the window openings has been eliminated, its place taken by the simple quarter-round of stainless steel, harmonious with the plaster.

**CONSTRUCTION OUTLINE**

- **EXTERIOR WALLS**: white cedar siding, Neponset paper, Bird & Son, framing, studs; inside—lath and plaster. Covered with 30 lb. asphalt felt and shingles, Barber Asphalt Co.
- **FLOOR**: Damper—H. W. Covert Co.
- **WINDOWS**: Sash and screens—Hope's Window, Inc. Glass—double strength, quality B.
- **COVERINGS**: Main rooms—white kitchen and bath—linoleum, Armstrong.
- **WIRE**: By Russell & Erwin Mfg. Co.
- **THEREFAR**: By Charles F. Richardson, Inc.

**ELECTRICAL INSTALLATION**: Wiring system—S. W. A. Switches—toggle. Fixtures—Crookshank.

**HEATING EQUIPMENT**: Range and refrig—General Electric Co. Sink—Kohler.
- **KITCHEN FAN**: Pray, & Co., Inc.
- **EQUIPMENT**: All fixtures by Kohler Co. Cabinets—Charles Parker Co.
- **PLUMBING**: Soil pipes—cast iron. Hot and water pipes—Anacona copper, American Brass Co. Pump—The Duro Co.
- **WATER**: Water heater—General Fittings Co.

**ROOM EQUIPMENT**: All fixtures by Kohler Co. Cabinets—Charles Parker Co.

Eastern Long Island, its houses hugging the sand dunes, prides itself upon architectural traditions as firmly established as those of Connecticut or Cape Cod. Built chiefly for summer occupancy, the plans are invariably long, presenting an extended front to ocean and breeze.

An appearance of height is almost the unforgivable sin, to be avoided even at the cost of dormered bedrooms and varying windowsill heights.

The play room—for adults—with its bar, and the garage have provided convenient justification for the long low wings.

CONSTRUCTION OUTLINE


STRUCTURE: Exterior walls—frame, diagonally sheathed, building paper and shingles; inside—metal lath and plaster or pine boarding. Floor construction—wood framing, sub-floor felt and finish wood flooring.

ROOF: Covered with shingle lath and shingles.

FIREPLACE: Damper—H. W. Covert Co.

SHEET METAL WORK: Copper, 16 oz., throughout.


STAIR: Pine throughout.


INTERIOR DOORS: Curtis Cos., Inc.

HARDWARE: By Ostrander & Eshleman.

PAINTS: By National Gypsum Co.

ELECTRICAL INSTALLATION: Wiring system—BX. Fixtures—Lewis Smith Co.


PLUMBING: Soil pipes—cast and galvanized iron. Hot and cold water pipes—copper tubing.

An unusual T-plan of living room, with dining room and den forming a long vista from bar through the north picture window. The low-pitched roof in its two levels unifies the irregular outline and, by its quirks at the ends and interposed bedroom deck, avoids the possible triteness of the rectangular shed form. Orientation indicates an exceptional set of local climatic factors, with the west exposure chosen for the living quarters and all service kept to the east. Turning the dining room from rather than toward the morning sun, and the ingenious ventilation from under the eaves (detail on opposite page), suggest a healthy respect for the power of California sunlight.

**CONSTRUCTION OUTLINE**

**FOUNDATION:** Reenforced concrete. Waterproofing—Anti-Hygro Waterproofing Co.

**STRUCTURE:** Exterior walls—stucco over galvanized wire mesh, 15 lb. asphalt saturated felt; 18-ga. galvanized over studs; Inside—plaster on keyhole lath over galvanized wire mesh. Floor construction—diagonally laid sub-floor and white oak T.&G. finish flooring.

**ROOF:** Covered with No. 1 red cedar shingles on shingle lath. Deck—covered with canvas.

**SHEET METAL WORK:** Toncan 26-ga. galv. iron throughout. Republic Steel Corp.

**INSULATION:** Outside walls and ceilings—rock wool, Coast Insulating Corp. Weatherstriping—Atlas Weatherstripping Co.

**WINDOWS:** Sash—steel casement, Drew Whit Metal Products Co. Glass—double strength, quality A. crystal and plate, Libbey-Owens-Ford Glass Co.

**STAIR:** Treads and risers—oak.

**FLOOR COVERINGS:** Main rooms—oak. Maid's room, powder room, pantry and kitchen—linoleum, Armstrong Cork Co. Bathrooms—tile, Gladding, McBean & Co. Bathrooms—Carrara glass wainscoting, Pittsburgh Plate Glass Co.

**WALL COVERINGS:** Main rooms and halls—Algonite, California Panel & Veneer Co. Kitchen—Sanitas, Standard Coated Products Co., tile, Gladding, McBean & Co. Bathrooms—Carrara glass wainscoting, Pittsburgh Plate Glass Co.

**WOODWORK:** Trim—Oregon pine. Cabinets and doors—California Panel & Veneer Co.

**HARDWARE:** By Beverly Hardware Co.

**PAINTS:** By W. P. Fuller & Co. and Reardon Co.


**LAUNDRY EQUIPMENT:** Sink—Crane Co. Washing machine—Sendix Home Appliance Co.

**BATHROOM EQUIPMENT:** All fixtures by Crane Co. Cabinet—Hailensheild & McDonald.

**PLUMBING:** Soil pipes—galvanized iron. Hot and cold water pipes—galvanized iron.

**HEATING:** Forced air heating system. Bathroom heaters—Thermador Electric Co. Water heater—Hoyt Heater Co.
RICE AMON, ARCHITECT
WALTER H. MARTIN, ENGINEER

Chimney with stairway winding around it, steeply pitched roof, overhang of second story, austere simplicity of the divided entrance and its frame, exterior symmetry of openings, bold projecting trim with sill, absence of shutters—even the small diamond-paned case-
ments—are authentic echoes of the seventeenth century, but they consort happily with the integral garage, the four baths and other amenities of 1941.

CONSTRUCTION OUTLINE


ROOF: Covered with Perfection red cedar shingles.

FIREPLACE: Damper—H. W. Covert Co.


WOODWORK: Trim and doors—Curtis Cos., Inc. Garage doors—Overhead Door Co.


ELECTRICAL INSTALLATION: Wiring system—BX. Switches—Harvey Hubbell, Inc.


BATHROOM EQUIPMENT: Fixtures—Kohler Co. Cabinets—Charles Parker Co.

PLUMBING: Soil pipes—cast iron and galvanized steel with galvanized cast iron fittings. Cold and hot water pipes—brass.

HOUSE IN ST. LOUIS COUNTY, MO.

VIEW 1.

FIRST FLOOR

SCALE: IN FEET

0 5 10

GARAGE

BEDRM

13'-0" x 14'-4"

MAID

11'-6" x 8'-6"

LAUNDRY

COAL

STOR

BASEMENT

SECOND FLOOR

BEDRM

15'-0" x 10'-0"

BEDRM

15'-0" x 10'-0"

STOR

STOR
K AND AUER, ARCHITECTS

Commonly accepted minimum of living room, kitchen and two beds with the uncommon addition of a maid's room. Continuing the very stained redwood in fence form to link the garage and extend the front porch, proved to be an effective means of making a very small house reasonably spacious. With the almost black redwood and used brick, interior trim is white and chartreuse. What might appear to be inadequate windows under the eaves serve their purposes of lighting the stairway as well as ventilating the main bedroom.

CONSTRUCTION OUTLINE


ROOF: Covered with asphalt shingles. INSULATION: Second floor outside walls and ceiling—4 in. blanket, Fibatherm Insulation.

FIREPLACE: Damper—H. W. Covert Co.

SHEET METAL WORK: Copper throughout.


HARDWARE: By Melcher-Schene Co.

PAINTS: By Whittemore Paint Co.

KITCHEN EQUIPMENT: Range—gas. Refrigerator—electric.

BATHROOM EQUIPMENT: All fixtures by American Radiator-Standard Sanitary Corp.

ELECTRICAL INSTALLATION: Wiring system—6X.

HEATING: Air conditioned hot air with humidifier and blower.
HOUSE IN LAKE FOREST, ILL.

GARAGE

WAIDS RM

BED RM

PANTRY

WISHO

GUEST RN

DIN-RM

BFDRM

FIRST FLOOR

SCALE IN FEET

LIV-RM

MADE RM

KITCHEN

PANTRY

WORK RM

GUEST RM

BED RM

BED RM

SECOND FLOOR

VIEW 3.

VIEW 2.
characteristics of a rather peculiar and beautiful site dictated the plan. Approximately one acre of a former estate is divided from surroundings by natural ravines running to Lake Michigan. By locating the garage on the building line toward the south, the maximum of space was reserved for the south side for lawn and gardens. All principal rooms open to southeast or west, garage, service, hall, entries, all to the south. With the plan thus established, brick and redwood were employed to blend the house with the large maples and the birches. The personal considerations of the plan were the provision of a folding screen between living and dining space; the comparative isolation of the architect-owner’s work room and guest room. One chimney serves the fireplaces, boiler flue, incinerator and dry chute.
HOUSE IN LAKE FOREST, ILL. WINSTON ELTING, ARCHITECT

PLASTER-' V/4' CHANNELS SPACED 4'0" D-C-FASTENED TO JOISTS WITH SCREW HOOPS TURNED LOOS METAL INSULATION
PLASTER-2' C'C FASTENED TO THE W CHANNELS ABOVE FIRST STORY CEILING CONSTRUCTION SECOND STORY CEILING CONSTRUCTION

WORK ROOM

HEATING COILS

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—brick veneer
redwood siding, insulating sheathing boards,
Wood Conversion Co. Balsam wool blankets,
lath and plaster.

ROOF AND DECK: Covered with 4-ply built-up asphalt roofing covered with marble dust.

FIREPLACE: Damper—H. W. Covert Co.

INSULATION: Outside walls and ground floor—Balsam wool blankets, Wood Conversion Co.
end floor—rockwool and metal foil. Roof—Balsam wool and metal foil. Weatherstripping—Chan- tile Metal Weatherstrip Co.


FLOOR COVERINGS: Main rooms—white
Halls—Corka cork tile, Cork Insulation
Kitchen, 2nd. floor bedroom and bathroom—linoleum, Armstrong Cork Co.

WALL COVERINGS: Living room—Flexwood, S. Plywood Corp. and rift sawn oak.


BATHROOM EQUIPMENT: All fixtures by Clay Co. Cabinets—Charles Parker Co.

PLUMBING: Hot and cold water—Streamline pipe, Mueller Brass Co.

HEATING: Boiler—Pacific Boiler Co. Oil burn.

THE ARCHITECTURAL FORUM
THOUGHTS ON AMERICAN MURAL PAINTING

By Julian Garney

Spoken at the Symposium of the National Society of Mural Painters, New York, December 9, 1940

The use of mural painting is increasing but not yet an essential resource of practice but rather a luxury to be used lightly. Time was, however, when no building was considered complete without state and significant decoration. The nature of such a time, the Italianness, may uncover interesting comparisons which we base our planning for mural painting in this country. I see it, three conditions existed in Renaissance from which our art drew strength. First, there was a wealthy and gentile lay clientele. The Church led, supported by kings, nobles, great families independent states. Second, there were noble techniques, basically naturalistic and nut distortion, which was generally understood.

Returning to the present, we may indulge, and to what degree, these traditions exist today. First, as to possible na. The Church has yielded its place to wealth of great commercial corporations, rich in stories which have not yet been told. We still have rich traditions, though they are less visible than formerly. Kings and States have been replaced by our Federal Government, at present almost our only patron. Third, painters employed a simple technique, basically naturalistic and understood, which was generally understood.

The final difficulty was not unknown in the Renaissance but was overcome short by all. Some will say that such messages are non-literal and about the concept which laymen comprehend. Obviously language of technique generally understood. Since mural painting is an art for the people, painters will have to find a means of communication which speak to the clients and the people, that speak a language of technique generally understood, and that can be executed at a reasonable cost of the building, and the people, that speak a language of technique generally understood, and that can be executed at a reasonable cost. What lasting influence must Puvis de Chavannes' hemicycle in the Sorbonne have left upon the students who viewed it day after day?

Third, do we use today a simple technique, easily understood by all? Obviously we do not. Many techniques of varying obscurity are in use, of which some seem intentionally difficult to understand. Since mural painting is an art for the people, painters will have to find a means of communication which laymen comprehend.

There is no need of a reminder to most of our readers that the entire architectural profession, with the exception of a very few of its members, is passing through a very bad time. The disinclination of the authorities to do anything tangible to meet the situation suggests that there is still plenty to be done in the way of persistent propaganda on behalf of the long-suffering architectural profession.

Men like Grant Wood, Tom Lea and Thomas Benton have found such a means. Any less explicit defeat the purpose of mural painting.

To sum up, it appears that patrons do exist today, who may be educated by their architects to use mural painting, that appropriate subjects abound and that a simple technique may be evolved, understood by all.

The final difficulty was not unknown in the Renaissance but was overcome short of dispensing with mural decoration. I mean the matter of cost. In this regard the Federal Government has led the way by allotting a small percentage of the cost of its buildings to painting and sculpture, and by paying by the square foot for these arts. There seems to be no insuperable difficulty in the way of adopting that procedure in private practice. Certain one would search long for a material at the same price which would return more, in the long run, of interest, significance and satisfaction.

May I close with the observation that the future of mural painting depends primarily upon the mural painters themselves. If they show an ability to paint decorations that are worthy to be placed in modern buildings, that hold significance for the clients and the people, that speak a language of technique generally understood, and that can be executed at a reasonable percentage of the cost of the building, they may expect the support of architects and, through these advisers, of the patrons of building. Under those circumstances one might expect the arrival of the American Renaissance.

THE ENGLISH ARCHITECT AND THE WAR

Excerpts from an editorial in The Builder, London, August 2, 1940.

There is no doubt that members themselves are doing their best to help themselves, and probably with greater success now that architecture is no longer a reserved occupation. Many have closed down their practices and have taken salaried jobs—sometimes at very indifferent wage rates, and often on work which represents the least interesting branches of architectural practice. Many of the
"We are naturally endeavoring to push able Secretary, Ronald Bath, writes: Lines.

pamphlet, Siniidycs it has published a clever little monthly Institute of Architects, and for two years Students' Society of the Royal Victorian will soon be heard. vocal, and doid)tlcss there are others who

in some of the larger centers. San Fran­

of confidence in their individual powers—

all have helpecl to form loo.sely knit units

Uncertainty of the times, difficulties of

profession have In-en banding together on the

tribute to his living.

of such cx|)enscs that the country archi­

more than pay tlie exijenses of the ofHce,

enough these hard-won guineas do little

very snuill scale, are demanded wlicrever

most conditions, and his services, on a

that a part of his work goes on under

up the stable part of the country prac­

ices" which country life demands, make

small size, and the numerous "feed serv­

war is not cqiite so complete, in that the

practice are thus in a few baskets. In

cases, have seen thriving practices dis-

staff. In Ix)ndon, such men, in many

appear within a few weeks, for the Lon­

don practice is generally one which de­

pends upon a sequence of a few large

jobs at a time, and the eggs of such a

practice are thus in a few baskets. In

the country the change from peace to

war is not quite so complete, in that the

country practice covers a very much more

general field. Numerous jobs of relatively

small size, and the numerous "feed serv­

were our training and a better year, and probably consti­
tutes the main source of personal savings.

In one sense, the country architect has
the advantage of his London confrere in
that a part of his work goes on under
most conditions, and his services, on a
very small scale, are demanded wherever
property changes hands and wherever
families seek their means of retrenchment
by moving to smaller premises. Often
enough these hard-won guineas do little
more than pay the expenses of the office,
and it is only by a drastic cutting down
of such expenses that the country archi­
tect can make these minor services con­
tribute to his living.

