# The Architectural FORUM Magazine of Building

TODAY'S HOUSE

July 1946



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# The Architectural FORUM

MAGAZINE OF

JULY 1946



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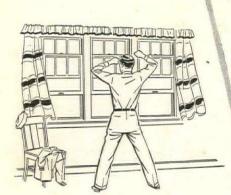
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VOLUME 85, NUMBER 1

3011 1340	
The second of th	5
NEWS	40
IN THE FORUM	70
ANNOUNCEMENTS	74
TODAY'S HOUSE	97
INTRODUCTION	98
LAND & SERVICES Cost Analysis Subdividing Utilities.	10
PLAN & DESIGN Bungalows Expansible Houses Two-story Units.	101
EXPANSIBLE ROW HOUSE George Nemeny plans an inexpensive unit adaptable to minimum lot conditions in New York suburbs.	106
STRUCTURE FoundationsConcrete WallsClay WallsFrame Walls.	109
EXPANSIBLE BUNGALOW  Gill & Bianculli plan a veteran's house for Tennessee that grows with family needs.	116
STRUCTURE (Cont'd) RoofsFloorsPartitionsOpenings.	118
SALE-RENTAL UNITS  Mario Corbett designs four small houses for southern California to be built by simple carpenter construction.	122
LOW COST APARTMENTS  Anderson & Simonds eliminate non-essentials in a small multi- family group in the San Francisco Bay area.	124
FINISHES  Exterior Walls Roofs Floors Interior.	125
LOW COST HOUSES  Alden B. Dow, Inc. devises two- and three-bedroom variations on the low cost theme for Michigan and Texas.	128
EQUIPMENT Heating Kitchen Bathroom.	130
3 OWNER-BUILT HOUSES Samuel Glaser designs a four-bedroom house, with and without basement, and a three-bedroom model on a single floor.	134
EQUIPMENT (Cont'd) Centralized plumbing.	137
MISCELLANEOUS Built-in Features Tools Fabrication.	138
DEVELOPER'S HOUSE South Bend Builder Place & Co. combines many cost-cutting techniques in the production of 180 well engineered units.	142
REVIEWS	156
G. I. JOBS	184
PRODUCTS & PRACTICE	195
Waterproofing treatment Precast concrete panels fabrication and assembly methods.	
TECHNICAL LITERATURE Lighting History of Electrical Development.	216

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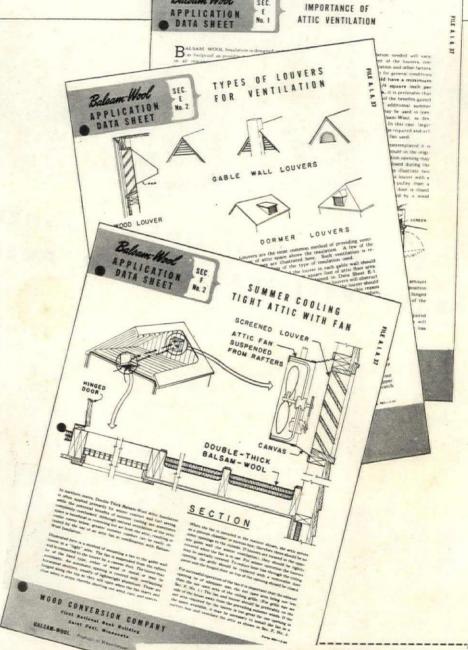
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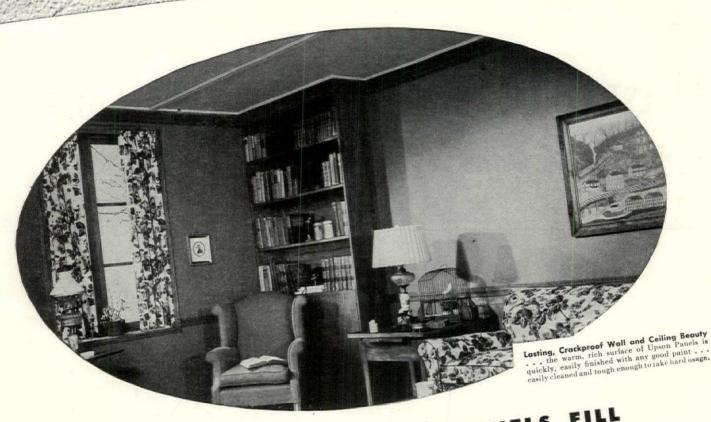
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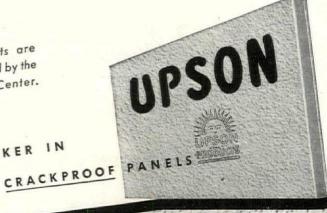
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# **NEWS**

#### WASHINGTON

Premiums paid on production
of brick and plywood p. 5

Anti-Trust probe ahead for
building industry p. 6

Houses to cost more p. 6

\$9,000 house is top under
Title VI ceilings p. 6

W-E-T bill in political tug-ofwar p. 7

#### BUILDING MONEY

Real estate brokers deny rumored buyers' strike p. 7

First real estate stock issue since depression p. 8

#### DESIGN

New Crystal Palace plan disappointing p. 9

Hotel fires point tragic building lesson p. 14

#### PAN-AMERICA

Mexican cities are exploding with new building p. 10

#### CITIES

Richmond plan has avoided housing crisis p. 16

Governor Dewey runs into housing trouble p. 20

#### LABOR

Building employment now at post-1943 peak p. 24

BUILDING MONTH. Although it was harder to buy a fly rod than a keg of nails last month, most of the U. S. was going fishing—or crowding ball parks—or just sitting around in the sun. Many a family gave up house-hunting for a while, found a nice spot near the shore to pitch a tent. Summer hotels were jammed with a flood of guests that made Florida's last winter boom look like small-time stuff, and summer cottage owners could sniff at renters, find ready buyers instead.

But there was no vacation for Building. The steel skeletons of thousands of Quonset Huts were appearing with a nightmarish regularity in city parks and vacant lots across the land, and on one hot June day in Chicago, more than 3,500 persons gathered within an hour to answer a single ad for an apartment-to-rent.

It was hard to say just how things were going. For the first time, the Department of Labor prefaced its statistical footprint of the building month with the explanation that building permits issued no longer accurately reflect building starts, shortages being what they were, etc. (a fact of which every Building man has been painfully aware for the last six months). But, for what they were worth, the standard indexes showed that building permits, although they had dropped from the high level that preceded the March curtailment of nonresidential construction, were still registering a pace about four times as fast as that of last year. Dun & Bradstreet said that building permits for 215 cities in the first five months of this year amounted to the largest total-\$1,294,000,000-for any similar period since 1929.

Terrific Rate? In a way, the situation for housebuilding was something like the extraordinary report of the Honolulu grocers, Chun Hoon, Ltd., who were surprised by the overnight appearance on their premises of a 2-bedroom house, unoccupied—but the next night it went away. In mid-June, House Boss Wilson Wyatt rubbed his hands jubilantly. Small house construction was, he said, underway "at a really terrific rate." But the Veterans of Foreign Wars said "the housing fiasco begins to take on the earmarks of a national scandal" and threatened to ask for a Congressional investigation of what they considered a near-breakdown of the whole emergency housing pro-

There was no doubt that housebuilding priorities for veterans had been issued at a rate too fast for the still-slender flow of building materials. Average rate had been as high as 35,000 a week in April and May; in June, priority issuance was cut sharply to cover only about 12,500 houses a week.

Materials Upturn. Whether the Wyatt subsidy plan, finally going into effect, would up the flow of building materials remained to be seen. Although some builders said glumly that no more materials were being produced than the black market could easily take care of, the Department of Commerce was happy to report an upturn for some basic building products. Rising briskly over last year, Commerce said, was production of lumber, common and face brick, structural tile, cement, asphalt roofing, gypsum board. But still feeling the effects of the coal strike were steel and metal building products, plumbing fixtures and heating equipment.

The two-thirds slash in non-residential construction ordered by CPA at the month's beginning would, CPAdministrator John D. Small figured, channel another \$1 billion worth of materials into housebuilding. Other industries were also feeling the bite of the veterans' housebuilding program. Packard president George T. Christopher said diversion of pig iron for manufacture of cast iron pipe for small home construction would soon shut down his shop. Packard needs 200 tons of pig iron a week to run at even 25 per cent capacity, was getting only about 50.

Market Uncertain. If it was hard to measure building volume, it was equally difficult to reach any precise conclusions about the condition of the real estate market. In Los Angeles County, where the wartime boom in home sales reached its crescendo, real estate transactions fell off approximately five per cent in May-the first drop since V-J day. And while from Los Angeles and other West Coast cities, came the first few hints of a buyers' strike against the high prices of older houses, real estate brokers in a dozen other cities were quick to deny that there was any slackening of market interest. Although the stock market broke sharply to drop 20 points in a single day, clamoring buyers waited to snap up the first issue of any real estate stock since the depression (Hilton Hotel: Corp.)

Somehow the confusion of the current building picture was thrown into sharp relief by a single, matter-of-fact statement that came from the annual convention of the National Fire Protection Association. Like an advance reflection of the unearthly light soon to flash at Bikini, the single sentence made the frantic rush to get the buildings up seen, for a moment meaningless. Said the Association's chief engineer: in the Atomic Age, every house should have an acre of land; that way, the destruction will be much less.

#### WYATT'S MONTH

#### Housing Boss cracks down on a number of fronts.

Last month Housing Boss Wilson Wyatt took some decisive steps to speed the faltering veterans' housebuilding job. In rapid succession, he:

- Convinced the Civilian Production Administration that a two-thirds cut in volume of non-residential construction was imperative
- Persuaded CPA that a plan for alloting a percentage of steel output to producers of

housebuilding materials must be put into effect (CPA had long held out against the revival of any semblance of the wartime Controlled Materials Plan).

Signed the first two orders under the subsidy program, which authorize payment of premiums on June production of brick, structural clay tile, and peeler logs for plywood.

Blocked out a program for plugging rental housing and for boosting OPA rent restrictions on new rental construction, and asked William D. Flanders, New York, who before the war worked for Fred R. French on Knickerbocker Village and Tudor City, to undertake the job as an Assistant Exnediter.

Gave the Federal Public Housing Authority top priorities for any materials it needs in moving temporary houses to cities who have asked for them.

Wyatt had not yet produced a formula for working out the guaranteed market plan expected to boost prefab output, nor had he produced a plan for aiding developers of new materials. The big question of how to build houses under the \$10,000 priority ceiling and under FHA's even lower Title VI insurance ceilings was still unsettled,

but this was less Wyatt's fault than that of Congress, which pondered most of the month about how to whittle down the new OPA bill (see below).

The industry waited with undeniable scepticism to see if the subsidy plan would prove effective in getting at the nub of



FLANDERS

Building's problems: materials supply. The brick subsidy sets the pattern. A premium of \$5 per thousand (as compared with an average price of about \$20) will be paid for the output of any plant in excess of its average output in the two best months of 1946.

#### ANTI-TRUST PROBE

Justice Department will look into collusive practices in construction.

Like the far-away thunder of a gathering summer storm, a warning rumble came from somewhere back of the Palladian facade of the Department of Justice building. The premonitory rumble had been heard before; this time it seemed to be getting closer. Attorney General Tom Clark said the Anti-Trust Division had launched a nation-wide investigation of trade practices in the construction industry.

Liberal members of Congress inclined an ear when Assistant Attorney General Wendell Berge reminded that "mass production methods have not been utilized in the home construction industry." Berge also spoke of "phantom freight . . . a controlled system of jobbers selling at agreedupon prices . . . flagrantly restrictive practices in lumber, masonry, cement and plumbing-four items representing twothirds of the cost for materials in an average house . . .

But however some sectors of the construction industry might wince at these old indictments, it was hard to understand another prong of the Anti-Trust pitchfork. The Justice Department (which apparently was not on speaking terms with the Federal Housing Administration) had suddenly discovered that it costs about 5 per cent to finance a small house. This, Berge said, is too high.

With interest rates for home loans at their lowest point in U. S. history, with a 5 per cent rate written into federal policy by FHA maximums, with building money the only plentiful commodity in a desert

of shortages and competition between lenders never keener, it was hard to see that the Anti-Trust Division had produced anything on this point elaborate but an boner.

Many wondered: was Justice simply trying to scare the building industry into CLARK a more enthusiastic



compliance with the Wyatt housing program? Guilty or not of collusive practices, few companies can afford the cost of a long court contest with the federal government. The mere threat of an Anti-Trust suit had brought many a titan to heel before.

#### WHAT PRICE HOUSES?

Wyatt fears new OPA bill will knock out attempts to keep prices low.

The big question of how new houses will be priced got no decisive answer last month. A partial answer was the long-awaited announcement of FHA's Title VI mortgage insurance ceilings (see below). But Housing Boss Wyatt feared that the weakened OPA controls that the weakened OPA controls that Congress seemed about to approve would, as they affected building materials, knock out his attempts to get quite a lot of houses for quite a lot less than the \$10,000 priority roof.

Wyatt had earlier moved to make sure that the veteran buyer gets a fair value for his housing dollar. That he often had not was the opinion of the Veterans Administration, which had complained that veterans were being gouged.

FHA, which issues HH priorities, had had only a rough floor plan and front elevation from which to check house values against house prices. But from now on, builders applying for HH priorities will be required to submit detailed plans and specifications. FHA will make two quality inspections (one at the roughed-in stage, the other when the house is nearly finished)

-regardless of whether the house is covered by FHA insurance. Builders who short-change on construction value and refuse to make good will be denied any more priorities.

#### TITLE VI ROLLS

Mortgage insurance ceilings in top areas allow for \$9,000 house.

The Federal Housing Administration, which has always considered itself the best-oiled part of the often-creaky federal housing machinery, had rushed instructions to its field offices for launching the Title VI mortgage insurance program only a split second after President Truman signed the Patman bill. But in two weeks, only 500 applications for Title VI loans came in from all over the ILS

Builders knew why-and so did FHA. Maximum mortgage ceilings had not been set, and few builders wanted to bother submitting applications until they knew what price houses they would be permitted to build.

While FHA pondered this delicate question, a month of the best building weather slipped by. FHA found it mighty hard to make up its mind. If ceilings were set too high, many a veteran would find the new houses out of his reach. But if they were set too low, housebuilding simply would not take place.

Late in June FHA finally settled the matter. Mortgage ceilings ranging from \$6,000 to \$8,100 for a 3-bedroom house including garage were set for all lending areas. Ceilings proportionately lower for 2-bedroom houses will be worked out by each FHA office; they will probably range from \$600 to \$1,000 below ceilings for the 3-bedroom house. Ceilings for rental housing will soon

Only nine areas got the top ceiling of \$8,100, which covers a 90 per cent loan on a \$9,000 house. They are:

New York City; Newark, N. J.; Chicago, Ill.; Detroit, Mich.; Lake County, Ind. (northwestern portion of state bordering Chicago); St. Louis, Mo.; Cleveland, Ohio; Milwaukee, Racine, Kenosha, Wis.; East St. Louis, Springfield, Peoria, Ill. (Hawaii and the Philippines also got the top ceil-

#### BONER

#### W-E-T bill stalls as private enterprise registers awkward slip of tongue.

As the heat steamed up from the Potomac flats to the sweating white buildings along Constitution Avenue, Congress made the usual fluttering motions of trying to go home in a hurry.

Republicans, although they seemed to be as much in favor of a comprehensive publicprivate housing program as the Democrats, were maneuvering frantically to keep the whole matter stuck in a House committee. Their only reason: they don't want the Truman administration to get credit for any real housing solution. The result: the long-promised Wagner-Ellender-Taft bill

#### **BUILDING MATERIALS PRICE BOOSTS**

While the fate of the whole building materials price control structure hung between Congress and President Truman, the industry continued to contend that price ceilings were the biggest single factor in holding down volume production. Housing Boss Wilson Wyatt said that price increases were now being handed out briskly to producers who could show need for them. Last month his office gave the FORUM this check-list of price ceiling boosts granted to date for important building materials:

Southern Pine. Increase of 4.7 per cent November 29, 1945. Increase of 7.3 per cent on February 20, 1946. This makes a total of 12 per cent since V-J day.

**Douglas Fir.** Three increases granted since March 1946 for a total of approximately 12 per cent.

Western Pine. An 11 per cent increase in April 1946.

Lumber Products. Commensurate increases granted. Examples: Oak flooring got a 10 per cent in February 1946 and a 4½ per cent increase in May. Douglas Fir Plywood got a 7½ per cent increase in November 1945, and a 20 per cent increase in March 1946 for 12 construction items. Lumber prices as a whole are now up more than 90 per cent over their 1929 levels and more than 25 per cent over 1941.

common and Face Brick. An increase of \$2 per thousand (about 10 per cent) September 1945 east of the Rockies. The same

increase west of the Rockies in January 1946. Both were in addition to area increases ranging from \$1.75 to \$3.75.

**Cast Iron Soil Pipe.** Four increases granted, the last on May 25, 1946 for a total of \$17.50 a ton or 27 per cent above the base price of approximately \$65.

Asphalt Roofing. Two increases totaling  $10^{1}\!/_{2}$  per cent.

Asbestos Gement Roofing and Siding. Roofing shingles up 15 per cent, siding shingles up 5 per cent.

Heating Equipment. Domestic oil burners up 9 per cent. Warm air furnaces up 12 per cent. Gas-fired and liquid-petroleum-fired furnaces and unit heaters up 12½ per cent.

Cast Iron Radiation. Four increases totaling 41 per cent above base prices.

Plumbing Fixtures. Enameled cast iron fixtures up 8 per cent plus adjustment for individual companies. Brass fixtures up 24 per cent. Valves and fittings up 20 per cent.

(S. 1492), which would establish the first real pattern for public and private teamwork in building for the part of the market private enterprise alone cannot touch, was still on the shelf. If Congress stays on the job until the end of July, there is a slim chance that the bill may pass. But if Congress winds up sooner, there is not the ghost of a chance that the recalcitrant committee will move the bill already passed by the Senate, and the slow legislative mechanics will have to start all over again in next year's session.

Last month a private enterprise spokesman, appearing before a House committee interested in the President's plan to make the National Housing Agency permanent, put his foot in his mouth in something approaching the "let 'em eat cake" classic. When a Representative asked George W. West, chairman of the Chamber of Commerce's construction and development department and president of Atlanta's First Federal Savings & Loan, just what private enterprise proposed as an alternative to public housing aid for lower-income groups, West replied: "Let the poor people live in poor houses."

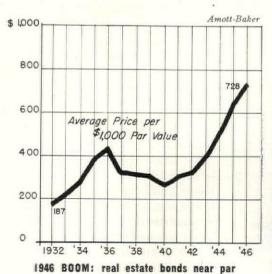
Next day West's remark drew censure on the House floor, hit press wires, got a sharp rebuke from Housing Boss Wyatt, who said it typified the blindly selfish opposition of some groups to the W-E-T bill. Red-faced West hastily explained that he had been misunderstood. He was, he said, merely stating a well-known housing fact: when the top of the market moves into new houses, lower-income groups can take advantage of second-hand, but still very usable housing.

#### **BUILDING MONEY**

#### BOOM MARKET

Real estate brokers believe buyers' strike is only seasonal slump.

In the single month of May more than 3,200 eviction petitions were filed in the city of Philadelphia. In Reno (population 28,000) a corner gasoline station, 70 x 140



ft., purchased a few years ago for \$22,000, went on the market with a \$300,000 price tag. Florida reckoned the take on last winter's tourist crop, found it worth \$650 million, almost double the harvest of any prewar year. In Los Angeles, 76-year-old Mrs. Arissa Smith downed rat poison as the sheriff arrived to evict her from her flat; she had not been able to find any other place to live. In Chicago, the convening National Association of Building Owners and Managers agreed that commercial building rental income is at the highest point since boom times, reported that here and there leases were touching \$6 per sq. ft., a figure not seen since the Twenties.

Back of elm-lined village streets and off swank big city avenues, congregations sat with a pleased smile to witness the burning of the mortgage, a rite conducted with varying degrees of ceremony last month by thousands of churches, debt-free for the first time in history. Amott-Baker's index of real estate bond prices jumped sharply upward (see cut), continuing a climb unbroken for the last 47 months. One national home magazine planned to run an article, unprecedented in the field, under a heading which would read something like this: "Are you planning to buy or build? If so, don't."

All of this added up, in one way or another, to a temperature chart of the U. S. real estate market. But not everybody agreed that the temperature was feverish. Although the first few reports of a buyers' strike against over-priced existing houses came trickling in from West Coast cities and from Detroit, many a real estate broker was placing sizeable bets that the slump would be only temporary, that after a brief mid-summer lull sales volume and prices would both turn up again.

Although one southern California branchbank system was scaling down its real estate loans to 35 per cent of current prices and a big building and loan was pegging loans at 50 per cent with many another West Coast lender following suit, there was one gigantically influential exception. A. P. Giannini's sprawling West Coast colossus, the Bank of America, said it saw no reason to change its policy of lending the legal 60 per cent of market value on



1932 BUST: farmers halt foreclosure

practically all loans found acceptable.

"We have found it necessary to increase the values on houses," vice-president Al Gock said. "But when you make these loans for repayment in monthly installments, which take care of taxes and assessments, you can't go wrong. We don't lend on desperation prices, but we scale loans with the market."

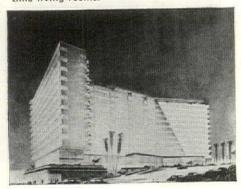
Competitors frankly admitted that Bank of America was stealing their business. (Sample: in April Bank of America loaned \$26,996,000 on Los Angeles county real estate; as compared to \$3,865,000 loaned by its nearest banking competitor). But one banker wondered: "I guess Giannini knows what he's doing . . . but you can't get a damn cent out of real estate loans when the bottom drops out."

When would the bottom drop out? This was the pulsing, unanswerable question. But from now on, attempts to answer it would be shaped by each tremor in the fever chart. Would new building, rushing to meet long-pent up need, quickly break the back of the boom market for existing real estate? Or, even when materials started flowing in volume, would the high price of new construction support a continuing stiff price level for the whole real estate market? Would it take ten years, as the forecasters said, to meet effective market demand for houses? Or would housebuilding, backbone of construction, fall flat on its face by 1950, the victim of over-expansion and a saturated market? In short, was it inflation-or was it heaven?

#### CREST OF HOTEL BOOM AHEAD Hotel king Hilton launches first new real estate stock issue since depression.

Brokers' telephones buzzed with queries. Was Conrad Hilton, hoteldom's kingpin, about to issue stock for over-the-counter sale? Even in the (only recently halted) gallop of the Wall Street bulls, the rush for a place in the buyer's line-up was spectacular. Hotelman Hilton was offering the first new public issue of any real estate stock since the booming twenties. Long before SEC nodded approval, enough buyers waited to over-subscribe the new issue two or three times. Underwriters Blyth & Co. said the 350,000 shares of common stock would have to be parceled out among

NEW STATLER announced for Los Angeles is designed by Holabird & Root, will cost about \$14 million. In California style, it will have plenty of patios and terraces. Guest rooms will be furnished for conversion to daytime living rooms.



a clamoring horde of brokers.

For 14 years the market had seen no new real estate stock. Bankruptcies and re-



William Leftwich organization had shattered what many a small investor once swore by: the happy notion that real estate securities were only a little less secure than government bonds. But the soured cream of thousands of big and little

portfolios now seemed only a dim memory; the public was once more hungry for real estate investment. It was just like the good old days.

But if the new issue was the first temperature reading of a feverish market interest that will very probably extend to issues for new building, it was also an index of Conrad Hilton's rapid climb to the pinnacle of the U.S. hotel business. Oddsplayer Hilton had prefaced his stock issue by melding a showy hand. It included New York's Plaza, grande dame of U. S. hotels, Chicago's Stevens (world's biggest) and elegant, old Palmer House, Los Angeles' swank Town House (Hilton's favorite). His newly organized \$63 million firm, Hilton Hotels Corp., also holds the Dayton Biltmore and five smaller western hotels. New Purchases. With the approximately \$6 million in fresh capital that will be raised by the new issue, Hilton may finance some new acquisitions: the Ambassador Hotel in Los Angeles-an old convention wetnurse, the dowdily splendid St. Francis in San Francisco (for which negotiations had recently temporarily stalled), the Meisner-Moorish Palm Beach Biltmore. He also planned an open-handed program of modernization for every Hilton Hotel. The fading (but still queenly) Plaza will get \$31/2 million worth of sprucing-up.

Hilton, who hasn't built a hotel since two early ventures in El Paso and Albuquerque, has been thinking about launching some big building. "We will probably build one or two just as soon as we can get to it," he said. He has always wanted to build one in Beverly Hills.

Pan-American Airways has been negotiating with Hilton for a chain of 8 or 10 hotels to be built in the principal South American cities. But so far the deal has not been clinched. Says Hilton, with a convincing show of reluctance: "Building a big hotel is such hard work. I don't know if I want to work that hard.'

But someday the hotel king would like to build his dream hotel. Unlike the city towers which bedeck his present holdings, this would be a two-story building with grounds stretching for 20 acres. All rooms would be studio style.

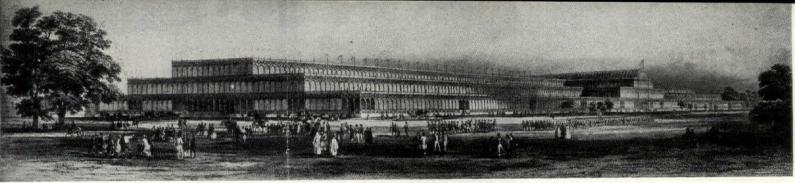
Now bestriding the nation's hotel business with all the ease of a Texas ranger astride a bronco pony, westerner Hilton now owns almost twice as much gilt-edged property as his nearest competitor-the Statler combine - and last year netted more income (almost \$4 million, before taxes). Unlike the No. 3 U. S. hotelman, Arnold Sigurd Kirkeby (a dark horse who started at the depression low of 1935 and now runs almost neck-and-neck with Statler), Hilton is no newcomer in the hotel business. He earned enough money to go to college by managing a 5-room inn for traveling salesmen over his father's general store.

The formula he developed then has evidently never faltered: Hilton has never lost money on a hotel. From his purchase in 1919 of his first property in Cisco, Tex. on the eve of the oil boom to his 1942 purchase of the Los Angeles Town House just when the West Coast began to scurry eastward fearing a jap invasion, Hilton has displayed an unparalleled flair for knowing just when to buy. He operates, of course, according to the classic formula of the business-buy them cheap, build them up, unload at the peak-he simply does it better than most. Crest Not Yet. In the light of Hilton's buying know-how, his first appearance in New York in 1943 (Plaza purchase)\* and in Chicago in 1945 (Stevens) was a reassuring token to hotelmen that the crest of the wartime hotel boom had not yet been reached. This has certainly proved to be the case. Since V-J day, hotel incomes have swelled by 16 per cent, and occupancy has pushed past an incredible 95 per cent (60 per cent is the accepted hotel break-even point). Practically every major hotel is now booked solid for business conventions for the next two years. Vastly expanded travel facilities on a world-wide scale would increase the demand for hotel space (by 1947 the passenger capacity of the nation's airlines will equal that of the railroads in 1941). Air travelers will tend to want hotel space much oftener than prewar Pullman travelers.

Hotels were selling like hot dogs. "In my 31 years of experience I have never seen so many changes in hotel ownership," said Ernest B. Horwath, top hotel accountant. Kirkeby had this year alone acquired control of four New York luxury properties (Gotham, Hampshire House, Sherry-Netherland, Warwick) and the Atlantic City Ambassador. Last month he added the Philadelphia Warwick.

New Building Slow. But hotelmen generally were still leary of new building. Of a \$62 million shelf of plans for about 143 hotels, only one has been announced for a construction start. Los Angeles, which leads the U.S. in wartime population growth, will get a new 1,400-room Statler (see cut). Owners hope work can start next winter.

\* Upon his advent in eastern investment circles Hilton was joined by some impressive backers, including Floyd Odlum's Atlas Corp. and Robert Dowling's City Investing Co., but he has always insisted on owning the controlling interest in his hotels.



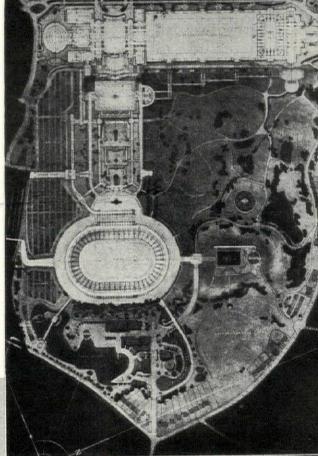
Paxton's Crystal Palace built in London was 19th century's greatest building and first to use prefabricated metal framing

### Will the new Crystal Palace turn its back on a century of architectural progress?



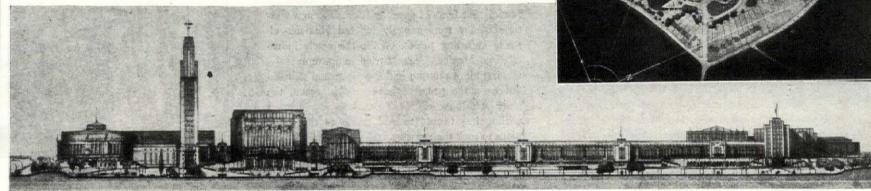
Masterpiece burned in 1937
but as first structure
built of mass-produced,
standardized parts it will live
forever in architectural history

Plan for new Crystal Palace is oriented on rigid axis, shows how confined academic style makes realistic handling of crowds impossible



Architect's Journal

Elevation attempts monumentality, achieves mediocrity



With the announcement of the prize-winners in the international competition for a design for London's Crystal Palace, it was lamentably apparent on both sides of the Atlantic that the greatest building of the 19th century may be replaced by what looked like the summing up of a century of walking backwards.

A comment from the eminent professor, Sir Charles Reilly, was typical of dissident British opinion. Sir Charles saw the winning design and "very sadly came away with the conclusion that neither the promoters nor the judges knew whether they wanted forward-looking architecture . . . or backward-looking stuff . . . It would appear from the result that they still like best a full-blooded neo-Edwardian."

In awarding the \$10,000 first prize to the Birmingham architectural firm of Edmunds and Jackson, the jury was itself clearly defensive. The jury said it had "hoped that excellence of lay out would be combined with equal merit in architectural treatment." But it had been forced instead to make the award "primarily on the general layout."

The sponsors of the Crystal Palace competition could hardly have hoped to avoid a cause celebre. Comparison with Joseph Paxton's famous masterpiece was inevitable—especially since the new Crystal Palace will be opened in 1951, an exact century after Paxton's building, and in exactly the same context of an international exposition. But in no other respect was it likely to duplicate

the achievement of the green-house builder who, in nine days, designed a bigger and better green-house that turned out to be the first dramatic enclosure of space without weight in building history and the first use of the prefabricated metal framing that was later to launch U. S. sky-scraper construction.

Progressive British architects feared that the academicians had gotten the upper-hand during the young men's wartime absence. They also feared that the new Palace may set the general level of design for the entire 1951 exhibition, on whose success the Empire sets great store. There was, however, much talk about a new competition, with a new jury and a new, much more explicit program.

# MEXICO'S BUILDING BOOM

Cities are bristling with skyscraper construction and few Mexicans think the bubble will ever break.

Only vesterday Indians from the provinces camped on the greensward that edges the worldfamed Paseo de la Reforma as it sweeps through the heart of Mexico City up to Maximilian's palace on the hill. But there is no longer any room for the Indians, with their jars of pulque and braziers for cooking tortillas, and donkeys and turkeys no longer stray casually across the broad avenue. All these remnants of Mexico's sleepy past as a low-cost tourist paradise have been crowded out by concrete mixers and steel I-beams.

Along the Reforma as along almost every street in Mexico City, scaffoldings, often rudely made, weave against the sky. Barefoot Indian carriers pad through the streets with huge loads of lumber and sacked cement on their backs. There is a constant whistle and thump of pile drivers sinking 25-foot timbers into subsurface muck, one on top another, to reach bedrock (sometimes the piles drop from sight into the city's slimy soil after one lick of the pile driver). Cafes bulge conversationally with prices per square meter and sources where you can get building materials if you know the right people.

Gringos watching Mexico's building boom reach a crescendo shook their heads wonderingly. Not since Cortez pulled down the ancient Aztec city of Tenochtitlan and built the capital of new Spain atop the rubble, has Mexico City seen so many old buildings torn down, so many new ones

Urban Swell. Trying to leap the whole span of the industrial revolution within the space of a few years, Mexico is also going through an explosive urbanization-something like the entire 19th century of U. S. city building compressed within a single decade. Hundreds of thousands of Mexican families, shoeless, bedless, tied to the soil for generations, have been moving into the cities to find jobs in the country's burgeoning industries.



MEXICO RISES OVER THE OLD: ALONG THE CAPITAL'S HISTORIC MAIN AVENUE

In 15 years Mexico City alone has swelled from 800,000 to 2,000,000 population.

The wartime appearance of refugee capital in Mexico and of the high-spending refugee crowd from Cannes and Biarritz accelerated a general business boom in the making ever since moderatereformist President Avila Camacho took over the reigns from the famed father of Mexico's New Deal, President Lazaro Cardenas, and U.S. and other foreign investors began to get over their reminiscent fears of expropriation. The new wartime money tremendously inflated Mexico's already spiraling prices. While the newly industrialized Mexican peasant tried to figure out why making more than he had ever dreamed still did not keep the price of beans within reach, the more cautious of Mexico's 600 new (peso) millionaires turned to real estate as the safest place to sock their money.

Will It Never End? For all these reasons, Mexico is building at a rate faster than the Florida boom in its most frenzied phase. But since Mexico has never had a building boom before, few Mexicans feel that there is anything abnormal or unsound about the present rate of construction. There is no precedent and no guidepost; nobody seems to know just when the boom began and, more important, almost nobody seems to believe it will ever end.

Most Mexicans think the best is yet to come. Although 13 big hotels and apartment structures in Mexico City are currently under construction with a total capacity of 3,220 rooms, there are plans for dozens more (Mexican hotels, with operating costs only a fraction of comparable U. S. property, net from 25-30 per cent on investment annually and usually pay off in five years). Mexican Radio City. Most ambitious of all is the plan for a Mexican equivalent of New York's Radio City, a vast 20-story structure (Continued on page 12)



BUILDING keeps pace with rapid industrializati and big cityward movement of last decade. hustling Mexico City, skyscrapers are transforming the old Spanish Colonial face of this one sleepy capital. So great is demand for space office buildings like the one above that tenan frequently occupy lower floors while construction is completed above.





ORMA, NEW 16-STORY NATIONAL LOTTERY BUILDING ROOTS IN CON CRETE-CAISSON BASE, TOWERS OVER FAMED STATUE OF CHARLES IV.

Photos: H. P. Harris, J. S. Hardy; Jack Glenn, March of Time

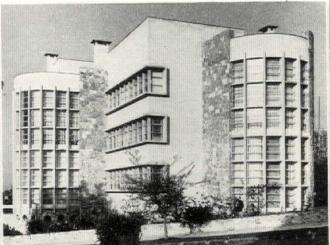




EXICO CITY CORNER (above) shows five big steelmed buildings going up within sight of each other. exican builders and architects have run up tall, heavy ildings so fast to meet the frantic market demand r residential and living space that many experts fear oddy construction and wonder if foundations will sag ep into District's jelly-like soil.

SUBURBAN LAND booms in price as new subdivisions like the one above mushroom on lots sliced from hillside haciendas. Mexico City's fashionable Chapultepec Heights bristles with glass and concrete apartment buildings (below). Ten-story apartment tower at extreme right is by popular architect Mario Pani and is typical of style of current work.







with underground drives to accommodate the already clotted city traffic. Mexico City's street widening program, which is displacing everything from the ancient alleys of Prostitute's Row to historic Colonial government buildings is giving the boom added momentum.

Suburban Sprawl. Expanding Mexico City has produced a suburban sprawl and a feverish speculation in outlying land even more exaggerated than the U.S. suburban boom of the twenties. In some sections of the swank Chapultepec Heights suburb, land once valued at two or three cents a square meter has leaped in price until, as one builder said: "No one can tell you what it's worth. Once it sold for a few centavos a meter. Two years ago it was worth 25 or 30 pesos. Today it is valued at 125 pesos a square meter. Tomorrow . . .?"

In Cuauhtemoc, one of the newest developments on Mexico City's outskirts, a typical house cost its owner-builder about \$25,000, while the lot costs \$20,000. In one new subdivision, covering twenty-four square blocks, 76 per cent of the land was sold within six weeks after the sale opened. Said the real estate broker: "We were selling lots so fast that for days we couldn't even prepare the papers."

If Mexico's building boom rests upon an untried financial footing, most of its new steel-framed skyscrapers rest upon an even less sure physical foundation. Mexico City's peculiar building problem-the subsurface mud from 65 to 200 ft. deep under the whole city-is augmented by builders' rush to meet market demand, which leaves little time for foundation study, by loose building code regulations, and by the fact that any small contractor, whether or not a qualified architect, can undertake his own designing as well as building. So far this year, 14 buildings in Mexico City collapsed in some degree.

Steps for Sinkage. The old Aztec city was a water-girt island, and the valley of Mexico was a lake. The Spanish drained off the surface water, but no one has yet figured out a way to get rid of the subsurface mud, which is almost a liquid and is surfaced only by a thin crust of volcanic ash and refuse. The old Colonial buildings are all sway-backed from sinkage, while present builders figure on sinkage, provide steps to street level and remove them one by one as the building sttles.

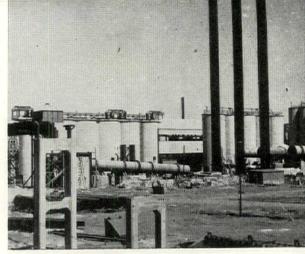
The subsoil problem is met either by anchoring buildings on piles sunk to bedrock or by floating them on the muddy surface. Neither is a perfect solution. Floated buildings are shielded by the mud cushion against earthquake shock, but are apt to be forced up and out of line when a heavier building is add d nearby. Pile supported buildings, although impervious to the immediate effect of sur ounding construction, feel earthquakes more strongly. Calsson Bathtub. First building to get the benefit of intensive study of subsoil conditions is the new 16-story National Lottery

building (see cut, page 10). Still under construction, this building sits in a huge concrete caisson bathtub. If one end of the bathtub tilts, huge movable counterbalances are shifted to equalize the list. This method naturally requires extremely rigid construction to withstand stresses.

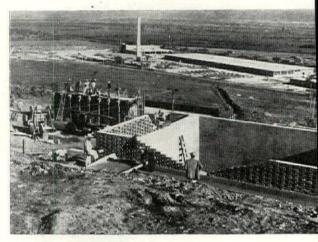
Mexico's builders have been in such a hurry that they occasionally neglect to install a stairway or skip an elevator stop. Somehow, in many a swank apartment building, the doorbells never got installed, the plumbing was never quite finished, the rubble never cleared away from around the entrance. Before the expensive Hotel Prado was finally turned over for rescue to Carlos Obregon Santacilla, a prominent architect with many a Beaux Arts facade to his credit, it passed through a variety of architects' hands and a variety of building intentions, starting out in both plan and construction as an office building. The result: the Prado needs a permanent pumping system to keep its basement from flooding; its impressive arcade ends in an alley, has only 7,000 ft. of rentable shop space while the remaining 16,000 ft. have to be maintained and lighted; its swank bar holds 30 musicians and only 40 clients, but the toilets off the bar can take care of 60 women and 50 men simultaneously.

California Style. Mexican architects, for the most part, seem to be in as much of a hurry as Mexican builders. What time they allot to designing seems to be spent mostly on the outside of their buildings. They lay on big glass areas, latticework, glass block and corner windows with a heavy hand. The result is something like the World's Fair Modern that once bloomed on New York's Flushing Meadows. Even more distasteful to the discerning among Mexico's architectural profession is the re-introduction of the so-called Spanish style, which was a long time ago imported by the U. S. Now crossing the border once more, it is known in Mexico as the "California style".

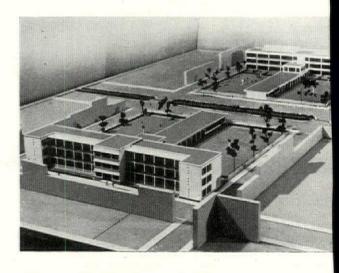
Although some of the gringos, mindful of their own boom-and-bust cycle, viewed the current building pace with something less than rapture, and in late June a few banks began tightening up on real estate loans. Mexico's building backers were generally unperturbed. They pointed to the country's ever-stiffening backbone of industrialization, to the power lines that will soon be humming across the cactusspattered deserts to bring electricity to every town of over 1,500, to the just-started giant Industria Electricia de Mexico plant, in which Westinghouse Electric has a 10 per cent interest. This is the country's first electrical appliance factory and the first Mexican company in history to be quoted on the New York Stock Exchange. Only recently Mexico's Supreme Court ruled that bathtubs are "useful necessities" and not "luxuries." Whatever the fate of Mexico's building boom, any gringo could see that the halcyon land of manana had now become something quite different from the U. S.' barefoot little brother.



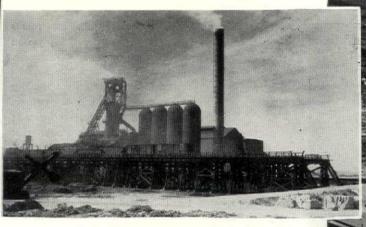
INDUSTRIAL EXPANSION is big part of building boom, much of it aided by U. S. capital. Many new plants will produce building materials, and Mexico's construction industry may soon be nearly self-sustaining. Country's biggest cement factory (above) will cost \$21/2 million and have yearly capacity of 180,000 tons. Atlas Cement assisted in construction but plant is Mexican-controlled.



CELANESE CORP, of America is building two plants. For this one near Guadalajara (above) Celanese made its own brick on site out of native clay.



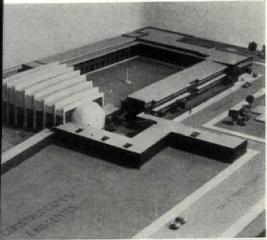
MEXICAN GOVERNMENT, deeply committed to the advance-ment of home-controlled industry, is doing a big share of the new building. A vast program of roads, electrification and irrigation is underway. Government plans also call for the construction of 800 new schools and 50 new hospitals during this year and next, and the public planners are trying to link this building to an over-all plan for integrated regional development. How much Mexico needs its new schools is evident in the fact that nearly ten million Mexicans do not know how to read and write, and the government's campaign against analfabetismo (illiteracy) is designed to reach half the Mexican population. Models above are school plans by architects Roberto Alvarez Espinosa, Jose Luis Cuevas and V. Kaspe. Each building will accommodate about 1,000 students.

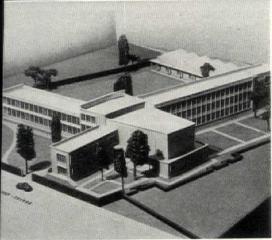


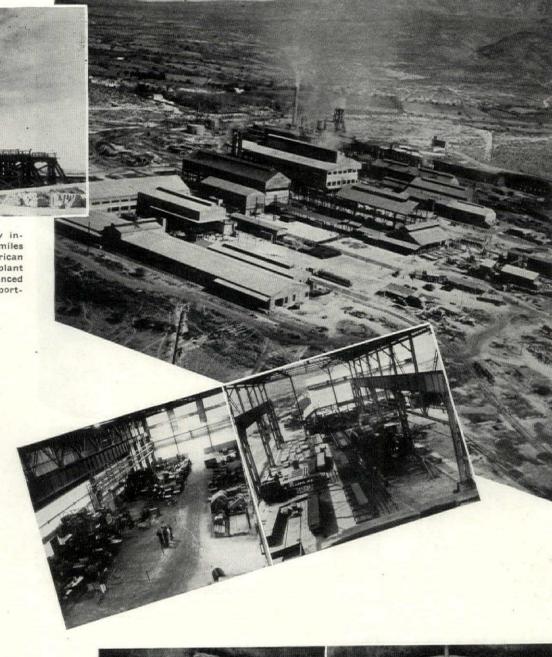
STEEL CAPACITY of country has been tremendously increased by this \$12 million mill in Monclava, 150 miles south of Texas border, built and managed by American Rolling Mills. Started during the war, the huge plant supplied heavy steel plates for U. S. Navy. It was financed with the aid of a \$6 million loan from U. S. ExportImport Bank.

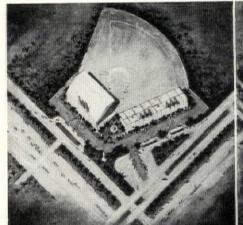


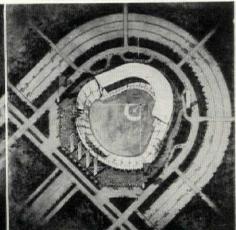
FACTORIES are pushing cactus aside in this Mexico City suburb, where Westinghouse Electric-aided appliance plant and Reynolds Metals Fabricating plant will locate.

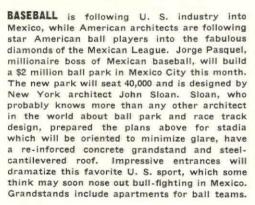


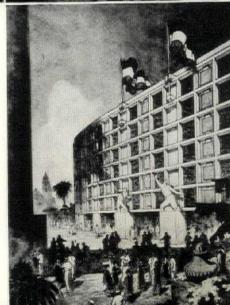














LA SALLE FIRE COMPLETELY GUTTED THE WALNUT PANELED LOBBY, HOTEL'S PRIDE



FIREPROOF steel-and-concrete exterior of structure was completely undamaged by fire in which 61 guests died. Old-fashioned exterior fire-escape proved completely inadequate. Many guests tried to escape by tying bed sheets together; most could not find fire escape.



SMOKE not flames killed these victims, who were in hotel's card room. This was on a lower floor but smoke leaped as high as 19th story and most fire victims died as a result of suffocation from toxic gases.

#### HOTEL FIRES

Fireproof construction proves no guarantee against big loss of life.

First big loss of life in a so-called fireproof hotel structure, the LaSalle Hotel fire in Chicago wrote a costly building lesson. Four days later flames leaping through the older Canfield Hotel in Dubuque, Iowa, underlined the lesson. The spectacular disasters in which 78 persons died and hundreds were injured added up to a tragic discovery: the protection offered by modern "fireproof" construction may be completely cancelled out by 1) combustible interior finishing and by 2) open stairways or other unprotected vertical openings.

Head Start. What happened in Chicago was like a demonstration of what not to do inside a fireproof public building. A little before midnight the first flicker of smoke curled somewhere back of the false, suspended ceiling that bedecked the ground floor cocktail lounge. But nobody saw it. Firemen figured that the dead space back of the false ceiling and false walls gave the fire a 50 minute start before anybody saw the first flame licking through the lounge's handsome interior. By that time, the flames-fed by the wood stringers from which the ceiling hung and fanned by a brisk draft from two improvised vents cut into the adjoining elevator shaft and concealed by the false walls - had a roaring start.

Quickly they swept through the adjoining lobby, where varnished walnut paneling and ceiling beams (the LaSalle's pride) fed them to blow-torch intensity (glass light globes melted in the 1,400° heat). They leaped up the stairwell, wide open from basement to the 19th story. They spread along wood trim in lower-floor corridors,

leaped through open transoms into rooms (but were effectively checked by plywood doors were transoms were closed). Smoke, laden with toxic gases from the ground floor's dozen kinds of tinder-like interior finishes and furniture, spread everywhere. Only a few victims were fatally burned; most were suffocated by the smoke that rose as high as the 21st floor.

False Rooms. When J. K. McElroy of the National Fire Protection Association inspected the LaSalle a few days later, the basic cause of the disaster was plain: the whole cocktail lounge was actually a highly combustible room built within a fireproof room; the adjacent lobby was like a 60 ft. by 120 ft. wooden barn built at the heart of a 22-story stell and re-inforced concrete structure. Said McElroy: "This loss should be the final answer to any manufacturers, architects or designers who continue to resist attempts to limit combustibility and use of interior finish building materials."

There were, as always, plenty of "ifs" in the LaSalle holocaust. If there had been an automatic sprinkler system back of the false ceiling in the lounge . . . If there had been an automatic fire alarm (there was a 20 minute delay between discovery of flames and notification of fire department, while the switchboard operator died at her post because hotels have never figured out how to install a guest alarm system that will be immune to practical jokesters) . . . If the lobby paneling had been fire-stopped . . . If there had been fire-door protection in corridors . . . If above all, the stairwell had been enclosed . . .

**Enforcement Lax.** Practically all of these "ifs" are covered by building regulations in most cities. But building code protection is seldom retroactive and enforcement is all too frequently lax.

Not until tragedy points the way do building practices move ahead much. The Iroquis Theater fire in Chicago in 1902 (602 dead) dramatized for all time that exit doors in public buildings must open outward. When 176 children died behind locked doors in a wooden school in Collingwood, Ohio in 1908, the movement for fireproof school construction started. The 40 seamstresses who jumped from the flaming Triangle Shirtwaist Factory in 1911 died martyr to a reform wave that revolutionized U. S. factory construction. After Boston's Coconut Grove disaster (487 dead) in 1942, nightclubs fireproofed their decor, and exit planning improved all over the U.S.

Hotels Shut. Like the historic disasters before them, the hotel fires would bring a wave of building reforms. Chicago had closed the Lorraine Hotel for code violations—but 100 tenants refused to move. In Philadelphia, tenants of the historic 317-room Walton Hotel got 3-day eviction notices. But hotelmen wondered where, in the face of present pinches, they can find fire-proofing materials.

(Continued on page 16)



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#### CITIES

#### RICHMOND'S WAY

Small city licks housing shortage by community-wide effort.

While many a city still bickered about how to meet housing crisis (see below), veterans in smallish Richmond, Ind. were moving into the first batch of 500 houses, all of which could be chalked up to a cooperative, community-wide effort. Bold planning by a group of local business men had started months ago; help from local officials and building men was quickly forthcoming. Last month the teamwork was paying off in finished houses, which veterans could buy for about \$7,000.

The Richmond plan, already setting a pattern for a half-dozen bigger cities, was inspired in part by acute memories of war discomfort when population bounced from 35,000 to 40,000 and in part by local industrialists' plans for big postwar expansion. A year ago the business men came to a joint and clear-cut recognition of a fact overlooked too long in most communities: industrial expansion plans would stumble until houses were built for the additional labor needed.

Last summer a delegation headed by

H. J. O'Brien, manager of the Johns-Manville Corp., went to Mayor John R. Britten. It was time, the business men said, to begin thinking about how to meet the housing shortage that everybody agreed was certainly ahead. Mayor Britten called a mass meeting of industrialists, merchants, real estate men, builders, attorneys, civic leaders. The result: formation of Richmond Homes, Inc. with a capitalization of 5.000 shares of common stock at \$1 a share. Each subscriber to a share of stock also agreed to buy one of the company's \$100 three per cent bonds.

Hubbel, architect.

Most of the industries attending the planning meeting bought stock in the new corporation. Already \$150,000 is available as a revolving fund to keep the project rolling. Biggest stockholder is the Crosley Corp. with 200 shares, an investment of \$20,200. Other big holders: Johns-Manville Corp., Joseph H. Hill Co. (nation's largest rose grower), International Harvester, F. & N. Lawnmower Co. and National Automatic Tool Co., each with 100 shares; Perfect Circle, Richmond Gas Corp., Richmond Water Works and the Palladium Publishing Co. with 50 shares.

Other stockholders include the local movie house, Sears-Roebuck, the tavernkeeper, a funeral director, a women's dress shop, a dry cleaner, a jeweler, several de-

(Continued on page 18)

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- **2.** Prime Condition—Finishing starts immediately after sanding, so no "raised grain." Moisture content of flooring is right.
- 3. Perfect Filling—Highest quality silex filler is rubbed into wood as flooring moves down the finishing line.
- **4.** Thorough Sealing Bruce Finish penetrates into wood pores... seals them against dirt and wear. Beautifies wood grain.
- **5.** Infra-red Drying applies heat uniformly...welds finish into a tough, even seal. No "unfavorable drying weather."
- **6.** Extra Buffing with high-speed brushes burnishes finish... provides a harder, smoother surface for waxing.
- **7.** Superior Waxing—Special wear-resistant wax is applied evenly, then polished over and over with brushes and buffers.
- 8. Ready to Use—No waiting on the job for finishes to dry...no hazard of finish being walked on too soon. Ready to use immediately.



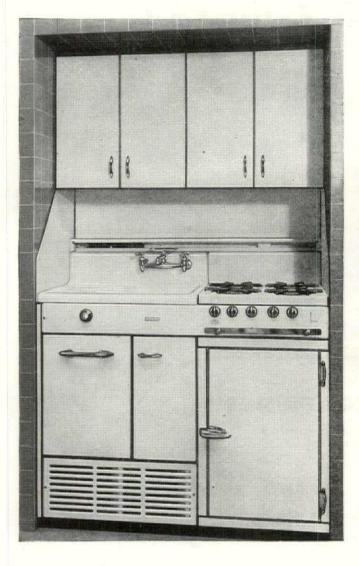
new Bruce Finished Flooring for you, but you can be sure that when it does come, it'll be the finest in our history—more beautiful, longer wearing, and easier to maintain than ever before. In days to come, Bruce Finished Floors will be America's favorite.

E. L. BRUCE CO. MEMPHIS, TENN.

World's Largest Maker of Hardwood Floors

BRUCE FINISHED FLOORS

### NFWS



# WHAT ABOUT KITCHENS when

### apartments seek tenants?

When that day comes . . . and come it will . . . lucky will be the owner who approved your choice of Murphy Cabranette Kitchens.

Their gleaming porcelain surfaces will be as bright and new as the day they were installed. And the upkeep in the interval will have been negligible for these kitchens have proven their ability to withstand tenant abuse.

For catalog of models in current production, and for name of nearest representative . . . write today.

#### DWYER PRODUCTS CORPORATION

Dept. F746 Michigan City, Indiana

partment stores, and Mayor Britten.

Plant manager O'Brien was elected president of the corporation. Since he and the other officers were busy with reconversion problems in their own businesses, management of the project was delegated to real estate broker Earl Allen.

The corporation's first step was to poll

veteran employees of all stockholders on their housing needs. The prospective purchasers listed family size, price they could afford, what down payment they could make, what facilities they wanted, where in town they would like to live.



O'BRIEN

After that, things moved fast. On the basis of the employee poll, the corporation bought lots, many of them at tax delinquent sales. The Pease Woodwork Co. of Cincinnati agreed to ship in prefab houses at the rate of two or three a week. Local building trade unions pledged their cooperation, even agreed to lay aside other work if necessary to work on the veterans' houses. Contractor C. F. Travers went to work immediately to prepare sites and lay foundations well in advance of the prefab deliveries. Foresighted project manager Allen invited state Federal Housing Administration chiefs to look over sites and building plans so that there would be no later hitches about mortgage insurance.

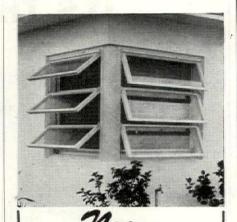
Notably, the decision to use prefab (reached because most local contractors were busy on plant expansions, into which the bulk of material supply was also flowing) aroused not the slightest flurry in Richmond. Local builders, bankers, even the trade unions are all sold on prefab. They point to several hundred Pease and Gunnison houses erected before the war which stand up well against anything else in the community. But Richmond hopes to keep trailers and unsightly emergency housing out of town and thinks it started the housebuilding job far enough ahead of time to be able to do it.

#### **CODE PROGRESS**

#### Two restrictive ordinances may go.

Two cities tried last month to batter down old building code barriers to quick housebuilding. In Atlanta, a federal emergency housing project for veteran students stumbled on rigid ordinances regulating plumbing installations. But Mayor W. B. Hartsfield told the Federal Public Housing Authority to go ahead. He said the federal government had power under the Lanham

(Continued on page 20)



## Now-AWNING WINDOWS of WOOD

#### Gate City Type "D" **Awning Window Hardware**

- · Smooth, simple, positive operation.
- No strain, twist or warpage.
- Simultaneous operation of multiple units.
- For openings up to 8'-734".
- Hardware installed at local millwork shop.
- Windows delivered to job complete.

Gate City Type "D" Awning Window Hardware extends the advantages of awning windows to any building in which wood sash may be used. Owners are welcoming the convenience, beauty and long-range economy of this type of construction. Ventilation controlled by simple worm and gear mechanism. Complete window unit, including frame and sash, with hardware installed, is furnished by the local millwork manufacturer, assuring factory-controlled fabrication and low delivered cost on the job.

Our catalog is in Sweet's. Further information gladly supplied on

GATE CITY SASH & DOOR CO. Dep't. F Fort Lauderdale, Florida



To meet the needs of Home Builders

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THIS COMPLETE SERVICE...

- ▶ SUBDIVISION FINANCING...ABC will make loans on unimproved real estate for the purchase of and/or improvement of tracts to be subdivided for building sites.
- MATERIAL AND EQUIPMENT FINANCING... Through ABC the progressive builder is offered a program which provides funds for the purchase of building material and equipment for residential construction.
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- ▶ PACKAGE MORTGAGE... Under the ABC Package Mortgage, household appliances and equipment may be financed in the real estate mortgage.
- ▶ MORTGAGE CANCELLATION PLAN... A powerful, unique sales tool available exclusively through Allied Building Credits, Inc. It protects the homeowner by cancelling payments in the event of death or permanent total disability.
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- ▶ RATES... Prevailing rates are offered according to location, construction and value of project.
- ▶ ONE STOP SERVICE... Each ABC office offers all the necessary finance services required to cover all phases of residential construction. And there is an ABC office near you.

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### NFWS

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Standard sizes available are 6'81/2" and 8'0" opening heights. Widths from 2'101/2" to 8'2" and combinations. A wide variety of colors from which to choose will harmonize with any decorative scheme.

The nation-wide Modernfold distributor organization is ready to supply you with or without priority. Write, phone or wire for name and address of your nearest Modernfold distributor.



#### NEW CASTLE PRODUCTS

1613 | Street

New Castle, Indiana

Dealers in all principal cities in the United States and many foreign countries

Act to make installations in temporary housing even though they conflict with local regulations. The Mayor had little patience with plumbers' union spokesmen, who said flatly that union workmen would not work on the FPHA projects unless the plumbing conformed to city requirements. Said the Mayor: the union itself was barring its members from obtaining employment and had left builders no choice but to do the work with non-union labor.

In Milwaukee, builders, aldermen and the local electric company teamed together to push over one code block. Non-metallic sheathed wiring, approved by insurance companies and accepted by most city codes, is banned by Milwaukee's electrical regulations. Said the Milwaukee Journal: "Milwaukee is not allowed to use this modern method of house wiring because the electrical contractors, the AFL electrical union and the building inspectors have prevented it for many years." In mid-June the city council opened hearings on the matter.

#### TRAILERS SETTLE DOWN They pay real estate taxes in Florida.

Trailers-the footloose goodtime charlies of prewar days-settled down during the war, like many another vagabond, to a fulltime job. Few have gone on the road again; shortage is keeping them on the job as permanent houses. Just how settled down these one-time migrants now are was apparent when Florida made up its mind to tax them as real estate.

From new on, any Florida trailer connected to utilities looses its migrant status and becomes fair game for the tax collector. Most Florida cities will take in plenty of new tax dollars. In Dade County (Miami) alone there are 10,000 trailers.

#### **EMERGENCY HOUSING TROUBLES** Governor Dewey's program snags.

While many had tried, there seemed no sure way to make political hay out of housing famine. Last month many a politico might well have concluded that it was safer not to try.

In upstate New York only a few big signs announcing "State of New York Reconversion Project for Veterans, Thomas E. Dewey, Governor" had appeared. How many friends these would win for Governor Dewey remained to be seen. But from some upstate towns came a complaint that was bound to lose some. Mayor E. Raymond Lee spoke plainly to the New York Post. He said State Housing Commissioner Herman Stichman had told him that Endicott would get no housing help from the state if it takes federal emergency houses. Officials in Schenectady, Mt. Vernon, Bing-

(Continued on page 24)



### Check Exclusive **Anchor Features**

Anchor Chain Link Fence provides important and exclusive advantages which are found in no other fence:

Deep-Driven Anchors, which facilitate erection, hold fence permanently erect and in line, yet permit relocation without waste if enclosed area changes.

Square Frame Gates, inseparably buttwelded at corners, amazingly free from sagging and warping.

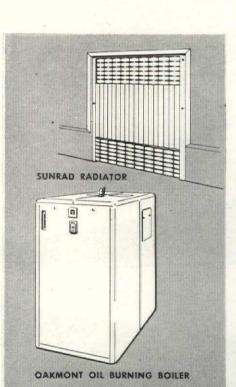
Square Corner Posts, better looking and much stronger than round posts of comparable size.

U-Bar Line Posts, which further increase rigidity, strength and durability.

Send for our Book No. 110 for your A. I. A. File No. 14-K. Shows many types and uses . . . pictures prominent installations . . . contains structural diagrams and specification tables for Anchor Chain Link Fence. No obligation. Address: Anchor Post Products, Inc., 6635 Eastern Avenue, Baltimore 24.

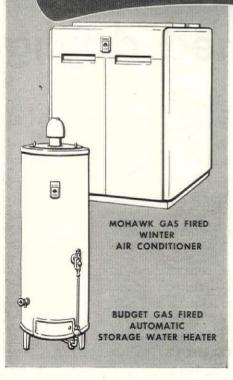


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YOU can have quality heating for the low-cost or moderate-priced homes. For when you specify American-Standard you get the finest heating equipment money can buy. The units illustrated are among those particularly fitted for today's big market of small and medium sized homes.

Whether you want Radiator Heating, Warm Air or Winter Air Conditioning there is an American-Standard product to fit your installation requirements. Over fifty years of engineering experience and constant advancement have made American-Standard a by-word for sturdy construction, sound design, and efficient service. Consistent advertising has taught thousands to look for the American-Standard Mark of Merit.

We suggest that you check with your Heating and Plumbing Contractor. He will be glad to advise you on the current availability of the products you desire ... also to explain our convenient F.H.A. Time Payment Plan for modernizing work. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

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HEATING PLUMBING

Serving the Nations Health and Comfort

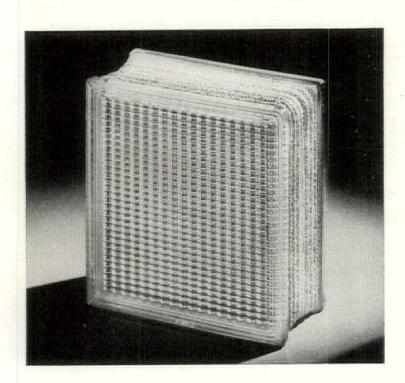
LOOK FOR THIS MARK OF MERIT—It identifies the world's largest line of Heating and Plumbing Products for every use . . . including Boilers, Warm Air Furnaces, Winter Air Conditioners, Water Heaters, for all fuels . . . Radiators, Convectors, Enclosures . . . Gas and Oil Burners . . . Heating Accessories . . . Bathtubs, Water Closets, Lavatories, Kitchen Sinks, Laundry Trays, Brass Trim . . . and specialized products for Hospitals, Hotels, Schools, Ships and Railroads.



Veteran of many railroad installations—a proved performer under the most demanding conditions—Insulux Glass Block was selected by Architects Deleuw, Cather & Co., Chicago, for Rock Island Lines' new research and testing laboratory. The entrance and a 5-foot

section of exterior walls are constructed of Insulux panels. Wall panels extend from top of clear windows to ceiling of the building. Insulux *light-directing* block bends light to the ceiling for even distribution across the many rooms of the laboratory.

# How a laboratory aimed daylight



DAYLIGHT is focused on research and testing of 70,000 railroad items by panels of Insulux Glass Block at the famous new Rock Island laboratory.

Working areas are flooded with natural daylight while dust and dirt are sealed out and transmission of noise lowered.

The high insulating value of Insulux helps cut heating costs. Maintenance expense is low because Insulux does not rust, rot or corrode and painting is never necessary. It is easy to clean and keep clean.

In a wide range of construction—from laboratories and factories to stores and homes—architects are making increased use of Insulux Glass Block because it *does many things* other materials cannot do.

OWENS-ILLINOIS

# INSULUX

**GLASS BLOCK** 

For technical data, specifications and installation details, see our section of Sweet's Architectural Catalog, or write Dept. C-19, Owens-Illinois Glass Co., Insulux Products Division, Toledo 1, Ohio.

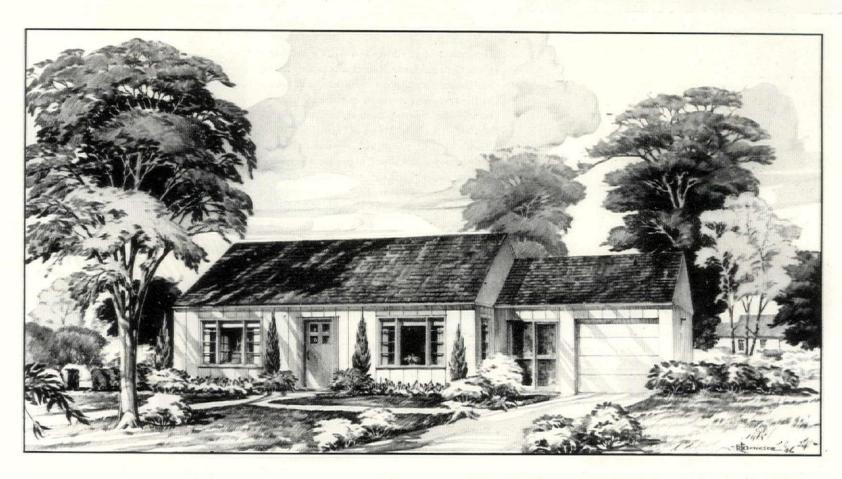


The custom yacht interiors shown in the photographs are typical of Defoe's fine workmanship. - For more than forty years, Defoe's rule has been that everything must be made to look well, to perform perfectly and to give the buyer top value for his money.

#### LET DEFOE SHOW HOW

# You Can Afford The Very Best

- .. in design and workmanship
- .. in comfort and convenience



WHEN you buy Defoe you will acquire a fine heritage of beauty and common sense in design brought into being by workmen skilled in a traditionally fine craft. And remember, Defoe builds homes—the kind that fit naturally into any American couple's scheme of living. No trend toward freak design has been permitted and there will be no compromise materials or construction methods employed.

HOUSING DIVISION
DEFOE SHIPBUILDING COMPANY Dept. AF-7
BAY CITY, MICHIGAN
Please send me the descriptive brochure on the new
Defoe Homes.

Name

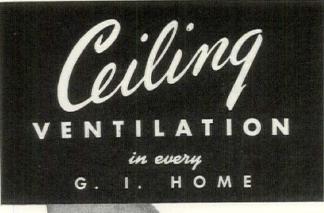
Street

City and State\_





The Federal Government has just announced details of a nation-wide emergency housing program which will necessitate changes in the original program for the construction of Defoe Homes. The brochure offered in the attached coupon shows architect's drawings of several houses which can be built by the Defoe system. It also explains how the Defoe method works and pictures some of the unique features which Defoe will offer.







Ventilators cut both cost and frequency of interior cleaning. These efficient modern ventilators literally scoop up cooking smoke and odors as they rise—before they smear walls or furnishings. Blo-Fans combine the principles of both breeze fan and blower. They have power plus volume!

Blo-Fans belong in both single and multiple dwelling units—in kitchens, bathrooms, rumpus rooms and laundries. The cost is little.

Buyer or renter, the G. I. family wants a home that's free from cooking-grease walls and tattletale odors... There are Blo-Fan models for all classes of homes, from the smallest to the most pretentious.

Distributed by Franchised Wholesalers Throughout the Country

Blo-Fase
CEILING VENTILATORS

PRYNE & CO., INC.
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hamton and Endicott told the Post the same story.

Commissioner Stichman denied that the Dewey administration was opposing erection of federal temporary units so that Senator James Mead, sponsor of the federal appropriation for emergency housing, could not claim credit for veterans' housing if nominated as Democratic gubernatorial candidate this fall. "We welcome federal assistance anywhere in the state," he said. Stichman explained that he had opposed federal units in Binghamton and Endicott because "it would not be good business to have two different projects in one place."

While Stichman tried to bow Governor Dewey out of trouble, New York's notable Park Commissioner Robert Moses and leftish Bronx Councilman Michael Quill, boss of the transport workers, exchanged brickbats in the sedate *Christian Science Monitor*. Quill accused Moses of "scuttling New York's housing program." He was particularly annoyed by Moses plans for a seaside oceanarium—"I think the fish could wait."

In Chicago, Mayor Ed Kelly wrangled with the Federal Public Housing Authority about who should foot the bill for readying sites for temporary housing. Mayor Kelly said the city had already sunk \$2 million in emergency housing and expected to get it back from the federal government. FPHA said it had no money to spend for anything but moving and re-erecting the temporaries; other than that, the cities themselves were obliged to put up the money. As the flow of temporaries into Chicago halted, veterans picketed the city hall.

Elsewhere help for veterans housing came in a variety of ways. In Ohama, Nebr. small contributions from hundreds of citizens raised nearly \$50,000 to finance construction of 225 veterans houses. In San Francisco, the American Veterans Committee planned to finance construction of 1,500 houses in the bay area, with veterans to buy their own homes on a long-term plan. Red Cross contributions of \$60,000 were helping to provide emergency housing for Los Angeles veterans. In many cities, chambers of commerce and merchants' groups raised the money for emergency housing.

In Connecticut, the legislature authorized the state forestry commission to provide home-grown lumber for veterans houses, figured on making available several million board feet. Connecticut also earmarked \$5 million of state funds to match municipal expenditures for veterans housing on a 50-50 basis. Only two other states have appropriated funds for emergency housing: New York, \$35 million; California, \$7½ million.

(Continued on page 28)

# Farlier ?





Delivery of a new or remodeled building is speeded up by painting interior walls and ceilings with LUMINALL while the plaster is still new. LUMINALL has a porous film which allows moisture in new plaster to escape without damage to plaster or paint.

This highly light-reflective paint has exceptional decorative value...it is available in white and many lovely colors... ideal for interiors of homes or other buildings, public or private. Its moderate cost recommends it for storage and work areas, too. One coat covers—dries in 40 minutes.

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# New! Different! Sensational!

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 $Use U \cdot S \cdot G^* Sheathing \dots and forget$ the weather! The asphalted-gypsum core makes it weatherproof, gives it superior bracing strength even when drenched with water. In just 15 days, U·S·G laboratories drove 165 inches of simulated rainfall against big panels of this sheathing. Yet its absorption was only 3.4% by weight.

