

WAR HOUSING

THE ARCHITECTURAL FORUM

MAY 1942

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WAR HOUSING



Extensive Research Has Produced Plans Which Conform to Government Requirements

TO SERVE the building industry in this emergency, Celotex engineers gladly make available the results of several years of research in the field of low-cost housing.

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For conventional construction, a series of

outline plans meets all Federal specification requirements, as well as the War Production Board's limitations as to critical materials and heat losses.

Both types are designed for defense workers, to fall in the approved \$3000-to-\$5000 price range. They are offered with the thought that they may furnish a source of ideas in connection with your own study of WAR HOUSING. For further information, address The Celotex Corporation, Chicago.

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GYPSUM PLASTERS and LATH and WALL BOARDS

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MAY 1942

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VOLUME 76—NUMBER FIVE

NEWS THE MONTH IN BUILDING

In Washington NHA Administrator Blandford decentralizes his agencies while war housing changes its directives (see editorial, p. 261). WPB's freezing of all non-essential construction creates new worries, but clears way for Building to hit newly raised 1942 goal of \$14 $\frac{3}{4}$ billions, an all-time high (see report below). Bill boosting FHA's Title VI mortgage ceiling another \$500 millions sweeps through Congress at record pace, while, close behind, another bill asking for more Lanham money to restock FPHA's larder is readied (p. 4). Private builders range far afield to take on big housing projects (p. 4). Pittsburgh follows Chicago's lead in revising its building code for wartime needs (p. 4) . . . Other May promises: more billions for more factories (p. 42); more women to work therein (p. 6); more checks on spiraling building costs (p. 46); more activity on the civilian defense and post-war planning fronts (pp. 50, 54).

CONSTRUCTION FREEZE

Finally, after three months of in-again, out-again, back-again, finagin-shenanigans—while Building fretted in uncertainty and prayed for definitive action one way or the other—the War Production Board called (April 9) a halt on all *non-essential* construction by requiring Government approval for all new projects whether publicly or privately financed. Objective, of course, is to make certain that scarce materials will be available for all construction deemed essential to win the war—a volume of work that is putting Building to the severest test in its history. In doing so, the order goes much further than last October's SPAB policy announcement which stated that no priority assistance would be given non-essential construction. Now, with certain exceptions, no *new* construction may be started without permission.

Although intended to clarify, the new order's own lack of clarity immediately caused new confusion. Garbled press reports created an erroneous impression that all residential construction costing over \$500 was to be stopped. Upshot: WPB officials have been busy interpreting ever since.

Interpretations. If construction actually was in progress on April 9, the work can go on. WPB reserves the right to prohibit further use of materials on any job, but such drastic action will be taken only in a few special cases where construction is clearly out of line with the war program. Example: a race track using large quantities of structural steel.

To qualify as "under construction," the builder or contractor must have started at least the building's foundation. A hole dug in the ground or material dumped on a lot is not enough. In exceptional cases, however, permits to proceed may be granted by local FHA offices, and if an

applying builder is turned down there, he can still go before an appeals board. But, to get anywhere, he must offer some weighty arguments. Possible excuses: heavy financial losses or wide unemployment in the building trades if the job is not allowed to continue.

All war housing projects with priority preference ratings can go ahead without any to-do, even though construction may not yet have started. Prospective builders who have not requested priority assistance can also proceed, provided their houses are in defense-rated communities and cost not over \$6,000. But to do so, they will have to obtain permits. In this way all builders will come under supervisory control—one of the main reasons for the freeze order. WPB found that too many were able to get needed materials and preferred to go ahead without being subjected

to restrictions on the use of critical metals or on the sales price of houses built. Under the new regulations they must conform to all construction and price rental requirements.

Order also exempts straight war construction—cantonments, hospitals, barracks, defense plants, so on. Ditto, maintenance and repair work, regardless of amount. Ditto, all remodeling work which adds to the store of housing in defense communities. (To encourage such remodeling, priorities are to be given for materials where costs average not over \$100 a room for each dwelling unit.) Elsewhere, remodeling work involving basic structural changes will have clear sailing if the estimated cost does not exceed \$500 for a residential unit, \$1,000 for a farm house or structure, \$5,000 for a commercial or industrial building.

Administration. To supervise the freeze order, WPB has also set up a new Housing Bureau. Into it goes Sullivan Jones' priorities section, the old construction and lumber division, several other divisions. Thus, building activities previously scattered all over the WPB shop are now consolidated—a good omen to builders harassed by inconsistent rulings in the past. At least the two regulatory programs—priorities and permits to proceed—can now be processed more smoothly than would have been possible under the old division of responsibility.

Heading WPB's new Housing Bureau is youngish William V. Kahler, on leave as Illinois Bell Telephone's chief engineer. He arrives via a special assistantship to William H. Harrison, WPB's production division chief. Considered an able and fair-minded administrator, he will have ample need of both virtues to keep Building from wobbling on its new wartime tight-rope.



WILLIAM J. KAHLER
WPB's New Housing Bureau Chief

Insulating at the ROOF LINE insulates the ATTIC, too!



Architects are now recommending Masonite* Cell-U-Blanket* insulation as a means of converting idle attic space into comfortable, livable quarters. This improved type of blanket can be applied to roof rafters—from the inside—thereby bringing the attic within the insulated zone.

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THE ARCHITECTURAL
FORUM

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VOLUME 76
Number 5

THE MONTH IN BUILDING

RAISED TARGET

One week after freezing all non-essential construction, WPB predicted Building this year would reach an overwhelmingly all-time high by producing \$14¾ billions worth of new construction. This official estimate is three-quarters of a billion higher than even the most optimistic unofficial forecast ventured so far. Commerce Dept. prognosticators have been willing to go on record with only \$12 billions, while conservative conferees over in Madame Perkins' Labor Dept., mindful of the exertions required to produce last year's record-breaking \$10½ billions, have kept their prediction down to \$10¾ billions.

Score. Statistics already budding confirm the forecasts that 1942, despite drastic curtailments, will be biggest (and most cockeyed) year in Building's history. As measured by permits issued, the dollar volume of construction for the first quarter was 31 per cent greater than the same period last year. This average gain breaks down into 23 per cent for residential work, 59 per cent for non-residential, seven per cent for additions, alterations and repairs.

FHA BOOST

Blandford has scored his first major triumph on Capitol Hill. The triumph: boosting of FHA's Title VI mortgage insurance ceiling to \$800 millions almost before most private builders became aware the existing \$300 million underwriting limit had been reached.

For many months a scheme to liberalize various FHA requirements and to enlarge Title VI, main channel for diverting private investment funds into war housing, has shuttled back and forth across Washington desk tops. Presumably it would still be wandering through WPB's labyrinth of red tape if last month Blandford had not made it his No. 1 assignment after assuming his new office of National Housing Administrator.

Less than a week after being introduced, the bill cleared its first hurdle—the House Banking and Currency Committee. Two days later it had been approved by the House itself. No formidable obstacles were expected to be encountered in the Senate. Thus, barring unforeseen difficulties, the proposed FHA overhauling becomes law within the record time (for Building) of two weeks.

Revampings. Besides enabling FHA to write an extra \$500 millions worth of business, the new legislation extends the lending period from 20 years to 25 and increases the maximum mortgage on single-family houses from \$4,000 to \$5,400 (with corresponding step-ups for two-family, three-family and four-family dwellings).

Included are some provisions liberalizing FHA's Title I, intended to encourage more ambitious remodeling of old houses into new quarters for war workers. For this purpose loans can run up to \$5,000 instead of \$3,000, the repayment period up to seven years instead of five.

Bill also provides for mortgage insurance on large-scale rental housing projects up to a \$5 million top. To qualify, such projects will have to be constructed at prevailing wage scales as set by the Secretary of Labor.

FPHA CRISIS

Lanham funds have run short again. Congress took so long in authorizing the Act's extension that when the measure was finally passed in January, its \$300 millions were not enough to take care of work piled up meanwhile. Housing projects deemed urgent even as far back as last July were caught in the jam. Entire appropriation has been required to get these going. Result: new demands for publicly financed war housing cannot be met out of the Lanham exchequer until it is once more replenished by Congress.

To get additional funds, Blandford is preparing some proposals for immediate Congressional attention. These will probably call for an additional authorization of \$500 millions—enough to provide at least 100,000 dwelling units. Fortunately, Blandford still has some money left in a special \$300 million appropriation for temporary housing so that in the meantime Emmerich's FPHA can continue busy.

Once submitted, speedy passage of the bill is anticipated—thanks to Blandford's good graces on the Hill. But perhaps most optimism for continued Congressional alacrity lies in the crescendo of rumblings from ill-housed workers back home.

WASHINGTON HOUSING

While rest of the Lanham exchequer was running dry, Congress got around to giving a tardy okay on an amendment which authorizes \$50 millions for housing relief in the nation's overcrowded capital. Because of a technicality in the existing law, special permission was required to house Government office workers.

The liberating amendment would have passed long ago if it had not become deadlocked by the Lanham Committee's bickering. Chief bone of contention was a Senate modification earmarking \$5 millions for large-scale rehabilitation of a nine-block area in Washington's southwest section in line with a plan developed by Arthur Goodwillie, HOLC's Director of Conservation Service. This area, conveniently accessible, could be rehabilitated at 60 per cent of the cost of new construction



THIS PREFAB-DEMOUNTABLE—first of a hundred in the Colonial Village, Inc.'s \$381,000 Sturgeon Bay project—is tangible proof that the Government's \$153 million program has produced something more than war housing's largest headache. After a fancy start with flourishes of publicity in January, the program turned sour. Prefab Boss Rufe Newman boasted rapid progress toward a July 1 deadline of 42,000 demountables up and ready for occupancy, but bidding builders complained bitterly that they were getting only an interminable run-around through Washington red tape. Taking over, Administrator Blandford quickly discovered main difficulty was lack of coordination. Houses had been ordered, but only one site selected. Some "prefabricators" with commitments to build were minus the tools with which to prefabricate. Fortunately, the tangle is now being unraveled. A division of supply, headed by A. C. Shire, will continue to buy prefabricated units, trailers and household equipment. But local officials in the decentralized NHA offices, according to the new operating policy, decide what is needed.

—and in much less time. But, as objectors pointed out, many displaced Negro families would have no other place to go. End result of the diddle of debate: the Goodwillie plan was scrapped, \$30 millions was allocated for housing units which might be sold to workers at not less than "fair market value," and the other \$20 millions earmarked for schools, hospitals, roads, sewerage and similar subdivision facilities.

BUILDERS MIGRATE

Hard on the heels of the pioneering Levitt Bros. and their 1,500-unit program (see ARCH. FORUM, Feb. 1942, p. 80), other big-name home developers are leaving their normal stamping grounds in New York and Long Island to move in on Norfolk's housing shortage. Fred C. Trump, ace Brooklyn builder, has already started a Title VI rental project which will house 864 families, expects to hit a goal of 2,000 dwelling units before year's end. Associated with him is New York's enterprising contractor, James Rosetti, who began acquiring housing acreage on Norfolk's outskirts over a year ago. Besides Trump, a score more operators from the New York area are following the Levitts' lead. Most of them are putting up four-family rental houses.

Booming war centers elsewhere are attracting New York builders too. The Gross-Morton Corp., famed for its large-scale housing operations on Long Island, is reported to have bought lots for a major project in a New Jersey industrial area.

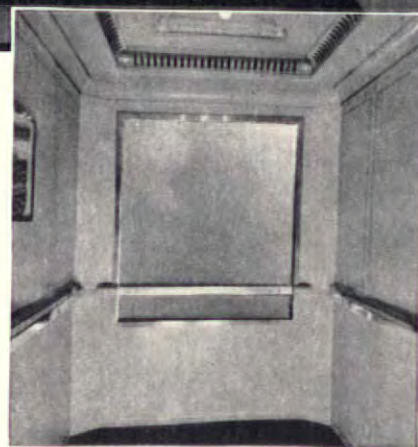
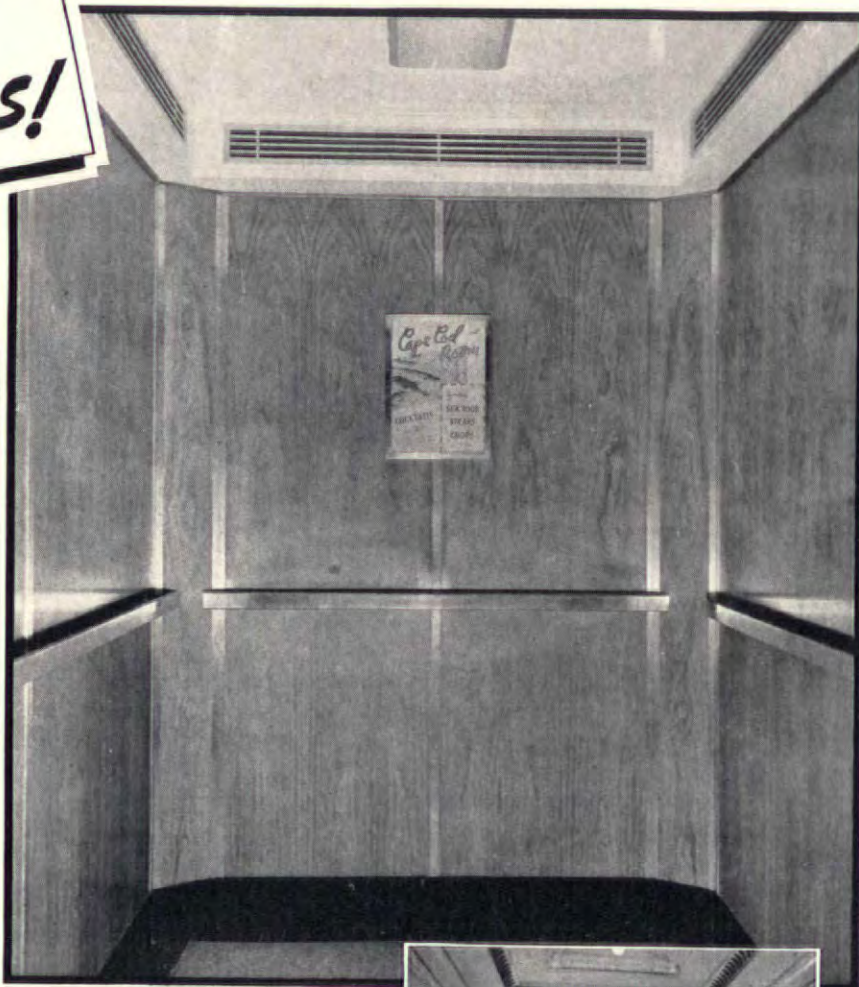
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These cabs can be cleaned with a minimum of effort by the simplest methods. They are easy to keep looking just as they did the day the modernizing job was complete.

The pictures show before and after shots of one of a number of cabs in the Lexington Hotel, New York, which were modernized in Half Round Walnut Formica "Realwood" by the National Elevator Cab & Door Co., New York.

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THE MONTH IN BUILDING

Sam Minskoff & Sons, builders of Manhattan apartment houses and hotels, are erecting 108 four-family buildings at Suitland, Md., plan an additional group of 250 apartments at the same location to accommodate workers in a neighboring Government office building (also currently under construction). Nor are war workers on Long Island itself ignored: at South Farmingdale a 1,000-unit rental project is being pushed by Builder Frank Droesch.

With Congress's new authorization for FHA to insure more Title VI loans, the big private builders will doubtless range even farther, build even bigger. Ample credits are available. New York savings banks alone have a pool of \$6 billions into which they can dip for housing cash.

TEMPO

The Australians, themselves famed for getting things done in short order, have been left somewhat agog by American building techniques. "Like a swarm of grasshoppers," reports the *Sydney Sun*, a crew of carpenters, plumbers, bricklayers, surveyors, draftsmen, electricians and road builders descended on a quiet sheep pasture. Eight hours later streets were laid, tents rigged, buildings up, all supplied with electric light, hot and cold running water, bathrooms, telephones and radios. "Within twelve hours, an Army had moved in; hot meals awaited them and the carpenters, plumbers and all had moved off to the next job."

WARTIME CODES (cont'd)

First to follow Chicago's lead in shaking off notoriously antiquated and restrictive local building codes (see ARCH. FORUM, March 1942, p. 140) is Pittsburgh. To permit construction of needed low cost housing inside the city limits, the city fathers passed an emergency ordinance which green-lights any dwelling that will conform simply to FHA's minimum requirements. The new regulation holds for the duration and three months thereafter, will doubtless set a post-war pattern. Among changes permitted: non-metallic sheathed cable or even knob-and-tube wiring in place of BX; extra heavy soil pipe only underground; no flues for kitchen gas ranges.

Other cities are expected to hop into line by similarly relaxing their local codes and adopting a uniform national standard. Thus, thanks to nothing less than a world war, what plainly should have been done long ago is now being accomplished.

Most powerful lever in bringing the much-wanted national building code into existence is the priorities system. This is shown in the case of the Government's emergency plumbing standards. Originally prepared by the National Bureau of Standards and the U. S. Public Health Service

for use in Federally financed housing projects, these standards set maximum as well as minimum limits on the quantity of metal, permit savings averaging nearly 50 per cent in the weight (also cost) of pipes, vents, other "roughing-in" materials usually required locally. Quite logically therefore, they have been included in WPB's latest housing critical list (issued in late February). By adopting them, WPB does not directly override City or State plumbing ordinances. Indirectly, however, it does, since no priorities for materials will be granted war housing projects unless they conform to the standards.

Obvious outcome is the repeal or suspension of many of the 1,600 local plumbing codes now in force—their specified standards on the whole are too rigid to allow substitutions. Most cities, reports the American Municipal Assn., have the authority to enact local plumbing ordinances, so all their councils need do is amend the existing codes or adopt new ones incorporating the emergency standards. In about a dozen States cities can skip the expense of publishing a lengthy new code by merely enacting a brief ordinance stating the emergency standards are to become a part of the local statutes. Simplest trick of all would be State legislation making the standards State-wide.

PRECEDENT

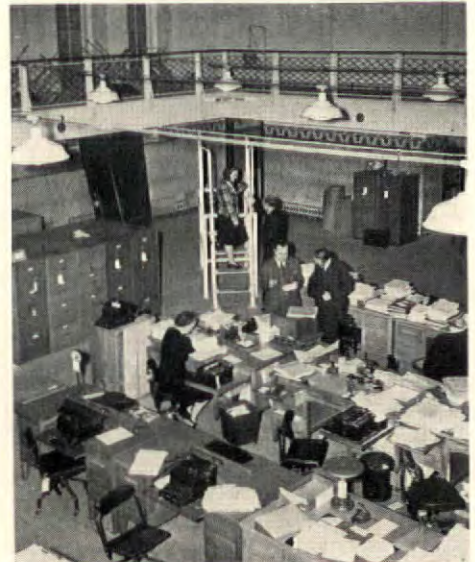
Significant court ruling came down last month when New York's Miller Distributing Co. was freed from the obligations of a three-year lease. Landlord had sued to recover \$3,000 in rent after the company, its oil burner business halted by priorities, abandoned the lease.

SIX MILLION WOMEN

That's the number expected to be recruited for work in war factories before year's end, according to the Labor Dept.'s Women's Bureau. Replacing men drawn into the armed services, this rising tide of industrial feminism will be made up of all types—housewives (about 2 million), displaced clerical workers, salesgirls, school-girls, glamour girls, and thousands who have never worked before.

Whether these newcomers will ever be content to go back to washing dishes or other earlier routines is a first-rate sociological problem for the post-war period to crack. But, for the immediate future, big question confronting Building is how their coming will affect prevailing standards of factory design and operation. Industrial architecture has always been an environment intended primarily for men—what happens when it is taken over by the gentler sex?

A partial answer to this question appears in the American Mutual Liability Insurance Co.'s house organ's current is-



COMPLEX OFFICE SPACE problems are created in the Government's program of wartime decentralization. To accommodate the Securities and Exchange Commission in Philadelphia, the Penn Athletic Club's swimming pool has been drained (above). To take care of the Farm Credit Administration in Kansas City, the Municipal Auditorium's display room has acquired 25,000 sq. ft. of temporary flooring (below). So far fourteen non-war agencies have moved out of over-crowded Washington. Other bureaus probably will receive their marching orders soon. Even war agencies may be forced to move afield. OPA alone, for instance, will require 25,000 new employees to maintain an overall control on prices. Officials believe branch offices in other cities will do the trick better than enlarging the main staff in Washington. Five floors in Al Smith's Empire State were signed up accordingly last month by OPA.

sue. Writing on the special safety problems presented by women in industry, the company's Engineering Manager William Dunn notes:

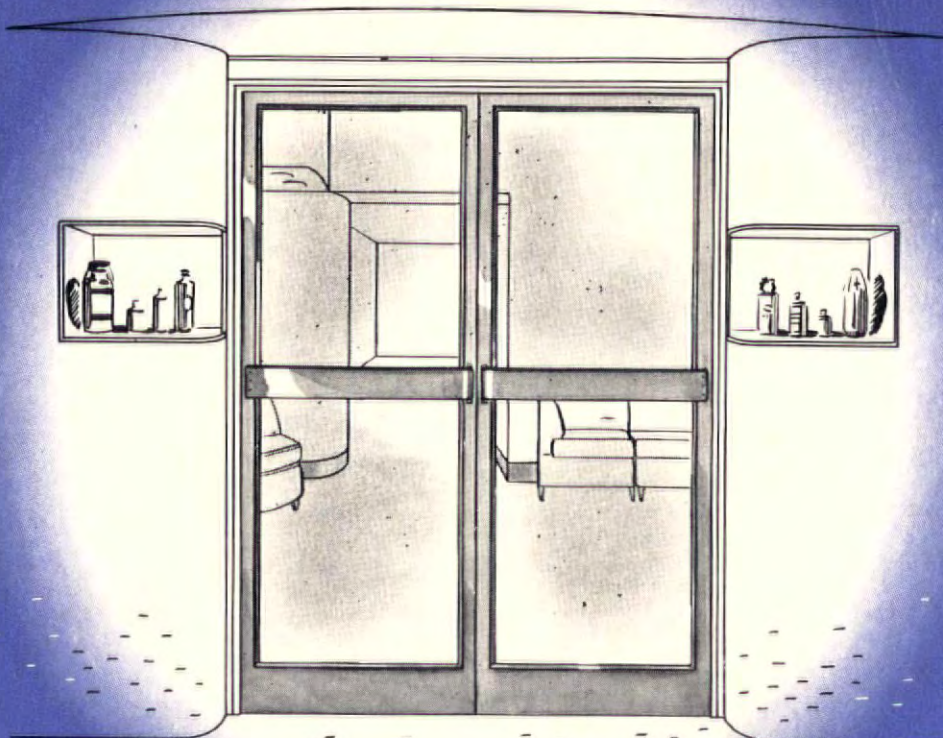
Heating and ventilating. "Men prefer a cool, well ventilated shop. Women want it warmer and object to drafts. This is partly physiological, partly a difference in dress. It is not a serious accident hazard except where ventilation for toxic fumes is involved or in torrid weather."

(Continued on page 34)



**WORLD'S LARGEST
MAKERS OF
RUSTLESS METAL DOORS
FOR STORE FRONTS**

BEAUTY SALON



Kawneer facilities and experience normally directed to the making of fine rustless metal doors are now harnessed to the national war effort. Before long, we hope, Kawneer will again be making doors and windows. Meanwhile, check with your Kawneer distributor on Kawneer Store Front stocks and metals which are still available.



Kawneer

The Kawneer Company, Niles, Michigan—Manufacturers of Rustless Metal Store Fronts, Doors, and Aluminum Windows.

Building Reporter

For additional information on any product described in this section, write direct to the manufacturer.

GLASS COATING. Transparent film turns window panes into safety glass.

Name: Glasshield.

Purpose: To prevent injuries from window glass shattered in bombing raids.

Features: Coating does not interfere with vision or light transmission through the glass. Although vibration may break a coated pane, the glass fragments are held safely intact. Two coats, applied by brush to inside surface of window pane, are considered effective. For maximum protection, however, the outside surface should also be treated. When no longer needed, the coatings can be removed with a razor blade.

Manufacturer: Maas & Waldstein Co., 438 Riverside Ave., Newark, N. J.

WINDOW CLOTH protects against flying glass, can also be used in making quick replacements for glass.

Name: Ceco Safety Cloth.

Purpose: Twofold: 1) to cover inside window surfaces, thus providing protection against shattered glass in case of bombings; 2) to serve as an emergency substitute for window glass.

Features: The cotton cloth is impregnated with a tough, transparent plastic film. Its open weave (10-mesh) permits ample daylight to filter through. Available in 100 yd. rolls, 28 in. wide.

Manufacturer: Colloid Equipment Co., Inc., 50 Church St., New York, N. Y.

ALL-TILE BATHTUB, proposed for war housing projects, offers substantial savings.



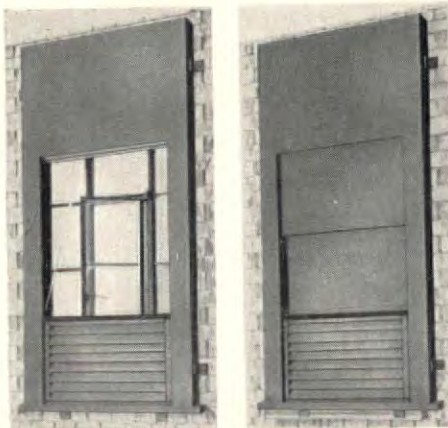
Name: Victory Bathtub.

Purpose: To replace the standard metal tub, thus save an estimated 75,000 tons of iron in war housing work within the next 10 months.

Features: Tub interior is composed of small pieces of unglazed ceramic mosaic tile, available in unrestricted quantities and various color combinations. Estimated cost: less than \$50. Since tub can be built directly on the job by any tile contractor, there is also a saving in transportation space that would otherwise be required to ship crated tubs from factory to project.

Sponsor: The Tile Manufacturers' Assn., Inc., 50 East 42nd St., New York, N. Y.

BLACKOUT WINDOW SEAL. Unit permits blackout ventilation, does not obstruct normal window operations.



Name: Reliance Blackout Window Seal.

Purpose: To do three things: 1) permit normal daylighting and ventilation during safe periods; 2) close quickly when raid alarms are sounded, thereby blotting out interior illumination, preventing telltale reflections from glass surfaces and also offering some protection against shrapnel; 3) provide natural ventilation during blackouts. Intended primarily for industrial plants.

Features: Attached to the exterior face of factory wall with angles and expansion bolts, this unit completely covers the window opening but does not interfere with normal operation of the window ventilators. Custom-designed, it consists of a heavy wood frame within which are assembled sliding panels of $\frac{3}{4}$ in. plywood. During normal times the seal panels nest out of sight in a closure above the window head. They close by gravity through the simple expedient of releasing a holding rope. Guides and grooves, treated with hot linseed oil and profile, assure proper operation. To permit natural ventilation when the seals are closed, a lightproof louver is installed in the frame at the sill.

Manufacturer: Williams & Williams Metal Windows, Ltd., Defense Materials Div., 525 East 14th St., New York, N. Y.

LOW VISIBILITY PAINT absorbs light rays but reflects heat rays, minimizes evaporation in liquid storage tanks.

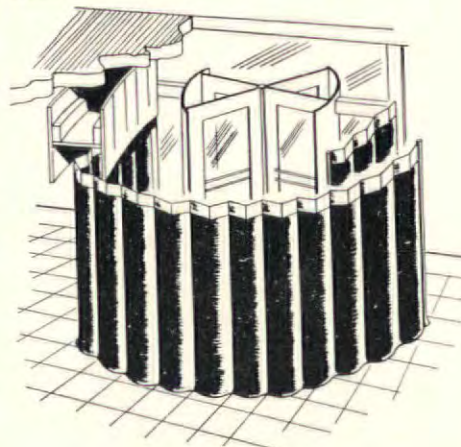
Name: Infray.

Purpose: To camouflage factories, liquid storage tanks, other industrial structures.

Features: For protective concealment, dark-colored paints are desirable since they absorb light rays. However, this virtue is usually accompanied by a drawback—solar heat rays are also absorbed. Particularly in the storage of volatile materials is such heat absorption a serious problem. Gasoline, for instance, loses 25 per cent less volume by evaporation in an aluminum tank than in a tank painted black. To prevent such losses while at the same time providing concealment, this new paint has been developed. Available in green, tan, black and four intermediate shades, it can be used for camouflage in any sort of terrain. It can be applied over asphalt, tar or any ordinary roofing, also as a blackout paint over windows.

Manufacturer: Arco Co., 7301 Bessemer Ave., Cleveland, Ohio.

BLACKOUT PARTITION operates like an accordion, forms light-lock at building entrance.



Name: Folding Fabric Blackout Partition.

Purpose: To meet blackout requirements and at the same time permit people to enter or leave lighted buildings.

Features: This accordion-like partition is similar to the company's Modernfold Doors. A roller assembly traveling on an overhead track allows it to fold on itself. To the specially designed self-spacing hinge plates at the top is attached, with grommets, the flameproof fabric. Hanging free, it drags the floor with 2 in. to spare and along with the valances assures complete light-tightness. A vertical pipe,

(Continued on page 82)

Useful Data *on Alloys... for Architects*

Booklet on INCO Nickel Alloys covers Corrosion and Heat Resistance, Mechanical Properties, Applications and Forms

The twin advantages of strength and resistance to corrosion are well-known attributes of Monel,* Nickel and Inconel.* This same combination of properties is also characteristic of the five newer INCO Nickel Alloys . . . "K" Monel,* "R" Monel,* "KR" Monel,* "S" Monel* and "Z" Nickel.*

★ ★ INCO ★ ★ Nickel Alloys in War Effort

With the Nation at war, every pound of Nickel, Monel and Inconel that expanded facilities can produce is urgently needed for vessels of the Navy, mechanical and chemical equipment for the Army, vital parts of Aircraft, and for Chemical, Petroleum, Steel and other essential industries. As part of the all-out war effort the International Nickel Company will continue to publish information concerning the selection, fabrication and use of Nickel and Nickel Alloys.

In addition, however, each of these alloys possesses individual properties such as heat resistance, extra hardness, spring properties, free-machinability and others. For a given application, therefore, there is one INCO Nickel Alloy which from the standpoint of fabrication, service, or both, will prove more suitable than the others.

Comparative data on all of these metals is accordingly desirable. Such information has been compiled and published in the booklet, "Individualized INCO Nickel Alloys." For copies of this booklet, please mail the coupon below.

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booklet "Individualized Inco Nickel Alloys" to:

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NEW LOW PRICED

Marlite WAR-PANELS

(PLASTIC-FINISHED)

FOR WAR CONSTRUCTION

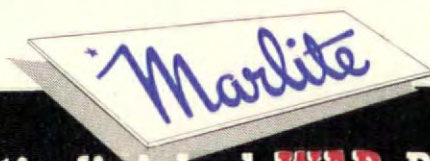


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INSTALLED — EXTREMELY DURABLE — WALL-
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TIMES like these test the courage and the resourcefulness of all of us. Marlite plastic-finished War-panels (high heat baked) were especially developed to meet stiff wartime requirements for a fast, simply installed, durable wall panel. So low in installed cost that they can be used as wall panels in war housing, hospitals, war plants, camps and many other types of wartime construction . . . (Send for brochure). The large wall-size panels (4' x 4' to 4' x 12') permit fast wall-at-a-time installation. Can be cut, fitted and applied in a few minutes, permitting immediate use or occupancy. Standard thickness 5/32". Heavier thickness panels available for direct application to studding. The durable, plastic finish—unmatched at anywhere near the price—is impervious to acids, soaps, water, alcohol, alkalis, etc.

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Plastic-finished WAR-PANELS
FOR ALL TYPES OF WAR CONSTRUCTION



USED EXTENSIVELY IN:

**WARTIME HOUSING • HOSPITALS • ARMY,
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Shows Wartime Uses. **FREE**

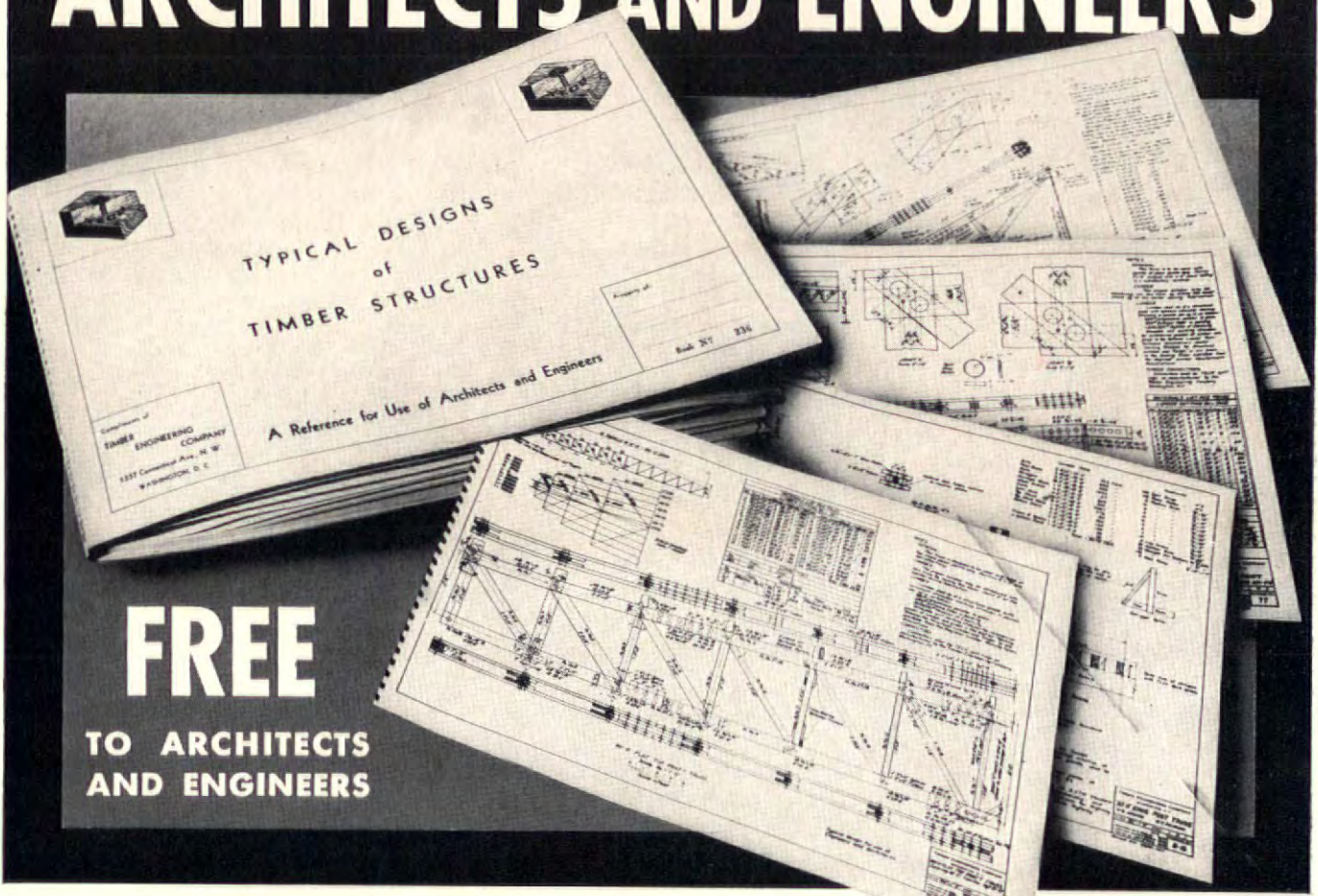


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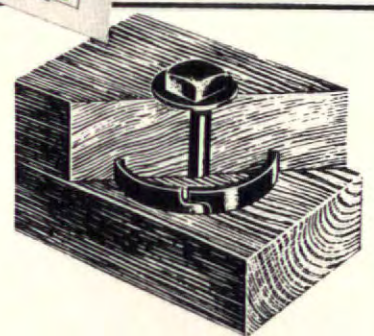


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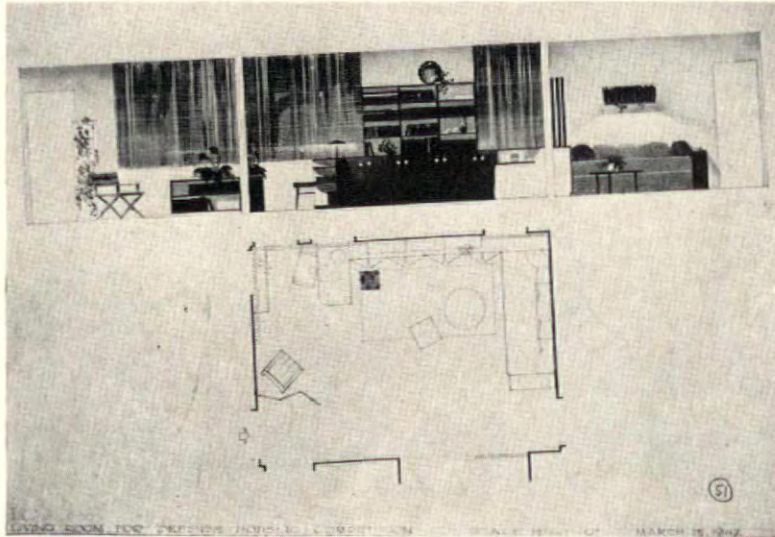
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FORUM OF EVENTS

PRIZE-WINNING INTERIORS FOR WAR HOUSES



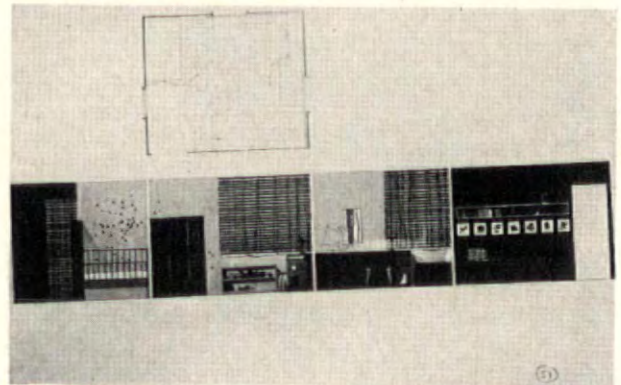
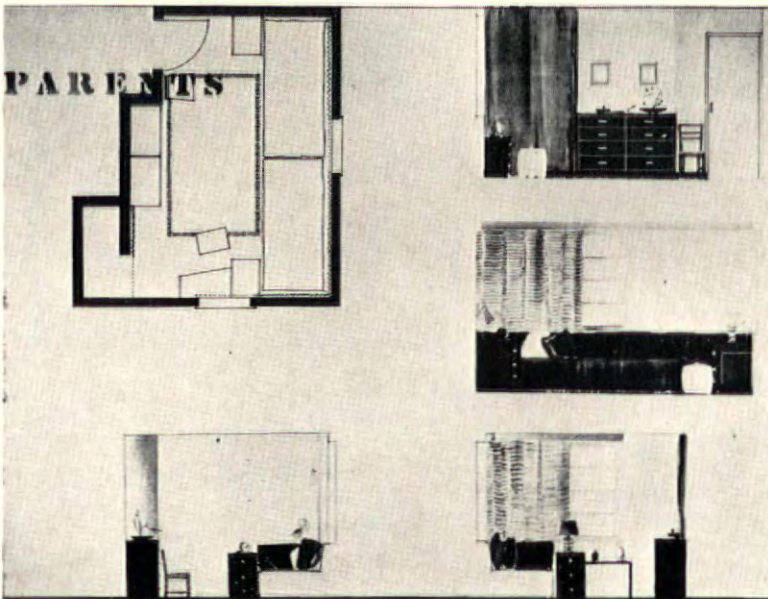
FIRST PRIZE: JOHN E. MAIER.

COST \$466.22

About ten years ago one of the Swedish housing cooperatives put out a book called "How to Live," showing ways of furnishing the small apartment with good, cheap furniture and accessories on the market. Its effect was potent and widespread. An important step in the same direction is marked by the competition held recently by "Interior Design & Decoration." Contestants were given four rooms of a typical small house, required to use available materials and furniture and to list the cost. The winning designs show that the results can be both good-looking and inexpensive. If the American Institute of Decorators, one of the co-sponsors of the competition, now follows through on this excellent beginning it will have turned a smart piece of publicity into a real public service. The job means helping the people moving into the new war houses not only with design suggestions, but by persuading manufacturers to bring out better cheap lines, and by listing good material now on the market. It is a big job, but one worth doing, for the decorator, like the architect, could well afford to broaden his activities.

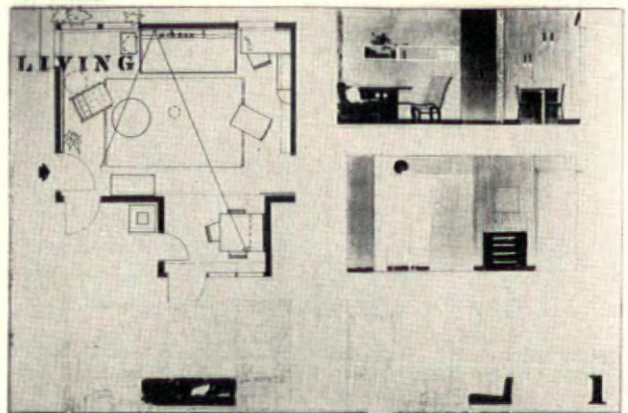
SECOND PRIZE: BILL ATKINSON

COST \$812.48

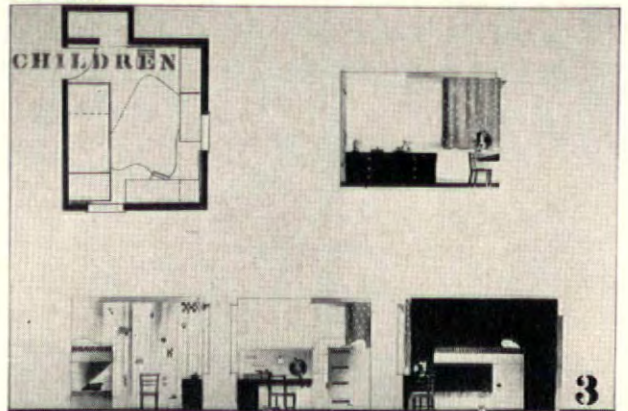


1st PRIZE

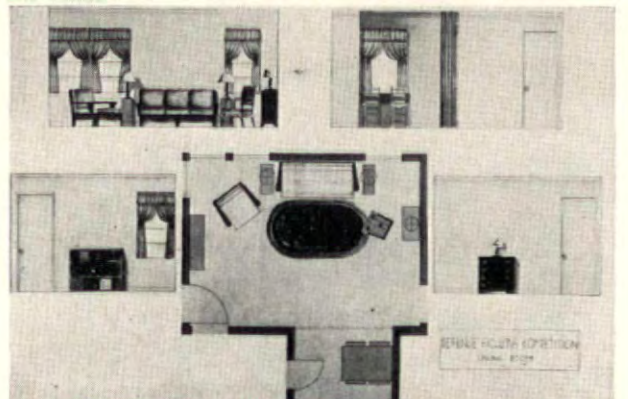
Photos. Tommy Weber



2nd PRIZE



2nd PRIZE



3rd PRIZE: DEERING DAVIS

COST \$246.51

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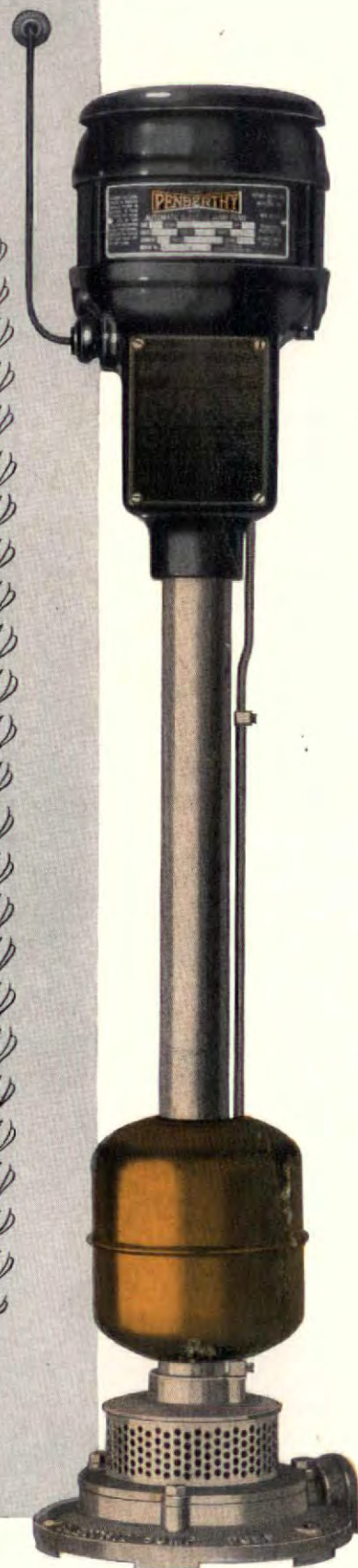
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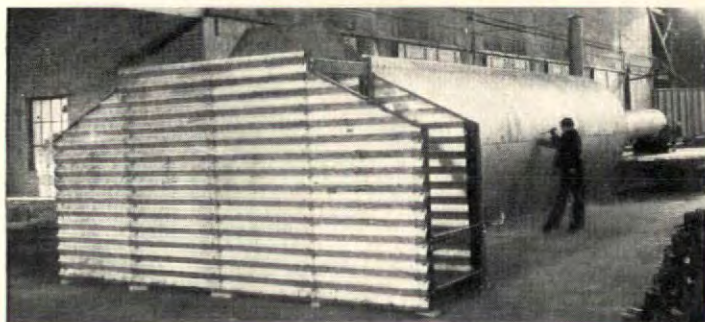
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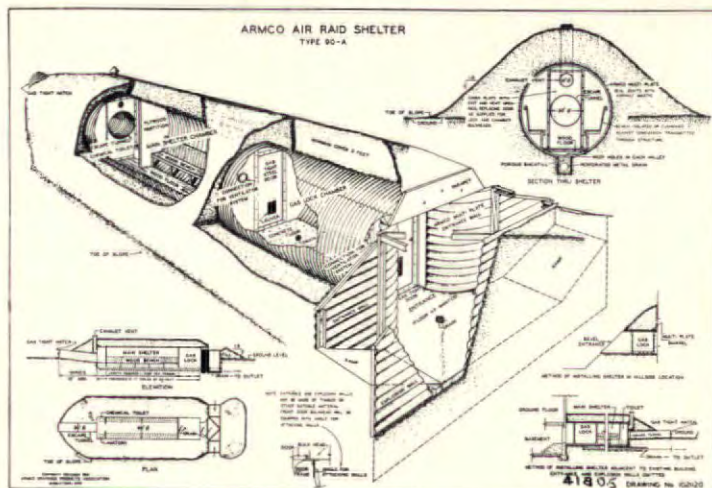
DETROIT, MICHIGAN

FORUM OF EVENTS

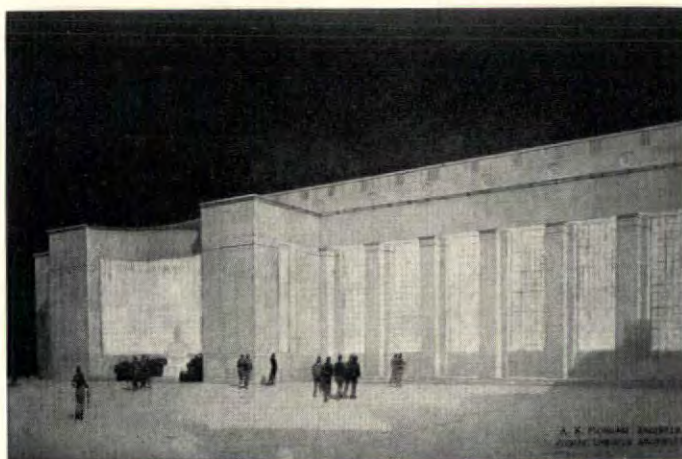
Shelter. The pictures below show a large shelter now on the market. It has a capacity of 50 (largest number of occupants recommended by OCD) and can easily be varied in length by adding sections. War Department tests give the shelter a high rating on resistance to splinters, blast and falling debris. Equipment and fittings, including flooring, toilets, ventilating apparatus, lighting and wiring and interior furnishings have to be provided by the buyer. The manufacturer states that the shelter can be put together with simple tools by four unskilled workmen.



War House. With around 10,000 Government-financed dwelling units built in California and many more on the way, the housing shortage continues as acute as ever, due to the steady influx of workers to the expanding shipyards and plane factories. The photograph above, an example of private enterprise in its purest form, shows what one worker and his family did about the housing situation. The merger of trailer and house, with the former set up on a redwood-sheathed base, is not without its good points. Apparently the builder found a good supply of doors in the neighborhood, as one of the two on the front serves only as a window. The picture was taken by Roger Sturtevant, crack San Francisco architectural photographer, on his way to a project he photographed for this issue of THE FORUM.

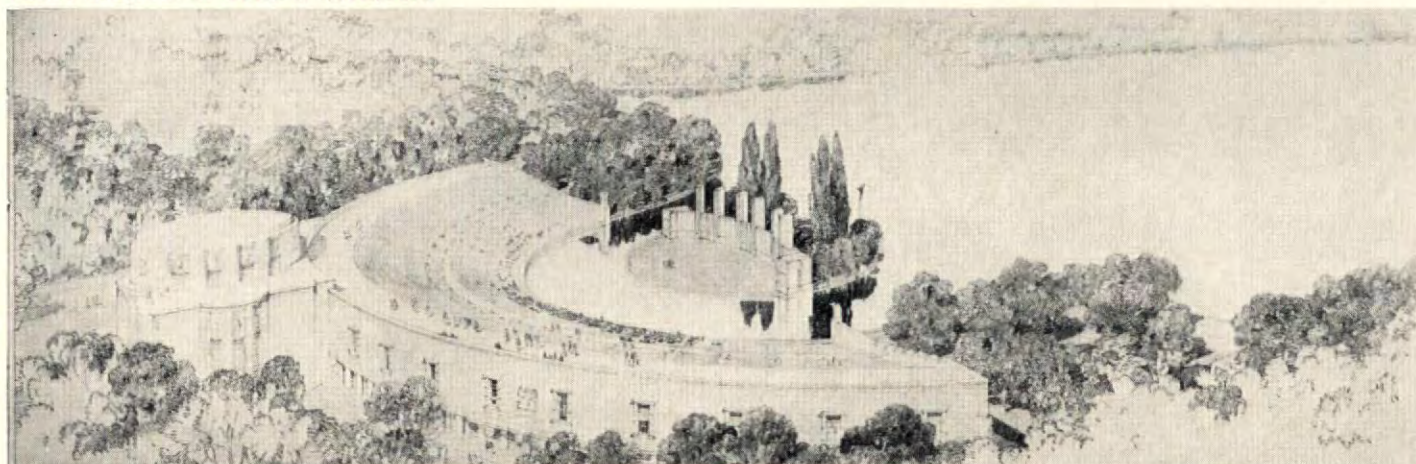


Renderings. The drawings at the right and below were awarded the Birch Burdette Long Memorial Prize for rendering by the Architectural League of New York last month. Both prizewinners are well known, Floyd Yewell for his work in water color and other media, Louis Rosenberg for his brilliant pencil drawings and etchings. Each of the drawings formed part of a group of three or four submitted to the League's jury.



WATER COLOR BY J. FLOYD YEWELL

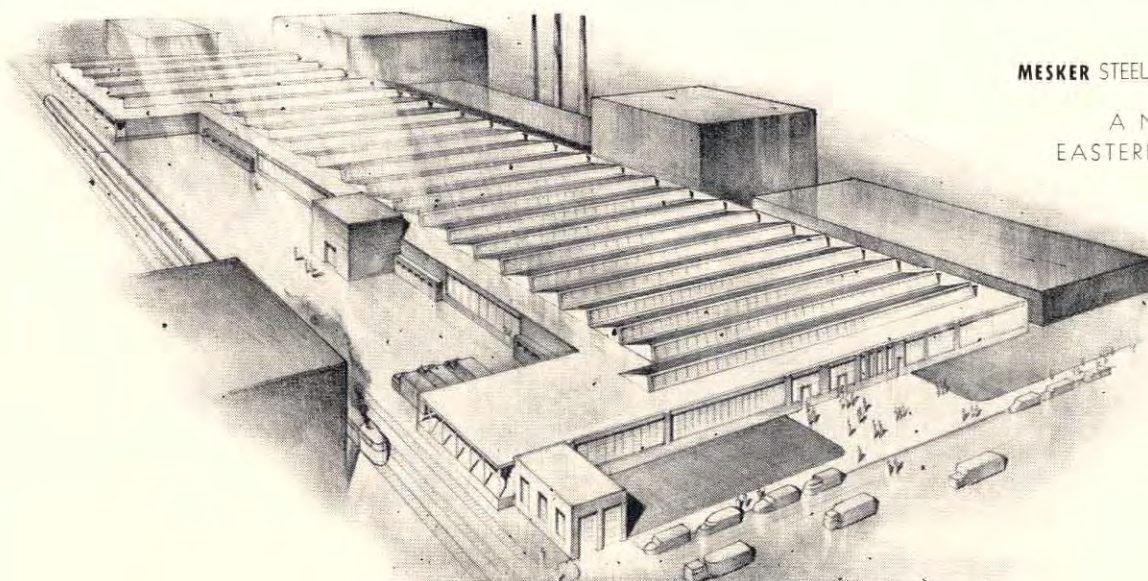
PENCIL DRAWING BY LOUIS C. ROSENBERG



Palmer Shapton

(Continued on page 66)

☆ WORTH REMEMBERING...THE STEEL SASH MERIT-METER PROVES MESKER GIVES YOU AT LEAST 35% MORE QUALITY FOR YOUR MONEY! ☆



MESKER STEEL WINDOW ENGINEERED

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A NEW LARGE
EASTERN ARMS PLANT

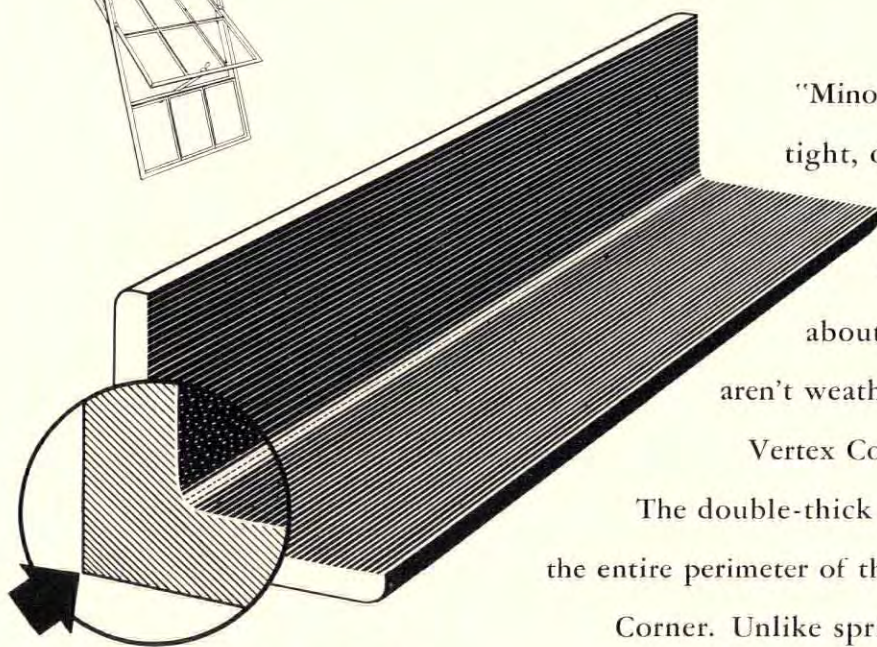
G. Morton Wolfe
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William C. Kraetz
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STRENGTH . . .

enroute, on the job, in service



VERTEX CORNERS
ON ALL
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"Minor items," like windows that aren't weather-tight, often slow down war production, require valuable man hours to correct. Ordinary Steel Sash...battered in transit, thrown about on the job, hurriedly installed...usually aren't weather-tight. That's why Mesker's exclusive Vertex Corner on ALL Weathering Bars is important.

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THE DOUBLE THICK WEATHERING BAR

... used on Mesker Industrial Pivoted Sash is $\frac{1}{2}$ " thick... twice that used by others in Industrial Steel Sash. This exclusive feature, so dramatically illustrated by the Visual Test Kit (free upon request), is indicative of the quality built into ALL Mesker products.

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*For years builders have installed complete G-E Kitchens
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THOUSANDS OF OWNERS have reported that they have found it costs less from the *very first month* to live in a home with high quality equipment.

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This kitchen is but one of many arrangements possible in a new \$4,000 home.

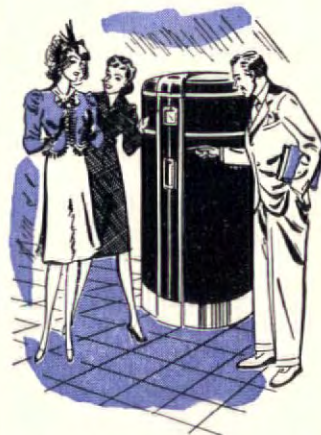
Write for book with complete details on operating equipment for small homes.



of a Kitchen like this



Good will plus!—Busy housewives everlastingly appreciate the time-saving, work-saving, money-saving advantages of a G-E Electric Sink that washes and dries the dishes and disposes of garbage electrically.



Automatic Heat—Folks who live with a General Electric Furnace — residents of the mill district as well as the boulevard — report savings in fuel bills from 25 to 50%. That's vitally important in times like these!

Actually
IT CAN COST
LESS TO
LIVE BETTER

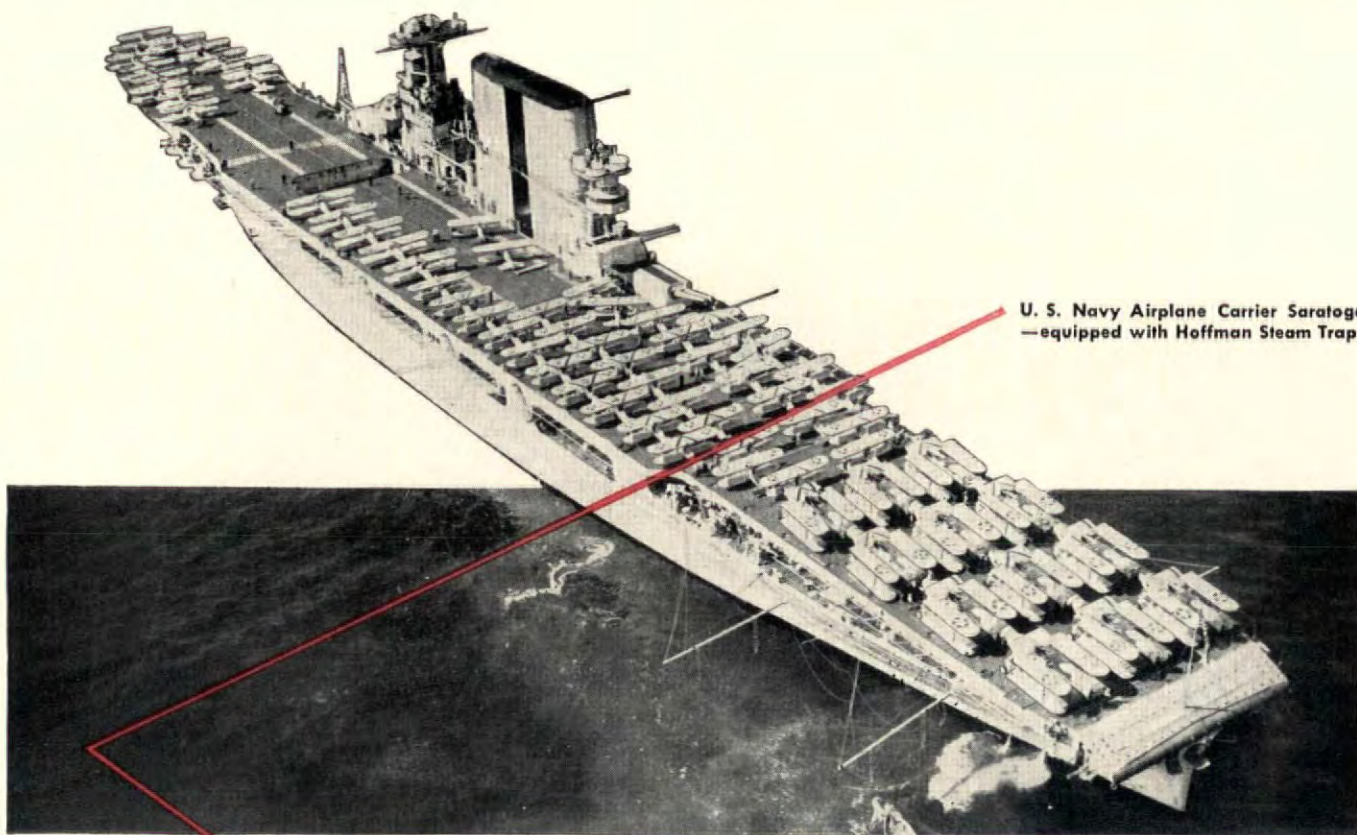
A complete electric kitchen in a \$4,000 home can contribute more in operating economies for the owner than any slight increase it may cause in monthly payments when financed under a long term mortgage.

GENERAL
HOME BUREAU



ELECTRIC
BRIDGEPORT, CONN.





U. S. Navy Airplane Carrier Saratoga
—equipped with Hoffman Steam Traps

HEATING *at Sea*

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At sea, a vessel's range of usefulness is bounded strictly by its fuel supply. Full value from every ounce of steam, in these days, is a positive demand!

Any heating plant is sparing of fuel in direct proportion to the efficiency of its control equipment. That the Navy plane carrier, U. S. S. Saratoga, far-ranging unit of our first defense line, is equipped with Hoffman Steam Traps is a clue to anyone planning a new or modernized heating plant. For on land or sea, Hoffman Specialties assure full utilization of steam and conservation of precious fuel.

For a quarter century, heating engineers have specified Hoffman Products... because every refinement of design which adds to performance is included in them—at no greater cost!

Hoffman Valves, Traps and Pumps are thus a *quality, time-tested* line of products. Apply any standard of measurement you choose... efficient operation... dependability... service life... or what experienced heating men say of them, and you will have shown yourself why Hoffman is the choice in so many installations.

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used on the U. S. S. Saratoga



Hoffman No. 8A Trap — All
working parts easily removed
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TO SPEED up the war effort and to conserve needed materials, new construction has been drastically curtailed. Today the emphasis is on remodeling and modernizing commercial and public buildings now in use.

Specifying materials that provide not only decorative treatment, but efficient insulation and sound-quieting all in one, not only accomplishes the architect's purpose but aids in fuel saving—a vital need in the war effort.



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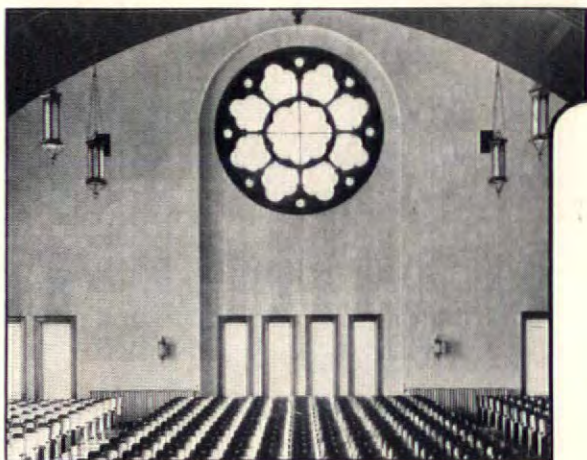
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VARIETY OF DESIGN AND COLOR COMBINATIONS

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DECORATES... INSULATES
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Prove **BRIXMENT** *is* **BEST!**



1

Slap a small amount of Brixment mortar, and an equal amount of 50-50 lime and cement mortar, on a brick. Wait a minute, then feel each mortar.



2

Test each mortar. You will find that the Brixment mortar stays plastic *far longer* than the other mortar. This proves *greater water-retaining capacity*.

BRIXMENT Mortar Has ***Far Greater Water-Retention!***

WATER-RETAINING CAPACITY is the ability of a mortar to retain its moisture, and hence its plasticity, when spread out on porous brick.

High water-retaining capacity is of *extreme importance* in mortar. If the mortar does not have high water-retaining capacity, it is too quickly sucked dry by the brick; the mortar stiffens too soon, the brick cannot be properly bedded, and a good bond cannot be obtained.

Brixment mortar has extremely high water-retaining capacity. It strongly resists the sucking action of the brick. Brixment mortar therefore stays smooth and plastic when spread out on the wall.

This permits a more thorough bedding of the brick, and a more complete contact between the brick and the mortar. The result is a better bond, and hence a stronger and more water-tight wall.

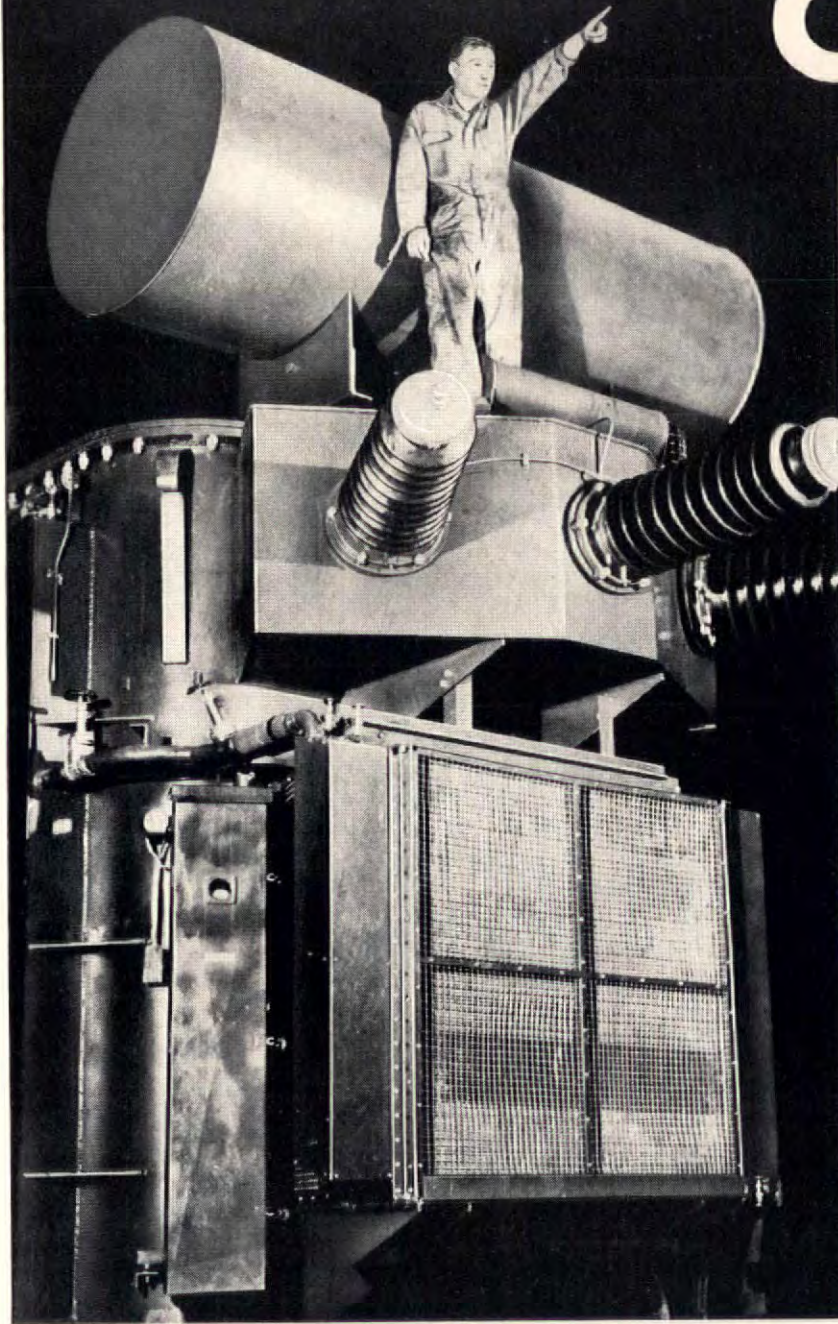


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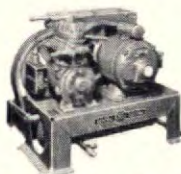
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G-E Condensing Units ("Scotch Giant"), water or air cooled, are available from 1/4 to 125 hp. May be used in multiple when a larger cooling effect is required.



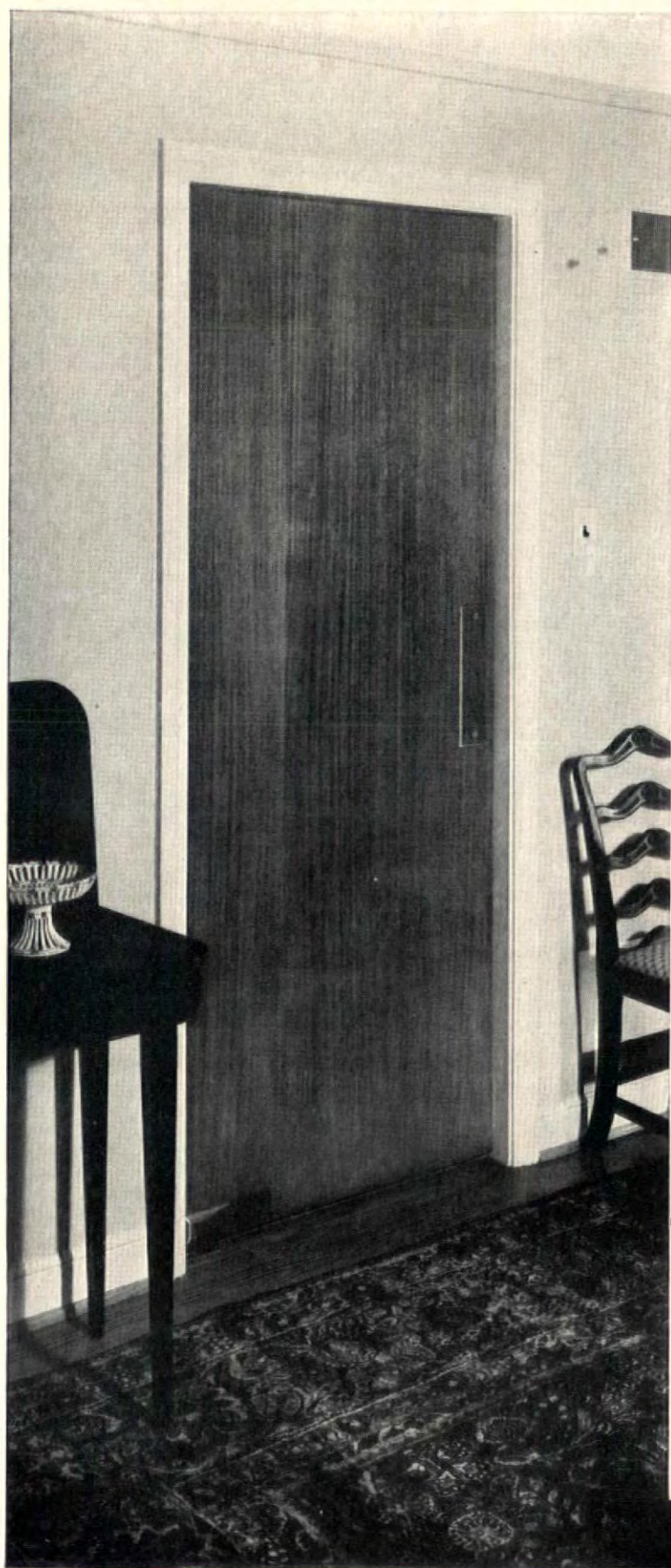
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The New War Edition Lighting Guide That Shows You

HOW TO USE LIGHTING IN YOUR WAR PRODUCTION DRIVE

**Send for This Free Guide to Make Certain You
Are Not Overlooking Important Lighting Factors
Essential to a Smoother Flow of Increased Output.**

have been selected for publication in this new book, the twenty-one problems most frequently encountered by **INDUSTRY CONVERTING TO WAR PRODUCTION**. The practical solutions of these problems are illustrated by means of diagrams and layouts. It is the purpose of these problem solutions to provide you with practical solutions of similar problems and to serve as guide in planning new lighting installations and relighting projects.

**Authoritative . . . Factual . . .
Written in Non-technical
Language**

This guide has been prepared to meet the pressing need for a reference book by the busy executive, plant man, and architect and all others interested in the use of lighting as a production tool. In its preparation, full use has been made of the successful experiences of the many plants using Benjamin lighting equipment as well as data from reports and publications of the Illuminating Engineering Society, RLM Standards Institute, The National Safety Council and the new "American Recommended Practice of Industrial Lighting" approved by the American Standards Association.

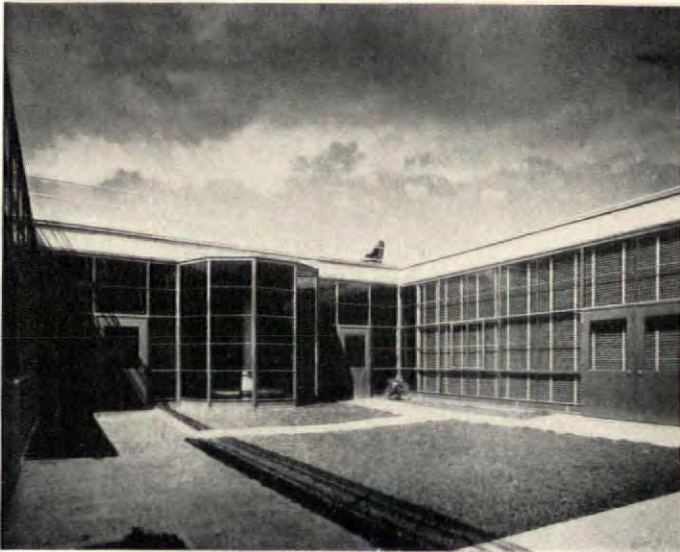
From the many specific lighting problems submitted for solution to the Benjamin Engineering Staff, there

Contains pages on how to approach the lighting problem, how to analyze the seeing task, how to analyze the factors involved in proper equipment selection . . . also how to determine the proper amount of footcandles with special up-to-minute footcandle recommendation tables as guides.

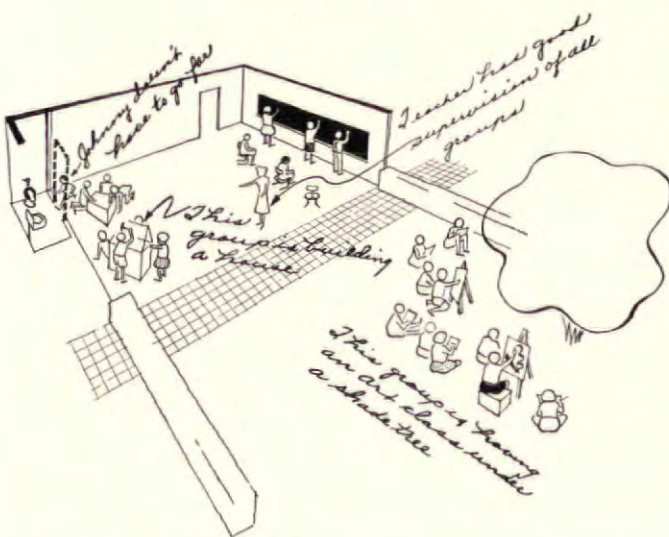
Lighting in Locations with Deteriorating Effects of Steam Vapors and Moisture.

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BOOKS



SCHOOL IN DENVER, BURNHAM HOYT, ARCHITECT



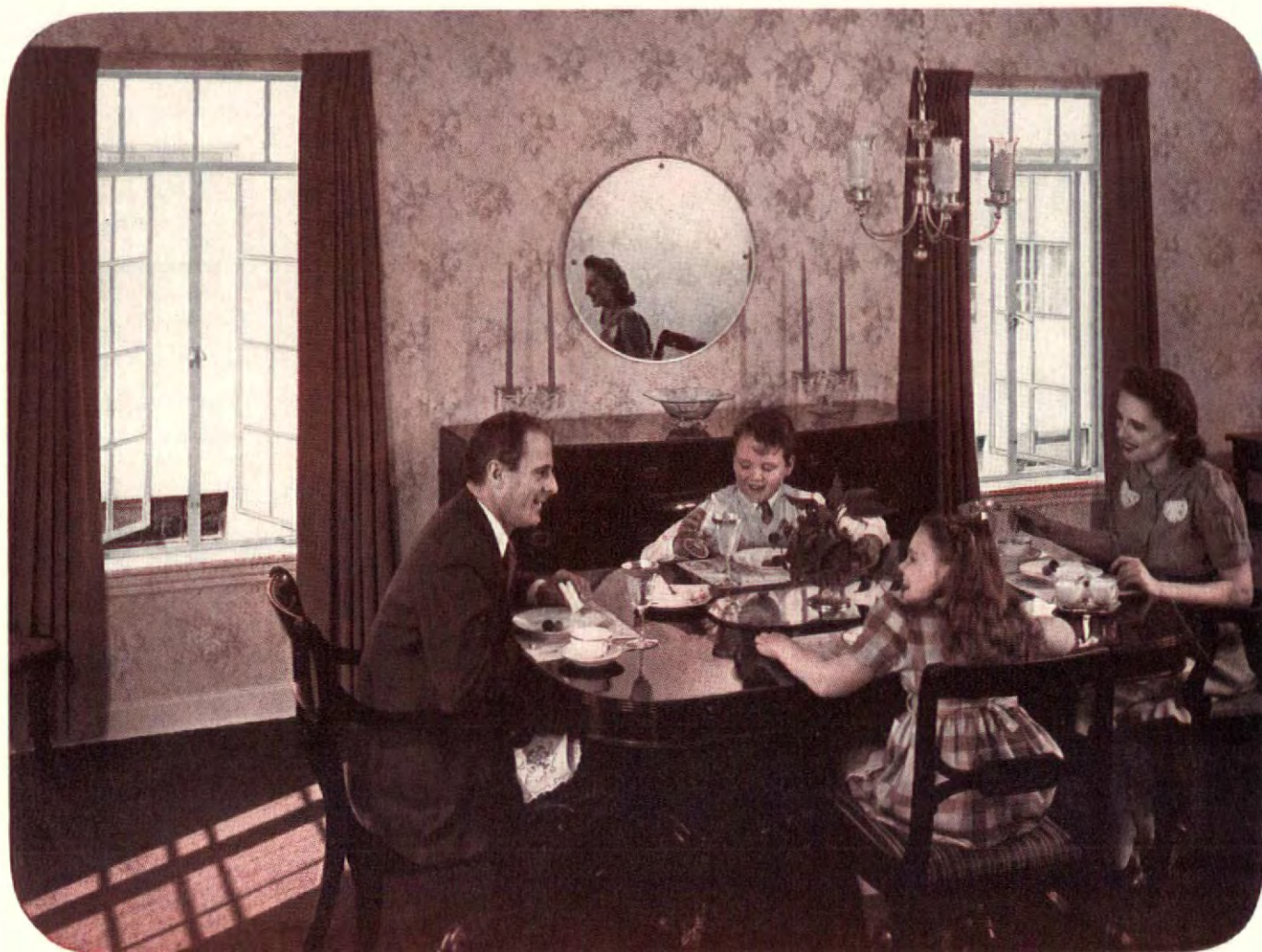
5TH GRADE RADIO STATION

SPACE FOR TEACHING, by William W. Caudill. Bulletin of the Agricultural and Mechanical College of Texas. 120 pp., illustrated. 8½ x 11. \$1.

In this modest little bulletin Mr. Caudill has undertaken to work out an approach to the design of elementary schools in Texas. The job is so well done that it would be a pity if the book were to be confined in its use to one state or even to one section of the country. The value of this study lies in its authority, completeness, and its intelligibility to the lay reader, who in this case includes the educator, school superintendent and parent. It does not discuss "architecture" (note the title) but deals with those socially desirable objectives which can be attained through rational design. The intelligent school official doesn't really care whether the detail on his building is Georgian or Gothic, although he may be sold a bill of goods by an architect too lazy mentally to undertake a fundamental analysis of the real problems. The questions uppermost in the minds of any responsible building committee must hinge upon the suitability of the school for present and possible future educational activities. These are the questions on which the book is based. Are children bored in class because of a too-rigid furniture arrangement? Can little Johnny get to a toilet without disrupting the teacher's activities? Can the child work without ruining his eyesight? Is the classroom set up so that the teacher can handle several differently occupied groups at once? Does it make sense to spend 25 per cent of the educational dollar on halls and stairways? Can the child get from home to school without risking life and limb? Just what is the proper relationship between the school and the community? If the answers to such questions as these demand modern architecture and advanced city planning, the author's prejudices are not to be blamed, but the educational process itself.

There is no attempt in this book to sell modern architecture for esthetic reasons, but a very serious effort to find solutions that meet the problems. The treatment of light distribution and natural ventilation is a good case in point. About half a dozen diagrammatic sections are shown, all capable of furnishing the classroom with excellent light and air, none even remotely like the conventional classroom. Mr. Caudill points out, however, that all the drawings strongly suggest the factory in their appearance. To the anticipated objection, "We don't want our schools to look like factories," he replies that growing children are entitled to as healthful an indoor environment as industrial workers. It is difficult to quarrel with such an approach.

In these days of declining architectural prestige and disappearing practices, this book takes on a significance quite apart from its very intelligent examination of a building type. By making such a study, one architect has performed a public service, and has established himself, in the eyes of those who read this book, as a useful citizen. By organizing all the activities which relate to school design—education, health, economics, construction and others—he has also assumed a position of leadership. The implication here is that the architect, had he used his professional organizations as a means of making contributions to the community instead of job-getting, might be in a better position today to serve both his country and himself. He might even have learned enough about social changes in the past twenty years to have brought his Victorian professional ideas up to date. The other implication of this book is that there is still time for the architect to educate the public if he takes the trouble to educate himself. Certainly if he is not sufficiently aware of his civic responsibility in finding better ways for people to live, work, study and play, someone else will do the job, for the demand now building up is without precedent.



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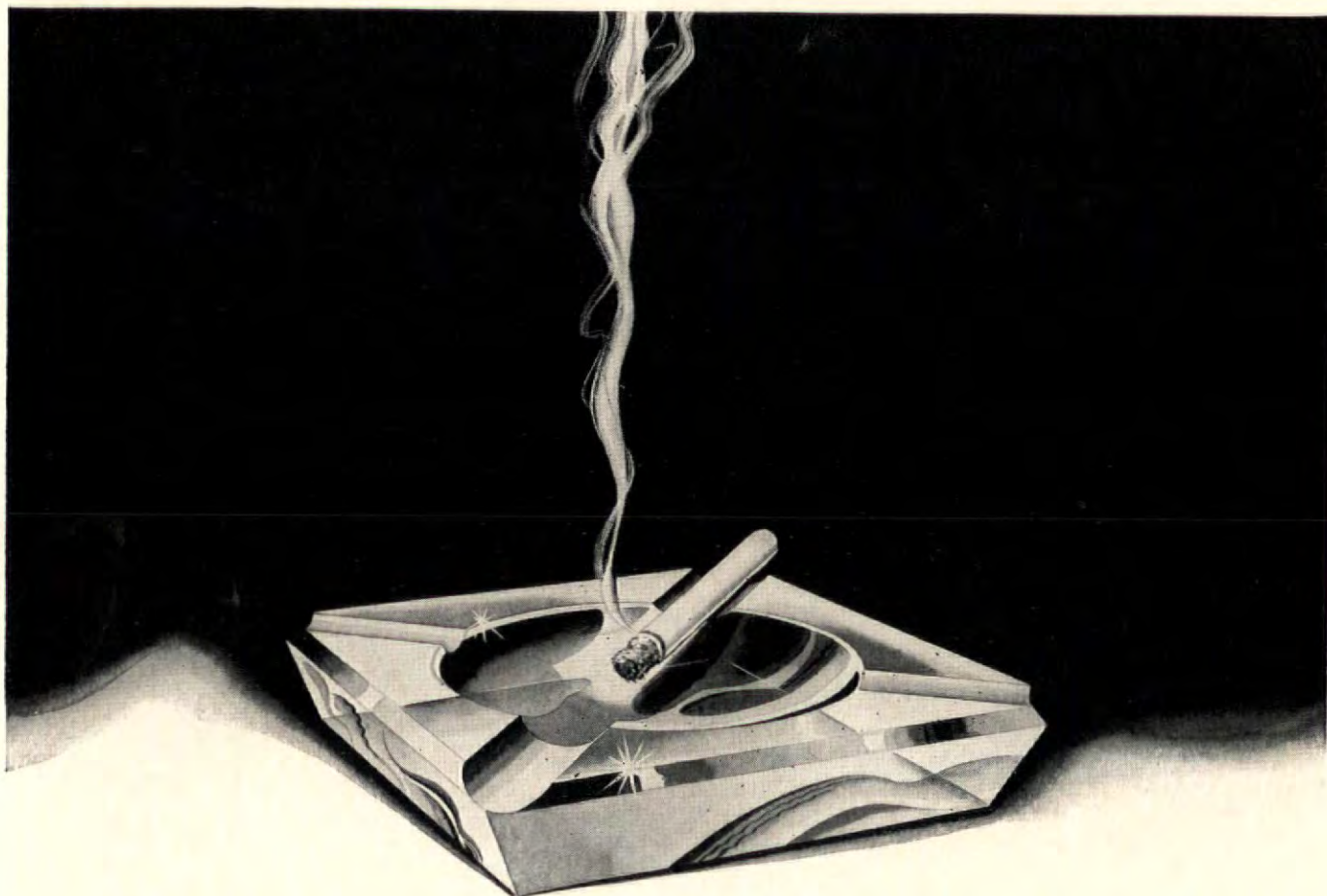
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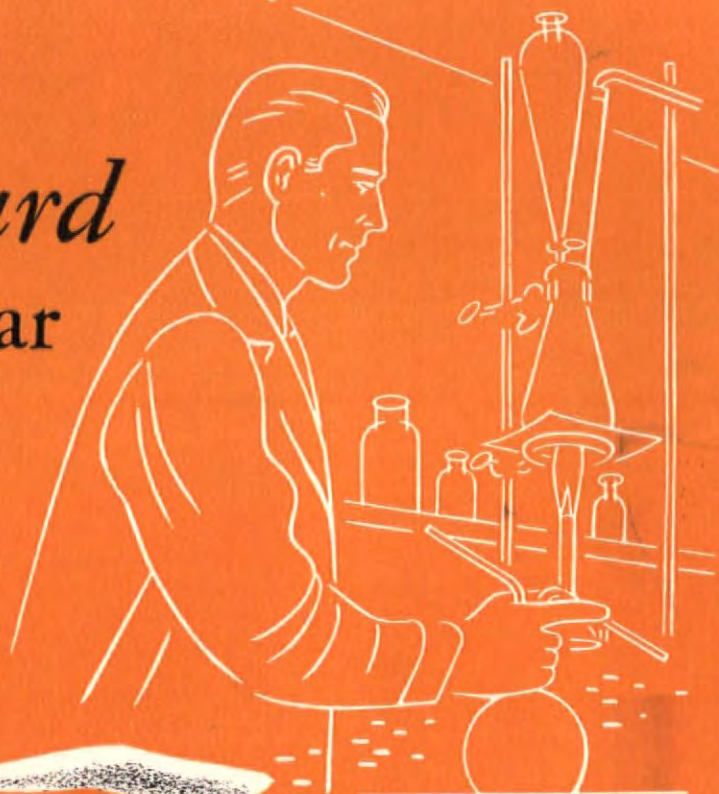
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FREEDOM OF THE PRESS

Despite the century plus during which The Free Press has guarded the ramparts of Detroit its staff has lost none of its agility. THE FORUM April article which prompted the editorial of April 13 was followed two weeks later by the front page screamer below. As a clarifying note we print in the adjoining column the comment of a local observer who wrote to The Free Press.—Ed.

The Detroit Free Press

On Guard for Over a Century
AN INDEPENDENT NEWSPAPER

Architectural Forum Errors

WE DON'T know where The Architectural Forum procures its misinformation, but the issue just off the press discusses Willow Run housing problems as if it were talking about Willow Run in some state other than Michigan.

The charge is first made that "no housing whatsoever, excepting a trailer camp and a scant handful of over-priced frame dwellings, has been provided anywhere close by" the new bomber plant. Then comes the allegation:

"Nor is any housing of adequate quantity or quality likely to appear immediately. This is all virgin land, minus the necessary utilities. To work in Willow Run, you must live in Detroit and daily make the long trek back and forth by car—or, as one worker has done, throw up a squatter's tent."

This is moonshine and suggests wholly erroneous inferences for the reader to draw.

The reason a city isn't springing up in the shadow of the Ford bomber plant is that no such city is necessary, or is it practicable. The answer, to which The Architectural Forum is quite oblivious, is to be found in the dozen or so communities in the Willow Run area—in Ypsilanti, Ann Arbor, Dearborn, Wayne, Inkster, Plymouth.

In these and other nearby population centers, where utilities and essential services need only to be extended, and not built from scratch, hundreds upon hundreds of substantial, permanent new homes are either finished and ready for occupancy or are in various stages of completion. And more will be built. Later, the need may arise for, say, some barracks-type temporary housing for single workers, but for the present, private home builders and contractors are of the opinion that they can meet whatever the demand may be.

Further along in the article, the authors suggest that "a competent, fair-minded executive" be appointed as co-ordinator. Such co-ordination is now in progress. Meanwhile, there is a widely-read architectural organ which stands greatly in need of a co-ordinator of accurate information.

Detroit Free Press:

... If *The Free Press* is not writing purely out of provincial pride and prejudice, then this writer challenges the Editor to send a trained newspaperman to determine the facts regarding the housing situation existing now in the communities about Willow Run, for the facts are emphatically not in accord with the statements contained in this editorial. Although this letter is not written in defense of THE ARCHITECTURAL FORUM's article, it is, in view of the past record of that publication, reasonable to assume that its article was written after a detailed investigation and careful reporting, and giving this report the editorial brushoff carries no conviction.

This writer, to paraphrase *The Free Press*, doesn't "know where *The Free Press* procures its misinformation," but the issue of April 13 "discusses Willow Run housing problems as if they were talking about Willow Run in some state other than Michigan." The writer has lived in the Ann Arbor-Ypsilanti area for many years and is at present living in Ypsilanti. Taking this latter city as typical—and incidentally, it is the closest suburban community to Willow Run—I can, I believe, give you some information.

If there is any "moonshine" that "moonshine" is in the statement made by *The Free Press* that in Ypsilanti, Ann Arbor, Wayne, Plymouth, etc., there are "hundreds upon hundreds of substantial, permanent, new homes either finished and ready for occupancy or in various stages of completion." I challenge *The Free Press* to tell me where these "hundreds upon hundreds" are; upon what streets and in what areas do they exist in Ann Arbor? Where are they in Ypsilanti? ...

To give further indication of the situation here, the total number of permits issued for March (and these permits include everything from wrecking a garage and additions to old houses to new units) the total was about fifty, of which not more than twenty-three or four represented new housing, the only considerable issue being a permit for the erection of a block of twenty small type dwellings to one contracting firm.

To quote from *The Free Press* again: "Further, along in the article the authors suggest that 'a competent, fair-minded executive' be appointed as coordinator. Such coordination is now in progress.

Meanwhile, there is a widely-read architectural organ which stands greatly in need of a coordinator of accurate information." If there is coordination now in progress, this writer would like to know where it is in progress. I quote from the *Ypsilanti Daily Press* of April 11 as indicative of the type of coordination: "Do the people of Ypsilanti want the city limits extended to take in a larger area? Does the Government want more houses in Ypsilanti? These and scores of other questions arose Friday night when T. B. Auger, City Planner from the Federal Housing Coordinator's office in Detroit met representatives of the city who are trying to arrive at a plan for housing. Like other such meetings, little seems to result ... In the city there are several hundred lots available, but men interested in building complain that restrictions make private building impractical, and outside the city limits there arises the question of sewer, water and gas. These can be supplied, engineers state, but then comes the question of payment. The question is raised as to just where defense development ends and where normal growth begins. Houses in which defense workers live are clearly a part of the defense program, but what about houses in which merchants, clerks and others brought here on account of the city growth live? 'With Mr. Auger's assistance it appears that we may soon have some definite plan to consider,' Mr. Bower stated today. The regional planning commission, the Board of Commerce, the city board of public works, school officials and others are doing everything possible to solve the housing problem and with favorable weather the way should be opened ... for progress."

Can the editor of *The Free Press*, holding his face very straight, claim that the above quotation is indicative of anything that could be called "coordination"? It would seem that *The Free Press* and not THE ARCHITECTURAL FORUM is the journal in need of an accurate source of information. ... It is also obvious that the agencies mentioned such as board of commerce and teachers and "others" are completely unfitted to evolve any coherent plan sufficient to meet the highly technical and complex needs of housing another hundred thousand workers and their families. And here, it is extremely pertinent to

(Continued on page 56)

Weather Report
Continued warm on Monday,
southerly showers at night.

The Detroit Free Press

FINAL
EDITION

Sunday, April 26, 1942. No. 357

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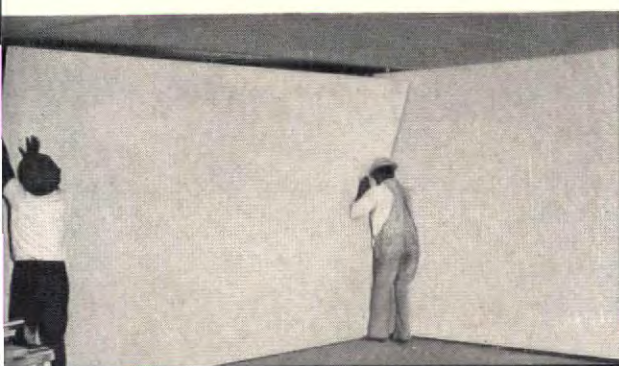
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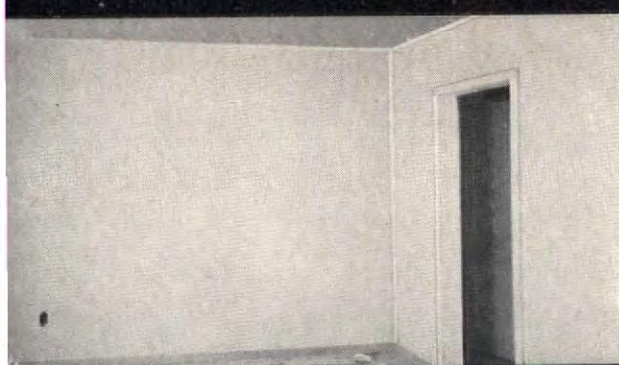
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Architects and engineers, civic groups, general contractors and other factors who are interested in post-war urban reconstruction are invited to cite to us the urban reconstruction opportunities which exist in their respective localities. The policy of the Zurn organization is to help now to make jobs for the building industry that all of us will need when victory is won. While at war we should prepare for peace. Your comments and suggestions will be appreciated.



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NOW, AND RIGHTLY SO, the building industry is engaged exclusively on construction for war purposes. All other construction has been forbidden. One day victory will be won. Then, we shall be faced with the problem of sustaining a high level of business activity in order to "cushion" the readjustment and recovery period.

Building and construction projects planned now, and made ready for work without delay, will provide the opportunity for private industry, organized labor and Government, to cooperate in producing a post-war prosperity and security.

This calls for a *revitalized* building industry, and a *program of extensive research* beyond anything that has yet been attempted in this industry. City governments, planning commissions, architects, engineers, contractors, and many other factors, are expected to think and plan in terms of whole areas and whole sections of cities which must be scrapped and completely rebuilt. Houston is but one of many cities where such possibilities for building and improvements are limitless. A citizen of Houston comments that residential rental properties must be rehabilitated or scrapped and rebuilt; that approaches to the city must be cleared of the unsightly evidence of uncontrolled expansion; that a number of streets need widening and improving. Every city has its blighted areas which must be wiped out and rebuilt with wider streets, modern schools, stores and homes. As of

September, 1941, 51 cities had already planned certain construction projects.

As each day brings us nearer to final victory in war, so each passing day shortens the period of time in which to plan building projects for the post-war period. Months, perhaps years, may pass before some projects may be initiated. It takes so long a time to win acceptance for new ideas. The time to initiate this work is *now*.

The Zurn organization is keyed to the policy of stimulating project planning for post-war urban reconstruction. It is thinking in terms of a high level economy in the post-war period because it believes that the opportunities for tomorrow, can be greater in magnitude than anything that the building industry has ever experienced. There will be vast changes in building types to meet the needs of a new era. Zurn Engineer specialists are alert to trends that indicate the nature of these changes and are investigating, analyzing, inventing, designing, making and testing one device after another in a continuous effort to improve building and plumbing drainage systems. Their job is to supply engineered production for human health and modern structures—a job which they are doing today for our Army and Navy and Air Corps.

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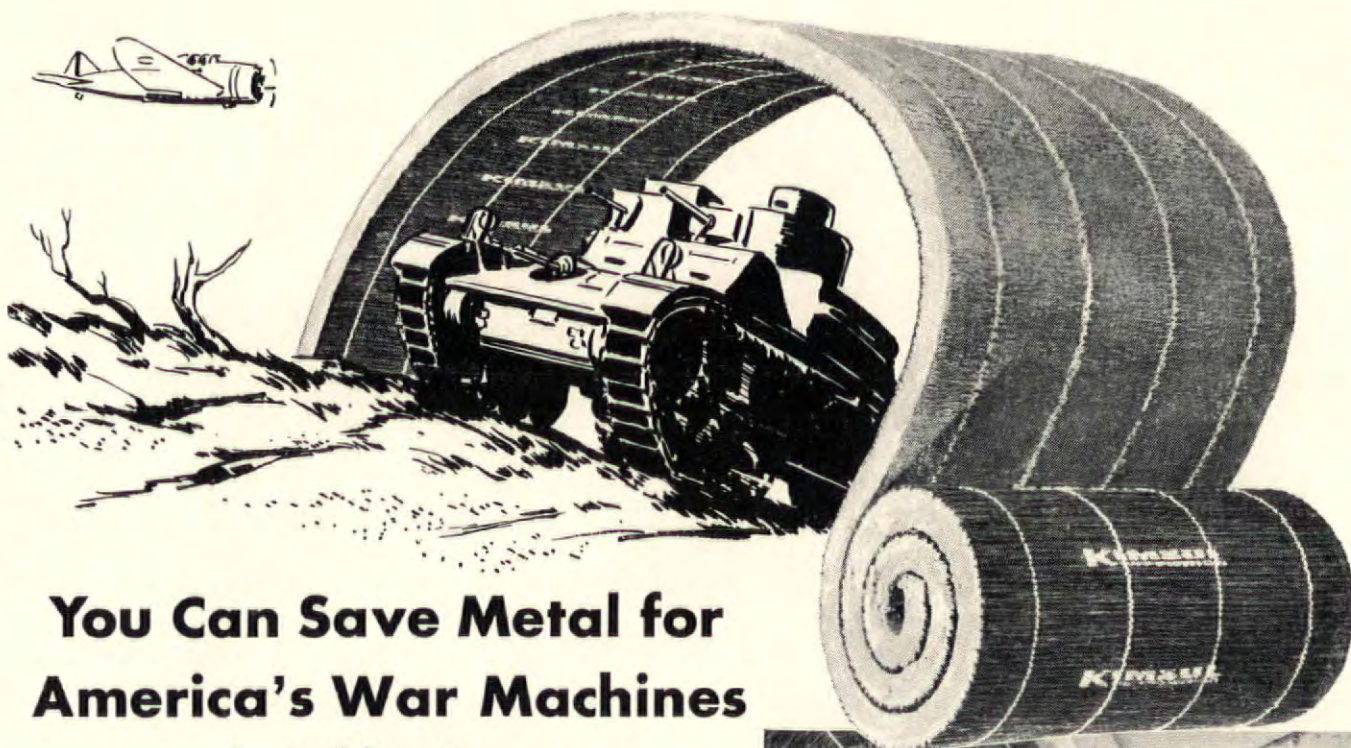


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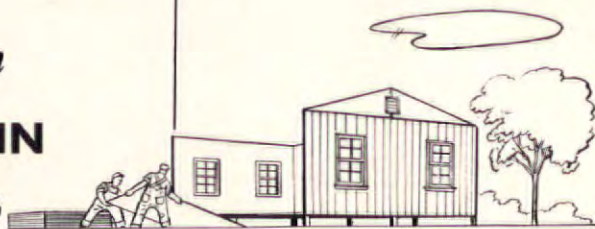
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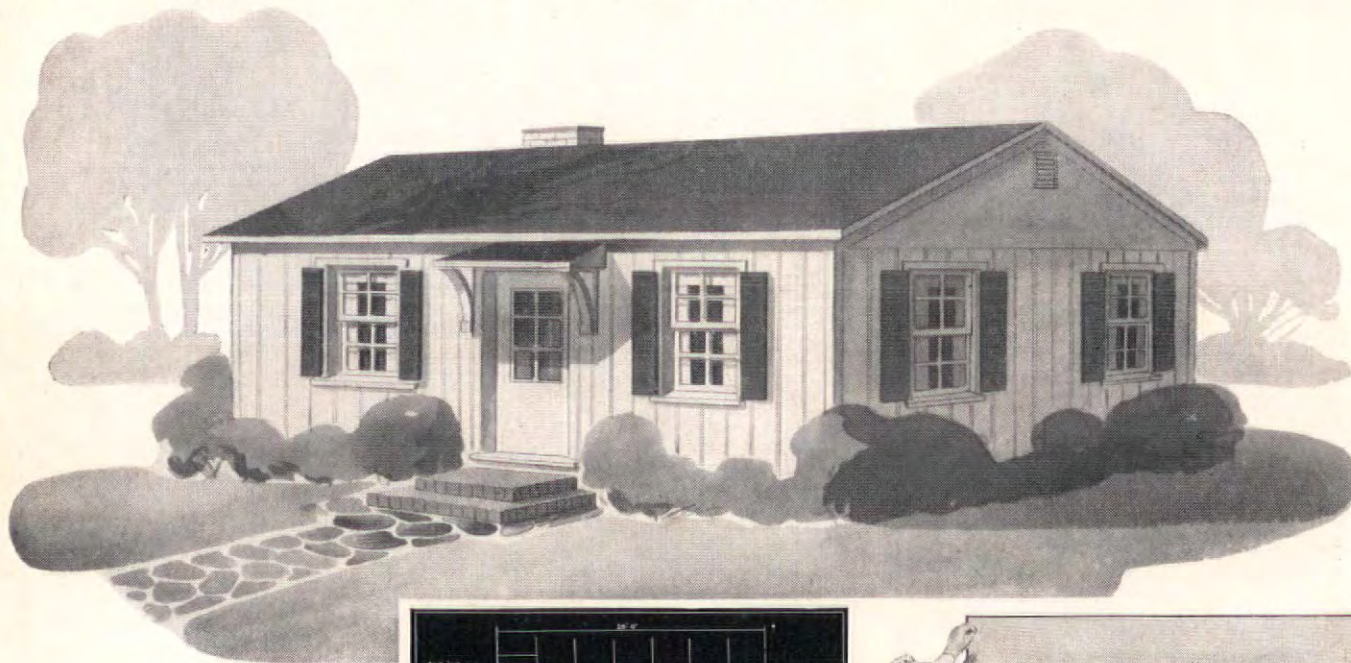
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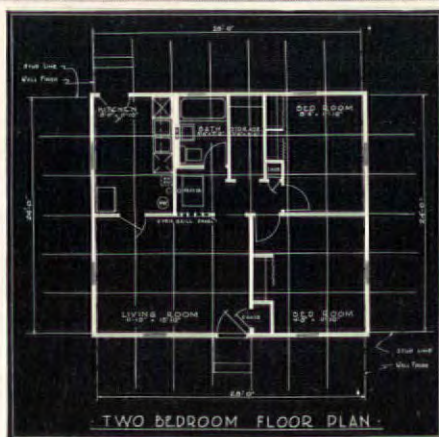
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WAR HOUSING

The defense housing shown in this issue is a cross section of the best produced in the past year. The picture is not only big, but varied. There are single and semidetached houses, apartments, row houses, remodeled flats, dormitories. They have gone up by the thousands near the new factories and shipyards—but the shortage is greater today than when building began. Worse still, in terms of global war and total industrial mobilization, the attitudes which produced this housing are already obsolete.