But the problem of decision faces all
architects alike, and the time must come,

and has already come for many, to decide
whether or not to cut losses and close
down for the duration of the war. When
it comes to that point we are inclined to
think that the Londoner will find it easier
to decide than the countryman. An
inactive London office serves little useful
purpose. It either gives him in unnecessary expense in traveling
to and from some suburban or country
home. To close down means very substan­
tial economies in an enforced idleness.
But in the country the architect in a small
town is in a somewhat similar position
to the family doctor. His townsfolk turn to
him in many little matters to which he
willingly gives attention, and by his at­
tention he becomes the natural source of
help when some really worthwhile archi­
tectural work is to be done. If he closes
don that established position, he runs a
real risk of losing much which he has labored to build up in the years
that are new.

and it will be only desperate straits indeed
that will induce him to adopt the drastic
step of closing down. . . .

Looking ahead to a return of normal
conditions, there is the problem that there again the London
architect will find it easier to readjust himself. London is a great center
for maintaining contacts, whereas the
country district serves only its few in­
habants. We well remember that some
of the young men returning from the last
war brought with them some valuable in­
trductions and even a ready-made job or
two, which set them up nicely in civilian
life again. That that will again happen we
have no doubt, in the case of those who
put up their old plates in London again,
whether on the same door jamb or on
some other. But the countryman will have

a new start, unless he is very fortunate,
and it is for that reason alone that so
many are holding on in spite of meagre
profits, or sometimes even at some loss.

VOICES OF THE YOUNGER MEN

Younger members of the architectural pro­
fession have been banding together on the
principle that in union there is strength.
Uncertainty of the times, difficulties of
finding commissions or employment, lack
of confidence in their individual powers—
all have helped to form loosely knit units
in some of the larger centers. San Franci­

cisco, New York, Montreal, London and
Melbourne have groups that are becoming
vocal, and doubtless there are others who
will soon be heard.

In Melbourne it is The Architectural Students' Society of the Royal Victorian
Institute of Architects, and for the years it has published a clever little monthly
pamphlet, Smudges and a more pretentious annual which they call Line. Their Hon­
orable Secretary, Ronald Bath, writes: "We are naturally endeavoring to push

Australian architecture to higher levels of artistic and ethical merit, but we under­
stand that, underlying all the fine arts, there is the one fundamental, the Art of
Design—self-expression. Consequently, our views expressed are as broad as possible
as simple as possible, and as breezy as possible, setting architecture in its true
relationship to the full life as we see it."

Have a taste of Smudges.—Eo.

THE LOWEST FORM OF ART

An editorial from Smudges (Melbourne, Australia) Vol. 2, No. 14, 1940.

"Architecture!" said Mr. Menzies recently, as he was introduced to an architectural
student, "Architecture is the lowest form of art in Australia!"

The pitiable part is that one must agree with him. Architecture here is undoubtedly

by the other arts in image and freedom from borrowed traits. But how annoying that the Prime

ister should notice it!

What can be the reason? Where is the cure?

Perhaps we need look no farther than the remarks of the visiting Hon.
architect, Professor George Kowdry, who must not copy. You in this country
need support from outside. You think for yourselves and build according
to the dictates of your own special condi­
tions and climate. Then an Australia
will come.'

A clear statement, and coming from a distinguished foreigner; it is new; it is nothing very new to architects, but the one in the profession above first ye­
tory must know this as well as he

has on the Egyptian cornice, or better: Every­
torical style has been based on its special in­fluences, therein lies its success, its

That has been drummed into all of us,
but we continue with our "modern ap­
plications" of Gothic, Georgian, Tudor designs,
or the equally unsuitable "Stock standard.

We have every design, consciously or
consciously, on the latest overseas news.
Zones. Our work is, at the best, a
copy of the overseas fashion. Is it not
a pity to be so limited? Are we too dull to see the way
better architecture? Probably we are.
but we are too frightened to make

And the Editors of Smudges, with
our inhibitions, regularly award—

BOUQUET OF THE MONTH

To Architects Fowell, McConnel, Mansfield, and Brian O'Rorke, for
Orient Line Building, Spring Street, Mel­

ley.

What? No horizontal lines?

That's not very modern.

And not stressed vertically either.

Good heavens, there's practically

the only things worth living for
Christian architecture and a boa

AUGUSTINUS PUGIN.

"Corio," Distinctive Flats, Dande­
Road. Near-Georgianism scrapes the

THAT'S THEY SAY—

"The only things worth living for
Christian architecture and a boa

AUGUSTINUS PUGIN.

"There is a boom in the demand for
experienced engineers—caused by the
ational defense program. The suppl
limited. Therefore, if you have a
engineer, treat him well. If you need
start looking."—MASSACHUSETTS
NSTITUTE OF TECHNOLOGY.
“Never before has the vulnerability of great and congested cities and the rapid spread of urban blight given so much point to Sir Raymond Unwin’s contention that ‘nothing is gained by overruling.'”—RUSSELL VAN NEST BLACK

“Government architecture has been much maligned. . . . Architects within the Federal Government can and do act with freedom, initiative and taste.”—PROFESSOR CARL FEISS.

“Encouraging the young toward adventure and vision by showing them a creative approach towards the phenomena of human life, and putting the emphasis on practical experience, will do arts and letters good. More harm than good is done when the trend of teaching is too exclusively directed towards academic knowledge, book-learning, and intellectual collecting of facts.”—WALTER GROPIUS.

SMALL PANES
By James MacQudy

“... is it that the one ‘period’ convenient to the contemporary architect cling to, when he has discarded all the others? the subdivided window pane? . . .

... still irritates by its fussiness and unconscionable unawareness whoever looks at the average block of flats or municipal building in the hope of seeing a consistent idiom belonging itself. To try and discover why this one conventional motif should win so long may throw some light on a sort of process by which architectural conventions sustain themselves even in the position to reason.

... is not my intention in these articles to discuss technical matters, but it must be said—otherwise the question of the aesthetic deficiencies of small-paned windows becomes rather an academic one—... the arguments in favour of small panes on practical grounds do not seem strong ones. It is sometimes said that large sheets of glass are an expensive because of the cost of replacement breakage. In answer, one may first appeal to the shopkeeper, who has had no occasion in discarding the subdivided pane altogether, although one imagines he has to watch maintenance costs closely as anyone. He takes a pride in wide, sleek windows and counts plates among the blessings of civilization. He can also safely guess that in practice the chances of actual breakage are relatively small. In the average building a large proportion of the glass must live a whole generation without breakage, so the risk of having to replace a pane rather than a small piece of glass having a mishap cannot be anything like great enough to cancel out the saving of time and labor in cleaning the undivided, as against the heavily subdivided, window, to say nothing of the greater amount of light let in.

So on practical ground the large pane wins, and we can take it that any discussion of the relative merits of large and small panes can be conducted in esthetic terms. The prejudice against the elimination of the small window panes that belongs to various past styles of architecture and to periods when large pieces of glass simply were not obtainable, is so strong that it has led architects who are honestly anxious to free themselves from the misleading associations of historical detail to invent a substitute for the conventional Georgian rectangle in the form of the ‘modernistic’ horizontal rectangle that at least pays tribute to a change of idiom without acquiring in any change of scale.

This horizontal glazing unit has spread with astonishing rapidity since it was introduced about twenty years ago as a rather arty personal mannerism. Although it has no practical advantage over the vertical Georgian style unit it has even been standardized by metal window manufacturers and has become the hallmark of the jazz-modern. But it is not confined to jazz-modern buildings and is, in fact, the type most frequently employed to achieve that flashy subdivision of window spaces that so frequently ruins the appearance of the decently contemporary, decently simplified building described above.

Presumably this prejudice is due to anxiety about scale—as though scale were a fixed and permanent thing. A theory used to be taught in the architectural schools and still is, for all I know, in some of them—that window subdivisions “give scale” to a building; but that this is only a recent convention and not, as the pedagogues pretend, a canon of classical correctness, is indicated by any book of eighteenth century engravings in which the classical rules and precedents were set down for architects and builders’ guidance. For invariably in such books as Campbell’s Vitruvius Britannicus the voids are indicated by solid black masses; the pattern of the facade, that is to say, is presented for judgment without any window subdivision. But whether this scholastic insistence on “scale” is or is not a true interpretation of the Renaissance ideal, it is certainly out of keeping with the modern one.

To return to our subdivided windows, to a previous generation’s eyes the difference between the large and the small-pane treatment would only have appeared as an unimportant variation in the richness of the pattern that covered the building’s surface, whereas to our eyes the flashy window subdivision of so many otherwise simply conceived buildings becomes an insupportable blemish.

ARCHITECTURE AFTER THE WAR
Comment from The Builder (London) for November 8, 1940

Professor C. H. Reilly contributes a thoughtful article on this subject to the Manchester Guardian. The present war, he writes, may in one particular well hasten on what is already happening. Ferro-concrete will come still more into its own. Already ferro-concrete buildings, with monolithic construction, have proved that they stand up to bombs and blasts better than any other. Besides, we shall all be glad to have a concrete roof over our heads instead of a wooden one. That, in general, means a flat roof, and a flat roof leads to the eubist shapes and the spatial composition so typical of modern types of building. It may also be supposed that the reaction against reproducing traditional ornament will continue with ever greater force. The desire to dissociate oneself from the bad old past, which led to such catastrophes as the present war, may well lead farther in that direction. Forgeries of all sorts will be
anathema. The desire for ornament and variety will still be there, of course, but that for ornament may find its outlet in frescoed surfaces and in independent sculpture contrasting with the geometrical shapes of the buildings, as at the Glasgow Exhibition, and that for variety in the curved forms into which concrete as a plastic material can be molded.

Again, if buildings may be peck-marked, to say the least, with pieces of bomb or shrapnel, elaborate stone facades built up on steel frames will seem greater waste than ever. Anyone who has seen the indecent state of some buildings in London at the present moment, with the sugar coating of sham stone columns partly melted away and the steel bones grinning through, will in future want an architecture sufficiently truthful throughout not only to live decently and unpretentiously but to die decently as well. A solid brick or stone building does that, or a steel-framed one in which the frame is clearly expressed and only lightly covered from the weather with a thin veneer of glass or other material. It is the monumental shams with which during the last thirty years we have been lining the chief streets of our cities which are now disgracing us.

A small point, little likely to affect the course of architecture, is the provision, if the bomber still survives, of a basement shelter to every building, however small. It will add a little to the cost of the smallest, but it will hardly affect the design as a whole.

A more interesting speculation is what we can do with the destroyed areas of our towns if the bomber is abolished, for it hardly seems worth while considering schemes of replanning if it is to remain. Let us assume a saner world in which it no longer exists, except, perhaps, as a central police or army baggage burst of aggression. If great areas are destroyed, as seems likely, what shall we do? First, we must clearly have a strong Government, strong enough to stop sporadic rebuilding, and strong enough, too, to pull down buildings which the Germans may have left standing if they block the way. We know how the natural desire to rebuild, each on his own little plot and as quickly as possible, prevented the execution of Sir Christopher Wren's fine plan for the little city of his day after the Fire of London. We know, too, how in more recent years the San Francisco plan suffered the same fate after the earthquake and fire.

The ideal way would seem to be for each big city first of all to acquire the land and buildings within its boundaries and then to lease the buildings it wished to keep standing. Then, and only then, would the authorities feel free not only to clear great areas, but perhaps not to rebuild them at all.

ST. PAUL'S, LONDON

From "Notes & Topics" by Astragal in "The Architectural Journal" (London) for September 26, 1940

Since I last wrote about my friend who is one of the Night Watch at St. Paul's, the war for him has begun, in grimmerest: no longer are playful practices in mastering the intricacies of the cathedral's behind-the-scenes planning his nightly occupation, followed by a comfortable bed in the crypt; instead, there are continuous patrols of the roofs, watching the city's bomfiers and dodging any fragments that fall unpleasantly near.

When I met him last week he talked of the one-ton-tom bomb that had just been extracted from near the western portico of the cathedral by the justly famous Lieut. Davies, Sergt. Wardrobe and the others. My friend described the event as a heroic piece of dentistry.

The Night Watch continued their duties while the bomb was there; but their head-quarters, together with the sheltering clergy, had to move to the east end of the building. The sinister aspect of the whole affair, which added to the suspense of waiting and the difficulty of the work, was that, through some freak of sub-soil conditions, the bomb continuously tended to burrow its way nearer the cathedral until the removal tackle took its weight.

No architect, I fancy, can think of Lieut. Davies' lonely drive to Hackney Marshes, when large fires were cleared by the police from St. Paul's Cathedral to Hackney Marshes. The bomb was placed on a fast lorry and driven there by Lieut. Davies at high speed, the danger of explosion being imminent at the very last moment. At Hackney Marshes the bomb was blown up by the Bomb Disposal Section. It caused a 100-ft. crater, and rattled the windows, and in one case loosened plaster from houses far away on the Marshes.

The Arcliitectural Jourmil

"THE BOMB AT ST. PAUL'S"

From "The Builder" (London) for September 20, 1940

Two lorries in tandem were required to haul it out of the hole. The streets were cleared by the police from St. Paul's Cathedral to Hackney Marshes. The bomb was placed on a fast lorry and driven there by Lieut. Davies at high speed, the danger of explosion being imminent at the very last moment.

At Hackney Marshes the bomb was blown up by the Bomb Disposal Section. It caused a 100-ft. crater, and rattled the windows, and in one case loosened plaster from houses far away on the Marshes.

The courage and tenacity of Officer, his N.C.O.'s and men, prove St. Paul's from being gravely injured nor levelled to the ground.

We are glad to note the statement Canon Cockin that the Dean and Chapter are taking steps to express their appreciation in suitable form. Special prominence has rightly been given to this extra-marital act of skill and bravery, but it is well to remember that it is typical of the routine work that the Bomb Disposal Section is doing every day. The nation owes a debt of gratitude to these men that never be repaired.
The diary of

Amy B. S. Taylor

Friday, November 15.—They are beginning to camouflage their motor cars in Canada, but British humor marches on. The British industrial design suggests that one-half of the car, instead of longitudinal, should be painted to coincide with the country, and the other with the town. If there is a raid in the country, you drive the town half up at a hedge; if in the town, you drive the country half up against a wall.

Monday, November 19.—I wonder whether architects are as lazy about their registration laws as I find myself, but having studied the statutes, I always thought it perfectly ethical legal for an architect registered in one state to associate himself with a registered architect in another state to carry through a project in the latter’s territory. That is illegal practice between some states, but is definitely illegal in others. For example, Mr. A., registered in State X, is commissioned to design an important building in State Y. He associates himself with Mr. B., registered in State Y, and the building is under construction, A decides that he would have done in seeking lines of grace and action. With a glance at his passenger that carried a whole volume of respectful affirmative view of a lovely young girl tripping along the sidewalk beside the halted traffic stream. The wind experimented with her skirts very much as a sculptor would have done in asking questions of each man he called upon to speak. In answering to the toast “Our Guests,” I was privileged to read a letter of congratulation from AIA. President Bergstrom, assuring the Canadian architects of our sympathetic and collaborative admiration, the taxicab driver unburdened himself of his entire philosophy of beauty. Milles changed to English and French, the Gallic flavor of the telephone book, bargain counters and store attendants treating the two tongues impartially.

The Bank of Montreal drew me down town to see whether McKim, Mead & White’s stately interior had lost anything of the impressive grandeur that made the building an architectural milestone for an older generation of architects. No, it holds its own.

Again the emphatic French note this evening in the Association’s final banquet. Fully half the toasts and responses were in French, and president Perrault used English or French in gracious conformity with the preference of each man he called upon to speak. In answering to the toast “Our Guests,” I was privileged to read a telegram of congratulation from AIA. President Bergstrom, assuring the Canadian architects of our sympathetic and whole hearted cooperation in the gigantic effort of continental defense and in the work of rebuilding a war-torn world. My own mental picture of the task we have undertaken, already magnified to heroic proportions by the astronomical budget figures in our press, has taken on a greater sense of reality in this visit north of the border. Canada, good neighbor and friend of long standing, is depending trustfully upon us.

