“ingredients” make the big difference in quality of performance whether the product is a fine watch or a fine building material.

Secret of the success of so many Celotex building products, for example, is the cane fibre at their core. These long, tough cane fibres form an interlocking “bridge” with each other—endow Celotex board with high tensile strength and endurance, good insulating value, yet extreme lightness and workability. It’s easy to handle, easy to apply, economical to use.

What’s more—special Celotex processing renders the board wind, water, heat, cold and vermin-resistant... makes it one of the most practical building materials on the market.

Look to The Celotex Corporation for these quality cane fibre building products. And remember: on literally millions of building jobs, they’ve proved beyond a shadow of a doubt that they’ve got the inside quality that counts!

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**Quick Facts on Celo-Siding—a typical Celotex cane-fibre building material**


1. Tongue and Groove joint on long edges of 2' x 8' panels.
2. Core of genuine Celotex Cane Fibre, Board furnishes structural strength and insulation.
3. All edges and sides sealed against moisture by coating of asphalt.
4. Extra coating of asphalt on exterior side.
5. Exterior surface of firmly imbedded mineral granules, providing durable, colorful finish.
6. Colors: Green or Buff tone.
7. Sizes: ¾” thickness—4' x 8' with square edges.
8. ¾” thickness—2' x 8' with T & G joints on long edges.
9. ¾” thickness—4' x 10' with square edges.
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The Architectural FORUM

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VOLUME 84, NUMBER 4

April 1946

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LETTERS

IN THE FORUM

ANNOUNCEMENTS

HOUSING IN CRISIS
Mr. Wyatt's program bogs down in controversy.

STEINBERG DOUBLES UP

BUILDERS SURVEY
A nationwide look at the under-$10,000 house and its builders.

BOSS CARPENTER
Big Bill Hutcheson rules the carpenters, who rule the show.

TEN PRIZE-WINNING HOUSES
Chicago-Tribune contest winners.

LOW COST HOUSES
24 homes within the Wyatt program's cost limitations.

THE 5,000 LB. HOUSE
Fuller's $6,500 four-room industrialized unit is round.

PREFABRICATION
It is fast becoming a big business.

STORAGEWALL
FORUM'S original prefabricated units will soon be available.

PACKAGED KITCHENS
They fit Mr. Wyatt's plan, but not his budget.

FARM CONSTRUCTION
U. S. farmers face a huge job of repair and reconstruction.

FORTUNE SURVEY
The housing shortage and what to do about it.

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G. I. JOBS

PRODUCTS & PRACTICE
New framing system . . . liquid heat . . . site-welded steel farm buildings.

TECHNICAL LITERATURE

Cover by Hal Zambovi
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The following excerpt from the letter of an Upson contractor in Louisiana testifies to the unusually high structural strength of Upson Panels.*

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*Name on request

Upson Products are easily identified by the famous Blue-Center.

PACEMAKER IN CRACKPROOF PANELS
**NEWS**

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**BUILDING MONTH.** The change in the weather and the break-up of ice in the Hudson brought the first easement in New York City's desperate shortage of building materials. Last month large loads of brick, tile, sand, gravel and cement were floating down the river for the first time since the winter freeze. All over the U. S., Building weather had changed markedly, too. Whether it was a change for the better depended mainly on the kind of business you happened to be in. For low-cost housebuilding for veterans, the Washington weather bureau promised an early thaw. But every other kind of construction faced an unseasonable freeze. The new rules held the threat of unemployment for labor in heavy construction and in some materials producing industries. They also held the threat of at least partial paralysis for big industrial and commercial contractors, who might (as some had done in the last years of the war) shift to large-scale housebuilding.

While the Senate debated the materials subsidy provision of the Wyatt housing program, materials producers hotly campaigned for price ceiling increases. With Senate action at last near on the Wagner-Ellender-Taft bill (long-range housing program), a promising public housing portent came from Youkens, N. Y. To Goldman Sachs & Co., the Youkens Housing Authority sold bonds at the lowest interest rate yet obtained—1.242% per cent.

Although the threat of the black market still hung ominously over the housebuilding industry, the month brought many a promise of volume housebuilding soon to start. Samples: An $8 million development in suburban Philadelphia announced by Enny and Nolen; an $11 million Denver apartment project to be developed by architect Temple Buell; 1,000 Miami $6,000 houses to be built by C. F. Wheeler and John H. McCear; 1,000 houses in Los Angeles to be built by Paul W. Trusdale and financed by a $10 million loan from the Bank of America, believed to be the largest ever made to a housebuilder.

**WASHINGTON**

HEAVY CONSTRUCTION HALTS

Unemployment feared as building ban clamps down on U. S.

In booming Miami Beach a March stam­ pede to beat the building ban boosted per­ mitts to the highest point on record. The month's total showed more than $5 million worth of plans filed—which beat the previous peak in July, 1925 by more than 50 per cent. Miamians dolefully figured that the new building restriction order would completely knock out local construction activity—which consists mostly of apartments, hotels, expensive houses.

Milwaukee estimated that the ban would defer $25 million worth of construction. Questionable items: new bottling houses for Schlitz and Blatz breweries, for which excavations are finished and materials already delivered to the site.

In St. Louis, city fathers mourned the loss (which might be more than tem­ porary) of a $44 million International Harvester plant at nearby Wood River. Discouraged by the building ban and by current material shortages, International Harvester decided to buy several surplus war plants instead of building new ones for production of its new cub tractor.

Boston said that some $125 million in public and private construction pro-
sons wishing to build non-veterans housing must apply to the Federal Housing Administration for a permit. Applications for all other types of construction must be made to local CP offices.

The brisk conversion job was handled by contractor Robert Glenn and three shifts of 200 skilled tradesmen, who worked round the clock to cut what would normally have been a five-month job down to a bare 15 days. The architects took only 24 hours to prepare a complete plan, only 48 to work out a detailed scheme. Complete working drawings, including electrical and ventilation plans, were ready in a week. Only two weeks were required to set up the five-panel control board, from which intricate lighting, radio, public address systems are operated. Making over the gymnasium for UNO use cost $200,000, including overtime pay.

SONS WISHING TO BUILD NON-VETERANS HOUSING

When Andrei Gromyko walked out of the United Nations Security Council last month, his decisive footsteps, although they reverberated throughout the world, made no sound at all in the Hunter College gymnasium. This can be chalked up to architects Voorhees, Walker, Foley and Smith, who had foresightedly sheathed the iron rafters of the onetime gym with acoustic tile, glued thick carpeting to the floor planks, hung 3,500 yards of sound-muffling fire-flash fabric over the bare brick walls. The brisk conversion job was handled by contractor Robert Glenn and three shifts of 200 skilled tradesmen, who worked round the clock to cut what would normally have been a five-month job down to a bare 15 days. The architects took only 24 hours to prepare a complete plan, only 48 to work out a detailed scheme. Complete working drawings, including electrical and ventilation plans, were ready in a week. Only two weeks were required to set up the five-panel control board, from which intricate lighting, radio, public address systems are operated. Making over the gymnasium for UNO use cost $200,000, including overtime pay.

UNO IN THE BRONX

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Sons wishing to build non-veterans housing must apply to the Federal Housing Administration for a permit. Applications for all other types of construction must be made to local CP offices.

Only exemptions are for small jobs, not exceeding these cost limits:

$400 for a house occupied by less than five families.
$1,000 for a hotel or apartment house.
$1,000 for a commercial or service building.
$1,000 for a farm, excluding the farm house.
$1,000 for a church, hospital, school or publicly owned building.
$15,000 for an industrial structure.
$200 for a structure not covered by any of these categories.

While the industry tried to figure out what life would be like under the new order, housing boss Wyatt prepared another. Intended to channel bulk of materials into lower-priced housing, the order will set area price levels (based on the bottom third of prices now named in FH applications) and require that 50 per cent of all future applications be within the stipulated price level.

At the month’s end, government lawyers found an unexpected loophole in the executive order limiting veterans’ housing to $10,000. Months ago Congress, passing the routine Independent Offices Appropriation bill, had thoughtfully tucked on an amendment stipulating that veterans must be given priorities to build houses, but naming no price limit. Since this was the law of the land, the federal experts figured there was no legal way to deny a veteran priorities for an over-$10,000 house if he wants to build one—until re-interpretation or Congressional action plugs up the loophole.

SENATE MAY BACK SUBSIDIES

Support for Wyatt program mounts as Senate vote nears.

Republican Senator Taft sharply cross-questioned housing boss Wilson Wyatt. It wasn’t the money. Senator Taft said, but would the scheme work? Senator Homer Capehart (Rep., Ind.) called the plan to give prefab houses government purchase ‘contracts the most unbusinesslike proposition he had ever heard. Senator Eugene Millikin (Rep., Colo.), sensitive to veterans’ complaints, rushed out of the hearings to collect statistics on the number of veterans which Congressmen have fathered. Dozens of Building men shifted restlessly in the Committee room, waiting to be heard. Prominent among them: Producers Council’s Douglas Whitlock, anxious to tell why materials producers are unalterably opposed to subsidies.

After its decisive drubbing in the House, the Wyatt emergency housing program was now up to the Senate. While President Truman and party boss Steve Hannegan buttonholed recalcitrant partymen, Wilson Wyatt labored to sell the Senators his two main points (both tossed out by the House): subsidies to boost building materials production and price ceilings on older houses and on lots.

Although Hannegan had wired each of the 239 Democrats in the House in a last-minute appeal for backing for the Administration’s housing program, the House had voted 161-92 to turn down subsidies and 154-68 against price controls on older houses. There were, however, mounting signs that the Senate was more alert to Hannegan’s warning to those Democrats who voted with the solid Republican opposition: “The Democratic party will be held responsible by the country for failure to solve the housing crisis, not the Republicans.”

How far the House was out of step with the public temper seemed clear from FORTUNE’s recent survey, which showed that most voters want not only subsidies and stiff price controls, but would also back direct government housebuilding (see page 178). But although Administration stalwarts like Representative Mike Monroney (Okla.) tried desperately to save what Wyatt called the heart of his program, most of the House seemed closer in sentiment to Representative Jessi Sumner (Rep., Ill.), who distinguished herself initially by calling prefab houses “glorified garbage cans” and later by showing as the only member of the House to vote against authorization of $253 million to take care of moving temporary war houses to where they are now needed.
the awkward defection of the National Association of Home Builders, an effective combine—the National Association of Real Estate Boards, the Producers' Council and the National Retail Lumber Dealers' Association, all veterans on the Washington scene—had been able to convince Representatives that the major Wyatt proposals added up to bureaucracy at its most bungling. The home builders, usually a part of the team, abruptly switched their stand after a day's encounter with Wyatt at their Chicago convention and—to the consternation of the lobbyists hard at work in Washington—endorsed subsidies.

New Bills. While the housebuilding business waited anxiously the fate of the Wyatt housing program, several other Congressional efforts to deal with the veterans' housing emergency appeared. Senator George Murray (Dem., Mont.) introduced a logical measure to complement the Wyatt program, proposed federal aid for extension of public utilities where needed to take care of veterans' housing. Amount of federal aid per veteran would be deduced from the assessments levied against each property. Representatives Peterson (Dem., Fla.) and Hartley (Rep., N. J.) introduced a bill to provide direct federal grants (from $500 to $2,500) to veterans for home purchase.

W-E-T BILL OUTLOOK

Prevailing wage clause newest hurdle.

About to come before the Senate for a vote, the Wagner-Elleder-Taft general housing bill (S. 1592) faced one more stall in committee. A drafting subcommittee of the Senate Banking and Currency Committee had been quietly at work on the bill for the last month. Their final draft looked generally pleasing to the full committee, with one exception: a prevailing wage clause had been added, which would require labor on all housebuilding financed with the help of FHA insurance to be paid at the same rate as heavy construction. Outlook was that several powerful members of the Committee would refuse to approve the clause.