Housing in the past has meant many things to many people. It has been the sticks-and-stones counterpart of two chickens in every pot. It has been the reformer's weapon for social betterment. It has been, and is now being, held out as the most hopeful means of taking up post-war economic slack. On these grounds it has been violently advocated and violently opposed. But these grounds are no longer important. Housing can no longer be viewed as reform, as speculation or as a pump primer. It has become a *war tool*. Like the other tools in the arsenal of democracy, its only function worth considering is its part in the fight for our national existence. This function is to keep workers where they are needed, to shelter the additional shifts required for all-out production and to keep pace with the expansion of war plants. It must now be judged on this basis and no other.

Housing as a war tool has characteristics peculiar to it alone. It is needed in enormous quantities, but only in particular localities. It must be built with unprecedented speed. It is conditioned by the fact that the war worker can no longer travel by car to his place of employment. And, since war housing is neither slum clearance nor normal replacement, it carries with it an imperative demand for corresponding added community facilities—stores, schools, fire stations and hospitals. Considered as an integral part of the total war effort, war housing must meet war criteria. This means:

- 1. It must stretch the available materials and manpower to cover as many units as possible.** The demands for direct armament production are so great that cutting off all supplies for housing would still leave a shortage of vital materials for war needs. But housing is essential to increased production. War housing planners must reduce the use of non-essential as well as strategic materials to the very minimum so that workers and machines in the industries which produce them can be released for more urgent tasks.
- 2. It must be designed for rapid construction.** For example, at the Linda Vista project (page 277) 3,000 houses were produced in 300 days, a peacetime record. But in one-third that time the Japanese gained control of the entire South Pacific, and the scope and character of production plans were changed completely. The old norms of three to six months per project must be replaced by project schedules of three to six weeks.
- 3. It must be within walking distance of plants, stores and other essential facilities.** The lack of tires and gasoline is eliminating travel by car. As a matter of fact, automobile commuting has not been entirely satisfactory anyway. In one plant traffic jams are so acute that a bomber production-line must be stopped for two hours between shifts to allow workers to get in and out of the plant. In many areas, existing public transportation facilities are inadequate, and equipment and power for expansion are not available.

4. It must satisfy minimum requirements for health and safety. Existing housing standards must give way to standards of minimum adequacy. But the dangers created by housing thousands of workers within a two-mile radius of plants must also be recognized. Light wood construction creates a fire hazard which must be met as far as possible by design and by the provision of fire-fighting equipment. Local medical facilities must be expanded to meet the risk of wartime epidemics.

5. It must be designed to put women as well as men into war industry. Large-scale use of women workers is now a national policy. Single men and women present no problem that the dormitory cannot meet. But since most workers will be recruited in family units, family dwellings are also required, and supervised nurseries and other community facilities must be provided to free the housewife for war work.

What forms of housing will satisfy these criteria? Obviously, except where the demand is small and utilities are already available, the single-family dwelling is no solution. Such scattered development is necessarily wasteful of land and materials, especially utilities, and slow to build. Neither, on the other hand, will the type of dormitories so far constructed solve the problem. But the "duration dormitory" approach to the problem is what is needed. In most communities the above criteria can be met only by light, temporary, multi-family dwellings—possibly even through the use of some form of common toilet and bathing facilities. The Beaumont, Texas project (page 285) comes closest to illustrating the kind of shelter that is required. Such units must be located within two miles of the plant they are to serve. Simultaneously, schools, shops, nurseries and health centers must be provided.

At present there is no program for this kind of war housing or any other. Funds are near exhaustion. Congress has demonstrated its antipathy to public housing in any form, and real estate groups have proposed, in the last analysis, nothing more than a continuation of business as usual. The War Production Board still fails to understand the close connection between war housing and war production.

Despite all these obstacles we are going to have war housing. It is going to be built because the pressure from the production front, and from Army and Navy procurement officers, is rising to the point where all opposition will be swept aside. Present contentions have produced too little housing, too much delay. Eventually a time of crisis occurs on the home front as it does on the fighting front. In war housing that time has arrived. The round table must now yield to the time table.

An indispensable preliminary to such a program is the announcement of an unequivocal housing policy. Recent pronouncements by the National Housing Agency are ambiguous and have an all-too-familiar ring, repeating proposals made as far back as the summer of 1940. These proposals did not work then and have less chance of working now. Much more constructive is the recent statement that new housing will have to be within walking distance of war plants. An equally clear statement of the problem in terms of materials allocation, structural types, community facilities, etc., would automatically produce the outline of a definite and understandable policy.

With this accomplished, Washington will have per-

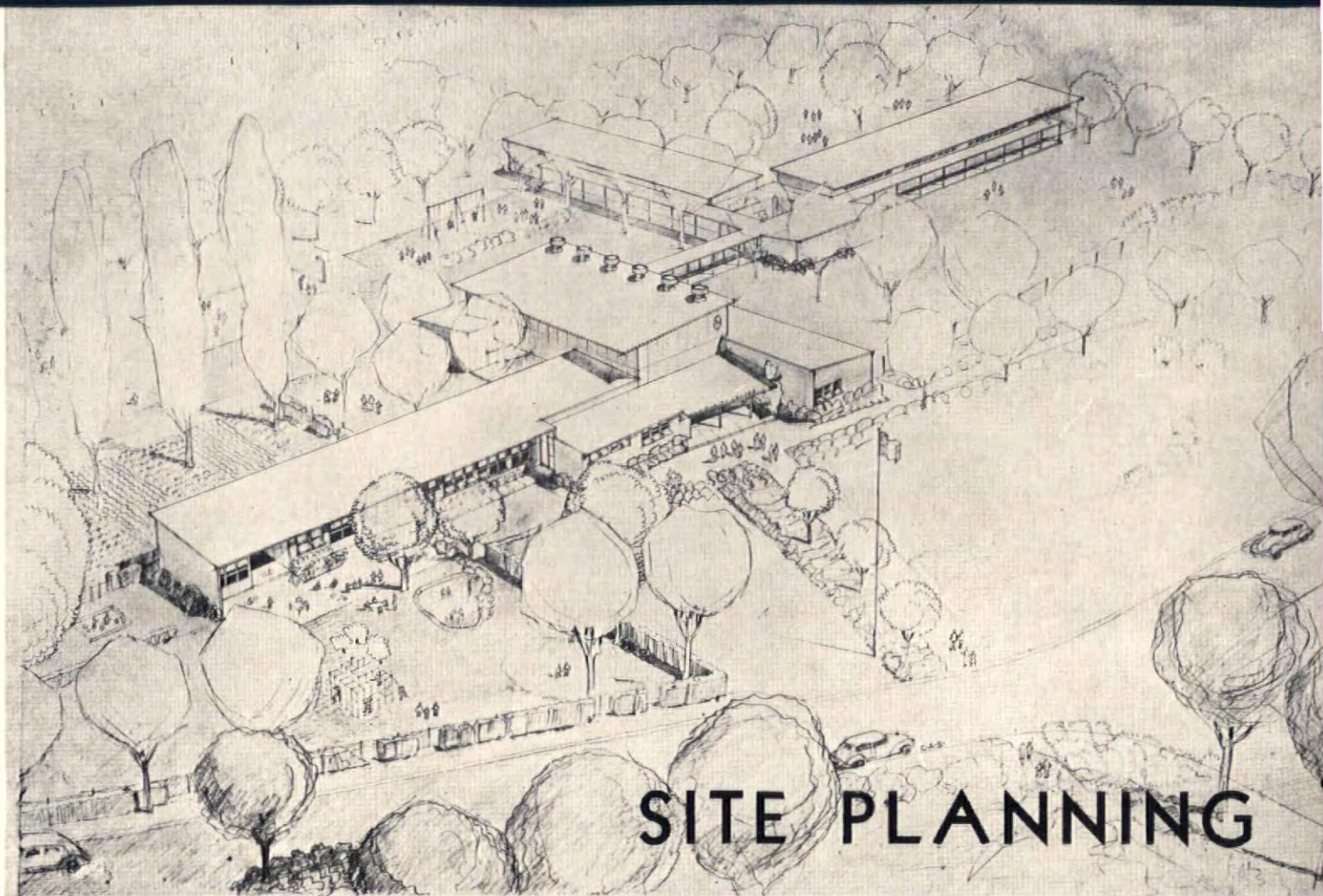
formed the biggest part of its job. It will also have to reconcile the conflicting demands of localities, establish the general design pattern for building types and assemble local data as the basis for an estimate of the overall need and for allocation of needed materials. From this point on the problem must be handled from within the localities. Unified local agencies must be established wherever acute housing shortages exist. Organizationally such agencies must function as extensions of the Federal Government and its powers, manned so far as possible with local personnel. First, and most important, they must be given full authority over *all* housing within the area of war plants. They must survey this area to determine both need and supply. They must establish the number of new dwellings which must be built and the number which can be obtained by the conversion of existing units, the availability of community facilities and the additional facilities required. They must administer rent control and, if necessary, ration the housing supply. They must bring pressure on existing municipal agencies to see that added schools, fire, health and police protection are provided, and back this pressure with Federal funds. Their main job will be to produce a unified plan of coordinated activity.

Once such a plan has been announced, it will be clear to private capital where and whether it can fit into the program. It is entirely possible that temporary housing built with private money could meet the Government's requirements and still pay its owners a reasonable return; a clear statement of the shelter types required and permissible rents should settle the matter one way or another very quickly. Still another possibility is Government ownership with private construction and operation on a fee basis (a simple and reasonable extension of the present public housing practice). Failing either of these alternatives, the Government must be prepared to finance the whole program.

Such a program can be carried out only if adequate funds and adequate authority are made available at once. Continuity of financing must replace the intolerable situation whereby appropriations are granted by fits and starts, with great gaps in which the war housing program is left hanging in abeyance.

It is the responsibility of the National Housing Agency without delay to initiate a clear cut and realistic war housing policy and program.

It is the duty of the Congress to activate this policy and program with the necessary authority and funds.



An approach to an important and still unfamiliar field by **Garrett Eckbo**, of the Farm Security Administration.

WHAT IS IT? *Site planning is total space organization for a specific construction project on a specific site. It involves primarily the determination of desirable relationships between buildings, utilities, roads and walks, recreation facilities, planting and open space. A single house-and-garden is really a site planning job; so is a school, a factory, a hospital, an airport, or a complete community or portion of one done under one control.*

WHAT'S IT FOR? *Site planning is the arrangement of environments for PEOPLE. Its primary objective is not engineering convenience, or mechanical efficiency, or esthetic delight, or a monument for posterity, or good camera angles, or speculative profits. It is to produce the best possible physical pattern within which a group of people can develop a good social pattern.*

Technical requirements. Site planning is just beginning to be considered a specific, coherent field of design activity. Hitherto it has been a by-product of the overlapping of town planning, architecture, landscape design and engineering. There has been no specific training for it, and little specific thought given to it as a complete kind of design problem, and the integrator of all other design problems. In group projects this is probably derived from the traditional pattern of individual control of small plots of ground: rugged individualism and group site planning seem scarcely compatible. In individual private projects the failure to consider the design of the total site space as one operation is a symptom of the failure of architecture to live up to the problems it attempts to solve.

Site planning is the one field which points out, clearly and unmistakably, the futility and obsolescence of the present carefully established and maintained professional boundaries. No single kind of professional designer can do a completely good job of site planning all by himself. It requires collaboration between architects, engineers and landscape architects on smaller jobs, with the addition of professional town planners on larger ones. The amount of domination by any one designer on any specific problem depends upon the proportion of his kind of work—land-use planning, structural design, utility and paving design, outdoor space and planting design—in the development of the total site space. Today, for various reasons both practical and ideological, the structural designer (architect, engineer or builder) is

SITE PLANNING

usually the key man in this grouping, a sort of design broker. One wonders whether the desirable direction for development of professional design groups is not toward a simplification of the present boundaries, perhaps into three general groups:

planners, who plan the use of land on a scale greater than that covered by single development programs; **space designers**, who would include and broaden the present functions of architects, landscape architects and engineers; and **object designers**, who would take care of all the detailed furnishing and equipping of the organized space. These designers might come from schools whose curricula had been reorganized and correlated along the new lines; technical difficulties in actual practise could be handled by a realignment and broadening of technical collaboration services.

Site planning has the same basic approach problems to face as its parents, architecture and landscape design. These are primarily concerned with sluffing off obsolete dogmas which deal mainly with appearances, and the development of a truly scientific space-planning technique and a clean esthetic which expresses it. Both site planners and garden designers are still struggling with that irrelevant tangle of red tape known as formal axial versus informal irregular layout. Neither is more than an abstraction which forces the solution of specific problems into generalized preconceived patterns, and inserts a barrier between the designer and the basic conditions and needs with which he is trying to come to grips.

Procedure. In every construction operation concerned with the human environment these steps are almost invariably followed: first, some sort of program, covering needs and wants, is prepared; second, a site is selected upon which this

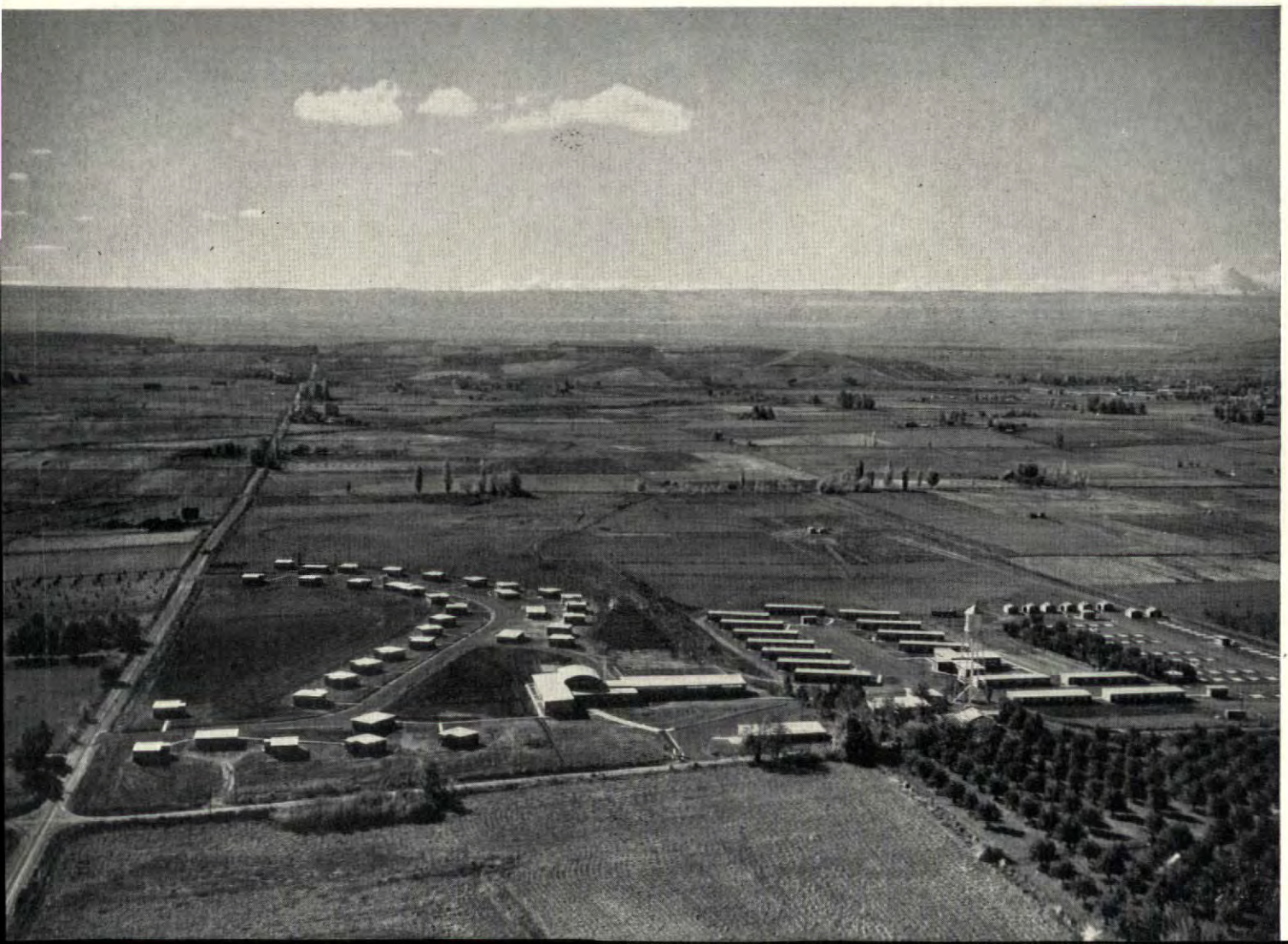
program is to achieve concrete form; third, the processes of design—putting down on paper the actual form of the site development—go on; fourth, construction and installation proceed, controlled more or less by the paper designs; fifth, management, either private or public, takes over and directs the use of the project from that time on. Each of these five steps is of nearly equal importance to the final success of the project, and it is a practical impossibility to separate one from another, or to eliminate any one. For instance, if a program is not written at the beginning, the designer has to write it as he proceeds with his work, and if he fails to achieve a clear understanding of the problem, management is very likely to find itself writing the program for the problem which is supposed to have been solved.

There are four basic elements which require consideration in the design of human environments. These are People, Space, Materials and Specific Conditions.

People must be considered because the project is for them. One must not only have a sense of and sympathy for the way they live, work and play; one must also have a basic faith in the potential goodness, decency and dignity of every human being, a complete lack of snobbery, condescension, benevolent paternalism or authoritarianism, and a realization that race, creed or economic status have no real relevance to the determination of living standards for people as individuals, families or larger social groups.

Space must be considered because the activities of people take place within the three-dimensional volume of air of which the site is the lower side. Architecture is now beginning to concede the importance of the form it gives to space with structural elements, in relation to the detailed form of

FARM WORKERS COMMUNITY, GRANGER, WASH.



those elements; landscape design also begins to realize that it gives form, of a freer and looser kind, to outdoor space. Likewise site planning is a process of giving form to the total site space with buildings, planting and all the other physical elements involved in the project. This brings in the problem of relating indoor and outdoor space, perhaps by a decentralization—within economic limits—of structural elements (see the exterior construction on the low-cost FSA project at Taft, California, on page 298), and an infiltration of plants and other natural materials. The site plan must consider space, both roofed and unroofed, as parts of one unit. It is this space conception which can make of the project a completely homogeneous and integrated whole, rather than an arrangement of buildings and other elements in a vacuum.

Materials are of course all those involved in the development of the project. While the site planners will begin with the consideration of buildings, open spaces and circulation elements, any integrated design process will soon get down to an intimate consideration of refined structural materials, unrefined natural materials, and the desirable relations which should be established between them. This is part and parcel of the problem of relating indoor and outdoor space, which we have mentioned above. For instance, the question of the desirable relations between wood-framed and masonry structures and the earth and planting of the site should be in the background of the whole site planning procedure. The great lesson which site planning problems have to teach us is the need for replacement of the standard segregated compartmental design system by an integrated assembly line technique, in which operations at the end work out correctly because they were considered at the beginning.

Specific conditions make up the essential nature of each project, which distinguishes it as an individual problem from all others, and renders irrelevant the use of preconceived patterns either formal or informal. Among these patterns we must include not only the monumental axial skeleton, and the informal, which is supposed to have just dropped from the clouds this minute, but the present sterile American adaptation of European parallel row planning, in itself often sterile, and now producing some of the largest mechanical monsters in captivity in the name of defense of democracy.

Site Planning for Defense Housing Projects

The foregoing paragraphs have attempted to suggest a basic skeleton of principles of the sort which it is difficult or impossible for a Government agency to formalize in printed regulations. The Government provides a set of Standards for Defense Housing, covering the type of facility, the type of construction, the amount of space and the cost limits for defense projects. In addition to these, on each specific project either the local authority or the Federal Public Housing Authority will select the site and will provide a program and some sort of supervision and criticism of the design procedure. Within these limits the quality, livability and social desirability of the project at the time that it is turned over to management are largely dependent upon the designers' social, technical and esthetic backgrounds, and upon their attitude toward such matters of principle as we have attempted to discuss here. Good site planning is largely a matter of real common sense, aided by a completely open

mind, a lack of esthetic prejudice and an uninhibited sense of form. Some conception of the relation between theory and practise is essential. In general we can say that theory is necessary to the development of a sense of form based on human and social needs, and that practise is essential as the means to concrete realization of the form within existing legal, economic and technical limitations. Either is impractical when divorced from the other, and both become impractical and irrelevant when the planners lose sight of the people for whom they are working. Theory is the why of doing things; practise is how; only a proper integration of the two can produce good results.

Defense housing projects done with Lanham Act funds will have to conform to the FPHA Standards for such projects. It is, however, a little distressing to find the following combination of quotes in them:

"All aspects of the design should be considered from the point of view of the total war effort. The first objective of these standards is to expedite the construction of safe, comfortable, and economical housing for war workers.

"The amendments to the Act, referring to the disposal of housing, reflect recognition of the desire of Congress that private enterprise, or individual owners wherever possible, acquire such homes. This objective can be obtained only if the homes are designed and built in a manner that will make sale possible. No theories or "schools of thought" of any member of the staff of the Federal Public Housing Authority, or of any Local Housing Authority, should be allowed to interfere with this clear expression of the will of the law-making body. . . .

"Use modern planning techniques devised to attain high housing standards wherever the approved type of project will permit."

There seems little reason for a very detailed discussion of standards and procedure here, when those matters are covered exhaustively in the FPHA Standards. Contradictions such as those quoted, however, are not nearly the hindrance to good site planning that the excessively high density and low space requirements embodied in those Standards provide. The sacrifice of essential space to the twin bogeymen of cost and mechanical gadgetry, plus the vicious practise of developing minimum standards based on income strata, rather than optimum standards based on bio-technic needs, are too apt to produce the slums of tomorrow. However, we are here endeavoring to help the individual architect to do the best possible site planning job within the program standards given him. The following suggestions on procedure seem relevant:

1. Check the program and standards you are given to be sure that all the conditions of the problem are covered.
2. Whenever it is possible, assist in the process of site selection.
3. Remember that good site planning is a collaborative enterprise, which requires the participation of architect, engineer and landscape architect *from the beginning*. Constant mutual review and cross-checking are essential. There is no room in site planning procedure within existing professional boundary lines for prima donnas of any sort.

SITE PLANNING

4. Utility problems require competent technical assistance for successful solution. Keep the following points in mind: Success of projects depends upon the cost, availability and quality of water and upon the cost and ease of sewage disposal. *Check these first.*

In general, the procedure for utility problems is: first, can the local authorities do it for you; second, can they do it for you by expanding; third, how can you best do it for yourself?

Simple rectangular layouts are likely to be cheaper for utilities. This does not, however, justify a standardized gridiron plan. Site conditions vary too much for any standardization to be successful. Economy of construction cost and good space relations are not at all incompatible. Human values are the basic yardstick for site planning. Utilities usually run from 20 to 30 per cent of the total construction cost.

If it is impossible to dispose of sewage off the property in some established system, remember that it flows downhill, and that establishment of your treatment plant at the lowest part of the site will save the cost of a pumping plant. Check the sources of water for both domestic use and fire protection. Check domestic water for both quality and quantity. In arid parts of the country the source of irrigation water will also have to be checked.

For gas service check first the critical material list for your locality. You may have to use oil or coal instead. If you do not, information should be obtained from all utility companies as to main sizes, pressures, quantity of service available, and rates for the service desired. Special attention should be paid to the pressure at which the company will deliver. Sometimes there are odd rates which are very advantageous if gas can be taken under the conditions set forth in the rate schedule. If service is not available at the site and main extensions have to be run the customer may have to pay for such extensions unless he is prepared to demonstrate that his demands, with or without probable additional development, will warrant the extension. For electricity, once the source problem is settled, remember that both cost and unsightly pole lines can be reduced by a layout which makes it possible to carry the lines directly from building to building. Floodlights can also be placed directly on the buildings to save the cost of standards. Grading and paving procedure will be expedited by a layout which recognizes the nature of the implements to be used. All areas have to be drained of excess water, both above and below the surface. Areas paved with bitumen are most efficiently installed when planned in simple rectangular areas or in simple loops, even though some extra square footage is involved. Complicated curb lines, and widths too narrow for a power roller, are to be avoided. Road and walk alignment should be worked out to stay within the maximum grades specified in the FPHA Standards. Grading and land leveling should conform to the site plan, not precede it.

5. Be sure that you have all the necessary information, including a detailed and accurate survey of the site.
6. Check the standard specifications to be sure that they fit your local conditions.
7. If future expansion of the project is at all possible, remember to provide outlets in the present site plan.

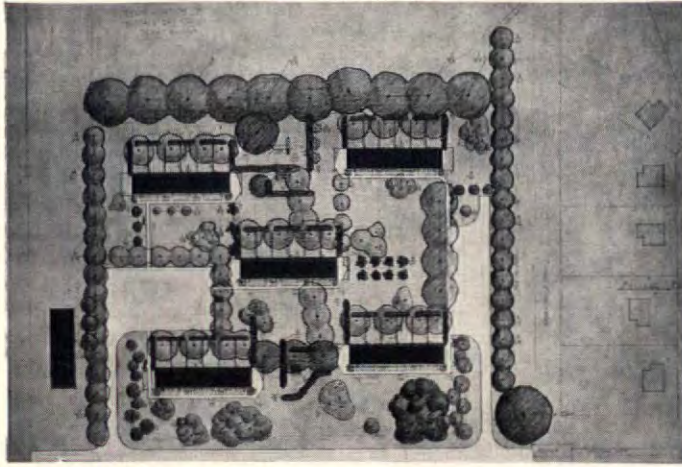
8. The placement of buildings is controlled by the sun, the wind, the contours of the land, and by their functional and social relationships. The control by orientation and contours increases and decreases directly with the size of the buildings. Neither the classic axial pattern nor the "modern" parallel row type gives good form to the open spaces between, nor do they give any consideration to the social life which is to go on within them. A physical pattern derives life and vitality only from its relation to the social pattern which it environs. Its appearance from an airplane, from across the valley, or from anywhere else outside itself is not very relevant.

9. It will be well to think of the open space as the skeleton and controlling form of the site plan, rather than as a by-product of the building and roadway arrangement. This is partly because space requires material definition for comprehension and enjoyment, and partly because social activity goes on more in public open spaces than on roadways. Roads and walks are purely service elements, and their use as a primary skeleton tends to overemphasize their importance and to reduce the livability of the total site space. Deviation from this in large projects by using roadways to define complete neighborhood units may be desirable. One of the principle faults of our cities today, however, is their overemphasis of the street pattern, and the resultant loss of living space.

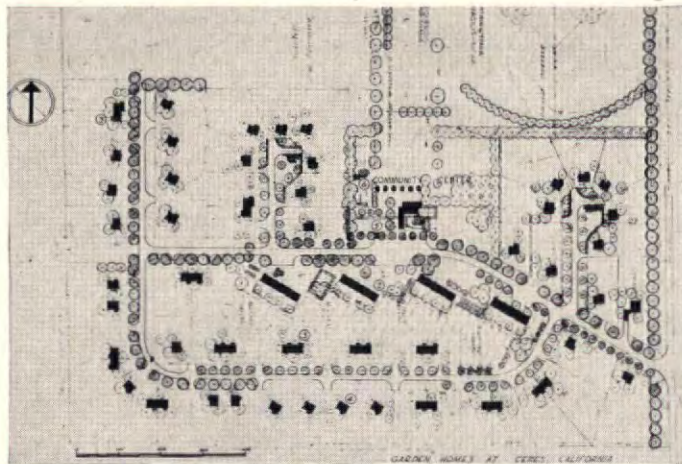
10. Vehicular circulation lines tend, with buildings, to form space boundaries, simply because of the need for stopping to look before crossing them. The negative importance of these lines increases as we consider younger members of the population. It is perfectly possible for the only truck which travels a given road in a day to kill a child.

Pedestrian circulation lines, even when paved, are part of a general space pattern made up of innumerable less important unpaved lines. There is no great need for the walk pattern to conform to the three-dimensional pattern which encompasses it, except as the boundaries of specific areas force it to. It is much more important for walks to go directly from point to point.

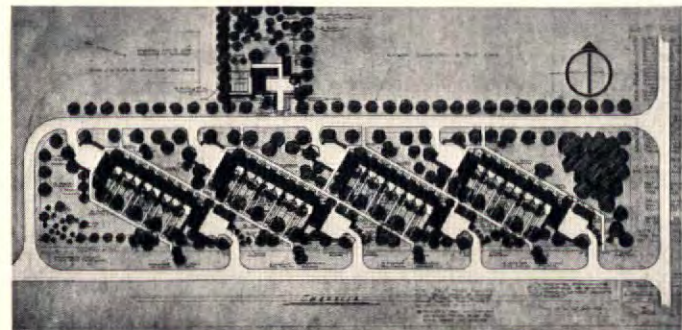
11. The relation of the physical pattern to the social pattern should always be kept in mind. We are told that the individual family is the democratic social nodule, and we are told that the desirable neighborhood unit is of a size sufficient to support an elementary school. But there is little indication of what sort of cellular breakdown between these two sizes is desirable socially, in conditions of rural decentralization and urban centralization. A great deal of research needs to be done on the sizes of cell groupings which best facilitate social, political and economic activities. The site planners on any housing project have an excellent opportunity for research into the relation of the physical form to these cellular units. The designers who plan a project for 500, 1,000, or more families in any sort of mechanical grid really fail to solve their problem.



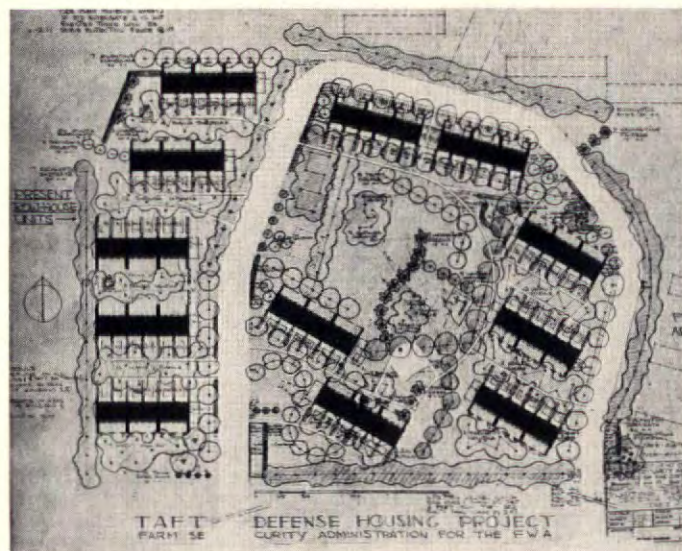
TULARE PROJECT, CALIF.



GARDEN HOMES, CERES, CALIF.



ROW HOUSES, CHANDLER, CALIF.



TAFT, CALIF.

The relation of such cellular units to community facilities, both centralized and decentralized, indoor and outdoor, requires careful study. Sex and age groups, the types of recreational and social activities which they require, and the distances they can comfortably travel to these activities, are all part of the picture.

12. Good planning and planning for defense from air attack require much the same sort of layout: that is, a decentralized irregular arrangement with plenty of planted open space. We are told that a regular gridiron pattern in a critical area is an invitation to disaster.

13. Planting, in addition to providing shade, greenery, color and general amenity, is the final refining element in the complete organization of the site space. As such, the designer who is responsible for it should be part of the site planning procedure from the very beginning, if he is to be saved from the fate of being an exterior decorator for architecture.

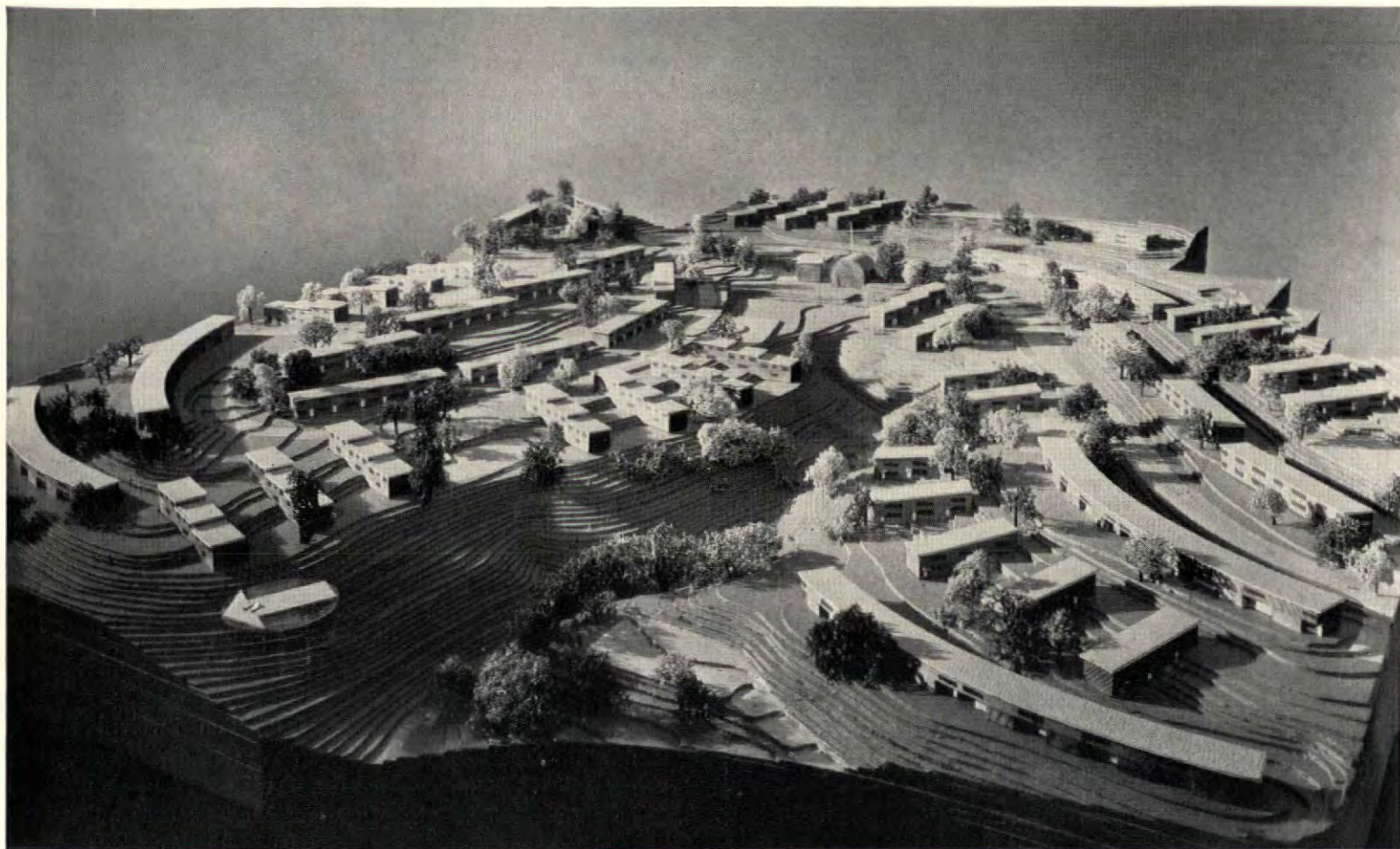
Remember that planting and utility plans require careful checking against each other.

The FPMA planting standards are good as far as they go. It has yet to be proved, however, that long plant lists necessarily increase initial costs or those of maintenance and replacement. The situation involved is much too complicated to be tossed off with such an easy generality. The keynote of the planting scheme should be the use of plants as space-organizing elements rather than as decoration. A discussion of ideas about planting and landscape design, relevant to group projects as well as private homes, is available in the *Magazine of Art* for October, 1941, under the title "Outdoors and In," by this author.

14. It will be well for you to get your thoughts assimilated and your basic approach set as much as possible before you get a project. You cannot begin to consider theory when you have only a few days in which to turn out complete working drawings.

In conclusion we might say that every technician concerned with the development of environments for people has a responsibility toward them—not just a shelter responsibility, but one for the development of the fundamental potential dignity of every human being. Housing projects aren't mechanical or esthetic exercises—they are elements in the close inter-relation of physical and social patterns. Democracy isn't kept alive on a diet of free ballots alone—it requires something more solid and balanced, plus a physical pattern within which it can operate. The chaotic surroundings within which 98 per cent of our social and economic activities attempt to function is an inhibitor of democratic processes, a propagator of political and commercial exploitation, and a direct expression of an age in which human dignity is of only minor importance. The "American genius for sterility" is perhaps an expression of this too often inhuman and mechanical approach to environmental problems.

The ideas outlined herein have been prepared by a landscape architect who has had a great deal of integrated site planning and planting experience with a very well balanced architectural and engineering staff. The ideas are his own, but he could not have developed them without being part of a completely collaborative group.



Ezra Stoller

PLANNING WAR HOUSING, a brief guide to office and project procedure, by housing planners Hill-Hoover-Heckler-Kohankie, of Pittsburgh.

The Government as a Client

The planning of a war housing project for the Government is a comprehensive task when approached in the light of all requirements. The Government, as the owner of war housing, places these requirements under your nose before you get very far with plans, or whenever you stray from the path. Your "Owner Representative" may be the local Housing Authority or a regional officer of the new Federal Public Housing Authority. In the past, the types of Government representatives were more numerous, a condition which obviously created some confusion.

The contribution of a technical group would be infinitely more valuable to the general housing program if the bureaucratic representatives could be induced to confine their activities to policies and basic standards instead of attempting to participate in the design work. Decentralization of the administrative activity of the Government should help to overcome this difficulty.

Site Selection

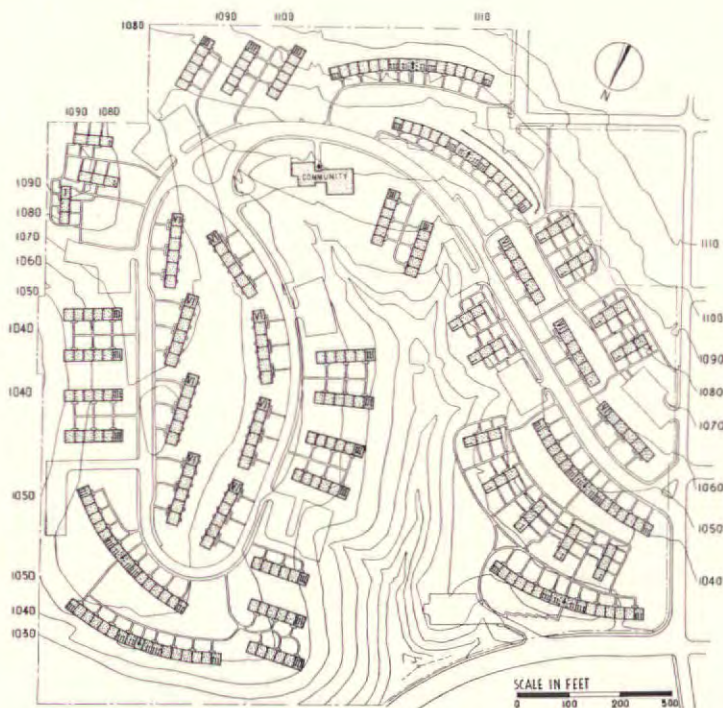
The importance of naming the planning group prior to the selection of a site can scarcely be overemphasized. A properly constituted group, with its architect, engineer and site planner, can contribute a great deal to the matter of site selection. Some of the local authorities have representatives on their staff who are qualified to do site selection, but even in such instances consultation with those to do the planning would be beneficial.



GLEN-HAZEL HEIGHTS PROJECT, PITTSBURGH

In the selection of the site for the large Glen-Hazel Heights project in Pittsburgh, the principals of our firm were included in the consultations on site selection, and we assembled a good deal of the planning data required for site analysis. This data included a plan showing the industries to be served, with notes on the current number of employees and the estimated increase. The plan also showed transportation routes between the project and places of work. A neighborhood plan dealt with the schools, stores and other community facilities within a reasonable distance. Statistics were gathered on the number of vacancies within reach of the industrial plants in the locality, and estimates were made on the possibilities of getting housing put up by private interests. Finally, tentative studies were made the favored site to see if the rough topography would permit construction within the cost limitations of the Lanham Act. All of this preliminary work was most helpful, as the planners were completely familiar with the problem when they were later told to go ahead, and no time was wasted.

As a contrast to the foregoing procedure, our next project, designed in association with Mr. Edward D. Stone, had a site previously selected by the Allegheny County Housing Authority and FWA. The program required that 368 units be placed on a 29-acre tract, a sizable portion of which was too rough to be used. After many efforts to get the desired number of units on the land, even after boundaries had been shifted to include more usable land, the number had to be reduced to 342, which was still not entirely satisfactory. Prior participation in site selection by the planning group would have avoided the programing of an impractical project.



MONONGAHELA HEIGHTS PROJECT, PITTSBURGH

Those interested in war housing should encourage their local authorities to designate the planning groups before getting the site, regardless of the common objections based on possible leakage of information, etc.

Topographical & Utilities Survey

It has been the practice to allocate the engineering survey work to the project's designers. The procedure is good, for it permits the group to tell the surveyor what kind of data to get and eliminates waste motion later. The following information must be obtained:

1. Topographical survey at 50 feet to the inch or less, with two-foot contours. It should extend sufficiently beyond the site to permit the proper tying in of the site plan with its surroundings. The survey should show the location of all existing structures, of whatever description. This information is necessary if the most economical plan is to be developed.
2. A very accurate utility survey, showing sewer, water, gas and electric lines within and adjacent to the site.
3. A careful boundary line survey, prepared by the same man who supplied the data for 1 and 2.

Preliminary Development Studies

The technical group at this point launches into the plan stage. From the project's program a schedule of plan items is prepared, with a designation of the individuals responsible. The items are site plans, unit plans, building types and elevations, utility layouts, typical details, outline specifications and estimates. Because of the speed demanded, all must be dealt with almost simultaneously. Close coordination is vital, with frequent meetings of the principals indicated. In most groups this coordination will be guided by the chief architect, in others by the site planner or a housing consultant. There is no room here for professional self-importance, or for anything interfering with smooth group action.

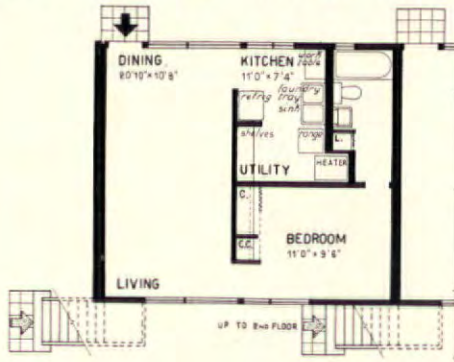
Unit Plans

Surprisingly enough, plans developed for war housing projects have not been monotonously alike, as in the case of PWA and USHA. Possibly this variety has been due to the number of agencies formerly in control of war housing and the natural rivalry that existed. There was also the challenge to the architect, the demand for decent shelter at costs much lower than those permitted by the Housing Act of 1937. This demand naturally led to innovations in the use of materials and in planning. The standards established were also more liberal and flexible than those used by PWA and USHA, and seemed to us quite reasonable. The main difficulties encountered are due to the occasionally opinionated interpretations by Government representatives, and to the architect's reluctance to depart too far from conventional construction. Unshackled from local code restrictions, war housing has thus far contributed generously to the debunking of traditional construction methods.

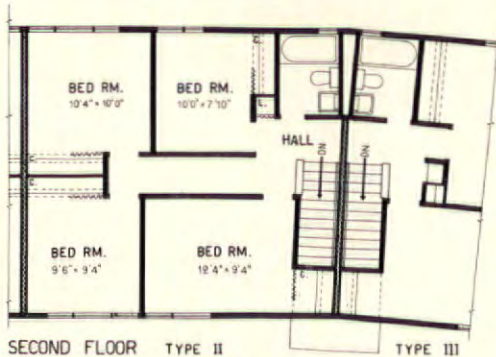
Unit plans for war housing can be designed within the statutory cost limitations and at the same time meet the desirable minimum standards of shelter space for the average American worker's family.

Building Types

Design of building types must await a preliminary determination of the unit plans. Some idea of the site's potentialities should have been acquired. It is most important to develop buildings which adapt themselves to the topography and permit interesting grouping as well.

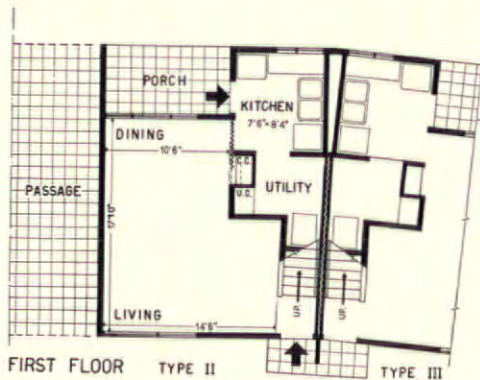


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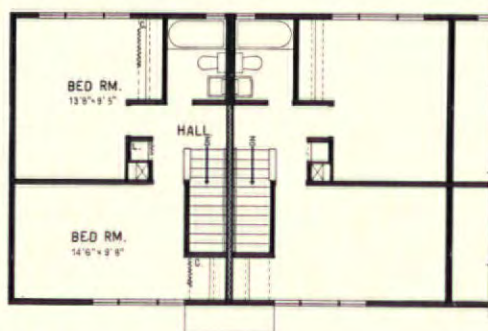
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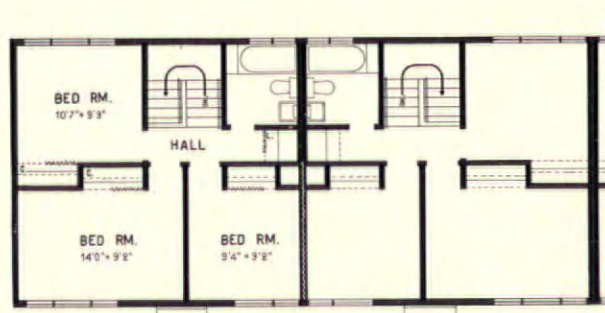


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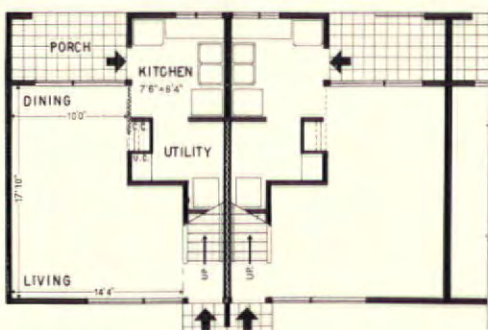
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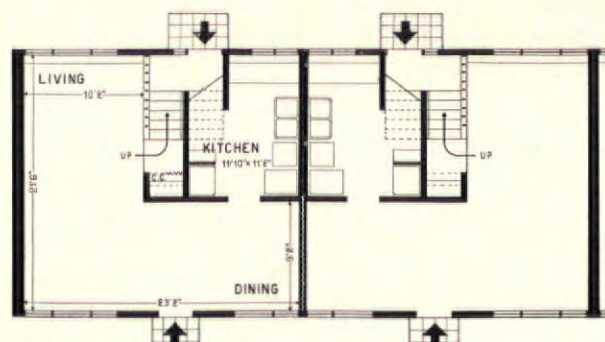
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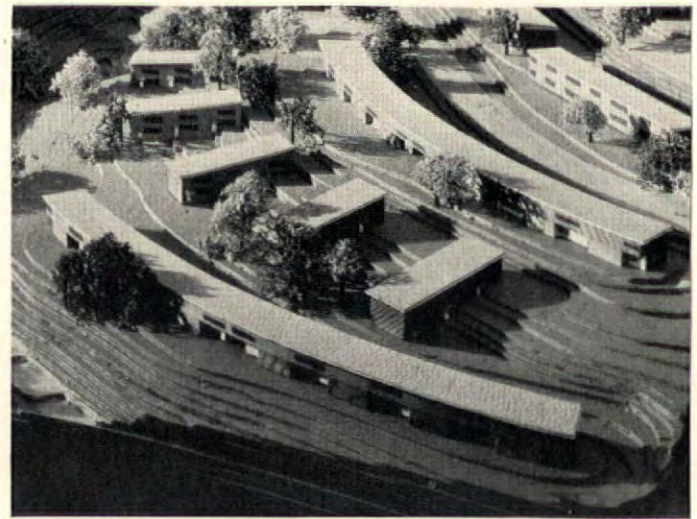
SECOND FLOOR TYPE IV



FIRST FLOOR TYPE III



FIRST FLOOR TYPE IV

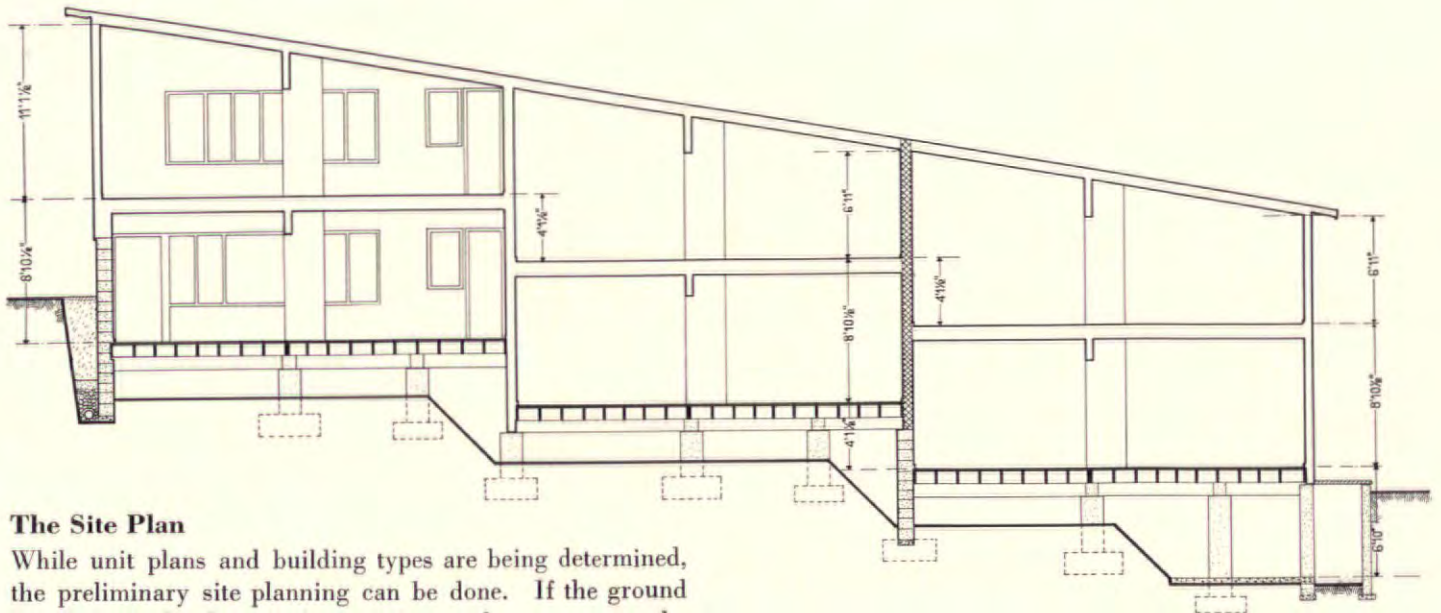


Ezra Stoller

Building Types

If the selected site is level, then greater emphasis must be given to the elevation studies of individual buildings and groups, for it is hard to avoid a monotonous arrangement. Rolling topography from this viewpoint has distinct advantages. Experience has shown that buildings can be adapted to slopes by the use of vertical breaks at no greater cost than that of level buildings on graded shelves.

In the planning of the Monongahela Heights project, previously mentioned, there evolved one building type, a 320-foot long curved structure which has been amusingly condemned by some housers with such descriptions as "the train of cars on a bend," "the bent barracks," etc. The same critics would probably go into ecstasies over the Royal Crescent at Bath and similar curved buildings of that period. The designers have no qualms as to the appearance of these buildings in the completed project, and suggest a glance at the model photograph to explain the reason for their use.



The Site Plan

While unit plans and building types are being determined, the preliminary site planning can be done. If the ground is relatively level, tentative service road patterns can be studied, with attention given to utility installations and to outside traffic approaches. Should the site be hilly, cross sections should be plotted immediately to check the grading studies, particularly from the standpoint of balanced cuts and fills. Blocks of wood or heavy cardboard, showing the tentative building shapes at scale, are useful.

All layouts which seem to meet the requirements should be analyzed collectively by the principals. Collaboration at this point is most important, for the plan must function properly in every respect. The elevations and spacing of buildings should not be fixed until the site plan has been accepted by the technical group, and subsequently by the Government's representative.

Utility Layouts

Ordinarily sewer layout precedes that of the other utilities. The sewer grades must be established in conjunction with the surface levels determined by the site planning studies. Final fixing of sewer flow levels should not take place until the site plan has been pegged. Meanwhile, preliminary layouts for gas and water lines can be prepared by the site engineer. During the site plan study tentative profiles of the streets and sewer drawings should be plotted and coordinated with the general grading pattern. Street intersections should be checked for workability.

Details, Specifications, Preliminary Estimates

The shortness of the design period makes it necessary to start the typical details and outline specifications along with other preliminary design work. Drafting an outline specification in the early stages and posting a copy in the office will be found useful.

Current restrictions on materials make planning difficult, and, to make matters worse, they keep changing and the choice becomes more limited. There is nothing the architect and specification writer can do about this problem except try to meet it.

One person must be placed in charge of estimating, and it will be his duty to secure the data from the various departments. Statutory limitations are so tight that a careful control over costs must be maintained continuously. For important phases of the work, more than one estimate is advisable.

Working Drawings & Specifications

Upon securing approval in writing of the preliminary development plans, the technical group must be ready for swift completion of working drawings. Previous emergency schedules will have left no time to spare. No extra time is given where an irregular site is involved, despite the extra engineering work needed, and the designers of a project under these conditions must be prepared for trouble.

Experience gained on the Glen-Hazel Heights and Monongahela Heights projects demonstrated that it was impossible to prepare adequate drawings in the time allowed, despite a tremendous amount of overtime. However, there was a great delay between the issuance of plans and contract awards. What could have been saved here could have been added to the working drawing period to good advantage. It seems both unreasonable and impractical for the authorities to exact such nerve-racking speed from the architects and engineers and, on the other hand, take their time in reviewing and passing upon the plans and contract awards. Here again, decentralization is one answer.

Bidding

The new contracts for war housing will probably require the architect-engineer group to handle bids. Whenever the project is developed under the direction of a local authority, some help can be expected from that agency's staff.

On the projects mentioned, bids were solicited from a comprehensive list of contractors from the eastern and central sections of the country. The good prices received more than compensated for the extra effort expended.

Supervision of Construction

Practically none of the projects have included architect-engineer supervision. Some injustice has resulted where, out of genuine interest in the job, architects have devoted considerable time during construction to aid in the settlement of problems without possibility of compensation. Separation of the designers from the construction phase has made the task of Government supervisors difficult and has sometimes added to the cost.

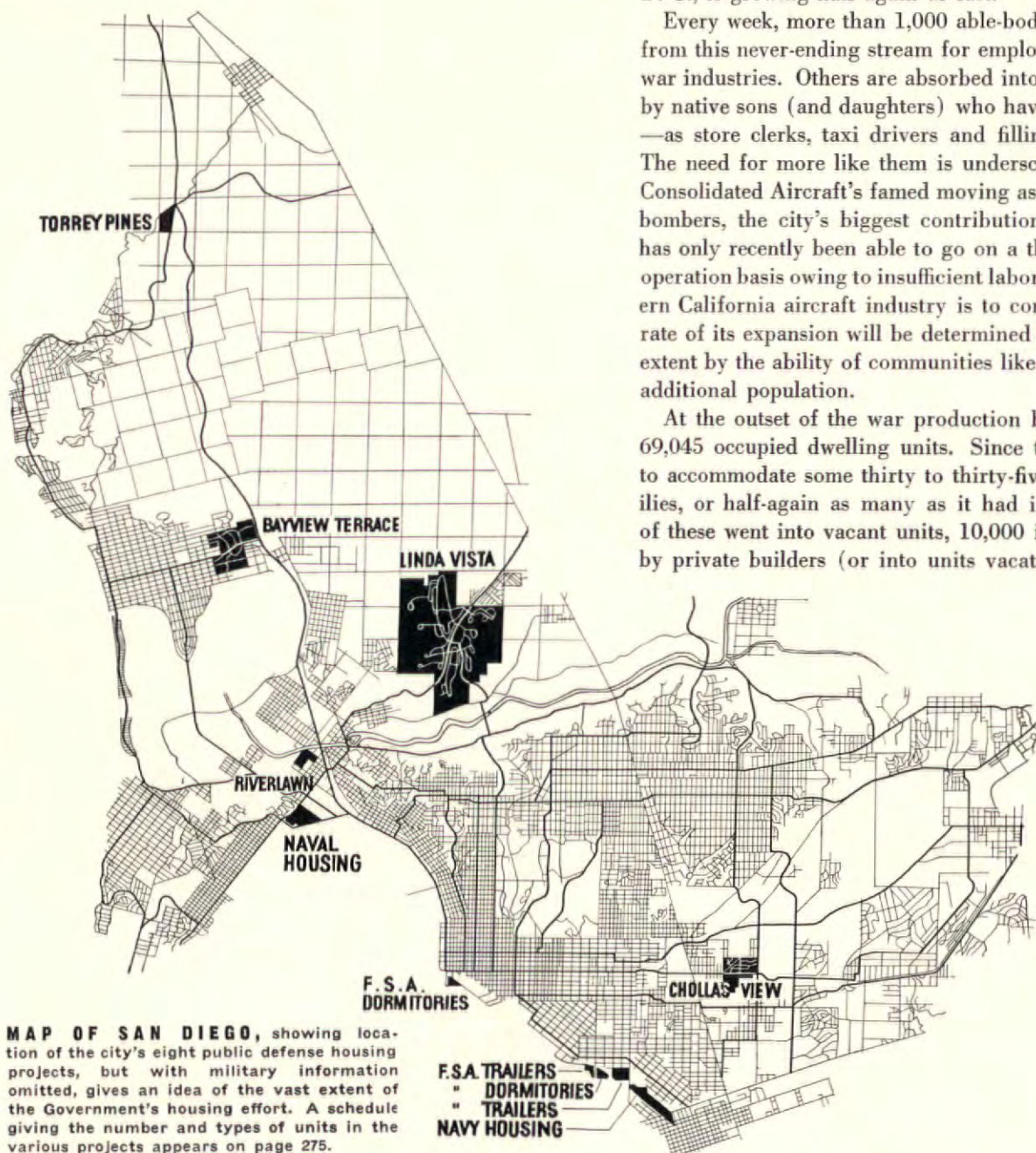
SAN DIEGO

with more defense houses than any other U. S. city, has still to feel its biggest housing pinch...a foretaste of the future.

For more than a year now, would-be aircraft workers and their families have poured into San Diego, Calif. at the rate of 1,500 a week. Since the 1940 census, the population of this once-sleepy little resort city has jumped from 203,341 to over 300,000—an increase of 50 per cent in two years. In the twelve months ending in mid-March 32,000 families, together with 6,000 single men, filed applications for housing with the city's Homes Registration Bureau, a clearing house set up to help newcomers find shelter. Today, with all of the slack of help vacancies and abnormal doubling-up long since played out, with public housing projects and trailer camps filled to capacity, with whole families sleeping in their cars (and even in "never close" theaters) for want of a better place to spend the night, the Gargantuan influx of the "Aviation Okies" continues unabated at the rate of more than 100 families a day. San Diego, a third the size of Washington, D. C., is growing half again as fast.

Every week, more than 1,000 able-bodied adults are chosen from this never-ending stream for employment in San Diego's war industries. Others are absorbed into civilian jobs vacated by native sons (and daughters) who have shifted to war work—as store clerks, taxi drivers and filling station attendants. The need for more like them is underscored by the fact that Consolidated Aircraft's famed moving assembly line for heavy bombers, the city's biggest contribution to war production, has only recently been able to go on a three-shift, continuous operation basis owing to insufficient labor supply. If the Southern California aircraft industry is to continue to expand, the rate of its expansion will be determined to an ever-increasing extent by the ability of communities like San Diego to absorb additional population.

At the outset of the war production boom San Diego had 69,045 occupied dwelling units. Since then, it has managed to accommodate some thirty to thirty-five thousand new families, or half-again as many as it had in 1940. About 5,000 of these went into vacant units, 10,000 into new houses built by private builders (or into units vacated by the purchasers



MAP OF SAN DIEGO, showing location of the city's eight public defense housing projects, but with public information omitted, gives an idea of the vast extent of the Government's housing effort. A schedule giving the number and types of units in the various projects appears on page 275.

of these new houses), and another 5,000 into publicly financed rental housing projects. The balance—ten to fifteen thousand families—is accounted for by doubling-up, alteration of existing dwellings to accommodate more families, by two FSA trailer camps housing 650 families, and by people moving away from the city. New housing, both private and public, has taken care of only about half of the influx to date, and public projects only about one-fifth.

With today's demand for housing greater than ever before, San Diego faces problems infinitely more drastic than any it has experienced in the past. All of the elastic factors in the housing equation have been stretched as far as they will go: there are few, if any, vacancies left, doubling-up can scarcely be carried further, stop-gap dormitories for single men have proved no solution. Meanwhile, the city is discovering that none of its new problems can successfully be ignored or wished out of existence. PBA's 3,000-unit Linda Vista project (dubbed in publicity releases "the largest housing project in San Diego"), for example, has its own water reservoir and sewage disposal plant but as yet no schools or shops. Result is that 120 of the houses are being used for elementary and

high schools, while the nearest stores—three miles away along narrow, winding roads—are almost impossible to reach because of traffic jams. A \$31½ million school building program, larded with \$3 million in Federal funds, is just getting under way, but it will barely have caught up with the present demand by September, when the need may be twice as great. Rents throughout the city have jumped \$5 to \$10 a month (the typical house which rented for \$30 in 1939 now brings, in 80 per cent of all classes, \$35 or more) and, with rent control impending, evictions are at an all-time high.

San Diego once rejected a proposal to form a housing authority on the ground that it had no housing problem. In the early stages of the war effort it had its normal quota of interested groups who opposed public housing in any form. Since last May, when employment at Consolidated leaped to 15,000 almost overnight, and then continued to increase by 500 to 1,000 a week, this opposition has wholly evaporated. There is no longer debate as to whether Government or private builders should do the city's housing job, but there is reason to doubt that both can do it together.

PRIVATE CONSTRUCTION

One of the most encouraging things about the San Diego situation, at least in the past, is the part played by private builders. Operative builders, working mostly on a sale basis, produced a record-breaking total of 5,793 houses in the city and its suburbs last year, nosing out the Government by 593 units. Most of these houses were small, two-bedroom bungalows suitable for low-income families. About half were financed through FHA, one-sixth under FHA Title VI.

It is probable that most of these units were purchased by natives of San Diego rather than by newcomers. Many of the purchasers may have been defense workers and most, in shifting to new quarters, undoubtedly vacated rental houses or apartments subsequently occupied by the migrants. However, since such construction is beyond the reach of most of the incoming population, it is no solution to the present problem. At its peak last year of more than 300 houses a month it satisfied only a tenth of the demand for additional housing, and this year's crop has fallen off to about two-thirds the 1941 volume. The bottleneck in private housing is obviously sales, and it can be opened up only by the appearance of financing for rental housing, which is naturally not available on a long-term basis, and not likely to earn a profit on a short-term basis at present rent levels and construction costs.

PUBLIC CONSTRUCTION

The Federal Government has built more defense housing in San Diego than in any other U. S. city, regardless of size. Last year saw the completion of three permanent projects, PBA's Linda Vista and the Navy's North and South Units, comprising 4,200 houses and flats; completion of one group of 75 demountable houses at

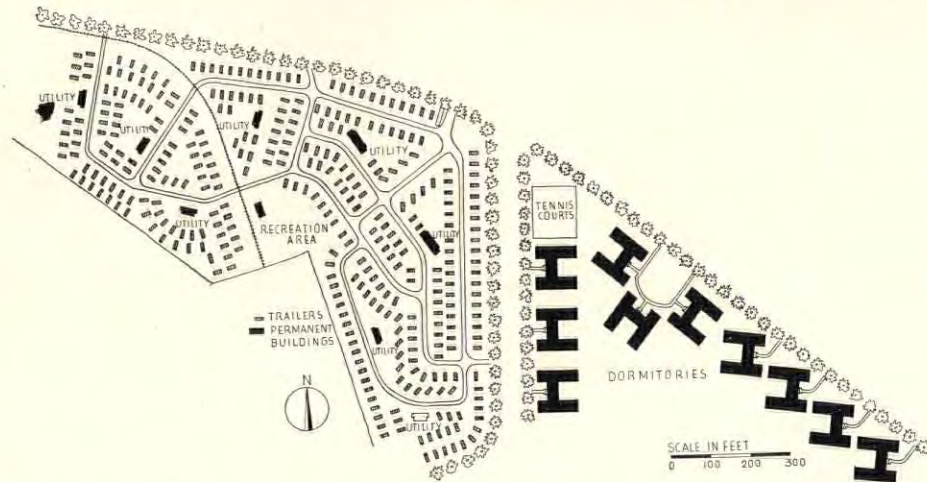
Torrey Pines and construction well under way on two more, Bayview Terrace and Chollas View, with 1,500 units. Also finished were three groups of dormitories with a capacity of 1,500 and two trailer camps housing 650 families. All of these projects are now complete and occupied, housing more than 6,000 defense workers and their families and about 600 single men.

The estimated average total cost of San Diego's first 4,500 public defense houses was \$4,355, as compared to a national average just under \$3,900. The difference is accounted for by the fact that at least two of the projects included in this total were so large as to constitute self-contained cities, with virtually the whole cost of utilities charged against the units. Thus at Linda Vista, where construction cost averaged \$2,900 a house, almost a third of the total contract was for grading, utilities, a sewage disposal plant (with capacity for another 3,000 families), a water reservoir and 500,000 gallon elevated tank, miles of roads and landscaping. Thus the paradox that the larger the project the greater the total cost per unit: as construction cost goes down, the cost of the more complete utilities rises even faster. This is not to say that large projects have proved inefficient; the contrary is true. It is simply a matter of including costs which must be borne by someone, sometime, in the total cost of the units.

For 1942, the new National Public Housing Authority has so far let contracts for the construction of 3,700 additional demountable units, to be located adjacent to the Linda Vista and Bayview Terrace projects and in a new location at Azure Vista. It is also expected that the Navy will build 600 more units, bringing the total of Government-financed housing, complete and scheduled, to 10,725 family units, plus dormitories.



NAVY housing at San Diego, known simply as the North and South Units, comprises 1,200 rental dwellings. The North Unit consists of 150 two-story, four-family buildings like those in the upper picture, the South Unit of 300 of the single-story, semi-detached houses shown below. Occupancy is restricted to enlisted men with families, and civil service employees of the Navy and Marine Corps. Rentals range from \$11 per month for one-bedroom units to \$35 for three-bedroom apartments, according to rank and to whether a rental allowance is included in the occupant's pay.



FSA built this combined trailer camp and dormitory group, and a similar adjoining project, as emergency housing for married and single war workers. The fourteen dormitories (right and below) accommodate 68 men each, rent for \$3.50 to \$5 per man per week. The 650 trailers are served by toilet and shower units like that shown below, and are grouped around a central play area.



Edward's



Vernon Heger



DORMITORIES

San Diego's experience with single men's dormitories is both interesting and illuminating. The city has plenty of dormitories—more than it can use—and as a solution of the war housing problem they are a failure.

Riverlawn, the largest group of dormitories, was rushed to completion last summer in 29½ working days at the insistence of Major R. H. Fleet, then president of Consolidated Aircraft, who complained that the housing shortage was holding up production at the Consolidated plant. It includes seventeen two-story buildings housing 34 single men each in 22 rooms. Eight of the buildings have until recently been occupied by the Army, leaving nine units, with a capacity of 306, for defense workers. At present, only 250 men are living in the project.

The balance of the dormitories were built in two groups by the FSA, comprising fourteen buildings with a capacity of 68 men each. Six of the buildings are now occupied by defense workers, and are about 90 per cent full; the remainder are used by NYA trainees, by the Army for a field hospital, and by the Navy for junior officers' quarters. Out of a total capacity of all three projects of 1,532, less than half is used by defense workers.

The reasons for the failure of dormitory construction to solve San Diego's war housing problem are not hard to find. In the first place, the city has plenty of rooms. According to Ensign Thomas Hamilton, U.S.N.R., chairman of the San Diego War Housing Commission, there never has been, and is not now, a housing shortage for single men in San Diego. This is another way of saying that the overwhelming majority of defense workers coming into the city are married men with families, or members of such families. Actually, San Diego's industries are drawing their war labor supply from the farms and ranches of Texas and Oklahoma, with smaller groups from Missouri, Kansas, Iowa, Illinois and Arizona. These farm families pull up stakes and come as a group. Single men without dependents, in these areas as in every other, are being drafted into the Army for war work of another kind. Even if it were desirable for them to do so, it would be economically impossible for these workers to leave their families behind.

It cannot be argued, however, that the basic approach to war housing represented by the construction of these dormitories has been proved wrong. The PBA dormitories, completed in less than a month, cost only \$580 per person, as compared with the average per-family cost of PBA's neighboring Linda Vista project of \$4,579—a spread of almost eight to one. Somewhere between these extremes there is obviously room for a form of emergency multi-family war housing which does meet the San Diego problem. The units just completed in Beaumont, Texas (p. 285) give a good idea of where this point lies.

CONCLUSIONS

San Diego is further from the editorial offices of THE FORUM in New York than any other city in the U. S. except Olympia, Wash. Any attempt to solve its problems across the intervening 2,440 miles is clearly fraught with danger. But, while it is not possible to propose a solution in local terms, it is possible to assay what San Diego's experience means in terms of the entire country—in terms of the war housing problem in the U.S. In attempting such an analysis it is essential to consider the following points:

►New construction, despite unprecedented volume, has so far accommodated only about one-half the city's increase in population, public projects only about one-fifth. Both have declined sharply this year. But new construction, from here on in, must bear practically the entire load.

►School and store building have fallen far behind the demand, and other community facilities are probably now inadequate to cope with emergency situations.

►This year's Lanham Act funds, which allow San Diego 3,700 dwelling units to meet a possible demand ten or even twenty times that figure, are already exhausted. What funds are available have strings attached which compel the construction of units suitable for sale—with consequent inefficiency.

►Private builders, under the present rules of the game, have no reasonable incentive to satisfy more than a tiny fraction of the demand for new housing—nor could they attempt to do so and stay in business. Their equipment and managerial ability, which last year produced more than 5,000 houses, is now being utilized at two-thirds of last year's rate of production, and probably one-tenth of capacity.

►The war housing problem is but a part of the bigger problem of war production, which patriotism demands we consider realistically and as a whole.

No one—least of all the editors of THE FORUM—knows exactly how much further the aircraft industry must expand in order to win the war. It may be that further expansion should take place primarily in the interior of the country rather than in its extreme southwest corner where so much activity already is concentrated. But no one, so far as we know, has decreed that the brains and skills and machines which are concentrated at this particular point should not be exploited to the utmost and multiplied if possible. In the absence of information to the contrary it must be assumed that the number of workers available to San Diego's war plants should go on increasing at least at the present rate. If they are not needed in this particular city they will be needed elsewhere, and the problem of providing them will be much the same in any case.

Note that the basic problem is one of providing more war workers, not simply of housing them. To illustrate: in San Diego an attempt has been made to get a larger

number of women to work in defense plants, but it has not been very successful. As the war effort gets into high gear, one effect all over the country will certainly be the employment of women in work of all kinds—directly as war workers and also as replacements for others shifting to war industry and the armed forces. But in order for women to go into industry big changes will have to be made in our normal habits of living. For instance, there will have to be provisions for caring for pre-school children and small children of school age away from the home outside of school hours. From Chicago last month came word of a woman war worker who had locked her children in the family car because she was afraid to leave them unattended. This can be more important than housing: construction of a single community house and nursery school may provide more war workers than several hundred defense houses.

Changes will also have to be made in housing. It is scarcely possible that San Diego will see built the number of dwelling units it seems now to need if these units must take the form of the houses at Linda Vista. The time has now come for San Diego at least to recognize that much more efficient housing is required: temporary, multi-family dwellings which use up less land, require less vital material for utilities and create fewer transportation problems. Standards for new housing must be lowered: the question of war housing standards can no longer be considered solely a matter of standards for new housing; rather, it must be thought of as a problem of maintaining the housing standards of the whole community, not at the highest possible level, but at the level which will contribute most to war production. It is of little consequence whether the living-room area of a war worker's house measures up to peacetime standards if two or three other defense families must occupy a single apartment or others must sleep in their cars.



Photos, FPHA



BAYVIEW TERRACE consists of 100 demountable dwelling units, grouped singly and in pairs and rows of four. Houses are set on wood post foundations enclosed with vertical redwood boards in the manner that has become almost standard in California's demountable house projects. One-, two- and three-bedroom units are provided, at rentals ranging from \$23 per month for the one-bedroom units to \$30 per month for three-bedroom units and free standing two-bedroom houses.

PUBLIC HOUSING PROJECTS IN SAN DIEGO

Project Number	Name	Agency	Number of Units	Type	Completed Units
4092	LINDA VISTA	PBA	3,000	Permanent houses	3,000
4094	RIVERLAWN	PBA	17D	Dormitories	17D
4096	BAYVIEW TERRACE	OADH	1,000	Demountable houses	1,000
4097	CHOLLAS VIEW	PBA	500	Demountable houses	500
4151	TORREY PINES	FWA	75	Demountable houses	75
NOy4382	NORTH UNIT SOUTH UNIT	NAVY	1,200	Permanent houses	1,200
S.D. D-1	KETTNER BLV'D				
S.D. D-2	28th STREET	FSA	14D	Dormitories	14D
S.D. 3Tr.	28th STREET	FSA	350	Trailer camp	350
S.D. 4Tr.	32nd STREET	FSA	300	Trailer camp	300
4099		NPHA	600	Demountable houses	
4251		NPHA	3,100	Demountable houses	
Totals, except dormitories			10,125		6,425
Total dormitories			82 (capacity 1,532)		82

SAN DIEGO

Throughout the country, people in all walks of life are preparing to make whatever sacrifices are necessary to win the war. In war housing, as in other fields, the problem is to see that these sacrifices are not made at the expense of the productive effort—specifically, to guard against the outbreak of epidemics, to maintain morale, to see that war workers return to their jobs rested and untroubled by domestic difficulties, to free the maximum number of able-bodied adults for work in industry. War housing must be viewed in this light, and not in the light of the special interests of the various groups concerned in its production, the prejudices of housing experts, or some Congressman's dream of a little gray home in the west. Above all, it is a community problem, one which must be solved in terms of each particular community and encompass all of the stresses and strains created by shifting population: hospitals as well as homes, schools as well as streets and sewers, transportation as well as topography.

The people of San Diego have received a good deal of help from the Federal Government in meeting the first shock of war expansion, but they can expect little more, at least for the present. The 3,700 houses which the FPHA is building in the city this spring will not solve its problems, nor will the present school-building program. Beyond this Washington is both unprepared and unable to go. The administration, along with most of the country, is still entangled in questions which San Diego has long since put aside—questions of private vs. public financing, official face-

saving, academic attitudes inherited from peacetime housing practice, paralyzing concern over post-war possibilities. It has divided and redivided a problem which must be tackled as a whole, creating a lag between plant expansion and housing, between housing and construction of schools, hospitals and stores, between the building of new communities and the provision of adequate highways and transportation.

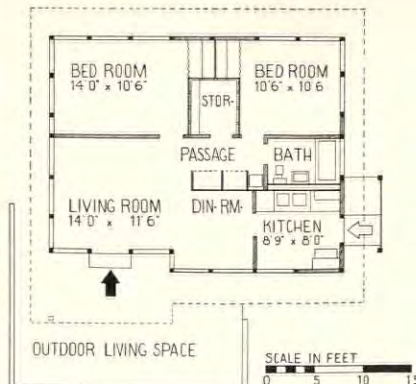
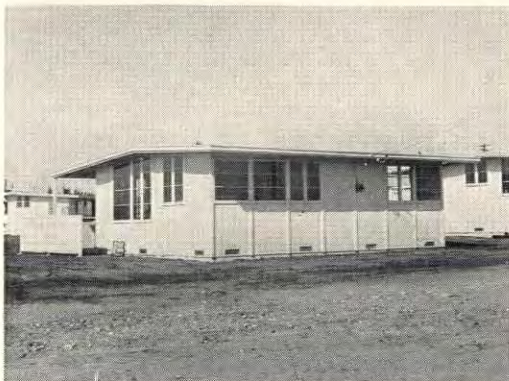
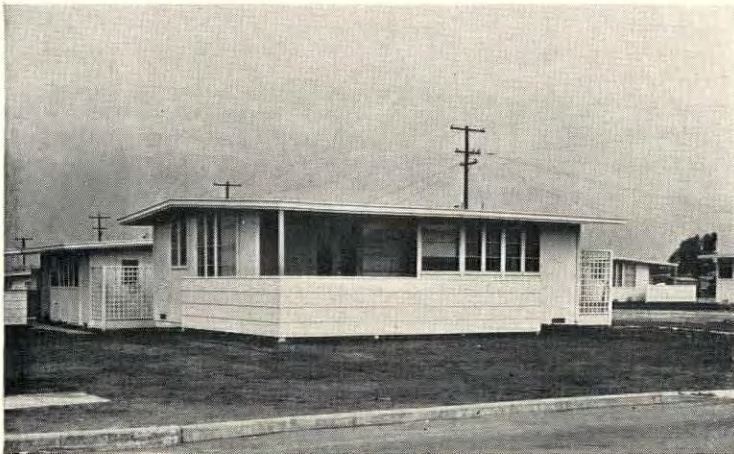
All these lags have interfered and are interfering with San Diego's contribution to the war effort. The only hope for their elimination is a master plan drafted by the city itself. In making this plan, the city's building professionals, who have the knowledge, imagination and skill required to do the job must play an important part. If necessary, this work should be started on a volunteer basis, without waiting for official sanction.

While a coordinated attempt to solve all of the city's manifold problems is the major task, something must also be done to provide more new housing than is now being built. It has already been suggested that this housing must take the form of more efficient units than have been constructed heretofore, something on the order of the remarkable \$1,645 units at Beaumont, Texas, shown on page 285. The question remains: who is going to build it?

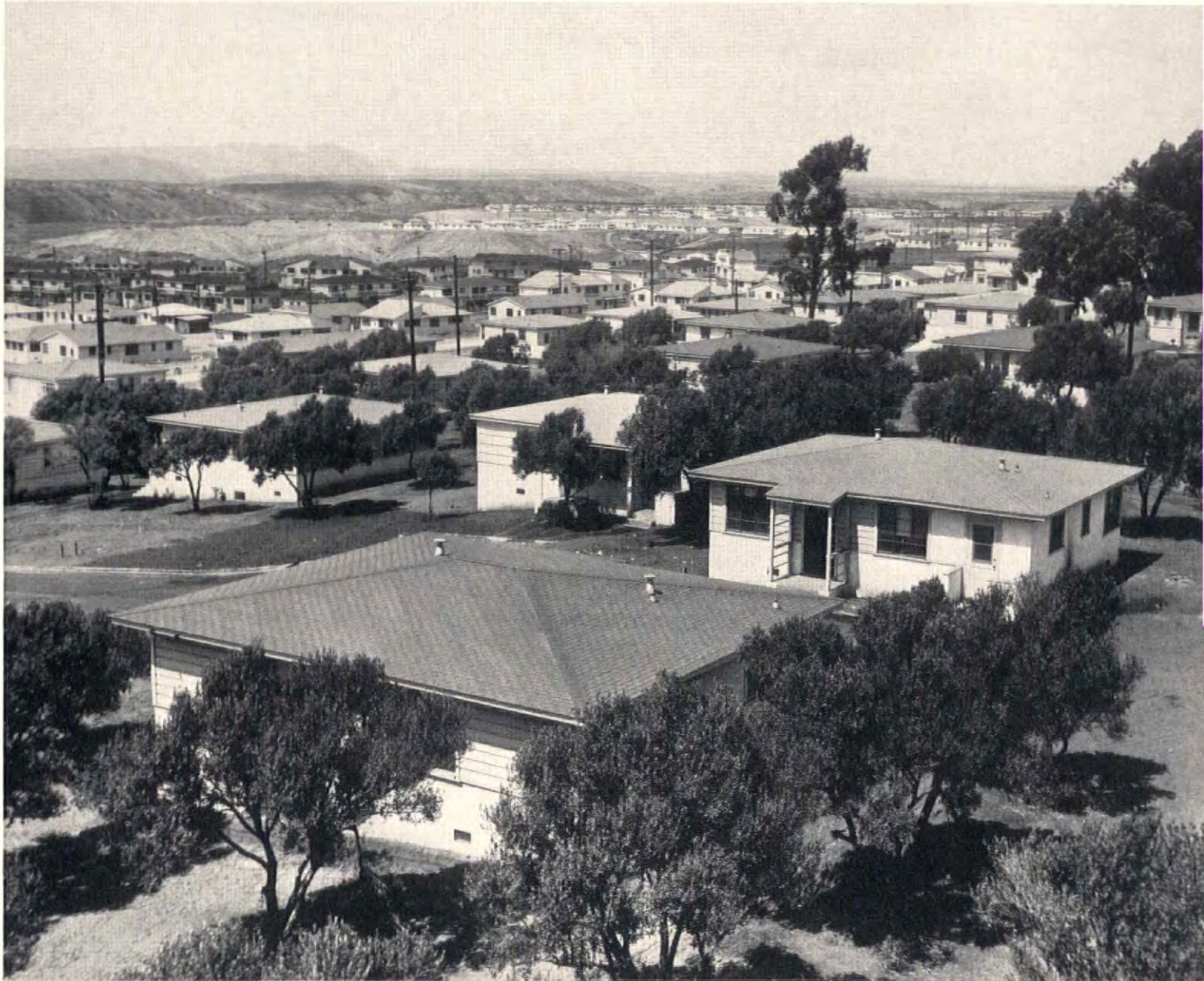
At the present time, the Federal Government is unable to do so because the funds authorized by Congress are exhausted and because these funds are earmarked for housing suitable for sale, preferably to individual purchasers. If the citizens of San Diego want more public housing they will have to put pressure on Congress to

appropriate more funds; if they want to get the maximum use from these funds they will have to see that the restrictions preventing efficient utilization of Federal housing money are removed.

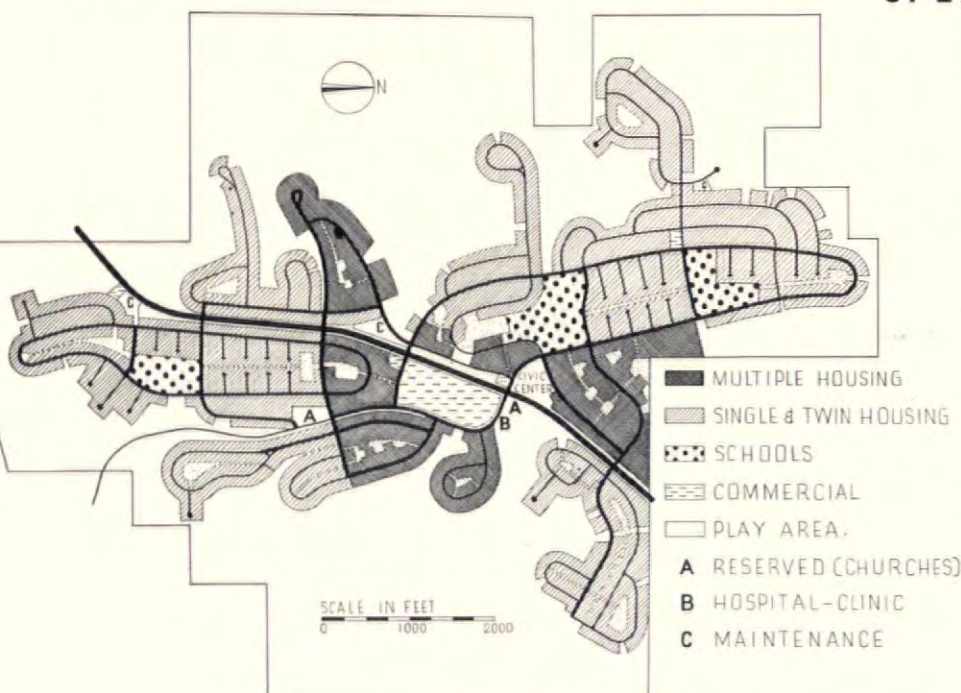
Their only other hope is locally financed construction. This hope is by no means forlorn. Given a local demand that is strong enough, a local understanding of the city's war production problem in all of its manifestations, a comprehensive locally developed plan to meet the city's wartime needs, given an understanding of the emergency character of the problem and the emergency means necessary for its solution, some way to solve it can undoubtedly be found. The crux of the situation, as usual, is financing. By the time this issue leaves the press, Title VI mortgage insurance will probably again be available for this purpose, but this, in itself, is not enough. Local private and/or public equity money must somehow be found for financing temporary, multi-family rental housing on a short-term basis, at a profit if possible; if not, through some form of subsidy. This is a job for the local building industry, which last year built more houses than ever before, to initiate and carry through—probably as a group, certainly in units larger than those represented by the typical builder, dealer or architect. It is a job of wartime conversion, conversion to war production. It is a job in which every patriotic building professional can and should play a part. In the last analysis, regardless of the presence or absence of Federal money, it is the only way in which San Diego's war problems can be solved.



CHOLLAS VIEW is a 500-unit project of demountable houses consisting of 400 semi-detached houses designed by PBA and 100 single-family houses planned by a local architect, W. P. Kesling, along lines considered more suitable to the California climate and living habits. Plan of the Kesling house, which includes outdoor living space and a good deal of glass area, is shown at the left. The Chollas View houses are occupied by war workers at rentals ranging from \$25 a month for a one-bedroom unit to \$30 a month for three-bedroom apartments and the two-bedroom, free-standing houses.

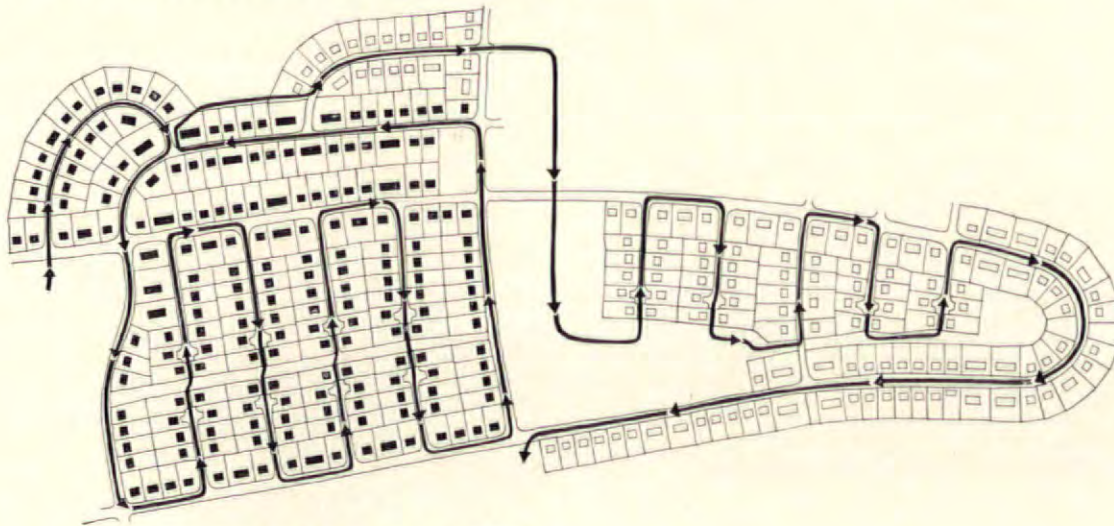


PUBLIC BUILDINGS ADMINISTRATION

C. D. PERSINA, ARCHITECT
S. E. SANDERS, SITE PLANNER

Linda Vista, San Diego, is the largest public housing project so far completed under the defense housing program. Its 3,000 dwelling units constitute a self-contained city, with its own water reservoir and sewage-disposal plant and sites for schools, community buildings and stores. The overall plan was determined by the topography of the irregular site, by an existing road traversing the property at an angle and according to the principle of loop circulation to prevent through traffic on residential streets. Buildings in the central portion of the project are multi-family, two-story row units; those around the periphery are single-family and semidetached one-story houses. While the total site area is 1,200 acres, only about half this area has been developed, giving a density of about five families per acre and leaving room for expansion which is now taking place.

3,000 PERMANENT UNITS



**McNEIL CONSTRUCTION CO.,
ZOSS CONSTRUCTION CO.,
GENERAL CONTRACTORS**

Linda Vista's 3,000 dwelling units were built as a group under single contract in 300 calendar days. An idea of the magnitude of this operation is afforded by project statistics: 45 miles of water and sewer pipe laid, 24 million bd. ft. of lumber used, 810,000 sq. yds. of lath and plaster applied, more than 2 million lbs. of nails consumed. At the peak of construction, 6,680 men were employed in the field and shops, supervised by an administrative staff of 400. The handling of a single item, such as hardware, required warehousing and distributing facilities equivalent to those of a wholesaler serving a medium-size city.

Wall and partition panels were prefabricated on benches at a central point at the rate of a house every fifteen minutes, all other lumber pre-cut. Similarly, items like electric wiring, rough plumbing, trim, etc., were cut to length in central shops, partially assembled, and packaged for

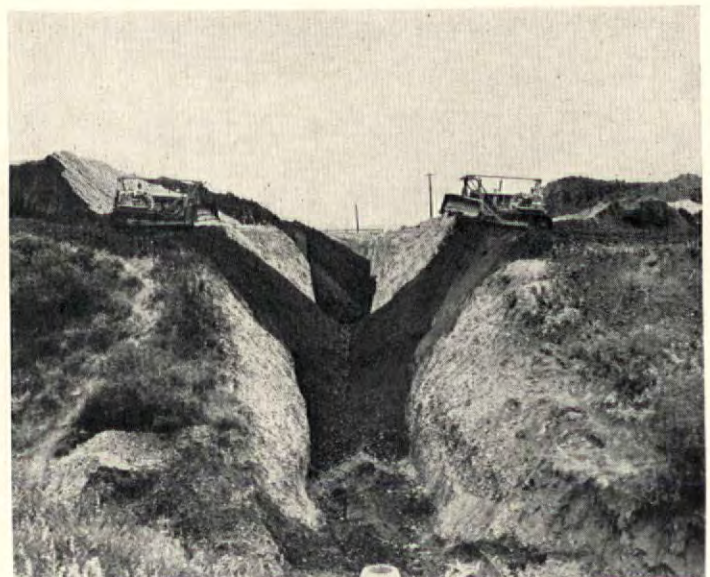
delivery to each house at the proper time. Site operations were split into eight sections, with several hundred houses in each section. In each of these, work followed a planned and scheduled line from one corner to the other, creating an assembly line along which the workmen, rather than the work, moved in a continuous flow. Construction of each house on the line was divided into 45 operations from the survey (operation 1), excavation (2), footing forms (3), pouring concrete (4), etc., to sanding floor (41), sealing floors (42), house numbers (43), bathroom accessories (44) and shades (45). Some of the operations took a day to complete, others but a few minutes. The time allowed for the erection of prefabricated walls and partitions was twenty minutes, for applying plaster lath twelve minutes. In no case was an operation begun until all previous steps on the particular house had been completed, and no two trades

were ever at work on any one house at the same time.

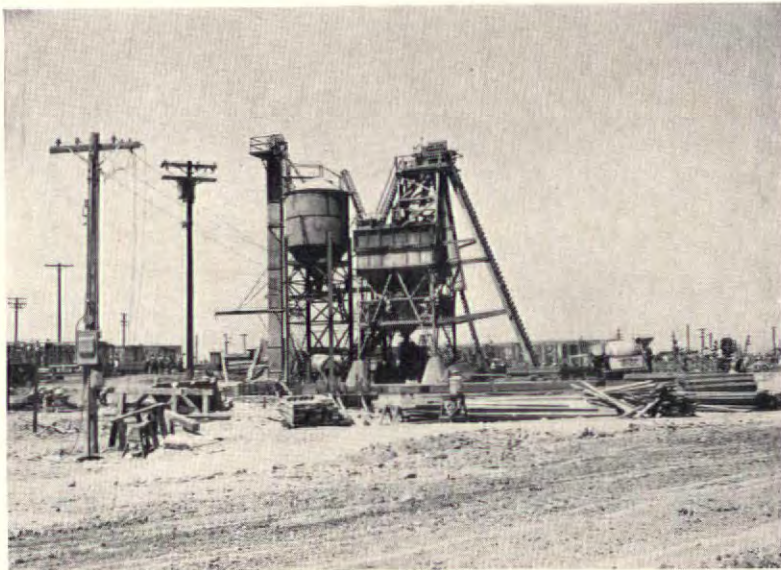
The construction schedule allowed for a definite interval between each step in the building of each house, so that lagging operations could be detected and speeded up before they had fallen so far behind as to hold up the subsequent crew. Progress of each operation was checked daily in the field and recorded in the chart room on a plot plan and straight line chart for each section and on a master chart for the entire operation. The charts on the opposite page show how these records were kept and how smoothly the work proceeded. The first house was completed about 40 working days after construction began. Thereafter, houses were finished at the average rate of 40 per working day, with work proceeding on about 1,200 units simultaneously, until the entire 3,000 were complete and accepted.



MECHANICAL TRENCH DIGGER



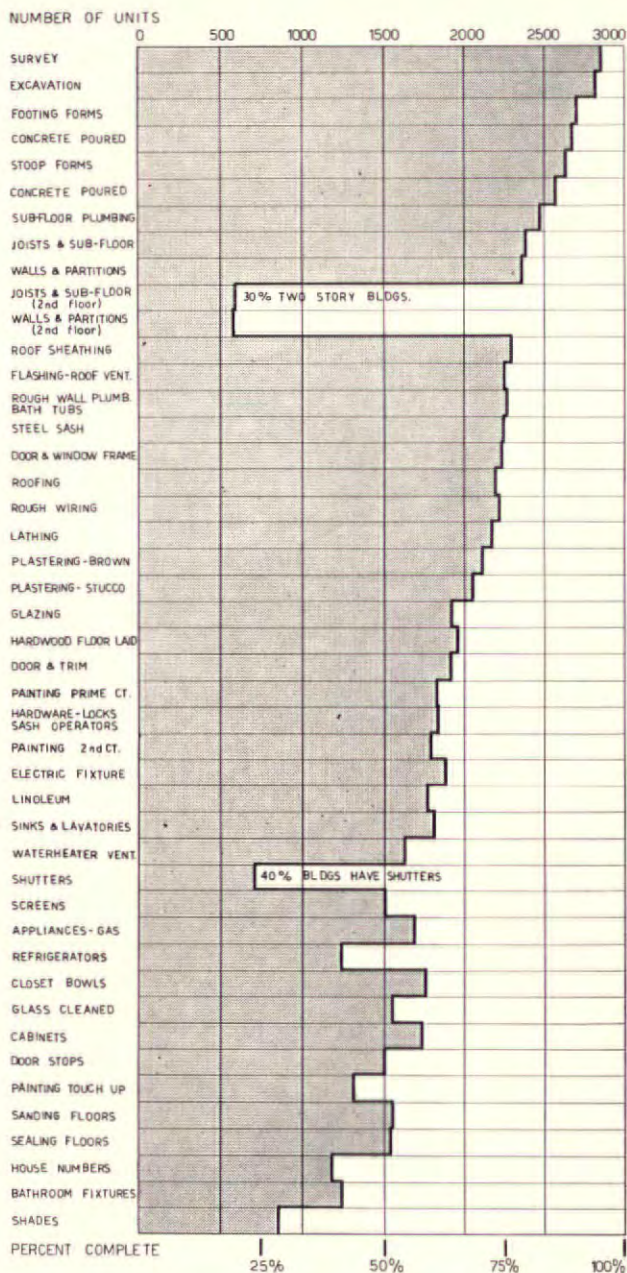
BULLDOZERS PLACING BACK FILL



CONCRETE BATCHING PLANT

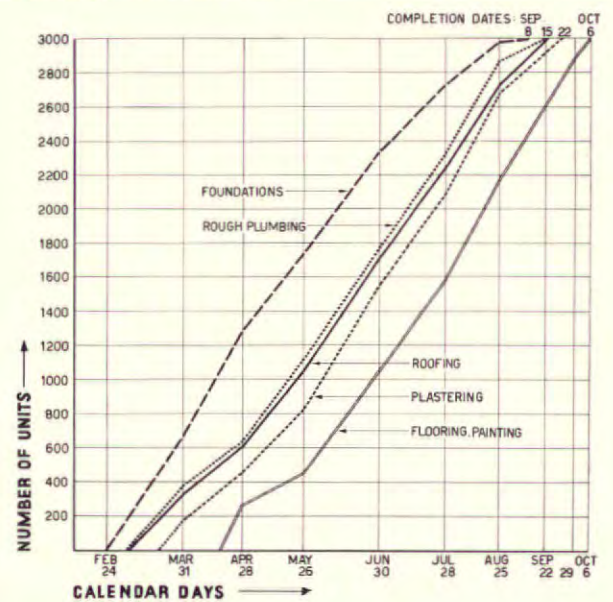


POURING FOUNDATIONS

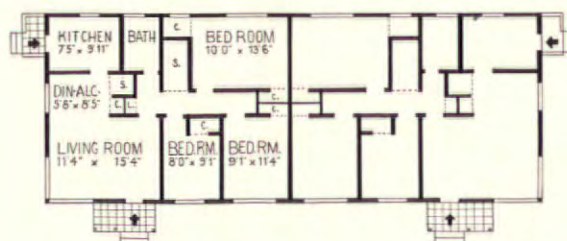
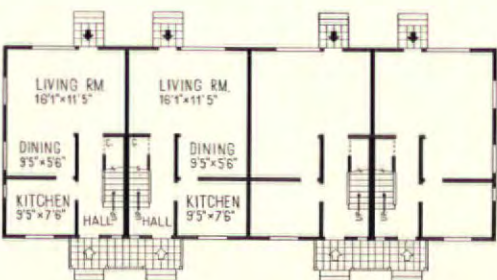
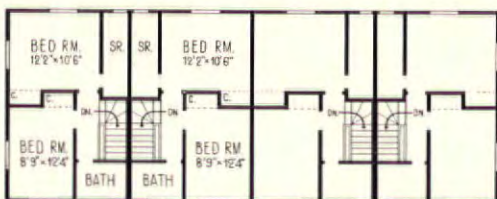
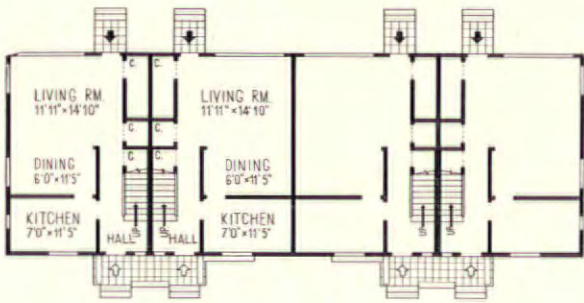
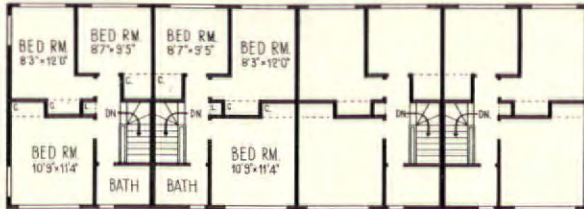


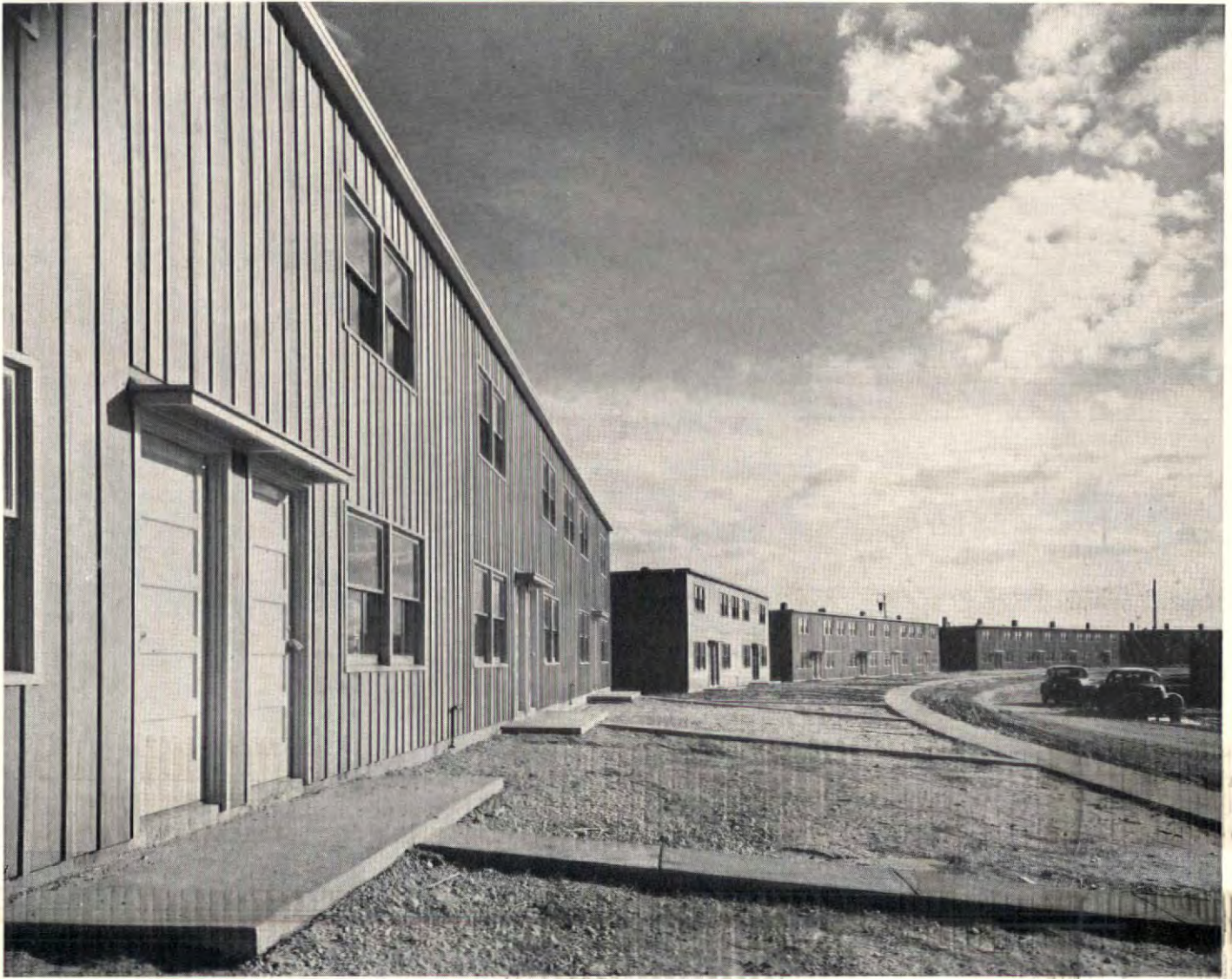
TYPICAL PROGRESS CHART

Showing status of work as of July 8, 1941.