Montreal, Friday, November 22.—Province of Quebec Association of Architects is celebrating the fiftieth anniversary of its founding. The year 1860 must have been a fruitful period for architectural organizations, since our own AIA. Chapters at Buffalo, Cleveland, Detroit, Kansas City and St. Louis were born in that same year. At an evening session in the Art Museum, to which the public had been invited, it was my task to outline the place of the building industry in national defense, with particular reference to the part that might be played by the architect. In Canada, in England, and in the U.S., the profession has not been formally and collectively summoned from on high to lead the crusade. There has been considerable moaning over that fact in England and in our own professional organizations.

Montreal, Saturday, November 23.—I had forgotten how strongly Montreal is marked by its French settlers and their descendants. Half its many newspapers printed in French, all street signs lettered in both English and French, the Gallic flavor of the telephone book, bargain counters and store attendants treating the two tongues impartially.

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hand that held the cocktail, lest precious
wit be missed. These annual reunions sel-
dom fail to bring in ancienois who could
not, even if they would, shake off the
nostalgia to join once more in singing Les
Pompieres and recreate at least some faint
semblance of life about Deux Magots and
the Dome of bygone years. Fred Murphy
up from Washington, George Gray from
New Haven, Wells Bosworth from Paris.
And throughout a roistering even-
ning the recurring assurance that France
will live again.

Friday, November 29.—The Diary does
not aspire to recognition as a clearing
house for What Have You and What Do
You Want, but we cannot resist spreading
this bit of news: Duke University has a
stock of hand planed, heart pine boards,
7 to 12 ft. long, 7 to 22 in. wide, that
have never been painted. They were taken
from a house about 200 years old. F. V.
Altavater, Superintendent of Duke Hos-
dpal, Durham, N. C., will not sell this lot
for ordinary purposes; it deserves an
understanding and sympathetic use.

Tuesday, December 3.—Norman Bel Ged-
des told us at lunch today something of
what he is trying to do for the circus.
Newspaper headlines and editorials have
been using the obvious cliche, "streamlin-
ing," in suggesting that the circus may
become something like a Max Reinhardt
spectacle. Bel Geddes, however, has him-
self carried water for the elephants, and
knows that the circus must never be al-
lowed to grow up. North, who heads the
big tent without any poles inside. A fool-
come something like a Max Reinhardt
ing," in suggesting that the circus may
be expected to continue in use.

Wednesday, December 11.—Want to
build a geodetic tent? Uncle Sam will sell
you one on easy terms, with a mortgage
ized over 40 years and costing only
per cent. Greenbelt near Washingto-
, Greenhills at Cincinnati, and Og-
dale at Milwaukee were built to de-
strate the feasibility of designing a
home before it was built, rather than al-
lowing everyscratch and dandy.
us to come up by main force and awk-
wardness. Eventual sale of these experi-
towns has been in the program from the
start. One does not have to prove that
Government resources can build a
model community; the more difficult
is to build one that the inhabitant
will afford to own. Costs of these demon-
strations, like the cost of a new model of
car, were naturally far above the
duplication in them. Greenbelt cost
115 ½ millions; allowing a deduction
for the greater cost of "made" work the
other for the roads, utilities and ped-
ding, the dwelling units cost 86,780 ap-

That is high as compared with the
age cost of equivalent shelter, but "eq-
luent shelter" is in most cases a
euphemism; it does not possess that
with which to build.

New York's world of art nearly filled
the Church of St. James this afternoon
in solemn tribute to a life of completely
selfish service, that of Ernest Peixotto.
Men of all faiths, and doubtless many
whose faith consists merely of the emo-
tion that man's service to man is the
door to immortality, came to bear wit-
ness of such a life. The City's Mayor,
Manhattan's Borough President, and the
representatives of practically every local
artistic group in the Fine Arts, gathered
in the church to act as the art world's
artist, a servant of mankind, and a local
gentleman.

This evening, under the shadow of
Ernest Peixotto's passing, the Societ-
Mural Painters held its second sympo-
sium of the season at The Architectural Lo-
Edgar Williams, Lessing Williams,
Julian Garnsey led off with papers by
papers, after which the discussion went
warm until near midnight. Centering
around the question of contemporary Am-
modern mural painting—the need for it, sub-
stitute, techniques, architectural set-
—questions and theories from the west
rald afar. The last effort of the Savon
theme in the Italian Renaissance, the
ication of folklore, the commercial
merits of Kokoek and Nashville as a be-
ing grounds for painters, the vibrati-
modern wall surfaces, American his-
ture as quarrersome or spoofing or the
possibility of interpreting merges in
vention in allegory—these are but a
of the outposts skirted in the fast pace
round the course. One problem left
solved is that of finding the painter and

Thursday, December 5.—Hugh Ferriss,
as chairman of the Architectural League's
exhibition committee, is certainly increa-
sing the daily attendance with his .scheme
of the many projects—furnished l)oth the
commission for architectual se-
work and the money to keep architectural
improvements—to mention but a few
titles of hand planeil. heart pine boards.

Friday, December 6.—A new implement in
national defense, and one that should fit
well the architect's hand, is the local
planning commission. Almost unknown
in World War I, it is an important ele-
ment today. As an example, the Regional De-
Fence Council of the Hampton Roads
Area in Virginia. With representation
from four counties and five cities, it is collect-
ing and mapping data as to land use,
population distribution, land ownership
and valuations, housing conditions, high-
ways and traffic flow, sanitary facilities,
utilities, schools, recreation and hospitals.
Or, the Milwaukee Board of Public Land
Commissioners—the city planning board
—which has gathered all data on vacant
industrial and housing properties, the
available labor supply, transportation fac-
cilities. Architects who are still listening
for a summons to public service in na-
tional defense would do well to put their
ears to the ground.

Monday, December 9.—Julian Levi,
founder and honorary chairman of the
Architects' Emergency Committee, gave a
luncheon today in commemoration of its
tenth anniversary. The Committee has be-
come such a basic element in the architec-
tural life of New York that it seems to
have been with us always. Established for
the dire need of aiding unemployed drafts-
men, and supported mainly by the finan-
cial efforts of its Women's Committee, it
has found or created 7,400 jobs. Its func-
tion as a relief agency slowly dwindled at
the end of 1936 and early 1937, when it
turned to the task of finding men for jobs
rather than jobs for men. Today it is the
recognized employment agency of the pro-
fession in the Metropolitan area. Under
the herculean efforts of the women, led
by Mrs. Joseph Urban, Miss Amy Aldrich
and Mrs. Stewart Walker, $160,000 has
been raised. Beaux-Arts halls, historical
surveys and models, the two volumes of
"Great Georgian Houses," competitions for
civic improvements—to mention but a
few of the many projects—furnished both
the work and the money to keep architectur-
al wheels turning in a time when they were
very nearly stalled. A hundred or more
men and women have, over the decade,
kept the Architects' Emergency Com-
mittee an efficient tool in the service of the
profession and of the community—a tool
which, under Mrs. Nelson's able handling,
will continue in use.

THE ARCHITECTURAL FOR
STUDENT ALUMNAE BUILDING

WHEATON COLLEGE
NORTON, MASS.

CALEB HORNBOSTEL AND RICHARD M. BENNETT, ARCHITECTS
STUDENT ALUMNAE BUILDING, WHEATON COLLEGE

REQUIREMENTS:
The site selected was an old tennis court a short distance from the campus, surrounded by a powerhouse, gymnasium and an athletic cage. A view of the powerhouse was naturally considered undesirable. The student entrance had to be related to existing buildings on the campus, and a motor entrance for visitors had to be provided. Most of the earlier buildings are brick, in the Georgian style.

Requirements for alumnae use: offices, file space, supply closets.

Requirements for both alumnae and students: a large parlor, an alumnae parlor, a ballroom and assembly room for kitchens.

Requirements for students: day students' locker room and study space. A small parlor, recreation room, offices for the college government association and athletic association. Offices for student publications, for student societies and committees.

General services include lavatories, a janitor's suite and room for mechanical equipment and storage space.

SCHEME I.
1. Masses of the building tie in with the axes of the general plan. Ballroom faces powerhouse. View toward lake insufficiently developed.

SCHEME 2.
2. Ballroom moved toward west, giving more direct access from campus. Court (X) faces the powerhouse, while court (Y) is too crowded.

SCHEME 5.
5. An effort to create some space between ballroom and hockey field. Circulation good. Relation to powerhouse still unsatisfactory.

SCHEME 6.
6. A variant of 5, using the ballroom to shield the court. The cage becomes part of the scheme. Relation of building to campus not good.

SCHEME 7.
7. A developed combination of 6 and 1. Short end of building faces campus. An entrance at point A would locate platform in hall at wall X.

SCHEME 8.
8. Scheme 6 developed. Rooms have sunlight, view of lake and woods. Cage is shielded from powerhouse. Acknowledgment of campus axis retained.
In the summer of 1938 a national competition for the design of a library and art center for Wheaton College was held under the joint sponsorship of the Museum of Modern Art and The Architectural Forum. It was won by two young New York architects. While funds for the building are still incomplete, another structure by the same architects was recently erected for the college.

The site, as indicated on the preceding page, presented serious difficulties. While the college authorities wisely refrained from insisting on a continuance of the previously established Georgian style, there was no desire for a structure that would disrupt an essentially harmonious and attractive group. In view of the solution shown in these pages, and despite the fact that the competition design has yet to be built, the choice of the Jury has been thoroughly confirmed.
The photograph on the opposite page shows the motor entrance, sheltered by a permanent canopy; it is used by the public when dances and lectures are given. In the view above is shown the foundation wall of a former powerhouse. The courtyard illustrated at the left is a pleasant, sunny space with a terrace directly off the ballroom and the recreation room. A bowling alley is located under the terrace, thus isolating the noise from the main building. Storage space for outdoor furniture is provided in a large closet under the stair. The plans should be examined in conjunction with the preliminary schemes and list of requirements given on page 54.
The largest room in the building is a combined assembly hall and ballroom, a restrained and handsome interior executed in gray-painted walls and natural birch. The lighting is admirable in its flexibility. During dances, for example, illumination is provided only by the lower part of the wall fixtures. An interesting detail is the large speaker over the platform; this unit is ordinarily projected three feet into the room; here it is flush and the projection occurs on the exterior wall. The chairs, stored under the platform, were redesigned by the architects so that when folded they roll easily on rubber-tired wheels. The wall at the end of the room may be opened, and excellent overflow space is provided both by the hall and by the terrace.
HALL

- Blocking
- Window & Shade Details
- Chair Storage
The rooms on these two pages show an admirable integration of lighting, furniture and equipment. Furniture in the Alumnae Parlor includes pieces originally used in the Founder’s Room of the college. In the Large Parlor there is a speaker wired to the ballroom so that this space may also be used during dances. The basic colors are those of natural wood and brick, with occasional accents of blue, dark red and lemon yellow. The music unit, which includes an upright piano, radio and record player, has been so designed that any part of the equipment may be taken out and repaired or replaced when necessary.
STAIR DETAIL

PANIC BOLT

CONSTRUCTION OUTLINE


ROOF: Main building—5-ply built-up with Tarvela finish. All Barret Co.

SHEET METAL WORK: Flashing—copper and coated copper, Cheney Co. and Wasco Flashing. Gutters—copper.


STAIRS: Metal with closed flush stringer. Trussol Monocork, Armstrong Cork Co.

WALL COVERINGS: Plimpton Hall—birch panels. Lavatories—linoleum, Armstrong Co.


HARDWARE: By Schlage Lock Co., Oscar Co. and J. H. Judd & Son.


GENERAL CONTRACTOR: Howard W. Mi...
The Forum examines informed opinion, concludes that national defense will boost total construction 18 per cent; private and public residential building, about 13 per cent.

Combined with private work, this public housing upsurge will boost total expenditures for residential construction to $2,600 million, up 13 per cent from last year. But, when considered alone, privately financed residential construction will advance only about 4 per cent to a total of $1,814 million.

Although they account for considerably smaller parts of the dollar total, other classifications of private building will greatly outdistance residential activity as far as percentage increases are concerned. Well in front will be the construction of manufacturing buildings which is scheduled to expand one-third during 1941. Commercial construction will be up one-tenth; other non-residential, including privately financed school, hospital, institutional, social, recreational, religious and memorial buildings, up 9 per cent. Comprised of all three of these classifications, total privately financed non-residential building is slated to increase one-sixth—to $1,065 million.

A 17 per cent advance in public utility construction and a 9 per cent gain in farm construction will boost the 1941 total of
LUMBER.—Private residential, same; total private, plus 3 cents.—Secretary and Manager, William Compton, National Lumber Manufacturers Assn.

BUILDING.—While the release of engineering and construction contracts for defense industries has already shunted all previous industrial building records, a conservative appraisal of the immediate outlook has led us to prepare this steadily increasing activity throughout 1941. While the total volume of work in this field cannot fail to be influenced by affairs overseas, an increase of 35 per cent or more above the 1940 total now seems inescapable.—Executive Vice President and General Manager George A. Bryant, Jr., The Austin Co.

DESIGN.—Industrial construction, plus 50 cents.—Louis Kahn, Albert Kahn Associated Architects and Engineers, Inc.

STATISTICS.—We are very optimistic on the building outlook for 1941. We look for an increase in residential building for 1941 of 20 to 25 per cent. Industrial construction should average some 50 per cent above 1940. The National Defense Program will do much to revitalize the whole building industry. The only danger in the outlook is the possibility of sharply rising material and labor costs. If this upward spiral can be avoided in line, then the total private and public construction activity for 1941 should run about 20 per cent higher than that for 1940.—Leonard Spangler, Beaton's Statistical Organizations.

Improving general business activity in this country, in itself, should be greatly stimulating to the building industry regardless of the war abroad. Operations in this field have remained substantially under pre-1929 levels, and it seems that a large increase could take place without business men becoming unduly expansion-minded. Commercial construction promises to rise to higher levels, but store and office facilities in this field will keep the rate of gain below that indicated for industrial construction.—Peter's Publishing Co.

The defense program will dominate 1941 construction and industrial production. Increased industrial production will bring about increased employment, purchasing power and national buying, while, in turn, will tend to increase demand for private construction (commercial, manufacturing and residential buildings and electrical utility construction). Two principal limiting factors are possible: 1) Insufficient construction industry facilities for carrying through a much enlarged program of plant or subsidy work, 2) rapid rises in building costs tending to curtail the volume of moderate-priced private structures that would otherwise be in strong demand. With regard to the first, it can be said that the industry has not been employed to capacity within the past year and should be able to handle a program substantially larger than that of 1940. The second factor, building costs, seems more problematical. As a consequence of the defense activities (for the 1941 value of total construction contracts in 37 Eastern States), that building cost increases during 1941, will be kept within moderate bounds.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Dollars</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial buildings</td>
<td>$370</td>
<td>plus 16</td>
</tr>
<tr>
<td>Manufacturing buildings</td>
<td>$440</td>
<td>plus 16</td>
</tr>
<tr>
<td>Educational buildings</td>
<td>$160</td>
<td>plus 10</td>
</tr>
<tr>
<td>Hospital &amp; institutional</td>
<td>$90</td>
<td>plus 20</td>
</tr>
<tr>
<td>Public buildings</td>
<td>$120</td>
<td>plus 15</td>
</tr>
<tr>
<td>Religious buildings</td>
<td>$45</td>
<td></td>
</tr>
<tr>
<td>Social &amp; recreational</td>
<td>$80</td>
<td>plus 14</td>
</tr>
<tr>
<td>Miscellaneous bldg.</td>
<td>$120</td>
<td>plus 50</td>
</tr>
<tr>
<td>TOTAL NON-RESIDENTIAL</td>
<td>$1,400</td>
<td>plus 77</td>
</tr>
<tr>
<td>Apartments and hotels</td>
<td>$350</td>
<td></td>
</tr>
<tr>
<td>1- and 2-family houses</td>
<td>$1,200</td>
<td>plus 87</td>
</tr>
<tr>
<td>Other 3+ family</td>
<td>$1,100</td>
<td></td>
</tr>
<tr>
<td>TOTAL RESIDENTIAL</td>
<td>$1,700</td>
<td>plus 11</td>
</tr>
<tr>
<td>PUBLIC WORKS &amp; UTILITIES</td>
<td>$1,300</td>
<td>plus 6</td>
</tr>
<tr>
<td>TOTAL CONSTRUCTION</td>
<td>$4,400</td>
<td>plus 14</td>
</tr>
</tbody>
</table>

—Vice-President Thomas S. Halden, F. W. Dodge Corp.

privately financed activity to 84,395 million, up a comfortable 9 per cent from last year.