Other principal changes in the proposed legislation:

- Elimination of the builders' warranty provision, which would have made builders liable for defects in materials and workmanship on FHA-insured houses.
- Modification of the clause permitting lapse of payment on FHA-insured mortgages in case of borrower hardship. New terms merely give the FHA Commissioner the right to authorize such a lapse.
- Amortization period for 95 per cent mortgage loans on $5,000 or under houses reduced from 32 years to 25 years—except where the FHA Commissioner decides the longer term is necessary.
- Planning advances for mutual ownership or cooperative housing projects amounting to not more than 1 per cent of project cost to be advanced by the Federal National Mortgage Association.
MEN FOR THE JOB

While Congress debated over what housing boss Wilson Wyatt said must be done to meet the housing crisis, Wyatt himself was busy with an important first step. There was still some doubt about the details of the sweeping program he had outlined, but whether or not the program would work depended in large part on the caliber of the men housing boss Wyatt chose to operate it.

The housing boss had appealed to all parts of the building industry for a loan of the seasoned men who could make his program tick. By last month he was able to announce an imposing list of top personnel—some newcomers and some old hands.

Carrying on at the top operating level are Leon Keyserling as general counsel, Howard Vickery as director of information and Lyman Moore as assistant administrator in charge of budgeting—all well known to Building men.

New Faces. Neil Dalton, newly appointed deputy expediter in charge of operations, comes from Wyatt’s home town, Louisville. On leave of absence as assistant to the director of the John B. Pierce Foundation, is back again in Washington to lend a hand with the housing job. Appointed to Wyatt’s staff as consultant on technical problems, architect Vermilya will be on leave from the Pierce Foundation.

Branch Chiefs. New director of the land and governmental services branch is Commander Frank W. Herring, who served in the Navy’s Bureau of Yards and Docks. A one-time member of the National Resources Planning Board, Herring was also executive director of the American Public Works Association. In his new job, he will handle procedures for developing enough improved sites to take care of veterans’ housing. He will also work on standards of land use and land planning. If—as is probable—federal aid is given to cities in extending public utilities to new suburban building sites, Herring will undertake the job of working out such assistance.

Ex-Navy Lieutenant Gunnar Mykland has been appointed NHA director in charge of field operations. Formerly a special assistant to the Commissioner of the Federal Public Housing Authority, Mykland has also had extensive experience in working with local housing authorities.

H. B. Kreager will head NHA’s community action branch, which means organizing and working with the local housing committees which Wyatt hopes will carry a big part of the housing job. Kreager was formerly South American representative of the Foreign Economic Administration.

Manuel Lerner, recently assistant to the director of the United States Employment Service, has been appointed director of the labor branch. Thirteen years in government service, Lerner worked for the National Recovery Administration, the Social Security Board, and the War Manpower Commission.

Regional Trouble-shooters. Over the U. S., regional housing expediter will go to work on building bottlenecks. Up to them will be a hundred problems of materials supply, ample building sites, community support for price and occupancy controls, recruitment of building labor. Under the new program, the seven regional representatives of NHA take over as regional expediter.

In Seattle, tall, broad-shouldered George W. Coplen is on the job. Coplen started his career in the mortgage department of the Seattle Trust and Savings Bank, studied real estate law at night school. Formerly chairman of the Seattle Housing Authority, he is also a past officer of the Seattle Real Estate Board. Coplen’s special interest is the housing shortage in Alaska, where he says tents are now at a premium.

In San Francisco it’s Preston L. Wright. A onetime math teacher, Wright went into the real estate business in 1913, started a building and subdividing business after World War I. A former president of the Seattle Real Estate Board, Wright served as state manager of the Home Owners Loan Corp. in 1934. In 1942 he left his own housebuilding business (in South Carolina) to go to work for NHA.

In Dallas, Joseph P. Tufts heads the show. Tufts, who once taught sociology at Dartmouth, started a housing career with the Pittsburgh Housing Association of which he was executive director. During the war he was chief of the housing section of the WPB labor division, later became chief of the War Manpower Commission’s housing and community services section.

In Atlanta, Clarence N. Walker said with decision: “We intend to see this housing program through from the cutting of trees for lumber to the final touches on finished houses.” Walker started out as a small-town lawyer in Ellijay, Georgia, served in the Army Air Corps in World War I. For many years he was trust officer and director of the Wachovia Bank and Trust Co., handling the bank’s real estate interests all over the Southeast. Later he started his own real estate and investment business, was also secretary of the Asheville, N. C. Housing Authority and manager of the Chamber of Commerce.

In Chicago, young (34), friendly Charles J. Horan is housing trouble-shooter. Horan collected an impressive amount of graduate study (in sociology, economics, statistics) before joining the Federal Housing Administration’s staff in 1938 as supervisor of operating statistics.

In New York, housing veteran Charles Ascher is regional expediter. Ascher began his career in the housing field as secretary and general counsel to New York’s City Housing Corp. One-time executive director of the National Association of Housing Officials, he has also been a consultant to the National Resources Planning Board.

In Boston, expediter John M. Dobbs figures that New England’s quota in the Wyatt program is 170,000 houses. Dobbs first job was with Ingersoll-Rand, for whom he sold construction machinery. He has also been a real estate broker. Since 1934 when he went to work in the New Jersey state HOLC office, Dobbs has been in government housing service.

OPA Chief. Working closely with the Wyatt set-up will be OPA’s newly established
building and construction price division (formed in part from the old building materials division). Last month OPA persuaded Gordon Rieley to take a leave of absence as vice-president of the Bryant Heater Co. and handle the ticklish job of division director. Of first importance in the whole housebuilding picture, Rieley’s job will be to establish price ceilings that will hold down inflation but not hold down production. With Bryant for the last 12 years, Rieley earlier was a market analyst and sales consultant. He is chairman of the house heating division of the Gas Appliance Manufacturers Association and has been active in housing and construction committees of the Cleveland Chamber of Commerce.

So far, these were the men who would help out with the toughest, quickest job the U. S. housebuilding industry has yet tackled. They could hardly be lumped as "bureaucrats:" some were government career men, but others were as seasoned in private business as anybody likely to pound on their desks.

JOHNS-MANVILLE SETTLES

Four-month-old strike comes to end.

Johns-Manville’s two biggest plants, strike-bound for the last four months, went back to work late in March. While 4,000 AFL workers struck for a wage increase warehouse supplies of J-M products dropped to zero. Dealers’ orders piled up in a backlog which it will take months to meet. Executives in New York estimated that it will take at least a month to get the two plants back into full production. From three to six months will be required to fill new orders. Strikers in Manville, N. J. settled for a 13½ cent an hour increase, six paid holidays. Waukegan, Ill. strikers got 14½ cents an hour more, four paid holidays. J-M estimated that this would amount to a $1 million annual payroll increase for each plant. The new wage agreement will push costs even tighter against already tight price ceilings company officials said, hurrying appeals to Washington.

MORE ELECTRICAL APPRENTICES

AFL Electrical Workers relax bars.

First tangible sign of labor cooperation with the Wyatt emergency housing program came from the AFL Brotherhood of Electrical Workers. Opening the way for training of some 35,000 additional electrician apprentices, the Brotherhood urged its locals over the country to take down the bars on apprentice training. Meeting in Milwaukee, international rep-

(Continued on page 10)
representatives of the Brotherhood and of the National Electrical Contractors' Association agreed to call upon local unions to change their apprentice-journeyman ratios "in line with the needs of their particular areas."

While the Brotherhood did not—and could not—tell each local how wide to open the door, it at least had made it plain that it was time to do so.

**PREFAB GIVES TO COLLEGE**

*M. I. T. builds 100 houses in six months to shelter veteran students.*

While other colleges throughout the country waited for demobilized war housing to meet their acute housing shortages, Massachusetts Institute of Technology quietly accomplished the impossible by building its own houses for its own student veterans on its own land in a record six months. Westgate, as the new 100-unit prefabricated community on the Charles River is called, was erected despite current labor and material shortages, strikes, delays and city building code restrictions which have frightened less enterprising institutions into a course of wait-hope-and pray.

M. I. T.'s department of Architecture and Planning headed by Dean William W. Surster and the Department of Building, Engineering and Construction planned the entire project from heating installations to sewer pipes.

First hurdle in M. I. T.'s obstacle race was a union problem: the contract for prefabricating the units was declined by Hodgson Homes of Dover, Mass., because their union would not allow work on the project without a closed shop. A contract was finally signed with City Lumber Company of Bridgeport, Conn.—which promptly went on strike. After three weeks, the labor front quieted to a simmer, however, and work got underway.

In quick succession other difficulties piled up. Labor shortages made it necessary to use site workers unskilled in prefabrication techniques. At hearings before the city's Board of Appeals, it was solemnly pointed out that Technology homes would "violate the whole book of building statutes." Classification of the project as a temporary stop-gap to be torn down in five years placated the city administration, gained a go-ahead signal.

Last and most frustrating delay was caused by the lack of a single machine screw vital to installation of the kitchen unit and produced by a supply firm on strike. Because of this last of a long list of shortages, 90 families waited several more weeks for their otherwise completed homes.

**PRIORITIES**

CPA announces plan to assure prefabs steady supply of materials.

Prefabbers, who are expected to step up their output from its present zero to about 250,000 houses by the year's end, got their first major boost under the emergency housing program. Inadvertently left out of the HH priority plan, the prefabs had raised a storm of protest (FORUM, Feb. '46). On their part, conventional builders had jealously eyed any move to channel short materials to the prefab producers. It could mean, the uneasy builders argued, that precious materials would be stockpiled while the big-talking prefab boys fooled around starting production and, even more doubtful, adequate distribution.

But housing boss Wilson Wyatt, disturbed by the doleful prophecies of the industry oldsters, gave prefab what may stand as its biggest push toward the mass market it has long coveted. After that, priorities were automatic.

Last month, after considerable solemn thought, the Civilian Production Administration announced a fairly elaborate plan intended to 1) assure prefabs of the steady flow of materials which they need to maintain assembly line production, and 2) prevent any possible piling up of materials at the plant. At the same time, CPA told softwood plywood manufacturers to turn 50 per cent of their facilities to production of construction and door plywood.

Under the new prefab order, producers can apply for HH priorities on materials to cover three months' production. But deliveries of the approved quantities of materials may not be made more than 30 days before the prefaber is ready to use them. This is intended to prevent any possible stock-piling or delay in use of materials.

Veterans or contractors will apply to FHA offices for HH ratings for purchase of prefab houses, and these will be granted on the same basis as materials, priorities for any other type of house. The new order also authorizes priorities for any extra materials needed on-site erection of a prefab.

**DESIGN**

**SHOCK-PROOF FURNITURE**

Eames' molded plywood models are equipped with new rubber joints.

When Charles Eames' furniture went on show at the Museum of Modern Art, press and public gaped at such novelties as the scrambled legs of one of the organically molded chairs. But designers gaped even more audibly: Eames' furniture, born of basic principles which he outlined in 1940 with Eero Saarinen and of war-developed factory techniques, looked like the first real design exploitation of the possibilities of large-scale machine production.

The Museum itself billed Eames' show as the "greatest innovation in chair design since Marcel Breuer startled the furniture world with his metal chair and Alvar Aalto introduced the technique of laminated wood furniture."

Like the Eames-Saarinen chair which won the Museum's Organic Design Contest in 1940, the new models show plywood seats and backs molded to fit body contours. But Eames' big new idea is the precision-engineered joint—the first flexible joint ever applied to furniture construction. Borrowing a technique long used in mounting engines, Eames has devised a rubber mount for joining wood chair seats and backs to the metal frame. Unlike the rigid joint of the typical chair, the rubber mount absorbs shocks and distributes stresses.

Other new tricks: parts of similar pieces are standardized for complete interchangeability, and nest for shipping or storing. New wood coloring methods are used; deep and permanent stains color the plys without covering the natural surface.

Electronic bonding, which operates with the speed and precision of radio frequency, is basic in production of the furniture. This war-developed technique makes it possible to transmit heat by radio wave directly to the synthetic resin bonds without injuriously heating the wood. It also solves for the first time the problem of a trim connection between upholstery material and wood.