Housing units range from the six-family row structure shown at the right to the single family bungalows below. Two-story unit plans employ the front kitchen arrangement, a highly satisfactory solution of the two-entrance row house which has not often been exploited in public housing work. Exteriors, while somewhat awkward, show a commendable effort to work out an idiom in terms of the prefabricated frame walls, shed roofs and large windows.

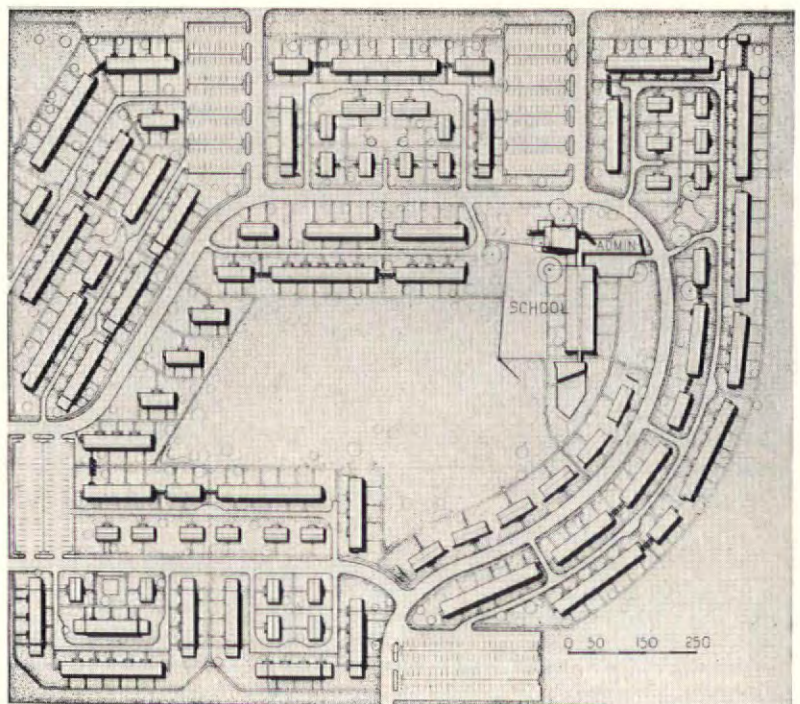


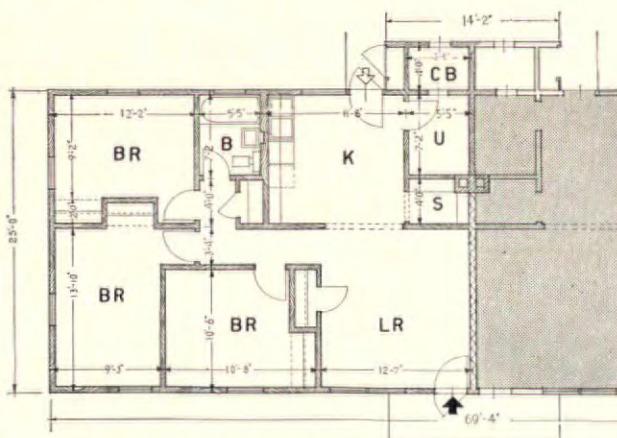
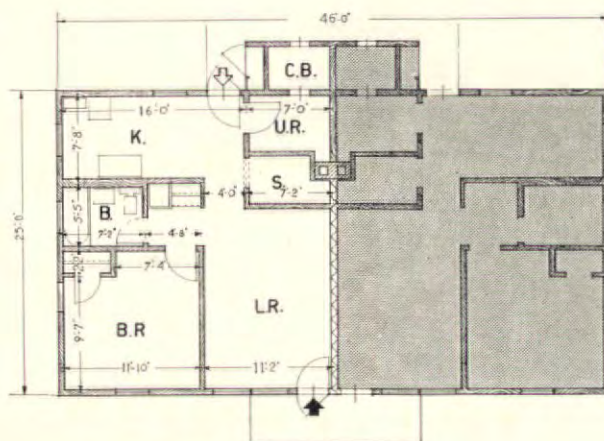


ELIEL AND EERO SAARINEN, ARCHITECTS
ROBERT F. SWANSON, ASSOCIATE ARCHITECT
O. W. BURKE CO., GENERAL CONTRACTOR

First published in the group of outstanding architect-designed defense projects shown ARCH. FORUM, October 1941, this 476-unit development was at the time commended for its excellent, carefully studied *neighborhood* plan. The outstanding merit of the arrangement, now seen completed, is the way in which it provides more-than-usual variety and a feeling of separately planned groups within the project as a whole, while at the same time retaining an overall unity. While this aspect of the plan has worked out very successfully, the architects now offer this criticism of another of its features, based on their observation of the completed development:

"... the perimeter of the project, consisting of two-story row houses, gives a too-solid effect. This is especially true since the project is located on the outskirts of a small town of typical mid-western single family dwellings. We feel that should we now redesign this project we would probably place the one-story building on the perimeter and concentrate the two-story row houses around the central play area. This would have given a happier transition between the surrounding community and the project."



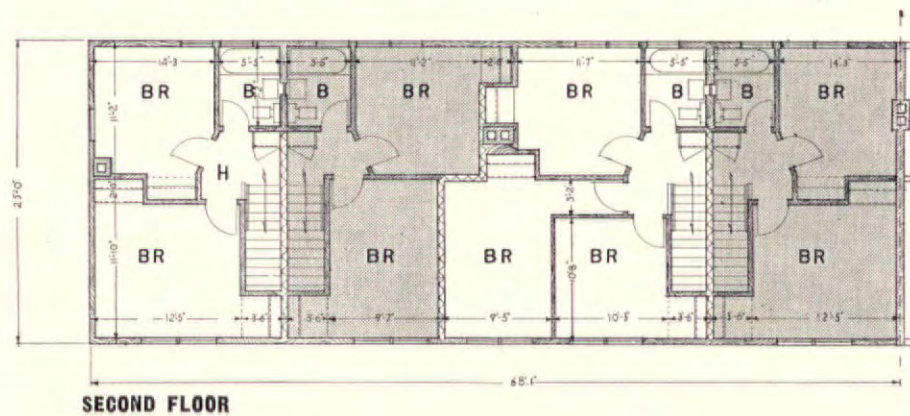


FPHA

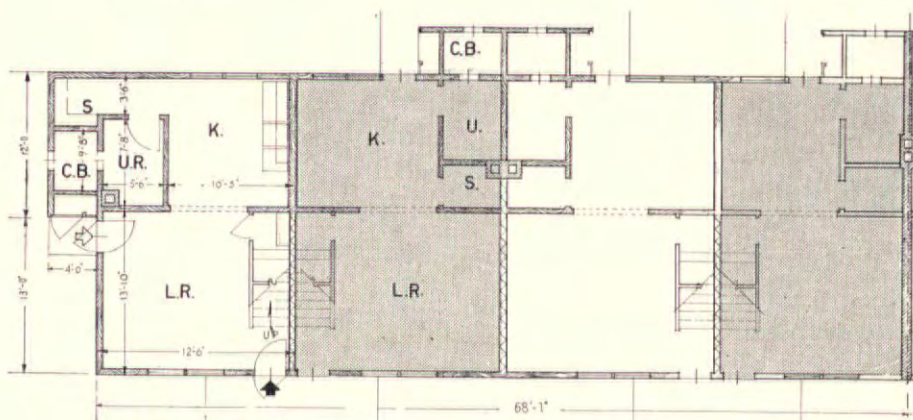


U. S. HOUSING AUTHORITY

FPHA

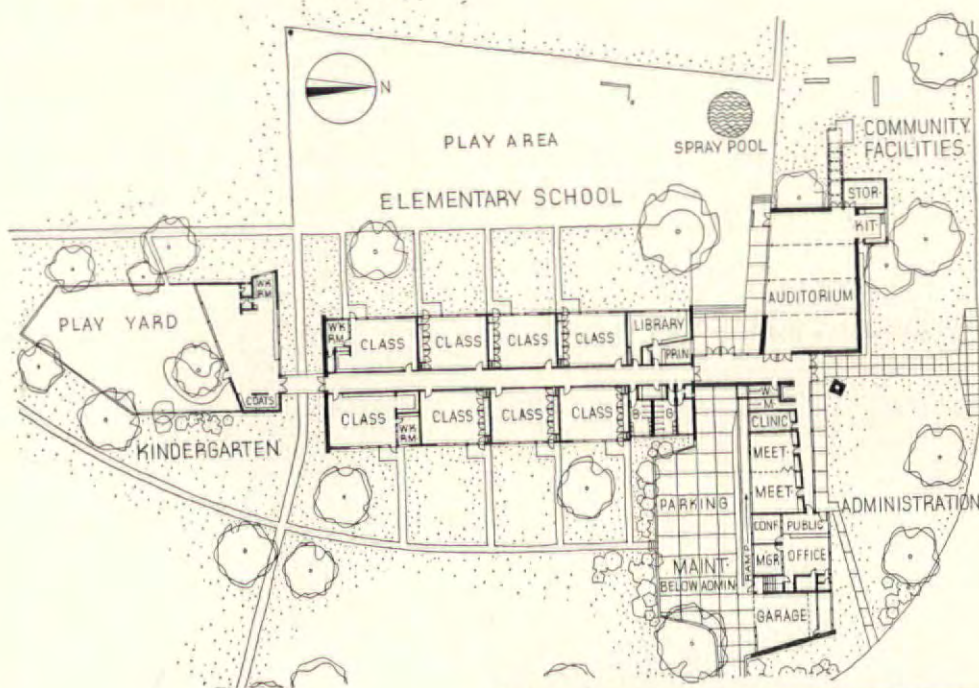


SECOND FLOOR

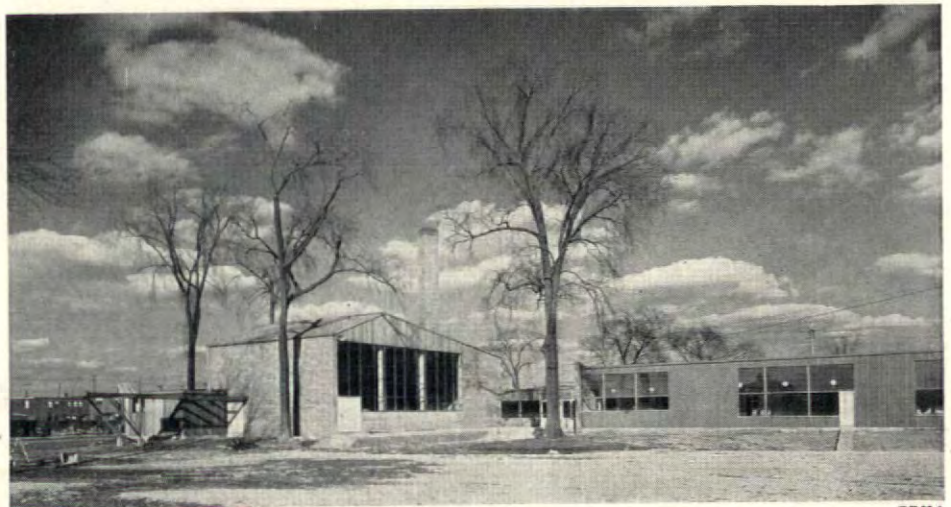


TWO-STORY UNIT

The effect of the curved streets and other features of the site plan on the appearance of the houses is well illustrated by the two large photographs above. The houses themselves are sheathed in redwood, oiled with different stains of red, yellow and green for variety and accent, and have been kept dark so as to prevent the windows from giving the pock-marked effect sometimes found in projects with light walls. One-story units are semidetached houses of one and three bedrooms each, two-story units are two and three bedroom row houses. Roofs are flat or slightly sloping.



Inclusion of a school within the project is an unusual feature and is said to be very successful. The building has been built in conjunction with the community house in such a way that they function together and are complementary to one another. The administrative offices of the project are also included in the building.



FPHA



CONSTRUCTION OUTLINE

STRUCTURE: Brick wall exposed on interior. Frame walls with B. & B. redwood, sheathing, Johns-Manville, studs, plaster or white pine. Floors—Moultilite asbestos tile, Thos. Moulding Tile Co.

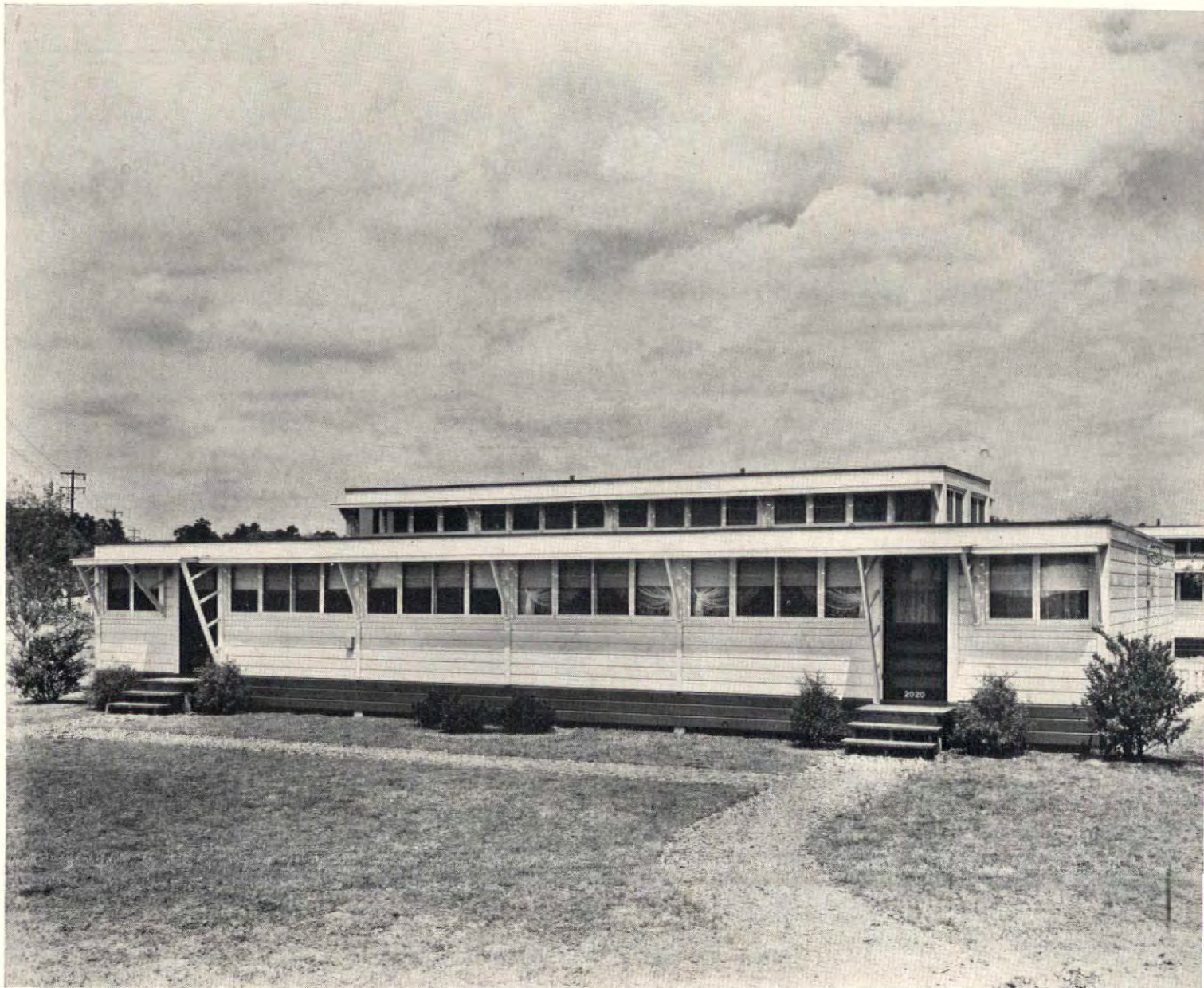
ROOF: Built-up, 15 yr.

INSULATION: Roofs—Red Top, U. S. Gypsum Co.

WINDOWS: Sash—Detroit Steel Products Co. Glass—double strength, quality A and plate. Glass blocks—Owens-Illinois Glass Co.

PLUMBING: American Radiator-Standard Sanitary Corp.

HEATING: Hot water system, forced. Boiler—Kewanee Boiler Corp. Coal stoker—Stokol, Schwitzer Cummins Co. Radiators—U. S. Radiator Corp. Thermostats—Minneapolis-Honeywell Regulator Co. Water heaters—Taco Heaters, Inc. Pumps—Bell & Gosset Co.

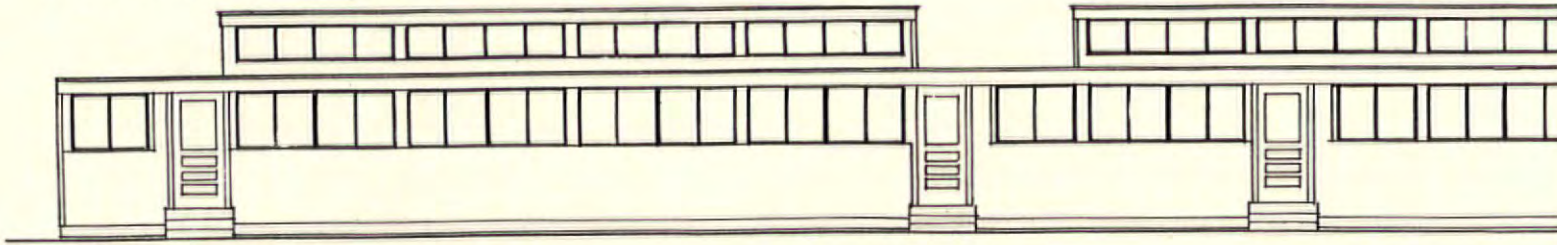


Photos, Elwood M. Payne

**DAVID R. WILLIAMS, ARCHITECT, ROY A. WORDEN, KARL R. SCHWARZ,
WILLIAM P. JONES, ASSOCIATES
WALTER C. METSCHKE, SITE PLANNER**

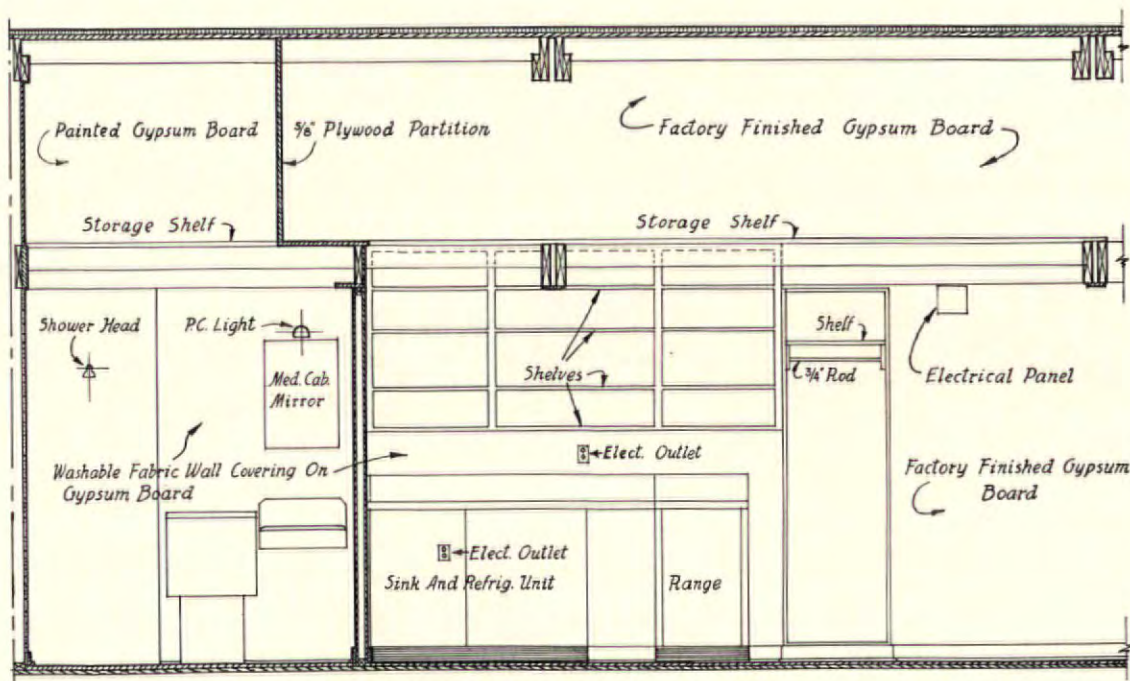
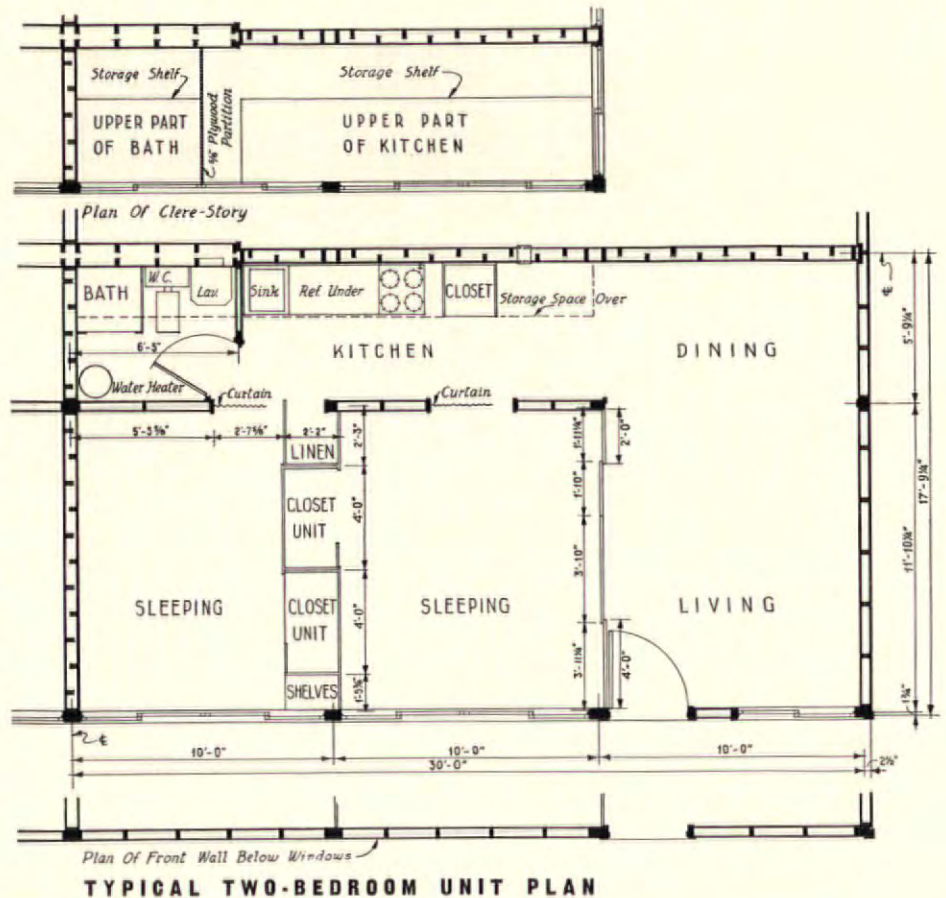


The story-and-a-quarter frame building shown above is far and away the biggest news of the war housing program. It accommodates four families back to back and side by side in a space $35\frac{1}{2}$ by 60 ft., with plenty of room, an abundance of light and air and more than usual privacy. It cost, *complete with utilities and site development*, \$6,580—or \$1,645.15 per family. Its basic two-bedroom unit has been successfully converted into workable, interlocking one- and three-bedroom pairs without changing the fundamental structure or altering the fenestration. It is frankly temporary, fully demountable and completely flexible. It is by no means perfect, but it is the nearest thing to an answer to the war housing problem that has been seen to date—an answer, be it noted, arrived at by the avenue of design.

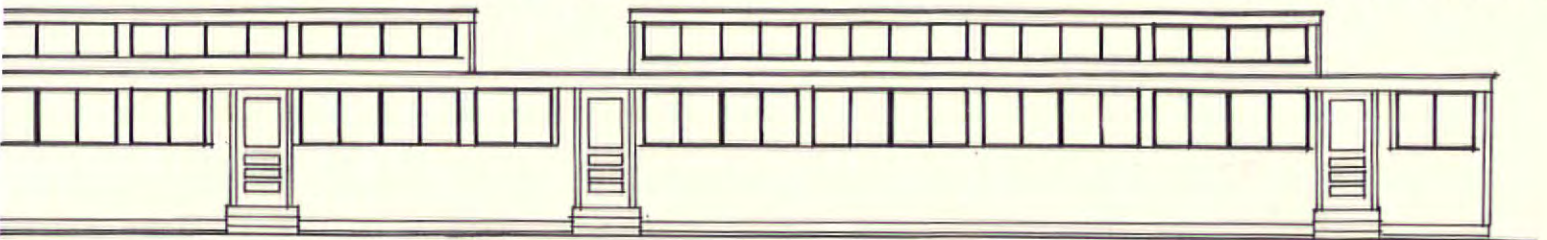


Basis of the Beaumont design is a clerestory or monitor running down the middle of the unit and furnishing light and air to the center of the building, thus permitting the organization of apartments in blocks of four with utilities concentrated in the center. As indicated in the typical unit plan at the right, the "working" portion of each apartment—the bath, kitchen and dining space—is placed beneath this clerestory and serves also as a corridor connecting the outside rooms. These are almost equal in size and are divided from one another by movable, prefabricated closet units and partitions which can be shifted to produce other arrangements. There are only two doors in the entire apartment: the entrance door and the door to the bath.

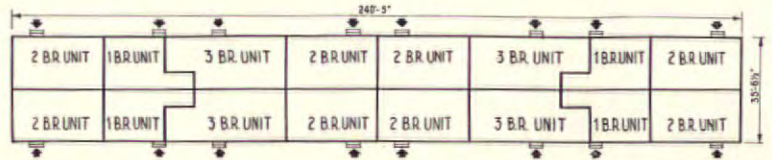
It is the intention of this plan to provide reasonably adequate shelter as quickly as possible and at the lowest possible cost. In this it is admirably successful. The cost figures speak for themselves. As for the quality of the shelter provided, it is in some respects better than average: lighting and ventilation are exceptionally good, the space for living and dining better organized, and better related to the cooking unit than in many larger units. Certainly it affords living accommodations equal to many high-priced city apartments.



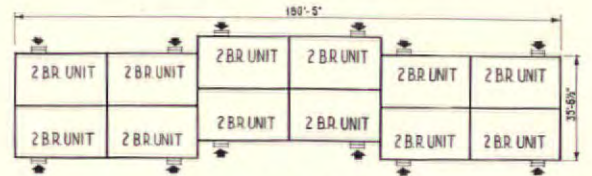
ELEVATION OF KITCHEN AND BATH UNIT



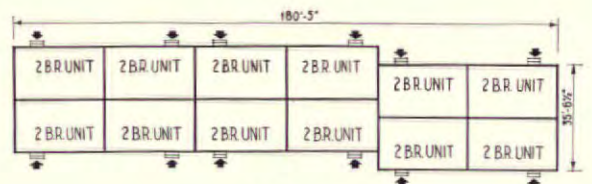
In the 600-family Beaumont project, this basic plan has been used for row-type buildings housing four to sixteen families. The site plan (below) has been developed on a minimal basis, but with an open area at the center and children's play yards distributed throughout the project. Building type plans (right and below) show how one- and three-bedroom apartments are created by shifting the living room of one unit to the center space normally occupied by one of the bedrooms, and then borrowing part of the space vacated for a third bedroom for the adjoining unit. The balance of the space, shown as a "lug" on the one-bedroom unit, is used as a sleeping alcove which gets its light and air from the clerestory.



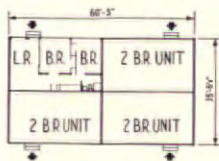
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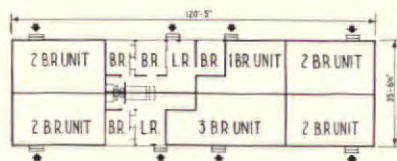
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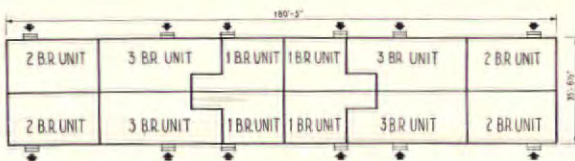
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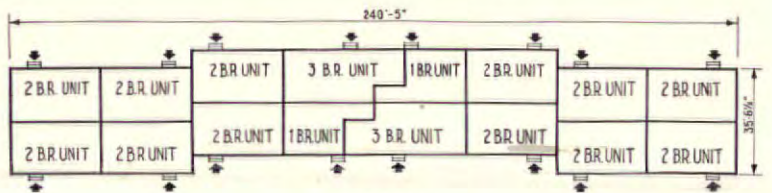
TYPE "A"



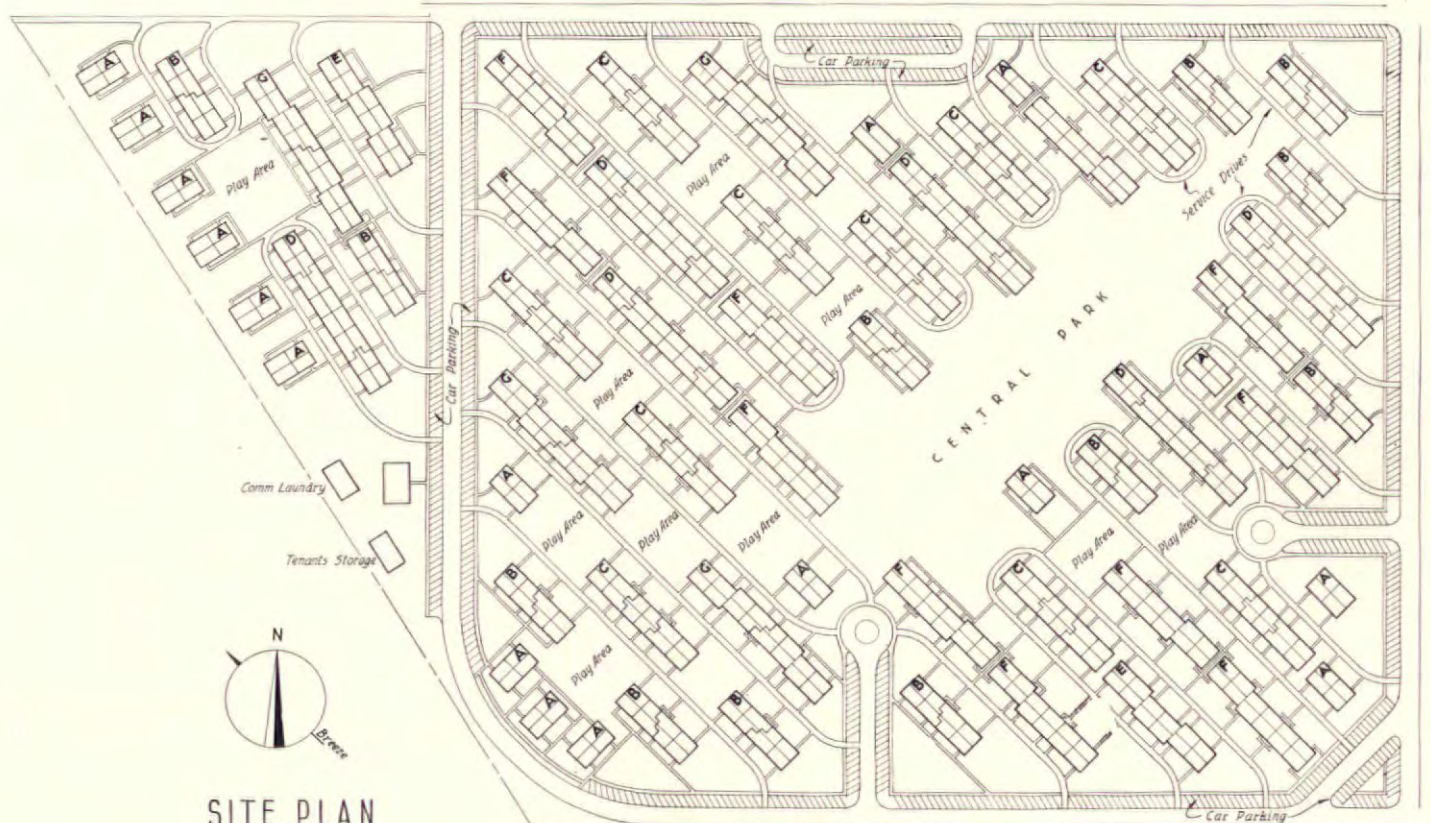
TYPE "B"



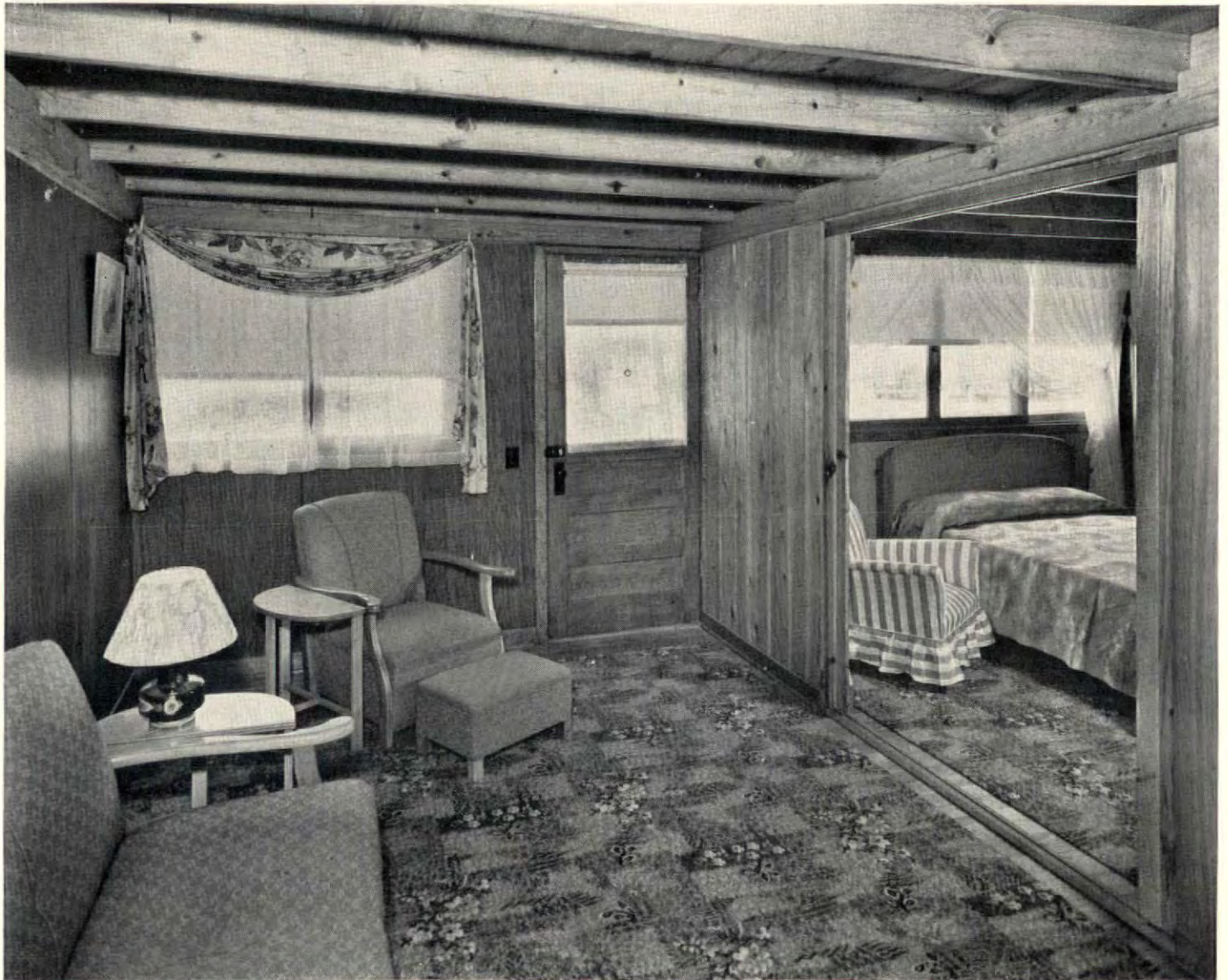
TYPE "C"



TYPE "G"

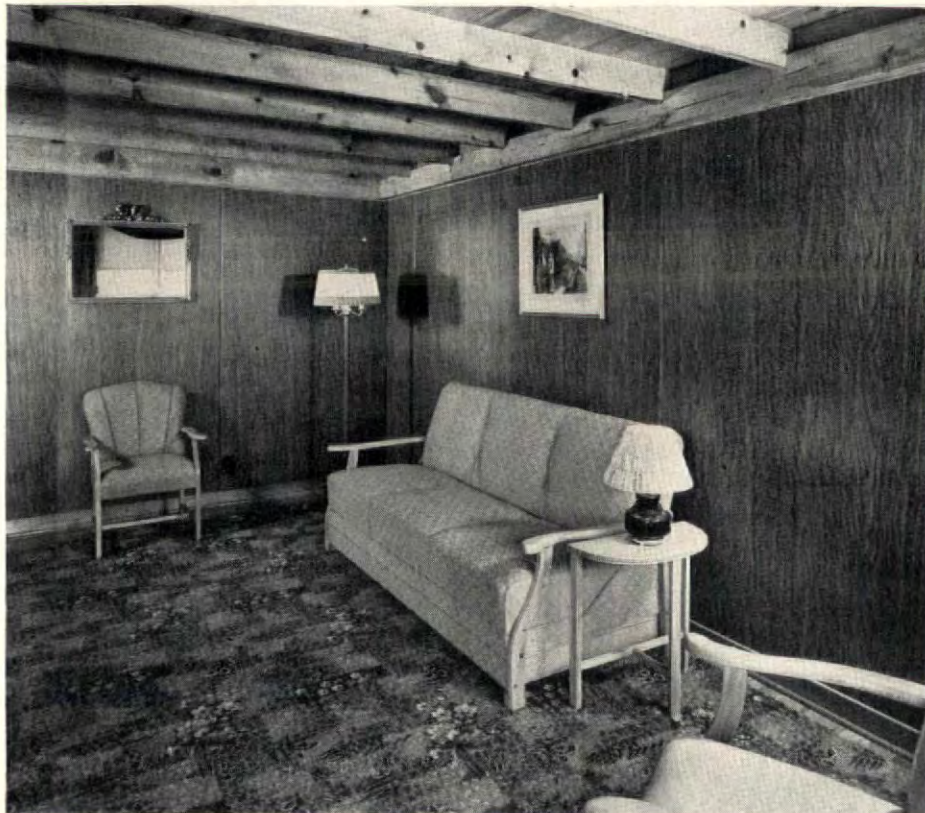


SITE PLAN

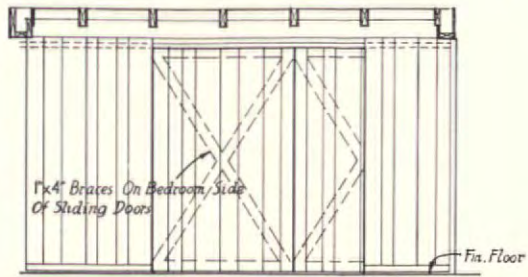


Photos, Elwood M. Payne

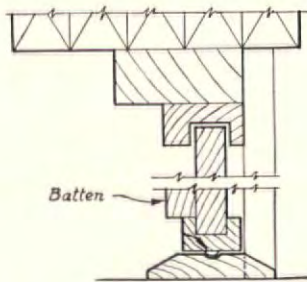
LIVING ROOM



Interior finish is economical but attractive. Fixed living room walls are factory-finished gypsum board, movable walls and partitions are pine. Exposed beams and roof boarding on the ceiling add to the apparent height of the rooms and provide decoration at no cost whatever. This use of an open ceiling, rather daring in view of the blazing Texas sun, is justified by the architect on the ground that whatever heat gets through the roof insulation is quickly dissipated and carried off by the room air through the windows, instead of remaining trapped in the space between roof and ceiling and creating a radiant panel. Thermometric tests on hot days have already proved this to be the case: in the few houses with finished ceilings the temperature of the air in the upper part of the room rose to a point several degrees higher than a corresponding point in the houses with exposed beams at the hottest part of the day. For winter comfort, free-standing space heaters, without vents, are included.



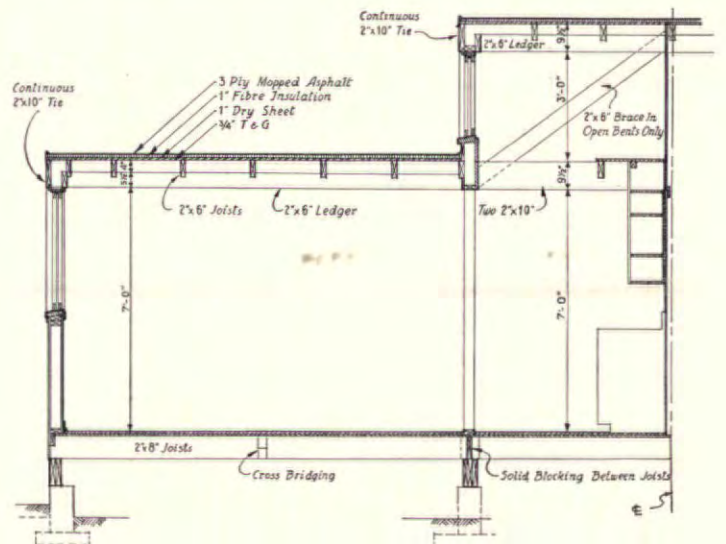
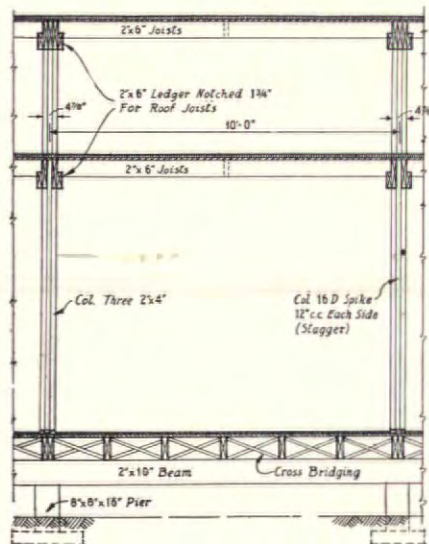
ELEVATION OF SLIDING DOORS



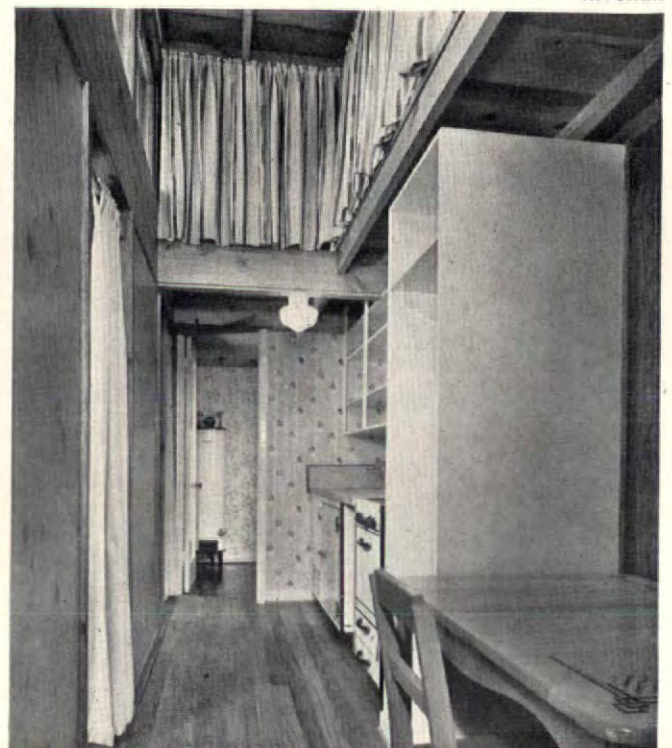
DETAIL



BEDROOM

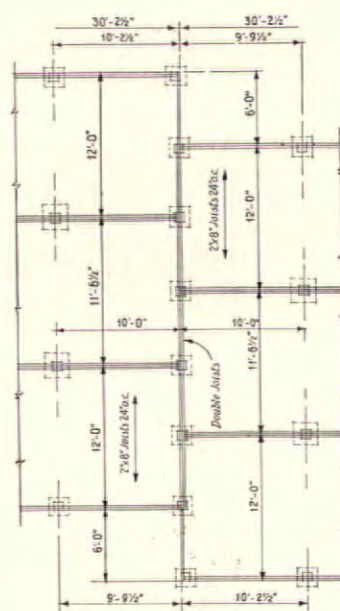
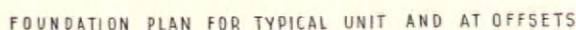
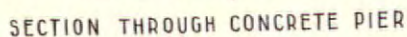


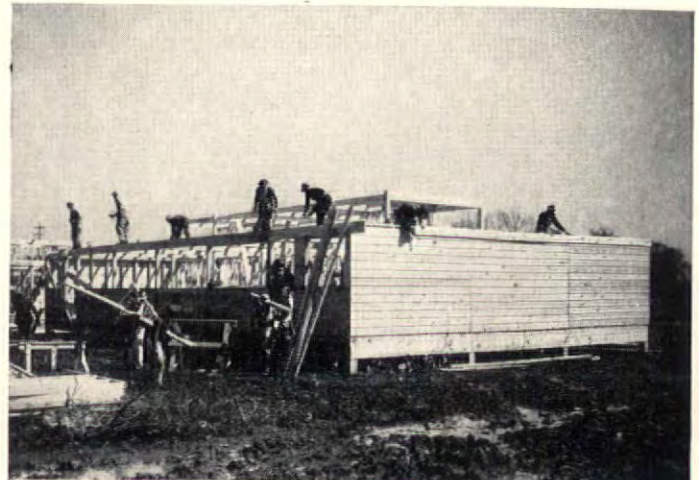
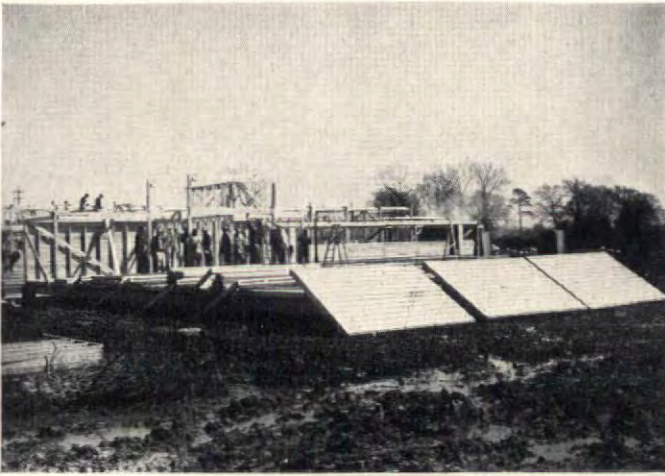
KITCHEN



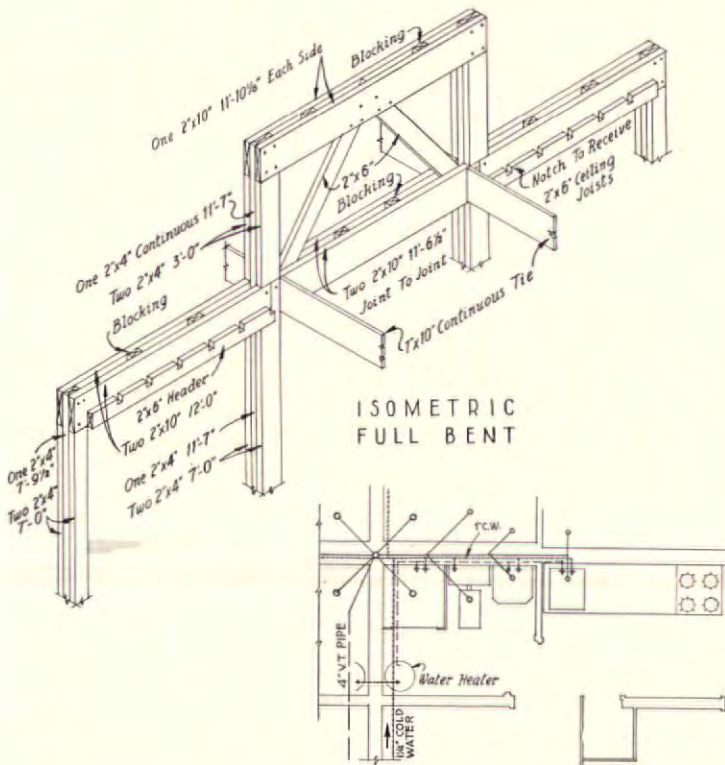
The houses were built in panels fabricated in a tent at the site and set into an articulated wood frame. Use of a frame with regularly spaced columns was a basic consideration in the design of the units and accounts for their extreme flexibility. Construction of the 600 dwellings was completed on April 25, two months and 23 days after work began, and 189 units were occupied. A careful field check on costs made at that time showed that they had run 15 to 20 per cent under the original estimates, bringing the net unit construction cost down from an estimated \$1,462 to \$1,188.

	LABOR	MATERIAL	TOTAL
Foundation	\$ 7.50	\$ 5.00	\$ 12.50
Prefabrication	36.00		36.00
Field Carpentry	84.00	242.50	326.50
Finished Carpentry	55.00	137.00	192.00
Insulation	5.50	38.80	44.30
Composition Roofing	10.80	21.25	32.05
Sheet Metal Work	5.00	2.75	7.75
Asphalt Tile Floor (Bath)	2.00	2.00	4.00
Finish Flooring	15.00	59.00	74.00
Painting & Wall Covering..	40.50	31.00	71.50
Kitchen Cabinets	4.50	8.25	12.75
Medicine Cabinets50	2.00	2.50
Electric Wiring	17.20	23.00	40.20
Electric Fixtures		5.00	5.00
Plumbing Roughing	32.00	36.70	68.70
Plumbing Fixtures & Water Heaters	24.25	81.00	105.25
Shades	1.00	9.00	10.00
Kitchen Units	4.00	132.00	136.00
Space Heaters50	6.50	7.00
Net Construction Cost...	\$345.25	\$842.75	\$1,188.00
Contractor's Overhead...			129.50
Contractor's Fee.....			103.80
TOTAL CONSTRUCTION COST PER UNIT			\$1,421.30





Photos, Aircraft



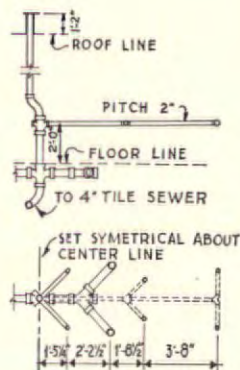
MECHANICAL PLAN OF TYPICAL UNIT

ESTIMATED TOTAL PROJECT COST

DWELLINGS	600 UNITS	PER UNIT
Construction cost	\$712,800	\$1,188.00
Contractor's overhead	77,700	129.50
Contractor's fee	62,280	103.80
Total	\$852,780	\$1,421.30
UTILITIES		
Construction cost	\$30,417	\$50.70
Contractor's overhead	3,325	5.54
Contractor's fee	2,664	4.44
Total	\$36,406	\$60.68
SITE DEVELOPMENT		
Construction cost	\$82,000	\$136.67
Contractor's overhead	8,843	14.74
Contractor's fee	7,056	11.76
Total	\$97,899	\$163.17
GRAND TOTAL	\$987,085	\$1,645.15

CONSTRUCTION OUTLINE

FOUNDATION: Precast concrete slabs and piers.
STRUCTURE: Yellow pine siding.
ROOF: Built-up asphalt—Texas Company.
INSULATION: Roof—Masonite Corporation; The Celotex Corporation. Sound insulation—Party walls, fiber quilt—Masonite Corporation; United States Gypsum Co.
FLOOR COVERINGS: Prefinished oak—E. L. Bruce Co.; bathrooms, asphalt tile—Uvalde Rock Asphalt Company.
WALL COVERINGS: Prefinished sheetrock—United States Gypsum Co.; kitchen and bathrooms—Sanitas, The Standard Textile Products Co., Inc.
ELECTRICAL INSTALLATION: Wiring system—Romex.
KITCHEN EQUIPMENT: Range refrigerator, and sink—Murphy unit, Dwyer Products Co.
BATHROOM EQUIPMENT: Lavatory, toilet—Standard Sanitary Mfg. Co.; shower—Henry Weis Mfg. Co., Inc.
HEATING: Gas fired—Peerless Mfg. Co.

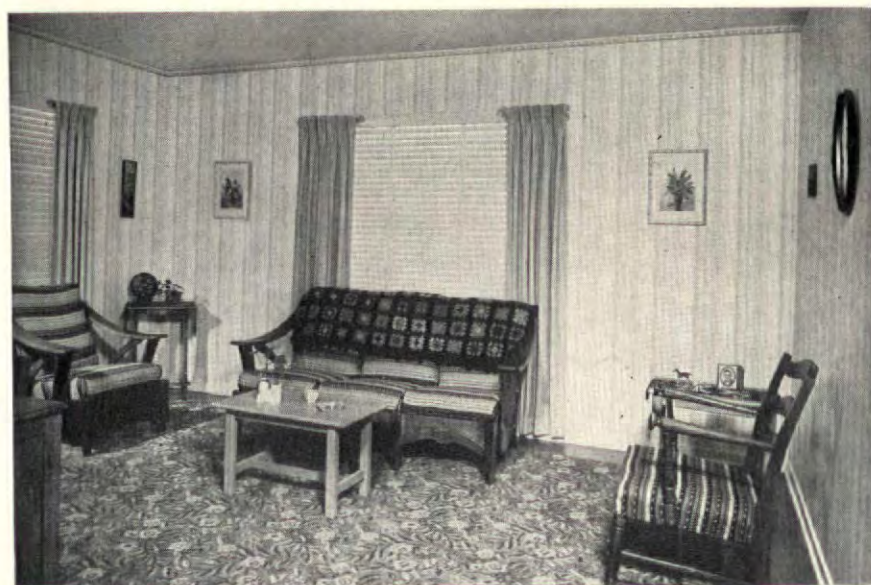
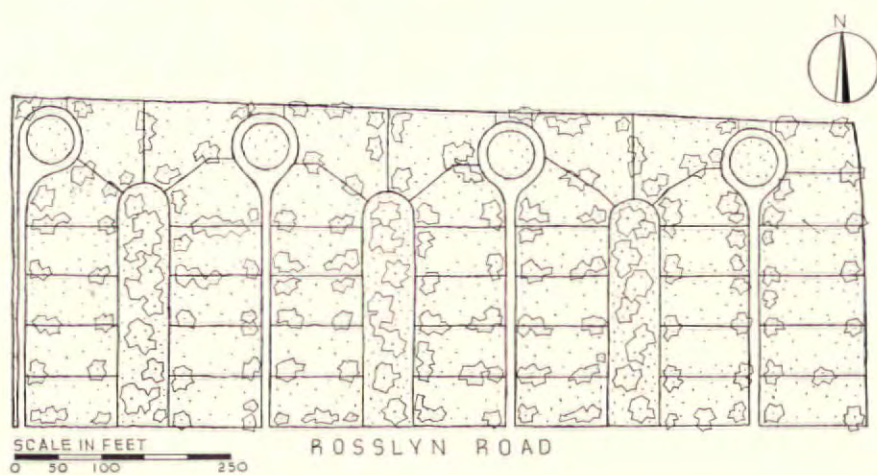


SEWER LAYOUT





B. W. CRAIN, JR., ARCHITECT



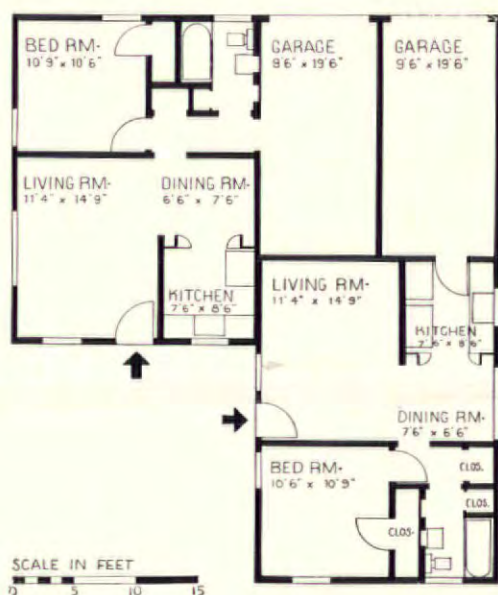
TYPICAL
LIVING ROOM



BEDROOM



BATH



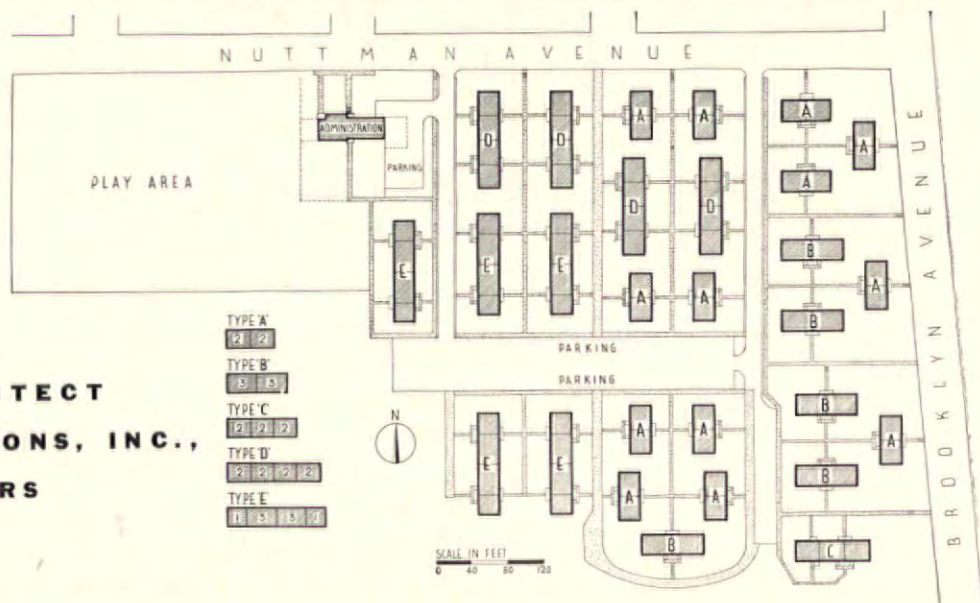
KITCHEN



Garden Oaks Village is a group of 42 buildings, arranged on a piece of flat ground in the manner shown by the subdivision plan on the opposite page. The houses back up on small park areas and are served by four cul-de-sac roads. While there is some variation in exterior treatment, the plans are alike. Each building contains two one-bedroom apartments, with the garages incorporated into the main mass. The unit plans show a number of excellent features. Each apartment has direct access to its garage, and the two apartments are well insulated from each other. There is through or cross ventilation in the main rooms. Storage space is ample, if the garage is considered suitable for storage of bulky items such as trunks, etc. The arrangement of living room, dining alcove and kitchen makes it possible to use an open kitchen without presenting an unattractive view to the living room. The apartments rent at \$35 per month unfurnished, and \$47.50 furnished. Cost for each two-unit building, about \$5,000.

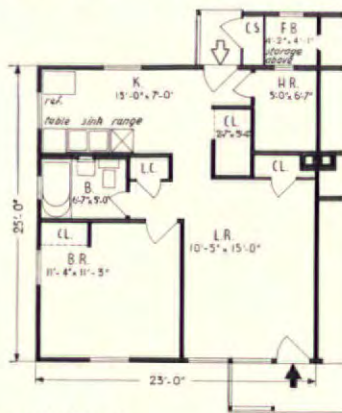


Photos, Sheldon Hine



A. M. STRAUSS, ARCHITECT
MAX IRMSCHER AND SONS, INC.,
GENERAL CONTRACTORS

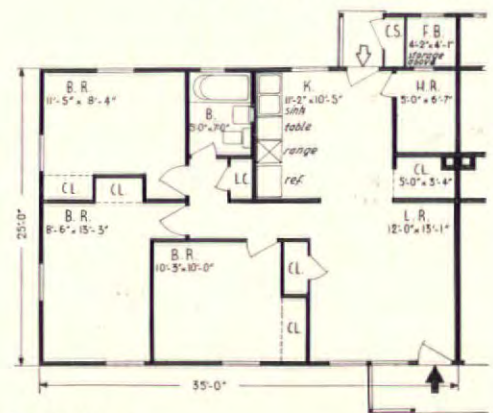




PLAN NO. 1



PLAN NO. 2



PLAN NO. 3



Built by the Fort Wayne Housing Authority to house married officers and enlisted men, this 75-unit project consists entirely of one-story houses of one, two and three bedrooms each attached in pairs and groups of four. The developed area is seven acres, and it is planned to expand the project as the need arises. A single central parking field is provided for tenants' cars, and the houses face concrete walks connecting this field with the boundary streets and back up on gravel service drives. This arrangement, while neat and economical, results in courts which are much too long for the scale of the units, and gives the project a drab, institutional look despite attempts at architectural embellishment. Rentals are \$11 to \$32 per month, construction cost was \$3,915 a unit.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—asbestos siding, Philip Carey Co. Inside—U. S. Gypsum Co. board and plaster. Floors—concrete slab.
ROOF: Asphalt shingles and 3-ply, Johns-Manville.
INSULATION: Outside walls—Weatherwood, U. S. Gypsum Co. Attic floor—rockwool, National Gypsum Co.
WINDOWS: Sash—double hung. Glass—quality B.
PAINTS: Benjamin Moore Paint Co.
HARDWARE: Lockwood Mfg. Co.
ELECTRICAL INSTALLATION: Wiring—Romex and conduit. Fixtures—Pass & Seymour.
KITCHEN EQUIPMENT: Ranges—gas, Tappan Stove Co. Ice boxes—Refrigerating Industries, Inc.
BATHROOM EQUIPMENT: Kohler Co.
HEATING: Forced warm air system; furnaces—Lennox Furnace Co. Grilles—Hart & Cooley. Water heaters—gas fired, American Radiator-Standard Sanitary Corp.



72 PERMANENT UNITS—RENTAL

TAFT, CALIF.



FARM SECURITY ADMINISTRATION

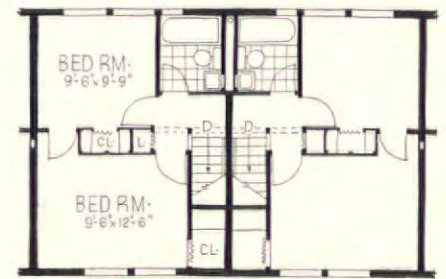
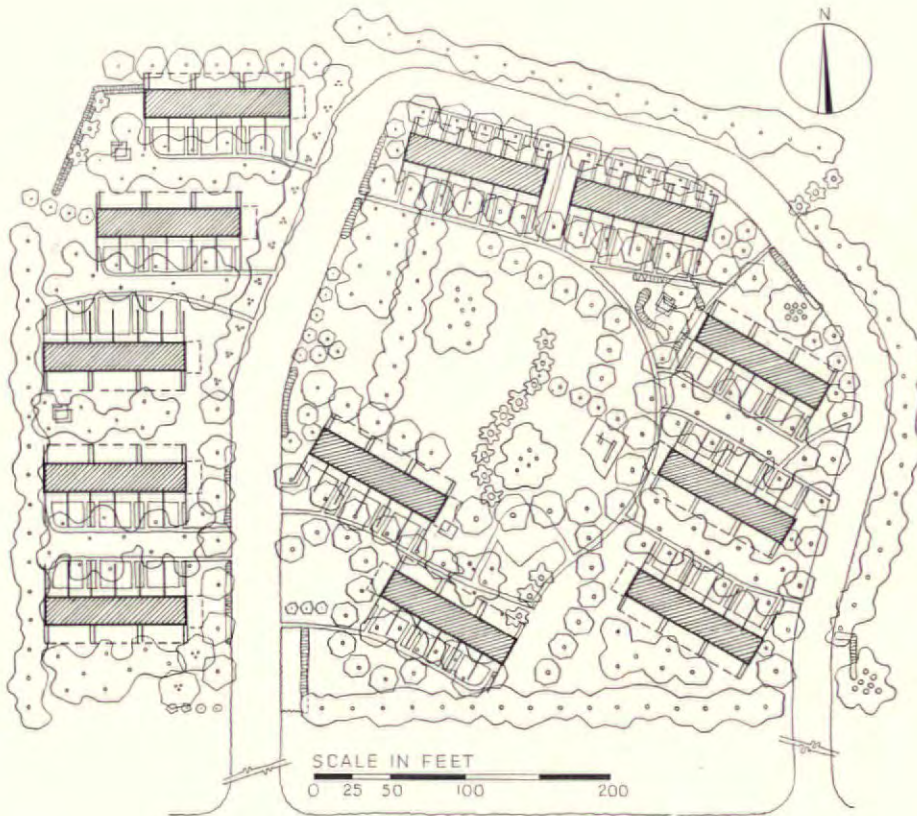
VERNON DeMARS, DISTRICT ARCHITECT

JACOBSON & WIKHOLM, GENERAL CONTRACTORS

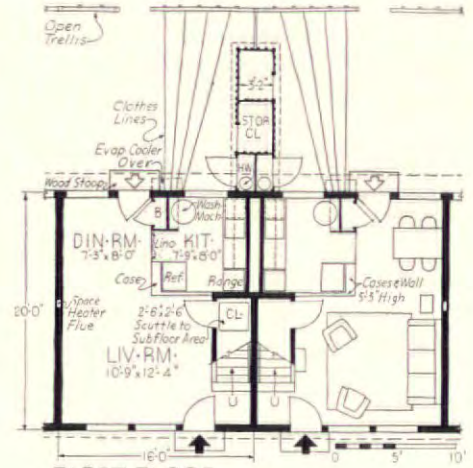
Photos, Calvin R. Williams



2-UNIT PLANS

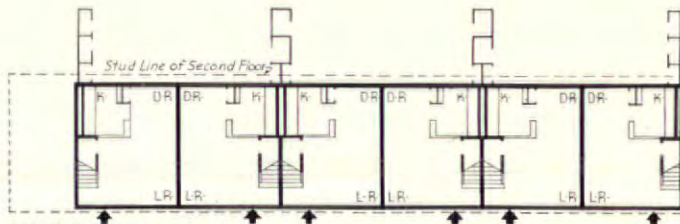


SECOND FLOOR

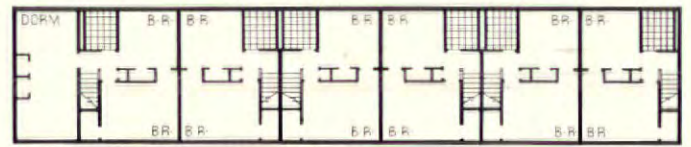


FIRST FLOOR

TYPICAL PLAN



SCHEMATIC PLAN-FIRST FLOOR



SCHEMATIC PLAN-SECOND FLOOR

PLAY AREA

Taft is a small town, well equipped with schools and other community facilities. Built for the families of enlisted personnel, the project was located in the town to take advantage of these facilities. The climate is dry, very hot in summer, and the Farm Security Administration was instructed to build 72 units similar to those at Yuba City, where the same climatic conditions exist. The site plan shows a dozen units, informally related to a traffic loop, so oriented that living rooms face south or southwest. Units are two stories in height, with two upstairs bedrooms. A "dormitory" is added to one dwelling in each block, and can be divided into two rooms if desired. Average cost per family unit: \$2,550, at about 40 cents per cubic foot or \$3.60 per square foot.





Surveys of many projects convinced Farm Security's architects of the following points: there must be outside storage space for certain things all families seem to accumulate. This space must be definitely fenced off and screened visually. A somewhat protected sitting out space is desirable. There should be a clearly defined arrangement of the public spaces and those to be maintained by the tenants. The results of some of these conclusions are illustrated in the photographs on this page. The box-like projections beside each door are evaporative coolers.



DRYING YARD



CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—stucco on wire mesh and Certain-teed Products Corp. asphalt fiber back board; inside—studs and plywood.

ROOF: Slate surfaced cap sheet.

INSULATION: U. S. Gypsum Co. and Samuel Cabot, Inc.

WINDOWS: Sash—fir casement. Glass—single strength, quality B.

FLOOR COVERINGS: Kitchen and bathrooms—linoleum, Paraffine Co.'s, Inc.

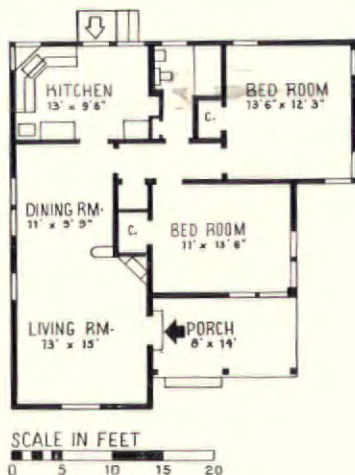
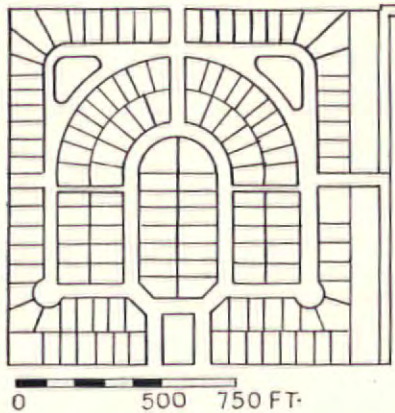
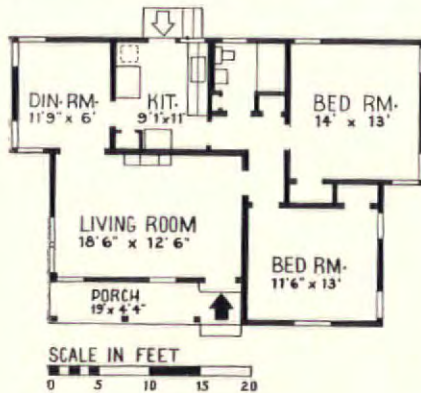
HARDWARE: Lockwood Hardware Co.

PAINTS: Pacific Paint & Varnish Co. and I. F. Laucks, Inc.

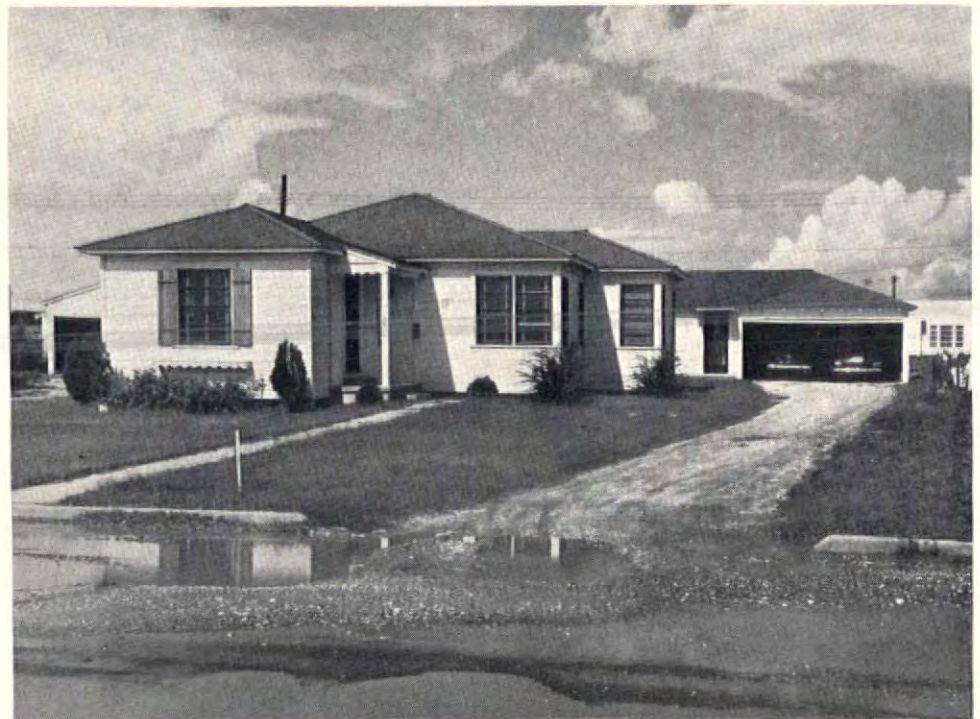
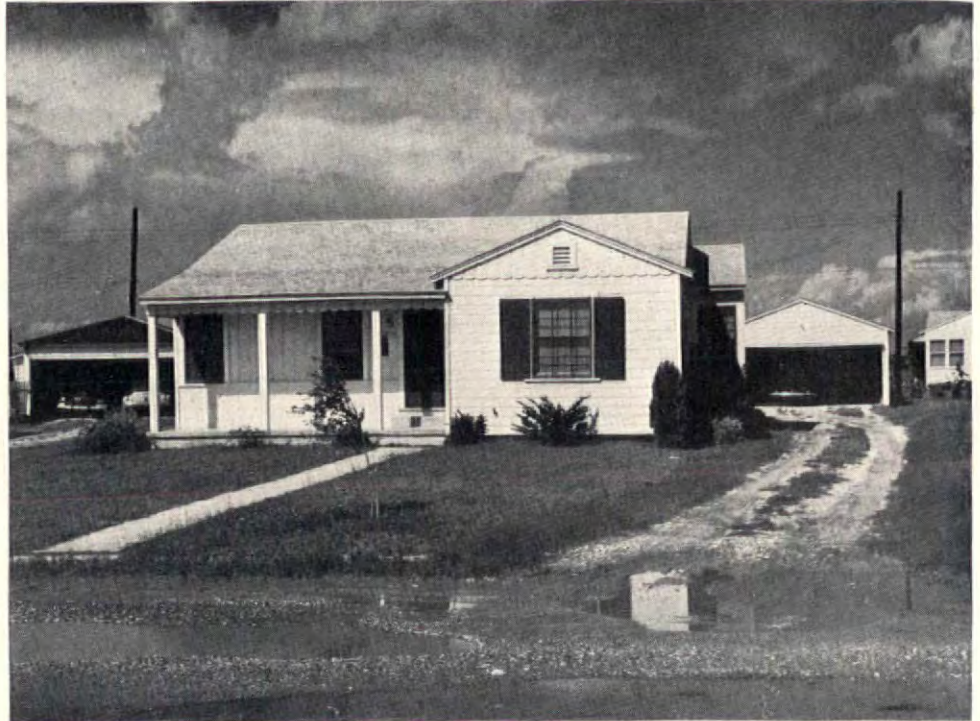
ELECTRICAL INSTALLATION: Non-metallic sheathed cable.

PLUMBING: Fixtures—Briggs Mfg. Co.

2-UNIT PLANS



40 PERMANENT UNITS—RENTAL AND SALE



Leslie Aylor

CORPUS CHRISTI, TEXAS

DAHLIA McCORD, DESIGNER

T. D. McCORD, BUILDER

Like many of the converted FHA developments, this project has houses which may be rented or bought. Both house types shown are two-bedroom units, each with a separate dining space. While the houses are pleasant in appearance, the site plan is an arbitrary geometrical pattern, entirely meaningless from the viewpoint of orientation, circulation or land use. Rentals vary from \$55 to \$70 per month. Sale prices of the houses range from \$4,750 to \$5,500.

CONSTRUCTION OUTLINE

STRUCTURE: Walls—1" x 8" siding, double-kraft building paper, 1/2" sheetrock Textone and Texolite finish; ceiling—1/2" sheetrock Textone, Texolite, U. S. Gypsum Co.

ROOF: Cedar shingles.

WINDOWS: Ideal Allweather Unit—Cameron Sash & Door Co.

PAINTS: Benjamin Moore Co.

WOODWORK: Cameron Sash & Door Co.; garage doors—Crawford-Austin Mfg. Co.

HARDWARE: Russell & Erwin Mfg. Co.

ELECTRICAL INSTALLATION: Romex.

KITCHEN EQUIPMENT: Kohler Co.

BATHROOM EQUIPMENT: Kohler Co.

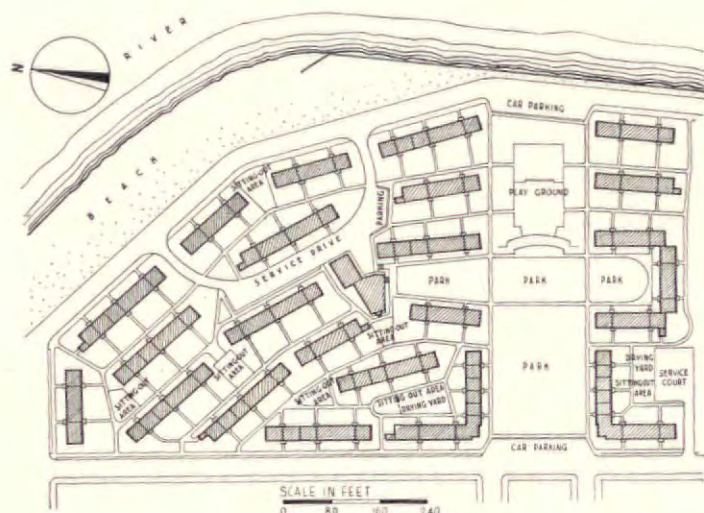
300 PERMANENT UNITS—RENTAL

NEW HAVEN, CONN.



HOUSING AUTHORITY OF THE CITY OF NEW HAVEN

DOUGLAS ORR, R. W. FOOTE, ARCHITECTS
ALBERT MAYER, CONSULTANT
JO RAY & A. CARL STELLING,
LANDSCAPE ARCHITECTS

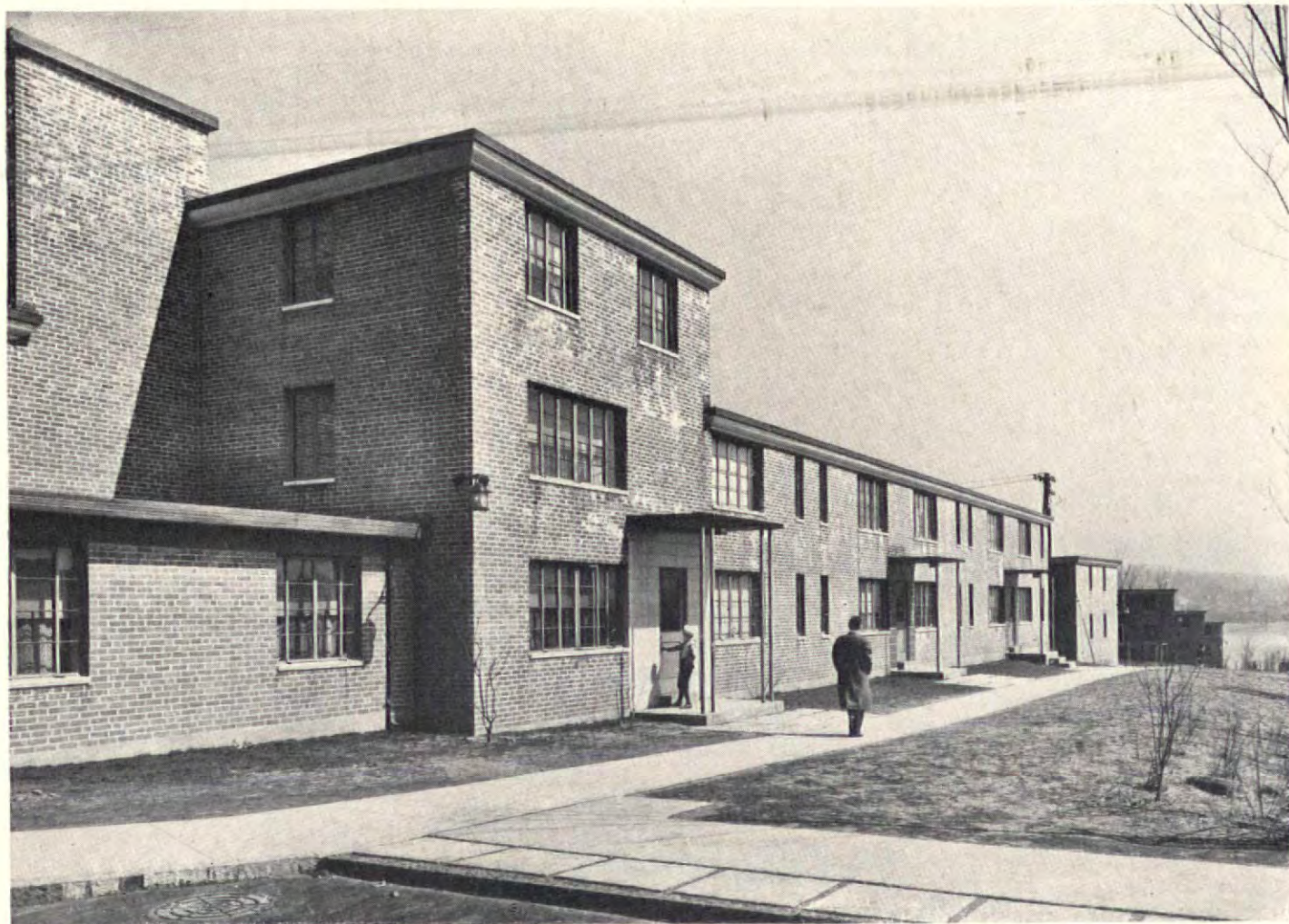


HUBBARD, RICKERD & BLAKELEY, ENGINEERS
MICHAEL E. CONNOR CO., CONTRACTOR

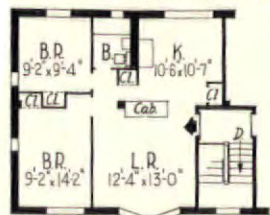


Quinnipiac Terrace, carried through as a USHA project, has a sloping river front site, and its plan shows a serious effort to make use of the possibilities of the location. Staggered buildings open up the view to a surprising number of apartments, and the drop in level has been utilized for the same purpose. A very pleasant feature of the plan is the open park, which slopes down from the street towards the river. A view of the community building at one end of the cross axis is shown above. The rather severe exteriors are relieved by occasional breaks in mass, and by the use of colored tile and brick around the entrances.

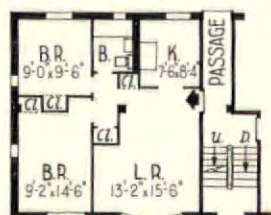
Photos, Samuel H. Gottscho



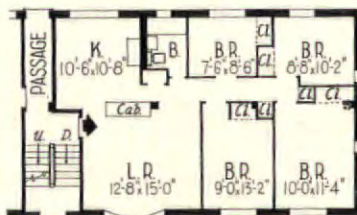
300 PERMANENT UNITS



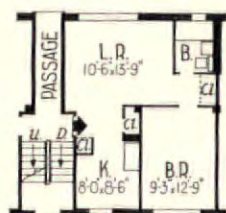
SECOND FLOOR-4 ROOM UNIT



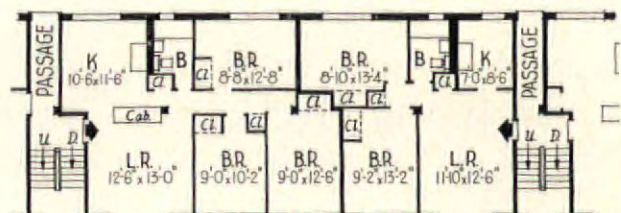
FIRST FLOOR-4 ROOM UNIT



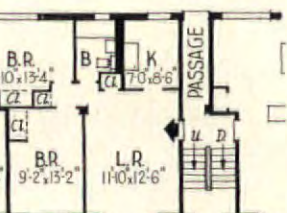
FIRST FLOOR-6 ROOM UNIT



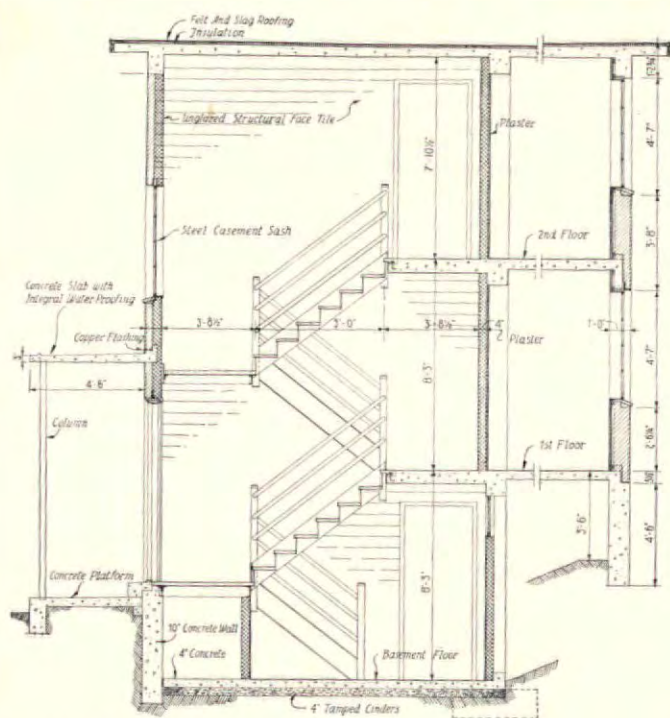
3 ROOM UNIT



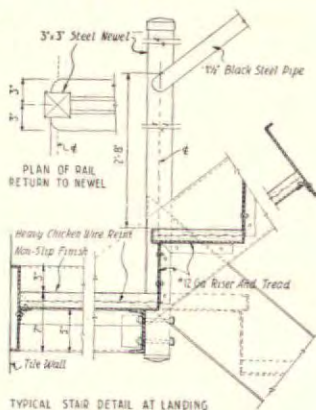
5 ROOM UNIT



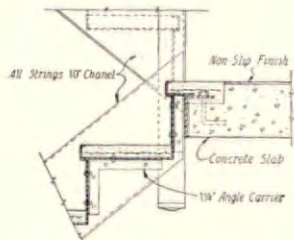
4 ROOM UNIT



SECTION THRU STAIR HALL



TYPICAL STAIR DETAIL AT LANDING

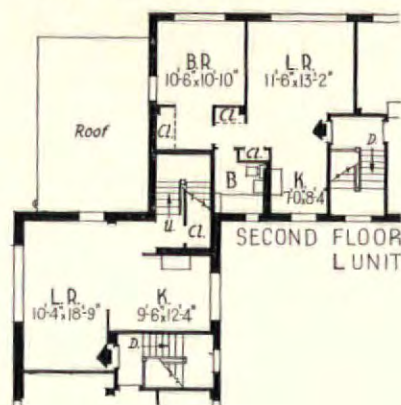


TYPICAL STAIR DETAIL AT FLOOR LEVEL

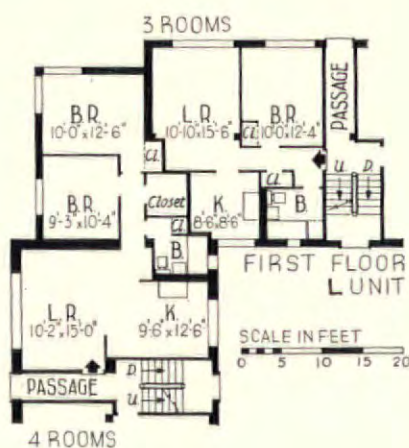
8-UNIT PLANS



THIRD FLOOR-LUNIT

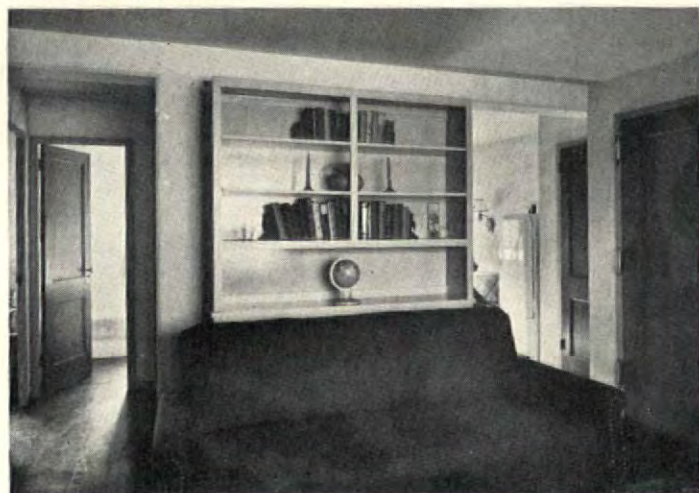


SECOND FLOOR LUNIT



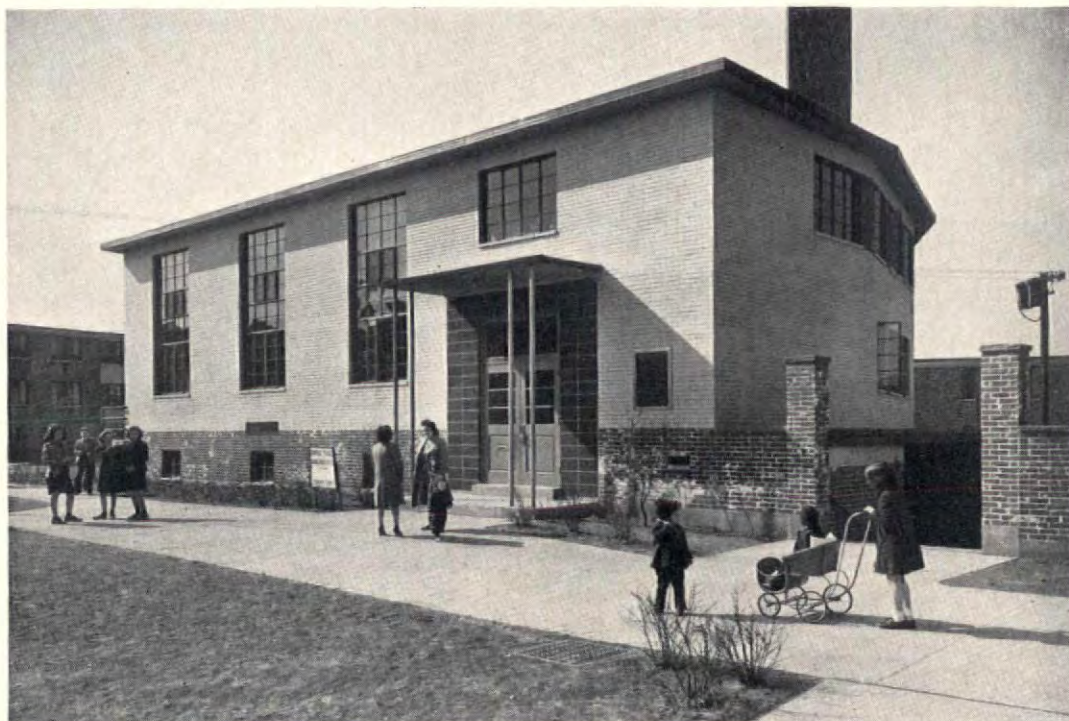
SCALE IN FEET
0 5 10 15 20

LIVING ROOM



KITCHEN



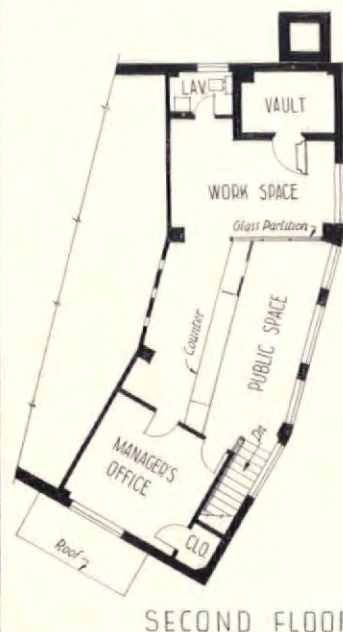


COMMUNITY BUILDING

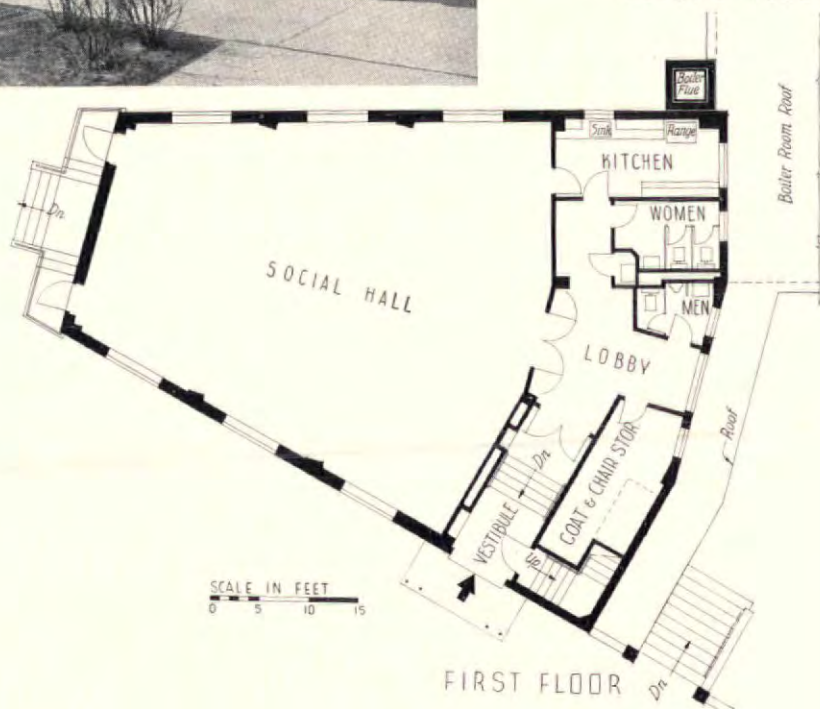
The unit plans and photographs on the opposite page show an interesting development of the open kitchen-living room arrangement. A standard cabinet, with storage space on both sides, serves to block the opening and provide needed room for dishes, books, etc., at the same time. The community building, above, is a structure of vigorous design, located at the end of one of the main vistas within the project. It contains a well-shaped social hall, kitchen and management offices. Cost: \$3,523. Rentals: \$17.50 to \$28.50.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—face brick, wood furring, plaster lath, Consolidated Expanded Metal Co., with aluminum foil, U. S. Gypsum Co.; inside—plaster. Floors—asphalt tile, D. E. Kennedy, Inc.
ROOF: Built-up, Koppers Co.
INSULATION: Outside walls—aluminum foil, U. S. Gypsum Co. Roof—rigid insulation, Celotex Corp.
SHEET METAL WORK: Flashing—copper, Revere Copper & Brass Co.
WINDOWS: Sash—steel, Thorn Window Co. Glass—double strength, quality B, Pittsburgh Plate Glass Co.
STAIRS: Iron, Nent Bros. Iron Works.
FLOOR COVERINGS: Asphalt tile, D. E. Kennedy, Inc.
PAINTS: Central Paint & Varnish Co.
HARDWARE: Sargent & Co.
ELECTRICAL INSTALLATION: Wiring system—wire in rigid conduit, General Cable Co. Switches—Hart & Hegeman. Fixtures—Waterbury Button Co.
KITCHEN EQUIPMENT: Range—J. B. Slatery & Bros., Inc. Refrigerator—Westinghouse Electric & Mfg. Co. Cabinets—Marsh Furniture Co.
BATHROOM EQUIPMENT: Crane Co. Cabinets—G. M. Ketcham Mfg. Co.
PLUMBING: Pipes—Central Foundry Co.
HEATING: Central plant, steam. Boiler—Fitzgibbons Boiler Co. Radiators and valves—Crane Co. Thermostats—Hoffman Specialty Co. and Consolidated Ashcroft Hancock Co. Temperature control—Minneapolis-Honeywell Regulator Co. Unit ventilators—Trane Co.