REVIEW.—In the light of Building's 1940 behavior, these forecasts for 1941 are particularly significant. Thus, expenditures for every classification of private construction increased last year. Contributing most heavily to the total dollar increase, residential building continued the upward course established in the fall of 1938, crossed the 1940 finish line at $2,100 million, 15 per cent ahead of 1939. This private money labeled about 490,000 dwelling units last year, as compared with 408,000 during 1939. But, the distribution of these units among the three principal housing types changed materially during the year. Due in large measure to the hampering amendments tacked on to the rental housing section of the National Housing Act in the summer of 1939, the construction of private multi-family rental projects dropped more than 25 per cent last year, involved an expenditure of about $240 million, or 11 per cent of the private residential total.

Indicating that the two-family house is gradually taking its way back to the popularity it enjoyed during the Twenties, when it accounted for about 16 per cent of all dwelling units, this type of construction more than doubled during 1940, involved an expenditure of $90 million, or 5 per cent of the private residential total.

Always the backbone of the house building industry, the production of one-family detached houses last year took a firmer grasp on the first place position among the three housing types, advanced about 20 per cent over 1939, accounted for about 440,000 of the 490,000 privately financed dwelling units and involved an expenditure of about $1,770 million, 84 per cent of the total. Luminary to the private and public funds (see below) put about 550,000 dwelling units under construction last year. Their approximate distribution by housing types:

- 1-family: 440,000 units 80%
- 2-family: 33,000 units 6%
- Multi-family: 77,000 units 14%

Although it contributed less money to the total private building advance than the residential classification, private non-residential building's increase was proportionately more impressive—up one-fifth during 1940. Engulfed early in the year by a downpour of British and, for a while, French war orders and during the second half by a flood of U. S. national defense orders, manufacturers had spent $850 million on new construction by year-end, 75 per cent more than in 1939. (Federal expenditures for manufacturing plants—$75 million, as compared with practically nothing the year before—are included in the military and naval category discussed below.) Following the defense industrial trend, commercial construction—privately retail stores, service stations, small office buildings, etc.—gained 16 per cent to a total of $870 million. Other residential building dropped 14 per cent to $250 million, the increase in retail buildings having been too small to make up for the decreases registered by most other building types in this classification.

Privately financed public expenditures budgeted last year's generally improved performance by spending $845 million, one per cent more than in 1939. One reason: the defense industry, accounting for close to two-fifths of the public use of construction total, has enjoyed a continually increasing consumer demand up to a fortnight ago boosted electrical production to 2.9 billion kilowatt hours per week, an all-time high record in history. In line with this $460 million advance (to 89 billion dollars), the agricultural income during the past two months, farmers helped swell the 1940 value building total by spending about ten per cent more on new construction and additions than they did during the preceding year.

Unlike privately financed construction (as discussed above, public building sagged 4 per cent) during 1940, but totaled a substantial $540 million for the year. Defense was primarily the tapering off of ordinary Federal pump-programming and school building budgets. Thus, the construction of highways and sewage disposal works and water supply facilities (classifiable public works) dropped about 15 per cent and expenditures for the construction of educational, public, hospital, institutional, social and recreational buildings (including non-residential and comprised largely of public school buildings) came to only about half the total.

Bucking the general public construction trend, were the residential and miscellaneous industrial and naval classifications. All of the figures tabulated for the U. S. Housing Authority, the former classification amounted to only $81 million in 1939 when the entire public housing program was being learned to walk. By last spring, however, the USHA had learned to run, and during the year spent $180 million, began the construction of some 60,000 units, most of which were in multi-family buildings. (100 per cent completion: 57,000 dwelling units.) As a result, total went $20 million of defense housing money, primarily the Navy's.

Immediately stimulated by the national defense program launched at mid-year, military and naval construction skyrocketed 240 per cent above the 1939 level $425 million; $250 million for troop quarters, $100 million for sub-marines, $75 million for manufacturing plants to produce powder, ordnance, ships, etc. While these production facilities were most heavily financed by Federal funds, some are being privately operated under Government contracts. Example: Chrysler Corp.'s new tank plant at Detroit. All told, private and public construction expenditures last year came to $86,500 million, 8 per cent above 1939 and
The construction of one- and two-family homes in 1941 will be somewhat greater than in 1940, possibly from 5 per cent to 10 per cent above. The demand for new construction is clearly in the field for families with incomes up to $2,400 a year and costing anywhere from $2,000 to $4,000. Forces of supply and demand seem clearly on the side of increasing construction costs—Executive Vice President Martin Bedfin, U. S. Savings and Loan League.

Residential building... is the only field in which I feel confident to make an educated guess [a decrease of 10 to 20 per cent]. It seems... likely that the increase in building costs will be considerable during the... year, and that the market's effect of diverting many energies to defense leaves the question of the volume of building in great doubt—Director of Mortgage and Real Estate Finance Research Ernest M. Fisher, American Bankers Assn.

Manufacturing—Adding up the favorable factors in the cost side, the number of home prospects, the construction industry's ability to produce a house small enough to be bought, owned, and acceptable, and the coming flood of defense money into consumer pockets—it would be safe to predict an unusually good building year in 1941 were it not for the shadow of unpredictable factors that loom on the horizon. These are chiefly the threat of a rapidly rising building code and the economic belt tightening that may come when the armament economy hits its full stride—Economist W. C. Beher, John-Manville Corp. in Barron's Weekly.

Investment—Amid the more than average number of uncertainties which encompass the building outlook this time one thing seems sure—that national defense work will dominate construction activity during 1941. There is every indication that private residential construction, in contrast, will decline during 1941 even if no type of direct or indirect restriction is invoked. The poorest performance will probably be turned in by the multi-family groups where there is already ample evidence of considerable overbuilding. With much of the present effort being channeled toward defense work, heavy public works of the type favored by PWA seem likely to suffer during the coming year. Rising material costs and labor shortages promise to be devil builders in practically every class of construction in most sections of the country—Statistician E. Everett Ashley 3rd, Tri-Continental Corp.

Government—Building costs... may be expected to continue upward for some time to come. Rents, on the other hand, have not risen in most areas nearly as rapidly as building costs; hence, the incentive for individuals to build or buy homes will be somewhat reduced. Likewise, in areas not pressed by an influx of workers, new income-producing residential properties will be less able to realize a profit than can existing rental structures. The psychological stimulus of rising building costs on the part of individuals to buy before the costs get out of hand will be more or less offset by the uncertainties arising from our selective service program and from fear of our participation in actual hostilities. With these qualifications, it is our estimate that the number of privately financed residential units built during 1941 will approximate the number built during 1940, and that the cost of these units will exceed the cost of the 1940 units by 4 or 5 per cent. The importance of this increase and its effect on the number of Government-financed housing units constructed at higher costs would result in an increase in the cost of total new residential dwellings built during 1941.

Chairman John H. Fahey, Federal Home Loan Bank Board.

Residential building... is an unusually good building year in 1941 were it not for the shadow of unpredictable factors that loom on the horizon. These are chiefly the threat of a rapidly rising building code and the economic belt tightening that may come when the armament economy hits its full stride—Economist W. C. Beher, John-Manville Corp. in Barron's Weekly.
TRENDS BEHIND RESIDENTIAL BUILDING ACTIVITY

Priorities which would stifle non-essential costs for those projects that would go for zoning which make all forecasting hazardous to any construction projects. This index does not, of course, register in any of the 30 large reporting cities. American Appraisal Co.'s industrial construction cost index marked time during successive comparatively sharp advances, the argument is the fact that, after three successive comparatively sharp advances, the attendant demand for building labor and lumber recedes. Adding weight to this argument is the production of dwelling units during 1938 (latest available breakdown which includes a negligible amount of public housing). Ten most important building cities according to 1940 rank (total building permits issued in first ten months): New York, Detroit, Los Angeles, Washington, Chicago, Philadelphia, San Francisco, Seattle, Cleveland, and Baltimore.

single additional ounce. Supplies of iron ore, iron scrap, cement and lumber are smaller comparatively but are still comfortably above the levels of increased demand which the presently conceived defense program will entail (see page 23, et seq.). On the basis of these conditions, many an informed observer predicts that, while lower costs will certainly not soon be seen, the recent rate of increase will diminish once the Army cantonment construction program approaches completion and the attendant demand for building labor and lumber recedes. Adding weight to this argument is the fact that, after three successive comparatively sharp advances, the American Appraisal Co.'s industrial construction cost index marked time during November, no change having been registered in any of the 30 large reporting cities. This index does not, of course, reflect those cost advances which may have taken place in smaller communities near Army construction projects.

Other dark clouds on the building horizon which make all forecasting hazardous include the possibilities of 1) a building labor shortage which would bottleneck all construction activity and dictate higher costs for those projects that would go forward and 2) a system of Government priorities which would stifle non-essential private construction. Neither is an immediate prospect, although conscription will surely deplete the ranks of building labor. The latter possibility will remain on the shelf as long as the U.S. remains at peace. For obvious reasons, a U.S. declaration of war, and to a lesser extent, a European negotiation of peace would be ample justification for calling off all 1941 building bets. The effect on building activity of either event would be depressive, but to an unpredictable extent.

FORECAST. Such, briefly, are the discouraging possibilities which, alone, would give Building a sad opinion of 1941. There are, however, many and powerful elements working in the opposite direction. To measure the net effect of all these factors on the probable 1941 trends of the various types of building activity, Tam Foroux fortnight ago collected written opinions and predictions from a score of nationally known business economists and statistical agencies and from 140 recognized leaders in the building industry. Representing 29 of the largest U.S. cities from coast to coast, the last mentioned group was composed primarily of bankers, savings and loaners, contractors, subdividers, realtors, architects, engineers and FHA and municipal officials. Pertinent comments on the national picture by a few of the economists are presented as marginalia on page 65. Confined entirely to private construction trends, all of the local opinions are summarized in the table on page 66.

While consensus of the economists that private residential building will remain unchanged this year, the 140 participating in the business are almost unanimously more optimistic, predicting an average increase of about 30 per cent. They base their opinion on several heartening influences, four of which are graphed at the bottom of this page: 1) Due to the pulsed military conscription, the volume of marriages—i.e. new families—has so far been above normal, aggravating the acute shortage of decent dwellings. After moving sideways for many months, many a hesitant family to building band wagon before it rolls by. The level of non-farm foreclosures is kept to the post-Depression low registered in February. 3) Housing costs, while on the march, are not running away—gently rising trend may prove boon for the industry in that it provides many a hesitant family to hope for a building band wagon before it rolls by. The level of non-farm foreclosures is kept to the post-Depression low registered in February.

4) The industry is paying increasing attention to the boundless cost market and is tailoring its houses to tap its built up during the past twelve months, the tremendous momentum in house buying activity will not be stopped with good reason. According to Tam Foroux survey, residential building industry will spend $2,184 million of private funds this year 4 per cent more than in 1940. As in New York State will run away with the biggest share of the total (about 22 per cent—most of it concentrated in the vicinity of New York City) while California and Texas will be content with the biggest parts (17 and 7 per cent respectively—see map, above). Assuming costs remain fairly constant, the 1941 forecast means the production of some 510,000 privately financed dwelling units with distribution among the three basic house types will probably be somewhat different from the 1940 pattern (p. 44, col. 2) but the expense of the multi-family classification in which over-building in the recent past is apparent, both one- and two-family houses will grow in importance—the latter classification being a new defense housing type and an effective hedge against general inflation.

Much more impressive proportion than the private residential building total will be that for public housing—its more than double in volume to $416 million. U.S.A's $256 million contribution to this total will be spent not only on 35,000 dwelling units to be launched this year but on many of the 60,000 which began last year. Balance of the public housing total ($180 million) will go for defense housing and will come from

(Continued on page 34)
<table>
<thead>
<tr>
<th>Type of Construction</th>
<th>1926-29 Average</th>
<th>1939 Actual</th>
<th>1940 Estimate</th>
<th>1941 Forecast</th>
<th>1940-1941 Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Private</strong></td>
<td>$8,363</td>
<td>$3,491</td>
<td>$4,025</td>
<td>$4,395</td>
<td>+9%</td>
</tr>
<tr>
<td><strong>Total Non-Farm</strong></td>
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<td>$1,860</td>
<td>$2,100</td>
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<td>+4%</td>
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<tr>
<td><strong>Residential</strong></td>
<td>$2,413</td>
<td>$760</td>
<td>$920</td>
<td>$1,065</td>
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</tr>
<tr>
<td>- Memorial &amp; Cemetery</td>
<td>1,187</td>
<td>319</td>
<td>370</td>
<td>407</td>
<td>+10</td>
</tr>
<tr>
<td>- Manufacturing</td>
<td>640</td>
<td>200</td>
<td>350</td>
<td>459</td>
<td>+31</td>
</tr>
<tr>
<td>- Other Non-Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td>$1,468</td>
<td>$340</td>
<td>$370</td>
<td>$403</td>
<td>+9%</td>
</tr>
<tr>
<td>- Housing Authority</td>
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<td></td>
</tr>
<tr>
<td>- Professional &amp; Recreational</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>- Religious &amp; Institutional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Other Non-Residential</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Total Utility</strong></td>
<td>$1,146</td>
<td>$531</td>
<td>$635</td>
<td>$743</td>
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<tr>
<td><strong>Total Public</strong></td>
<td>$2,339</td>
<td>$2,598</td>
<td>$2,540</td>
<td>$3,360</td>
<td>+32%</td>
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<tr>
<td><strong>Total Non-Farm</strong></td>
<td>$4,68</td>
<td>$340</td>
<td>$370</td>
<td>$403</td>
<td>+9%</td>
</tr>
<tr>
<td><strong>Total Private &amp; Public</strong></td>
<td>$10,702</td>
<td>$6,089</td>
<td>$6,565</td>
<td>$7,755</td>
<td>+18%</td>
</tr>
</tbody>
</table>

**Notes:**

1. All values for 1926-40 are estimates of construction activity for the U.S. as prepared by the Department of Commerce. For explanation of the definition of these statistics and for a more detailed tabulation of construction activity, see ARCH. JUN. June 1938. p. 517 et seq. The figures in the two right-hand columns are upon THE FORUM's interpretation of the opinion obtained in a nation-wide survey; they were not computed by the Department of Commerce, but are comparable with the official figures for earlier years. Figures in the above tabulation are comparable with those published by J. Dodge Corp. and the Department of Commerce in the gross expenditures for building labor and materials in the entire U.S. All figures include maintenance and work relief.

2. Revised.

3. Preliminary.

4. Excludes non-residential building by public utilities, which is included in the component classifications listed beneath the total, amounting to $25 million in 1939, $30 million in 1940 and a forecast $40 million in 1941.

5. —Privateowned railroad transportation, street railway and subway transportation, pipeline transportation, light and power production and distribution, gas production and distribution, telephone and telegraph communication. Includes non-residential building by public utilities (see footnote above).

6. Includes repairs, but excludes labor performed by farm operators (owners or tenants) and regularly employed farm laborers.

7. Construction financed by funds made available to the War and Navy Departments and the Federal Works Agency for housing the families of enlisted personnel, civilian Army and Navy employes and national defense industrial workers.

8. All types of buildings in Army cantonments—barracks, recreational buildings, utilities, sewage disposal facilities, etc.

9. Manufacturing plants and other productive facilities such as arsenals, Navy yards, powder plants, powder loading stations, etc. Excludes manufacturing machinery.