Eames had tried to get some organically molded furniture into production before the war, but manufacturers shied away from the molded plywood process as too expensive. Eames and his wife (whose main interest is abstract painting) went to work on heat-molding methods in their own kitchen. When the oven exploded, they decided to move their experiments to a bakery. About this time, the war started and Eames turned his plywood research toward a new and vital problem: splints and stretchers. His first invention was a molded shell splint made of thin plywood; (Continued on page 12)
Modern Museum shows Eames furniture

Eames' molded plywood chairs are joined to metal frame by shock-absorbing rubber mount. Used in engine mounting, this rubber joint is first non-rigid connection in furniture design.

Table legs are collapsible, providing for easy household storage and shipment.

Simplified parts are completely standardized for machine production. All-plywood chairs are joined by rubber mount bonded directly to wood.

Replacing conventional upholstered easy chair, body-molded plywood chair has head support.

Scrambled legs chair rocks on central bar, with tilting backstop.

Standardized storage boxes lend themselves to many arrangements. Chair left has foam rubber cushion. Fabric cover is bonded directly to wood.
GUINEA PIG HOUSE

Detroit builder keeps careful records to show rise in house costs over six years.

Detroit builder George Miller has built more than 7,500 houses over the last 27 years. Never has he seen costs shoot up so fast as they have recently. Since 1940, Miller has kept exact cost records on a standard guinea pig house: a brick veneer bungalow, 24 by 35 ft. plus an 8 by 4 ft. vestibule, with an unfinished attic and a full basement. This year, Miller finds, the cost of a modest 6-room house has climbed by $3,200 or 63 per cent over 1940. Cost increases are getting authorized by OPA on cement block, brick, increased labor rates; scarcity of galvanized sheet metal, causing heating contractors to buy at local plumbing material, lumber, hardware, tile; in

Here is Miller's comparative cost breakdown:

<table>
<thead>
<tr>
<th>Item</th>
<th>1940</th>
<th>1946</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit</td>
<td>5.00</td>
<td>13.00</td>
<td>160</td>
</tr>
<tr>
<td>Masonry</td>
<td>100.00</td>
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<td>Roofing</td>
<td>628.41</td>
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<tr>
<td>Lumber</td>
<td>210.00</td>
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</tr>
<tr>
<td>风景</td>
<td>101.48</td>
<td>155.00</td>
<td>53.52</td>
</tr>
<tr>
<td>Carpenter: Rough</td>
<td>115.00</td>
<td>155.00</td>
<td>40.00</td>
</tr>
<tr>
<td>Carpenter: Finish</td>
<td>12.00</td>
<td>24.50</td>
<td>12.50</td>
</tr>
<tr>
<td>Flooring</td>
<td>12.00</td>
<td>24.50</td>
<td>12.50</td>
</tr>
<tr>
<td>Floor laying</td>
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<td>24.50</td>
<td>12.50</td>
</tr>
<tr>
<td>Ceiling</td>
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<tr>
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<tr>
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<tr>
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<td>12.50</td>
</tr>
<tr>
<td>Siding</td>
<td>12.00</td>
<td>24.50</td>
<td>12.50</td>
</tr>
<tr>
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<td>24.50</td>
<td>12.50</td>
</tr>
<tr>
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<td>12.00</td>
<td>24.50</td>
<td>12.50</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$4,589.45</td>
<td>$7,444.54</td>
<td>62%</td>
</tr>
<tr>
<td><strong>PROFIT</strong></td>
<td>500.55</td>
<td>845.46</td>
<td>69</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$5,090.00</td>
<td>$8,290.00</td>
<td>63</td>
</tr>
</tbody>
</table>

his next, a radically new kind of stretcher, man-sized and molded to the configuration of the human body.

Eames went into production on these items, with a hastily assembled staff of artists, scenery designers, sculptors, etc. Eventually he sold the business to the Evans Products Co., an aggressive Detroit manufacturer of various machine specialties who bought heavily into the West Coast plywood industry after the war began.

Evans plans large-scale production of the Eames furniture and promises that pieces will be on sale in most big cities before the year’s end.

**PRICES**

**PREMIUM COSTS**

Banker urges bigger down payments.

How far have skyrocketing house prices leaped above “reasonable normal value”? Many a conscientious real estate appraiser has asked the question, found no answer. Last month one came from mortgage banker John W. Weber of the Bankers National Life Insurance Co., Montclair, N. J. His studied conclusion: the customer who buys a home today is paying about 22 per cent more than he should.

This extra 22 per cent, Weber says, represents “premium” or “unstabilized” cost. He advises buyers to include premium cost in their down payment and avoid trouble later.

Weber reached his conclusion after a careful study of a six-room built in a typical midwestern city. In January 1940 this house cost $6,026. In October 1945 the same house cost $9,404. Between the two dates, Weber said, labor costs rose 86 per cent, cost of materials 39 per cent, and overhead, profit and other costs about 56 per cent.

Weber figures that labor will hold 75 per cent of its gain and that 50 per cent of the rise in materials and other costs will be a permanent one. On that basis, the house that cost $6,026 in 1940 should now cost about $8,084—or a gain of 34 per cent on a stabilized basis. The current price of $9,404 adds $1,320 in “unstabilized” cost, Weber says, “largely the result of demand exceeding supply.”

**CITIES**

**LAND WANTED**

Many neighborhoods refuse to rub elbows with temporary houses.

All over the crowded U. S. temporary houses were running into site trouble, while the impending housebuilding boom was already provoking shouts of alarm. The reason: property owners feared that extension of temporary houses and a big splurge of haphazard housebuilding would deteriorate property values.

Pittsburgh, for example, badly as it needs the demobilized war houses which the government will ship in, could not make up its mind where to put them. First plans called for a site in the heart of the Civic Center, where the temporary would rub elbows with Carnegie Institute and Carnegie Library, the Cathedral of Learning, the Masonic Temple and other imposing neighbors. But property owners’ associations rushed to the City Council with protests. Selection of this site, they were sure, would mean depreciation of surrounding values that would be reflected in tax revenues.

Another proposal aroused equally strong opposition: the Lion Club, the Women’s North Side Civic Club and the North Side Chamber of Commerce joined forces to keep the temporary away from genteel West Park. Wrote a Pittsburgh veteran, in a bitter letter-to-the-editor: “I’m sure that if we had realized we could have further inflated real estate holdings, we would have stalled instead of bringing about such a disturbing abrupt end to the war.”

Philadelphia was having the same trouble. Bemoaned by property owners’ protests from all directions, the City Council stalled on choosing sites. One plaintive protest came from a high school principal. The site tentatively earmarked was, he said, the last available place for football practices and baseball games.

New York’s Board of Estimates, to the dismay of federal officials anxious to get on with the job, turned down the Bronx site proposed for an emergency housing project. The Bronx borough president had pointed out that the tentatively selected plot was mosquito-ridden, rat-invested, smelly and muddy. The Board agreed that it would be unpleasantly reminiscent of foxhole days.

In Orlando, Fla., the Board of Realtors worried that the impending housebuilding boom might bring another unplanned suburban sprawl. Too much subdividing, the Board reminded, would mean unused streets and utilities, blight the countryside on the outskirts of the cities for years to come.

To head off this possibility, the Orlando Board asked New York planners, Churchill Fulmer Associates, to come and make a regional survey. The Board said it hoped to plan housing developments “in which each home will share the advantages of being a part of modern planned community.”

**DOWNTOWN SPRUCE-UP**

Iowa town plans united remodeling to dress up its shopping center.

Main street in Boone, Iowa, is Story Street, where downtown stretches for four or five blocks of nondescript stores and business buildings. Most of the buildings are 60 or 75 years old; their overhanging cornices, skinny second-story windows, soft-brick facades look much like the downtown face of any small midwestern city.

Boone, in fact, takes pride in calling itself “America’s typical midwest city.” But last month local merchants were excited about a plan to give the city a new and un

different downtown face.

(Continued on page 16)
Before Tile-Tex Asphalt Tile Gets This OK...

...it has to meet Tile-Tex standard quality tests and the requirements of Federal Specification SS-T-306A covering asphalt tile purchased by the United States Government.

The uniform quality of Tile-Tex Asphalt Tile does not just happen—it is the result of continuous product control, starting with the raw materials that are used and finishing with a thorough check-up of the completed product.

Raw materials are checked to meet the precise requirements of Tile-Tex formulation before any manufacturing commences. During the manufacturing process, periodic tests are carried on to make sure that dimensional accuracy, indentation resistance, impact resistance, and flexure conform to Tile-Tex standards. Before the product is packed for shipment, it must withstand close scrutiny for surface texture, sharpness and trueness of edges, and uniformity of color.

Additional tests on samples taken from each manufacturing batch are made to assure maximum resistance to "curling" and "shrinking" in the presence of excessive moisture—to prevent deterioration of the product in service from attack by capillary alkalinity on grade installations—and to inhibit Tile-Tex Asphalt Tile against harmful action of strong soaps and cleaning materials.

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FOR THE BEST IN FLOORING

THE TILE-TEX 1946 PLEDGE
1 Adequate Plant Facilities
2 Continuous Product Development
3 Uniform Product Quality
4 Controlled Installation Standards
5 Maintenance Service Program
It's the most important room

ONE IN A SERIES OF "NEW FREEDOM GAS KITCHEN" DESIGNS
SHOWN CURRENTLY IN A LIST OF IMPORTANT WOMEN'S MAGAZINES

10'6" x 9'6"

GAS RANGE
SINK
GAS REF.

3'6" x 9'6"

DISHWASHER
WOMEN spend a larger proportion of their waking hours in the kitchen than in any other part of the house. So it's only natural that they should show tremendous interest in the subject of kitchen planning... have distinct ideas as to what their "dream kitchen" should look like. Recently, we interviewed a large number of women about the "New Freedom Gas Kitchen" design shown at the left. As architects and builders, you will be interested in their comments.

HERE ARE SOME OF THEIR STATEMENTS:

"This is the most compact and workable kitchen I've seen yet."

"It's so livable and pleasant."

"The dining nook is mighty handy."

"Nothing is out of reach."

"I like the sink and dishwasher combination."

"The colors are so inviting and cheerful."

"You could spend a lot of time in this kitchen and still feel happy."

Best of all—this kitchen is operated by Gas—the cooking fuel preferred by more than 20 million urban and suburban homes. Women who have used Gas ranges are sold on the advantages of flame cooking. They praise the speed, flexibility and automatic features of Gas, say it "cooks faster, better, more thriftily"... agree that nothing equals the flame for flavor. And they like the long-life dependability of Gas refrigerators, too... appreciate the fact that there are no moving parts in the freezing unit to wear out or make a noise. Undoubtedly, in the homes you plan and build, you will want to recommend Gas equipment for cooking, refrigeration, water heating, house heating and year 'round air conditioning. Your local Gas Company will be glad to supply you with complete technical details on modern Gas practice. AMERICAN GAS ASSOCIATION

NOW READY! For further information on this invaluable builders' and architects' manual, write: American Gas Association, 420 Lexington Ave., New York 17, N. Y.
The Chamber of Commerce had launched a campaign to persuade downtown store owners to get together on a face-lifting job, commissioned architect Reuben Lantz to redesign two complete blockfronts. These blocks were only the starter. Like the Niles, Mich, plan (Forum, Oct., '44), the Boone proposal called for coordinated modernization of the whole business district.

Cost to individual owners, the Chamber figured, would run from $3,000 to $8,000. The cost of not modernizing, the Chamber warned, might be considerably more. "Every city that has grown materially has experienced the moving of the business district to some other center, where the property owners of the original district have failed to keep up with the times in modernizing their buildings." Boone shoppers, the Chamber pointed out, are already going to the neighboring cities of Des Moines, Ames and even Chicago and Omaha because they find "Boone's shopping facilities inadequate and unattractive."

A good many owners have told the Chamber that they intend to go to work on the Lantz modernizing plan. Since the store front rejuvenation will require materials not commonly used for housebuilding, hope is that the job can soon get started.

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**MATERIAL**

**TEN YEAR LUMBER SHORTAGE**

Senate probes lumbermen's woes.

Lumbermen last month told their troubles—and they had plenty—to a subcommittee of the Senate Agricultural Committee. Most of the lumbermen agreed that price ceilings are at the bottom of their production difficulties. But from Edward C. Crafts, chief of the Department of Agriculture's division of forest economics, came some more basic facts about lumber shortage.