SECOND FLOOR



FIRST FLOOR

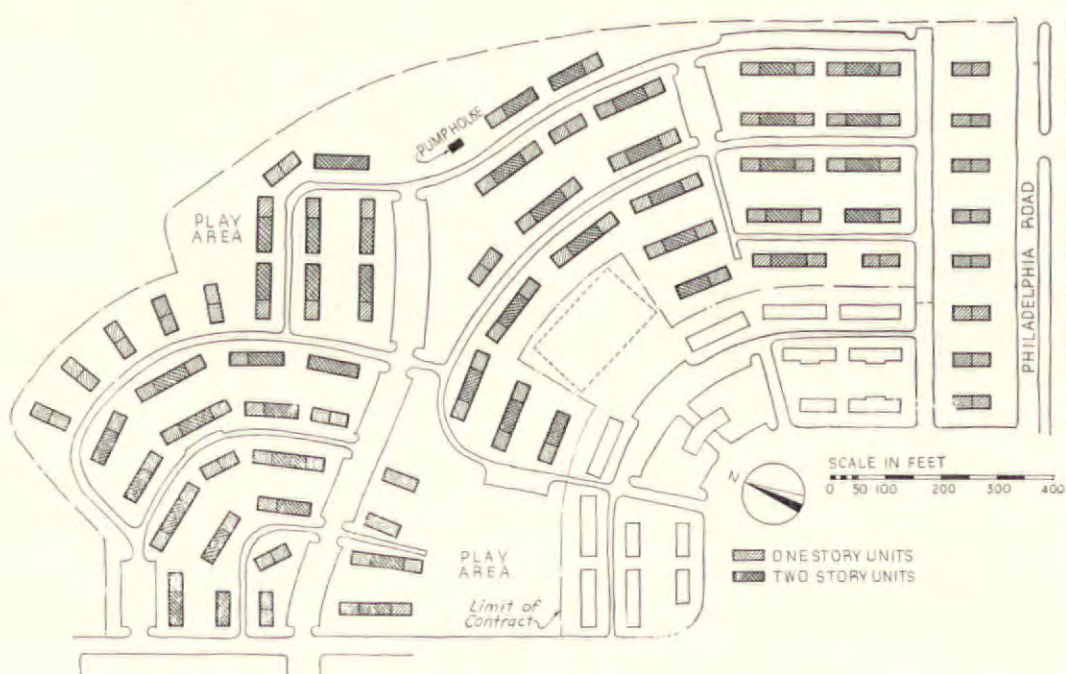
SOCIAL HALL





Photos, Mitchell Studio

LUCIUS R. WHITE, JR., ARCHITECT
WOODCREST CONSTRUCTION CO., INC.
AND ROSOFF BROS., INC.,
ENGINEERS AND CONTRACTORS





Armistead Gardens Addition is a 300-family defense project adjoining an earlier and larger low-rent housing project of the same name which was completed last October. The one- and two-story row houses are of frame construction, with first floors concrete on grade, and were prefabricated in panels at a mill about a mile from the site. They cover the 58-acre plot to a density for about ten families per acre, and are reached by walks and service drives connecting a number of small parking areas. One-story units have three bedrooms each, two story units two bedrooms. Construction contract was \$1,046,000, or \$3,450 per dwelling unit.

CONSTRUCTION OUTLINE

STRUCTURE: Cinder block and brick; Inside—gypsum lath and plaster, National Gypsum Co. Floors—reinforced concrete and hardwood. Ceilings—ceiling board, Masonite Corp.

ROOF: Asphalt shingles and roofing felt, The Rubberoid Co.

INSULATION: Attic floor and roof—rock-wool, U. S. Mineral Wool Co.

WINDOWS: Sash—metal, Truscon Steel Co. Glass—single and double strength, quality B, Pittsburgh Plate Glass Co. Screens—metal, Ceco Steel Products Co.

FLOOR COVERINGS: Bathrooms—linoleum, Armstrong Cork Co.

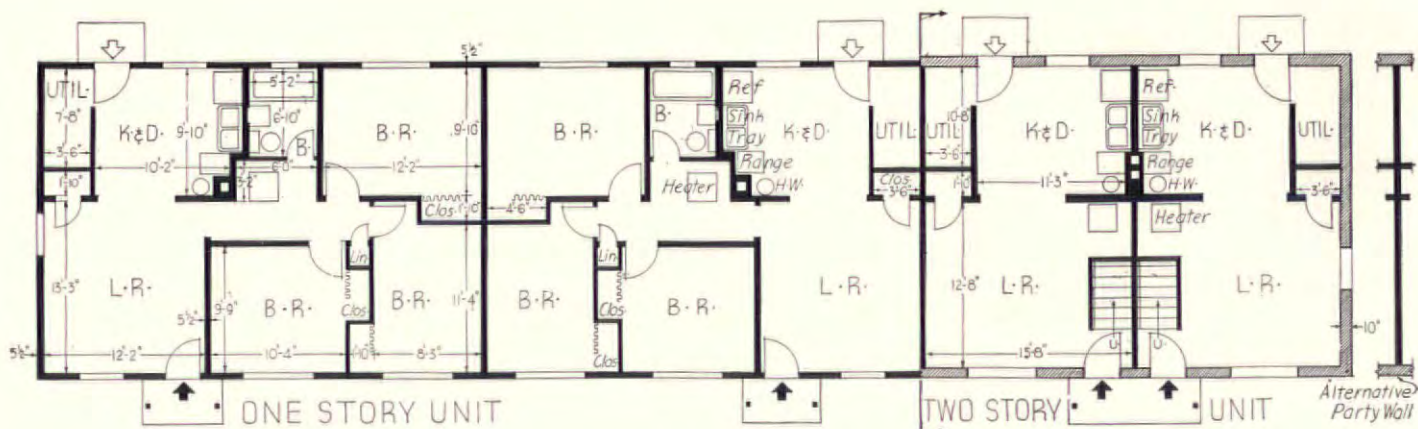
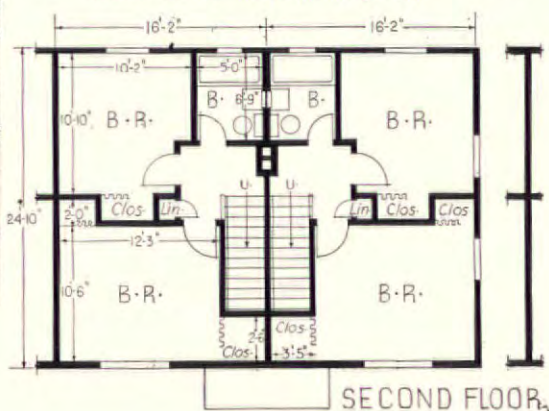
PAINTS: Davis Paint Co.

HARDWARE: Lockwood Hardware Mfg. Co.

ELECTRICAL INSTALLATION: Wiring system—National Electric Products and General Cable Co. Fixtures—Pass & Seymour.

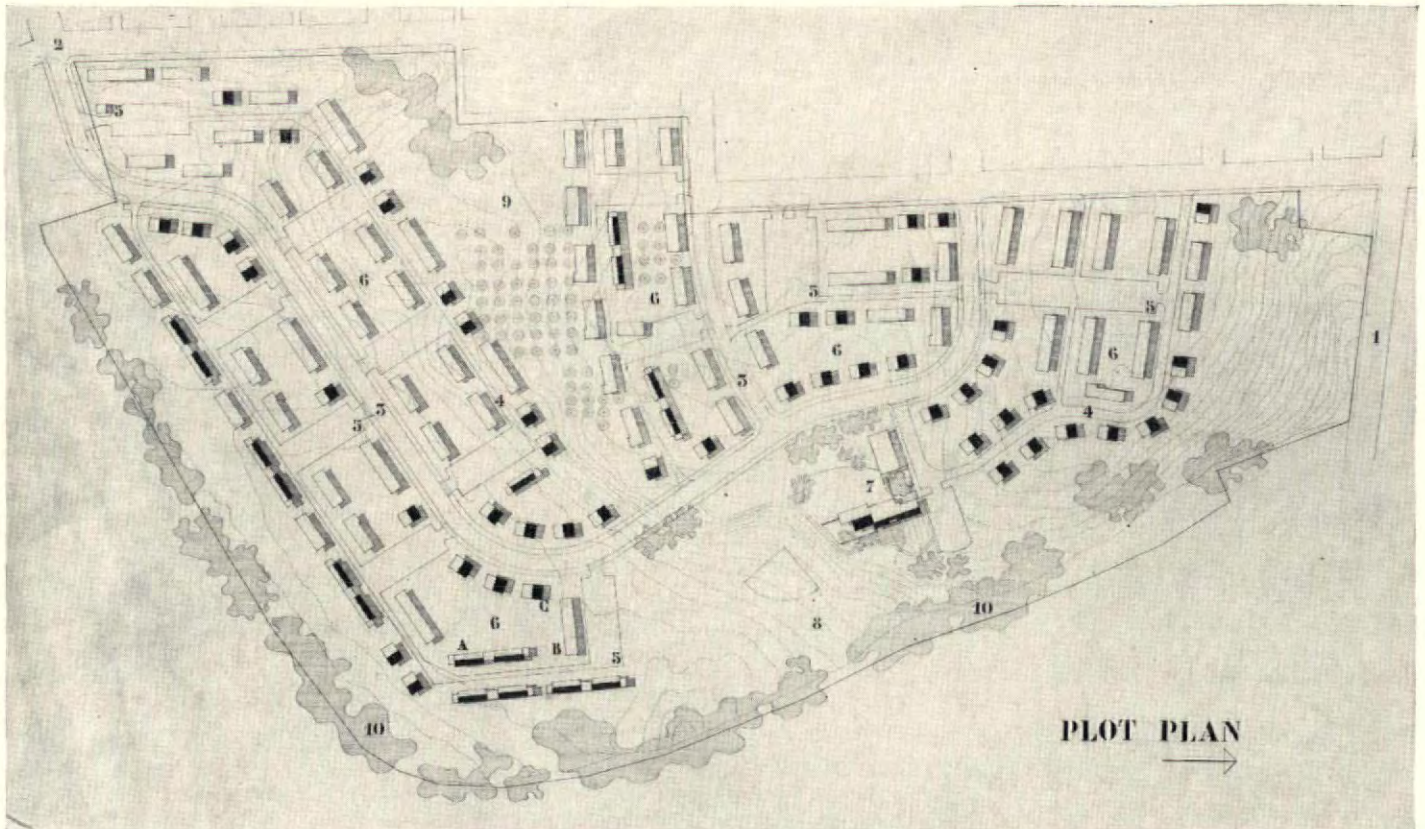
BATHROOM EQUIPMENT: American Radiator-Standard Sanitary Corp. Cabinets—Miami Cabinet Div., Philip Carey Co.

HEATING: Warm air system, Norge Heating & Conditioning Div., Borg-Warner Corp. Water heater—Lawson Mfg. Co.



450 PERMANENT UNITS—RENTAL

MIDDLETOWN, PA.



1, Highway. 2, Town Approach. 3, Main Interior Street. 4, Service Roads. 5, Parking. 6, Garden Areas. 7, Community Group. 8, Play Field. 9, Allotment Gardens. 10, Wooded Areas. A, Three-Room Unit. B, Four-Room Unit. C, Five-Room Unit.

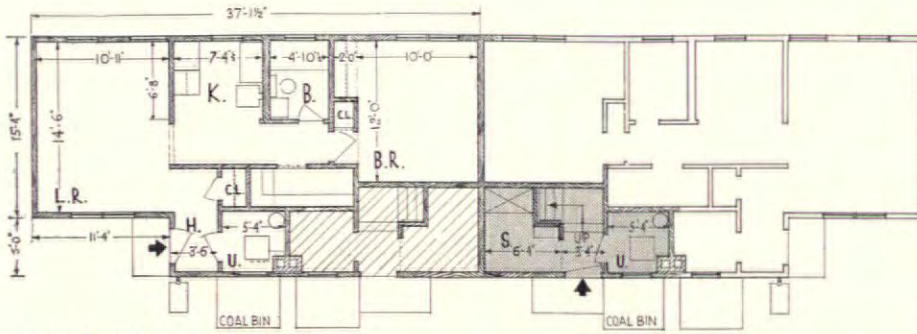
GEORGE HOWE AND LOUIS I. KAHN, ASSOCIATED ARCHITECTS

M. SHAPIRO & SON CONST. CO., CONTRACTORS

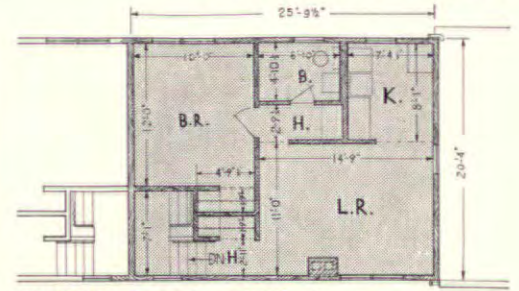
Photos, C. V. D. Hubbard



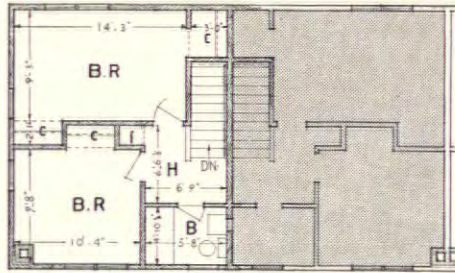
4-UNIT PLANS



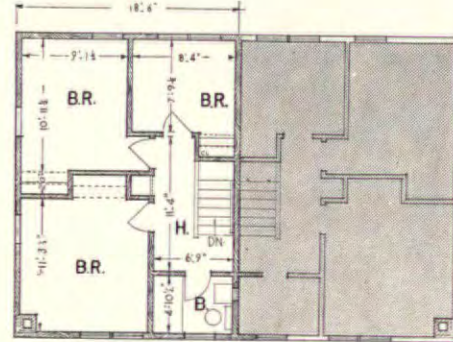
FIRST FLOOR—TYPE A



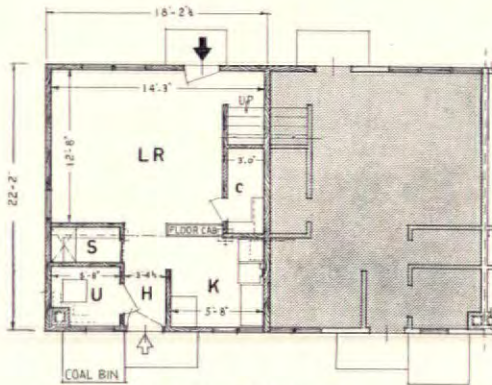
SECOND FLOOR—TYPE A



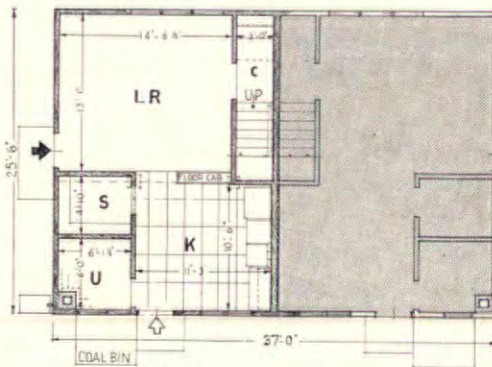
SECOND FLOOR



SECOND FLOOR



FIRST FLOOR—TYPE B



FIRST FLOOR—TYPE C

These 450 units occupy a very attractive site in the town of Middletown. They are occupied by both civilian workers and enlisted personnel. The project was originally to consist of one-family houses, but it was later decided that a better use of the land and substantial savings could be made with multi-family units. The dwellings consist of three-, four- and five-room types built as flats and as two-story row houses. Unusual in the project is the combination of pitched and low shed roofs, a scheme developed to meet objections of the authorities to flat-roof buildings; gable roofs increased costs by about \$50 per unit, but the extra expenditure was considered worth while by USHA, which handled the project. Net construction cost was \$2,727 per dwelling. Rentals are divided into two groups. Civilian workers and enlisted men pay \$21 per month for the one-bedroom units, \$23.50 for the two- and three-bedroom types. Officers pay \$27.50, \$30 and \$32.50.





KITCHEN

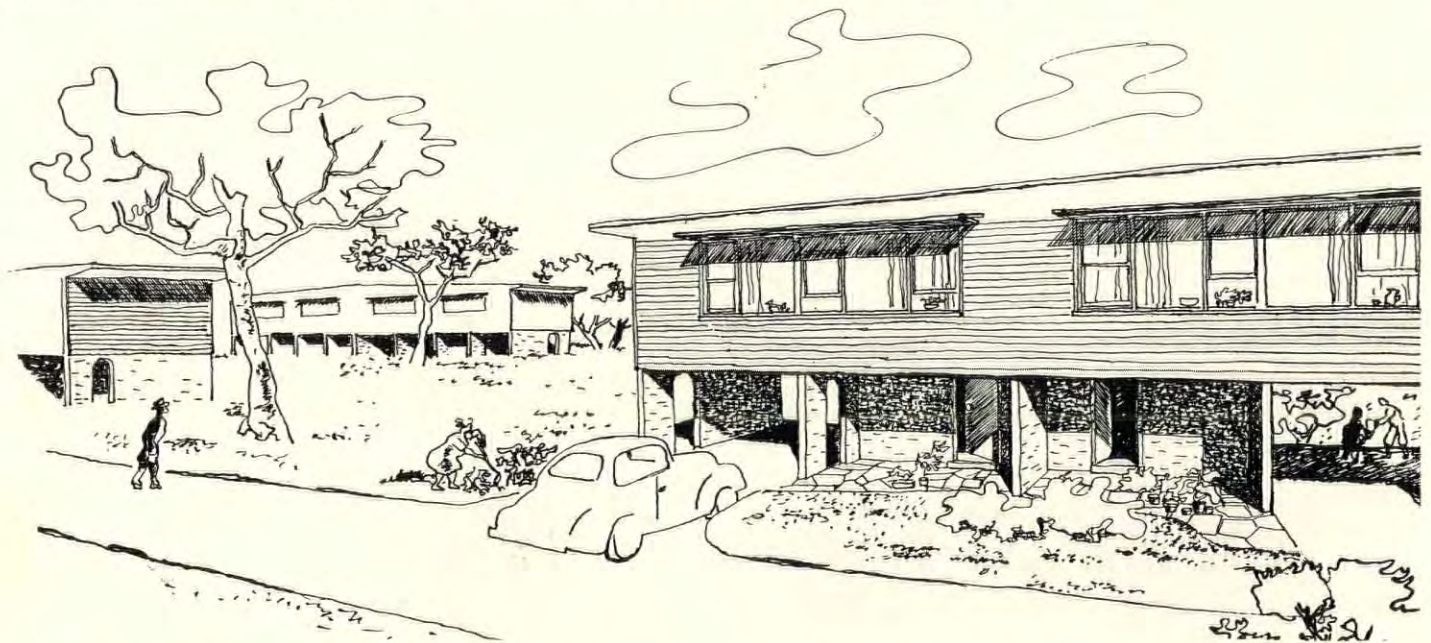
The photographs show one of the living room-kitchen arrangements, in which the well-equipped kitchen has been made large enough for comfortable family dining. While the scheme is an open one, the inexpensive cupboard does provide some degree of separation as well as additional wall space for living room furniture.

LIVING ROOM



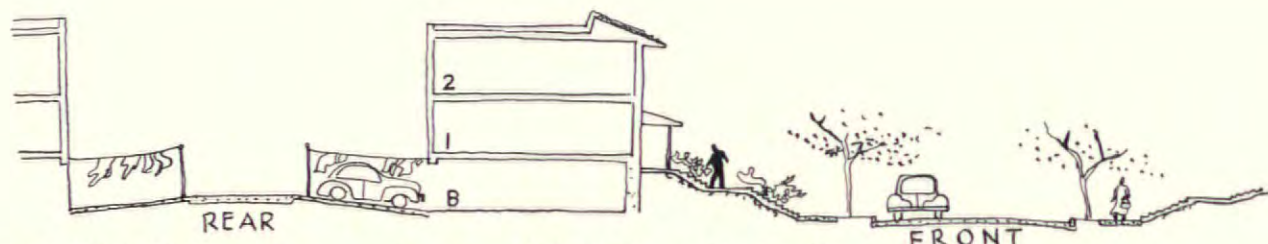
Photos, C. V. D. Hubbard

“STANDARDS” VERSUS ESSENTIAL SPACE, comments on unit plans for war housing by George Howe, Oscar Stonorov and Louis I. Kahn



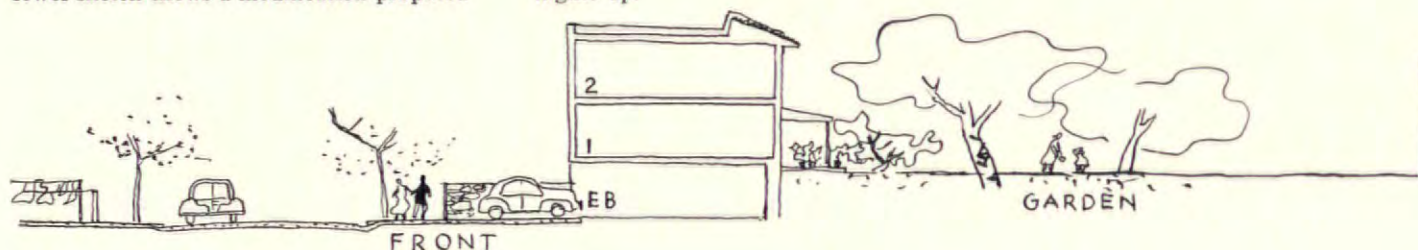
It is well for architects to review their work critically and to draw conclusions which may benefit their own and others' future efforts. The evolution of the plans shown here and above is due to unsatisfactory experience with standard plans and the slight variations of such plans. After eight years of "organized housing" it seems time to analyze the actual value of plans developed for one-, two-, and three-bedroom units and their relation to actual use, now that many projects have been built and occupied.

To begin with, let us review such plans as the row house in Philadelphia, the row house in Baltimore, the shoe-box bungalow in Jersey or Long Island, and try to understand why it is that these houses which we have tried to improve still seem to be vastly preferred by the average person. Why do people prefer the ugliness of dicky-front houses, compressed in long rows, surrounded by a sea of concrete, to houses placed on the contours, related to sun and breeze, with garden living and community facilities? It is true, of



Top sketch: typical Philadelphia row house development pattern. The above-grade basement at the rear provides for car storage, easy removal of ashes and rubbish, direct access to drying yard, etc. The lower sketch shows a modification proposed

by some Philadelphia architects. The scheme has met builder resistance because the appearance of the entrance side is considered unattractive, because of grading problems, and because the bath is two flights up.



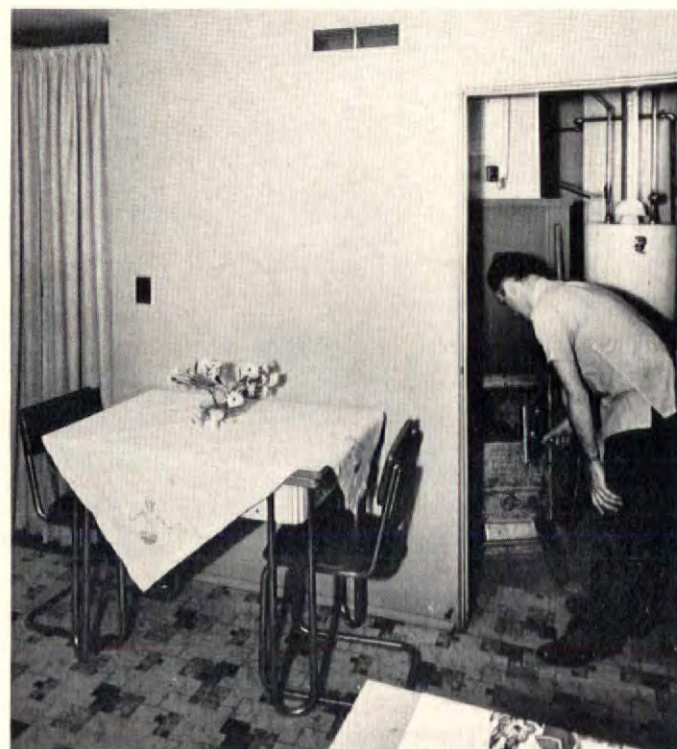
course, that many localities offer no alternatives in the given price class, but it seems much more important to recognize these dwellings as composites of certain amenities accepted as essential, for otherwise they would not sell.

The most important advantage that we could find is the provision of essential space. Aside from that fact, these houses have been built as cheaply as the Government's houses. The operative builder offers no garden living space, the neighborhood is all house and street, and the row type used offers little flexibility when grade conditions are encountered. To maintain the various entrance levels to garage and to the front of the house, all trace of the natural beauty of the site is erased, imposing in addition drainage difficulties on adjoining ground. And yet he produces a house that satisfies a prime requisite of the house buyer or renter. His client gets a house with space in which to put his car, and a basement large enough for storage of a bicycle, a laundry, a workshop. To keep house is practically impossible if room is not provided for untidy work and storage. Architects may have succeeded in developing closely knit actual space for living, but this very space becomes bedlam when the bicycle and the baby carriage must be stored in the living room, the laundry washed in the kitchen and the chair repaired in the bedroom.

If we inspect our own Middletown plans, we realize that our apprehensions about the inadequacy of the storage space and the heater room were correct. The heater room was figured just large enough to take the units. The furnace is fired with some ease only after carefully planned movements are developed by the man of the house. Storage space, which should be at least 100 square feet, was made 30, to conform to the standards. Garbage and rubbish are kept in front of the house until removed. One of the greatest weaknesses of Government housing to date has been the lack of adequate minimums covering storage space, waste and laundry. And yet, as we have seen, ignoring the vital requirements of essential space makes the house inadequate for all save the emergency market, while the lack of a thoughtful solution to the problems of waste and laundry can turn an otherwise satisfactory project into an eyesore.

The basement provided by the private builder, in addition to offering adequate space for rugs, trunks, kiddy car, baby carriage, garden tools, is also the heater room, coal storage area, and the laundry with its trays, washer and other equipment. And yet the basement is no ideal solution. It means dragging the laundry upstairs and down, it is dank, poorly lighted, and increases the difficulties of drainage and connections to sewer lines. It was in an attempt to include the many advantages of the basement while eliminating its defects that the Coatesville and Washington plans were developed.

In essence, the scheme consists of nothing more than a transposition of the basement to the ground level, with one story of living space above. When developed into a typical four-family unit, some interesting features appear. There is open space between the utility blocks which serves very



"STANDARDS" VERSUS ESSENTIAL SPACE

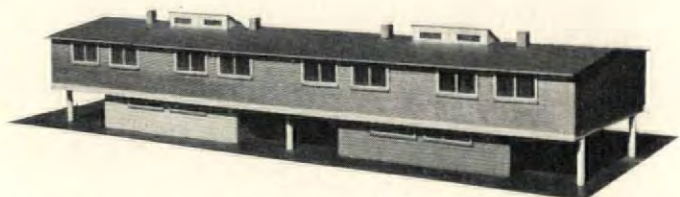
conveniently as a carport, a shelter for the entrance or a covered play area. These openings also eliminate the distinction between "front" and "back," as there is free circulation through, rather than around, each building. No attempt was made to vary the size of the utility room with the number of bedrooms in a dwelling unit. The concrete post and beam construction shown on the model was developed to meet the building regulations of Washington, where buildings with more than two families have to be of brick construction.

It should be noted that the living room, kitchen, dining space, bathroom, heating stack and stair form a unit, which is standardized for all dwelling types. With this unit, one, two or three bedrooms are combined as required. The standard arrangement has two bedrooms while the necessary number of one- and three-bedroom dwellings may be obtained by interlocking the plans as shown. Where a pair of three-bedroom units are used together in one of the buildings, it is possible to develop a project storage room on the ground floor. This extra space, when distributed at points of vantage on the site, is very useful to the management for storage of screens, garden tools, etc., and may be used conveniently for gas and electric meters as well.

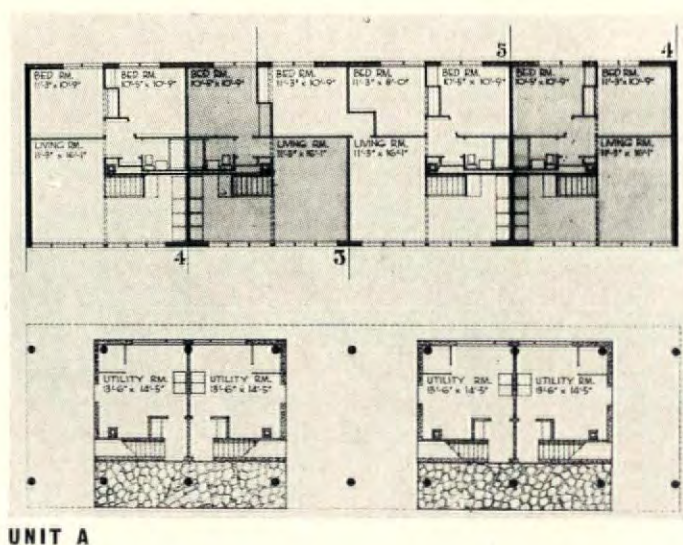
The living space on one level offers a very real possibility for economical planning which, to a great extent, offsets the added cost of extra space on the ground floor. Since, in the average two-story house the main living rooms are on the first floor, with larger windows required at this point, lintel problems develop which are avoided in the scheme illustrated. It is also difficult to provide adequate shelter at the entrance to the conventional house, a situation which resolves itself quite easily in this scheme.

In the Middletown plan it was logical to enter the kitchen side of the house. A plan with greater street frontage might have overcome the corridor entrance to the living room. The architects lost heart on this solution, because increased frontage for each dwelling would have raised costs too much.

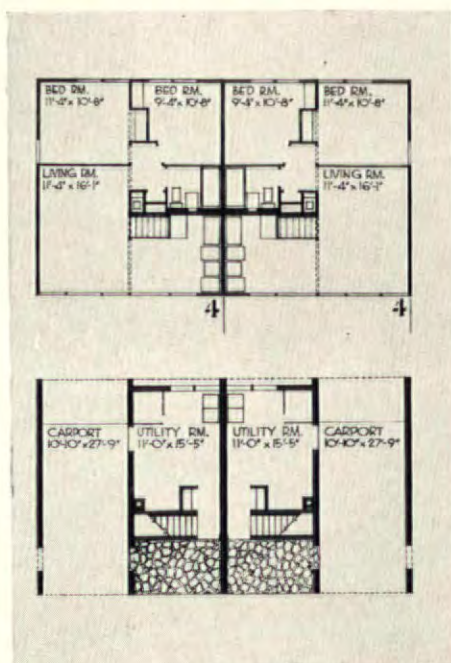
Another advantage of the Washington and Coatesville plan is its adaptability to grade conditions. Because of the



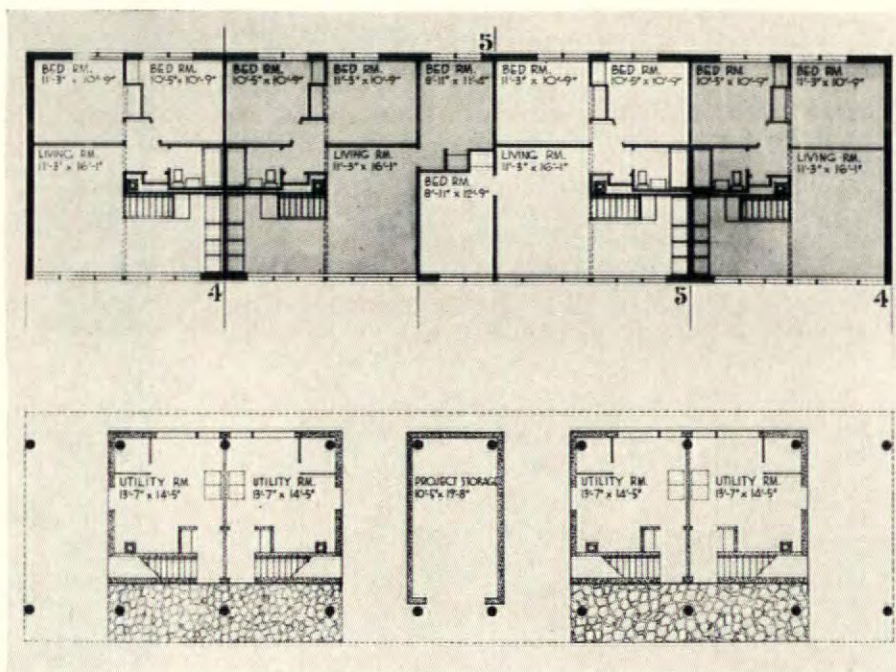
MODEL OF BUILDING FOR PROJECT IN WASHINGTON



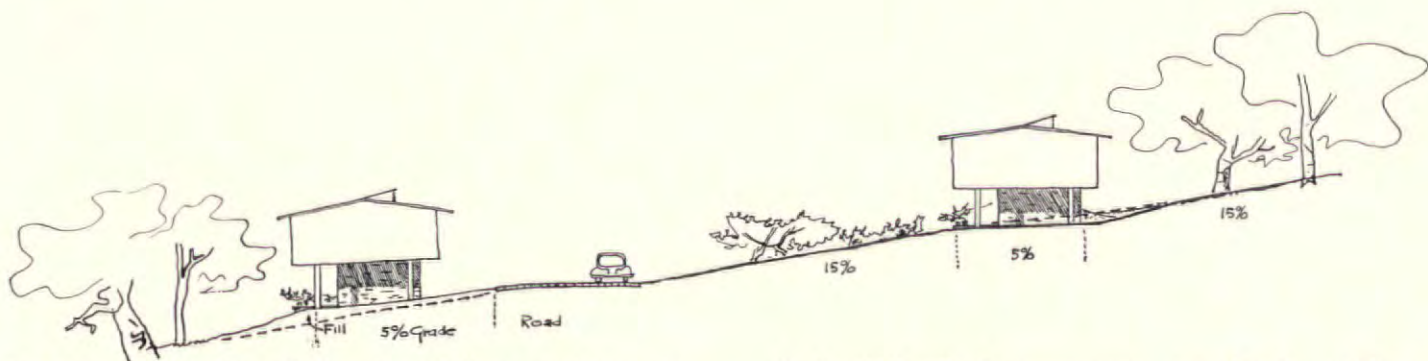
UNIT A



UNIT C



UNIT B



masonry construction of the ground floor, variations in grade from front to rear can be handled fairly easily, while drainage problems are simplified since some of the surface water can be passed through the carports.

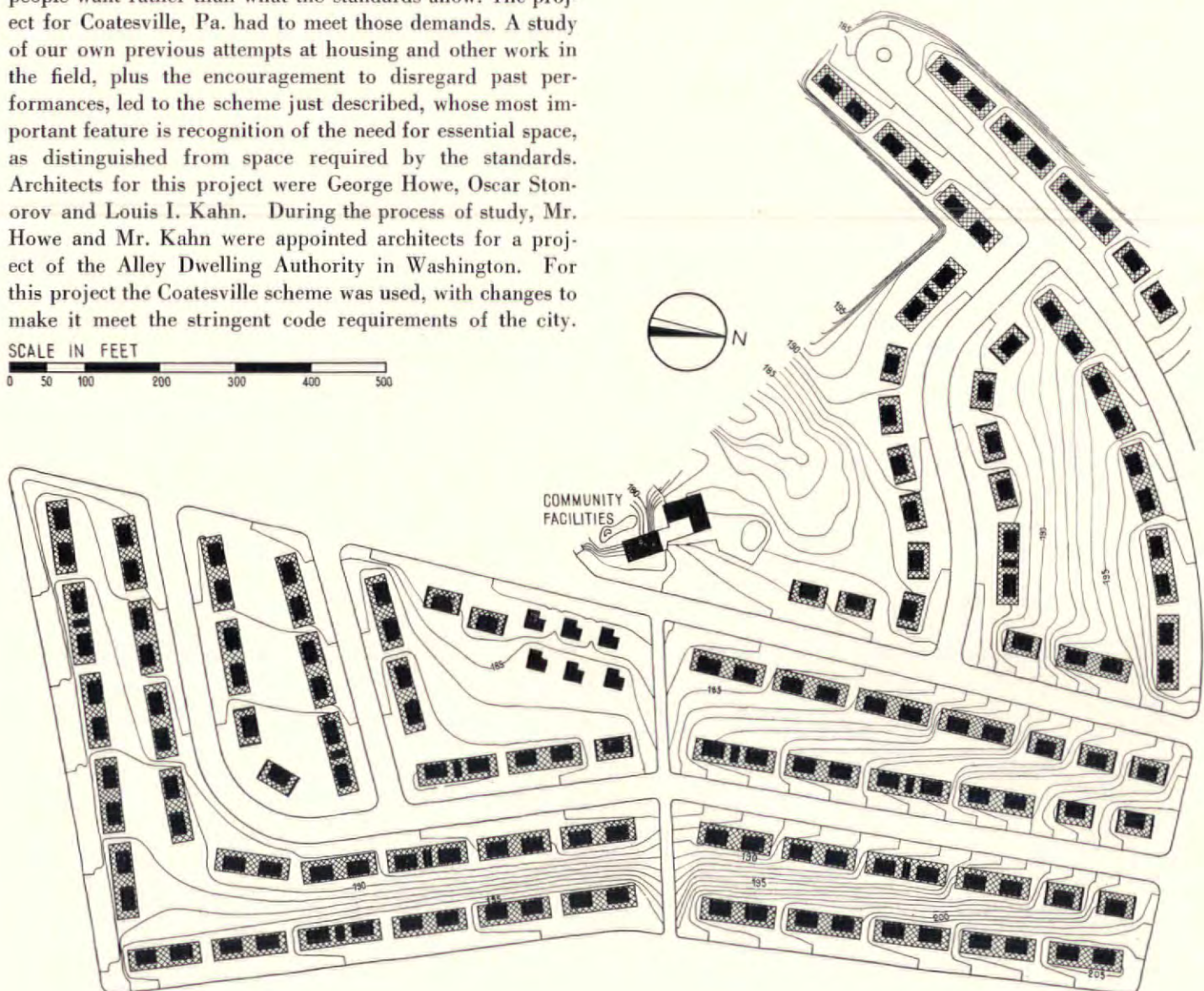
Planners, in their attempts to control room orientation, have sometimes resorted to extravagant site development, or have changed the unit types on opposite sides of the street. The "ground-freed" house may be entered with equal ease from either side, permitting the architect to orient rooms and porches as he desires.

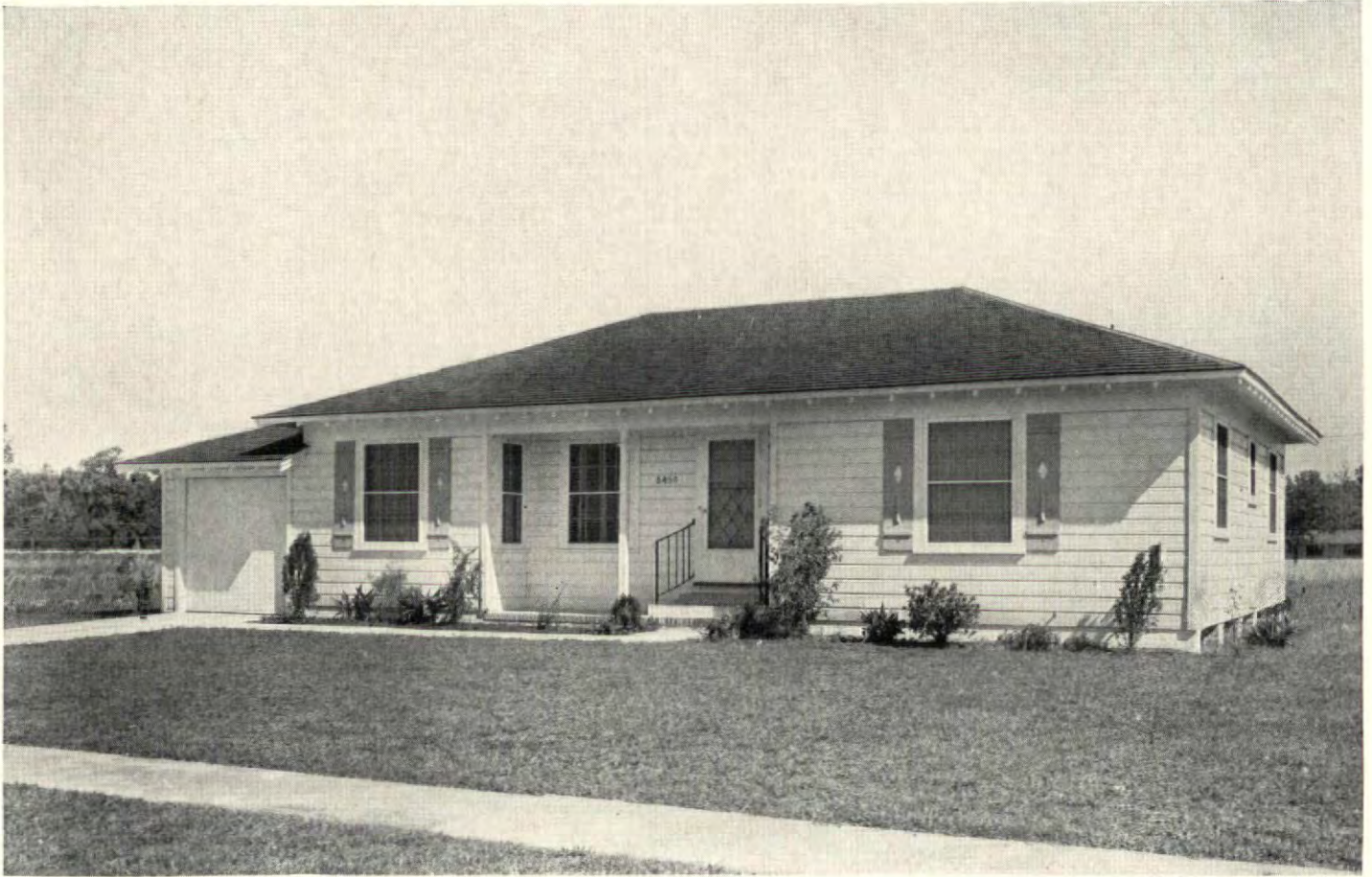
This scheme was developed for the Mutual Ownership Division of the FWA under Col. Westbrook, an agency which was primarily interested in finding solutions for self-supporting projects. A close study had to be made of what people want rather than what the standards allow. The project for Coatesville, Pa. had to meet those demands. A study of our own previous attempts at housing and other work in the field, plus the encouragement to disregard past performances, led to the scheme just described, whose most important feature is recognition of the need for essential space, as distinguished from space required by the standards. Architects for this project were George Howe, Oscar Stonorov and Louis I. Kahn. During the process of study, Mr. Howe and Mr. Kahn were appointed architects for a project of the Alley Dwelling Authority in Washington. For this project the Coatesville scheme was used, with changes to make it meet the stringent code requirements of the city.

SCALE IN FEET



It should hardly be necessary to state that the architects make no claims to complete authorship of the "ground-freed" house. The idea is an old one, and a very good one, and its application to housing offers distinct advantages, especially at the present time, when enthusiasm for site planning is tending to obscure the primary importance of the house. It is possible on any project to skimp on roads, planting and other elements, and to bring these up to par at some future date. The house, on the other hand, is completely inflexible once built. And if essential space is omitted at the beginning it can never be added. In view of these simple and inescapable facts, it is time to take another look at the standards and see what they mean in terms of family living.

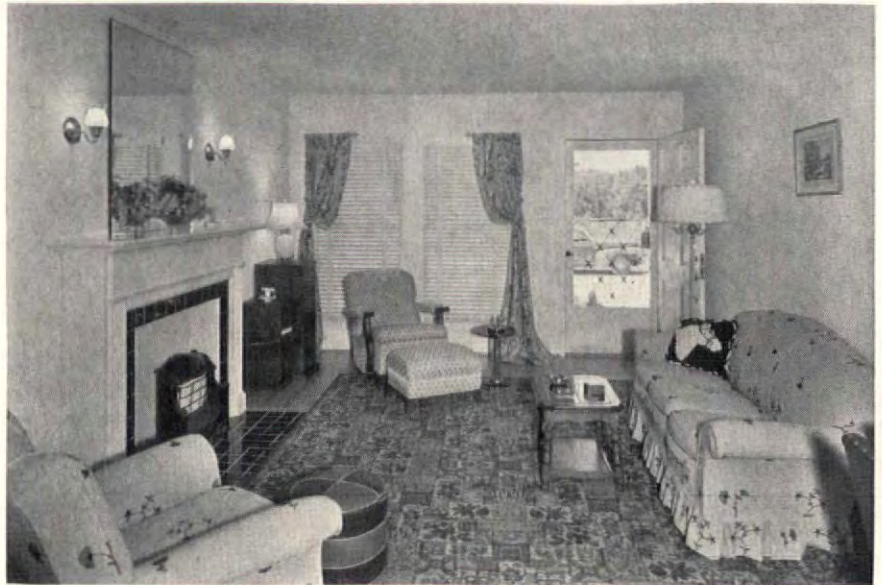


*Photos, Elwood M. Payne***H. D. FRANKFURT, ARCHITECT**

This small project, a typical pre-war FHA development, was given the needed preference rating when it was found that the houses were well located for use by war workers and Army officers. Occupants who do not wish to buy the houses may rent them at \$40 to \$45 per month. The typical floor plan shows a dwelling whose facilities are considerably in excess of those of the average war housing project, with an attached garage, screened porch and separate dining room. In general the project follows standard subdivision practice; the houses are lined up in rows on each side of the street, and slight variations in the exteriors have been introduced in an attempt to avoid monotony. If the necessary approval can be obtained, the project will ultimately contain 231 houses. Cost: \$3,700 per unit. Cubage: 9,900.



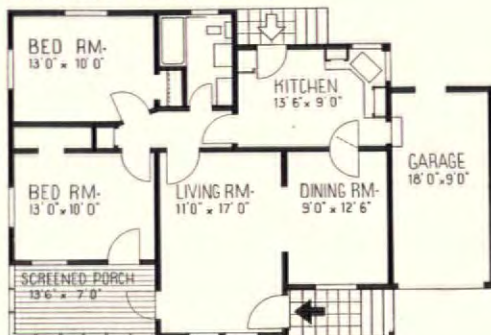
TYPICAL
LIVING ROOM



TYPICAL
BEDROOM



TYPICAL FLOOR PLAN



SCALE IN FEET
0 5 10 15

CONSTRUCTION OUTLINE

STRUCTURE: Yellow pine siding—U. S. Gypsum Co.; interior finish— $\frac{1}{2}$ " Sheetrock & Textone, U. S. Gypsum Co.
ROOF: Red cedar shingles.
WALL COVERINGS: Sheetrock & Textone—U. S. Gypsum Co.
PAINTS: Pittsburgh Plate Glass Co.
WOODWORK: Garage doors, overhead doors—Overhead Door Corp.
HARDWARE: The Yale & Towne Mfg. Co.
KITCHEN EQUIPMENT: Sink—Kohler Co.
BATHROOM EQUIPMENT: Lavatory & toilet—W. A. Case & Son Mfg. Co.; tub & shower—Kohler Co.
HEATING: Day & Night Water Heater Co.

TYPICAL KITCHEN



TYPICAL BATHROOM





**BOARD OF ARCHITECTS: CARL I. WARNECKE, Chairman,
HUGH C. WHITE, FREDERICK H. REIMERS,
JOHN J. DONOVAN, H. A. MINTON**
LANDSCAPE ARCHITECT: FLOYD H. MICK

Photos, Waters & Hainlin



CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—concrete; inside—plaster. Floors—asphalt tile, Armstrong Cork Co. and hardwood.

ROOF: Tar and gravel, 5-ply, Pabco, Parafine Co.'s, Inc.

SOUND INSULATION: U. S. Gypsum Co.

WINDOWS: Sash — steel. Glass — single strength, quality B, Pittsburgh Plate Glass Co.

FLOOR COVERINGS: Asphalt tile and oak.

Bathrooms—ceramic tile, Rigney Tile Co.

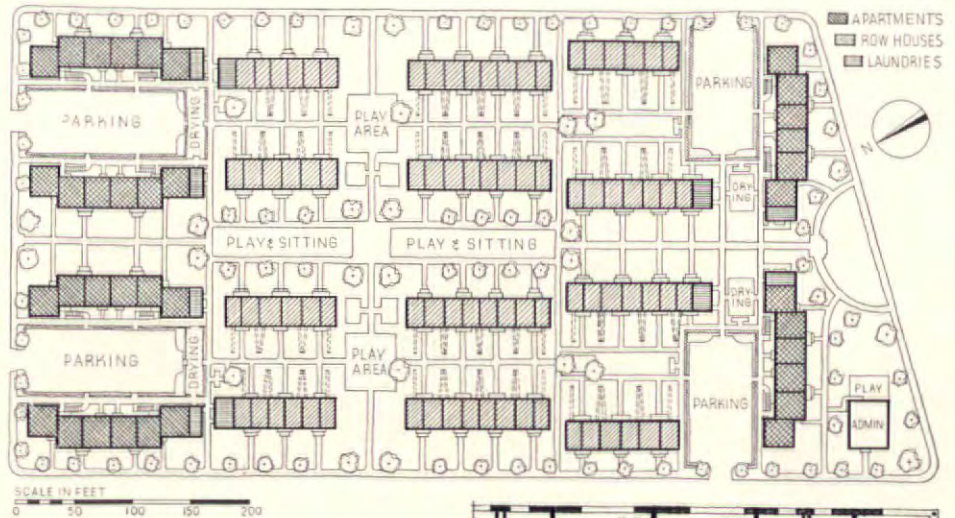
PAINTS: W. P. Fuller & Co.

HARDWARE: Sargent & Co.

KITCHEN EQUIPMENT: Range — Norge Corp.

BATHROOM EQUIPMENT: American Radiator-Standard Sanitary Corp.

HEATING: Warm air space heater, Fraser Co.

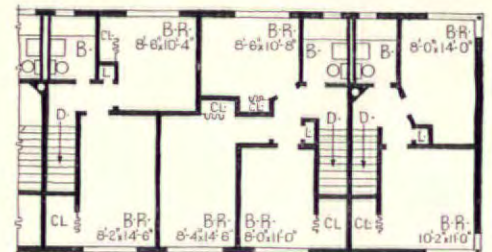


Campbell Village was built by the Housing Authority of the City of Oakland for rental to Oakland defense workers. Completed last fall, it houses 154 low-income families at an average shelterrent of \$14.70 per month. Eighty-two of the units are two-story row houses of $4\frac{1}{2}$ and $5\frac{1}{2}$ rooms, 72 are $3\frac{1}{2}$ and four-room apartments. Buildings occupy 24 per cent of the $6\frac{1}{3}$ acre site at a density of $24\frac{1}{2}$ families per acre. Net construction cost per dwelling unit was \$2,635 at \$3.47 per sq. ft. of floor area. Utilities, Auxiliary buildings, etc. cost \$309 per unit. Total cost per unit, not including equipment, architects' fee, carrying charges and land was thus just under \$3,000.

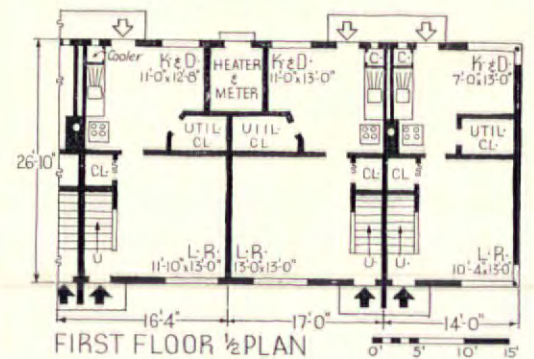
M. L. Cohen Co.



Waters & Hainlin

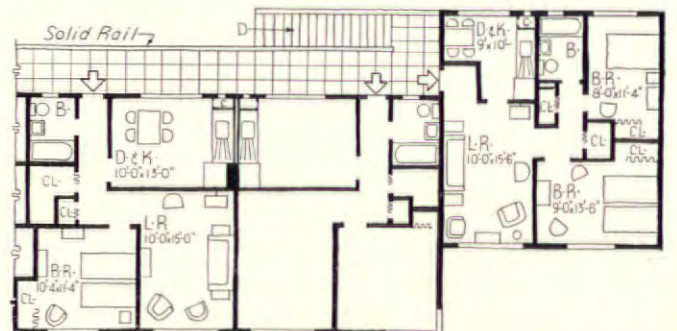


SECOND FLOOR $\frac{1}{2}$ PLAN

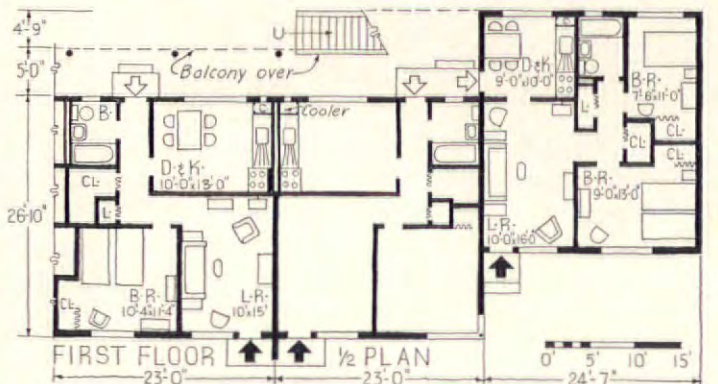


ROW HOUSES

FIRST FLOOR $\frac{1}{2}$ PLAN



SECOND FLOOR $\frac{1}{2}$ PLAN

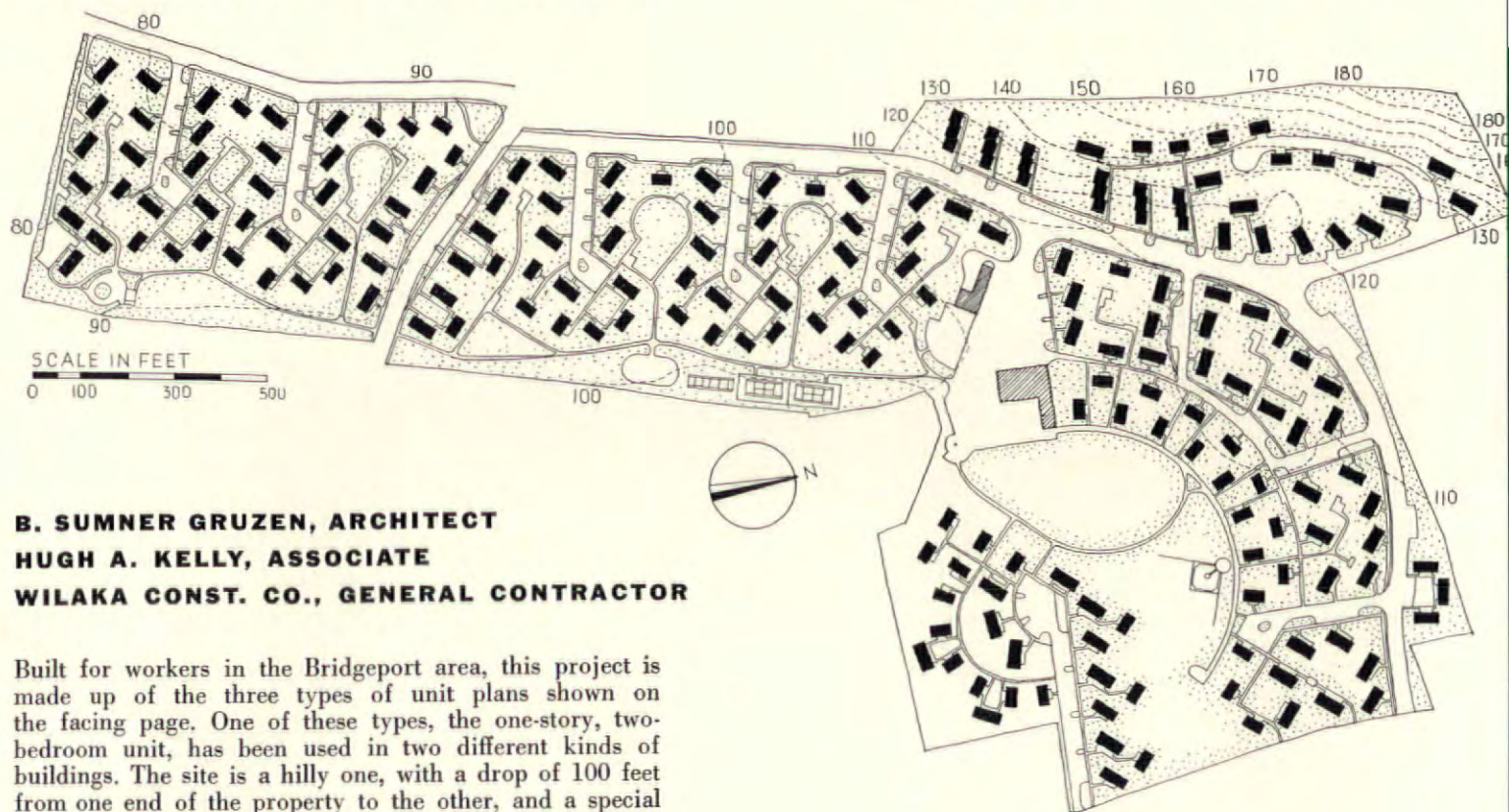


FIRST FLOOR $\frac{1}{2}$ PLAN

APARTMENTS

400 PERMANENT UNITS—RENTAL

STRATFORD, CONN.



B. SUMNER GRUZEN, ARCHITECT
HUGH A. KELLY, ASSOCIATE
WILAKA CONST. CO., GENERAL CONTRACTOR

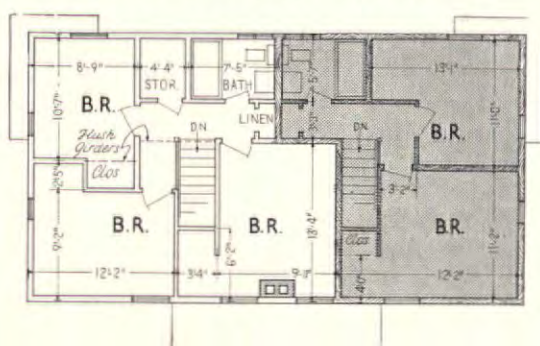
Built for workers in the Bridgeport area, this project is made up of the three types of unit plans shown on the facing page. One of these types, the one-story, two-bedroom unit, has been used in two different kinds of buildings. The site is a hilly one, with a drop of 100 feet from one end of the property to the other, and a special building was developed to fit on the more sharply inclined parts of the site. Consisting of three one-story units, it is adapted to the slope by means of vertical breaks occurring at the party walls.

Photos, Samuel H. Gottscho

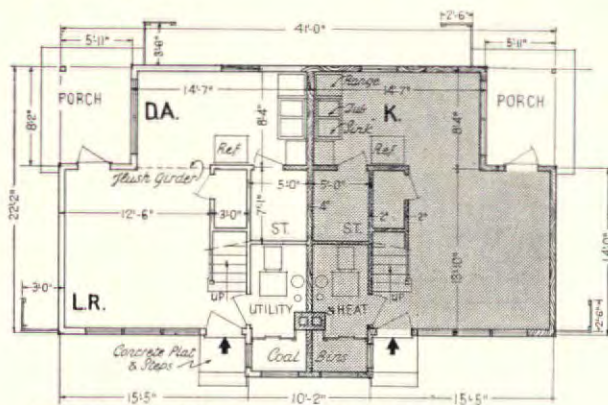


FEDERAL WORKS AGENCY

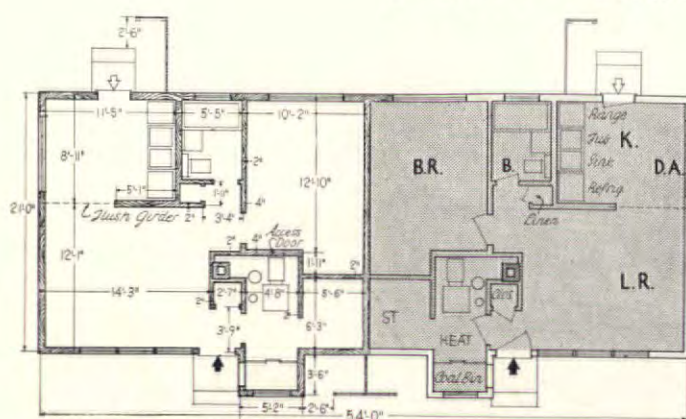
3-UNIT PLANS



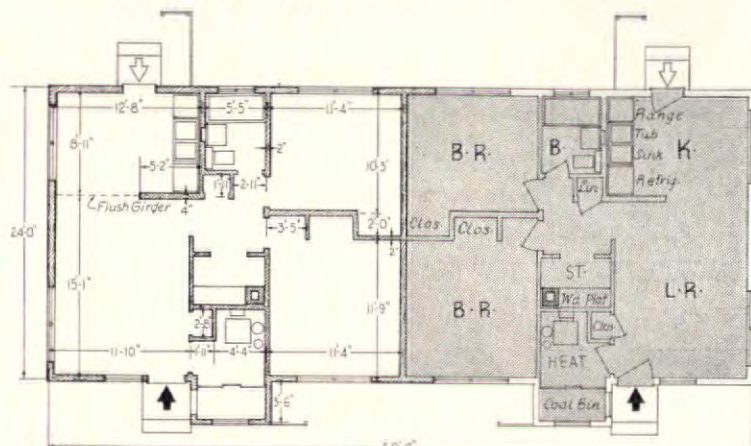
SECOND FLOOR



TWO STORY, 2 AND 3-BEDROOM UNITS

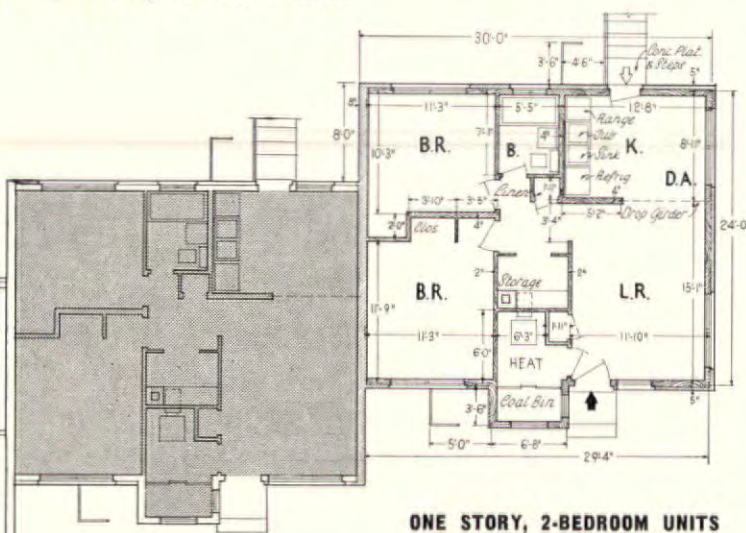
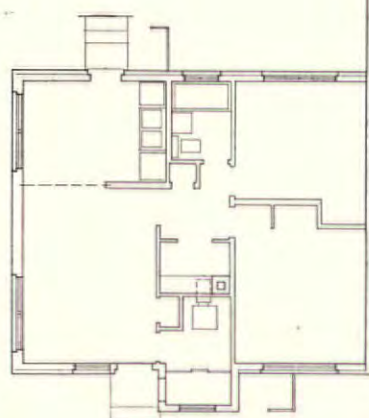


ONE STORY, 1-BEDROOM UNITS



ONE STORY, 2-BEDROOM UNITS

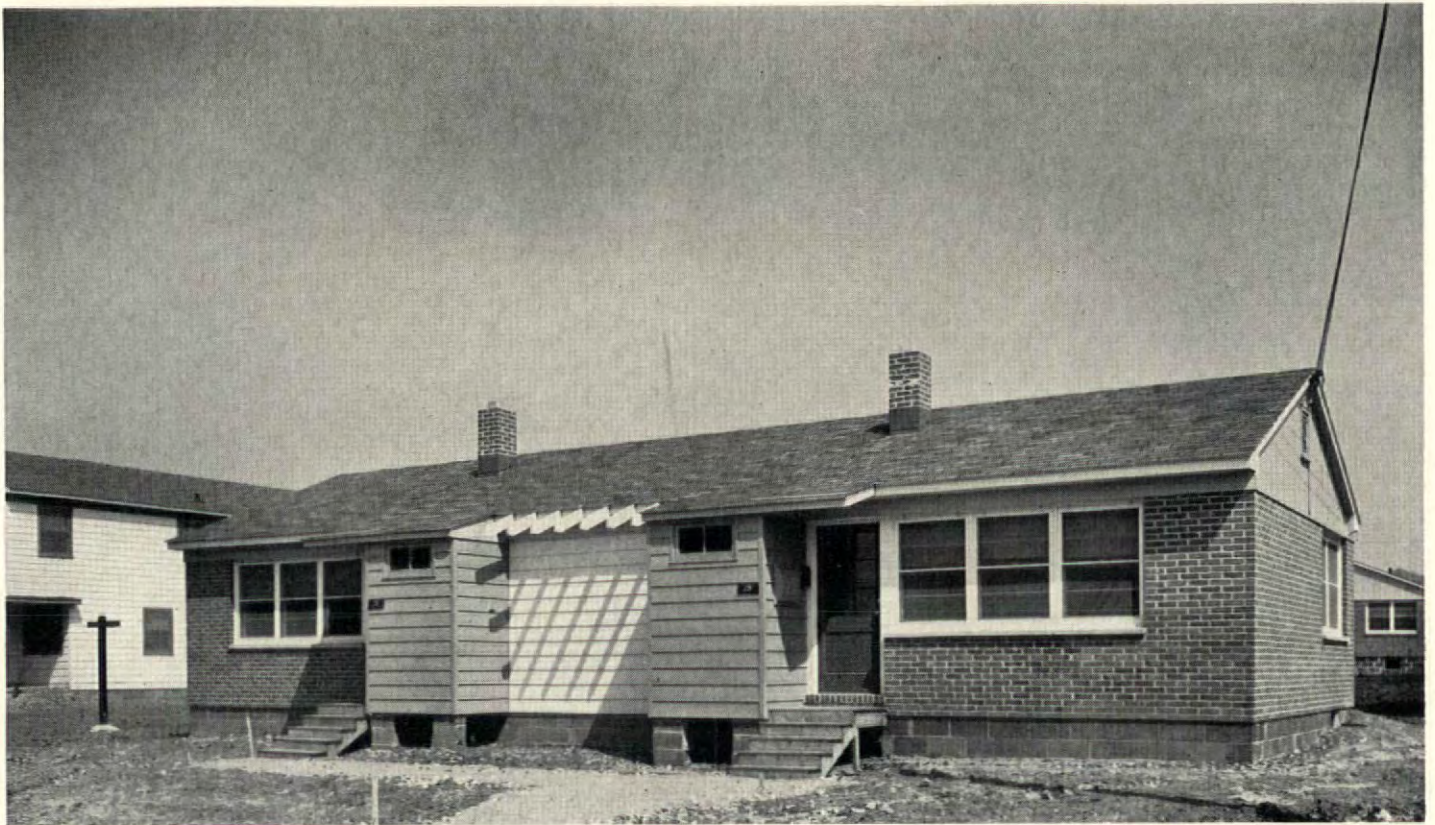
Scale 1/16" = 1' 0"



ONE STORY, 2-BEDROOM UNITS

The dwellings are heated by individual coal furnaces, and the bins, which have been well handled as integral parts of the houses, show a great improvement over the types which are accessible only from the outside. As originally set up, the project was to have a community center, with an assembly hall, washroom, dormitories, kindergarten rooms, etc. This building, provided for in the original site plan, at the west end of the park, was later eliminated. In describing the job, the architect remarks that "the area of 58 acres for the 400 units was shy about 15 acres. This led to more condensed planning than I should have liked . . . We were able to introduce a fairly comfortable park, however." Construction cost per unit: \$3,045. Rentals range from \$32 to \$35 a month.



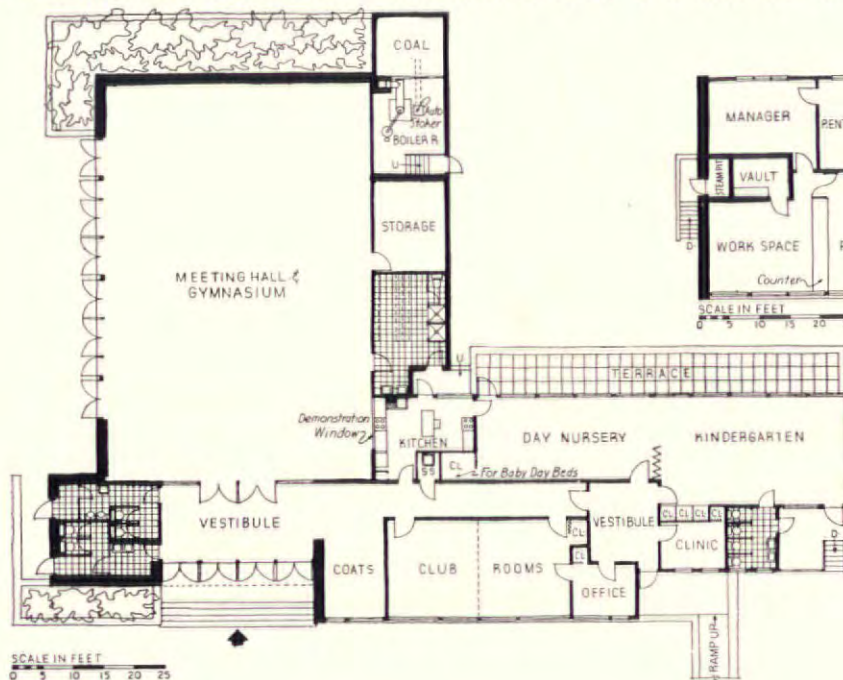


ONE-STORY, 1-BEDROOM UNIT

INTERIOR OF ONE-STORY, 2-BEDROOM UNIT



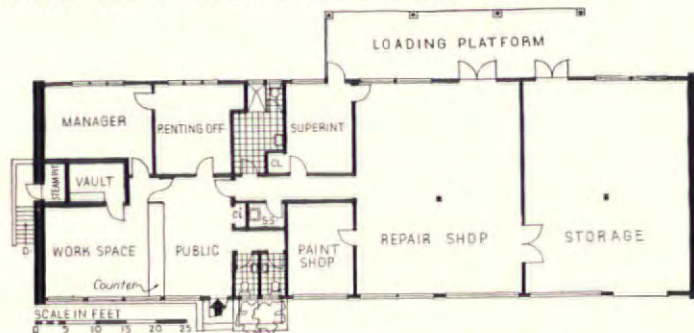
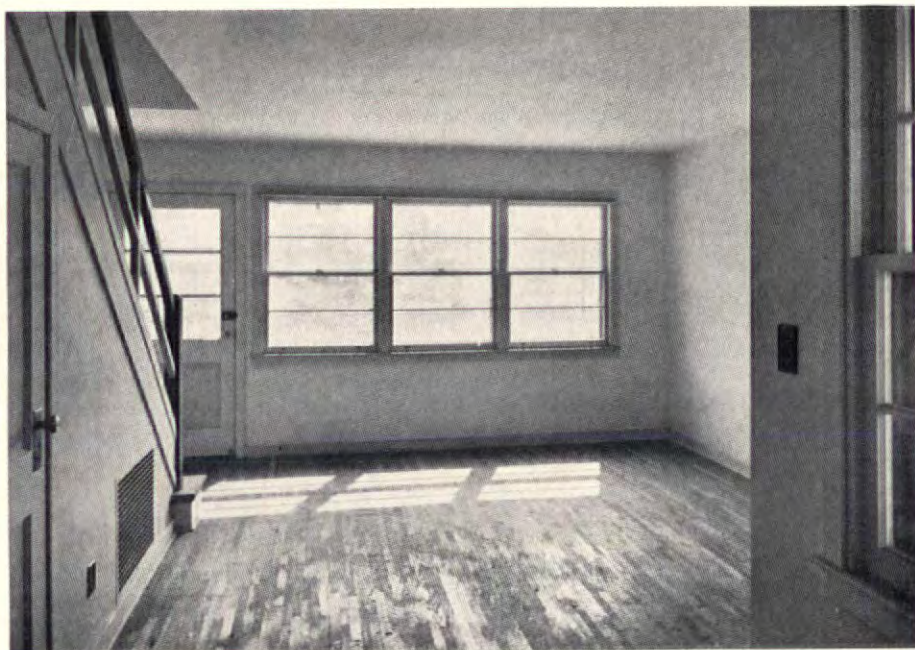
B. SUMNER GRUZEN, ARCHITECT, HUGH A. KELLY, ASSOCIATE



COMMUNITY HOUSE



INTERIOR VIEWS OF TWO-STORY UNITS



ADMINISTRATION BLDG.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—plaster on gypsum lath, U. S. Gypsum Co., wood frame, sheathing, brick veneer, I. L. Stiles & Son Brick Co.

ROOF: Asphalt shingles, Johns-Manville; or Koppers Co.

INSULATION: National Waterproofing Co., U. S. Mineral Wool Co., Johns-Manville and Kimberly-Clark Corp.

SHEET METAL WORK: Flashing—galvanized steel, Bethlehem Steel Co.

WINDOWS: Sash—wood, double hung. Glass—double strength, quality B.

FLOOR COVERINGS: Main rooms—oak. Bathroom—linoleum, Armstrong Cork Co.

PAINTS: Geo. D. Wetherill & Co., Inc.

WOODWORK: N. J. Cabinet & Mill Co.

HARDWARE: Sargent & Co.

ELECTRICAL INSTALLATION: Wiring system—Crescent Insulated Wire & Cable Co., Inc. Switches—Commercial Control & Device Corp. and Steel City Electric Co. Fixtures—Pass & Seymour and Hart & Hegeman Electric Co.

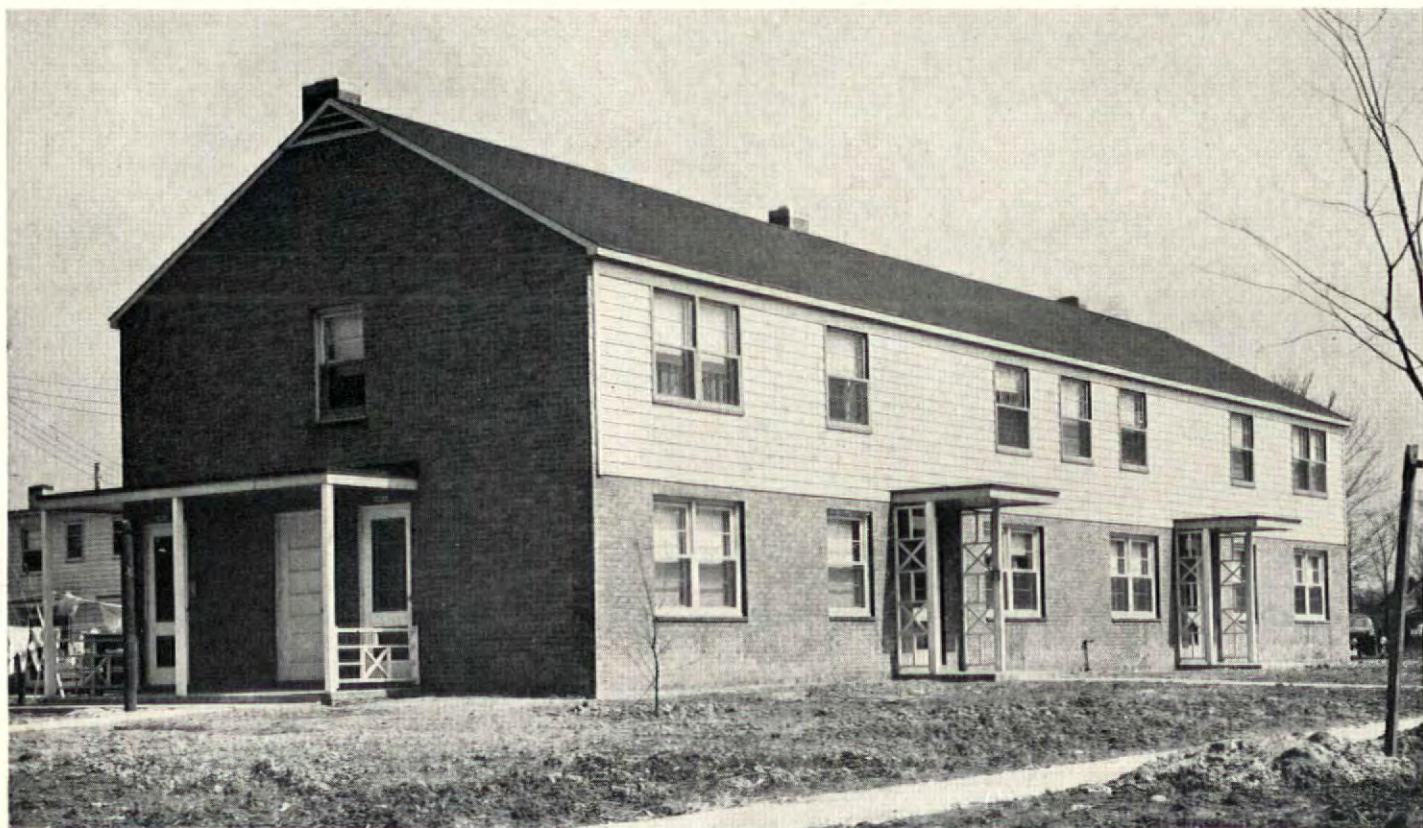
BATHROOM EQUIPMENT: American Radiator-Standard Sanitary Corp. and W. H. Hussey & Son, Inc. Cabinets—G. M. Ketcham Mfg. Co.

PLUMBING: Pipes—Alabama Pipe Co., A. M. Byers Co. and Wheeling Steel Co.

HEATING: Coal burning forced hot air, Thatcher Furnace Co. Grilles—Register & Grille Mfg. Co. Thermostat—Minneapolis-Honeywell Regulator Co. Water heater—Lawson Mfg. Co. Storage tank—John Wood Mfg. Co.



**CLEVELAND SMALL HOMES ARCHITECTURAL ASSOCIATION, ARCHITECTS
ROBERT W. DICKERSON, CHIEF ARCHITECT
A. D. TAYLOR, SITE ENGINEER
SHIRMER PETERSON CO., CONTRACTOR**



Photos, Kayanan



CONSTRUCTION OUTLINE

FOUNDATION: Concrete block, Cleveland Builders Supply Co.

STRUCTURE: Exterior walls—varied; some of brick veneer, concrete block or wood shingles; insulating sheathing, Insulite Co., National Gypsum Co. and Hinde & Dauch Co., wood sheathing and redwood siding. Ceilings—perforated Rocklath, U. S. Gypsum Co., plaster, Kelley Island Lime Co. and Ohio Hydrated Lime Co.

ROOF: Asphalt shingles and 4-ply built-up, Barrett Co.

INSULATION: Ceilings—4 in. mineral wool, Ludowici-Celadon Co.

WINDOWS: Sash—wood, double hung. Glass—single and double strength, quality B, Pittsburgh Plate Glass Co.

FLOOR COVERINGS: Bathrooms—linoleum, Armstrong Cork Co.

PAINTS: U. S. Gypsum Co. and Sherwin-Williams Co.

WOODWORK: Farley & Loetscher Co.

HARDWARE: Russell & Erwin and P. & F. Corbin.

ELECTRICAL INSTALLATION: Wiring system—knob and tube. Switches—Pass & Seymour.

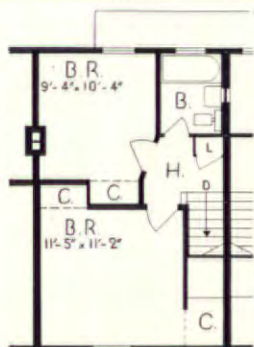
KITCHEN EQUIPMENT: Range—gas, Wellbilt Stove Co. Refrigerator—electric, General Electric Co.

BATHROOM EQUIPMENT: Briggs Mfg. Co. Cabinets—G. M. Ketcham Mfg. Co.

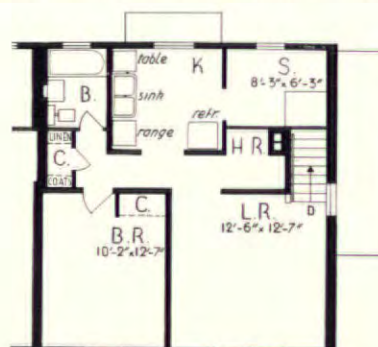
HEATING: Thermostats—Minneapolis-Honeywell Regulator Co.

This project was begun as a USHA low-rent development of about 250 units and was subsequently taken over as a defense project by FWA. Due to the shortage created by accelerated industrial activity the entire property was developed to its present size. The unit plans show both one- and two-floor dwellings, with kitchens of open and

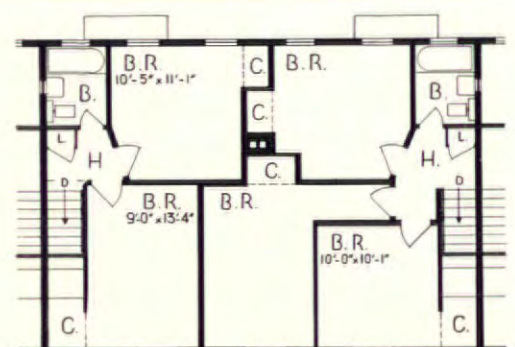
closed types used. According to the local authority, a major problem was to produce a design acceptable to the community, avoiding the monotony so common in large-scale projects on flat sites. The means employed, variation of materials and color, are a repetition of common subdivision practice. Cost: \$4,514. Rentals: \$37, \$40, \$43.



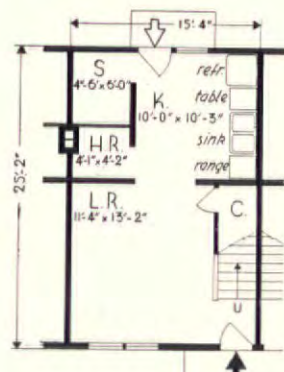
SECOND FLOOR



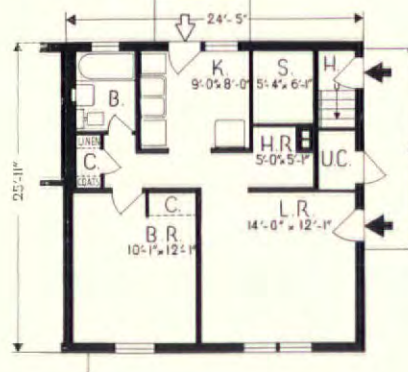
SECOND FLOOR



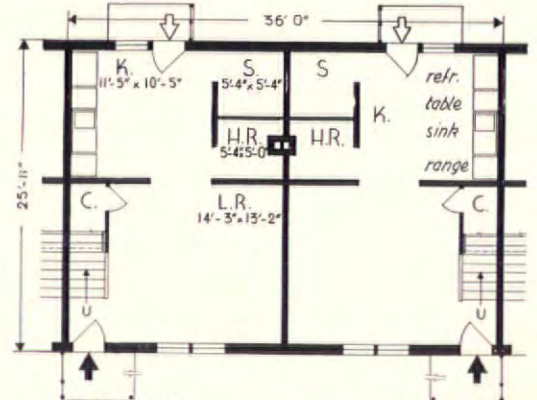
SECOND FLOOR



FIRST FLOOR



FIRST FLOOR



FIRST FLOOR

TYPICAL FLOOR PLANS



Photos, FHA

**BALTIMORE, MARYLAND****A. E. LANDVOIGHT, INC., BUILDERS**

The builder of this project states: "This house was designed in July 1939 and was built as a test in Annapolis at a cost of \$2,500. It was followed by 75 in Annapolis and 240 more in Baltimore. They were financed through FHA under Title I Class 3 and Title VI. The group shown here was valued by FHA at \$3,800 per house, with Title VI mortgages of \$2,700. Total monthly payments on the old Title VI terms (providing for accelerated amortization during the first five years) were \$30.74, including taxes, insurance and ground rent. On present terms, monthly payments would be about \$28.60." The typical unit has been well handled inside and out. Two first-floor bedrooms may be supplemented by development of the attic space.





G. E. Meyers

BRISTOL, CONNECTICUT

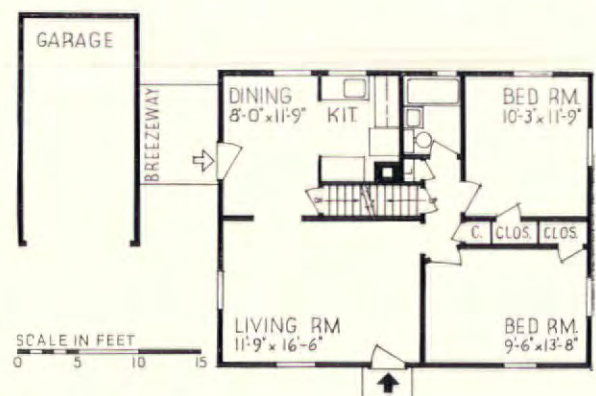
H. A. HAYDEN, ARCHITECT

BRISTOL HOUSING CORPORATION, BUILDER

NUSSBAUMER & CLARK, SITE ENGINEERS

DELVAL CONSTRUCTION CORPORATION, CONTRACTORS

The architect of this development has handled the individual houses with unusual restraint, avoiding one of the major pitfalls of subdivision practice by refusing to modify roof shapes merely for the sake of variety. The result is a group harmonious in scale and form. Typical of the houses is the example above, a compact design with both basement and usable attic. The arrangement of garage, breezeway and house is not only logical, but a very satisfactory means of softening the outlines of the house. Sales price: \$5,390.



CONSTRUCTION OUTLINE

STRUCTURE: Prefabricated — American Houses Inc.; ceiling finish, 1/2" cork gypsum board—Kelly Plaster Board Co.

ROOF: Asphalt shingles—U. S. Gypsum Co.
INSULATION: Exterior walls—2" blanket; attic floor—2" batts, U. S. Gypsum Co.

FLOOR COVERINGS: Kitchen, bathrooms, asphalt tile—The Tile-Tex Co.

WOODWORK: Garage doors—Overhead Door Corp.

HARDWARE: The Stanley Works.

KITCHEN EQUIPMENT: Crane Co.

BATHROOM EQUIPMENT: Crane Co.

PLUMBING: Soil pipes, vent pipes, branch lines—Crane Co.

HEATING: Thermostat—Minneapolis-Honeywell Regulator Co.



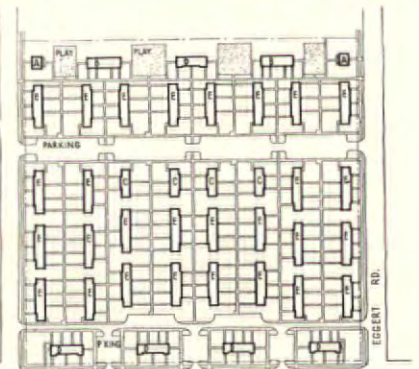
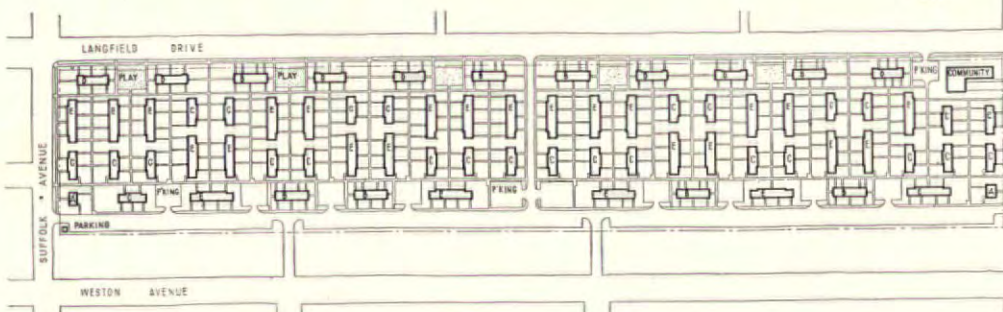
HARE Photos

GREEN AND JAMES, ARCHITECTS**WILLIAM E. HARRIES, LANDSCAPE ENGINEER****W. L. CROW CONST. CO., CONTRACTOR**

This project has been laid out to fit an existing conventional street pattern. A small shopping center is located about three quarters of a mile away. Tenants have to provide their own transportation to both work and stores. The buildings are laid out with complete regularity on flat ground, but the general effect is agreeable and surprisingly intimate. The unit plans gave an opportunity to check tenant reactions to the open type of kitchen-living room arrangement versus separate rooms. An informal survey disclosed an almost universal preference for the latter.

Average unit cost: \$2,935.

Rentals: \$27.50, \$30 and \$32.50.

3 3
TYPE A BLDG.2 3 3 2
TYPE D BLDG.2 1 1 2
TYPE B BLDG.3 1 1 1 3
TYPE E BLDG.3 1 1 3
TYPE C BLDG.SCALE IN FEET
0 50 100 200 300 400



CONSTRUCTION OUTLINE

STRUCTURE: Walls—Gyp-lap; sheet rock, U. S. Gypsum Co.

ROOF: Asbestos shingles.

INSULATION: Exterior walls—rock wool; attic floor—rockwool

WINDOWS: Sash—steel, Detroit Steel Products Co.; glass—double-thick, Pittsburgh Plate Glass Co.

FLOOR COVERINGS: Bathrooms—linoleum, Armstrong Cork Co.

PAINTS: Pittsburgh Plate Glass Co.

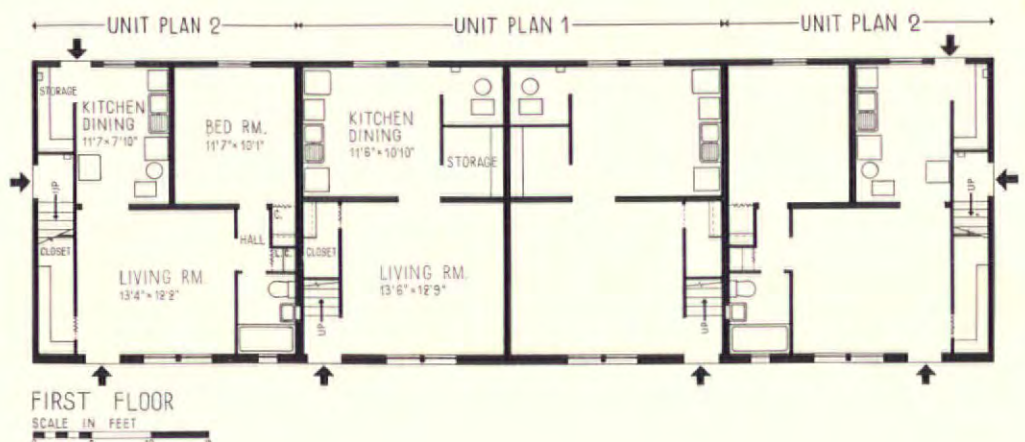
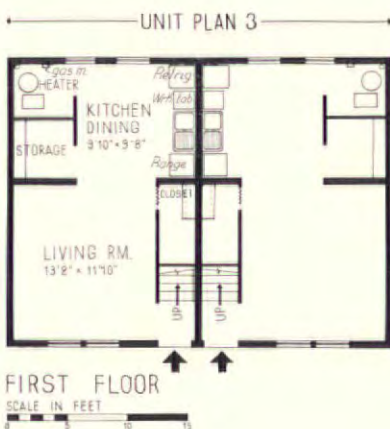
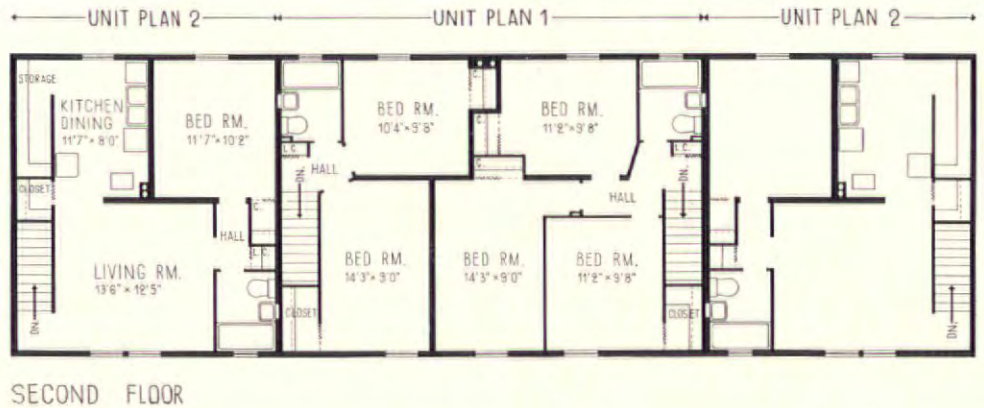
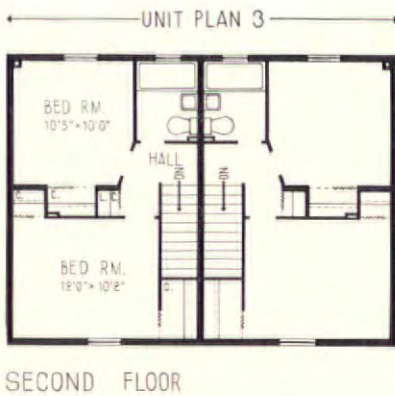
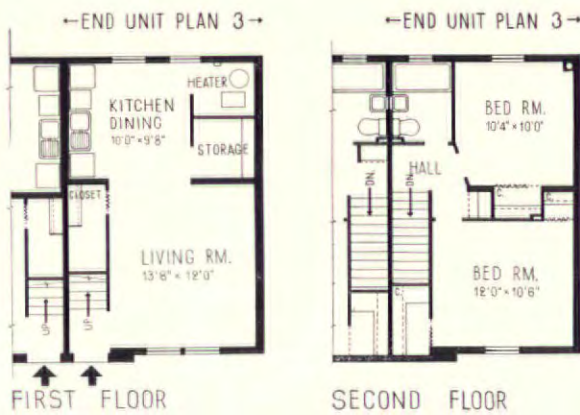
HARDWARE: Lockwood Hardware Mfg. Co.

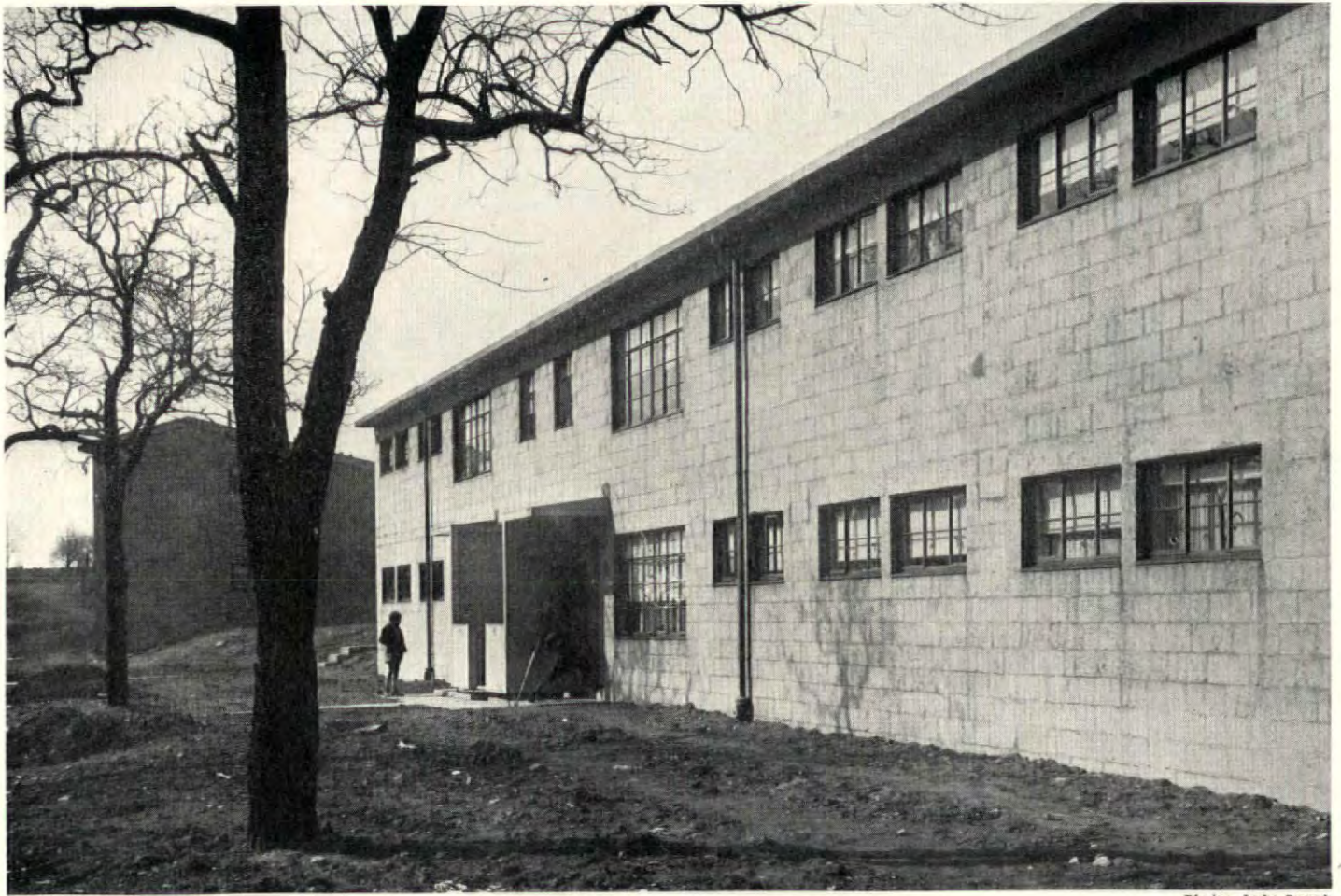
ELECTRICAL INSTALLATION: Switches and fixtures—Pass & Seymour, Inc.

KITCHEN EQUIPMENT: Sink—combination, Kohler Co.

BATHROOM EQUIPMENT: Kohler Co., cabinets—G. M. Ketcham Co.

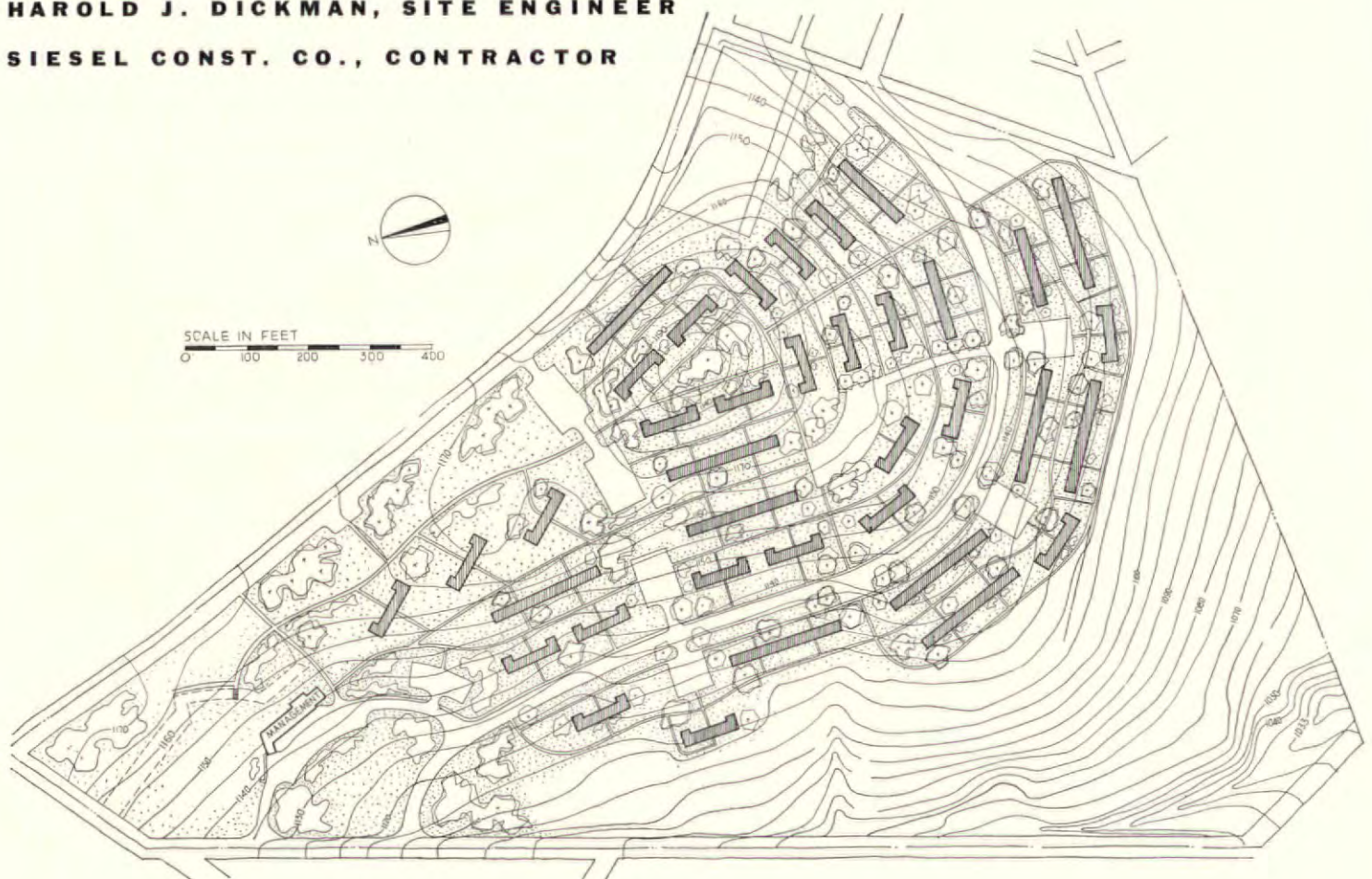
HEATING: Warm air—Surface Combustion Co.; thermostat—electrical, Surface Combustion Co.