10. Air bases, yards and docks.

11. Highways and sewage disposal and water supply facilities.

12. Conservation and development, miscellaneous public service enterprises, etc.

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**JanUary 1941 • BUILDING Money**
NEW CONSTRUCTION LOAN POLICY

attracts business, proves a boon to builders, borrowers and material dealers. Cleveland's Second Federal looks before it lends.

With idle money stacked high in every kind of saving account, financial institutions do but little boosting today about the size of their assets and the number of their investors. If they did, Cleveland's Second Federal Savings and Loan Assn. would loudly proclaim its $8 million assets, the second biggest heap among the city's 40 insured, operating associations, and its 5,000 investing members. Second Federal has something better to boast—it has made 1,800 new mortgage loans in the past six years and now has more than 1,000 borrowers. One leg supporting this record is a unique construction loan program which has upped the Association's mortgage business. And, through operation of its "certified inspection" corollary, has given Cleveland 684 soundly built houses, local builders a mark to toe and local material dealers the money they are owed.

A significant contribution to a disorganized home building public, Second Federal's construction loan program merits analysis by every financial institution in the country. Indeed, it has already served as an example to other practically experienced builders. Oscar A. Maeder, one-time general superintendent of several big Ohio contracting firms, including Grove's, and now vice president in charge of Second Federal's construction loan department, Together, they found many a weak spot in the local building business which dictated the need for something new in the way of construction lending.

Not as rosy a picture as professionals would like to see, Cleveland's house building industry is typical. Then, as now, about 95 per cent of all houses were built without architectural supervision. Most of the smaller houses (and Second Federal's average has averaged about 85,000 in value) require an average construction loan of $5,000) spring from plans furnished by the builders who, in many instances, purchased them originally from architects.

The builder is the most important point of sale in the local house building business. To operate successfully under this setup, the builder must be more than a good salesman; he must be an accurate bookkeeper, a skilled mechanic, a business man and he must be well financed. Unfortunately, few are such. Himself a builder, Grove knew that most builders are very poor mechanics; that many are poorly financed businessmen. And he understood the detailed technical details of both sides, much less the vital specifications of the material dealer. As a result he is forced to place his faith in the builder as far as design and construction are concerned. It is the financier as far as the worth of his investment is concerned. That faith should be justified.

In the desire to increase his business, consider the material dealer frequently over-exaggerates credit to builders and just as frequently regrets it. Sometimes he never gets the money; other times the heavily indebted builder will pay one bill with funds which should be applied to another. Conditions are not right when the material dealer does not always receive all of the money he is entitled.

Finally, Investigator Grove founded upon the position of most of the financial institutions in the local house building situation. He found that many were not, and he tried to straighten out the situation. He has no guarantee that the construction loan department will not charge the houses on which they were lending because of the heavy loads of people's money offered ample security to justify the long term mortgages. Unpaid bills were not brought to their attention until material dealers complained or mechanics were paid. Contracts were not regulated, and owners sometimes disappointed with their completed houses. It was obvious that it was necessary to safeguard its own position, the new

the Architectural Forum
It is to be wondered that Second Federal, having gone so far in this direction, does not place more emphasis on architectural design and supervision. It seems reasonable to believe that the task of revising plans which are architecturally deficient and entail extra supervisory burdens could be transferred to professional hands without adding to costs and, certainly, with benefit to the institution's collateral. —ED.

and submits a set of plans and specifications with which both he and his builder (or architect) are satisfied. Not unusual in form, this two-page application makes room for the owner's vital and financial statistics, a complete description of the chosen lot and brief description of the proposed house.

With this in hand, Second Federal orders an appraiser to determine the current value of the land and the cost of the proposed construction. From the Cleveland Construction Industries Credit Bureau comes a report on the contractor's financial standing and past performance. Along with a photograph of the lot, the loan application, the house plans and specifications and the owner's credit report, these data are sent before the Association's executive committee for review. Among other things, this group compares the appraised value of the entire projected property with the purchase price of the land plus the contractor's cost estimate.

Size of the loan (per cent of property value) is based upon the Association's "physical security rating" of the proposed house and lot and its "personal rating" of the borrower. Implemented by a detailed score card (sheet C), derivation of these ratings is similar to the risk rating system followed by FHA.

After approval of the loan but before construction is authorized, the construction loan department thoroughly checks all plans and specifications, makes sure that they toe the Association's much publicized minimum standards. For its own protection, design and structural changes may be suggested which will enhance the appearance, soundness and salability of the property and, for the satisfaction of the owner, other changes in plans and specifications may be recommended. When these details satisfy all parties, the owner deposits the necessary cash downpayment, signs the mortgage and, on the reverse side of the cost breakdown form (sheet D), an agreement permitting the Association to inspect the construction as it progresses and to disburse all funds. The contractor signs a similar agreement, submits a copy of the signed construction contract, and, inside the folding cost breakdown, completely itemizes the construction cost under some 50 headings.

Meanwhile, the mortgage is sent to a title search company, whose work is later reviewed by the Association's attorney, and a lien survey, implemented by a photograph, is made to prove that no work has yet been done at the site and that no materials have been delivered. Solely responsible for proper location of the house on the lot, the owner is urged to require that a staking survey be made by the contractor. When these preliminaries have been accomplished, all the documents are rounded up, sent back to the mortgage loan department for rechecking, scrutinized by the Association's President Grove and relayed to the construction loan department for a final review. If everything is in order, this department notifies the owner and contractor that construction may proceed and sends the complete file on the case to the Association's insurance department which arranges for fire and windstorm insurance and then passes the ball to the auditing department where the necessary tax and insurance reserves are set aside.

At this point, Second Federal has

(Continued on page 38)

and product of Second Federal's construction loan machinery is this $6,000 house—one of completed since wheels began to turn six years ago. It includes a full basement.
LIFE HOUSE SUBDIVISION sprouts in Boston suburb where builder and lumber dealer team up to capitalize on professional design and free promotion.

On a damp Sunday afternoon last month, while newshawks clicked cameras and a crack announcer described the scene to an invisible radio audience, several hundred visiting bigwigs from Boston and vicinity watched Actress Diana Barrymore step up to the door of a small model house in South Natick, Mass. Walls and roof were wrapped in transparent ploflom, fastened with an enormous red bow and huge holiday stickers, to make the house resemble a huge Christmas package. Lifting a pair of giant shears, Miss Barrymore snipped. The snap opened the dwelling for public inspection, thereby formally inaugurated Oakdale Acres—the first completely planned community of Lime-inspired houses to go up in the U.S.

Some 567 miles away, in the July 1 issue of Life, presenting in collaboration with The Architectural Forum a series of eight houses designed to meet the demands of various-sized pocketbooks. Architect Clark's solution, intended for an average family with two children and an income of $1,800 to $2,300, immediately stirred an appreciative enthusiasm for its many plan virtues. This house, it was felt, offered a maximum of living facilities for a minimum price.

Alert to the promotional advantages of a subdivision consisting entirely of nationally publicized Life Houses, Hersey, together with the lumber company's President Granville Fuller and Vice President George F. Fuller, hopped a plane to New York to discuss the possibility of a Life Village with the magazine's editors. Sessions were next held with Architect Clark, who was commissioned to prepare several plan variations and a perspective showing a group arrangement of the houses. Land was purchased and first ground was broken in August. Seven weeks later the first house was completed.

Sirs. Located fourteen miles from Boston, just off the heavily traveled Worcester Turnpike, Oakdale Acres offers easy accessibility. Nearby is a shopping center, and one minute's walk brings residents to the main highway and its public transportation facilities. From there it is only three minutes by auto to Natick's center.

Included as part of the original undeveloped tract, purchased for $25,000, are three paved streets. Gravel sidewalks are provided throughout. Since Natick has no municipal sewage disposal system, cesspools are used instead.

Wide streets and spacious lots, which take advantage of existing trees and leave much room for individual landscaping, have been platted to give prospective home owners a welcome contrast to crowded city life. Smallest of the 267 lots contains 5,000 sq. ft., largest 10,000 sq. ft.

Design. Small in cubage, each house in Life Village nevertheless includes a large living with dining alcove, kitchen, bath and two bedrooms on the first floor, in some instances two additional bedrooms on the second floor, plus a full basement. Interiors permit flexible furniture arrangements. Dining space can be part of the living room or part of the kitchen, as the buyer prefers. The bath backs up against kitchen for economy of plumbing and heating. If low carrying costs as well as low first costs are to be obtained—the selection of high quality building products and a quest for new economies through mass production techniques.

At this point, ripe for action. Builder Hersey and associates came across the July 1 issue of Life, in collaboration with The Architectural Forum a series of eight houses designed to meet the demands of various-sized pocketbooks. Architect Clark's solution, intended for an average family with two children and an income of $1,800 to $2,300, immediately stirred an appreciative enthusiasm for its many plan virtues. This house, it was felt, offered a maximum of living facilities for a minimum price.

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lines, can be reached by an overly guest in the living room without disturbing bedroom occupants.

All houses built so far duplicate minor variations, the plan provisions, originally by Lime. Principal changes introduced by Architect Clark: 1) elimination of folding door between kitchen and living room; 2) addition of garage and porch; 3) an increase of 3 ft. in house width to accommodate any stairway leading to upper floor bedrooms where so desired.

Construction. Specifications also closely follow those set forth in Lime's presentation. In line with their belief that cost is tantamount is size, prices are made for $1,500 to $2,500, including lots. Specifications include even such customarily desirable equipment as automatic oil furnaces, electric kitchens replete with dishwashers.

Besides seeking potential savings the owner in operating costs (hot water is estimated to be as $89 a year), the builders have tried to economize through large scale operations on the job. Foundations, floor joists, roof rafters, concrete, scaffolding, equipment as automatic oil furnaces, electric kitchens replete with dishwashers.

Wherever possible, power equipment is used. Much lumber comes precut from the Fuller Co.'s shops and what cutting is impractical to do there is quickly done on the site with power saws. Each house has its own set-up of electric equipment and its own finish carpentry. (Local labor note: Government's heavy program of building construction at nearby Ft. Edwards and Camp Devens has drained the available supply of building craftsmen—carpenter, particularly scarce.)

Mechanization and the transfer of much construction as possible from the site to the shop explain the success of the business between Builder Hersey and the lumber company. The project is a unique concept, working independently, can afford similar facilities for prefabrication.
variations in design and location give LIFE Village table picturesqueness, due to use of only two basic floor plans. Seven of the site's 100 acres have been set aside as a private park where owners may enjoy the serenity of the adjoining pond. The village will accommodate 267 homes, 40 of which are under construction or occupied.
COST BREAKDOWN

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation</td>
<td>$ 50</td>
</tr>
<tr>
<td>Masonry Materials</td>
<td>$270</td>
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<tr>
<td>Mason Labor</td>
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<tr>
<td>Lumber</td>
<td>$700</td>
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<tr>
<td>Carpenter Labor</td>
<td>$340</td>
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<tr>
<td>Interior Finish</td>
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<tr>
<td>Plumbing</td>
<td>$265</td>
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<tr>
<td>Heating and Burner</td>
<td>$650</td>
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<tr>
<td>Doors and Windows</td>
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<tr>
<td>Lath and Plaster</td>
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<tr>
<td>Rough Electric Wiring</td>
<td>$65</td>
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<tr>
<td>Electric Fixtures</td>
<td>$12</td>
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<tr>
<td>Insulation</td>
<td>$78</td>
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<tr>
<td>Rough Hardware</td>
<td>$35</td>
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<tr>
<td>Finish Hardware</td>
<td>$20</td>
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<tr>
<td>Paint and Labor</td>
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<td>Conductor Pipes</td>
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<td>Wall Paper and Hangings</td>
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<tr>
<td>Shades and Screens</td>
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<tr>
<td>Weatherstripping</td>
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<tr>
<td>Range</td>
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<td>Water Service Connection</td>
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<td>Insurance</td>
<td>$15</td>
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<td>Window Cleaning</td>
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<tr>
<td>Shrubbery</td>
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<tr>
<td>Architect</td>
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<tr>
<td>Taxes</td>
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<tr>
<td>Attorney's Fees</td>
<td>$35</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$3,689</strong></td>
</tr>
</tbody>
</table>

CONSTRUCTION OUTLINE

FOUNDATION: Cement blocks. Waterproofing—asphalt and cement.
ROOF: Covered with shingles, Barrett Co.
WAYS: Sash—wood double hung. Glass—Pennvernon, Pittsburgh Plate Glass Co.
HARDWARE: By Skillman Hardware & Sons.
PAINTS: By Lowe Bros.
ELECTRICAL INSTALLATION: Wiring—General Electric Co.
KITCHEN EQUIPMENT: Range, refrigerator, dishwasher sink and cabinets—General Electric Co.
PLUMBING: Soil pipes—cast iron. Hot cold water pipes—copper.
WE BOTH AGREE... SERVEL STAYS SILENT-LASTS LONGER BECAUSE IT FREEZES WITH NO MOVING PARTS!

TENANT
Mrs. Simeon Anderson
5348 N. Christiana
Chicago, Illinois

BUILDER
Mr. Harry A. Taylor
Developer of "Meadowbrook Village," "The Village Green" and other important New Jersey projects.

Mrs. Anderson says: "My Servel was purchased April 20, 1936. I find the operating expense a dollar a month; have never had any expense for service or parts. We are very well pleased with this refrigerator and particularly like its silence and absence of moving parts. Am glad of my landlord's selection."

Mr. Taylor says: "Our experience over many years with automatic refrigerators has sold us completely on Servel Electrolux for our properties. Being the only one with no moving parts in its freezing system, the gas refrigerator alone can give our tenants permanently silent operation."

Different FROM ALL OTHERS...

► NO MOVING PARTS in its freezing system
► PERMANENT SILENCE
► CONTINUED LOW OPERATING COST
► More years of satisfactory service
► SAVINGS THAT PAY FOR IT

Stays silent... lasts longer
SERVEL ELECTROLUX GAS REFRIGERATOR

CHANGE TO SILENCE
CHANGE TO SERVEL

JANUARY 1941
WALL-TEX Fabric Wall Coverings
Styled by NORMAN BEL GEDDES

Internationally famous designer creates new Charm for Walls

Above: Norman Bel Geddes and (at right) the famous "FUTURAMA" designed by him for the General Motors World's Fair Exhibit viewed by millions of people.

Below is shown a typical example of brilliant new Wall-Tex styling by Norman Bel Geddes—impressive new beauty in line made famous by its practical features of honest washability and plaster crack prevention.

Now more than ever before, Wall-Tex fabric wall coverings deserve the consideration of architects, contractors, builders and investment men. Highly styled, practical Wall-Tex is basically a structural material—strong, durable and protective. Its tough canvas base becomes an integral part of the walls and ceilings—safeguards the plaster, provides enduring beauty, makes property easier to sell or rent, and saves money for the owner.

For small and large homes, multiple housing projects, commercial and institutional buildings—for use on plaster walls and various types of wallboards—Wall-Tex is thoroughly practical and a sound investment.

Send for FREE FOLDER

Handy, full-color file folder gives complete information on Wall-Tex—how and where to use it, how to apply it, how to figure the cost. Describes types of Wall-Tex: Decorative styles, Stiffened Canvas, Lining Cloth. Contains actual swatches of the materials. Mail the coupon now!

Columbus Coated Fabrics Corporation
Dept. AF-11—Columbus, Ohio

Send me your Architect's Special File Folder giving complete technical information on Wall-Tex, and sample swatches.

NAME
ADDRESS

BUILDING FORECAST

(Continued from page 67)

THE ARCHITECTURAL F O R U M

Army's $49 million fund and the M-Commission's $82 million fund (both of which have been entrusted to the WPA for administration) and the Navy's $44 million fund and FWA's own $814 million fund. Added to these are some $200 million defense housing projects, probably be put under construction this year which, in conjunction with 1939's $900 million figure, will raise the grand total close to $2.5 billion.