The most unpleasant fact Crafts offered the inquiring Senators: lumber shortage will be around for the next ten years. Unless there is a big drop in employment with an accompanying curtailment of construction activity, there will be an average annual lumber deficit of two to three billion feet throughout the decade.

One big reason: "Timber reserves . . . are becoming increasingly limited in all regions of the U. S." In the Douglas fir region of Oregon and Washington, where about 25 per cent of the national cut is produced, many sawmills are close to the end of their operating life. In the pine areas of the West, few undeveloped timber tracts are left, and many mills have cut into their reserves during the war and will be forced to drop out of production in a few years. Southern lumber production (about 45 per cent of national supply), greatly expanded during the war, may be curtailed by competition with production of pulp, poles, piling, other forest products.

To add to the nation's dwindling lumber supply, Craft thinks cut in the National Forests must be accelerated. To this end, he recommends immediate construction of access roads.

On the hot subject of price ceilings, Craft said calmly: "In the West, profit margins are reported to have declined abruptly during the latter half of 1945 and in Southern pine to have decreased possibly (Continued on page 20)
Once the brush has painted the smooth, friendly surface of an exposed air duct of ARMCO Galvanized PAINTGRIP, its work is done for a good while. Paint doesn't peel or flake off PAINTGRIP as it does with ordinary galvanized sheet steel. Experience proves that paint lasts several times longer when air ducts, gutters and downspouts, furnace casings and other equipment are made of PAINTGRIP. ARMCO Galvanized PAINTGRIP is triple-protected. First, the full-weight galvanized coating guards the iron or steel base from rusting. Second, the special mill-Bonderized surface insulates the paint from the raw zinc which all too quickly dries out the essential oils. Third, this neutral surface helps preserve the life and beauty of the paint, giving you that much more additional protection.

It actually costs less to use ARMCO Galvanized PAINTGRIP than it does to use ordinary galvanized steel and acid-etch before painting. And it contributes to a smoother, better looking job that assures lasting service.

This original Bonderized galvanized sheet can be specified with an ARMCO Ingot Iron, copper steel or open hearth steel base. Use it for all sheet metal work to be painted. The American Rolling Mill Company, 631 Curtis St., Middletown, Ohio. Export: The Armco International Corporation.

SEE SWEErS CATALOG for uses, advantages and 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 Steel
ARMCO Enameling Iron

THE AMERICAN ROLLING MILL COMPANY
Special-Purpose Sheet Steels
added desirability

for LARGE APARTMENT PROJECTS

Modine CONVECTOR RADIATION

The more than 550 tenant-families occupying 2245 rooms in the 63 buildings of Chatham Park Village, Chicago, enjoy the continuous even-comfort heating of Modine Convec tors. Streamlined simplicity combined with space-saving compactness gracefully adapt Modine Convec tors to every room...give the delighted tenants new freedom in arranging furniture and drapes. Equipped with dampers for individual temperature modulation by the tenant...Modine fast-warming copper convec tors respond almost instantly to modern automatic heat controls. That benefits owners as well as tenants. At Chatham Village, the two-year average cost for both heating and domestic hot water was only 2.7¢ per room per day. Give your clients all these recognized benefits of hot water or steam heating...with Modine Conv ector Radiation!

MODINE MANUFACTURING COMPANY, 1736 RACINE STREET, RACINE, WISCONSIN

Visit our website and Discover More: www.modine.com
Alfred Shaw's conception of a Café Bar...

"The sidewalk café and the indoor bar are unified by the triangular shaped Plate Glass partition, through which the decoration carries from the outside to the inside areas. The exterior material is gray Carrara Glass.

"The interior is divided into two spans, and the center partition of mirrors encloses structural columns.

"The unique feature and unusually interesting use of glass in this suggestion is the repeated conservatory design, with large growing plants prominently displayed. The tops of these units, as well as the sides, are of glass, so that light is admitted through triangular openings, giving a brilliant illuminating effect."

You can safely recommend "Pittsburgh" Products to owners of retail properties. An infinite variety of design is made possible by versatile, adaptable Pittsburgh Glass and Pittco Store Front Metal.

In 21 leading retail magazines, Pittsburgh Plate Glass Company advertising is encouraging merchants to build new sales-pull into store fronts and interiors, and recommends that they consult their architects now about modernizing plans.

A nation-wide system of "Pittsburgh" branches and dealers assures you of prompt and helpful service.

"PITTSBURGH" 
STORE FRONTS and INTERIORS

PITTSBURGH PLATE GLASS COMPANY

[Advertisement for "PITTSBURGH" Store Fronts and Interiors]
Why build your own houses—when P.B.H. can give you
KNOWLEDGE
ENGINEERED CONSTRUCTION
UNDIVIDED RESPONSIBILITY
plus a saving of two-thirds in construction time?

Precision-Built® Construction is the result of ten years of intensive research—at a cost of more than $400,000. This work—originated by the Housing Division of Monasote Company—is now continued by this corporation. In this time, $8,000,000 of private homes and $36,000,000 of Government housing have fully proved the soundness, the economy and the speed of the construction system thus developed. Precision-Building is mass production applied to conventional construction. Your finished houses look just as they would if built conventionally. They can be of any size or design you elect limited only by current regulations and availability of materials). Write on your letterhead for the full details. Let us show you why this is the practical method of operation for the operative builder.

Detroit Builder examines short ends which are all he can find in current market to use for flooring.

News

by half since 1941. To increase output, prices should be sufficient to encourage overtime and night-shift operations and to overcome higher operating costs resulting from increased wages, increased price of stumpage, high logging costs due to inaccessibility and poor quality of timber and other increased cost items. Many operators have limited timber supply and there may be a tendency among such operators to hold back present production in the belief that prices may rise in a year or two; current profits thus must be adequate if their stumpage is to be cut now.

Black market dodges

Two newspapers expose how lumber is being drained from legitimate market.
The Seattle Post-Intelligencer explored and headlined two big rackets that are draining lumber away from the legitimate market: the option fraud and the bank loan dodge. The option racket is a legal way to violate lumber price ceilings. The scheme: a buyer posts earnest money on a mill purchase transaction which he never intends to complete. The forfeited option money thus actually amounts to a bribe, in return for which the mill operator sells the buyer another lot of lumber at ceiling price. Also within the law are financing deals by which lumber customers buy priority on a mill's output. Sample: a mill operator has a bank loan at 6 per cent interest. An eager customer offers him money to pay off the bank loan, takes preferred stock in the mill to protect his investment. The stock bears a rate of interest much lower than the operator's old bank loan. Such investments, while risky, are legally unchallengeable. Their big advantage: the willing investor gets first choice on the mill's output. The Milwaukee Journal was also interested in the lumber snarl. In a forthright editorial, the Journal pointed to these black market practices: "You can buy a mill, maybe at twice the true value, if you want to get lumber. Or you can buy logs, sell them to a mill at less than ceiling, then buy the lumber from the same logs at ceiling. You have given the mill an extra profit and, in effect, paid over ceiling for the lumber, but its legal..."

"Or you can hire a buyer for $30,000 a year and not ask questions about what he kicks back to the mill. You're safe, but the transaction between the buyer and the mill is illegal. Another illegal dodge is for a mill to ship one grade and invoice for a higher grade; you pay and keep your mouth shut."

The Journal summed up: "All this penalizes the honest dealer and builder and adds to the demand for ending all ceiling prices. It also hypes the price of houses.

Building money

Metropolitan's site bill

Condemnation boosts land cost.
Stuyvesant Town, Metropolitan Life's soon-to-be-started housing development, will occupy 10 city blocks on New York's lower East Side. Metropolitan records show that this big site contained 478 parcels of real estate, which were acquired at a total cost of $14,500,000—107 per cent of the aggregate assessment. About 40 per cent of the site was acquired through private purchase—the rest by condemnation. Parcels acquired by standard broker methods without benefit of eminent domain brought 79 per cent of assessed value. Parcels acquired by condemnation brought 119 per cent of assessed value plus 6 per cent for fixture awards.

Remodeling boost

FHA starts the ball rolling with brisk handbook for lenders and builders.
President Truman himself had appealed to the nation to open its homes to veterans. Making real room for vets means remodeling—the emergency housing program calls for 120,000 new accommodations to be provided by conversion of existing housing. But not all property owners, however willing, are hardy enough to survive all the complex steps necessary to turn some extra space into an apartment-for-rent. Last month the Federal Housing Administration offered a timely handbook pointing out the big present opportunity for selling a one-stop remodeling service.

FHA's briskly-written handbook is intended to show dealers, contractors and lenders exactly how they can make remodeling practically painless for property owners. It describes the newly liberalized financing aid available under Title I (remodeling loans up to $5,000 where the (Continued on page 24)
"I LOOK FOR BEAUTY AND QUALITY IN PLUMBING.
CRANE EQUIPMENT GIVES ME BOTH."

Whether you are planning homes to meet today's immediate needs or are working on plans for future construction, the new Crane line offers you many advantages.

- The whole line has been freshly styled with fixtures grouped and matched to assure greater harmony.
- Newly developed engineering features mean greater convenience, better operation.
- The breadth of the line permits flexibility in your planning—fixtures designed to suit every taste.
- Throughout, the line is high in quality—backed by Crane reputation for producing the finest in plumbing fixtures.
- And above all, Crane is in production on equipment specifically designed and priced to suit today's building needs.

Your Plumbing Contractor or Crane Branch will gladly work with you on your plans and do everything possible to help provide sanitary equipment when you need it.

CRANE
NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS
You can take
General MacArthur's
word for it!

"The Red Cross has done a 100 per cent
job in this theatre. Mathematical limi-
tations alone prevent my saying the Red
Cross services here have been more than
100 per cent."

—General Douglas MacArthur

So speaks a distinguished eye-witness of your
Red Cross in action. General MacArthur saw
the Red Cross at your fighting man's side, all
through the gruelling months of the Pacific cam-
paign. He saw Red Cross men under fire on D-Day
beachheads—sweat it out in foxholes—follow
the men with candy, cigarettes and other comforts
right up to the firing line.

He knows that wherever your fighting man went,
your Red Cross went, too—that wherever, whenever
he needed respite and recreation, help with a per-
sonal problem, or just someone to talk to, the Red
Cross was there.

He also knows, as you do, that your Red Cross
cannot yet say, "Mission accomplished." It still has
an enormous task to do. With your help, it will
carry this task to a successful completion.

The War is over . . .
but another battle has begun

Your Red Cross must now fight on three new bat-
tlefronts. The thousands of our men still in vet-
erans' hospitals and in faraway lands overseas
need its comfort and cheer now, as they did when
the bombs were bursting. And as our servicemen
return to civilian life, your Red Cross must lend
them a helping hand.

And when disaster strikes here at home—fire,
flood, tornado—your Red Cross must be ready with
aid for the victims. Its war against human misery is
never wholly won.

But remember—it is your Red Cross. It depends
on you for its very existence. So give from your
heart. Give generously. Give today!

Your Red Cross must carry on... Give!
The variations and combinations of Andersen stock-size complete wood window units that can be used to form Windowalls are infinitely numerous. In this New England example the architect has placed four operating sash in an attractive angle bay that provides a spot for a dining room table. Thus a view is opened up...ample ventilation and light supplied...yet the windows perform more than the functions of windows—they insulate and protect the room against extremes of temperature.

To specify this Windowall, list one Andersen casement unit no. 4428 and two units no. 2418. Further details in Sweet's Catalog.

Andersen Corporation • Bayport • Minnesota
Weatu

1. Heating... trouble-free
2. Economy... fuel used only when heat is needed
3. Investment... lower
4. Maintenance... lower
5. Floor space... saved
6. Gas fired... clean heat
7. Area... any size

DOWLING IN WASHINGTON
Big New York operator buys Capital's biggest holding, plans to add to it.

To the City Investing Co.'s 40 skyscrapers, office buildings, hotels and theaters, Robert W. Dowling last month added another gilt-edged property. Making his first investment outside of Manhattan, Dowling acquired the $6 million Westchester apartments, largest private holding in Washington, D.C.

Sellers were a group of French and Dutch capitalists who had bought the property eight years ago from Washington builder Gustave Ring. The sale was a sign that refugee money is on its way back to help out in Europe's rebuilding.