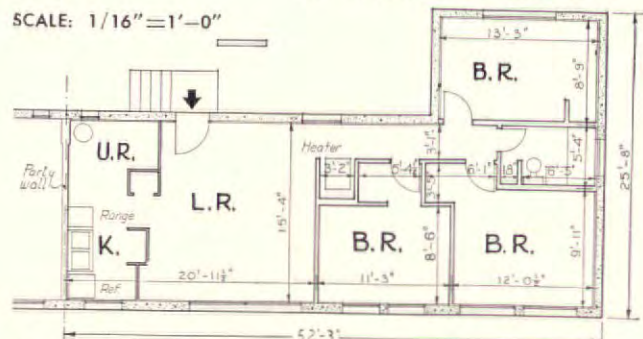
Photos, Luke Swank

MITCHELL & RITCHEY, ARCHITECTS
HAROLD J. DICKMAN, SITE ENGINEER
SIESEL CONST. CO., CONTRACTOR

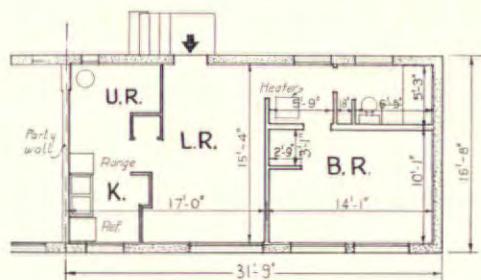




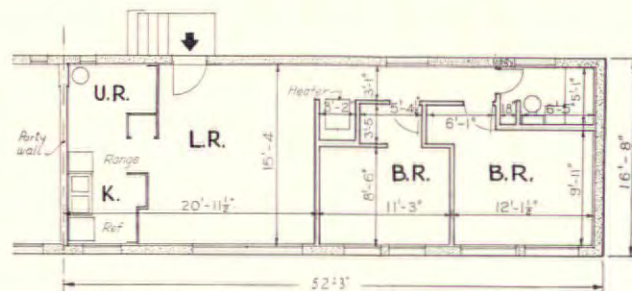
SCALE: 1/16"=1'-0"



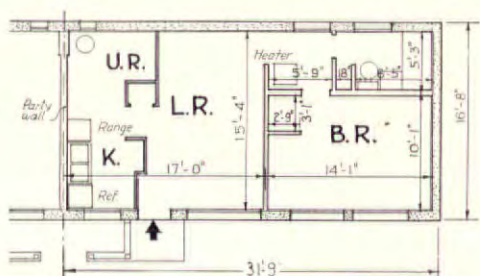
SECOND FLOOR, 3-BEDROOM UNIT



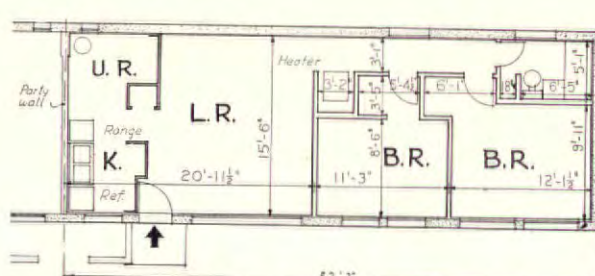
SECOND FLOOR



SECOND FLOOR



TWO STORY, 1-BEDROOM UNIT



TWO STORY, 2-BEDROOM UNIT

This project, shown in a preliminary stage in *THE FORUM*, October, 1941 issue, has since been completed and occupied. The two-story apartment buildings are built into the sloping site, with the entrances to the second-floor apartments directly from grade on the high side. Units have one, two and three bedrooms each, and rent for \$25, \$27.50, \$30. Construction cost: \$3,412.00 per family.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—cinder concrete block, General Cement Products Co. Floors—asphalt tile, Armstrong Cork Co.

ROOF: Mineralized roll roofing over felt laid in asphalt.

INSULATION: Roof—blanket insulation. Sound insulation—rockwool.

WINDOWS: Sash—steel, Hope's Windows, Inc. Glass—double strength, quality B, Mississippi Glass Co.

PAINTS: Sherwin-Williams Paint Co.

HARDWARE: Russell & Erwin Mfg. Co.

ELECTRICAL INSTALLATION: Wiring system—conduit. Fixtures—Pass & Seymour.

BATHROOM EQUIPMENT: American Radiator-Standard Sanitary Corp.

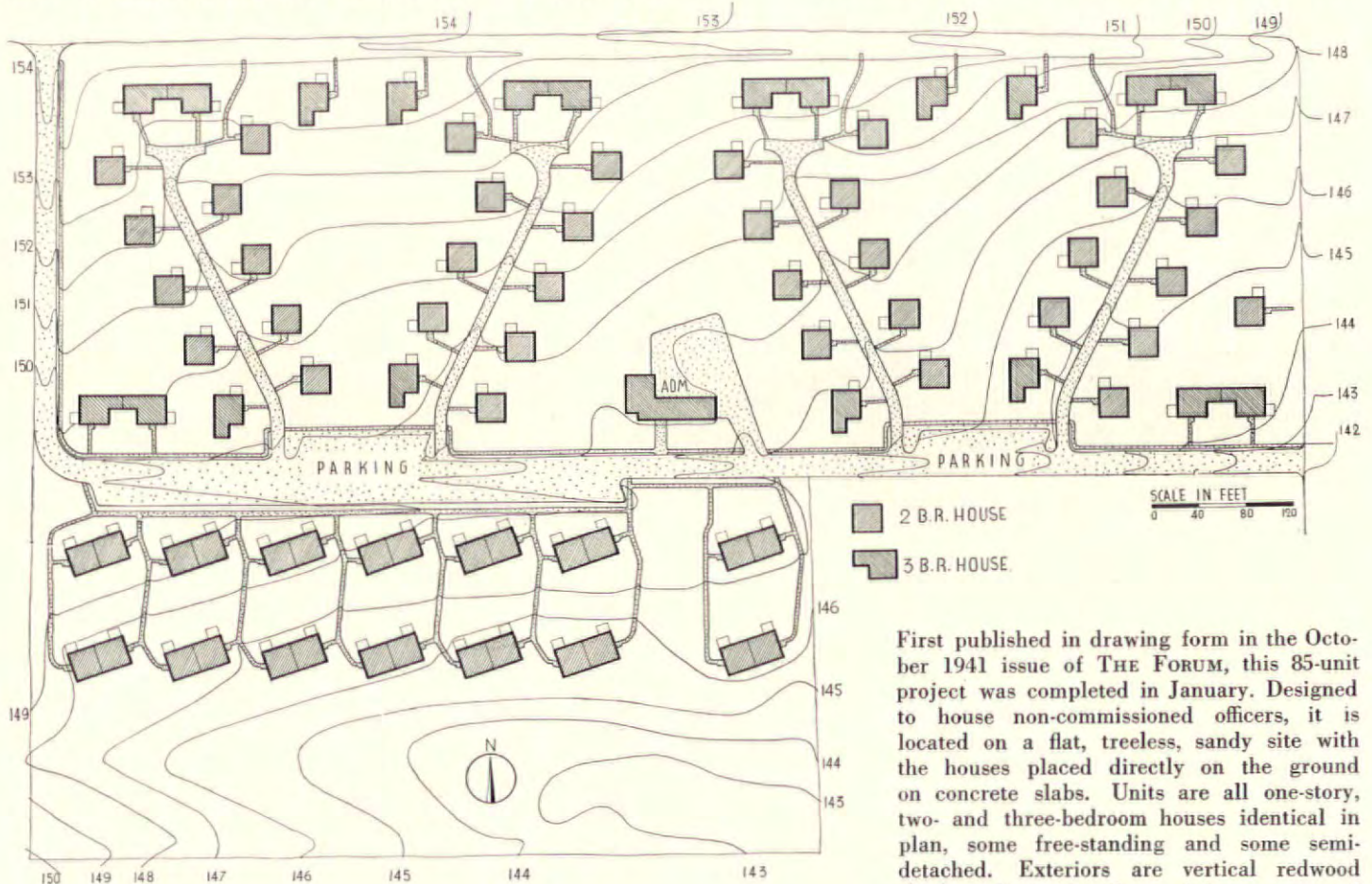
PLUMBING: Pipes—U. S. Steel Co. and A. M. Byers Co.

HEATING: Forced air system, gas-fired, thermostatically controlled. Water heater—Rheem Mfg. Co.



85 PERMANENT UNITS—RENTAL

WINDSOR LOCKS, CONN.

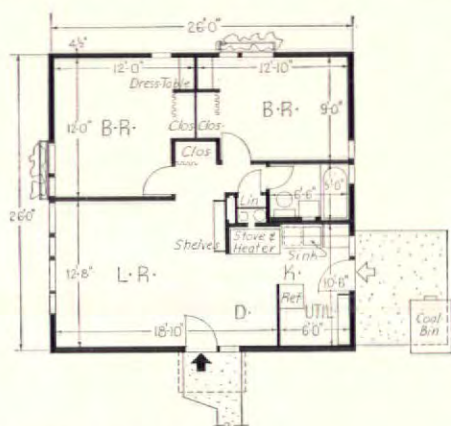


HUGH STUBBINS, JR., ARCHITECT

First published in drawing form in the October 1941 issue of *THE FORUM*, this 85-unit project was completed in January. Designed to house non-commissioned officers, it is located on a flat, treeless, sandy site with the houses placed directly on the ground on concrete slabs. Units are all one-story, two- and three-bedroom houses identical in plan, some free-standing and some semi-detached. Exteriors are vertical redwood shiplap, eliminating the need for trim around doors and windows; roofs covered with roll roofing. Average construction cost per unit was \$3,020. Rentals, \$13 to \$23.50.

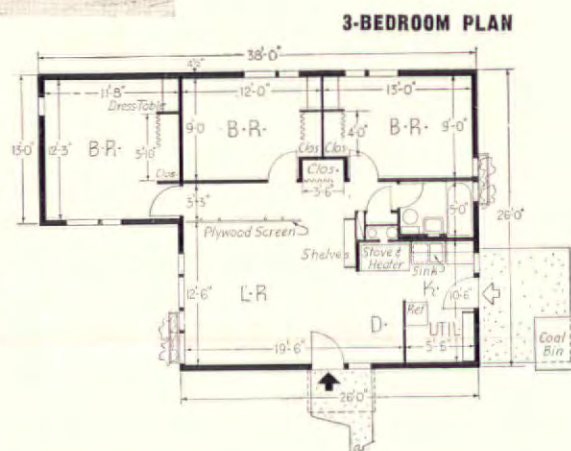
Photos, Paul Davis



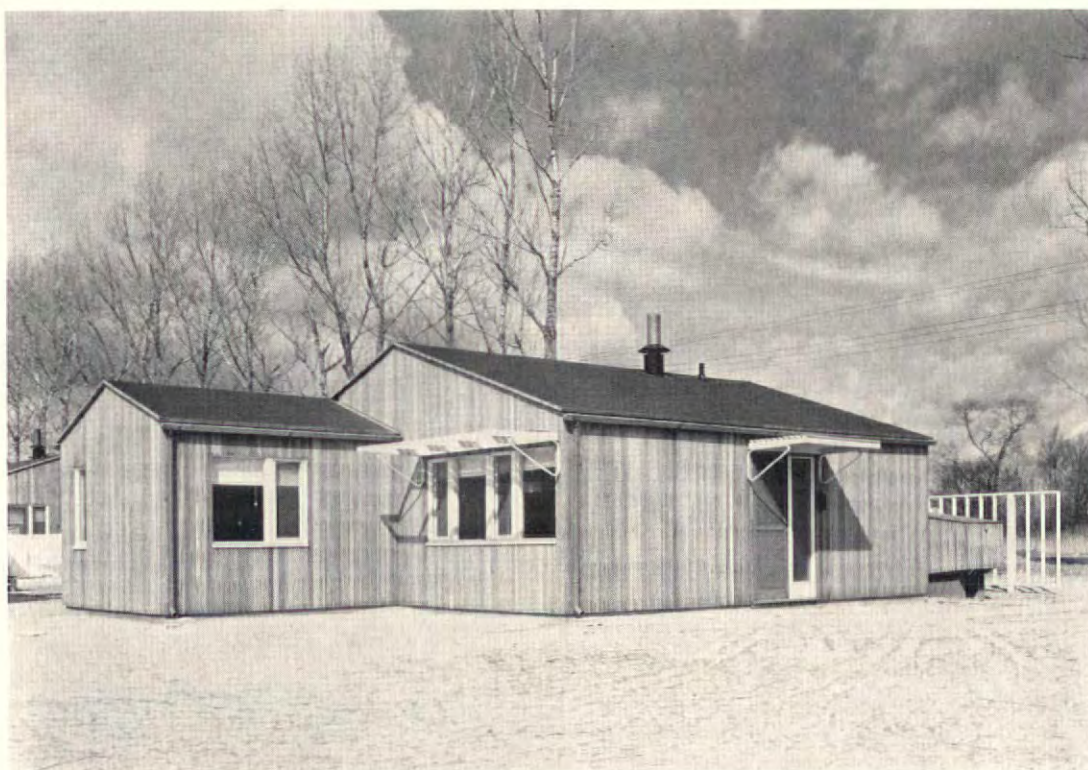


2-BEDROOM PLAN

Unit plans are a model for efficiency, are based on the use of coal for heating, cooking and hot water. A coal burning boiler, located next to the range, is connected to a unit heater in the attic space which supplies heat to the various rooms through hot-air ducts. Hot water for domestic use is furnished by the range. In three-bedroom plan, note use of light plywood screen to create hallway to third bedroom.



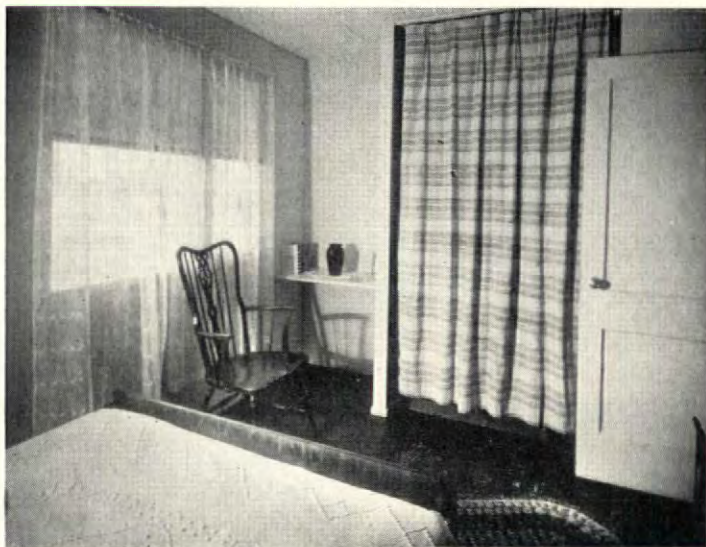
3-BEDROOM PLAN





SEMIDETACHED, 3-BEDROOM UNITS

BEDROOM



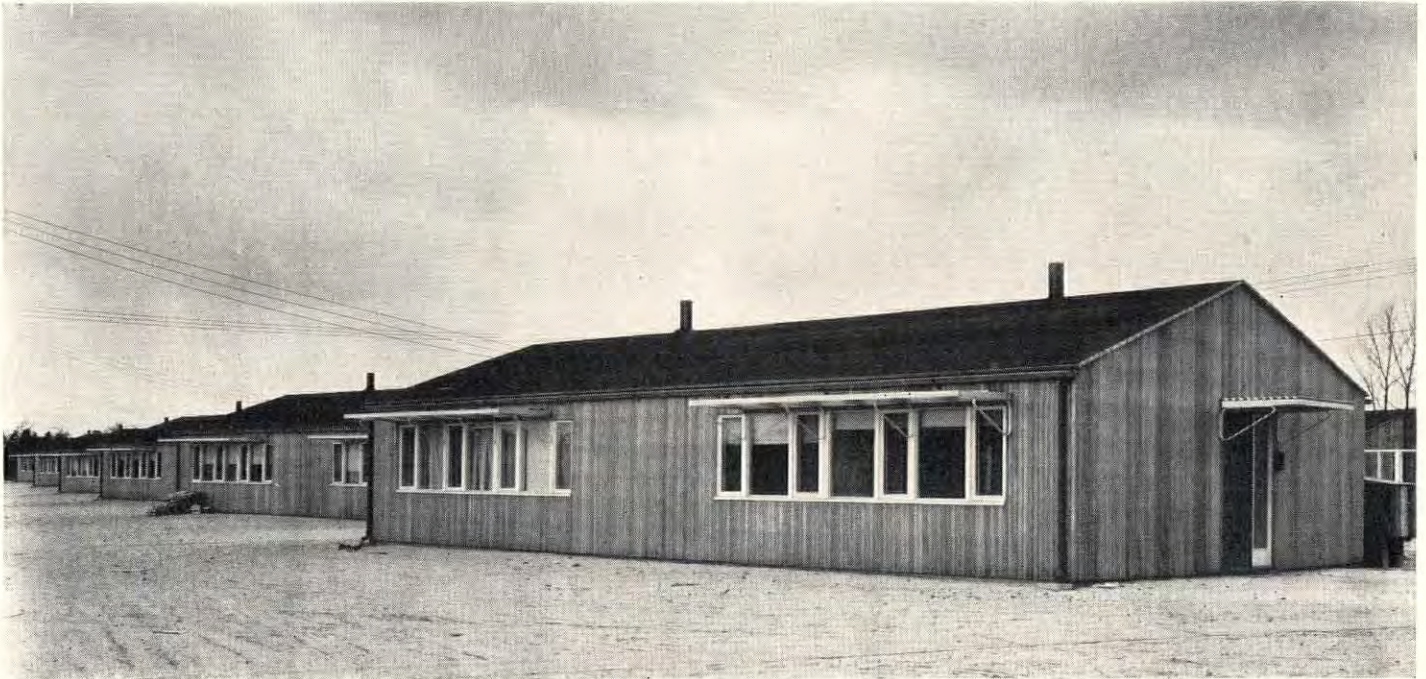
Shown above is a pair of semidetached, three bedroom units connected by their projecting bedroom wings. Houses hug the ground because of flat slab foundation, broad windows have glass partly fixed directly in the frame, partly in hinged ventilator sash. Interiors show (left) closet and writing desk in corner of typical bedroom and (below) kitchen-dining unit with oblique view of range-heater and corner of living room with door to bedroom and curtained opening to hall closet.

KITCHEN



LIVING ROOM

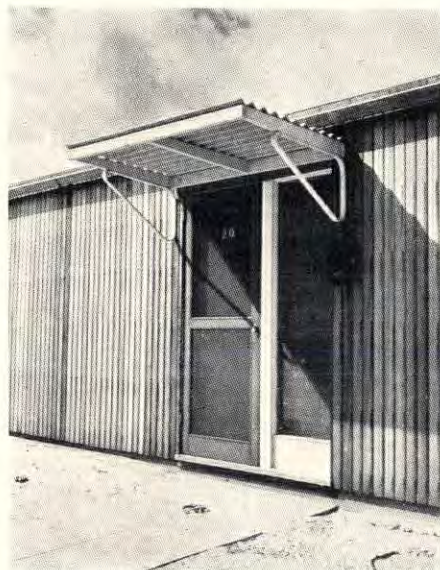




Diagonal placing of units (above) gives unobstructed outlook in four directions and increases privacy. These units are twin two bedroom houses, detached houses are arranged in the same way. Photo at left shows the project administration building, designed to harmonize with the houses. Details below show sunshade over living room windows (right) and hood above entrance door, built of framing lumber with strap-iron brackets and covered with corrugated asbestos.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls — redwood shiplap, pine sheathing; inside—studs and Sheetrock, U. S. Gypsum Co. Floors—asphalt tile, Tile-Tex. Co.
ROOF: Slate covered roll roofing, Frye & Co.
INSULATION: Attic floor—Kimsul, Kimberly-Clark Corp.
SHEET METAL WORK: Flashing and leaders—Toncan metal, Republic Steel Corp.
WINDOWS: Sash—wood casement. Glass—double strength, quality B.
WALL COVERINGS: Gypsum board, Certain-Teed Products Corp.
HARDWARE: Lockwood Hardware Mfg. Co.
ELECTRICAL FIXTURES: Pass & Seymour.
KITCHEN EQUIPMENT: Range — Floyd Wells Co.
BATHROOM EQUIPMENT: Briggs Mfg. Co.
HEATING: Split system.





FHA

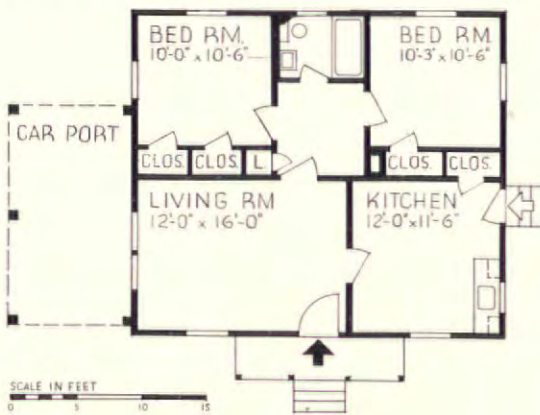
DIAL & THOMAS, ARCHITECTS

W. P. CROSLAND, CONTRACTOR

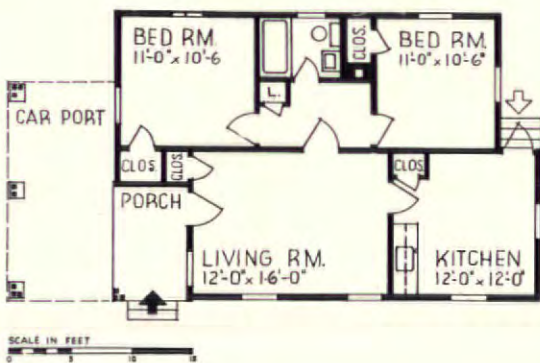


Charles Old





HOUSE #1

Photos, Charles Old

HOUSE #2

CONSTRUCTION OUTLINE

FOUNDATION: Brick and concrete—Alpha Portland Cement Co.

STRUCTURE: Asbestos siding — Ruberoid Co.; felt 1" sheathing—Certainteed Corp.; $\frac{3}{8}$ " rock lath—U. S. Gypsum Co.

ROOF: Asphalt shingles—Dixie Asphalt Co.

FLOOR COVERINGS: Kitchens & baths, linoleum—Armstrong Cork Co.

WALL COVERINGS: Texolite—U. S. Gypsum Co.

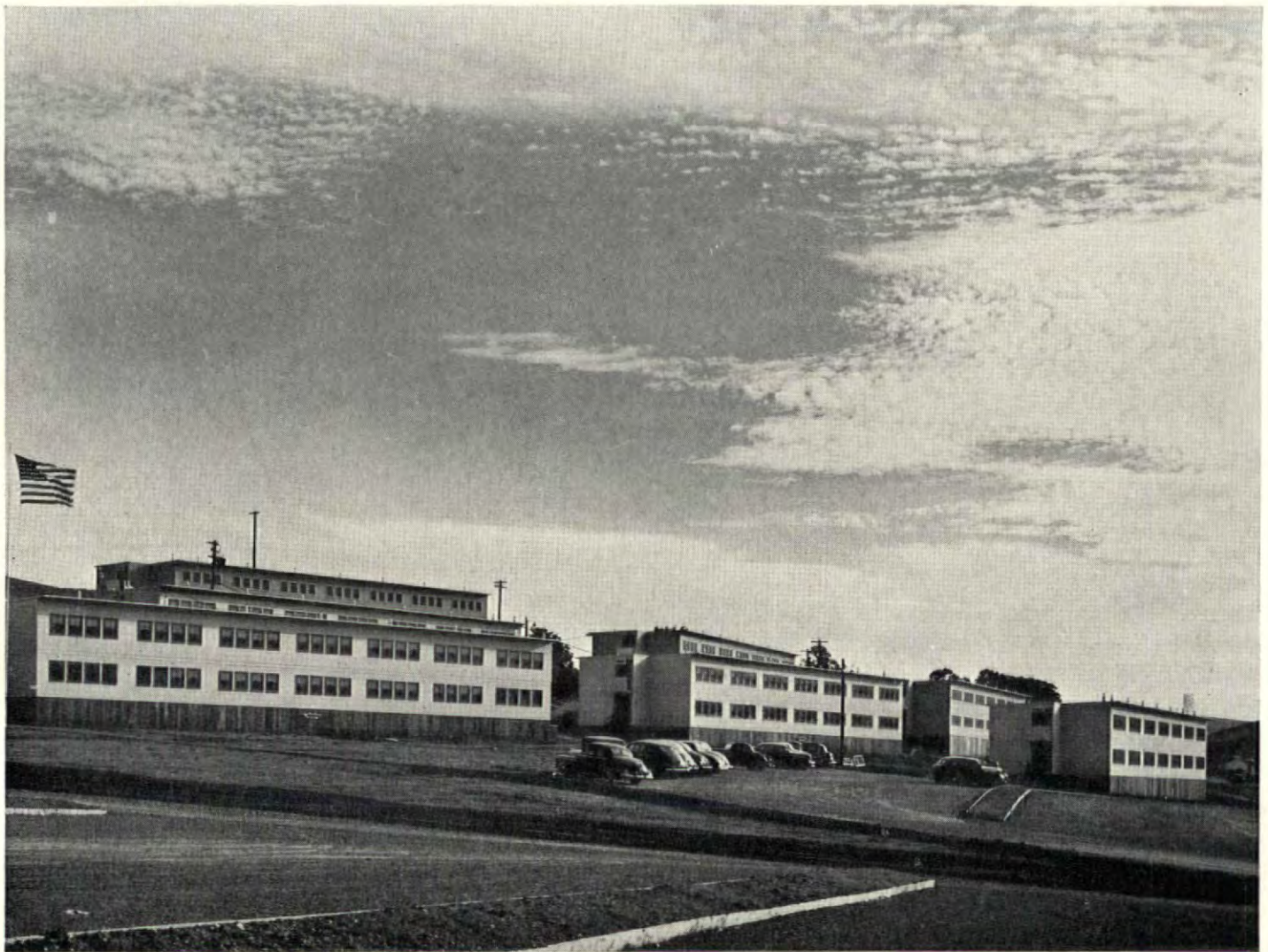
HARDWARE: Yale & Towne Mfg. Co.

KITCHEN EQUIPMENT: Kohler Co.

BATHROOM EQUIPMENT: Lavatory & tub—Kohler Co.; toilet—C. F. Church Mfg. Co.; cabinets—Miami Cabinet Co.

HEATING: Oil burning—Estate Stove Co.; water heater—Combustion Engineering Co.

In plan, and in their general exterior treatment, these houses belong to a fairly common type, with the carports as the chief departure from conventional practice. Both of the typical houses offer substantially the same accommodations. Each has a kitchen large enough for family meals, a single bath, two bedrooms of moderate size, and a rather large inside hall. The subdivision plan shows an attempt to arrive at a compromise between the irregular site and the need to create a fairly uniform group of lots, most of which run about 60 feet in width. The house spacing provided is quite adequate, and the livability of the project is further enhanced by the changes in level. Costs were \$2,806 for house 1, and \$2,894 for house 2. Average sale price is \$3,350, which includes prepaid FHA financing and insurance charges.



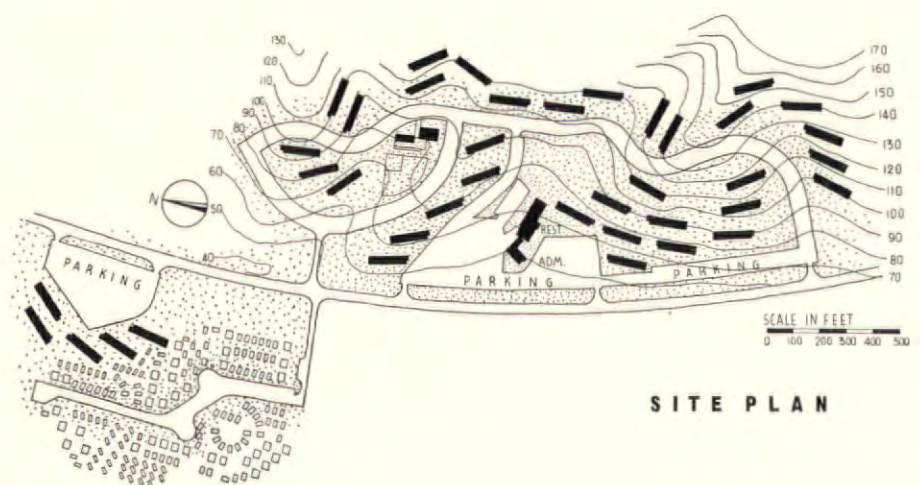
Lee—FSA

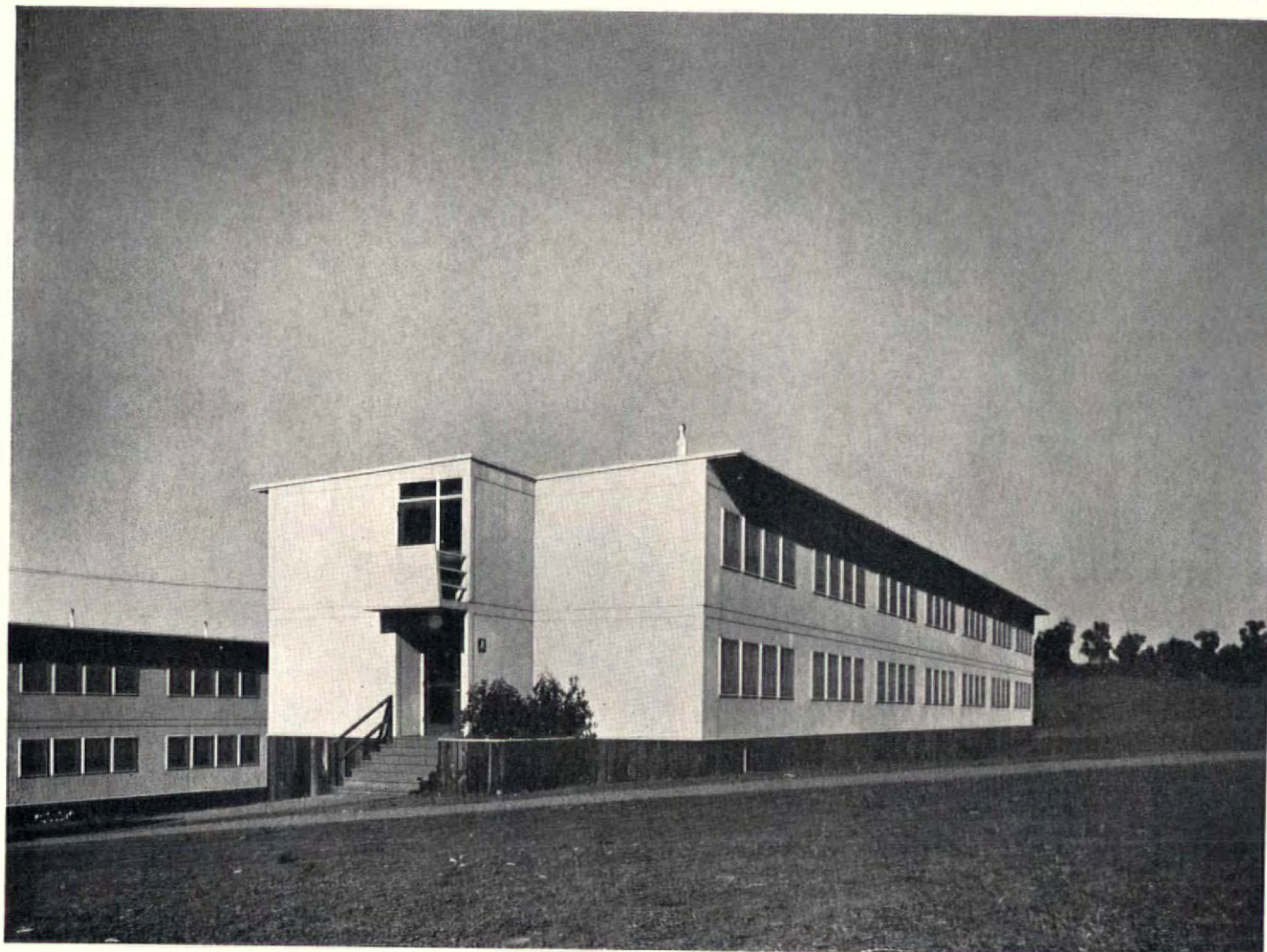
VERNON DeMARS, ARCHITECT

GARRETT ECKBO, LANDSCAPE ARCHITECT

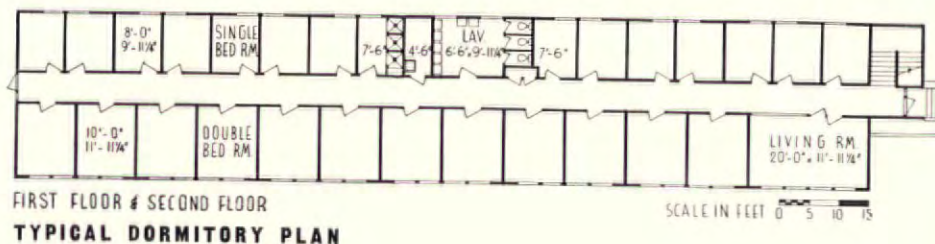
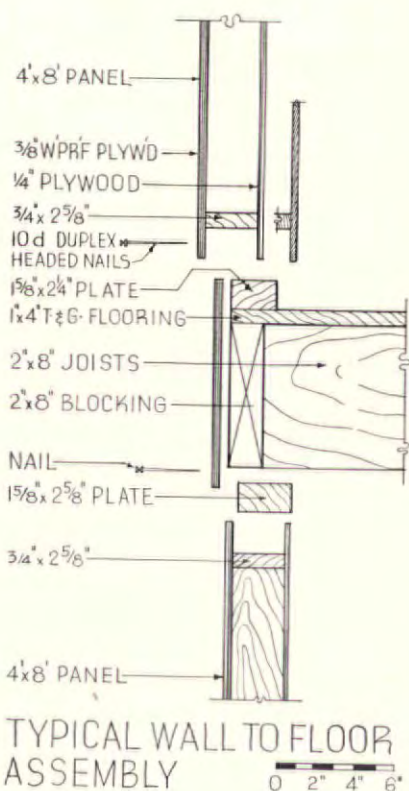
NICHOLAS CIRINO, SITE ENGINEER

Like much previous work of the Farm Security Administration, these dormitories for single Navy yard workers combine distinguished design and economical construction to an unusual degree. Assembled entirely from prefabricated panels built on 1 x 3 in. frames, they are among the few examples of two-story panel construction that have appeared to date. Based on the familiar "platform" method of construction, the system employs room-width panels a story in height, joined at the line of the second floor by an ingenious double overlap (detail, opposite) which provides weathering and produces an attractive shadow line around the exterior at this level. The method results in a considerable saving in material and is completely demountable. Each of the 39 units houses 78 men in single and double rooms, at a cost of \$23,311, or \$298.86 per man. Population of the 42 acre plot is 3,042, or 72 per acre.





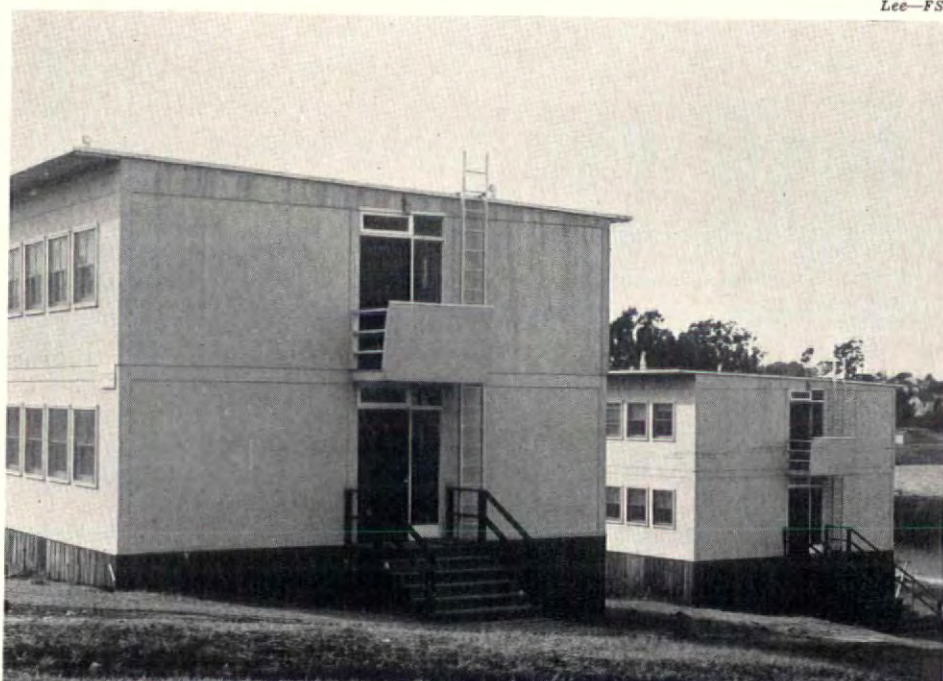
Esther Born



FIRST FLOOR & SECOND FLOOR
TYPICAL DORMITORY PLAN

SCALE IN FEET 0 5 10 15

Lee-FSA



CONSTRUCTION OUTLINE

STRUCTURE: Exterior and interior partitions—plywood panels, prefabricated, water-proof. Floors—same, some Douglas fir. All panels by Plywood Structures and Gorman Lumber Co.

ROOF: Slate surface built-up.

INSULATION: Walls—quilt type. Sound insulation—rigid board covered with Mastipave, Cott-A-Lapp Co.

WINDOWS: Sash—double hung. Awning sash equipped with Dalmo No Frame Window Fixtures, Dalmo Victor Co. Glass—quality B, single and double strength. Screens—Roll-Away Screen Co.

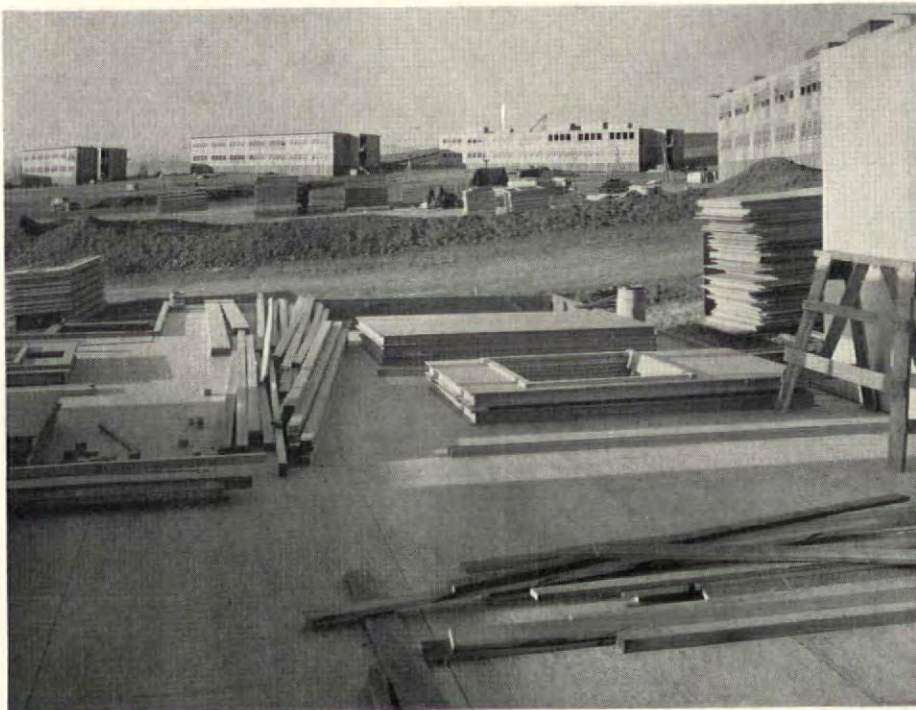
HARDWARE: Lockwood Hardware Mfg. Co. and MacDonald Hardware Mfg. Co.

PAINTS: Pacific Paint & Varnish Co.

ELECTRICAL INSTALLATION: Non-metallic sheathed cable and rigid steel conduit.

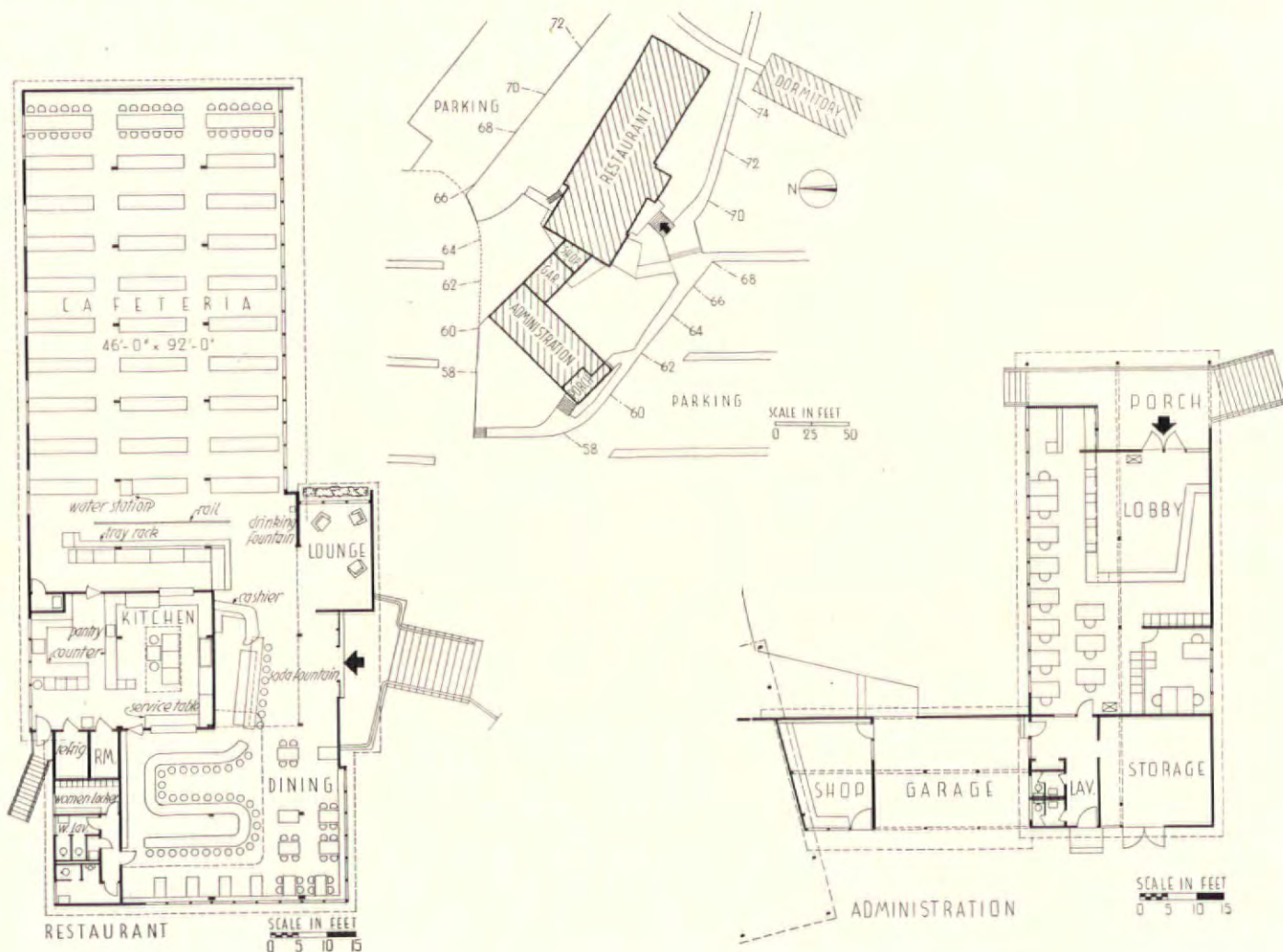
PLUMBING: Fixtures—American Radiator-Standard Sanitary Corp.

HEATING: Gas heaters—Sears, Roebuck Co. Water heater—Montgomery Bros.



Miles Berne

Prefabricated construction of the Vallejo dormitories, together with the inherent economy of this type of structure (simplified utilities, less equipment, etc.) resulted in the unusually low unit costs of 29 cents per cu. ft. and \$2.82 per sq. ft. of floor area. The combined administration building and restaurant, shown below, was built with the same type of panels.



200 PREFABRICATED CABINS

1-UNIT PLAN

Built in conjunction with the single men's dormitories shown on the preceding pages, this group of 200 cabin units was designed to substitute for a trailer park development at essentially the same cost. Cabins are 14 x 24 ft. and contain a living room, bedroom, kitchen and bath at a cost per unit of \$1,320. One wall is built without openings so that the cabins may be arranged compactly without sacrifice of privacy; in some instances they are placed back to back. Occasional open spaces were provided throughout the development for child play. Units contain 3,096 cu. ft. and cost 43 cents per cu. ft., \$3.90 per sq. ft. of floor area.

CONSTRUCTION OUTLINE

FOUNDATION: Redwood piers.

STRUCTURE: Standard plywood panels by Plywood Structures Co.

ROOF: Mineral surfaced, The Flintkote Co.

HARDWARE: Lockwood Hardware Mfg. Co.

PLUMBING: Tub—Briggs Mfg. Co. Water closet and sink—American Radiator-Standard Sanitary Corp. Water heater—Day & Night Heater Co. Circulating heater—Mission Water Heater Co.

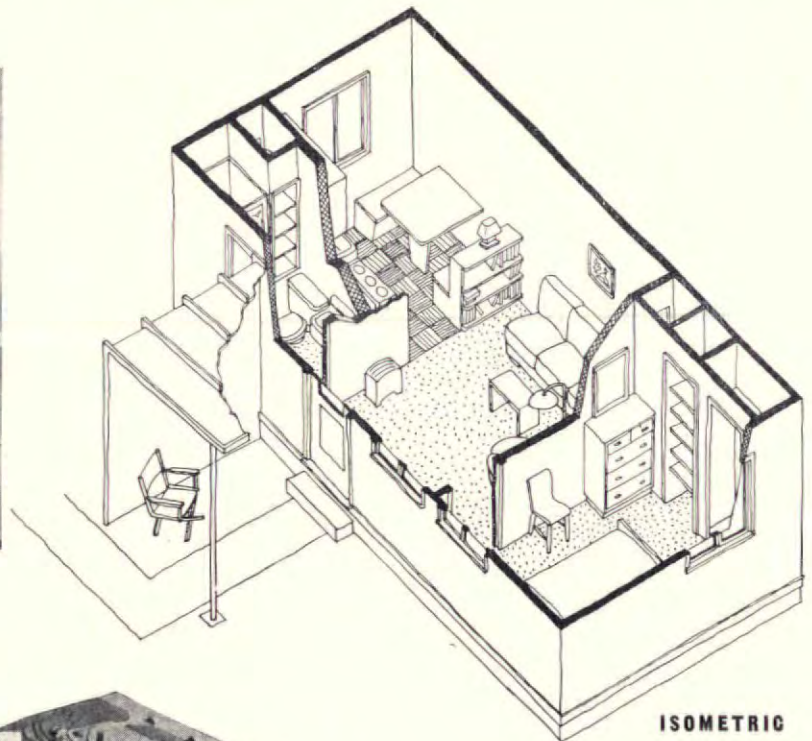


VALLEJO, CALIF.

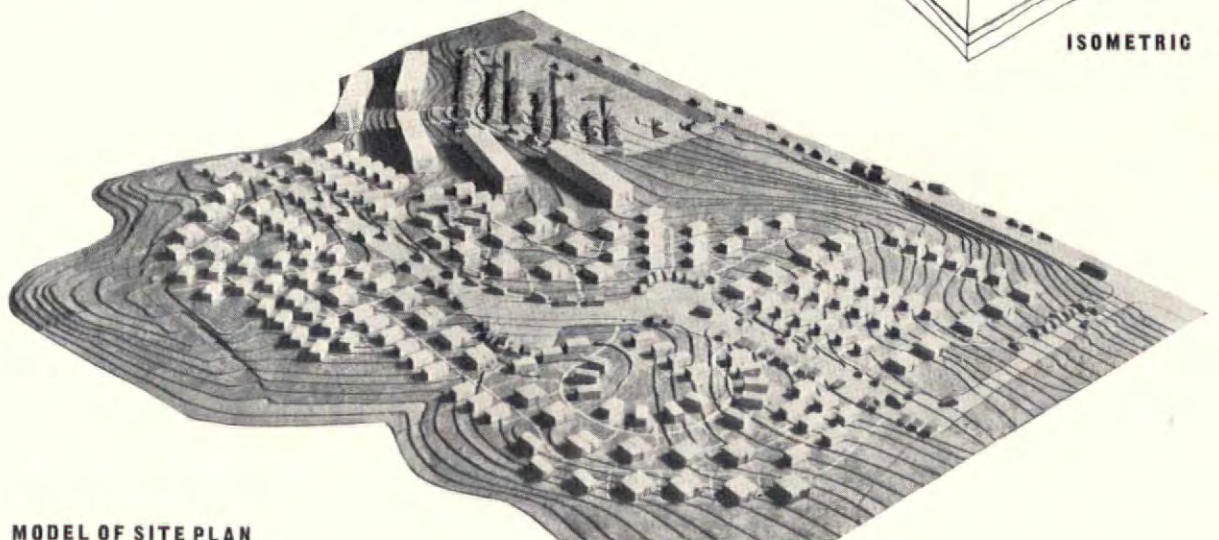
Photos, Vernon Heger



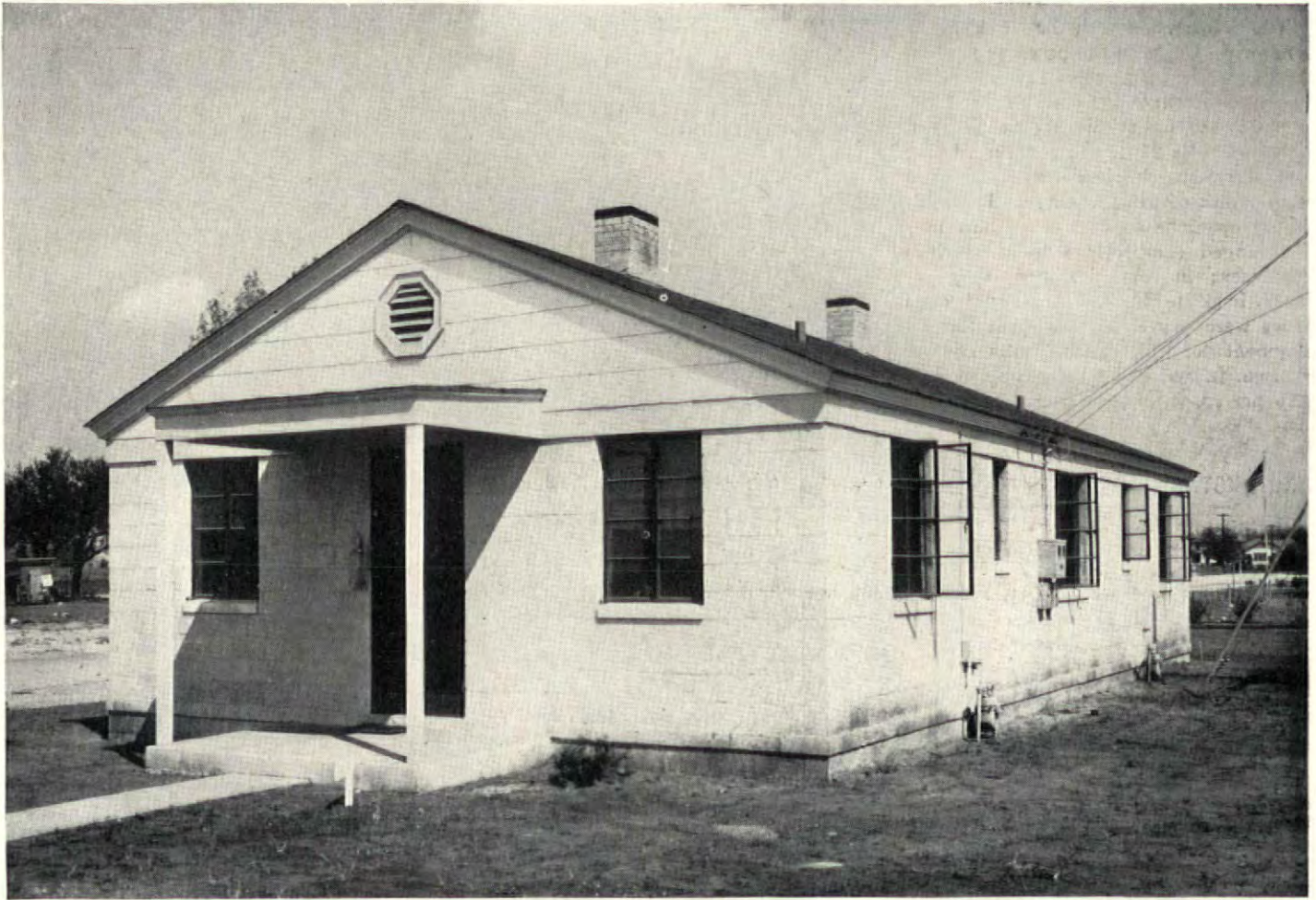
KITCHEN-DINING SPACE



ISOMETRIC

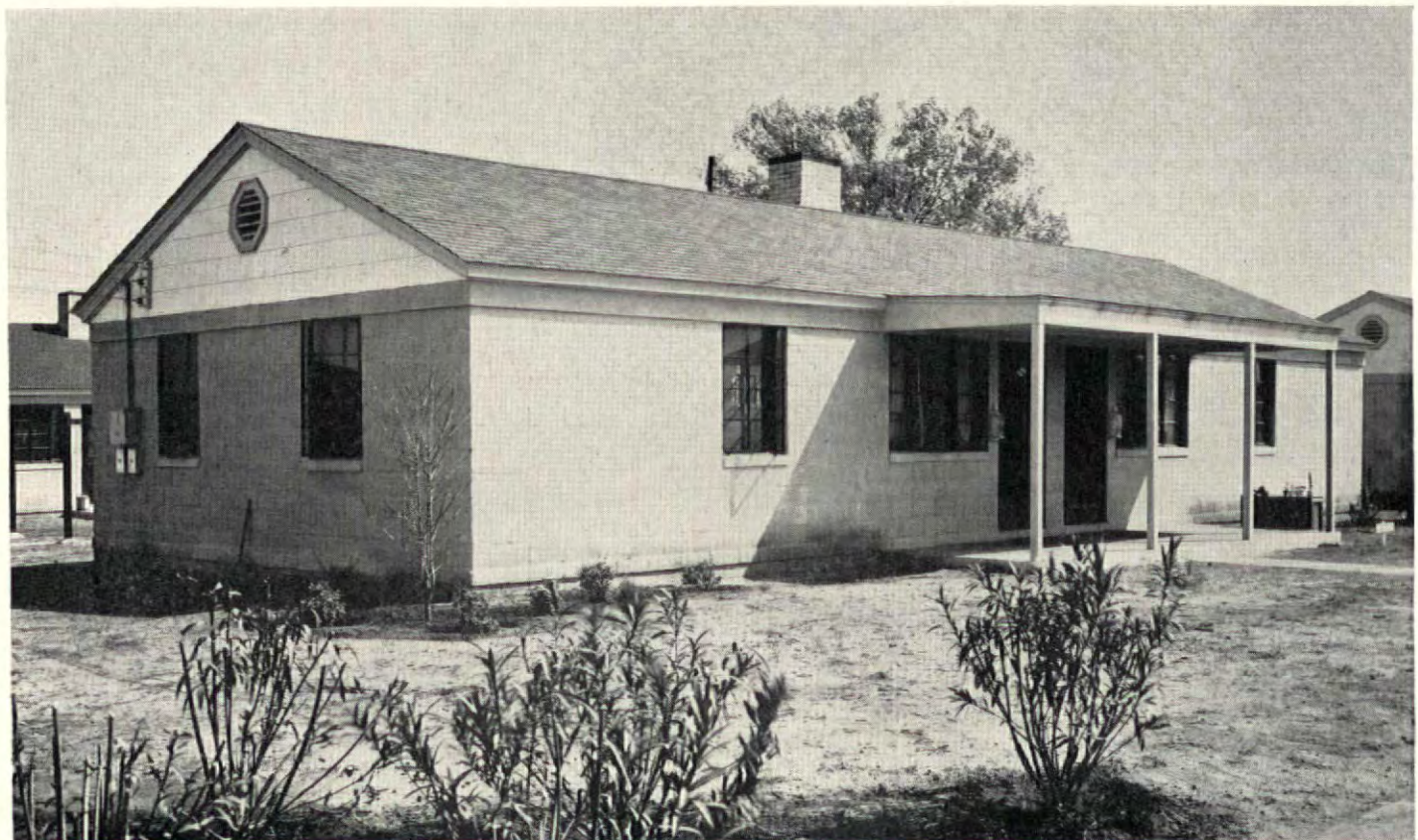


MODEL OF SITE PLAN



COOPER & COOPER AND DENNIS & DENNIS, ARCHITECTS
WILLIAM PAULEY, LANDSCAPE ENGINEER
R. J. EDGERLY, GENERAL CONTRACTOR

TYPE A UNIT

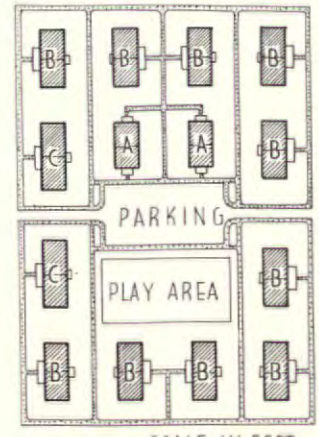
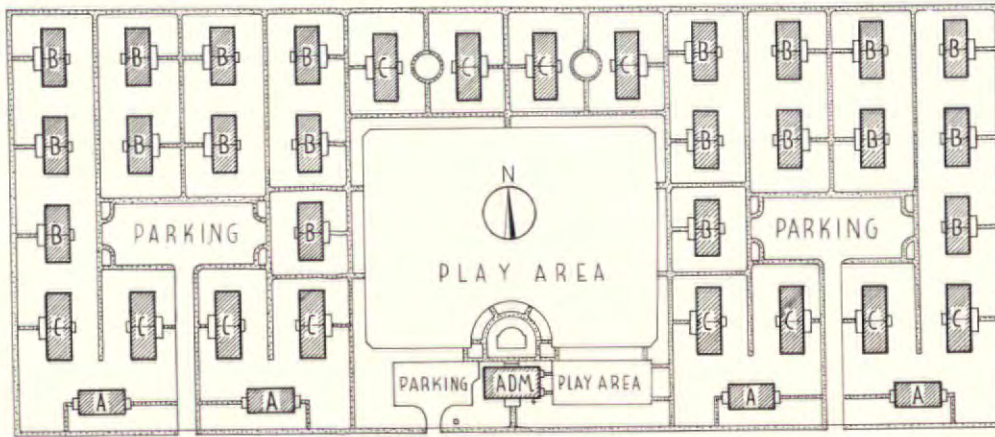


TYPE B UNIT

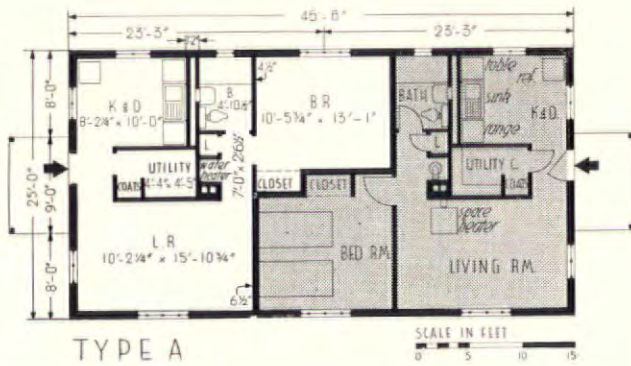
Photos, McCoum's Studio

HOUSING AUTHORITY OF ALBANY, GA.

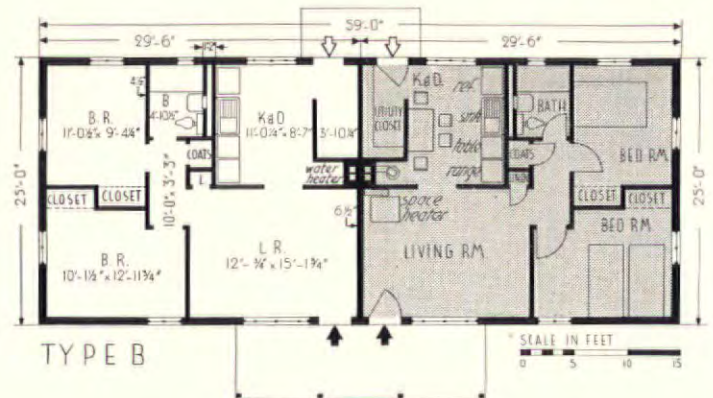
3-UNIT PLANS



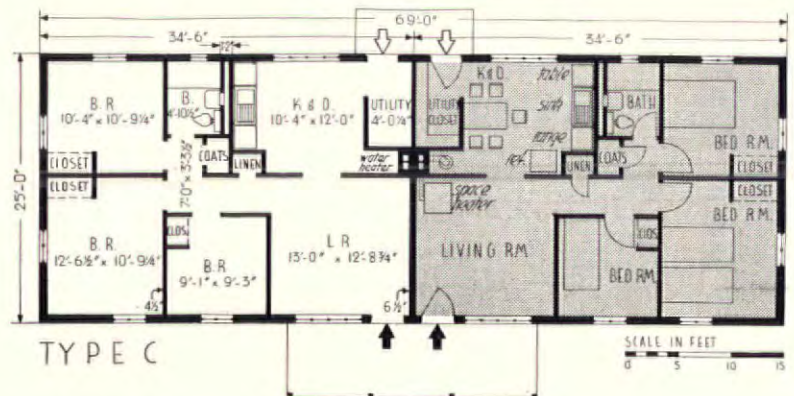
SCALE IN FEET
0 40 80 120 160



TYPE A



TYPE B



TYPE C

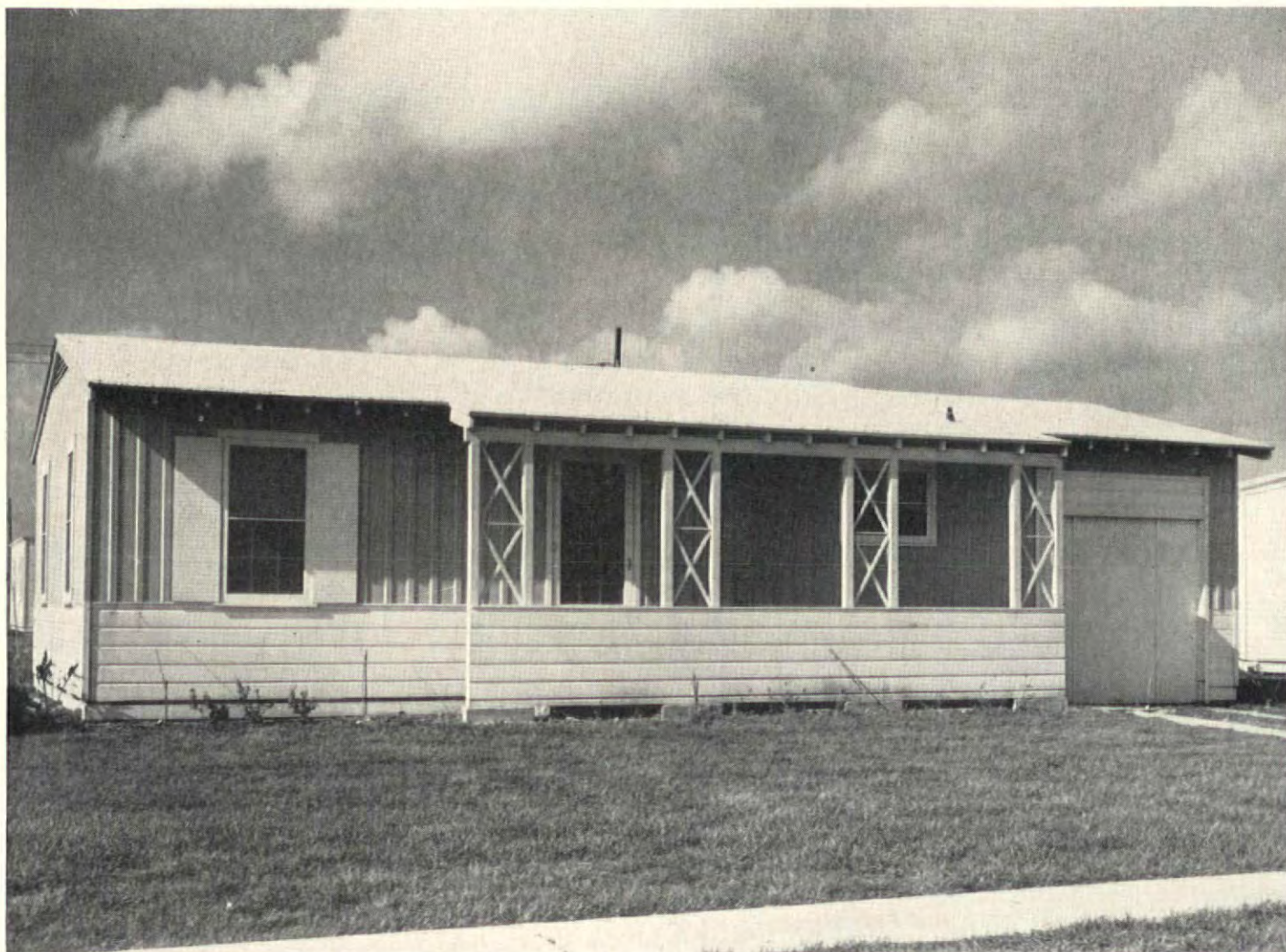
Built for Army personnel, this 100-family project consists entirely of one-story, semi-detached houses of one, two and three bedrooms each. Both unit and site plans are uninspired but orderly and economical, and the monotony of the otherwise regular spacing of the houses has been relieved by the introduction of conveniently situated parking and play areas into the pattern. As in so many of the southern USHA projects, costs were remarkably low, averaging \$2,975 per unit for construction and \$3,750 overall. Rentals are \$21 a month for one-bedroom apartments, \$23.50 for two- and three-bedroom units.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—concrete block, Atlanta Concrete Products Co. Floors—concrete.
ROOF: Asphalt shingles, Philip Carey Co. Deck—15 lb. felt mopped with tar.
INSULATION: Attic floor—rockwool.
WINDOWS: Sash and screens—metal, Ceco Steel Products Co.
HARDWARE: Sargent & Co.
ELECTRICAL INSTALLATION: Single wire—110 volt.
KITCHEN EQUIPMENT: Ranges—Crown Stove Works. Refrigerators—Frigidaire Corp. Cabinets—March Mfg. Co.
BATHROOM EQUIPMENT: Crane Co. Cabinets—Miami Cabinet Div., Philip Carey Co.
HEATING: Space heaters—Duo Therm Div., Motor Wheel Corp.



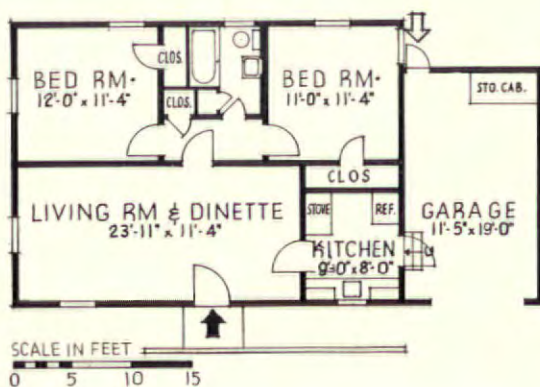
200 PERMANENT UNITS—RENTAL CORPUS CHRISTI, TEXAS



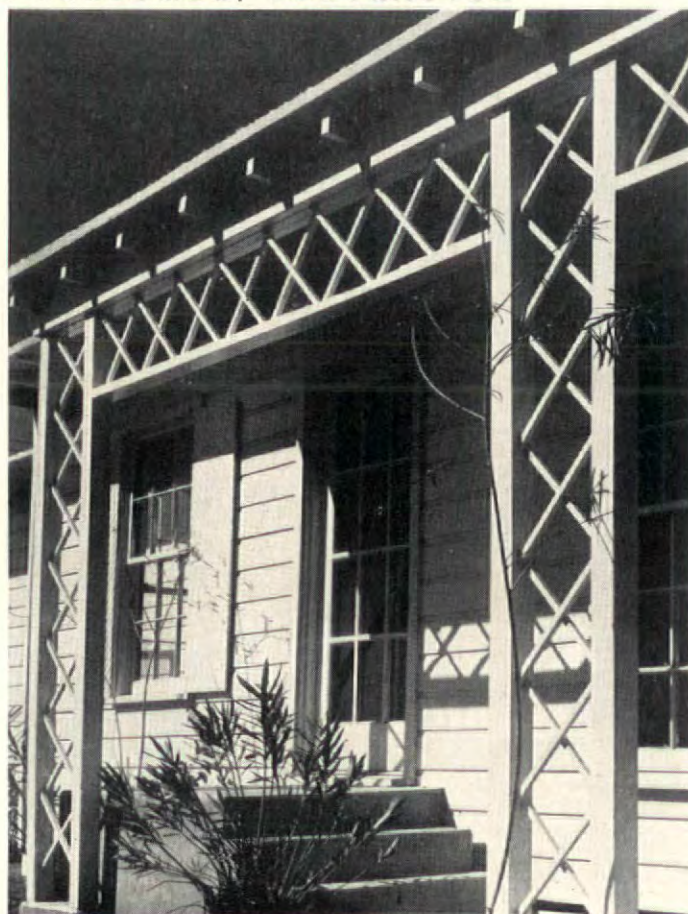
FRANK C. DILL, ARCHITECT

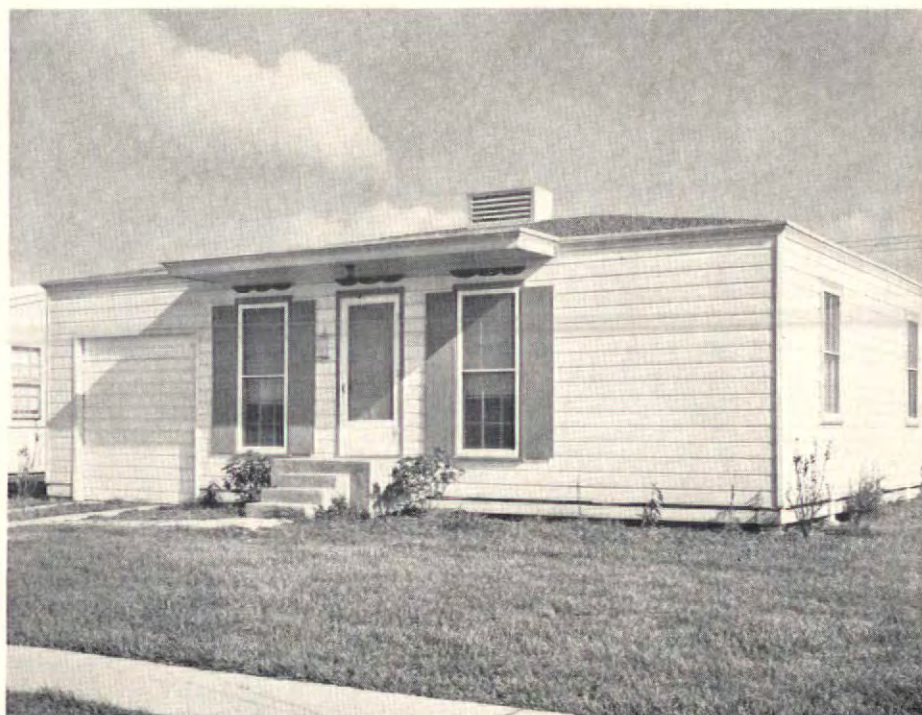
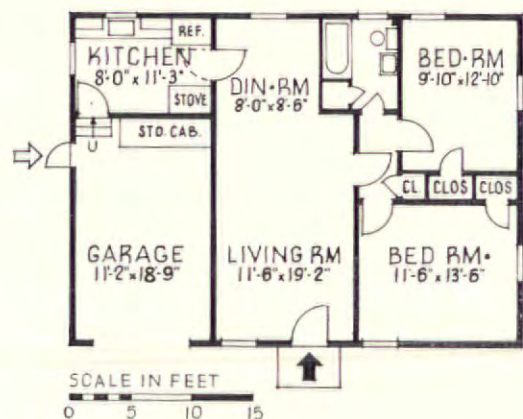
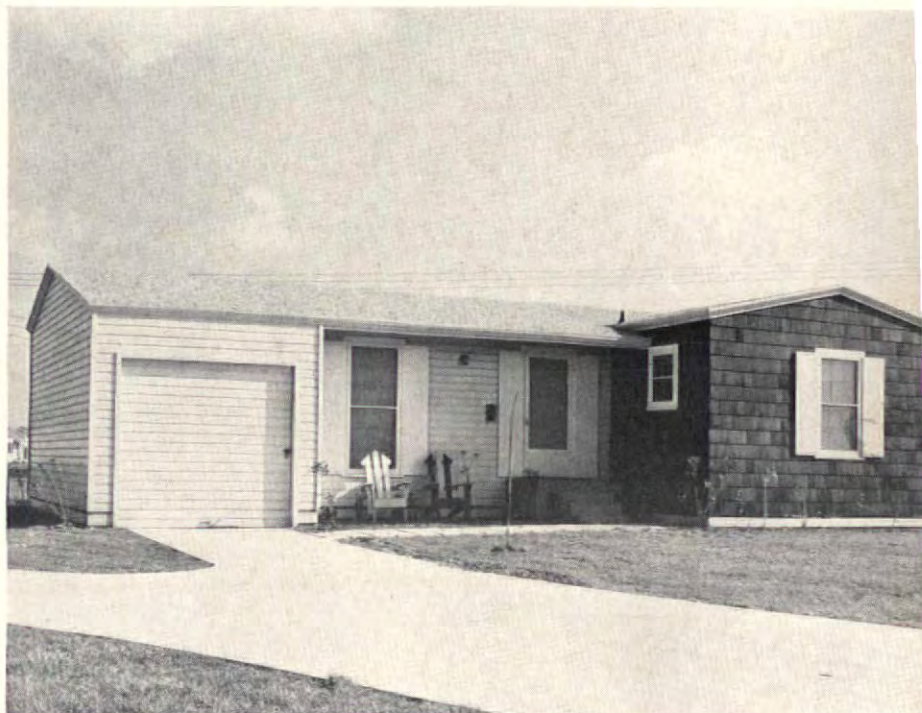
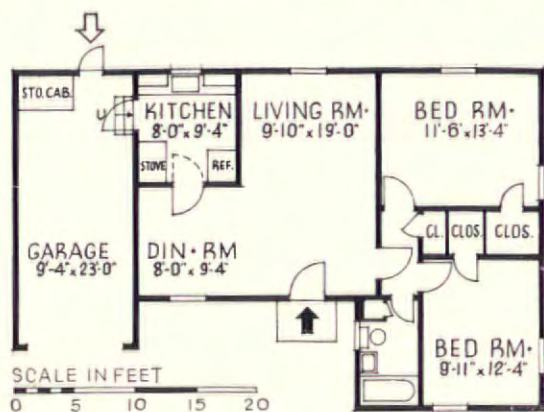
OSCAR HOLCOMBE, CONTRACTOR

Regal Photos



This privately financed rental project consists of 200 free-standing houses built from six basic plans, which were varied to produce thirteen different kinds of units. Designed for occupancy by commissioned officers and civilian employees of the Navy, it is 100 per cent occupied. After the war emergency, the houses may be sold to individuals on FHA terms. A considerable effort was made to add variety and interest to the treeless site through the use of color, including built-up roofs surfaced with marble chips in various shades. Cost of the houses, all of which have built-in garages, ranged from \$3,500 to \$4,500 complete with all equipment, planting, streets and utilities. Rentals range from \$41 to \$51 a month.





TYPICAL LIVING AND DINING ROOMS





JOHN E. DINWIDDIE, ALBERT H. HILL & PHILLIP E. JOSEPH, ARCHITECTS

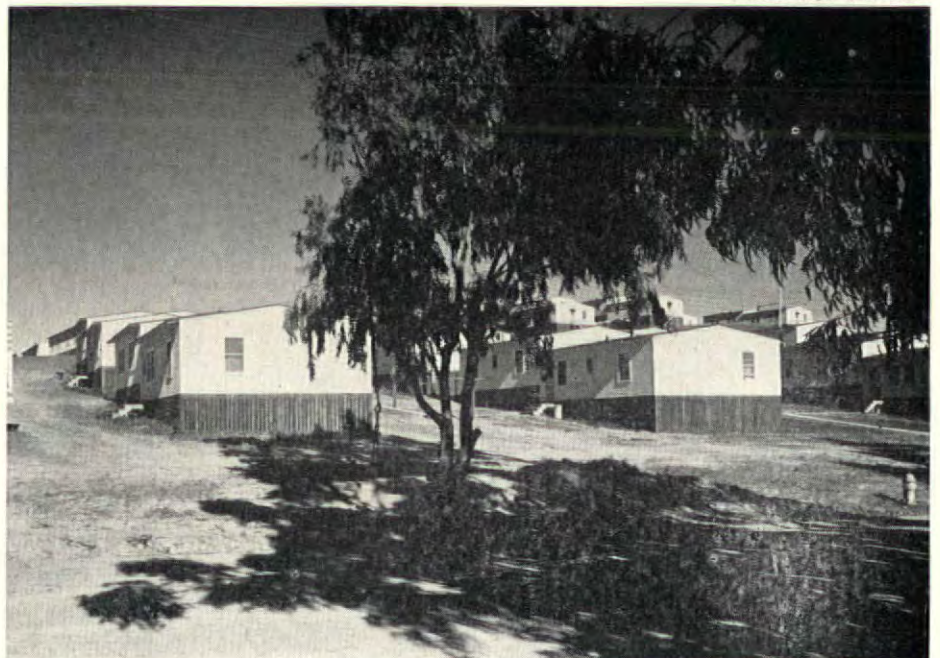
RICHARD BATES, ARCHITECT, PREFABRICATION DESIGN

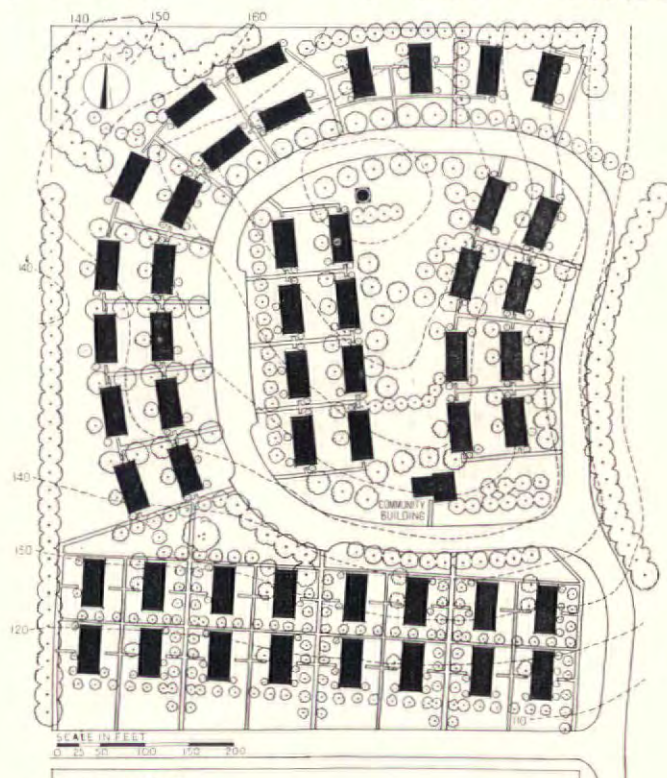
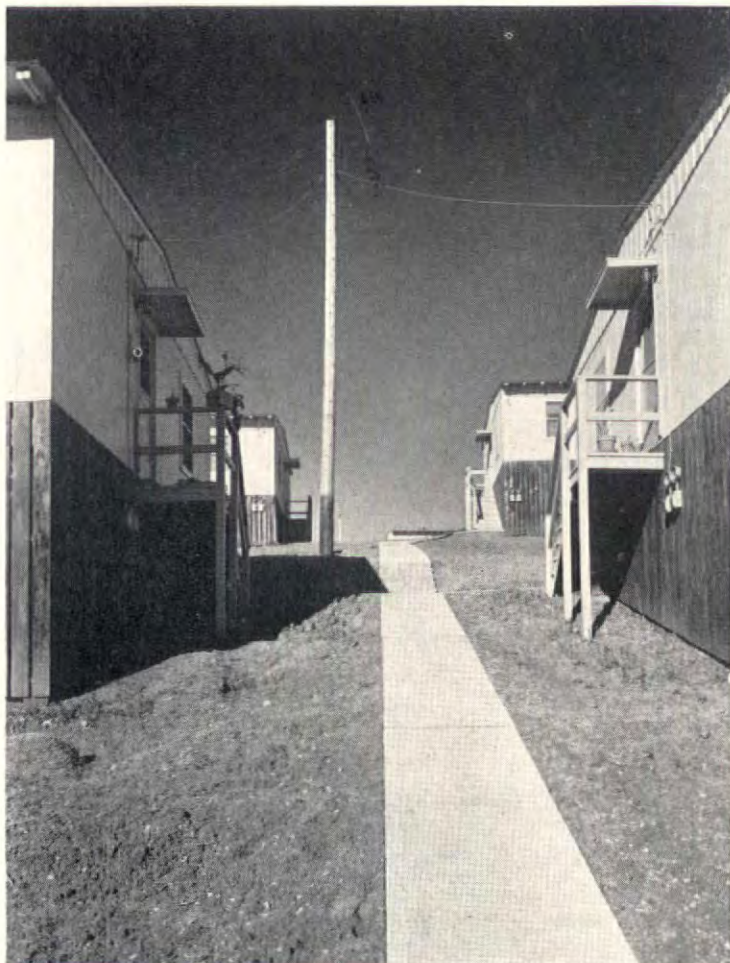
HERBERT MAYSON, GENERAL CONTRACTOR

STANLEY H. KOLLER, UTILITIES CONTRACTOR

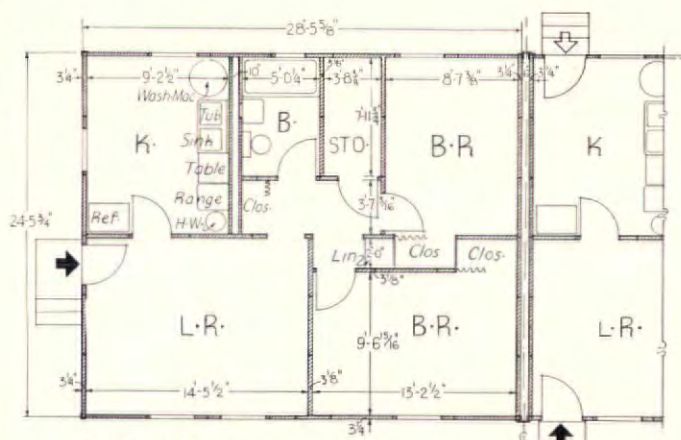
Photos. Roger Sturtevant

This project consists of 100 identical prefabricated houses, half of which are demountable. All the units are attached in pairs, and in some instances one of the bedrooms has been opened to the living room of the adjoining house so as to create one- and three-bedroom rental units without otherwise changing the typical two-bedroom plan. The units are set on post foundations sheathed in rough redwood, requiring little grading of the steeply sloping site, and are reached by concrete walks from a loop access road. Rentals range from \$21 to \$32.50 per month, construction cost was \$2,650 per unit.

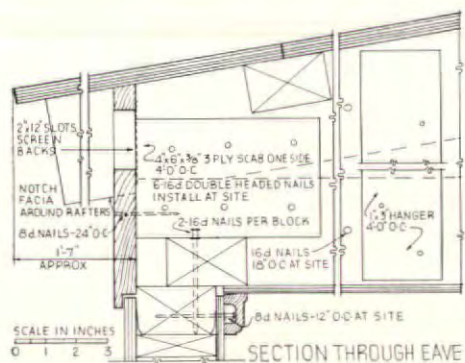




PLOT PLAN



UNIT PLAN



SECTION THROUGH EAVE

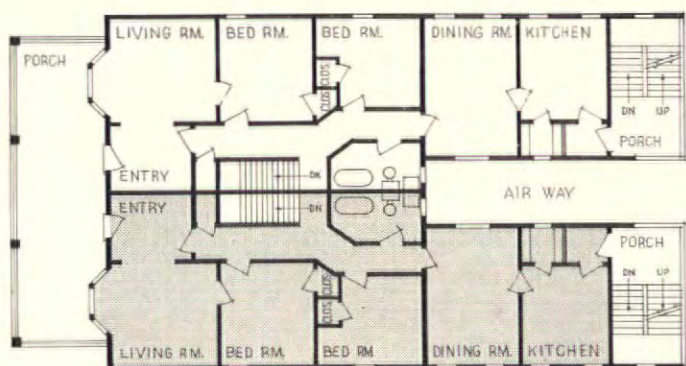
CONSTRUCTION OUTLINE

STRUCTURE: Plywood panels outside and inside; Pacific Mfg. Co. Floors—pine.
ROOF: Built-up mineral cap sheet, Flintkote.
SOUND INSULATION: Celotex Corp.
WINDOWS: Sash—double hung. Glass—single strength, quality B, Libbey-Owens-Ford Glass Co.
FLOOR COVERINGS: Pabco linoleum, The Paraffine Co.'s, Inc.
PAINTS: Caldo Paint Co.
HARDWARE: Schlage Lock Co.
ELECTRICAL INSTALLATION: Wiring system—flexible conduit. Switches—tumbler, General Electric Co.
KITCHEN EQUIPMENT: Range—O'Keefe Merritt. Refrigerator—Frigidaire Corp.
BATHROOM EQUIPMENT: Briggs Mfg. Co.
HEATING: Console unit heater, O'Keefe Merritt. Water heater—Day & Night Water Heater Co.



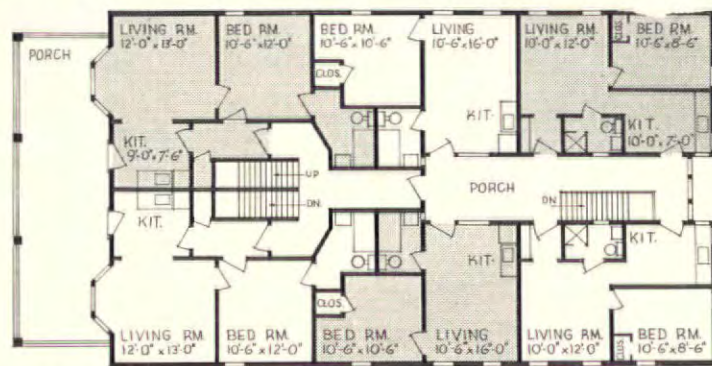


BOATFIELD REAL ESTATE CORP.



SCALE IN FEET
0 5 10 15

TYPICAL FLOOR
BEFORE



SCALE IN FEET
0 5 10 15

TYPICAL FLOOR
AFTER

TYPICAL KITCHEN



It is estimated that remodeling of old houses into smaller family units added 135,000 dwellings to the nation's supply during 1941, or half-again as many as were built by Federal agencies. This conversion of a two-story, four-apartment building shows how this was, and should be done. By dividing each of the former five-room railroad flats into three two- and three-room efficiency apartments the capacity of the building was increased to twelve dwelling units, at a cost well within the budget of the war worker. Only added construction was an extension at the rear replacing the service stairs and a new rear porch.

CONSTRUCTION OUTLINE

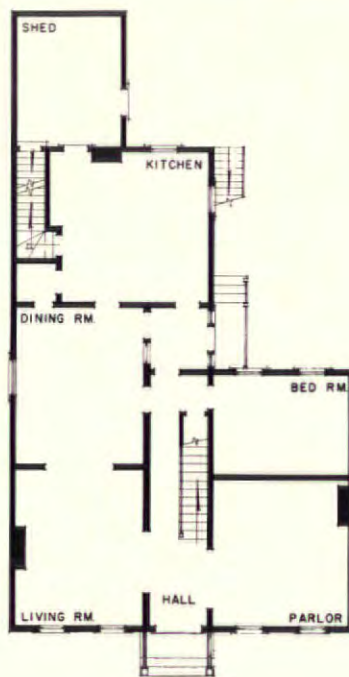
ROOF: Rolled roofing—Ruberoide Co.
WINDOWS: Sash—Curtis Companies; glass, double thickness—Pittsburgh Plate Glass Co.
PAINTS: Pittsburgh Plate Glass Co.
KITCHEN EQUIPMENT: Refrigerator—Frigidaire Corp.
BATHROOM EQUIPMENT: Cabinets—Henry Weis Mfg. Co., Inc.



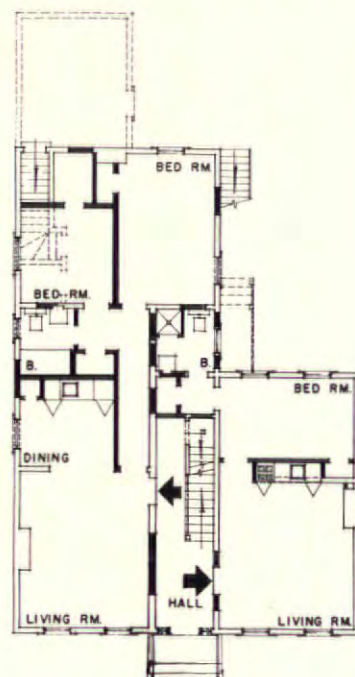
BEFORE

The type of conversion shown here offers real possibilities for quick and cheap production of additional dwelling facilities in many of our overcrowded cities. This single family house has been made into four satisfactory apartments with a few structural changes and at an expenditure of not more than \$5,000. The operation was also advantageous to the owner, as it has increased gross annual income from \$420 to \$2,496. The net revenue is sufficient to pay taxes and operating expenses, and to retire the Title I loan in five years.

Photos, S. N. Keith, FHA



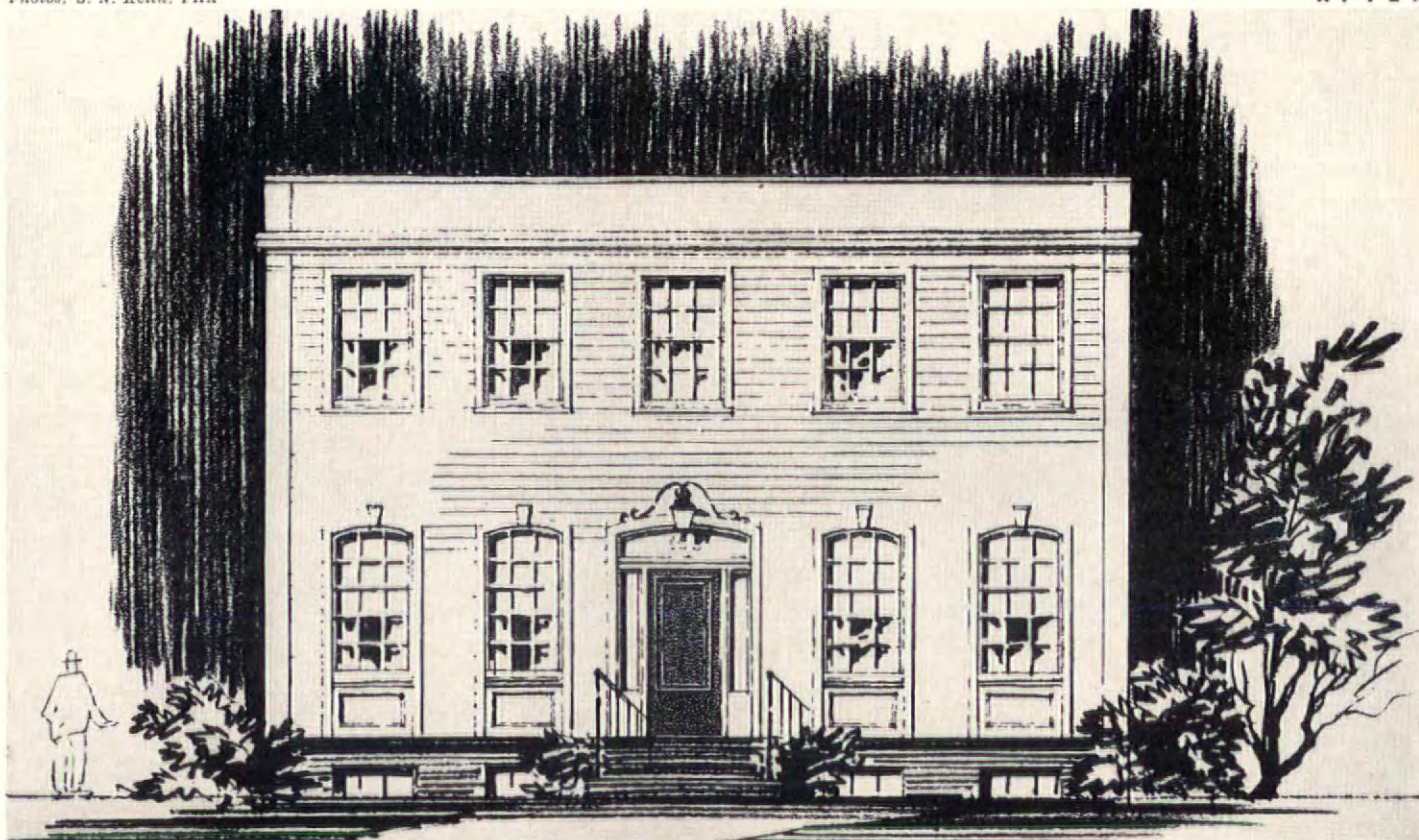
BEFORE



AFTER

FIRST FLOOR PLAN

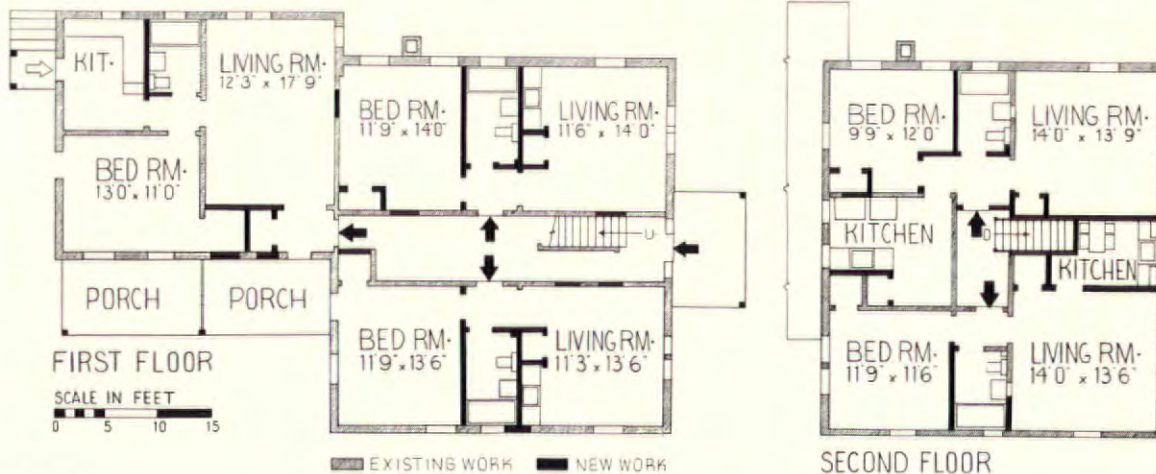
AFTER





AFTER

McMillen



BEFORE



This remodeling and rehabilitation job makes good sense from a real estate standpoint as well as from a war housing point of view. With no major structural changes, an eleven-room relic, untenanted and fast falling into disrepair, was turned into a profitable five-family apartment. Exterior walls were covered with new wood shingles, the forbidding porch removed and a new one built, and efficiency apartments created simply by the construction of interior partitions and the installation of new plumbing. Two of the units have "Pullman" kitchenettes, the other three full-size kitchens. They rent for an average of \$50 a month, or \$200 all told, in place of a former asking price of \$40.

H. G. McGEE REAL ESTATE CO., INC.



PULLMAN TYPE KITCHEN



TYPICAL LIVING ROOM

McMillen

**KITCHEN
BEFORE**



AFTER



**BATHROOM
BEFORE**

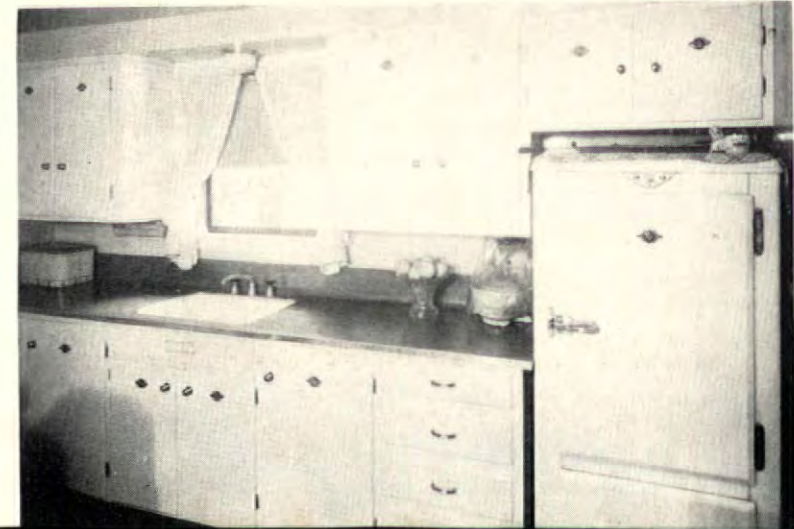
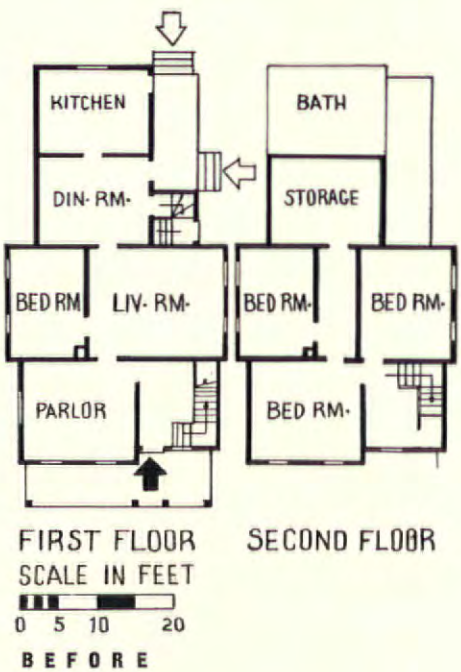
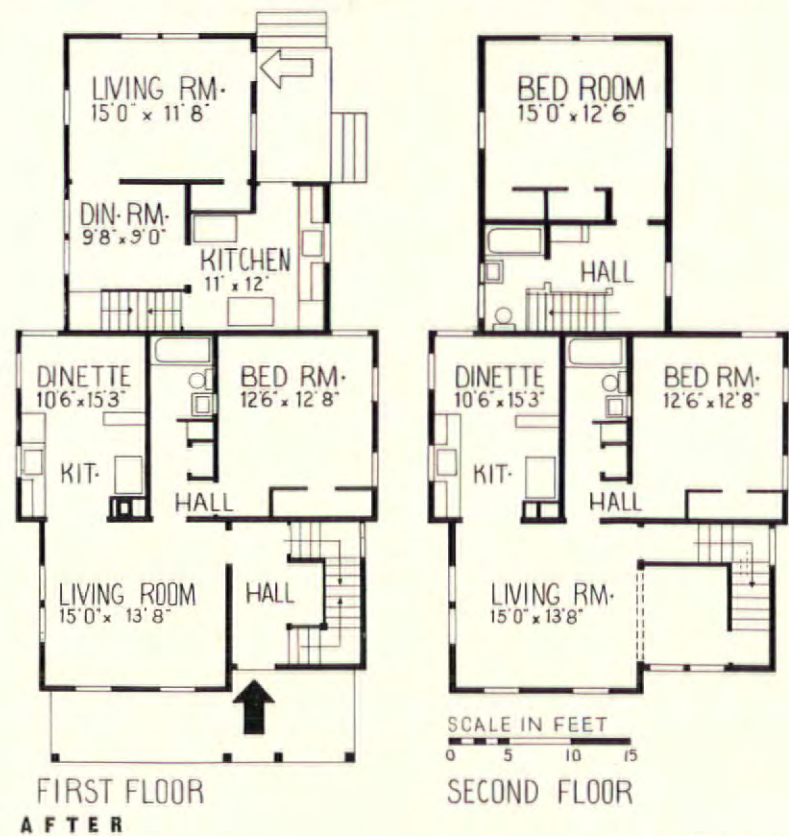


AFTER





FRANK O. GUTHRIE
BUILDING CONTRACTOR



Photos, F. O. Guthrie

A very practical and unpretentious remodeling, with three apartments worked very neatly into the framework of a large old single-family dwelling. Each unit has one bedroom, a well-equipped kitchen and a dinette. The builder very wisely refrained from tampering with the exterior, which is perfectly adequate for all practical purposes. The only outside change involved the enclosure of a part of the back porch to provide space for a kitchen. Baths for the two front apartments have been provided in a very direct and economical manner. Remodeling raised the income on this property from nothing to \$130 per month.

Built
FOR TODAY'S JOBS!
Priced
FOR TODAY'S NEEDS!

Ro-Way
Model "R" Door
OVERHEAD TYPE



Above is shown the Ro-Way Model "R" Overhead Type Door of 3-section type with 2 glass panels. This model is made in either 3 or 4 sections, and in only two sizes—8 ft. x 6 ft. 6 in., and 8 ft. by 7 ft.

For Small Home Garages, Defense Housing and Other Low-Cost Jobs

Price talks today. But quality and value are more *important* than ever. You can't afford to select a door that won't stand up in every day service. You can't afford to jeopardize your reputation or your profits by recommending a door that is skimpy at any point to get down to a price.

The Ro-Way Model "R" is everything you would ask of a Door if you were building a low-cost serviceable home of your own. It has the streamlined appearance you would like . . . It is a true Overhead Type Door that gives full drive-in clearance when opened . . . It has the Parkerized and Painted hardware you would demand . . . It has the extra support for the sheave wheel to insure sturdy service . . . It has the specially-designed friction-reducing track to give lasting ease of operation . . . It has double tread rollers with 7 ball bearings in each roller to give you truly gliding action . . . It has powerful Rowe-made extension springs with simple, quick adjustment feature that keeps the lifting power always up to par. Write for Special Folder.