And there was no warping, no buckling, no opening of joints. More, it cuts sheathing costs 1/3 to 1/2. You can use brick, wood, asbestos, stucco or stone exteriors. Available now in limited quantities. Ask your U·S·G dealer for test-it-yourself samples. Or write direct to 300 West Adams Street, Chicago 6, Illinois.



FIREPROOF. The gypsum makes these panels

core mix is formed, waterproof asphalt is dispersed throughout.



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For Building . For Industry

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# SOMETHING NEW TO KNOW ABOUT

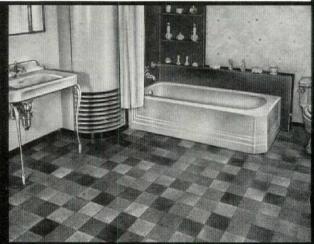
If you've had anything to do with fine buildings since 1899, you probably used Kencork as a super-luxurious floor for museums, libraries, offices, etc. But do you know that Kencork's now an exciting new re-discovery for many an architect and decorator-because they've realized that this is the floor for the finest in MODERN homes.

DO YOU KNOW for instance, that Kencork in the bedroom means added quiet, cushioned footsteps, natural insulation-a comfort to step on to? And how grand in a nursery!

DO YOU KNOW that Kencork in the living room means added dignity, added luxury, added pleasure underfoot?

DO YOU KNOW that clever architects have proved Kencork is the perfect bathroom floor-nonskidding, non-porous-always soft and warm-always "kind" to wet, bare feet?







And, do you know there's a new Kencork now because that plant made cork parts to the Navy's precision specifications during the war and now Kencork is made so accurately it is pre-finished at the plant. Kencork installation is a fast, clean, easy installation today (no messy machine-sanding on the job any more.)

Do you know, finally, that Kennedy is turning this trend into a fad now by grand, colorful ads in HOUSE AND GARDEN-in AMERICAN HOME-in powerful promotion campaigns that are making Kencork one of America's most important floor materials?

Yes, you should know all about Kencork today to be fully informed about the newest in flooring. We'll be glad to send our informative, full-color folder. Write

DAVID E. KENNEDY, INC., 69 SECOND AVENUE, BROOKLYN 15, N. Y.

### CHECK OTHER INSULATIONS AGAINST

PC FOAMGLAS INSULATION

PC Foamglas insulation solves the toughest insulating problems – permanently.

This cellular material is the only insulation composed of millions of tiny globules of air sealed in glass. It withstands attack by moisture, vapor and the fumes of most acids—elements which frequently impair or destroy the insulating value of other materials.

Rigid and strong, PC Foamglas will not swell, shrink, powder or rot. It repels vermin. It is waterproof, fireproof. It *stays* where insulation is required, will not slip, slide or pack down.

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PC Foamglas has proved its ability to do a thorough job of insulation in floors, core walls, and roofs, in factories, hospitals, schools—buildings of every kind—all over the country.

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FIND OUT what PC Foamglas has to offer you. Our illustrated booklets are packed with valuable engineering data, tables, charts, drawings and installation details. We shall be glad to send you the information you need free of charge—if you will just check the convenient coupon and mail it to Pittsburgh Corning Corporation Room 154, 632 Duquesne Way, Pittsburgh 22, Pennsylvania.

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# PREFABRICATED

FOR YOU



WHETHER your choice is a small cottage . . . . . . . .

A conventional year 'round Cape Cod

OR a long rambling home big enough for your large family

These two affiliated organizations will be ready to serve you with homes expertly designed with the experience of over a half-century New England quality craftsmanship.

E. F. HODGSON COMPANY ALLIED HOUSING ASSOCIATES. INC.

730 Fifth Ave.

New York, N. Y.

#### **EVICTION SAFEGUARD**

Federal courts may now intervene.

The Supreme Court, seething with intramural feuds, composed itself long enough to reach a decision that will help ease one big municipal headache—what to do about

The rising tide of evictions-which displace renters because buyers want to move it, which preface demolition and new building-have brought a hundred kinds of tenant protests, ranging from stay-in strikes to court action. In some cities, citizens have appealed for a wholesale moratorium on evictions. In others, mayors have been urged to declare a state of emergency under which all demolition of residential property could be halted by a municipal ban.

Everywhere OPA has intervened between the landlord anxious to evict and the tenant anxious to stay. But in many cases evictions have been carried out while appeals based on OPA rules regulating eviction were pending in the courts. Last month the Supreme Court told federal courts to halt all evictions until appeals have been heard.

The Supreme Court's decision (which, reached in two weeks, established a speed record) was read by Justice Hugo Black. It was based on two cases where federal courts had refused to consider eviction appeals, saying they must be heard in state courts. The Court agreed that from now on OPA may go into federal courts to ask for an injunction halting an "unlawful eviction."

#### LABOR

#### **EMPLOYMENT PEAK?**

Building labor may soon be bottleneck.

More building men were at work last month than at any time since the brisk building pace of early 1943. New men were showing up on construction jobs at a rate of about 200,000 every month. With some 1,720,000 now at work, all signs were that building employment rolls would continue to swellas long as supply of building labor holds

This might not be very much longer. Housing Boss Wilson Wyatt feared that the veterans emergency housing program would run into a serious manpower bottleneck within six months (see Forum, Jan. '46). Some progress had been made: the number of buildings trades apprentices had jumped 12 per cent in April over March. But Wyatt said there were still long waiting lists of would-be apprentices in some cities -a potential labor supply blocked by union restrictions on number of apprentices per journeyman.

(Continued on page 32)

# When Planning Homes Plan for PERMANENT LAWNS



Housing sells faster when landscaped. Plan for lawns in your budget.

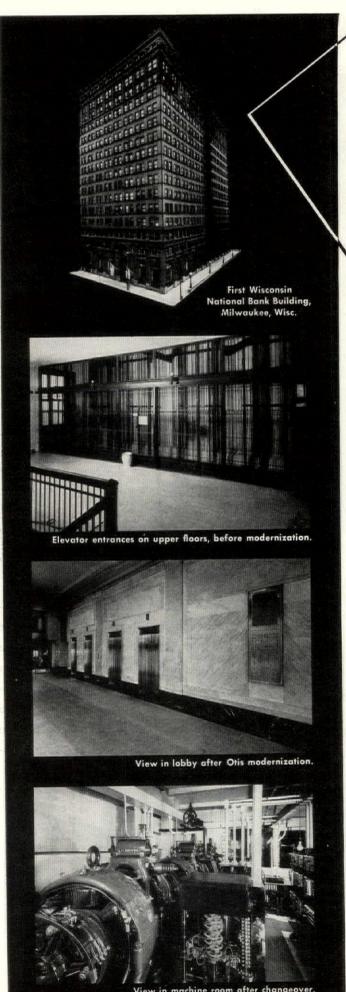
#### **Protect Your Reputation**

Avoid barren, scraggly surroundings by sowing lawn seed in the Fall - when Nature provides two cool growing seasons for grass to mature.

Assure Complete Landscape Design Be dead right with the correct lawn seed mixture by consulting . . .

NOODRUFE

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# OTIS modernization solves elevator problem in Wisconsin building

BEFORE they were modernized by Otis, the eight elevators in the First Wisconsin National Bank Building did not provide the tenants with satisfactory service, although only 70% of the building was occupied.

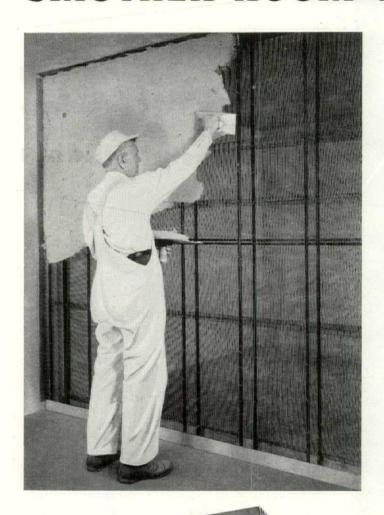
AFTER having been modernized and equipped with Otis Peak Period Control\*, these same eight elevators are today providing satisfactory service to the entire building, which is completely occupied, and are handling 42% more traffic.

An Otis survey of your elevator needs costs you nothing. It may save you much. For the finest in vertical transportation tomorrow, call Otis today.

\*Peak Period Control is an Otis trade name for the most up-to-date and modern car dispatching system obtainable.



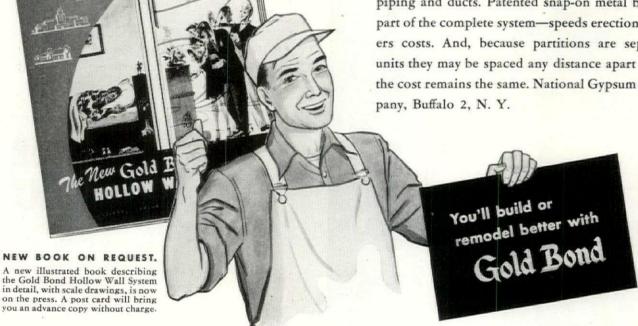
### SMOTHER ROOM-TO-ROOM NOISE



WITH GOLD BOND

OOKING for a low-cost way to build lightweight, sound-insulating partitions? Then you'll want to know about the New Gold Bond Hollow Wall System. With this method of construction a 43/4" wall reduces room-to-room noise as effectively as an 8" solid brick wall plastered both sides...a space saver for apartments, schools, hospitals, hotels, offices and housing projects.

Strong, fireproof double partitions that are completely independent of each other . . . no ties or bridging. Clear unobstructed space for service piping and ducts. Patented snap-on metal base is part of the complete system-speeds erection, lowers costs. And, because partitions are separate units they may be spaced any distance apart while the cost remains the same. National Gypsum Company, Buffalo 2, N. Y.



LATH . PLASTER . METAL PRODUCTS . WALL PAINT . LIME . INSULATION . SOUND CONTROL . WALLBOARD



One of the marks of good construction that your client actually sees for himself and really appreciates is the *triple* hinging of doors.

Three hinges on every door—whether thick or thin—hold the edge of the door in alignment, and keep latch and lock clicking to a perfect fit. That's more important in today's construction than ever before.

Remember, it costs less to put a third hinge on every door than to repair a single warped door later! So for better construction and greater satisfaction—triple hinge your doors. The Stanley Works, New Britain, Connecticut.



REMEMBER . .

THREE HINGES TO A DOOR

### NEWS

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Only local action can boost building labor supply. One old building remedy for spot labor shortage is now impossible. Roving labor forces can't move from one city to another the way they used to do-because they can't find any place to live while they build the new houses needed.

#### MATERIAL

#### **EQUIPMENT ROLLS**

Ingersoll and Edison G-E starts deliv-

Roy C. Ingersoll, who expects his packaged bath-kitchen-heating unit to go far to hurry-up veterans housing, last month gave his fellow producers a piece of advice. Ingersoll is tired of the industry row about the veterans emergency housing program.



INGERSOLL

Said he: "Obstructionists should lay aside their current battle, at least for two years, and get on the team. Let them quit fighting and get to work."

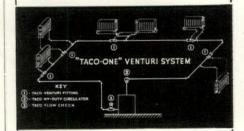
Ingersoll had already taken his own advice. Early in July deliveries began on his modified utility unit, sliced down to meet the minimum price and minimum

space requirements of the small homes to be built under the veterans program (see page 133). "We, of course, would have liked to have produced the complete unit as shown at the Home Builders Exposition," Ingersoll said. "But we believed that the least we could do to show our appreciation to the returning veterans for the sacrifices they so willingly made was to reduce its size to fit their needs without sacrificing the quality of its construction."

A complete price schedule for the Ingersoll unit has not yet been announced. Prices will vary regionally, since the unit will be shipped f.o.b. (the central utility core alone weighs more than 1,100 pounds). One middle-western dealer not far from the Ingersoll factories believes he can deliver the unit completely installed for \$1,485.

News from the Edison General Electric Appliance Company also underlined the beginning of a substantial flow of equipment to veterans housing. Between June 15 and August 15 Edison will deliver 1,000 complete all-electric kitchens, making the first noticeable dent in the vast shortage of electrical equipment. Edison's basic kitchen will cost approximately \$450 to \$500. Units will be distributed on a country-wide basis: New York City will get 150; Chicago, 50; Los Angeles and San Francisco, 25 each; other cities, proportionate quotas. Units will be alloted among builders.

## The Quality One Pipe Hot Water Job



Lends itself to Mass Production in High Quality -Low Cost Homes and Apartments

The "Taco One" Venturi System is so designed that only one special Taco fitting is used on the returns of all upfeed or downfeed radiators (radiant baseboards,

Its Superior Design Enables Heating Contractor to Use:

#### LESS SUPERVISION PRECUT PIPE SIMPLE LAYOUTS

Thousands of installations over period of years prove the Taco Venturi fitting will positively circulate any radiator (radiant baseboards, too).

Write for more information about this dependable one pipe system that enables you to give enduring Radiator Heat on low cost housing. It also provides year 'round domestic hot water from the same boiler that heats the house.

**Better Heating - Better With Taco** 



TACO HEATERS, INC. 342 MADISON AVE., NEW YORK 17, N. Y. In Canada: Taco Heaters of Canada, Ltd., 24 Adelaide St., W. Toronto



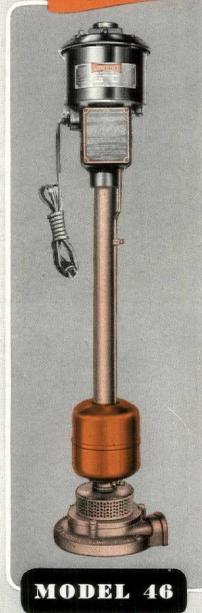


UNITED STATES RUBBER COMPANY

COATED FABRICS DIVISION, MISHAWAKA, INDIANA

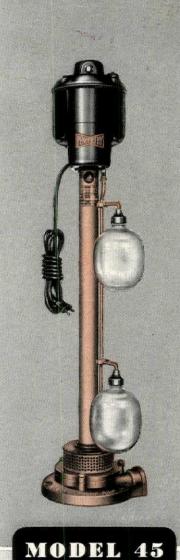
# PENBERTHY AUTOMATIC ELECTRIC SUMP PUMPS

CONSTRUCTED OF COPPER and BRONZE THROUGHOUT





Made for 5 Different Sump Depths



PENBERTHY INJECTOR COMPANY

Canadian Plant-Windsor, Ont. (Manufacturers of Quality Products Since 1886) DETROIT 2, MICH.





remember...

In the homes you plan, be sure to provide for conveniently located telephone outlets. Your clients will appreciate this extra, modern touch.

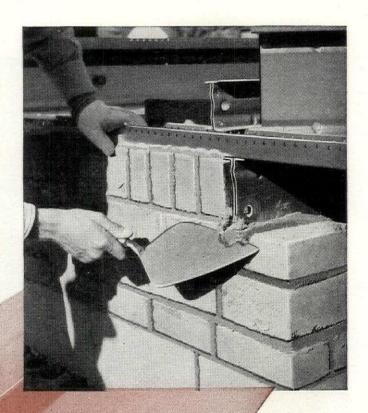
During construction or remodeling it is easy and inexpensive to install telephone conduit within walls leading to neat wall-plate outlets wherever needed for maximum convenience. And when telephones are put in, the wiring will be concealed.

Good telephone arrangements are good indications of quality construction. Your Bell Telephone Company will be glad to co-operate in planning them. Just call the nearest Telephone Business Office and ask for "Architects and Builders Service."

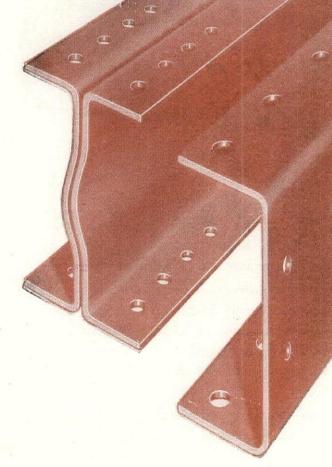
BELL TELEPHONE SYSTEM



BUILD



### Easy to Design with . . . Easy to Build with



ARCHITECTS find Stran-Steel practical and economical to use. It provides durable, rigid, fire-safe framing of lightweight steel, yet permits wide flexibility in working out designs.

BUILDERS like to work with Stran-Steel. Pre-cut to required lengths, the framing members are assembled with self-threading screws. Other building materials are simply nailed to the frame by means of the nailing groove, a patented feature of all Stran-Steel studs and joists, which grips nails as in a vise, holds them permanently and securely. The frame goes up quickly, without the use of special tools or equipment.

PROSPECTIVE BUYERS are quick to appreciate the advantages of Stran-Steel. It gives homes, apartments, stores and industrial buildings a greater investment value, since sag-, rot- and termite-proof framing means lower maintenance costs.

For full details, see Sweet's File, Architectural, Sweet's File for Builders, or the January issue of Building Supply News.

GREAT LAKES STEEL CORPORATION Stran-Steel Division · Penobscot Building · Detroit 26, Michigan UNIT OF NATIONAL STEEL CORPORATION



The growth in popularity of the Picture Window has been phenomenal. Thermopane, L·O·F's transparent, multiple-pane insulating unit, has won wide and enthusiastic acceptance as the ideal glass for large window openings.





Thermopane—the L·O·F windowpane that insulates. Dehydrated air is hermetically sealed between its panes with the metal-to-glass Bondermetic Seal. Thermopane helps cut heating bills, adds comfort and reduces the possibility of condensation on the glass.

The following sizes have been established as standard for *Thermopane* manufactured with two lights of ½" Polished Plate Glass separated by ½" air space:

481/8"	x	351/2"	50"	x	961/2"	
481/8"	x	551/4"	58"	x	641/2"	
481/8"	x	75"	58"	x	721/2"	
50"	x	481/2"	58"	x	801/2"	
50"	x	561/2"	58"	x	961/2"	
50"	x	641/2"	58"	x	1161/2"	
50"	x	721/2"	603/8"	x	351/2"	
50"	x	801/2"	603/8"	x	551/4"	
		60 <sup>3</sup> /8" ×	75"			

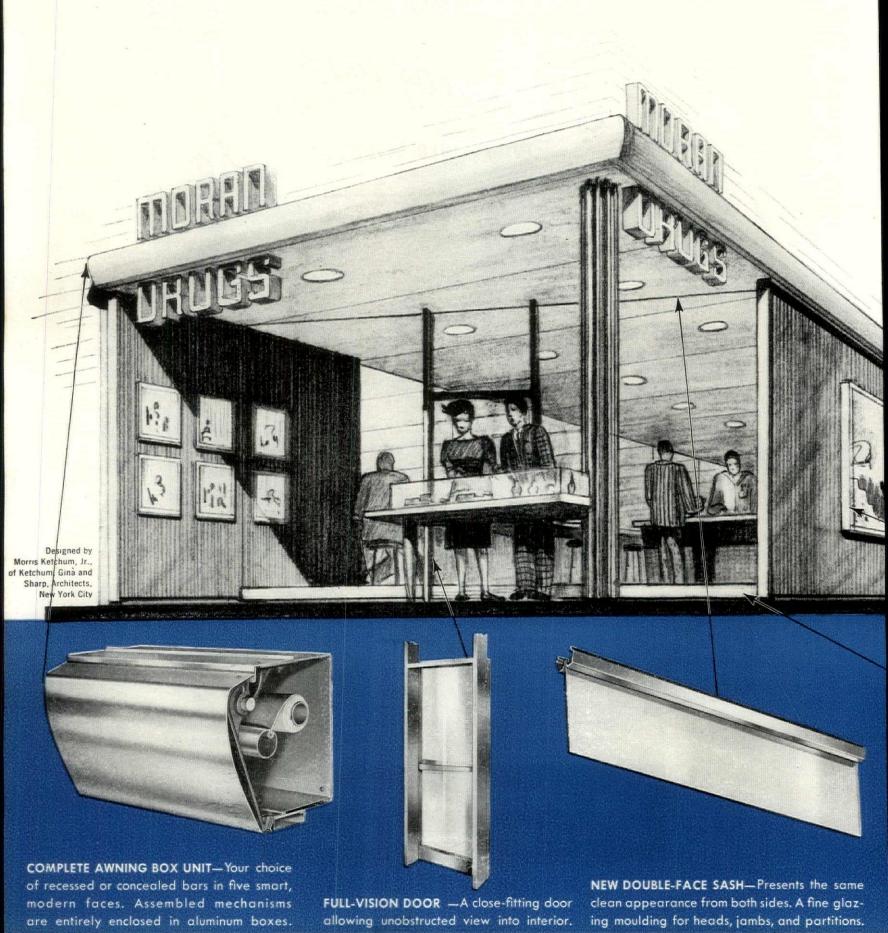
By adopting the above sizes, which have been established by manufacturers who make sash units for *Thermopane* and which are based on American Standards Association 4" modular construction, design, supply and installation will be simplified. Libbey Owens Ford Glass Co., 1676 Nicholas Bldg., Toledo 3, O.



### Kawneer presents

## new

CUSTOM STYLING
IN STOCK SHAPES



### new

FLEXIBILITY PLUS INTERCHANGEABLE UNITS

### new

FEATURES IN CONSTRUCTION

### with the New K-47 Line of Store Front Metals

More than a new line of store front mouldings and trim...the new K-47 Line creates a new opportunity for expression which challenges the imagination and responds to the will of the architect.

Styled to complement contemporary design and engineered to meet modern structural needs, this new Line is the result of research among foremost architects and builders, and it takes full advantage of Kawneer's 40 years of specialized experience.

Smooth-flowing lines and graceful profiles characterize K-47 members which have been carefully designed for interchangeability and for flexibility of use. A wide variety of custom-styled effects can be obtained by the architect - along with the advantages of immediate availability and the economy of stock shapes. The timeconsuming job and unnecessary expense of detailing special shapes are eliminated.

The assemblies pictured below are just a few of the many which comprise this new Line. Construction details of both the K-47 Line and the Kawneer Standard Line will be mailed to architects upon request. Fill out the coupon below and mail it today to The Kawneer Company, 705 North Front Street, Niles, Michigan.

> THE KAWNEER COMPANY, 705 North Front St., Niles, Mich. Please send me Construction details of K-47 Line

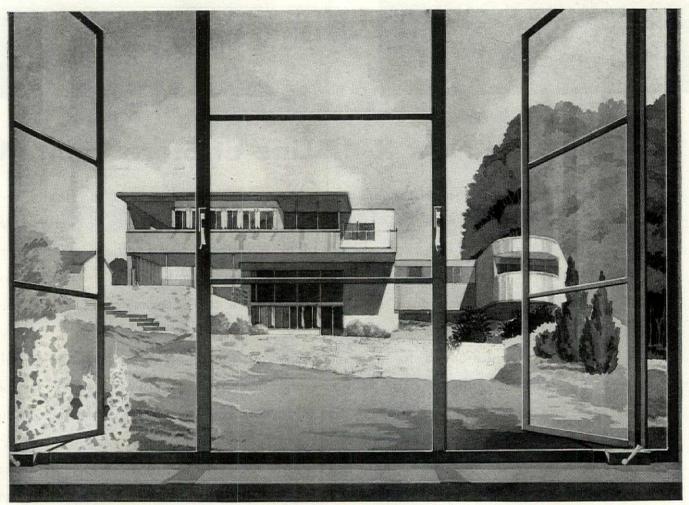
FIRM

ADDRESS

CITY AND STATE

Construction details of Standard Line





Lupton Steel Casements accent the modern design of this residence of Oscar Stonorov, A.I.A., in Chester County, Pennsylvania.

Built on the foundations of a 150-year-old farmhouse, this large country home uses Lupton Steel Casements to make every room a "room with a view". And that's mighty important in this rolling Pennsylvania farm country. In the finest residential construction or in the new low cost houses, Lupton Casements afford positive assurance of abundant daylighting, draft-free ventilation, fire-proof construction. Lupton Casements are complete units, ready for quick, low cost installation. Trouble-free operation and simple, effective screening mean lower maintenance costs. Write for the new 1946 Catalog or see our Catalog in Sweet's.

MICHAEL FLYNN MANUFACTURING CO. E. Allegheny Avenue at Tulip Street, Philadelphia 34, Pa.

# LUPTON METAL WINDOWS



OH.H.H.H it's Firestone

Velon makes smarter, lighter colors practical because it cannot soil, fade or change color.

Velon wipes clean with a damp cloth. Dirt, grease, even ink can't cling to its non-porous threads.

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Foamex floats folks in blissful relaxation on millions of

AH·H·H it's FIRESTONE comfort cushioning material

Foamex is air-cooled, air-cleaned because these countless

Foamex is lump-proof, sag-proof because it replaces springs and stuffing with a one-piece material.

Foamex improves seating design, eliminates bulk, permits sleek, modern construction. Write Firestone, Akron, for your free full-color Foamex booklet.



Listen to the Voice of Firestone Monday Evenings over NBC

Ring Construction in the Roundhouse . . . Allen and Bennett on Blandings . . . Traffic turnways for Los Angeles . . . The Yogi and the Barwa . . . America's Housing Crisis.

#### HEMISPHERIC HUG

Forum:

I am writing to tell you my opinion of the innovations begun in your issue of January 1946

I find the new Forum most excellent and believe that at present it is one of the best architectural magazines in the world. I am not saying this as flattery, but from comparing it with other architectural magazines published in the U. S., England, France, Argentina, etc. The introduction of color plates showing the details and front views of the new Guggenheim Museum planned by the world-famous architect Frank Lloyd Wright are visually highly effective. I hope that in the next issues of Forum such color plates will be renewed with selected architectural and decorative motifs.

I also hope to see in the near future the first views and details of the reconstruction of various European cities devastated by the war. FORUM has already published some views but on a small scale. A great period is approaching for contemporary and functional architecture in which application of the new prefabrication methods and advanced construction techniques will result in a more flexible architecture.

CELESTINO P. SABBADIN

Argentina, S. A.

Forum:

Belated congratulations from Brazil. The new format of your magazine and the expanded scope of your articles makes Forum the leader in its field . . . And I have no filing case problem . . .

FERDINAND MONTEZ

Brazil, S. A.

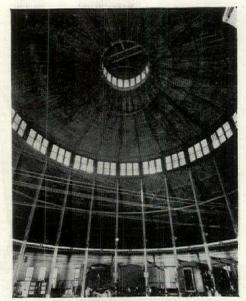
#### OLD ROUNDHOUSE

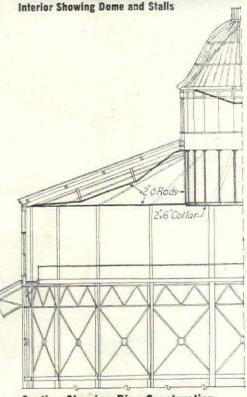
Forum:

Your story on 19th century railway train sheds (Forum, April '46) was most interesting to me. In connection with this subject, perhaps you would like to see photographs of the old passenger car shed of the B. & O. here in Baltimore. I have always been entranced by the way the dome of this building is constructed, but only recently have I been able to get a photo showing this construction.

The whole dome is supported on an iron ring which, in turn, is held up by iron rods extending from the ring to the tops of the main outside supports of the roof.

It is altogether possible, of course, that this is not uncommon, but I do not happen





Section Showing Ring Construction

to have seen it before nor does our engineer of buildings know of any comparable structure. In this connection, I give you the following from the annual report of the B. & O. for 1884:

"A new passenger car shop, circular in form, has been erected at Mount Clare. It was finished in February last and cost \$100,471.97.... The structure is fire-proof throughout and is regarded as the finest of its class in the country, combining as it does the greatest light and ventilation with the maximum economy of working."

The former car shop was demolished by fire in 1883. The 1884 shop has been used continuously for the building and repair of railroad cars from the time of its erection until the present day, and has been extremely efficient. It has in it 22 stalls, or spaces, between the steel upright supports, in which cars can be placed for handling. These divisions are made by the 22 columns, each of which supports one end of the radial truss rod structure. There are a corresponding number of rod hangers for the circular plate to which the same number of tie rods are attached and extend to each column to prevent a spreading of the structure. The approximate over-all dimension inside of walls is 240 ft. and the 22 columns are on a diameter of 100 ft. while the diameter of the ring is 26 ft. The height of the top of the tower is 121 ft. from the floor level.

ROBERT M. VAN SANT

B. & O. Railroad Company Baltimore, Md.

### MR. BLANDINGS DIGS HIS GRAVE

To Mr. Richard Bennett with 2 T's, c/o FORUM:

If you will look on Page 109 of the April Forum, you will notice a heading reading "Dispair and Pessimism." I figure the Dispair is the Publisher's reaction to that kind of proofreading. Do not blame me if your name comes out wrong as I am too busy trying to keep people from addressing me as Rigor, or alternatively Rover, Allen, with a notable lack of success.

You may possibly have read an article entitled "Mr. Blandings Builds His Castle" which has been published, so far, in FORTUNE, LIFE, FORUM, and the monthly house organ of the Junior Embalmers of America, for all I know. I anticipate seeing it condensed for the Readers Digest. The condensation will consist of the word "Ouch." You will be glad to hear that I am preparing an answer to this article entitled, "The Blandings Can Go to Hell," which undoubtedly will not appear in LIFE, FORTUNE, FORUM, or the annual directory of Associated Silo Straighteners of Eastern Ontario but may possibly appear in the bulletin of the Grand Rapids Chapter of the A.I.A., courtesy of the editor, me. It will appear at the rate of one sheet per month for approximately eleven years and will still leave certain aspects of the Blandings character untouched. Untouched, but not entirely unclouded.

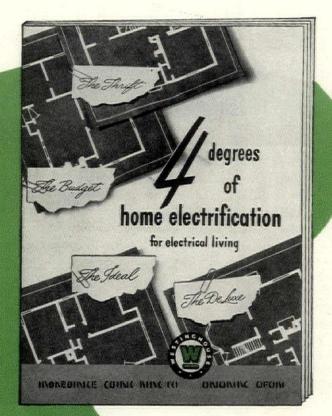
In the first scene Mrs. Blandings enters (Continued on page 44)



# A New Development In Electrical Systems For Homes

Electrical Living is vital in modern homes... but there are varying degrees needed to fit different family income levels. By recognizing this fact, and using the correct degree for homes you design or build, you will give greater owner satisfaction.

Westinghouse engineers have made it easy for you to select the correct degree, by developing Four Degrees of Home Electrification for popular priced homes.



The booklet shown here illustrates and describes the Four Degrees, and specifies the wiring installation necessary to support the electrical equipment established for each degree. Ask for booklet B-3774.

. . and this handbook has the technical data needed for designing any residential installation

The most comprehensive handbook ever produced on home wiring. Ten chapters. 120 pages. Dozens of charts, tables and diagrams. Covers every detail you require to plan and design a complete electrical system for homes. Costs one dollar. Send coupon below.



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Gentlemen: Please send me books marked below:

- ( ) The Four Degrees of Home Electrification B-3774 (Free)
- ( ) Home Wiring Handbook (Enclose \$1.00 with order)

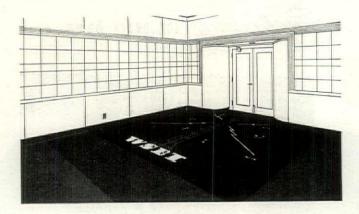
Name\_\_\_\_\_\_\_Address\_\_\_\_\_\_\_State

Westinghouse
PLANTS IN 25 CITIES ... O OFFICES EVERYWHERE.

BETTER HOMES DEPARTMENT

### FLOORING

### FUNCTIONS OF DESIGN IN FLOOR PLANNING



WHILE the floor has always been considered an important element in interior design, the increasing use of resilient floorings and the widespread development of custom floor techniques have opened up new possibilities in design of floor surfaces. Not infrequently, after the proper resilient flooring material has been selected, the floor can be designed to solve difficult architectural problems as well as to increase the utility of the space.

### FLOORS DESIGNED TO DECORATE

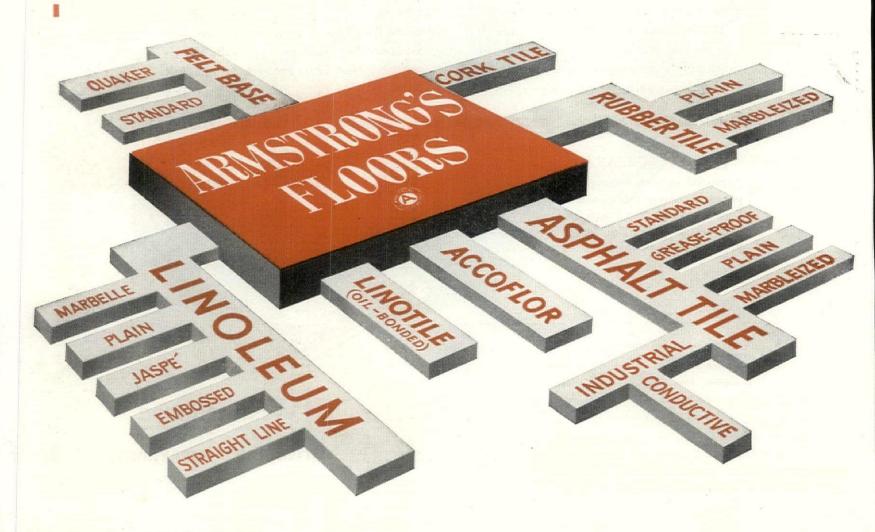
Often encountered is the design problem of a large area whose use dictates that it be kept relatively bare of furnish-

ings. Typical cases are found in lobbies, entrance foyers, and corridors. Here a highly decorative floor is often indicated. Where geometric or "patterned" designs are desired, the resilient tiles—asphalt tile, rubber tile, and Linotile\* (Oil-Bonded)—are particularly applicable; and even rather complicated effects can be installed at very little extra cost. Linoleum, almost unlimited in design possibilities, is particularly suited to non-geometric effects.

### FLOORS DESIGNED

### TO "SHAPE" THE ROOM

Optical illusions often play an important part in floor design, as demonstrated in Fig. 3. Long narrow interiors can be very noticeably broadened in effect by breaking the design into a group of rectangular areas, or by crossing it with bands of contrasting color. The use of a flash-type cove base which continues the basic floor color a few inches up the wall is another widening device. Many design problems resulting from interior proportions may be solved by these and other well-known principles of optical illusion.



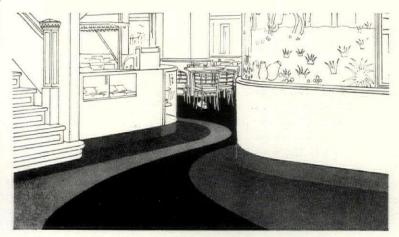


Fig. 1. The problem of directing traffic through an inconspicuous entrance into this cafeteria area was solved by a well-planned "directional" floor design.

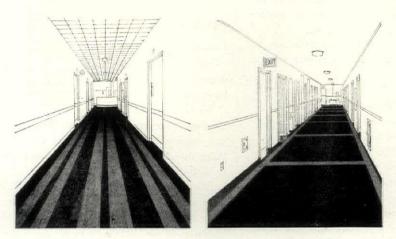


Fig. 3. Optical illusion helps to increase the appearance of width on long, narrow floor. Such illusions may be used to "shape" rooms unusual in design.

### FLOORS DESIGNED TO ADVERTISE OR DISPLAY

Much personal satisfaction may be given to the commercial client by use of his name, monogram, trade-mark, or other symbol of identification in the floor. These devices provide good use of floor space to identify a sales room with its primary selling function. Many commercial floors offer excellent opportunity to attract special attention to a display area or to a featured display fixture. This may be done by directional masses of color, by "staging" the display in a zone of color, or by repeating its outline in contrasting color on the floor (see Fig. 2).

### FLOORS DESIGNED TO "DEPARTMENTALIZE"

The problem of separating and identifying the various departments of a large store is often solved by a well-designed floor. Contrasting colors or dividing lines may be used to separate departmental areas, while symbols or names closely related to the monogram devices will serve to identify them (see Fig. 4).

### FLOORS DESIGNED TO DIRECT TRAFFIC

Simple directional lines or sweeps of contrasting color incorporated into the floor design will actually direct the general flow of traffic within a large area. This fact has been clearly demonstrated in large stores, lobbies, ticket sales areas, and other spaces where heavy traffic must pass in orderly fashion (see Fig. 1).

The trained designers of Armstrong's Bureau of Interior Decoration are always ready to make practical suggestions in problems of design or selection of resilient flooring. For this service, or for assistance on any flooring problem, contact any of Armstrong's district offices, or write directly to the Armstrong Cork Company, 2307 Duke Street, Lancaster, Pennsylvania.



Fig. 2. One method of calling attention to a featured display is by repetition of its general outline in a bright, contrasting color in the floor design.

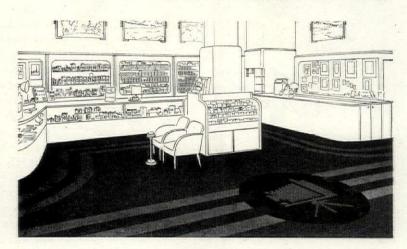


Fig. 4. Insets in the floor symbolizing merchandise and well used dividing lines help to separate departmental selling areas and to identify their functions.

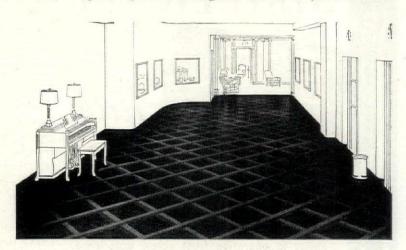


Fig. 5. Prominent floor design adds a warm, "furnished" effect in entrance lobbies or other areas simply decorated with a minimum amount of furniture.

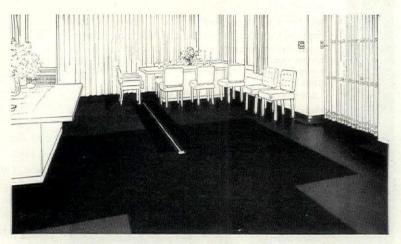


Fig. 6. Colorful decorative floor above was designed in keeping with modern architecture of the room and furnishings. Broad expanses of color add harmony.

### LETTERS



the office of Wellworn and Patched, Architects, and begins with Standard Opening Gambit #1; "We know exactly what we want our house to be; all you have to do is draw up the blueprints." While Mr. Wellworn searches for a blunt instrument Mr. Patched, a more docile type, takes a sheet of blue paper and draws white lines on it.

We then proceed through the usual stages as:

"My brother-in-law in Dubuque built a house twice as big as this for less money."

"Please do not put any windows on the north side of the house as I hate the woman next door."

"By making the laundry tubs 28 ft. longer we could have a swimming pool at no added expense."

"Please add a small music room over the garage as Mr. Blandings is intensely musical and plays second phyfe in the Duncan Phyfe and Drum corps."

By this time Mr. Wellworn has found the blunt instrument and the next scene is in the execution chamber at Sing Sing where they are putting Mr. Wellworn in the electric chair. Fortunately the electric chair was wired by a character who had spent eight years making automatic toasters so that when the current is applied the only result is that Mr. Wellworn pops out the top, slightly brown around the edges but otherwise unhurt. A reprieve arrives as Mrs. Blandings, it seems, is not actually dead. They merely assumed she was dead because after getting tapped with the b.i. she kept her big mouth shut for five minutes. The warden then asks Mr. Wellworn how to waterproof his cellar so he can raise barracuda in the coal bin and everything ends happily. Mr. and Mrs. Blandings are extradited to South Dakota, where they are wanted. By whom, I cannot imagine.

ROGER ALLEN

Grand Rapids, Mich.

Dear Mr. Allen (Roger):

It was with deep concern that I studied your rebuttal to the "Blandings Builds..." story. I believe your reply a step forward (or back) in establishing better public relations even though better established ordinary relations might have a more direct economic potentiality.

However, the sensitive reader might well feel that your story lacked objectivity—it is plain that you are definitely biased in favor of the architect. Making the architect a hero is never done in literature. This fact accounts for the phenomenal success of The Fountainhead which people reread twice to find out if someone didn't shoot the hero, and if the final scene going up the elevator in the skyscraper under construc-

tion isn't actually the stage machinery used to get little Eva to heaven in *Uncle Tom's* 

In next month's issue I wonder if your devoted readers could have the word on planning? Your all too human observations on this timely subject might be entering wedges to get these issues in the forefront of the present mad scramble to obtain three sheets of plywood and a black market bathtub.

RICHARD BENNETT

New Haven, Conn.

### PSYCHO-GENETIC CURE-ALL

Forum

Enclosed you will find photographs and material relative to a BARWA we have invented here.

We feel certain that the many architects reading your magazine (including us!) will be interested in knowing of the existence of such a BARWA. It is obtainable in limited numbers.

Briefly, the metaphysics of the BARWA are these: the spinal column of the human body is an infinitely delicate instrument of balance. In the 10,000 years of Man's upright existence, he has not yet compensated for his defiance of gravity: thus, backaches, muscle strain, flat feet and early fatigue attend the posture defects of our overworked mechanism.



BARWA, upright

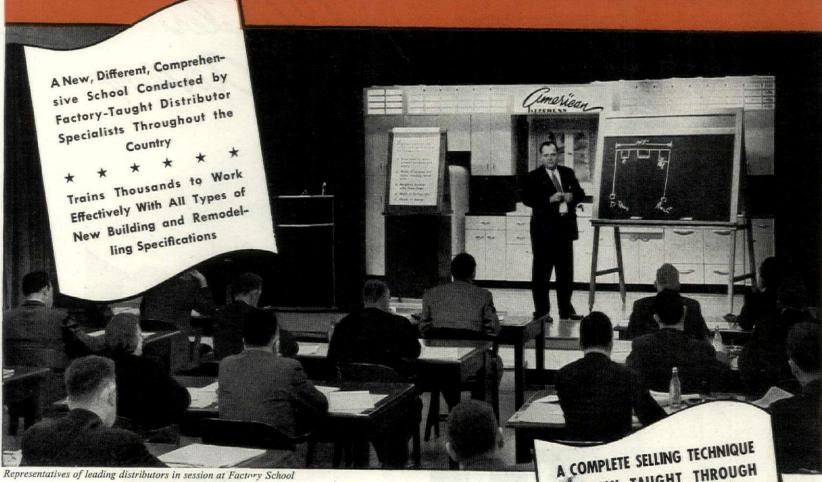


BARWA, reclining

The BARWA, by supplying a contour perfectly and expertly designed to follow the natural curves of the spinal column and skeletal frame, allows a person of any build to rest as nature intended.

From the lore of Eastern philosophy (Continued on page 48)

# School Assures Architects of Intelligent Cooperation



### THE BEST INSTRUCTION ON KITCHEN PLANNING THAT HAS YET COME FROM BIG INDUSTRY

Making your job easier in the new trend toward modern kitchens, the scientifically organized and conducted distributors' and dealers' school of American Kitchens is emphasizing, as a basic and primary feature, a complete course in the subject of how to plan and install a kitchen regardless of size or shape.

This is a new and different kind of instruction so easily absorbed that its specialized training makes these men of tremendous potential help to the architect. Their services are free, and they are delighted to cooperate. Consult any American Kitchens distributor.

VISUALLY TAUGHT THROUGH
SOUND FILMS, ILLUSTRATED
CHARTS, PRACTICAL PROBLEMS
AND DEMONSTRATIONS

American Kitchens'
Superiority

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Planning ANY Kitchen

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Installation

Follow-Up . . . every customer a salesman

American Central Manufacturing
Corporation
Connersville, Ind.



\* Sinks
\* Cabinets

\* Cabinets

\* Dishwasher

\* Disposal

\* Home Freezer

One Unit
...or a
Complete
Kitchen



## This beauty hint—air conditioning—gets enthusiastic approval from both patrons and beauty salon operators. Refreshingly cool, filtered air, with excess moisture removed, is thoroughly appreciated on a hot summer

excess moisture removed, is thoroughly appreciated on a hot summer day. Women make a habit of patronizing air conditioned shops. Operators like it because they can do better work and handle more appointments when they're comfortable.

The ideal air conditioner for a beauty salon—or for any kind of shop or store—is the "Packaged" Air Conditioner by Chrysler Airtemp. It's a simplified form of air conditioning. The well engineered "packages" come ready for quick and easy installation. Very little floor space is required, and the "packages" are so flexible in application that they fit well into any plan. They are easy to move—a big advantage when remodeling or changing locations.

Chrysler Airtemp pioneered "Packaged" Air Conditioners. Behind them is Chrysler Corporation and its fine reputation for engineering and mass production skill—your assurance of high quality at low cost. For details, architects are invited to write to Airtemp Division of Chrysler Corp., Dayton 1, Ohio. In Canada: Therm-O-Rite Products, Ltd., Toronto, Ont.

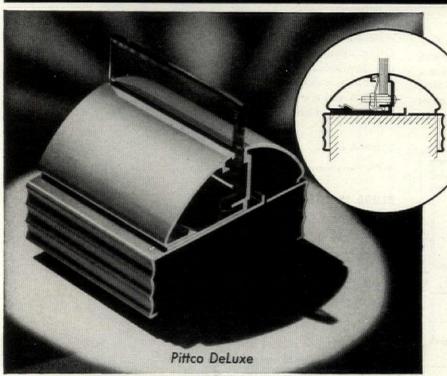
### "Packaged" Air Conditioner

Engineered for very long life ... noted for low-cost operation and upkeep ... equipped with the famous Chrysler Airtemp sealed radial compressor ... can be installed singly or in multiple ... heating coil can be added to "package" for year 'round air conditioning.

## CHRYSLER CAIRTEMP

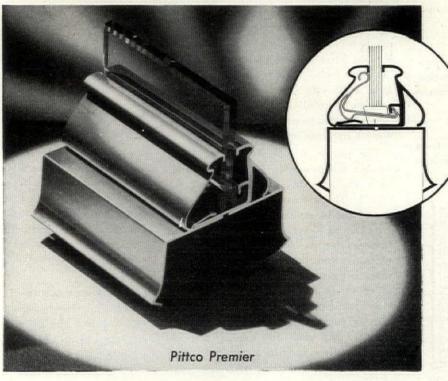
**HEATING · COOLING · REFRIGERATION** 

## Two lines of PITTCO METAL now available for Store Fronts of distinction



PITTCO Metal is functionally, as well as artistically, designed to fit every store front need. This Pittco De Luxe double face sash is both a safe and attractive setting for "open vision" display windows and partitions with glass panels. Reversing the members permits glass to be set from interaction and partitions with glass panels. Reversing the members permits glass to be set from interactions and partitions.

side—a decided advantage when working above normal grade levels. The extruded method of manufacture assures rugged strength, clean, sharp profiles, lasting color and perfect finish. The wide variety and imaginative styling of Pittco De Luxe mouldings help architects to create impressive, individualized store fronts of high quality.



PITTCO Pittco Premier, although lighter in though lighter in weight and more moderately priced than Pittco De Luxe, embodies the same thoughtful planning and inspired styling which have made the De Luxe line an outstanding success. Like Pittco De Luxe, the Pittco Premier line was designed as a unit giving an ext. harmony which permits the

inherent harmony which permits the architect to develop a variety of attractive store front combinations. Pittco Premier construction can be set more quickly than any other metal construction, effecting a substantial saving in setting time. Practicality plus the high degree of architectural beauty in the Premier line makes possible the creation of economical, sales-winning store fronts.



PITTCO STORE FRONT METAL

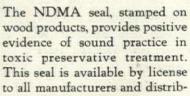
PITTSBURGH PLATE GLASS COMPANY

"PITTS BURGH" stands for Quality Glass and Paint

# NDMA serves YOU in these 6 ways

The National Door Manufacturers Association provides an efficient test for measuring the effectiveness of toxic preservatives for woodwork such as windows, screens, doors and frames. This test, developed after many years of research, resulted in the establishment of definite minimum standards for toxic treatment.

These minimum standards establish a definite yardstick for wood-treating which supplements the natural lasting qualities of wood products, adding still further to the durability which wood has demonstrated in the homes of America.

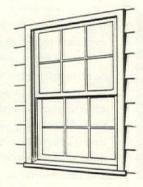


utors who conform to the toxic preservative standards of the NDMA.

NDMA takes a further step in extending its protection through periodical mill inspection of treating equipment and practices. This inspection is made by NDMA technicians.

In addition, NDMA makes laboratory check tests of preservative solutions in order to assure absolute conformity to NDMA standards.

NDMA consistently carries on an educational program in the public interest in order to spread knowledge of its scientific research. This effort is of benefit to architects, builders and homeowners alike.



MANUFACTURERS' ASSOCIATION

McCORMICK BUILDING . CHICAGO, ILLINOIS



American scientists and scholars have deduced principles of psycho-genetic tensions and relaxations. The Yogi, meditating upon his head, and the little ballerina, resting with her slippered feet high in the air, are both enjoying the stimulation of improved circulation, returning energy and nervous balance.

Bartolucci-Waldheim claim no metaphysical properties for their creation, but inasmuch as it is designed to embody lifegiving, dynamic principles of total relaxation, improved circulation and elimination of all tension-causing physical phases, the BARWA will give to each individual something of that which he seeks.

J. B. WALDHEIM

Chicago, Ill.

We've got a metaphysical backache.-ED.

### BLOOD IN THE STREETS

Forum:

I arrived in Los Angeles at about the time LIFE magazine ran a picture article on the conditions of traffic in this "city with the middle-aged spread." They weren't exaggerated. I have seen more blood and more prostrate pedestrians in that short time than in years of living in New York. In the transportation snafu I have noticed that a high percentage of motormen are "ding dong happy," and an equally high number are frustrated hams, continually putting on a floor show. The rolling stock itself reminds me of the "side wheelers" plying the Hudson River and the routes all but do a "loop the loop." There is a multiplicity of fares which wastes time in collection. The problem of handling a vastly increased volume of traffic is simply solved by pulling down a sign reading "Take next car."

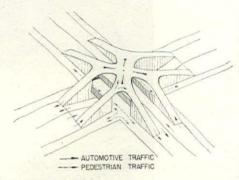
The people of Los Angeles equal in number the people of Manhattan Island, while the area they occupy equals Long Island. The automobile has caused this spread and its problems. The civic leaders are planning to spend \$1 billion to provide freeways for the auto to expand its advantages-and disadvantages. In some 15 years they may start "mass transportation," or subways. An argument advanced out here against subways is that they don't pay. This is meretricious bookkeeping. Similarly the post office does not pay but one would hardly suggest its abandonment and the delivering of mail by each individual in his own car.

Another assumption which is not totally true is that a radial system will solve all the traffic problems. Washington's radial system superimposed on its orthogonal results in intersection problems which nullify supposed diagonal "time gains."

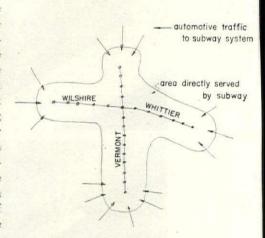
I have been doing a lot of thinking on

this problem and I have evolved a plan for a subway for any city that has or wants a million population.

- 1) It will be an orthogonal plan. Any trip from origin to destination can be broken into its N-S and E-W components.
- 2) It will save time. One way, nonintermittent flow of human traffic, borrowing from the laws of aerodynamics, will expedite movement to the maximum.



Overhead Turnway



Orthogonal Subway System

- 3) It will save space. No parking problems. One human measures roughly 6 ft. by 1 ft. by 1 ft.—6 cu. ft., one car measures roughly 10 ft. by 5 ft. by 6 ft.—300 cu. ft. Space requirements 1 to 50. Also by going "one floor down" and building up into the air near subway stations, the average city can escape the typical "one story" civilization.
- 4) It will economize on materials. More traffic can be handled per pound of steel or concrete than with any other system.
- 5) It will save lives. Subways are the world's safest travel.
- 6) It will save money. Subways are the world's cheapest transportation.

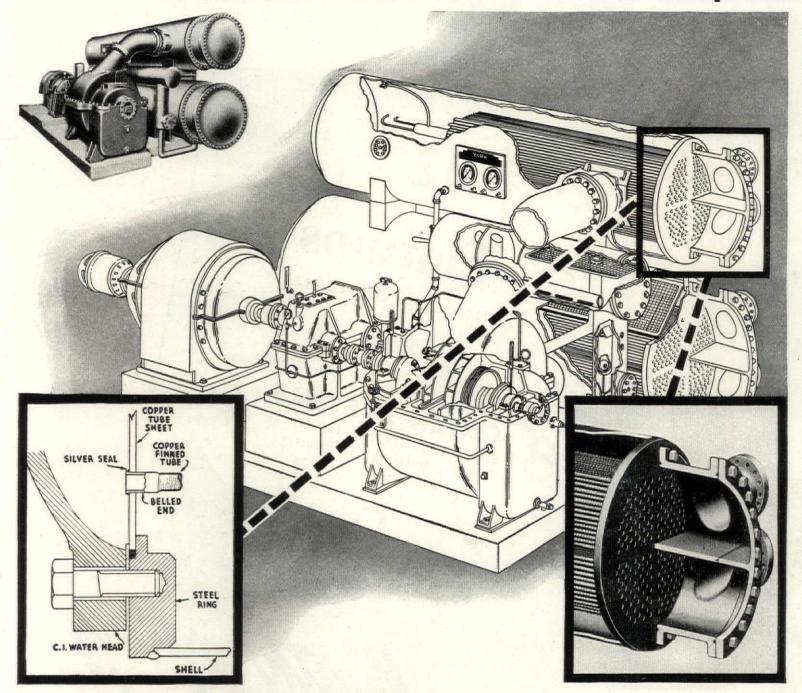
The sketches enclosed are preliminary, but the thinking I have done since December has been rigorous.

GEORGE A. MAAG, B.S.E.

Venice, Calif.

(Continued on page 52)

### The York Allis-Chalmers Turbo REFRIGERATION Compressor



## To Prevent Refrigerant Leaks . . . Permanently Silver-Sealed CONDENSER JOINTS

Finned copper tubes are "Silver-Sealed" into copper tube sheets forming permanent leak-proof joints. Individual tubes may be readily removed with the use of simple tools. Condenser shells are constructed from materials selected for their resistance to corrosion, provided with removable heads and special internal supporting plates for the tubes, and thoroughly tested after assembly.

York Corporation, York, Pennsylvania.

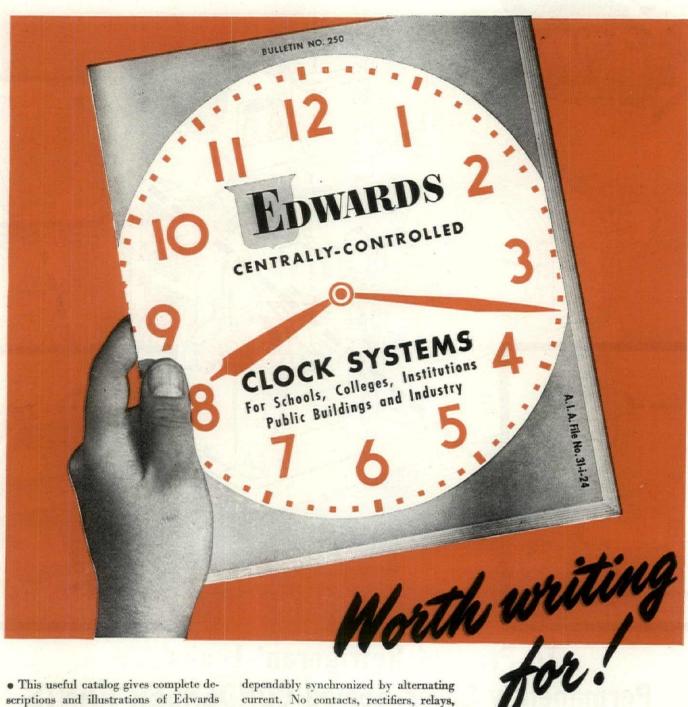
### Other Outstanding Features

- Low center of gravity of compressor—permitted by trough type cooler—cuts vibration, provides accessible operation.
- Stainless steel impeller blades resist erosion and corrosion assuring perfect wheel balance. Blade rivet heads are eliminated to provide unobstructed gas flow.
- Balance piston to equalize wheel thrust makes necessary only a positioning thrust bearing, and results in less bearing friction losses.
- 4. Simplified refrigerant shaft seal.
- 5. Pre-rotation vanes permit greater capacity reduction (down to 10%).

### YORK REFRIGERATION AND AIR CONDITIONING



HEADOHARTERS FOR MECHANICAL COOLING SINCE 1885



• This useful catalog gives complete descriptions and illustrations of Edwards new Clock Systems, and includes specifications for their installation. Built to offer the finest in centrally controlled automatic time-keeping, Edwards complete Clock Systems fully meet all requirements in schools, colleges, institutions, public buildings and industry.

Accurate, trouble-free operation is assured by the famous Telechron self-starting movement which is automatically and

dependably synchronized by alternating current. No contacts, rectifiers, relays, pendulums, keys or switches to get out of order—no master clock to be maintained, regulated and serviced.

This newest addition to Edwards lines of telephones, alarms and protection systems now enables you to specify complete "all-over" signaling equipment from one source. Send for this new Clock Systems Catalog today—a request on your letterhead will bring a prompt reply.

## JUST OFF THE PRESS!



NORWALK, CONN.

In Canada - Edwards & Co. of Canada, Ltd.

Electrical Signaling Communication and Protection for Homes, Schools, Hospitals, Offices and Industry



his paint got a raw deal

eral specifications of these Armco special-purpose sheets: Galvanized ARMCO Ingot Iron

ARMCO Galvanized PAINTGRIP Steel (Also available with ARMCO Ingot Iron or Copper-Steel base) **ARMCO Stainless Steels** 



There's a case where paint was applied to an ordinary galvanized gutter. Although the sheet had been acidetched, the raw zinc soon dried out the essential oils. The paint became brittle and started to flake and peel.

This doesn't happen when gutters, downspouts and other sheet-metal work are made of ARMCO Galvanized PAINTGRIP Steel. Bonderizing at the Armco mills gives this special-purpose sheet a neutral surface film that insulates paint from the zinc coating. Experience shows that paint will last several times longer on

PAINTGRIP than on ordinary galvanized or uncoated steels. And, remember, it costs less to use ARMCO Galvanized PAINTGRIP sheets than to use regular galvanized sheets and acid-etch before painting.

When you specify this Armco special-purpose sheet, builders get longer service, save money on their sheet metal work. That helps create the kind of reputation for you that brings future business. The American Rolling Mill Company, 2391 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

THE AMERICAN ROLLING MILL COMPANY Special-Purpose Sheet Steels



### LETTERS



Design for Beauty
Build for Economy
Plan for Permanence

Because they recognize that no other door measures up so fully to the need of the hour, architects and builders by the hundreds are planning their veteran's homes and low rental apartments with Paine Rezo's . . . the 1%" flush door that's most economical for fast installation, speedy finishing, and most practical for achieving distinctive, interesting interiors.

The patented air-cell construction of this pre-fitted, smooth surfaced door, minimizes warping and eliminates shrinking and swelling while it adds great strength to light weight. Over one million have already been installed in every type of building everywhere—proof positive of satisfactory, trouble-free performance. Write today for detailed illustrated bulletin, or see Sweet's Architectural File.



U. S. Pat. 1,887,814. The exclusive interlocking grid core within the Rezo door allows constant air circulation, adds extra strength, and provides greater rigidity.

PAINE LUMBER CO, Ltd. Oshkoshi

ESTABLISHED 1853

#### NON-EXISTENT STOCK

Forum:

We were very much interested in your statement on page 100 of the April issue that no shortage exists in window glass.

As carload buyers in the primary market for over 50 years, we say to you, without fear of successful contradiction, that window glass has rarely during that period been harder to get than right now. If you doubt that statement, try to buy a carload. If you succeed in getting it at primary market prices, we will be glad to take it off your hands.

Incorrect statements like this cause much difficulty and embarrassment. This article has been quoted to us as "gospel" by several large volume buyers whom we have been obliged to refuse in the last few weeks.

Our window glass stocks have never been in worse shape and opportunities to acquire adequate stocks are absolutely nonexistent.

N. J. KLEIN

Patek Brothers, Inc. Milwaukee, Wis.

Further research has indicated that the statement in question, based upon government reports, was not completely accurate. While not as critically short as many other materials, glass is difficult to obtain and will continue so for some time.—ED.

#### ARTHRITIC GIANT

Forum:

We have just made a very interesting trip lasting about a month, and are full of impressions. They are all-embracing, but as usual we group them in an architectural relation. Others may try to separate most of them into social and economic conditions, but we've listened to them too long.

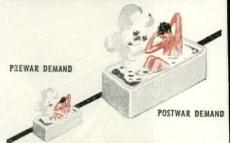
As you can already see we are going to use this letter as a chance to share some of our ideas, and to spill the pile of chips off our shoulders.

On our trip through the country we felt like Yankees in King Arthur's court, except that the travelers in this case were Russians, and the Yankees did know all about electricity and the like but didn't know how to make full use of it. This country is like a young giant with arthritic joints—full of power, but stiff all over.

Perhaps our direst need is for a basic housing unit which could serve as a transitional house for thousands of people until we catch up with the growing lack of homes. It doesn't have to have all the post-war gadgets. Even with just a stove and an ice-box for equipment, with storage space and with plenty of light (but built at a very low price, of materials easy to keep clean),

(Continued on page 56)

# More and More Women Want Electric Water Heaters



### The Trend is to Clectric WATER HEATERS

In the 6 prewar years, sales of Electric Water Heaters almost tripled. And a 1944 survey made for NEMA\* shows that three times as many women want Electric Water Heaters as now have them! They're "what women want," because they're:

SAFE—Flameless, fumeless

CLEAN—Smokeless, sootless

ADAPTABLE—Permit short hot water lines—Require no flue or vent

TROUBLE-FREE as electric light

ECONOMICAL—The cost is low for plenty of hot water all the time.

Installing Electric Water Heaters in every house you build, means giving women what they wan!

Electric Water Heater Section
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

ADMIRAL - B & F - CLARK - ELECTROMASTER - FOWLER - FRIGIDAIRE - GENERAL ELECTRIC - HOTPOINT - HOTSTREAM - IMPERIAL - KELVINATOR - MONARCH - NORGE - PEMCO - REX - RHEEM - SELECTRIC - SMITHWAY - THERMOGRAY - THERMO-WATT - UNIVERSAL - WESTINGHOUSE

A House Wired For An Electric Range Is Already Wired For an



WATER HEATER!

Take
the word
of these
magazine
surveys\*





### WOMEN WANT

# Electric

There's no guesswork about it! Magazines are constantly testing their readers' preferences—and survey after survey shows that the swing is to ELECTRIC Ranges! Look at prewar sales figures and they further emphasize this trend: Between 1933 and 1941, sales of Electric Ranges increased over 900%!

That leaves no doubt about it. Women do prefer the convenience, cleanliness, dependability and economy of modern electric cooking. And you can cash in on this preference by wiring your homes for Electric Ranges. Built-in, the cost of such wiring is negligible. But the selling power is tremendous!

- WOMAN'S HOME COMPANION survey shows that more women plan to buy an Electric Range than any other type!
- MCCALL'S MAGAZINE readers made the Electric Range their 2-to-1 "must have" choice in a recent contest.
- SUCCESSFUL FARMING survey shows that nearly twice as many REA customers will own an Electric Range after first two postwar years as "now have" one.
- \* HOUSEHOLD MAGAZINE survey indicates that 3 times as many women want Electric Ranges as "now have" them.
- COUNTRY GENTLEMAN survey shows that among the upper twothirds of white farmers, the Electric Range is the 2-to-1 choice!

Electric Range Section

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

155 E. 44th Street, New York 17, N. Y.

A-B STOVES . ADMIRAL . ELECTROMASTER . ESTATE HEATROLA . FRIGIDAIRE . GENERAL ELECTRIC GIBSON . HOTPOINT . KELVINATOR . MONARCH . NORGE . QUALITY . UNIVERSAL . WESTINGHOUSE

FOR EASIER SALES

FOR ELECTRIC RANGES







### Do Your Store Plans Include Summer Slumps?

They don't have to! No retail stores need be sticky and stuffy in hot weather. The completely new 1946 Carrier Store Weathermaker takes the discomfort out of summer shopping . . . actually attracts customers and builds business.

These self-contained units fit in with the plans for any retail store—either new or remodeled. They're smart enough to stand right out in the sales space, but powerful enough to be used with duct-work in remote locations. Complete as they come from the factory, they're as easy to install as a new counter.

A centrifugal-type fan delivers cool, clean, dry air in any desired amount. And does it without noise or draft. Filters are standard size for easy replacement. The entire unit can be moved to a new store.

Air conditioning gives the retail stores you plan a prestige that means extra sales dollars. But be sure you specify a Carrier Store Weathermaker. Carrier founded the air conditioning industry more than 40 years ago . . . its research and engineering lead the field. These are advantages you get only with Carrier products. Carrier Corporation, Syracuse, New York.



AIR CONDITIONING REFRIGERATION INDUSTRIAL HEATING



### **LETTERS**



# jewels of cooking performance BY RODER "AMERICA'S FINEST GAS RANGE"



"STAGGERED" COOKING TOP
"SIMMER-SPEED" BURNERS
LARGE "3-in-I" OVEN
"GLO" BROILER
"SCIENTIFIC" COOKING CHARTS



ROPER'S BIG "3-in-1" OVEN ASSURING SPEED • EVEN HEAT • ECONOMY

HER FOODS COOK WHILE SHE'S AWAY ... It's Automatic!

GEO. D. ROPER CORPORATION, Rockford, Illinois
Offices and warehouses in principal distribution centers.

it would fill a great gap. Of course it would be an admission that we are far from the over-publicized post war do-all house, but it would be a beginning in housing our nation.

We have to face the reality: We need an awful lot of houses!

Everybody talks and writes about it, but the only people who really know about it, are those who have no homes; those who live in large-size dog houses, like the ones we saw in Texas, and the Carolinas; those who live in the dilapidated shacks of charming Natchez, and in the Louisiana swamps. Or don't they count?

You know all about those houses. Maybe you have seen them, too. We also knew about them, but they're like hunger—everybody knows that it's bad to starve, but the only people who feel it are those who don't eat. Like hunger, housing should just as much be the concern of all people,

Veterans need houses. That's the biggest joke since the one I read in *Isvestia*, during our great depression, when Jimmy Walker decided that the snow was to be shoveled off the streets of New York, so that more people could be employed. The editors suggested the use of spoons.

Sure, veterans need houses, but so do a lot of other people. The country should realize that we are way behind in our house building ability, and this plan to satisfy our housing needs on priority basis is a stop gap substitute for necessary changes which a certain group is stalling.

We have to build a lot of homes fast. Faster than we were building the bombers. We have to make use of every man and every possible type of material. We have to have a two track mind—one to be occupied with the best use of what we've got, no matter how old-fashioned; one to explore. We need a unified guiding and clearing house, and an educational program which would wake us out of the deep sleep and make us realize that there exists an emergency of construction as important as the one we had for destruction.

What we really need is over-all housing. Housing means homes, environment, growth, social fitness, progress. But we are going to build only a few houses and we have nothing to build houses with. We cannot employ all the people because we haven't enough material. We have no bath tubs, no pipes, no glass, no lumber, no plywood and no tools. We haven't enough factories to make these materials in, but we are not going to build new ones. The sitdown strike of industries worked when converting to war production and now they are repeating the act.

Every month the architect receives sev-(Continued on page 60)



We emphasize this point because of the possible shifting of your activities caused by recent government priority rulings on building construction.

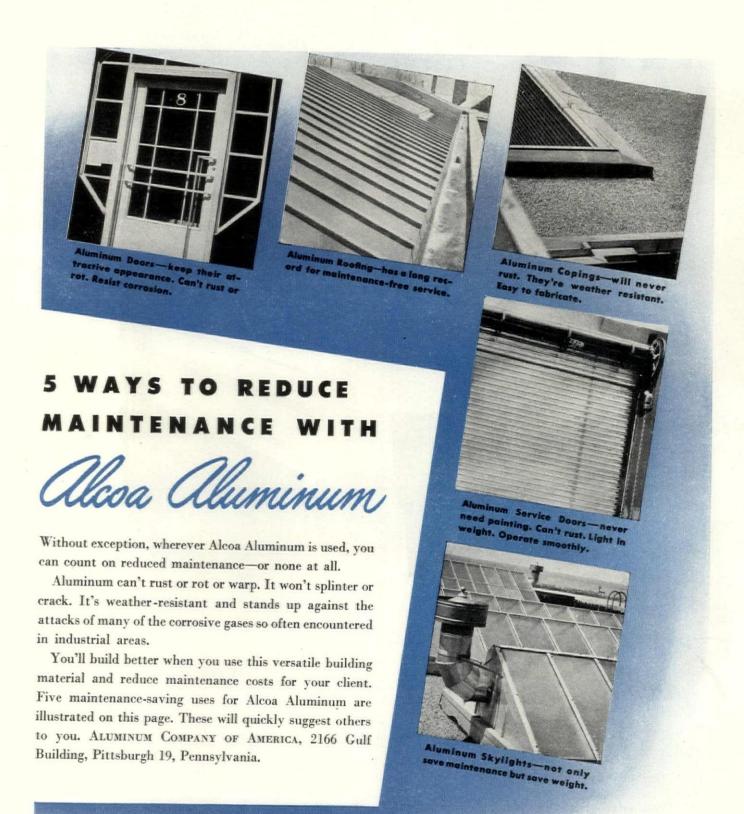
Through your work on apartments, hospitals, institutions and large houses, you know about the Flue-Fed Type of Kernerator. Are you familiar with the KERNERATOR designed for the more modest homes? Ask for Bulletin 265-C which tells about the two Ready-Built Incinerators. One, as illustrated, is the "portable" type which sets on the cellar floor with pipe connection to the chimney flue. The other is the "bricked-in" type which is installed in the chimney foundation.

KERNERATOR Ready-Built Incinerators are priced so that even the most modest homes can afford them. They destroy household trash so effectively and so easily that all small homes should have them.

## MORSE BOULGER DESTRUCTOR CO.

209-F EAST 42nd ST. . NEW YORK 17, N. Y.

Representatives in Principal Cities







## ALCOA ALUMINUM



IN EVERY COMMERCIAL FORM





# Comfort by Design

Lasting enjoyment of a chair, a chest, a table, or a complete grouping of furniture by Tomlinson is due to basic principles of design. Today's homes and today's living needs set the high standards of comfort and quality which you'll find in all furniture designed by Tomlinson.



IN NEW YORK: 385 MADISON AVENUE

IN CHICAGO: 1666 MERCHANDISE MART

IN PITTSBURGH: 907 PENN AVENUE

AND IN HIGH POINT, NORTH CAROLINA



THERE ARE 48 DISTINCT ADVANTAGES WITH Magic Chef

### **IETTERS**

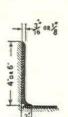


Wright Rubber Tile installation, circuit court room. Winnebago County Court House, Oshkosh, Wis.