The 2,200-room apartment group is located on a choice crest of land near the Washington Cathedral. Of its 500 tenants, 54 are admirals and generals. Dowling also bought 27 adjoining acres, where he plans to build more apartments.

APARTMENT BUILDING AHEAD
Life insurance money may move into Missouri, but is blocked in Michigan.

Missouri hoped for one big answer to housing shortage as the state legislature opened the way for large-scale investment in rental housing and in urban redevelopment. The Prudential Insurance Co. was reported ready to go to work on a big housing development in St. Louis. Michigan restively probed a constitutional restriction which blocks the several big insurance companies now reported to be eying housing investment opportunities in Detroit. The New York Life Insurance Co. bought 141 acres in Flushing, Queens, where it planned to build a large-scale, garden-type apartment development.

The Missouri bill, reported near passage at month's end, gives redevelopment corporations the right of eminent domain in acquiring land for rebuilding—upon the approval of the Board of Aldermen in the city concerned. It empowers them to accept the Missouri bill, reported near passage at month's end, gives redevelopment corporations the right of eminent domain in acquiring land for rebuilding—upon the approval of the Board of Aldermen in the city concerned. It empowers them to accept

(Continued on page 28)
Have you got your heart set on having a real recreation or rumpus room—such as is shown above—when you build or remodel your home?

Well, there's no reason why you can't have one in your basement. No reason, that is, if you take this tip: make plans to heat with Bituminous Coal. If you do that, not only will you be able to have the kind of basement you want—but you can have a "Bonus Basement"... furnished and paid for in only a few years' time by the savings that come from heating with this most economical and dependable of all home-heating fuels.

Not only that—you'll also find Bituminous Coal gives the steadiest, most uniform heat. And when you install one of the marvelously efficient new stokers, Bituminous Coal is also an "automatic" fuel—even to the point of ash removal. Clean, quiet, odorless, smokeless!

Let coal solve your home-heating problem—just as it has for more than 4 out of every 7 homes in the United States. And, into the bargain, let it buy you a "Bonus Basement."

For further information and suggestions, take advantage of the special offer at the right. Then talk it over with your architect or builder.

BITUMINOUS COAL INSTITUTE
60 East 42nd Street, New York 17, N. Y.

FOR ECONOMY, DEPENDABILITY, AND HEALTHFUL HEAT... YOU CAN'T BEAT BITUMINOUS COAL

(This is one of a series of advertisements now appearing in home-makers' magazines)
Typical of the thousands of Gunnison Homes that are satisfying owners in every climate throughout the United States.

BE A GUNNISON DEALER

Now that the war is over you will want to enter a business that will completely Satisfy Your Ambition. You will want health, happiness, and security—for yourself and your family.

Homes are a basic necessity. Everybody wants to own one. Just as guns, tanks and planes were the instruments of War, so likewise will modern, comfortable homes be the instruments of Peace.

The Babson Chart of the Growth Curve of New Industries shows that Prefabricated Homes will be the next big new industry to enter the period of rapid growth.

The Gunnison Dealer Organization represents the “cream of the crop.” If you are experienced in specialty selling and have a sound business and financial record, you can Satisfy Your Ambition, by becoming a prosperous Gunnison Dealer in your home town.

You will be your own boss and will enjoy healthful, pleasant, easy, profitable, non-confining work. Your success as a leader in your community will be assured by our thorough Dealer Training Courses and the continuous aid and guidance that is provided by our Regional Zone and District Sales Managers. Write to our Dealer Franchise Division No. 5 for complete information.
SERVING THROUGH SCIENCE

WHEN A PRODUCT ushers in a wonderful new era of comfort, it belongs in your plans. That's what Koylon did.

For eleven years, Koylon has proved itself the comfort cushioning of the age. It breathes comfort — the kind that will be appreciated by the user — the kind that means constant good will for you.

At every contact with the body, thousands of tiny Koylon latex cells release air. That's the famous Koylon breathing action — the secret of Koylon's comfort. It's also the secret of Koylon's resilience and natural cleanliness — dust-free, moisture-free, vermin-free.

Light, long-lasting, a single unit free of bothersome parts to wear out and lose shape — Koylon is both simple and amazingly inexpensive to maintain. It has proved its value in the past — and it belongs in the future. Particularly, Koylon belongs in your future plans.

Build Koylon comfort into your decorating schemes

Comfort Engineered
"U.S." Koylon Foam

UNITED STATES RUBBER COMPANY
"U.S." Koylon Foam Division - Mishawaka, Indiana
DELIVER THE BUILDING
Weeks Sooner!

No long waiting for new plaster to dry before painting walls and ceilings.

When the owner wants quick delivery of his new or remodeled building and there's damp plaster, to paint-use Luminall. It is a beautiful flat paint that is not damaged by dampness in new plaster. Luminall is a water-mixed paste casein paint. It has a porous film that permits moisture in new plaster to evaporate without damage.

Luminall is made in a wide range of colors—soft, lovely tints. Use wherever a flat paint is desired, from low-priced residences to biggest hotels, hospitals, and office buildings. You'll like Luminall's speed, too—one coat covers—use a wide brush—dries in 40 minutes. Very economical.

THAT does it!

LUMINALL
Ask for your Copy

Send for "Painting for Light & Decoration" which gives complete data, information, and specifications on the use of Luminall in non-residential structures.

NATIONAL CHEMICAL & MFG. CO.
3612 S. May St., Chicago 9

federal grants or loans and provides a limited tax freeze. For the first 10 years taxes would be paid on only the assessed valuation of the land at the time of acquisition and not on the value of the improvements. For the next 15 years tax would be based on 50 per cent of the true value of the land and of the improvements. After this 25-year period, full taxes would be paid.

In exchange for partial tax exemption and for exercise of the public right of eminent domain, redevelopment companies will be required to limit their earnings to not more than 8 per cent a year. Earnings in excess of this must be used to reduce rents or in payment of taxes deferred under the limited exemption.

Approved by Missouri's Senate and awaiting House action are companion bills broadening the investment field of insurance companies. One of them would enable Missouri insurance companies to make either outright investments in urban housing or investments in the securities of urban redevelopment corporations. Another would authorize state insurance companies to retain housing assets without regard for the time limit set on other real estate. The third would legalize housing investments by out-of-state insurance companies.

In Michigan, where New York Life Insurance Co. experts wound up a survey of the Detroit housing market, the state Housing Commission asked for a clarification of the right of insurance companies to invest in rental housing. Michigan Attorney General John Dethmers' ruling was not an encouraging one. After a look at the state constitution, which forbids corporations to own property for more than ten years which they do not use within terms of their franchise, Dethmers decided that insurance companies may invest in housing only as mortgagees or as vendors of land contracts. In case of default, the companies would have a ten-year period to dispose of the property.

With damned-up insurance reserves actively seeking investment and with housing shortage underlining the need for new capital resources in this underfinanced industry, Michigan's legal stumbling block seemed slated for an eventual discard. But a constitutional amendment takes time; concurrent resolutions from both legislative houses and approval by popular referendum are required.

Michigan already has a basic law opening the way for private investment in urban redevelopment. Passed last spring with vigorous backing from the Detroit Construction Industry Council, the law permits municipalities to condemn blighted land for lease or sale to private investors at an economic price for redevelopment. If it is...
Air-Maze filtration is not expensive at all. In fact, on a maintenance basis alone (see chart), you’re way ahead with an Air-Maze filter installation... it’s so easily cleaned.

But that’s not the whole cost story...

Air-Maze air filtration is economical because it offers the right filter for the right job. You have the advantage of getting a filter that is specially engineered for that particular job. This assures top filtering efficiency in every application.

This combination of economical maintenance and efficient filtration is what gives you lowest over-all cost when you specify Air-Maze. Write for latest literature and complete details.

Air-Maze Corporation • Cleveland 5, Ohio

Representatives in principal cities. In Canada: Williams & Wilson, Ltd., Montreal, Quebec, Toronto, Windsor; Fleck Bros., Ltd., Vancouver, B.C.
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STEEL ROOF DECK
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NEW EAST BAYS

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NEW WEST BAYS

In construction products CECO ENGINEERING
ITS MANUFACTURING PLANT
TO BETTER SERVE YOU

In 1946 Plant Enlargement exceeding 50% starts a development Program encompassing 14 Plants and 23 Sales Offices Coast to Coast

Ceco’s great expansion program is already underway. From coast to coast, Ceco plants, warehouses and offices will be enlarged by hundreds of thousands of square feet. Expansion of the great plant in Chicago is already far along and should be completed by summer. The enlarged plant will be one-fifth of a mile in length. Expansion of other plants will follow as rapidly as conditions permit... This means just one thing to you—even greater service than in the past. As Ceco looks to the future, they have one supreme goal—to make available to you an adequate supply of precision-engineered construction products—where you want them—when you want them.

Now CECO Engineering Means More Than Ever Before

Ceco construction products of every class have always been famous for their perfection and precision engineering, for Ceco builds small with the same skill it builds big. Now, with our new expansion program, you can count on even greater availability of Ceco products, together with the skilled technical engineering service that is always at your command.

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Concrete Engineering Division,
Merchant Trade Division, Highway Products Division
Offices, Warehouses and Fabricating Plants in Principal Cities

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Please send me catalogs checked below:

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Concrete Engineering Division
Merchant Trade Division, Highway Products Division
Offices, Warehouses and Fabricating Plants in Principal Cities
necessary for the city to absorb excess cost
to bring the land within the reach of pri­
ivate enterprise, the loss would be expected
to be absorbed by the increased tax reven­
ues resulting from the improvement. Before
the right of eminent domain may be exer­
cised under this law, 60 per cent ownership
consent is required. The Construction In­
dustry Council hopes to secure an amend­
ment removing this ownership consent pro­
vision, pointing out that many slum prop­
erty owners find their investments profitable
enough to be unwilling to sell.

DESIGN

KITCHEN RE-DO

More working space in low-cost unit.

"How many shelves in the broom cabinet
can you reach?" Exactly 100 per cent of
the women queried in a poll of New York’s
low-rent Vladeck Houses said "none." Most of the Vladeck housewives said it was
next to impossible to reach top shelves in
other cabinets, that work surface was inade­
quate, that there was not room to store more
than a few days’ supply of groceries.

Working from these familiar complaints,
Karin Peterfy, director of the Home Plan­
ing Workshops of New York’s famed
Henry Street Settlement House, redesigned
Phyllis Dearborn

EVERY SHELF can be easily reached.
a standard kitchen. Putting the same
amount of equipment into the same floor
space (66½ sq. ft.), Mrs. Peterfy increased
the housewife’s working surface by about
300 per cent. Other dividends: a ventilated
bin for storing a week’s supply of vegeta­
bles, a “broom-vent” where a wet mop can
be hung and dried, spacious shelves at
shoulder level. Cabinet doors are split and
hinged to bend backward when open.

Hope is that designers and builders of
low-cost housing will like the Peterfy
kitchen plan well enough to adopt it.
Roddiscraft doors in Michigan Maple
A combination of Beauty and Toughness

Hard Michigan Maple faces over RODDISCRAFT cores and crossbanding welded into a solid, waterproof unit, under heat and pressure, by the RODDISCRAFT process, creates a door that will stand up under heavy traffic and harsh treatment.

In contrast to the delicate color and warmth of Michigan Maple, is its ingrained hardness—resistance to chipping and scuffing—which makes it an ideal wood for facing doors used in public buildings.

Roddis offers the pick of Michigan Maple from its 30,000-acre northern Michigan tract—selected and cut by Roddis woodsmen—matched and finished by Roddis craftsmen. Specify RODDISCRAFT Doors in Michigan Maple to get long life and lasting beauty. Available in selected white, or unselected for painting. Consult your local millwork and fixture manufacturers—and lumber dealers.
Future changes in laboratory layout easily possible with these
Johns-Manville Walls • Ceilings • Floors

ACOUSTICAL CEILINGS—With high coefficients of sound absorption and light reflection, Johns-Manville Acoustical Ceilings are proved aids to concentration and working efficiency. Demountable units give ready access to wiring, etc., in the turfed space, and allow quick relocation of the ceiling if desired. An exclusive Johns-Manville patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical units.