Slated for a 10 per cent increase over last year to $1.6 billion, the construction industry includes factories, stores, offices, restaurants, filling stations, garages, banks, lofts, warehouses and commercial buildings usually lag about three years behind the residential building boom. They should therefore advance still more in 1942 to service last year's private building boomlet. Only three of the surveyed cities anticipate decreased commercial building activity in 1941: Cleveland and New Orleans. Mention of the magic phrase "defense" is adequate explanation for the forecast 31 per cent rise in private orders for manufacturing buildings to $650 million and the even more dramatic 60 per cent increase in similar public expenditures to $2.3 billion. Combined industry forecast: up 50 per cent to $2.8 billion.

There are several indications that the industry's producers will contribute heavily to the total expenditure: 1) Swamped with orders of every kind, the industry a few months ago was operating at 97 per cent of its current capacities. 2) Bethlehem Steel President Eugene Grace months ago looked and expected his ingot output to rise 8 per cent to the tune of $18 billion during the next two years, with steel production forecast to hit $2.5 billion. Combined industry expansion: 85 per cent to $789 billion. Combined industry expansion: 85 per cent to $789 billion.

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Profitable Air Conditioning
for Architects

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ADDRESS: _________________________
CITY: _____________________________
I WALK 5 MILES A DAY IN MY KITCHEN

—Naturally
I want a floor that's comfortable

GIVE the lady of the house a break when you plan her kitchen and pantry. Give her a restful resilient floor of Armstrong's Linoleum—the nationally advertised brand she knows and respects.

Easy to Clean

This linoleum actually cushions footsteps—is springy and comfortable underfoot. And it also puts an end to tiresome floor scrubbing, because all the care it requires is the truly washable, linoleum-like wall covering.

From your own point of view, you'll find Armstrong's Linoleum is an easy material to work with. More than 200 colors and patterns are available to you. Custom-cut or ready-cut insets and smart borders can be added for very little extra.

For full information, see Sweet's or write for file-sized booklet. Armstrong Cork Company, Floor Division, 1203 State Street, Lancaster, Pa.

ARMSTRONG'S FLOORS LINOLEUM
Rubber Tile - Linotile (Oil-Bonded) - Asphalt Tile - Cork Tile - Linowall Wall Covering

I want a floor that's comfortable

(Continued from page 34)
dollar totals and of both increments.

The same reasoning holds true for public works construction, principally highways which is slated to inch up 1 per cent to $8,040 million, and for "other public" construction, principally conservation and development projects, for which a 4 per cent boost to $8,460 million is predicted.

Like the participants in The Forum's survey, Federal Power Commissioner Leeland Olds sees ample justification for a marked increase in privately financed public utility building. In a report submitted to President Roosevelt last month, he indicated that the national defense program may cause an electric power shortage of 1.5 million kilowatts (equivalent to the entire electrical production capacity of the state of Michigan) in certain industrial areas by 1948. Since expansion of generating capacity costs about $200 per kilowatt, supply of Powerman Olds predicted shortage would involve expenditures aggregating some $150 million in excess of those now contemplated by the industry. Further indication that The Forum's forecast of a 17 per cent increase to $743 million in private public utility construction expenditures (including those by railway, pipeline, gas production and communication companies) may prove conservative is the Wall Street Journal's estimate that the private electric power production industry alone will spend close to $700 million on 1941 construction.

In the light of predictions by Agriculture Department economists that farm income will expand from $8 billion in 1940 to $8.5 billion in 1941 and $10 billion the year following, The Forum's forecast of a 9 per cent jump in farm construction to $4,683 million does not seem out of line.

Of all the various classifications of construction, publicly financed military and naval, for obvious reasons, is due for the largest expansion this year—131 per cent to $980 million. Expenditures for troop cantonments, the erection of which is running as much as ten weeks behind schedule (reasons: inclement weather, labor troubles and unexpected site conditions), will account for close to one-third the total and will be 40 per cent larger than in 1940. Air bases, yards and docks, collectively dubbed "military works," will cost $900 million, three times the 1940 sum. Also included in this military and naval category is the forecast for publicly financed manufacturing plants discussed above.

As shown on the complete tabular summary of The Forum's forecast (p. 67), total private expenditures for new construction are expected to increase 9 per cent to $4,395 million; total public, up 38 per cent to $3,360 million. Combined, the two categories will aggregate a whopping $7,755 million, up 18 per cent. Thus, thanks almost entirely to the national defense program, 1941 will be the biggest year for Building since 1930.
RESIDENCE CASEMENT for various housing needs. Provides more daylight, better ventilation, easy opening, safe washing, extraordinary weather-tightness, better screens, fire-safety. Quickly, easily installed.

Housing in these times of defense is often as urgent as the building of new industrial plants and additions. Whatever the type of structures, Fenestra is prepared to help speed up construction by making quick shipments of the Standard Prefabricated Products shown opposite. Fenestra assures speed by its 4-way service:

1. Rush delivery from factories in Detroit, Mich., and Oakland, Cal., and from factory warehouses strategically located to make overnight deliveries.
2. You save installation time, labor, materials. Prefabricated Fenestra products are delivered to your jobs already fitted, assembled, and prime-painted—COMPLETE.
3. Top quality—that for years has met the exacting specifications of the U.S. Army and Navy ... protected from rust by Fenestra's Bonderizing Process.
4. Maximum savings in first cost are the result of maximum manufacturing economies in the shops of America's oldest and largest manufacturer of solid section steel windows.

For complete data mail the coupon below. See Fenestra Blue Book in SWEET'S CATALOG. For quick personal service call a local Fenestra engineer; or telephone Detroit—Madison 7680.
CONSTRUCTION LOANS
(Continued from page 69)

already assumed many pounds of the builder's usual burden, has relieved the owner of many of his usual worries and has substantially protected its interests. But, its services have just begun.

Like G-men, Second Federal's building inspectors are on the job as soon as construction begins and during the early stages (when most of the irreparable damage could be done) they are particularly busy. Thus, until the house is plastered, the site is visited as frequently as once a day or once every two days. As soon as the structure progresses above grade and before any disbursements are made, an encroachment survey is secured to verify the fact that the builder is working on the proper site and that the house is properly orientated.

Second Federal's periodic probes are not cursory inspections, but involve, rather, an actual close examination of materials, construction methods and workmanship. Each prober carries a set of blueprints and specifications for the houses he inspects and submits a written, itemized report of each day's findings. Dual in purpose, these inspections not only assure the owner and the Association that the house is going up as planned, but serve as a basis for the timing of disbursements by the Association. As the house enjoys complete architectural supervision, the architect usually makes out the certificates of payment. If not, as is most frequently the case, the contractor submits the certificates. For example, the first disbursement will cover labor and materials for excavation, footing forms, footings, the laying up of the foundation walls to the plate; the first floor joists, etc.—all work accomplished prior to the encroachment survey. The contractor's certificate will show the amount due or paid to the mason, to himself as the carpenter contractor and to the material dealer. If the Association's inspector and vice president in charge of construction approve the certificate, checks are drawn and given to the creditors upon the signing of affidavits that their labor has been paid. If the contractor has already paid his bills and is requesting reimbursement, he must submit the receipted bills before he is paid.

This disbursement procedure also permits the Association to keep tabs on its money and the house's construction cost. Thus, whenever a payment is made, the amount is entered under the proper heading of the confidential (between contractor and Association) cost breakdown and is subtracted from the foregoing figure. It is thus possible for Second Federal to determine at a glance the amount paid out and the balance due in any account.

For the regulation of contract extras, (Continued on page 40)
Banker’s Life Building gets light and privacy with PC Glass Blocks

PC GLASS BLOCKS are generously used in the new Banker’s Life Building in Des Moines, Iowa. Here, the PC Glass Block light-transmitting areas, with clear glass casements, may be seen, and large Glass Block panels in the auditorium (foreground), Tinsley, McElroy and Higgins, Architects.

AUDITORIUM INTERIOR, showing PC Glass Block panels. These panels not only help to light the room, but their sound insulating properties help to make the hall quieter by deadening outside noises.

PC GLASS BLOCKS in the stairwells are used effectively for making staircases better lighted and safer.

IN THIS OFFICE below ground level, PC Glass Block panels are used to bring daylight into the room while keeping out curious eyes. They assure privacy and freedom from outside distractions for the room’s occupants.

PC Glass Blocks perform many functions in the modern building . . . and perform them extremely well. They cut heating, maintenance and lighting costs. They transmit daylight, preserve privacy, deaden outside noise. And they are attractive enough in appearance to add, rather than detract, from a building’s beauty. There are eight patterns and three sizes to choose from. Send the coupon for our free booklet of information about PC Glass Blocks.

"PITTSBURGH" stands for Quality Glass

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Please send me, without obligation, your free, illustrated booklet "The Use of PC Glass Blocks in Commercial and Public Buildings."

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City... State...
Specify Effective SABOTAGE PROTECTION Anchor Chain Link Fence

With war conditions abroad, and actual instances of sabotage in industry at home, every architect should be prepared to specify effective sabotage protection for industrial plants now standing and under construction.

The experience of the last war shows that these three steps give adequate protection against outside and inside saboteurs with minimum expense for guards and policing. 1. An Anchor Fence completely surrounding the entire plant property. 2. Separate Anchor Fence installations surrounding outside storage yards and unwatched buildings. 3. Anchor Fence enclosures around vital parts of the plant such as power plants, transformer stations, chemical storage yards and unwatched buildings.

Anchor Fence Engineers are glad to give architects the benefit of their experience in helping plan effective fence installations to assure maximum protection against sabotage. Mail coupon for the Anchor Industrial Fence Catalog today—and for the name of your nearest Anchor Fence Engineer.

(Continued from page 38)

the Association has developed an equally unique system. Each contractor is armed with a printed booklet—not unlike the sales check pad used by grocery clerks—whose alternate pages are white, yellow and pink (sheet E, p. 68). When the owner desires an extra or a credit involving a change in plan details or specifications, the contractor describes the change and notes the estimated cost on the pad, gives the yellow carbon copy to the owner, the pink one to the Association and retains the white original. If the change involves an extra, the owner is required immediately to deposit with the Association sufficient funds to cover its cost; if it involves a credit, the refund is postponed until all bills are paid.

Upon completion of the house, one of Second Federal's inspectors rounds up the owner and contractor, goes over the building from top to bottom, notes any details which require revision or refocusing. When these have been brought in line, and if the contractor is one with whom Second Federal has had satisfactory experience, he is paid in full. Otherwise, all bills are paid, but any remaining profits are withheld pending expiration of the lien period.

Besides his money, the contractor (or the architect) is handed a detailed statement of every disbursement made by the Association. The owner receives another statement showing the amount of the loan, the amount of the contract, the cost of the loan including reserves and the extent of extras and credits. In his pocket also goes a printed certificate, and on the side of his new house goes a small bronze plaque inscribed "Certified Inspection—Second Federal Savings & Loan Association" and stamped with the date on which the house was completed.

In sum, Second Federal's construction loan program better the average in these important respects: all plans and specifications are prechecked, construction inspections are more thorough and frequent, payment of all bills is handled directly by the Association, and the owner is required to place sufficient funds in his loan account—over and above the mortgage loan proceeds—to cover the cost of the contract plus all necessary reserves for taxes, insurance and the like. While enforcement of these details has cost good time and money, it has also produced handsome dividends: a high type of mortgage security, owner good will and considerable new business. In fact, Second Federal's promotional efforts have featured the unusual construction loan procedure almost to the exclusion of the usual ballyhoo concerning interest rates and mortgage terms. The results speak for themselves: Second Federal's mortgage loans at mid-year were up 643 per cent from 1933, and the Association is now remodeling its offices to make way for still bigger business.

DEFENSE HOUSING (Continued from page 30)

Cooperative guinea pig. Most mystifying project is the 500-unit greenbelt planned by FW Administrator Carmo for Camden's shipyard workers. Directing operations is a new staff made up of Col. Lawrence Westbrook, who comes from WPA.

Contemplated for a vacant tract near Camden's outskirts, the project reportedly involves the sale of stock to tenants. Presumably it will follow the pattern of the cooperative "Park-Living Plan," which was promoted several years ago by Hon. Westbrook for a proposed development near Jacksonville, Fla. This earlier effort was called for the sale of preferred stocks to private investors while public funds were to be used for public improvements which then would be capitalized as common stock to be distributed among families buying houses, thereby avoiding any need for their planking down the customary first payment.

One disturbing feature at Camden: while Coordinator Palmer's report indicates that a minimum of 2,000 dwellings are needed where private enterprise cannot risk investment because the employment bonus may last but a few years, the cooperative shipworkers apparently are expected to carry the same risk.

Mobile guinea pig. Meanwhile, as a fitting commentary on the status of housing in the nation's defense industries, comes news that houseless workers are trying their own hand at solving the problem. Six hundred worker-owned tourist trailers were parked last month alongside a powder plant built at Charlestown, Ind. Nearby, 1,000 other workmen were sleeping in autorails while awaiting delivery of trailers they have ordered. (The trailer industry, however, reports that it cannot book any business since it is already going full speed on straight Army orders.)
Fluorescent... in Certified* FLEUR-O-LIERS

- Now you can plan and design "for tomorrow" with tomorrow's lighting... new, amazing fluorescent: Incased in smart, highly efficient Certified* FLEUR-O-LIER fixtures, this remarkable high-level light source creates for you a realm of interesting interior design possibilities.

Fleur-O-Liers bring you fluorescent at its finest. Here is a wide variety of fixtures, built to conform to over 50 exacting specifications for good light, balanced performance, as established by MAZDA Lamp Manufacturers... certified by Electrical Testing Laboratories as having met with those specifications.

The certified auxiliaries (ballasts and starters) used in Certified* FLEUR-O-LIERS are built to operate with the fluorescent lamps for which they are designed. This is important, because it means that all parts are balanced for economical and satisfactory operation.

Ask your electrical distributor or contractor about Certified* FLEUR-O-LIERS... or use coupon below to get free FLEUR-O-LIER Fact Book.

Here are some of the many FLEUR-O-LIERS now available. Check with your lighting company to get advice on how to install FLEUR-O-LIERS to meet your needs best.

Look for this label

It is your protection. Electrical Testing Laboratories certify that FLEUR-O-LIERS have met with specifications for Lighting Effectiveness—6 for Electrical Safety—18 for Mechanical Soundness—14 for Electrical Excellence—7 for Auxiliary Performance... as set up by MAZDA Lamp Manufacturers. All Certified FLEUR-O-LIERS must be equipped with auxiliaries (ballasts and starters) certified by E.T.L.

TEAR OUT AND MAIL
Fleur-O-Lier Manufacturers - 2119 Keith Bldg., Cleveland, Ohio
Please send me helpful information about Certified FLEUR-O-LIERS, packages of indoor daylight for stores □ offices □ factories □

Name
Address
City State

JANUARY 1941
RU-BER-OID ETERNIT VITRAMIC

The siding of brilliant, lasting whiteness!

Made in two styles—Colonial design 12x24 in. Weatherboard design 12x24 in., and 9/4 x 24 in.

WATERPROOF

VITRAMIC is impervious to water! The hose test proves it. Dampness cannot penetrate. Rain will not darken the surface. Rotproof — waterproof — termite-proof—isn't that a real sales story?

HARD

VITRAMIC is hard, tough! The penknife test shows why the elements can't penetrate this rock-hard, ceramic-like surface.

FIREPROOF

VITRAMIC can't burn! It's safe. It's made of asbestos and Portland cement, two fireproof materials. Prove it with a fire test of your own. The fused ceramic-like vitreous surface, put on at high temperature, is the best proof of Vitramic's inherent fireproof qualities.

RESISTS DIRT

VITRAMIC keeps its brilliant whiteness! Dirt rolls off. The reason is — VITRAMIC has no open pores. Dirt and carbon floating in the air find no foothold.
REMARKABLE NEW SIDING
...for NEW, ENDURING BEAUTY!

NEW EXCLUSIVE PROCESS PRODUCES GLAZELESS CERAMIC-LIKE ASBESTOS SIDING that resists dirt, repels water, reduces upkeep!