### WRIGHTFLOR

For Every Room a Special Floor Design

The design of a building should dictate the floor pattern. Wrightflor makes this possible, for its pattern possibilities are innumerable. Its mottled-color combinations unlimited. And with its adaptability goes the assurance that Wrightflor can't be beat for long life under the heaviest traffic. Years and years of wear leave Wrightflor's beauty unharmed. The colors can't wear off . . . they go clear through the tile. Wrightflor's smooth, high-density surface resists stains. It won't crack, or dent. The resiliency of Wrightflor makes it easy on the feet . . . sound and shock absorbent. Write for color samples of Wrightflor with prices and specifications.



### WRIGHT-ON-TOP Compression Base\*

Here is an up-to-date wall base that harmonizes with walls and floors of every type. Recommend and specify Wright-On-Top with its many outstanding features. And very important—now when other base-board materials are hard to get, Wright-On-Top is available for immediate delivery. Write for details.

\*U. S. Patent No. 2300084 Canadian Pat. No. 417,081

TAYLOR MANUFACTURING COMPANY
Wright Rubber Products Division
3062 W. Meinecke Ave., Milwaukee 10, Wis.

WRIGHT RUBBER TILE

Flooring of Distinction

eral magazines with records of the most advanced work and the highest type of thinking. He builds up a picture in his mind, but one day he drives through the country and realizes that America is living in a yesterday. Here and there is a hint of tomorrow, made by some bold architect, fought for through a maze of hindrances, camouflaged until it becomes a mediocre copy of what it started to be. We need more architects, but many architects are out of work. In planning for veterans' housing, architects very seldom take part. They have divorced themselves from the social and economic factors of our life.

Architects, unlike other artists, have to make their masterpieces for people's use, and modern work can be done only in a modern society. Architects have to take an active part in the leadership of our society at least through various organizations, if they want to see their projects grow beyond the paper stage. Just a few isolated modern houses are not enough. All our new ideas from the dawn of this century have appeared as a natural outcome of thinking along mass production lines, and results will count only when they are applied for mass use.

Yes, we are impatient, and we are getting more impatient as time goes by. What gets us is the realization that our best technical and allied men will not have a chance to contribute as fully as they would like, and not half as much as they are needed. Something is wrong somewhere. Like children, we are making difficult rules for a game—rules which are irrelevant because this is no game, but a great need to fulfill one of the primary requirements of the human race, that of shelter.

In review, we need to awaken in architects and in public the realization that architecture is not an abstract art in so far as housing is concerned, but a force in fighting this appalling shortage. They must take an active part in causing our public and government agencies to promote speedier and better construction.

We need a central agency which would direct planning, production and construction. This agency together with its branch offices would analyze the needs and plan accordingly; would study possible use of locally available materials such as stone, lumber, clay etc.; would plan and build plants for production of standard and new types of materials. It would also be in charge of training the new personnel needed for speedier and more universally adaptable planning, production and construction.

WILLIAM AND SYLVIA WILDE

Tucson, Ariz.

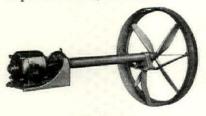
(Publisher's Letter on page 66)

# "BLOW HOT" with a Cool Fan

Excessive temperatures and corrosive fumes meet their masters in these three types of Propellair axial-flow fans for industrial ventilation. Motors are outside airstream—away from harm. Airfoilsection "pull-push" blades deliver uniform velocity over whole fan area; can be Heresite-coated to resist chemical attack; do a marvelous air-moving job.

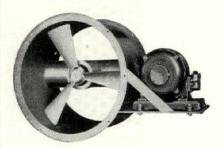
### Extended-Shaft Fans

For offsets, elbows, right-angle turns. Shaft and bearings sealed in. Sizes from 20 to 60 inches. Capacities to 68,000 c.f.m.



### Drum-Type Fans

Short duct section with fan on heavy cross tube. Enclosed belt drive. Duct sizes: 20 to 48 inches. Fan capacities to 43,000 c.f.m.



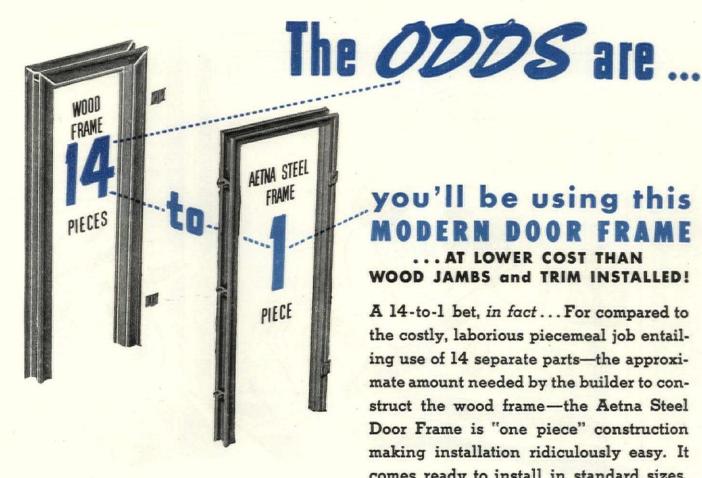
### **Drumless Fans for Ducts**

For use in existing ducts or stacks. Just cut opening, and insert fan. Same sizes, ratings, as drum type.



Write for complete information and recommendations. Distributors in 25 principal cities.





### STRENGTH . RIGIDITY . PERMANENCY

\* Aetna Steel Door Frames are welded to form a complete integral unit of jamb and two sides of trim. Cannot warp or crack and mitres will not open. \*Will not absorb moisture and swell ... size of frame will not change. Eliminates repairs because these steel frames cannot chip or damage. \* Hinges are welded to frame at factory and spaced to fit most prefabricated wood doors. Strike plate cutouts will take any strike plate. \*Designed to fit any type and thickness of wall. \* Prime coated at factory. \* Easy to erect ... Save labor costs ... Simplify supply problems.

For close to half a century, Aetna has specialized in the manufacture of Hollow Steel Doors and Steel Door Frames for industrial and public housing needs. Now, a revolutionary new development makes Aetna Steel Door Frames AVAILABLE TO HOME OWNERS ...

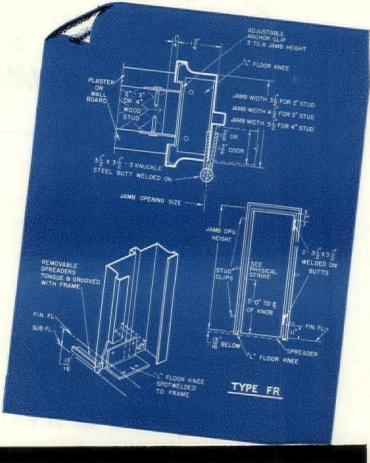
### IN ANY QUANTITY OR STANDARD SIZE

Ask your building supply or lumber dealer or write for name of the nearest Aetna Representative

### you'll be using this MODERN DOOR FRAME

... AT LOWER COST THAN WOOD JAMBS and TRIM INSTALLED!

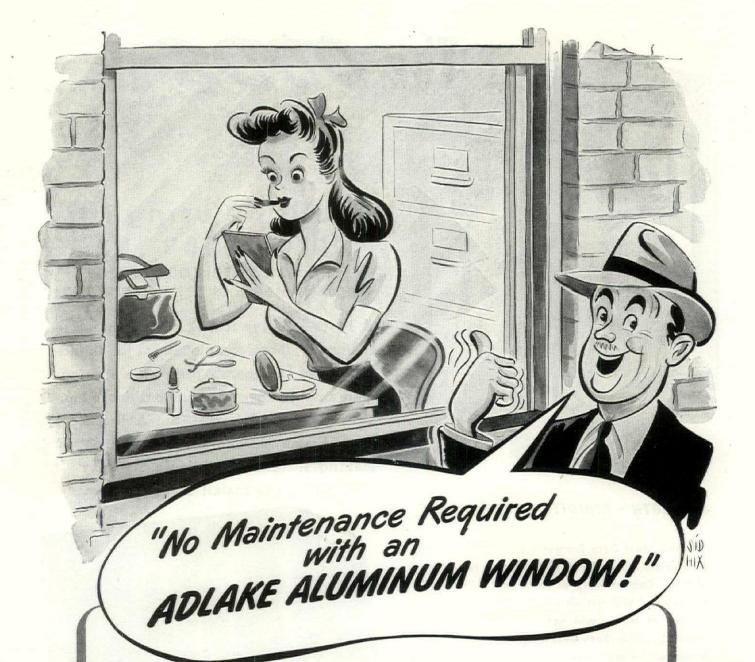
A 14-to-1 bet, in fact ... For compared to the costly, laborious piecemeal job entailing use of 14 separate parts—the approximate amount needed by the builder to construct the wood frame-the Aetna Steel Door Frame is "one piece" construction making installation ridiculously easy. It comes ready to install in standard sizes





### AETNA STEEL PRODUCTS CORPORATION

EXECUTIVE OFFICES: 61 Broadway, New York 6, N. Y. • PLANT: Pottsville, Pa.



THAT'S RIGHT - other than ordinary washing and cleaning, there's no maintenance required with an Adlake Aluminum Window!

Because Adlake is built to lastand last! An exclusive combination of nonmetallic weather stripping and serrated guides gives finger-tip control, eliminates excessive air infiltration, allows no warping or sticking, cuts maintenance problems to the bone! What's more, Adlake is beautifully designed for lasting architectural appeal.

Before specifying or detailing any window, why not get full information about Adlake Windows? We believe you'll find it well worth while.

### THE ADAMS & WESTLAKE COMPANY

Furnishers of Windows to the Transportation Industry for Over 30 Years

ESTABLISHED 1857

ELKHART, INDIANA

NEW YORK . CHICAGO

## WHITE-RODGERS







### Room Thermostat

Heavy-duty line-voltage room thermostat with uniformly calibrated dial. Ideal for unit heater and air-conditioning installations. Hydraulic-Action provides positive, accurate control. No relay necessary on most installations. Series 150.



#### Hydraulic-Action Space Thermostat

For use on garage, warehouse, factory and similar applications. Provides unusually close control where temperature change is rapid. Ideal for use with unit heaters. Remote types available to control duct temperatures. Series 200.



#### Warm-Air Limit Control

Provides protection for warm-air furnaces against excessive temperatures. Hydraulic-Action, flexible element permits easy installation. Evenly calibrated dials for accurate adjustment, no temperature drift. May be used on line or low voltage. Series 400.



#### Room Thermostat

Outstanding for beauty and reliability. Heat anticipating. Unbreakable ivory case, with chrome trim. Hinged cover conceals thermometer and Touch Temperature adjustor. Low voltage. Series 120.



#### Combination Fan and Limit Control

For use on forced warm-air heating systems requiring accurate fan control and positive limit protection. Hydraulic-Action, no temperature drift. Flush mounting because of flexible elements. Line or low voltage. Series 500.



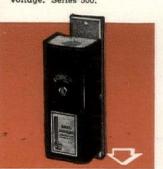
#### Immersion Hot Water Control

Single-immersion circulator or limit control available with vertical or angle well. Highly responsive Hydraulic-Action element. Dual-immersion types also available. Series 1100.



### Stoker Timer

Dependable White-Rodgers line-voltage stoker timer incorporating slow-speed synchronous motor with sealed-in lifetime lubrication. Available with or without fused line switch. Series 700.



### Room Thermostat

Light-duty line-voltage room thermostat with Touch Temperature adjustor. Visible recessed thermometer. Sturdy steel case. Rugged double-contact switch mechanism. Series 180.



### Room Thermostat Heat Anticipating

Trim, modern, low voltage room thermostat with Touch Temperature Adjustor and visible recessed thermometer. Attractive ivory and chrome finish. Series 130.



### Hot Water Limit Surface Type

Fixed and adjustable differential types are available, for use with either line or low voltage. Twenty inch coiled Hydraulic-Action element for surface contact to assure quick response. Easily installed need not be leveled. Series 1100.



#### Solenoid Gas Valves

Improved engineering design—no magnetic hum. Higher plunger force provides positive valve action. Types for line or low voltage. Series 2500.



#### Diaphragm Gas Valve

Diaphragm valve with built-in Hydraulic-Action mechanical limit control combined into one easyto-install unit.



### Steam Limit Control

Pressure operated with snap-action line or low voltage switch. Differential constant over entire range. Evenly calibrated, easyto-read dials with key or screw driver adjustment. Series 1200.



### Automatic Night Set-Back Timer

Used with Types 124 or 134 thermostats for automatic day and night control of heating plant. Separation of thermostat and timer provides greater accuracy with simplicity of installation and operation. Series 2400



### Damper Motor

For use with Type 135 thermostat to provide automatic damper control for hand-fired heating installations.



### WHITE-RODGERS ELECTRIC CO.

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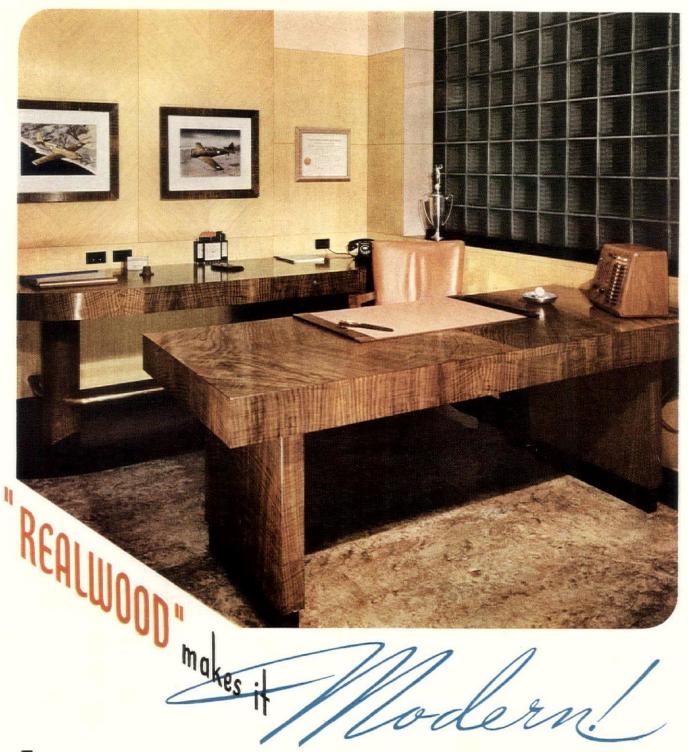
Controls for Refrigeration

Heating

Air Conditioning







FINE woods are always modern—they will never be outdated. But finishes progress. And at the peak of that advance right now is Formica "Realwood", the plastic sheet which incorporates a genuine wood veneer. ¶Nothing approaches the limpid clarity of the grain when it is handled in this way. It is by far the handsomest, most perfect finish that ever was imparted to wood. ¶It has in full measure all of the characteristic advantages of plastic material also. It is non-absorbent and will not take up stains. For horizontal surfaces it is available in a cigarette proof grade. It is chemically inert and untouched by mild acids and cleaning alkalies. This finish can be washed with

soap and water. ¶For years on end Formica "Realwood" will maintain its original brilliance and beauty under the most severe service.

THE FORMICA INSULATION COMPANY, 4639 SPRING GROVE AVENUE, CINCINNATI 32, OHIO



# The Water Heaters That Set the Style for All Postwar Models



There's Only ONE Permaglas

Nothing mars the trim beauty of design—outside and inside.

The Permaglas tank CAN-NOT rust, CANNOT corrode. Its lining of glass-fused-to-steel is sparkling blue, mirror-smooth ... sanitary as a clean, polished drinking glass.

Controls and connections are out of sight,

yet easily accessible. The pyramid base, with concealed adjustable jacks to keep the heater level, eliminates gawky legs.

Neotone white enamel—baked on steel—is beautiful, durable, easy to keep clean. The simple trim is polished stainless steel.

Before you specify any water heater—for any type of residence—get "The Inside Story of Permaglas." Write for your copy today.

Automatic—Gas or Electric



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INTERNATIONAL DIVISION: MILWAUKEE 1-In Canada: JOHN INGLIS CO., LIMITED

WATER HEATERS

# A HOUSE LIKE THIS IS A BLACK EYE FOR YOU!



### LUMITE plastic screening NEVER stains!

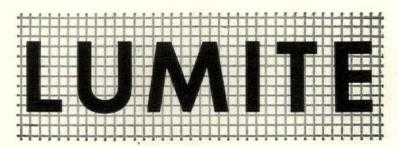
Architects tell us that one of the most important requirements of a window, door or porch screen is: it must not stain the sills or sidewalls!

As you know, those "black eye" stains you so often see under windows come from rust, corrosion or oxidation.

But LUMITE cannot rust...cannot corrode...and never needs painting. Its color is "built into" the filament itself and cannot run or fade. And, even years after installation, a swish or two with a damp cloth instantly renews its brand-new sparkle.

The list at the right shows *other* "plusses" of LUMITE...and we'll be glad to send you our A.I.A. 35P folder, with sample, so that you may be thoroughly informed when your clients ask you about LUMITE... the non-stain screen that can last a lifetime!

LUMITE DIVISION, Chicopee Manufacturing Corp. of Georgia; 47 Worth St., New York 13, N. Y.



MODERN PLASTIC INSECT SCREEN CLOTH

# HERE'S WHY LEADING ARCHITECTS SPECIFY LUMITE:

- Cannot stain
- Won't rust or rot
- Never dents or bulges
- Needs no painting
- Color cannot fade
- Easy to frame
- Lighter in weight
- Sensibly priced
- Lasts years longer
- Woven of Dow's Saran
- Strong! (Lumite is woven of heavy gauge plastic filament— 0.015")



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Plan to give your buildings the brilliant white gloss of new Eagle Ready-To-Use White Lead Paint! It's a whiter white . . . and it stays white longer. Besides this unique advantage, don't overlook the exceptional smoothness of Eagle RTU White Lead Paint. It literally flows on, covers completely, leaves practically no brush marks. Because it's ready to use it's a real timesaver, too.

Being lead, this marvelous paint defies wear and weather . . . has all the tough, protective qualities made famous by white lead for over 2000 years. No other paint surpasses its combination of beauty, durability and economy. Backed by 103 years of Eagle-Picher paint-making experience — your assurance of highest quality. Eagle RTU is being made available as rapidly as production will permit. Two forms: Primer Sealer and Outside White Finish Coat. One, two and five gallon pails.

### THE EAGLE-PICHER COMPANY

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OLD RELIABLE SINCE 1843

Eagle White Lead in oil



### A LETTER FROM THE PUBLISHER

Dear Reader:

This anticipates a deserved rebuke from President Edmunds of the AIA. Last month we quoted the New York Times, which attributed to Mr. Edmunds a statement that the Institute repudiates public housing. Our comment, airmailed to New York from Los Angeles at presstime with no opportunity for checking, was unwarranted, for neither the Institute's President nor its Board made any such pronouncement. Our confidence in the infallibility of the Times is thus unhappily shattered and our confidence in the good citizenship of the Institute and its respected President happily restored.

Recently, looking from an east window of the Daily News Building over a drab patch of New York, our eye was charmed by a spot of green, apparently planted and maintained by a gargantuan group of apartments known as Tudor City. Returning to our own offices in the Empire State Building, we happened to look south over a very considerable panorama and again caught an elusive grass plot - a small bit of Madison Square Park, challenging for attention the tall buildings of lower New York. Whether our agreeable reaction to these bucolic touches was prompted by reading the last report of the Chicago City Planning Commission or whether it was just spring fever matters not. The point is that a little bit of greensward in the city goes a long way and more than a little bit would go a great deal further. As a stopgap, which will be the first city to color its streets green?



Speaking of eye relief, this issue of the Forum perhaps leaves something to be desired. The choice was clearly between pleasing the eye or filling the mind — the minds of architects, builders and others who hope to solve the veterans' housing crisis. We doubt whether any previous issue of the Forum ever took more solid hours of painstaking research and organizing. Heading up the considerable team which put together

this material was Associate Editor Joe Hazen, recently returned from the wars, who now feels he has caught up in a hurry with what's going on on the building front. At his right hand for many weeks sat able consultant Raymond V. Parsons. It is hard to see how anyone interested in building houses now could fail to build them better or faster or cheaper—or all three—if he puts in a serious cram session with this issue.



There are probably more tried-and-tested small house ideas brought together between these covers than can be found elsewhere in print. Any further good ideas which develop from time to time will find a spot in the pages of the FORUM.

Fine recollections of people and places encountered on our recent expedition to the West Coast persist and come between this correspondent and his efforts to resume the daily grind. Nor was it the scenic wonders which nature has provided in profusion which so impressed him. Most of all it was the vitality of the cities, which springs less from the snowcapped mountains, teeming harbors and busy streets than from the people themselves. The glowing future which faces the Pacific Coast will glow all the sooner and the more surely because from Seattle south to Los Angeles and everywhere between are confident, courageous, aware people who know how to work, who know how to play and who know how. Our temptation to uncover the news of many spectacular projects and plans must temporarily yield to journalistic dicretion. One by one these gems will appear where Forum readers have learned to expect them.

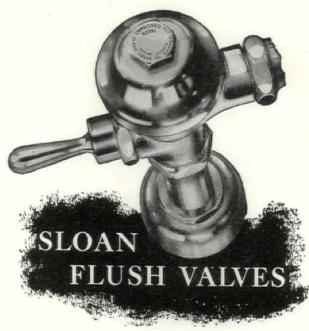


Miami to Palm Beach is a distance of 69 miles. Unimproved shore-front property is now selling at \$1,200 to \$1,800 a front foot, thus reversing the old song title to "MIAMI OVER MOON."

H. M.



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### Because there's nothing to adjust

The ROYAL is the *only* Flush Valve which has no adjustment or regulation. Its simplicity of engineering design, *plus* precision manufacture, insure accurate and lasting performance.

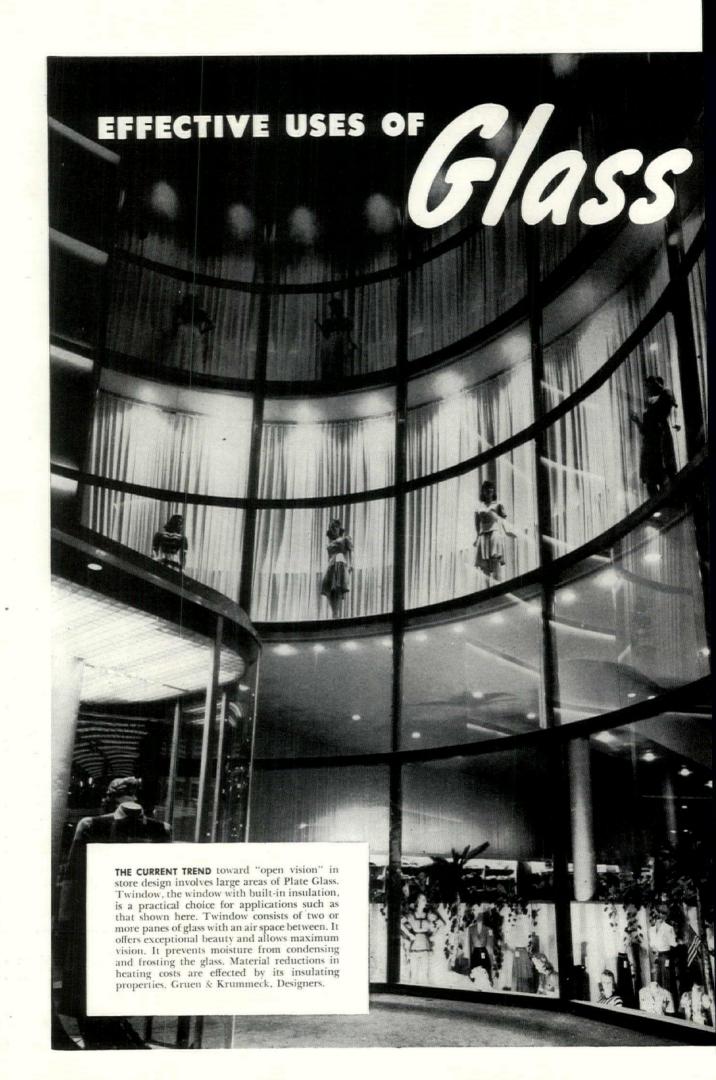
More than 4 million ROYAL Flush Valves are in daily service—including thousands of the first ROYALS installed over 36 years ago.

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For the best in Flush Valves specify Sloan—remember, there are more Sloan Flush Valves sold than all other makes combined.

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FURNIT

CULITE TEMPERED PLATE GLASS has all the beauty clarity of regular Plate Glass, but is four s as strong. It is therefore a very useful ma-to the architect for applications of many s. It has become particularly popular for mod-handsome store doors like these. Architects: Smith & Associates.

ERE THE ARCHITECT wishes to achieve an atsphere of sparkling gayety and beauty, or create impression of spaciousness, or merely to obtain resting reflections of merchandise offered for Pittsburgh Plate Glass Mirrors are the perfect dium. Especially now that they are available in ealing colors, and can be protected by Copper king against deterioration caused by moisture variations in temperature.

THERE ARE NOW two distinctive lines of Pittco Store Front Metal for the architect to choose from in doing store front or interior work . . De Luxe and Pittco Premier. Both lines are pleasingly styled, and each member bears a harmonious relationship to all other members, as well as to the other Pittsburgh Products used in store fronts and interiors. Shown here is a Pittco Premier sash.

believe you will find much to interest you in our illustrated booklet of ideas consing the use of Pittsburgh Glass in building design. Send the coupon for your free copy.

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### . solves the bathroom problem for low cost housing

- Low installed cost
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- According to surveys made at camps the majority of Veterans, both men and women, have expressed a preference for shower bathing
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### Specifications

SIZE-32x32x76.

WALLS-BONDERIZED, GAL-VANIZED STEEL. Finished inside and out with white bakedon-synthetic enamel.

RECEPTOR-Semi-flat standard type Stonetex; slip-proof, leakproof, non-absorbent. Brass drain for 2" waste connection cast integral with receptor.

VALVES-Combination hot and cold compression valves with shower head and arm.

ACCESSORIES -Curtain rod and curtain.



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Behnd the scenes with our contributors

Like most builders in these days of scarcity, Place & Co. (p. 142) has discovered unsuspected talent in its top staff members. From cautious holder of the purse strings and keeper of the Privy Seal, Secretary-Treasurer Andrew Place has developed into a first-rate birddog, freezing into a point at the scent of rare old lumber. C. Harry Swanson, ordinarily a mild, milk-drinking Vice-President, has taken up a desperate round of poker games with influential union officials. Only President Virgil Place has retained something of the old dignity. His happy job, after the last bit of usable footage has been equeezed out of precious two by fours, is beating off

the customers or, in prewar language, selling.



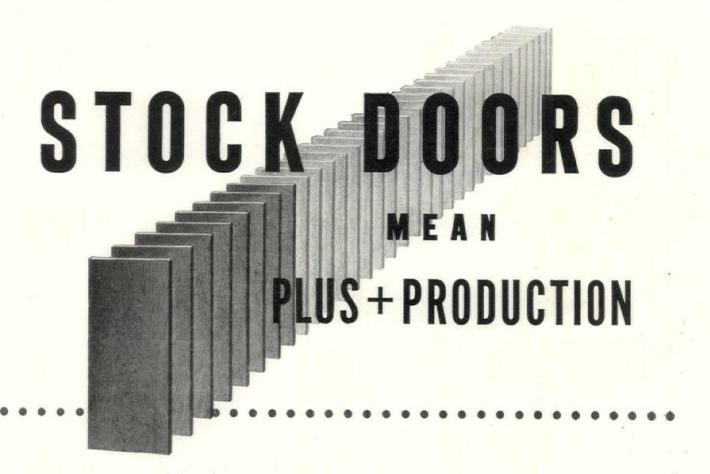


In a valiant struggle with the spiralling house market, Arthur T. Brown has racked his drawing board, come up with cost savers in the form of lowered eaves, slab foundations (p. 109) and "short walls" (p. 114). Such price slicing must, we feel, be something of a strain to an otherwise normal architect. When faced with the present grim realities, sensitive designers have been known to start cutting out paper dolls or furtively visiting the movies in the afternoon. With Brown it's



different. In a wild gesture of embracing the enemy, he has begun filling out forms for a hobby. Nothing like it, he says, to take a man's mind off his work.

Architects Huson Jackson and John Callender's donation to the battle of building is a corrugated transite wall finish (p. 125) for a house in peaceful Central Valley, New York. The suggestion stems, strangely enough, from the client himself, a kinetic young chemical broker and ex-Merchant Marine who waits for neither time, tide, his architect nor his builder to get materials for him. He roams and combs the countryside, cajoling neighbors into selling old shacks which he promptly whisks away to his own building site for salvage. While somewhat thunderstruck by this frenzied activity, Jackson and Callender feel that they have the answer to the present housing crisis. From now on the architect should choose his client carefully from among the young and able-bodied, set him to work immediately scavenging his own planks and pilasters.



Roddiscraft's progressive policy is directly in line with modern practice—production on a scale designed to provide more solid core flush doors for everybody, to speed deliveries as much as possible to maintain the high quality of Roddiscraft doors. We believe this policy will not only mean the greatest good for the greatest number now, but also in the future when production more nearly matches demand.

The building of stock doors—one type of door in stock sizes—provides the plus production needed to meet today's requirements and eventually to keep warehouse stocks adequate for immediate needs.



#### WAREHOUSES

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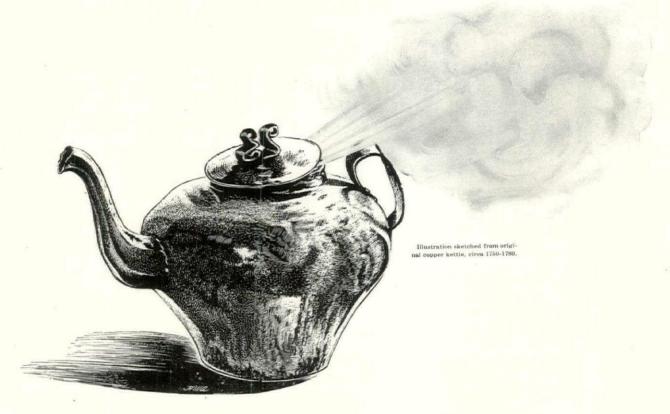
KANSAS CITY 8, MO., 2729 Southwest Blvd.

LOUISVILLE 10, KENTUCKY, 1201-5 S. 15th St.

LONG ISLAND CITY, N. Y., Review & Greenpoint Ave.

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### What would Watt do-today?

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Today he'd have to learn how to beat corrosion and erosion.

Engineers in modern steam power plants could tell him how. They've licked many of today's steam problems-with Monel\*.

That's why you find this rustproof nickel alloy in vital spots throughout the powerhouse. Typical examples are pump shafts, liners and sleeves—gaskets, orifice plates, feed-water heater tubes, water columns, evactors, water strainers and various parts of soot blowers, meters and regulators. These are only some of the places where Monel does a top-notch job.

This readily fabricated, corrosion-resistant alloy is strong, tough and rigid. It endures continuous stresses at steam temperatures. It withstands fatigue.

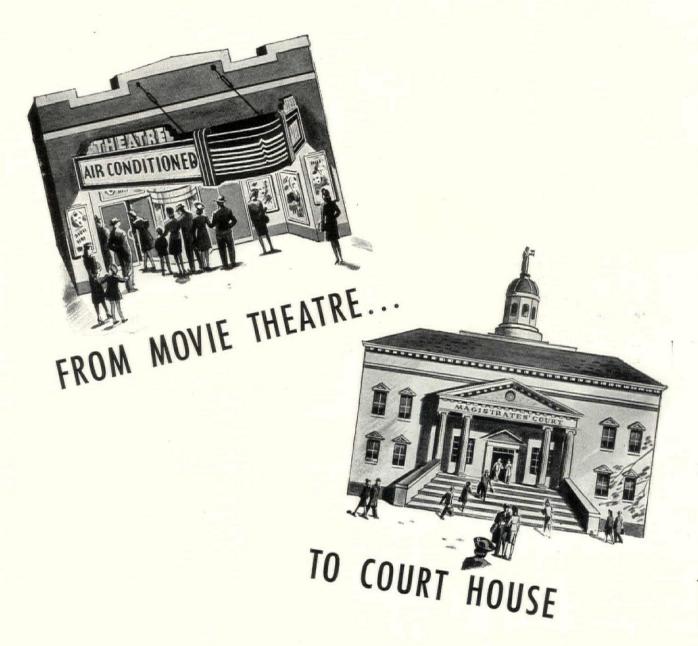
These qualities of Monel are equally important for building construction applications. In only a few places, of course, are conditions as severe as in steam power plants. Yet there are plenty of jobs which call for complete dependability. Lath tie-wire for suspended ceilings, to mention just one.

From cellar to roof, spot Monel in buildings you design. Specify its use in pumps, faucets, flush valves. Remember it for food service and laundry equipment, for refrigeration and air conditioning units. Consider the advantages of Monel roofing, ventilators, skylight frames, flashing, cornices and gutters.

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G-E Automatic heating, too, is recommended by leading architects for homes and small commercial buildings. Specify one of the five kinds of G-E heating units. There's a G-E heating plant for every type of heating system.

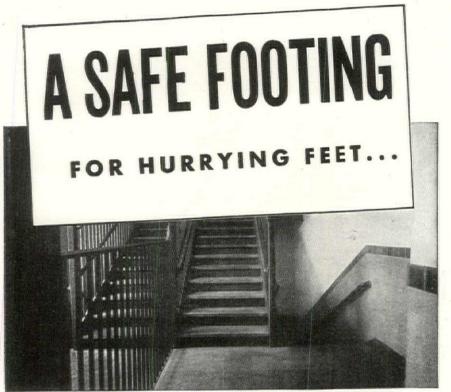
General Electric Company, Air Conditioning Department, Section 6137, Bloomfield, N. J.

\*In winter, G-E Air Conditioning includes controlled heating and humidification.



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### **ANNOUNCEMENTS**



Alberene Stone Treads and Landings, Woodrow Wilson High School, Washington, D. C., Natlan Wyeth, Architect.

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For more than 40 years Alberene Stone has been the choice for treads, platforms and floors subject to severe daily use in schools, hospitals and public buildings. Its natural highly-toothed surface is safe, wet or dry. The selected, extremely hard Tread Stock meets every requirement of durability, upkeep and appearance.

The regular grade Alberene Stone is equally popular for toilet and shower compartments. Tongue-and-groove interlocking construction produces liquid-tight joints. Its light, blue-gray color is harmonious and the stone is close-grained and practically non-absorbent and non-staining. For complete data and samples please address Alberene Stone Corporation of Virginia, 419 — 4th Ave., New York 16, N. Y. Quarries and Mills at Schuyler, Virginia. Sales Offices in principal cities.

### ALBERENE STONE

THE NATURAL STONE OF DIVERSIFIED UTILITY

BLACK MOUNTAIN COLLEGE, N. C., announces that its third Summer Art Institute will be in session from July 2nd to August 28th under the direction of Josef Albers and a distinguished faculty. It will offer lectures and applied courses in textile design, woodwork, painting, sculpture, advertising art, architecture and photography.

THE INSTITUTE OF DESIGN, Chicago, is sponsoring a six weeks Textile Design course from June 24th to August 2nd. Inquiries should be addressed to Adeline Pynchon, Public Relations Counsel, Institute of Design, 1009 N. State Street Chicago, Ill.

#### COMPETITIONS

THE LINCOLN FOUNDATION offers \$200,000 in prizes for a "Design-for-Progress" competition. The program is open to all engaged in the design, manufacture or construction of steel structures. Prizes will be awarded for the best papers in each of fifteen major classifications: Aircraft; Automotives; Containers; Furniture and Fixtures; Functional Machinery; Industrial Machinery; Personal Service Machinery; Railroad; Structural Buildings and Bridges; Structural Houses and Miscellaneous; Watercraft; Welderies; Commercial Welding; Maintenance; and Research and Education.

The Program, which closes June 1, 1947, aims to encourage an interest in arc welding which will benefit industry as a whole. Complete details may be obtained from the Secretary, James Lincoln Arc Welding Foundation, Cleveland 1, Ohio.

TIMBER DEVELOPMENT ASSOCIATION, London, announces a contest for the best photographs on any subject connected with wood or trees, but especially with utilization and conversion. Their purpose in sponsoring the contest is to encourage a general interest in timber subjects, and also to augment their stock of photographs which was almost completely destroyed in the blitz.

First prize is £10; second, £5; third, £3; and there are ten prizes of £1 each. All entries postmarked on or before July 31st will be considered. Any number of prints (unmounted) may be submitted. Each should have the name and address of the photographer on the back together with details about the tree, house, etc., and should be sent to the Photographic Competition, Timber Development Association, 75 Cannon St., London EC4, England. Prints submitted cannot be returned.

### SCHOLARSHIP

THE JOHN F. AND ANNA LEE STACEY SCHOLARSHIP FUND for art education offers a scholarship of \$1,500 to help serious students of conservative art (painting and drawing) to study for a year. The closing date for the 1946-7 scholarship is August 1, 1946. Application blanks and further information may be received from the John F. and Anna Lee Stacey Scholarship Committee, Otis Art Institute, 2401 Wilshire Boulevard, Los Angeles 5, Calif.

#### AWARD

Sylvania Electric Products, Inc. announced winners in the second Annual Commercial Fluorescent Fixture Design Competition. Clarence Berry, Baltimore, Md., won first prize of \$500; E. M. Prims, Evanston, Ill., second prize (\$300); Carter Lewis, St. Louis, Mo., third prize (\$200); H. Stuart Thomas, Greenville, Miss., fourth prize (\$100).

#### EXHIBIT

THE WALKER ART CENTER, Minneapolis, Minn. will open its Third Annual Sculpture Exhibition on July 2nd. One of the very few sculpture annuals (Continued on page 76)



## INSULITE

Insulates as you build



### OUTSIDE WALLS

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### INSIDE WALLS

Insulite Sealed Lok-Joint Lath provides a strong, rigid plastering surface...plus a second wall of insulation.

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INSULITE Minneapolis 2, Minn.

### **ANNOUNCEMENTS**



held in the United States, the exhibit is limited to work by residents of Minnesota, North and South Dakota, Nebraska, Iowa and Wisconsin. The group has embarked on a campaign to encourage purchases from the show by private individuals. Jury for selection and awards will consist of Carl Milles, Paul Parker and Leonard Thiessen.

#### **NEW OFFICES**

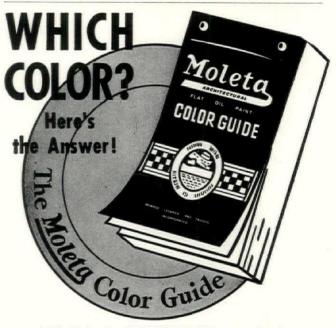
MARC THOMPSON AND WILLIAM POTTER, architects, have opened offices at 26 E. 55th St., New York, N. Y. to practice as associates in designing or as consultants on Air-Terminal Buildings. Mr. Thompson formerly held the position of Chief of Design for the Civil Aeronautics Administration in Washington.

ALVIN LUSTIG is opening a new office at 170 S. Beverly Drive, Beverly Hills, Calif. for the practice of graphic architectural and product design.

WILLIAM MUSCHENHEIM announces the reopening of his architectural office at 230 W. 13th St., New York 11, N. Y. John Kokkins and A. C. Lyras, architects, have become associates in general practice at 4-6 Platt St., New York, N. Y. George Whittier and Robert Fritsch are establishing an office for the practice of architecture at 301 Dekum Building, 519 SW Third Avenue, Portland 4, Ore.

Wood Brooks and Gilbert Coddington have formed a partnership for the general practice of architecture with offices at 329 E. Broad St., Columbus, Ohio.

James Ticknor, AIA, has resumed private architectural practice with J. Lee Jones as associate at 333 Park Avenue, Glencoe, Ill. (Continued on page 80)



A "find" for the ARCHITECT! This comprehensive Color Guide (pages 9" x 15") displays 150 beautiful colors ranging from pastels to deep shades. Formulas are given on the reverse of each color sheet to show how the shade can be quickly made. Price, \$5.00... delivered anywhere in the U. S. A. Write for your copy.

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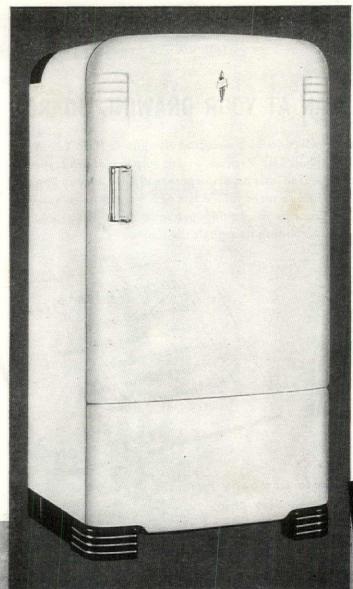
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VINCENT CULLEN, President

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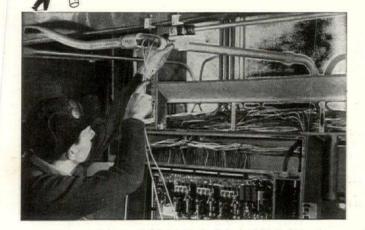
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IT'S PARANITE IT'S RIGHT!

THEODORE DOMINICK AND WILLIAM VAN BENSCHOTEN, architects, have formed a partnership with offices at 1122 19th St., NW. Washington 6, D. C.

Albert Melniker, architect, recently returned from duty with Army Corps of Engineers, announces the reopening of his office at 130 Bay St., Staten Island, N. Y.

ROBERT ALLAN CLASS, AIA, has established an office in the Architects Building, Philadelphia 3, Pa.

PHILLIP HALLOCK, AIA, having been released from active duty with the US Navy, is resuming practice at 212 S. Allen St., State College, Pa.

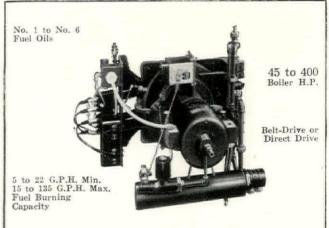
Paul Speake, architect, announces the temporary location of his office at the Old Post Office Building, Huntsville, Ala.

ALFRED SHAKNIS, AIA, AND EMIL KNOESS, associate, have opened a new office on Glen Cove Road, Glen Head, N. Y.

S. NORTON MINER, architect, until recently with the US Navy, is opening an office for general practice in Lime Rock, Conn.

WALTER HAHN, JR. AND JAMES CAMPBELL, planning consultants, with Wayne Bray, landscape architect, and Reino Liukkonen, city planner, announce the formation of a partnership under the firm name of Hahn, Campbell and Associates. Their offices are located at 1350 Howard Avenue, Burlingame, Calif.

NORMAN LEDERER AND LEONARD JOSEPH, architects, have formed a partnership with offices at 37 W. 57th St., New York, N. Y. (Continued on page 84)



### PRECISION COMBUSTION

York-Heat Horizontal Rotary Oil Burners for industrial applications assure precision combustion in any type, size, or make of boiler through the three great "exclusives": Flame-Former, Iris Shutter, Automatic Torch Lighter.



WRITE FOR CATALOG ID-46-6G

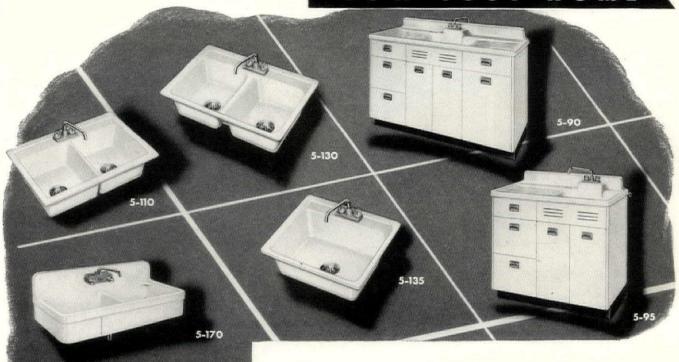
### ORK SHIPLEY INCORPORATED

Industrial Division YORK . PENNSYLVANIA

## PLUMBING.

FOR THE

LOW COST HOME



CRANE HEATING

The Crane heating line includes boilers compact in size—low in cost, designed to burn coal, oil or gas. These are ideal for the small home.

In this line you will also find furnaces, stokers, oil burners, radiators, controls, pipe, valves and fittings-everything you need for efficient, economical home heating. America is hungry for plumbing and heating equipment, particularly for low-cost homes. Crane recognizes its responsibility to American home owners, and ever since the war ended, has concentrated production on plumbing equipment best suited to meet this need.

While plans called for a rapid extension of this line into the production of plumbing for finer homes, these plans have been shelved temporarily to permit full concentration of production facilities on the equipment designed for today's emergency.

To aid builders in the present difficult situation, Crane has taken three steps:

- 1. Concentration of manufacture
- 2. Distribution as fast as equipment is produced
- 3. Allocation on as equitable a basis as possible

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO 5

PLUMBING • HEATING • PUMPS VALVES • FITTINGS • PIPE

NATION-WIDE DISTRIBUTION THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING DEALERS



### "FOR UNFAILING INTEGRITY"

In recognition of its fifty years of "unfailing integrity in business," Columbia Mills was proud to receive the Certificate of Public Service awarded by the Brand Names Research Foundation, Inc., in a recent presentation.

50 years is a long time. Columbia's window shades were launched on the market when the Victorian era was at its most florid, inconvenient height in 1896. Before the advent of shades, window privacy and light control were mostly acquired by the arduous closing of complicated shutters or the drawing of stiflingly heavy drapes.

The new window shade idea caught on in homes and public buildings as well. Many improvements developed; Venetian blinds followed; in short, Columbia has jealously safeguarded its reputation for leadership ever since.

Columbia is deeply honored to receive this certificate for "unfailing integrity" through its 50 years of existence... But we are far more concerned over the next 50 years, with every desire that they will show even greater progress in product development, and in the soundness of our relations with our customers and business friends everywhere.

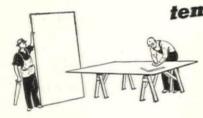
See Sweet's Architectural Catalogue for more complete information on Columbia products.

Columbia WINDOW SHADES
AND VENETIAN BLINDS

THE COLUMBIA MILLS, INC. . 225 FIFTH AVENUE, NEW YORK 10, N. Y.

### **Reconversion Housing** makes necessary the allocation of Douglas Fir Plywood

-- as a result the supply situation is being temporarily aggravated



The need for millions of homes, as called for by the Reconversion Housing Program, means that a substantial proportion of the Douglas fir plywood industry's current production is being allocated to housing contractors, stock cabinet manufacturers, prefabricators and distributors.

As a result, the supply situation for all other industrial and construction uses will continue difficult in the immediate future. However-more plywood is being produced today than in pre-war years, and once the present overwhelming demand for housing has subsided, supply for all users should be adequate. Anticipate your needs as far in advance as possible—and discuss your requirements with your regular source of supply.

DOUGLAS FIR PLYWOOD ASSOCIATION . TACOMA 2, WASHINGTON

Although Douglas fir plywood is critically short today, it is almost indispensable for many projectsfor concrete form work, for signs and displays, for boat building, for



railroad car construction, and for scores of other industrial and commercial uses. In such cases it is well worth waiting for. It saves time and labor-does a better job.

### **ANNOUNCEMENTS**

### **Building in the Country?**



YOUR CLIENTS CAN HAVE A KITCHEN LIKE THIS...

## "PYROFAX" GAS SERVICE

• Specify "Pyrofax" gas, the overwhelming favorite, for every home you plan or build beyond the mains. No service interpuptions — better cooking — automatic water heating — silent Servel refrigeration are some of the advantages of this modern gas service. A New Freedom "Pyrofax" gas kitchen, with the famous Magic Chef gas range, is sure to bring client satisfaction.

### **PYROFAX**

SUPERIOR GAS SERVICE FOR 25 YEARS



COOKING • WATER HEATING
REFRIGERATION • ROOM HEATING
BEYOND THE GAS MAINS



"PYROFAX" Gas Div Carbide and Carbon C 30 E. 42nd St., New Yo	hemicals Corporation,
	he facts on "Pyrofax" Gas and
Firm	
Street	

C. Harry Erickson, architect, announces the opening of an office specializing in store and house design at 1774 Massachusetts Ave., Lexington 73, Mass.

WILLIAM CRAM, architect, formerly of Cram & Parrette, has established an office in Norwalk, Conn.

CAVITT & LANE, architects and engineers, have opened an office at 4801 Lemmon Ave., Dallas 9, Tex.

MORTON LEAVITT, AIA, returned from service with the US Navy, is now located in the Schofield Building, Ninth & Euclid, Cleveland 15, Ohio.

A. Charles Jones, architect, announces his new office at 434 W. 2nd Ave., Flint. 4, Mich.

ARTHUR D. KOPPEL ASSOCIATES, INC., a building construction firm, has been organized by Arthur Koppel, formerly of Schroeder and Koppel. The new company will specialize in the erection of buildings in the New York metropolitan area seeking contracts on a cost plus basis.

#### **APPOINTMENTS**

ROBERT JACOBY has been appointed deputy governor of the Federal Home Loan Bank System. Mr. Jacoby has been associated with the Bank for thirteen years, as counsel for the Cincinnati district and as associate general counsel.

Paul France is now District Sales Representative for the Roberts & Mander Corporation in western Pennsylvania.

LOCKWOOD GREENE ENGINEERS, INC. announce that Howard Cousins, formerly Manager of their Boston office has been elected a Vice President. (Continued on page 88)



### \*COLOVOLT COLD CATHODE INDUSTRIAL FIXTURES

Here is the new Colovolt industrial fixture, one of a complete line of industrial and commercial "packaged" units. Equipped with the standard 93" Colovolt 10,000 hour lamp, Colovolt fixtures may be used singly or in continuous line lighting in multiples of 8 feet. Instantaneous starting, no flickering, guaranteed for 1 year except for failure due to breakage are extra advantages of the Colovolt Cold Cathode low voltage fluorescent lamp. The long life expectancy of Colovolt lamps may be realized even when constantly turned on and off, and pre-scheduled re-lamping, with no loss of production or time, is now possible with Colovolt installations.

Contact your electrical wholesaler or jobber, or write us for full details and prices.



\*Trade mark registered U. S. Pat. Off.

GENERAL LUMINESCENT CORPORATION
662 S. FEDERAL STREET CHICAGO S, ILLINOIS



### Everywhere-you'll find MASONITE PRESDWOODS!

Broader horizons stretch out before the architect, the designer and the builder who include the Masonite\* Presdwoods in their source book of basic materials. These dense, strong hardboards are used in ultra-modern surroundings for people on the move, as illustrated. They help transform dull dwelling interiors into gay, useful units for living. And they recommend themselves as quality ingredients for new-home construction.

Lurelle Guild, designer of the club car interior shown here, has utilized Presdwoods for side-walls, panels, head-linings and built-in furniture – practically everything but the chairs and flooring.

Your business will profit by the distinct advantages of the workable, versatile Presdwoods. They will take — and hold — practically every type of finish. There's no grain to rise and

mar fine surfaces, no tendency to splinter, crack or check. Too, these Masonite hardboards have a warm rich beauty of their own (at right, in illustration). Flat and smooth, they take and hold bends. They're easily worked with ordinary carpenter's tools.

Write for complete data on all Masonite building products to Masonite Corporation, Dept. AF-7, III West Washington Street, Chicago 2, Illinois.



#### PRESSED FROM EXPLODED WOOD

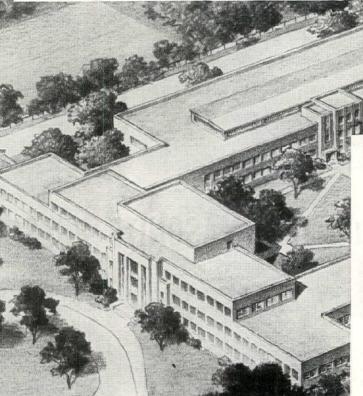
Products of the State of Mississippi

\*"Masonite" is a trade-mark registered in the U. S. Pat. Off. and signifies that Masonite Corporation is the source of the product.

# Johns-Manville Announces

Fifty Million Dollar

Multi-Million-Dollar "Test Tube" for actual experimental factory production, as well as fundamental research, now under construction near Bound Brook, N. J. The Johns-Manville Center ultimately will include six large buildings. Innovations in the first unit include ten experimental factories under one roof; a movable rear wall to permit temporary or permanent additions, or to accommodate extra-large machinery; a special system of interior construction to provide flexibility to meet changing needs for laboratory facilities.



Dr. C. F. Rassweiler, Vice-Pres. of Johns-Manville Corporation in charge of research and development, states:

"We are living in an era of scientific improvement unparalleled in man's history. One

single development stemming from social and economic needs can bring revolutionary changes throughout an industry. Today, we stand on the threshold of a new era, which has unlimited horizons for the development and improvement of new products for home and industry.

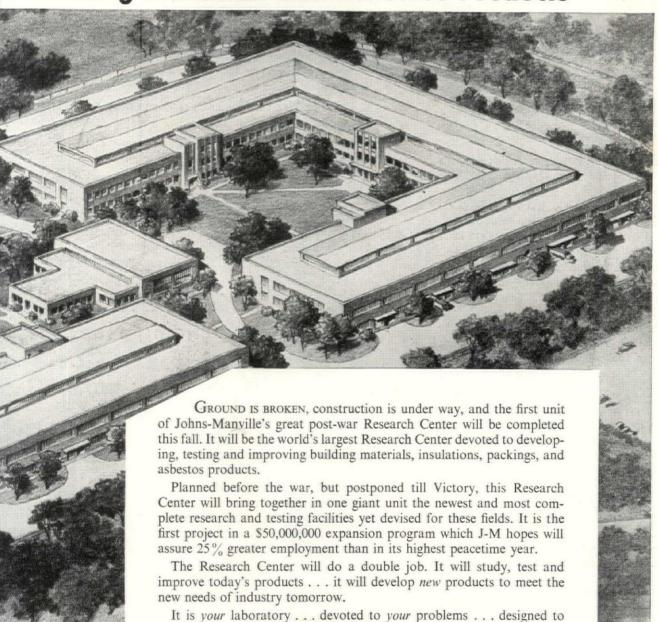
If this goal is to be achieved, some individual or group of individuals must have the imagination, courage and facilities to meet the challenge.

Johns-Manville has accepted this challenge and is now in the process of constructing the world's largest research laboratory devoted to service through science for better homes and greater industrial efficiency.

Johns-Manville

# Expansion Program

to include World's Largest Research Center or Building Materials and Asbestos Products



produce more efficient Johns-Manville materials for you!

Manufacturers of 1200 Products for Home and Industry

### **ANNOUNCEMENTS**



Egyptian mummies, wrapped in cotton centuries ago, are still well preserved by the sturdy, long-lasting qualities of cotton fibers.

That, Mr. Architect and Building Contractor, is the same kind of protection and permanence you get out of tough, cotton fibers found in Lo-"K" flameproofed COTTON INSULATION.

The resistance of Lo-"K" to moisture, mildew, rot and decay—the protection it offers against fire—the fact that it never sags or settles—are special Lo-"K" factors which guarantee uniform, lasting efficiency.

Its low "k" factor of only .24 for 1-inch—(a lower thermal conductivity than rock wool, glass wool, cork board or chemically treated wood fibers)—provides anywhere from 4% to 36% greater insulating effectiveness.

Recommend Lo-"K" for all types of homes and industrial structures with the assurance that there isn't a finer, more modern, more economical insulalation on the market. Lo-"K" is made in convenient, easily handled rolls to meet all standard construction practice. Write today for full particulars.



LOCKPORT COTTON BATTING COMPANY Dept. AF-7, Lockport, New York

□ ARCHITECT

Gentlemen: Send me the facts about Lo-"K" Cotton Insulation for better building.

☐ CONTRACTOR OR BUILDER

DEALER

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Address			
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JOSEPH CERUTI, AIA, is now with Designers for Industry, Inc., Cleveland. Mr. Ceruti will round out the firm's general architectural services through all stages of construction.

RAY RICH, USNR, formerly with General Electric Company and the Committee of Economic Development has been named a full partner in the firm of Van Doren, Nowland & Schladermundt, industrial designers.

ROBERT WARDROP after four years service with the army has returned to the Pittsburgh Plate Glass Company as Assistant Manager of Glass Advertising and Promotion.

George Bottcher has been appointed Construction Engineer for Alleghany Ludlum Steel Corp.

George Lehmann has been appointed assistant manager of the General Electric Plastics Divisions.

HAROLD ALDRICH is now New York district representative for the General Electric Chemical Department.

HAROLD BUSH BROWN, AIA, has been appointed to the Board of Advisory Architects of the American Commission of Living War Memorials

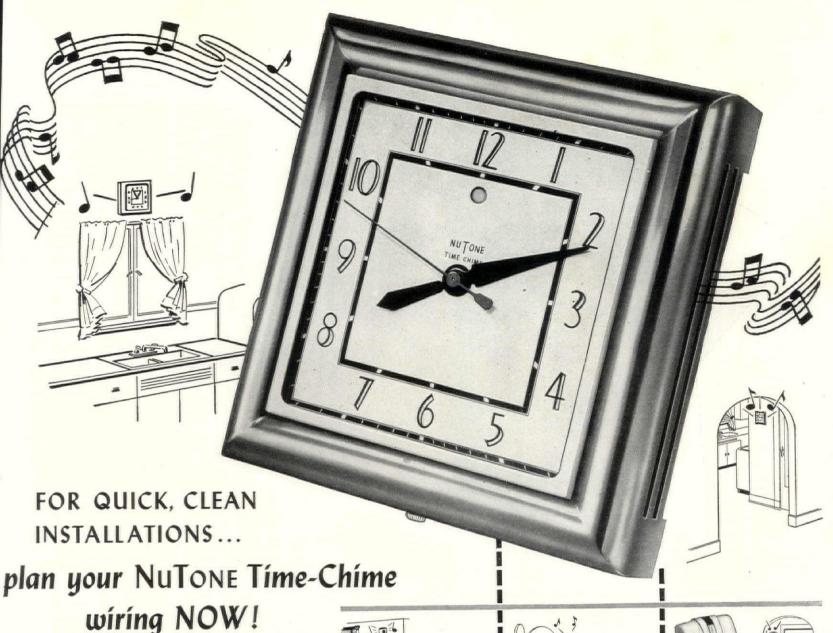
K. T. BATCHELDER has been made assistant sales manager in field supervision of Insulite Siding sales.

Homasote Company, Trenton, N. J. announces the appointment of John Kahle, Jr. as Sales Manager.

E. B. Bomar has joined the Day-Brite Lighting organization as sales representative with headquarters in Phoenix, Ariz.

Wesley Peoples has been elected Acting President and Chairman of the Board of the United States Radiator Corporation. (Continued on page 92)





Built-in chime wiring is appreciated. It's evidence of careful planning. It saves time in the long run. Gives you quick, clean installations. No chipped paint, no marred woodwork. Costs less, too.

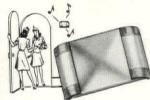
So plan NOW for wiring the NUTONE Time-Chime... the fine new 2-door chime and Telechron electric clock that lists at \$14.95.

Experience has shown that a height of six or seven feet is ideal for mounting the Time-Chime in the kitchen or hallway. Before the war, one large Long Island building development successfully used a niche in the kitchen for an earlier-model NUTONE Time-Chime.

Complete wiring directions and suggested installation sites for this chime are yours for the asking. Write your nearest NUTONE office. NUTONE, Incorporated, Merchandise Mart, Chicago 54; 200 Fifth Ave., New York 10; 931 E. 31st St., Los Angeles 11; or Terminal Sales Bldg., Seattle 1.



The LEADER... for kitchens, hallways, or as a second-floor auxiliary chime in large homes. A 2-door chime. List, \$3.50.



The SKYLINE ... for kitchen or hallway walls. Mount slightly above eye level for best results. A 2-door chime. List, \$4.95.



The DELUXE... a short-tube model in kitchen or hallway colors. Two tones for front door, one for rear. List, \$6.95.





The IMPERIAL ... a 2-door, long-tube chime (38¾" overall), well suited for foyer or living-room niche mounting. List, \$7.95.



The JEWEL... modern allbrass 2-door chime for living room or hallway. Packed with matching Jewel Push Button. List, \$9.95.

better living means better listening, too!

WORLD'S LARGEST MAKER OF DOOR CHIMES





In construction products CECO ENGINEERING

### HERE ARE THE CECO PRODUCTS THAT HELPED SOLVE VETERAN VINSON'S PROBLEM...

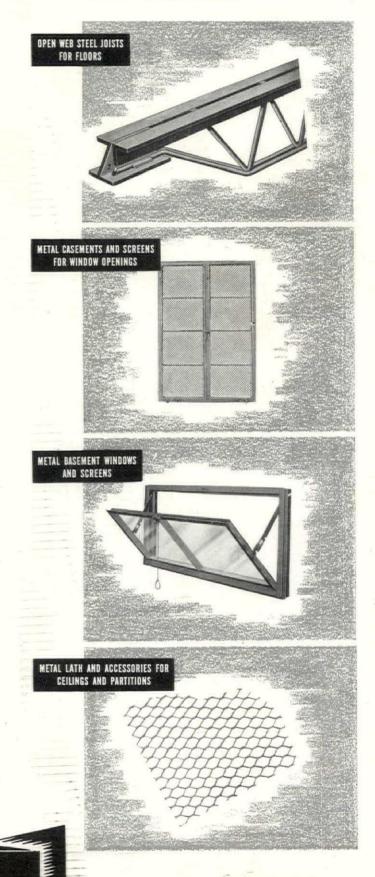
### CECO ENGINEERING PLUS CON-STRUCTION KNOW-HOW...MAY HELP YOU WITH YOUR PROBLEMS

Ceco Engineers do more than design and manufacture fine construction products. Besides their wealth of technical engineering knowledge there is constantly available to you construction knowhow gained by many years of experience on the job, in the field. In 23 offices strategically located from coast to coast, Ceco stands ready to help solve your problems without delay and with technical skill. In these days of shortages, Ceco often can show you how to adapt available products so the job can go ahead. In the matter of hard-to-get materials, Ceco is doing all it can to rush production for you.

### CECO STEEL PRODUCTS CORPORATION

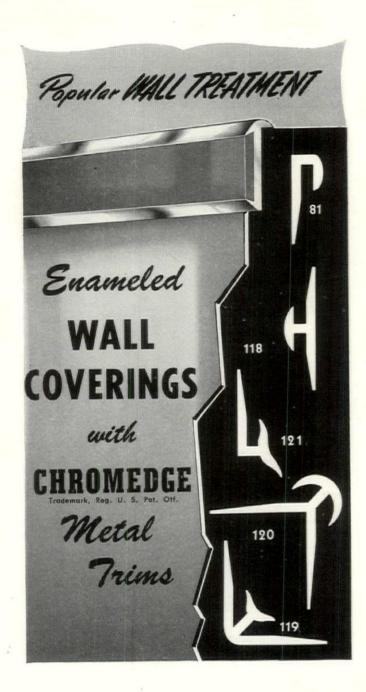
GENERAL OFFICES-5701 W. 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities.



makes the big difference

### **ANNOUNCEMENTS**



Chromedge Metal Trims give you a wide choice of brilliantly designed mouldings for use with the newly popular enameled wall coverings. In fact, the Chromedge line includes correct shapes for use with every type of floor or wall material. Other Chromedge features include sets of trims in beautiful matching face patterns . . . the advantages of dealing directly with a fabricator who does the whole job under one roof, from metal ingot to polished trim . . . the remarkable Chromalite finish that combines rich, velvet-like beauty with a rubproof surface of amazing resistance to acids, oils, cleansers, stains, and even wear. You're sure of complete satisfaction when Chromedge Metal Trims are used!

The B&T Metals Company
Columbus 16, Ohio

C. RUSSELL MACGREGOR has been elected president of Unexcelled Chemical Corporation (formerly Unexcelled Manufacturing Company).

Skia Chemical Corporation of Passaic, N. J., announces the appointment of E. J. Peck as Sales Manager.

### CHANGES OF ADDRESS

WHITNEY SMITH, architect, has moved to 204 S. Los Robles, Pasadena 5, Calif.

Walter Dorwin Teague, industrial designer, announces the transfer of his West Coast offices to 3142 Wilshire Boulevard, Los Angeles 5, Calif.

CITY INVESTING COMPANY is now located at 25 Broad St., New York 4, N. Y.

HOLSMAN & HOLSMAN AND KLEKAMP, architects, have moved to The Dunham Building, 450 E. Ohio St., Chicago 11, III.

Martin Hauri, architect, has moved his office to Room 205 Postoffice Building, Coconut Grove, Miami, Fla.

JOHNSON, WALLWORK & DUKEHART, architects, are now at 802 Dekum Building, 519 Southwest 3d Ave., Portland 4, Ore.

FREDERICK HODGDON, AIA, announces the new location of his office at 670 Lafayet Park Place, Los Angeles, Calif.

SIDNEY SCHENKER, architect and industrial designer, is now located at 91 Broadway, Paterson, N. J.

Daniel, Mann and Johnson, architects, of Santa Maria, Calif., have opened a second office at 672 South Lafayet Park Place, Los Angeles.



THESE MANUFACTURERS
OF BUILDING MATERIALS
ARE TELLING HOUSE & GARDEN READERS
ABOUT THEIR PRODUCTS

Acme White Lead & Color Works Amana Society American Brass American Flange & Mfg. Co. American Gas Association American Radiator-Standard Sanitary Corp. Anchor Post Fence Bennett-Ireland Bennett-Ireland
Bruce Co., E.L.
Burnham Boiler Corp.
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Chase Brass & Copper Chicopee Mfg. Corp. Crane Co. Curtis Companies Cutler-Hammer, Inc. Devoe & Raynolds Co.
Defoe Shipbuilding Co.
Dillingham Mfg. Co.
DuBois Fence Co. Electromode Corp. Electric Steam Radiator Corp. Eljer Co. Elkay Mfg. Co. Fence Co. of America General Bronze General Electric Co. Grand Rapids Varnish Co. Grenard Mfg. Co. Harrison Steel Cabinet Co. Haskelite Mfg. Corp. Heatilator Co. Homease Products (Div. Bogue Electric) Imperial Paper & Color Corp. Inclinator Co. of America Insulite Div. of Minnesota Interchemical Corp. Johns-Manville Co. Kampak (Cinderella Dishwasher) Kennedy, David E. Keystone Varnish Kimberly-Clark Corp. Libbey-Owens Ford Co. Lord & Burnham Logan Co. Martin-Senour Co. Mesker Bros. Meyercord Co. Minneapolis-Honeywell Modine Mfg. Co. National Clay Pipe Northern Woods Products Nurre Companies Inc. Nurre Companies Inc.
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Rolscreen Co.
Roper Corp., Geo. D.
Russell Co., F. C.
Rusticraft Fence Co.
St. Charles Mfg. Co.
Sedgwick Machine Works
Shengal Flewtor Co. Shepard Elevator Co. Sherwin-Williams Co. Southern Galvanizing Co. Strahan Co., Thomas Somerville-McGinn Lumber Co. Swallow Airplane Co. The Thermoseal Company Trane Co. United States Plywood United Wall Paper Factories Universal Zonolite Insulation Co. Wendel, Inc., Rudolph Weis Mfg. Co., Henry Western Pine Association Williams Oil-O-Matic Wittie Sales & Mfg. Co. Wood Conversion Co.

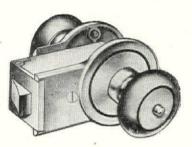


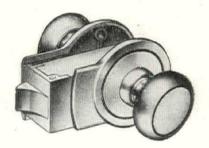
...until it is controlled by sound-absorbing materials.

June House & Garden tells its readers about acoustic materials, how disturbing sound can be drowned and vibration checked through acoustic tiles and plaster, insulation boards and quilts. House & Garden's building program gives thorough attention to the details that add up to more comfortable living. Meeting the nation-wide interest in "anything to do with houses", House & Garden is a first-hand reference for modern-minded people...a starting-point for action.

## House & Garden

## CORBIN RESIDENCE UNITLOCK FOR INTERIOR DOORS

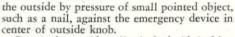




### BATHROOM OR BEDROOM LOCKSET LOCK NO. 730

Operation: Latch Bolt operated by knobs from either side of door except when outside knob has been locked by pushing in button in center of inside knob.

A turn of inside knob releases locking mechanism. In case of emergency, door can be unlocked from



Cannot be accidentally locked. If locking button in inside knob has been pushed in while door is open, contact of latch bolt with strike as door closes, automatically releases locking mechanism.

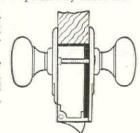
Reversible for right or left hand doors opening in only. Made regularly for 13/8 in. doors. Can be furnished for 13/4 in. doors, when so ordered.

#### INSIDE LATCH SET LATCH NO. 710

Operation: Latch Bolt operated by knobs from

either side of door. Reversible for right or left hand doors opening in or

Made regularly for 13/8 in. doors. Can be furnished for 13/4 in. doors, when so ordered.



Shipments are being made of the new Residence Unit Locksets for Bathrooms and Bedrooms, and latch sets for Interior Doors.

Our original production schedule called for exterior and interior Unit Locks in what seemed at the time to be optimistic quantities. The responses to our initial announcements far exceeded our expectations. In order to get into volume production at the earliest possible moment, we revised our schedule. Effort has been concentrated on production of interior Unit Locks because the average small home has only two exterior doors compared to at least eight or ten

In the meantime we suggest that suitable exterior locksets (shown in wide variety in our Catalog) be selected and used until the new Residence Unit Locks for exterior doors are available.



PRODUCTION DEPARTMENT PRESENTS RESIDENCE UNIT LOCK TO SALES DEPARTMENT MAY 24, 1946 E. L. Teich, Chief Engineer; S. P. Morgan, Factory Manager; Geddes Parsons, Asst. Sales Manager; H. S. Parsons, Eastern Sales Manager.