MOVABLE WALLS—The keystone of flexibility in Unit Construction is the J-M Transite Wall. Can be disassembled and relocated as needs require. Made of fireproof asbestos and cement, practically indestructible materials, the movable panels form rigid, double-faced partitions, 4" thick. Can also be used as interior finish of the outside walls. Removable Transite panels permit ready access to concealed pipes and wires. Special brackets and supports, easily attached to the steel studs, provide unlimited flexibility in arranging shelves, piping services, etc.

COLORFUL, RESILIENT FLOORS—J-M Asphalt Tile Flooring completes the Unit Construction System. Made of asbestos and asphalt, the units withstand hard wear, yet are comfortable and quiet underfoot. Individual units permit easy alterations or extension of patterns. Made in a wide variety of plain and marbled colors.
in the expanding new world of Industrial Science

Johns-Manville Unit Construction provides flexibility
to meet ever-changing needs...

Since industrial progress depends more and more on scientific research, architects today are faced with the problem of developing techniques of laboratory design.

Johns-Manville Unit Construction offers a system of flexible construction—walls, ceilings, floors—especially designed to accommodate laboratory needs and facilities.

The system makes possible endless revisions of space-use! Laboratories can be economically rearranged, enlarged, reduced, or even relocated according to the inevitable shifts and changes of future needs.

Three Johns-Manville materials are combined in Unit Construction:

1. Movable Walls ... 100% salvageable. Made of fireproof asbestos-cement Transite panels, easily erected or dismantled, yet endowed with all the qualities of permanent construction. Laboratory service piping may either be concealed in the Transite Walls or carried externally on demountable brackets which are supported by the steel studs of the wall construction. Shelves can be located where needed by use of a unique type of bracket.

2. Acoustical Ceilings ... reduce noise. Demountable units can be easily taken down and relocated.

3. Colorful, Resilient Floors ... quiet, long-wearing, comfortable underfoot. Small units permit easy extension or repairs.

These component parts are integrated into a single inclusive system, Unit Construction. You write one specification ... place undivided responsibility on one manufacturer.

Yes, the finest achievements of Johns-Manville research can now benefit Research Laboratories themselves!

Send for the complete details of this important advance in laboratory design and construction. (Separate brochures also available for each of the three materials in Unit Construction.) Write Johns-Manville, Dept. AF-4, 22 E. 40th St., New York 16, N. Y.

Typical example of J-M Unit Construction—a Research Laboratory with complete structural flexibility, projection walls that are easy to clean, special bracket supports shelves and piping, many other ideal features.
SMITHway
Permaglas
WATER HEATERS

To match the gleaming efficiency, the modern conveniences of today's modern kitchens...

To complement the beauty, comfort and convenience of today's modern bathrooms...

There's Only ONE Permaglas

For the thousands of new homes now being built... for every present home that will be improved and modernized... here is the one water heater that meets in every way the new demand for greater convenience, better performance, longer-lasting service.

SMITHway Water Heaters, lined with Permaglas—the sparkling blue, mirror-smooth glass-fused-to-steel—resist tank rust and corrosion under any water conditions. Permaglas CANNOT rust or corrode!

And here, too, is all the clean hot water homeowners need for satisfactory operation of the newest automatic kitchen and laundry appliances. Gas or electric, Permaglas Water Heaters are made in 30-, 50-, and 80-gallon sizes.

Before you specify any automatic storage water heater, send for the booklet, "The Inside Story of Permaglas." Address the A. O. Smith office nearest you.

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New York 17 - Pittsburgh 19 - Chicago 4 - Tulsa 3
Houston 2 - Dallas 1 - Los Angeles 14 - Seattle 1
International Division: Milwaukee 1 - In Canada: JOHN INGLIS CO., LIMITED
Picture of Thermopane in action

It's hard to believe there's glass between the camera and the outdoors in this picture.

But there is—two panes, in fact, with a sealed-in air space between them. For this window is Thermopane—the transparent glass insulating unit.

The outdoor temperature was 19 degrees below zero when this picture was taken. The temperature differential between outdoors and indoors sometimes reaches 100 degrees or more. The clarity of the glass demonstrates how effectively Thermopane reduces the possibility of condensation. It points up the fact that when you plan large areas of glass to achieve pleasant interiors by making the most of exciting views—Thermopane is the practical answer.

Will the buildings which you are planning today be up-to-date a few years from now? A lot depends on how you use glass—and whether the window areas are effectively insulated. Write for our illustrated Thermopane book, which gives sizes, thickness of glass, insulation values and other pertinent data, before you put your designs on paper. Thermopane is also available in Canada. Write to Libbey-Owens-Ford Glass Company, 1646 Nicholas Building, Toledo 3, Ohio.
Hints for those who

PLAN TO REMODEL

Look at these photographs. They show what can be done to improve a home, when one has a little imagination and some Insulux Glass Block.

• Note the large glass block panel in the living room. This attractive "light wall," which adjoins the summer terrace, provides an abundance of daylight all through the year. And in the winter—it brings considerable fuel savings because of the insulating value of the block.

• Note the departmentalized bathroom. An Insulux partition, and space divided into four distinct sections: toilet, shower, tub, wash stand and dressing room. Think of the advantages!

• Note the glass block partition in the hallway. This is a money-saver, as it borrows needed light from the dining room adjoining.

Panels of Insulux Glass Block are being installed in hundreds of buildings throughout America. In homes, stores, schools, hospitals, offices and factories!

Insulux Glass Block Panels transmit and diffuse light yet provide privacy along with light.

For technical data, specifications, and installation details, see our section in Sweet's Architectural Catalog, or write: Insulux Products Division, Dept. C-16, Owens-Illinois Glass Company, Toledo 1, Ohio.
Keep Wheeling Expanded Metal before your mind's eye—and see what a host of new design possibilities it opens up.

It's strong.

It's light in weight.

It allows plenty of air circulation.

It permits excellent visibility of interiors.

It's easily riveted or welded to frames to meet practically any design requirement.

You'll find plenty of ideas, to prime your thinking, in the Wheeling Expanded Metal book, soon available.

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WHEELING, WEST VIRGINIA

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Wheeling Expanded Metal
Steel Floor and Roof Docks
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Bar-Z-System Partitions
Galvanized and Painted Roofings,
Sidings and Roof Fittings
Steel Ceilings

Wheeling Expanded Metal
WHEELING, WEST VIRGINIA
For centuries real clay tile has been inseparably associated with gracious living. In years past it was looked upon as a luxury reserved only for the rich. But today the nominal cost of beautiful Suntile brings tile's lifetime advantages within everyone's reach. Suntile is weatherproof and colorfast. It can be used indoors and out in any climate with equal ease. Suntile's quality and durability thoroughly satisfy the practical mind of the home buyer. Its easy-to-clean color-balanced beauty is a joy forever. Yesterday's luxury is truly today's economy with Suntile. In many different ways Suntile can enhance the desirability of the homes you design. Get acquainted with Suntile today.

Suntile


Member of the Producers' Council

Cincinnati 15, Ohio

*What they dreamed about

*How'd you like to be parked on my Suntile porch with a tall, cool one in each hand?*

What they saw...

A Quality Product At A Nominal Price

*This series is based on an idea suggested in letters written by CPL. Louis A. Perovic of the Army Engineers in the South Pacific. A regular series of letters from home really boosts the morale of men overseas. Small talk to you is big news to them. So write often.*
Lobby design based on a sales idea by Bigelow Carpet Counsel

Hotel occupancy is based on service. Translating this service into a lobby design where it can be seen and appreciated by the public is the idea behind this suggestion by Bigelow Carpet Counsel.

The Bigelow carpet is especially woven to withstand heavy hotel lobby traffic.

For further details and other suggestions write Bigelow Carpet Counsel.

BIGELOW-SANFORD CARPET CO., INC.

140 MADISON AVENUE, NEW YORK 16, N. Y.
MORE STATELY MANSIONS
Forum:
I enjoyed reading your excellent article about my brother, R. W. Dowling, but feel that the reference to myself is slightly misleading, though factually true. It is true that I prefer being a poet, successful or unsuccessful. My first verses (humorous) appeared in the old *Life* when I was only sixteen. My first volume of poetry appeared in 1924, when I was twenty-one.

I have been, since then, in fifteen countries, climbed mountains, swum in many seas, met many of the leading writers and artists of my time, have appeared in various anthologies, and won high praise from some of the leading critics of English verse and prose. I have, I believe, built towers of song and palaces of thought that are higher than any in Manhattan, and that will last longer.

Like my brother, I am 6 ft. 1 in. in height, but weigh only a hundred and eighty-five pounds; have done plenty of swimming, handball and weight-lifting in my time, and am probably the strongest poet that ever lived, with the possible exception of Sir Richard Burton.

And I frankly confess that, whenever I can, I relax.

ALLAN D. DOWLING
New York, N.Y.
To brawny troubadour Dowling, an envious look from hollow-chested, desk-chained Forum journalists.—Ed.

BIG AND THICK
Forum:
In planning the new size of your magazine, did you ever think about all of us fellows who save our magazines a few months, then cut them up and file away the pages we want? This new format, while it looks fine lying on the table in the reception room, is going to cut the real value of the Forum to me at least 50 per cent. Maybe you could print a special edition for us, sort of an "overseas" edition.

JOHN C. RIEDELL, Architect
Paris, III.

Forum:
... As to the new large-sized Forum—I do not know. It is so big, it is ponderous. This building up of great thick advertising material will go just so far. Then, when it gets to be entirely boring to the reader, some adroit person who believes only in the art or the science (whether it be architecture, chemistry, engineering, electricity or what-have you) will come along with a really beautiful compact professional publication that will take the play away from you. But this "purist" revolution is probably so far away that it need not bother you...

W. F. LEECHEN, President
Casein Company of America
New York, N. Y.
Forum:
As you probably know, there has been a rush on the job around here so it was somewhat belatedly that I got a look at the new Forum. I think you ought to be congratulated...

WILSON W. WYATT, Administrator
National Housing Agency
Washington, D. C.
Forum:
... I have looked over the new format of the magazine and find it most interesting and informative. I believe that the Forum is performing a fine service in presenting detailed information of the most modern character with respect to developments in the building field.

JAMES M. MEAD
U. S. Senate
Washington, D. C.
Forum:
... I am also interested to find in your news of the month a story about the housing bill (S. 1729) which Senator Mitchell and I am sponsoring and which calls for the use of surplus war plants and new materials and new techniques to increase the output of houses for returning war veterans. Your magazine has the distinction of being the first to publicize this bill. Congratulations to your Washington staff for up-to-the-minute news coverage.

H. M. KILGORE
Washington, D. C.

ATOMIC MARE’S MILK?
In the January issue Forum printed a letter from Dr. Renfreux Kirsche decrying fireplaces as sentimental attachments which “drag us back from the atomic age,” Herewith, a peep into the private life of Dr. Kirsche.—Ed.

Forum:
How delighted I was to read of my dear friend, Dr. Renfreux Kirsche. I am enclosing a snapshot I took of this thoroughly original exponent of rammed earth on the continent. It was 1939 and Dr. Kirsche was recuperating at Tlaxco, Mexico, after suffering much in his adopted country, France.

Kirsche and Conception

The tall glass contains a drink of his own invention, compounded of mare’s milk, Holland gin, and a beaten goose egg.

I had given him up as lost and am hastening to contact him again.

American architecture can profit much with such a great man in its midst. His attitude toward the fireplace as a convention now outmoded is but a hint of his rare gift.

GEORGE COLE
Albany, N. Y.

ANECDOTES AD ABSURDUM
To Mr. Roger Allen, c/o Forum:
You probably would like to know what your public is worrying about so that you can straighten things out.

This month’s question is—Why aren’t funny stories about architects? Personally, I do enjoy little anecdotes about surgeons stitching someone’s anatomy together in an embarrassing way, but I don’t and no one else does, I am sure, think it funny when they tell that old one about the architect who forgot to put in the stairs. People think it’s criminal.