ROWE MANUFACTURING COMPANY
945 Holton Street
Galesburg, Illinois, U. S. A.



2-Car Garage with Model "R" Ro-Way Doors.



The Ro-Way Model "R-4" Overhead Type Door installed in a single family residence type garage.

Write for Ro-Way Special Folder

Write for New Special Folder on the Ro-Way Model "R"—just the Overhead Type Door to meet today's demand for small home garages, defense housing and other low cost jobs.

Architects: Attach professional card or business letterhead to also receive 72-page "Time-saving Specification Book" on all Models of Ro-Way Overhead Type Doors.

ROWE MANUFACTURING CO.,
945 Holton St., Galesburg, Ill.

Gentlemen: Please send me Free copy of your 72-page "Time-saving Specification Book" for Architects, as advertised in Architectural Forum.

Name
Address
City State

There's a Ro-Way for every Door way!

WALL-TEX *Gets the Call for* DEFENSE HOUSING UNITS

- A nationally advertised selling feature at low cost.
- Makes property easier to sell or rent.
- Helps property hold its value longer.
- Eliminates frequent redecorating costs.

- Special patterns for SERVICE ROOMS.
- Full range of pastels, textural effects and smartly styled patterns for EVERY ROOM!

cially serviceable for these rooms because it has nonabsorbent surfaces that repel steam and moisture—and easy-cleaning finishes from which grease film, smudges and stains are quickly removed.

Apply to Any Smooth Surface!

Wall-Tex is successfully used and easy to apply over plaster and various types of wallboard construction. Any smooth, dry surface is ideal for hanging Wall-Tex, and its canvas backing makes a firm bond with any material over which it is used.

MAIL COUPON for Illustrated FREE FOLDER!

Columbus Coated Fabrics Corporation
Dept. AF-52, Columbus, Ohio

Yes, I'd like to have one of your free Wall-Tex File Folders!

Name _____
Street _____
City _____

MONTH IN BUILDING

(Continued from page 6)

Lighting. "Lights which may have seemed adequate before may not be suitable for women, even though there is no difference between eyes or the advised lighting standards. Lighting will inevitably be improved if it will make the job more attractive. This is all to the good and indicates that it should have been done before."

Services. "The greatest change will be in the toilet, restroom, lunchroom and medical facilities. Restrooms will be essential and what got by as toilet and washroom facilities will be found wholly inadequate when a change-over to women is made. Throw out the words 'toilet' and 'washroom' and go nightclub with the label 'powder room'. The women will like it, and it will accomplish something else, too. Maintenance and cleanliness that can live up to that name will be a reflection of the intention of the plant to make the job as attractive as can be. . . . The story on lunchrooms will be the same. The first aid and medical facilities will require expansion, primarily to separate the women's wards, examination rooms and dressing rooms from those used by male employees."

Safety. "Due to the difference in physiological construction, or terrible shoes, I'm not sure which, women are much more prone to falls than men. . . . It used to be thought that slippery floors were the principal cause. Getting rid of slipperiness did not altogether stop the falls. Women can be taught to walk so that they will not fall in turning corners between aisles. This has been done with some success but is a very difficult teaching. I recommend that women's work be designed so as to limit the amount of walking about the factory room, and that the place in which they are called upon to walk be clear, unobstructed and of good surface."

BILLIONS FOR NEW PLANTS

Newspaper hoorahs over the auto plant conversion program, plus rotogravures of new industrial giants nearing completion or already churning out tanks and bombers, may have created an impression the nation's factory-building stage of war preparation has ended. Don't be misled—there are going to be plenty more plants built this year and next.

Last month Commerce Secretary Jesse Jones reported to President Roosevelt his RFC's Defense Plant Corp. had already earmarked nearly \$4.8 billions to build or expand more than 700 plants to make airplanes, ships, guns, ordnance, magnesium, aluminum, steel, synthetic rubber, gasoline, other warstuffs. Smarting under the barrage of dead cats heaved his way because more natural rubber from the Far East had not been bought and stored prior

(Continued on page 36)

Canvas Base Controls Cracks

Wall-Tex is nationally known for plus-values that make it a major feature in selling or renting property. Control of plaster cracks is one of these important extra values. Wall-Tex's tough, durable canvas base for protecting walls from cracking and scuffing is a real money-saver!

Washable With Soap and Water!

It's repeatedly washable—stays clean and new-looking season after season, even in kitchens and bathrooms. Wall-Tex is espe-

How, Where to Use
Wall-Tex—How to
Apply It—How to
Figure Cost. Actual
Samples of Decorative
Styles, Stiffened
Canvas, Lining Cloth



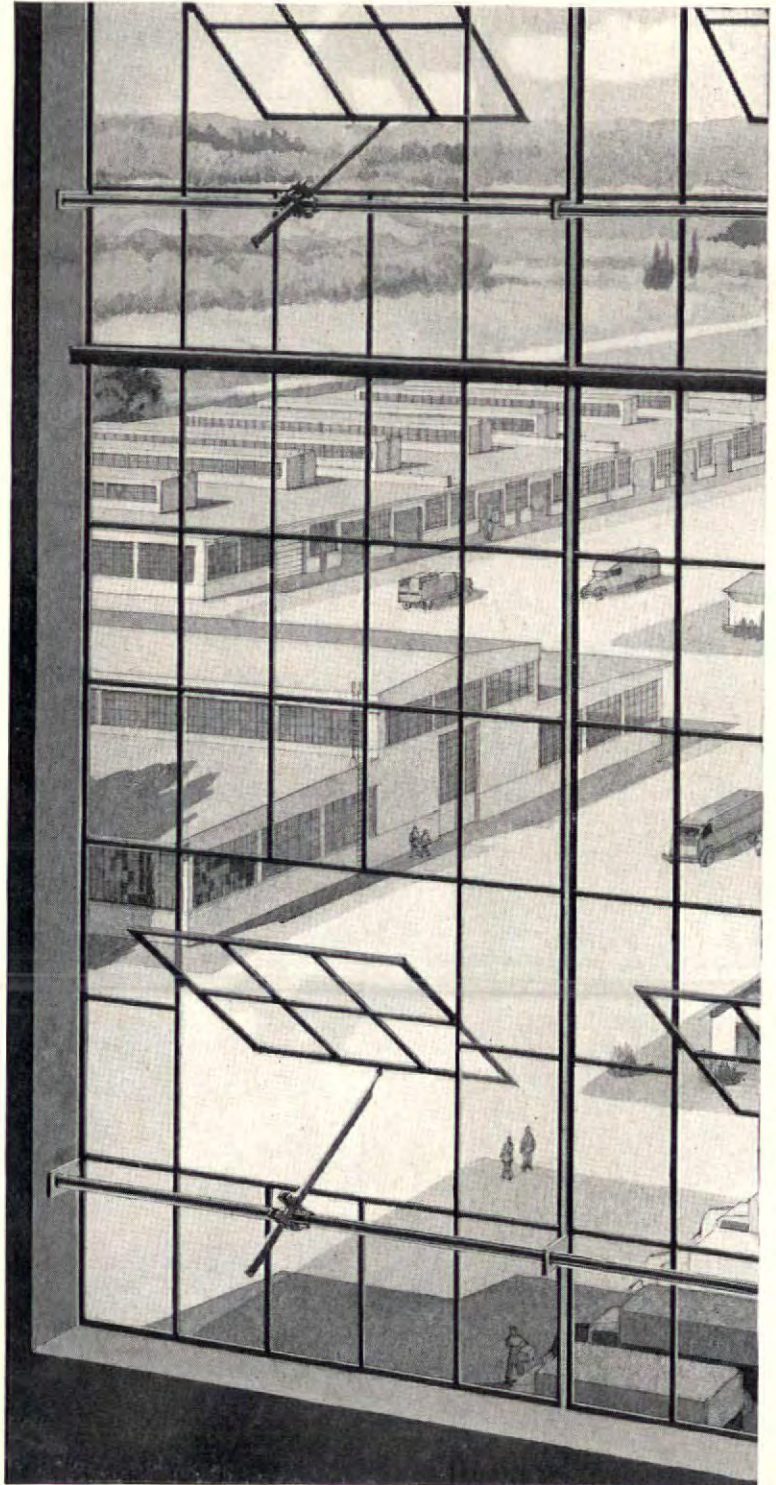
First of a large group of huge new Naval Storehouses all equipped with Lupton Metal Windows.



Ahead of Schedule! . . . At a huge Naval Storehouse project, now under construction, Lupton Metal Windows meet every requirement for daylighting and natural ventilation . . . and are delivered at the job ahead of schedule. Weather-tight, yet easy to operate, Lupton Metal Windows help to protect vast stores of supplies and equipment for America's armed forces. Electric consumption is reduced to a minimum by the abundance of daylighting.

See our Catalog in Sweet's

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



LUPTON METAL WINDOWS

YOU CAN GIVE *distinction* TO MODEST-PRICED HOMES



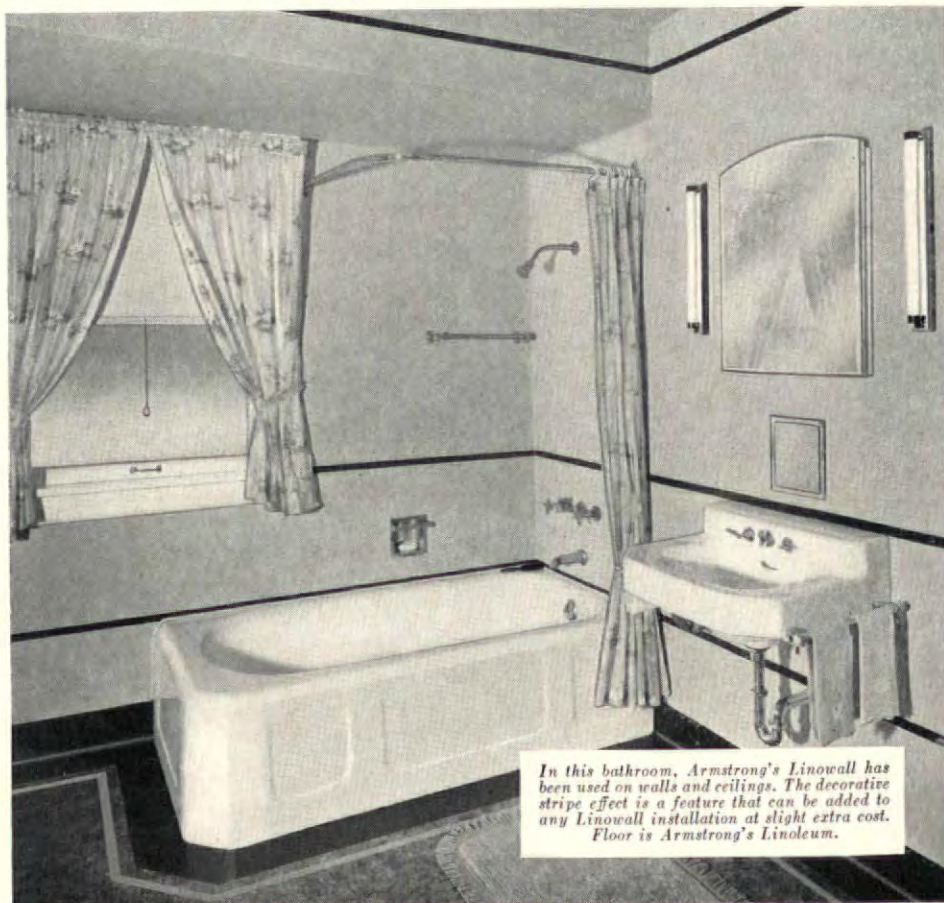
*.. and this modern wall finish
is one good way to do it*

LOW-COST houses don't have to be "ordinary" houses. Despite restrictions, prospective buyers still want character, comfort, and convenience in the homes they buy. Armstrong's Linowall is a material that helps to answer that demand—a product that adds real distinction, yet stays comfortably inside the budget for even the most modest-priced homes.

Linowall is a linoleum-like material especially designed for bathroom, kitchen, and other walls where long service and easy maintenance are important. It's durable enough to take the hard wear such walls demand . . . and

because it's washable, soap and water clean it in a jiffy. Linowall adds a full measure of style and beauty to walls, too. It comes in a wide variety of colors, and it can be streamlined around inside and outside corners to give walls a modern, spick-and-span appearance. Yet with all these advantages, Linowall's cost is low enough to make it practical for a modest-priced home. It frequently costs less than the material it replaces.

If you're specializing today in low-cost homes, or in remodeling, it will pay you to investigate Armstrong's Linowall. It's the modern way to give distinction to your homes. For full details, see Sweet's or write Armstrong Cork Company, Floor Division, 1204 State Street, Lancaster, Pennsylvania.



ARMSTRONG'S LINOWALL

MADE BY THE MAKERS OF ARMSTRONG'S LINOLEUM AND RESILIENT TILE FLOORS

MONTH IN BUILDING

(Continued from page 34)

to Pearl Harbor, Jones emphasized fact that his financing plans have been changed to provide factories sufficient to turn out 700,000 tons of synthetic rubber annually instead of the 400,000 tons announced originally. These plants will cost \$600 millions, should be ready by end of 1943.

So far about \$8.5 billions all told have been spent for new war plants in the U.S. More than \$7 billions worth are Government-controlled. Powder mills and others used purely for war are owned outright by the War and Navy Depts., while those with commercial potentialities clear through Jones's DPC. Now handling well over half the industrial war-building program, this agency erects the plants and buys machinery, then leases them to manufacturers.

To Building the industrial plant billions mean more than the construction of new means for blasting the Axis into oblivion. When war ends, the new capacities can be quickly reconverted into new facilities for Building's tasks of reconstruction. Besides immediately insuring U. S. security, they open up vast new horizons of industrial development for the future.

STOP ORDERS

A sudden spurt of shutdown and slowdown edicts by WPB last month underscored heavily the fact that U. S. civilian industries using scarce materials are fast being mobilized for total war. As a result:

On March 25: Manufacture and sale of metal windows were prohibited except on high priority orders.

On April 2: All output ended abruptly for fluorescent lighting fixtures except for essential high priority uses.

On April 15: All stocks of heating and plumbing equipment were frozen and retail sales over \$5 prohibited unless orders bear preference ratings of 10-10 or higher. (At same time OPA requested householders to buy coal grates in preparation for a switchover from oil next winter.)

On April 16: Big manufacturers of home washers and ironers closed down. (Ditto for small producers one month later.)

On April 30: Production of vacuum cleaners and mechanical refrigerators ceased.

On May 31: Output of oil burners and coal stokers for residential use will halt. Toasters, waffle irons, other electrical household appliances also go out. Likewise, both home and office metal furniture.

On July 31: Manufacture of metal signs will be banned entirely, after being cut 50 per cent in the interim.

As this calendar of deadlines shows, there is no consistent pattern for shutting off materials. Time and method both

(Continued on page 38)



America's
FIRST CHOICE
for **LOW COST**
HOUSING—

(Top)
53 Defense Houses — Radford,
Va. Architect: Pendleton S.
Clark, Lynchburg, Va.
(Center and bottom)
Belvil Park — St. Albans, Va.
129 houses built by Southern
Housing Corp., Washington,
D. C. Miami-Colonial Cabinet
No. 405.

(Top)
Units of Radford, Va., Defense
Housing Project. Miami-Colonial
Cabinet No. 404.

(Center and bottom)
Units of the 47 houses built by
Modern Homes Builders, Inc., of
Des Moines, Ia. Miami-Colonial
No. 405 Cabinets.

Miami BATHROOM CABINETS

OFFER BETTER VALUE... OFTEN CUT COST

Mass production of group housing is the big housing development of the times. MIAMI, alert to this development, has produced bathroom cabinets for this vast key market that set new standards of beauty, service and value.

The advantageous position of Miami to meet the cabinet needs of mass housing has been recognized by architects the country over. A check of the recent major public and private multiple housing projects shows MIAMI Cabinets the overwhelming preference.

Not only do Miami Cabinets offer more for the money in quality construction, beauty and utility features—Miami offers a wider selection of models at prices consistent with low-cost homes. Installation of Miami Cabinets frequently is the means of cutting construction costs. For instance, Miami Lighted Cabinets — wired complete at the factory — save the material and labor costs of extra bathroom outlets.

Whatever the requirements of your clients, you can insure maximum satisfaction — yes, and *maximum economy* — by specifying MIAMI Bathroom Cabinets. See Catalog in Sweet's, or write Dept. AF. for full information.

MIAMI CABINET DIVISION

THE PHILIP CAREY MFG. COMPANY

MIDDLETOWN, OHIO

No. 403
For house costing from
\$3500 to \$5000. Fitted
with Colonial light fix-
tures, light switch and
electric convenience
plug.

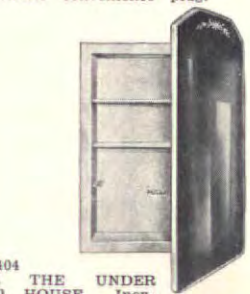


No. 210
For public build-
ings, schools, hos-
pitals, dormitories
and office build-
ings.

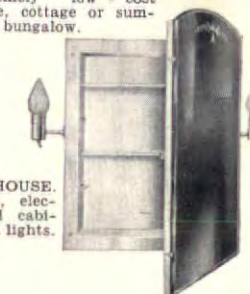


No. 405
For the \$3500 to
\$5000 House. All
mirror front.

No. 406
FOR HOUSES COSTING \$5000.
Equipped with demi-tubular
light bracket, light switch and
electric convenience plug.



No. 404
FOR THE UNDER
\$3500 HOUSE. Inex-
pensive recessed cabi-
net, designed for the
extremely low - cost
home, cottage or sum-
mer bungalow.



No. 401
FOR THE \$5000 HOUSE.
All-mirror front, elec-
trically equipped cabi-
net with Colonial lights.



This Wood Changed Buying Habits of an Industry

PULP AND PAPER MILLS have a hard time finding construction materials that can withstand their high temperatures and humidities. For example, before the lasting ability of Wolmanized Lumber* was so generally known, they were continually having to replace ordinary wood that had decayed within three or four years.

THEN THEY STARTED to use Wolmanized Lumber for roof planks and timbers, window frames and sash, and elsewhere in the mills. Because this wood is highly resistant to decay and termite attack, the need for replacements practically disappeared.

LOWER MAINTENANCE costs result when Wolmanized Lumber is used; service records covering millions of feet, some in use over fifteen years, are evidence of this fact. In addition, all of the advantages of wood construction are retained: ease and speed of erection, light weight, resilience, strength, high insulating value, and low first cost.

WOLMANIZED LUMBER is ordinary wood, made long-lived by vacuum-pressure impregnation with Wolman Salts* preservative. It is clean, odorless, and paintable. May we send you additional data? Write American Lumber & Treating Company, 1647 McCormick Bldg., Chicago, Ill.

*Registered Trade Mark

WOLMANIZED LUMBER



MONTH IN BUILDING

(Continued from page 36)

vary. In fact, earlier restrictions have been eased somewhat. Dealers are now permitted to sell a stockpile of 75,000 domestic electric refrigerators frozen in February. And, because lumber is largely replacing steel in wartime building, nail manufacturers are being asked to step up their output.

WPB TEETH

WPB means business on building priorities. In its first punitive action for alleged violations, Architect Matthew G. Lepley and the Stearns-Miskin Construction Co. are deprived of all priority benefits until next March. They had obtained priority aid on a Washington housing project by stating that all dwellings would be sold to Government employees for not more than the permitted \$6,000 maximum. WPB charges the representations were subsequently found to have been "misstatements of fact."

INFLATION SPIRALS

Normally, when builders are hard pressed to meet the demand, cost increases seem no obstacle to new construction. But, when cost limits are set on housing priority aid (\$6,000 maximum sales price, \$50 maximum monthly rental to war workers), a skyrocketing price curve promptly becomes one of Building's prime bogies to be slapped down.

Federal Home Loan Bank Administration chart-noodlers consequently have been taking stock. According to their calculations, the cost index of a standard 6-room frame house rose 11 per cent last year, which is not out of line, relatively, being exactly the same as the increase in general living costs computed by the National Industrial Conference Board. Compared with its own average for a base period 1935-39, however, the index soared 20 per cent. This means that a house of a quality costing \$5,000 in pre-war days could barely be squeezed under the \$6,000 priorities ceiling at 1941's end. Today a similar dwelling would be disqualified as too expensive, since by March the index had already climbed another 1.2 per cent, thereby subtracting another \$50 in pre-war house values.

Materials recently have been spiraling faster than labor costs. By March, however, materials had gone only 19 per cent above the pre-war average, whereas labor had pushed ahead 25 per cent.

Generally—doubtless because of Price Boss Henderson's eagle eye—building materials are behaving much better than they did during the comparable period in World War I. Then they spiraled over 50 per cent, even before the U. S. entered the conflict, and when peace returned

(Continued on page 40)



• The R. K. LeBlond Machine Tool Company needed storage space. The architects found that the company garages wouldn't stand the weight of a heavy second-floor addition; so they saved weight by using Steelox panels formed of ARMCO Galvanized PAINTGRIP Sheets.

**They gave these
war buildings
extra space quickly**



• This penthouse atop a war industry office building is constructed of Steelox PAINTGRIP panels. Note the year-round metal awnings also made of ARMCO Galvanized PAINTGRIP Sheets.

PANELED steel structures on existing roofs meet the pressing demand for increased office and plant space. The steel walls, fully insulated and plastered inside, rarely weigh more than 18 pounds a square foot.

When these panels are formed from ARMCO Galvanized PAINTGRIP Steel Sheets, they can be painted outside as soon as the work is erected. Exposure tests indicate that good paint lasts several times longer on PAINTGRIP sheets than on regular galvanized.

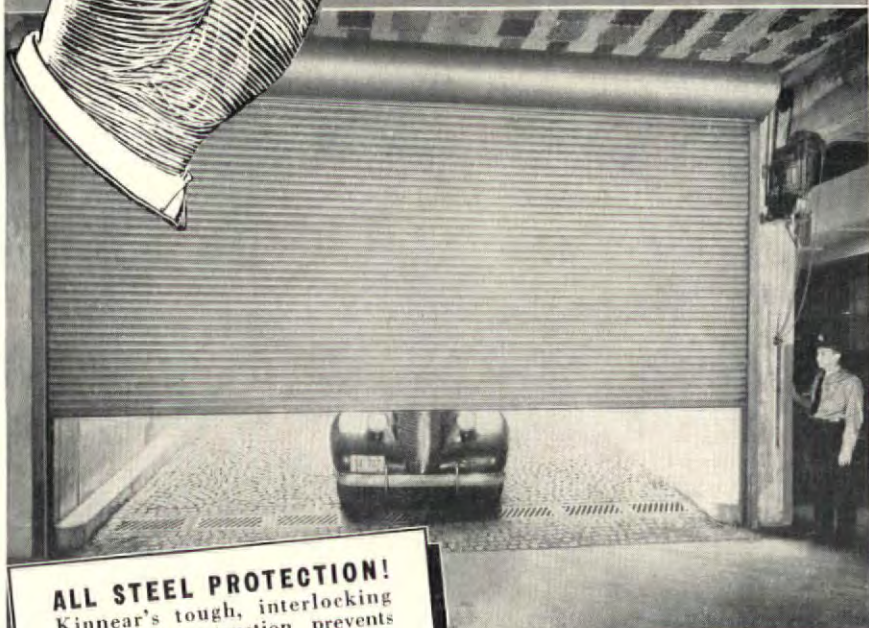
This is the reason: Ordinary galvanized metal dries out paint oils and causes early peeling. But ARMCO PAINTGRIP has a special bonderized film that insulates the paint from the galvanizing.

If you are engaged in priority construction work you may want more detailed data on the many building uses of ARMCO Galvanized PAINTGRIP Sheets. Just write to The American Rolling Mill Company, 1441 Curtis Street, Middletown, Ohio.



ALL-STEEL PROTECTION MOTORIZED EFFICIENCY SAVINGS IN SPACE

**KINNEAR GIVES
YOU "THE BIG
THREE" IN WAR-
TIME DOOR NEEDS**



ALL STEEL PROTECTION!

Kinnear's tough, interlocking steel slat construction prevents theft or intrusion, resists accidental damage, defies fire, wind and weather—and even closes light-tight for blackout safety!

MOTORIZED EFFICIENCY!

Extra savings in time and labor are gained when Kinnear Rolling Doors are equipped for smooth, rapid, dependable motor operation. And this permits the further advantage of remote control, with convenient push-button stations placed at any number of points.

SAVINGS IN SPACE!

All floor, wall and ceiling space around each opening remains clear and usable at all times when Kinnear Rolling Doors are installed. Another score for Kinnear's famous coiling upward action!

Full-speed, day-and-night war production brings the long-known advantages of Kinnear Steel Rolling Doors into sharper focus than ever before. Their capacity for years of hard, uninterrupted use under the most gruelling conditions has been proved over nearly half a century. To meet today's demand for extra door convenience, ruggedness and space economy, specify Kinnear Rolling Doors. Built any size, to fit any type of opening. Write today for Kinnear's new, complete data book on doors! THE KINNEAR MFG. CO., 1640-60 Fields Avenue, Columbus, Ohio.

SAVING WAYS
IN DOORWAYS

KINNEAR
ROLLING DOORS

MONTH IN BUILDING

(Continued from page 38)

wholesale prices were nearly twice as high as in the summer of 1914. Worst culprit was steel, which doubled. Next came paints and cement, rising about 60 and 24 per cent respectively. Lumber upped only a modest 15 per cent.

In the present war lumber prices have been the largest single factor pulling the building cost index skyward. (Explanation: sudden large orders for cantonments plus a heavy demand for residential construction.) Steel and cement, on the contrary, show practically no advances; both are concentrated industries with a few large producers able to exercise a commendable restraint in temptation's face. Last year paint products began to rise, but so far this year the wholesale market has been paced by plumbing and heating supplies. Following their historical pattern, brick and tile prices lag.

Last month worried OPA officials began taking stiff action to forestall further price boosts. A "quick freeze" order clamped all plumbing fixtures made of vitreous china, porcelain, enameled cast iron or formed metal (also their accessories), at their March 30 prices. Another fixed oils, paints and varnishes at April 12 levels. Previously, price tops had been set for mechanical refrigerators, vacuum cleaners, radios, washing and ironing machines, 44 electric household appliances ranging from curling irons to fan-type heaters.

Labor. While Henderson's staff laid plans to snip the materials spiral elsewhere, other Government circles began studying ways to moor building wages. A stabilization agreement reached more than a year ago under Sidney Hillman's direction froze pay scales temporarily, but union contracts are now coming up for renewal in many cities. Unless a broad national wage policy is adopted soon, local unions with expiring contracts will likely press for higher wages to offset the increased cost of living. Labor's non-strike policy precludes walkouts, so disputes will have to be smoothed by arbitration. Accordingly the 19 AFL building trades have drawn up a tentative formula which would continue Hillman's stabilization plan after some adjustments. This formula is now going the rounds in Washington. On it, or some other wage-peg that can meet general agreement, hinges the question whether the Government construction agencies will have to foot a larger wage bill this year than the present estimated \$4 billions.

SNITCH LAW

Under an ancient statute dating back to the Civil War, informers can split 50-50 with the Government if successful in suing to recover losses through frauds. This law has now been reenforced by a new court ruling. To anyone plotting to rook

(Continued on page 44)

For War Construction Wiring Supplies

See Your Neighbor THE G-E WIRING MATERIALS DISTRIBUTOR



W. A. Tuohey (left), Collins Electric Co., Springfield, Mass., is praising G-E wiring devices having plaster ears while talking with E. E. Fournier, salesman for General Electric Supply Corporation house, Springfield. Mr. Tuohey is handling wiring of 300-unit Chicomansett housing project at Chicopee, Mass.



D. B. Chandler (left), president and manager of Mid-State Electric Company, Inc., G-E distributor, Lynchburg, Va., with A. E. Foster, stock clerk, is selecting suggested materials for wiring system in building extension. Service is speeded by helping customers pick suitable materials for buildings needed in war effort.

Friendly service is the backbone of G-E Wiring Materials Distributors' business. *One of these Distributors is located right in your own territory—a neighbor of yours.* Right now, this Distributor wants to co-operate with you in aiding U.S. war efforts in every way possible . . . give assistance in selection of materials . . . make wiring suggestions . . . provide prompt deliveries.

Talk with a representative of your G-E Wiring Materials Distributor about materials for war-worker housing, etc. Ask him questions about priority problems and about other wartime problems. *He'll be glad to help you.*

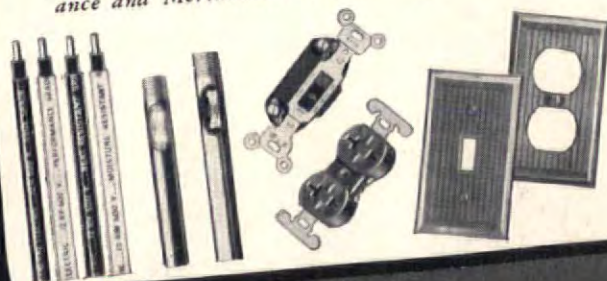
Remember too, that your G-E Wiring Materials Distributor handles a complete line of conduits, wires and cables, and wiring devices all made by one manufacturer. These G-E materials are high quality and are made to be used together.



When R. A. Schaeffer (right) of the Schaeffer Electric Construction Co., Reading, Pa., needed surface wiring materials for speedy installation in temporary buildings, he asked C. J. Clay, salesman for the Reading General Electric Supply Corporation house, for assistance. Mr. Clay helped him select suitable available materials.

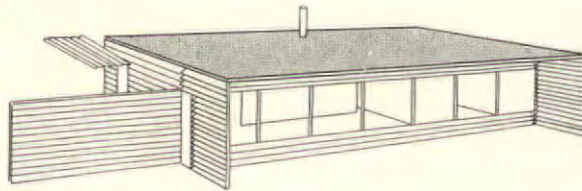
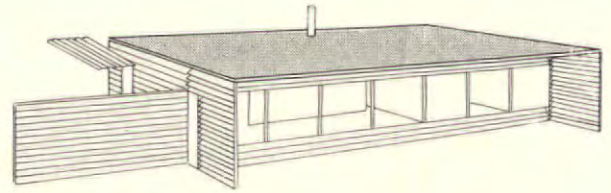
SEE YOUR G-E DISTRIBUTOR

The nearest G-E wiring materials Distributor will be glad to give you information about G-E conduits, wires and cables, and wiring devices. He'll help you select materials particularly fitted to your wartime needs. General Electric Co., Appliance and Merchandise Dept., Bridgeport, Conn.

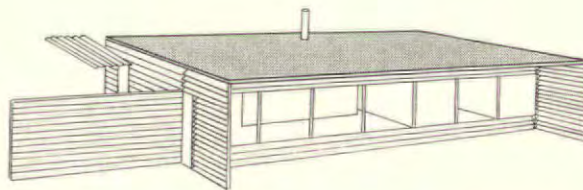
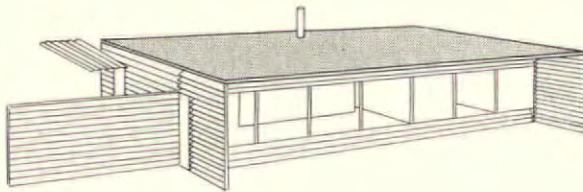


O. E. Frankenbush, vice president of the Hawkins Electric Co., Chicago, Ill., is famous for his use of the telephone in conducting business. He is in charge of all internal sales and handles practically all of his estimating and contracting over the telephone.

GENERAL  ELECTRIC



To encourage quality building



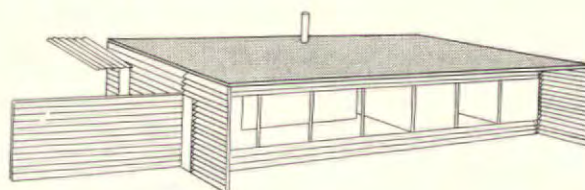
If the volume of post-war homes runs into millions of units . . . as many authorities expect . . . greatly increased opportunities will be offered to every factor in the building industry. In order that the architect, the builder, the dealer, the manufacturer, the banker, may fully enjoy the benefits of large-scale housing construction, there must be public demand for quality.

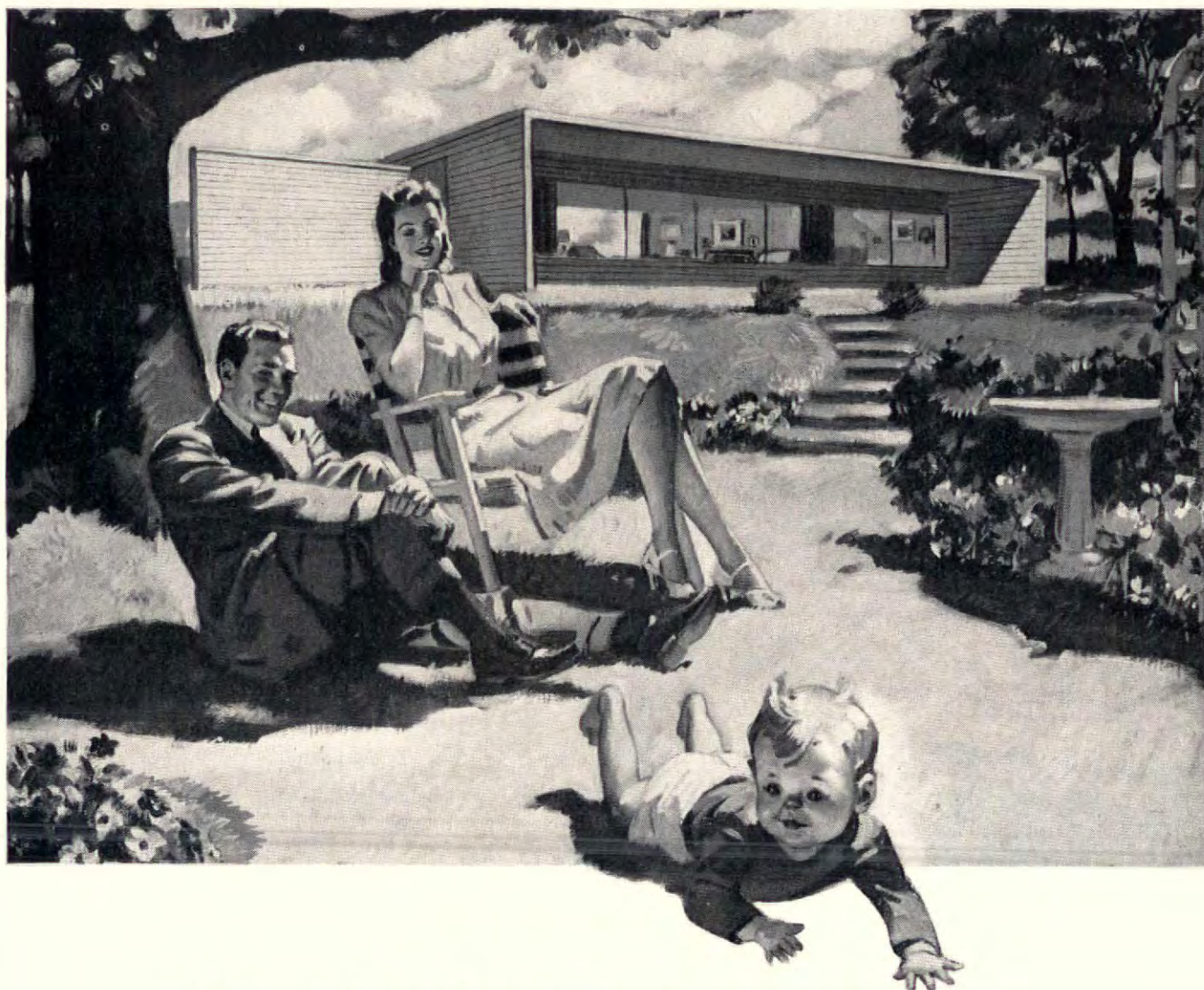
Mass production can go far to elevate the quality of low-cost homes. Design can play its own important part. And a house that could be purchased originally in minimum size, then enlarged as finances permit, could further open the door to quality building. By providing for a family's future as well as its present needs, such a house would promise long-term satisfaction and would encourage the use of enduring construction methods and materials.

Revere presents before the public the conception of George Fred Keck, believing that in this way the desire for quality building will be stimulated so that all concerned will gain.

★ ★ ★

In presenting various concepts of tomorrow's homes by leading architects and designers, Revere Copper and Brass Incorporated seeks only to stimulate public interest in better housing, confident in the knowledge that the greater use of copper and brass makes any house better to live in, better to own, better to rent or sell. The Revere Technical Advisors are always ready to help with your problems.





Love is a long term investment

Here is a home to house it lastingly.

No mere space bounded by walls and divided into rooms.

But, rather, a way of life to keep pace with your needs, to change with your tastes, to grow with your means.

In this home, maturing children will not feel cramped. Your privacy will not be destroyed if circumstances force Mother to live with you.

This house has space for leisure, for eating, for sleeping. It is arranged to make work or play simple. It is planned to take advantage of the new devices, inventions and conveniences that copper has brought to modern living. It can be prefabricated. Or it can be put up by ordinary construction methods with any material desired, such as lumber, brick, stone.

But always this house will be inexpensive.

GEORGE FRED KECK

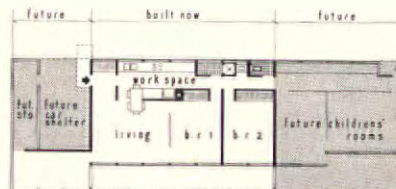
Today, we are all working for Uncle Sam. Building materials, and particularly copper, just aren't available. So we will have to wait until after the war for the home of our dreams. But we can plan for it today. So plan for tomorrow, Americans, whether you are growing boys and girls or older couples to whom



time has brought serenity. And if your dreams or needs should change, plan again. For it is evident that architects, engineers, builders, manufacturers *all* are realizing that we will want homes that adapt themselves to people—that people must no longer adapt themselves to homes.

We at Revere, know that on copper will depend much of the realization of these plans. Already it gives protection against weather and termites, provides us with rust-free water, helps heating be more economical, makes any house better to own, or rent, or sell.

So Revere research is rapidly pressing forward to develop new copper alloys, new forms of copper, new uses for copper, that will help the home of your dreams come true.



Plan showing how this house may be enlarged in two directions, according to future needs and finances.

Naturally, in this limited space, Mr. Keck could give only the briefest outline of his conception. Revere has prepared an illustrated booklet covering further details. We will gladly send it to you, free. Write us.



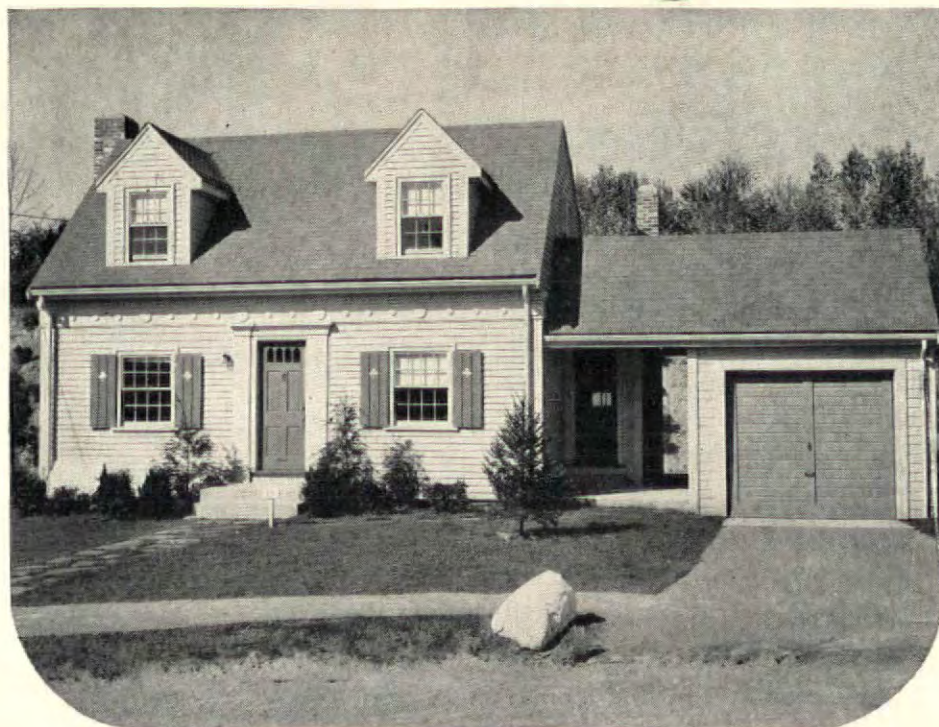
REVERE

COPPER AND BRASS INCORPORATED

Executive Offices: 230 Park Avenue, New York

★ ★ ★

Never before has paint faced such a Challenge!



A long service record has always been a desirable quality in house paint. But today long service is a *vital necessity*!

In order to conserve materials and manpower a paint job must last for the maximum number of years.

To play safe, many men responsible for paint selection are specifying Eagle White Lead both for exterior and interior work. They know from experience that the paint made with Eagle White Lead will make good in the present emergency. This paint wears slowly and stubbornly. Its tough, elastic film does not crack or scale. And it leaves a perfect surface for repainting.

Eagle White Lead has been protecting and beautifying American homes, through war and peace, since 1843.



THE EAGLE-PICHER LEAD COMPANY
Cincinnati, Ohio

Member of the Lead Industries Association

MONTH IN BUILDING

(Continued from page 40)

the Government on war construction contracts, it signals new grief ahead, particularly when the inevitable post-war Congressional investigations begin.

Case's history began late in 1939 when Trust-Buster Thurman Arnold obtained conspiracy indictments against a combine of Pittsburgh electrical contractors on the charge that they had defrauded the U.S. by padding bids in 56 PWA projects. Pittsburgh's fast-thinking Attorney Morris L. Marcus dug up the old law, filed an "informer's" suit, won a \$315,000 judgment. However, during the appeal, when the judgment was about to be compromised for \$100,000 cash, Arnold intervened as friend of the court and asked for dismissal, contending that the law had been "repealed" by the Government's reorganization.

Last month Arnold's "repeal" theory was rejected by Philadelphia's Circuit Court Judge William Clark, who declared the ancient statute is still operative. Nevertheless, the court tossed out the \$315,000 judgment. Reason: within the law's meaning, the electrical contractors' periodical estimates for interim payment constituted "claims" not against the U. S. Government but against the local municipalities receiving PWA aid, since contracts had been signed by these agencies alone. Attorney Marcus is reported getting ready to ask the Supreme Court to entertain an appeal of his own.

BACKYARD AUTO PARKS

As a trick to keep streets open for traffic—important any time, doubly so in wartime when congestion becomes added invitation to the enemy to drop incendiaries—a plan being tried out in Beverly Hills bears watching. The Los Angeles suburb intends to provide free rear lot parking in its 30-block business district.

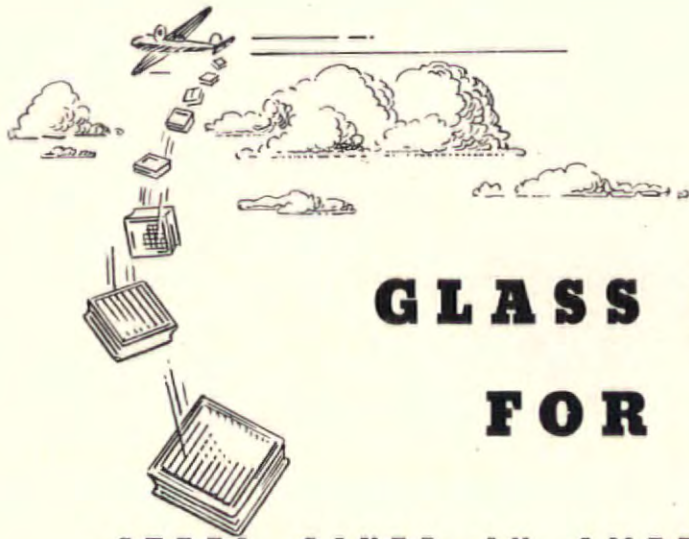
Scheme is implemented by a State law passed last year. This law—first of its kind, according to the American Society of Planning Officials—permits 25 per cent of the property owners in any California community to set up a parking district to construct parking areas, finance them through a bond issue. Bonds are limited to 20 per cent of the assessed valuation of each realty parcel.

In the Beverly Hills plan, the parking areas will be laid out in the business block alleys, which will first be widened to include donated space in the rear of each business house. Each area will thus be able to accommodate 60 cars, still leave room for operation of store delivery trucks.

CAMOUFLEURS

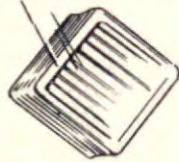
Inspiring example of civilian initiative in ARP is New York's Civilian Camou-

(Continued on page 48)



GLASS BOMBS FOR VICTORY

STEEL SAVED IN AMERICA IS STEEL SAVED FOR
EQUIPMENT ON THE FIGHTING FRONTS . . .



T

HE great need for huge plants to house essential machinery and equipment to carry on our war effort, and the scarcity of materials from which they can be constructed, constitute an increasingly serious problem. Architects and engineers, always conscious of available materials for a given requirement, now must function on an even higher plane of selectivity, utilizing alternates more extensively.

Almost the entire supply of some very basic materials must be melted and molded into implements of war. The extent to which less critical materials are utilized will have a definite bearing upon the time required to bring the war to a successful conclusion.

Time, the essence of vast production under any circumstance, is infinitely important to the nation today . . . for lives will be saved or lost in almost direct ratio to the time required to equip our men with ammunition, armament and planes.

In the construction emergency created by war, Owens-Illinois is happy to be in a position to serve with its Insulux Glass Block.

Insulux' uses are many and varied . . . for large areas in new buildings, which supplant substantial quantities of critical materials . . . for maintenance, so essential to continued service under severe production pressure . . . for repairs and rehabilitation within the scope of government regulations.

Glass ingredients, fortunately are native and still available. Glass in the form of Insulux blocks, minimizes the use of critical materials to a high degree—while bringing to building, possibilities for speedy erection along with insulation and light control.

Send us your inquiries. We promise the very best that's in us for the solution of construction problems which confront you under these war conditions.

INSULUX PRODUCTS DIVISION
OWENS-ILLINOIS GLASS COMPANY
TOLEDO

EYE-CATCHING ANDERSEN CORNER WINDOWS

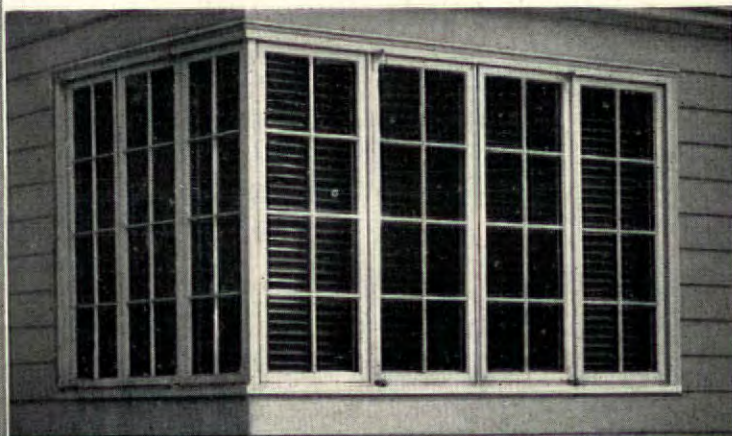
SALES FOR DEFENSE



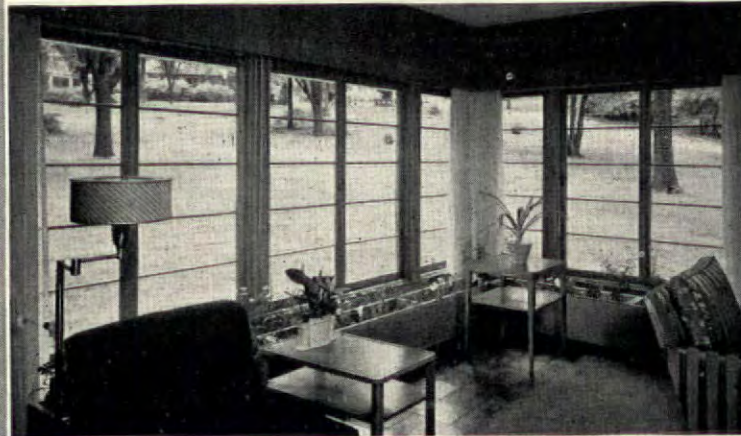
Extra wall space and a window feature in a small defense home, achieved by using Andersen Horizontal Gliding Windows at the corner. Horizontal muntin bars.



In a \$3,000 home, these Andersen Horizontal Gliding Windows add sunshine and cheer. These are maximum stock size. This home has sales-appeal—and sold quickly.



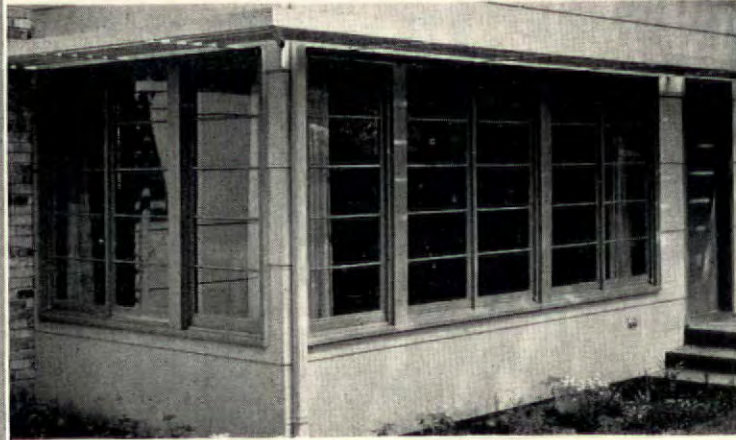
Andersen Casements grouped at a corner, make a window feature with lots of eye appeal. Note the minimum size corner post. Divided lights for traditional design.



No prospective home owner is likely to be able to resist a breath-taking window arrangement like this. And it's in a low-cost home. Double-glazed for year-around insulation!



Sales punch? No better way to get it than Andersen Narro-line Windows in a corner installation. That's the way to sell 'em, and fast! Note narrow mullions in this installation.

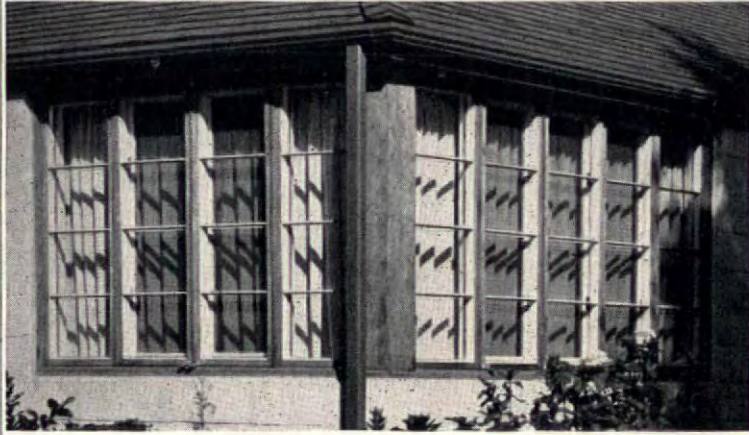


Larger window areas attract buyers and these Andersen Horizontal Gliding Windows did their part! This is the appealing exterior view of corner window illustrated above.

Andersen Corporation • BAYPORT, MINNESOTA

AMMUNITION

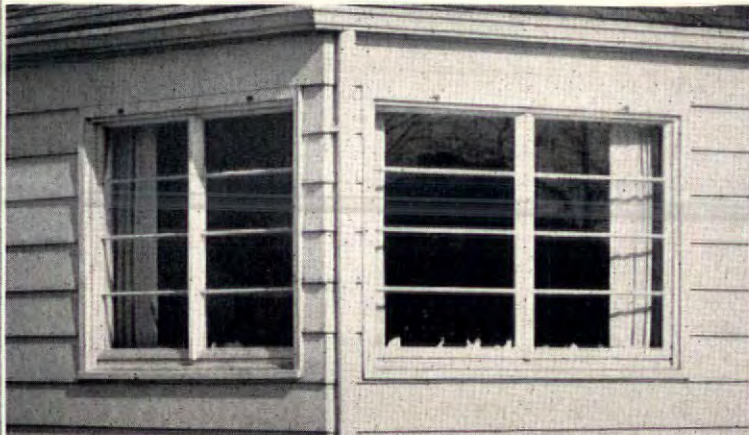
HOMES and REMODELING JOBS



Banks of Andersen Casements arranged in a corner installation flood the living room with light. Only five swinging sash here. No sash locks or operators needed for fixed sash.



A kitchen and breakfast nook brighten up because of five Andersen Narroline Windows in a corner grouping. These windows operate easily — a point Mrs. Prospect will like!



This is sales appeal spelled with capital letters! In a small home, Andersen Horizontal Gliding Windows in a corner. The modern way to place windows in inexpensive homes.



A breath-taking, sales-making corner installation of Andersen Narroline Windows makes a cheerful, charming living room. Horizontal muntin bars accent horizontal lines of the home.



Prospects "oh" and "ah" and sign on the dotted line when your homes have corner windows like this one. Andersen Horizontal Gliding Windows, with removable sash.

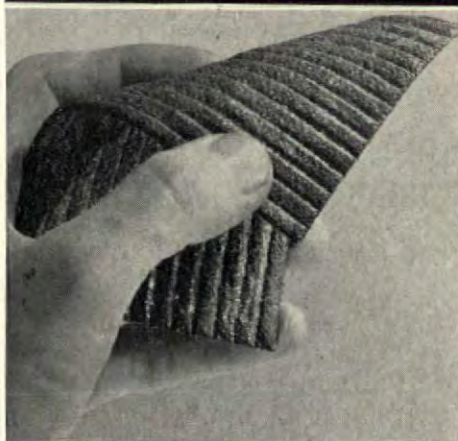
*IT'S DUCK SOUP TO SIGN
UP A PROSPECT WHEN
I FEATURE GROUPS OF
ANDERSEN WINDOWS IN
MY "UNDER \$6000" HOMES*



NARROLINE DOUBLE HUNG WINDOW UNITS
HORIZONTAL GLIDING WINDOW UNITS

CASEMENT WINDOW UNITS
BASEMENT WINDOW UNITS

NO PRIORITIES NEEDED FOR



WASCO FABRIC FLASHING

The perfect substitute
for Metals because
WASCO is:

1. DURABLE
2. FLEXIBLE
3. INEXPENSIVE

IMMEDIATE SHIPMENTS

Shipped to
the job in
handy rolls.
**READY TO IN-
STALL.**



for FREE sample MAIL THIS COUPON

WASCO FLASHING CO.
CAMBRIDGE, MASS. Dept. WF 2

Kindly send FREE sample folder
on WASCO FABRIC FLASHING.

Name

Address

City

WASCO FLASHING COMPANY
Cambridge, Massachusetts

MONTH IN BUILDING

(Continued from page 44)

flage Council. Started year ago by Architect Greville Rickard, the Council comprises some 40 architects, engineers and artists, plus a sprinkling of scene painters, psychologists, chemists, teachers, other professions. Every Wednesday afternoon members meet informally at the Beaux-Arts Institute to study ways and means of concealing the metropolis against enemy attack. All have become experts in camouflage. Rickard himself has gone to Washington where he is now working as an Army camoufleur. Taking his place as the Council's Chairman is Architect Francis Keally. Others on the Council's executive committee: Pratt Institute's Art Director James C. Boudreau, Landscape Architect A. F. Brinckerhoff, Consulting Engineer Ernest P. Goodrich, State Horticultural School Head Carl F. Wedell. No specific assignment has yet been given these civilian camoufleurs, but they are prepared to tackle any problem that may come their way.

OWNERS vs. RENTERS

The ancient controversy whether it is cheaper to rent or to buy a house has been largely resolved—at least temporarily—by cold reality that most war workers lack either the desire or the cash to become home owners. By official edict, therefore, all public war housing and at least 50 per cent of private housing built henceforth will be for rent. To make certain that the private builders swing properly into line, rental houses are granted higher priority ratings (A-2) than houses built for sale (A-5). Despite this odds-on favoritism to renting, the controversy still manages somehow to pull itself out of academic cobwebs into the limelight.

Two recent happenings bear on the question, are worth noting for the record's sake if for no other reason:

►Commerce Dept. figure-sleuths have delved into the mass of data gathered in the 1940 census, emerge with the proud statistic that 43.7 per cent of all occupied homes in the country are owned by the families living in them. This is a substantial decline from the 47.8 per cent owner-occupied ratio scored in the 1930 census—explainable by the heavy loss of dwellings through foreclosures during the past decade. Nevertheless home ownership remains considerably higher in the U. S. than in any other country. Proportion is highest in the rural farming areas (53.2 per cent), lowest in urban centers (37.5 per cent). Surprisingly, less than half the owner-occupied, non-farm homes are burdened with mortgages. Other census findings: a U. S. total of 37,326,682 dwelling units, of which 34,855,552 were occupied; 18 per cent in need of major repairs, but

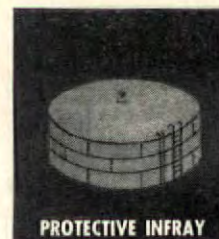
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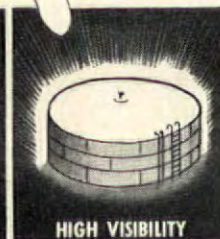
VITAL storage tanks painted with aluminum, white or other high visibility colors are glaring targets. Arco INFRAY*—based on a newly discovered principle of paint formulation—provides the protective concealment of dark colors yet at the same time, repels heat rays... holds down evaporation losses. INFRAY* is a war-time achievement of Arco Research.

*Patents Applied For

THE ARCO COMPANY
CLEVELAND, OHIO • LOS ANGELES, CALIF.



PROTECTIVE INFRAY



HIGH VISIBILITY

ARCO
Paints for Industry

GLUE makes prefabs 6 WAYS BETTER

- 1 Increases Strength...** Unlike nails alone, glue bonds wood together so that resistance to sliding and shear is as great in the joint as within the wood itself.
- 2 Doubles the Rigidity...** U. S. Forest Products Laboratory tests prove a glued and nailed plywood wall section is more than twice as rigid as when nailed only. This is specially important for withstanding the extra handling of dismantling and reassembling.
- 3 Simplifies Interior Finishing...** Practical methods have been devised for eliminating nails from panel joints, thus not only saving nails but eliminating many interior finishing problems.
- 4 Makes Smooth, Crack-Proof Panel Joints...** Glued joints can be filled and painted or papered to make smooth, crack-proof, flush walls.
- 5 Strengthens Corner Joints...** Joints that must be fastened during erection, joints between sections, at corners, and at partitions, are made stronger when glued.
- 6 Reduces Air-Infiltration...** Glued wall sections are almost completely impervious to air infiltration and make houses less drafty and easier to heat.



EASY TO USE... LOW IN COST

With prefabrication, you get all these advantages at minimum cost. Modern cold-water-mix, self-bonding casein glues and cold-setting resin glues can be easily mixed and applied by unskilled labor, cutting gluing costs to a minimum.

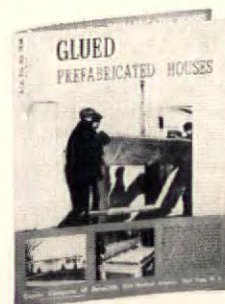
Total gluing costs on a typical 50-house project: \$8.36 per 3½ room house—with all panels, inside and out, waterproof resin glued.

Send for new A.I.A. folder:

GLUED PREFABRICATED HOUSES

Tells what glue to specify—in terms of well-known Government Specifications.★ Tells where glue should be used and how to use it—to build better, stronger, sturdier prefabs.

★Casco Casein Glue meets U.S. Army Specification 3-152-A or U. S. Navy Specification 52G8c. Cascamite Resin Glue meets U. S. Aeronautical Specification G29 or U. S. Army Air Corps Specification 14110. These glues are used by leading Victory House manufacturers.



CASEIN COMPANY OF AMERICA

DIVISION OF THE BORDEN COMPANY

350 MADISON AVENUE, NEW YORK, N. Y.

CASCAMITE Powdered Resin Glue
CASCO Powdered Casein Glue

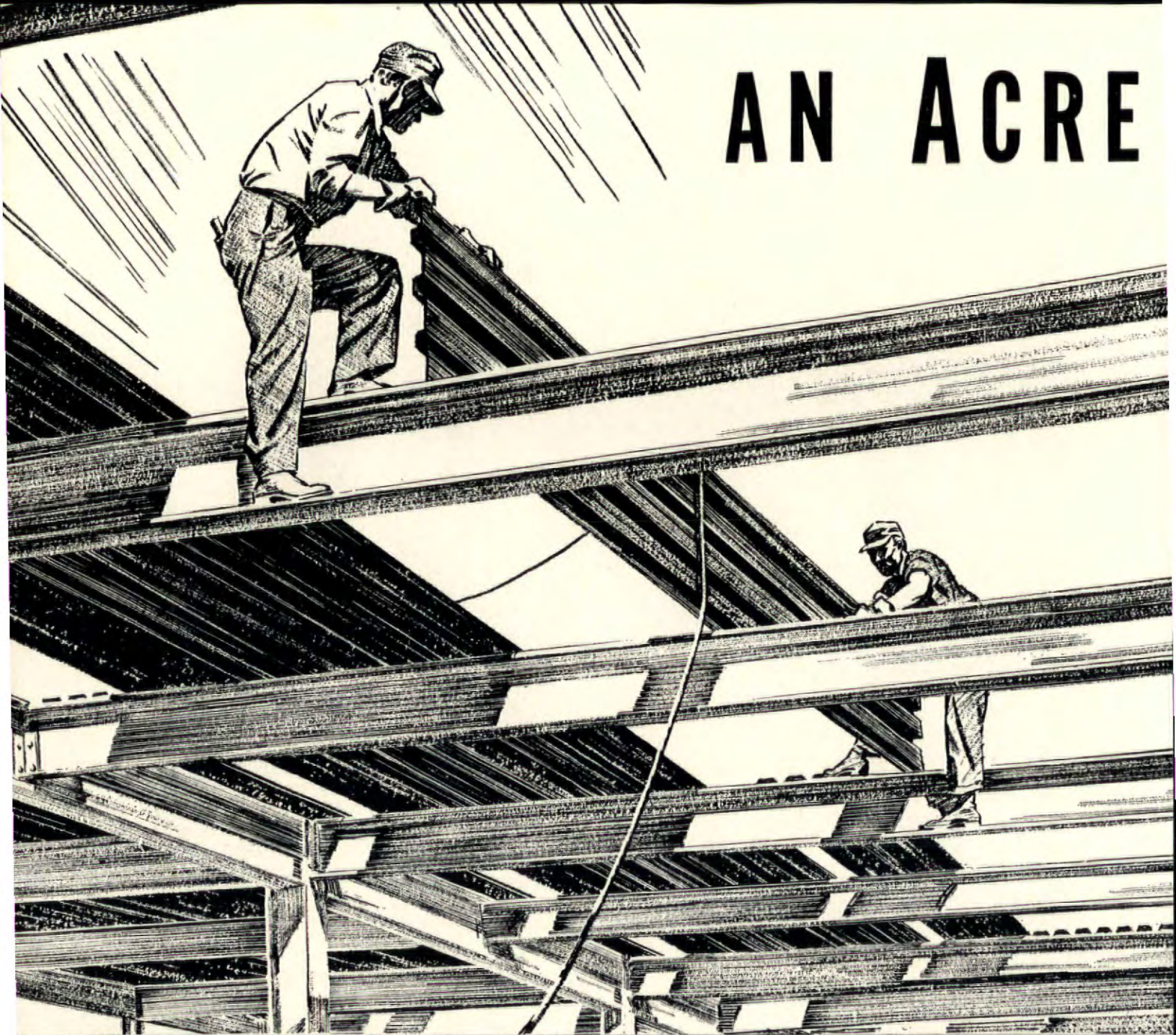
Please send A.I.A. folder "Glued Prefabricated Houses" to:

Name _____

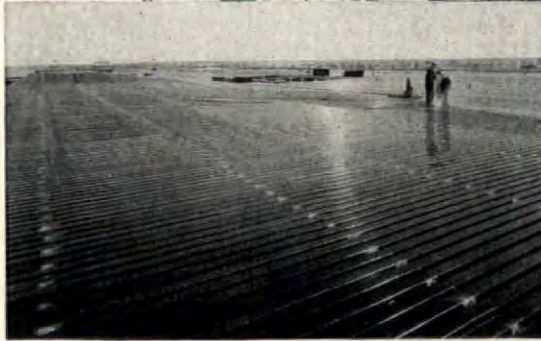
Address _____

City and State _____

AN ACRE



The speed with which these units are laid is an important factor in making possible the construction of an acre of roof in one day.



This three acres of Q-Deck you see here was laid in three days . . . Q-Deck saves working time, thus freeing workmen for other War Production jobs.



As soon as the first area of Q-Deck is laid, the application of insulation and waterproofing is carried on concurrently, thus making speed.

ROBERTSON Q

UNDER ROOF IN ONE DAY

That's Quick

IT'S WARTIME SPEED . . . and speed is a wartime MUST. Because Q-Deck helps put urgently needed plant buildings under roof *quicker* and in production quicker, it has become the architect's cue for speed.

Robertson Q-Deck, plus Q-Panels, saved 45 days' construction time for a 23-acre aviation plant in Texas. And in many other war projects, from the moment the decision was made to roof with Q-Deck, the Robertson organization, streamlined for speed, has gone into time-saving action . . . quick!

Q-Deck is provided in standard two-foot widths and in any length up to 25-feet. Thus, one section (which can be placed in one minute and quickly welded to the purlins) is equal to 50-square feet of roof. *With Q-Deck, you can put an acre under roof in one day.*

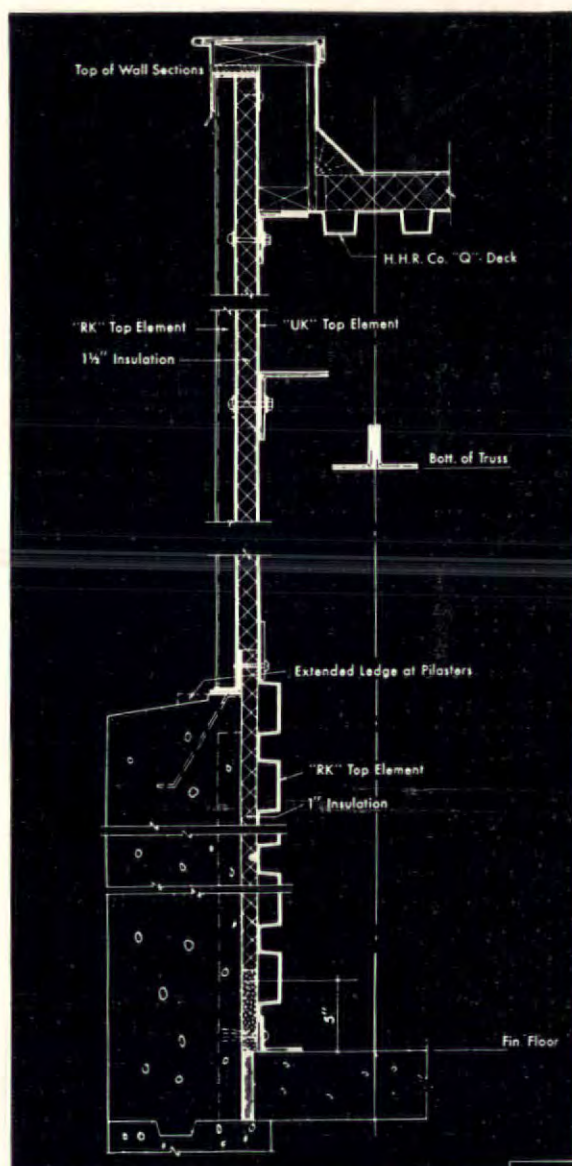
As soon as Q-Deck units are placed, they form a working platform for the installers of insulation and waterproofing, who follow rapidly behind the workmen welding the Q-Deck to the structural frame. Any War Production plant construction is speeded to *completion* by the use of Q-Deck (and Q-Panels for walls).

Q-Deck constitutes "dry" construction, which facilitates "all-weather" building. There's no waiting for wet materials to set, no fire-hazards from combustible forms.

★ ★ ★

The cross-section at the right indicates the salient features of Q-Deck (roof) and Q-Panel (wall) construction. The greatest speed may be had by combining the two. Q-Deck puts an acre under roof in one day; Q-Panels put an acre of wall up in three days. Further details, estimates, etc., for such a wide variety of structures as aircraft buildings, munition plants, warehouses and many other types of buildings will be gladly furnished.

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



TYPICAL ROOF AND WALL SECTIONS

SEE OUR
CATALOG IN
SWEET'S

- DECK

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

- () Please send me literature regarding Q-Deck, Q-Panels and Q-Floors.
() Have a Robertson Field Engineer give me Engineering Data.

Name _____

Firm _____ Address _____

City _____ State _____

The SHAPE OF THINGS TO COME



"...clear and clean
and simple...
the whole thing
will be designed"
H. G. WELLS

NOW— AN ARCHITECTURAL APPROACH TO HOME FURNISHING

1 With war shaping the pattern of housing . . . with a tremendous upsurge of the trend toward functional design . . . the HERMAN MILLER FURNITURE COMPANY . . . with a decade of leadership in MODERN . . . now offers a group of planned-in units that make architectural dreams come true. This new

2 BLUE PRINT LINE

is the type of furniture you will want to consider when the house or apartment is in the blue print stage.

3 100 units . . . individuality for every room. With this flexible BLUE PRINT LINE you achieve simplification rather than standardization. Its possibilities will fire your imagination. Write for details.

If your plans include MODERN executive office furniture or if you wish estimates on contract work, we shall be happy to hear from you.

HERMAN MILLER FURNITURE COMPANY

Factory at Zeeland, Michigan
PERMANENT SHOWROOMS AT 1680 MERCHANDISE
MART, CHICAGO; ONE PARK AVENUE, NEW YORK

MONTH IN BUILDING

(Continued from page 48)

more than half boasting private baths; an average monthly rental of \$30.84 in urban homes, \$18.35 in rural, non-farm homes. Roughly 9 per cent of all occupied units house more than 1½ persons per room—definite statistical proof of over-crowding.

►Labor Dept. fact-finders have just now released a study dealing with comparative costs of renting and owning a home several years back, "Family Expenditures in Selected Cities, 1935-36." (Copies available from Government Printing Office, Washington, D. C.; price, 45 cents.) Chief finding: home ownership is no class privilege. Although more frequent among high and medium incomes, home-owning families appear also in a surprisingly large proportion in the lower-income groups. Of the cities studied, Portland, Ore., had the highest volume of home ownership, New York City the least. Significantly, Portland's rents were consistently below those in other cities, whereas New York was the most expensive locality in which to own or rent a house.

POST-WAR SHELF PROPS

Although Congressmen are still cold-shouldering proposals to subsidize advance preparation for the post-war period, notable progress can be found on the planning horizon:

►More than 100 agencies are now busy making post-war plans, according to a Twentieth Century Fund report. Titled "Post-War Planning in the U. S.," and authored by Dr. George B. Galloway, the Fund's survey was released last month. It catalogs 35 Government agencies, 33 private agencies, 11 industrial and financial organizations, 16 trade associations, 7 rail, highway, water and other transportation agencies. It also lists and classifies projects each has undertaken, includes a full-size bibliography on post-war planning. To organizations seeking to shape plans for tomorrow's world, the document itself makes a handy planning tool. (Copies obtainable from the Fund's headquarters, 330 West 42nd Street, New York, N. Y. Price, 60 cents.)

►The Public Work Reserve, a WPA project mothered by the National Resources Planning Board (see ARCH. FORUM, March 1942, p. 42), has vanished into nothingness. Actually, however, only the name has disappeared. In the phoenix-like manner of Government undertakings, there simultaneously emerged a new Public Works Programming Office. This fledgling absorbs the objectives of PWR. Operating under the joint authority of FWA and NRPB, it will collect information on advance construction plans and estimates by States, municipalities, other public agencies, and advise them in developing

(Continued on page 54)



Look to RYBOLT for War Housing HEATING UNITS

Heating units, for war housing must be unusually compact, highly efficient, yet low in price. Recognizing this need RYBOLT has added to its complete line a number of units especially designed to meet the size and price limitations of war-time housing. These units—forced air and gravity—fired by all permitted fuels, are compactly designed to fit in small space without sacrifice of efficiency, convenience or accessibility. They are thoroughly modern and equipped with advanced features, yet priced low enough to come well within War Housing cost limits. A few of them are shown below.



RYBOLT SERIES DH-615V HI-BOY FORCED AIR UNIT

Takes only 26" x 26" floor space. Steel coal-fired heating element. Blower underneath heating element. Baked enamel finish.



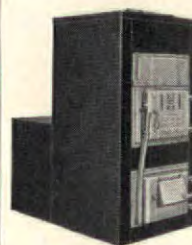
RYBOLT SERIES DH-70S FORCED AIR UNIT

A larger capacity unit than below but takes only slightly larger floor space. Coal-fired heating element of steel welded construction. Blower compartment can be mounted on side or rear of cabinet. Cabinet finished in baked enamel.



RYBOLT SERIES DH-61S FORCED AIR UNIT

Compact. Takes only 26" x 43" floor space. Coal-fired heating element of steel welded construction. Blower compartment can be mounted on either side or rear as shown. Cabinet furnished in baked enamel.



Look to RYBOLT for your War Housing Heating equipment.

WRITE FOR DESCRIPTIVE LITERATURE



THE RYBOLT HEATER CO.
617 MILLER ST. • ASHLAND, OHIO



**"WE CHOSE BRUCE STREAMLINE
FLOORING BECAUSE IT COST
LESS THAN FLOORS FINISHED
ON THE JOB"**

—says George W. Lipscomb of
Wm. P. Lipscomb Co., Inc., Washington, D. C.

He writes: "We chose Streamline because we decided it would cost less than floors finished on the job. Our final floor costs at the Bellevue and Piney Point Projects were even less than the original estimates."

Contractors All Over America Praise Bruce Factory-Finished Streamline Flooring

It's no wonder so many contractors choose Bruce Streamline Flooring! All over the nation, this new kind of flooring is saving them time on Defense Housing jobs. Completely finished at the factory with the amazing "Bruce-Way" Finish, Streamline Flooring is ready for use as soon as it's laid. It saves valuable days on the job, and produces a floor superior in appearance and durability. Yet, Stream-

line costs no more than ordinary hardwood floors—less than any comparable floor. It's the greatest improvement ever made in hardwood flooring! Read the statements of defense housing contractors below. Send today for the new book—"Low Cost Floors for Defense Housing." It tells the whole story of this amazing new flooring! E. L. BRUCE CO., 1606 Thomas Street, Memphis, Tenn.



"FAR SUPERIOR FLOOR"

writes Elmer E. Dunlap of Dunlap & Company, Inc., Columbus, Ind.

"Aside from the saving in time effected by the use of Streamline Flooring, we felt we were giving the Government and the tenants a floor far superior in appearance and durability."



"HELPED AVOID PENALTIES"

writes H. E. White, General Contractor, Tyler, Texas

"Having 78 calendar days to complete this work, with \$1,000.00 per day penalty thereafter, we decided upon using prefinished Streamline flooring and were highly pleased in every way with the results obtained."



"SHIPPED AS SCHEDULED"

writes C. L. Browning, Jr., General Contractor, San Antonio, Texas

"I was well pleased with the results, and with your splendid service in shipping cars to me exactly according to our pre-arranged shipping schedule."



"NO TEMPORARY WIRING"

writes Wm. M. Irion of Whittenberg Construction Co., Louisville, Kentucky

"Our experience with Streamline was extremely satisfactory. The speed of installation, durability, and appearance justified its use; in addition it eliminated the necessity for temporary wiring for sanding machines."



STREAMLINE

Trade Mark Reg. U. S. Pat. Off.

FACTORY-FINISHED

FLOORING

FLOOR FINISHES • TERMINIX • LUMBER PRODUCTS

E. L. BRUCE CO., 1606 Thomas St., Memphis, Tenn.
Please send me a copy of your new book—"Low Cost Floors for Defense Housing."

Name.....

Address.....

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



FORESTALL SABOTAGE BY NATURE!

**WEST DODD
PROVIDES SIMPLE AND
RELIABLE PROTECTION
AGAINST LIGHTNING...**

LIGHTNING is a powerfully destructive force. And records of the National Board of Fire Underwriters' prove it ranks at the very top as a source of fire. But, if properly controlled, it can be tamed at reasonable cost before there is any chance of stalling men and machines engaged in vital war work.

PROTECTS ORDNANCE PLANTS

West Dodd lightning and static control equipment is being widely installed in Uncle Sam's ordnance plants for this reason. West Dodd is also protecting the power stocks and even the factories of many important war industries.

IMMEDIATELY AVAILABLE FOR DEFENSE

Numerous West Dodd items have been specially designed and built to meet U. S. Government specifications. Approved by American Institute of Electrical Engineers, National Board of Fire Underwriters', and many other authorities. Equipment inspected and labeled at the factory by Underwriters' Laboratories, Inc. Backed by the oldest manufacturer in the field.

West Dodd Systems are IMMEDIATELY AVAILABLE for defense use. Write, wire, or telephone today for further information.

WEST DODD
LIGHTNING CONDUCTOR CORP.

A RELIABLE PROTECTION AGAINST
A LEADING CAUSE OF FIRE



GOSHEN, INDIANA

FREE The West Dodd Engineering Department will be glad to assist in planning the application, or estimating costs without obligation.

MONTH IN BUILDING

(Continued from page 52)

orderly long-range programs of local public works.

►Also out of NRPB comes a bulky 227-page report on "National Resources Development." It restates major war and post-war goals, presents the program of public works, winds up with a series of studies by NRPB consultants on wartime planning for peacetime employment.

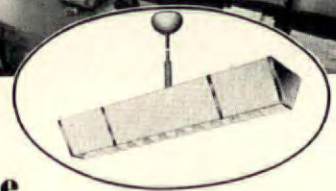
►New York's Gov. Lehman is sponsoring a bill for a 10-man temporary State commission to draft and correlate plans for post-war public works. Coached by canny Robert Moses, the Governor is confident that Washington legislators sooner or later will catch up to him and add handsomely to his \$450,000 planning budget. Aim is to implement studies to provide full employment after the war and to assure expenditure of this labor on soundly conceived projects instead of boondoggles.

►The rambunctiously ubiquitous auto workers have aligned themselves with the cause of post-war planning. Via full-page newspaper ads, their union is pressing for equality of sacrifice in winning the war. As one of the conditions for softening its stand on overtime pay, UAW-CIO demands immediate creation of an agency composed of Government, labor, industry and agriculture, to make plans for post-war adjustment: "Planning now is needed, if we are to avoid a catastrophic depression after the war."

►Good index of the enormous potential post-war market awaiting brand new mass-produced types of houses is Revere Copper & Brass, Inc.'s mailbag, spilling over with letters from magazine readers attracted by its series of advertisements on "tomorrow's homes." No less than 30,000 requests have come in for copies of the future-envisioning booklets prepared by Designers Buckminster Fuller, Norman Bel Geddes, Paul Nelson, Walter Dorwin Teague, William Hamby, Walter Sanders. Many express intentions to build as soon as war ends, definitely prefer prefabricated units.

►And, from overseas, comes news that the British Ministry of Works and Buildings, itself a novelty not much more than a year old (see ARCH. FORUM, December 1941, p. 2), has created a Directorate of Post-War Building to prepare for the tasks of reconstruction. This worthy innovation was foreshadowed in February when the Works Minister, dour but spectacular Lord Reith, stood up in the House of Lords to tell the world he was the new (and first) minister of planning. Fortnight later, by the curious alchemy of British politics, he had been bounced out of office, being replaced by Lord Portal. Political upheaval, however, does not cloud the wisdom of Lord Reith's last official words: "Planning is a war aim, a notable and urgent war aim, not a distraction from the war effort."

Here's **LIGHT** for faster "paper work" in war plant **OFFICES**



... the **Wakefield BEACON**

Faster, more accurate seeing may be as vital in plant office and drafting room now as on the production line itself. So when you plan office space in new war plants or help convert an old plant, consider the Beacon.

A four-lamp unit, shielded and louvered, it provides fluorescent at its best. It puts plenty of well-diffused light down on desks, lights up walls and ceilings to speed typing, accounting and all of today's heavy paper work. It helps cut down errors and eyestrain. It reduces fatigue and helps office workers to maintain peak efficiency longer.

The BEACON is low in cost. You can be sure of dependable, trouble-free operation because it's a certified FLEUR-O-LIER, tested and certified by impartial Electric Testing Laboratories. Maintenance cost is low. Cleaning and relamping are easy. Write for details or see our catalog in Sweet's.

Today, Fluorescent lighting installations must have the necessary W.P.B. priority rating; Wakefield will be glad to work with you on this.

THE WAKEFIELD BRASS
F.W. **CO.**
52 Forum Park • Vermillion, Ohio

NEW FOUR-PIECE POTOMAC SET —for War Housing

FOR THE
DEFENSE OF
HEALTH!



New **POTOMAC** 5-foot cast iron recess wing bath, enameled inside — low sides, wide rim, flat bottom — built-in anti-siphon mixer fitting. **DELTON** 18 x 15-inch enameled cast iron shelf lavatory — 1½-gallon basin — two integral soap dishes. **TRYLON** vitreous china close-coupled washdown closet — round front bowl — sanitary TriKo coated seat. **PARKCHESTER** (below) 42 x 22-inch cast iron combination sink — 8-inch-deep basin for dishes, 13-inch-deep tub for laundry — mixer fitting, swing spout — acid resisting enamel.

IN THIS new four-piece set, Kohler has designed bathroom and kitchen plumbing facilities to meet exactly the needs of naval, military and war-worker housing. New styling and new utility at new low cost!

The **POTOMAC SET** conserves needed materials for war uses and suits war-time budgets — yet receives the same skill and care in manufacture for which Kohler products are so well

known. All fixtures are full size and this set includes features usually found only in higher price ranges.

The **POTOMAC SET** gives you the right answer to those who plan to build or remodel to provide housing for war workers in defense areas . . . also for emergency replacements as now provided for by Preference Rating Order P-84. . . Kohler Co. Founded 1873. Kohler, Wisconsin.



KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING • ELECTRIC PLANTS

Guth Fluorescent LIGHTING VITAL Equipment FOR THE ARMY THAT WORKS INDOORS!



In factories, in drafting rooms, in warehouses, in offices — this is a war of nerves. Long, extra hours of eye-strain can greatly hinder America's productive efficiency — commit unintentional but damaging sabotage through errors, spoilage and waste.

You can do more work — better work — and enjoy all the other tremendous benefits of clear, effortless seeing with the help of GUTH Fluorescent Lighting. Users are proving this statement daily, attesting to better morale and greater working comfort — with efficiency up to 15% and more in many cases.

**FOR
NATIONAL OFFENSE**

Guth

Is now making Projectiles, Ventilators, and Lighting Equipment, and is also Spinning, Stamping, and Power-Braking Metal. GUTH'S Finishing Department is applying Alumilite*, ALZAK*, and Coloring to Aluminum Metal; and is producing Cadmium, Udylite, and all other Electroplating. Some surplus capacity is still available.

*T. M. Alcoa

Write us today for sound engineering advice on modern lighting—without obligation, of course.

**40th
Anniversary
of**

Guth

**Lighting
Leadership**

The EDWIN F. GUTH CO. • 2615 Washington Ave., St. Louis, Mo.

LETTERS

(Continued from page 28)

add that the Ford Motor Company in a recent announcement carried by the *Ypsilanti Daily Press* stated that the great majority of the workers to be employed are to be married men with families, and that very few single men and very few men with no other dependents than a wife would be employed. . . .

For every house that could be called modern by the freest use of the imagination and the loosest standards, you will find in this community twenty-five to thirty houses that are museum pieces and which would defy conversion to modern homes by even the most adept architect. And in making this statement I do not include that large section in the southwest part of this city and extending to the city limits which houses the large Negro population, and which if included in this discussion would only lay the writer open to the charge of caricature. As to apartments, there is one mildly modern apartment house of any size, built about 1927. . . . There are scores of trailer camps strung out as far as the Irish Hills beyond Clinton. I'll make a bet based on my own observation that there are more trailer camps than there are available houses of recent construction. One more thing—if there are "hundreds upon hundreds" of unoccupied new houses available in this general area, then it is reasonable to suppose that there are at least several score somewhere around Ann Arbor-Ypsilanti. Would *The Free Press* please show me a dozen? It is true that there are a considerable number of new houses along what is called the "Cut-off" along the Jackson road in Ann Arbor, but these are almost without exception occupied or spoken for. Another thing the editor might look into if he can find his houses is the price range. A friend of the writer's has driven literally hundreds of miles around this area looking for a three-bedroom house of recent construction, and \$13,000 seems the closest he can get. You won't put very many workers with families into houses of this price, even if you could find enough of them.

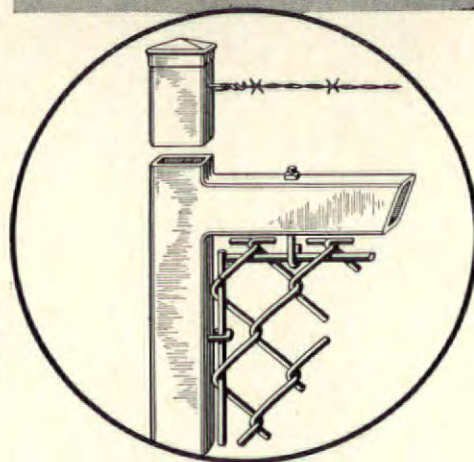
Apparently, the only valid criticism of THE FORUM's article is that it did not go far enough. As for *The Free Press*, one would expect it to show evidences that it had some knowledge of the conditions prevailing in its own back yard, and that back yard needs some drastic and coordinated action in a hurry.

W. R. STURGEON

Ypsilanti, Mich.

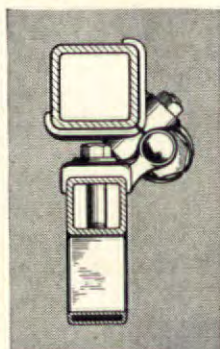
(Continued on page 62)

STRENGTH Where It's Most Needed



Anchor Square Frame Gates

Always specify Anchor Square Frame Gates, or equal. They swing freely, latch easily and look more attractive, even after years of service. That's because they're built of strong, two-inch square steel tubing, inseparably butt-welded at all corners to provide amazing rigidity, freedom from sagging and warping.



Special "Clamp-on" Hinges permit 180° swing. Can be adjusted to open either in or out.

The fabric is firmly held by rounded steel tension rods. Made in both single and double types, in a variety of sizes from single-file entrance gates to large gates for railroad sidings. Find out how Anchor Gates, and other important Anchor features provide extra protection, durability, low maintenance cost. Write for Anchor Protective Fence Manual and name of nearest Anchor Engineer. ANCHOR POST FENCE CO., 6635 Eastern Avenue, Baltimore, Maryland.

1892-1942 Fifty Years of Service

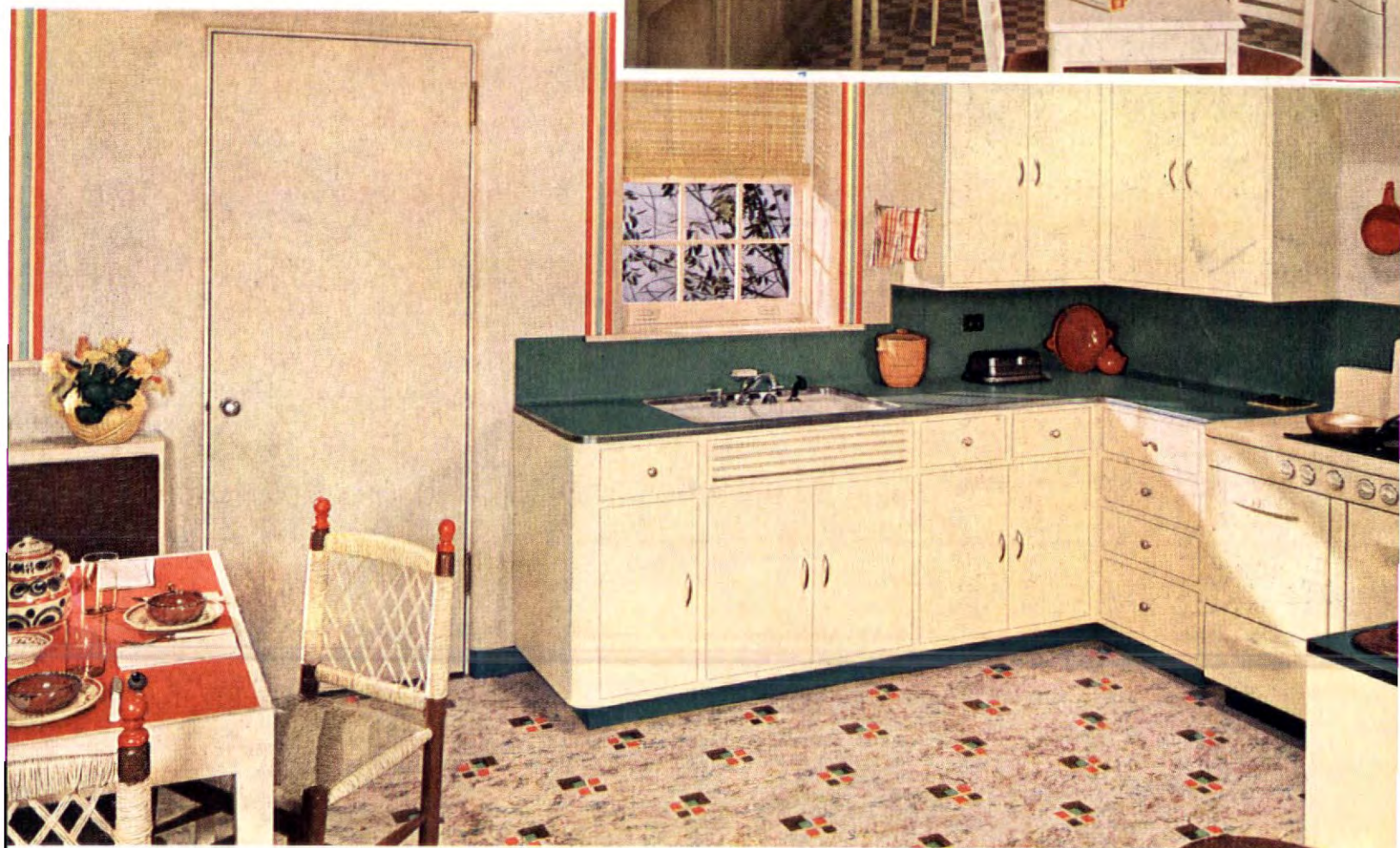
Nation-wide Sales
and
Erecting Service



**ANCHOR
FENCE**

Before — A Dreary "Workshop"—for the housewife—but also one of the many real opportunities for modernization with Nairn wall linoleum. Drab walls and ugly floor make housework seem harder. And actually, because walls are easily smudged and the corners dirt-catching, unnecessary drudgery is added. A hopelessly dingy room, but Nairn's unlimited decorative possibilities meet the challenge (below). →

• • • • •
After — A Bright, Cheery Room—and easy to keep that way permanently for Nairn wall linoleum is spotproof. The rounded surfaces at corners, door and windows eliminate dirt-catching. The wall pattern of creamy "Parchment" set off by gay, contrasting feature strips and Color Correlated with the new Nairn Treadlite floor "makes" the room. An added practical advantage is the use of stain-proof, easy-to-clean Nairn linoleum on sink top and splash back reducing the clatter and breakage of dishes. ↓



**The wall that is
modern today...
will be modern
tomorrow!**

HERE'S THE WALL MATERIAL that stands as the yardstick of modernity. Its decorating possibilities put it years ahead. And it's built to last as long as the house itself! Nairn wall linoleum alone meets all the six "musts" of the modern wall:

1. **EYE APPEAL**—Wide range of handsome colors from soft pastels to rich, dark tones. Insets and feature strips make decorating possibilities almost limitless!
2. **COLOR CORRELATION**—Nairn walls are correlated both with Nairn floors and all the modern home furnishings. Now it's easy to plan harmonious interiors!
3. **EASE OF CLEANING**—Waterproof, stainproof Nairn wall linoleum is simplicity itself to clean. A damp cloth keeps original beauty intact!
4. **SMOOTH FLEXIBILITY**—Nairn wall linoleum can be rounded at corners, doors and windows. Forms a continuous smooth surface without cracks or wrinkles!
5. **LONGER WEAR**—Refinishing is never needed. Because colors are inlaid right through to the back, walls of Nairn linoleum last as long as the house itself!
6. **EASE OF APPLICATION**—Can be installed over both old and new walls without costly preparatory work. Walls of new houses may be covered as soon as plaster is dry—providing permanent, crack-free surfaces! Fully guaranteed when installed according to specifications.

CONGOLEUM-NAIRN INC.
KEARNY, N. J.

• • •

Left, a closeup of "Parchment" shows the characteristic delicate veining.

**NAIRN WALL
— LINOLEUM**

Reg. U. S. Pat. Off.

Carey

BUILDING PRODUCTS

*DEVELOPED FOR THRIFTY PEACE-TIME SERVICE
EFFECTIVELY MEET TODAY'S WAR-HOUSING NEEDS*

Through years of scientific research and modern, precision-controlled manufacturing methods, CAREY Products have been developed to give the maximum of dependable, low-cost service. They have abundantly demonstrated their durability and low maintenance in peace-time housing. Economical construction suggests their use in war housing projects throughout the country.

You may specify CAREY Product for War Housing Projects with the assurance that even in emergency jobs they will maintain your reputation for combining quality construction and good design. These products are promptly available.

Write or wire for details. Address Dept. 20.

THE PHILIP CAREY MFG. CO.
Dependable Products Since 1873
Lockland, Cincinnati, Ohio

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



CAREYSTONE STRIP SHINGLES IN BEAUTIFUL "TRI-TONE" BLENDS

impart architectural beauty at reasonable cost. Made possible because these shingles are furnished in four types of five-page strips. Even without special supervision, there can be neither bunching of tones nor patterning.

Napier Homes Extension



CAREY ASPHALT SHINGLES

Manufactured by the patented ASQU process, the felt base of these shingles is filled with asphalt to not less than 98½% of its maximum capacity, assuring longer life. Available in various types and in a wide range of colors.

Elinore Park



CAREYSTONE ASBESTOS-CEMENT SIDING

is fireproof; will not rot, decay, rust or wear away. This duo-edge unit may be applied to give the effect of individual shingles laid with staggered butts and random widths; or by exposing the other edge, a pleasing waveline appearance is secured.

Lockland F.W.A. Housing Project



CAREY ROCK WOOL INSULATION

offers the maximum resistance to the passage of heat and its quality and uniformity are rigidly maintained by laboratory control. Available in Bats, Loose Wool, Granulated, and in Sealed Roll Blankets.

Smithfield Housing Project



CAREY BUILT-UP ROOFS

wear longer and cost less per year—a fact known to industry. Today these roofs are giving the same faithful service on housing projects. Carey Built-Up Roof specifications cover every type of construction.

Washington Manor





Air Borne

DESTRUCTION *can come in Industry, too!*

"DUST STORMS" in Industry, like the tragic Dust Bowl disaster of 1938, can cause incalculable losses—destroying materials, finished products and man hours of work. But dust, the air-borne saboteur, is one industrial menace we can effectively fight within our war production plants. Today, American Industry, geared to produce as never before, is fully awake to the necessity for adequate dust control. Many hundreds of existing and converted plants—and practically all new defense plants—have installed American Air Filters

for the elimination of atmospheric dust and AAF Roto-Clones for process dust control.

To meet Industry's expanding need for clean air, the American Air Filter Company—largest producer of air filtration and dust control equipment—is now operating 16 to 24 hours a day—and is supplying practically 100% of its output to war materials manufacturers. If you have a dust problem, write for booklet "AAF In Industry," which tells the story of industrial dust problems and their solution with American Air Filter equipment . . . there is no obligation.



AMERICAN AIR FILTER COMPANY, INC., 427 CENTRAL AVE, LOUISVILLE, KY.

IN CANADA, DARLING BROTHERS, LIMITED, MONTREAL, P. Q.

UNITED STATES
GYPSUM COMPANY


Presents a study



for Durationville

By DON HATCH, architect

Associates — DICK BENNETT, JEDD REISNER, AND FLORENCE SCHUST

 DURATIONVILLE is no idyl jest. It's temporary housing. It's housing for war workers near a munition plant, a steel plant, or any plant that may cut its workers after the emergency. It's housing with reduced standards. It's construction with less labor, less critical material, less of all materials. It's planned for single men, single women, families with kids, without kids, with mothers-in-law and fathers-in-law. It's flexible for changing labor, for the day of conscript women labor. It's wartime housing.

DURATIONVILLE will leave no ghost. No ghost of standards permissible only in emergencies. No ghost to auction wartime standards to post war America. Its salvage is lumber to be sold, pipe to be sold, wire to be sold, plumbing fixtures to be sold. Not panels to be reassembled, nor houses to be moved, nor projects to be new slums.

DURATIONVILLE has light and air and space. It's a

community and a home. It can be built cheap and fast.

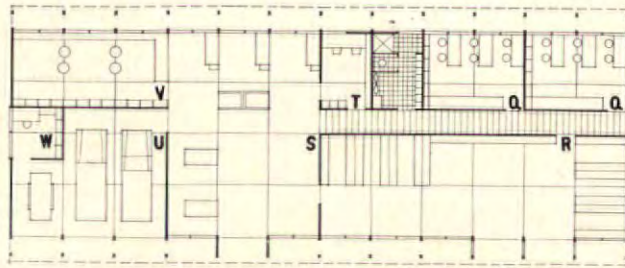
DURATIONVILLE is home for workers in a munition plant. 165 single men, 85 single women, 75 couples without children, 125 families who would need two bedrooms, 30 families who would need three bedrooms—to be exact.

THE SITE and site plan are all-important. We believe it's more than plopping a pretty geometric pattern on a denuded piece of pasture. We believe it's a problem of water, power, sewers, contours, roads, paths. A problem of placing the units for sun, light, air, breezes, and protection. Placing the buildings under trees, turning them so you can look out somewhere but not into the next unit. Getting sun in the rooms. Getting air in the rooms. In short—we took a tip from Gropius & Breuer and got down into the plot and studied and said a unit should go here because . . .

Plot Plan

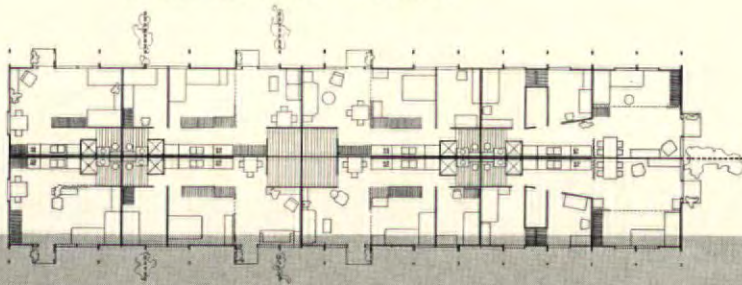
- C Community Center
- N Nursery School
- F Family Units
- M Men's Barracks
- W Women's Barracks
- P Parking Shelters



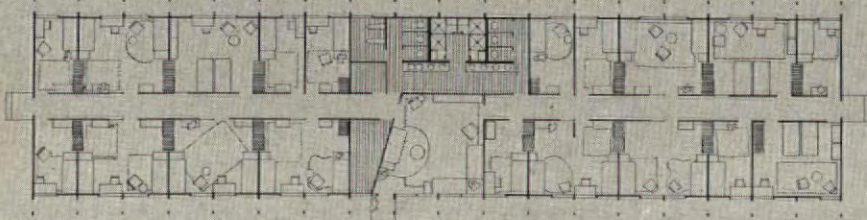


The Community Workers to work efficiently in war production must have rest, and food, and clothes, and recreation. They get their rest at home, they cook their food at home. But to get the food to cook, to buy the socks and stockings, and read a book, and have a dance, and see a movie they must have a community center.