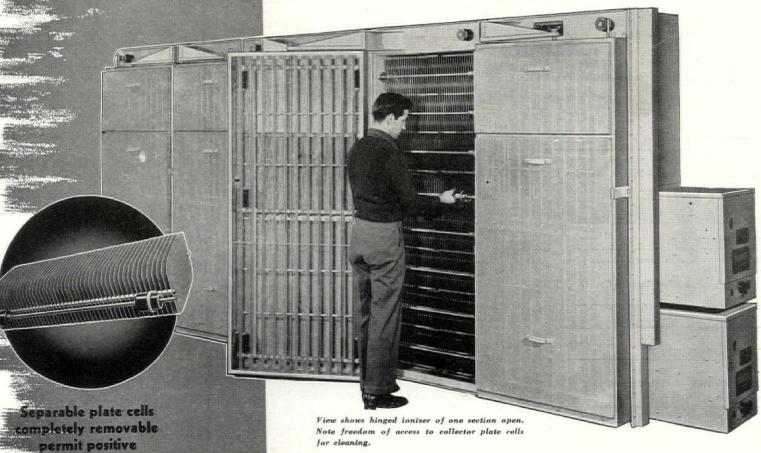
DIVISION OF AMERICAN HARDWARE CORPORATION

NEW BRITAIN, CONNECTICUT

"Good Buildings Deserve Good Hardware"

# lectro. CELL

TYPE Electronic PRECIPITATOR



maintenance.

HINGED, FULL HEIGHT IONIZERS

SEPARABLE COLLECTOR PLATES

SECTIONAL CONSTRUCTION

The Electro-Cell is an electronic air filter of new and unusual design that offers the advantages of sectional construction, removable collector plates, full-height hinged ionizers and totally enclosed high voltage wiring. These features, exclusive to the Electro-Cell, are developments of major importance because they simplify installation, improve performance, promote safety and offer a choice of maintenance methods.

The Electro-Cell filter is one of three electronic precipitators developed by this company to meet any requirement for super-clean air. Each type has distinctive advantages under certain operating conditions, and are the result of more than ten years of research and experimentation in the field of electronic dust control.

AMERICAN AIR FILTER COMPANY, INC.

427 Central Avenue

Louisville 8, Kentucky

In Canada: Darling Bros., Ltd., Montreal, P. Q.

Send for **Bulletin 252** which gives the complete story

### CONSTRUCTION OUTLINE

FOUNDATION: Walls - continuous reenforced

STRUCTURE: Exterior walls-stucco over 16 gauge galvanized wire mesh, 15 lb. asphalt saturated felt, 18 gauge wire over 2 x 4 studs, 16 in. o. c.; inside—3 coats plaster on keyhole lath over 1 in. mesh 20 gauge galvanized wire.

ROOF: Light-weight interlocking shingle tile, Glad-

#### CONSTRUCTION OUTLINE

EXTERIOR SURFACE: Common brick veneer over tile. EXTERIOR PAINT: Brick painted 2 coats "Bondex" cement paint.

: Ceilings—Celotex Corp. Weather-hamberlin Metal Weather Strip Co. Sash—Fenetron steel, Lee Miller & double strength, quality A, American iss Co. Glass block—Pittsburgh Corning ian blinds-Steel-Flex, Venetian Blind I Co.

PAINTING: Exterior - Bondex, Reardon Co.

ELECTRICAL INSTALLATION: Wiring system-BX. Switches—Hemco, Bryant Electric Co. Kitchen fan-Westwind, West Window Corp.

BATHROOM EQUIPMENT: All fixtures Briggs Beautyware, Briggs Mfg. Co. Accessories and cabinet— Hallenscheid & McDonald.

ARCHITECTURAL FORUM

### CONSTRUCTION OUTLINE

FOUNDATION: Walls and cellar floor-concrete. PAINTING: Exterior walls—Bondex, Reardon Co.

CONSTRUCTION OUTLINE

furred, lathed and plastered inside.

STRUCTURE: Exterior walls-9 in. common brick,

PAINTING: Exterior walls—Bondex, Reardon Co.

### CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls, brick veneer, insulating board, paper, rock wool. PAINTING: Exterior Walls, Bondex, Reardon Co.

### CONSTRUCTION OUTLINE

EXTERIOR SURFACE: Brick Veneer. EXTERIOR PAINT: Brick-2 coats Bondex.

#### CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls-4 in, brick, PAINTING: Exterior walls—Bondex, Reardon Co. Have you noticed how many of the "trend influencing" homes are painted with Reardon's BONDEX

Waterproof Cement Paint?

### CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls-used brick, 1 x 2 in. furring, insulation lath and plaster. PAINTING: Exterior—Bondex, waterproof paint, Reardon Co.

More BONDEX is sold than the total of all other Waterproof Cement Paints combined.

- FOR EXTERIORS, BASEMENTS and FOUNDATIONS
- ON CONCRETE or CINDER BLOCK, STUCCO, BRICK and MASONRY

For Full Information and New BONDEX Color Chart, WRITE

The REARDON COMPANY 2210 North Second St., St. Louis, Mo.

### TODAY'S HOUSE

THE man with a mouthful of nails, a saw in one hand and a hammer in the other, is not going to house the veterans of World War II—even if he can get the nails. Building houses today calls for a kind of ingenuity and "know-how" which is far removed from the sturdy old-timer with the stub of a pencil, estimating on the back of an envelope. Today's builder is a businessman, alert to all the possibilities of mass production, new techniques and power tools, not the least of which is an electrically operated adding machine.

This issue of the FORUM is devoted to today's house—a house which must be small to squeeze under today's price ceilings, a house which must be carefully designed to wring the most space and livability out of today's inflated dollars, a house which must be prudently constructed to make the most of scarce materials, a house which, despite today's restrictions, must meet the public demand for quality as well as quantity.

Building today's house is no mean task. It has stumped many a builder. But, it has challenged others to explore and discover ways of building houses which are in many respects better than those produced in normal times. These builders, their architects and the manufacturers who serve them have, in a very real sense, made this issue of the Forum—a manual on today's house, its design, construction and equipment.

In preparing this manual, the Forum culled the many residential projects presented in the past and studied thousands of suggestions submitted last month in response to the Forum's industry-wide invitation. From this material the editors selected those suggestions which make it easier to build today's house by minimizing costs, by saving time or by detouring material shortages. These suggestions by the hundreds are presented graphically on the pages which follow. They are interspersed with the presentations of seven projects—three designed by small house experts specifically for this issue of the Forum, three more which are completed or abuilding and, finally, an operative builder's project whose many design and construction innovations are detailed throughout the magazine and put together at the end.

The Forum recognizes the urgent need for apartments and row housing in the emergency housing program, but it also recognizes that, as in the past, the vast majority of dwelling units will be provided in detached houses. This review of design suggestions (pages 101 to 105) embraces every type of housing unit, including the expansible two-room bungalow, the six-room, two-story house, the large scale rental project, and the emergency temporary type dwelling—all of them developed for low cost and speedy construction.

To be built economically and quickly, today's house will capitalize on the availability of cement, sand and water. Its concrete foundations (pages 109 to 113) may be poured in earthen or concrete forms or forms of lumber designed to be used over and over again. These foundations may support concrete walls—precast, molded in concrete patterns or poured without forms. Floors, too, and even the roofs may be concrete (pages 112 to 119). Of course, concrete blocks and structural clay units will be used to the limit of their production facilities.

Builders who stick to frame construction for today's house may use metal and com-

position materials to reduce the lumber normally used for framing and sheathing (page 115). Metal braces and clips will strengthen the lighter frames and further eliminate critical wood (page 150).

Exterior finishes of cement asbestos, metal and composition panels may be applied in large pieces to save lumber and labor, and roofs can be covered with plank-like shingles which serve as insulation and sheathing as well as finish (pages 125 to 126). Inside, the finishes range from ceramics laid in mastic to coated fabrics laid like wallpaper (pages 126 and 127). A wide variety of ingenious fasteners and versatile adhesives simplify the finishing problem (pages 148 and 150).

Roofs may be framed with trusses of lumber, steel and reinforced concrete (page 118) to eliminate the need for structural partitions. The latter, made entirely of plaster, will capitalize on another of the few abundant materials. Other partitions may be made temporary, demountable or movable to permit rearrangement of the house once costs and material supplies make its enlargement feasible (pages 120 to 121).

Heating will be accomplished with a minimum of metal piping or ductwork and plumbers may provide showers to pinch hit for tubs and piping systems which defy simplification (pages 130-137). To save time and lumber, builders are putting power tools to work for them and are doing more prefabrication—on the site and in the shop (pages 140 to 146).

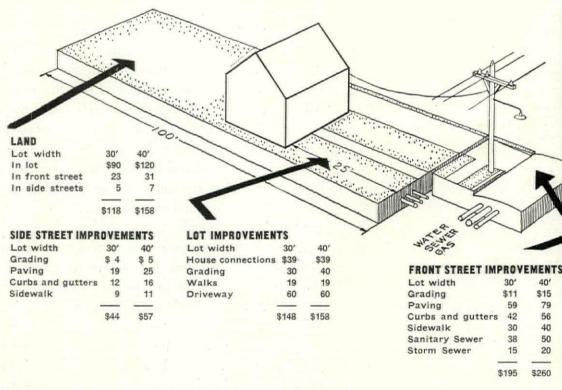
These design and construction hints are only an introduction to the hundreds detailed graphically on the following pages. The whole symposium underlines two important facts concerning residential building today. First is the fact that building today's house is by no means a normal operation, and the builder who relies on normal design and construction techniques is likely to find that he cannot produce houses which meet the price requirements. Secondly, it is clear that savings in small house construction come, not from a few major items, but from meticulous attention to innumerable details. Savings taken singly, like houses built one at a time, produce trifling results; the sum total of many savings repeated in many houses gives the answer veterans are looking for.

### LAND & SERVICES COST ANALYSIS: land and improvements . . . SUBDIVIDING: street

and lot layout . . . UTILITIES: drains, gutters and gas.

Accounting for roughly 10 per cent of the total cost of a small house, land and services offer relatively big possibilities for economies. Every builder knows that the price of raw land is fundamental to any housing project. Since land prices decrease in inverse proportion to the proximity of the land to community facilities, and since sales resistance begins when the land is located beyond a comfortable commuting range, builders today in selecting building sites must strike a careful balance between lands prices and conveniences. However, in view of the trend toward community decentralization in recent years and the recent sharp rise in building costs, semi-rural land is more attractive to builder and buyer alike than it was ten years ago.

Although many a small house will be built on rural land selling for 1 or 2 cents a square foot, 3 cents will be nearer the average and has been used for purposes of the analysis presented at the right. (In larger communities builders are glad to buy land at twice this price.) At 3 cents a 30 ft. by 100 ft. lot will cost \$118 including the land in the streets. This is based on platting which produces 200 ft. by 840 ft. blocks surrounded by 10 ft. sidewalk strips and 26 ft. streets, each block containing fifty-six 30 ft. lots or forty-two 40 ft. lots. Savings in land costs result for the most part from a developer's scouting for good buys. and in this connection he will do well to consider the purchase of sloping, rugged land



TOTAL			POSSIBLE SAVINGS		
Lot Width	30'	40'	Lot width	30'	40'
Land	\$118	\$158	Septic tank for sewer	\$27	\$39
Front street			Street oiled instead of		
improvements	195	260	paved	39	52
Side street			Driveway omitted	60	60
improvements	44	57	Side streets platted		
Lot improvements	148	158	but not improved	44	57
	-	-			
	\$505	\$633		\$170	\$208

whose price reflects the fact that it has always een considered unattractive for development. In imaginative designer can frequently create in attractive yet economical subdivision with impossible" land as the foundation. Other avings in land can be effected through the platting of "super blocks" which reduce the lost of street improvements.

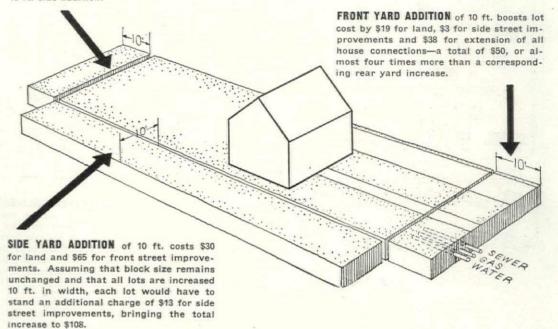
Also chargeable to the lot are the cost of treets and public utilities and such lot improvements as grading, sidewalks, driveways nd utility connections. The relative cost of hese items is analyzed to the right. Although itilities normally include gas, electricity, water ind sewage disposal, an assessment has been nade only for the sewer, following general practice. Each lot bears half the cost of ront street improvements, the cost of connecting the house with these improvements and its share of side street improvements. As shown in the graphic analysis, these improvements total \$387 for the 30 ft. by 100 ft. lot, \$475 for the 40 ft. by 100 ft. lot. It is also shown that it is cheapest to increase the depth of a lot by adding to its rear yard where house connections are not lengthened and side streets costs are increased to only a minor extent. Front yard additions cost four times as much: side yard additions, eight times.

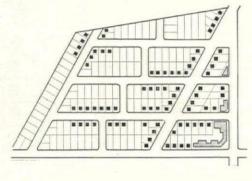
Savings in lot improvement costs of as much as \$170 per 30 ft. lot may be effected by eliminating garages and driveways, substituting a septic tank for the sewer, oiling the street instead of paving it, plotting the side street but not improving it, eliminating a side street by use of a super block, and eliminating gas pipes by providing for use of "bottled gas." Of course, the purchaser of property in such a minimum development runs the risk of having some of these economies backfire in the form of assessments for subsequent improvements.

From the point of view of land economy, the best free standing house is the two-story one which may be designed to cover only 18 ft. of lot width, whereas the minimum onestory house covers at least 24. Further economies are realized if these two-story houses are built in attached rows. Elimination of side yards except at the ends (12 ft.) would make room for 92 houses on the typical block used in accompanying analysis and would reduce the total improved costs per lot by \$150, a saving of about 30 per cent over a 30 ft. lot. A further reduction of about \$39 could be made by using one set of utility connections along alternating lot line easements to serve the two adjacent houses.

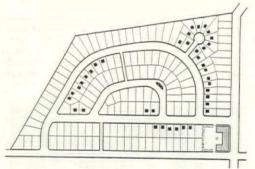
Other economies in land-use will result where developers forget the traditional gridiron pattern of land platting in favor of modern site planning. Use of culs-de-sac and one-way loops instead of straight through streets create more attractive lots, permit narrower, less durable pavements, make sidewalks elimination feasible and more than offset in cost the extra land area that may be required. Several well plotted subdivisions employing these modern site planning methods are illustrated on the following page.

REAR YARD ADDITION of 10 ft. costs \$19 for land and \$3 for side street improvements—only one eighth as much as for 10 ft. side addition.

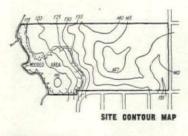




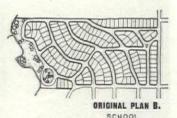
POOR PLANNING, carried to an inane extreme at the left, includes a gridiron street pattern, heavy traffic within the subdivision, angular street intersections, non-abutting cross streets, small uneconomical blocks, a ribbon shopping district with no provision for off-street parking, stores amid residences, lots not perpendicular to street, angular lots, narrow deep lots, small corner lots and monotonous building lines.



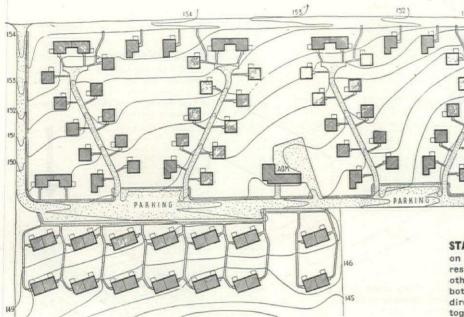
good planning diverts heavy traffic, provides safe perpendicular street intersections, reduces the number of subdivision entrances, creates long economical blocks with cross walks as necessary, includes an organized shopping center with off-street parking, faces all lots perpendicular to the street, increases the size of corner lots and improves the appearance of streets by staggering the building lines.



ORIGINAL PLAN A.



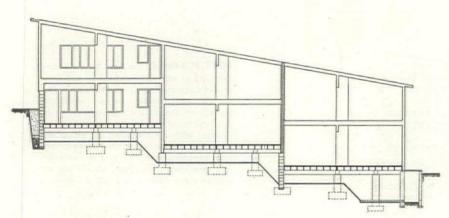
CASE HISTORY, above and right, shows how a builder proposed to subdivide his property and how FHA's land planning experts improved it. The builder's two schemes provided about 180 lots—many of them small, poorly shaped and located—along some 10,500 lin. ft. of street. FHA cut the street length to 7,100 ft., the number of lots to 135 and the subdivision entrances from six and seven to two. Note that the street layout of the improved subdivision follows the contours.



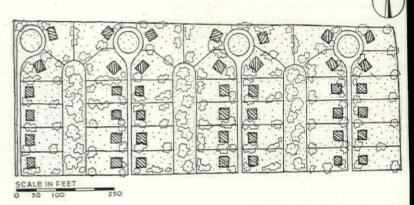


STAGGERED BUILDINGS set diagonally on the lots or offset from one another on either side of the street relieve a subdivision of the monotony which results from straight building lines and lots plotted directly opposite each other. In the development shown above, designed by Architect Hugh Stubbins, both of these planning techniques have been followed. No building looks directly at its neighbor's facade or side. Even though buildings are close together, a sense of spaciousness has been created by their informal siting.

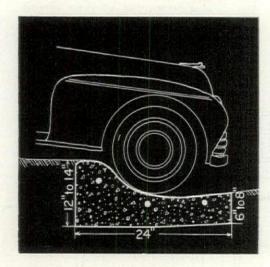
SCALE IN FEET



TERRACED CONSTRUCTION permits the use of hilly land frequently considered unsuitable for residential development and therefore lower priced than level property. Grading of such land will be held to a minimum if cross section studies, such as the one above, are made in the planning process. Running down the hill, this building, comprised of three dwelling units, is roofed in one continuous plane. Architects: Hill-Hoover-Heckler-Kohankie.



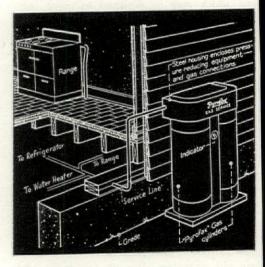
**CUL-DE-SAC** roads are frequently useful in opening up a large or small piece of property facing on a major street. Being access roads only, they may be less substantially paved than through streets, and sidewalks may be omitted without danger to pedestrians. In this site plan by Architect B. W. Crain, Jr., most of the lots back up on small park areas. The purpose and economy of the cul-de-sac is defeated if it is made to serve more than about a dozen lots.



GUTTER AND CURB combined in one piece of reinforced concrete permits location of driveways anywhere. Recommended by the Federal Housing Administration, this design eliminates hung forms and permits streets to be developed without reference to the location of driveways. The concrete may be shaped and finished in one operation with the aid of a template resting on the front and back forms. As customarily constructed, curbs must be cut to accommodate driveway entries.



SEWER PIPES of clay are hard to get. Comparable in initial cost but more readily available and much easier to lay is the pipe produced by Fibre Conduit Co. of Orangeburg, N. Y., pictured above. Available in lengths up to 8 ft. the pipe is tapered at either end and Joined with a friction sleeve which requires no cementing. Perforated pipe is available for foundation drains and septic tank filter drains. Similar bituminized-fiber pipe is manufactured by Brown Co., New York City.



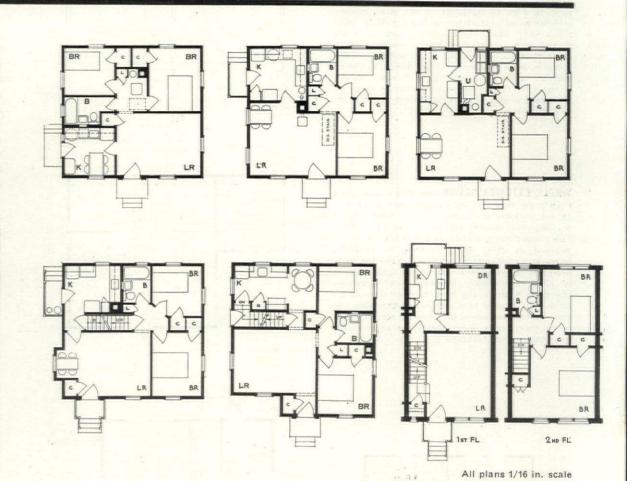
BOTTLED GAS offers one solution to the problem of developing semi-rural properties not served by gas mains. The gas "plant" consists of two steel cylinders inside of a steel housing located outside of the kitchen and is connected by a pipe to a special gas range. If the local utility company eventually brings city gas to the property, the equipment may be easily converted. The diagram above shows the installation of the equipment as recommended by Pyrofax Division of Carbide and Carbon Chemicals Corp.

### PLAN & DESIGN BUNGALOWS: compact layouts and their orientation . . . EXPANSIBLE

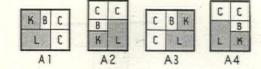
HOUSES: for additions to top and sides . . . TWO-STORY UNITS: detached and in rows . . . RENTAL HOUSING: apartments and dormitories.

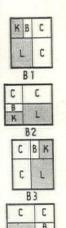
The smaller a house becomes, the greater becomes the need for careful planning and design. And, if the finished product is to look like more than a partitioned box, the design must be entrusted to an expert. Presented on this and the following four pages are architectdesigned floor plans selected because they are well-studied solutions to various small house problems. They serve as the basis from which houses may be designed to meet specific problems of site, climate and market.

The plans presented to the right were released last month by the Federal Housing Administration to the directors of its far flung field offices in an effort to "stimulate the designing of simple, compact arrangements which will comfortably accommodate small families of moderate means." After months of study, FHA recommends these plans as practical means of accomplishing the objectives of the Government's emergency housing program. All the plans are variations of the one-story two-bedroom theme, except the one shown to the right of the second row. The latter is a two-story plan, the most economical of the group. It is suitable for row housing and, with the addition of side wall windows, for detached construction

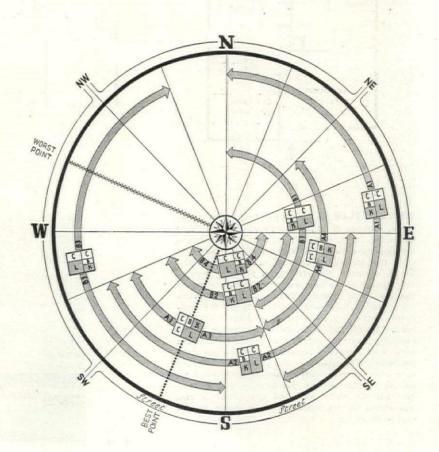








PROPER ORIENTATION will improve any house without adding to its cost. To the left are shown schematically the traditional plan for the minimum house and eight variations obtained by elongating the house and flipping it over to reverse the plan. Variations designated A have been elongated across the kitchen-living room axis; those lettered B have been elongated along this axis. These eight plan variations have been placed around the compass on a hypothetical street represented by the circle's circumference (right). Each is in its best possible location with respect to winter sun and summer breeze. Arrows indicate the range of compass directions each plan may face without violating any primary orientation principle. Note that the best possible orientation is south-southwest and that plan A3 falls on this point. Worst possible orientation is west-northwest. The chart is applicable to most parts of the U.S. but should be adjusted for local wind conditions and, in the extreme south, for sun conditions.

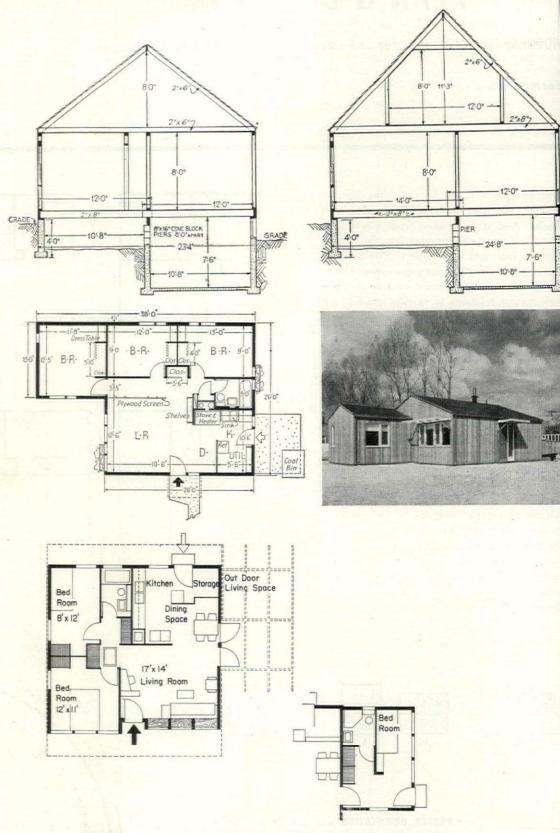


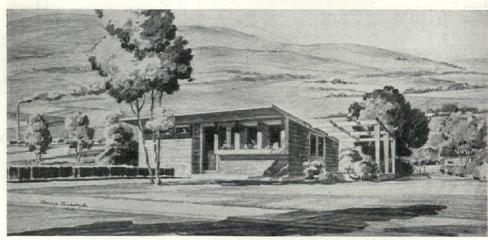
STANDARD JOIST LENGTHS dictate the dimensions of the houses shown to the right. The one-story section utilizes two 12-ft. Joists which produce a 23-ft. 8 in. maximum depth, reduced to 23 ft. 4 in. to capitalize on the 16 in. module of most panel materials. (Joists lap 12 in. with a box sill.) The story-and-a-half section shows 12 and 14 ft. Joists producing a modular depth of 24 ft. 8 in. (Joist lap 16 in. with box sill.) Modular units in each case are taken as inside exterior walls. Noteworthy in this connection is the fact that many manufacturers of brick and tile are now converting their production to modular sizes.

simple exterior design sets this house apart from most others of its size—further proof that expert architectural advice pays dividends in making small houses attractive and low in cost. Few builder-designed houses are as inexpensively finished as this. Note absence of shutters, fancy entrance details, window boxes—the hallmarks of jerrybuilders. The three-bedroom plan is also economical. Kitchen and bathroom plumbing fixtures are back to back and partitioning is reduced to a minimum. Shielding the doors to two bedrooms, the plywood screen would be necessary only when guests are entertained. Architect: Hugh Stubbins.



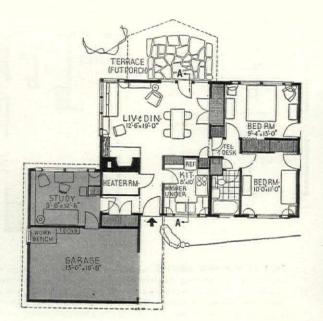
MODULAR PLAN designed by Architects Skidmore, Owings & Merrill (above) has much to commend it. Living, dining and kitchen areas are clearly defined but sufficiently combined to give the feeling of spaciousness to the small house interior. Shielded by a plywood screen, the storage space is a welcome accessory in the basementless house. Other light partitions create three curtained closets between the bedrooms and space for a recessed dresser in each room. Measuring 24 by 28 ft. exclusive of the bedroom bay, the interior lends itself to finish with 4 ft. modular panels of plaster board or plywood. The modular design is also adapted to prefabricated construction-26 standard 4 ft. panels (12 containing doors or windows) and two smaller units will wall the entire house. Variations of the basic plan are shown to the right and above.



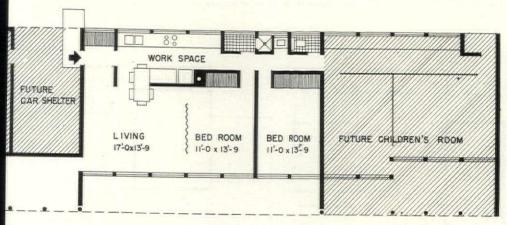


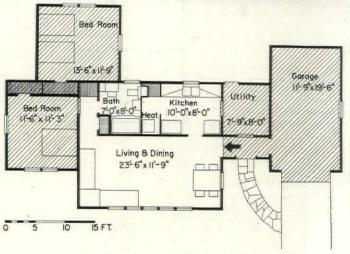
ike most builders, the public hopes and beeves that the trend of costs will soon level
ff and eventually drop a little. For this
eason the demand for expansible houses is
reater today than ever before. The housing
inch requires the immediate construction of
ssential space regardless of price; the hope
or lower costs fosters the desire for a plan
which may be easily expanded.

ORNER WING containing garage, study and loset is not essential to this well planned small ouse, and its construction could have been postoned without detracting from the function of he plan or from the exterior design. Pending a saddition, the hall to the study could serve as coat closet. The plan is outstanding for its bundant closet space and the economical backoback arrangements of fireplace and heater oom and kitchen and bath. Architect: Malcolm buncan.



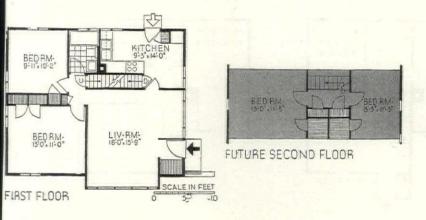






STRAIGHT LINE EXPANSION in two directions is possible in this solar house designed by Architect George Fred Keck for Revere Copper & Brass, Inc. In the basic unit, a wall may be folded back to add the area of one bedroom to the living-dining space. Continuous windows open up the rear of the house to the south and the garden; all utilities are strung out in a line along the north facade. Service elements are logically added to the left, additional bedrooms and closets to the right. No longer a small house, the expanded four-bedroom version measures 90 ft. across and would therefore require a larger-than-average lot.

THREE-WAY EXPANSION converts this house into a rambling bungalow. The basic element, designed and prefabricated by Factory Built Houses, Inc., of McDonough, N. Y., measures about 20 by 24 ft., temporarily combines dining, living and sleeping space in one large room. Later, one or two prefabricated bedrooms and closets may be added adjacent to the bathroom hall. At the other end, provision is made for the addition of a utility-laundry room and an attached garage. Small houses designed for horizontal expansion can only be built on inexpensive land. Otherwise, the relationship between land and construction costs will be uneconomically out of balance.



BED-RMIO-2'-8'-6'

IV-RMIO-0' × II-6'

STORAGE

STORAGE

BED-RMIO-6' - II-0

STORAGE

STORAGE

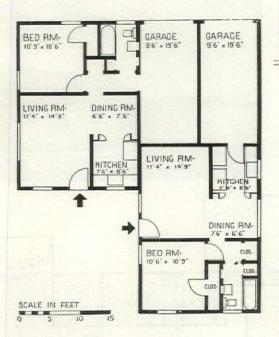
STORAGE

EXPANSION PLAN

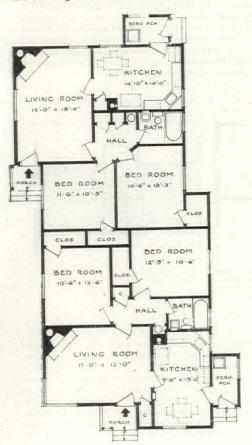
**EXPANSION ATTIC** provides space for two additional bedrooms in this house by Architect Samuel Glaser. Winders at the top of the attic stairs eliminate the need for an expensive dormer to obtain head room. Noteworthy is the fact that the stairs from the attic bedrooms lead directly to the first floor bathroom, making an upstairs bathroom unnecessary. Also noteworthy: the minimum space devoted to halls, the numerous closets, including one for coats, the entrance vestibule and the dining alcove it creates. Major disadvantage of the plan is that, due to the stair layout, one upstairs room must necessarily be small. For an exterior view of this house, see photograph page 110.

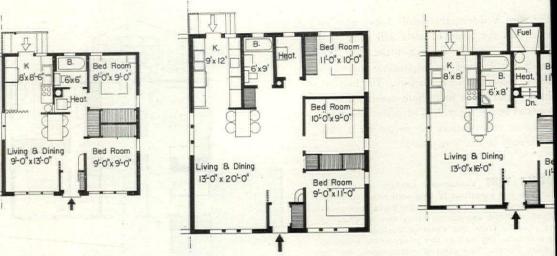
WINDING STAIRS lead to the center of the expansion attic and thus permit upstairs rooms of approximately equal size. To accomplish this, it has been necessary to locate the entry to the basement stairs in the bedroom hall, a questionable arrangement. In a basementless house, however, the space occupied by these stairs could be used for a centrally located heater or an extra closet. Location of the kitchen at the front of the house shortens the distance between street and service entry and cuts the cost of walk construction. The minimum size of first floor closets is offset by upstairs storage spaces. This plan was developed by the Central Housing Committee.

TWIN HOUSES, such as those shown below, achieve economies in construction as well as in land use. This two-family building is comprised of identical living units with attached garages filling in one corner. Despite the compact layout, each major room enjoys through or cross ventilation, and the open kitchens are not easily viewed from the living rooms. The street runs to the left of the building parallel to the axis of the garages. Architect: B. W. Crain, Jr.



TANDEM TWINS, below, are useful in developing a deep narrow lot. This project was built in San Francisco by Henry Doelger. The purchaser occupies one unit, obtains enough rent from the second to offset his housing costs. Noteworthy is the fact that the houses' service elements are widely separated to minimize interapartment noise and that both are entered from the same side of the house. The other side of the building is thus reserved for living.

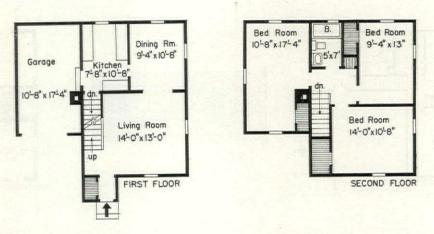




TRIO OF MINIMUM HOUSES was developed by the design department of Crane Co. for the benefit of local plumbing and heating dealers and, in turn, the house-hungry public. Stripped to the bare essentials, the houses have been estimated to cost \$6,000, \$5,000, and \$10,000, respectively, based on current Chicago labor and material costs. Except for a small vestibule, hall space in each house has been eliminated, accounting for considerable savings in partition costs, particularly in the three-bedroom unit. Plumbing is concentrated, and closets provide more space than in most houses of comparable size.



**TWO-STORY DESIGN** provides the most space for the money, for foundation and roof costs are almost halved. However, the two-story plan usually includes a separate dining room, space which can seldom be afforded in the really small house. The projecting garage and front porch add interest to the facade by breaking up the box-like lines of the main element of the house. If located at the rear of the kitchen, the garage wing could have supported a third bedroom entered by means of the present upstairs hall. Architect: M. P. de Nippell.

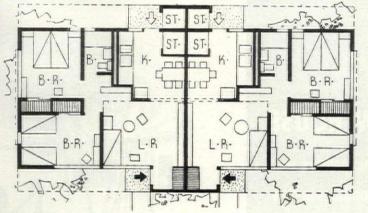


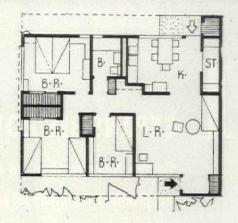
LARGEST HOUSE shown on these pages, this two-story design is economical in many respects and lends itself to construction by stages. The main portion is only 18 ft. wide and therefore suitable for construction on narrow city lots. If placed at the side of a wider lot, the main portion could be expanded later by the addition of the garage and the third bedroom. Although it is an important convenience, the vestibule and coat closet detract from the exterior appearance of the house. If the basement were omitted, this closet could be placed under the stairs in the corner of the living room. The major objection to small two-story houses is their awkward appearance. It may be overcome by repeating the design in semi-detached and attached housing, in which the economies of the design are combined with savings in the cost of land and in the cost of developing the site.

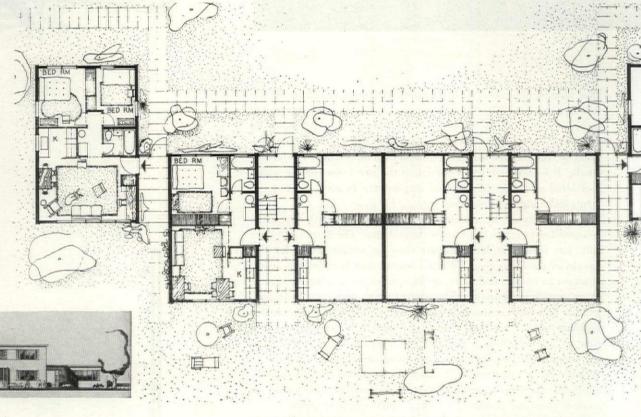


APARTMENTS in these two-family buildings are well segregated by projections at the front and rear. By simply moving out section of the front wall, Architect Richard Neutra created a coat closet and foyer which also serve to give privacy to the individual units. The generous provision of closet space is also noteworthythere are seven closets in the three-bedroom plan (far right). The large sliding windows are inexpensive and easy to

DORMITORY PROJECT, designed by Architects Magney, Tusler and Setter for the University of Minnesota, is comprised of two basic units which are repeated and separated by open porches on both the first and second floors. Cross walls which support the floors and roof are of concrete block; side walls are wood stud and siding. First floors are concrete slabs; second floors are bar joists and concrete; roofs are supported by wood joists. Each unit is heated with an individual gas heater. Estimated construction and fixed equipment cost was about \$4,200 per unit as of May 1; additional costs, including utilities, landscaping, walks, drives, furniture and fees are expected to total \$1,500 per unit.



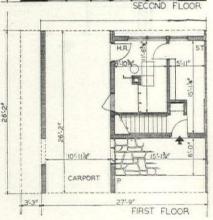


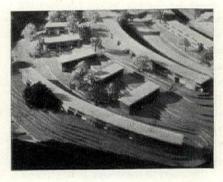




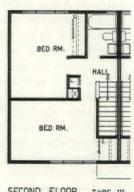
GROUND-FREE APARTMENTS boast advantages for builder and tenant alike. Of interest to the builder is the fact that only shallow foundations are necessary and that the design automatically takes care of drainage problems and minor differences in grade. For the tenant this apartment provides sheltered outdoor living space, a carport and wood rather than concrete floors. In addition to the carport the first floor contains a utility room and storage space. The second floor is cantilevered 3 ft. beyond the supporting walls and contains three bedrooms. Architects: Howe, Stonorov & Kahn.



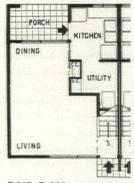




DUPLEX APARTMENTS designed by Architects Hill, Hoover, Heckler & Kohankie illustrate several design economies. Bathrooms and kitchens are arranged backto-back and above each other, thus concentrating all plumbing for two units around a single stack. Partitions and doors have been used sparingly; curtains enclose the closets. The rear porch makes outdoor living and dining possible, and the utility room will take care of dead storage as well as the heating plant. Duplex units may be repeated endlessly within practical limits to create attached row houses for sale or garden-type apartments for rent.



SECOND FLOOR TYPE III



FIRST FLOOR TYPE III

# EXPANSIBLE ROW HOUSE

George Nemeny plans an inexpensive unit adaptable to minimum lot conditions in New York suburbs.

Row houses, because of their traditional alignment and monotonous facades, are generally thought of as identical in appearance and rigid in plan. In this project George Nemeny has attempted to reverse this conception. Within the limitations of the Wyatt program he has outlined a build-as-you-go plan for suburban neighborhoods. It is based on a new version of the row house, one in which individual units can be enlarged step-by-step to meet the requirements and budget of the owner.

Working toward an ultimate three-bedroom, two-bath house, the construction program is set up in three stages. The first, a one-story unit, has temporary but adequate sleeping arrangements for two people off the living room. When a second floor is added this space, adjacent to kitchen and bath, can be used either as a dining area or as an auxiliary bedroom. The second story adds two bedrooms, another bath and generous storage space. (The architect anticipates building some of the two-story units complete at the outset to take care of larger families.) On the third level it is possible to repeat the second floor, an addition of two more bedrooms and a bath, or to settle for a roof terrace. In addition to landscaping, the latter alternative involves extending the stairwell on the street side for another story and providing a roofing which will bear traffic.

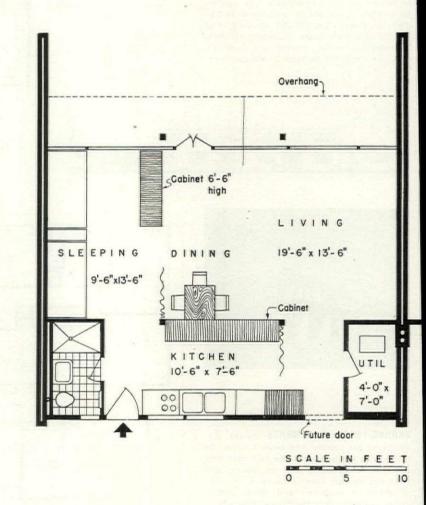
The architect stakes no claim for having solved the housing dilemma, since his design, under present financing conditions, is most suitable to individual ownership whereas the greater part of current demand is for rental housing. However, if materials are available and financing remains geared to sale rather than rental, the one-story, \$6,000 row house represents a better-than-average investment for young veteran couples. (This figure—based on a fairly large suburban development for the eastern seaboard—does not apply to semi-detached or detached versions of the design.)

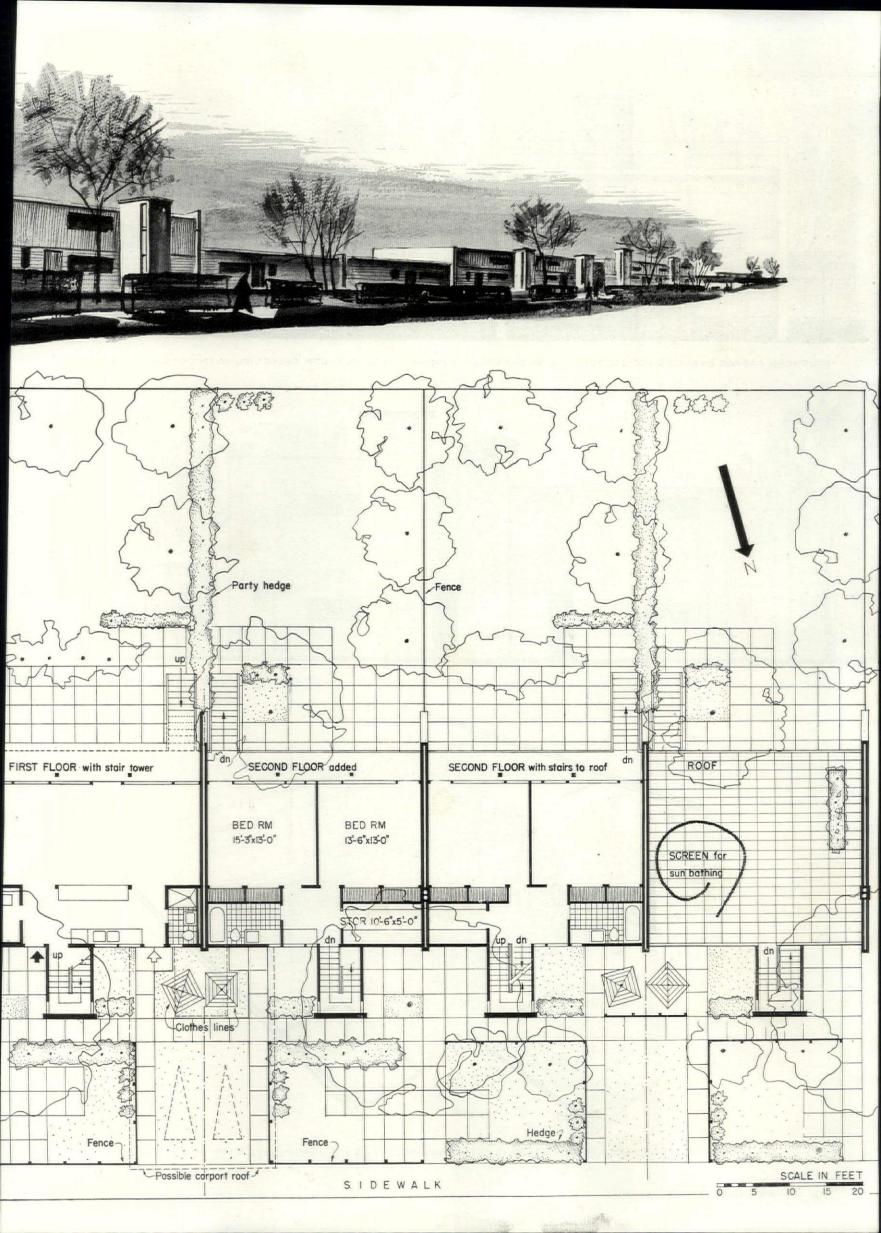
So many alternatives left in the hands of the house owner suggests mandatory consultation with a resident architect and builder before any additions be made. One of the assets of the design is its elimination of repetitiveness familiar in row house facades by introducing varied building heights. And, it is not hard to believe that even under an economy of plenty, diverse requirements of the individual families would insure a variegated building pattern.

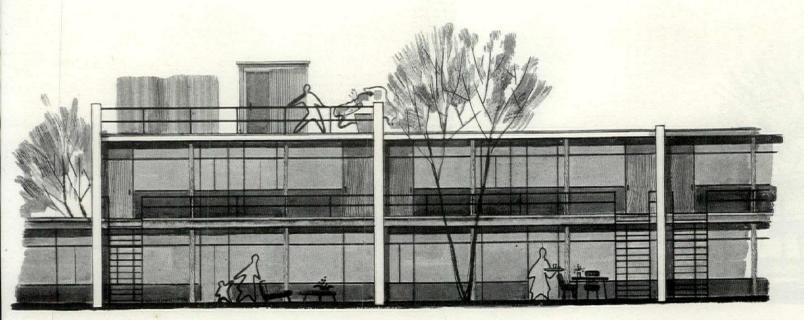
Design for a shallow block arrangement, all units are oriented to the south. Kitchens are separated from living rooms by 5 ft.-high storage cabinets. Large rear windows enable the housewife to supervise children at play in the garden while working in the kitchen.

The plot plan provides generous, secluded rear gardens, each with a paved terrace. The use of alternative left and right hand entrances groups front and service doors in pairs. A strip of ground between the entrance walk and street has provision for parking in front of the service areas. In communities where zoning permits, these could be roofed over to form carports.

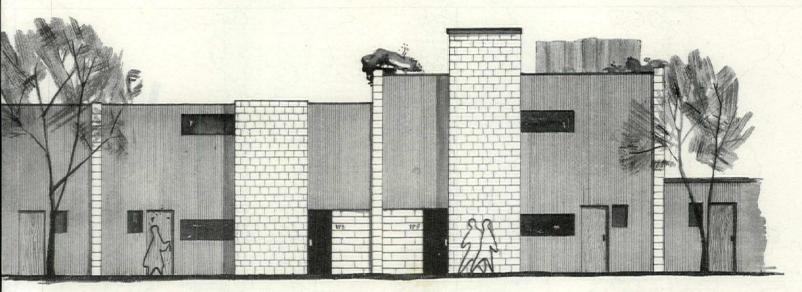




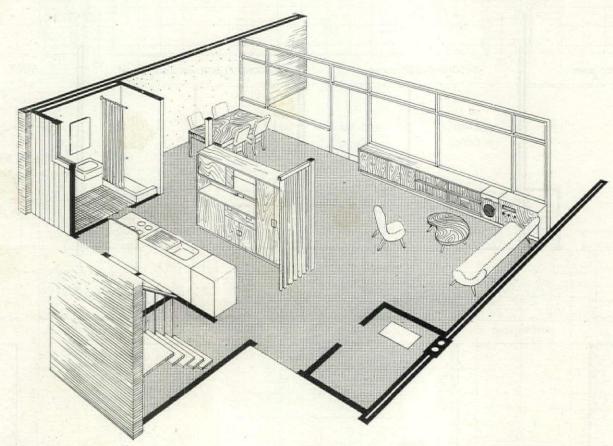




SOUTHERN FACADE OVERLOOKING GARDENS SHOWS GENEROUS WINDOWS, SECOND FLOOR BALCONIES WITH OUTSIDE ACCESS



SCREENED ON THE STREET SIDE, VARYING ROOF LEVELS AND CONTRAST OF MATERIALS REVITALIZE ROW HOUSE PATTERN



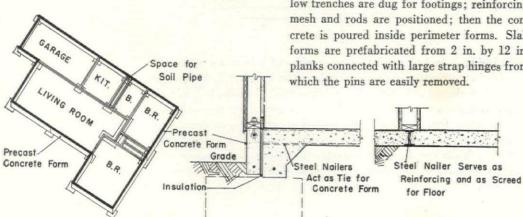
PERSPECTIVE OF GROUND FLOOR AFTER SECOND STORY IS ADDED HAS OPEN PLAN BUT INADEQUATE PROVISION FOR STORAGE

STRUCTURE FOUNDATIONS: with and without basements . . . CONCRETE WALLS: monolithic,

block and precast . . . CLAY WALLS: brick and tile . . . FRAME WALLS: wood and steel.

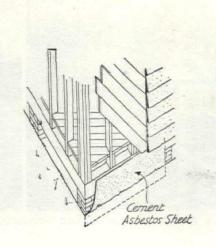
## **FOUNDATIONS**

Pushed by rising construction costs, the trend toward elimination of the basement in small houses is constantly accelerating and is invading the northerly sections of the U.S. where it had long been considered unfeasible. The fact that pier and slab foundations are replacing basements in upper New York State-to name just one area—is proof enough that they are cheaper to build. And, if properly designed, the floors above them can be just as comfortable as those over basements. For best results in cooler climates, the crawl space under a house resting on piers should be enclosed with skirting and heated (see details at bottom of page), and concrete slab floors should be insulated from direct outdoor exposure (see detail, page 111).



CONCRETE FORMING, precast in sections on the site or in a plant, is recommended by Architect Arthur T. Brown of Tuscon, Ariz. Set in place carefully, the forming becomes part of the foundation and provides an accurate pattern for wall construction. This system is well suited to use in cooler climates where the forming could be easily insulated from the floor slab. Thus, 2 in, by 10 in, lumber could be set in place around the inside perimeter of the form and removed once the concrete slab had partially set. The resultant void could then be filled with insulation. The cross section detail above, right, is another of Architect Brown's suggestions: a nailable Stran Steel member set in the concrete slab to serve the triple purpose of reinforcement, screed and partition nailer.

SKIRTING around a pier foundation serves two functions: 1) it hides the piers and gives the foundation a more substantial, more attractive appearance, 2) by enclosing the underhouse space it acts as insulation. Tests have proved that heating bills for such a house are lowered if some of the heat is distributed to the crawl space under the house. Designed by Architects Holden & McLaughlin and prefabricated by American Houses, Inc., the house pictured to the right is skirted with sheets of cement asbestos which combine with the cement asbestos shingles to present an attractive, unified exterior finish.





SLAB foundation for the Place house (page 142) requires a minimum of forming lumber. Pipes are laid in the tamped earth base; shallow trenches are dug for footings; reinforcing mesh and rods are positioned; then the concrete is poured inside perimeter forms. Slab forms are prefabricated from 2 in. by 12 in. planks connected with large strap hinges from



PIERS of concrete blocks tied together with precast concrete sill pieces make a substantial foundation for a small house. By bulldozing an excavation, a large insulating air space is provided under the house, pier construction is facilitated and the house is kept attractively close to the ground. Note that once the precast sill pieces have been laid on the piers they are anchored in place by pouring a concrete cap on top of each pier. This house was developed by Architects Skidmore, Owings & Merrill.

PRECAST PIERS are economical for large housing projects. The picture shows two men with oversize ice tongs dropping a precast concrete pier into its individual excavation which has been partially filled with poured concrete. The excavations for this house project designed by Architect William Wilson Wurster were dug with a truck-mounted post-hole-dig-



ger such as that shown on page 140. Template of wood assures proper alignment of piers.

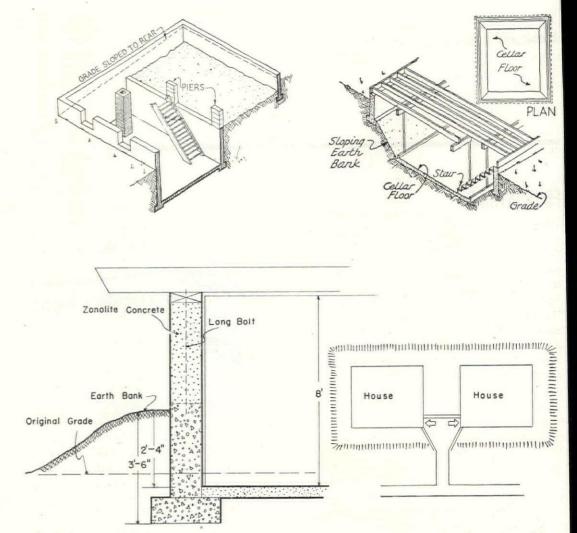


PART BASEMENTS are economical answers to the people who question the advisability of omitting basements entirely. To the right are shown two such basements. In the first example only half of the basement is excavated, piers serving as inexpensive supports for the floor joists. With the unexcavated area left open, free circulating heat from the furnace will help warm the entire first floor. The second solution involves the use of sloping earth banks to replace a portion of the basement walls and floors and to reduce the volume of excavation. The objection to the appearance of earth in the cellar could be overcome by erecting composition board partitions on the line of supporting columns.

Reduction of excavation and foundation costs also result from the use of factory-made areawalls of metal or cement asbestos board and from cantilevering frame construction beyond the perimeter of the foundations (below). Where the site contours permit, the grade may be sloped from front to rear, thus creating an attractive low front elevation and basement windows fully above grade at the rear of the house.

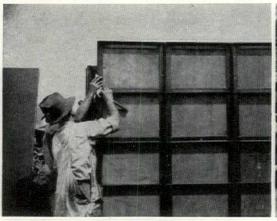


GANTILEVERED FRAME increases the size of the house without increasing the volume of excavation and the perimeter of the foundation. This economical practice may be carried much further than did Architect Samuel Glaser in the small house pictured above in which the living room extends beyond the foundation. In two-story houses, the second floor may be expanded to produce premium second-floor space if cantilevered beyond the first floor.



TERRACE built around a one-story house with earth from a shallow excavation protects the footings and slab from frost and cuts costs. Developed by Architect L. Morgan Yost for a large Illinois project, this method places the footings  $3\frac{1}{2}$  ft. below finished grade, but only about  $1\frac{1}{2}$  ft. below the natural grade. Entrances to two adjacent houses are served by one walk which cuts through the terrace. Exterior doors (one per house) are located at corners to minimize exposure of walls; footings supporting the entrances go the usual distance below natural grade to prevent frost from heaving the floor slab. Walls are of poured concrete with Zono lite aggregate used above grade. The interior is plastered directly on the concrete; the unfinished exterior is protected by wide overhanging eaves.

REINFORCED FORMS assure true walls, speed form construction and permit the reuse of plywood up to 100 times, according to the Universal Form Clamp Co. of Chicago, which markets the steel material pictured below. Plywood is riveted to the reinforcing frame work and is preserved to a much greater extent than in usual forming methods. Other advantages claimed for the system: alignment of forms is accomplished entirely from the outside, nailing is practically eliminated, panels are easily joined by dropping nails into interlocking ears on adjacent members, and forms are easily stripped.



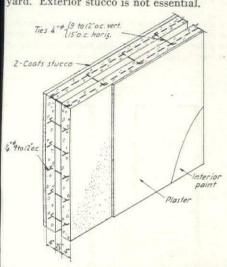


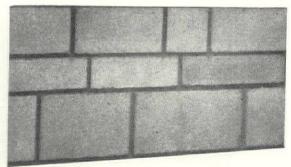


STEEL FRAMEWORK REINFORCES PLYWOOD FORMING PANELS, REDUCES SHORING AND PRODUCES A TRUE, SMOOTH WALL OF CONCRETE

With cement the most readily available of all building materials it is logical to find that oday's house is being built of concrete by an ncreasing number of builders. Although a poured-in-place wall is undoubtedly the best of the various concrete varieties, the lack of umber for forming discourages this type of construction. Instead, walls are being erected of concrete and cinder block (right) or are being precast in large panels with equipment which minimizes the use of plywood forming out requires large hoisting equipment (pages 112 and 113). The device below permits small scale builders to fabricate concrete walls without blocks and without forming. In any type of concrete construction the advantages of light weight aggregates merit consideration. They facilitate the handling of precast units and insulate the wall.

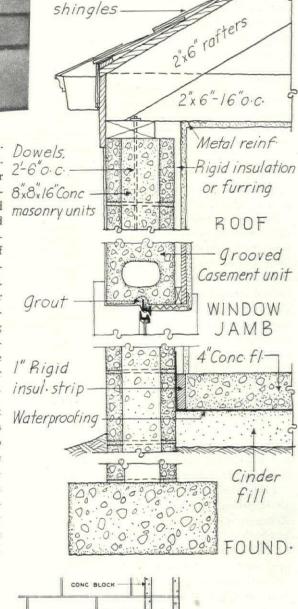
MONOLITHIC WALLS may be built up in courses by means of a portable form. Patterned after a similar device in use for many years, the new equipment is fabricated of aluminum alloy by Concrete Thermos Form Co., of New Haven, Conn., and consists of two 5 ft. forms for making cavity concrete walls, a corner form and other accessories. Price: about \$300 per set. Adjustment of the equipment permits the simultaneous construction of two concrete walls 3 to 6 in. thick separated by a 21/2 in. air space. Two-man crews on each form can construct three 9 in. courses a day around a house of average size. Cost of the resultant wall averages less than 40 cents a sq. ft. with ready mixed concrete at \$8.40 a yard. Exterior stucco is not essential.





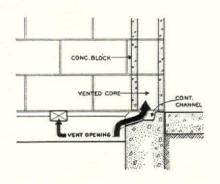
CONCRETE BLOCK WALLS, properly constructed, are weathertight, economical and attractive. Most failures occur because of poor workmanship in laying up the wall. Weath- 8"8" 16" Conc ered, concave and V joints, carefully tooled and less than 1/2 in. thick, are recommended for watertight construction. The safest concrete block wall from the point of view of moisture penetration is the cavity wall comprised of a 4 in. exterior curtain wall, a 2 in. air space and an 8 in. structural wall. Other measures which minimize moisture penetration: use of dense sand grit block, painting with two coats of Portland cement paint, protection by wide overhanging eaves. In the typical section to the right note that the floor slab is insulated from direct exterior exposure.

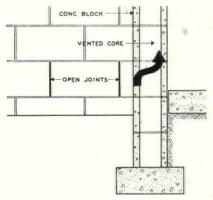
VENTED WALLS are recommended for wet but mild climates where watertightness is more important than insulation. Vents at top and bottom of wall equalize the pressure created by driving rain storms and thus discourage moisture penetration due to suction from within the walls. Drawings below illustrate two methods of venting the wall-by making special openings and by omitting the mortar from vertical joints in one course.



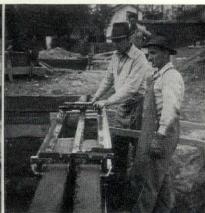
Cement asbestos

shingles-

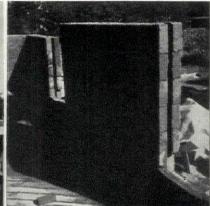












PORTABLE FORM IS FILLED WITH LOW SLUMP CONCRETE, TAMPED, OPENED AND SLID ALONG OVER TIES TO PRODUCE CAVITY WALL

## CONCRETE WALLS and floors in huge precast panels are dried and erected by a spectacular vacuum process.

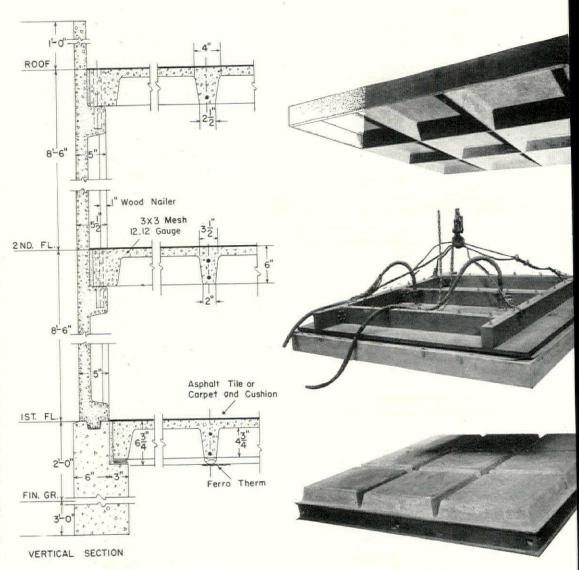
In view of the abundance of concrete, but the inadequacy of block production facilities, it is logical for large scale builders to turn to the fabrication and use of large structural concrete panels. Primary advantages of the system developed by Vacuum Concrete Inc. of Philadelphia are the virtual elimination of expensive wood forming, the reduction of the time element, which is notoriously long in traditional concrete construction, and the production of an economical fire-resistant shell. Signalizing the system's merits is the fact that McCloskey & Co., one of the East Coast's most important builders, last month began the construction of 700 Vacuum Concrete houses in Philadelphia to sell with lot for about \$6,500.

Designed as two-story twin houses, each of these six-room units is comprised of twelve reinforced concrete panels - six for the two floors and roof, six more for the walls. First step in the construction of the shell is the careful fabrication of a wood pattern for each panel. From it a "negative" concrete mold is made. (One such mold could be used for the entire project, but several will probably be cast to speed production.) Panels are formed in the molds each afternoon and raised into place the next morning. This speed is made possible by the vacuum extraction of water during the half-hour period after the concrete has been poured and vibrated. Within 16 hours after this accelerated setting of the concrete, the material has acquired a strength of 3,000 lbs. per sq. in. (ultimately reaching 6,000 lbs.).

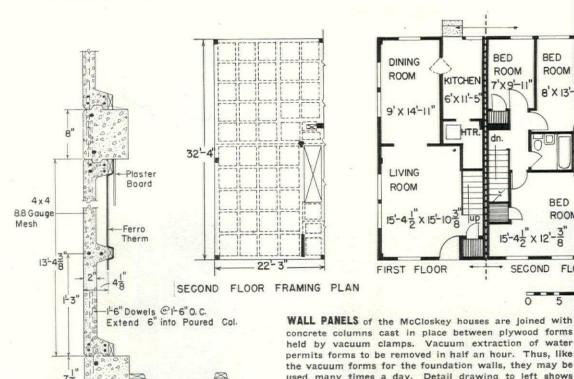
Floor panels are finished with asphalt tile or carpeting, roof panels are covered with Aerocrete (a lightweight cellular concrete) and built-up roofing. The coffered undersides are left unfinished. Since wall panels are covered with a trowled surface of colored sand concrete while in the mold, no additional exterior treatment is required. Inside they are finished with metallic insulation and plaster board fixed to wood nailers cast into the panels' concrete "studs." Frame partitions are secured to concrete floors and ceilings with an adhesive.

Weight of the floor is about 25 lbs. per sq. ft. Although only 1½ in. thick between reinforcing ribs, the center of one of the 3 by 3 ft. coffers has a punching strength of more than 4,000 lbs. under a plunger 1¾ in.. in diameter. Still more interesting is its cost: about 30 cents per sq. ft. in place, compared with about 50 cents for wood joists, bridging, subflooring and finished ceiling.

Although Philadelphia tradition and land values dictated that McCloskey & Co. build two-story twin houses, the vacuum concrete system lends itself more readily to one-story construction. For the latter, 5 in. solid concrete walls are recommended. They are cast on canvass stretched out on the concrete floor with vacuum held edge forms placed as necessary to form panels of various sizes. The canvass imparts a uniform texture to the interior surface of the panel. To provide insulation,  $2\frac{1}{2}$  inches of vermiculite concrete are poured first, followed by  $2\frac{1}{2}$  inches of regular con-



FLOOR PANEL is cast in a concrete mold (shown in lower photo with vacuum edge forms removed), vibrated, vacuum treated and, 16 hours later, is covered with a vacuum lifter (center photo) and hoisted in place. Clamped to the panel merely by turning two valves, the lifter distributes the pull of the crane evenly over the thin panel. Upper photo shows coffered appearance of finished ceiling.



PLAN OF OUTSIDE CORNER

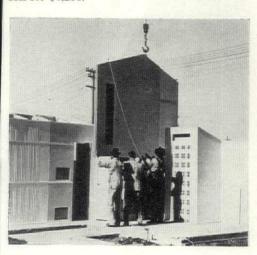
concrete columns cast in place between plywood forms held by vacuum clamps. Vacuum extraction of water permits forms to be removed in half an hour. Thus, like the vacuum forms for the foundation walls, they may be used many times a day. Detail drawing to left shows section through a typical exterior wall and corner. Reinforcing dowels projecting from the ends of the precast panels are bonded into the columns. Plans above show framing of the second floor and room layout for the two-story McCloskey houses.

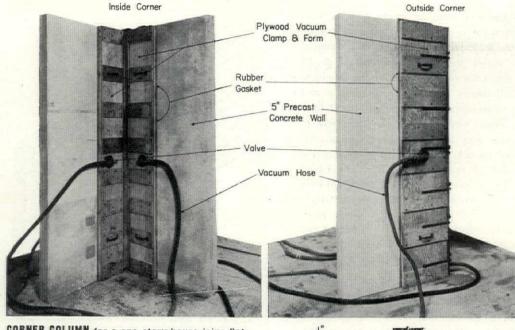
crete reinforced with light weight wire and, as a final exterior finish, a thin coat of pigmented sand concrete troweled smooth or screeded. Such a wall weighs about 35 lbs. per sq. ft., costs about 35 cents and has a coefficient of heat transmission (U factor) of .21—about the same as 12 inches of concrete block, a 1 in. air space and ½ in. of insulating fiber board. Partitions for such a house are cast in a similar manner.

Secret of the vacuum process is the equipment developed by K. P. Billner and his associates in Vacuum Concrete Inc. However, this firm will provide builders with the equipment, engineering and supervision necessary to build vacuum concrete houses. The equipment includes truck-mounted machinery and sufficient vacuum mats, clamps and lifters to process 1,000 sq. ft. of concrete at a time. The engineering includes assistance in adapting any house design to fabrication by vacuum concrete methods. The supervision includes the full time of a vacuum concrete expert who will remain on the job until the project is finished. In return for all this, the builder will pay a combination fee-rental of about \$200 per dwelling unit for large scale projects. (Such costs are included in the unit costs quoted above.) Although full economies of the system can not be realized in projects of less than about 50 houses, smaller builders will soon be able to purchase prefabricated vacuum concrete panels in various sizes from local licensees of Vacuum Concrete Inc.

### FACTORY FABRICATED CONCRETE PANELS.

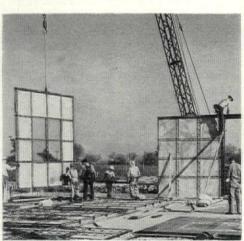
Similar in many respects to those outlined above, Econocrete houses are assembled from reinforced concrete panels which are completely fabricated (even including wall paper and lighting fixtures) on a factory production line. Panels are of lightweight insulating concrete, quick-hardened in the plant, trucked to the site and erected by a combination truckcrane manufactured by the system's sponsor. This method of construction has been developed by Hayes Econocrete Corp. of Los Angeles, which licenses builders to use its technique and materials and shows them how to lay out fabricating plants. One California licensee is now producing 900 sq. ft. houses to sell for \$4,250.



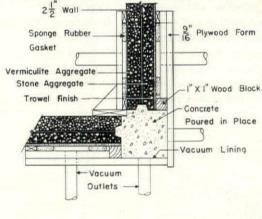


CORNER COLUMN for a one-story house joins flat concrete wall slabs containing integral insulation and finishes. Precast on the concrete floor, the panels are raised in place by a vacuum lifter and temporarily braced while column is poured, vibrated and vacuumized—a process requiring about half an hour. Photos above were taken during the vacuum extraction of water from a corner column. At the right is a sectional drawing of a wall corner with vacuum equipment in place. Thin concrete panels for flat or pitched roof and concrete roof trusses (see p. 118) can be similarly fabricated.

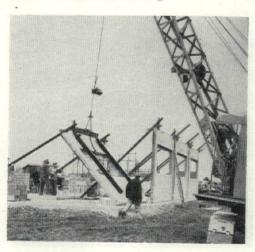
LATISTEEL CONCRETE WALL PANELS are site fabricated on light-weight steel frames which serve as the reinforcement. Provided by Latisteel Inc. of Pasadena, Calif., the steelwork is comprised of expanded I beams to which is welded diagonal steel fabric or latticework. Concrete is poured into the frame while it is resting on a platform of steel decking which creates a smooth exterior finish. Exposed on the inside, the steel framework affords rigidity during the hoisting of the panels (cables are hooked directly to the frame) and facilitates the bolting of panels to each other and to the floor. Any type of insulating material and interior finish is applied to the vertical members. The concrete and steel panels weigh about 27 lbs. per sq. ft.



Jules Shulman

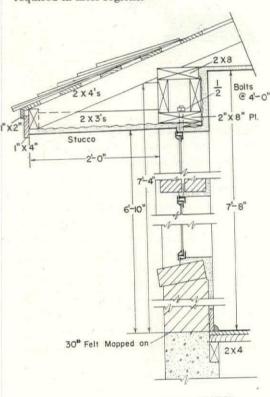


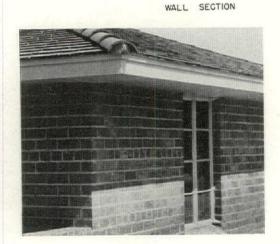
TILT-UP CONCRETE WALLS are advocated by the Portland Cement Association as a house building method particularly suited to highway contractors and other well equipped builders. This system involves the site fabrication of large reinforced concrete wall panels and their erection with hoisting machinery. Walls are poured in forms comprised of tar paper laid over the concrete floor and shallow bulkheads placed to define the panels and their door and window openings. Once the concrete has set, steel beams are temporarily bolted to the panels to take the stresses created in the tilting operation. Complete one-piece walls for small houses have been satisfactorily produced by this method of construction. Photo below shows a commercial building.

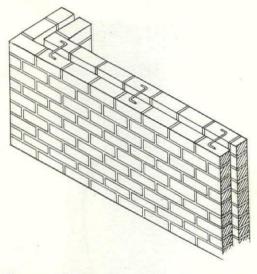


Since the production of bricks and common structural tile is a local enterprise, the supply of these materials, while short on a national basis, varies with local circumstances. In some areas, the use of structural clay products in small houses may speed construction and prove more economical than hard-to-get lumber. Those who can use clay products to advantage may find the construction systems outlined on this page helpful in getting the most out of available supplies. The cavity wall is particulary noteworthy for it not only saves materials but produces a weather tight enclosure. The possibility of moisture penetration is reduced if the cavity is vented and if the metal ties are made with a central drip

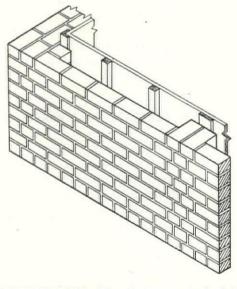
SHORT WALLS cut costs but not ceiling heights in a brick house designed by Architect Arthur T. Brown (below). Brick work stops at window and door heads, thus simplifies construction and saves brick. By keeping the house close to the ground, a low roof line will improve the appearance of any small house. Although the construction shown is suitable for a mild, dry climate, insulation would be required in most regions.