Seriously, I think it’s because no one thinks any doctor can make a mistake, and they always tell the architectural accident as if they know someone who knows someone who knows the poor guy who did it.

Now I am wondering if you couldn’t fabricate some stories about this profession that are so absurd that people know we

(Continued on page 42)
New homes stay new longer when wood used in their construction is treated with formulations of Santophen® 20 — Monsanto's pentachlorophenol (technical). That's why owners favor its use.

Santophen 20 properly formulated is highly effective against the ravaging attacks of microorganisms, termites and beetles at all points of attack above or below ground. Santophen 20, properly formulated, does not adversely affect the natural qualities of wood nor its appearance—and the wood, when properly treated may be satisfactorily glazed or painted, or otherwise finished.

Special water-repellent Santophen 20 formulations can be furnished. Treat wood for new homes with formulations of Santophen 20. Full information concerning application and use gladly furnished. Write MONSANTO CHEMICAL COMPANY, 1700 South Second Street, St. Louis 4, Mo.
You should have seen these buildings before they got their Waterfoil "Raincoats"

Yes, they were pretty shabby structures—not much credit to the owners or to the community. If your building exteriors need restoration now, make them look like new and protect them for the future with Waterfoil—a product of the Horn Research Laboratories. Manufactured of irreversible inorganic gels, Waterfoil bonds both physically and chemically to masonry forming a dense hard coating. Easy to apply,

Waterfoil lets the masonry breathe as it should but helps impede harmful water penetration. Send for the Waterfoil literature today!

A. C. HORN COMPANY, Inc.
Established 1897
Manufacturers of Materials for Building Maintenance and Construction
Long Island City 1, N. Y.
Houston, Texas
Chicago, Illinois
San Francisco, Calif.

A Subsidiary of Sun Chemical Corporation
Savings and Loan Home Financing

Two out of three builders and realtors prefer the home loan service of Savings, Building and Loan Associations and Co-operative Banks.*

Here are the reasons they give: Because they get quick commitments on loans. Because their buyers receive friendly, courteous treatment and get personal consideration. Because interest rates are low. Because reasonable appraisals are given. And because the builders and realtors can get personal consultation and help on their own business problems.

Here’s another fact that’s important to you. Savings and Loan specialists in home financing understand the problems of buyers. They make it their business to work out a loan that will be best suited to the buyer’s needs. If your customer is an acceptable risk, your Savings and Loan Association will provide the right type of loan for him.

For home loans, go FIRST to your Savings, Building and Loan Association or Co-operative Bank.  

*This fact was discovered in a recent survey.

YOUR SAVINGS & LOAN ASSOCIATION OR CO-OPERATIVE BANK

MEMBER OF THE UNITED STATES SAVINGS AND LOAN LEAGUE
A Modern Home
Needs a Modern Hinge

BUT JUST WHAT
IS A "Modern Hinge"?

It's one, of course, that is completely hidden from view. A hinge is a utility—not a thing of beauty—and should be kept out of sight. That's the big, modern advantage of Soss Invisible Hinges. This hinge eliminates unsightly broken surfaces—surfaces marred by protruding butts and, naturally, it provides far greater opportunities for artistically designed doors, cupboards and secret panels. It contributes to streamlined interiors by permitting those flush surfaces that make the home of today so distinctly modern.

Write for the Soss "Blue-Print Catalogue." This catalogue gives full details for the many applications of this modern hinge. Sent free to you on request.

SOSS MANUFACTURING COMPANY
21767 HOOVER ROAD • DETROIT 13, MICH.

SOSS Invisible Hinges
The Hallmark
OF TOMORROW'S HOME

LETTERS

A Modern Home
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LETTERS

April 1946

If this doesn't work what would you think of starting a fund for or interesting a foundation in burying our errors? We can learn so much still from the medical group.

Richard Bennett

New Haven, Conn.

P.S. Speaking as your recognized public. I must ask you to notice my name is spelled—ett, and even if it was spelled Benet it wouldn't be pronounced in such a fashion as to make you think my first name is John. The rumors I hear of your insisting people call you Fred are, I hope, untrue.

KITCHEN CONTOURS

Forum:
The staid and erudite group in which we move is so fascinated by the cartoon Forum: Feb., '46), see cut) that we seriously doubt they will ever reach the substance (analysis of kitchen storage) at the end of your periodical.

We think you deserve to be sued for defamation of character and contour, since McCullough pretends to be a teetotaler and Heiner considers that she is not entirely a Hokinson-Steig! Even so, we agree that it is a greater contribution to your reading public than our photographs could have been. Kind personal greetings from the bottom of the cupboard.

Mary Koll Heiner
Helen E. McCullough, Research Associates
College of Home Economics
Cornell University
Ithaca, N. Y.

PROTOTYPE DESIGN

Forum:
As a subscriber to the Forum, a developer who stresses architectural beauty most of all and a grandson of Thomas Ustick Walter, I would like to call your attention to the wording under the picture of the United States Capitol ("The Prototype Design," Forum, Jan. ‘46). You mention Thornton, Latrobe, "Mills and others" which seems to me very unfair to Walter who had entire charge of the Extension of the Capitol and who designed the Wings and the huge Dome. Mills had little or nothing to do with designing any part of the building. The Capitol as it stands today is more the work of Architect Walter than anyone else. He also designed and executed the extension of the Patent Office and the Treasury Building in Washington, Girard College in Philadelphia, the Marine Barracks in Brooklyn, N. Y., and Pensacola, Florida, and many other notable buildings in America. He was also an engineer and designed and executed the Great Breakwater at Lago yra for the Venezuelan government. Walter and Latrobe have been called the "Fathers of American Architecture." Walter was honored by the universities of America. Harvard conferred upon him the degree of LL D. in 1857. Walter’s likeness is to be found in the painting over the Dome between the figures of Fulton and Morse. He probably had more to do with the founding of the American Institute of Architects than any other man. He was its second President, which office he held for many years until his death.

Walter H. Cook

Baltimore, Md.

The point of Forum’s description of the Capitol was to disclose its progeny, not its progenitors. An exact chronology of all architects involved with the Capitol would fit better in an encyclopedia than a six-line caption.

TEMPEST IN A TREETOP

Forum:
In accordance with a resolution adopted at the summer meeting of the Connecticut Tree Protective Association in Bridgeport, an official committee went to New York City to investigate the controversy centering around the question of suggested tree planting in front of the new Best & Co. retail store, then in the process of construction on the northeast corner of 5th Ave. and 51st St.

During the summer of 1945, the pros and cons of the suggested tree planting had been widely publicized not only in the press of New York City but throughout the United States, over the radio, in the New Yorker magazine, in paid advertisements of Best & Co. and in other media. (Forum July ‘45 and Dec. ‘45). The opinions expressed took the form of poetry and prose. Letters were received by Mr. Le Boutillier (President of Best & Co.) from actors, writers, engineers, soldiers, sailors, children, physicians and persons from every

(Continued on page 46)
The TACO TEMPERING VALVE

is popular because of its 5 Exclusive Features

Here is one case where exclusive features make a "good mixer". The Type "S" TACO Tempering Valve is the valve the trade likes for residential applications. Operating on the thermostatic principle, it provides positive, dependable action. So, no matter how hot domestic water may be in the heater or tank, it will always flow from the taps at temperatures between 135°F-145°F—when a TACO Tempering Valve is installed.

This reliable, simply-constructed tempering valve prevents over-heated water from reaching the taps after long no-draw periods by admitting cold water to mix with the hot water.

The bronze-bodied TACO Tempering Valve is the lowest-priced tempering valve in its class. Yet, in addition to flexibility of installation (can be installed in any position) it boasts these 5 exclusive features:

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Mr. Wholesaler:
The TACO Tempering Valve, widely used, lowest-priced, will prove a profitable, fast-moving stock item. Place your order now for the tempering valve the trade likes.

Something To Look Into! Taco Heaters, Inc. will occupy booth #518 at the National Oil Heat Exposition.

TACO-ABBOTT SYSTEM

TACO HEATERS INC.
342 MARSION AVE., NEW YORK 17, N. Y.
TACO HEATERS OF CANADA LTD., ADELAIDE ST. W., TORONTO
This NuTone Time-Chime can help “sell” your houses!

**IT’S TRUE.** Most anything that can be built can be sold these days. Yet some houses, some rooms, have more built-in appeal—more “sell”—than others. It’s that way with a NuTone Time-Chime in the kitchen. Telechron self-starting electric clock and 2-door NuTone Chime—in one.

**WRITE TODAY**—get all the details on the clock-chime that most women want in their kitchens. The Time-Chime lists at approximately $12.95. Address your nearest NuTone office. NuTone, Incorporated, Merchandise Mart, Chicago 54, Ill.; 200 Fifth Ave., New York 10, N. Y., or 931 East 31st St., Los Angeles 11, Calif.

**EASY TO INSTALL**—even easier if kitchen outlet is provided during construction, as in several large prewar building developments that employed an earlier model NuTone Time-Chime. Leading wiring contractors recommend the NuTone Time-Chime.

**IT SAVES YOUR TIME**—simplifies design. ONE unit to plan for, to wire for. Nine-inch square, all-chrome cover. Large, 6¾-inch dial.

Kitchen plans for several of the larger prewar building developments were standardized on an earlier type NuTone Time-Chime. This newest model offers you even greater advantages.
GET IN WHERE YOUR SALES Begin

It's in the planning that decisions are made. "I want this kind of kitchen," says the wife. "So-and-so's heating plant looks good to me," says the husband. And all through the plans they go, selecting the type of materials and equipment they will soon be buying.

Whose materials? Whose equipment? Where do they get their ideas?

With 2,350,000 of America's best able-to-buy families the answer is The American Home, the home-making magazine they know best and trust most. Today — right now — more than 600,000 of these families are planning new homes . . . and 250,000 have already bought the real estate!

That's why American Home carries more building supplies advertising than any other large circulation magazine.

FIRST IN THE BUILDING FIELD

• FIRST IN EDITORIAL LINAGE
• FIRST IN ADVERTISING
walk of life and from the four corners of the earth.

On June 11, 1945, a publicity release from the Office of the Borough President of Manhattan, disclosed the answers to a questionnaire covering the tree planting subject received from seventeen prominent landscape architects and artists... It is the considered opinion of this committee that the questionnaire was not a fair one and that important facts did not enter into the framing of this questionnaire.

For instance, the question: “Do you believe trees enhance the architecture of city buildings such as exist on 5th Ave. or on similar streets of Manhattan?” could only be answered in the general affirmative. The question is purely a rhetorical one—of course healthy, richly-foliaged trees do enhance the appearance of most city buildings or rural buildings. But the point at issue was not architectural enhancement. The point at issue was whether or not trees, from a physiological and environmental point of view can flourish on mid-5th Ave.

... The question: “Do you agree with Mr. Le Boutilier that trees should have no place in the Borough of Manhattan?” is totally unfair and an example of the classic fallacy, “begging the question,” which is best illustrated by the age-old courtroom question: “Have you stopped beating your wife?”

... The trees in front of St. Patrick’s cathedral are definitely losing ground. From 30 to 40 per cent of the tops of these trees are dead and dying; the remaining foliage is sallow and chlorotic... The soil around these trees is packed hard and tight and it is obvious that the transpiration of water from the foliage is not being compensated for by absorption of water from the soil.

... The trees on the south side of West 50th St. between 7th Ave. and Rockefeller Plaza are particularly run down and unattractive. Each of these trees has a “soil box” approximately 4 ft. by 2 ft., hardly sufficient to give even the minimum of soil nourishment.

... The sub-surface of the Best & Co. store site at 51st St. and 5th Ave., which we examined thoroughly, is solid rock. We failed to see how trees planted in front of this store—unless they were set into planting boxes of enormous and impractical dimensions below the soil surface—could possibly survive.

SUMMARY AND CONCLUSIONS:
1) As a committee from the original state shade tree association, we are particularly desirous of seeing more and better planting of trees in large cities where conditions are moderately favorable to the health and appearance of street trees.
2) Environmental and physiological facts must be taken into consideration when street tree plantings are contemplated. It is not good scientific judgment to regard every city street as ideal for the growing of trees.
3) It is our belief that the causes of shade tree appreciation will be harmed rather than aided by the continuance of indiscriminate tree planting in urban locations where the physiological outlook or future for the tree is practically hopeless.
4) It is our considered judgment that further large tree planting should not be carried out in such unpromising locations as 5th Ave. from the Thirties to the upper Fifties or in locations where no “planting strips” exist between the sidewalk and the street.