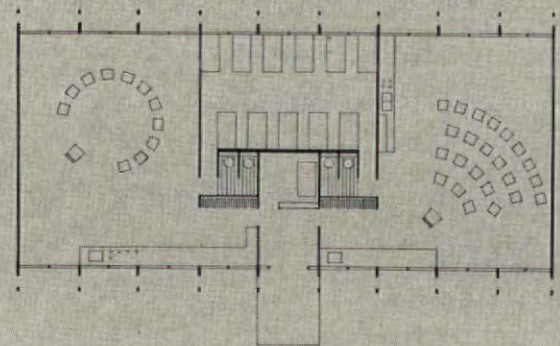
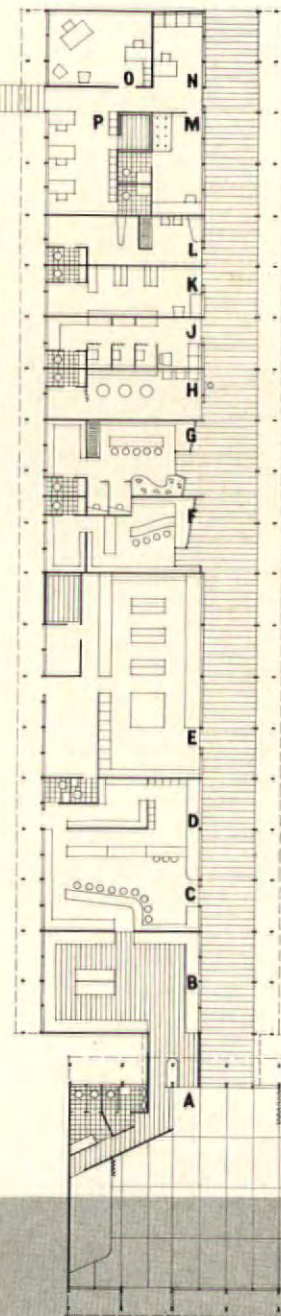
- | | |
|--|-----------------------------|
| A Hall—Dining, Movies, Meetings, Dancing | L Dry Cleaning and Laundry |
| B Kitchen | M Clinic |
| C Soda Fountain and Drugs | N Waiting Room |
| D Prescriptions | O Management Office |
| E Food Market | P Management General Office |
| F Haberdashery | Q Craft Rooms |
| G Lingerie | R Stocks and Storage |
| H Lending Library | S Shops |
| J Beauty Parlor | T Superintendent |
| K Barber Shop | U Garage |
| | V Paint Shop |
| W Fire and Police Protection | |



The Family Unit came by way of David Williams' "Multi-Max." We think wartime housing has no space for the customary hallway. The kitchens serve as circulation and you get four baths and four kitchens on one roughing. The clerestory in the kitchens and baths gives good light and air circulation. The spaces are small but flexible in use. The clothes closets are movable. The mother and father sleep in a curtained portion of the living room. They don't mind. It's for the duration, and with the trees, the light and the air, the community center and the playgrounds—well, they like it better than where they lived before.

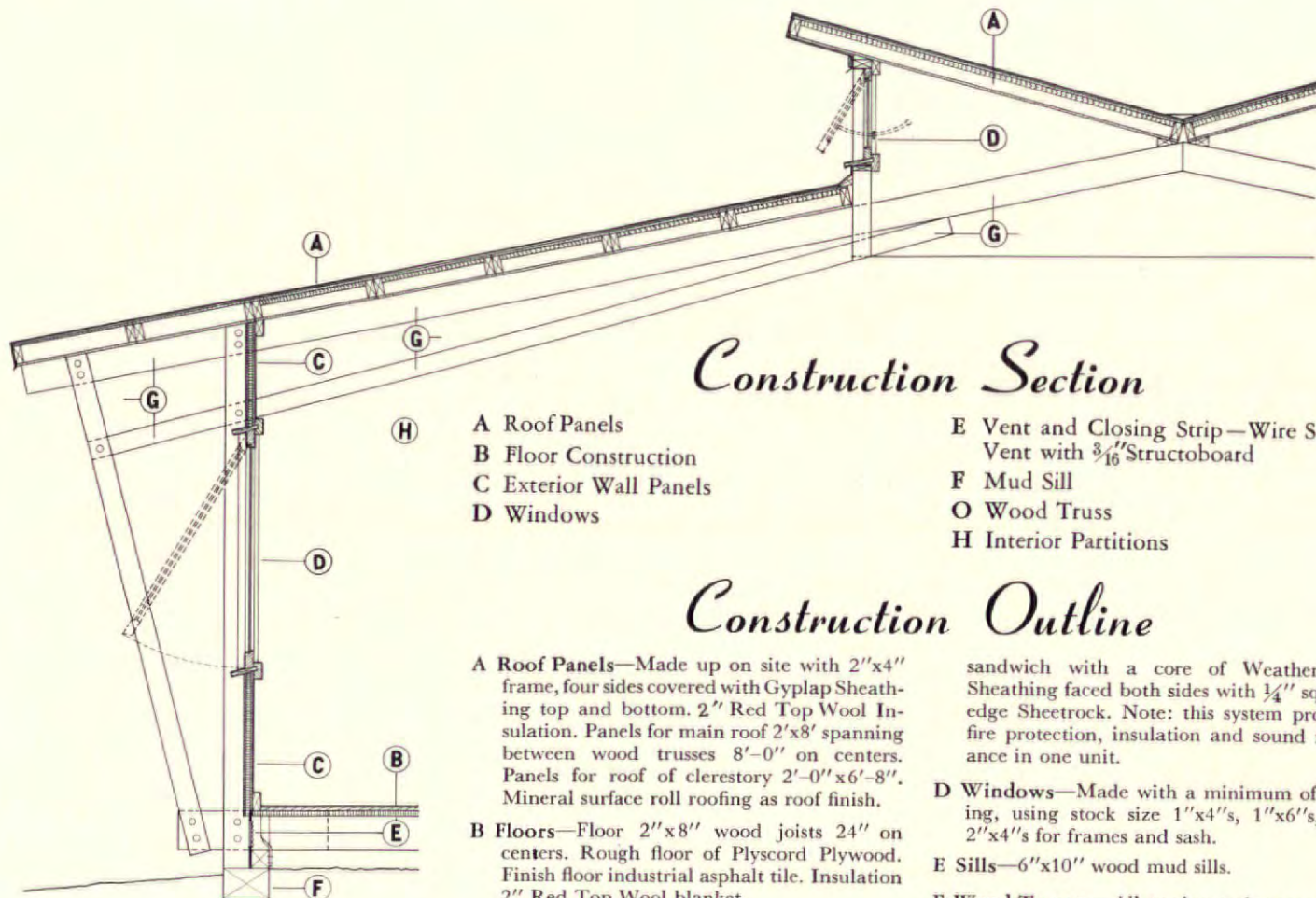


The Dormitory You say: "It looks like a barracks." It is—one with the latrine inside, with laundry trays, ironing boards, storage space for trunks and suitcases, and a linen storage. This barracks is for women. Men live in units which can be partitioned into this type as the proportion of women workers increases. The common room and toilet facilities are ample. Three shifts a day at the factory stagger the demand. These single workers eat in the community commissary and have facilities for recreation and shopping in the community center.



The Nursery School

The need is obvious, and remember, too, mother may be working in the plants in this war.



Construction Section

- A Roof Panels
- B Floor Construction
- C Exterior Wall Panels
- D Windows

- E Vent and Closing Strip—Wire Screen Vent with $\frac{3}{16}$ " Structoboard
- F Mud Sill
- G Wood Truss
- H Interior Partitions

Construction Outline

A Roof Panels—Made up on site with 2"x4" frame, four sides covered with Gyplap Sheathing top and bottom. 2" Red Top Wool Insulation. Panels for main roof 2'x8' spanning between wood trusses 8'-0" on centers. Panels for roof of clerestory 2'-0"x6'-8". Mineral surface roll roofing as roof finish.

B Floors—Floor 2"x8" wood joists 24" on centers. Rough floor of Plyscord Plywood. Finish floor industrial asphalt tile. Insulation 2" Red Top Wool blanket.

C Wall Panels—Exterior panels consist of a sandwich of Gyplap facing the exterior, painted after installation; the core of Weatherwood Sheathing; the interior finish of $\frac{1}{4}$ " square-edge Sheetrock. Panels cut for spaces below and above windows and installed in one operation. Interior panels consist of a

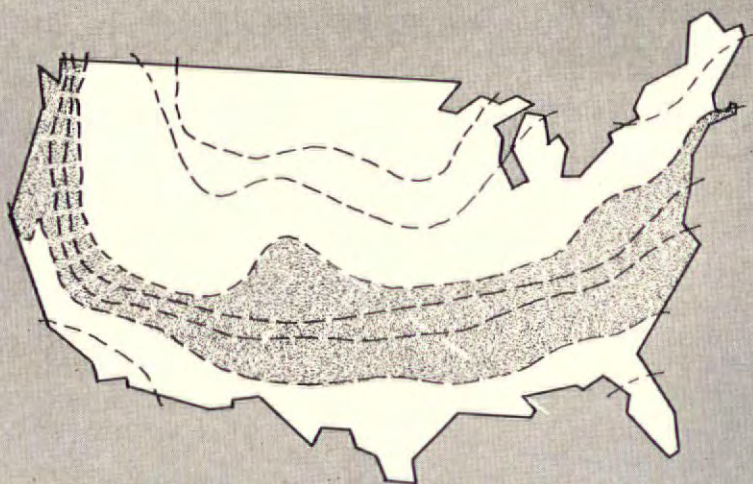
sandwich with a core of Weatherwood Sheathing faced both sides with $\frac{1}{4}$ " square-edge Sheetrock. Note: this system provides fire protection, insulation and sound resistance in one unit.

D Windows—Made with a minimum of milling, using stock size 1"x4"s, 1"x6"s, and 2"x4"s for frames and sash.

E Sills—6"x10" wood mud sills.

F Wood Trusses—All tension and compression pieces of wood members of standard lengths, with Plywood webs and gussets; all connected by glue, wedges and dowels in preference to nails and bolts. All trusses for all buildings of identical span and design.

2"x4" continuous ties between trusses which form head and sill of window.



DURATIONVILLE

has been designed for the climatic range found in the shaded areas.



UNITED STATES GYPSUM

This famous trademark identifies products of United States Gypsum — where for 40 years research has developed better, safer building materials.

PLASTER • LATH • WALLBOARD • INSULATION • ROOFING • PAINT

LETTERS

(Continued from page 56)

DESIGN FOR CAMOUFLAGE

Forum:

I have followed with interest THE FORUM's articles on camouflage appearing concurrently with its publication of recent aircraft plants.

Is it necessary for reasons of production that the aircraft plant should approximate a square or at least a rectangle

in plan? Such forms are easily recognizable from the air, and because of their extent and shape must be about as easy to hit as anything on the face of the landscape. Furthermore, is it desirable that such buildings should have sawtooth roofs because of the greatly increased danger from falling glass, and the fact that the sawtooth casts a shadow definitely recognizable at a distance and well-nigh impossible to conceal?

From these observations I am forced to conclude that our defense projects are being built in a spirit of peacetime security. If it is possible for THE FORUM to enlighten its readers on this subject at

the present time, it should do so. By so doing it may be able to open the eyes of those in authority to the shortsightedness of their "economic" use of space and ultimately save the lives of countless indispensable defense workers.

Le Corbusier et al have given us a taste of what free planning can be, and others still are designing in a spirit of Beaux Arts frontality. The very similarity of these geometrical conceptions makes them easy to identify from the air.

Walter Knight Sturges

Columbus, Ohio

Mr. Sturges' point is well taken, but not necessarily correct. Worth recalling is the fact that in the sections where many of these plants are going up the huge rectangle is the characteristic shape in the rural landscape, and the square plant might under such conditions be made the least conspicuous of all possible forms. The essence of good camouflage is its adaptability to every type of landscape, and the virtues of regular versus broken factory shapes must be judged on this basis. Sawtooth roofs are expensive to camouflage, but by no means impossible to conceal.—Ed.

DESIGN VS. EXPLOSIVES

Forum:

Considerable publicity has been given to the new assembly plant designed and built for assembly of four-motored bombers. My main objection to the building is not because of its size or shape, but because of its basic windowless design. It seems to me that an air-tight building with all walls of relatively equal strength is contrary to a logical solution.

It no doubt works well under peaceful conditions but to operate the plant during an air raid (as seems to be the intent) would be mass murder.

From what little I know about explosives, I understand that when a bomb explodes it sets the air in violent motion. As I understand, these concussion waves from large bombs are sufficiently strong to knock a man down several hundred yards from the point of explosion. If the above assumptions are correct, imagine what would be the situation in this tightly closed plant if a large bomb penetrated the roof and exploded within the building. The comparatively light airplane parts would be thrown about, and the workers not killed by the flying parts would be buried under the debris as the air waves reverberated through the building. I fear that if the force of the explosion was not sufficient to blow out the walls, the repeated reverberations of the air within the confined volume would destroy everything and everybody within.

Albert F. Kerss

San Juan, Puerto Rico

Concussion waves that would destroy the plant's interior so completely presumably would also be strong enough to blow out its walls, thus eliminating any "repeated reverberations." Damage would be caused directly by the bomb rather than indirectly by the building's design in any event.—Ed.

BARCOL



Electric GATE OPERATOR FOR A DEFENSE PLANT...

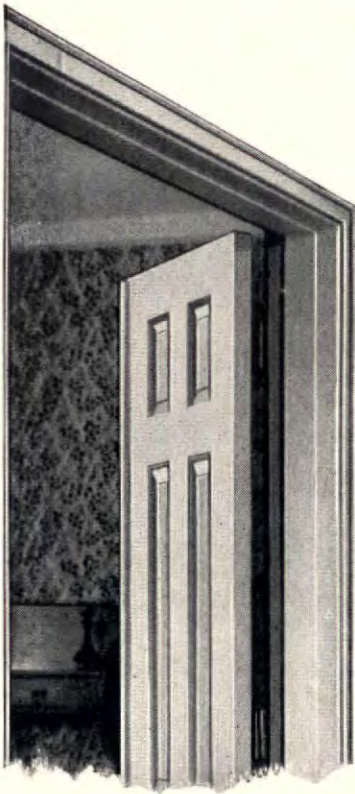
Through this entrance pass men, trucks, and railroad cars. The main gate is supported on truss frames from a high overhead track, and is controlled from inside the gate house by a simple push-button control. The Barcol Electric Gate Operator is mounted in a weather-proof housing alongside the fence.

PROTECTION • TIME-SAVER...

An electric gate operator not only permits the guard to handle the gate promptly and efficiently, but also assures long life and minimum maintenance on the gate itself. Barcol Electric Operators are available for swinging and sliding gates, and also for swinging, sliding, overhead, and steel rolling doors. Consult your Barcol representative for further details.



BARBER-COLMAN COMPANY
1242 ROCK ST., ROCKFORD, ILLINOIS



THE OPEN DOOR

TO BETTER CONSTRUCTION

"for the duration"

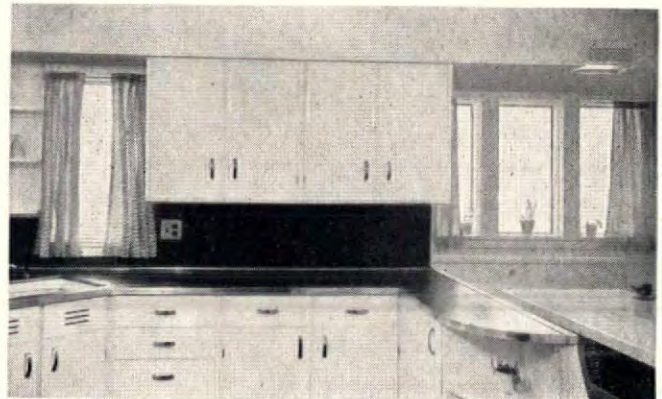
... AND AFTER

● Three types of building construction are moving ahead today—defense housing—remodeling—farm building. Stock doors, frames and windows of Ponderosa Pine fit *all three* markets.

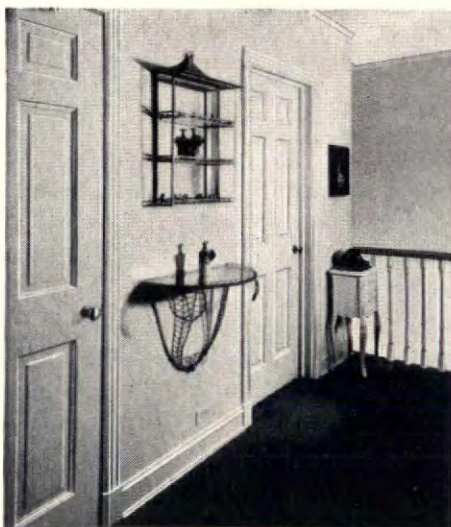
Ponderosa Pine offers you important time-saving and cost-saving advantages for any size or type of building. It is right for today's conditions—it has the advantages you need now—and is readily available when needed. Here are just a few of the many styles.



In the room shown above, interior doors of Ponderosa Pine provide better utilization of small space. Not only do these Ponderosa Pine doors contribute to convenience and assure comfort, but they possess, in themselves, unusual character and grace. Remember, Ponderosa Pine doors, frames and windows, being stock items, are *low in cost*.



In the kitchen above, note how the well-placed Ponderosa Pine windows increase the utility of work spaces by providing plenty of light. This light, strong wood has a close, uniform grain and an even textured surface which makes painting easy. That explains the use of Ponderosa Pine for kitchen cabinets—available as stock units in sizes and shapes to fit every requirement.



Readily available today, Ponderosa Pine doors, frames and windows are a definite aid in creating more convenience and charm in hallways, as shown at the left. Thanks to the availability of this versatile wood, and the wide selection of appropriately designed stock doors and windows, construction need never be held up awaiting delivery.

IN 1942—Ponderosa Pine advantages will continue to be featured. Last year, more than 100,000 copies of the well-known idea book "Open House" were distributed to consumers. This year, there's a new and even better edition of "Open House"—full of new ideas that fit today's building conditions. You'll want your copy. Just write us. *It's free.* Ponderosa Pine Woodwork, Dept. XAF-5, 111 West Washington St., Chicago, Ill.



Ponderosa Pine

WOODWORK

Here's a "NATURAL" for Housing Projects

Looks like a "Million" Dollars—costs but a few. Instant eye appeal. Provides an abundance of steady uniform heat.

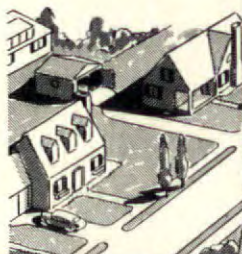
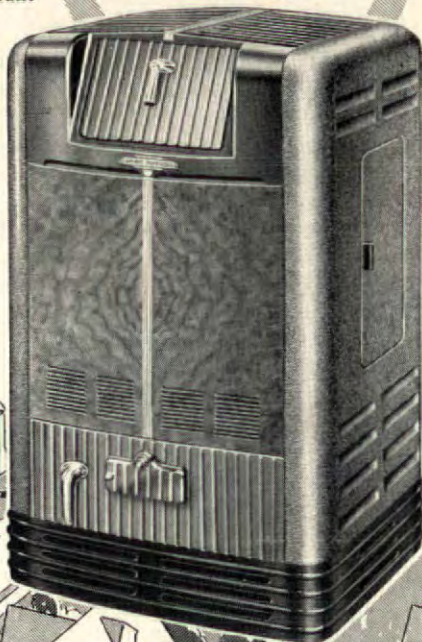
Built to give years of economical carefree service. Streamlined design. Requires minimum amount of floor space.

SAVES • Fuel • Time • Money

Patented Fire Brick Flues and Liners do a better heating job and SAVE CRITICAL METALS FOR VITAL DEFENSE USE!

READILY AVAILABLE—Prompt shipments from centrally located factories, warehouses.

WARM MORNING Coal Heater Model 420



Only Heater of Its Kind in the World

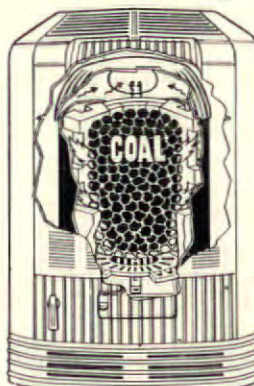
WARM MORNING Coal Heaters have made history throughout the nation. They have been tested and approved by the Anthracite Industries Laboratory—Bituminous Coal Utilization Committee—Household Searchlight—Consumer organizations and more than 100,000 users.

Heats All Day and Night Without Refueling

- Holds 100-pounds of coal.
- Semi-automatic, magazine feed.
- Burns any kind of coal—bituminous or anthracite—no clinkers.
- Start a fire but once a year.
- Requires less attention than most furnaces.
- Solid, substantial, neat in appearance. Cabinet beautiful two-tone brown enamel.

AUTOMATIC BAROMETRIC DAMPER—STANDARD EQUIPMENT

WARM MORNING Cabinet Heaters are equipped with an automatic barometric damper which prevents excessive temperatures regardless of chimney height. Saves fuel. Controls burning rate. Safeguards premises.



Revolutionary construction principles are responsible for amazing heating results.

free BOOK—Get All the Facts—Write today for new book of illustrations and construction details on all models, including 100 and 200-lb. radiant heaters and amazing new water heater.

LOCKE STOVE COMPANY
118 W. 11th Street Kansas City, Missouri

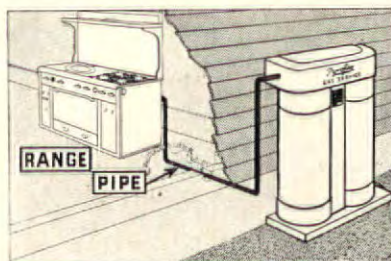
What You Can Learn About "PYROFAX" Gas From The Army!



COOKING, refrigeration, and water-heating facilities in areas beyond the gas mains are just some of the problems the army had to face in constructing camps and posts. And if you've ever worked on an army contract... you know their high standards—maximum efficiency with minimum operating costs. So when "Pyrofax" gas gets the job... it must be able to fill the bill—meet the most exacting specifications!

"Pyrofax" gas is real gas—the fastest cooking fuel known. It burns with a clean, blue flame that leaves no soot or odors. For economy... it delivers 100¢ worth of value for every dollar spent!

If you're planning heating, water-heating, cooking or refrigeration installations in a war plant, restaurant or government housing project—beyond the gas mains—get all the facts on "Pyrofax" gas today. Write for free data sheets on installations to Dept. P-2, "Pyrofax" Gas Division, Carbide and Carbon Chemicals Corporation, 30 East 42nd Street, New York, N. Y.



DEPENDABLE

"Pyrofax" Gas Service has brought gas to homes beyond the city mains for over 20 years! Installations are simple. They require no digging.

PYROFAX

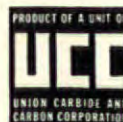
(TRADE-MARK)

FOR FURTHER INFORMATION



SUPERIOR GAS SERVICE

COOKING • WATER HEATING
REFRIGERATION
BEYOND THE GAS MAINS





ANSWER: The roof in the foreground is a Johns-Manville ASBESTOS Roof



Starting in the building at the right, fire gutted the next two structures (see photo below), but a J-M Asbestos Roof saved the bank on the corner.



Although the low fire wall of the bank offered little protection, the flames were stopped by the J-M Asbestos Roof.

A STRONG WEST WIND was blowing through the town of Chelsea, Oklahoma, when fire broke out in a tavern in the business district. Breaking through the roof of the two-story structure, the flames quickly spread to a theatre next door, then to an auto-parts store. Both buildings were completely gutted.

Next building in the row, the First National Bank, was protected by a J-M Asbestos Built-Up Roof. Though the low fire wall (see photo) offered practically no protection from the roaring blaze, the asbestos roof resisted the fierce heat and the bank was saved.

This is a striking example of the effective fire protection offered by J-M Asbestos Built-Up Roofs—protection which is more important today than ever before. And because asbestos has the durability of stone, long exposure to sun, rain and weather has little effect on these roofs. Rotproof, they need no periodic coating—require little if any maintenance.

For further details and specifications write Johns-Manville, 22 East 40th Street, New York, N. Y.



JOHNS-MANVILLE
Smooth-Surfaced
ASBESTOS BUILT-UP ROOFS

**THE ROOF
WITH THE SAFETY
FACTOR**

FORUM OF EVENTS

(Continued from page 14)

ARMY ART

The combination of art and the Army is another of those newfangled notions that have made newspaper reading so interesting during the past few years, and predictions so disastrous for the military experts. First of the great war organizations to give support to the development of fighter-artists was the Red Army, which for years has run life drawing and outdoor sketching classes, maintained a



December on the Range, by Pvt. A. McLean
special academy for its most talented members, and had a big show of painting and sculpture in Moscow a short while ago. For almost a year similar activities have been going on at Fort Custer, assisted by the Michigan Art and Crafts Project.



Washing Trucks, by Pvt. J. H. Nachmann
A life class led to poster and scenery design, then to the making of sketches of daily activities, and the work became so popular with both officers and men that



Heating Heath Street Housing

How four No. 60 H. B. SMITH Boilers are heating the eighteen buildings of Boston's newest U. S. H. A. project.



SMITH HEADER TYPE BOILERS FOR ECONOMY—COST LESS TO OPERATE—COST LESS TO MAINTAIN
More prime heating surface than any other boiler of equivalent size—insures maximum heat absorption.
Independent Header Construction—each section an independent boiler. Possibility of mid-season breakdown minimized.
Vertical Water Tube Construction—for rapid water circulation—fast steaming.
Cast Iron Construction—for lowest maintenance costs—longest life.

18 buildings—120 apartments—a total E. D. R. load of 75,000 sq. ft. steam radiation... that is the size of the Heath Street Housing job, U. S. H. A.'s latest project in greater Boston.

Convinced by their past experience with H. B. SMITH BOILERS on large central plant installations, Stone-Underhill Company, the consulting engineers, approved 4-25 section No. 60 SMITH BOILERS for the job.

This boiler plant delivers steam at a pressure of 8 pounds through underground mains to the various buildings which are individually zoned. The heating load includes 60,000 sq. ft. of direct cast-iron radiation and a domestic hot water tank equivalent to 15,000 sq. ft. E. D. R.

Both tenants and management of the Heath Street Project will have reason to be thankful in winters to come for not only will this heating system provide comfort in the coldest of weather, but low fuel bills and negligible maintenance costs will be assured by the dependable operation of these four H. B. SMITH CAST-IRON BOILERS.



Mopping the Barracks, by Pvt. L. Krimsin
it was carried on through maneuvers. The "Fort Custer experiment" was a success: it received the enthusiastic approval of the Commander of the Sixth Corps Area, per-



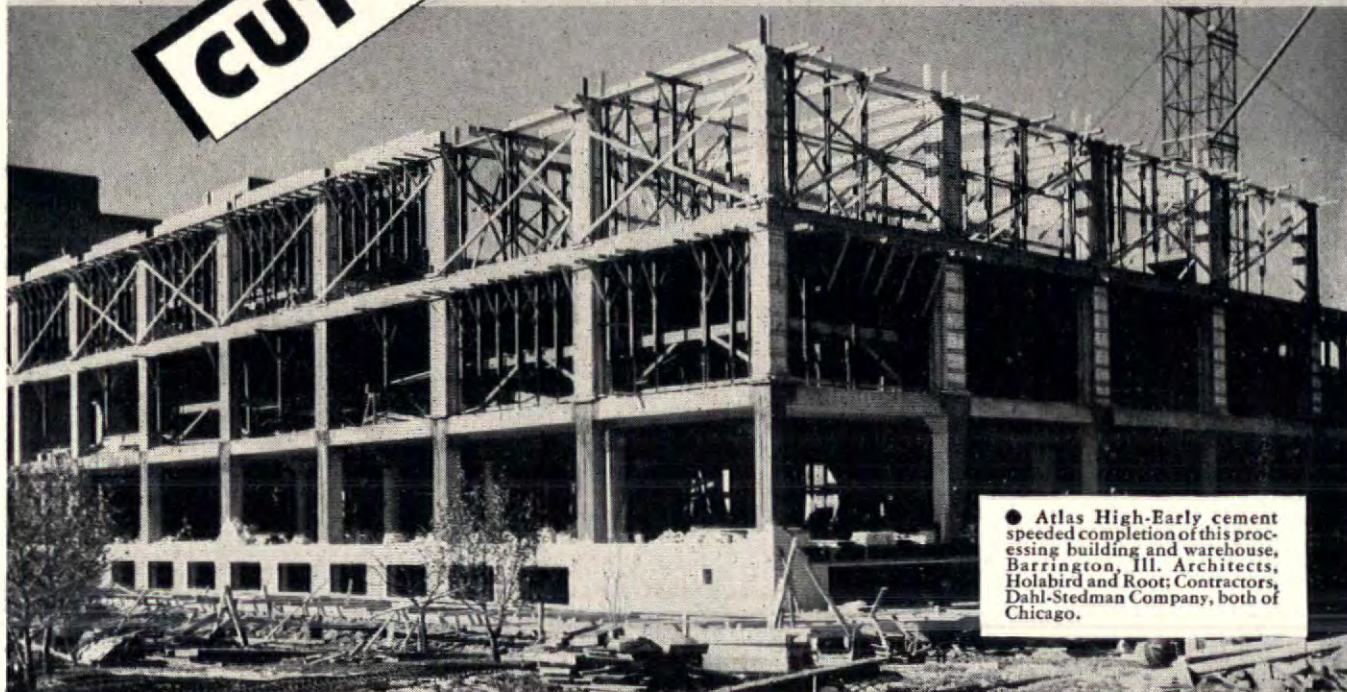
Bivouac, by Pvt. Dugald Gordon
manent quarters for studios and dark-rooms were provided, and the work was shown at the Museum of Modern Art. The examples here were taken from the Museum's exhibition.

(Continued on page 70)

THE H. B. SMITH CO., INC., WESTFIELD, MASS.
BOSTON NEW YORK PHILADELPHIA

TIME FOR COMPLETION
NUMBER OF FORMS USED
COST OF FORM LUMBER

CUT IN HALF!



● Atlas High-Early cement speeded completion of this processing building and warehouse, Barrington, Ill. Architects, Holabird and Root; Contractors, Dahl-Stedman Company, both of Chicago.

Atlas High-Early cement used on three-story warehouse helped save time, labor and cost!

PLANS called for three-story concrete frame warehouse with concrete floor slabs. Dahl-Stedman Company, the contractors, specified Atlas High-Early cement and *saved in these ways:*

THEY SAVED TIME. The superintendent states that Atlas High-Early cement cut the time for completion of this project approximately 50%.

THEY SAVED FORMS. By using Atlas High-Early cement, they were able to strip forms in from three to four days. With regular portland cement it would have been necessary to wait about seven or eight days before forms could be stripped. This made possible a 50% saving in forms and form lumber.

Atlas High-Early cement can save time and dollars for you... Atlas High-Early cement gains working strength rapidly—often cuts time for protection and curing as much as 60% to 70%. In many cases it permits early stripping of forms for re-use and results in a substantial saving in form costs. Atlas High-Early cement also more than pays for its slight extra cost on many jobs. It will pay you to consider it for *your* next job. Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York City.

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

AF-H-43

ATLAS HIGH-EARLY CEMENT

A UNIVERSAL ATLAS PRODUCT



SAVING in COST SAVING in METAL

Caldwell Sash Balances Cut Window

Costs In **Schools
Hospitals
Factories
Housing** **At Least 25%**

Caldwell Sash Balances require a minimum amount of that scarce material, *steel*. They weigh only 1/10 as much as weights, chains and pulleys. Architects not only save a tremendous amount of metal when Caldwell Balances are specified, but they also can plan with strictest economy in keeping with the country's policy of producing the most with least time and material.

Caldwell Sash Balances save time and labor costs, because a good carpenter can install them in about ten minutes per window whereas it takes him close to forty minutes to install weights and chains.

Architects and builders long experienced in school and hospital work have found that Caldwell Sash Balances cut the window costs in schools at least 25%. Because replacement and repairs are reduced to a minimum, this saving carries on year-in-and-year-out as long as the building lasts.

If you want to cut costs and save metal, request additional data by returning this coupon.

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CALDWELL
MANUFACTURING
COMPANY**

**Rochester
New York**

CUT HERE TO CUT WINDOW COSTS

Caldwell Manufacturing Company
Rochester, New York
Gentlemen:
Please send me complete information on Caldwell Sash Balances.
(Signed) _____

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We'll Land... and "Have the Situation in Hand"

Are you "up to your ears" in work, harassed by the need for speed on every war-connected building today? Let the builders' hardware man save you precious hours in selecting needed hardware. He can take this important but detailed job off your mind entirely.

Door Control Experts to Help You

When it comes to door control, the LCN man backs up the builders' hardware man. This team can get the situation in hand without delay. There's the streamlined LCN organization behind them... with expert knowledge of door closer requirements, and a door closer to meet every need. And you can rest assured that any LCN closer can be relied upon to operate without attention for years to come.



We Are In It, Too

Factories, hospitals, administrative buildings—they all need reliable door control. That's why LCN is working "around the clock" to produce these and other precision products. It's a full-time job—and we're giving it full-time attention. LCN, 466 West Superior Street, Chicago, Illinois.

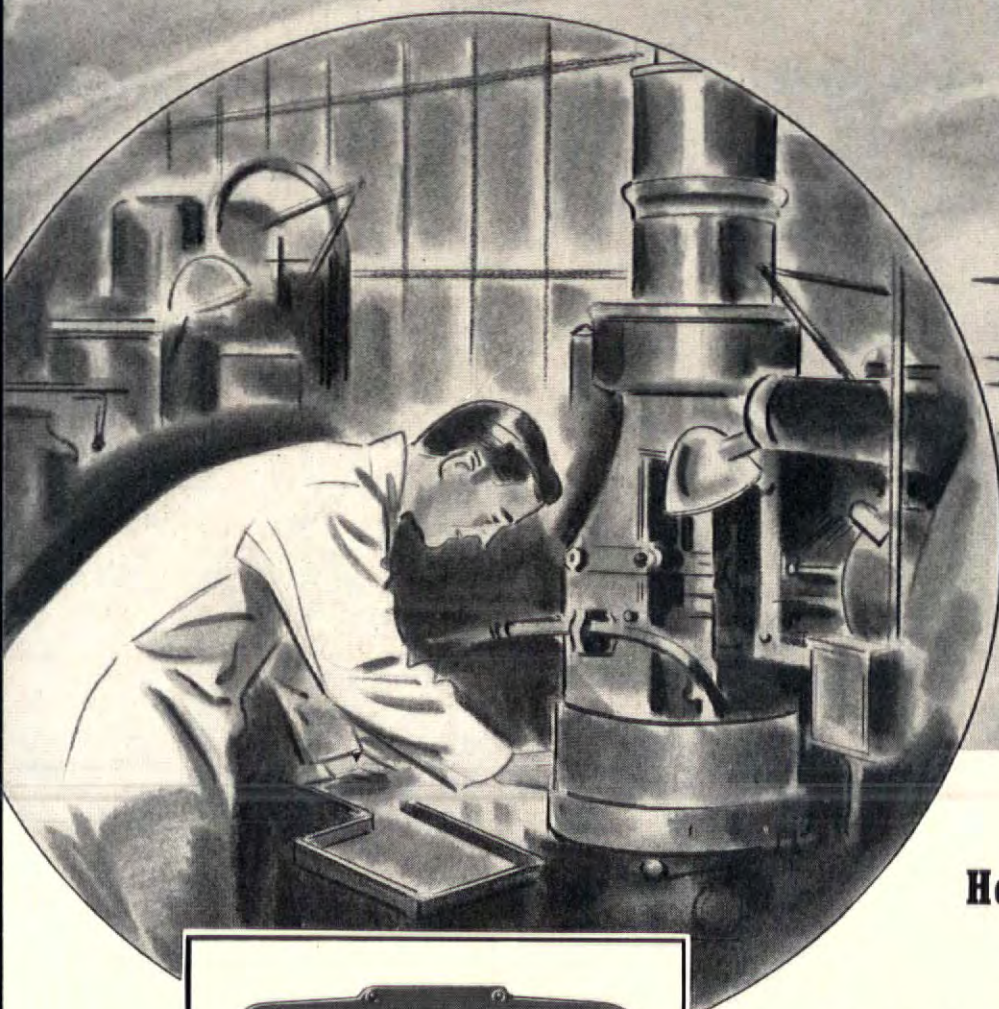


**To be Sure—Specify
DOOR CLOSERS BY**



Your Part

Give him a **WARM** house —
he'll work harder to *"keep 'em Flying"*



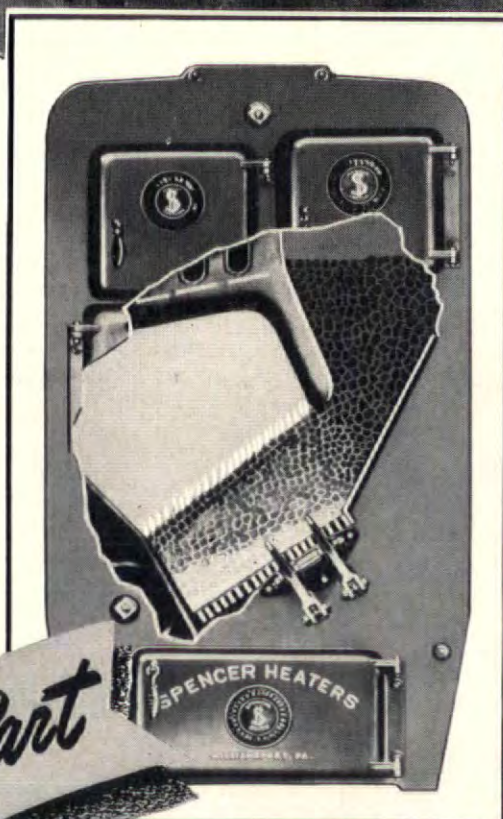
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So there's no time to fuss much with a heating plant. So give him safe, adequate, economical, dependable heat. You can do it by specifying a Spencer Magazine Feed Boiler.

Sure, there's a special Spencer Boiler for every size building, and for every type of fuel ranging from the steel tubular "A" down to the "K" for the smallest homes. And the leader of them all is the Spencer Magazine Feed Heater — the first and the best stoker because it automatically fires small size, low cost coal or by-product coke without motors or moving parts.

SPENCER HEATER

Division — The Aviation Corporation
Williamsport, Pa.



Our Part

SPENCER BOILERS

PLEDGED TO THE CONTINUANCE OF **SPENCER STANDARDS**
FOR YOUR PROTECTION

FORUM OF EVENTS

(Continued from page 66)

ANNOUNCEMENTS

The Southern Section of the State Association of California Architects announces the formation of Construction Planners, Inc., an organization representing all of the licensed architects in Southern California, together with structural engineers, civil engineers, mechanical engineers and landscape architects. The purpose of the group is to offer its coordinated profession-

al services to the Government for construction contemplated at this time or for any post-war projects. Officers include Walter R. Hagedohm, President; Julian C. DeConly, Vice-President; Rowland H. Crawford, Secretary; George E. Gable, Treasurer. Offices are maintained at 3757 Wilshire Boulevard, Los Angeles, Calif. Eugene Weston of Los Angeles has been elected a director of the American Institute of Architects to succeed Gordon B. Kaufmann, who has resigned. Mr. Weston will direct the work of the Institute Chapters in the Sierra Nevada District. Robert S. Hutchins and Caleb Hornbostel, New York architects, have been

appointed to the faculty of the Cooper Union Art Schools.

AWARDS

To Albert Kahn of Detroit, the medal of the Philadelphia chapter of the A.I.A. has been awarded for his design of many vital war plants. At 73, Architect-Engineer Kahn has had the busiest year of a busy life, with dozens of factories for key war



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ALBERT KAHN

industries turned out by his office. Some of these, notably the tank and airplane plants, are among the largest ever built. The award was accurately placed, for no U. S. architect has made a greater contribution to the national war effort.

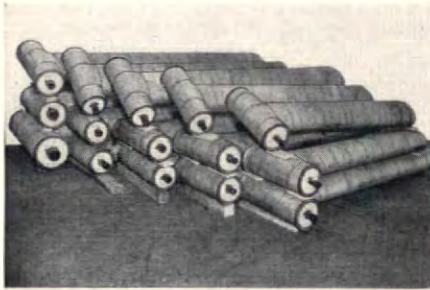
John D. Rockefeller, Jr., has been awarded the Second Medal of Honor for City Planning, the award being presented jointly by the New York and Brooklyn Chapters of the American Institute of Architects, the New York Chapter of the American Society of Landscape Architects, and the Metropolitan Section of the American Society of Civil Engineers. The award included a bronze medal and a scroll with a citation in recognition of Mr. Rockefeller's "unique services to professional ideals in city planning."

The Washington Board of Trade recently awarded its biennial citations for excellence of design in architecture. Among those receiving the awards were Howard Cheney, consulting architect for the Washington National Airport; Nathan C. Wyeth, architect for the East Administration Building, Municipal Center; and the firm of Porter and Lockie for the Star Parking Plaza.

COMPETITIONS

To stimulate pictorial expression of the unified determination of the nations of the Americas to remain free, the Museum of Modern Art will hold a poster competition for citizens of all countries in the Western Hemisphere. The competition is now open

(Continued on page 74)



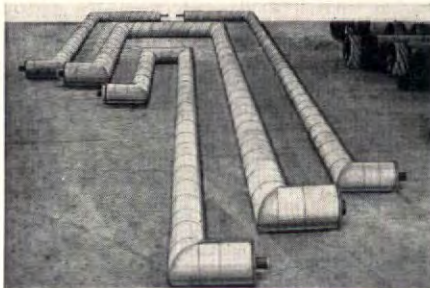
Hairpin expansion loops for flanged units



Each of these is half of a large expansion U-bend



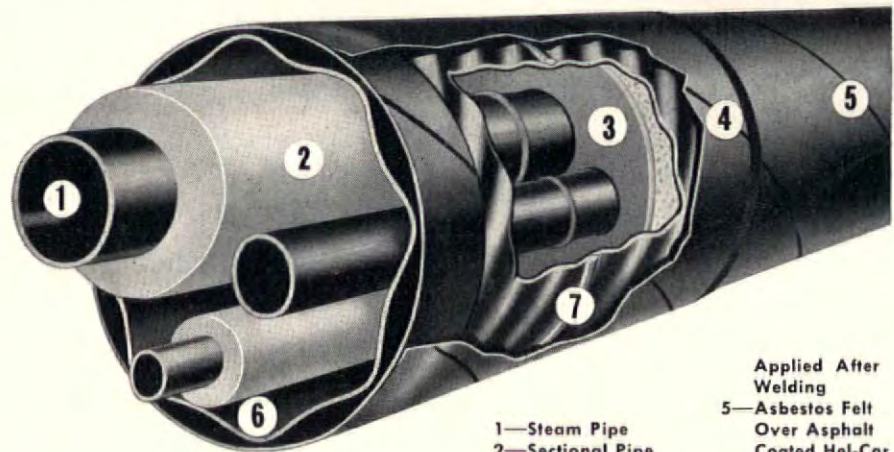
Insulating expansion fittings



Expansion bends with offsets



Z-bends with T Service Connection



1—Steam Pipe
2—Sectional Pipe
Covering
3—Pipe Support
4—Thick Strip Asphalt

Applied After
Welding
5—Asbestos Felt
Over Asphalt
Coated Hel-Cor
6—Air Space
7—Butt Welded
Connection

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UNDERGROUND STEAM SYSTEMS DELIVERED COMPLETE—IN RECORD TIME!

Pre-fabrication by Ric-wiL means:

- ★ Cost reduction! . . . turning out mass-produced Insulated Underground Steam Pipes almost overnight—at minimum and definite predetermined cost to the contractor and user.
- ★ Time saving! A steam system “on the drawing boards” carries no steam. RIC-WIL “lays it on the line” NOW—when and where you need it!
- ★ Controlled factory assembly-line methods which have delivered over 800,000 lineal feet of Ric-wiL Units, in pipe sizes from 1" to 16" diameter, in the past 18 months, principally for government defense work.
- ★ Units of basically correct design, including expansion fittings and all parts, which are standardized and machine-made with precision workmanship. Construction of Ric-wiL fits into the working practice of various trades in the field, radically cutting time and cost on the site. No bottlenecks—no confusion.
- ★ The result is a Pre-sealed System, in the form of a truckable Unit, completely finished in the shop, with nothing extra to buy, ready to install . . . and turn on the steam!

We pledge our full facilities to the task of supplying the underground steam systems so vital to America's war needs. On scores of army, navy, marine and industrial projects, equipped with underground

steam lines—Ric-wiL is now on the job to “keep 'em flowing”. FOR ACTION—wire us for name of nearest Ric-wiL representative. Write for latest Ric-wiL Bulletins.

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BRASCO has the inherent power to resist time and the elements, to stand up successfully under the stress and strain of daily service. It is built on principles of design, proven by experience. Its special patented features, reinforced construction, heavy-gauged metals, assure permanent beauty, dependable glass safety.

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**MODERN
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Brasco Distributors still have stocks available in stainless steel or bronze or aluminum for prompt use. Many installations are still permissible under the terms of the WPB construction order.

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HARVEY (Suburb of Chicago) — ILLINOIS
National Distribution Assures Effective Installation



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QUALITY

There are no finer finishing limes than the original "Ohio" and its famous twin, "Hawk Spread". Made from the world's purest deposit of dolomitic limestone, both are always fresh, work cool, spread far. For your protection both brands are always packed in distinctively marked Red Zig Zag Bags.

For literature describing our complete line of Ohio Lime Products write to:

The Ohio Hydrate & Supply Co.
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Hand-fired coal heat *for the homes of war workers*

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80 FWA WARM AIR CONDITIONERS

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Designed to government specifications, of course — but a Fitzgibbons unit in everything that has made the name Fitzgibbons just another word for convenient, economical comfort-heat. For instance, Fitzgibbons "Weldseal" construction — meaning the positive and permanent exclusion of dust and combustion gases from the air stream. *All* seams and joints are electrically welded, the Fitzgibbons way.

The blower unit is resiliently mounted, balanced both statically and dynamically for vibrationless, quiet operation. An automatic switch operated by a control in the plenum chamber, turns the blower on or off depending upon the temperature setting.

Everything pertaining to combustion is designed with the inestimable advantage of Fitzgibbons many years' experience in this field. Grey-iron grates have air spaces correct for complete burning of fuel. Firepot has a fitted pre-cast high test ceramic liner. Service and ashpit doors are large for easy service, with gasketed joints for tightness. The manually operated regulator effectively controls rate of combustion.

The unit is shipped completely assembled, except for jacket and plenum, which are quickly and easily installed.

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Send me the bulletin about the
Fitzgibbons 80 FWA.

Name.....

Address.....

City and State.....

FORUM OF EVENTS

(Continued from page 70)

and will close July 28, 1942. There will be thirty-four cash prizes totaling \$2,500. The program of the competition, printed in English, Spanish and Portuguese, may be obtained by writing to the Director of the competition: Eliot F. Noyes, Museum of Modern Art, 11 West 53 Street, New York, N. Y.

EDUCATIONAL

The Yale Department of Architecture has

adopted a new curriculum which is part of the University's "accelerated" war program. Five calendar years have been condensed into three and one-half. The course will be broken into ten terms, three per annum with the first two terms stressing fundamentals and the remaining eight devoted to technical training. The program will require revision of existing courses and will be put into operation during the summer term which starts July 6. Women will be admitted as students.

The College of Fine Arts of Syracuse University has announced the following Architecture scholarships to Freshman students: One \$400 and four \$200 scholar-

ships to be granted by competition on July 11, 1942. The competition will be in two fields—drawing and preparatory school record. Only those who have met all entrance requirements will be permitted to take part. Correspondence should be addressed to Dean H. L. Butler, College of Fine Arts, Syracuse, N. Y.

The California Institute of Technology announces that a number of assistantships will be available for the year 1942-3. For details address the Registrar, California Institute of Technology, Pasadena, Calif. A three-week summer course in city and regional planning will be conducted at the Massachusetts Institute of Technology. Sponsored jointly by the Institute and the American Society of Planning Officials, the program covers both the administrative and technical aspects of city and regional planning.

As an emergency measure for accelerating education at both the college and graduate school levels, Harvard University has announced a three-term year which includes a summer session of twelve weeks. The Graduate School of Design has been authorized to admit women as candidates for degrees for the duration of the war. In accord with these decisions Smith College announces the termination of the Cambridge School as a graduate school of the College.

The College of Architecture and Design of the University of Michigan also offers students an opportunity for acceleration of their programs by establishing a full summer semester of 15 weeks. All essential required courses will be included and will be available to entering students and those already in residence.

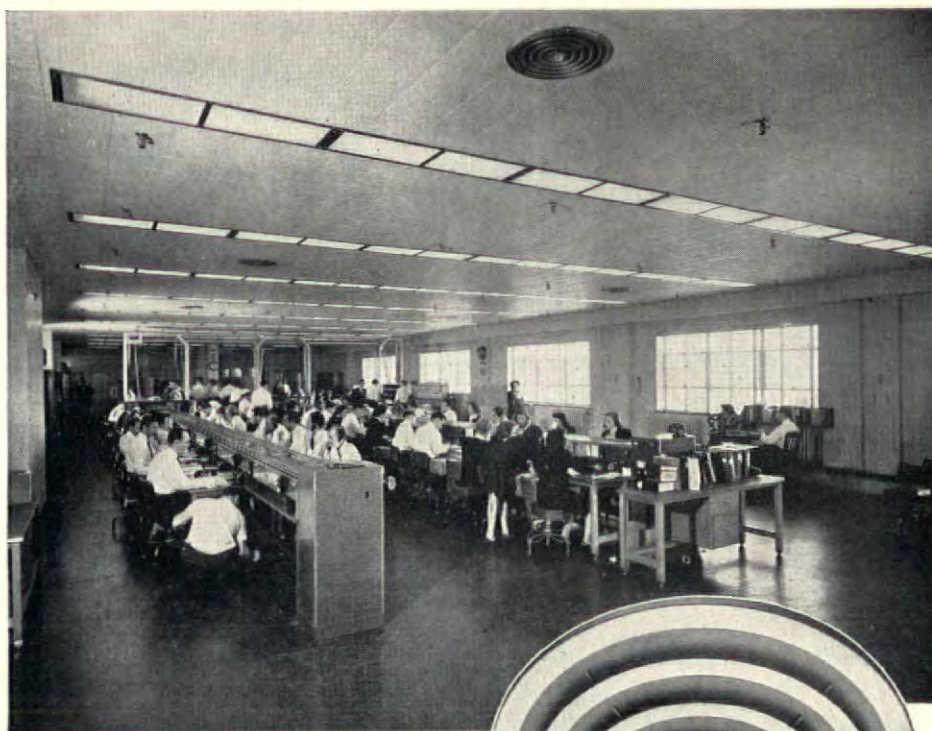
The Stuart School, 102 the Fenway, Boston, Mass., announces that scholarships are available for courses in mechanical drawing and drafting, advertising art, illustration, interior design.

DIED

Hall Pleasants Pennington, 53, architect, in New York. Mr. Pennington was born in Baltimore, the son of Josias Pennington, also an architect. During the World War Mr. Pennington worked for the Red Cross and built hospitals for that organization in France. In New York, as a member of the firm of Pennington, Lewis and Mills, he specialized in the design of apartment buildings.

Alfred Freeman, 64, architect, in New York. Mr. Freeman was born in Plymouth, Pa., and attended the Hillman Academy and Wyoming Seminary. He studied architecture at Cornell University, where he received a fellowship for a post-graduate year of study and also a year's study at the Beaux Arts Academy in Paris. Mr. Freeman was a pioneer in air-conditioning and planned the installation at the Bayuk Cigar Company plant in Philadelphia, one of the first to be so equipped.

(Continued on page 78)



FOR THE MEN BEHIND THE MEN BEHIND THE GUNS

The Aerofuse Ceiling diffuser, made in five types for every installation requirement, is being used from coast to coast to provide that perfect air distribution which steps up the efficiency and productivity of the men behind the men behind the guns. If you're not specifying the Aerofuse—investigate.

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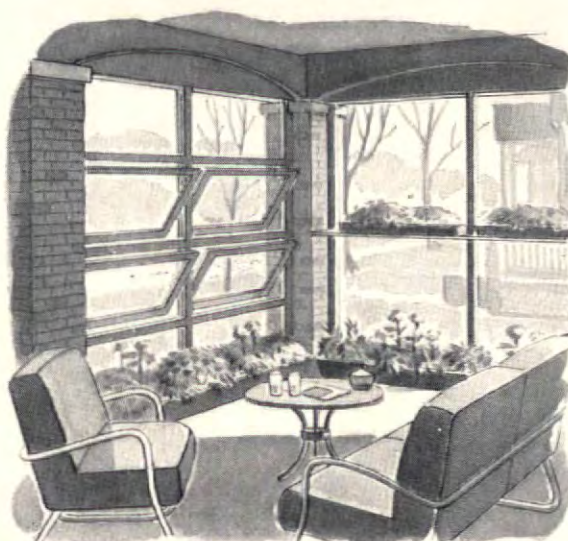
PHILADELPHIA

HOUSTON





**THIS TYPE OF
REMODELING**



...using **GLASS** and **LUMBER**
is practical under today's conditions



**SEND FOR
YOUR COMPLIMENTARY
COPY OF THIS NEW
LIBBEY·OWENS·FORD
GLASS FEATURES
BOOK**

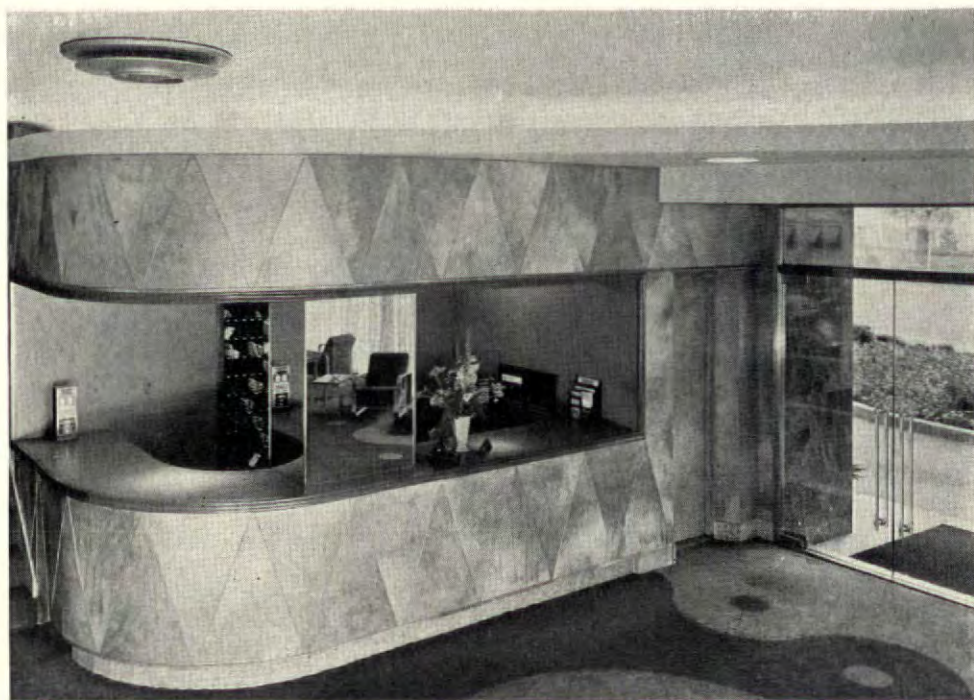
Here the architect has taken the porch of Anyone's Home and converted it into a modern, pleasant livable room. It's a simple idea which can be enjoyed by thousands of homes. It is significant of the modern architectural use of glass.

This glass feature is typical of scores of ideas that Libbey-Owens-Ford has recently incorporated into an unusual new book entitled, "Practical Glass Ideas for Today's Homes." This book is designed for homeowners to increase their appreciation for the new livability they can add to their homes through Glass Features.

We think, from an idea standpoint, that Architects and Builders will find much of interest in this book. A complimentary copy will be forwarded upon request. Just write Libbey-Owens-Ford Glass Company, 1219 Nicholas Building, Toledo, Ohio.



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Apartment Building
Lobby Featuring*



By the liberal use of Tufraw Genuine Rawhide, Eugene Schoen and Sons, Architects and Designers, New York City, have given smart emphasis to the swank Washington House, a new apartment building in Washington, D. C.

The close-up view of the lobby desk shows the unusual effect achieved with Tufraw. It was used also on the lobby walls.

This is another in the parade of Tufraw Rawhide interiors. Its versatility makes it a favorite with architects, designers, and interior decorators for homes, offices, and hotels. FREE sample swatches sent on request.

Another Tufraw Interior

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DEPT. F-5

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Protect yourself. You *must* meet certain Government limitations on heating plant output in new houses, or be denied critical building materials.

We must rush housing in the War Production Areas. The heating rulings must be met...but the builder must assume full responsibility for 70 degrees inside temperature at all times with the limited heater output. Without extra insulation there is no reserve heating capacity.

Blanket your houses with **full-thick Mineral Wool**. Make it your margin of security. It is only slightly beyond the minimum requirements in cost, but far beyond in results. And the



better built houses, always bring better prices, sell quicker...are easier to rent...protect your reputation.

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Rock Wool • Slag Wool • Glass Wool
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Please send the following literature:

- ☐ "Recommended Practices for Installation of Mineral Wool"
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CLEARER VISION ALL-ROUND THE CLOCK!

You Can Insure Perfect Lighting For The Night Shift, Too, By Specifying Pittsburgh's "Glorified Light" Paints

WITH American industry under 24-hour forced draught for the duration, architects today must specify finishes that improve illumination, not only for daytime operations, but to insure clearer vision and man-hour efficiency for the night shift, as well.

Pittsburgh's three "Glorified Light" Paints, available for all types of factory conditions, effectively increase illumination *without glare*—often materially reducing electric light bills. These custom-made finishes have been perfected in our research laboratories with the aid of experts on light control.

Important also for architects, are Pittsburgh's newest facts on Fluorescent Lighting Control.

Cheaper, cooler, more efficient . . . fluorescent lighting is gaining wider acceptance in offices, stores and factories, every day.

Because this new type lighting has many unexpected effects on color schemes, Pittsburgh has made a thorough, scientific study of the subject. This survey shows how fluorescent lighting "drains" some colors, adds extra glory to others. Specific information is available about the four most popular types of lighting used today. This material will be sent to you upon request.

For additional details and addresses of Pittsburgh Branches, see Sweet's Catalog. Pittsburgh Plate Glass Company, Paint Division, Pittsburgh, Pennsylvania.

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WALLHIDE • FLORHIDE • WATERSPAR • SUN-PROOF

 **PAINTS**
Smooth as Glass

FORUM OF EVENTS

(Continued from page 74)

GROUP MURALS

Much has been said, and something has been done, about the role of the artist in wartime. There have been posters, donated by painters and illustrators, there are the competitions sponsored by the Red Cross, etc., and there are projects such as Benton's recent series of war paintings. These are all good, all individual efforts.



The story here is different, for it revolves around the collaboration of a dozen painters who got together to do a series of murals for the Navy Receiving Barracks in

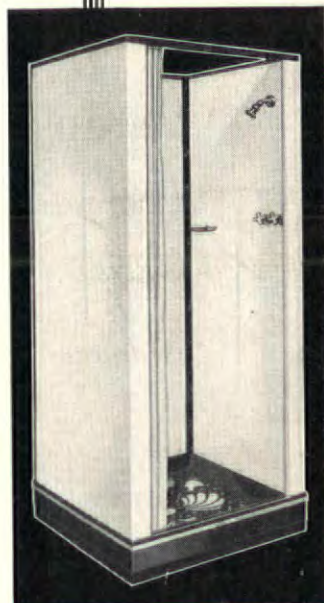


Brooklyn. The job is almost unique in U. S. art annals, for the painters really worked as a team; there are no individual credits anywhere. The murals illustrated are in

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Accompanies the Order*



● Preference ratings can be obtained readily for the use of Weisway Cabinet Showers for civilian defense housing and remodeling, as well as for industrial and military purposes. These leakproof, self-contained baths are authorized under the critical materials list and may be shipped on priorities under the recent WPB limitation order on plumbing equipment.

We are in a position to make immediate shipment on most models and sizes. Delay will be prevented when orders are accompanied by priority certificates or endorsements (A-10 or better).

Specify Weisways and co-operate with our Nation's war conservation program because these quality cabinets not only serve dependably but *save** in many ways. Detailed information and specifications with new full color booklet, "Weisways for Defense Living Quarters," will be sent without obligation.

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502 OAK ST., ELKHART, IND.

*Weisways are widely used for civilian defense housing... remodeling... in defense plants... barracks and dormitories... hospitals... army posts... naval bases... officers' quarters... because

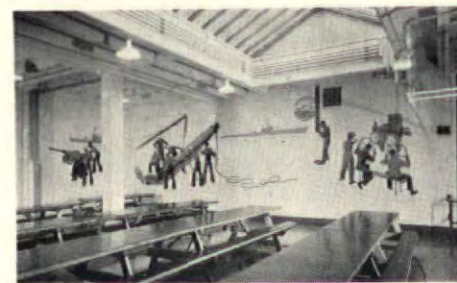
these self-contained baths **SAVE** space... save metal... save water and hence fuel... save bathing time... and provide the cleansing, refreshing shower baths that builds health and morale.



the mess hall. The scheme is simple, consisting of sailors, guns and ships painted directly (using standard Navy paints for the most part) on cement block walls. Bright and gay in effect, and of immediate interest to the men who use the hall, the result is wonderful, and it would be diffi-



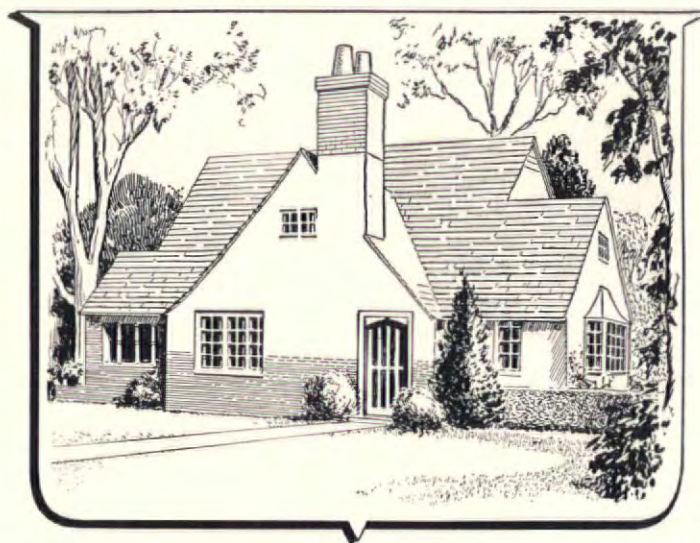
cult to find a better example of what can happen when the artist, speaking collectively, works with the aim of direct service to the people. It would be difficult to praise too highly the spirit or the achievement of the dozen men and women who turned out



Photos. W. J. Russell

this job in three weeks. Their names: Virginia Powis Brown, Allyn Cox, Fred T. Chapman, Nils Hogner, Vera Makogon, Claudia McKittrick, Hildreth Meiere, George Rupprecht, Mary Stonehill, George Stonehill, Nina Barr Wheeler and Alicia Wiencek.

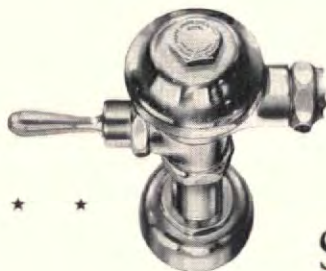
*Start Planning
NOW*



FOR SLOAN-EQUIPPED HOMES * * *

After the war there will be a Sloan Flush Valve available to even the modest homes. And they will be improved over the endlessly durable Sloan Flush Valves found today in luxury homes, apartments, clubs, hotels, hospitals, schools, and all types of large buildings everywhere.

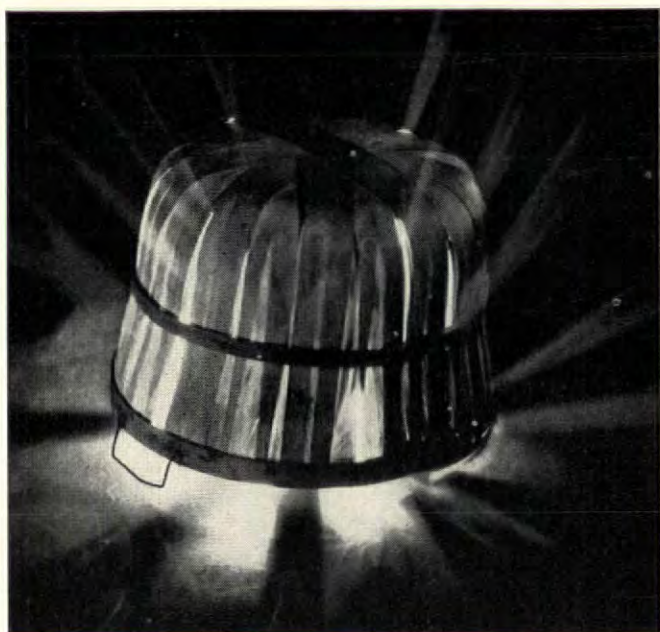
For 36 years Sloan Valves have been the acknowledged premier of all flush valves. They have always been astonishingly low in maintenance cost. They have protected health by preventing back-syphonage. They have saved water; reduced the cost of the power necessary to pump water. And now we say: *after the war there will be Sloan Flush Valves, with all their inherent advantages, for residences.*



Sloan equipped homes are the ultimate in convenience, health and economy. Remember: there are more Sloan Flush Valves sold than all other makes combined.

SLOAN VALVE COMPANY

4300 WEST LAKE STREET • CHICAGO



WE HAVE BEEN DOING THIS TOO LONG

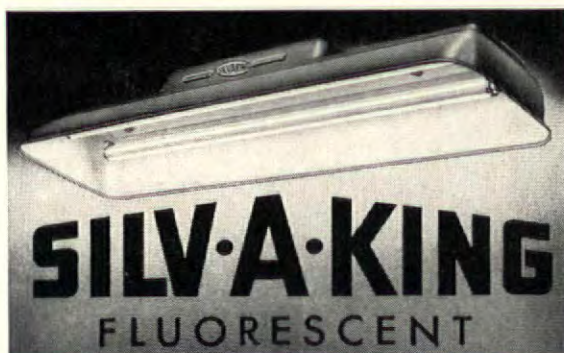
We have been hiding a light (figurative, of course) under a bushel. We mean the untiring, behind-the-scenes work of our research and design staffs who are working today on the problems of *tomorrow's* lighting. When the new light sources are developed, Silv-A-King equipment will be ready to put them to the most effective use. For 21 years this policy of *looking ahead* has been a major factor in establishing Silv-A-King's reputation as lighting specialists throughout industry. Bright Light Reflector Co., Inc., 1037 Metropolitan Ave., Brooklyn, N. Y.

Quality and dependability through two decades have linked the Silv-A-King name with such famous names-in-industry as:

AC SPARK PLUG • BETHLEHEM STEEL • BUICK • CHEVROLET
GENERAL MOTORS • FISHER BODY • INTERNATIONAL HARVESTER
JONES & LAUGHLIN STEEL • PITTSBURGH PLATE GLASS
RUPPERT BREWERY • WARD BAKING
and many others



Write for these Silv-A-King Lighting Guides:
LG1—Fluorescent, or LG2—Incandescent.



MAKES *Light* WORK FOR YOU

Cut Installation Time 1/3 to 1/2
with **UNION METAL** Bridging

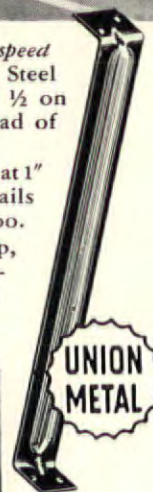


• Today—when practically every job calls for *speed*—contractors are switching to Union Metal Steel Bridging. The reason? They save from 1/3 to 1/2 on installation time by using steel bridging instead of conventional wood!

This important saving in time—plus the fact that 1" or 1 1/4" roofing nails can be used instead of 8-d nails—makes steel bridging an *economical* choice, too.

Union Metal Bridging cannot split, warp, shrink, expand, or rot. Comes in convenient-to-carry cartons. Lengths to fit all regular joist sizes and spacings. Write today for descriptive folder and prices.

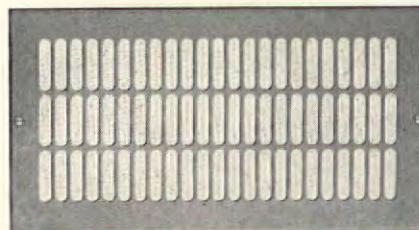
THE UNION METAL
MANUFACTURING COMPANY
CANTON, OHIO



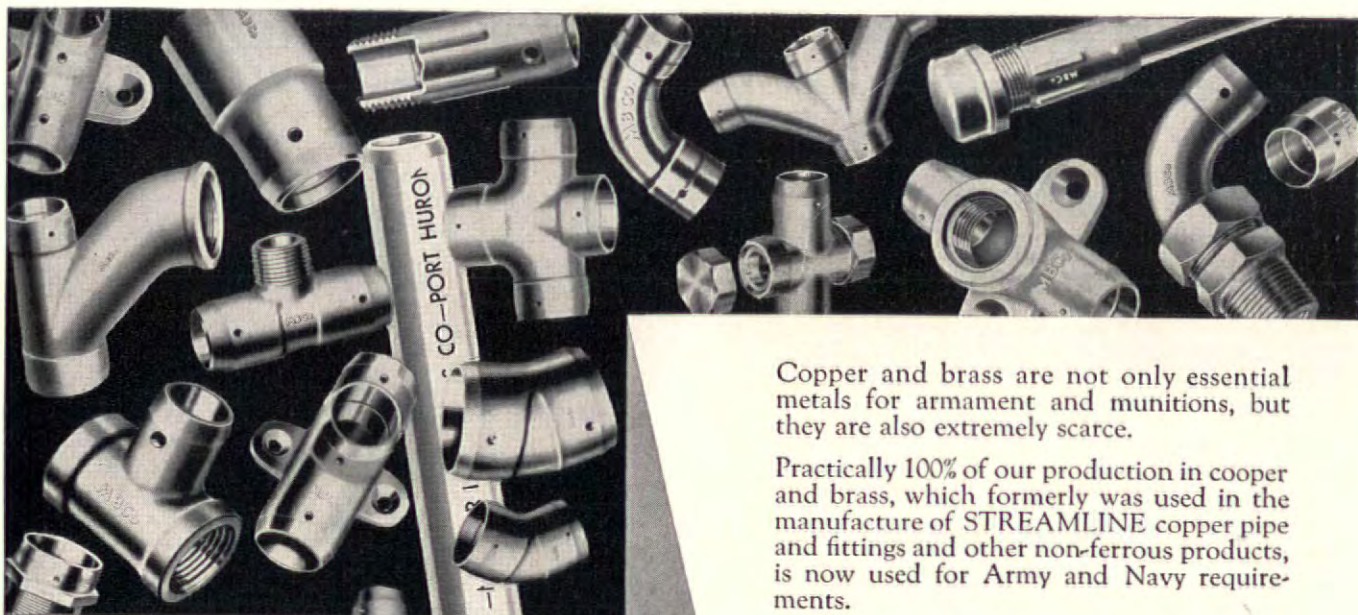
Here is a fine, attractive, inexpensive register of highly pleasing design. It can be furnished with single louvre for low cost warm air jobs or, for airconditioning, with multi-louvres, for any desired diffusion. From the standpoint of cost, of appearance, of service value, Auer Classic "6000" Registers and Grilles are especially suitable for low cost residence work.

Auer makes a complete line of registers and grilles, in many designs, including all types of directional flow registers, for warm air or air conditioning. Ask for new Auer Register Book—or for your grille requirements, special Grille Catalog "G".

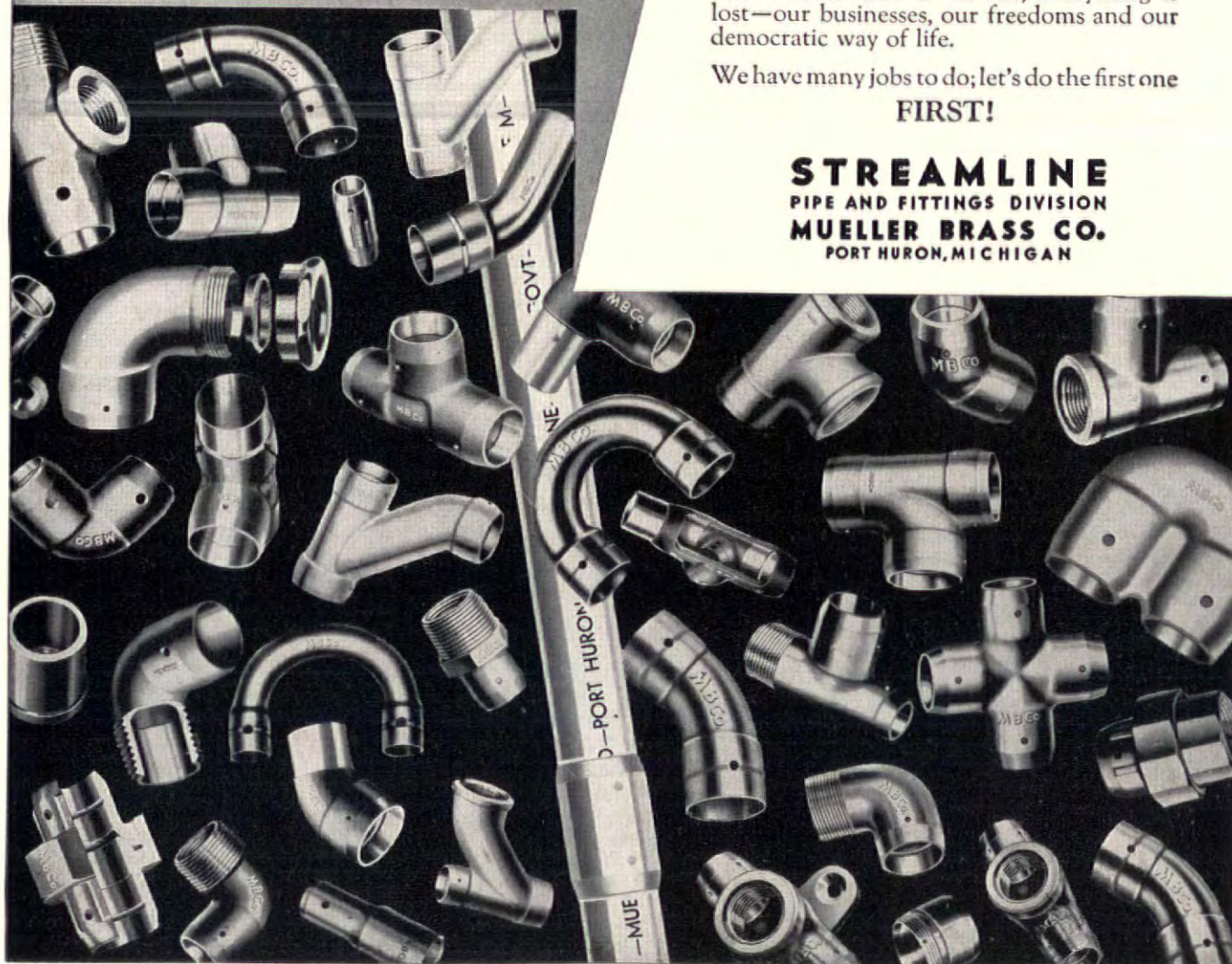
The Auer Register Co.
Cleveland, Ohio



AUER REGISTERS
& GRILLES • For Air Conditioning and Gravity



Our First Job to do



Copper and brass are not only essential metals for armament and munitions, but they are also extremely scarce.

Practically 100% of our production in copper and brass, which formerly was used in the manufacture of STREAMLINE copper pipe and fittings and other non-ferrous products, is now used for Army and Navy requirements.

We Americans, no matter in what walk of life, realize that armament work must come first. IT MUST TAKE PRECEDENCE OVER EVERYTHING ELSE IF FOR NO OTHER REASON THAN THIS—THAT WE MAY PRESERVE FOR THE FUTURE THOSE VERY BUSINESSES OF WHICH WE ARE NOW TEMPORARILY DEPRIVED. If we fail, everything is lost—our businesses, our freedoms and our democratic way of life.

We have many jobs to do; let's do the first one
FIRST!

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

Building Reporter

(Continued from page 3)

concealed in the loosely fitted front hem, connects to the lead trolley and extends to approximately 6 in. from the floor; besides giving rigidity to the front of the partition, it serves as a standard. Entire partition is attached to the wall with screws or nails. When not in use, it can be folded out of the way. Cost: approximately 65 cents a square foot.

Manufacturer: New Castle Products, New Castle, Ind.

CEMENT-ASBESTOS PIPE resists corrosion, can be coated to give greater protection. Name: Roxite.

Purpose: To vent fumes and gases, to transport corrosive solutions or processing water which must be kept free of metallic contamination.

Features: Manufactured by a patented high pressure process, this pipe offers high density and high mechanical strength. Where severe corrosive conditions must be met, it is available in protective coating form. Standard coating is a synthetic resin finish, 1/64 in. thick and resistant to virtually all non-oxidizing acids. The pipe can also be given a 1/8 in. thick lining of Tygon, a corrosion-re-

sistant material. Unlined, however, it is able to withstand most corrosive fumes and gases encountered in chemical and process plants. Available in any length up to 14 ft., in any size from 3/4 in. to 8 in. (10 in. and 12 in. sizes on special order).

Manufacturer: U. S. Stoneware Co., 60 East 42nd St., New York, N. Y.

DRAFTING PENCIL. Companion motor-driven pointer assists in speeding drafting work.

Name: TEC Drafting Pencil and Teclectric Pointer.

Purpose: To save drafting time.

Features: Pencil has a full length lead tube of spring brass which is driven downward into the chuck point by a screw-operated mechanism. A positive grip on the lead prevents any slippage or wobble. Pencil barrel is a lightweight plastic (Tenite), but has the "feel" of a full length wood-encased pencil. Also available is a double-end type. For these pencils, drawing leads, specially treated to give point durability, can be had in nine degrees of hardness. The pointing machine starts and stops automatically, provides needle-like drafting points in a few seconds. Manufacturer: TEC Pencil Co., 9381 Olympic Blvd., Beverly Hills, Calif.



INSULATING BOARD. Fiberglas sheathed in asphalt boasts qualities equal to those of cork.



Name: Fiberglas AE (i.e., "asphalt-enclosed") Board.

Purpose: To pinch-hit for cork in insulating cold storage plants and roof decks on industrial and commercial buildings.

Features: With importations of cork from Spain and Portugal becoming increasingly uncertain (existing supplies are under rigid priorities), this new material arrives in timely fashion. Its ingredients are plentiful, consisting of pure glass fibers compressed to a density of 6 lbs. to the cubic

(Continued on page 86)

Here's "Automatic" CONCRETE CURING

For airports, factories, roads, defense housing and all essential war construction, SISALKRAFT curing is known for its speed, efficiency and economy.

JUST ROLL OUT SISALKRAFT
Laid over the freshly set slab, this tough, waterproof paper seals in the natural water of the mix — assures hard, dense concrete. It's quickly, easily applied. No sand, straw, burlap, etc. to handle.

NO SPRINKLING OR WATCHING
SISALKRAFT is air and moistureproof — seals in the water of the mix and helps slab stay moist. Inspection is made at a glance. With the paper in place, the concrete is curing properly. It's "Automatic" — saves many hours of labor.

PROTECTION AT NO EXTRA COST
Rugged SISALKRAFT protects the surface from debris and spill. Saves grinding. Permits succeeding trades to work efficiently without injuring the floor.

SISALKRAFT

The Standard Paper for CONCRETE CURING

The SISALKRAFT Co.
205 W. Wacker Dr., Chicago, Ill.
NEW YORK - - - - 101 Park Ave.
SAN FRANCISCO - 55 New Montgomery St.

WRITE for complete data on use of SISALKRAFT for concrete curing.



**OTHER EXAMPLES
OF CURTIS SERVICE**



Homes built in Wichita, Kansas, by Womer-Greer Investment Co. . . . All houses have Curtis Silentite Windows and Mitertite Trim. The architects were Overand & Boucher, Wichita. Many more homes of this style and size are going up now and will be Curtis-equipped.

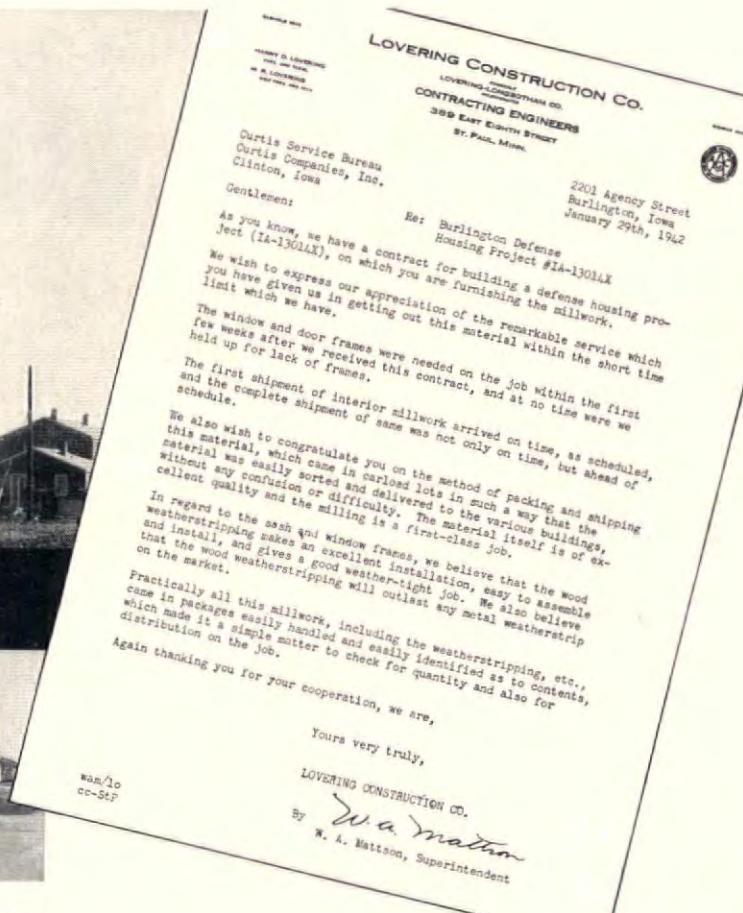


Part of group of large apartment buildings to house government workers being erected at Arlington, Virginia, by Barcroft Inc.—Thomas N. De Lashmutt, builder. Here, again, Curtis Woodwork speeds the job—provides quality at cost well within the building budget.

OTHER CURTIS-EQUIPPED PROJECTS

Here are other large housing projects now under construction or recently completed in which Curtis Silentite windows and Curtis stock architectural woodwork have contributed to speedy completion and satisfactory operation:

Baltimore, Md.	Atlanta, Ga.
Wheeling, W. Va.	Canfield, Ohio
Tulsa, Okla.	Salt Lake City, Utah
Williamsport, Pa.	Cuyahoga Falls, Ohio
Amarillo, Texas	Spokane, Wash.
Boise, Idaho	Columbia, S. Car.
Yakima, Wash.	Indianapolis, Ind.



**... and Curtis is "on time"
for defense housing
all over the country!**

● In Maryland or Idaho—in Virginia or Iowa, Michigan or Kansas—Curtis service and Curtis quality are speeding the nation's big job of defense housing.

In war as in peace, stock Curtis Woodwork and Curtis Silentite Windows are demonstrating their ability to save time on the job—and to give owners of low-cost homes greater dollar value in workmanship and materials.

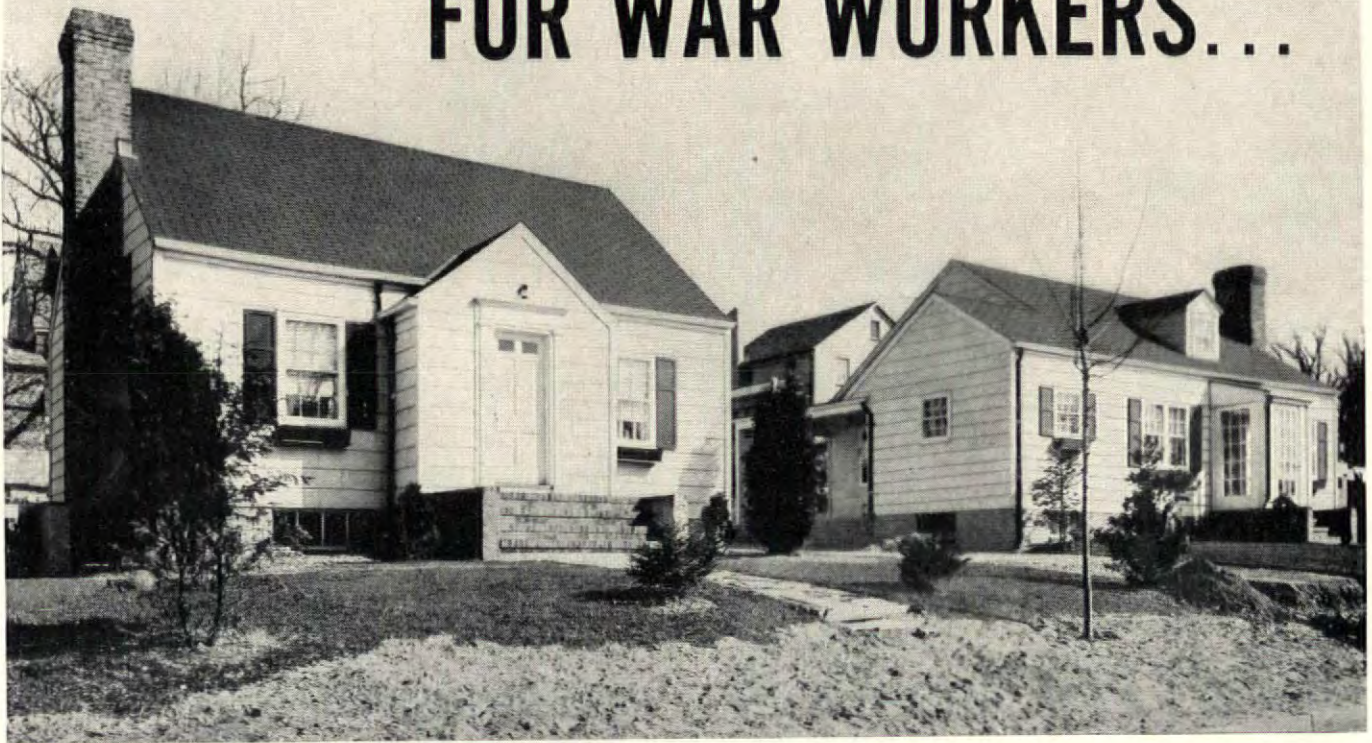
This page shows only a few of the Curtis installations in defense housing projects throughout the country. If you, too, are interested in building small houses of architectural distinction—soundly constructed, low in cost and economical to operate—we invite you to get full details on how Curtis stock woodwork and Silentite "Insulated" Windows can contribute to better, faster building. Just mail the coupon.



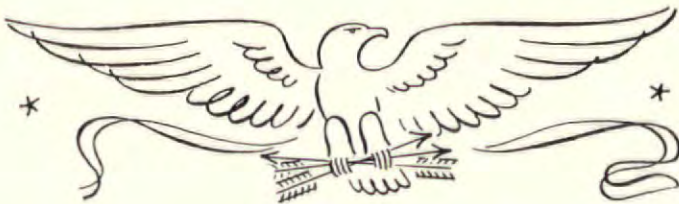
CURTIS COMPANIES SERVICE BUREAU
Dept. AF-5, Curtis Bldg., Clinton, Iowa
I want to know more about how Curtis Woodwork and Curtis Silentite Windows can serve me in defense housing.

Name _____
Address _____
City _____ State _____

FOR WAR WORKERS...



Speedily-Built, yet Safe and Comfortable, too!



★ The health, comfort and morale of war workers are mighty important. Guard the general well-being of these fighters on the production front. Make sure the houses *you* build are *safe*, *comfortable* and *attractive*. Readily available Flintkote products assure all three advantages at no sacrifice of vital time or money.

Flintkote insulation sheathing provides protection, comfort and fuel economy. Exterior walls of Flintkote asbestos sidings are proof against termites, rot and wear, *as well as fire*. Flintkote mineral surfaced asphalt shingles make roofs durable, attractive and fire-resistant. They are ap-

proved by the National Board of Fire Underwriters and carry Class C label.

For interiors Flintkote insulation board products are equally practical and economical. At one small cost, Flintkote pre-cut tile and plank insulate and decorate.

Flintkote building materials assure speedy application and durability at low cost. Use them for War Housing to assure the health and comfort of fighters on the production front.

FLINTKOTE PRODUCTS

Roofings

Asphalt mineral surfaced shingles
Asbestos-cement shingles
Smooth or mineral surfaced roll roofings
Cold process built-up roofing

Sidings

Asphalt mineral surfaced
Asbestos-cement

Insulation

Board, lath, sheathing
Rock Wool

Wall Boards

Insulating tile and plank
Hardboard

Asphalt Coatings

Waterproofing
Dampproofing

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

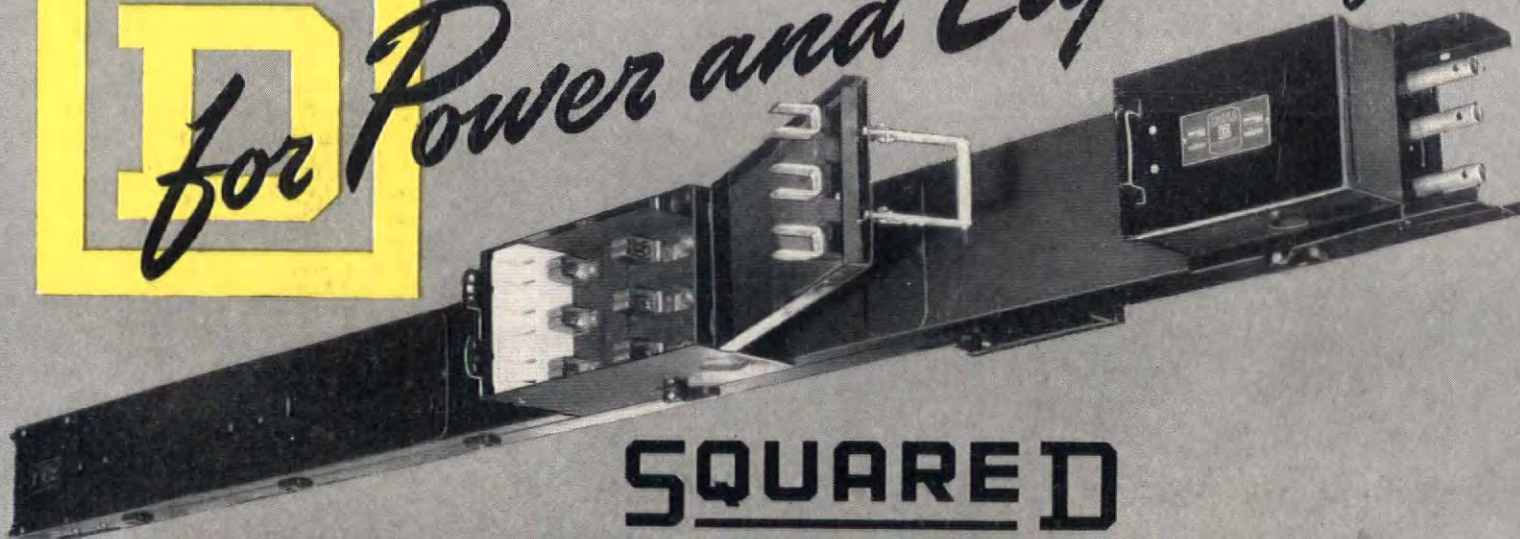
THE FLINTKOTE COMPANY

30 Rockefeller Plaza, New York, N. Y.

New York • Atlanta • Boston • Chicago Heights • Detroit • East Rutherford • Los Angeles • New Orleans • Waco • London



for Power and Lighting

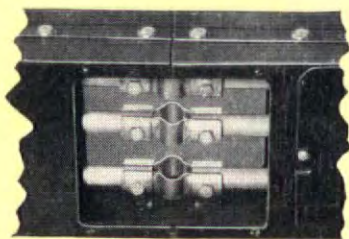


SQUARED

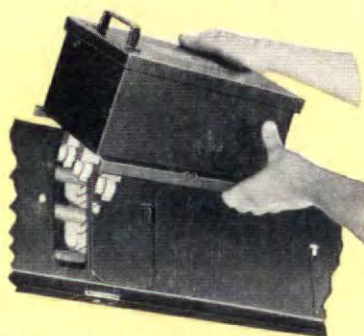
SAFLEX PLUG-IN DUCT

EASY TO INSTALL—PERMITS SPEEDY EXPANSION OR REARRANGEMENT

PORCELAIN INSULATORS are of heavy cross-section with surface corrugations to increase electrical spacings. They are securely mounted every 20" to casings by steel brackets and protected against breakage by shock-absorbing felt pads. Round rigid bus bars are anchored against endwise movement by stop-pin at end insulators.



FLEXIBLE COUPLINGS join bus bars. Special design permits expansion or contraction of bus bars to be absorbed at the joint, and also provides flexible connections for correction of minor variations in bus alignment.

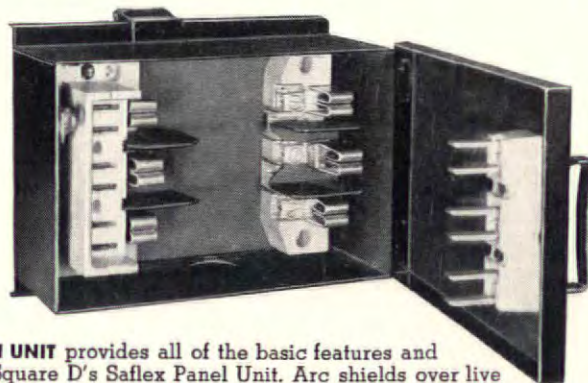


UNITS EASY TO ATTACH. Hook-type bracket on top of plug-in unit attaches to top of duct. Unit is then swung down and jaws snap into position on bus bars. Tightened securely with a single screw—on or off in a jiffy. 12 units may be attached to each 10' section.

In planning new industrial plants and modernizing old ones, architects face a two-fold job—providing for *present* requirements and anticipating *future* needs.

SAFLEX PLUG-IN DUCT solves the problem of meeting *today's* and *tomorrow's* electrical energy needs—with a degree of flexibility which eliminates delays and cuts costs.

In designing or re-designing any industrial plant, you will increase its over-all efficiency substantially by providing this modern method of electrical distribution. Saflex Duct is available in five capacities—from 250 to 1000 amperes in 2 and 3 wire, single phase; 3 phase and 4 wire service for 600 volts and less. Ask your electrical contractor or write us direct for complete details.



SAFLEX PLUG-IN UNIT provides all of the basic features and advantages of Square D's Saflex Panel Unit. Arc shields over live contacts. When cover is open, all exposed current-carrying parts are dead. Positive pressure fuse clips and steel-backed copper contact jaws are used on all sizes. Saflex plug-in units are available in 2 and 3 pole and 3 phase, 4 wire 30 to 200 amperes inclusive, 230 and 575 volts. All units are horsepower rated.

SQUARE D COMPANY

DETROIT - MILWAUKEE - LOS ANGELES
KOLLSMAN INSTRUMENT DIVISION, ELMHURST, NEW YORK
IN CANADA: SQUARE D COMPANY CANADA LIMITED, TORONTO, ONTARIO

Building Reporter

(Continued from page 82)

foot and completely enclosed in a sheath of durable asphalt with a high melting point. Its heat conductivity is 0.265 Btu. at 60° F.—one of the best recognized values. The heavy asphalt coating provides a substantially waterproof seal completely around the insulating core. It also increases the insulation's stiffness and rigidity so that blocks (12 in. wide, 36 in. long, 1, 1½ or 2 in. thick) can be used for the erection of self-supporting partitions, or

as load-bearing insulation to carry floors in refrigerated spaces. They can also be used as a promenade surface on flat roof decks. Being light in weight, they also permit a material saving in the supporting structure, thereby reducing costs and conserving materials for the war program. **Manufacturer:** Owens-Corning Fiberglas Corp., Toledo, Ohio.

FLOORING. New type of asphalt tile overcomes danger of sparks from static electricity.

Name: Armstrong Conductive Asphalt Tile.

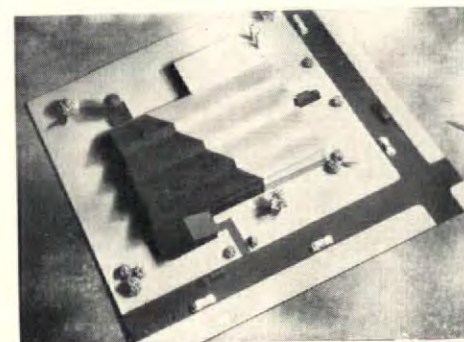
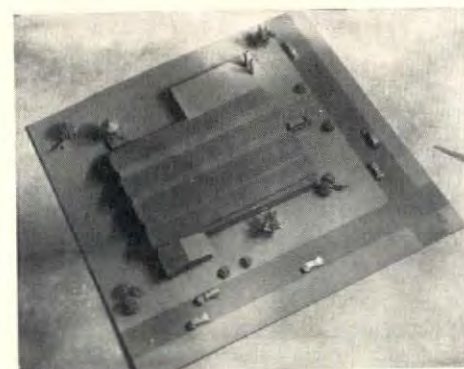
Purpose: To prevent the accumulation of static electricity, especially in arsenals, shell and bomb loading plants, powder

plants, field hospitals, other structures where any spark from the flooring would be hazardous.

Features: This new low-cost, resilient, black flooring provides a surface which results in less than 0.1 megohm resistance to static electricity under certain conditions. Individual tiles can be quickly replaced if accidentally damaged. Since they are laid on a fast-setting adhesive, the floor can be put into service immediately. Besides being sparkproof, the tiles are nonslip, nondusting, moisture-resistant, odorless. They withstand fast trucking, are also highly resistant to indentation.

Manufacturer: Armstrong Cork Co., Building Materials Div., Lancaster, Pa.

CAMOUFLAGE PAINTS deflect heat rays, defy the infra-red lens.



Name: L-Series Camouflage Paints.

Purpose: To deflect heat rays, thus prevent detection of camouflaged structures by infra-red aerial photography.

Features: These paints, available in the low-visibility shades of green and brown, differ from accepted exterior paints only in pigmentation adjustment. But unlike ordinary paints, which are revealed as dark grays and blacks when photographed with infra-red, these paints appear as light grays and whites—the same reaction as natural chlorophyll-bearing foliage (Model painted with both types shows result when photographed first with panchromatic film and then with infra-red.) The heat-deflecting factor has another advantage: sun-exposed liquid storage tanks surfaced with these paints have an inside temperature approximately 10° lower than would prevail if they were surfaced

(Continued on page 90)

STRANGE STORIES

- THAT "STICK"

LAUCKS CONSTRUCTION GLUES

ARE USED IN BUILDING U.S. NAVY MINESWEEPERS

9 YEARS UNDER WATER
Two pieces of wood glued together and submerged in water in 1933 in the LAUCKS LABORATORY ARE STILL HOLDING FIRM!

\$20,000 TABLE



CICERO PAID \$20,000 FOR A GLUE VENEERED CITRUS WOOD TABLE—According to Pliny—Roman Naturalist of 2000 Years ago

I. F. LAUCKS, Inc.

MANUFACTURING CHEMISTS
"Leadership through Research"

Seattle — 911 Western Ave.
Chicago — 6 North Michigan Blvd.
Los Angeles — 859 E. 60th Street
Vancouver, B. C. — Granville Island
Portsmouth, Va. — Commerce and Broad Sts.

SPEED! Necessity for speed first turned yesterday's doubts about glue in construction into enthusiastic endorsement. Now American builders and prefabricators know that Laucks Construction Glue methods not only are faster . . . but also are stronger . . . and save precious metal for combat use.

On history's biggest housing projects, wall panels are "glue-welded" to joists and studding in assembly line procedures. Glue-laminated arches and beams replace steel . . . and qualify fully for strength. Wood and Laucks Glue are joining forces in scores of new and vital ways in building construction as well as in wartime industries, in aircraft and boat-building . . . to speed America's production for victory.

SELF-BONDING—Make permanent bonds without heavy weights or clamps.

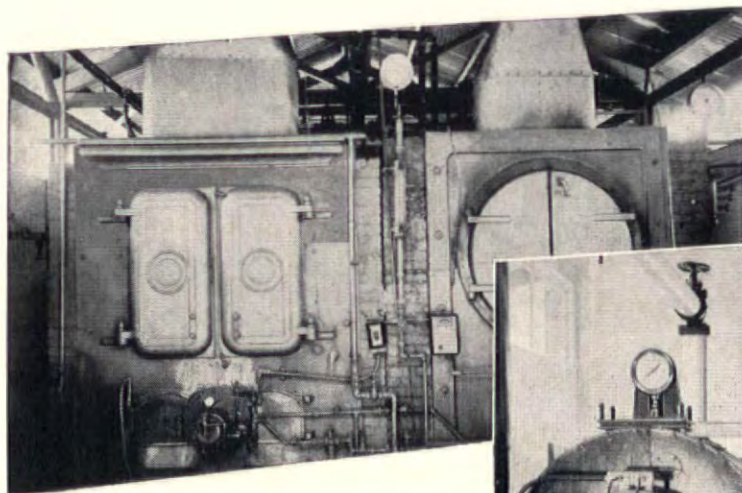
WATER-RESISTANT—Meet U. S. Army, Navy and Federal aircraft specifications.

STRONGER—"Stronger than nails by test" . . . and easier to get.

CONTRACTORS, BUILDERS,
ARCHITECTS, DEALERS—
WRITE LAUCKS FOR
FULL INFORMATION



• **LAUCKS CONSTRUCTION GLUES** •



OILBILT INSTALLATION EXCEEDS EXPECTATIONS..

"Packaged"

BOILER UNITS

REDUCE COST APPROXIMATELY **40%**

THESE excerpts from the report of Robert B. Witham, Administrator of The Leahi Home (Tuberculosis Hospital), Honolulu, Hawaii, after a year's experience with their OILBILT installation, is typical of many OILBILT performance reports:

"... a little over a year has elapsed since the original installation of our two 125 hp. OILBILT boilers ... we have had full opportunity to observe their operation.

"... I made a very careful and exhaustive examination — before reaching the decision to purchase them ... analysis of the first year's log has more than borne out my original conclusion.

"... these two boilers when placed in operation were installed on the line for continuous 24-hour operation — in contrast with the previous boilers — of the same hp. — operated from 12 to 14 hours per day — efficiency of OILBILT exceeded the recommendations of the manufacturer — cost of operation for a full 24-hour period day after day for the one year's

log has been approximately 42% below that of the boilers they replaced — we have increased operating time approximately 35% — reduced operating cost approximately 40%.