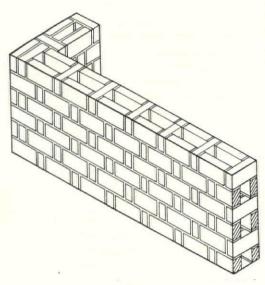


**CAVITY WALLS** of brick (above) are recommended not so much for their insulating qualities as for their material savings and because they prevent water leakage and may therefore be plastered without furring and lath. Built properly, the two component walls are completely without masonry bridging — even at door and window jambs. Bridging is done with metal ties embedded in the mortar joints.

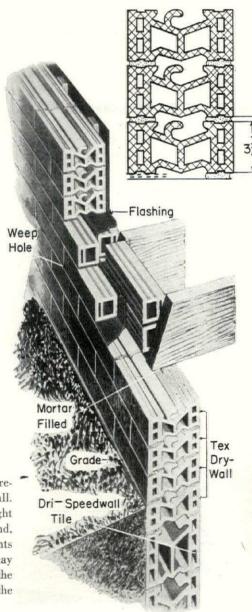


ECONOMY WALL (above) is comprised of 4 in. of brick work with 8 in. sq. brick pilasters spaced 4½ brick stretchers apart. If 4 in. pilasters are used the spacing is reduced to two stretchers. Greater strength and greater economy of brick work may be obtained by inserting ¼ in. wire or strips of metal lath in every fourth or fifth course. According to the Structural Clay Products Institute, which recommends this method of construction, brick mortar beds must be smooth and all vertical joints completely filled to assure maximum strength.

STRUCTURAL TILE manufactured by National Fire-proofing Corp. produces an economical 8 in. wall. Built-in handles facilitate laying the prefinished light weight units—the mason holds the tile in one hand, the trowel in the other. Widely separated mortar joints resist moisture penetration. Whatever moisture may penetrate the outside mortar joints is collected in the tile's interior troughs and carried to the bottom of the wall where it runs off through weep holes.



ROLOK WALL is a hollow brick wall with stretchers laid on edge. It not only provides a  $3\frac{1}{2}$  in. air space which may be filled with granular insulation, but also saves brick. Thus, an 8 in. solid brick wall contains about 12 bricks per sq. ft., while the rolok wall requires only eight (above). Where insulation is unimportant, the wall may be vented top and bottom to reduce moisture penetration.

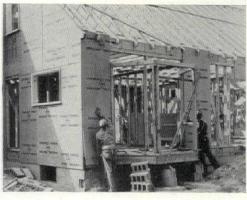


Most cost-cutting variations of the conventional rame wall involve the substitution of large composition boards for wood sheathing or the ise of thick sandwich materials between widely separated structural members. One such material now in wide use is Cemesto Board, produced by Celotex Corp. It is a sandwich comprised of three layers of fiber board and surfaced on both sides with asbestos cement. Several other materials which also serve as an entire wall and thus replace the 14 separate layers of the conventional frame wall are in the development stage. One is Excelite - a hard surfaced sandwich whose filling is primarily excelsior (FORUM, June '46, p. 165). Another is Chrysler Corp.'s Cycleweld - a core of nitrogen-filled sponge rubber bonded to sheets of aluminum. A third is Dupont's CAA (cellular cellulose acetate) which weighs 4 to 9 lbs. per cu. ft. depending on its density. There is also the new aluminum-skinned corrugated paper material developed by furniture maker John D. Lincoln (FORUM, June '46, p. 7). Most of these materials got their start in wartime experimentation with aircraft construction techniques and are now being adapted for use in house construction.

Although not particularly popular in the past, steel framing is another answer to the lumber shortage problem and is therefore enjoying increasing recognition in the house building field. Several important prefabricators are known to be switching to steel frame.

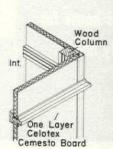
**SHORT STUDS** of 7 ft. or less may be used in the framing of rooms with a normal 8 ft. ceiling height by raising the ceiling joists off the plates and converting them into rafter ties. A chamfered ceiling results. Two 7 ft. studs are cut from 14 ft. lengths.

SHEATHING in the form of composition boards replaces lumber, speeds construction and provides additional insulation. Large boards such as those manufactured by Armstrong Cork Co. (below) reach from sill to eave in one piece, make for easy installation and increased rigidity of framework. Applied horizontally, U. S. Gypsum's two-layer Triple Sealed Sheetrock serves as sheathing and, in a pinch, as exterior siding. Ship lap horizontal joints and sealed edges make the panels weather proof. Requiring no painting (but paint improves its appearance), this material is reported to have saved up to 30 per cent in the cost of "duration" buildings. Panels are 2 ft. wide, 6 to 10 ft. long.



HORIZONTAL FRAMING as developed by the John B. Pierce Foundation employs wood posts and girders to reduce wall framing lumber to a bare minimum. Picture shows completed wall framing being covered with Celotex Cemesto Board "sandwich" whose integral

asbestos cement surfaces serve as final finish inside and out. Horizontal opening below girder takes windows and smaller Cemesto panels. Girders and sills are shop fabricated with glue. Note hurricane clips on girder ready to receive preassembled roof trusses. (For a close-up of these clips see p. 150).

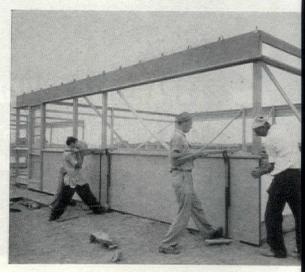


VERTICAL POST AND GIRDER framing also requires less lumber than conventional construction. Although this particular version of the system is designed to take Cemesto Board, it is easily modified for use in conjunction with conventional sheathing and finishing materials. Unlike the house above in which the corner braces shown are temporary expedients, this design requires permanent bracing of the corner posts. Unfortunately, the wide spacing of vertical supports (4 ft.) is not tolerated by many archaic building codes (further evidence, if more is needed, that the modernization of building codes is a big and basic step toward cost reduction).

FRAME BENT construction is the name given to this type of structure by its designer, Architect William Wilson Wurster. The structural posts and beams permit roofs to be erected in preassembled sections before walls have been enclosed. This means protection of the interior against weather and permits roofers to work independently of other carpenters. Extension of framing beyond foundations saves on the cost of the latter. (This is a particularly economical design trick when con-

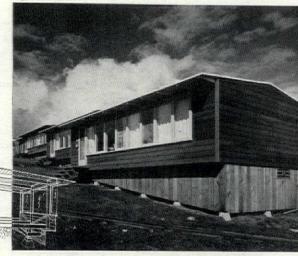
tinuous foundations are employed.) The use of piers in this example demonstrates the adaptability of this type of foundation to sloping sites. Section shows two bays of the house pictured to the right. Note inexpensive roof framing.

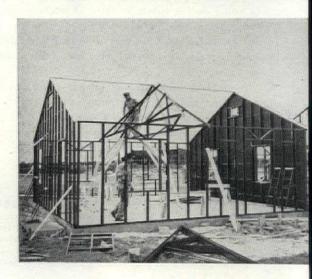
STEEL FRAMING should enjoy a big boost during the lumber shortage, and, once production is stepped up, should materially assist the housing program. The nailable variety of steel members produced by the Stran Steel Division of Great Lakes Steel Corp. is particularly well suited to light residential work. Picture shows sheathing nailed to one wall, preassembled trusses being bolted to plates. Wall frames are fabricated on the floor, then raised and bolted together. Steel construction, because it transmits heat and cold from the outside wall surface to the inside surface and vice versa, should be insulated on the outer or inner surface, rather than between the various steel framing members.





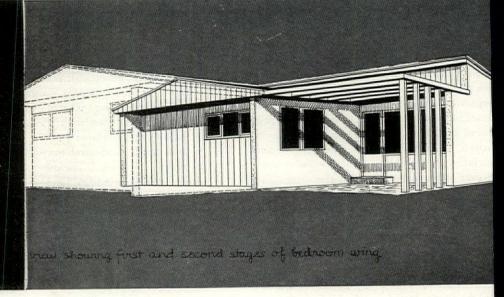
Roger Sturtevant





## **EXPANSIBLE BUNGALOW**

Gill & Bianculli plan a veteran's house for Tennessee that grows with family needs.

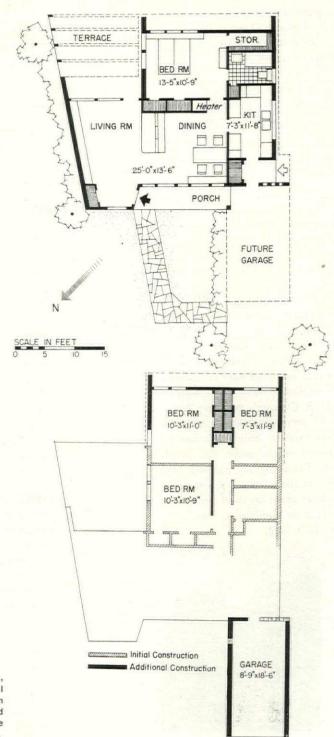


The inflated cost of the postwar dream house has shattered many a G. I. illusion in recent months. All too often, the \$6,000 loan has been found inadequate to cover the cost of even a small home. Because this tremendous rise in prices will undoubtedly continue for a long time to come, the only immediate solution is a new resourcefulness in design which will squeeze every bit of livability out of the space provided. The house shown on these pages, a minimum structure designed for future expansion, is an excellent example of such cost cutting through ingenious planning.

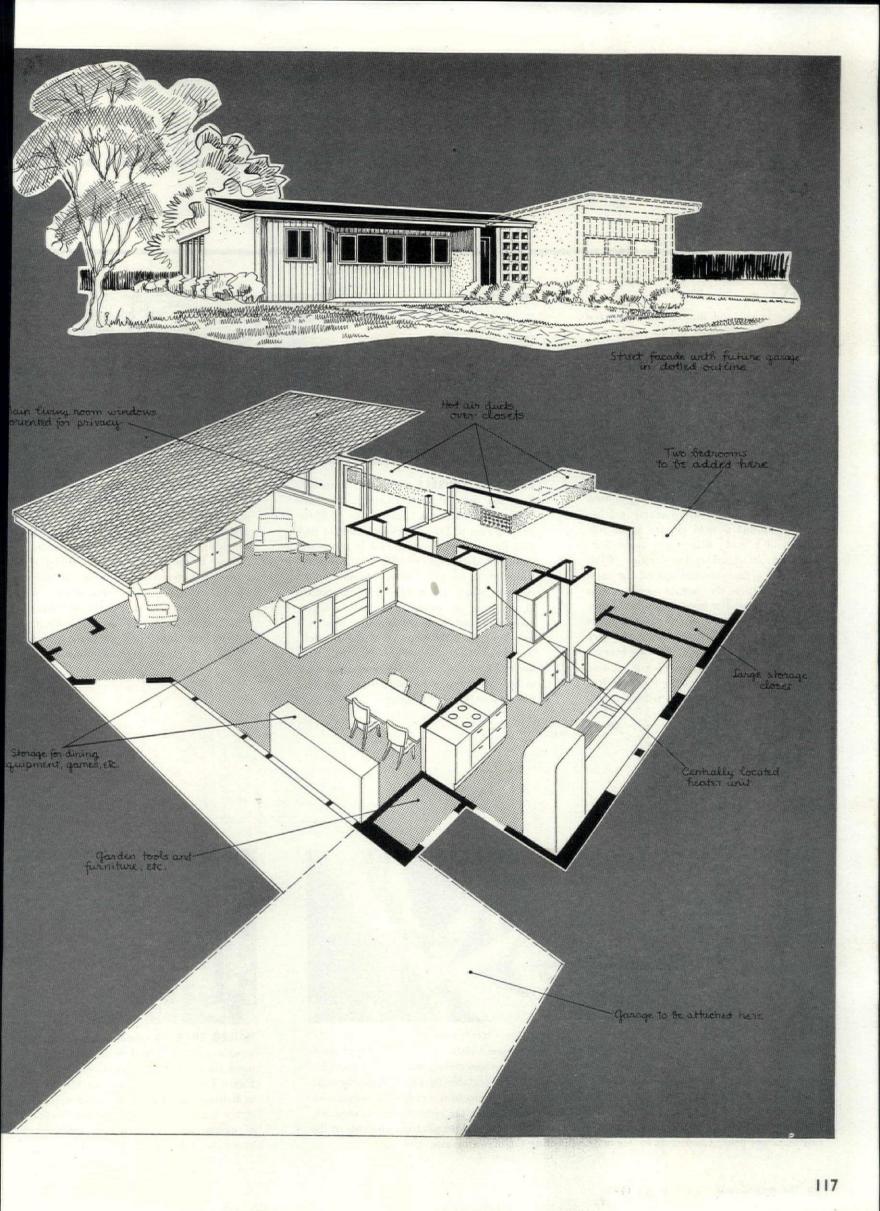
Chattanooga contractors' estimates place the net price of the building including the garage, which may be omitted in the first stage, at \$4,348.95. The two extra bedrooms, to be added as the family needs increase, can be built for a current total of \$1,500. The house is, of course, small, but its compact plan incorporates a number of features which make for convenient living. A separate dining area is formed by a semi-partition of storage cabinets in the living room. The laundry has been incorporated into the kitchen and a large tool closet included at the rear entrance, directly accessible from the garage in the future plan. The heater is located between dining and bedroom, in line with the clothes closets, releasing valuable space for a general storage room near the bath. One of the most important cost savers is the shortness of the ductwork emanating from the centrally placed heater. Because of its position, this unit can supply both living and dining rooms through registers atop adjoining closet spaces. The rest of the house is serviced by running ductwork along the inner partitions of kitchen, bath and storage rooms, an arrangement which allows easy extension to the additional bedrooms at a later date.

The small cost of expansion is due to the well thought-out design which groups the bath and storage room in a location convenient to either one bedroom or three. Circulation in the final plan is through a center hallway, partitioned from the original bedroom. In the initial stage, however, this hall is eliminated and the bedroom connects directly with bath and storage rooms to utilize every inch of space.

A pleasant combination of pitched and flat roofs plus porches at both front and rear, and comparatively large windows make this an attractive home as well as a bargain.



TWO-STAGE FLOOR PLANS show basic unit (above), additional bedrooms and garage (below). Informal design of the living area is more interesting than box-like rooms found in most moderate-priced homes. Vision windows in the living room are placed at rear facing the terrace and planting.



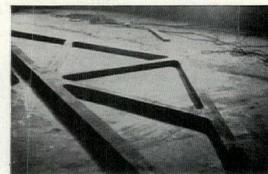
# STRUCTURE (cont'd) ROOFS: concrete, steel and frame trusses . . . FLOORS: lumber and

concrete, precast and poured . . . PARTITIONS: solid plaster and temporary frame . . . OPENINGS: doors, windows and hardware.

## ROOFS

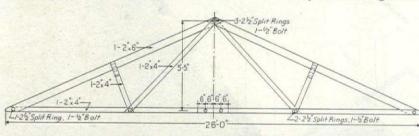
Structure of the roof itself is subject to few economical modifications, but its site fabrication in the form of roof trusses or trussed rafters permits sizable economies in other parts of the house. By spanning the entire width of the house, trusses permit the use of non-bearing frame walls or solid plaster partitions. Their use in the Place project (below and p. 142) contributed to a saving of 400 bd. ft. per house-enough to frame seven of the project's 180 houses. In addition, trussed roofs permit complete flexibility of interior layout, since partitions may be easily shifted.

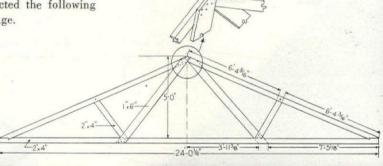
Another structural roof economy particularly well suited to mild climate is the substitution of 1 in. by 6 in, for 1 in. by 3 in. boards in roof sheathing for shingles. While the 1 by 3's are normally spaced the same distance apart as the shingle exposure, the 1 by 6's are spaced at intervals double the exposure. In the 1 by 3 system one course of shingles is nailed to each board, but each 1 by 6 is used as a nailer for two courses. Limited to shingle exposures of 5 in. or less, the 1 by 6 system is advocated by the Red Cedar Shingle Bureau for cost reduction.



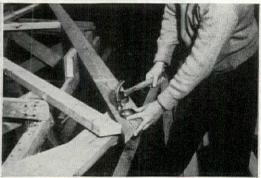
CONCRETE TRUSSES which are claimed to beat the cost of wood framing have been developed by Vacuum Concrete Inc. of Philadelphia (see p. 112). They are made of nailable light weight concrete cast in a concrete mold and are reinforced with a preassembled frame of 1/4 in. wire. After vibration of the concrete, water is extracted from the bottom of the mold by means of patented vacuum machinery and hose connections. Within a half hour after the pouring of the concrete, the truss has set sufficiently to be lifted out of the mold with a vacuum lifter and set aside to cure. They may be erected the following day without danger of damage.

STEEL TRUSSES have always enjoyed widespread use in industrial construction and promise to help solve the lumber shortage problem in residential construction. Truss members may be either bolted or welded together. In the above picture a welder is assembling a steel truss on a jig for use in a small house. The upper chord of the truss is of Stran Steel and so constructed that roof sheathing or finish may be nailed directly to it. The abundance of war-trained welders should facilitate this type of fabrication.









FRAME TRUSSES are used to roof the 180 houses in the Place project (above and p. 142). Spaced 2 ft. on centers, they span the entire depth of the house (24 ft.) and are capable of carrying a load of 45 lbs. per sq. ft., sufficient strength for most snow and ceiling loads. Truss members are precut in the builder's shop and assembled on the site in a portable jig which aligns the eight pieces comprising the unit. Both sides of the truss are made of identical members, a design trick which speeds precutting and assembly. Where shear resistance in the lapped joints is required, 21/2 in. Teco split ring connectors are used. They save labor and permit truss assembly at the rate of 12 per hour. Connectors by Timber Engineering Co. of Washington, D. C.

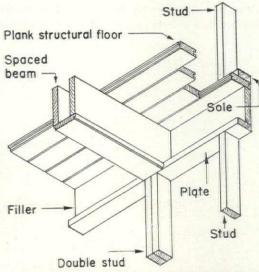


NAILED TRUSSES accomplish the same purposes as those described on the left, but involve more labor. In these houses designed by the Pierce Foundation for the Glen Martin plant in Baltimore, both the upper and lower chords of the trusses are 2 by 4's. Shear resistance of nailing was augmented by notching the upper chords into the lower chords.

As in the case of walls, the easiest way to avoid the use of critically short materials in floor construction is to switch to concrete. In addition to the widespread use of concrete mat floors in basementless one-story houses, there are innumerable types of concrete flooring for units with basements, a few of which are discussed on this page.

In wood frame construction, lumber may be reduced in quantity and quality by plank and beam construction, one version of which is presented below. A saving of lumber and time is also possible if metal bridging is used. Some builders have successfully used No. 9 wire which is interlaced around the joists, pulled tight and stapled top and bottom where it crosses the joists. Such bridging is under tension rather than compression.

PLANK AND BEAM flooring is more timely today than it was when introduced eight years ago by The National Lumber Manufacturers Assn. As shown below, it makes use of a few comparatively low grade lumber materials to serve several purposes. Thus, the 2 in. by 6 in. planking which serves as both finished floor and finished ceiling is supported by wood box girders spaced 6 ft. on centers. Practical tests in 1938 proved that this type of floor required 26 per cent less labor time and 15 per cent less lumber, including that saved in bridging and lowered building height. Moreover, the plank floor is 25 per cent more efficient than joisted construction with sub and finish flooring from the standpoint of insulation. Finally, it cost 23 per cent less per sq. ft.



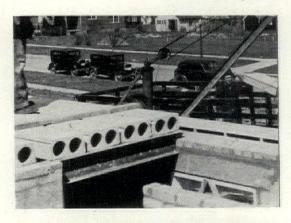


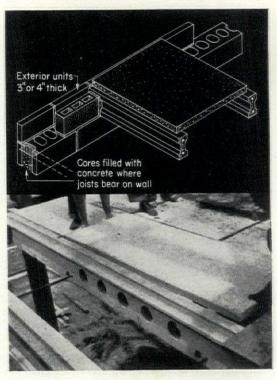
precast concrete plank with prestressed rod reinforcement is produced locally by an increasing number of licensees of Flexicore Co., Inc. of New York City. Capable of spanning up to  $22\frac{1}{2}$  ft., each plank is 6 in. deep, 12 in. wide and contains two hollow cores which displace about 50 per cent of its volume, provide space for conduits and are said to increase its sound and thermal insulating qualities. Added advantages: speed of erection (manufacturer's trained crews of four or five men with special handling equipment lay an average house floor in one day), elimination of formwork, elimination of joists and 4 to 6 in. of wall height, integral ceiling finish.

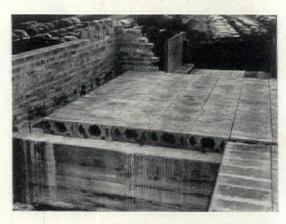
CONCRETE JOISTS, reinforced with two steel rods each, eliminate lumber from the floor frame. They are precast by local manufacturers in various lengths and sizes. An 8 in. joist made to the specifications of the Portland Cement Assn. will span up to 16 ft., weigh 19 lbs. per lin. ft. (14 lbs. if light weight concrete is used), and carry a 21/2 in. concrete slab and a live load of about 40 lbs. per sq. ft. A 12 in. joist will span 24 ft. Diagram at right shows one of many methods of combining concrete block and joist construction. In the photograph concrete construction is carried one step further with the laying of precast concrete slabs on concrete joists. Set on the joists in a bed of mortar, these slabs may be finished with colored cement, tile, linoleum, rubber, asphalt, carpet or sleepers and hardwood flooring. Precast reinforced plank is available in many localities. That manufactured by Concrete Plank Co. of Jersey City, N. Y., comes in 10 ft. lengths, 2 in. thick, 16 in. wide. Made of light weight concrete it is nailable and tongue and grooved on all edges.

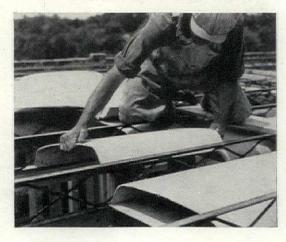
CONCRETE BLOCK PLANKS are assembled on the job from specially designed blocks of light weight aggregate. Laid face down on a solid level surface (concrete floor) the blocks are buttered, aligned and temporarily clamped together with a tie rod running through the central core. Then, two reinforcing rods are cemented into grooves at bottom of plank. The result is a tongue and groove plank 16 to 24 in. wide, 4 to 8 in. deep up to 16 ft. long and relatively smooth on both sides. The 16 ft. unit with 1/2 in. reinforcing bars will carry a live load of 60 lb. per sq. ft. Advantages: elimination of all forming and shoring and reliance solely on local production facilities. The patented Dox-Blox system was developed by Cities Fuel & Supply Co., Milwaukee, Wisc.

ASBESTOS PANS suspended on the flanges of expanded steel (or concrete) joists facilitate the construction of poured concrete floors and require no wood forming, no elaborate fasteners. Left in place, they become part of the structure and provide a better than average appearance for basement ceilings. As illustrated, heating ducts and spaces for conduits and pipes are readily created by laying flat asbestos sheets under a row of pans.







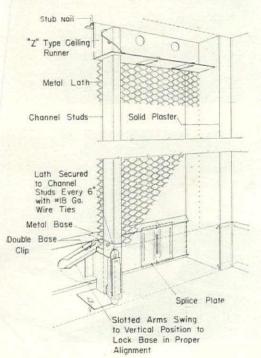


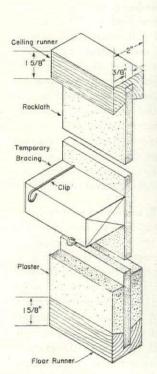
Where interior partitions have no structural or bearing function, sizable savings may be effected by substituting the 2 in. solid plaster partition for conventional stud construction. Biggest part of the saving results from the reduction of floor area occupied by partitions - a particularly important consideration in multi-family buildings. Compared with the usual 51/2 in. frame partition, solid plaster construction saves 31/2 in. of floor along each partition-a saving of \$2.34 per lin. ft. of partition in a project costing \$8 per sq. ft of floor area. In a small house containing 40 lin. ft. of partitioning this amounts to about \$94 in floor space. In New York's huge 2,593-family Red Hook housing project, the use of the partition shown below is claimed to have saved enough space to make possible the construction of 260 additional rooms at no extra cost. For a discussion of the use of solid partitions in a small house subdivision, see p. 142.

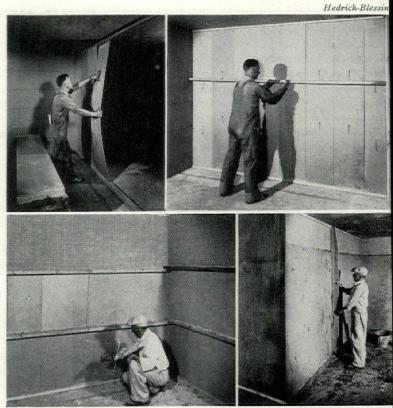
Also useful in today's small house, which is frequently designed for subsequent expansion, are temporary partitions such as those shown below, right.

The use of preassembled closets and storage walls as partitions is another space-saving practice—see pp. 138 and 139. Finally, the complete absence of partitions between areas which need not be separated (dining and living spaces, for instance) is one of the economies of the modern open plan—see p. 106.

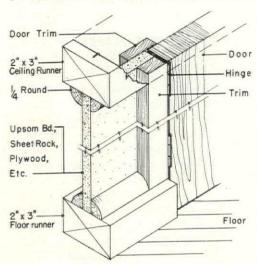
METAL FRAME serves as a foundation for the 2 in. solid plaster partition shown below. Like the plaster components, the five metal parts are manufactured by National Gypsum Co. They include the Z-shaped ceiling runner, channel stud, base, base clip and splice plate. Construction sequence: 1) Ceiling runner is nailed in place. 2) Base clips are nailed to floor 12 in. on center. 3) Channel studs are inserted in ceiling runner slots and dropped into base clip. 4) Metal lath is fastened to studs with wire. 5) Plaster is applied to both sides of mesh.



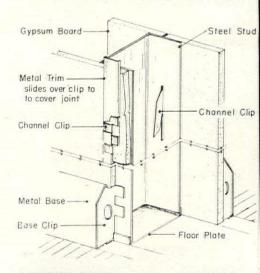




PLASTER BOARD is the core of U. S. Gypsum's solid plaster partition which requires no steel, very little lumber. Pictures above show four stages of the simple construction. 1) After floor and ceiling runners (wood millwork) have been plumbed and secured in place, ceiling-height sheets of gypsum lath 2 ft. wide are sprung in place. 2) To keep the panels rigid during the application of plaster, two 2 by 4 in. braces are temporarily clipped to one side of the wall, and 8d nails are driven into adjacent walls or partitions on either side of the end panels. 3) The reinforced side of wall is then scratch-coated, cross-raked and permitted to set and partially dry. 4) Meanwhile, the other side is brown-coated, using the top and bottom runner strips as grounds. When this brown coat has partially dried, 2 by 4's and clips are removed for re-use, and both sides of wall are finished. Although framed openings are easily built into such a wall with trim similar for floor and ceiling runners, preassembled metal door frames such as are used in the Place project (p. 142) speed up installation.



sheet of plywood or rigid composition board affixed to ceiling and floor runners. Although obviously a flimsy barrier, such a partition is easily installed and removed and will inexpensively divide into two areas a space which is intended for later use as a single room. Due to today's high construction costs many an expansible house will provide temporary sleeping space in the living room or make one large bedroom serve temporarily as two. This partition will serve such purposes. Doors may be installed in this partition as shown.



support this so-called "Olsen" partition produced by the Patent & Licensing Corp. of New York. A shallow steel channel is fastened to the floor, a deep-flanged channel to the ceiling. Studs are raised into the upper channel, then dropped into the lower one. Panels of gypsum or other composition board are fixed to the studs with bayonet clips which fit into slots in the studs. Over these clips fit metal strips which conceal the panel joints. Panel widths determine the stud spacing. The partition is easily disassembled and salvaged.

Assembly of the many small parts comprising a weatherstripped window is better and more economically accomplished in the factory. The accompanying photograph dramatizes how far the packaging of windows has been carried. This casement, as produced by Rollscreen Co., comes complete with glazing, storm sash, rollup screen, weatherstripping, wood sub sill, brick mold and even caulking compound—all for \$20 f.o.b. Pella, Iowa. The package is simply set into the rough opening and screwed to the sheathing. Most other window economies involve the use of spring balances.



Interior door costs may be cut in numerous ways, as illustrated below. Packaged frames are particularly noteworthy—use of steel ones is recommended with the solid plaster partitions.

For garages, aluminum doors offer the advantages of lightweight, minimum hardware and easy installation. They can be hung and weatherstripped by one man in half an hour.

TUBULAR LOCKS require a minimum of door mortising, thereby triple labor productivity and cut costs. Two drilled holes and a shallow sinkage for the lock face prepare the door for installation of the hardware. National Brass Co., which manufactures the lock shown below, also produces a bit guide which clamps on the door, assists untrained mechanics.



Roger Sturtevant



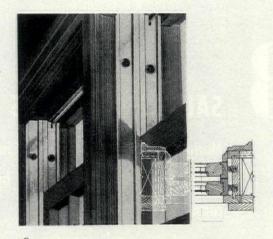
INTERIOR DOORS which reach the ceiling (left above) save materials and tedious lintel construction. Factory fabricated steel door frames save time and money and assure a true door opening. Picture (right, above) shows installation of a steel frame manufactured by New York's Aetna Steel Products Corp. For a close-up of a similar installation in the Place project, by Richmond (Va.) Fireproof Door Co., see p. 142.

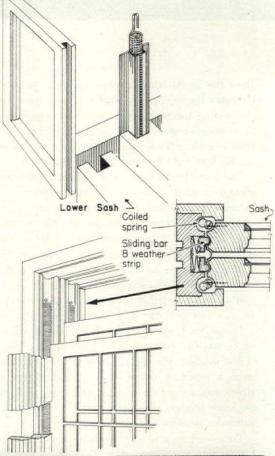
FLOATING JAMB of this window holds the sash in any desired position, eliminates the need for complicated counter balances and simplifies window construction. Small springs exert a constant pressure on the jamb and weather stripping guides at one side of each sash. By pressing the sash toward the springs it is easily removed for cleaning, painting, reglazing or to obtain a 100 per cent clear opening for summer ventilation. Both jambs are covered with non-corrosive metal to assure smooth easy operation of the sash. The windows are manufactured as complete units by R. O. W. Sales Co., Royal Oak, Mich.

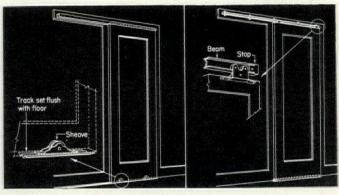
spring balance sash guide and vertical weatherstripping are combined in this aluminum alloy unit which is designed for use in windows assembled by builders. It eliminates box framing and thus permits use of attractive and inexpensive narrow trim. As shown in the sketch, the usual parting bead between upper and lower sash may also be eliminated. Manufacturer: Master Metal Strip Service, Chicago. In a similar product by Zegers Inc. of Chicago, the spring is completely enclosed in a tubular housing.

PACKAGED WINDOW combining features similar to those described above is completely assembled in the factory of Curtis Companies, Inc. Sash are balanced with two coiled springs and made weather tight by Z-shaped springs which press the sliding bar against the sash. Metal weatherstripping of the spring leaf type assures airtight fits at heads, sills and meeting rails. Factory-mitered interior trim 2½ in. wide comes with the windows and saves site labor.

FLAT SPRING BALANCES use a minimum of metal and require a minimum of space. They are particularly suitable for installation in site-assembled windows in climates which do not require weather stripping. Caldwell Manufacturing Co., Rochester, N. Y.









stiding doors eliminate waste of the 5 sq. ft. of floor space covered by a hinged door every time it is opened. They also simplify the problem of door planning in narrow halls where hinged doors are apt to interfere with each other. Although the usual procedure is for the sliding door to disappear inside a standard stud partition, sliding closet doors may be installed more economically if hung on the closet's inside wall. The pictures above show left to right: 1) inexpensive sliding door hardware—\$7 per doz. for bronze sheaves, \$.40 per ft. for brass track — produced by Knape & Vogt Mfg. Co., Grand Rapids, Mich.; 2) wall-hung door hardware by Grant Pulley & Hardware Co., New York, N. Y.; and 3) sliding partitions which serve as doors and, when fully opened, combine the space of two adjacent rooms in a house by Architect Roscoe P. DeWitt. Track-hung curtains provide the most economical division of space and may be used to close off closets.

# 3

## SALE-RENTAL UNITS

Mario Corbett designs four small houses for southern California, to be built by simple carpenter-construction.

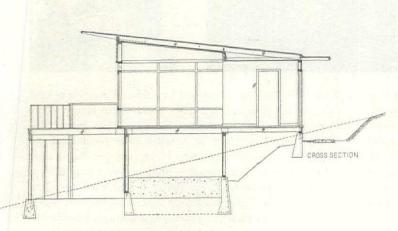
Both the small house groups on these pages bear out architect Corbett's theme, namely, that cost and space limitations, far from eliminating the need for an architect, emphasize it. Good or bad, these houses and thousands of others all over the country are being built to endure for a good many years—a prospect which is incompatible with jerry building and jerry planning.

The four Mead houses on the first page are being built for investment by a family of veterans for rent to veterans. The family already owned a large hillside lot looking south to San Francisco Bay. Since veteran's loan commitments put a limit on the combined cost of house and land, it was found that by subdividing more house per loan was possible. The result was a four unit rental project.

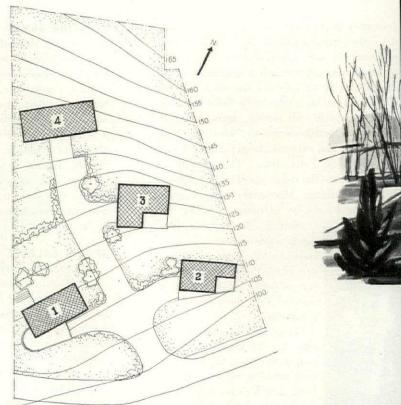
The houses are so located on the grade that each has an unobstructed view of the water. Orientation of the rooms and the location of decks contribute privacy and augment the small floor areas. In some instances the deck also serves as a carport.

House No. 1, shown in sketch and plan at right, totals about 1,000 sq. ft. has two bedrooms. Its most unusual feature is the location of the kitchen, planted squarely in the center of the living-dining area, a planning device which automatically produces a dining alcove and service entry. East and north walls, looking upgrade to the other houses, are closed except for the back door, kitchen and bathroom windows.

There will be a second two-bedroom unit of about the same size, a three-bedroom house of 1,300 sq. ft., and a junior one-bedroom house of 600 sq ft. Construction costs figured at \$10 per sq. ft. work out to \$10,000 for the two-bedroom houses, \$13,000 for the three-bedroom unit and \$6,000 for the smallest house. Ceiling rentals based on these costs have yet to be fixed.



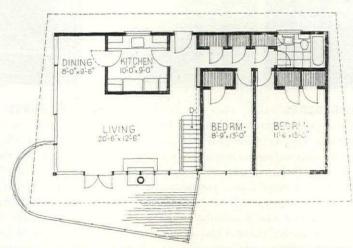
CROSS SECTION SHOWS CONCRETE BRACING AT GRADE LEVEL



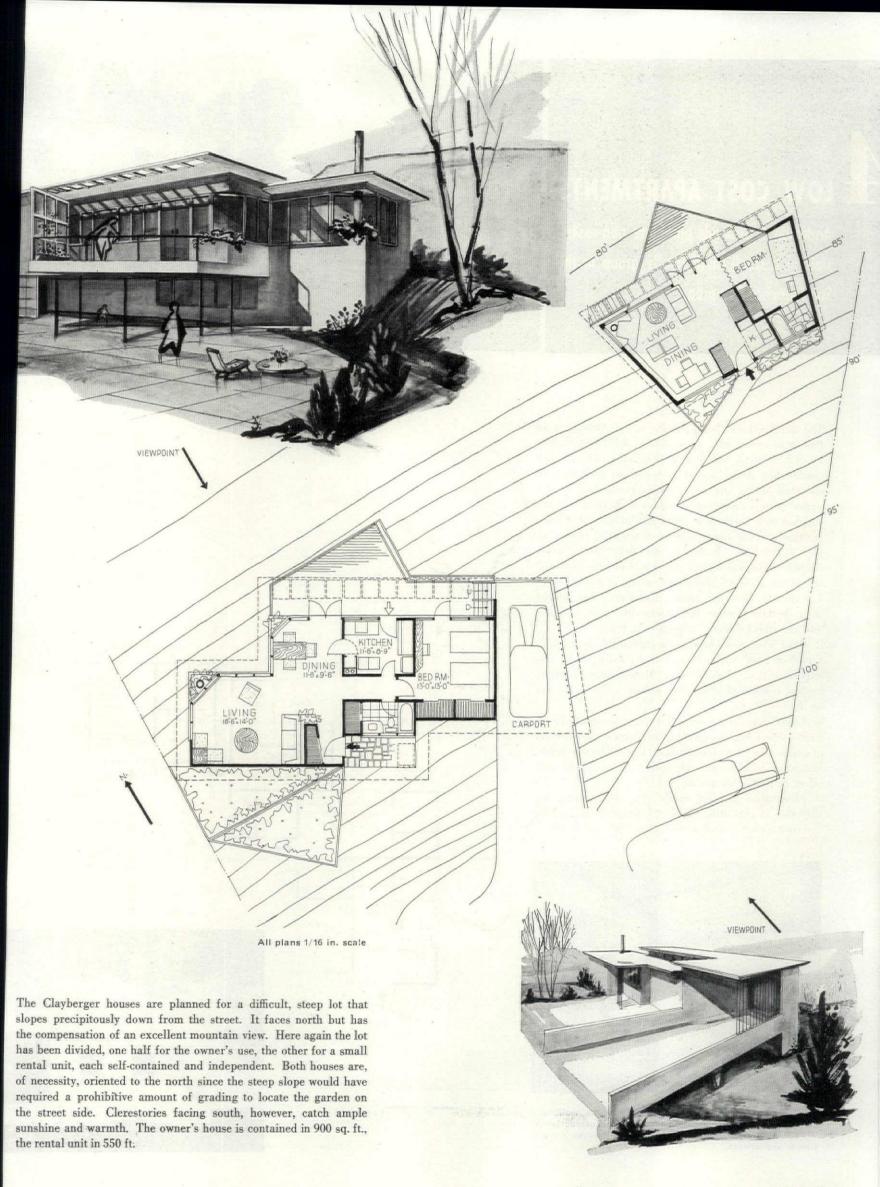
WIDE INDIVIDUAL DRIVEWAYS ELIMINATE NEED FOR A TURN-AROUNT



NATURAL GRADE PROVIDES USEFUL SPACE UNDER FRONT OF HOUSE



FIXED WINDOWS EMBRACE LIGHT AND VIEW, DEFY GUSTY WINDS



# LOW COST APARTMENTS

Anderson & Simonds eliminate non-essentials in a small multi-family group in the San Francisco Bay area.



The importance of being thrifty is well illustrated in this small rental unit. Its architects, FPHA specialists in such matters, feel that a thorough study of each construction detail, aimed to lower the total cost by reduction at the item level, produces the best results under present building conditions. Relying on the simplest tools, methods and materials at hand, they point out that it is far easier to take off ten \$100 items than one \$1,000 one. Following are four money-saving simplifications which were introduced into the construction of this project: (Estimated savings in parenthesis.)

1. Concrete floors on grade. Experience has proved their thermal comfort and practicality, their economy and structural stability. (20¢ per sq. ft.)

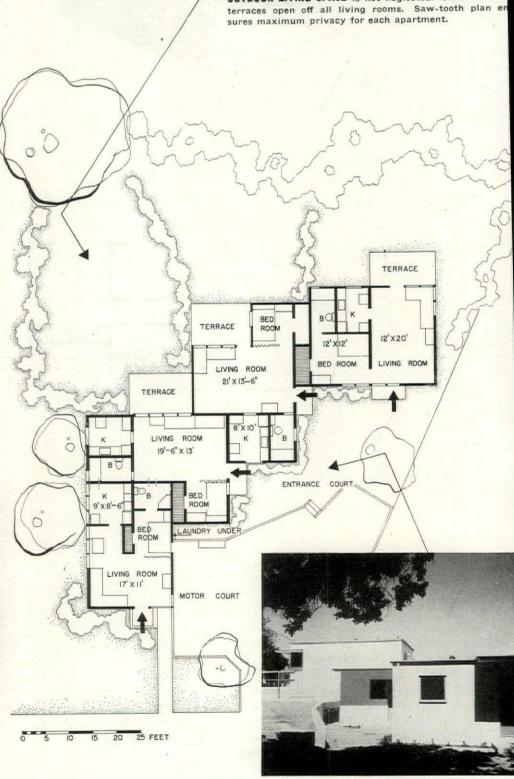
2. Dead level roof. Realizes a substantial saving over a roof on cant strips. Flat roofs are substantially less expensive than sloping ones. Material-wise, built-up roofing is more plentiful than shingles. (2¢ to 15¢ per sq. ft.)

3. Elimination of conventional exterior sheathing in places where it is permitted by ordinance. Substitution of stucco over paper is economical and in climates where insulation is required, the saving on sheathing will offset its cost. (10¢ per sq. ft.)

4. Elimination of eaves except over doors facing the direction of prevailing storms. A simple 4 in. by 4 in. redwood gutter is used at roof edge. (10¢ per sq. ft.)



STANDARD BOX LIGHTING fixture is used on wallboard ceiling. Framing is exposed. Economical construction of window and door opening nevertheless produces a neat, simple appearance.

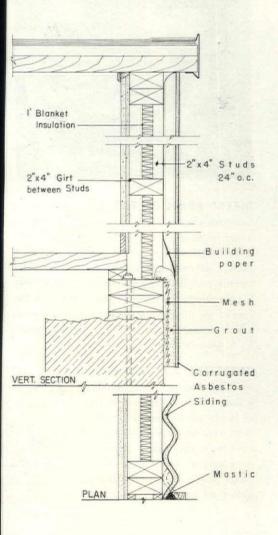


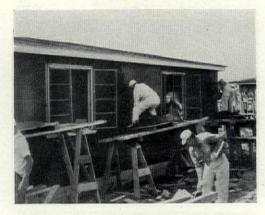
FINISHES EXTERIOR WALLS: stucco, asbestos and aluminum . . . ROOFS: shingled, built-up,

aneled and rolled . . . FLOORS: composition, asphalt, ceramic and carpet . . . INTERIOR: a dozen different techniques.

secause of its availability, concrete with an ntegral finish or coated with Portland cement paint is today's structural material. For the ame reason stucco and Gunite (right) are oday's exterior finishes for frame construcion. Other siding materials which have capialized on the lumber shortage and entered the ousing field are asbestos cement and aluminum (below). Steel is another: Reliance Steel Products Co. of McKeesport, Pa., has ntroduced "Plasticlad," thin corrugated steel panels with vinyl plastic on both sides.

Some of the greatest strides toward cost eduction in finishes have been made by paint nanufacturers. Alkyd-resins have been developed to add greater durability and drying speed to outside paints. Casein paint and resin-oil emulsion paints have been perfected to cover inside walls in one coat at a speed which is said to reduce painting costs by \$2 per gallon. A new oil-based water-thinned glossy enamel also reduces application time.





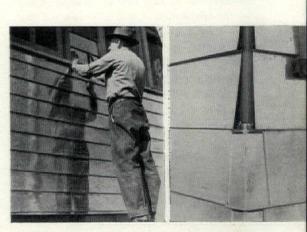
STUCCO is comprised of readily available materials and is therefore a timely exterior finish which promises to regain much of its former popularity. If troweled smooth, it offers better protection against the weather than if finished with the more popular rough texture. Pictured above is an economical stucco application in which chicken wire backed with building paper serves as the base for the mortar.



ASBESTOS CEMENT panels come in large wall-height sizes, are therefore labor-saving substitutes for conventional wood siding. Performance of flat panels, such as those used in the Ruberoid Co. "Stonewall" installation above, has been proved in thousands of defense houses, and the corrugated panels have been used successfully in many large industrial plants. The latter form, applied either vertically or horizontally, gives a wall an attractively different appearance. Detail drawing at left shows how Architects Jackson and Callender of New York are using Johns-Manville's corrugated Transite to finish a new house. They admit that the air space between the building paper and siding might provide better solar insulation if vented top and bottom. Panel joints may be either lapped or butted.



**GUNITE** reduced to simple terms, is simply stucco applied with an air gun. Compressed air and a thin mix of mortar are fed by separate hoses into a single nozzle. As a labor saving technique, its advantages are obvious. The photograph above shows the application of Gunite to the chicken wire lath of a small house, the windows of which have been temporarily masked to simplify the clean-up operation.



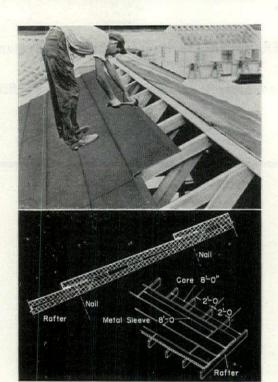
ALUMINUM SIDING which looks like clapboards was made available to the industry last month by Metal Building Products, Inc., of Detroit. Each beveled "clapboard" is fabricated with a U-shaped channel at the bottom which forms the butt and interlocks with the top of the next lower clapboard and makes a wind- and rain-proof joint. Available in 8, 10 and 12 ft. lengths, the pieces are joined horizontally by sliding inside each other. Widths of 4, 6, 8 and 10 in, are available. According to the manufacturer, use of the siding eliminates the need for sheathing. A 2 in. blanket insulation is nailed to the outside of the studs; provision of a vapor seal on the inside of the studs is optional. Painted on the outside, the metal is reflective on the inside and provides addition insulation.

INSULATING SHINGLES come in large sizes, minimize roofing labor and eliminate roof sheathing. Panels of insulating board 15 in. wide and 8 ft. long are finished with copper, stainless steel, aluminum or factory-applied asphalt mineral surfaced roofing. As shown in the diagram, the panels of the Coper-Cel Corp., New York, N. Y., are built up in the factory from two sheets of insulating board separated by two wood strips. Such units provide roof sheathing, insulation and finish in one easily-installed material. Since the panels interlock, one row of concealed nailing is sufficient. Where metallic finishes are used, the metal covering is slipped on the "shingle" after the latter has been nailed in place. The courses of metal covering are held together by interlocking flanges and are nailed at the top. Picture above shows a 24 by 28 ft. house being covered by only 24 courses of the mineral surfaced asphalt panels. Here the roofing was laid on preassembled truss rafters spaced 2 ft. on centers. The material is also suitable for siding.

COLD BUILT-UP ROOFING has much to commend it. Plain surfaced roll roofing is immediately available and, according to Abesto Manufacturing Co., so are the necessary adhesives. (On the other hand, semi-saturated felts used in hot work are scarce.) Moreover. the cold application requires less equipment, skilled labor, time and money and eliminates the fire hazard. On top of these economies of the cold process itself, Flintkote Co. has added another-the development of spray equipment for the application of cold adhesives and coatings which is said to reduce labor costs 25 to 50 per cent-see photo, right.

CORRUGATED STEEL, long used for the roofing of industrial buildings, entered the residential roofing market during the war housing program. Primary advantage of the material is that it is produced in large sheets and thus speeds construction - only 24 sheets were needed to roof the two-family house shown to the right, built of materials supplied by Tennessee Coal, Iron and Railroad Co. Walls and roofs finished with sheet steel must be properly vented for comfort and reduction of moisture condensation.

STEEL ROOFING is available in flat and corrugated sheets and in rolls. Because of its light weight and elimination of cross seams. the latter type is particularly suitable for residential structures. As manufactured by Follanshee Steel Corp., the material is copper bearing steel coated with lead and tin and is available in 50 ft. rolls up to 28 in. in width. It weighs only 62 lbs. per 100 sq. ft. laid, compared with 175 lbs. for 4-ply built-up roofing and 200 lbs. for wood shingles. Lighter framing is therefore feasible. Flat lock seams are recommended for pitches up to 21/2 in. per ft.; standing seams for steeper pitches. Painting is advised by the manufacturer.

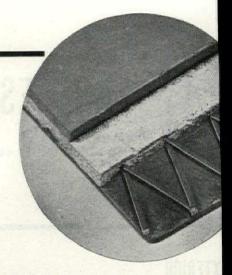




Life thata : George Strock







MAGNESIUM OXIDE FLOORING, such as that used successfully for years in ships, factories and public buildings, is readily available for housing. Laid in a plastic state on expanded metal lath or clips, it gives an incombustible, tough, resilient finish to wood sub-flooring, steel or concrete. The picture above shows the required two coats of Millerite applied to a ship's steel floor-it is produced in colors by Miller Marine Decking, Inc., New York City.

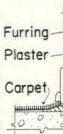
COMPOSITION PANELS with densities and surfaces comparable to Masonite Presdwood are suitable for use as floor finishes. They may be applied to sub-flooring in large full-size sheets by nailing or in smaller sections by means of an adhesive.

ASPHALT TILE, recognized as an excellent finish for concrete floors on grade, can also be applied satisfactorily over wood if the latter is first covered with a hard composition board.



DIRECT ADHESION TILE is mounted on a hair-thin plastic sheet and is applied with an adhesive to any true surface-wood or concrete floors and dry-built walls. This new plastic development makes for quicker and lighter installations. Cement is needed only for grouting. No opaque paper pasted to the face of the tile hinders the alignment of sheets, which measure 12 in. by 24 in. Manufacturer: U. S. Quarry Tile Co., New York City.

CARPETING laid from wall to wall is being used increasingly as Furring a floor finish during the shortage Plaster of hardwood lumber. In conjunction with an under cushion, this substitute provides resiliency to Carpet an otherwise uncomfortable concrete floor. The detail drawing shows one method of installation.





ARGE SHEETS of plaster, fiber and other omposition boards offer obvious economies in nterior finish. For instance, the large sheet f Upson Co. fiber board bent to go through he front door (above) will finish one entire vall of an average size room having an 8 ft. eiling. Moreover, the panel is factory-primed, will therefore require only one coat of paint. Dry wall construction of any type keeps moisure out of the house and thus saves time in he application of interior finish.

PLASTER has one big argument in its favor: t is more readily available today than most ypes of dry wall finish. Use of pre-slaked, ready-to-use hydrated lime will cut plastering time and costs.

SIMPLIFIED TRIM is attractive as well as conomical. From left to right, the details below illustrate: 1) a base mold used as a plaster ground; 2) a door trim which also doubles as a plaster ground; 3) a door buck slotted at the mill to receive plywood partition finish; 4) an easily cleaned juncture of a linoleum finished floor with a simple plywood



SMALL PANELS of composition board used as interior finish may be laid with joints accentuated. The resultant tile-like pattern overcomes the public's dislike of the difficultto-conceal joints which occur ungeometrically in large-panel wall finishes. The picture shows the ceiling installation of Wood Conversion Co.'s "NU-Wood" tiles with special clips which make concealed nailing possible. Available in various fade-proof colors, such prefinished materials eliminate the need for interior painting.

PLASTIC COATED PLYWOOD is a new, prefinished material of plastic and plywood which promises to prove its worth in residential interiors, particularly in bathrooms and kitchens where its water and stain proof qualities may be used to best advantage. Its durability and resistance to abrasion also point to its use as a floor finish. Such a material is Kimpreg, developed by Kimberly-Clark Corp. and manufactured by numerous plywood mills. A similar product is known as Inderon and is also produced by mills and plywood companies throughout the Northwest.



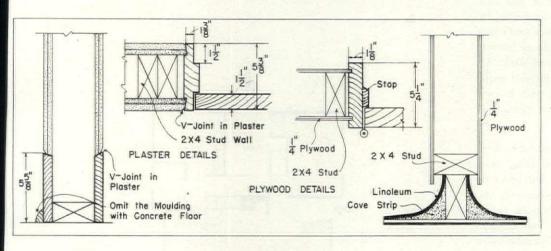


FABRIC COVERINGS are particularly suitable for finishing the dry-built walls of kitchens and bathrooms. They hide the joints in wallboards and provide a permanently washable surface. The material being installed in the photograph above is Sanitas, a product of Standard Coated Products Division of Interchemical Corp. It consists of 4 coats of paint baked on a strong fabric foundation and is available in plain colors, stripes and a variety of other patterns.

LINOLEUM in light weights is an economical finish for the wainscoting and splash boards of bathrooms and kitchens. Its availability in large pieces facilitates application and assures a water-tight installation. Designed to resemble ceramic tiling, the bathroom linoleum pictured above (right) is called Quaker Wall Covering and is produced by the Armstrong Cork Co.



METAL TILE manufactured by Clyde (Ohio) Porcelain Steel Corp. weighs only 31/2 lbs. per sq. ft. and is quickly installed on a grooved foundation sheet which assures automatic tile alignment. One carpenter (not a tile-setter) can cover the entire walls of an average bathroom in a day, and the room will weigh a ton less than if finished with clay tile. Light weight framing may thus be used.



to omit the finish. Not as implausible as it sounds, this advice was followed in the design of the unfinished but attractive rooms shown to the right. In the first, by Architects Stonorov & Kahn, note the unfinished structural clay tile in the kitchen, the concrete floor, brick chimney and pine-paneled wall in the living space. At the far right, Architects Moore &

Hutchins used exposed framing.

MOST ECONOMICAL way to finish a room is





Gottscho-Schleisner

# LOW COST HOUSES

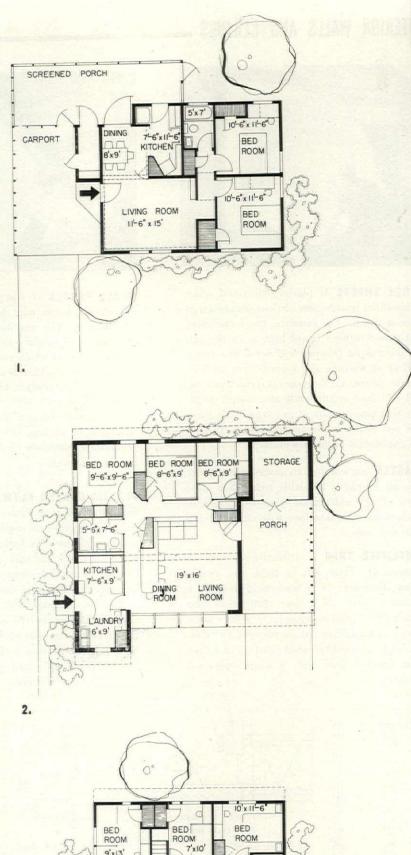
Alden B. Dow, Inc. devises two- and threebedroom variations on the low cost theme for Michigan and Texas.

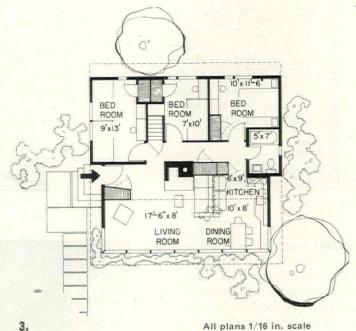
HOUSE NO. 1 This two-bedroom house for the hot humid climate of the Texas Gulf Coast has no central heating plant and no chimney. Instead it has a small gas-fired space heater in a furred-down space over bedroom corridor. It has an unusually large screened porch across the back for warm weather use. Even the carport—with its large storage closet for unsightly tools and accessories—could be used for a covered sitting area. The economies achieved here involve no unusual materials or construction methods. Concrete work is reduced to a minimum: driveway doubles as walk, continuous slab floors, porch and carport, a slab 6 in. higher serves as footing and subfloor for house proper. The house is conventionally framed, a single shallow gable covering entire house and extending without interruption to cover carport and porch. The ceiling line in the living area follows the roof, a central partition extended to the roof ridge eliminating need for ceiling joists.

HOUSE NO. 2 A somewhat more ambitious plan in this Michigan house yields three bedrooms. Together with bath and kitchen, these rooms form an L-shaped element around the living room and open directly into it. By this device, Dow eliminates one wall of an interior corridor. He achieves some measure of isolation and privacy by placement of the linen closet, built-in dining table and sofa around the inner corner of the living room. At the same time, by carrying the living room ceiling up with the pitched roof and using a floor-to-ceiling glass wall across the front, he introduces interest into a room which might have otherwise been boxy and dark. Although exterior walls are conventionally framed, all interior partitions are of the post and panel type. Here, as in the other houses, kitchen and bath are placed back-to-back for economy. Heating is by a warm air, gas-fired furnace.

HOUSE NO. 3 This three-bedroom house in Michigan has a conventional basement with hot air furnace, chimney and living room fireplace. A square plan permits a simple hip roof, pitched four ways from the central chimney. The house, however, has only one outside door. This fact, together with the central chimney, necessitates a transverse corridor connecting front door and kitchen. While it serves to deflect traffic from living room, this corridor takes up quite a bit of space in so small a plan. In this house again, Dow has utilized a number of devices which tend to hold cost down. He has placed kitchen and bath back-to-back. To a large extent, he has eliminated window sash and frames, most of the glass being fixed in place between the studs. Full partitions are also eliminated wherever possible, while cases and built-in furniture subdivide the space. This, in turn, eliminates many door and window frames with a consequent reduction in millwork and carpentry.

HOUSE NO. 4 This house, also in Midland, Mich., is a variation of House No. 3—the only difference being that it has two bedrooms instead of three.







EQUIPMENT HEATING: in the floor, in the ceiling, against the wall . . . KITCHEN: compact units

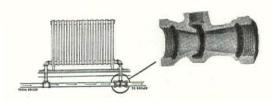
and packaged combinations . . . BATHROOM: plastics, stall showers and tile tubs . . . PLUMBING: tandem baths and kitchens, back-to-back and side-by-side.

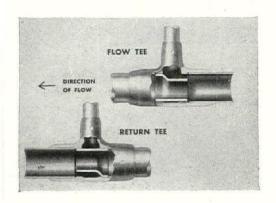
## HEATING

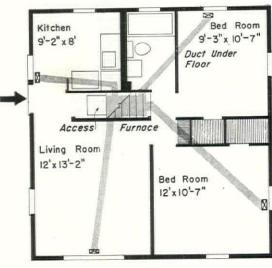
Any heating system which uses a minimum of iron and steel is the system for today's house. Pressed sheet steel is less critical than cast iron, and steel convectors should therefore be more plentiful than cast iron radiators. The relatively low cost of warm air heating systems is reflected in the tremendous demand for their components. For that reason, some phases of the more expensive piped systems are also covered on these pages.

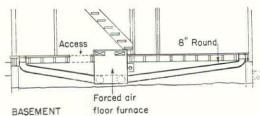
Central heating of attached houses as well as apartments offers the possibility of additional economies-one hard-to-get furnace will serve a number of dwelling units. Factory fabricated insulated pipe such as that manufactured by Ric-Wil Co. of Cleveland makes such systems possible.

ONE-PIPE HOT WATER HEATING is made possible by use of a Venturi fitting at each radiator (see below). It operates on the injector principle; flow water entering the fitting is speeded up by a tapered nozzle creating a suction pull on water returning from the radiator. A single circuit of pipe is sufficient for a one-story house. Reduced pipe length and absence of valves cut labor and material costs. Taco Heaters, Inc., New York, N. Y., produces the pipe fixture shown below. Revere Copper & Brass Co. offers the fittings shown at the bottom of the page which accomplish the same purpose in one-pipe systems using copper tubing.





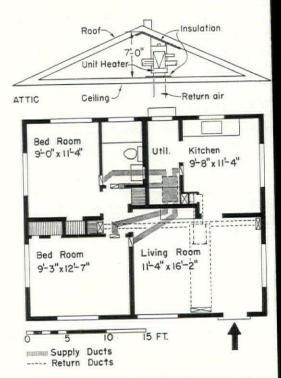




FAN FLOOR FURNACE located beneath a central closet has small plenum chamber above the floor level which distributes warm air directly to surrounding rooms. Eight inch diameter sheet metal ducts collect cold air from grills located near outside walls of each room. Designed and built in Washington, D. C., by Standard Properties Inc.

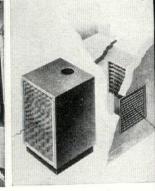


GRAVITY FLOOR FURNACES provide warm air heating in its simplest, most economical form and require no extra space. Picture shows a complete heating "system" being installed between floor joists in a basementless house. The heater is usually located in the living room floor where it heats other rooms by natural circulation of air. Manufacturer: Coleman Co., Wichita, Kans.

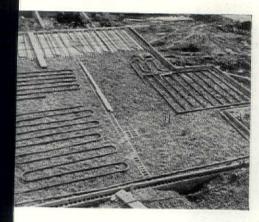


ATTIC FURNACE suspended between rafters and ceiling joists of an unfinished attic saves valuable first floor space in a basementless one-story house. Very little duct work is required to deliver the forced warm air to registers which are near the ceiling of each room. Cold air is picked up by two living room floor grilles and one in the bedroom hall. Architects: Mills, Rhines, Bellman and Nordhoff.





HEAT DIRECTOR distributes warm air from utility room furnace to adjacent areas-preferably living room, bedroom hall and bath. Furnace fan draws air from living room through kitchen and utility room whose doors are equipped with full length louvers. Bedroom doors are solid, serve as valves in the heating system. Mechanical Home Systems of Chicago markets the equipment.



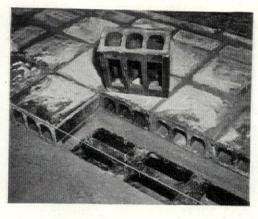
characterial used in no other type of household blumbing and therefore more readily available han most. However, other types of pipe may be used in radiant heating systems. Comparable in cost to other piped heating systems, he hot water coils are embedded in concrete, hus answering the cold floor complaint frequently leveled at slab foundations. Picture shows pipe supplied by A. M. Byers & Co., Pittsburgh, being laid in one of the 33 houses now being built to sell for \$7,000 to \$9,000 by Frank Corace in Pittsburgh. Coils may also be installed in ceilings where they are fed most conveniently by an attic furnace.

chimneys of masonry are far out of proportion to the cost of a small house unless made by stacking single concrete chimney blocks on top of each other. Where building codes permit, asbestos cement pipe may be substituted for masonry with considerable reductions in labor and material costs. Porcelain enameled metal chimneys with self-flashing roof jackets —either round or shaped and finished to look like brick work—are manufactured by American Rolling Mill Co., Middletown, O.

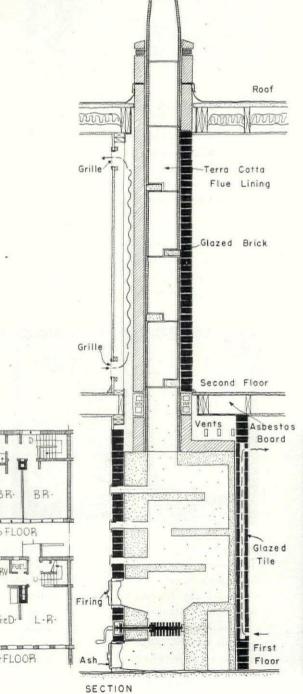


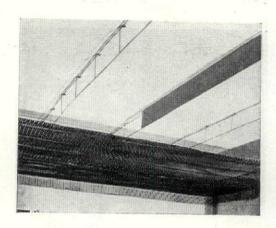
FLUE BASE in a single refractory casting combines a flue entrance, flue lining, baffle plate (to increase draft and prevent soot fires) and a projecting clean-out opening with a plug-type closure also made of refractory. The unit is manufactured by New Castle (Pa.) Refractories in standard 9 in. by 13 in. outside flue dimensions.

CHIMNEY HEATER, right, is built of brick and tile. Baffles in the coal-fired furnace itself and in the chimney tend to concentrate heat on the side walls which radiate it to the surrounding rooms on both floors. Fire box walls are surrounded with hollow glazed tiles laid with cores running vertically and vented top and bottom to form convectors. Upstairs another convector is formed by placing grilles near the floor and ceiling of the furred-out panel which shields the chimney from the hall. The furnace is fired with coal from the utility room. It was developed by Architects James A. Mitchell and Dahlen K. Ritchey & Associates for a Pittsburgh war housing project.



FLOOR DUCTS built under a concrete slab warm the floor and, in turn, the rooms. Rows of structural tile ducts are placed side by side, connected at one end by transverse supply ducts and at the other by transverse return ducts. Such a radiant heating system requires careful engineering to assure an equal distribution of heat to all parts of the floor area. The picture shows part of a system designed by Architect George Fred Keck for Green Ready-Built House Co.

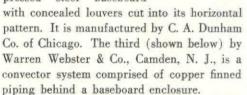


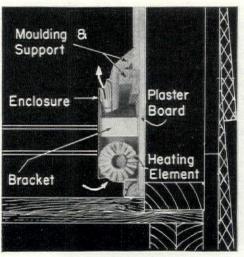


GEILING PANEL for warm air radiant heating is constructed by covering joists with sheet metal or composition board and suspending below it a finished second ceiling—shown above as metal lath and plaster. Within the 3 in. space between ceilings are sheet metal guide strips to control distribution of air. Ceiling panels in each room are supplied by separate supply ducts. Installation above was by International Heater Co., Utica, N. Y.

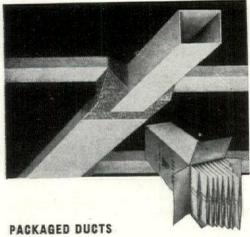
BASEBOARD HEATING has recently made its appearance in numerous types—three of which are illustrated below. Most of the systems have several features in common: they are installed at the base of exposed walls in continuous loops one to each floor of a house; their parts are easily accessible; they conserve floor and wall space and are said to provide even heat throughout the rooms. First illustrated is a radiant heating baseboard comprised of sections of hollow cast iron measuring 134 in. by 7 in. in cross

section and produced by Burnham Boiler Corp., Irvington, N. Y. The second is a convector system in which a standard 1 in. pipe is run around the outside walls of a room with finned sections inserted under windows—all hidden behind a pressed steel baseboard





## HEATING (con't) and KITCHEN EQUIPMENT



Delivered flat in a carton, these asbestosboard ducts are easy to handle, easy to install. Once out of the carton, they are readily sprung into shape. The ducts are 4 ft. long and are manufactured in various cross sections. Manufacturer: Sall Mountain Co., Chicago, Ill.

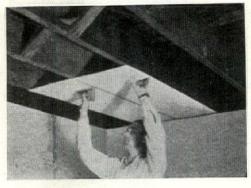


ASBESTOS DUCTS fit between floor framing members. Lightweight sections are put together by means of slip joints which are sealed to prevent escape of air. Made entirely of asbestos, the sections may be cut with an ordinary saw. Manufacturer: Philip Carey Mfg. Co., Cincinnati, Ohio.

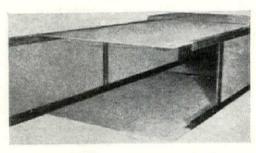
## KITCHEN EQUIPMENT

Unfortunately, few manufacturers produce kitchen equipment specifically designed for the small house or apartment. A few of the notable exceptions are presented to the right and at the top of the next page. Sorely needed is further integration of the various fixtures which equip every kitchen and laundry. A step in the right direction is the "Thor" combination clothes-dishwasher recently introduced by Hurley Machine Div., Electric Household Utilities Corp., Chicago. Had it been designed with a flat usable top, it could have made a still further contribution to kitchen-laundry planning.

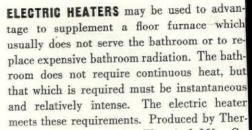
In most states it is possible to include the extra cost of complete kitchen and laundry equipment as part of the house as far as mortgage financing is concerned. This permits the purchaser to pay for the equipment over a much longer period than is possible through separately floated commercial loans.



JOIST DUCTS for cold air returns are easily made by nailing asbestos sheets to joists and turning up the edges. Picture above shows installation of Phillip Carey Mfg. Co.'s "A-D" board which comes in sheets 33 in. wide for standard joist spacing of 16 in. and has a center line for ready location on the center joist. If lined with asbestos board, joist space can be used as supply ducts.



SHEET BOARD DUCTS retain all the features of sheet metal except for greater weight and slightly greater resistance to air flow. They have the added advantages of greater rigidity and better insulation. Square elbows and some fittings can be made of sheet board; corners and seams are formed with metal clips. Layout is similar to ordinary ductwork with bandiron or rod, trapeze-type hangers on same centers. However, supports must be heavier to hold the material's greater weight. The duct material is ½ in. thick and is made by Carrier Corp., Syracuse, N. Y.





mador Electrical Mfg. Co. of Los Angeles, the model pictured here produces 5118 BTU per hour at an hourly cost of 1.5 times the kwh rate. At 4 cents per kwh for 100 hours (the average annual usage of an electric heater) the yearly operating cost would be only \$6. The

unit retails at \$16 including government tax.

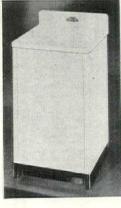
CONVECTOR-RADIATORS contain no critical cast iron, are light in weight and easy to in-



stall. Mass production has lowered their cost below that of cast iron radiation of equal capacity. The convector illustrated contains a heating element and damper and is manufac-

tured by Trane Co., La Crosse, Wisc.

& Brass Co. to be competitive in initial cost with rustable pipe when the following factors are considered: it is put together with soldered compression fittings instead of laborious threaded connections; it may be smaller in diameter, for no allowance must be made for flow loss due to rusting; it may be bent and therefore requires relatively few fittings; it saves space, for there need be no space allowed for the swinging of wrenches.



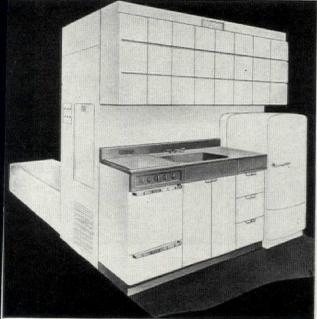


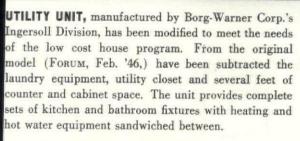
compact units save valuable space in the small house kitchen. Left, an electric water heater with 30 gal. capacity which may be installed in the kitchen to augment counter work space. Manufacturer: Frigidaire Div., General Motors Corp., Dayton, Ohio. Right, a small electric range of space-saving size manufactured by Electromaster Inc., Detroit.



LAUNDRY EQUIPMENT of compact rectangular design and covered with flat tops is particularly suitable for houses where floor and work areas are at a premium. Of standard counter height, washer and dryer pictured above are easily integrated with other kitchen or utility room fixtures. Manufacturer: Bendix Home Appliances, Inc., South Bend, Ind.