For more than a year VITRAMIC has been acclaimed in the East! Now... it is ready for distribution all over the nation!

This new siding is really revolutionary! It offers you an astounding number of sales-compelling features that you have long awaited.

You have, first of all, a siding with a beautiful "wood-grain" texture and a tough, resilient, fireproof, time-defying, asbestos-cement base.

But the big news is this—you can now sell whiteness as you've never sold it before—a brilliant lasting whiteness! This intense whiteness in VITRAMIC has been achieved through the fusing of a remarkable glazeless, vitreous surface to the asbestos-cement base. The brilliant whiteness is an integral part of the siding. It stays white—resists dirt.

This hard, vitreous surface offers more than beauty. It closes all pores. There are no openings for dirt to enter, no roughness for clinging dirt. The surface repels water. Discoloration from dampness is impossible. Rock-hard—rotproof—termite-proof—this fine siding is in a class by itself.

Vitramic conquers these great siding enemies!

Soot, cinders, carbon particles and fumes—every day, they attack the sidewalls of homes, hunt for open pores. Once entrenched with the help of moisture, they seek to soil, smudge or smear—destroying beauty—impairing the life of sidewalls.

They've met their match in VITRAMIC! This extraordinary siding, with its hard, ceramic-like surfacing, offers no foothold for dirt, soot or carbon particles. When particles do stay on Vitramic's surface, rain washes them off, or they may be easily wiped off. Sulphur fumes, ammonia fumes in the air—even when made more active because of moisture—have no effect upon Vitramic surfacing or its brilliant whiteness. Think of the value of all these features.

Get all the facts. Investigate this amazing new siding. Be sure to write today. The Ruberoid Co., 500 Fifth Avenue, New York, N.Y.

MAKE THE CANDLE TEST—PROVE IT YOURSELF

Let a smoking candle burn. Hold it under Vitramic Siding. Let it get good and black, with the smoke curling around the edges. Then take a wet sponge. Rub it. Use no cleaner—just water. See how Vitramic is restored to pure whiteness.
Forum of Events

(Continued from page 10)

Homes & Narver, Los Angeles—Camp, Nacimiento, Calif.
Hunt, Myron, and H. C. Chambers, Los Angeles—Camp, San Diego, Calif.
Jackson Co., W. F., Atlanta—Laundry and Bakery Buildings, Pensacola, Fla.
Kahn, Inc., Albert, Detroit—Houses
Kahn, Julius—Detroit Ordnance Plant.
Kistner, Curtis & Wright, San Diego—Postal Exchange, Dispensary, Overhaul Building, etc., San Diego.
Koch & Fowler, Dallas—Camp Bowie, Tex.
Koh & Allyn, Portland—Air Corps Cantonment, Portland, Ore.
Kest, Jr., William L., Myrtle Beach—Ex-Sure
Kistner, Curtis & Wright, San Diego—Postal Exchange, Dispensary, Overhaul Building, etc., San Diego.
Koch & Fowler, Dallas—Camp Bowie, Tex.
Lawrence & Allyn, Portland—Air Corps Cantonment, Portland, Ore.

There’s no safer specification to assure concrete cured to superior finish, hardness and strength.

Sisalkraft, laid over the freshly poured slab, seals in the original mixing water, and protects the surface from dirt and wear as work proceeds. Inspection is easy—the paper is either in place or it isn’t. No further attention is required. No sprinkling. No human element—a positive cure insured. It’s simple—sure—economical.

Specify Sisalkraft
Over sheathing and under floors in EVERY type of home construction. It goes on fast—saves labor and waste. It’s the one BEST Building paper that is
LOW in Applied Cost

The Sisalkraft Co.
202 W. Wacker Dr., Chicago, Ill.
New York San Francisco
Write for file of data covering Sisalkraft concrete curing and comparative strength figures.

Copper...

Even for Homes of Modest Cost

The recognized advantages of copper protection can be supplied at with the usual cost, by the use of COPPER- ARMORED SISALKRAFT. A quality feature at a budget price.

A file on Copper-Armored Sisalkraft is available. Send for it.

扩展的文本：

Lockwood Greene Engine, Inc.—C., South Mississippi, Fl.
Lozier, Inc., William S., Rochester—Camp, Great Bend, N. Y.
Springfield, Mass.
Marsh & Saxelbye, Jacksonville—Base Officers’ Quarters, Barracks, Mess Hall, etc., Banana River, Fla.
Noble, Jr., William L., Myrtle Beach—Ex-Sure

The architectural forum

(Continued on page 46)
Another interesting application of "stainless" roof drainage

Here at the Sarver Memorial Church House in Butler, Pa., the problem was to eliminate roof-drainage maintenance as far as possible, as well as to attain a pleasing harmony of the gutters and downspouts with the light tan brick and limestone trim.

You can easily visualize how ARMCO Stainless Steel enabled the architects to achieve this desirable end. The rustless qualities of this modern metal insure virtual permanence; and its soft, neutral tone blends appropriately with the walls and roof. And being at least twice as strong as other roof-drainage materials, there is little or no danger of sagging or breaking under heavy snow or ice loads.

Send for a free copy of ARMCO's new booklet, and see for yourself how well ARMCO Stainless Steel gutters, conductor pipe and accessories meet the long-desired objectives of beauty, permanence, and low-cost service.

FREE for your files—this new and informative booklet on ARMCO Stainless Steel in roof-drainage systems. It contains design information with useful specification and installation data.

1 In roof-drainage systems, stainless steel offers excellent corrosion resistance, non-rusting qualities and long life.
2 Its soft, natural tone harmonizes with all color schemes.
3 It has great strength and resistance to abrasion.
4 It endures in seacoast regions where corrosive conditions are severe.
5 It costs little more than other premium metals.
6 It is the accepted modern metal—used on many famous buildings.
Ordnance Works, Wilmington, Ill.
Sullivan, Francis P.; Marshall & Gongwer; Weschler & Cleary, Washington—Extension to Transportation Building, Overhual Shop, etc., Marine Barracks, Quantico.
Tipton, Royce J., Denver—Camp F. E. Warmi, Cheyenne, Wyo.
Voorhees, Walker, Foley & Smith, New York—Naval base at Trinidad.
Vreely & Hansen, Chicago—Camp Peay, Tenn.
Wiedeman & Singleton, Atlanta—Fort McClellan, Anniston, Ala.
Williams, Cole & Pipino, Newport News—Quarter, Mine Warfare School, etc., Yorktown and Newport News.
Wunder, Clarence E., Philadelphia—Frankford Arsenal, Philadelphia.
Yonge & Hart, Pensacola—Administrative and Operations Building, Recreational Building, Pensacola, Fla.

AWARDS
To Edwin Armstrong, professor of electrical engineering at Columbia University, the Holley Medal of the American Society of Mechanical Engineers, for distinguished service in engineering and science.

To Kenneth J. Brein of Rich Hill, N. Y., the 1940 Sherman Prize, Columbia University’s School of Architecture.

To William B. Gregory, professor of experimental engineering and hydraulics at Tulane University, the Reed Warner Medal of A.S.M.E., awarded annually for contributions to permanent engineering literature.

To Dr. George A. Hawkins, associate professor of mechanical engineering at Purdue University, the Pi Tau Sigma Award of the A.S.M.E., a gold medallion, honorarium, as “the most outstanding young mechanical engineer for the 1940 who has been graduated not more than ten years. . . .”

To Charles F. Kettering, of General Motors Research Laboratories, the A.S.M.E. medal, its highest honor, for a long and pronounced influence on automobile development.

To Robert Moses, New York, a medal from the National Institute of Arts and Letters “for outstanding achievement in the beautification of New York State.”

To Richard Petman, University of Southern California, first award in the student color contest held in connection with the National convention of Scarab, for his winning color, “Old Dark House.”

To Sidney Simon of Pittsburgh, the award of the Abbey Prize, $1,000, by the National Academy, co-trustee with Dr. Melchior J. Smythe, for the study of religious painting. The Jury: Barry Faulkner, Harvey Wiley Corbett, Leon Kroll, and Arthur Cover.

COMPETITIONS
AMERICAN ACADEMY IN ROME, unable to send its Fellows to Rome because of the European situation, will make no Fellowship awards next spring. It will hold,

(Continued on page 48)
Add ONE WORD to Your Door Specifications

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5 EXTRA VALUES
at No Extra Cost


Ro-Way Industrial Garage Doors are widely used.


Five sound mechanical improvements and refinements back up your judgment in recommending Ro-Way Overhead Type Doors ... without adding a penny of cost to the finished job. Bear this in mind when you are writing specifications for Residential, commercial or Industrial Garage Doors.

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Please attach your Professional Card or Business Letterhead to your request.

There's a Ro-Way for every Door way!
ever, this year, a series of special competi-
tions for cash prizes totaling $5,000. A
prize of $1,000 will be offered in each of
the arts of architecture, landscape archi-
tecture, musical composition, painting, and
sculpture. Open to unmarried men only,
citizens of the U.S., and not over 30 years
of age. Further particulars from Executive
Secretary, American Academy in Rome,
101 Park Avenue, New York. Applications
to compete must be filed not later than
March 1, 1941.


MUSEUM OF MODERN ART, New York. Jury for the Industrial Design Competitions for Home Furnishings consist of

Alfred H. Barr, Jr.; Catherine K. Bauer; Marcel Breuer (who takes the place of Alvar Aalto now in Finland); Edward Kaufmann, Jr.; Edward Stone.

EDUCATIONAL
AMERICAN INSTITUTE OF ARCHITECTS receive proposals of candidates for Edward Langley Scholarships. These are awarded annually for advanced work in architecture, the amount of grant for each Scholarship being in accordance with the need and purpose of the candidate and the available funds. Candidates must be proposed in accordance with details that had from the Secretary, A.I.A., Octagon, 1740 New York Avenue, Washing-ton, D. C., and must be in not later than March 1, 1941.

EMERGENCY COURSES, Harvard, Ma-
chusetts Tech, Northeastern Univer-
sity and Tufts College offer day and evening courses to train engineers and technicians urgently needed in the nation's defense industries. The joint program was arranged to avoid duplication and to make the most effective utilization of teaching and laboratory resources of each institution. Applications for detailed information should be made by mail only, to Engr.
Ing Defense Training Bureau, Room 7-
Massachusetts Institute of Technol-
cambridge, Mass.

PLASTICS INDUSTRIES TECHNICAL IN-
STITUTE, Los Angeles. Day and night resi-
dential courses in plastics engineering, also a five-week study course, are offered by a staff headed by John Delmonte, technical director. Further information from the Institute, 186 South Alvarado Street, Los Angeles.

CALENDAR
January 19, 3:00 p.m. Illustrated lecture by Joseph Hudnut at the Metropolitan Museum of Art, New York on Modern Building and the Art of Painting.

January 26, 3:00 p.m. Illustrated lecture by Joseph Hudnut at the Metropolitan Museum of Art, New York on Modern Building and the Art of Gardening.


January 29-February 1. Annual meeting of the College Art Association of America at University of Chicago.

ERRATA
C. B. Baldwin is the administrator of the Farm Security Administration, not

(Continued on page 54)
Glass

"Designs for Happiness"

In the new American Home
Glass has created an

IT'S SMALL BUT BEAUTIFUL. IT'S MORE ECONOMICAL AND LIVABLE. YET IT COSTS LESS THAN $1.00 A DAY UNDER F.H.A.

IT IS BRIGHT, AIRY AND OPEN—WITH WIDER WINDOWS, BUILT-IN MIRRORS, INTERIOR GLASS PARTITIONS. GLASS ADDS TO ITS VALUE AND SALABILITY OUT OF ALL PROPORTION TO ITS COST.

A new kind of home is being built in America today—a home that utilizes to the fullest, all the beauty, utility and convenience that Glass offers. These houses are small but attractive. They're more convenient, more livable, and more economical to maintain. They contain many features formerly found only in more expensive homes—yet they can be bought for $1.00 a day or less under F.H.A.

These houses are not hypothetical—not mere dreams on a drafting board. They are actual wood and steel, brick and mortar houses being erected by the hundreds in many American communities. They are being built by builders all over the country, many have been completed and sold, under the banner of “Design for Happiness” Homes—a national building movement supported by a tremendous advertising and merchandising program in national magazines, radio, motion pictures and trade publications.

Much of the charm and beauty of this new kind of home comes from new and generous uses of glass. Wide Windows, Built-in Plate Glass Mirrors, Decorative Glass Partitions and colorful glass wainscoting of Vitrolite Structural Glass in kitchen and bathroom, combine to make a house that is brighter, gayer and easier to keep clean. No longer a luxury, Glass adds to the value and salability of a house out of all proportion to its cost.

WHAT ARE “DESIGN FOR HAPPINESS” HOMES?

“Design for Happiness” Homes is the copyrighted name of the nation-wide home development program sponsored by the Libbey-Owens-Ford Glass Company. This program is devoted to better and lower cost homes for the home owner—to greater opportunity for the Architect—to quicker and more profitable sales for the Contractor-Builder and Real Estate Operator. This program is supported by Libbey-Owens-Ford national advertising and by the L-O-F Radio program “Design for Happiness” over the Columbia Network 5 P.M. (EST) every Sunday afternoon. “Design for Happiness” Homes are now being built all over the country. Those connected with the building industry who wish to cooperate in this profitable home-building program can secure complete information by calling the L-O-F Glass Distributor in your neighborhood or by writing the Libbey-Owens-Ford Glass Company, Toledo, Ohio.
A wall mirror of polished plate glass smartly complements the room design. Often colored plate glass is used for mirrors of this type to add beauty—achieve color harmony.

This arrangement of 3-Panel Door Mirrors is novel and not costly. The center panel between the doors is a full-length mirror. The partial-length mirrors on the doors afford ample angle views. The mirrors, of course, are made of L'O-F Polished Plate Glass.

A kitchen planned to afford the utmost in labor-saving convenience and utility. It's bright and cheerful, too, because of the large window and the sparkling Blue Ridge Louvrex glass in the cabinet doors. Equipped throughout with the most modern kitchen equipment.

In the bathroom, a wainscoting of Vitrolite Structural Glass protects the walls around the bathtub. Vitrolite is impervious to moisture and odors. It is easily cleaned with a damp cloth. Its colors are always new, never fade. See samples at your L'O-F Distributor's showroom—for both kitchen and bath.

Storm windows that are tailor made. They fasten onto the face of each window in a jiffy. Storm windows and storm doors will reduce your fuel bills as much as 30%. In addition, storm windows eliminate fogged and frosted windows, greatly reduce drafts, increase home comfort.
And Glass Sells Houses

HERE ARE GLASS DESIGNS FROM A TYPICAL "DESIGN FOR HAPPINESS" HOUSE

Vitrolite wainscoting in the bathroom

Decorative glass in the kitchen

A built-in wall mirror

Storm sash for all windows

A disappearing dressing table and mirror

A 3-panel door mirror

The glass designs shown here are taken from one of the thousands of actual “Design for Happiness” Homes now being built all over the country. They illustrate the use of Glass in the modern small home. They are not only being built, but they are being sold even before they are completed.

In one bedroom is a three-way mirror, in another a built-in dressing table and mirror. A built-in mirror adds life and interest to the living room. The wainscoting in the bathroom is of colorful Vitrolite wall glass. In the kitchen the cabinet doors and the door to the utility room are glazed with a gay decorative glass called Louvrex. There’s even a powder-puff mirror by the kitchen sink. And the whole house is being equipped in the colder areas with storm windows to reduce heating costs by as much as one-third in comparison with houses which don’t have storm windows. The result is a home in which every room has been made more attractive and more useful—at little added cost.

FOR FULL INFORMATION

For all the facts about this great nation-wide home building movement, and the part that you can play in it, and how you can profit by building “Design for Happiness” Homes in your own community—write to Libbey-Owens-Ford Glass Company, Toledo, Ohio. The complete story will come to you by return mail.