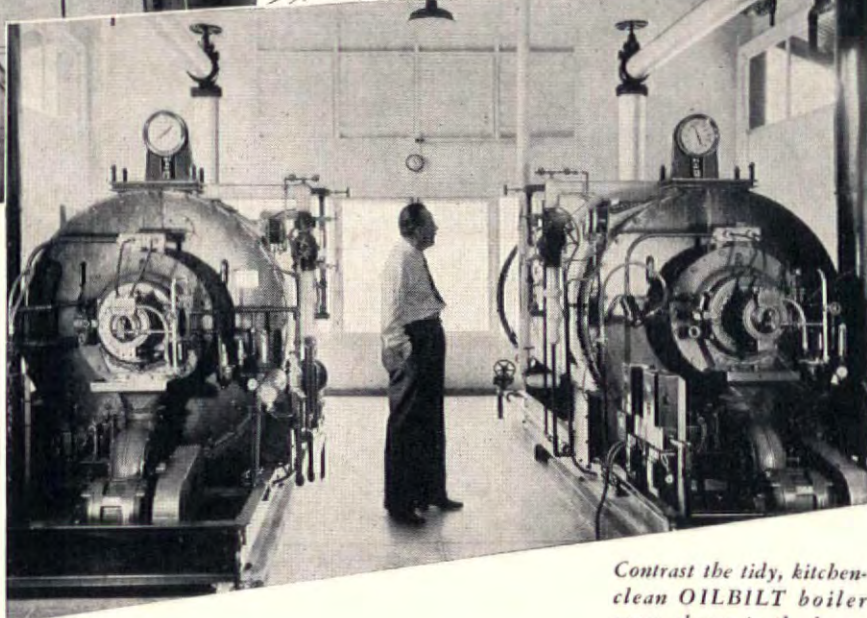
"... this type of boiler offers something not obtainable from any other method ..."

Modern in every detail and embodying the best engineering practice and principles, OILBILT steam plants eliminate ashes, coal dust, smoke, a high expensive stack. Fuel costs are lowest because of OILBILT'S high thermal efficiency — they are specifically designed for efficient oil-firing with a long, four-pass, down draft boiler and integral burner. Built in sizes 20 to 500 hp.; pressures 15 to 200 lbs.

Write for bulletin.

CLEAVER-BROOKS COMPANY, 5111 N. 33rd St., Milwaukee, Wisconsin

Contrast the tidy, kitchen-clean OILBILT boiler room shown in the lower illustration which replaced the former ponderous, messy, costly-to-operate old H.R.T. boilers.



☆
Our "Victory" effort comes first. Greatly enlarged Cleaver-Brooks manufacturing facilities are going "around the clock" for military production.
☆

Oilbilt

STEAM PLANTS

DATA FROM TORCH TESTS

Material	Strength of Abopon Solution	Time in Seconds to flame	Time in Seconds to end of flame	Time in Seconds to end of afterglow
Masonite	None	4	3	6
	25%	35	0	3
5 Ply Fir Board (3/4")	None	5	2	3
	25%	10	1	3
Celotex	None	3	167	over 300
	25%	10	1	3
Nu-Wood	None	2	35	over 300
	25%	37	0	3
Upson Board	None	2	2	over 300
	25%	12	1	4
White Pine	None	7	20	24
	25%	10	1	5



The above chart shows results of experiments upon structural materials impregnated with a 25% solution of Abopon in water. The materials were subjected to a flame from a blow torch with the blast continued for 30 seconds after the material caught fire.

• • •

Resistance of treated materials to fires caused by incendiary bombs, glowing sparks, were tested by means of hot blocks. Here again materials treated with a solution of Abopon ceased to flame or glow within 20 seconds after removal of the block; untreated panels continue to glow for over a minute and had to be quenched.



TORCH TESTS PROVE BUILDING MATERIALS MADE FLAME-PROOF

Greatly needed today. You'll want to look into this flame proofing treatment. Building materials treated with Abopon, a new type of flame-proofing agent, cut down fire hazards at a time when every saving is vital to the war program. It is especially adapted to war housing, wooden barracks, hangars and factories.

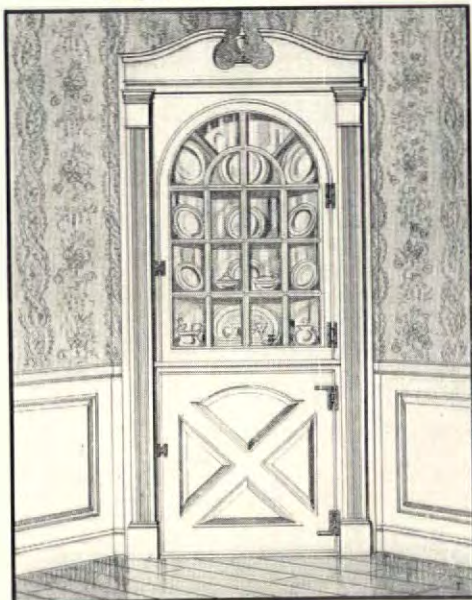
Abopon is odorless, colorless, non-corrosive and non-toxic. It does not interfere with the final appearance of the building material and the finished surface can be painted or lacquered as desired.

For complete information on costs and uses of Abopon write today to:

Glyco Products Co., Inc.

230 King St., (Dept. 47), Brooklyn, N. Y.

FOR HOME MODERNIZATION



CABINET 74A

Thoughtfully designed to the last careful detail, this cabinet will be lovely and appropriate for years to come. Made of pine and plywood, treated with "Woodlife." Hardware consists of 1" knobs and 3" hinges. Instruction sheet outlines ease of assembly. BODY SIZE 39"x80"x16" deep **\$17.64** F. O. B. Nashua

Sold only through recognized dealers. To avoid credit delays, send check with order, less 2%. Catalog on request.

GREGG & SON

Woodwork of Quality Since 1719
NASHUA • NEW HAMPSHIRE

ECONOMIZE WITH POWERS THERMOMETER-REGULATORS

SELF OPERATING TYPE

For Hot Water Heaters

TWO INSTRUMENTS IN ONE—Combining a temperature regulator with an indicating thermometer gives a visual check on the performance of the regulator and makes it easy to adjust it for the required operating temperature.

EASY TO INSTALL—Both thermometer and regulator operate from the same thermal system.

Write for Bulletin No. 229.

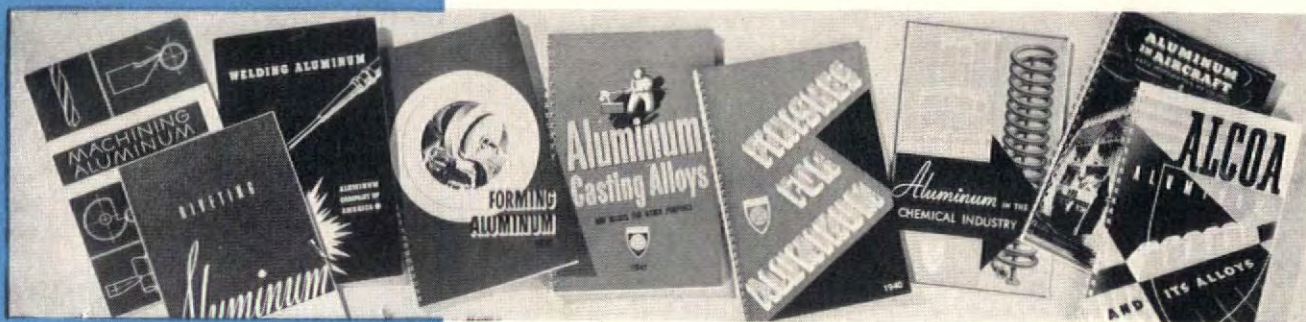
THE POWERS REGULATOR CO., 2768 Greenview Avenue, CHICAGO—231 E. 46th Street, NEW YORK—Offices in 45 Cities. See your phone book.

50 Years

POWERS

of Automatic Temperature and Humidity Control

NINE VOLUMES OF IMAGINEERING



THESE NINE BOOKS are designed to help all men, everywhere, do the Imagineering that improves methods of production and speeds delivery to our fighting men of all war materiel made of aluminum.

HERE AT ALCOA, Imagineering has enabled us to double production and to be well on the way to tripling it, in an amazingly short time. And still the expansion goes on. Swinging immense new plants into top volume at top speed;

building again, and manning that new capacity efficiently . . . This is Imagineering at work for the war.

WE'RE BREAKING RECORDS by sheer determination backed by know-how.

YOU'RE DOING THE SAME. Perhaps your men, many of them new to the ways of working with aluminum, can help you get even more speed through the know-how these books contain.

IN THE DAYS when we made only a dribble of Alcoa Aluminum Alloys, compared to the great flood we are now pouring into the war effort, our engineers could counsel with you personally on fabricating procedures. Today many of these men have been brought back to our plants to join the drive for production. From these books you can get much of the know-how our men used to bring you personally.

OUT OF THESE PAGES, too, will come the exciting Imagineering of the future. Many of the products you will create to meet the new competition, as well as millions of jobs for our boys as they come home, will stem from that Imagineering.

Aluminum Company of America, 2166 Gulf Building, Pittsburgh, Pennsylvania.

★
**SO MUCH
SO SOON**
★

ALCOA ALUMINUM



Building Reporter

(Continued from page 86)

with ordinary paints in the same dark colors. This approaches the evaporation-proofing efficiency of aluminum paint.
Manufacturer: Premier Oil & Lead Works, Los Angeles, Calif.

EXTERIOR WALL SURFACING material insulates and sheathes, speeds erection of emergency war structures.

Name: Celotex Granule Surfaced Siding.
Purpose: To combine the functions of

insulation, sheathing and siding in barracks, storage buildings, pump houses, temporary dwellings, garages, other structures where speedy erection and low cost are prime essentials.

Features: The siding's rigid cane fiber core, protected against termites and dry rot by the Ferox process, is coated on all sides and edges with an asphalt compound. On the outside surface is an additional coating of high-grade asphalt in which mineral granules are firmly imbedded. Individual boards measure $\frac{7}{8}$ in. thick, 2 ft. wide, 8 ft. long, are tongued and grooved, can be applied directly over wood studs spaced 16 or 24 in. on centers. Any carpenter can do the job: no special

techniques are required. Bracing strength exceeds that of horizontal wood sheathing, while the weather-sealed surface gives an attractive exterior facing. Available colors: brown, buff, red, green. No painting is required. Cost: no more than wood siding applied direct to the studs and painted.
Manufacturer: The Celotex Corp., 919 North Michigan Ave., Chicago, Ill.

WARM AIR FURNACES designed for inexpensive oil-heating of defense homes.



Name: Cottage Units.

Purpose: For heating with No. 3 furnace oil.

Features: Factory assembled for easy installation, these units require only a simple system of warm air ducts and cold air returns. Capacities: from 50,000 to 95,000 Btu. output at the bonnet. Burner has no moving parts. Units are equipped with either manual control (illustrated, left) or completely automatic, thermostatic control (right), with or without forced warm air circulation. All are listed by Underwriters' Laboratories.

Manufacturer: H. C. Little Burner Co., San Rafael, Calif.

DOORS. Color-grading system permits quality grades to be readily specified, easily spotted.

Name: Wheeler-Osgood "Color-Graded" Douglas Fir Doors.

Purpose: To facilitate specification and identification of quality grades.

Features: Grade A doors carry a bright blue paper label, securely attached to the bottom rail, featuring the grade, size, style, surface and company guarantee. Grade B doors are distinguished by a bright red paper label. Both labels guarantee U. S. standard grades and designs.

Manufacturer: The Wheeler-Osgood Sales Corp., Dept. 11, Tacoma, Wash.

ASPHALT EMULSION added to Insulux line of auxiliary glass block products.

Name: Insulux Asphalt Emulsion.

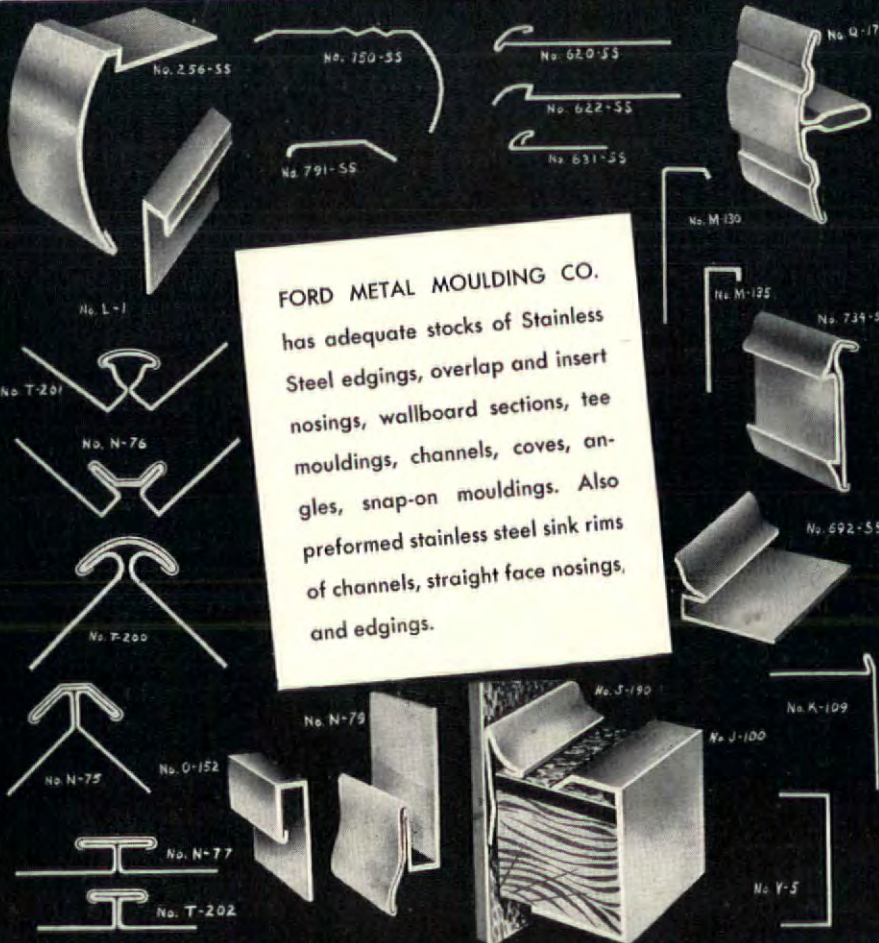
Purpose: For use in the construction of glass block panels.

Features: This emulsion consists of a heavy body asphalt dispersed in a water

(Continued on page 94)

FORD

Stainless Steel Moldings



FORD METAL MOULDING CO.

A Reliable Source of Supply

329 EAST 45th STREET • NEW YORK CITY



**HALVORSEN'S
Lynwood Homes**

Tile-*Tex* floors are installed directly to the concrete slab in contact with the ground throughout all rooms of these defense houses, illustrated above. Below, typical kitchen installations in these homes.

*Tile-*Tex** MEETS EVERY DEFENSE HOUSING *Requirement*



TILE-TEX solves the problem of how to provide attractive, low-priced floors for Defense Homes.

*Tile-*Tex** contains no critical materials. It is available promptly in a wide range of attractive colors and is easily installed with minimum labor by experienced, approved contractors throughout the country.

*Tile-*Tex** is practical for all floor areas. It may be installed at or below grade level . . . even over concrete directly in contact with the ground. It is moisture and fire-resistant . . . comfortable to the foot . . . and remarkably simple to maintain.

*Tile-*Tex** floors have already demonstrated their worth in low-cost housing areas by their selection and use in many large U.S.H.A. Housing Projects. Investigate *Tile-*Tex** for use in today's defense housing—for specification data see Sweet's Catalog File, page 11/58, or write us.

Our constant objective is to furnish the architect with an honest, steadily improved product that will enable him to design architecturally correct floors which can be installed and maintained properly at minimum cost.

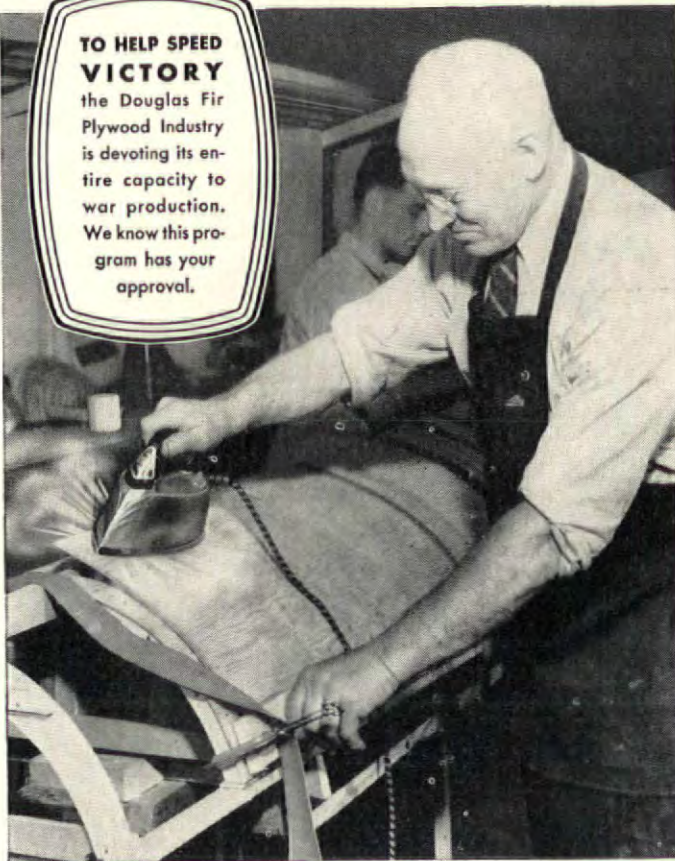
THE TILE-TEX COMPANY
101 PARK AVE., NEW YORK • CHICAGO HEIGHTS, ILL.

THIS IS THE THIRD OF A SERIES DEALING WITH THE PART OF *TILE-TEX* IN THE DEFENSE PROGRAM

Ever "ironed" any Plywood?

TO HELP SPEED VICTORY

the Douglas Fir Plywood Industry is devoting its entire capacity to war production. We know this program has your approval.



Some day this unique method may help you solve a problem!

● At Oregon State College, Coach E. A. Stevens builds racing shells from $\frac{1}{8}$ -inch Exterior-type Douglas Fir Plywood. In order to shape the big, flat sheets into the required compound curves, he irons the plywood over the frame with an ordinary household steam iron. It takes but a few minutes to mold the plywood "skin" and have it ready for gluing and nailing to the frame. This method, Coach Stevens' own invention, enables him to build simpler, speedier, more durable shells at lower cost.

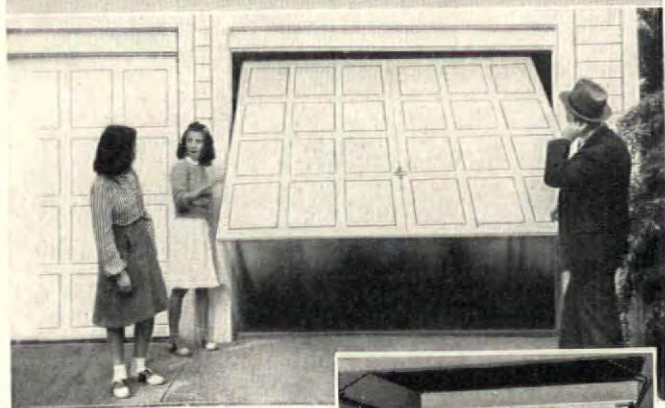
All over the nation, alert craftsmen and designers are constantly discovering new ways of using and handling Douglas Fir Plywood. We try to learn of all we can because they supplement in a very practical way the very extensive research program we are carrying on in our laboratory. You may never want to "iron" any plywood—yet the sum total of *all* the new information we learn about Douglas Fir Plywood *today* will *tomorrow* make this modern miracle in wood more useful to you than ever before!

The Douglas Fir Plywood Association welcomes inquiries as to the uses and characteristics of Douglas Fir Plywood. However, non-defense inquiries as to the availability or delivery of Douglas Fir Plywood must be directed to your distributor. Douglas Fir Plywood Assn., Tacoma, Wash.

DOUGLAS FIR PLYWOOD

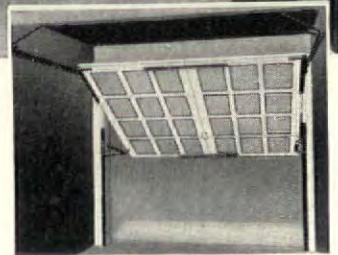
Real Lumber
MADE LARGER, LIGHTER
SPLIT-PROOF
STRONGER

Something New An **AUTOMATIC** Garage Door



Turn the handle and *up it goes* — no tugging, no lifting.

THAT'S STANLEY
Econ-O-matic
Economical - Automatic



A Stanley "Swing-Up" Hardware Set with new attractions. For old and new doors from 8' x 6'6" to 8' x 7' weighing not over 150 lbs. The low price will please you. Ask your dealer. The Stanley Works, New Britain, Connecticut.

STANLEY

TRADE MARK

HARDWARE FOR CAREFREE DOORS

If you plan to keep bicycles, garden tools, boxes, etc. in your garage be sure to make it large enough — about 12' x 24' (single garage).



TIME • LABOR • MATERIALS

TRIMPAK HELPS SAVE ALL THREE

Right now, when it is so important to avoid waste, Trimpak helps you *save* time, labor, and materials.

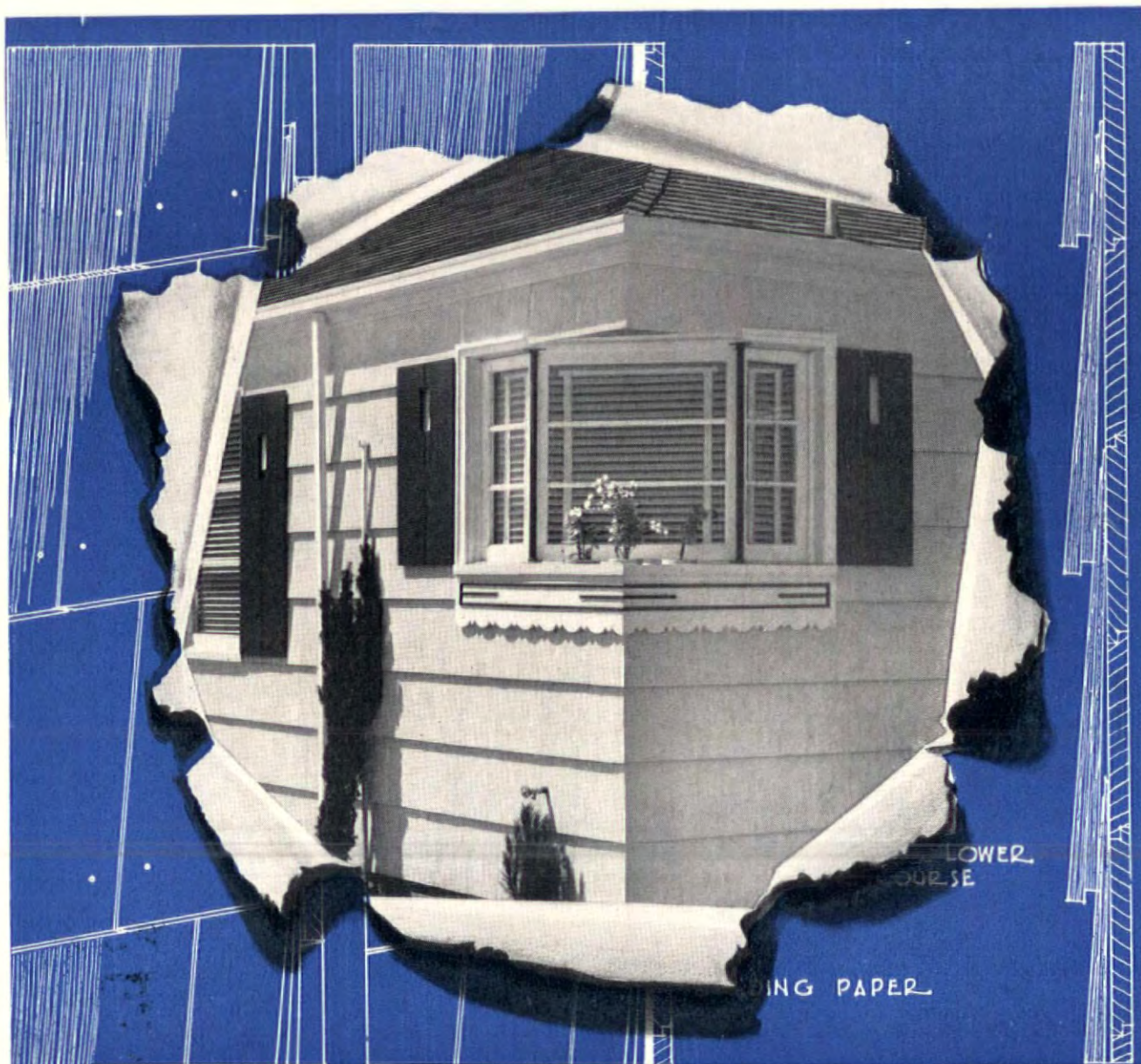
Trimpak's new lock-joint mitred trim saves 44% installation time—releasing important labor for defense. Trimpak saves transportation, too, by leaving the waste trim at the mill.

Trimpak is America's finest quality packaged window and door trim. It is precision cut, to assure perfect joint and is delivered to the job in strong cartons ready for installation.

Investigate Trimpak today at your local lumber dealer. For literature write direct to Dept. AF-5, Trimpak Corporation, 44 Whitehall Street, New York, N. Y.

TRIMPAK

"THE ULTIMATE IN TRIM"



Specify **DOUBLE-COURSED** Sidewalls

FLEXIBILITY is an important feature of Double-Coursed Red Cedar Shingle sidewalls. It means that architects are free to vary the weather exposure of the shingle courses to conform to the design of the individual residence. Double-Coursing permits weather exposures up to twelve inches for 16-inch shingles, fourteen inches for 18-inch shingles, and sixteen inches for 24-inch shingles.

The economy of this increasingly popular type of construction comes as a result of these wide exposures, plus the customary use of No. 2 or No. 3 grade shingles for the under course, which is completely concealed.

The attractive, clean-cut shadow lines of Double-Coursing are created by placing the outer course of shingles to overhang the under layer one-half inch.

FREE BLUEPRINT SERVICE FOR ARCHITECTS

A complete set of blueprints, covering a wide variety of Red Cedar Shingle roof and sidewall applications, is available to architects free of charge. These blueprints provide specifications for several attractive sidewall styles and also for a number of popular roof techniques. Address—

RED CEDAR SHINGLE BUREAU

5508 White Bldg., Seattle, Washington

Canadian Office: Metropolitan Bldg., Vancouver, B. C.



Red Cedar SHINGLES

Building Reporter

(Continued from page 90)

medium to give a smooth, easily trowelled, plastic consistency. When dried by evaporation it forms a flexible, rubber-like film which acts as a bond breaker, protects against air and dust infiltration, prevents water from seeping into the sills. It withstands high and low temperatures without blistering or cracking, will not stain stone sills or other framework.

Manufacturer: Insulux Products Div., Owens-Illinois Glass Co., Toledo, Ohio.

NEW PRODUCT LITERATURE

INK. Techniques. Booklet, 38 pp., 8½x11. Now in its fourth edition, considerably enlarged and covering various types of artwork. Treatments are presented under four headings—instructional, techniques for reproduction, examples of scholastic work, examples of professional work. All are certain to inspire latent ambitions to draw. Higgins Ink Co., Inc., 271 Ninth St., Brooklyn, N. Y. Price, 50 cents.

CEMENT. *The Selective Use of Portland Cement.* Booklet, 32 pp., 6x8½. Not a compendium on the art of making concrete, but useful in selecting the type of cement best suited to the various needs of concrete work. Scholarly, informative, pleasingly presented. North American Cement Corp., 285 Madison Ave., New York, N. Y.

CHEMICAL STONWARE. *Acid-Proof Pipe and Fittings.* Catalog, 16 pp., 8½x11. A carefully prepared array of technical data about a product whose inertness to the action of all acids, alkalis, solvents, chemicals,

corrosive solutions and gases (hydrofluoric acid alone excepted) makes it suitable for drain lines and ventilating ducts, especially in war industries. The U. S. Stoneware Co., 60 East 42nd St., New York, N. Y.

ALLOYS. *Alpha Lead and Tin Products.* Folder, 4 pp., 8½x11. Featured: solders, extruded shapes, pipe and tubing, various specialties frequently needed in building. Alpha Metal & Rolling Mills, Inc., 363 Hudson Ave., Brooklyn, N. Y.

WOOD. *Western Pine Camera Views for Home Builders.* Brochure, 16 pp., 9½x7½. Strictly an "idea" book, illustrating actual uses of three abundantly available pines—Idaho White Pine, Ponderosa Pine, Sugar Pine. Applications range from house exteriors to basement playrooms. Western Pine Assn., Yeon Bldg., Portland, Ore.

STOCK MILLWORK. *Gregg Woodwork of Quality.* Catalog, 80 pp., 8x11. In line with the war program of simplification, only the most popular items are listed and described. Included: Colonial entrances, doors, storm sash, screens, gable accessories, blinds, window frames and sash, mantels, cabinets, bookcases. Well presented. Gregg & Son, Nashua, N. H.

PAINTS. *Architectural Specifications for Painting, Varnishing and Finishing.* Catalog, 16 pp., 8½x11. Replete with information on finishing methods used on houses and commercial buildings, also interior and exterior industrial maintenance work. Included: color samples of eight different types of paints and varnishes. Sherwin-Williams Co., 101 Prospect Ave., N. W., Cleveland, Ohio.

GLUES. *Glued, Laminated Wood Beams, Arches, Roof Trusses.* Folder, 4 pp., 8½x11, plus insert leaflet. Types of laminated wood members are illustrated, their technical advantages discussed. Specification data cover both waterproof and water-resistant gluing. Casein Co. of America, 350 Madison Ave., New York, N. Y.

INSULATION. *Heating and Insulation Requirements for Defense Housing.* Pamphlet, 8 pp., 8½ x 11, analyzes the WPB critical list issued late in February and underscores fact that the new regulations establish insulation minimums. It then goes on to show that greater comfort, greater fuel economy and even less need of strategic materials can be achieved by using more insulation than is now mandatory. Included: a short-cut in calculating heat losses from dwellings. Timely and informative. Owens-Corning Fiberglas Corp., Toledo, Ohio.

INSULATION. *Specifications for Mineral Wool in Low Temperature Applications.* Pamphlet, 8 pp., 8½ x 11. A timely document in view of the nation-wide program to increase cold storage capacities for wartime foodstuffs. Text and excellent perspective drawings tell how to apply the mineral wool, provide the necessary vapor barrier, support and finish off the insulation. Industrial Mineral Wool Institute, 441 Lexington Ave., New York, N. Y.

HEATING. *Peabody Gas Burners.* Catalog, 4 pp., 8½x11. Featured: a combined gas and oil burner, available in a full range of sizes. Peabody Engineering Corp., 580 Fifth Ave., New York, N. Y.

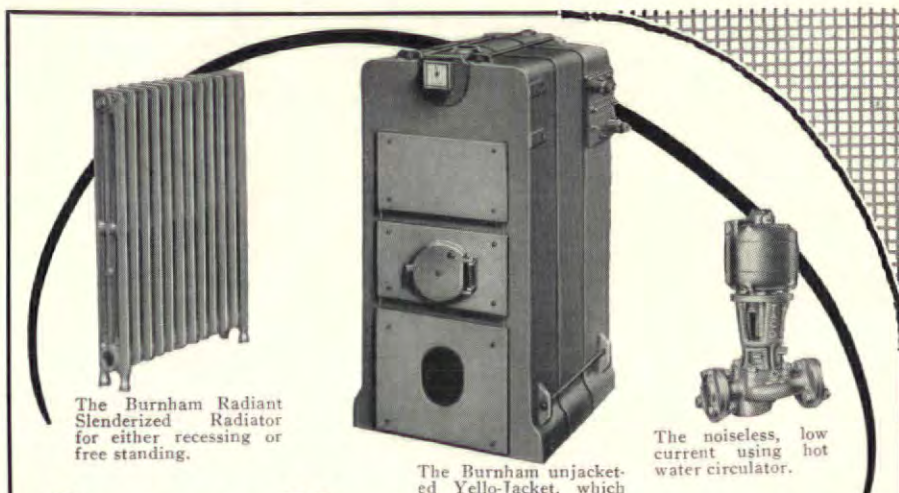
HEATING. *Spencer Automatic Magazine Feed Heaters.* Catalog, 8 pp., 8½x11. Units described burn No. 1 buckwheat anthracite, amply available, or small size by-product coke. Capacities: 175 to 3,600 sq. ft. of steam, 290 to 5,925 sq. ft. of water. Spencer Heater Div., The Aviation Corp., Williamsport, Pa.

VENTILATION. *Standard Methods Adopted for Centrifugal Fans and Blowers.* Pamphlet, 12 pp., 8½x11. This document, embodying NAAM's working data, has been completely revamped. Much new information has been added. National Assn. of Fan Manufacturers, 5-208 General Motors Bldg., Detroit, Mich.

ELECTRICAL. *Modern Switchboards.* Catalog, 12 pp., 8½x11. Units described are standardized in design for economy, but custom-built to fit individual needs. Allis-Chalmers Manufacturing Co., 1126 South 70 St., Milwaukee, Wis.

LIGHTING. *Barkon-Frink Linolite.* Catalog, 24 pp., 11x8½. A competent compilation of data on fluorescent lighting fixtures and installations. The Frink Corp., Bridge Plaza South, Long Island City, N. Y.

LIGHTING. *Hand Wrought Lighting Fixtures.* Folder, 4 pp., 8½x11, depicts various designs tailored to meet incandescent and fluorescent requirements in stores, theaters, restaurants, other non-residential buildings. Metallic Arts Co., 243 Broadway, Cambridge, Mass.



The Burnham Radiant Slenderized Radiator for either recessing or free standing.

The Burnham unjacketed Yello-Jacket, which so effectively stings the fuel bill.

The noiseless, low current using hot water circulator.

Prevents Heat That's Way Up-or-Down All-On or All-Off

ISN'T it your observation that any heating system that hasn't a "hang-over", so to speak, can't hang on to any heat? All right then, isn't it equally so, that any system that depends on a fan for its delivery, the moment the fan is cut out by the thermostat, that moment all giving off of heat is stopped plumb short?

On the other hand, if it's a hot water radiator heat, then for a considerable time after the circulator is cut out by the thermostat, latent heat continues to be given off.

To a large degree the troublesome "cold 70" is overcome, because there is no all-on or all-offness. There is a tempera-

ture bridge between the two, so to speak.

Furthermore, without any complication of dampers and multiple controls, you can have with individual circulators a positive thermostatic zone system. Heat at any separate room, floor or part, as desired.

That all these constant, and at the same time flexible factors, make hot water heat highly satisfactory, who can say 'tain't so?

To all of which, there's also the advantage of having the one source of heat do the two jobs of heating. That of the rooms and also furnishing hot water for kitchen and baths.

Burnham Boiler Corporation

Irvington, N. Y.
Dept. J

Zanesville, Ohio
Dept. J

Representatives in All Principal Cities
of the United States and Canada

"TO PROVIDE FOR THE COMMON DEFENSE, TO PROMOTE THE GENERAL WELFARE"



Bad medicine for big bombers

ONE WAY to spoil a bomber's aim is to hang a curtain of steel over your ship and dare him to come down through it. To get that curtain of steel up there requires quick-firing, flexible guns.

To the plant of the Westinghouse Electric Elevator Company the Navy, a few months ago, brought its plans for such a gun. And to Westinghouse was given the important job of building the mounts that would control the aiming of these batteries of quick-firing guns.

And the Navy said, "Well done!"

Today, over the Westinghouse plant, there floats the Navy's "E" pennant—for excellence—eloquent testimony to the manner in which this Westinghouse plant performed the job. How was this plant able to get into growing production of these mounts so quickly? The answer lies in a Westinghouse characteristic called "know how"—the ability to

get things done in the best possible way.

This Westinghouse "know how" makes itself felt wherever Westinghouse craftsmen build things. Whether for the common defense or the general welfare, this "know how" is doing a job. The same skill and ingenuity that made so many splendid things for peacetime living are now being applied to many important war weapons.

"Know how" will work for you again

We look forward to the day when Westinghouse "know how" will again supply you with electrical equipment to help you build for peace. To speed that day means just one thing to us: to produce, in ever-increasing quantities, the tools with which to get the victory job done.

Westinghouse



For the Common Defense

Sterilamps
Bomb Fuses
Tank Equipment

Military Radio Equipment
Plastic Plane Parts
Naval Ordnance

Navy Ship Turbines and Gears
Blackout Plant Lighting
Equipment

For the General Welfare

Air Conditioning
Lighting

Panel Boards
No-Fuze Load Centers

Lamps
Elevators

These lists mention only some of the many thousands of Westinghouse products.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, PITTSBURGH, PENNA.

Copr. 1942. Westinghouse Electric & Manufacturing Co.

New "Color-Grading" System Greatest Door "Scoop" of Year!

... NEW
COLOR-GRADED
DOORS SPEED
HANDLING OF
WAR ORDERS



LEARN THESE GRADES

A WHEELER OSGOOD Guaranteed **DOOR**

DELUXE GRADE A — Bright blue label, bearing the grade, size, style, surface and guarantee! Helps customers recognize quality.

B WHEELER OSGOOD Guaranteed **DOOR**

MASTER GRADE B — Bright red label, bearing grade, size, style and surface.

IMMEDIATE DELIVERY! Wheeler Osgood "Color-Graded" Grade A and B Douglas Fir house doors, as well as many other designs of doors furnished by this pioneer firm, are built in strict accordance with United States Department of Commerce Standards CS73-38 and CS91-41, and are available for immediate delivery! Specify these better doors today!

... AND EVERY DELUXE GRADE WHEELER OSGOOD
DOOR IS *Guaranteed*

Wheeler Osgood's amazing new "Color-Grading" system for doors, gives you these benefits: (1) A new way to identify grade, size, style, surface of doors at a glance; (2) a new way to show clients the extra advantages of *quality doors*!

Every Wheeler Osgood door now bears a distinctive paper label, securely attached to the bottom rail. On Deluxe Grade A doors, this label bears the

famous Wheeler Osgood guarantee! Today, these fine doors offer your clients more than ever before, thanks to this new system, that thousands call "the greatest idea in the door industry!"

FIR IS FINEST FOR DOORS!

The story of Fir is the story of quality. One of the world's finest woods for door manufacture. Fir is uniform, super-strong, rot-proofed by nature, highly resistant to marring! Mail coupon for facts!

WHEELER OSGOOD DOORS

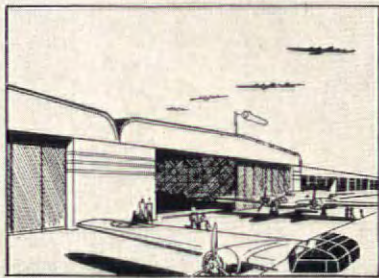


A COMPLETE LINE OF INTERIOR AND EXTERIOR DOORS

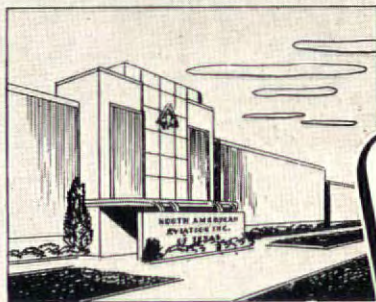
FREE

The Wheeler Osgood Sales Corporation
Dept. 10, Tacoma, Washington.
Gentlemen: Please send me free literature on Wheeler Osgood "Color-Graded" Fir Doors.

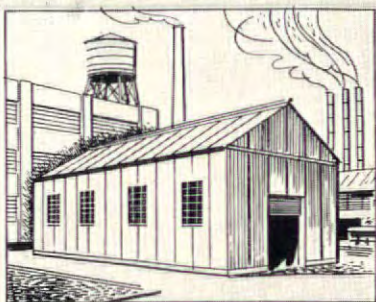
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MOVABLE AIRCRAFT HANGARS can be designed with U·S·S Steel Sheets so that they can be dismantled and moved to a new location quickly and without damage.



45 EXTRA DAYS OF PLANE PRODUCTION were made possible because steel panel construction enabled the contractor to complete this important aircraft plant ahead of schedule. Walls were erected at a rate of more than 2500 sq. ft. in an 8-hour shift.



U·S·S PANELBILT CONSTRUCTION offers countless variations in sizes and arrangements of industrial or war buildings. All can be quickly erected from factory-built panels and sections of steel. Also quickly demountable with complete salvage value. Available in the South from Tennessee Coal, Iron & Railroad Co.



TAKE A TIP
from the British!

THEY'VE FOUND SHEET STEEL CONSTRUCTION IDEAL FOR WAR-VITAL BUILDINGS

OUR friends in England have learned first-hand that steel construction behaves better than other types when subjected to bombing. It doesn't shatter into deadly fragments. It resists fire. Damage is confined to smaller areas. Repairs can be made quickly by replacing sections. The portability of steel structures has proved an important war asset, too. They can be dismantled and set up in new locations with little loss of time or material.

Steel saves time because it can be used in complete structural units, cut to the right length and width for easy handling. Sections can be designed to lock together automatically. Or where utmost simplicity is desired, standard corrugated steel sheets can be used for walls, partitions and roofing. Unskilled

labor can carry out erection with little supervision. Steel construction goes up fast in any weather, because there are no wet materials to set.

More and more architects are specifying steel construction to shrink the completion schedules of such important buildings as aircraft plants, hangars, powerhouses, barracks, portable buildings, munitions factories and plant extensions.

What Steels to Use . . .

U·S·S Galvanized Sheets are ideal for sectional steel construction. For most applications, a base metal of plain steel or pure iron is satisfactory.

For immediate painting, specify U·S·S Paint-bond, a Bonderized galvanized sheet that holds paint tighter. In the South and West, the special sheet for quick painting is known as U·S·S Dul-Kote.

U·S·S ROOFING AND SIDING SHEETS



CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh and Chicago

COLUMBIA STEEL COMPANY, San Francisco

TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham

Scully Steel Products Company, Chicago, Warehouse Distributors

United States Steel Export Company, New York

UNITED STATES STEEL

A black and white photograph of the Boeing Executive Office Building in Seattle. The building is a multi-story structure with a prominent entrance featuring large columns and a wide set of steps. The word "BOEING" is mounted in large, bold letters above the entrance. The building's facade is made of architectural concrete.

BOEING

*"Front line" industries
are using*

ARCHITECTURAL CONCRETE

Architectural Concrete's unique adaptability is nowhere better shown than in its current use in new aircraft factories, army depots, hangars, warehouses, defense plants and other industrial buildings. Availability and speed of construction are factors in the choice, but another big reason is this—*concrete helps to create staunch, firesafe, low-maintenance structures of good appearance at low first cost.*

Concrete can be molded into any shape or form, given many textures, formed to any structural or architectural need.

Ask your architect or engineer about Architectural Concrete, or see Sweet's Catalog, 4/45. Booklet "*Concrete for Industrial Buildings and Garages*" will be sent on request, free in the United States or Canada.

Concrete construction saves transportation since aggregates are usually available close at hand.

PORTLAND CEMENT ASSOCIATION
Dept. 5-7, 33 W. Grand Ave., Chicago, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work



“A JOB TO BE PROUD OF !

Let Good Paint help keep it that way”

Fortify Defense Homes with weather-fighting White Lead

In Defense Housing, architects face challenging problems. The need is urgent. The price is restricted. Yet liveableness and weather-resistance must be provided.

It's a job you can be proud of doing right. Ingenuity and skill are needed—not only in the construction itself but in the choice of materials. For, in spite of the price limitation and material shortages, these homes must be built to take it.

That means, when it comes to *paint*, you'll want the sturdiest possible protection. For you know from personal experience that the first line of home defense

is good paint. No need to remind you that *good paint's other name is Dutch Boy White Lead*. The years have proved to you that Dutch Boy holds the front like a marine . . . never cracks and scales.

But because cost is such a factor these days we do want to emphasize this:

Dutch Boy is in the Low Price Bracket

Despite its high quality, paint made from Dutch Boy *Paste Lead* is not high in price—in fact, its cost per gallon is actually *low*. And its weather-defying durability means substantial savings per year of protection.

Another economy point: Dutch Boy is an *all-purpose* product—it can be used for

either two- or three-coat painting, and on any surface—wood, brick, stucco, concrete or plaster.

New Dutch Boy Paint Outstanding for Two-Coat Sealing and Hiding

When it comes to paint that's ready-mixed we invite you to pass professional judgment on the new Dutch Boy *Pure White Lead Paint*.

It combines the inborn stamina of White Lead with sealing, hiding and whiteness unsurpassed by any two-coat combination on the market. Its two special forms—*Exterior Primer* and *Outside White*—are both pure white lead, ready to spread. Together they give results on either new or old wood that will be a credit to you and the nation.



SPECIFY DUTCH BOY PURE WHITE LEAD

NATIONAL LEAD COMPANY
New York, Buffalo, Chicago, Cincinnati, Cleveland, St. Louis, San Francisco, Boston (National-Boston Lead Co.), Pittsburgh (National Lead & Oil Co. of Penna.), Philadelphia (John T. Lewis & Bros. Co.).



Cabot Stained House. Architect:
Edward Sears Read, Boston, Mass.

First in WAR

• Cabot's Creosote Shingles have the qualities required for war housing. They cost less than paint. They are quickly and easily applied. They give maximum protection—with no waste of valuable raw materials. And they give less trouble when conditions force the use of green lumber or hurried construction.

Booklet - Color Card - FREE



Write today for color card and your copy of *Stained Houses*, an illustrated booklet containing full information about our Creosote and Heavy-Bodied Stains. (Or look at our color card in Sweet's.) Samuel Cabot, Inc., 1268 Oliver Building, Boston, Mass.

Cabot's Shingle Stains

Creosote

Heavy-Bodied

Your Client Shares Your Confidence
... When You

SPECIFY BLODGETT

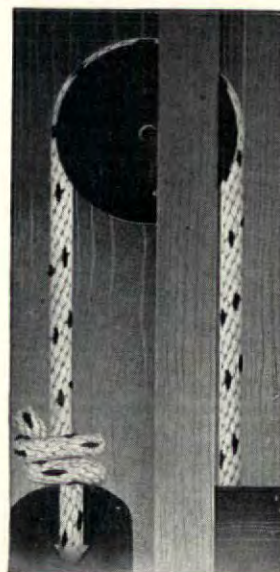
BAKING &
ROASTING OVENS



For 94 years . . . in service to industries, institutions, hotels, restaurants and bakeries and to the armed forces of the U. S. . . . Blodgett Ovens have more than lived up to architects' and owners' specifications. Why not write today for descriptive literature containing sketches for roughing in, capacities tables, specifications, etc.

Address Department A

THE **G. S. BLODGETT CO., INC.**
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BLODGETT — Makers of Fine Ovens Since 1848



BALANCE

perfect and permanent

The counter weight method of mechanical balance is fundamental in principle — it is permanent because the law of gravity is unchanging. Double hung windows with cord, pulley and counter weight are permanently satisfactory — require no adjustments and with Samson Spot Sash Cord give years of trouble-proof, expense-free service. Architects specify and builders generally prefer Samson Spot Sash Cord — identified by Colored Spots (Reg. U. S. Pat. Off.)

SAMSON CORDAGE WORKS — BOSTON, MASS.



• This Cantonment area under construction is still another example of the U. S. Army's use of stucco made with Atlas White cement applied over hollow tile.

Uncle Sam practices WHAT HE PREACHES



• The trim-looking building above, an Army Radio Transmitter Station, was finished with stucco made with Atlas White cement—resulted in saving of lead, zinc, steel.



• Modern Officers' Quarters at a U. S. Army Base shows the effective use of buff-colored portland cement stucco made with Atlas White cement.

New stucco construction at another U. S. Army Base saves critical building materials . . . steel, lead, zinc.

HERE'S an up-to-the-minute idea for many types of buildings . . . the modern stucco construction on these new Army buildings. It has been used successfully at several Army Bases.

Portland cement stucco made with Atlas White cement was used for both interior and exterior walls—reinforcing mesh was not required. This construction saved critical materials—steel for nails, steel for reinforcing, lead and zinc for paints, etc.

In addition, masonry walls of concrete or cinder block relieves transportation facilities as masonry normally is produced locally; hence, short haul assures delivery, compared to long haul with many other building materials.

Portland cement stucco made with Atlas White cement (plain or waterproofed) is a modern medium for quick, economical building. Use it for buildings at Army and Navy Bases, war workers' homes, stores, hospitals, theaters and other construction necessary for the nation's welfare. You can count on it for durability, weather-resistance, and fire-safeness. And it is low in first cost and low in upkeep. Specify it for new buildings and modernization and save critical materials and transportation facilities.

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

ATLAS WHITE CEMENT

A UNIVERSAL ATLAS PRODUCT



AF-S-29

Up-to-the-Minute
Time-Saving Help
on your
IMPORTANT
Ventilation
Problems



Send for this NEW Catalog File of
Swartwout
 HIGH QUALITY
Roof Ventilators
for "Custom Built"
Industrial Building Ventilation

Save figuring and detailing time with data and drawings contained in 2 valuable books that come in a convenient folder—ready for your files.

In style or size, there's a Swartwout Ventilator to bring you success in licking each roof ventilation job in industrial or commercial buildings.

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GOVERNMENT DEPARTMENTS are using ventilator types developed to high point of efficiency by Swartwout. Thousands of Swartwout Ventilators now installed on war industry plants, army and navy buildings and civilian industrial buildings.

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Here is a typical illustration of the industrial house we have built for Southern industry for more than twenty-five years. Durable, and attractive, 95% of it may be salvaged.

- Our large, completely equipped plant is now available for all types of wood fabrication. Inquiries are invited.

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Scott Lawn

Large or small, sunny or shaded, you can rely on Scotts LAWN SEED to produce a luxurious stand of permanent turf . . . and free from weeds, too, for Scotts Seed is 99.91% weed-free.

To retain this lawn perfection, feed Scotts Turf Builder . . . it's the complete food for grass. Specify Scotts and avoid disappointment.

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FREE . . .

loose leaf binder of Lawn Care Bulletin and two additional books on Lawns show how to make permanent lawns at minimum cost. Special information upon request free soil testing.

Quality costs nothing extra when you specify this paint



THIS may surprise you — *with all its proved benefits, white lead costs no more than regular quality paints.*

That's a good thing to know, especially if you're concerned with defense housing, where you have to keep a tight lid on the budget.

But, even more important than its first cost—white lead is famous for its long life. Expert painters will tell you there's nothing better for meeting the challenge of the seasons, year after year.

Remember, white lead is made from lead; and lead, as you know, is a rough-and-ready metal, unexcelled in defying climate and resisting corrosion.

White lead, too, can stand long exposure — keeping its looks, without cracking and scaling. It provides a tough, elastic armor, good for years of stalwart protection.

So if you want the tops in paint value, specify pure white lead. It's an outstanding example of "the best is cheapest."

LEAD INDUSTRIES ASSOCIATION

420 Lexington Avenue, New York, N. Y.



NEW DEFENSE HOUSING GETS RELIABLE WHITE LEAD PAINT PROTECTION

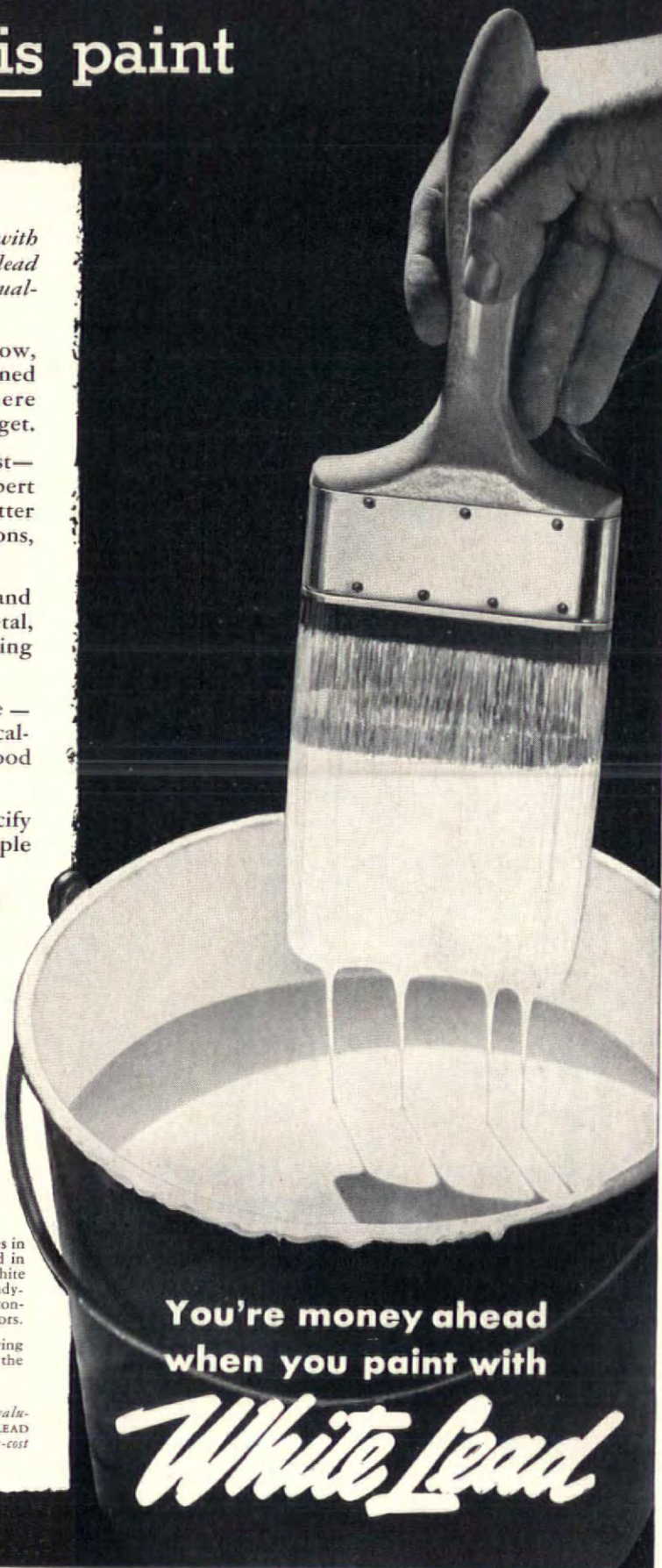
These new two- and four-family housing units at Bridgeport, Conn. are all cloaked in pure white lead paint — tinted to battleship gray — enhancing their looks, as well as giving them matchless protection against the elements.

INFORMATION FOR ARCHITECTS—Pure white lead is sold by paint stores in two different forms: (1) as a paste, commonly known as "lead in oil," for use by painters and decorators in mixing their pure white lead paint to order for each job; (2) as pure white lead paint in ready-to-use form, in popular-size containers. Remember you are not confined just to white—white lead can be tinted to a wide range of colors.

White lead is also the backbone of other quality paints. In specifying exterior paint it is a safe rule to follow: "the higher the white lead content, the better the paint."



FREE GUIDE TO BETTER PAINTING—Send today for valuable booklet, "WHAT TO EXPECT FROM WHITE LEAD PAINT," containing complete information about low-cost quality painting on all types of surfaces.



**You're money ahead
when you paint with**

White Lead

MAINTENANCE -

... on an impermanent roof deck
CASTS ITS SHADOWS BEFORE



Showing the smooth, finished ceiling effect provided by the underside of the roof slabs.

You Can Eliminate Those
Costly Coming Events . . .

**PAINTING—REPAIRS
REPLACEMENTS**

by Choosing a Permanent

Featherweight PRECAST CONCRETE ROOF DECK



Slabs are speedily laid on the roof purlins in any weather and the weather-proof covering applied immediately thereafter.

The time to guard against future cost burdens on a roof deck, is at the time the roof deck is selected.

If the material is subject to rot, rust or disintegration, that roof deck is sure to be a liability throughout its entire short life. Painting, repairs, replacements become a certainty—add extra costs to the original price of that roof deck.

A FEDERAL ROOF IS PRECAST CONCRETE—there is never a dollar of maintenance expense at any time. You pay for it once and once only. You buy it with that thought in mind—install it—and forget it.

Federal Roofs erected during the last war are still serving industry in this war, with the same permanent, fire-proof, no-maintenance protection. Catalog on request.

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For Over 35 Years

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Sales Offices in Principal Cities . . . Plants Near CHICAGO - NEW YORK - PITTSBURGH - BIRMINGHAM

Defense Savings Pay-Roll Allotment Plan

Now company heads can help their country, their employees, and themselves

voluntary pay-roll allotment plan } helps workers provide for the future
 } helps build future buying power
 } helps defend America today

This is no charity plea. It is a sound business proposition that vitally concerns the present and future welfare of your company, your employees, and yourself.

During the post-war period of readjustment, you may be faced with the unpleasant necessity of turning employees out into a confused and cheerless world. But you, as an employer, can do something *now* to help shape the destinies of your people. Scores of business heads have adopted the Voluntary Pay-roll Allotment Plan as a simple and easy way for every worker in the land to start a *systematic* and *continuous* Defense Bond savings program.

Many benefits . . . present and future. It is more than a sensible step toward reducing the ranks of the post-war needy. It will help spread financial participation in National Defense among all of America's wage earners.

The widespread use of this plan will materially retard inflation. It will "store" part of our pyramiding national income that would otherwise be spent as fast as it's earned, increasing the demand for our diminishing supply of consumer goods.

And don't overlook the immediate benefit . . . money for defense materials, quickly, continuously, *willingly*.

Let's do it the American way! America's talent for working out emergency problems, democratically, is being tested today. As always, we will work it out, without pressure or coercion . . . in that old American way; each businessman strengthening his *own* house; not waiting for his neighbor to do it. That custom has, throughout history, enabled America to get things done *of its own free will*.

In emergencies, America doesn't do things "hit-or-miss." We would get there *eventually* if we just left it to everybody's whim to buy Defense Bonds when they thought of it. But we're a nation of businessmen who understand that the way to get a thing done is to *systematize* the operation. That is why so many employers are getting back of this Voluntary Savings Plan.

Like most efficient systems, it is amazingly simple. All you have to do is offer your employees the convenience of having a fixed sum allotted, from each pay envelope, to the purchase of Defense Bonds. The employer holds these funds in a separate bank account, and delivers a Bond to the employee each time his allotments accumulate to a sufficient amount.

Each employee who chooses to start this savings plan decides for himself the denomination of the Bonds to be purchased and the amount to be allotted from his wages each pay day.

How big does a company have to be? From three employees on up. Size has nothing to do with it. It works equally well in stores, schools, publishing houses, factories, or banks. This whole idea of pay-roll allotment has been evolved by businessmen in cooperation with the Treasury Department. Each organization adopts its own simple, efficient application of the idea in accordance with the needs of its own set-up.

No chore at all. The system is so simple that A. T. & T. uses exactly the same easy card system that is being used by hundreds of companies having fewer than 25 employees! It is simple enough to be handled by a check-mark on a card each pay day.

Plenty of help available. Although this is *your* plan when you put it into effect, the Treasury Department is ready and willing to give you all kinds of help. Local civilian committees in 48 States are set up to have experienced men work with you just as much as you want them to, and no more.

Truly, about all you have to do is to indicate your willingness to get your organization started. We will supply most of the necessary material, and no end of help.

The first step is to take a closer look. Sending in the coupon in no way obligates you to install the Plan. It will simply give you a chance to scrutinize the available material and see what other companies are already doing. It will bring you samples of literature explaining the benefits to employees and describing the various denominations of Defense Savings Bonds that can be purchased through the Plan.

Sending the coupon does nothing more than signify that you are anxious to do *something* to help keep your people off relief when defense production sloughs off; *something* to enable all wage earners to participate in financing Defense; *something* to provide tomorrow's buying power for your products; *something* to get money *right now* for guns and tanks and planes and ships.

France left it to "hit-or-miss" . . . and *missed*. Now is the time for you to act! Mail the coupon or write Treasury Department, Section A, 709 Twelfth St. NW., Washington, D. C.



FREE - NO OBLIGATION

Treasury Department, Section A,
709 Twelfth St. NW., Washington, D. C.

Please send me the free kit of material being used by companies that have installed the Voluntary Defense Savings Pay-Roll Allotment Plan.

Name _____

Position _____

Company _____

Address _____

The Paint of Today
—and Tomorrow

SUPER MURAL-TONE

A RESIN
PASTE PAINT



It takes an emergency to bring out the real qualities of a man—or a PAINT. Here are a few reasons why Super Mural-tone is in such great demand today for jobs of all sizes from a single room to a tremendous housing project:

SAVES TIME—No waiting around for plaster to season. Super Mural-tone is ready to go to work even when the plaster is still “green”. *Dries in 40 minutes*—think of what this means either in a house or a defense plant!

SAVES LABOR—Super Mural-tone is on friendly terms with a wide brush—it just devours wall area. And one coat is usually sufficient.

SAVES MATERIAL—One gallon of Super Mural-tone makes at least 1½ gallons of paint. The “mixing” is done with water.

WASHABLE—This modern wonder paint can be washed—it more than meets the “wet abrasion” requirements in the Government Specifications.

Super Mural-tone meets Government Specifications TT-P-88. For complete information write or wire — —



THE MURALO COMPANY
INCORPORATED
574 Richmond Terrace
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BOSTON • CHICAGO
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Mr. B. Smart Says:



THESE 2 POTS SHOW YOU
WHY THE KOVEN
WATERFILM BOILER
IS THE FASTEST STEAMING
BOILER ON THE MARKET



Cross Section
showing Patented
Generator fast-
ened to side wall
or main water
reservoir.

LIKE THE SHALLOW PAN
ABOVE THE PATENTED
GENERATOR'S THIN
FILM OF WATER BOILS
RAPIDLY. THE MAIN
RESERVOIR OF
BOILER WATER, LIKE
THE DEEP COOKING
POT, COOLS SLOWLY



QUICK HEAT gives you your most effective sales talk because through Quick Steaming more comforts at Low Fuel Cost result. This explains the KOVEN WATERFILM BOILER'S popular appeal in all 3 heating markets—it's the fastest steaming boiler on the market and one of the most economical to operate. Both these important selling features are due to the KOVEN WATERFILM BOILER'S Patented Construction that cannot be duplicated by any other boiler and—

There's a KOVEN WATERFILM BOILER to meet every heating prospect's individual needs—The De Luxe Model for the Better Grade House, the One Piece Model for Larger Installations, The Model “O”, jacketed or unjacketed, for the Small Home and the Sectional Series for Industrial and Apartment House Use.

There are a few remaining KOVEN WATERFILM BOILER Dealer territories still open—write or telephone for complete details.

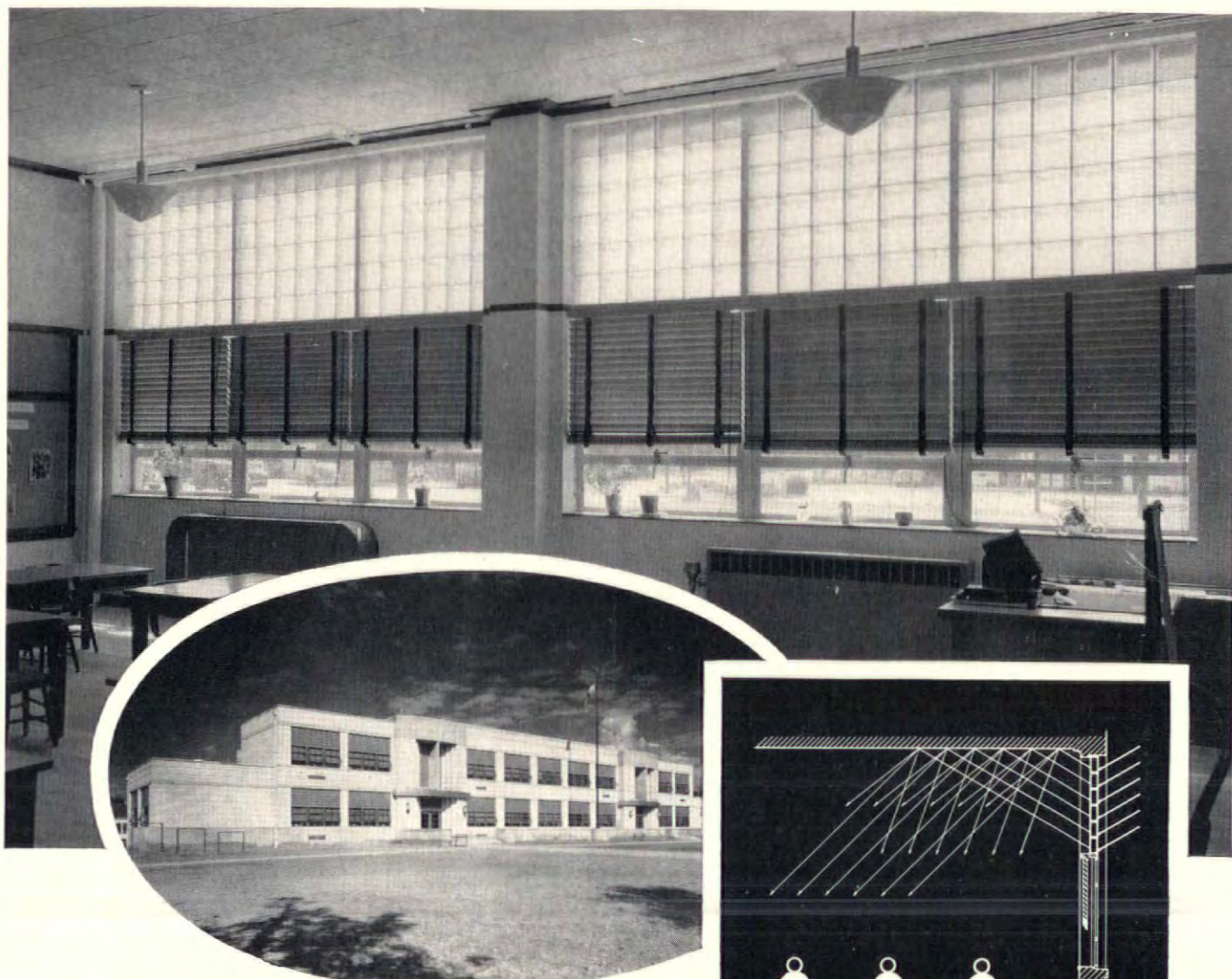


De Luxe Model

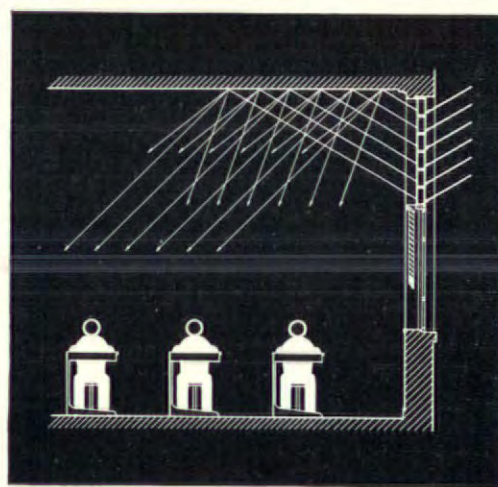
WATERFILM BOILERS, Inc.

154 Ogden Avenue, Jersey City, N. J.

PLANTS: Jersey City, N. J. and Dover, N. J.



Kellogg School, Wichita, Kansas. Architects: Overend and Boucher.



THIS DETAIL ILLUSTRATES how PC Prism Light-Directing Glass Blocks work for better illumination. Areas near the windows in the room are illuminated by daylight coming directly through the transparent glass, while areas farther removed are lighted indirectly from the ceiling by the light which the PC Glass Blocks direct upon it.

PC Prism Light-Directing Glass Blocks

● Prisms on the two inside faces of this special-purpose PC Glass Block direct the greater part of transmitted light *upward* . . . away from the direct vision or glare zone . . . to the ceiling, whence it is reflected downward to afford excellent indirect "daylighting". The use of this block in light-transmitting areas of schools, hospitals, factories, drafting rooms and similar structures has proved exceptionally successful. In many cases, as in the new school building shown on this page, Prism Light-Directing Blocks are combined with areas of transparent glass to achieve ideal daylighting conditions. This block, like all other PC patterns, is immediately available. And it makes an extremely attractive panel from an appearance standpoint. Upon request, complete information, including installation details, will be sent you on this and other PC Glass Blocks. Pittsburgh Corning Corporation, 2067-2 Grant Bldg., Pittsburgh, Pa.



GLASS BLOCKS

Distributed by
PITTSBURGH PLATE GLASS COMPANY
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"PITTSBURGH" stands for Quality Glass



**MAKES NO
DIFFERENCE**

You Save
BOTH WAYS
with

GRAND RAPIDS
Invisible
SASH BALANCE

A single home . . . an entire defense housing project . . . prefabricated housing with either single or double balance installations . . . an apartment or an industrial plant . . . you **SAVE** on critical materials and you **SAVE** in installation time and cost when you specify or use **GRAND RAPIDS INVISIBLE SASH BALANCES**.

Thousands of Sets Used in Defense Housing

The savings and extra satisfaction realized on **GRAND RAPIDS INVISIBLE** installations are fully substantiated in the experience of scores of leading contractors. Thousands of sets have been used in defense housing projects . . . all have earned enthusiastic endorsement for simplicity of installation; smooth, dependable performance; ease of tension adjustment; absence of tapes or cables; and the actual invisibility of the entire working mechanism.

A Word on Deliveries

Production has been stepped up but, of course, as with every other essential product, priorities govern deliveries. Write for new 1942 catalog No. 42-SB-2, and we will gladly give you definite information on deliveries.

GRAND RAPIDS HARDWARE CO.
GRAND RAPIDS • MICHIGAN

"GRAND RAPIDS"
Sash Balancing Equipment
THE STANDARD FOR FORTY YEARS



Ready for immediate delivery—



**SUPER-SPEED
PERMA GLAZE**
The **NEW** glazing
compound for use
in **PRE-FABS!**

FOR SPEED, PLUS QUALITY . . .

use the **NEW Super-Speed Perma Glaze** compound. Designed especially for use in **PRE-FAB** construction. Speeds up production and cuts costs. **Super-Speed Perma Glaze** is quick applying and fast setting to meet production line schedules. It's a Laboratory Controlled compound . . . each batch is of the same consistency and high quality. Its permanence, when applied properly, is indefinite. For information on this **NEW** glazing compound write or wire us today. No obligation.

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AMERICA'S LARGEST EXCLUSIVE
Putty Makers
612 S. MAIN ST., ST. LOUIS, MO.

**WE KNOW WE ELIMINATE ALL WORRIES
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Today, *Increased Production* demands that an accurate record be kept immediately available of all valuable stored liquids. Many industrial users wisely rely upon the dependability of **LIQUIDOMETER** Tank Gauges.

100% automatic—these gauges insure accurate readings at all times. No pumps, valves, or auxiliary units required to read them. Models available so that readings can be taken remotely from or directly at the tank. Remote reading types utilize balanced hydraulic transmission system which completely compensates for temperature variations on communicating tubing. Accuracy unaffected by specific gravity of tank liquid.

Approved for gauging hazardous liquids by Underwriters' Laboratories and other similar groups.

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If the carpenters can make joints with
nails and bolts . . . **THEY CAN BUILD**
WITH TECO CONNECTORS!

Wood construction with the Teco Connector offers great opportunities for architects and engineers in today's work regardless of the size and scope of their operations.

Because of the Teco Connector, numerous types of structures, the construction of which hitherto called for other materials, are now being built of lumber.

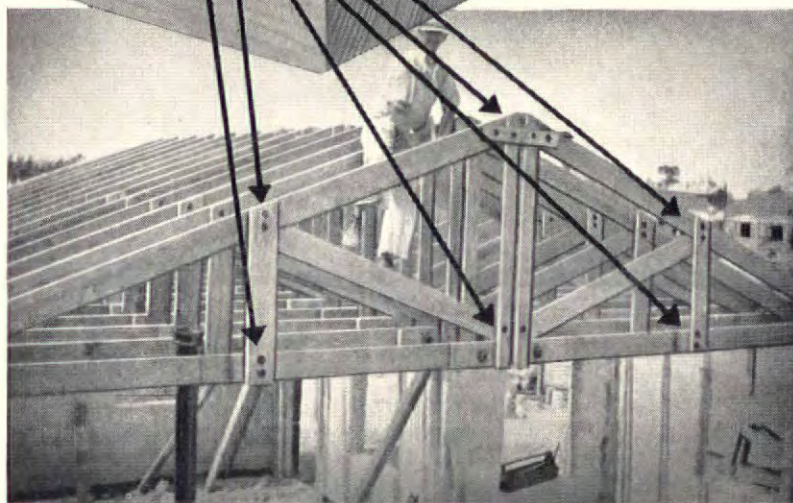
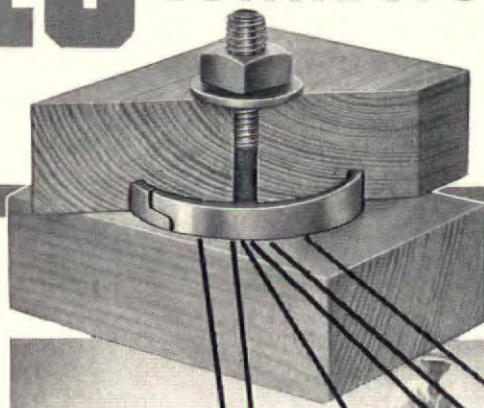
The Teco Connector makes it possible to utilize 80% to 100% of the strength of lumber or timbers at joints, instead of from 40% to 60% as formerly. The joints are more rigid. Buildings go up faster. There is a great saving in materials, both critical and non-critical. A vast, new field for *engineering with lumber* has been created for the architect, engineer and builder.

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Any competent engineer can design for wood construction with Teco Connectors, and the normally skilled carpenter is at home working with them.

Right now, every architect and engineer can immediately have working data on the Teco Connector System of Wood Construction. Write today for complete information.

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**TECO
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SAVE STEEL . . . One pound of Teco Connectors replaces 11½-12 pounds of steel.

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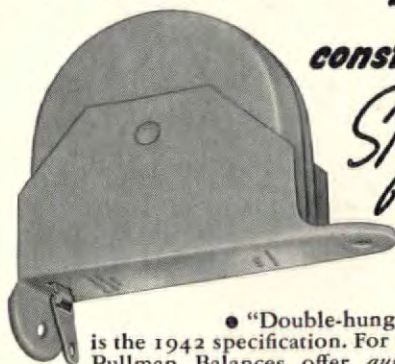
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MANUFACTURER OF 4-SQUARE LUMBER
FIRST NATIONAL BANK BUILDING • ST. PAUL, MINN.

For ALL double-hung window

construction...

*Specify
Pullman
Balances*



• "Double-hung wood windows" is the 1942 specification. For this construction, Pullman Balances offer *quickest, lowest cost* assembly. Complete range of sizes, in top and side models, accommodate windows 1 3/4", 1 3/4", 2 1/4", or any other thickness, in weights up to 210 pounds. Pullman Balances, made since 1886, are the up-to-the-minute choice for all construction—industrial, residential or military.

WRITE for descriptive literature, specifications and window detail drawings. Pullman Manufacturing Corp., Dept. B-5, 1170 University Ave., Rochester, N. Y.

Specify **PULLMAN**
Sash Balances

*not how cheap—
but how good!*



**WILL WAR-TIME
HOUSING PROVE A
PEACETIME HEADACHE?**

How to put **quality** in a low-cost home is the chief concern of builders who know the necessity of preserving their future equity in homes constructed now.

These homes can be **good** homes, healthful homes. **VICTOR In-Bilt VENTILATORS** are engineered for the most expensive home, yet priced for low-cost housing.



Note: In dry wall construction particularly, VICTOR In-Bilts serve a vital need. Let us lay the facts before you NOW!

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*Disappearing
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A kitchen disappear! Yes, and there's no magic about it. It's done easily and economically with Modernfold, the accordion-type door. These attractive and practical doors make it easy to shut off one room from another. Swing area is eliminated.

Modernfold Doors have been used successfully in all parts of the house as well as in commercial establishments. Their beauty and practical advantages cannot be equalled by ordinary type closures. Quiet, trouble-free operation is assured by the precision-built, metal frame. The great variety of fabrics and colors meets practically every general color scheme. Write today for full details—see how Modernfold advantages can benefit your client.

New Castle Products

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A MIGHTY MIDGET..

- for heating
- for hot water

DEPENDABLE steam or hot water heating of anything from a small home to a small apartment building, and plenty of hot water, too, is given by any one of 9 sizes of this compact oil-burning boiler-burner unit. It's the baby of the famous Johnson line of heating devices—youngest and smallest—but its popularity is already nationwide. And you don't need a whole basement room for it. One sq. yd. of floor space, often above ground, will do.



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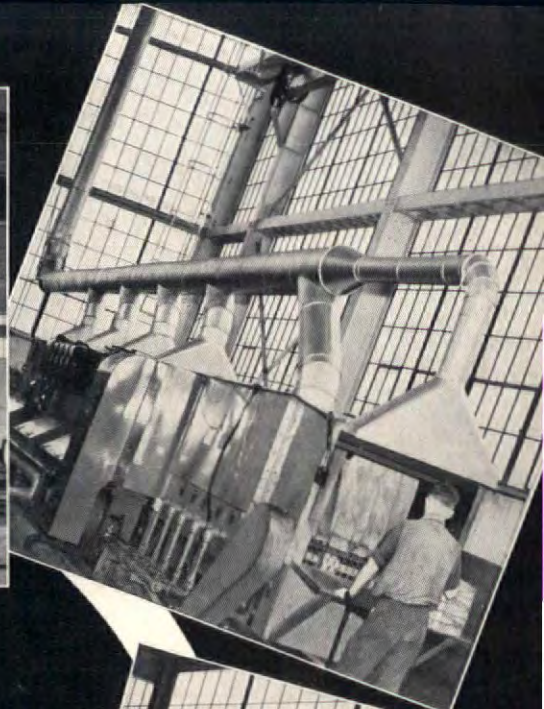
FOR today's needs—residential, defense, industrial! Thousands of architects, builders, home-owners say—it's the answer! Midget in size and cost—mighty in service!

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TO GET FULL
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HOW WINDOWALL DAYLIGHTING STEPS UP WAR PRODUCTION



• In war plants like these, from coast to coast, Fenestra Steel Windowalls are flooding workmen and machines with more daylight, giving them *longer daylight days*—helping American Industry to make the most of *Daylight Saving Time*.

Because Prefabricated Fenestra Steel Windows are delivered to the job already fitted, assembled, prime-painted, *complete*, and because Fenestra's big erection crews apply years of experience to the job, they save weeks and months in the completion of the war plant.

Fenestra saves money in building construction, building equipment, plant operating, plant maintenance, and post-war conversion costs . . . Call your local Fenestra office for helpful suggestions. Mail coupon.



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STEEL WINDOW SYSTEMS FOR INDUSTRY

PREFABRICATED WINDOWS • DOORS • ROOF DECK

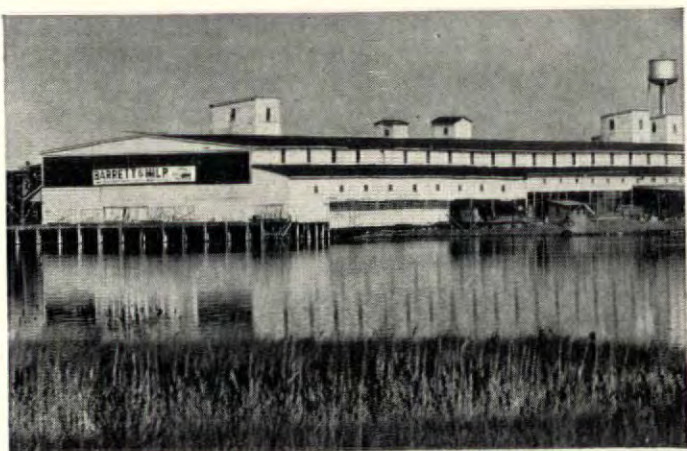
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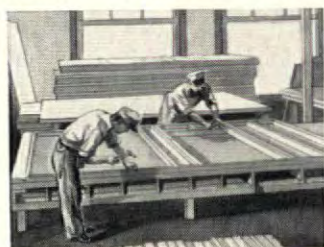


60 HOUSES PER DAY

is News!

**But speed is only part
of the story...for architects**

Today, in Virginia, Barrett & Hilp is fulfilling a contract which calls for the completion of 5,000 houses in 5 months. Here is another astounding demonstration — by Homasote Homes — of what the future



holds for the housing industry. For it is Homasote Precision-Built Construction — pioneered by Homasote Company in 1935 — which made it possible for Barrett & Hilp to accept such a contract with confidence.

In peace-time, the speed and efficiency of Homasote Precision-Built Construction will mean new low costs. These new low costs will open vast new markets for the architect. Here is why.

Homasote Homes, like other prefabricated houses, are built by mass production methods — but with a *vital difference*. They are in no sense stock houses designed by one manufacturer. Homasote Homes allow free scope to the talents of the individual architect. They can be

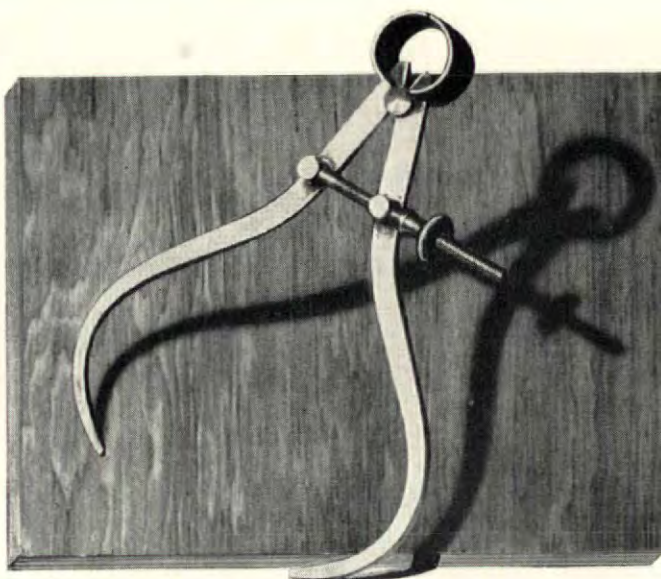
of any style, design or size—to fit the needs of any client or of any community. They are built by local labor — of standard quality materials purchased locally.

Homasote Homes are *quality* homes, backed by millions of dollars of research and construction experience. Each one is machine-perfect, doubly insulated; demountable, if desired. They feature the use of 8' x 14' sheets of Homasote — the oldest and strongest insulating board on the market. These large sheets eliminate unsightly wall joints and batten strips, as well as the dangers of cracking and falling plaster. They provide *extra* strength.



At present, all our efforts are devoted to war work. But we are ready to turn our production efforts to individually designed homes, real estate developments, employee housing, or slum clearance projects — just as soon as today's pressing needs are satisfied. Write now for details.

HOMASOTE COMPANY • • • TRENTON, N. J.



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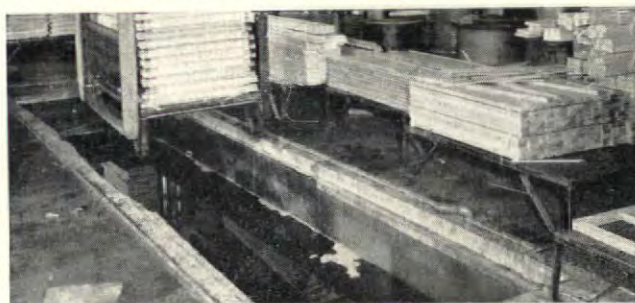
Laux **REZ** CONTROLS DIMENSION



SWELLING and BINDING caused by moisture penetration in doors, sash, cabinets, etc., can be controlled by sealing and priming first with Laux REZ, clear synthetic resin sealer.

This water-repellent toxic . . . applied on the job with brush, spray or saturated cloth . . . is also a perfect base for paint or stain on all woods, including fir plywood. REZ checks grain raise and gives a sealed, even surface for decorating.

Lumber, hardware and paint dealers all supply Laux REZ, the first and still the best synthetic resin sealer . . . or write to addresses below for full information.



TANKS FOR DEFENSE — Waste helps the Axis. Dry rot, mould, decay in siding, millwork, flooring, sash, doors are being stopped by tanks filled with Laucks Industrial Wood Preservatives . . . tanks built by contractors, dealers, millwork plants. Write today for descriptive brochure on these industrial water-repellents and toxics.

I. F. LAUCKS, Inc.

Seattle, 911 Western Ave., Div. A Los Angeles, 859 E. 60th St., Div. A
Chicago, 6 N. Michigan Ave., Div. A
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WAR JOBS, BIG JOBS, SMALL JOBS,

TOUGH JOBS—A

Balsam-Wool

TO FIT THEM ALL!



BALSAM-WOOL

PRODUCT OF WEYERHAEUSER

MILLIONS for war needs—millions of feet of Wood Conversion Company Blanket Insulation for every imaginable type of structure . . . from the Military Huts that keep our boys warm at frigid Arctic outposts—to homes that house our war workers!

In huge projects (35 houses a day at Norfolk, Virginia)—or in a few experimental houses of revolutionary design—Balsam-Wool fits the need exactly. For only Balsam-Wool has the versatility and the toughness—plus the engineering background—to anticipate all the many unusual job conditions to which an insulation may be subjected.

Used for fast, economical application in prefabricated construction requiring special widths, thicknesses and lengths—for Job Site Construction requiring spot delivery on time, using two or more types of blanket on a job—Balsam-Wool proves that it has what it takes.

In war building, the extra safety factor found exclusively in Balsam-Wool becomes more important than ever. Double Moisture Barriers speed up application, because the blanket can be applied from top or bottom, inside or outside of joists, studs or rafters. Tough Double Wind Barriers take abuse—Double Bonding prevents settling in transit, holds the high efficiency mat firmly in place.

No other insulation has pioneered so many improvements—no other insulation has all the advantages which Balsam-Wool provides. You can't afford to assume that you know all about Balsam-Wool—products and production methods have changed to meet new war needs. Get up to date on Balsam-Wool by mailing the coupon today!

WOOD CONVERSION COMPANY

Dept. 147-5, First National Bank Bldg., St. Paul, Minnesota

Gentlemen: I should like to have more information about the special advantages which Balsam-Wool Insulation offers for war construction. I am especially interested in the following type of building:

Name.....

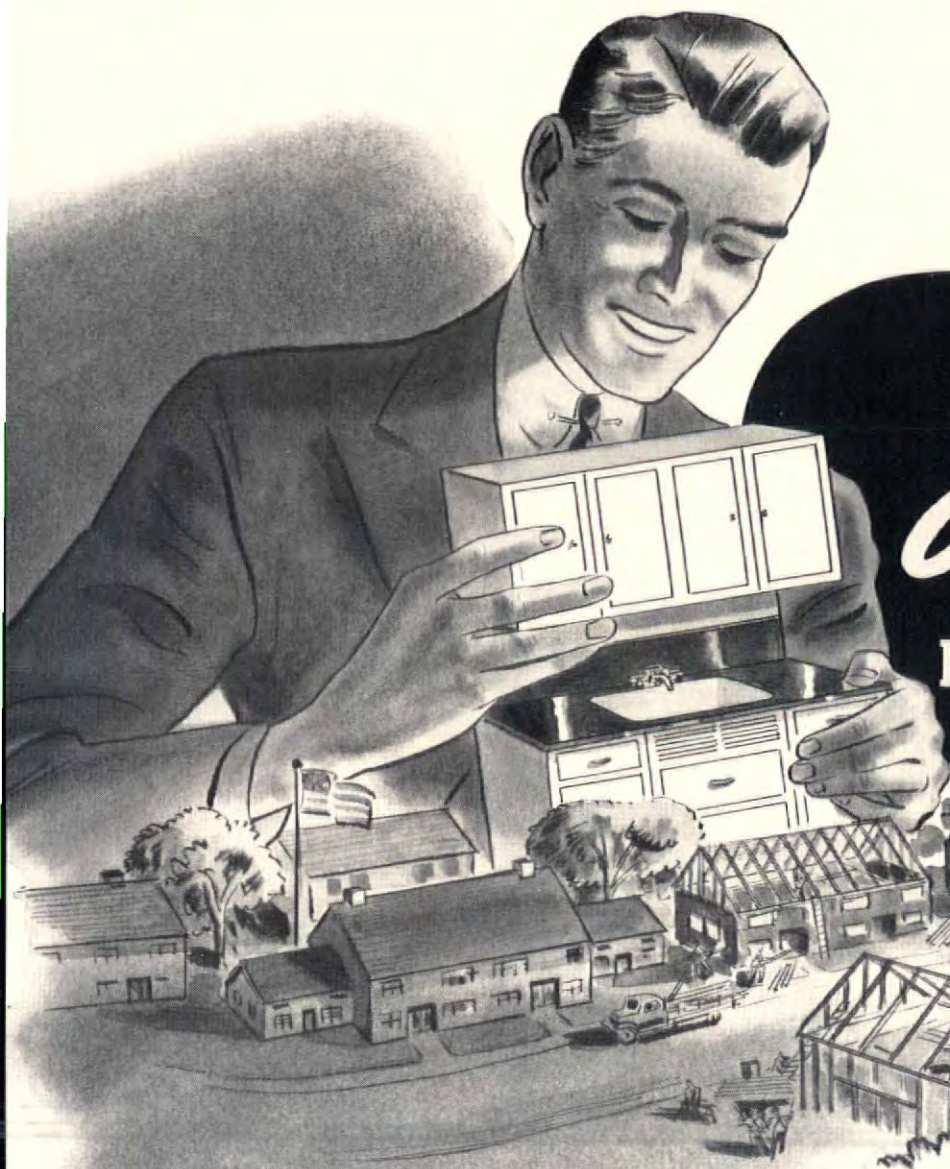
Address.....

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

SPECIFICATION AND BUYING INDEX

The advertising pages of THE ARCHITECTURAL FORUM have become the recognized market place for architects and all others engaged in building. Each month these pages offer the most complete guide to materials, equipment and services to be found in any magazine. A house or any other building could be built completely of products advertised in THE FORUM. While it is not possible for a magazine to certify building products, it is possible to open its pages only to those manufacturers whose reputation merits confidence. This THE FORUM does.

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BETTER CABINETS— FOR VICTORY KITCHENS

★ America's war workers are entitled to the best houses their money can buy. Builders, charged with this vital responsibility, are finding that they can obtain better kitchens—that their work is greatly simplified and speeded—by use of factory-built cabinets of hardwood.

Many years' experience has prepared these leading firms for the kind of rapid mass production today's emergency requires. These kitchen units are vastly superior in quality—and priced for today's market. New methods, developed to meet the present emergency, provide substantial production economies without sacrificing dependability. Materials are properly seasoned, fitted and assembled at the factories, even finished if desired. There are standard hardwood units—approved and used in hundreds of government projects—to meet any architectural requirement.

The facilities of these nationally known kitchen cabinet makers, are at your disposal to accelerate the war effort. Communicate with any of them immediately for better kitchens in the houses you plan or build.

For Quick Action—Write, Wire, or Phone



MODERN KITCHEN PIONEERS

The companies sponsoring this advertisement represent the foremost builders of kitchen cabinetry in America, with more than 150 years combined experience in building kitchen equipment. Hundreds of thousands of homes, in every state, have been furnished with kitchen units bearing their names. This vast experience is available to you now for victory housing.

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THE KITCHEN MAID CORP.

ANDREWS, INDIANA

"KITCHEN MAID CABINETS"

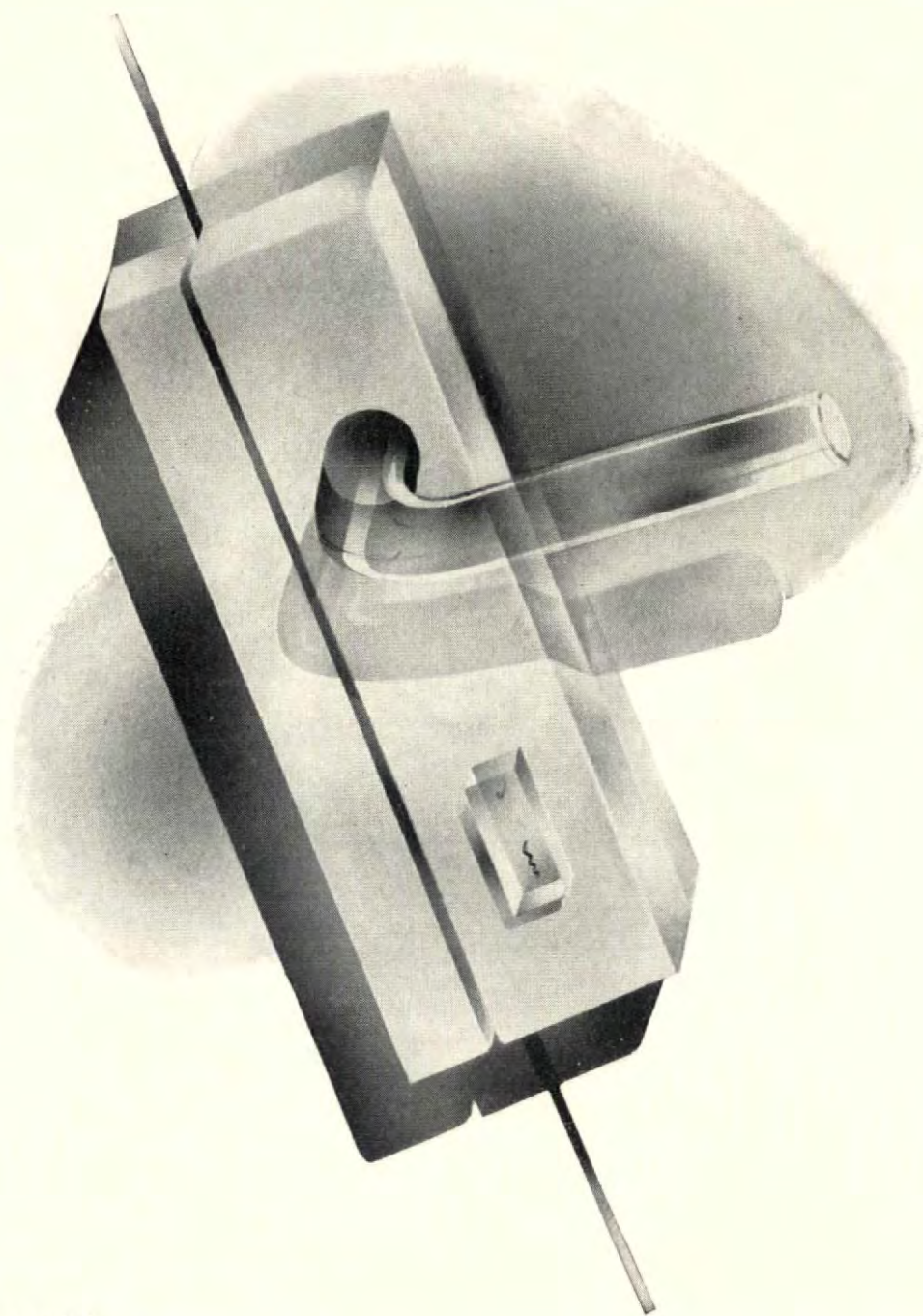
G. I. SELLERS & SONS CO.

ELWOOD, INDIANA

"SELLERS CABINETS"

"... an ugly doorknob made by hand is a regrettable incident, but a million vulgar doorknobs in use are a calamity."

DOUGLAS COCKERELL, London, 1942, at a meeting of the Royal Society of Arts



Architect Gardner A. Dailey suggests a vertical rim lock and lever handle for narrow stiled doors. In addition to a freshened note of eye-appeal, with its plain, angular metal case and lever and keyhole cover of transparent plastic, this lock saves on installation cost by eliminating costly mortising.

READING presents the third of a series of hypothetical designs submitted by members of the profession as a stimulus to better design in hardware for building post-war America. READING HARDWARE CORPORATION, READING, PENNSYLVANIA

GOOD HARDWARE

READING

SINCE - 1851



Eternal beauty

approached by truscon steel windows

Beautiful to behold...their stately grace and smoothflowing lines lending symphony of movement to all architectural designs...these are the outward advantages of Truscon Steel Casements. And the years, in their ceaseless march, impress few marks of care or wear upon their sturdy structure. For steel, as Truscon forms it into windows, cannot warp, shrink or rot. In quiet dignity, Truscon Steel Windows serve long and well. SWEET'S expresses the reasons fully.

TRUSCON STEEL COMPANY
YOUNGSTOWN, OHIO
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DEPENDABLE DOORS



EACH DOOR BUILT AS A COMPLETE UNIT AT OUR FACTORY AND SOLD INSTALLED BY A NATION-WIDE SALES-INSTALLATION-SERVICE.

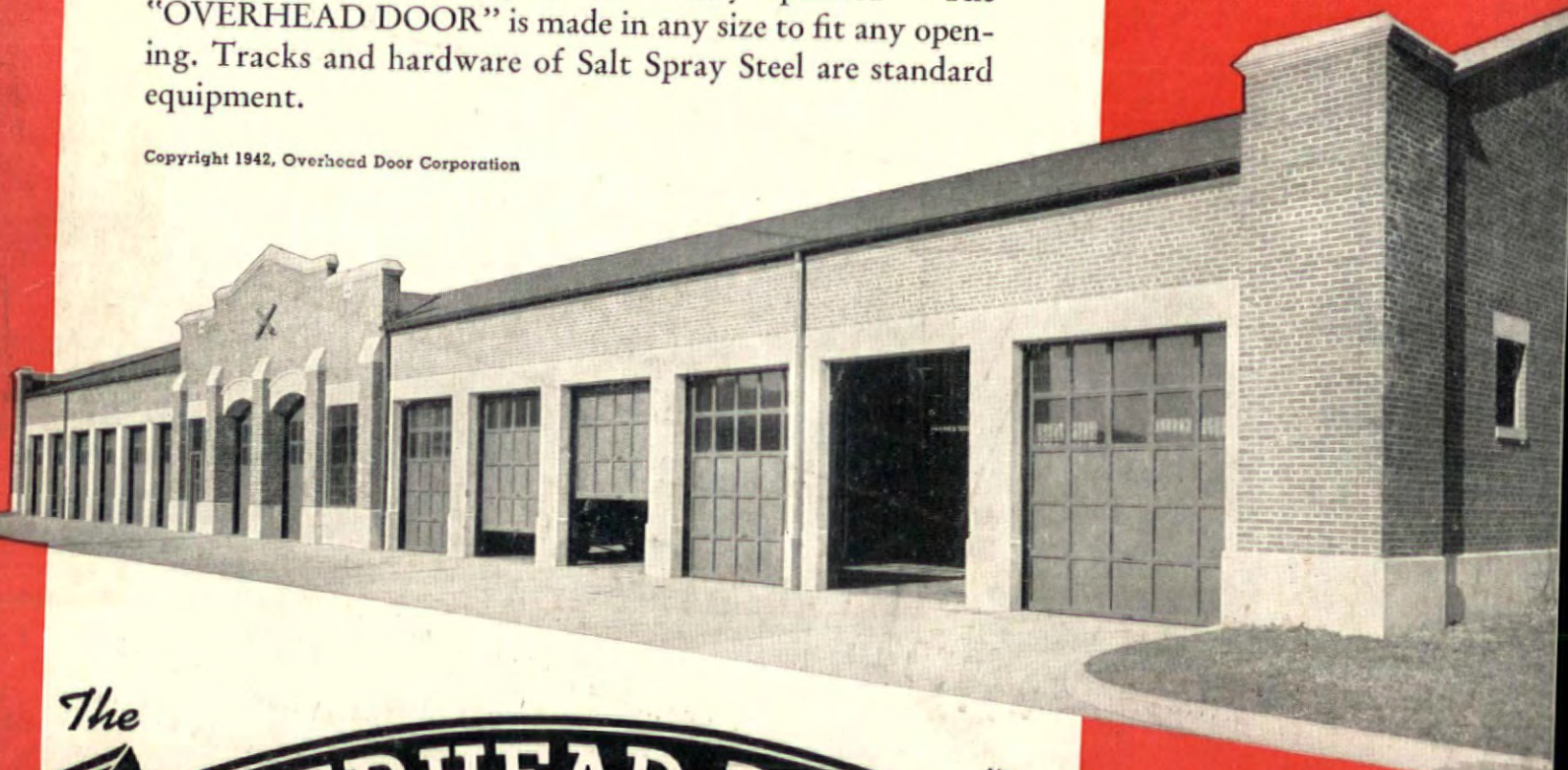
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**NEW CONSTRUCTION
OR REPLACEMENT**

in
War Production Plants • Army and
Navy Buildings • Coast Guard Stations
Marine Bases • Homes in Defense Areas

The "OVERHEAD DOOR" with the Miracle Wedge has proved ideal for war production uses. It operates quickly and easily in any kind of weather. Every part of every door is designed specifically for its purpose and made of quality materials to insure longer, more efficient service.

Wood or steel, manually or electrically operated — The "OVERHEAD DOOR" is made in any size to fit any opening. Tracks and hardware of Salt Spray Steel are standard equipment.

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The

"OVERHEAD DOOR"

TRADE MARK

WITH THE

MIRACLE WEDGE

Steel "OVERHEAD DOORS"
installed in the motor shed
of a military post.

OVERHEAD DOOR CORPORATION

HARTFORD CITY, INDIANA, U. S. A.