## ITCHEN and BATHROOM EQUIPMENT





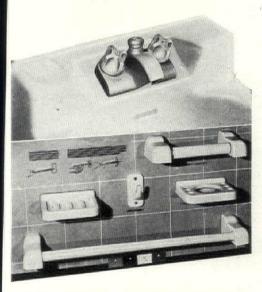




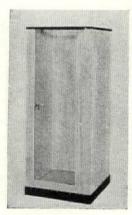
PACKAGED KITCHENS are designed primarily for small apartments, but they merit consideration for the small house. They could be used to advantage in several of the small open-planned houses presented elsewhere in this issue of the FORUM. Fabricated of porcelain-enameled steel, both units contain a range, refrigerator, sink and considerable storage space. The package shown to the left, manufactured by Parsons Co. of Detroit, retails in New York for \$450—one to a customer. The smaller model is produced by Murphy Door Bed Co. A common advantage is that by installing such packaged units in his houses a builder obtains all his kitchen equipment at one time and from a single manufacturer.

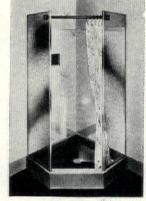
### BATH ROOM.

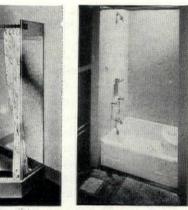
The cast iron bath tub is the most critically short item in the bathroom. Requiring less metal and manufacturing time, pressed steel tubs such as those produced by Briggs Mfg. Co., Detroit, and Alliance Ware, Inc., of Cleveland, will be available in quantity before cast iron tubs. (They are also lighter and easier to handle on the site.) Meanwhile, stall showers will fill the gap.



PLASTICS are, as yet, molded only in small pieces, are therefore of small importance to the building industry. However, Crane Co.'s attractive dial-like faucet fixture above is readily available as a substitute for scarce brass. And, the wall fixtures, marketed by Columbus (Ohio) Plastic Products, Inc., are inexpensive substitutes for porcelain products.









stall showers are conveniences in their own rights and will pinch hit for tubs during the shortage of the latter. Illustrated above (left) is one of several types of prefabricated metal enclosures. It is manufactured by Fiat Metal Mfg. Co., Chicago, and sells for \$55, knocked down for convenient handling. Center illustration above shows a stall shower made completely of a non-critical material—glass. It was designed by Pittsburgh Plate Glass Co.

SHOWER TUB shown above, far right, measures 42 in. by 31 in. by 12 in. and serves a multitude of purposes: shower receptor, child's bath, foot or sponge bath, seat shower or conventional bathtub. Called "La Hona," it is made of vitreous glazed "Duraclay" by Crane Co., Chicago.

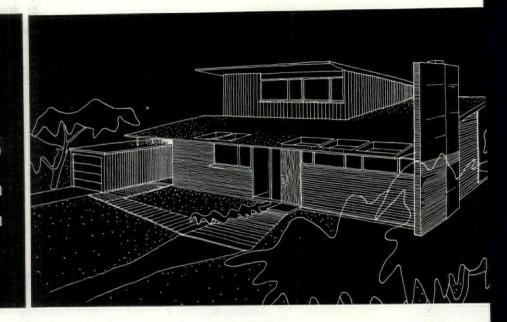
TILE TUB may be constructed on the job by setting unglazed ceramic mosaic on expanded metal lath backed by membrane waterproofing (right). Estimated cost: about \$50. Sponsor: Tile Manufacturers Assn., New York, N. Y.





# 3 OWNER-BUILT HOUSES

Samuel Glaser designs a four-bedroom house, with and without basement, and a three-bedroom model on a single floor.

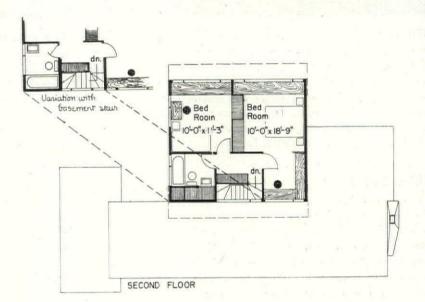


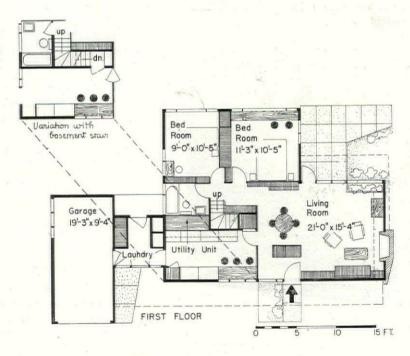
In a valiant attempt to provide the small family with a more-than-minimum house, this architect has worked out two prototype designs, repetition of which in lots of 30 houses will substantially reduce costs on the individual dwelling. The larger house is a four-bedroom, two-story structure; the smaller, one-story with three bedrooms. Both are distinguished from the usual crackerbox development house by informal plans, varying roof levels, liberal use of glass and spacious living rooms and kitchens. Both also make extensive use of prefabricated Storagewall cabinets (FORUM, Nov. '45, Apr. '46), thus saving space necessary for traditional closets while upping actual storage capacity and providing a large amount of built-in furniture. Interiors are also enhanced by the plywood wall surfaces provided by these cabinets.

To eliminate the standardized appearance of 30 identical homes, the exterior finish of each house will be varied, using vertical sheathing, clapboard or brick as the owner desires. Careful design has made this flexible use of materials a practical construction feature. Another design variation is planned for the two-story house shown on these pages, which can be built with or without a partial basement for the same over-all price. If a basement is included, the laundry is installed as part of the first floor bathroom. With the basementless design, laundry facilities are placed between house and garage in an area otherwise planned as a covered walkway. The one-story house, illustrated on the following page, has no basement, but laundry facilities are incorporated into the kitchen.

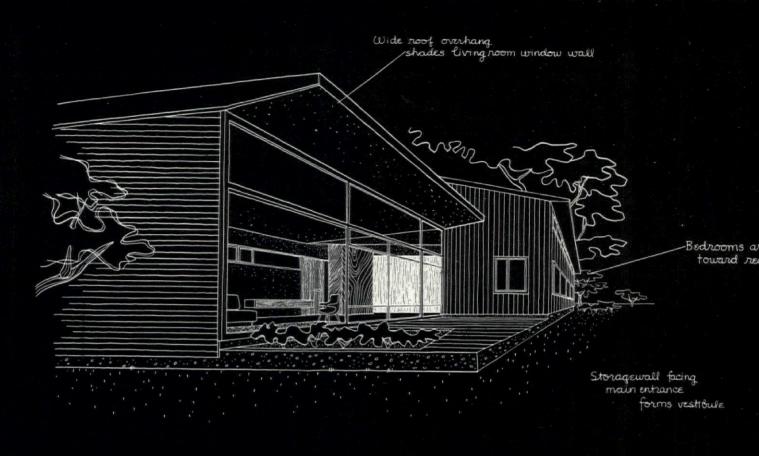
Recently received cost estimates place the price of the two-story house—including architect's fee, builder's profit and overhead—at \$8,700 if the upper story is left unfinished. Completion of this area by adding a bathroom, Storagewall and finishing the floors, walls and ceilings, is estimated at \$1,150. The one-story house is estimated at \$9,650. These figures are, of course, made on the basis of constructing 30 units at one time. Even so, the serviceman who can afford such a home may run into trouble. FHA has ruled that it will grant no loan and no priority unless the price of house and lot together does not exceed \$10,000. With these houses, only a slim margin is left for land.

From the point of view of economy, therefore, certain features of the designs are open to criticism. The extension of the fireplace walls to form unnecessarily massive chimneys is expensive and could have been solved better by using simple flues. In the two-story house a kitchen breakfast nook is provided in addition to a dining space in the living room. Elimination of the redundant kitchen area would have brought costs down. In several instances clerestory windows have been included which are not strictly necessary and Storagewalls have been scattered about with a too lavish hand. A more tightly knit execution of each plan would have not only reduced costs but also strengthened the design itself.

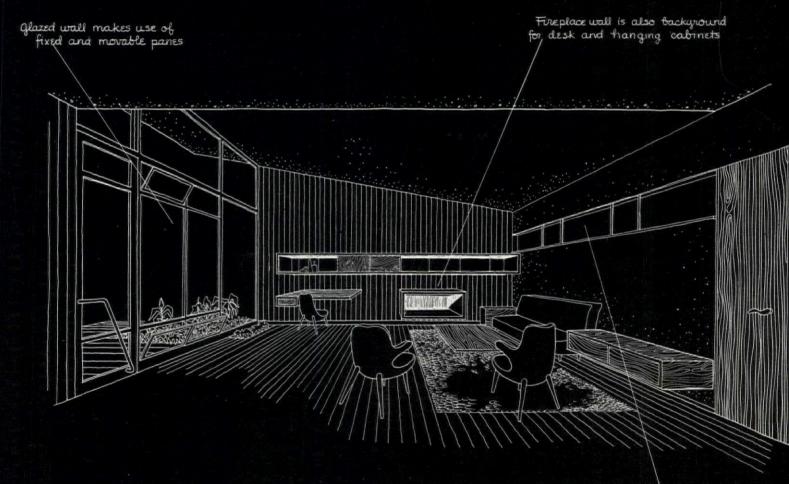




FIRST AND SECOND FLOOR PLANS show alternate design of stairwell and bathrooms when a basement is included. With this variation, the laundry is shifted
from its position between kitchen and garage and is incorporated in the downstairs
bathroom. The cellar can be used for a game room, hobby or work area as the
owner desires. Note spacious second floor bedroom which includes a special
dressing area and extended windowsills, utilized as tables.

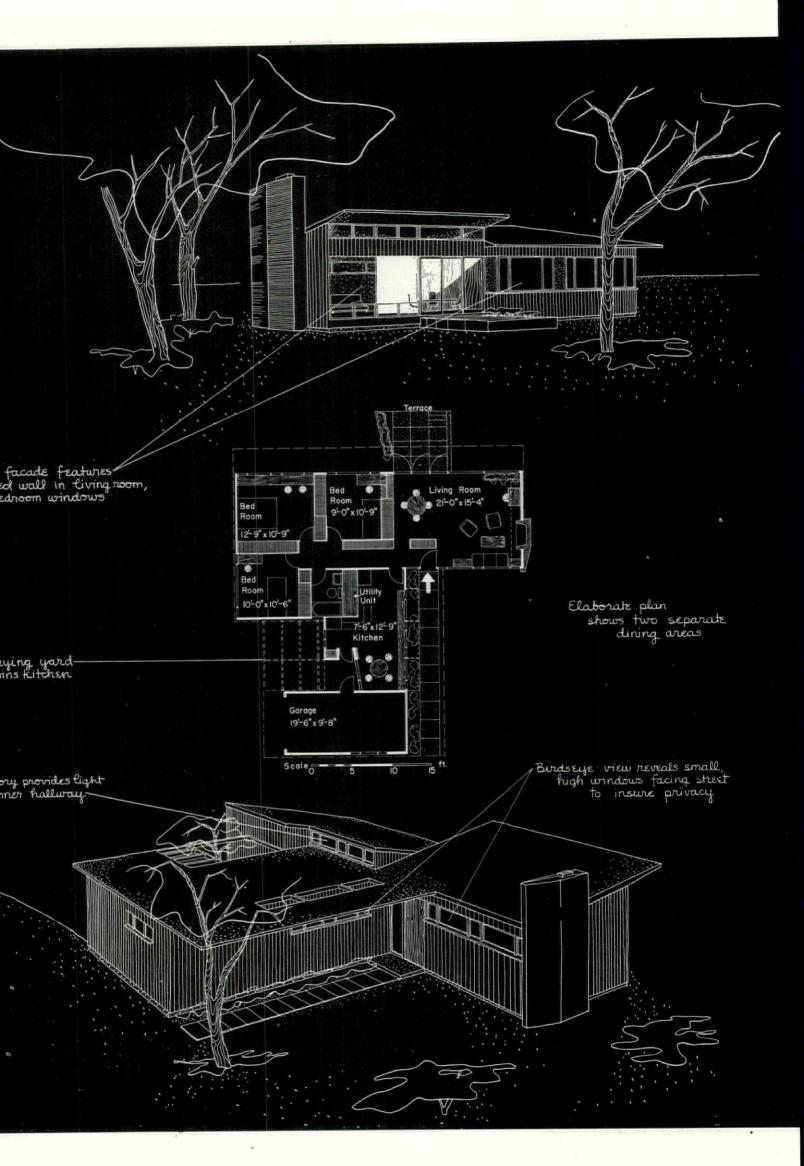


Exterior view from rear garden



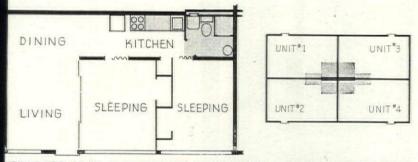
View of living room from diring area

High ribbon windows facing : combine light with pri

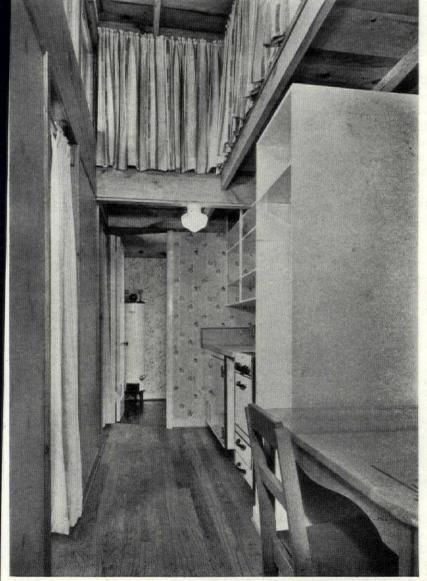




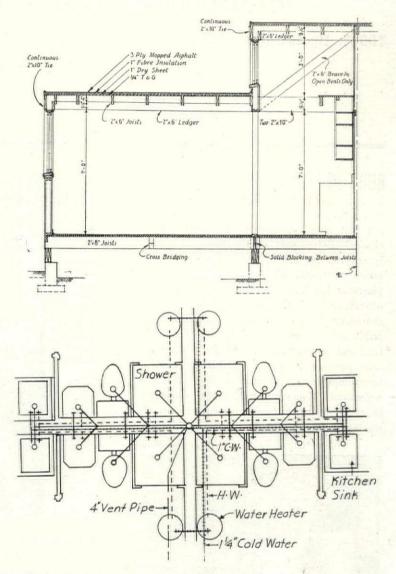
MONITOR LIGHTS KITCHEN AND BATHROOM IN FOUR-FAMILY UNIT



STANDARD PLAN IS REPEATED FOUR TIMES AROUND UTILITY CORE



KITCHEN DOUBLES AS A HALL BETWEEN DINING SPACE AND BATH



Economy of plumbing keynotes these multi-family buildings in the 600-unit war housing project designed for Beaumont, Tex., by Architects Williams, Worden, Schwarz and Jones. Due in large measure to the arrangement of bathrooms and kitchens back-to-back and side-by-side, the 1942 cost of the four-family building pictured above totaled only \$1,645.15 per dwelling unit, including utilities and site development costs. This figure alone recommends the design to local governments, universities and private developers interested in providing rental housing for the vast low-income market. With imaginative site planning and more permanent construction, similar buildings would prove timely additions to most any overcrowded community.

Basis of the Beaumont design is a clerestory or monitor running down the middle of the building, furnishing light and air to the centrally located tandem bathrooms and kitchens. Waste space is cut to the bone—the kitchen doubles as a hall leading to bedrooms and bath. So are the plumbing lines—with the sink set in the corner of the kitchen, no plumbing fixture is further than 9 ft. from the central stack and water supply pipe. Such an arrangement of dwelling units lends itself to sizable economies in the layout of site utilities and to the economies of central heating piped from one or more strategically located boiler plants.

Some of the saving in the construction cost of the Beaumont buildings is attributable to design details characteristic of temporary housing and unsuitable for a permanent project. For instance, each dwelling unit has only two doors—one at the front entrance, another leading to the bath. (Curtains close off the bedrooms.) However, the design provides amenities not often found in traditional rental housing—large windows, abundant storage space and a 10 ft. by 17 ft. living-dining room which may be expanded by sliding back the bedroom partition.

# MISCELLANEOUS BUILT-IN FEATURES: closets, cabinets, shelves, bunks, benches . .

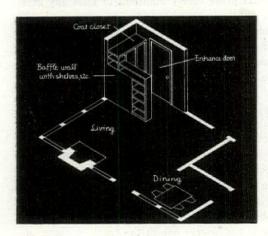
TOOLS: big and little machines for mechanized building . . . FABRICATION: on the job, in a shop, on the production line

**BUILT-IN FEATURES** 

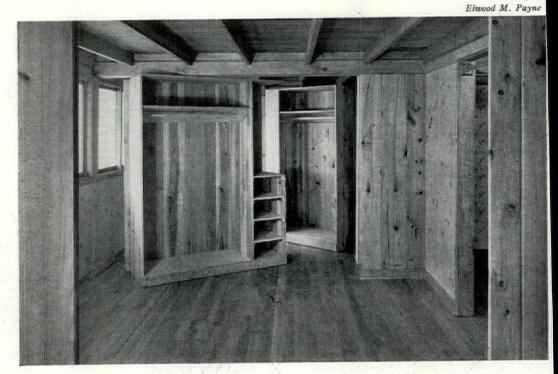
Furniture and storage space which is built into a house may up the sales price a little but will ultimately save money for the purchaser. Being part of the house, its cost is covered by the low cost, long-term real estate mortgage. If added later as movable pieces of furniture, the purchase price, more often than not, is obtained through a high-cost, short-term commercial loan. Builders do the public a big favor by providing built-in furniture and storage space, and the portion of sales prices which cover such features should be exempt from government ceiling price requirements. Concerted efforts in this direction by the industry may convince government of the logic of this proposal.



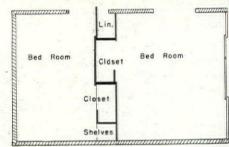




BOOKCASE PARTITION shields the living room from the front entrance of a small house designed by Architect Gardner Dailey. On the vestibule side of the L-shaped unit are additional storage space and a coat closet.



PREFABRICATED CLOSETS form partitions in a war housing project designed by Architect David R. Williams. With a battery of shelves attached to each closet, these units may be shifted easily to meet changing room requirements. Unfortunately, few builders appreciate that the provision of adequate storage space is more important in a small house than a large one, that the need is doubled when the basement is omitted. A noteworthy exception is the preassembled closet-cabinets provided in the Place project, page 142.



Eric J. Baker

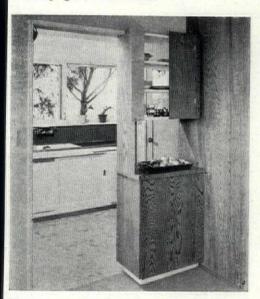


COMPLETELY FURNISHED by the builder, except for occasional chairs, the bedrooms of this small house are lined on two sides by integrated cabinets and shelves. Improvement in appearance results from the fact that the "furniture" is in scale with the room. Architects: Skidmore, Owings & Merrill.



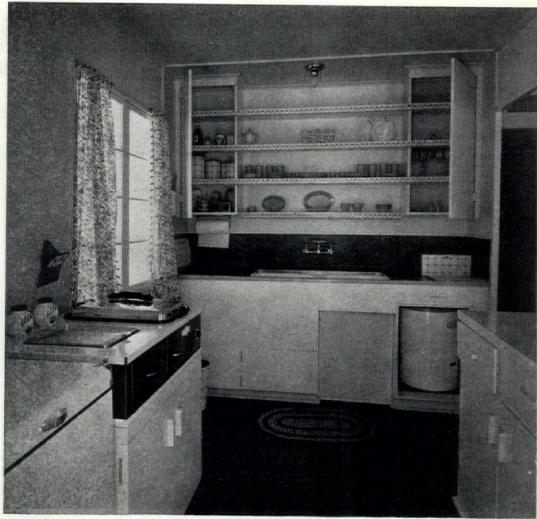


DOUBLE DECKED BUNKS offer a solution to the problem posed by small houses for big families. Here, Architect Edward D. Stone has staggered the bunks to permit a person to sit upright on either one.



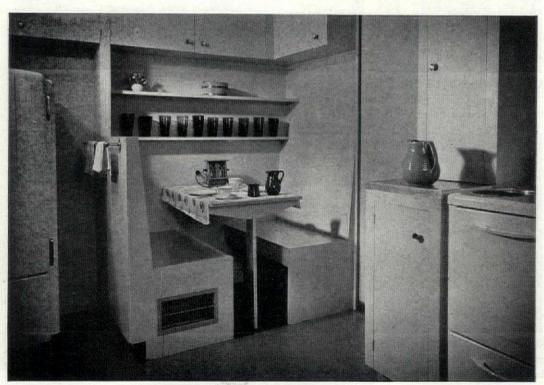
TWO-WAY CABINETS and counters (above and below) separate the kitchen and dining space. They facilitate the setting and clearing of the dining table and the serving of food. The upper design by Architect W. P. Kesling includes plywood doors. Below, Architects Hamby and Nelson, used siding glass panels.





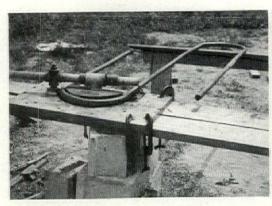
PANEL OF SHELVES flanked by cabinets fills one complete wall of this small kitchen and provides considerable storage space at small cost. Note the knee space under the sink and the small water heater under the work counter. This kitchen is part of the house containing the furnished bedroom shown on the opposite page.

DINING ALCOVE built into the kitchen below occupies a minimum area but adds considerably to the livability of the house. Wall space over the table is not suitable for cabinets but has been put to good use with shelving. Left-hand seat contains cold air grille and duct. Architect: Carl Riesen.



Good tools, big and little, cost big money but pay big dividends in building cost reduction. Few builders can afford to own one—much less all—of the big tools shown on this page. They can, however, afford to rent them by the hour as needed. And, those who are building more than a few houses a year cannot afford to be without a full complement of small power tools including a saw, joiner, planer, drill and sander. Builders who use them in their shops and on their jobs have quickly paid for them with the savings they have effected.

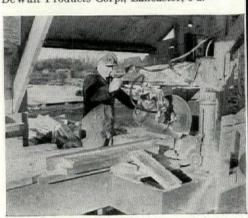
Although not yet advertised as such, the jeep might prove to be a valuable tool for builders. Besides serving as a pick-up truck and tractor, its power-takeoff equipment could be used to run saws, pumps, generators and, hooked to an augur, to drill holes for piers.



PIPE BENDERS are necessary for the fabrication of radiant heating coils. Above is an inexpensive bender "home-made" by Contractor Clyde B. Crawley of Lexington, Ky. Right: an hydraulic tool\*manufactured by Tals Prestal Bender, Inc., Milwaukee, Wisc.



power sawing is the key to the economies of precutting. Used in conjunction with templates or cutting table stops, it permits framing members to be cut in various lengths and shapes—quickly and more accurately than by hand. The versatile model below is made by DeWalt Products Corp., Lancaster, Pa.

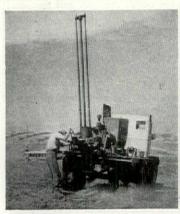


PORTABLE GENERATOR converts the job into a veritable shop. More convenient than waiting for the electric company to install a single outlet, the generator provides immediate power at any location. Below, a generator manufactured by Homelite Corp., Portchester N. Y.





BULL DOZER AND SCRAPER were the biggest tools rented by Place and Co. to assist in the construction of their 180 South Bend house (p. 142). Main jobs: grading and back-filling.







**EXCAVATING TOOLS.** left to right: a truck mounted augur drills holes for foundation piers; a "Caterpillar" tractor with "Trackson Traxcavator" lifts earth over wall of excavation; "Sargent Overhead" scoops up earth, swings it "over its head," dumps it into a truck.





DITCHER AND LUMBER CARRIERS are specialized tools for large scale builders. The former, manufactured by Barber-Green Co., will dig pipe trenches for an entire subdivision in a matter of hours. The straddle carrier and lift truck are made by Ross Carrier Co.

G. Marshall

The advantages of partial prefabrication in varying degrees from precutting to shop assembly of panels are attested by the increasing number of builders who are adopting such methods. They have learned what the prefabricator has known for years-that prefabrication is more efficient than conventional site construction. It saves time, materials and money. One of the most important reasons behind the savings is the fact that prefabrication, even if limited to precutting, encourages more careful planning and engineering than does conventional hammer and saw carpentry. In prefabrication the work is studied and completely specified by an expert, the builder or architect, who know materials and their worth. In conventional building, on the other hand, many important decisions are entrusted to mechanics to whom an extra saw cut or wasted foot of lumber means nothing.

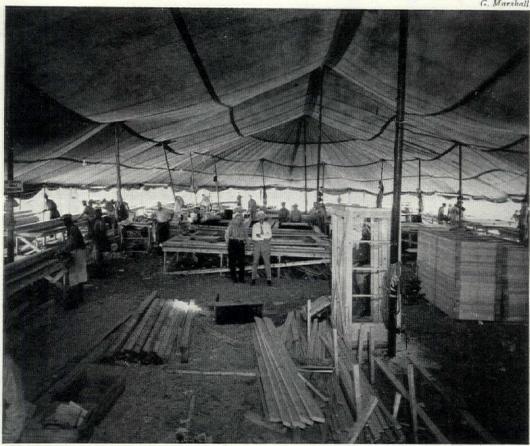
The degree of prefabrication at which maximum economy is obtained varies in direct proportion to the size of the project being built. Complete panel assembly shops are seldom used by builders whose contracts call for less than 500 dwelling units. At the other extreme, precutting proves economical for as few as a dozen identical units. Site fabrication is advisable for operations of average size, and is demonstrated graphically (below, right, and pp. 142-145) with photographs taken on the site of the 180-house Place project.

Vernon Heaer

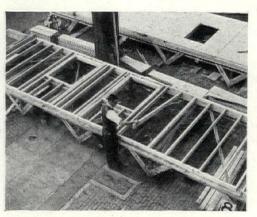


PRECUTTING of lumber in a shop or on the site saves time and eliminates waste of materials. Cutting is planned, and scraps are put to use. Scraps from hand-cutting on the site are usually considered useless and thrown away. Precutting is also more accurate.

PREFABRICATION of the complete house can produce economies of labor and materials which are usually not obtained in the field. Reasons: factory controlled temperatures facilitate the use of adhesives; these, in turn, permit a sparing use of materials; production line methods allow use of unskilled labor in repetitive operations; no part of the production operation is influenced by weather. Prefabrication's conservation of lumber is dramatized by the "Home Ola" house (right), which is said to contain only 1,900 bd. ft. of lumber, compared with 2,170 bd. ft. in a conventional house of comparable size.



CIRCUS TENT was used to enclose a temporary cutting and fabrication shop on the site of a large war housing project in Dallas, Texas. Here the Central Contracting Co. precut framing members and assembled wall panels without regard for weather.



SHOP FABRICATION of conventionally-built wall panels in jig tables permits wide use of unskilled labor and speeds construction. In the shop of the Day Housing Corp. (above) wall panels were framed and sheathed, then delivered to the site, erected and finished.



SITE FABRICATION is a compromise between shop assembly and conventional construction applicable to projects which are not large enough to warrant use of a big fabricating plant. Here, Builders Place (see p. 142) erect a wall which has been assembled on the floor.





# 7

## **DEVELOPER'S HOUSES**

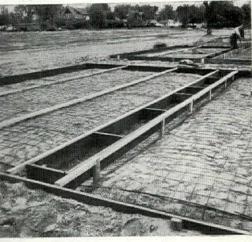
South Bend builder Place & Co. combines many cost-cutting techniques in the production of 180 well engineered units.

Many housing projects, especially those built as experiments or financed by government, boast one or two significant construction details. Seldom does the work of a private operative builder feature half as many design and construction innovations as do the 180 houses being built by Place and Co. in South Bend, Ind. And all these comparatively new developments are aimed in one direction—toward cost reduction. The result is a project of well-built houses, more attractive and serviceable than the average and priced considerably under the government ceiling—five rooms and bath for \$6,650 complete including lot, \$700 more for a third bedroom.

Many photographs of the Place project are shown elsewhere in this issue to illustrate economies in slab foundation construction (p. 109), trussed roof framing (p. 118), solid plaster partitioning (p. 120), use of heavy equipment and power tools (p. 140 and 146), and site fabrication (p. 141). Other economies in design, construction and materials, illustrated on this and the following pages, include: design of subfloor heating ducts, use of metal door frames, shop assembly of five closet-cabinets per house and use of an ingenious device for aligning framing members in the horizontal site fabrication of walls.

Much of the merit in the Place project reflects long and careful planning. In the fall of 1945, Architect Ivar O. Wandell was presented with the builders' objectives. Working with son Andrew S. Place (while father Virgil A. Place concentrated on financing, land and sales), the architect completed his designs and specifications only after months spent studying new and old materials and surveying the techniques used by leading prefabricators. Their conclusion was that with two standardized plans, ten exterior elevations, good low cost materials, well-studied construction and a combination of shop and site fabrication, they could produce houses as economically as prefabricators, and almost as fast. The record speaks for itself-despite delays in material deliveries, Place and Co. had one house finished, 20 others nearing completion three months after ground was broken. And, costs are equally convincing. As itemized to the right, they totaled \$5,387, exclusive of land and profit, for the 840 sq. ft. two-bedroom house-only \$6.41 per sq. ft.

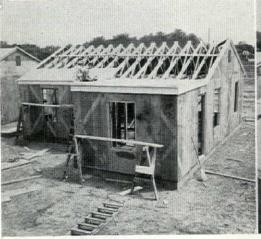
Compared with the average house now abuilding, Place's houses are neither small nor lacking in essential (Continued on page 144)







FINISHED SLABS line the street of the Place project. Rectangular slab in foreground is for a three-bedroom house; L-shaped slabs further down the line will accommodate two-bedroom units. Houses 30 ft. wide on lots averaging 40 ft. in width leave only about 10 ft. between adjacent buildings.



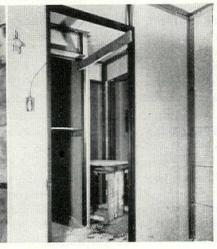
EXTERIOR WALLS are sheathed with plywood, will be covered with prestained cedar shingles or plywood ripped to form wide clapboards. Openings are ready to receive factory-assembled window units with integral spring balances and weather stripping. Lean-to scaffolds are inexpensive, require no attachment to wall.



ROOF SHEATHING is ½ in. plywood. It will be finished with mineral surfaced asphalt shingles. Trusses span the entire main element of house, make structural partitions unnecessary. Ceilings are blanketed with cotton insulation. Attic space is ventilated by factory-made metal louvers at either end.



PARTITIONS are made of solid plaster 2 in. thick. Horizontal brace holds large sheets of gypsum lath rigid while plaster scratch coat is being applied to both sides. Partition above butts against an exterior wall which is lathed with gypsum sheets ready for plastering. For details of solid plaster partitions see page 120.



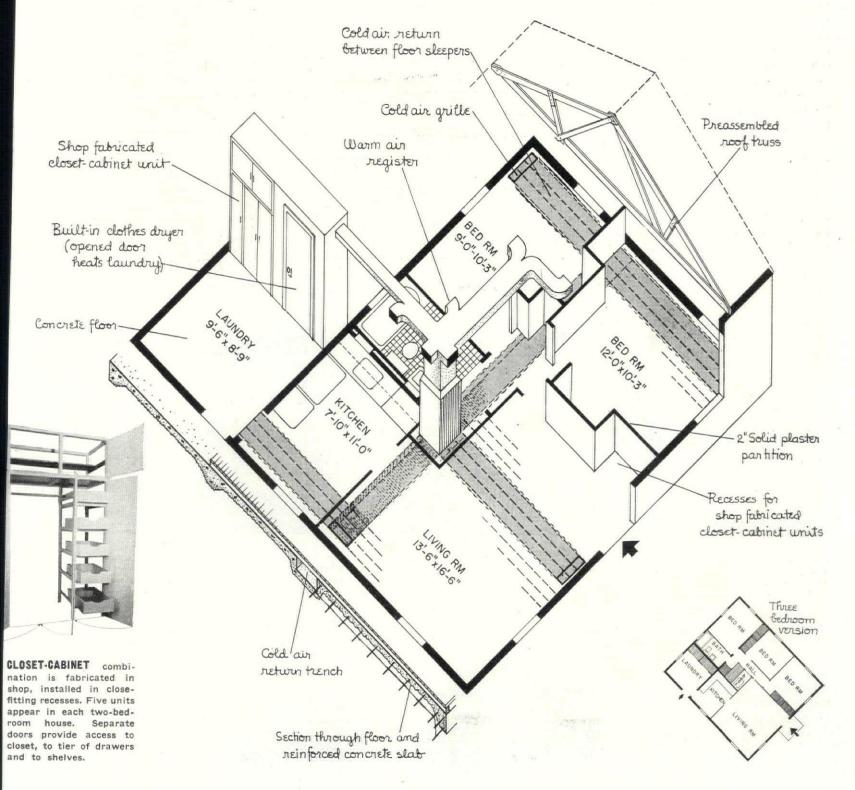
METAL DOOR FRAME is one of eleven used in the two-bedroom house. Note BX cable coming from inside the door jamb to connect with toggle switch. Receptacle has been set into the gypsum rock lath core of the solid plaster partition. Metal lath is used as plaster base at junction of the partitions and exterior wall.



AYOUT PLATES are fabricated of 1 by 4's with leces of waterproof plywood carefully spaced to orm notches into which studs are dropped for erfect alignment. Serving the purpose of a refabricator's jigtable, these layout plates are arried from house to house. Slab has been nopped with asphalt and will be covered with leepers and prefinished oak flooring.

WALL FABRICATION is done on the concrete slab. Here carpenters—all mechanics are union members—apply plywood sheathing and rake pieces to the side walls. In the left foreground, roof trusses are being assembled in a portable jig table from members precut in the shop. For further details of the truss design and construction see page 118.

ERECTED WALL at side of house is temporarily braced pending site fabrication and erection of front and rear walls. Note assembly lying on the floor; another is in place at the left corner of the house. These assemblies are fabricated in the central shop, using scrap blocks of wood for spacers. Plywood sheathing is stacked in the foreground.



refinements; in some respects they are luxurious by comparison. The living room measures 15 ft. by 17 ft., and the kitchen is large enough to take a small dining table. To replace the basement, a 10 ft. by 12 ft. laundry with builtin clothes drier has been provided. Closets are in keeping with the public's need and dream-four are provided, and they measure 2 ft. by 4 ft. including a battery of drawers down one side and fully accessible shelves above. Each room has its own warm air supply register and cold air return grille-the living room has two. To reduce the cost of gas heating to a level competitive with coal, 3 in. of cotton insulation blankets the ceilings, and all openings are weather stripped. Storm doors are provided. It is estimated that \$72 will heat the two-bedroom house for a year.

As new and significant as many of the design and construction details is the financing of the Place project. Capitalizing on a recent interpretation of the powers of the Reconstruction Finance Corp., South Bend's St. Joseph Bank and Trust Co. persuaded RFC to guarantee 75 per cent of the bank's blanket mortgage providing the funds necessary for construction of the project. This was agreed on the condition that the bank underwrite the remaining 25 per cent and provide permanent financing for individual purchasers. Construction loans are made on 50 houses at a time, thus giving the builders ample working capital for the purchase of material in quantity.

Experience to date has revealed no bugs in the construction. Having completed the first unit, Builders Place are more convinced than ever that they have discovered a highly satisfactory way to build today's small house.

(Continued on page 146)

#### COST BREAKDOWN AND BILL OF MATERIALS

(Two-bedroom house. Costs include labor and materials. Only principal materials are itemized.)

#### COST MATERIALS

- \$ 78 GRADING, excavation, trenching and back filling.
  - 496 SLAB: Concrete—16 cu. yd. (Walks and stoops—3 cu. yd.) Reinforcing Mesh—810 sq. ft Rods, % in.—400 ft. Asphalt mopping—10 gal.
- 1,953 LUMBER MILLWORK, ETC.: Slab forms—500 bd. ft. Framing—2,494 bd. ft. Roof sheathing and backing—1,200 bd. ft. Floor sleepers—256 bd. ft. Misc.—350 bd. ft. Sub total 4,800 bd. ft. Sheathing, 3% in. plywood—1,200 sq. ft. Exterior trim—250 bd. ft. Siding—1,400 ft. ½ x 8 in. bevel or equivalent. Flooring—825 ft. 1 x 4 in. Trim, 1½ x 1½ in. ½ round—400 ft. Steel door frames—11. Doors—11. Combination doors—2. Windows, half screens—9 ea. Window trim—9 sets. Door trim—2 sets. Shutters—2 pairs. Shop-fabricated closet units—5. Kitchen cabinets—see photograph below. Medicine cabinet, 14 x 18 in.—1. (Cost includes \$446 of shop and site carpenter labor.)
  - 72 ROOFING: Felt, 15 lb.-2 rolls. Built-up-11/2 squares. Shingles-9 squares.
  - 72 INSULATION: 3 in. blanket-840 sq. ft.
  - 572 LATH AND PLASTER: Ceilings-9 sq. yd. Walls-135 sq. yd. Solid plaster partitions-50 lin. ft.
  - 113 HARDWARE: Door latches—10. Butts—7 prs. Sash locks and bar lifts—9 ea. Offset hinges—27 pairs. Steel pull handles—22. Friction catches—2 doz.
  - 565 PLUMBING: 30 gal. gas-fired water heater. Hose bib. Hot and cold outlets in laundry. Laundry floor drain. Usual kitchen and bathroom fixtures, including 5 ft. recess tub.
- 478 HEATING: 60,000-65,000 BTU forced air furnace. 7 hot air leads. 4 cold air faces. Sheet metal: Flashing. Box gutter—61 ft. Down spouts—36 ft.
- 187 ELECTRICAL: 24 outlets. 7 switches. Fixtures.
- 79 LINOLEUM
- 195 PAINTING & DECORATING
- 38 SURVEY
- 372 OVERHEAD, INSURANCE, TRUCK-ING
- 117 FINANCING

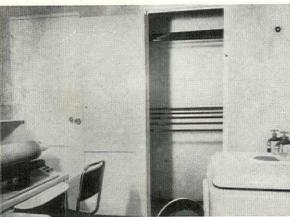
#### \$5,387 TOTAL COST

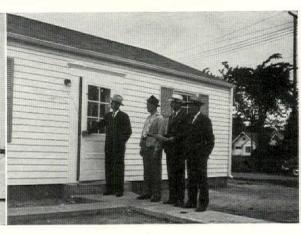
- 700 LOT & PROJECT DEVELOPMENT COSTS
- 563 PROFIT
- \$6,650 SELLING PRICE

#### MATERIAL MANUFACTURERS

PLYWOOD-U. S. Plywood Corp. ROOFasphalt shingles, Globe Roofing Co. Truss connectors-Timber Engineering Co. INSULA-Insulation TION-cotton blanket, Washington Corp. WINDOWS-double hung, R. O. W. Sales Co. FLOORS-prefinished oak, E. L. Bruce Co. Linoleum for floors and kitchen counter top-Congoleum-Nairn, Inc. ROCKLATH AND PLASTER—U. S. Gypsum Co. DOORS—metal frames, Richmond Fireproof Door Co., Inc. PAINTS—O'Brien Varnish Co. ELECTRICAL EQUIPMENT: Circuit breaker-Square D Co. Switches—toggle, Pass & Seymour. HARD WARE—National Brass Co. CABINETS-HARD-Kitchen Maid Corp. RANGE-gas, Magic Chef, American Stove Co. REFRIGERATOR—gas, Servel, Inc. LAUNDRY EQUIPMENT—Bendix Home Appliances, Inc. PLUMBING FIXTURES -American Radiator-Standard Sanitary Corp. HEATING: Furnace-forced warm air, Morrison Steel Products Co. FLUE-Transite, Johns-Manville. CONTROLS-White Rogers Electric Co.





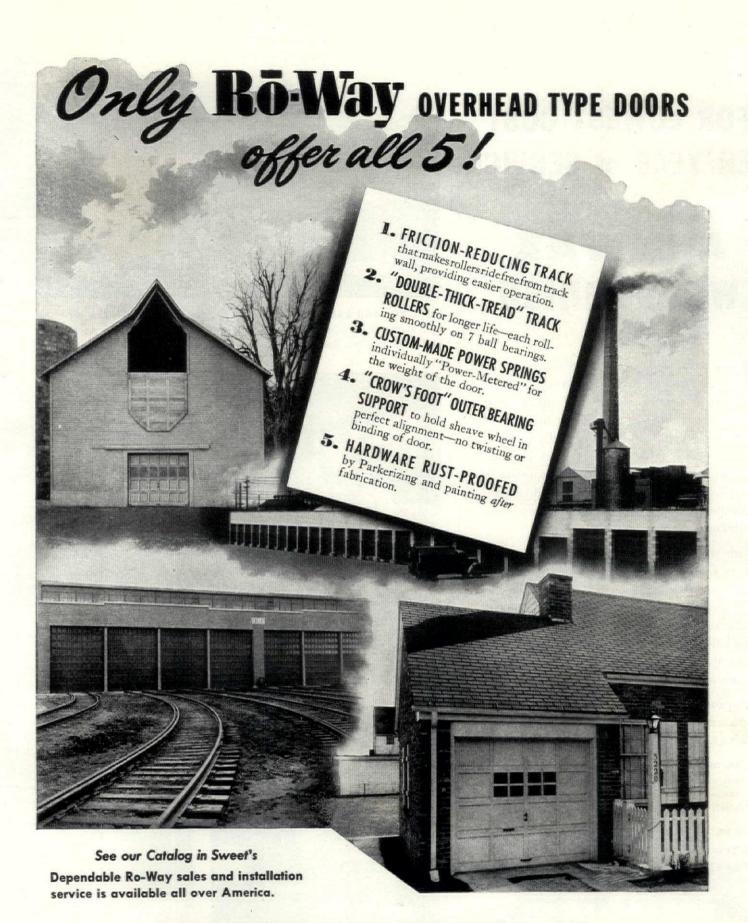


**KITCHEN** equipment covers two walls, includes refrigerator, range, sink and  $8\frac{1}{2}$  ft. of factory-made cabinets. Like the floor, the splashboard is linoleum. Note warm air register in duct leading to laundry; also fluorescent light over the sink. Close proximity of range and sink is unfortunate; the range might better be located across the room opposite the refrigerator.

LAUNDRY ROOM takes the place of a basement. The wall shown holds a closet to the left, a built-in clothes dryer to the right. The latter contains a warm air register, provides eight bars for the hanging of clothes. The room is heated by opening the dryer door. Electric ironer, left, and washer, right, are not included in the selling price; neither are range and refrigerator.

PRINCIPALS in the production of the houses inspect the first to be completed. Left to right: Virgil A. Place, manager of the building organization, his son, Andrew S. Place, secretary-treasurer and construction expert, Ivar O. Wandell, architect, Harry Swanson, job superintendent. Absent: James Peacock and William Yoeman, able assistants.





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# FOR LOWEST COST PER YEAR of SERVICE

## MINWAX WOOD FINISH

THE actual dollars and cents difference between MINWAX Wood Finish—the original penetrative stainwax finish—and surface type treatments is of little consequence in the total cost of the dwelling unit. What really counts is cost-per-year-of-service . . . how much maintenance will be required. This is vitally important to every owner, whether ex-G.I., landlord or management company . . . especially in connection with floors.

With Minwax Flat Finish no future re-scraping of the floor is ever required. The finish is scratch-proof, requiring occasional re-waxing to maintain beauty and serviceability. Worn spots where traffic concentrates can be easily restored by the application of a little more Minwax Flat Finish. Thus Minwax Flat Finish helps the low cost unit to live up to its name.

On paneling and trim, MINWAX Wood Finish enhances the true natural beauty of the wood with a lustrous, easily maintained wax film.

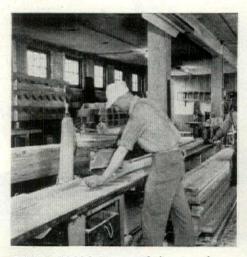
IMPORTANT! During the war, MINWAX Wood Finish was used with highly satisfying results on more than 100 mass construction projects—an indication of its ability to serve in the present housing emergency.

For full information, please refer to our catalogs in Sweet's or write Minwax Company, Inc., 11 West 42nd St., New York 18, N. Y.





**CUTTING YARD AND SHOP.** Here Builders Place precut and store their framing members and assemble their shop-fabricated closets. The enclosed shop keeps labor busy during inclement weather, thus keeps construction of the project moving at all times.



**POWER TOOLS** in central shop speed production. Says Builder Place: "We have found that good tools—especially electrical saws, joiners, sanders and planers—help us to cut our costs."



**DOLLIES** are used to move precut framing members to storage bins or to loading platform for delivery to the building site. Efficient handling of materials reduces lost motion, holds down labor costs.



STORAGE RACKS inside the Place shop keep raw, precut and preassembled materials in order. Materials are stored until required on the job, thus reducing weather damage and loss. Windows and screens are stored to the left; trim, to the right.



**DELIVERY** of materials is timed to coincide with their need. Here a truckload of precut framing members and plywood panels is dumped at a completed floor slab. Cable in foreground supplies power to electric tools used on the site.

# A "natural" for the G-I home...

# The G-E All-Electric Kitchen!



Compactness and efficiency are the number one requirements in every room in the new G.I. house . . . especially the kitchen!

That is why G-E's All-Electric Kitchen fills the bill so perfectly!

Here is a beautiful kitchen that takes little space, yet makes every square foot count! It's packed with work-and-time-saving G-E appliances . . . each designed by G-E experts to make mealgetting easy, pleasant, economical.

#### In Homes of any Price

Best of all, this desirable G-E All-Electric Kitchen can be included in homes of any price. And at low cost to the veteran. Through the 25-year amortization period of the usual mortgage available under the G. I. Bill of Rights, this fully equipped kitchen will cost only \$2.50 a month extra, over the regular mortgage payments.

For complete details, including attractive, carefully worked out plans for G-E All-Electric Kitchens, write today to G-E Home Bureau. General Electric Company, Bridgeport 2, Conn.

## 53 OUT OF EVERY 100 WOMEN PREFER G-E APPLIANCES!

Recent national surveys show that 53% of all women prefer G-E to any other electric appliances! Work-savers like these:

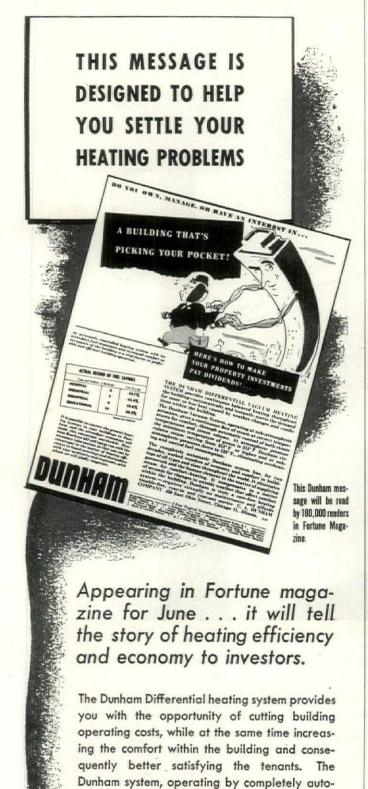
G-E Refrigerator . . . Zones of cold for fresh and frozen foods. Powered by the famous "Sealed-in-steel" unit.

**G-E Range** . . . featuring G-E "Speed Cooking." Equipped throughout with super-fast Calrod Units. Plus exclusive G-E features that make grand meals thrifty, easy to get.

G-E Dishwasher and Disposall . . . Washes, rinses, dries dishes automatically. Disposes of garbage electrically.

G-E Cabinets . . . More storage space in spacious wall and floor cabinets. Lighted. Streamlined.



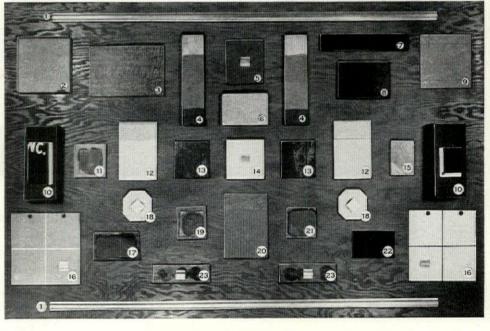


Although many prefabricators have recognized the part glue can play in house construction, conventional builders have yet to use the new adhesives to their fullest extent. Those who are blazing the trail have already discovered that frame partitions may be glued to concrete floors (p. 112), that ceramic tile may be glued to composition board or concrete (p. 126).

As the illustrations on this page indicate, there is almost no limit to the various materials which may be permanently bonded with adhesives. Moreover, great progress has been made in the development of quicksetting adhesives which require neither heating nor pressure in the setting operation. Such characteristics are particularly advantageous as far as site fabrication is concerned. Following are a few of the many phases of house construction in which adhesives might be used to advantage: roof truss assembly, stair construction, cabinet making, assembly of built-in furniture, application of interior wall, ceiling and floor finishes, application of receptacles to bathroom walls, preassembly of structural panels, installation of trim.



CHAIN OF MATERIALS is made with U. S. Plywood Corp's. "Pliobond" which its sponsor claims "bonds anything to anything." For most applications neither high pressure nor heat is needed. The quick-setting adhesive may be brushed, sprayed, spread or roller coated.



BONDED BUILDING MATERIALS demonstrate versatility of adhesives in the construction field. To a plywood demonstration panel Miracle Adhesives Corp. of Newark, N. J., has bonded without heat or pressure the following materials: 1) Metal molding, 2) Insulating ceiling tile, 3) Woodgrained gypsum board, 4) Plastic finished wood panel, 5) Linoleum with metal bonded to surface, 6) Insulating board, 7) Composition moulding, 8) Decorative composition panel, 9) Tile-scored interior finish, 10) Brick with metal sign bonded to surface, 11) Wood block with glass bonded to surface, 12) Wall tile and cap, 13) Composition floor tile, 14) Glazed tile with metal bonded to surface, 15) Foil-coated gypsum board, 16) Tile-scored composition board with metal molding bonded to surface, 17) Glass with rubber bonded to surface, 18) Glazed tile with tile bonded to surface, 19) Metal with glass bonded to surface, 20) Metal demonstration panel, 21) Metal with rubber bonded to surface, 22) Decorative interior finish and 23) Glass with metal bonded to surface.

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matic control that eliminates "guess work", main-

tains temperatures at a desired level throughout

the building. It has been delivering this type of

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6-40



Carloads of Home Ola manufactured houses have been moving on schedule since April 1. Soon trainloads will be on their way to make G.I.'s and their families happy. Not meant for fancy living, Home Ola is a G.I. house, a workingman's house, a compact, full value living center for the average family. These are the people who need houses most . . . who need them first. And we're going to give them houses and more houses as fast as we can.

### A G.I. house at a G.I. price

For 14 years we have been designing this type of house—over 9000 of them were erected. We have proved by experience how to design, make and distribute homes. We have learned how much America's millions expect to pay for a house and what they expect to get. And Home Ola, at an average delivered price of \$3500, meets their needs, their desires, and their pocket books. Our dealers across the country, from California to New England, are booking firm orders by the hundreds.

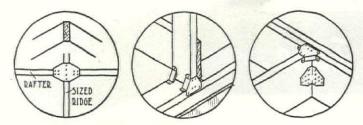




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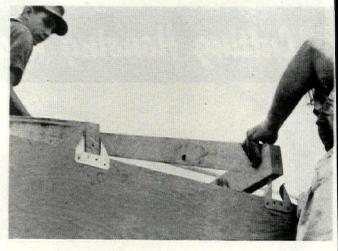


Two general types of metal fasteners or anchors are presented on this page. The first, a series of small metal braces (above and right), is intended to make house framing easier, sounder and less expensive by eliminating toenailing. All nails are driven straight and are in shear rather than withdrawal. Framing so braced has three to four times the strength of toenailed framing and eliminates the necessity for structural sheathing. The second group of fasteners solves the problem presented by the fact that composition sheathing of low density will not grip nails as does lumber.

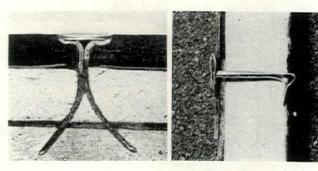


FOR CREATING BEAUTIFUL INTERIORS

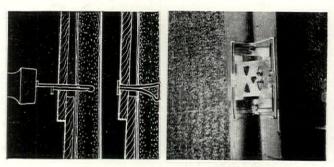
Plastic-Finished WALL PANELS



TRUSS BRAGES, above, nailed to the plate in the shop, automatically align roof members, strengthen construction and save lumber. Details in circles (left above) show uses for other types of "Hurricane Braces": 1) application to top and bottom of rafters and sized ridge, 2) bracing of stud and sill connection, 3) joining of joist and header. Manufacturer: Structural Specialties Inc., West Palm Beach, Fla.



SELF-GRIMPING NAILS may be driven through exterior finishes into composition sheathing without regard for location of studs. The split shank of the one shown to the left spreads and locks itself into the sheathing. It is the "Olsen Split Nail" manufactured by Patenting & Licensing Corp., New York, N. Y. At the right is the "Anchor Fastener," made to accomplish the same purpose by E. W. Carpenter Mfg. Co.. Bridgeport, Conn.



FASTENERS for use with two specific materials: Left, the "Speed Clinch" for applying asbestos shingles direct to gypsum sheathing without using furring strips. As the second head of the "nail" is driven down even with the first at the face of the shingle, the end of the fastener expands and locks itself in place. Manufacturer: Tinnerman Products, Inc., Cleveland, Ohio. Right, Upson Co.'s "floating fastener" for securing large sheets of interior wall finish (see p. 127) to studding. Panels are pressed against the fasteners whose prongs grasp the material from the back. Nailing through the panel is therefore unnecessary. Photo shows a fastener nailed to a Stran Steel stud.

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# Yes... New Kitchen Appliances are Real Estate, too!



By including new kitchen equipment as part of the real estate, National Life's "Packaged Mortgage" brings greater convenience and economy to the financing of new homes. Refrigerators, ranges, home freezers, home laundries, ironers — all are within the lien of the "Packaged Mortgage."

Payments are easier to meet—uniformly distributed—not heavy during the first few years as in installment buying. The "Packaged Mortgage" eliminates the high costs of ordinary installment financing. National Life of Vermont, 96-year-old Company with \$300,000,000 assets, is the pioneer in offering the "Packaged Mortgage."

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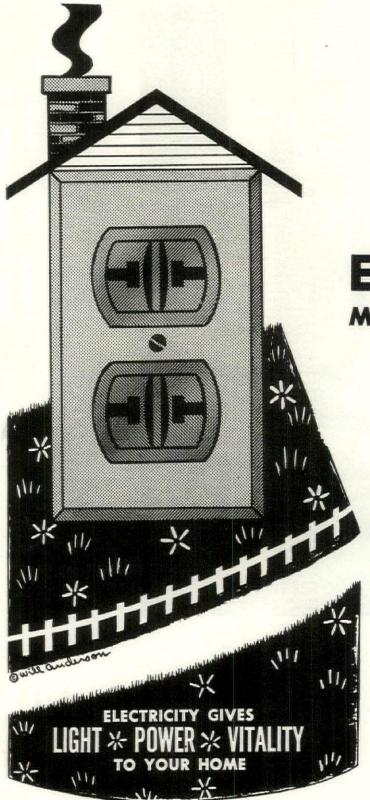
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"Climate Control For Comfortable Living" is a recommendation you can rely on, as a source of genuine satisfaction which remains uppermost in the owner's mind long after he has forgotten many other details of planning and building his home.

You can be assured of that favorable reaction, when you select Mueller Climatrol equipment. You know you are providing True Indoor Comfort... not only up to today's higher standards, but also with the possibility of adding future developments to the original Climatrol installation. This is true because

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Climatrol is a product of a reliable manufacturer — a specialist for 89 years in heating equipment exclusively. Each Climatrol unit is specially designed for efficiency with a specific fuel — gas, oil, or coal, whichever is preferred. There is a Climatrol unit to suit every home, in the complete Climatrol line. Specify Climatrol, for results that protect your reputation.

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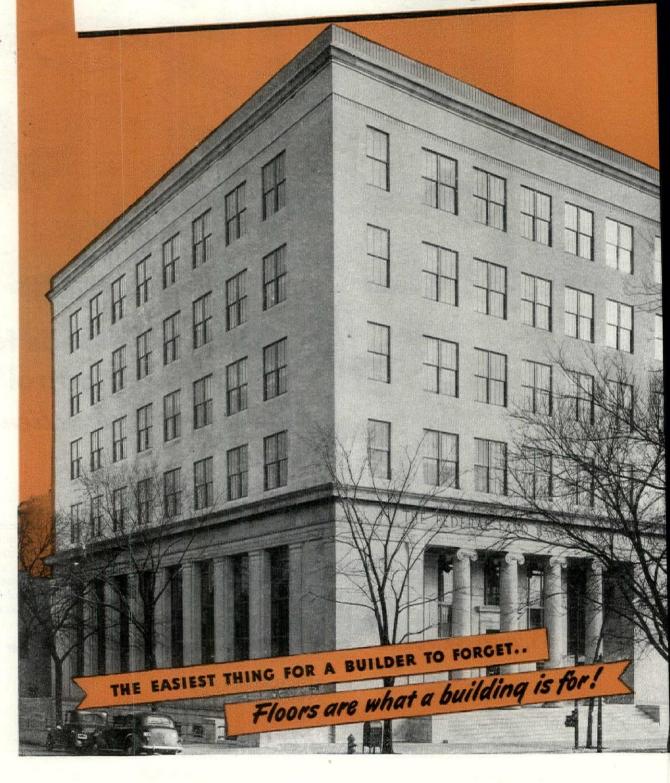


B-30

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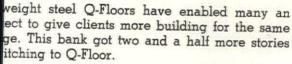
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Taylor and Fisher, architects, could take advantage of

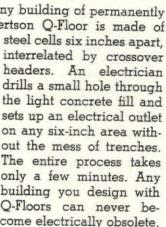
# Lightweight Steel Construction

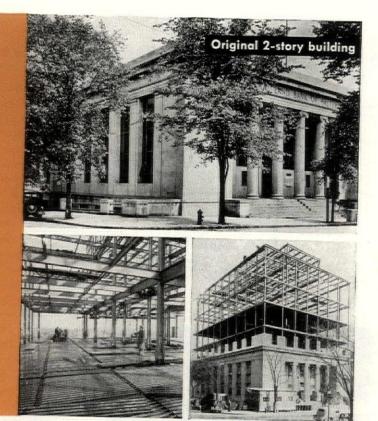


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on any six-inch area withonly a few minutes. Any building you design with Q-Floors can never become electrically obsolete.





Think what it means to a client when you can say, "Determine the location of partitions and outlets AFTER you move in." Q-Floors spare you, too, the grief of guessing the unguessable about outlet positions. You may change them around in a jiffy, as often as your client changes his mind.

### And North-Eastern Construction Co., Contractor, got fast, clean, dry, quiet, construction

Steel Q-Floors are delivered cut to fit. Two men can lay 32 sq. ft. in 30 seconds. Robertson has proved on thousands of installations that Q-Floors reduce building time 20 to 30%. It's a feather in your cap when you can save your client time-because time is money. The dustfree, quiet, noncombustible, dry construction has financial advantages and personal, specialized appeals, too, depending upon the nature of the client's business. This doesn't hurt an architect's reputation for practical understanding.

Quick-In and Quick-Change electrically—these are unique advantages of Q-Floor. And there is no disadvantage—cost is right in line! Write for details:

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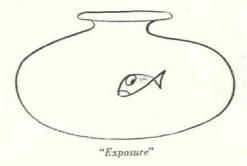


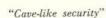
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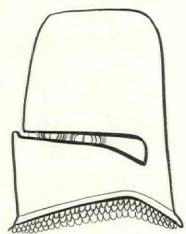
Q-Floor Fittings can be seen at any General Electric construction materials distributor's.

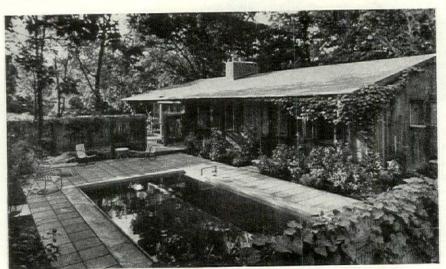


Illustrations from If You Want To Build a House



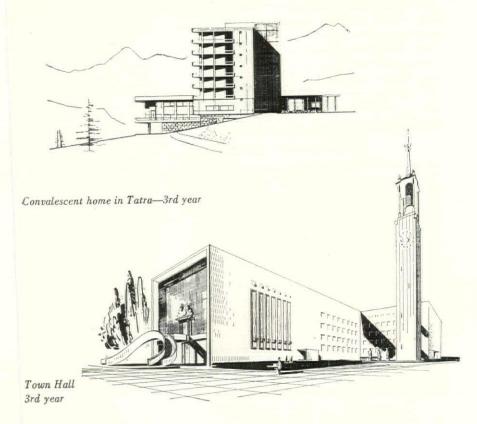






House by Joseph P. Richardson and Huson Jackson depicts a livable garden

Illustrations from The Polish School of Architecture



IF YOU WANT TO BUILD A HOUSE. By Elizabeth Mock. Museum of Modern Art, New York. 95 pp. Illustrated. 734 by 101/4. \$2.

As curator of architecture for the Museum of Modern Art, Betty Mock has repeatedly shown her competence and judgment. That she has chosen thus far to conceal her talent as a writer is something to be regretted. If You Want to Build a House is one of those rare books on a specialized subject that is just plain good reading even if building is the last idea one would entertain. So much common sense and information is rare in so small a package. The book is primarily an indoctrination, a rejuvenator of the approach and not a suggestion box. On this count it deserves much credit and far outshines most other "house" books now on the stands. To this reviewer two points stand out as having been treated with particular freshness and intelligence. They are, kitchens, and the question of size. Chiding the cult of the minimal, Mrs. Mock says, "It is the architects themselves who have been chiefly responsible for this esthetics of the irreducible, a snobbism no less dreary for its origin in humanitarian zeal and low-cost housing. The architect who seeks new ways to tailor our large, restless and fumbling bodies into undersized, over-specialized living quarters is doing us a gross disservice: the Pullman roomette may be a comfortable way to get across the country, but let's not confuse it with gracious living." Of kitchens she remarks: "Hard, smooth surfaced materials are, of course, easy to clean, but that doesn't mean that the entire kitchen must look like the inside of an ice-box. Can't we achieve, in contemporary terms, something of the rich and warmly-human dignity which still seems to characterize peasant kitchens all over the world? Or have we lost respect for good cooking which is a prerequisite?" Not that Mrs. Mock limits herself to such rebellious generalizations throughout. She definitely brings in specifics where they are necessary and justified. Her book is outstanding for breadth of scope and viewpoint, for the level-headedness of its recommendations, set forth regardless of the author's personal prejudices. Her frequent lapses into the vernacular are witty, encourage the reader's selfconfidence and consequently stimulate imagination and individuality. To further the idea that building is not necessarily an awesome and sinister venture, there are some very superior cartoons by Robert C. Osborn who for too long has been concealed under the bushel of "confidential" Navy publications. It goes without saying that the production standard of the book is high. If a copy comes your way, be sure and snatch it up. M.S.

THE POLISH SCHOOL OF ARCHITECTURE, 1942-1945. Edited by Boleslaw Szmidt and Witold Korzeniewicz. Charles Birchall & Sons, Ltd., Liverpool and London. 248 pp. Illus., 834 in. by 111/4 in. Price 30 shillings.

This book is a record of the work done in the Polish School of Architecture established at the University of Liverpool after the occupation of the mother country. The objective of this school-in-exile was to train the largest possible number of architects in preparation for the time when the huge task of reconstructing Poland's cities, town's and villages would be at hand. That time has come and from the plans and drawings shown, the students are ready. Much of the work, which covers the fields of residential, commercial, industrial and public building, has unusual freshness and verve. Aside from the professional qualifications of its contents, the book is important as eloquent testimony to the ideal of international cooperation and mutual assistance so badly needed today. M.S.

(Continued on page 158)

# The BOOM MODUFLOW\*

HEAT LOSS is continuous, but the rate of loss varies with the weather. When it is cold heat loss is more rapid than when the weather is warmer.

HEAT SUPPLY should also be continuous, but modulated to whatever temperature is required to offset the heat loss.

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Of course, if you are designing or building a new home, you will want the heating plant to be *completely modern* with a Moduflow Control System. So, get the whole story of Moduflow without delay. Just mail the coupon for your free copy of the Moduflow Engineering Guide.

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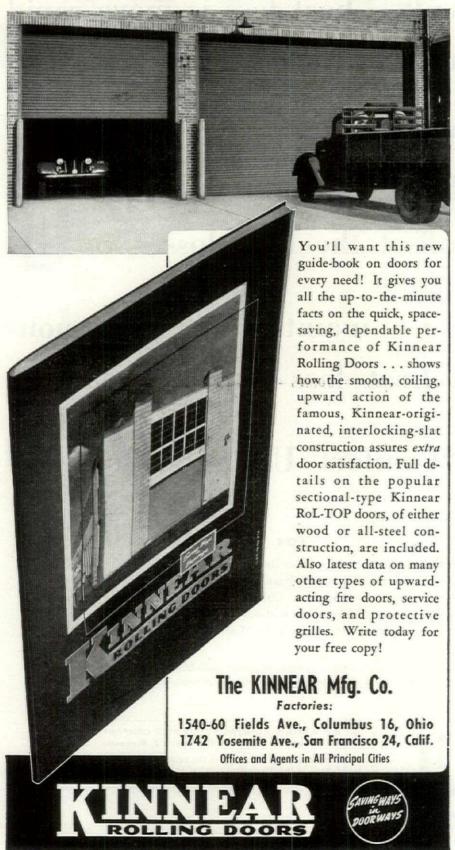
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# LATEST COMPLETE DATA on EFFICIENT, UPWARD ACTING



THE ART OF BUILDING CITIES by Camillo Sitte; Reinhold Publishing Corp., 330 W. 42nd St., New York, 1945. 128 pp. Illustrated. 71/2 in. by 9 in., \$5.50.

The science of building cities is an exceedingly topical issue, and, if the current volume of publications in this field is any indication, also an issue which needs considerable clarification. The art of city building, however, has been relegated lately to the back of the minds of public and technician alike; and deserves considerable attention if our cities are to be healthy organisms again fit for a full human life, not mere existence. Camillo Sitte wrote The Art of Building Cities nearly two generations ago in Vienna and only now has it been made available to the English speaking world. Charles T. Stewart, the former director of the Urban Land Institute. undertook this long-overdue task and included in the first English version introductory notes by Eliel Saarinen and Ralph Walker as well as an appraisal of the "Present Significance of Sitte's artistic Fundamentals" by Arthur C. Holden.

The theme of Sitte's book is characterized by its subtitle: 'City building according to its artistic fundamentals'. Although some 57 years old and conceived under different social and technical circumstances, it presents an extremely timely thesis. Sitte attacks monotony and dreariness in our cities-still a prevalent condition-and revolts against unimaginative formality and tries "to restore fundamental but forgotten principles in civic design".

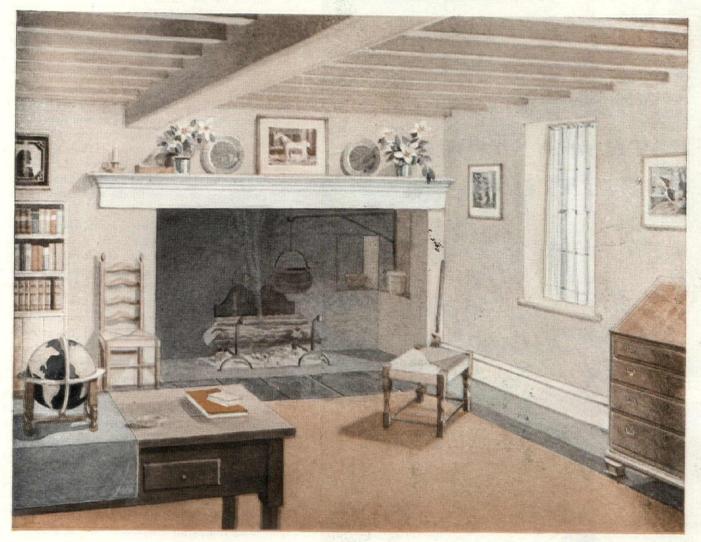
The growing number of comforts within our houses during the past 30 years, and the continuing present desire for more and more gadgets, have gradually eliminated "the desire for pagentry in the space outside". The forum and plaza were focal points of town and city life during the classical and medieval period; today they have lost their original political and social meaning. An "introversion of citizen interest" has taken place, and the active sense of participation in urban affairs has been superseded by 'rugged' individualism and party machinery. Our great cities sprawled over the countryside, obliterating all normal communal life; they mushroomed without "developing the physical and emotional qualities in a visual art, vital to its citizens"; our communities became footloose. Ralph Walker, in his introduction, points to another underlying theme of Sitte's philosophy: "Every community needs a symbol of its existence. Much of modern community frustration has come into being because a symbol of visual reason for its life is missing".

Many of Sitte's examples of conscious civic design come from relatively small towns. This seems to have many sound psychological implications and reinforces our present belief in neighborhoods where citizen interest and participation again will be an active force.

Now as we face a period of building on an unprecedented scale, we are given a great chance to heed Sitte's remarks. The social and esthetic problem facing every large city in America needs to be solved; that by no means implies a sterile design of monumental effects inherent in the drafting board center-axis. Sitte sharply distinguishes "those who work with and on the site itself and those others who must always change the flow of nature into symmetrical sterility". During the next decade America is going to build more than ten million houses. Whether we are able to plan for them or not, the overwhelming demand must be met; yet we have no indications that we are going to build good houses and good communities, little assurance that we are not going to repeat the blunders of the lush twenties and the hungry thirties. Therein lies Sitte's timeliness, and it is fortunate that this volume has appeared at such a crucial time in our civic development. H.P.O.

(Continued on page 160)

## Where is the Radiator?



Something is missing in this Pennsylvania Dutch Living Room in the Home of Tomorrow! There are no radiators. With Webster Baseboard Heating, the heating element is so small that it fits behind the baseboard.

There is nothing to mar the beauty of the room or to limit plans for interior decoration and furniture arrangement. The heating element, a copper tube around which are coiled fins of fine copper, is installed in a continuous line all around the exposed walls of the room. The baseboard enclosure

WALL

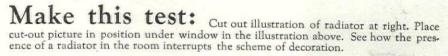
is removable for cleaning.