LIBBEY · OWENS · FORD GLASS COMPANY

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Distinctive Texture in Walls of Architectural Concrete

Integrally with frame and floors of one firesafe, money-saving material, the walls of the water filtration plant at Faribault, Minnesota, derive character and charm from the board forms. Long & Thorshov, Inc., were the architects; Victorson and Co., builders—both of Minneapolis. Ask your architect or contractor about concrete. Let us send literature, free in U.S. or Canada, on concrete for public, commercial and industrial buildings. See Sweet's Catalog.

American Concrete Institute, Dept. A1-7, 33 E. Grand Ave., Chicago, Ill.

American Concrete Institute, Dept. A1-7, 33 E. Grand Ave., Chicago, Ill.
Do you want the LATEST IDEAS for DECORATIVE FLOOR COVERING?

Send for this FREE book of Johns-Manville Asphalt Tile Suggestions

This stimulating Idea Book is packed with photographs of interesting floor designs. Many are reproduced in full color. It contains suggestions for smart, colorful floors in stores, display rooms, lobbies, etc.; interesting ideas for offices, schools, public buildings; restful designs for churches and hospitals. The book includes color plates of the 37 plain and marbled colors of J-M Asphalt Tile which make it easy for you to select just the color combinations you need to carry out your ideas of interior treatments. It shows why J-M Asphalt Tile floors are quiet and resilient, give long years of service with little, if any, upkeep expense.

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Send me specification data and your full-color brochure on J-M Asphalt Tile Flooring.

Name:
Address:
City  State:

JOHNS-MANVILLE ASPHALT TILE FLOORING

FORUM OF EVENTS

(Continued from page 48)

Will W. Alexander, as indicated in the November Forum, pages 14 and 388, Dr. Alexander resigned from this office on July 1, 1940 to become vice-president of the Julius Rosenwald Fund. Shortly afterwards he was recalled to Washington on loan to become a member of Sidney Hillman's staff of the National Defense Advisory Commission, assisting Floyd W. Reeves on youth training problems; and also to serve as assistant to Federal Security Administrator Paul V. McNutt in connection with activities of the educational and work experience organizations in that agency.

U. S. MARINE HOSPITAL at Seattle, Wash., credited in the October Forum, page 280, to Bebb & Gould, architects, was designed by Bebb & Gould and John Graham, architects.

In the Guide to Washington's Defense Building Agencies, on page 357 of the November issue, it was suggested that contractors seeking fixed fee contracts from the Bureau of Yards and Docks, Navy Department, address Quartermaster General. Instead, such applications should be made to Chief Bureau of Yards and Docks, Navy Department, Washington, D. C.

The Unco machine illustrated on page 290 of the October issue, and there erroneously called a check-writer, is a device on which business forms are executed in duplicate. The designer, Robert D. Board.

MISCELLANEOUS ARCHITECTURAL SCHOOLS AND DEFENSE. "A Special Committee for the Defense Program has been appointed by the Association of Collegiate Schools of Architecture to assist in National Defense. We are hopeful that we shall be able to cooperate with the Government so as to utilize to best advantage the special qualifications and abilities of architectural graduates who are subject to the Selective Services."

"Our problem has two angles. One, the decision as to which, if any, of such especially trained groups should be exempt from military service: and two, the assignment of those who are called to branches where they can be of most value.

"Our committee has volunteered its cooperation, and received a courteous acknowledgment from Dr. Dykstra, Director of Selective Service, but nothing definite has yet developed. We solicit the assistance of all readers of The Architectural Forum in suggesting further lines on which we could be of use, contacts which should be made, and sources of information with which we should cooperate."

Signed: SHERLEY W. MORGAN, Chairman,
Princeton University
GEORGE YOUNG, JR., Cornell University
LEOPOLD ARNOLD, Columbia University

FOR MODEL MAKERS. The growing popularity of scale models, particularly of residential subjects, has brought about the production of a stock of miniature materials and mill work from which models may be built. Siding and shingles are produced in sheets 18 x 36 in. Doors and window frames, shutters, cornices, underpinning and chimney surfaces of brick are among the elements already produced. The material comes already cut for several different designs and also in lengths for the designer's own specific.
Remember what G-E started when it turned the oil flame upside down?

Back in 1927 General Electric began its first research into automatic heat... was quickly convinced there was real need for improvement. Five years of Research followed.

Then G-E introduced many revolutionary improvements now taken for granted. One is The Inverted Flame... the flame that burns upside down.

In the G-E furnace, fuel is forced downwards through a mixing chamber in which compressed air atomizes each drop of oil into 100 million particles. This vaporized mixture burns in a conical shape and turns upon itself so that the gas vapor burns completely.

Result: owners report 25% to 50% savings on fuel costs.

Untiring Research is continually improving each product in the complete heating and air conditioning line. For full details see Sweet's §, or write to General Electric, Div. 113, Bloomfield, New Jersey.

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

G-E Oil Furnaces—(steam, hot water, vapor) seven different sizes for various heating capacities. Year 'round domestic hot water coil optional. Also a complete line of G-E Gas Furnaces.

G-E Winter Air Conditioners—(oil or gas fired) circulate warm, clean, moistened air. Highly efficient. A single switch provides circulation in summer. Cooling equipment can be added.

Compact G-E Units—for cooling a single room, a group of rooms, for conditioning the whole house... or commercial buildings. Unusually quiet in operation. Also a complete line of Air Circulators.

G-E Unit Air Conditioners—for low-cost air conditioning in shops, restaurants, offices, etc. Complete range of sizes. Low in cost. Easily installed, little or no duct work needed.

GENERAL ELECTRIC

1941
An important advance in Butt Hinge design

The New Stanley Non-Rising Pin

The greatest advance in hinge construction in 40 years! A simple, positive, dependable method of keeping butt pins in place.

The non-rising feature is secured by a split ring attached in a groove in the pin. As the pin is seated, the ring expands into a pocket at the bottom of the top knuckle of the butt. It can't rise, yet is easily withdrawn.

In all plain joint butts of the 241 grade and up, specify Stanley and gain this exclusive advantage.

A TIME-SAVER IN SPECIFYING HARDWARE! WRITE FOR IT!

Catalog No. 6i, showing all the many hardware types and lines available from Stanley, will be invaluable as a reference book. Write now for your free copy, and use it as your guide to good hardware. The Stanley Works, New Britain, Conn.

FORUM OF EVENTS

(Continued from page 54)

tions. All details are at the scale of 1/2 in. to the foot, and are made by a division of Architectural Decorating Co., 1600 South Jefferson Street, Chicago.

The magazine formerly called Interior Decorator has become Interiors, since its purchase from Clifford & Lawton, Inc., by Charles E. Whitney. First issue under the new ownership was November. Its new address is 11 East 44th St., New York.

Died

Wilbert J. Austin, 64, engineer and president of the Austin Company of Cleveland, in an airplane accident. Born in Cleveland, Mr. Austin received his B.S. from the Case School of Applied Science. He was one of the first American industrialists to work in collaboration with the Soviet Russian officials under the so-called Five Year Plan. In more recent years he was active in the development of air terminal facilities and industrial plants.

Tox Bronte Everman, architect, 62, in Alexandria, Va. Born in Indiana, Mr. Everman was educated at Cornell and served as instructor there following his graduation in 1900. Coming to Washington in 1905 he became associated with the firm of Donn & Deming, and is credited with being the chief designer of the addition to the House Office Building. Mr. Everman was known as architect, painter, and landscape architect, and designed the landscaping for the Washington National Cathedral.

William G. Nolling, architect, 74, in Baltimore, Md. Born in Baltimore, Mr. Nolling passed his youth in Richmond, Va., and was graduated from the high school there, immediately entering an architect's office. While in his early twenties Mr. Nolling formed a partnership in Baltimore with the late J. B. Noel Wyatt, who died in 1927. Among the better known buildings designed by the firm, Wyatt & Nolling, were Baltimore City Court House, and Veterans' Bureau Building in Washington. After Mr. Wyatt's death, John H. Scarff became Mr. Nolling's partner, and the firm designed the Fifth Regiment Armory when it was rebuilt after a fire in 1933. A former member of the Board of Zoning Appeals, Baltimore, Mr. Nolling was a Fellow of the American Institute of Architects, and formerly served as its regional director for the Middle Atlantic District.

Frank Rushmore Watson, architect, 81, in Philadelphia. Born in Frankford, Pa., Mr. Watson received his Bachelor of Arts degree from Central High School in 1877, began his practice as an architect in 1883. In addition to his widely known abilities in church architecture, he served his profession by acting as a delegate to the Pan-American Congress of Architects in South America in 1923 and again in 1927. He was made a Fellow of the American Institute of Architects in 1930.

Clarence Edmond Wunder, architect, 53, in Philadelphia. Born in Philadelphia, Mr. Wunder attended the Central Manual Training School, and served as a draftsman for his uncle, Kurt W. Peuckert, architect and engineer, becoming a partner in the firm in 1910. Since 1914 he had carried on an independent practice. Among his better known works are the Temple University Stadium, Hotel Philadelphia, the Cuneo Eastern Press Building, the George Allen store in Germantown, Keebler-Weyl Baking Company plant. He was a member of the American Institute of Architects.
**YOU are invited to use the “Architects' and Builders' Service” of your local telephone company. Call your nearest Bell Telephone Business Office and get acquainted with this time-saving service.**

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**OPPORTUNITY**—For home owners, owners—Silent Partner ready to invest your homes with clean, fresh air—free from dust, dirt, greasy, smoke, odors—make it liveable and saleable at mighly little cost. Address Victor In-Bilt, Cincinnati, Ohio, U. S. A.

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I sell homes because buyers appreciate me. I keep rooms fresh and clean, free from fumes, smoke, odors. I make homes more pleasant—make them easier to sell.

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**THE Contestion**


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Our experience in making grilles includes many years of special attention to the needs of architects. The Auer Line covers a wide variety of designs for all purposes—air conditioning, ventilating, radiator enclosure and concealment. We can furnish almost any sizes, and any practical and workable material. In specifying metal grilles, you will find Auer Grille Catalog "G" a useful book. It gives complete grille data, shows all Auer designs, with range of dimensions, opening sizes, and full scale details. Your copy gladly sent on request. Specify Auer Grilles by name and number.

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TRIPLE-SERVICE WINDOW
Provides PERMANENT Screens. Storm Windows. Weather-Stripping

ALL IN ONE UNIT
INSTANTLY INTERCHANGEABLE
AND WASHABLE FROM THE INSIDE

Patented, adjustable
Clamp holding screen
pocket and permanent
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existing window, and
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PART II OF THE A.S.T.M. STANDARDS, 1939. Published by the American Society for Testing Materials, Philadelphia 1,217 pp., illustrated. $8.00.

Organized in 1902 the American Society for Testing Materials has succeeded in including larger and larger groups of technicians in its membership until today, with a thoroughly representative cross-section of the engineering profession, it stands in an authoritative position with respect to standards for materials. The book under consideration deals with the building trades. The published standards are divided into two main sections, the larger of which comprises the specifications and methods of testing officially adopted by the Society; the second section deals with tentative standards which represent the latest opinions and practices but have yet to be formally adopted. Materials covered are concrete and related products, masonry, glass, pipe, waterproofing and roofing materials, timber and timber preservatives, and paints, varnishes and lacquers. There are also specifications for testing appliances. The book has been so arranged that specifications and tests fall into separate chapters, any one of which can be purchased as a pamphlet. There are numerous illustrations from photographs and drawings, most of which show testing apparatus.


For the convenience of those who are interested in specific products, the Society has published a complete index of all pamphlets issued to date in the January, 1940, issue of its bulletin. Copies of this publication are furnished without charge on written request to the A.S.T.M. office, 209 South Broad Street, Philadelphia, Pa.

HOW TO BUILD, by Daniel Paul Higgins. Published by the National Catholic Welfare Conference, Washington, D. C. 38 pp., 5 3/8 x 7 1/2. 25 cents.

A pamphlet for the layman who is confronted with the problem of putting up a building. It describes the manner of selecting an architect, the way in which work is carried on, fees, owner's responsibilities, the relationship of owner and architect to contractor, engineer and other specialists.


This is the second of a series of booklets dealing with library equipment. It covers all types of flooring very completely, describing the characteristics of the materials and advantages and disadvantages, and lists trade names and the names of leading manufacturers. Instructions for maintenance are also given. A useful publication applicable to a variety of building types in addition to libraries.

THE STRUCTURE AND GROWTH OF RESIDENTIAL NEIGHBORHOODS IN AMERICAN CITIES, Federal Housing Administration, Washington. D. C. 177 pp., illustrated, 9 1/2 x 12 1/4. $1.50.

A statistical analysis of the characteristics of residential neighborhoods. It contains a wealth of material of obvious value to lending institutions, planners, house officials and others whose work must take account of long-term trends in urban development. Illustrative material includes a large number of maps which show age patterns in residential areas, new construction, average rents, growth of settled areas and the movement of types of residential areas.

(Continued on page 60)
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January 1941

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January 1941
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THE BUILT-UP ROOF, edited by Bernard Sachs, Harris-Hoffman Corp, New York. 30 pp., 80 illustrations. 5 1/2 x 8 1/2. $1.00.

This pamphlet is presented as a working guide to all phases of the application of built-up roofs, and has been compiled from the material published in The American Roofer Magazine. It deals adequately with equipment and materials, preparation of the deck, flashing and insulation. A number of chapters cover problems of reroofing and repairs, and give instruction on the prevention and repair of blisters. There are also sections on accident prevention, cost estimating and mistakes most commonly made.

THE PROBLEM OF RETAIL SITE SELECTION, by Richard U. Ratcliff, University of Michigan Press, Ann Arbor, Michigan. 95 pp., illustrated. 6 x 9. $1.00.

A study of commercial areas in cities. The book does not attempt to develop specific formulas for site selection but rather to provide a description of retail business groupings as they exist, and to set forth the economic factors which influence their evolution. Among the subjects treated in the course of the book are site selection practices among chain stores, consumer buying characteristics and distribution of retail store types.

JAPANESE GARDENS, (second edition) by Prof. Matsumonke Tatani. Board of Tourist Industry, Japanese Government Railways. 111 pp., illustrated. 5 x 7 1/4. 35 cents.

Another of the pamphlets put out by the Japanese Government's Tourist Bureau, profusely illustrated with photographs of the country's best gardens. Special characteristics of Japanese landscape architecture and the history of their development are described in a series of short articles.

THE GREATER ENGLISH CHURCH OF THE MIDDLE AGES, by Harry Batsford and Charles Fry. Charles Scribner's Sons, New York City. 136 pp., illustrated. 5 1/2 x 8 1/2. $3.00.

A book for the layman on the important churches of the medieval period in England. Very well organized to give a clear picture of the methods of construction and planning, manner of use, and type of furnishings. Illustrations are numerous and adequate in size, and show a good balance between general views and important details. While not oriented to the technical reader, material shown is sufficiently comprehensive to permit use of the book as an excellent reference work.


The new edition of the standard manual on heating and ventilating practice, containing all needed design data for any system of heating and brief chapters on electric and radiant heating. Supplementary information is given in some 250 pages of advertising; there is an index of equipment to facilitate use of this section for reference.

As a service to interested readers, THE ARCHITECTURAL FORUM will undertake to order copies of foreign books or others not conveniently obtainable locally, which have been reviewed in this department. Checks and money orders to be made payable to THE ARCHITECTURAL FORUM.
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United States Steel Export Company, New York

UNITED STATES STEEL

JANUARY 1941
Perhaps the considerable labors attending the recent National Defense and Design Decade numbers have softened Forum editors. At any rate, they here permit themselves the luxury of a moment’s retrospect. 1940 was a better year. The editors saw more good buildings than ever before. They saw signs that competent handling of contemporary problems was no longer confined to the few. They saw Building shake itself out of its ten year lethargy. And most important, they saw new faith and confidence in the faces of the men who one day must rebuild America. Having looked back, they now look forward to responsible reporting of what is sure to be Building’s most momentous year.

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Radiant Radiator


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