Tested installations of this new WebsterBaseboardHeating show a variation of less than 2° from floor to ceiling. No cold corners. No hot spots. No hot-or-cold levels.

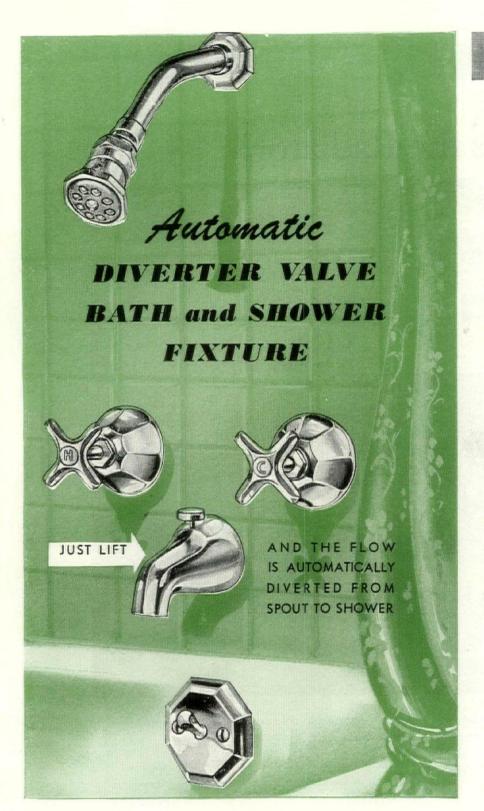
Future plans call for the use of Webster Baseboard Heating in a wide range of residential buildings and buildings of other types using either steam or hot water as the heating medium.

To dramatize the future of this unique heating method, we commissioned a leading architect and a noted interior decorator to prepare a series of paintings showing the application of Webster Baseboard Heating in the Home of Tomorrow. These paintings have been reproduced in full color. Let us send you a copy of this brochure. Write today. Address

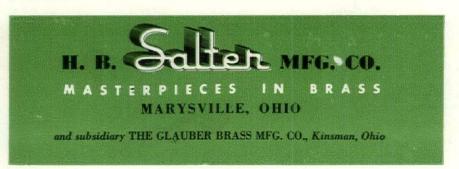
Dept. AF-7



WARREN WEBSTER & COMPANY, Camden, New Jersey Pioneers of the Vacuum System of Steam Heating:: Established 1888 Representatives in principal cities:: Darling Brothers, Limited, Montreal, Canada



This Salter Masterpiece Automatic Diverter Valve Bath and Shower Fixture is typical of the many "FIRSTS" in brass plumbing goods which today, or in the very near future, Salter will offer the building industry. Progress both in design, construction and manufacturing is a Salter policy which has no compromise with quality or our current obligation to furnish you with an ever increasing supply of essential chrome fixtures. While present conditions, over which we have no control, have curtailed production . . . every effort is being made to help you meet the reconversion building program.



### REVIEWS

WHAT THE INFORMED CITIZEN NEEDS TO KNOW by Bruce Bliven and A. G. Mezerik, editors. Duell, Sloan and Pearce, New York. 377 pp., 6 in. by 8½ in. \$3.

During the last hundred years the field of general knowledge has expanded vastly and at an ever-increasing rate. Our lives have grown more complex and are badly in need of clarification. As the scope of daily experience and action swells it becomes more difficult to keep up with ourselves. Bruce Bliven and A. G. Mezerik in their symposium try to sort out some of the causes and reasons of this maze and to systematize interrelated current issues. What The Informed Citizen Needs To Know is a collection of more than a score of articles, and represents a well-ordered sequence of progressive thought on many controversial subjects. Their central theme is crystallized by the editors in the foreword, "that man's fate lies in his own hands and that the major human problems can be ameliorated or solved by the application of intelligence to them."

Commenting on domestic issues, Harvard Professor Alvin Hansen makes a strong plea for a concerted planning effort in our society. Stabilization of industrial production, particularly in the construction field, is essential, Hansen writes, and to achieve it public as well as private construction should be built by private contractors. Another aspect of planning is highlighted in his essay: "Comprehensive masterplans for each project area are increasingly recognized as necessary not only by city officials and city planners but also by investors in real estate." Hansen points towards a positive program of action in all fields of enterprise to assure the survival of American democracy. Henry Wallace contributes ten pages on "Jobs for All" and tallies closely with Prof. Hansen's concept of the inevitable planning process of our era. In "Rivers and Prosperity", Senator Lister Hill describes the rise and accomplishment of TVA as an example of this process. Although little new information on the planning or working of the Authority and its projects comes to light, the specific ramifications easily bear repetition.

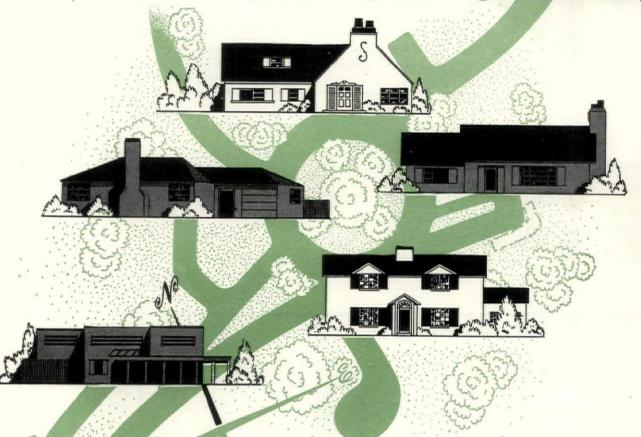
Charles Abrams, New York's housing crusader, writes on "Good Homes for Everybody" and very ably points up five of the key issues of the present housing "dilemma". Many of the topics are well-known and have been discussed repeatedly, but they have rarely been brought to focus in an attempt to understand the whole. "The building industry is an industry in name only," Mr. Abrams writes, ". . . actually it is a group of diverse handicrafts, hamstrung by irresponsibility, waste, undercapitalization and unfair competition . . . ", a strong indictment which partially accounts for the present housing problem. Further attention is merited by his remarks on "home ownership, which we have come to consider as the sacred cow and which we assume to be the ultimately desirable status for the majority of our communities without really weighing its economic and social advisability", which Charles Abrams doubts. His suggestion that "when government assumes almost all risks of the venture, as it does today under FHA schemes it might well plan and build projects itself with the builder functioning for the government as a contractor on a fixed fee basis instead of as a fictional enterpreneur" will undoubtedly stir many housers and planners in and outside Washington.

A host of other live issues are broached in this volume covering all fields of general "citizen" interest, with varying clarity and crispness. The symposium is rounded out by an appendix of complete reprints of important charters and laws adopted on the domestic as well as the international scene since the Atlantic Charter made history. H.P.O.

(Continued on page 164)

# out of built obsolete

because of inadequate wiring?



## N IMPORTANT MESSAGE TO ARCHITECTS AND BUILDERS

A look at the wiring plans of many modern-looking homes now proposed shows that they will be built obsolete. They will be wired according to a concept of electrical usage that harks back to 1920 or before. Immediate needs and future requirements are only partially provided for.

We believe that adequate wiring adds

more modernity per dollar to any home, whether it costs \$5,000 or \$50,000, than any other single element.

People want today's electrical aids to good living - the lamp where it is needed, the radio within easy reach, toasters that really toast, enough outlets to go around. They want to be ready for newer things - automatic kitchens, economical quick freeze storage, electric blankets, televisors. But they need to be told how to prepare for these conveniences.

The successful promotion of adequate wiring - wiring that is capable of doing all that it is asked to do - isn't an easy job, but it is a job that can readily become

one of your most effective selling tools.

We have prepared a number of booklets that will help you sell adequate wiring. Ask your G-E representative for them, or write to Section AW3-726, Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut.



GENERAL ELECTRIC



## FOR HOMES THAT STAY UP-TO-DATE



In spite of housing shortages, your clients still look for *lasting* value when they buy homes. They want a protected investment for the years ahead, and you can help them to achieve it by providing electric systems that are suited to present and future needs.

You add life . . . you add value . . . you add modernity to low-cost homes when you specify or use G-E wiring materials. There's another big benefit, too, because the name of General Electric means "quality" to the home buyer. It assures him of the good electrical service he wants plus lasting protection for his investment.





**FLUSH SWITCHES** - Single-pole, double-pole, three-way, four-way, with complete Textolite\* insulation.



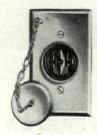
CONVENIENCE OUTLETS—Side wired twin outlets, available in brown or ivory, easily installed.



LAMPHOLDERS—Light, strong. Large base provides extra wiring space; have shade holder grooves.



**CLOCK OUTLETS** — Cord and plug fit into recess, permit clock to hang flat on wall, without cord being visible.



WATERPROOF OUTLETS - Safe protection for outdoor lighting or appliances. Seals tight when not in use.



combination devices — Flush switch, convenience outlet and pilot light in single unit, brown or ivory.



RANGE OUTLETS — With solderless connectors, cable clamp for back or bottom wiring, 4th-wire grounding.



**SILENT SWITCHES** — Hermetically sealed "mercury button" gives silent operation. A good selling feature.

\*Trade-mark Reg. U.S. Pat. Off.



## . START WITH G-E WIRING MATERIALS



.

Forward-looking home buyers figure their costs on the basis of original price plus the length of time the house will maintain a fair value. The same figuring applies to the wiring system, because good wiring helps to make and keep a house merchandisable. It costs no more when you specify G-E wiring materials throughout, because you are putting in extra value that is there to stay.

## G-E WIRES AND CABLES

All wire and cable listed here is approved by Underwriters' Laboratories, Inc.



BX\* ARMORED CABLE This armored cable is extremely flexible for easy handling. It resists moisture and is flame-retarding for extra safety. An added feature is the S-shaped paper wrap which is quick and easy to remove, and gives greater protection. Available in all standard sizes, in 2, 3, and 4 conductors. Also in 2- and 3- conductor leaded cable, and bare armored ground wire.



BRAIDX\* This non-metallic sheathed cable is recommended for old and new buildings, and for wiring additions and replacements. BraidX can be fished without supports from outlet to outlet, or can be run on dry surfaces of woodwork, plaster, cement, or brick. It is especially suitable for rural electrification. Available in sizes 14 to 4, in 2, 3, and 4 conductors, with or without ground wire.



PVX\* Thermoplastic insulation provides high dielectric and mechanical strength in this non-metallic sheathed cable. It is unusually resistant to oils, acids, alkalies, sunlight, and abrasion. PVX strips easily, and its lightweight and positive conductor identification facilitate speedy installation. The Type T conductors are approved for 60 C operation.

Available in sizes 14 to 4, with 2 or 3 conductors.



SERVICE ENTRANCE AND SERVICE DROP CABLES This cable is used from the entrance cap to the meter equipment, and can be installed directly on the outside of buildings without conduit protection. Two-conductor round, and three-conductor oval service entrance or service drop cables are available in standard sizes, with or without galvanized flat steel armor.

THERMOPLASTIC BUILDING WIRE TYPES T AND TW A small diameter, thermoplastic-insulated wire, produced to meet rigid specifications. It can be used for all wiring requirements where permitted by local codes.

It resists flame, oils, acids, alkalies, and other chemicals and solvents, and is virtually unaffected by weathering.

## G-E CONDUIT PRODUCTS



RIGID CONDUIT G-E White for atmospheric corrosion, G-E Black for chemical corrosion, give full protection. BAR HANGERS New S-type hangers are adaptable to any installation with studs on 6-inch to 24-inch centers.



SWITCH BOXES 3½ in. octagon or round boxes in enameled or galvanized finish for rigid conduit, without clamps.



OUTLET BOXES 3½ in. octagon or round boxes, enameled or galvanized, with clamps for armored cable.



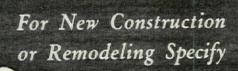
ENTRANCE CAPS Weatherproof, aluminum or malleable-iron construction. Molded insulators facilitate assembly.



entrance ells Fit snugly against walls, no need for bending conduit. No hub to counter-sink; only one screw.

\*Trade-mark Reg. U. S. Pat. Off.





## RUSCO

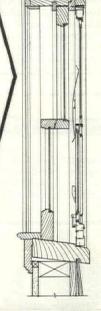
the first Complete Window Insulation in One Modern Package

INCLUDE RUSCO WINDOWS in all your plans, and offer your clients all the modern benefits that only Rusco provides:

- screens, storm sash and complete weatherproofing in one permanently installed unit
- self-storage that eliminates all changing and storing of insulating sash and screens
- savings up to 35% of winter fuel bills
- year-round rainproof, draft-free ventilation
- a cleaner, quieter interiors
- increased efficiency of air-conditioning systems
- patented invisible sill drainage that protects against sill decay from water accumulation

RUSCO patented adjustable closure or subframe weatherproofs entire outside opening on old or new buildings without altering existing window construction.

For engineering specifications, see Sweets' 18a12 or write direct for free booklet and name of nearest distributor. The F. C. Russell Co., 1836-AF Euclid Ave., Cleveland 15, O.



**COMBINATION WINDOWS** 

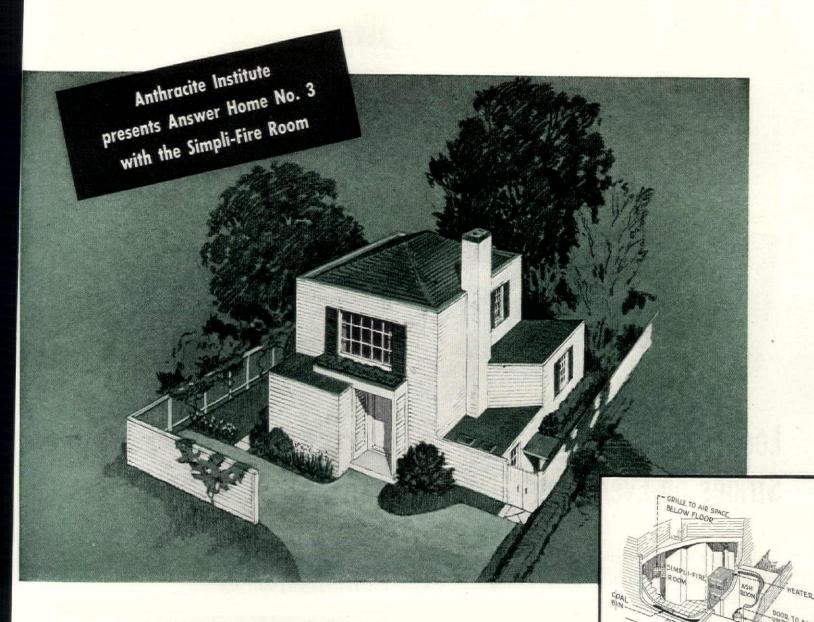
MANSIONS OF VIRGINIA, 1706-1776. By Thomas Tileston Waterman. University of North Carolina Press, Chapel Hill, N. C.

Of its type, this book is certainly among the outstanding works of our time. Covering only 70 years of pre-Revolutionary architecture in the most illustrious of American colonies, it is unusual for the meticulosity and breadth of coverage, for the scholarly treatment and excellent documentation of its material. By way of introduction the author includes a chapter on the English antecedents of Virginia architecture which, though brief, provides an excellent foundation. This is followed by another short chapter on 17th century houses in Virginia which the author sums up with the following paragraph: "The question of house building in 17th century Virginia is as yet unanswered by adequate research and excavation, but the economy of the period was not one to encourage mansion building; and the planters, even though they might have possessed the funds, had not the technical assistance to embark on building a pretentious house." Mr. Waterman therefore selects the construction of the Governor's Palace in 1706 as his starting point and divides the following period into three sections, early, middle and late Georgian.

The architectural examples with which he deals are of such beauty and grace that, no matter how familiar, they never fail to provide interest and pleasure. The text, though extremely detailed, is anything but dry. Mr. Waterman proves himself to be an appreciative and astute commentator and, thank heaven, one who resists the tiresome sentimentality that often accompanies regional lore. M.S.

(Continued on page 166)





# For Families Who Like to Sleep Upstairs

Anthracite Simpli-Fire Room provides more house, more heat, for less money

What can you say to clients nowadays who want to build homes? How can you help them? Not by offering less and less house . . . fewer, smaller rooms . . . inadequate heating!

Anthracite Institute felt that there must be a solution; that with heat a necessity only part of the year, money could be saved on a scientifically engineered heating arrangement and used to buy more house.

The result—the Answer Home with the Simpli-Fire Room, designed by Chapman and Evans, small homes specialists.

1. Conveniently located, a few steps down from the kitchen, the Simpli-Fire Room eliminates all need for the costly old-fashioned cellar, saves construction time, reduces over-all cost.

2. Heating costs, too, are lower, since the Simpli-Fire Room is designed for anthracite, the economy quality fuel.

3. Thanks to the Simpli-Fire Room, the use of anthracite becomes amazingly easy. The storage bin is within convenient shovel reach of the heater. Ash shoveling is a thing of the past—along with dust and dirt!

**4. Optional** . . . steam, hot water, or warm air heating. Plenty of heat is assured with warm, healthful floors.

Answer Home No. 3, featured above is an extremely attractive low-cost 2-story house.

Thanks to the Simpli-Fire Room, many re-

SIMPLI-FIRE ROOM . . . heart of the Answer Home. Note its compact simplicity. See how simple it is to fire the heater . . . how ash shoveling is eliminated.

Architects are invited to write for definitive drawings of this house.

turned G.I.'s will be able to afford it.

For FREE Plans of this Answer Home—and others—mail coupon today.

Anthracite Institute
Department 78
101 Park Avenue, New York 17, N. Y.

Please send <u>free of charge</u> handsome 16-page color brochure showing Answer Homes Nos. 1, 2 and 3 with floor plans; also details of 3 types of Simpli-Fire Rooms.

Name	A Comment	
Firm	790	
Street	197	

## ANTHRACITE INSTITUTE

101 PARK AVENUE, NEW YORK 17, N. Y.



# Look for the RED ZIG ZAG Stripes on Every Bag!

The original Ohio White Finish and its famous twin, Hawk Spread, always satisfy architects, plasterers and dealers who demand top quality finishing lime.

Scientifically processed from rock quarried from the heart of the world's purest deposit of dolomitic limestone, both brands are always fresh, always uniform, always 991/2% pure. Unusually high in plasticity, they spread far.

> Remember these brands . . . Make sure that Red Zig Zag Stripes are on every bag of finishing lime you buy.



YOUR BUILDING CODE. By Miles L. Colean. National Committee on Housing, Inc., 512 Fifth Ave., New York. 29 pp. 6 in. by 9 in.

With characteristic lucidity and the sound judgment which the professionals and general public have come to expect from him, Miles Colean has turned out another valuable pamphlet, one which all civic-minded adults should read. Special effort is made to impress on the mind of the reader the value of well written and administered codes along with a diagnosis of general current ailments. Mr. Colean finds that none is entirely free from difficulties arising out of six main code "problems". These are: 1) scope, 2) standards 3) nonuniformity 4) multiple jurisdiction 5) legal rigidity 6) adequate inspection and fair enforcement. For improving codes, he suggests that the following common sense principles be adhered to: 1) a clear statement of purpose in the wording of codes 2) provisions that can be supported by determinable facts 3) building requirements economically feasible for the particular community in question 4) setting aside in advance funds for adequate enforcement.

In her forward to the pamphlet, Mrs. Samuel I. Rosenman says: "The campaign for code improvement is an old one and its supporters have fought a long and discouraging battle over the years . . . Now with both the government and the people aroused to the necessit for bold action, the opportunity is at hand to move more rapidly along the hard-fought way toward scientific building legislation. That opportunity must not be lost." If Miles Colean has anything to do with it, it won't. He makes sound recommendation for procedure, does a convincing, if unemotional job of sizing up the situation, patting Mr. Citizen on the back and telling him just where to jump on the bandwagon. Colean's pamphlet is the Planning With You of building codes. M.S. (Continued on page 168)





#### -DOUBLE-PITCH DRAINBOARDS

Radiiluxe Stainless Steel Sinks have drainboards pitched sidewise toward the bowl, as well as endwise—providing smooth, even, perfect drainage from every angle. No channels to clean, no grooves to endanger fine glassware.

2 - IN-BUILT ANTI-SPLASH RIM ON BOWLS Top rim of bowl is curved slightly inward

and joined to sink top in a seamless weld, forming an anti-splash rim. The welded joint is polished to a smooth, satin finish.

NEW FREE BULLETIN describes Radiiluxe Sinks with single or double bowls, with or without drainboards; straight, "U" or "L" . standard sizes or custom fabricated to your specifications. Write today.



SCULLERY SINKS SINK BOWLS TOILET SHELVES LAVATORIES STRADDLE STANDS and Special Units

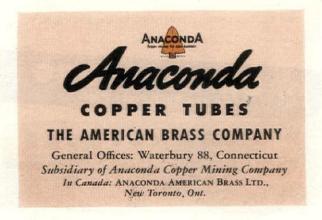




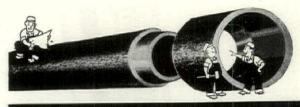
Not in the case of plumbing. No sir! No home need be built for so little that copper tubes cannot be used for water lines. They cost, installed, so very little more than rustable piping that the resultant net savings in upkeep will make the house cost less to own and live in, and furnish a proportionately sounder risk for long term mortgage money. F.H.A. has recognized this for years. So have lending institutions...not to mention the convenience and comfort of a home with a rust-free piping system.

Anaconda Copper Water Tubes in all standard sizes and in two wall thicknesses (Types K and L) are stocked, together with solder-type fittings, by wholesale distributors in every part of the country. Plumbing contractors can complete an on-the-site installation of copper tubes with ease, efficiency and economy.

In short, dollars invested in housing will go just a little further when copper tubes are used.



### REVIEWS



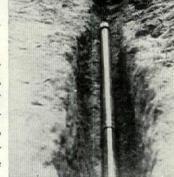
## RANGEBURG

the modern root-proof pipe

#### WITH A 50-YEAR SUCCESS RECORD

More than half a century of experience is back of ORANGEBURG\* -the modern rootproof pipe.

ORANGEBURG speeds installations, saves time, labor, trouble. Quickly joined with TAPER-WELD\* COUPLINGS, without cement. Provides truly trouble-free drainage - generates



lasting good-will-helps your business grow.

ORANGEBURG tight-line service includes house-to-sewer and septic tank connections-conductor and irrigation lines-industrial waste drainage and other outside, non-pressure uses. Use the PERFORATED type for septic tank filter beds, foundation footing drains, farmland drainage, subsoil irrigation.

#### Only ORANGEBURG PIPE Gives All These Advantages:

PERMANENT - Does not chip, break, or crack easily. Non-corrodible. Does not crack under sudden temperature changes.

RESISTS ROOT GROWTH -No infiltration, Permanently tight joints prevent ground water infiltration. No leaks.

LONG LENGTHS - Fewer lengths of pipe needed. Fewer joints to make. Fewer pieces

to handle. Can be sawed to any length.

LIGHT IN WEIGHT-Easy to handle. Easy to lay. Saves time and labor. Easy to truck,

BIG CONSUMER DEMAND -Orangeburg root-proof pipe is nationally advertised in leading home and farm maga-

THE FIBRE CONDUIT COMPANY, ORANGEBURG, N. Y.

\* REG.U.S.PAT.OFF.



#### COLOR REPRODUCTIONS

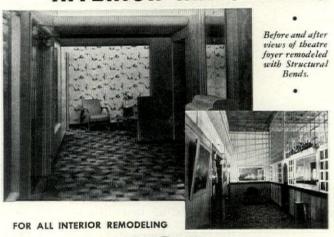
Europeans long ago mastered the difficult and exacting techniques required to reproduce paintings with some validity to the artist's work, but until the last ten years very little work of equal quality was done in this country. However, since the war, refugee printers from Central Europe have brought their skills to America, and our own printers have learned new techniques. As a result, fine prints have appeared on our market. With the best in painting available for reproduction in ever-expanding private and museum collections and skilled workers to execute it, we have the very best in color facsimilies available throughout America at reasonable prices.

There is obviously no sure rule about how much to pay for a painting or a reproduction of a painting. However, it can Thomas Hart Benton, "Music Lesson" Gelatone, \$7.50



(Continued on page 172)

## For exciting new... INTERIOR REMODELING



### GENUINE STRUCTURAL BENDS ORIGINAL OF TEMPERED MASONITE

Made of strong tempered Masonite presdwood, Structural Bends are a practical, inexpensive material for creating modern effects in all interior remodeling or new construction. Smooth, graceful lines...interesting lighting becomes possible. Seventeen basic shapes, 8' and 12' lengths; any size area can be economically treated. Flexible...easy to cut...construct, finish and install. Time-tested, durable, modern, they afford unlimited opportunities at low cost. In stock. Writefor Catalog... Plan Your Needs... Place Order Now.



Distributed Exclusively by W. L. STENSGAARD AND ASSOCIATES, INC. 323 NORTH JUSTINE STREET . CHICAGO 7, ILLINOIS

#### A FLIGHT INTO THE FUTURE

The strange world depicted in this illustration likely doesn't look half as fantastic to you as our world today would look to residents on earth 100 years ago.

Many new products are in the offing. The versatile alloys—aluminum and magnesium—possessing lightness combined with great strength, will play an important part in these new developments. Bohn engineers would like to discuss with you the many advantages of these light metals in relation to the products you make.

BOHN ALUMINUM AND BRASS CORPORATION GENERAL OFFICES—LAFAYETTE BLDG. — DETROIT 26, MICH.

BOHN

Designers and Fabricators-Aluminum . MAGNESIUM . BRASS . AIRCRAFT-TYPE BEARINGS



# Better Value into Homes

# ITH TRUSCON STEEL BUILDING PRODUCTS FOR RESIDENCES

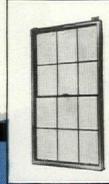


 Truscon Steel Building Products last a lifetime. That's why they enable you to plan distinctive, beautiful homes that are easy to maintain. And installation costs are reduced when these factoryproduced units are used. They reach your job accurate, complete, ready to slip into place quickly without cutting or altering.

Check over the Truscon Steel Building Products on these pages. Your clients will like the safety and

economy offered by them. You will like these products because they are scientifically designed to exactly meet your requirements.

Not all of these items are ready for immediate delivery. But they will be soon. In the meantime, plan them into your new homes. That way you can be sure of practical engineering assistance, dependability, responsibility and uniform quality.



#### DOUBLE-HUNG WINDOWS

Electro-Galvanized steel, bonderized and finished with baked on priming coat of paint, guaranteed spring balances, factory installed weatherstripping, and attractive hardware. Shipped completely assembled ready for installation. installation.



### CASEMENT WINDOWS

Made in a wide range Made in a wide range of types and sizes to meet practically every requirement for distinctive window designs and arrangements. They incorporate all the latest advantages of construction and easy operation. Bonderized, and baked-on priming coat of paint.

### SCREENS AND STORM SASH FOR CASEMENTS



Casement screens and storm sash are attached to the inside of the window. Separate screen and storm sash furnished for each ventilator. Storm sash, glazed with double strength glass, save heat and increase efficiency of air conditioning units.

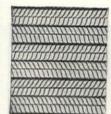


#### COMBINATION STORM SASH AND SCREEN

for Double-Hung Windows

Consists of two storm sash Consists of two storm sash panels and one screen panel. Bottom storm panel and screen are interchangeable. Storm panels have steel frames finished in one coat baked-on enamel. Putty glazed.

#### METAL LATH



There is a Truscon Metal Lath for every plastering requirement. Flat laths for ceilings and side-walls; rib laths to reinforce concrete floor or plaster ceilings; Cornerite and Corner Bead to protect inside and outside corners.

#### CORNER BEAD



Recommended as an exposed corner reinforcement. Can also be used as an archhead for curved openings, by cutting the flange and bending to shape by hand. Forms a perfect arch and will not kink or break at the nose.

#### CORNERITE



Truscon Cornerite is a practical and economical reinforcement for all inside plaster corners. Truscon Cornerite is furnished with selvedge edge, and, being machine made, it is straight and true and easy to plaster over.

#### STRIP-ITE



Truscon Strip-Ite is an expanded metal lath accessory used at plaster board joints, to reinforce these areas and protect the plaster from cracking under stress which may occur at such points.

#### CONCRETE REINFORCING BARS



A special rolled section of high grade steel, with a series of longitudinal and diagonal ribs, so designed to provide the maximum bond with the enclosing concrete.

#### CURB BARS



Protect exposed corners of concrete curbs, walls, steps, etc. Designed to give positive anchorage into the concrete. Plate surrounds and protects the corner without splitting concrete into two portions.

#### BASEMENT WINDOWS



Basement Windows are hinged at the top to open in. Truscon's heavy hot rolled sections include integrally rolled projections to provide double weathering contact around the entire perimeter.

#### UTILITY WINDOWS



Designed for use in basements, garages and areaways. Ventilator opens at top which is a distinct advantage when it is essential to keep all parts of window within the building line.

#### COAL CHUTE DOORS



Built entirely of pressed steel. Theyareweathertight, rust resistant, easy to operate and are neat in appearance.

#### STEEL LINTELS



Design includes continuous horizontal ribs which greatly increase the strength of the heavy gauge steel and form a better bed for brick and mortar.

#### STEEL JOISTS

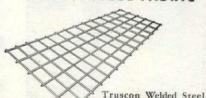
Open Truss and Nailer Types



MM

Steel Joists meet the demand for an economical, light weight, fire-resistant floor construction. Not only do they provide an added sense of security but assure squeak and sagproof floors, permanence and no repair bills.

#### WELDED STEEL FABRIC



Fabric is made in various sizes for concrete reinforcing in basement floors and driveways.

## TRUSCON STEEL COMPANY

Reg. U. S. Pat. Off.

YOUNGSTOWN 1, OHIO . Subsidiary of Republic Steel Corporation

Manufacturers of a Complete Line of Steel Windows and Mechanical Operators...Steel Joists...Metal Lath ... Steel deck Roofs ... Reinforcing Steel ... Industrial and Hangar Steel Doors ... Bank Vault Reinforcing ... Radio Towers ... Bridge Floors.

# Quick Warmth



### Clean, Safe, Electric Head-to-Heels Warmth

Banish that early-morning chill in a jiffy. Just flip the switch for instant, head-to-heels, infra-red warmth. Easily, quickly, inexpensively installed in old or new homes with a minimum of construction. Ask contractor or write to Dept. AF-7.

### It's a THERMADOR

**Electric Bathroom Heater** 

Thermador Electrical Mfg. Co., 5119 District Blvd., Los Angeles 22

## LACLEDE EEL JOISTS



For Fast, **Economical** Construction of Single and Multiple Housing Units.

ONLY STEEL JOISTS ARE-

Light weight...

Light, easy to place, fast erecting

Useful for All Structures . . .

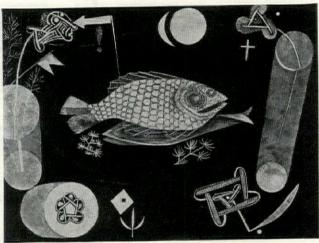
Spans up to 32 feet. Steel Joist for concrete floors; Nailer Joist for wood floors.

Efficient ...

Joists are shop fabricated to exact dimension to fit job requirements: Ready for placement.

LACLEDE STEEL COMPANY

ARCADE BUILDING



Paul Klee, "Around The Fish Silkscreen, \$15.00

be emphasized that for those who have comparatively little to spend a color reproduction is a safe buy as well as a satisfying one. The following list does not attempt to cover the entire field. It does attempt to give some idea of what is being done, how to obtain the prints and at what price:

The Museum of Modern Art in New York has a wide scope in subject matter and style. Most prints are modern French although the series includes Joseph Pickett's primitive "Manchester Valley," and "Derby View" by Dean Fausett. Paul Klee's "Around the Fish" (see cut) is one of the handsomest and is a most successful silk screen print. It is 18" x 25" and priced at \$15.00. They have Van Gogh's "Starry Night" and his decorative "Purple Iris". Some of the best of Seurat, Cezanne, Matisse, and Renoir and other post impressionists (Continued on page 174)

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## **EL RENO** PROVES CENTRAL HEATING PRACTICAL FOR SMALL HOME COMMUNITIES

This is the story of a housing project completed in 1937, by a man whose thinking was years ahead of his time. On a 11/2 acre tract in Reno, Nevada, he erected 18 buildings-15 separate dwellings, a garage, caretaker's cottage, and a central heating plant. Every detail in the project was carefully planned to provide maximum comfort and convenience to tenants-who are well satisfied to pay fair rent for each furnished unit consisting of living room, dining alcove, kitchen, two bedrooms, a bath-

One of the outstanding features of the project is the central heating system-which provides hot water heat to the homes through Ric-wiL insulated under-ground conduit. Boilers use fuel oil. So efficient is this system that the heating bill for the entire project averages only \$500.00 per year. Hot water for family use is also piped through Ric-wiL conduit from the central heating plant. These economies help the owner, Mr. Roland Giroux, to realize 13% net return on his investment.

## EL RENO Owner cites efficiency of Ric-wil Conduit

"Regarding the cost of heating these sixteen units, here are the figures:

"Cost per month per apartment (5 rooms) for the 1937-1938 heating season:

"Total of 8019 gallons fuel at 61/4 cts. per gal.

Sept. \$ .81 Dec. \$5.12 Mar. \$4.94 Oct. 2.25 Jan. 5.50 Apr. 2.44 Nov. 3.75 Feb. 5.00 May 1.12

"Thus you will see that the heating costs are less than \$4.50 per month, per suite. One can-

not appreciate these heating costs unless they have been in the apartment business, where tenants will open their windows rather than lower the room thermostat, when too warm.

"There is no question in my mind that a central heating plant is more economical than separate units.

"The high efficiency of the Ric-wiL conduit is positive, from the above figures. The average 5 room house in Reno will use one ton of coal per month, at a cost of thirteen dollars per ton, during the heating season."

AFTER 7 YEARS, MR. GIROUX HAS THIS TO SAY: "This data is as true to-"This data is as true to-day as when the buildings were built. About the only thing I could add is that the amount of fuel oil used has not varied 100 gal. per year since the system was in-stalled seven years ago, stalled seven was in-stalled seven years ago, which proves to me that the efficiency of the insulated conduit does not lower as time goes on. The upkeep has

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are on the Museum's list, as well as several Picassos. A small catalog may be had at the Museum, 11 W. 53rd St., New York, N. Y., giving prices and sizes in detail.

The Willard Gallery has published a silk screen print of a Morris Graves gouache, and a pochoir print of a water color by Lyonel Feininger. These paintings have been chosen because they are distinguished works of art but not apt to be published on a large commercial scale, and because both lend themselves to reproduction in their respective mediums. The silk screen work on the Graves was done by Albert Urban, an artist in his own right. The print is 24" x 30", priced at

Lyonel Feininger; Gothic Spire Pochoir, \$10.00

\$15.00 and can be had from the Gallery at 32 E. 47th St.. N. Y. C. The Feininger (see cut) is also an excellent example. It is the same size as the original, 19" x 14". priced at \$10.00. A brochure can be had which gives added information on both prints.

Curt Valentin of The Buchholz Gallery, 32 E. 57th St., N. Y. C., has published numerous prints, portfolios and books with black and white reproductions. Here the accent is on French artists. "One Who Under-

(Continued on page 178)

# cool - cooler - coolstream

cool

**cool**—adj.—slightly or moderately cold; v.t. to make cool; v.i. to become cool.

cool-er—n.—that which cools; a vessel for cooling liquids, etc.

water coolers. Skillfully defined in superior

materials. Ably engineered for distinguished performance. Designed conveniently with a one-piece stainless steel cabinet—easily removable without tools and showing harmonious consideration for all interiors. Synonym: satisfaction.

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#### REVIEWS





stands," an interesting head by Paul Klee, has been done in a colorful silk screen print. This is 20" x 15" and is priced at \$12.00. Valentin has also published a portfolio of Klee's work which contains eight color pictures reproduced by stencil process and 32 in black and white. The portfolio, which contains a text on Klee by James Soby, is priced at \$15.00.

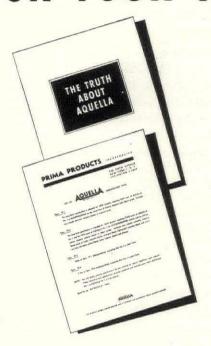
Joseph Solman, an expressionist artist, has issued a portfolio of twelve studies for a Mozart portrait. These small paintings in gouache are reproduced by artist Leonard Pytlak in silk screen prints. The folio size is 20" x 16". Priced at \$75.00, it may be obtained at the Bonestell Gallery, 18 E. 57th St., New York, N. Y.

Nierendorf Gallery at 53 E. 57th St., N. Y. C., has a silk screen print of Julio de Diego's painting "Zero Hour" for sale. It is an effective facsimile, fairly small (12" x 9") and is an excellent buy for \$3.00. Nierendorf also carries excellent prints of Picasso, Klee and other French moderns, made by Twin Prints and the New York Graphic Society.

The Associated American Artists Gallery has issued color reproductions of the paintings of a number of their outstanding artists. These are done in what they call Gelatone, which is a process similar in effect to collotypes. Such artists as Thomas Benton (see cut p. 166), Adolph Dehn, Raphael Soyer, and Luigi Lucioni are represented. Most of the prints are 20" x 14". All are priced at \$7.50. Framed, they range from \$13.50 to about \$20.00. The Gallery has also issued a catalog with small color reproductions, giving complete information on the prints, which can be purchased at 711 Fifth Avenue, New York, N. Y. (Continued on page 178)



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SEND FOR "THE TRUTH ABOUT AQUELLA" brochure containing the story of how Aquella was developed, along with complete technical data. It answers questions, such as: What Finish Does Aquella Produce? On What Surfaces May Aquella Be Used? How Are Surfaces Prepared for Aquella? How Is Aquella Applied? What Is the Covering Power of Aquella? With this brochure, you will have the answers to these, and countless other questions, that will arise as more and more people ask what Aquella is and does. We hope you will find it a notable contribution to your Waterproofing Library.

send for "KEY TO AQUELLA SPECIFICATION TYPES". Here you will have a handy reference sheet that will simplify the preparation of specifications for both waterproofing and damp-proofing of all types of porous masonry surfaces. It outlines scope of work...materials...workmanship and application...preparation of surfaces...mixing and application.

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The F. A. R. Gallery is wholly devoted to selling fine reproductions. Here, as in most other places, the emphasis is on the French school. The list includes Modigliani, Matisse, Degas, Picasso. The Raoul Dufys are particularly good. These are wall size, as are most of the F. A. R. prints, running about 20" x 30". The price is \$15.00 to \$18.00. The Gallery has also published a stencil print of one of Rousseau's most charming paintings. It is 23" x 17" and is priced at \$15.00. F. A. R. (702 Madison Ave., N. Y. C.) does excellent framing

Raymond and Raymond, one of the oldest houses in the reproduction field, sells prints throughout the country. The gallery is in New York at 62 E. 52nd St. Theirs is a very large and fine collection which covers the work of the modern French masters including Picasso, Leger, and Rouault whose "Old King" is marvellously reproduced in silk screen. Representing Mexico, Orozco's "Zapatistas" is another highlight. These are large prints, about 20" x 30", and sell for about \$18.00.

The New York Graphic Society is the largest and oldest of all houses making color reproductions. They work on a vast scale, and have prints of all sizes, prices and qualities shown in their retail store in New York at 10 W. 33rd St. They carry prints of almost any artist you can name, including many modern Americans. They are at present issuing an edition of the handsome Gauguin, "Falata Te Miti," in collotype, 20" x 22", priced at \$15.00. They also have a series of contemporary Americans, all belonging to the more or less realistic school, Kroll, Kuniyoshi, Henry Varnum Poor, Max Weber and others. These are \$2.50 each, measure 20" x 16", but are naturally not as impressive in workmanship or size as the higher priced prints. D.D.S.





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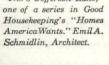
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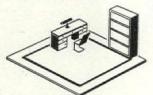
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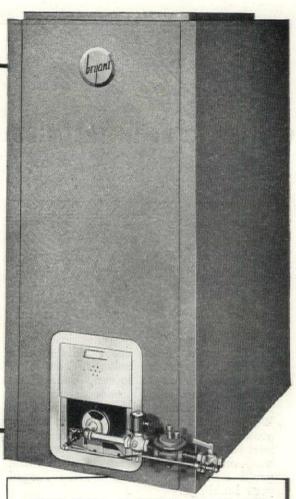
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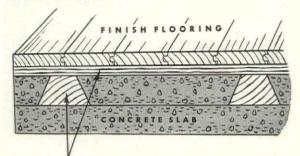
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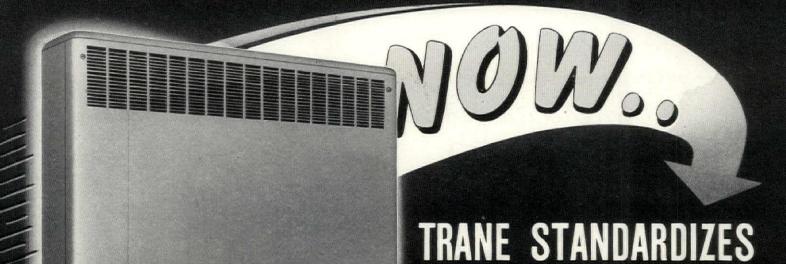
ARCHITECTURAL ENGINEER - Lt. CEC, USNR, 27, 4 years construction, maintenance of naval bases, continental U. S. Qualified for field operations and supervision construction for archi-tectural firm. Preferably small, in East. Box E-262.

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APPRENTICE DRAFTSMAN - Pacific veteran, 28, married. Desires position with architectural firm. Completed 2 years general collegemath., agricultural engr., mech. drafting. Great interest in architecture. Box E-260.

(Continued on page 188)



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MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT



U.S. Army - Corps of Engineers

YORK & SAWYER, Architects

## Selected for the new TRIPLER GENERAL HOSPITAL

PERMATITE—the window preferred by leading architects before the war—is again the outstanding choice for post war jobs.

More than 4500 PERMATITE aluminum windows are being used in the U. S. Army's new Tripler General Hospital now under construction on the island of Oahu in Hawaii. This is the largest single aluminum window contract ever placed and includes windows of every style—double hung, triple hung, casement and projected.

In its Permatite line, General Bronze offers specially designed windows, in either aluminum or bronze, for hospitals, schools, apartments, public and commercial buildings.

These fine windows have many unique, patented features—both in design and construction. They help assure years of dependable service and client satisfaction.

For complete information, full size details, etc., on Permatite windows and other General Bronze products consult Sweet's or write for catalogs.

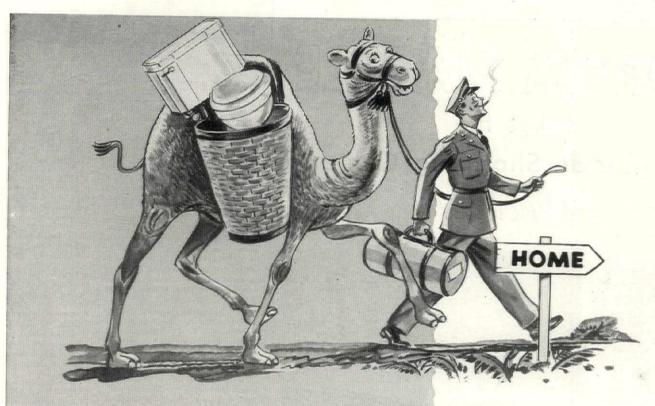


#### GENERAL BRONZE CORPORATION

34-17 TENTH STREET

LONG ISLAND CITY 1, N.Y.

Architectural Metal Work · Windows · Revolving Doors



# Here's the "Camel" that fits GI plans today!



The famous Case CAMEL WATER SAVER Closet Combination is the ideal fixture for Veterans' housing and remodeling.

PRODUCTION GOES HIGHER AND HIGHER in response to the tremendous demand for the CAMEL WATER SAVER—the water closet that provides Case quality within the limitations of "GI" budgets.

One of the most popular and practical fixtures we have ever developed, the CAMEL has the merits of neat, modern appearance and thorough, quiet flushing with minimum water consumption. Free-standing design, vitreous china construction and efficient fittings make this a "luxury" bathroom appointment at a cost that Joe and Jane can well afford.

Case plumbing fixtures are distributed nationally. See your Classified Telephone Directory or write:

W. A. Case & Son Mfg. Co. Buffalo 3, N. Y. Founded 1853.

Case

LIFETIME PLUMBING FIXTURES

### GEORGIA MARBLE

makes the

#### Belle Meade Shopping Center

distinctive!



White Georgia Marble facing; suburban theatre and store development in Belle Meade, suburb of Nashville, Tenn., Marr & Holman, Architects.

As surburban communities grow, in direct proportion to the expanding housing program, there will be an increasing demand for modern shopping centers. Georgia Marble is eminently practical for modernizing shops and stores as well as for new construction because it can be supplied in veneers as thin as 78" and does not require painting on the back. Upkeep is negligible. The stone is readily available.

#### THE GEORGIA MARBLE COMPANY, Tate, Georgia

Bona Allen Building ATLANTA 3, GA.

300 No. Beacon Street BRIGHTON 35, MASS.

Bond Building
WASHINGTON 5, D. C.
1570 Hanna Building
CLEVELAND 15, OHIO

h Avenue 513 Liberty Trust Building 1570 Hanna Building CLEVELAND 15, The Marble with the SPARKLING CRYSTAL"

#### G.1. 30BS

#### MEN WANTED

ARCHITECTURAL DRAFTSMAN or DESIGNER—Wanted by ex-Naval officer who has re-opened office in Daytona Beach, Fla. Work consists mainly of residences, apartment houses and stores. Salary would be \$50 per week minimum for experienced man with gross percentage of work accomplished. There is a possibility this position might lead to a junior partnership. David A. Leete, Regis. 611 S. Grandview Ave., Daytona Beach, Fla.

SALES ENGINEER—Wanted by manufacturer of products used in concrete construction. Desire a veteran 23 to 30 years of age. Must have college training in civil engineering and be willing to travel. This is a small aggressive company undergoing expansion. Box 8.240.

WANTED—Designer draftsman, Two general draftsmen, Architectural superintendent, E. L. Robertson, 502 Congress Bldg., Miami, Fla.

Congress Bldg., Miami, Fla.

MAN OR WOMAN—for housing position, Cornell University Extension Service, College of Home Economics. Assistant Professor, salary \$3,000, plus
bonus. Architectural training and practical experience. Some knowledge of
rural life and farm business. Ability
in remodeling old houses and planning
new houses. Appointment effective July.
Write to: Virginia True, Acting Head,
Household Art Dept., College of Home
Economics, Cornell University, Ithaca,

FIELD REPRESENTATIVES—Age 30 to 40; travel necessary. Knowledge of concrete engineering. Practical experience in housing developments. Knowledge of building codes on reinforced concrete. Familiar with FHA and NHA. Salary will depend on man. Box R-241. DESIGNER—A famous Mid-Western depertment store needs a man. This man should have some architectural background, a flair for design and exceptional color sense, and the executive ability to head up a large interior and window display operation. He would also serve as consultant on color changes and use in our complete store interior. If this is you, a very important and financially attractive job is here for you. Box R-242.

ARCHITECTURAL ESTIMATOR—Fireproof and non-fireproof housing developments and site improvements including utilities, landscaping, etc. When
applying state full details. Box R-243.
SPECIFICATION WRITER—For large
scale construction projects. Must be
thoroughly familiar with newest materials and most recent methods of workmanship. Give full information, experience, education, age and salary desired. Box R-244.

ARCHITECT — Licensed New York State. Experience in housing preferred. Give full particulars as to age, education, experience, and pay expected. Roy R-245

ARCHITECTURAL DRAFTSMEN—Several. Require three years of general drafting experience. Opportunity for advancement to the right men. When applying for position, describe age, education and experience, and salary expected. Box R-246.

FURNITURE DRAFTSMAN — Experienced. Must know wood construction; contemporary furniture. Steady employment. New York area, Write for appointment. Box R-219.

ARCHITECTURAL DRAFTSMAN— First class draftsman wanted by architectural firm in San Antonio, Tex. Top salary to good man. Box R-239. DESIGNER - DRAFTSMAN — Veteran wanted to be employed by veteran. Designer and draftsman for architectural designing for store fronts, and interior decorating. Ten thousand dollar residences and better. Give age, past experience and education. Write Anderson & Veatch, 223 S.E. Eighth Sts., Evansville, Ind.

ARCHITECTURAL ENGINEER — To fill a vacancy in the City of Dearborn Dept. of Public Works. Open to qualified citizens of the U. S. Age limit: 50 years. Salary: beginning \$4,190; maximum \$4,690; annual increments of \$150. Applications and more detailed information obtainable at the Civil Service Office, City Hall, Dearborn, Mich.

ARCHITECTURAL ASSISTANT—Architect in Hawaii would like an assistant to help with work. Should have good academic training in architecture; some office experience in designing and drafting. Should be mainly willing to work and learn. Good pay including incentive bonus. Small office with good work of all kinds. Prefer single man. Oppor. to learn arch. practice. Box R-235.

EXPERIENCED ARCHITECT—Wanted by large international construction company, architect who can assume complete responsibility for the design of large-scale housing projects, both detached single houses and apartments. Some experience in the design of large industrial building also desirable. This is a top job for a good man. Write, giving educational background and professional experience. Location in the East. Box R-236.

EXPERIENCED MECHANICAL ENGINEER—Wanted by large international construction company, mechanical engineer who has a thorough knowledge of the design and layout of plumbing, heating, sewage, and sanitary work for large-scale housing projects; one with sufficient ingenuity to develop new types of plumbing and heating for low-cost individual homes especially desirable. Some experience in laying out of high and low pressure steam, water supply, power plants, etc., for industrial projects also desirable. This is a rare opportunity for a good man. Write, giving detailed educational and professional background, Location in the East. Box R-237.

EXEPRIENCED ESTIMATOR—Wanted by large international construction company, estimator who has had considerable experience in large-scale housing projects, both single detached units and apartments. Some experience in estimating large industrial projects also desirable. A very fine opportunity for the right man. Write, giving detailed background of experience and education. Location in the East. Box R-238.

ARCHITECTURAL DRAFTSMAN—Wanted by food concern in Southwestern Pa. Capable of assisting in the design of industrial buildings, making
plant layouts, writing specifications,
and when necessary, inspecting construction work. Prefer man in early
thirties, and a graduate from a recognized school of architecture. Salary
open, commensurate with man's qualifications. Box R.231.

CIVIL ENGINEER—Wanted by food concern in Southwestern Pa. Prefer graduate who has had some experience in the designing and erecting of structural steel and, if possible, some experience in supervising construction. Prefer man in early thirties. Box R-232.

### SYLVANIA NEWS

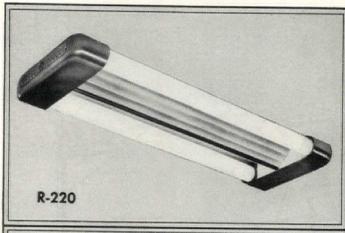
ARCHITECTURAL EDITION

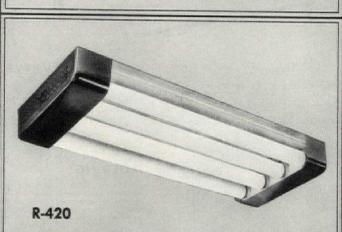
JULY

Prepared by SYLVANIA ELECTRIC PRODUCTS INC., Salem, Mass.

1946

# NEW, SMALLER FIXTURES PROVIDE IDEAL LIGHTING FOR HALLS, LOUNGES, SMALL ROOMS





#### Wider Use of Fluorescent Lighting Made Possible With Small, Custom - Type Fixtures

Three newly-designed fluorescent fixtures have been specially developed by Sylvania to solve the corridor, washroom, and small space lighting problems.

Styled by one of the country's foremost designers, these beautiful new fixtures are finding many uses in homes and offices. They are actually custom-type fluorescent fixtures, produced on a volume basis.

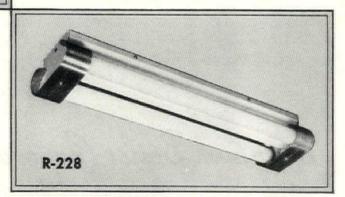
Quality construction is stressed in every one of these new fixtures. Heavy gauge metals, polished aluminum end caps, rigid base designs and Sylvania's lasting Miracoat reflector finish give each fixture an exceptionally long and serviceable life. Delivered as "complete packages of light"—fixtures, lamps and accessories made by Sylvania—these new fixtures provide perfectly engineered lighting units for a wide variety of applications.

Write Sylvania Electric Products Inc., Salem, Mass.

TOP This attractive new fixture, equipped with two 20-watt fluorescent lamps, specially designed for maximum eye-appeal.

ABOVE The same length as R-220, this fixture contains four 20-watt lamps. End caps are smartly styled, polished aluminum.

RIGHT The R-228 is a low-priced, two-lamp unit. Compactness of design makes it the ideal fixture for home use—lavatories, kitchens, other small rooms.



### SYLVANIAFELECTRIC

MAKERS OF FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES; ELECTRIC LIGHT BULBS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES



The trend is definitely to *radiant* heating. And BASE-RAY\* provides *radiant* heating in its simplest, most practical form. With BASE-RAY, which is only 7" high and 13/4" thick, the heating units become part of the trim . . . with obvious design advantages. Smartness, beauty, comfort and heating efficiency are achieved in one stroke.

These room-long, ankle height units deliver heating-uniformity previously unattainable . . . a floor-to-ceiling differential of only 3° even in sub-zero weather. That means real cold-weather comfort. It will pay you to get all the facts.

A FEW ADVANTAGES: No structural changes are necessary for BASE-RAY installations in new homes or alteration jobs, BASE-RAY castiron units are easy to install—your Heating Contractor can do a good job. May be used with any type hot-water system as well as 2-pipe steam and vapor jobs. Specifications are extremely simple. National advertising is building enthusiastic consumer acceptance. The convenient coupon will bring complete data by return mail.

\*Reg. U.S. Pat. Office



#### CONCEALED VALVES

This neat metal enclosure shaped like the heating unit itself, is attached to each end of BASE-RAY, thus completely concealing all valves and controls.



#### MOLDINGS

To provide an even more realistic baseboard appearance and to compensate for irregularities sometimes found in walls and floors, regular wood moldings are added at top and bottom of "Standard" BASE-RAY and at top only of "Hy-Power" units.



Write today for this FREE Booklet, which gives ratings and installation data on BASE-RAY Radiant Baseboards.

	AF-76
Burnham Boiler Corporation Irvington, New York	
Please send me copy of "Ratings and I Guide on BASE-RAY Radiant Baseboards".	nstallation
Name	
Address	
CityState	

### Burnham Boiler Corporation

Burnham

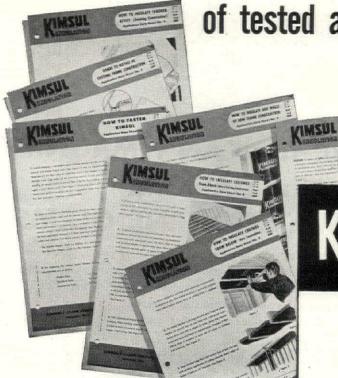
RADIANT HEATINE

SINCE 1873

IRVINGTON, N. Y., Dept. AF-76

Export Department
50 CHURCH ST., NEW YORK 7, N. Y.

FOR YOU...This new free file of tested application methods

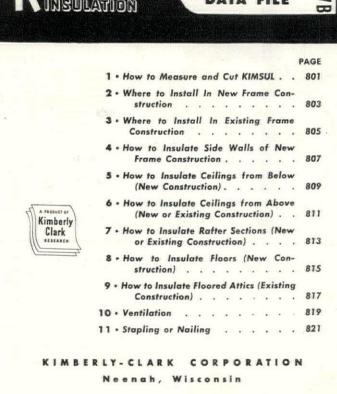


Here to serve you is a new, profitable working tool—a practical file of KIMSUL\* application methods, worked out by insulation engineers to help you do a perfect job in a minimum of time.

Proved in practice by thousands of builders, these are tested methods for simplifying your operation. They show you in full technical detail—with 40 accurate drawings and sketches—how much more easily prefabricated many-layer KIMSUL blanket insulation is applied in new or existing construction.

Learn how much better and easier it is to work with this superior insulation. Mail the coupon for your free, factual Application Data File today.

We are producing all the KIMSUL Insulation we possibly can, but due to the great demand, your dealer may have some difficulty in supplying your requirements as promptly as usual.





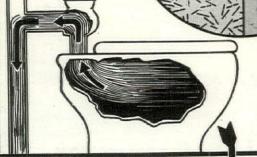
KIMSUL Division, Neenah, Wisconsin
Please send at once free Application Data File on $many$ -layer KIMSUL Insulation.
Name
Firm
Address
City Zone State

Left, 24-hour growth of B typhosus.

Right, Bacillus Typhosus, the causative organism of Typhoid Fever.



Bacillus Dysenteriae Shiga. Causes human dysentery. 24hour culture.



# But You CAN'T MAGNIFY the DANGER from WATER-BORNE GERMS By installing an approved Vacuum Breaker, such as the

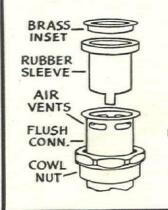
By installing an approved Vacuum Breaker, such as the DELANY No. 50 you prevent back-syphonage from entering into the water supply line, and STOP COMPLETELY one common source of possible contamination with probably transmission of water-borne diseases such as typhoid, dysentery, possibly polio.

The No. 50 DELANY VACUUM BREAKER meets the requirements of U. S. Bureau of Standards, and is FULLY APPROVED by most States and Municipalities.

The DELANY No. 50 VACUUM BREAKER is self policing—will function for years—will prevent back-syphonage under vacuum even though maliciously or mischievously sabotaged—has only one moving part—practically invisible when installed.



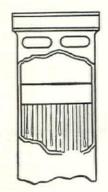
EXCLUSIVE FEATURES OF THE DELANY NO. 50 VACUUM BREAKER



SIMPLEST ASSEMBLY — ONLY ONE MOVING

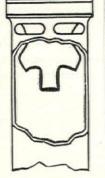
PART

PRACTICALLY INVISIBLE WHEN INSTALLED



Drawings show cross section of the No. 50 in operation. The unit, upon application of flow, expands the rubber sleeve, seals off the air vents and permits the proper flushing of the fixture.

Under the weakest vacuum, the rubber sleeve of the No. 50 collapses inwardly, seals and breaks the vacuum. This instantly prevents the slightest back-syphonage.



Coyne Delany Co.

BROOKLYN N.Y.



# This is where I get

#### **MY BUILDING IDEAS!**

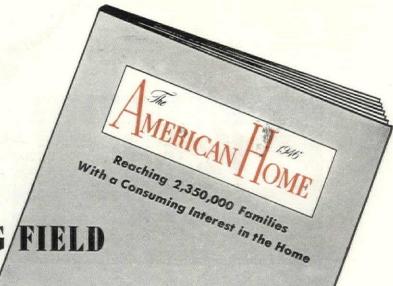
More than 600,000 readers of American Home magazine are even now planning new homes . . . and 250,000 of them have already bought the real estate.

These readers buy The American Home magazine because they want ideas on how to build their homes. And they want ideas on what to put into those homes.

They are deciding now-while the pages of American Home magazine are open – just how and with what they'll build. The American Home magazine is their textbook on the home. It is also their order book on building materials and equipment. Evidence: the consistently high returns for coupon ads—averaging over 3,000 per ad for all ads in the last issue checked.

Now - while these families are planning to build - is the time to sell them your product. Put your page in their order book - The American Home magazine.

IMPORTANT! Be sure to read "I Wouldn't Build Now For Love, Money or Congress," in the July issue of American Home magazine, in which a GI tells the building industry what he thinks of it . . . and American Home gives five experts a chance to talk back.



FIRST IN THE BUILDING FIELD



#### Check for These

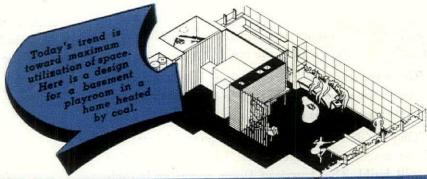
- INITIAL COST ECONOMY. A handfired coal furnace is the least expensive of all central heating plants . . . an inexpensive heat regulator gives controlled heat.
- AUTOMATIC HEATING. The cost of a stoker-fired coal furnace is no greater than the cost of a good installation using any other fuel over a period of time . . . economy in cost of fuel is the saving.
- FULLY AUTOMATIC HEAT. The ultimate in cleanliness, comfort, convenience and economy, is a bin-fed, ash removal, coal burning stoker - the cost is little more than a regular stoker.
- CLEAN, SMOKELESS FUEL. Coal today is sized, cleaned, and dust-proofed at the mine.
- PLENTIFUL FUEL SUPPLY. We have a three thousand year coal reserve. Other fuels may be exhausted while your building is still relatively new.
- CONVERSION POSSIBILITIES. conversion burner can be installed economically in a coal furnace. The reverse is not possible. Be safe, build in coal storage space and adequate chimneys . . . provide for coal.

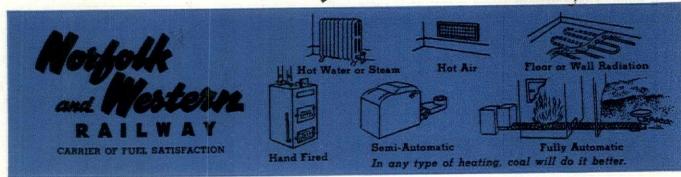
AMERICAN HOMES . . . WILL BE BUILT DURING THE NEXT FEW YEARS

America must have 11 million new homes within the next 10 or 12 years. These homes will be heated by the plants you design, specify or install. The heating facilities you select will be one of the major factors in determining market value, sales appeal and owner satisfaction.

A coal heating plant is the most economical of all to operate and maintain. It is the only installation that can be converted to all other types of heating - this is important.

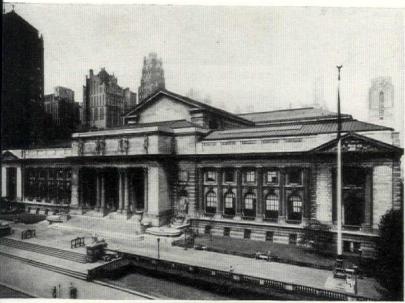
When you design or build, play safe, provide coal storage space and chimneys adequate for any fuel. Design for coal . . . "Fuel Satisfaction". It is economical, clean, quiet, odorless and abundant.





#### PRODUCTS AND PRACTICE

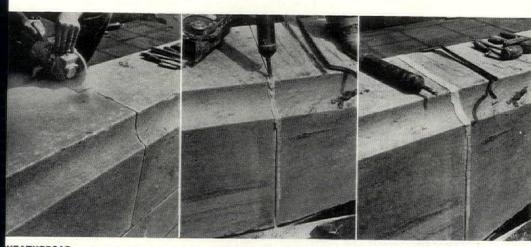
Photos: Wurts Brothers





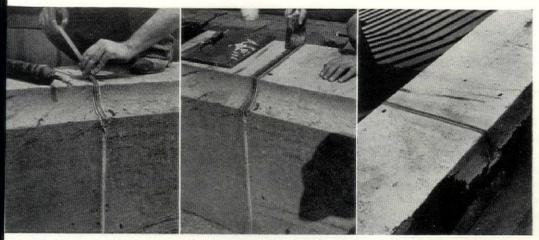
NEW YORK PUBLIC LIBRARY BEFORE AND AFTER CLEANING WITH CARBORUNDUM WHEELS AND THOROUGH WEATHERPROOFING PROCESS

#### WATERPROOFING TREATMENT protects New York Public Library against moisture penetration.

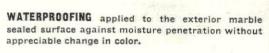


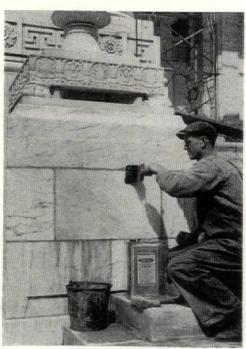
WEATHERGAP, a lead joint strip which embeds in caulking compound to permanently seal and protect oints against deterioration, was installed in top joints of cornices, gables, water tables and top rails of balustrades. Joints were first cleaned out with a skill saw. After priming with Minwax colorless raterproofing they were filled with caulking compound.

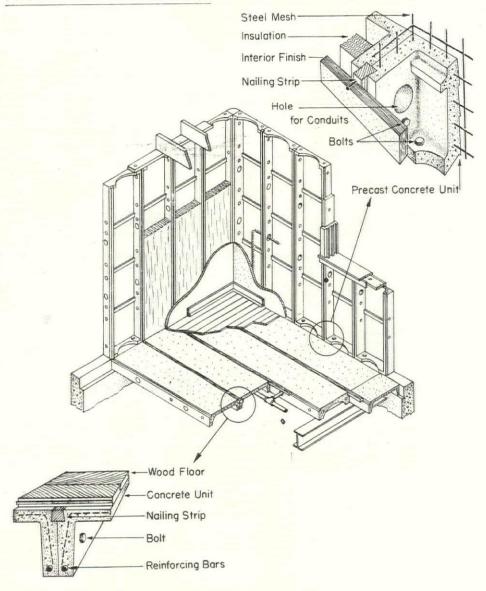
The New York Public Library recently had its marble face cleaned but-more important -it was thoroughly weatherproofed in the process. Investigation showed a fairly serious deterioration of jointing, with dampness penetrating the stone mass into the building itself. Defective stones in parapets and copings were rebuilt, and top joints in cornices, gables, etc. were cleaned out and primed with waterproofing. After they had been filled with caulking compound, some 15,000 ft. of Minwax Company's Weathercap was embedded in all joints to create a permanent waterproof seal. Approximately 2,000 gals. of colorless waterproofing in two coats sealed the entire surface against moisture penetration.



CUT AND BENT to shape on the job, Weathercap was embedded in the caulking compound which provided an elastic, adhesive waterproof filler for the joint. Pressed to a solid bed, bonding grooves were filled and excess compound was forced out. This was removed to complete the protected joint seal.







#### PRECAST CONCRETE PANELS

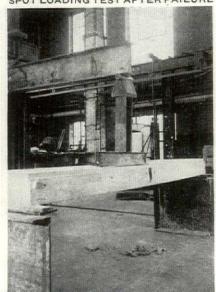
show good performance under loading tests.

The Callan System of Fabricated Unit Construction features trough-shaped reinforced concrete panels, 8 ft. high and 20 in. wide, which easily assemble to form solid wall or floor construction. Designed by Jack Callan of Columbus, Ohio, the unit has a reinforced 1 in. slab and 1½ in. flanges, and unreinforced cross ribs at quarter points. Deformed bars of 5% in. diameter are placed in flanges of floor panels only; a recess in the edges holds a nailing strip when units are bolted together.

To ascertain ultimate strength of the unit, tests were conducted at Ohio State University. Tests on floor units included: central concentrated loading, combination uniform and concentrated loading, spot loading. The concrete panel cracked under concentrated load at approximately 3,000 lbs. with ultimate failure at approximately 5,900 lbs. Under combination uniform and concentrated loading, ultimate failure came at a total load of 7,278 lbs. Under spot loading cracks appeared at 3,770 lbs., failure came at 5,370 lbs. or 2,635 lbs. at each of two points. In the longitudinal compression test conducted on a wall type unit with 5/8 in. deformed bar omitted, failure came at 102,800 lbs.

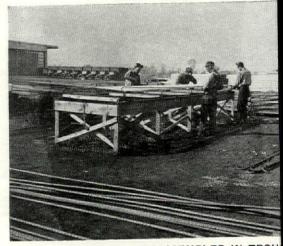


SPOT LOADING TEST AFTER FAILURE





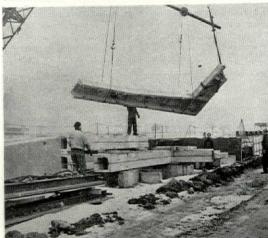
REVERSE CONCRETE MOLDS USED FOR SITE



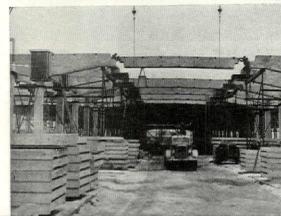
STEEL REINFORCING PREASSEMBLED IN TROL



CONCRETE POURED INTO MOLDS AT CAST



PAIRING CHANNEL SHAPED PIECES ERECTION



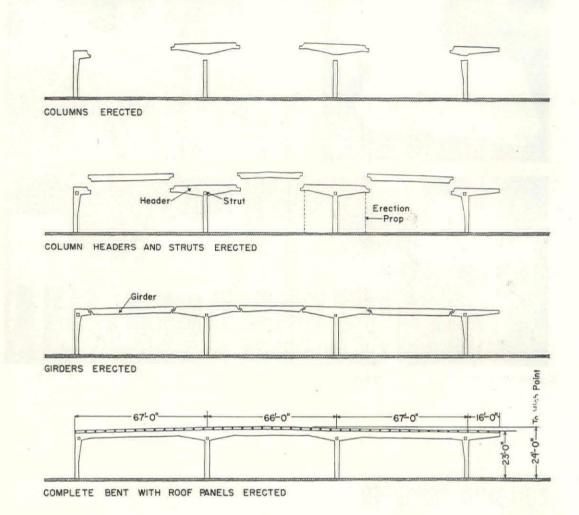
#### TRUCTURALLY ADVANCED DESIGN, fabrication and assembly methods used in warehouse construction yield speed and cost reduction.

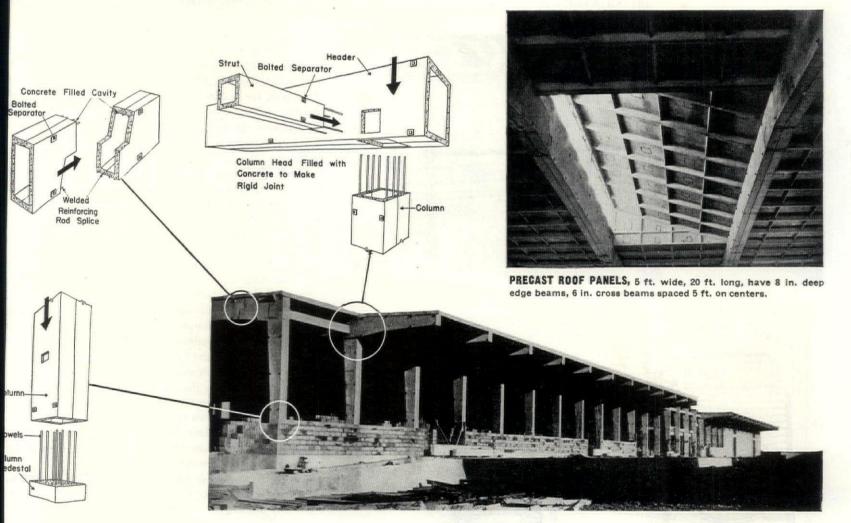
bite fabrication of precast, reinforced, hollow oox-columns and girders, and precast concrete oof panels, has been successfully employed in the construction of two single story warelouses at Mechanicsburg, Pa. Developed by Navy engineers, and executed by Corbetta Construction Co. of New York, the system climinates elaborate forms and has marked advantages in cost, speed and quality.

In the buildings, each 600 ft. long and 200 it. wide, concrete bents span transversely to form three bays. Each bent is composed of 10 component framing members. In turn each member is made up of two channel-shaped elements which, when bolted together, form a hollow box section. The channels have specially detailed ends for facilitating interconnections of the members during assembly.

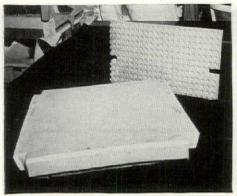
As illustrated at left, casting of the channel sections was simple. Approximately 100 reverse concrete molds were used to cast about 4,000 precast pieces. Reinforced roof panels, 5 ft. wide, 20 ft. long, 1¼ in. thick, and their sub-framing were cast together.

Erection processes were rationalized, the concrete members being handled mechanically and held in position by braces before jointing. Sequence of assembly is illustrated at right. Connections were made by grouting the joint pockets into which splice bars projected, and in girder connections the adjoining reinforcing bars were welded. As technique improved, kinks were eliminated, speed gained. The second building was erected in only 18 days as compared with 40 days required for the first.





#### PRODUCTS AND PRACTICE













A SIMPLIFIED METHOD OF UPHOLSTERING employed in a new line of office furniture by Intramural, Inc. New York. Using U. S. Rubber's Kaylon webbi ng is first applied to the wooden chair frame and burlap stretched across the seat and back to make a foundation for the slabs of foam rubber. The seat and back cushions, precut to fit, are then cemented to the frame. With application of the outer fabric covering in the conventional manner, chair is completed.

#### PLANNING SET provides visual study office and factory arrangements.

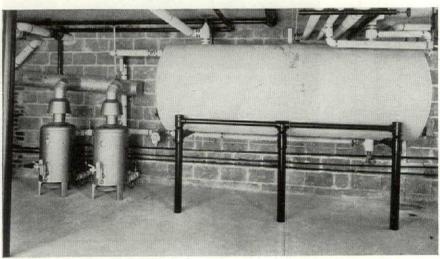
The Master Office Planning Unit provid 229 pieces of scaled equipment for visu study of office arrangements for determination of the most efficient layout. One of a series standard units for both commercial and indu trial layout studies, the unit is developed Visual Production Planning Inc. of New Yor plastic enameled, die cast metal equipmer scaled 1/2 in. to the ft., is placed on grap paper on which the office area has been ou lined. When a satisfactory layout is reache the arrangement is photographed for refe ence. The set, priced at \$110, includes 2 standard desks; typing desks; file cabinets arm, side and typing chairs; telephones typewriters and waste baskets; graph paper layout tape and a 12 in. scale. Other mode are available for industrial layout problems.

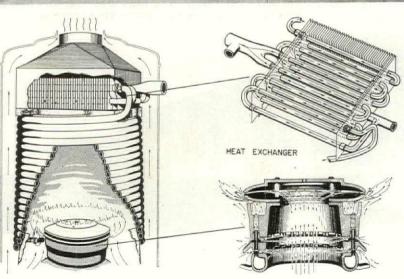
#### FACTORY LAYOUT being set up for study.



#### BUILDING REPORTER

#### INSTANTANEOUS GAS WATER HEATER furnishes 180° sterilizing and normal temperature hot water simultaneously





The Smithway-Burkay Instantaneous Gas Hot Water Heate provides instant hot water at the turn of the tap or two tem peratures, 180° sterilizing water and normal hot water up to 140°, simultaneously. Developed by the A. O. Smith Corp Milwaukee, for flexibility, it serves a variety of needs in restaurants, hotels, doctor's offices and places where water requirements are complicated by the need of abnormal quantity, intermittent peak loads, sterilizing heat and other problems.

As an instantaneous heater it supplies instant hot water As a recovery system it stores hot water in a tank recovering the heat loss as water is drawn off. As a booster system it takes water already heated by a furnace or other means and boosts it to super-heat as desired. As a booster recovery system, it provides two temperatures of hot water by storing normal hot water in the tank, and drawing any quantity from it and boosting it to super-heat for sterilizing purposes.

The unit has a thermal efficiency within 4 per cent of theoretical maximum. In operation, the water enters the unit at the top, and flows downward through tubing coiled so that it is the wall of the combustion chamber. The flowing water absorbs heat from the gas flame which would otherwise radiate through the wall. A patented thermostatic control proportions the amount of gas to the water heating load, maintaining water outlet temperatures within 2° of the thermostat setting. The burner provides two stages of primary air and an auxiliary supply of secondary air to insure combustion of gases. The heat exchanger concentrates 30 sq. ft. of heat transfer area on a total water content of only 4 pints.

The Smithway-Burkay has a capacity of from 190,000 to 195,000 b.t.u.'s per hr. Connected in batteries, capacity is practically unlimited.

BURNER

# Douglas Fir Doors

are helping solve the urgent need for housing

... THAT'S WHY IT MAY BE

DIFFICULT TO BUY THE EXACT DESIGN OR TYPE OF DOOR YOU WANT.

Durable Douglas fir doors — together with other necessary building materials — **must** be channeled to meet the needs of the Reconversion Housing Program.

Even though Pre-fit and Factri-fit Douglas fir doors are being produced in ever increasing quantities, there may be further delays in filling orders for non-housing uses or for housing which does not come under the program.

Distributors and dealers will be delayed in building up inventories. For a time, at least, the supply situation will be difficult. But as production steps up and demand subsides from present overwhelming levels, there will be plenty of these fine, precision-made doors to meet every demand. We suggest that you keep in touch with your regular source of supply for any changes in availability.

**Douglas Fir** 

The National Association of Fir Door

When Douglas fir stock doors are again readily available for general needs, you can be assured that they will be the finest doors which can be produced by modern precision methods. These sturdy, attractive, durable doors—made of all-heartwood Douglas fir — feature refinements which save time and labor on the job and assure better installations every time.

Douglas fir doors will be available prefit to exact book size . . ready to hang without on-the-job sawing and fitting.

Douglas fir doors will be available prefit gained for hinges and mortised or bored for locks.

Doors will be grade-marked, of course—for ease in specification and order—ing. Scuff-strips will protect the precision-cut corners during handling and shipping. They will be better doors in every way!

LIQUID for preparing glossy paint surfaces for cover coats.

Bull Dog Hold Tite used on paint, enamel and glossy varnished surfaces, produces a slight tackiness which gives an effect similar to that produced by sandpapering. A clear liquid, it was developed to prepare glossy painted surfaces for covering coats, and for removing wax and grease. Added to new paint in the ratio of 1/4 pt. per gal. of paint, it causes new paint to bind more tenaciously to old finishes. Used on a cloth to wipe old surfaces, Hold-Tite cleans and deadens surface gloss.

#### DOUBLE GLAZED INSULATING WINDOW UNIT for home, industrial, commercial and special uses.

which permit use of larger window areas, reduce winter heat-

Manufacturer: Gillespie Varnish Co., Dey and Howell Sts., Jersey City 6, N. J.

> hydrated by a drying agent within the aluminum spacer tubing. Standard Twindow units have polished clear plate glass but combinations of special glass types can be fabricated to meet practically all needs. Applicable to home, commercial and industrial uses, they will increase the use of residential picture windows, help prevent moisture in industrial buildings where manufacturing processes require uniform temperature and humidity, prevent frost from coating on inside of display windows, etc. Twindows are available in a

range of sizes in standard double glazing as well as special triple, quadruple and multiple glazed panels.

Manufacturer: Pittsburgh Plate Glass Co., 632 Duquesne

ing and summer air conditioning costs, and virtually preven

condensation. Composed of a light gauge, stainless steel chan-

nel which frames two or more glass plates enclosing a 1/4 in.

or 1/2 in. hermetically sealed air

space, the unit employs a hollow

aluminum tubing to separate and

hold the glass plates in position.

Channel legs bend slightly inward

on the surface of the glass to give

maximum protection during instal-

lation and use. The hermetically

sealed dead air between the plates, held at atmospheric pressure, is de-

#### Twindows are efficient, double glazed window insulating units

that solves five



The NEW DUO-Washfountain is a smaller edition of the large Bradleys known and used throughout industry for over 25 years.

This modern washroom IDEA is for installation in small plant washrooms as well as for use by executives, office help, engineering and drafting department workers. It is also ideal for clubs, filling stations, airports, bus and railway stations, office and other public buildings.

The sanitary DUO-Washfountain serves two persons at the same time with a continuous spray of clean, running water operated by automatic foot-control. One DUO takes the place of two "single-person" wash basins with one easily-cleaned Bradley sprayhead replacing four faucets.

1946 - 25th Anniversary Year



For further details on the new DUO-Washfountain, send for Bulletin 464-D.

BRADLEY WASHFOUNTAIN CO., 2235 West Michigan St., Milwaukee 1, Wisconsin.

#### Way, Pittsburgh 22, Pa.

INSULATION from glue, for manufacture under license, is extremely lightweight. Foamboard is an extremely light insulation material which is not industrially available, but may be manufactured under

license. Made to a limited extent during the war for a special use, it is suggested for insulating vehicles, railroad cars, airplanes, etc. wherever extreme lightness is required together with efficient insulation against heat, cold and noise.

Glue is the principle raw material used in manufacture with other ingredients added. These materials are mechanically foamed in aqueous solution and a filler such as wood fiber dusted in. Placed in molds, it is dried in a 230° F oven. Manufacturing process is simple and yields a non-inflammable board resistant to water, fungi and other



destructive agencies. The foam may have compounded with it synthetic rubber, asphalt, wood fibers, glass fibers, etc. to give special properties. Thin layers of Foamboard resemble flannel, and although the material has fair strength, it cannot be used unsupported in structures. Usually made in slabs a foot or so square and an inch thick, it resembles dried natural sponge, flexible and elastic.

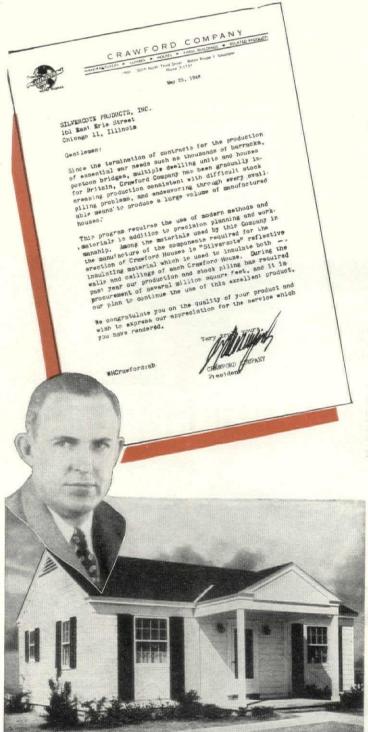
Licensor: Foster D. Snell, Inc., 305 Washington St., Brooklyn 1. N. Y.

PLASTIC FLOOR COVERING has good wearing qualities.

Vinylite Plastic Floor Covering is made from Bakelite Corporation's Vinyl resin. It incorporates all the qualities of a resilient hard surface floor covering, and being non-porous, needs no polishing for servicing. Tests indicate the new material has remarkable wearing properties impervious to alkali, oil, grease, alcohol and acids. It will be ready for delivery early in 1947 in both yard goods and tile form, in a range of solid colors and marbles.

Manufacturer: Delaware Floor Products, Inc., Wilmington, (Continued on page 204) Del.

# SILVERCOTE INSULATION AVAILABLE NOW!



W. H. Crawford, president of Crawford Company, builders of prefabricated homes, and a prefabricated home manufactured by Crawford Company.

SILVERCOTE REFLECTIVE INSULATION is available in large quantities for immediate shipment. It is available now to help alleviate the insulation shortage—for custom-built homes, prefabricated and precut houses, industrial construction and for new and rebuilt barracks.

Millions of feet of SILVERCOTE Insulation were used by the government last year for barracks. More is being used this year. Private and government-sponsored housing projects also are using huge quantities. Manufacturers of railway refrigerator cars and refrigerator truck bodies have used millions of feet of SILVERCOTE during the past 11 years.

Used in floors, walls and ceilings, SILVER-COTE insulates against heat and cold on the thermal bottle principle. SILVERCOTE is vaporresisting, impervious to infiltration of air, proof against mold, vermin and termites. It has a thermal insulation value of 0.23 when dividing 1½" air space. SILVERCOTE fully meets the Corps of Engineers specification T-2400. SILVERCOTE FABRIC, DUPLEX and SIMPLEX are available in large quantities in various widths.

We are happy to reproduce Mr. Crawford's approval of SILVERCOTE as insulation in his prefabricated houses. Silvercote Duplex is a vapor barrier as well as thermal insulation and fully meets FHA Specifications for vapor barriers. Write for complete information.

NOTICE: Attractive territories open to distributors with sales forces.

#### SILVERCOTE PRODUCTS, INC.

161 East Erie Street, Chicago 11, Illinois Telephones: Superior 5617 and 5628 Pioneers in Reinforced Reflective Insulation



# Walseal\* valves and fittings

### ... the right connection for brewery pipelines

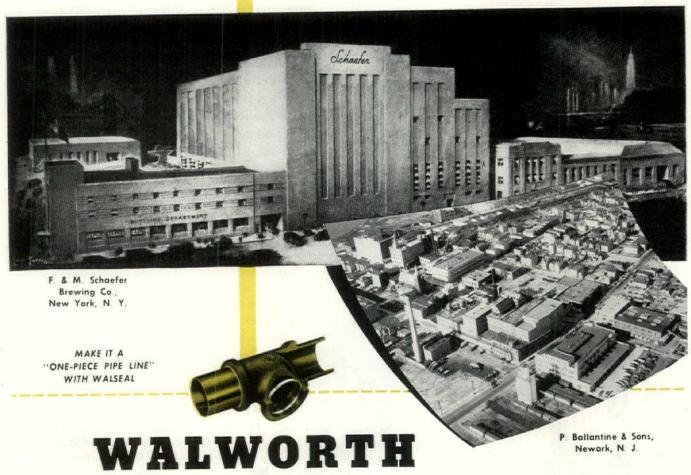
SILBRAZ\* joints made with Walseal valves, fittings and flanges are vibration-proof and corrosion-resistant. They make the ideal connection for filter and slurry feeder lines, water and steam lines for bottle washing, hot and cold water circulating systems, boiler feed lines, steam return lines, and other systems in Breweries where "B" copper tubing or brass pipe is used.

Threadless. Walseal products make joints that are permanent that save trouble and cost by eliminating leaks that will not creep or pull apart that literally join with the pipe to form a "one-piece pipe line". Further, no properly made Silbraz joint has ever been known to fail under pressure.

So, if you are looking for maintenance-free pipe lines – for either new construction or remodeling – include Silbraz joints made with Walseal products in your specifications

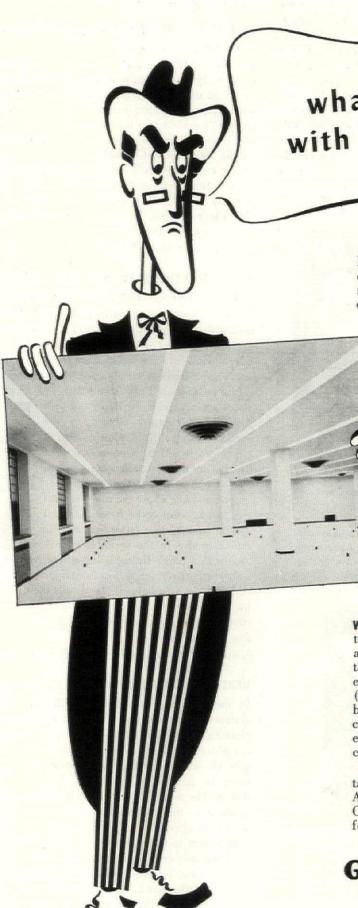
For further information regarding Walseal valves, fittings and flanges, write for Circular 84.

\*Patented—Reg. U. S. Patent Office



valves and fittings 60 EAST 42nd STREET, NEW YORK 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



what's RIGHT with this picture?

Pretty secretaries? Busy office machines? Not yet! But this office is already right for them electrically, because it is equipped with a G-E Fiberduct underfloor raceway system. You don't have to wait until the office equipment is in to see the "hidden assets" that the Fiberduct system will provide.

First, plentiful outlets are available for immediate needs. There are no unsightly, dangling overhead wires to spoil appearance and obstruct lighting. (That's *right* for the office workers.)

Second, the G-E Fiberduct System has inherent flexibility that makes future changes easy. Extra outlets, additional telephones, low-voltage signal wiring, and electrically operated business machines can be added at any time during the life of the building . . . without tearing up floors for expensive re-wiring. (That's right for cost-conscious building owners.)

Third, these non-corrodible underfloor raceways are easy to install, and once installed, new outlets can be added with a minimum of trouble. (That's right for the contractor, because it saves time and permits him to do a better job.)

What is G-E fiberduct? It is an underfloor raceway system especially suitable for wiring commercial, industrial, and institutional buildings. It consists of (1) a non-metallic raceway made of impregnated fiber which resists every known type of corrosion found in actual service; (2) rust-resisting, cast metal, water-excluding junction boxes for single, double, or triple duct systems; (3) a complete line of duct fittings, such as couplings, supports, elbows, crossunders, reducers, enlargers, etc.; and (4) a complete line of outlet fittings.

If you are not fully acquainted with the features and advantages of G-E Fiberduct systems, write to Section C4-726, Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut, for copies of our informative, 36-page booklet.

GENERAL @ ELECTRIC

#### BUILDING REPORTER

#### ROLL TYPE METAL WINDOW SCREEN for double hung window is easily installed and long lasting.

Venti-Screen is an all metal, roll type window screen housed in a metal Uni-Fit hangar. Initial installation of the hangar



is simple, and removal or installation of the screen element thereafter is a matter of seconds. The screen fits on the outside, lower half of the window and allows operation of the screen from the inside. Because of easy removal, seasonal repair or replacement due to warpage, wood rot, etc., is eliminated. Venti-Screens mea-

sures only 2 in. by 2 in. by an average width of 30 in., thus they can easily be stored away in a drawer. They are

available for every variation in double-hung window sizes Manufacturer: The Baer American Window Co., 2123 S. 9th St., Cleveland 15, Ohio.

#### CASEMENT WINDOW with unique hardware opens either vertically or horizontally.

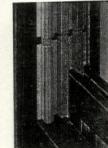
The Wenzel "double action" casement window comes complete, ready to use, with wood frame and sash, metal weather-stripping, metal sliding screens, polished brass interior hardware and cast bronze exterior hardware. It incorporates patented double action hinges installed on the casement sash and frame which—in connection with a fastener operating on the rotary socket principle—provides a window which hinges either vertically or horizontally. Conversion of the window from vertical to horizontal opening and vice versal is easily accomplished in two adjustments of two special hinges on each sash. In the price range of ordinary casement units, they are available in a range of sizes.

Manufacturer: Wenzel Manufacturing Co., Stamford, Conn.

#### METAL WEATHERSTRIP and SASH BALANCE WINDOW EQUIPMENT operates easily, eliminates drafts.

Dura-seal metal weatherstrip and sash balance equipment used with stock plank frames and stock sash, makes a compact air-tight unit which prevents air leakage at the jamb. Easy operation is assured because runways and parting stops are non-painted, metal covered. The metal parting stop covers are U-shaped and have a flare on both sides. The sash

slides against the metal flares and with the friction contacts created by the spring housings, the window is held at any given position. On each side of the sash are three friction contact points, one on either side of the metal in the groove, and one where the sash contacts the parting stop cover flare. A spiral spring, encased in a metal housing, fits into a groove in the sash. Dura-seal,



used with a plank frame, is less expensive than a box frame with weatherstripping or weatherstripping combined with any other type of sash balance. It permits the use of narrow mullions and trim, requires no maintenance, and eliminates stretchy sash cords, noisy chains, open pulley holes and window rattling.

Manufacturer: Zegers, Inc., 5619 Harper Ave., Chicago, Ill.

#### VENETIAN BLIND has removable slats for easy cleaning.

In the Walker Removable Slat Blind the wood, steel or aluminum slats may be easily and completely removed for cleaning, refinishing, waxing and repair—and replaced with-

out disturbing the rest of the arrangement.

pair of slats on hand, the window need never be bare when slats have been removed. The cord of the new blind is mounted adjacent to the ladder and is run through notches or slots at the edge of the slat. The cord is next to the rear tape on one side of the blind and next to the front tape on the opposite side, thereby equalizing the lifting balance of the blind. By this arrangement

the cord holds the slats firmly and permits them to be adjusted as easily as with the ordinary construction. It also permits complete closure of the blind.

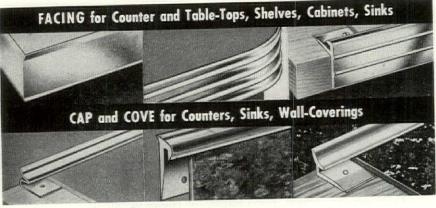
Manufacturer: Rupert N. Hoye, 2323 South Michigan Ave., Chicago 16, Ill. (Continued on page 208)

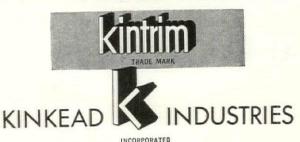


KINTRIM allows you free play in graceful modern design . . . and wins lasting recognition for your creative touch by adding more "visible value" to your interiors. For KINTRIM—the lustrous metal mouldings of enduring beauty—has the structural precision you want . . . you need for more attractive, practical use of colorful, serviceable coverings. Indeed, wherever you install linoleum, wall- and floorcoverings, KINTRIM smartly enriches and

accents the beauty of your design.

As experienced, leading contractors recognize—KINTRIM Stainless Steel and KINTRIM Alumilited Aluminum sections surpass ordinary metal mouldings in protective service. They're precision-made, in a complete range of gauges, to fit specific weights of covering materials. And, to protect hands and clothes against snagging, every KINTRIM Stainless section embodies Kinkead's special Safety Rolled-Edge.





Let KINTRIM beauty and utility serve as your creative finishing touch that adds more "visible value" ... and wins clients that speak for you. Write us, Dept. 7A, for reprint of KINTRIM section, Architects' File, 1946 Sweet's Catalog.

440-450 W. SUPERIOR STREET, CHICAGO 10, ILL.

Copyr. 1946. Kinkead Industries, Incorporated



#### Hydro-Flo Radiant Panel Heating



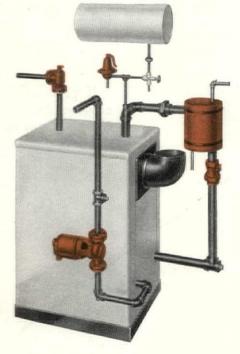
For luxurious winter comfort and more healthful living conditions, there's nothing like the warm floors assured by B & G Hydro-Flo Heat.



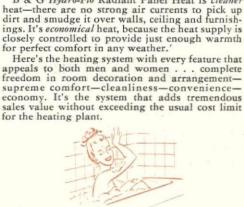
What woman wouldn't be en-thusiastic over a heating system which makes housework easier ... keeps cleaning and decorat-ing bills at rock bottom.



And what man wouldn't be de-lighted with the amazingly low operating cost of B & G Hydro-Flo Heat?



B&G Hydro-Flo Heat is a forced hot water system. The basic operating units are a B & G Booster Pump, B&G Flo-Control Valve, B&G Water Heater and the necessary electrical controls. All are simple, dependable units which can be installed on any hot water heating boiler.



... TODAY'S NO. 1 INTEREST **AMONG HOME BUYERS** 

Do you wonder that today's home planner is intrigued with B & G Hydro-Flo Radiant Panel Heating? Think of the sensational advantages it has

First of all, it is completely concealed—not a radiator or grille anywhere. Every room is bathed in mild, stimulating warmth, radiating gently from pipe coils in the floor or ceiling ... floors are always warm . . no chilling drafts. The air itself feels fresher, never dry and stuffy.

B & G Hydro-Flo Radiant Panel Heat is cleaner heat—there are no strong air currents to pick up

ing? Th

Besides all this-hot water the year 'round

With B & G Hydro-Flo Heat installed, the same boiler that heats the house also heats water for kitchen, laundry and bath... in virtually limitless quantities... at low cost... winter and summer... and every hour of the day and night.

BELL & GOSSETT CO.

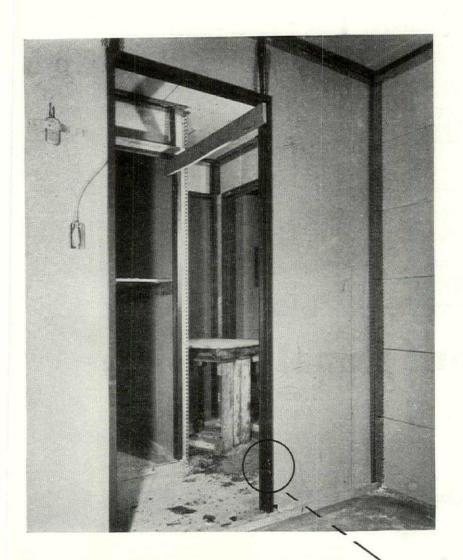
Dept. P-10, Morton Grove, III.



#### Hydro-Fie HEAT

FORCED HOT WATER HEATING FOR RADIATOR, CONVECTOR, UNIT HEATER, BASEBOARD AND RADIANT PANEL HEATING

### Quantity PRODUCTION of a Quality PRODUCT



Matching quantity of production with quality of product is no easy task these days when shortages are about all that builders find in plentiful supply.

But the topnotch building firm of Place and Company solved one of their shortage problems by installing Richmond Unit Steel Door Frames in their 180-unit housing project at South Bend, Indiana.

The Richmond Fireproof Door Company is geared to produce these unit steel frames in quantity at their Richmond, Indiana, plant. And no compromise has been made with quality; for only full-gauge steel of the highest quality is used in the manufacture of Richmond frames.

Nor is the use of these unit steel frames confined to housing alone. Factories, schools, hospitals, commercial structures - Richmond makes frames to meet every building need.

If your building problem is frames — or metalcovered doors — Richmond agents throughout the United States stand ready to serve you.

#### Check these advantages of Unit Steel Frames . .

#### SPEED AND ECONOMY

Unit construction means swift and easy erection, lower material and installation costs. Hinge butts are welded in place to save you time and money.

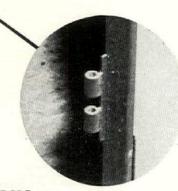
#### QUALITY CONSTRUCTION

Full gauge steel used throughout for strength and rigidity. Steel frames will not warp or absorb moisture when used in conjunction with plaster construction, are suited to use with every type of partition—including the new solid plaster partitions.

#### VATTRACTIVE APPEARANCE

Clean lines make for neat appearance. Steel construction means no future shrinking or settling. Frames resist marring and damage take paint coatings smoothly.

THE HINGE BUTT IS WELDED IN PLACE



THE RICHMOND FIREPROOF DOOR COMPANY, RICHMOND, INDIANA

# For huge multitier bookstacks or shelving for small libraries Call on SNEAD & COMPANY

Typical SNEAD Library Installations U. of Alabama U. of California Cal. State Library Leland Stanford U. Library of Con-Army War College U. of Illinois U. of Notre Dame U. of Colorado Loyola U. Harvard U. Dartmouth College Columbia U. Ohio State U. U. of Philippines U. of Puerto Rico Library of Hawaii Vatican Library Nat'l Museum Nat. Hist., Paris Joint Universities

Skeleton steel bookstack structure, Yale University Library

JAMES GAMBLE ROGERS, Architect

For many generations Snead & Company has been the leader and pioneer in the design and construction of library equipment. Whether you are planning a large multitier bookstack or a library of modest size, it will pay you to contact us for a free consultation.

We will gladly assist in the preparation of plans and specifications, and submit a quotation. Since proper planning takes time, we suggest that you let us start without delay.

Write for the Snead bookstack catalog containing engineering and library planning data.

Maria Mitchell Library, Nantucket, Mass., built completely by Snead & Company, including book ranges and other equipment.

Since 1849, the Snead symbol of lasting quality, beauty and progress in metal construction.



SNEAD & Company

FOUNDED 1849

Designers, manufacturers and erectors of library bookstacks and steel partitions

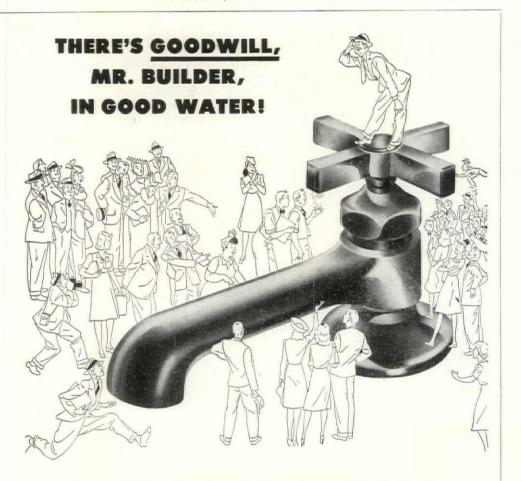
Sales Office: 94 Pine Street, JERSEY CITY 4, N. J.

Main Office and Plant: ORANGE, VA.

#### INDUSTRIAL ANTI-SLIP FLOOR COATING for steel, concrete, aluminum, hard tile, wood, galvanized iron.

Flintred is a synthetic plastic anti-slip coating which incorporates a mineral type filler as a tractive resistance against slipperiness when wet. Resistant to water, gasoline, oil, alcohol, ordinary fats and grease, it is recommended for periodical application to work areas that become unsafe under foot when wet. It is easily applied with a trowel to approximately 1/16 to ½ in. thickness, over steel, concrete, aluminum, galvanized iron, hard tile and wood floors. It also is recommended for various surfaces around machinery, on steps and ramps, in garages, kitchens, lockers, etc. On clean steel it also serves as a corrosion resistant protective coating. Flintred will be available in red, green and slate blue.

Manufacturer: The Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.



To the home-owner, good water means less work, fewer plumbing repairs, better operation of all water-using home appliances. To business and industry, it means less waste, lower operating costs. To the *builder*, however, good water means goodwill!

Where local water conditions are poor, you can provide soft, clear water easily with Permutit\* Water Conditioning. Modern, automatic Permutit equip-

ment is as much at home today in private dwellings as in hospitals, laundries, restaurants, and industrial plants.

So when you build, build for the future. Include Permutit in your plans. It's a relatively small investment that will pay you big dividends. Write for particulars to The Permutit Company, Dept. AF-7, 330 West 42nd Street, New York 18, N. Y. or Permutit Co. of Canada, Ltd., Montreal.

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

FOR MORE THAN

WATER CONDITIONING HEADQUARTER



#### WINDOW FAN for cooling homes, apartments and offices exhausts air efficiently and noiselessly.

The Bar-Brook fan, a compact, efficient, dual speed window-fit ting air exhaust appliance, 30 in. by 30 in. by 5½ in. thick, car be mounted in the average window with practically no protru

sion inside or out. Functionally designed, it can be easily installed with 2 screws and the window lowered without removal of the unit. Die-stamped louvers resembling venetian blinds serve as a safety shield on the inside, and another set provides weather protection on



the exhaust side. The unit is built around a specially designed window fan motor which includes one-piece rotor and forward housing construction, automatic thermal overload control and built-in radio interference eliminators, and rear-end motor torque mounting in rubber on the axis of rotation, with the rubber in shear. The forward housing serves as hub for the fan blades, thus eliminates belt or pulley drive. Aerodynamically designed blades permit low speed operation and elimination of high velocity wind noises. Housing of the fan blades also helps reduce air turbulence noises to a minimum Exhausting capacities of the fan are 5,500 cu. ft. of air at high speed (580 r.p.m.) and 3,200 c.f.m. at low speed (380 r.p.m.)

Manufacturer: Shreveport Engineering Co., 1553 Texas Ave., Shreveport, La.

#### SELF-CONTAINED AUTOMATIC HEAT REGISTER offers individual room temperature control.

The new Grad-U-Flow Register automatically controls the warm air supply into a room through an ingenious self-contained system which regulates dampers to provide more or less heat in accordance with the demand. No larger than a conventional warm air outlet, it makes possible individual room control without the necessity of an elaborate control system. It is equipped with a control setting which when set to desired

temperature will automatically hold the selected level. Requiring no power other than that which it generates through temperature changes, the register "motor" consists primarily of a remote tem-



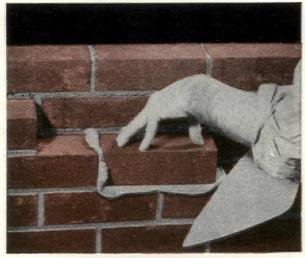
perature bulb, a bellows and a lever which positions dampers. In operation the bulb, mounted under the front grille, reacts to changes in temperature of induced air from the room and causes the bellows to either expand or contract. A system of levers attached to the bellows opens or closes dampers in direct response to room temperatures. The control setting or screw mechanism alters the balance point of the levers. The curved grille, which can be easily removed for cleaning, permits even distribution of air and turning vanes insure smooth and quiet operation. Grad-U-Flow is scheduled for production shortly and will be priced slightly higher than previous means of warm air distribution.

Manufacturer: Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave South, Minneapolis 8, Minn.

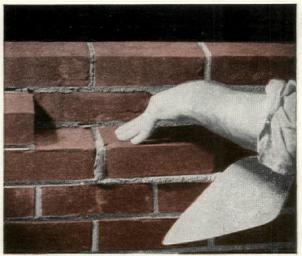
#### STEEL OVERHEAD GARAGE DOOR features rugged construction, easy installation, finger-tip control.

Welded truss frame construction of the Strand Overhead Type steel garage door eliminates sagging, warping and weaving and thus assures rigidity and durability of the unit. With finger-tip operation, the door opens (Continued on page 212)

# BRIXMENT MORTAR Is More Plastic



To compare the plasticity of any two mortars, try shoving a brick into place, with a full head



joint. The more plastic the mortar, the easier the work. Try this with Brixment mortar!

#### AND GOOD PLASTICITY

#### IS THE FIRST REQUIREMENT OF GOOD MORTAR

One of the most important characteristics any mortar can possess is *plasticity*. Within certain limits, plasticity is the greatest single factor not only in the *economy* of the brickwork, but also in its strength, its neatness, and its resistance to the passage of water.

One of the outstanding characteristics of Brixment mortar is its unusual plasticity. For twenty-five years, bricklayers all over the United States have agreed that the workability of Brixment is comparable to that of straight lime putty. This exceptional plasticity makes it easy for the bricklayer to secure neat, economical brickwork, with the brick properly bedded, and the joints well filled. And because of this unusual plasticity, a bag of Brixment will carry three full cubic feet of sand and still make an ideally workable mortar.

LOUISVILLE CEMENT CO., Incorporated, LOUISVILLE 2, KENTUCKY
CEMENT MANUFACTURERS SINCE 1830

# HOTPOINT ALLOCATES ELECTRIC KITCHENS TO BUILDERS FOR VETERAN HOUSING

#### ... to take the lead in serving builders

As a vital service to veterans and builders, Hotpoint is allocating complete electric kitchen ensembles to builders to give immediate assistance to service men seeking modern home conveniences. The Hotpoint program provides efficient appliances TODAY to help establish FUTURE reputations for builders and architects for creating quality houses that emphasize comfort and convenience.

Selected builders only will be allocated these HOTPOINT "HERE TODAY" KITCHENS through Hotpoint distributors. They'll cooperate with dealers, electric utilities, and service contractors to get Hotpoint Electric Kitchens into every G. I. home possible, and will receive assistance from Hotpoint distributors in providing favorable financing to veterans.

#### Builders will establish reputations!

Far sighted, progressive builders and architects who work with Hotpoint in this nationwide program will receive the first complete electric kitchens in their communities, and the selected builders who participate will receive lasting benefits in prestige. Their reputations will grow with satisfied home owners. Publicity, national in scope, will reflect on them and when localized in their communities will secure their places in the home-building future of America.

If you want to be one of the fortunate builders to participate in the HOTPOINT "HERE TODAY" KITCHEN PROGRAM, consult your local Hotpoint distributor. Edison General Electric Appliance Co., Inc., 5651 West Taylor Street, Chicago 44, Illinois.

HOTPOINT REGIONAL SALES OFFICES. EASTERN: 570 Lexington Ave., New York City 22, Plaza 3-9333. SOUTHERN: 304 Red Rock Bldg., Atlanta 3, Walnut 2959. CENTRAL: 1456 Merchandise Mart, Chicago 54, Superior 1174. WESTERN: Western Merchandise Mart, 1355 Market Street, San Francisco 3, Underhill 2727.

In most states, all Hotpoint kitchen equipment can be included in F. H. A. insured mortgages.

Copr. 1946 Edison General Electric Appliance Co., Inc., Chicago

ELECTRIC KITCHENS

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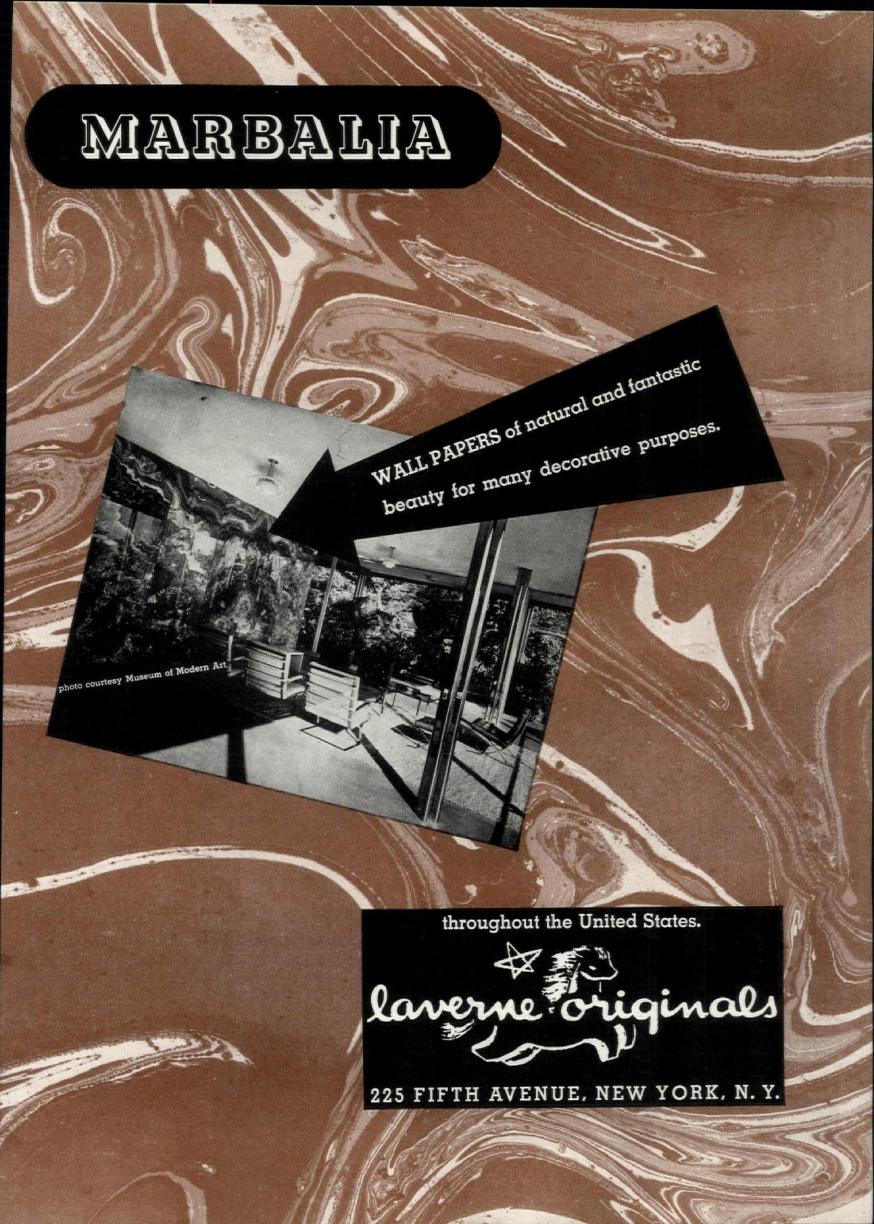
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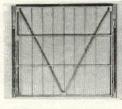
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## **BUILDING REPORTER**





and closes smoothly. A heavy rubber seal strip across the bottom of the door which may be trimmed to fit uneven garage floors, provides a close seal. Installation is simple, the factory assembled unit being levelled in the prepared opening and screws tightened through slotted holes in side channels into the wood jambs. Standard door is 8 ft. wide, 7 ft. high and weighs 178 lbs. A larger door is also available for two-car garages having an opening of 15 ft. 11 in.

Manufacturer: Strand Building Products Co., 954 Buhl Bldg., Detroit 26, Mich.



Look to usAIRco for a complete line of Air Conditioning equipment. Engineering and production skill are combined at usAIRco to build complete systems, packaged units, and the tools of air conditioning—with the extra values that make your customers more satisfied and make your sales more profitable. Find out about the complete usAIRco line.



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use. Water flows into the space between the reservoir and boiler shell where it is quickly converted to steam by the flame of a standard gas burner. Condensation and drainage collect in the bottom of the unit. Other features include a whistle device, created by passage of excessive steam through the pressure relief valve, to indicate when food is at cooking temperature. Thus the burner may be reduced from the initial 12,000 BTU's to approximately 4,000 BTU's to save fuel. The oven door tightly engages and cannot be opened during or after steaming until the pressure is vented. Food is cooked in open aluminum utensils on oven shelves, and vanilla pudding and onions cooked simultaneously have no trace of mixed flavor. According to tests conducted by a food research laboratory, the new cooking method effects savings up to 40 per cent in minerals and vitamins.

Manufacturer: The Vendo Co., 1907 Grand Ave., Kansas City 8, Mo.

#### NON-DRIP FAUCET LINE features easy operation and repair.

In the new line of Dial-ese, non-drip faucets, shut-off of the valve mechanism operates in the same direction as the water flow. Thus water pressure helps close the valve and eliminate

dripping faucets. Stem packing is placed between threads and the chamber through which the water flows. This prevents lubrication from washing away and eliminates liming and corrosion of the stem threads. Use of a standardized car-



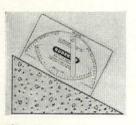
tridge control unit which is easily and quickly removed effects simple repairs. All faucets of Dial-ese design use the identical cartridge—single and mixing faucets for lavatory, sink, tub or shower. Handles and base coverings are plastic.

Manufacturer: Crane Co., 836 So. Michigan Ave., Chicago, Ill.

#### PENDULUM DEVICE instantly determines roof slope.

When placed on a roof, the Handy Roof Incline Finder instantly shows the roof slope in inches per foot. Of trans-

parent plastic, it can also be used as a protractor to determine roof incline from a drawing or blueprint. Thus the tool is convenient for quick use in deciding what built-up roofing specifications should be recommended for the particular job. Pocket size, 3 in. by 5 in., it is avail-



able free to architects and built-up roofing contractors.

Manufacturer: The Ruberoid Co., 500 Fifth Ave., New York
18, N. Y. (Technical Literature, page 216)



TIME

#### ARCHITECT: Leah R. Roberts

# Presenting THE SHOW-ROOM HO of the Nation

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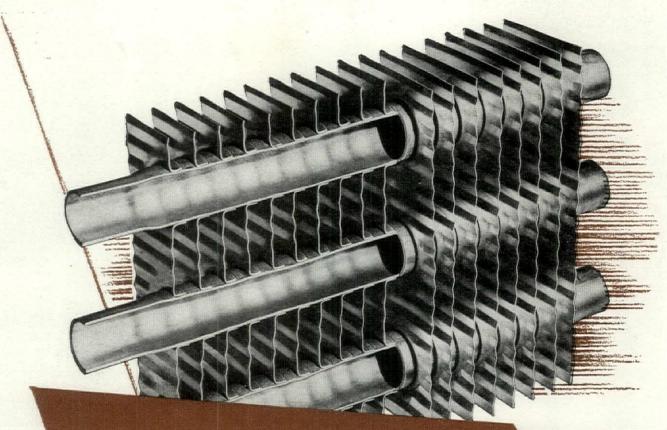


A change in address will soon come through for the TIME-subscription No. 4-50-ZGR of Mr. and Mrs. Wm. Medford-when they move into their new home at Lancaster, South Carolina.

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Increased heat transfer surface is just one of the superior features of ripple fins. In addition, this construction provides higher flexible strength with *less* air friction and cleaner operation.

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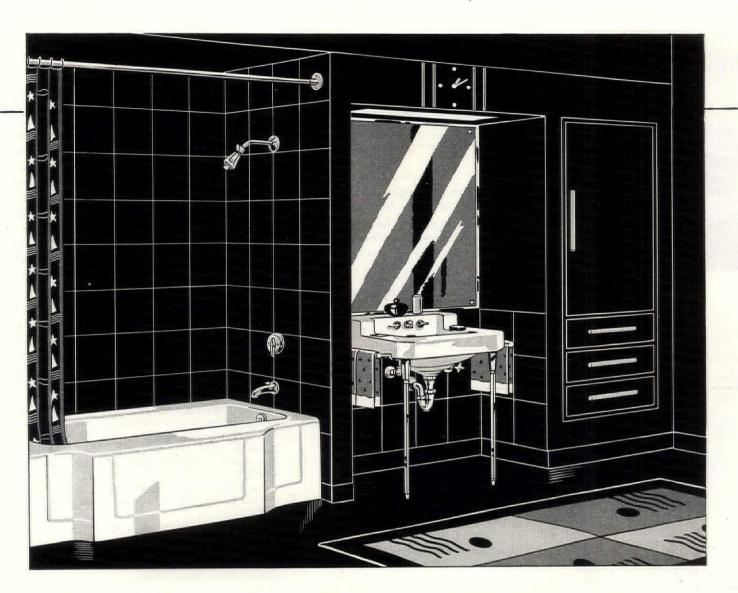
McQuay coils are available in a wide variety of styles and sizes, both standard and special coils for steam, hot water, cold water, brine, direct expansion and other applications.

For complete information write McQuay, Inc., 1609 Broadway Street N. E., Minneapolis 13, Minn.



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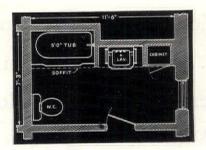


## A KOHLER bathroom has quality appeal and practical appeal

The appeal of attractive clean-cut lines, good proportions, well-matched designs, lustrous easy-to-clean surfaces, and the practical value of smooth-functioning working parts—these are satisfactions that home-owners have learned to associate with Kohler fixtures and fittings. This confidence inspired by Kohler quality is an advantage to you. It means that home-owners for whom you provide Kohler plumbing are immediately assured that their sanitary facilities will be efficient for health protection, and will add both to the comfort of living in a home and to the ease with which it can be rented or sold. The Kohler fixtures and fittings in

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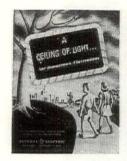
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is especially pronounced in a simple, practical arrangement using floor space of moderate size, providing free access to all facilities, and well-placed, roomy storage compartments.

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PLUMBING FIXTURES AND FITTINGS . HEATING EQUIPMENT . ELECTRIC PLANTS

## TECHNICAL LITERATURE



**LIGHTING.** A Ceiling of Light for Tomorrow's Classrooms. General Electric Co., Nela Park, Cleveland, Ohio. 12 pp. 81/2 in. by 107/8 in.

This booklet offers ideas for better schoolroom lighting to meet the needs of new teaching techniques. Treating the square classroom, the standard 20 ft. by 30 ft. room, auditorium and corridors, it suggests modern lighting arrangements which permit flexible seating with usable desk or work surfaces in any direction. Details of installation methods are included.

**ELECTRICITY.** A Chronological History of Electrical Development. National Electrical Manufacturers Assoc., 155 E. 44th St., New York. 106 pp. 61/4 in. by 91/4 in. Price \$2.00.

Designed as a reference work, this chronology is a story of electricity from its discovery in 600 B.C. It reviews the theories, research, experiments and discoveries of great men

of science, their contribution to electricity, electronics and atomic energy, and the vast assortment of devices and equipment created by the electrical manufacturing industry. Modern electrical applications such as television, fluorescent and ultra violet light, the turbo generator and electron microanalyzer for atomic research are touched upon, but accent is placed on the history and achievements leading up to these discoveries. Other contributing factors such as electrical expositions, congresses, publications, engineering and trade associations, societies, foundations and institutions are recorded.

#### REQUESTS FOR INFORMATION

R. V. Coffin, builder, 4556 8th Ave., N.E., Seattle, Wash. desires information on materials and equipment for home construction.

COLOR CLINIC, 300 Towson Ave., Fort Smith, Ark. desires data on color, wallpaper, paints, waterproofing and allied specialties.

Windson House, 415 W. Broad St., Richmond 20, Va., requests material of interest to interior designers and decorators.

CLINTON J. HENDRICKSON, 72 S. Hawthorne St., Manchester, Conn. requests information on structural materials, finishes, hardware for cabinet manufacture, also factory built cabinets.

Frank P. Hlad, 3112 Keokuk St., Village Chippewa, St. Louis, Mo., desires information pertinent to home construction and remodeling, prefabricated homes.

STEPHEN C. PARDEE, South Florida Homes Corp., Avon Park, Fla., requests information on home construction, materials and equipment.

JOHN W. RONEY, 28 N. Ithan St., Philadelphia, Pa. would like information on materials and equipment for home and store remodeling.

S. T. Townsend, architect, c/o Public Hospital, Christchurch, New Zealand, desires information on hospital planning, construction, and equipment.

NATIONAL HOUSING AGENCY, VETERAN'S EMERCENCY HOUSING PROGRAM, 2 Park Ave., New York, N. Y. requests information in duplicate on new tested building methods and materials available for Veteran's Housing Program.

THE VETERANS ADMINISTRATION CONSTRUCTION SERVICE, Branch Office No. 4, 900 N. Lombardy St., Richmond, Va. desires information on general construction, heating, air conditioning, plumbing, electrical, outside utilities, waterworks, and sewage materials and equipment.

#### REQUESTS FOR LITERATURE

Leon Brown, architect, 410 Portland Building, Vermont Ave. & M St., Washington, D. C.

CAVITT AND LANE, architects and engineers, 4801 Lemmon Ave., Dallas 9, Tex.

Daniel, Mann and Johnson, architects, 672 S. Lafayet Park Place, Los Angeles, Calif.

Frank Grad & Sons, architects and engineers, 1633 Connecticut Ave., N.W., Washington, D. C.

William Jameson, architectural consultant and engineer, 196 E. Delaware Place, Chicago 11, Ill.

W. G. Leithead, architectural student, R.R.I. Nelson, B.C., Canada. Albert Melniker, architect, 130 Bay St., Staten Island 1, N. Y. S. Norton Miner, architect, Lime Rock, Conn.

GEORGE T. MOORE, architect-engineer, c/o J. E. Sirrine & Co., Greenville, S. C.

NATIONAL STORE PLANNING SERVICE, Croton-on-Hudson, N. Y.

WILLIAM & BARBARA PFOUTS, designers, 326 Castlegate Road, Pittsburgh 21, Pa.

W. BYRON PROCTOR, architect, 406 W. Berry St., Ft. Wayne, Ind. RENTENBACH ENGINEERING Co., engineers-architects, Kingsport, Tenn.

GEORGE P. RODECKO, 561 No. 14th St., Milwaukee, Wis.

C. V. Santochi, architectural student, 902 W. 40th Place, Los Angeles, Calif.

Alfred C. Shaknis, architect, Glen Cove Road, Glen Head, N. Y. T. Richard Shoaff, architect, 406 W. Berry St., Ft. Wayne 2, Ind. Bernard P. Spring, architectural student, 3703 Locust St., Philadelphia, Pa.



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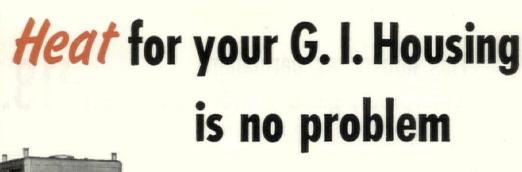


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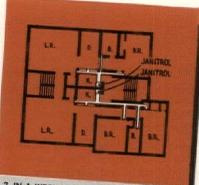
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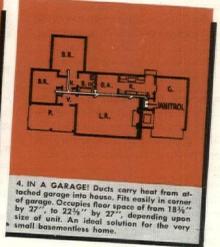
2. IN A KITCHEN! Can be fitted in with cup-board and sink arrangement. Duct wark carries heat to other rooms. Return air flows back through passage to the kitchen. Perforated lower panel on front of unit admits air return to furnace.

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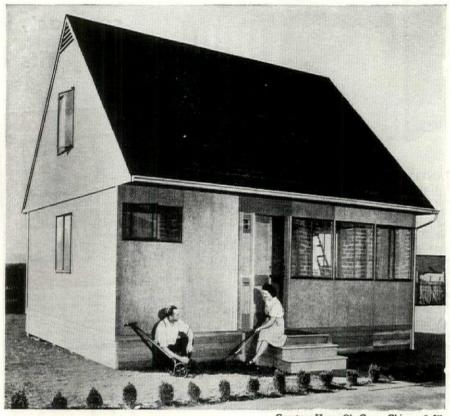
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**Permanence at low cost**— The cost of glue for the degree of permanence assured is insignificant. The 5-room prefabricated house, shown here, was constructed at a glue cost of only \$18.78.

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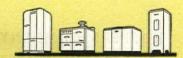
For complete details, see your local Kelvinator dealer. His name and phone number are in the classified section of your local phone book. Or write to Kelvinator, Detroit 32, Michigan.

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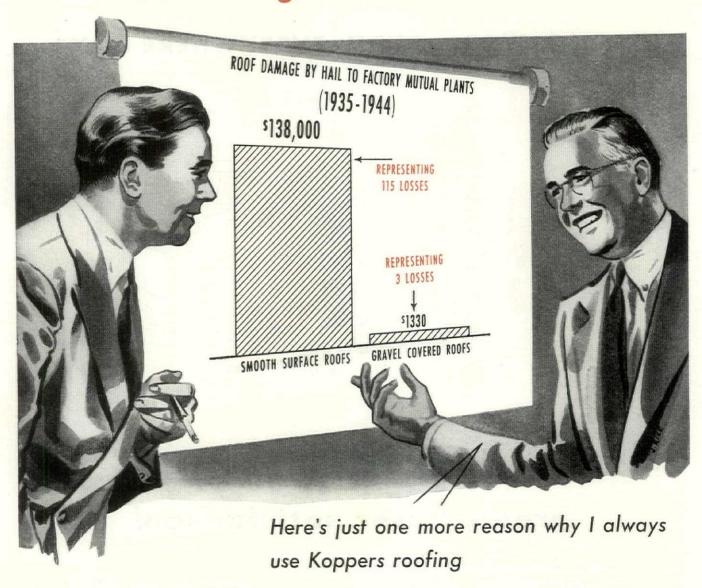




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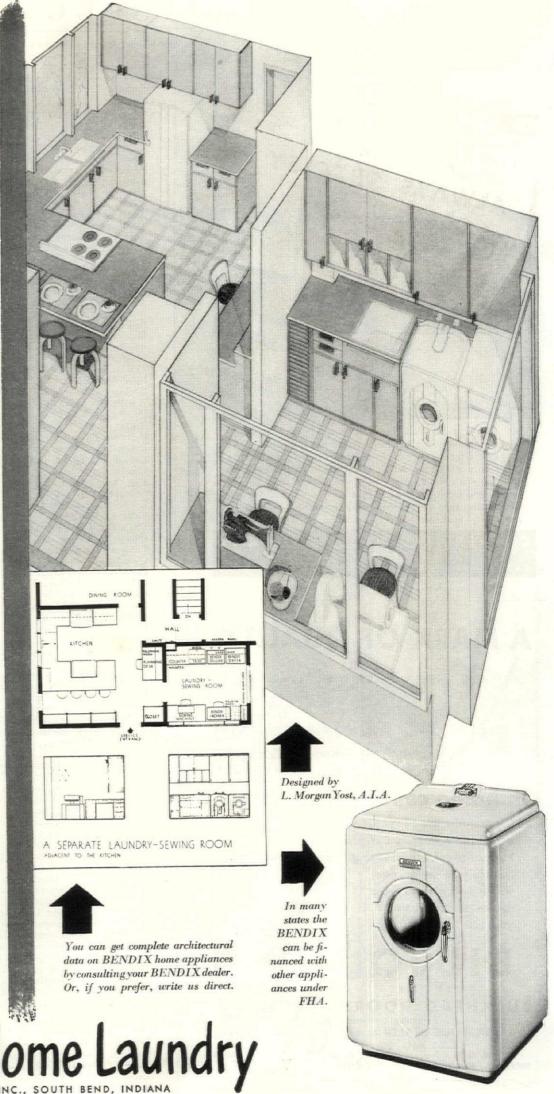
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 Allied Building Credits, Inc.
 19

 Allied Housing Associates, Inc.
 28

 Aluminum Company of America.
 57

 American Air Filter Co., Inc.
 95

 American Brass Co., The.
 167

 American Central Manufacturing Corporation
 45

 American Home
 193

 American Radiator & Treating Company
 184

 American Rolling Mill Company, The.
 51

 American Stove Company
 59

 American Telephone & Telegraph Co.
 33

 Anchor Post Fence Company
 20

 Anthracite Institute
 165

 Armstrong Cork Company, The.
 92

 Bell & Gossett Co.
 205

 Bendix Home Appliances, Inc.
 221

 Belle & Manufacturing Company
 54

 Allied Building Credits, Inc.
Allied Housing Associates, Inc.
Aluminum Company of America
American Air Filter Co., Inc. 
 Bilco Manufacturing Company, The
 222

 Bird and Son, Inc.
 174

 Bohn Aluminum and Brass Corporation
 169

 Borden Company, The (Casein Division)
 218

 Bradley Washfountain Co.
 200

 Bruce Co., E. L.
 17

 192
 193
 Bryant Heater Co..... Chase Brass & Copper Co., Inc. 15
Cheney Industries 164
Chicopee Manufacturing Corp. 65
Chrysler Corporation (Airtemp Division) 46 
 Chrysler Corporation (Airtemp Division)
 46

 Circular Homes, Inc.
 178

 Columbia Mills, Inc., The
 82

 Coolstream Corp., The
 174

 Copperweld Steel Company
 222

 Corbin, P. and F.
 94

 Coyne and Delany Co.
 192

 Crawford Company
 22

 Grame Co.
 81

 Crawford Company
 32

 Cribben & Sexton Co.
 64

 Defoe Shipbuilding Company
 23

 Douglas Fir Plywood Association
 83

 Dunham, C. A. Co., The.
 148

 Durner Products Corporation
 10

 Dwyer Products Corporation..... 
 Fir Door Institute.
 199

 Firestone.
 39

 Flintkote Company, The.
 224

 Financial Company, The.
 224

 Flynn, Michael, Manufacturing Co.
 38

 Formica Insulation Company, The.
 Opp. 64

 Gates City Sash & Door Co.
 18

 General Bronze Corporation.
 186

 General Electric Company.
 73, 147, 161, 162, 163, 203

 General Luminescent Corporation..... Georgia Marble Company, The. 188
Gilman Brothers Company, The. 176 
 Gliman Brothers Company, The
 176

 Grand Rapids Hardware Company
 44

 Great Lakes Steel Corporation (Stran-Steel Division)
 34

 Hall-Mack Company
 76

 Hendrick Manufacturing Co.
 223

 Home Ola Corporation, The.
 149

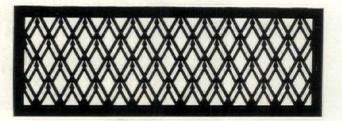
 House & Garden
 93

 Kelvinator
 219

 Kennedy, David E., Inc.
 26

## UYING INDEX

Kimberly-Clark Corporation	19
Kinkead Industries Kinnear Mfg. Co., The.	20
Kinnear Mig. Co., 1se.	
Koppers Company	
Laclede Steel Company	173
Laverne Originals	21
Libbey-Owens-Ford Glass Co.	3
Liquidometer Corp., The	
Louisville Cement Company, Inc.	209
McOuay Inc.	214
Majestic Company, The	88
Marsh Wall Products, Inc	150
Miller Marine Decking Co.	189
Minneapolis-Honeywell Regulator Co	157
Minwax Company, Inc Monarch Metal Weatherstrip Corp	146
Monroe, Lederer & Taussig, Inc.	76
Morse Boulger Co	56
Mueller, L. J., Furnace Company	153
National Chemical & Manufacturing Co	24
National Electrical Contractors Association.	
National Electrical Manufacturers Association	
National Gypsum Company	30
National Life Insurance Co. of Vermont	151 79
National Surety Corporation	20
Norfolk and Western Railway	
Nu Tone, Inc	89
O'Brien Varnish Co	176
Ohio Hydrate & Supply Co., The	29
Overhead Door Corporation	r IV
Owens-Illinois Glass Company	22
Paranite Wire & Cable Co. (Division of Essex Wire Corp.)	52
Paranite Wire & Cable Co. (Division of Essex Wire Corp.)	80
Penberthy Injector CoOpp Permutit Co., The	208
Pittsburgh Corning Corp	
Pittsburgh Plate Glass Company	3, 69
Ponderosa Pine Woodwork	
Portland Cement Association.  Prima Products Inc.	
Propellair, Inc.	
	60
Pryne & Co., Inc.	
Pryne & Co., Inc.  Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)	24 84
Pryne & Co., Inc.  Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company. The	24 84 96
Pryne & Co., Inc.  Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The.  Ric-wil Company, The	24 84 96 173
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The. Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company.	24 84 96 173 206 155
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The. Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company. Roddis Lumber & Veneer Co.	24 84 96 173 206 155 71
Pryne & Co., Inc.  Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The.  Ric-wil Company, The  Richmond Fireproof Door Co., The.  Robertson, H. H. Company.  Roddis Lumber & Veneer Co.  Roper, George D. Corporation.	24 84 96 173 206 155 71 56
Pryne & Co., Inc.  Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The.  Ric-wil Company, The  Richmond Fireproof Door Co., The.  Robertson, H. H. Company  Roddis Lumber & Veneer Co.  Roper, George D. Corporation  Rowe Manufacturing Co.	24 84 96 173 206 155 71 56 145
Pryne & Co., Inc.  Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The Robertson, H. H. Company Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Company Salter Mfg. Co., H. B.	24 84 96 173 206 155 71 56 145 164
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The Robertson, H. H. Company Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Company Salter Mfg. Co., H. B. Servel, Inc. 78, 180,	24 84 96 173 206 155 71 56 145 164 160 181
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company. Roddis Lumber & Veneer Co. Roper, George D. Corporation. Rowe Manufacturing Co. Russell, The F. C., Company Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc.	24 84 96 173 206 155 71 56 145 164 160 181 201
Pryne & Co., Inc.  Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The.  Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company.  Roddis Lumber & Veneer Co. Roper, George D. Corporation.  Rowe Manufacturing Co. Russell, The F. C., Company.  Salter Mfg. Co., H. B.  Servel, Inc. Sisulkraft Company. The.	244 844 966 1733 2066 1555 711 566 1455 1644 1600 1811 2011 1788
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The. Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company. Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Company.  Salter Mfg. Co., H. B. Servel, Inc. Sisalkraft Company, The. Sloan Valve Company. Smith Corporation, A. O. Opp	244 844 96 1733 2066 155 711 566 1455 1644 1600 1811 2011 1788 677
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The Robertson, H. H. Company Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Cempany Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc. Sisalkraft Company, The Sloan Valve Company Smith Corporation, A. O. Opp Snead & Company	244 844 966 1733 2066 1555 711 566 1445 1604 1811 2011 1788 677 0. 655 2077
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Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The. Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company. Roddis Lumber & Veneer Co. Roper, George D. Corporation. Rowe Manufacturing Co. Russell, The F. C., Company Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc. Sisalkraft Company, The Sloan Valve Company Smith Corporation, A. O. Opp Snead & Company Sonneborn Sons, Inc., L. Stanley Works, The Stenssaard, W. L., and Associates, Inc.	244 844 966 173 2066 155 711 566 1445 1600 1811 2011 1788 677 0. 655 2077 166 31
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The. Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company. Roddis Lumber & Veneer Co. Roper, George D. Corporation. Rowe Manufacturing Co. Russell, The F. C., Company Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc. Sisalkraft Company, The Sloan Valve Company Smith Corporation, A. O. Sonneborn Sons, Inc., L. Stanley Works, The Stensgaard, W. L., and Associates, Inc. Stran-Steel Division (Great Lakes Steel Corporation)	244 844 966 173 2066 155 711 566 145 164 160 181 201 178 67 50. 65 207 168 31 168 34
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The Robertson, H. H. Company Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Company Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc. Sisalkraft Company, The Sloan Valve Company Smith Corporation, A. O. Sinead & Company Sonneborn Sons, Inc., L. Stanley Works, The. Stensgaard, W. L., and Associates, Inc. Stran-Steel Division (Great Lakes Steel Corporation) Surface Combustion Corporation.	244 844 966 1733 2066 1555 711 566 1455 1644 1600 1811 2011 1788 677 168 311 1688 344 217
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company.  Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Company.  Salter Mfg. Co., H. B. Servel, Inc.  Silvercote Products, Inc. Sisalkraft Company, The. Sloan Valve Company. Smith Corporation, A. O. Snead & Company. Sonneborn Sons, Inc., L. Stanley Works, The. Stran-Steel Division (Great Lakes Steel Corporation) Surface Combustion Corporation. Sylvania Electric Products Inc.	244 844 96 173 206 155 71 56 145 164 160 181 201 178 67 207 16 31 168 34 217 189
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company.  Roddis Lumber & Veneer Co. Roper, George D. Corporation.  Rowe Manufacturing Co. Russell, The F. C., Company.  Salter Mfg. Co., H. B. Servel, Inc.  Silvercote Products, Inc. Sisalkraft Company, The. Sloan Valve Company.  Smith Corporation, A. O. Snead & Company.  Sonneborn Sons, Inc., L.  Stanley Works, The. Stensgaard, W. L., and Associates, Inc. Stran-Steel Division (Great Lakes Steel Corporation) Surface Combustion Corporation. Sylvania Electric Products Inc.  Taco Heaters, Inc.	244 844 966 1733 2066 1555 711 566 1455 1641 1680 311 1680 344 2177 1899 32
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The. Ric-wil Company, The. Richmond Fireproof Door Co., The. Robertson, H. H. Company. Roddis Lumber & Veneer Co. Roper, George D. Corporation. Rowe Manufacturing Co. Russell, The F. C., Company. Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc. Sisalkraft Company, The. Sloan Valve Company. Smith Corporation, A. O. Someborn Sons, Inc., L. Stanley Works, The. Stensgaard, W. L., and Associates, Inc. Stran-Steel Division (Great Lakes Steel Corporation) Surface Combustion Corporation. Sylvania Electric Products Inc. Taco Heaters, Inc. Taylor, Halsey W., Co., The. Taylor Manufacturing Co.	244 844 96 173 206 155 71 56 145 164 160 181 201 178 67 207 16 31 168 34 217 189
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Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The. Robertson, H. H. Company.  Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Company.  Salter Mfg. Co., H. B. Servel, Inc.  Silvercote Products, Inc. Sisalkraft Company, The. Sloan Valve Company. Smith Corporation, A. O. Sinead & Company. Sonneborn Sons, Inc., L. Stanley Works, The. Stensgaard, W. L., and Associates, Inc. Stran-Steel Division (Great Lakes Steel Corporation)  Sylvania Electric Products Inc.  Taco Heaters, Inc. Taco Heaters, Inc. Taylor, Halsey W., Co., The. Taylor Manufacturing Co. Thermador Electrical Mfg. Co. Tile-Tex Company. The.	244 844 96 173 206 155 71 56 145 164 160 1201 178 67 207 168 34 217 189 32 176 60 172 77
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Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The Robertson, H. H. Company. Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Company.  Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc. Sisalkraft Company, The Sloan Valve Company. Smith Corporation, A. O. Snead & Company. Sonneborn Sons, Inc., I. Stanley Works, The. Stensgaard, W. L., and Associates, Inc. Stran-Steel Division (Great Lakes Steel Corporation) Surface Combustion Corporation. Sylvania Electric Products Inc. Taco Heaters, Inc. Taco Heaters, Inc. Taylor, Halsey W., Co., The Taylor Manufacturing Co. Thermador Electrical Mfg. Co. Tile-Tex Company, The Time Tomlinson Trane Company, The Truscon Steel Company.  170,	244 844 966 173 2066 1555 711 566 145 1644 1600 1811 2011 1788 34 2177 1688 344 2177 189 32 1766 60 172 77 72 2133 58 185
Pryne & Co., Inc. Pyrofax Gas Division (Carbide and Carbon Chemicals Corporation)  Reardon Company, The Ric-wil Company, The Richmond Fireproof Door Co., The Robertson, H. H. Company Roddis Lumber & Veneer Co. Roper, George D. Corporation Rowe Manufacturing Co. Russell, The F. C., Cempany Salter Mfg. Co., H. B. Servel, Inc. Silvercote Products, Inc. Sisalkraft Company, The. Sloan Valve Company. Smith Corporation, A. O. Snead & Company. Sonneborn Sons, Inc., L. Stanley Works, The Stensgaard, W. L., and Associates, Inc. Stran-Steel Division (Great Lakes Steel Corporation) Surface Combustion Corporation. Sylvania Electric Products Inc. Taylor, Halsey W., Co., The Taylor Manufacturing Co. Thermador Electrical Mfg. Co. Tile-Tex Company, The Time Tomlinson Trane Company, The Truscon Steel Company, Top.	244 844 966 1732 2066 1555 71 566 145 168 31 168 34 217 168 34 217 77 213 58 185 171 212
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DAMPPROOF FOUNDATIONS with Flintkote Static\* Asphalt. This asphalt emulsion will not crack at low temperature; flow under heat; craze, alligator or oxidize when exposed to water or weather. Quickly and easily applied by brush or spray. Static offers positive money-saving protection for foundations in any climate.

## AND THERE YOU HAVE IT

From top to bottom a house that's snug and serviceable. Designed for modest budgets. Built for years of service . . . because it's built with Flintkote quality products. Flintkote Materials are backed by more than 45 years' leadership.

For building, remodeling or renovation, remember . . . with Flintkote Materials, building dollars make a lot of sense.

## THE FLINTKOTE COMPANY

Building Materials Division

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