Edward A. Connell, Chairman
Albert W. Meserve
Connecticut Tree Protective Association
Hartford, Conn.

Believers in states rights will resent Connecticut intrusion in Manhattan tree controversy. Mind your own nutmegs, Sirs!—Ed.

LETTER FROM FRANCE

Forum:
The two items enclosed I've laboriously translated for my own amusement. My particular interest comes from pleasant months in the offices of Michael Goodman and Gardner Dailey.

“French Reconstruction” is a summary of feverishly taken notes from a Parisian radio broadcast.

The Fernand Leger impressions of the United States comes from an article in the Parisian weekly paper, Arts.

On one of many visits to Paris I had a most interesting conversation with Gertrude Stein, met by chance walking with her white poodle towards Place Vendôme for tea at the Ritz. We discussed Le Corbusier’s villa at Garches, designed for her sister-in-law, now in Palo Alto. She had recently been impressed by a young American soldier architect who’d exclaimed, “It would be wonderful to go home and design houses for people who weren’t always buying things.”

In talking with some Parisian architects in their Porte de Maillot office, I found that aside from their personal antipathy for the theories of Le Corbusier, their chief concern is the lag in actual construction caused in addition to material scarcity by potential clients’ waiting for a more stable government to stabilize a fluctuating currency.

Paris remains a city of extreme luxury if only for its space and trees—showing what we could do if the effort were made.

(Continued on page 50)
PORTRAIT OF AN = ALMOST =
MODERN ARCHITECT

His buildings are examples of perfection—the last word in streamlined, functional design . . . were it not for one all-important detail: Lighting efficiency.

No building is better than its lighting—and no lighting is better than its fixtures. That's why so many leading architects agree on Day-Brite Lighting. It is optically engineered.

Illustrated is recessed louver-type troffer available for one and two 40-watt lamps. For use with snap-in and other acoustical ceilings.

Day-Brite Lighting, Inc., 5671 Bulwer Avenue, St. Louis 7, Mo. Nationally distributed through leading electrical supply houses.

In Canada: address all inquiries to Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

IT'S EASY TO SEE WHEN IT'S
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Lighting
It's for Better Air Conditioning

Why risk your reputation with lop-sided air? You'll be certain of a perfectly balanced system when you specify G-E Better Air Conditioning . . . installed to G-E engineering standards. Here's what Better Air Conditioning means:

- ample cooling* capacity
- adequate machine capacity to dry* the air
- uniform circulation...even temperature throughout
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- introduction of plenty of outside air

Get all five . . . and put the G-E reputation to work for you by specifying G-E Better Air Conditioning.

For heating, too, specify G-E gas or oil units for homes or small commercial buildings. There's a G-E heating unit for every type of system.

General Electric Company, Air Conditioning Dept., Section 6134, Bloomfield, N. J.

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

GENERAL ELECTRIC
Complete Air Conditioning
FOR many years intensive research on the cause and prevention of leaky brick walls has been conducted by various organizations and individuals, and much vital information has been gathered.

Most authorities agree that workmanship is the most important thing involved, but until now, no one has attempted to explain and illustrate the difference between good and bad workmanship.

"Type of Workmanship Recommended to Secure Dry Brick Walls" does just that. In it, a recognized authority on brickwork has compiled 16 pages of proven information — explanations and recommendations — 96 color illustrations. It is a major contribution to good building. It will be sent free to any architect, contractor or dealer who is interested in water-tight masonry.

Use the coupon to secure your copy. No obligation of any sort.

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Gentlemen: Without obligation, please send me a copy of "Type of Workmanship Recommended to Secure Dry Brick Walls."

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City: __________ State: __________
FRENCH RECONSTRUCTION. (Notes taken from a European broadcast by a French radio station.)

The French have set up a 7-man architectural board for reconstruction, made up of leading architects from both camps including such advocates of the skyscraper as Le Corbusier, and of the four story limit such as Perret. This board has divided France into sections—probably following provincial boundaries—and has assigned definite areas to certain men. This done in the interest of a fair division of the work and to avoid an advantage by big-name men. One of the seven members of the board assists and counsels the designing architects with their schemes, and the architect and the board member submit the result for the approval of the other six men.

Le Havre is given as an example of a city almost entirely wiped out. From 19,500 buildings, there remain today some 2,500, or about one out of eight. Destruction was heaviest in the port proper and extends about 10 miles along the quai side. Some 650 workers are now assisted by students in cleaning up the debris.

August Perret is the architect charged with presenting a scheme for this most important port city whose artificially constructed foundation has rested on clay and marshes since the days of Francois Premier in 1500. The telephone system of Le Havre is noted for interruptions in service caused by underground wires passing through wet soil. M. Perret proposes a concrete box with a seven foot floor as a floating foundation for the new city. Inside this concrete box, the services for the city could be housed—pipes, railway tracks, garages, warehouses.

Against such charges that it would be difficult to police in case of manhunts, that the city would be at the mercy of an underground breakdown, that atomic bombardments would rule out shelter value, that the city would lack trees, Perret gives the affirmative view by pointing out that policing and electrical problems are matters of technique for which there are solutions, that it would be as strong as piles necessary in other plans, that a layer of soil would allow for trees above, and that the town could spread out more easily.

The Ministry has directed Perret to go ahead with his plan, and there remains only the people to convince. It is admittedly a bold plan, with the problem of the great quantities of steel and concrete left unsolved. The important thing seems to be that it is being planned.

THE WESTCO LINE of precision-built pumps: unique advantages in long-life and varieties of use for small-capacity pumping of all types of liquids. High heads, low speeds.

FAIRBANKS-MORSE split-case centrifugals are first in their class for sustained high efficiency.

Impartially Yours . . .
for lower cost fluid-handling

When you are after lower cost liquid-moving, you want 100% impartial advice from men with second-to-none records of applying the right pump to all types of water-handling jobs! For this kind of engineering service—and for a complete line from which you may choose—there's no substitute for Fairbanks-Morse. Here's a single source for all your centrifugal, turbine, and special pumping needs—one "pump store" to simplify your pump-selection and servicing problems to the vanishing point!

FOR VERTICAL TURBINE WORK—the complete line of Fairbanks-Morse and Pomona turbine pumps. At home—and well-proved—in farm or factory.

IF YOU'RE AFTER any of these advantages, see your Fairbanks-Morse dealer or call the nearest Fairbanks-Morse office.

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ist-reading families plans to buy or build a home.
Even .tied their own differences on •^old up the

How to both sides

Couple want to build a home. (1 out of every 3 Post-reading families plans to buy or build a home.) Even after they've settled their own differences on style and arrangement, they may hold up the deal until they're BOTH sure they're getting their money's worth in living comfort and resale value.
sell of the house

That's why it's wise to feature products advertised in the Post (where advertising reaches BOTH sides of the house). When plans call for plenty of familiar, respected Post-advertised brands, couple reach agreement quickly... the sale is made.

(And it's a profitably sale. Post readers have incomes well above average. They can afford more of the better things in life.)

IT PAYS TO HAVE THE POST PAVE THE WAY

THE SATURDAY EVENING POST
ARE YOU DOING IT THE HARD WAY?

Diagram above shows HARD WAY of handling flashing turn-up. Flat on floor during construction, flashing is exposed to damage which impairs its efficiency, and turn-up collects debris and mortar drippings which must be cleaned and freed off. Afterward, flashing still has to be turned up and cemented, all of which is now an inexcusable waste of time, labor and materials because...

There's an EASY and BETTER way!

There's a greatly superior, new way of handling the flashing turn-up that not only absolutely protects the flashing from damage and debris, but also obviates later turning up and cementing the flashing, and provides drainage for vapor condensation. Yet in spite of its marked advantages, this new way actually saves time, labor and money! It is fully described in the "Improved Method of Handling the Flashing Turn-up," an ethical file-folder prepared by the Research and Engineering Department of the Wasco Flashing Company as a public spirited service to architects and the building trades.

SEND FOR YOUR COMPLIMENTARY COPY TODAY! And while you're at it, FIND OUT ABOUT WASCO

Wasco is the perfect Copper-fabric Flashing. It's pure electro-sheet copper (available in 2, 3, 5 and 7 oz. copper weight per square foot), insulated and plicated between two layers of asphalt-impregnated fabric. Wasco bonds perfectly with mortar, is not affected by electrolysis, and is easily shaped and formed. Send for specifications, details and samples.

WASCO FLASHING COMPANY
CAMBRIDGE, MASS.

Fernand Léger has returned from America where he stayed for six years. He has not changed. He's still the strong and healthy one, whom we've always known — broad shoulders, solid, frank, voluble — with rude and flowery speech. He's a Norman fellow of good lineage.

"Now, America?" we asked him.

"It's not a country — it's a world. It's impossible to see the limits. In Europe, each nation is aware of its boundaries — whether it is France, England, Italy, Scandinavia. There, all is without limit. It is only in Russia that I had a similar impression, but it wasn't the same thing. In America you are confronted with a power in movement with force in reserve without end. An unbelievable vitality — a perpetual movement. One has the impression that there is too much of everything.

You must go fast — there is no time to lose. In the restaurants, you eat on the gallop, with people behind waiting their turn. You drink while running. For sentimental matters it's almost the same. The wrist watch regulates everything. It isn't the country of the madrigral nor of refinement — but what you eat is sensile and crimes of passion are rare. This diet produces magnificent physical specimens — superb boys and girls who follow the course without losing themselves in explanations."

"And from the social point of view?" "No complications either. Only the economic question counts. The dollar is king. The sole preoccupation is work — to be worth more than the next. Politics doesn't interest the people as it does here. Communism hasn't penetrated very deeply in each nation is aware of its boundaries — whether it is France, England, Italy, Scandinavia. There, all is without limit. It is only in Russia that I had a similar impression, but it wasn't the same thing. In America you are confronted with a power in movement with force in reserve without end. An unbelievable vitality — a perpetual movement. One has the impression that there is too much of everything.

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Here's hard-to-beat economy! Rubberlike, the modern composition floor runner with rugged corrugations protects all heavy traffic areas for less than 6c per square foot! Widely used in factories, offices, schools, hotels, cafes, institutions, Rubberlike cushions and quiet footsteps — makes slippery floors safe. Skidproof even when wet. Easy to clean, Rubberlike needs no special maintenance, can be put down without cementing. Won't curl at edges. It's amazingly durable — and doubly desirable because of its "petty-cash" cost! Order from your supplier and request free sample to Bird & Son, Inc., Dept. 154, East Walpole, Mass.

BIRD & SON, INC., EAST WALPOLE, MASS.

(Continued on page 58)
... a great name sponsors a great new line of major household appliances.

Keeping its pledge to produce "better products for a better world," Norge now offers a line of brilliant new products which complement the best efforts of architects and builders. There's the famous Rollator refrigerator, with new advancements and improvements... a new chest-type home and farm freezer... new gas range, electric range, Rotator washer... a new home heater. Each new Norge is a product of experience—designed and constructed to harmonize with any plan for gracious living.

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*See Norge before you buy*
Why a prominent property-owner writes an ad for KIMSUL* Insulation

Read this letter of appreciation to an insulation contractor from Mr. J. A. Zehntbauer, President of Jantzen Knitting Mills:

Mr. Steward Griffith and Mr. George Barbeau, contractors to whom Mr. Zehntbauer wrote his letter, inspect one of their typical snug KIMSUL installations.

Specifying KIMSUL pays big dividends in home owner satisfaction—and for definite reasons. KIMSUL is a top-quality insulation. It has a high degree of thermal efficiency—"k" factor 0.27. And its scientifically superior construction—many layers stitched together to form a flexible, tough-covered blanket—assures continuous, uniform insulation coverage. For full technical data on KIMSUL, see Sweet's 1946 Architectural and Builders' Catalogs, or write Kimberly-Clark Corporation, Neenah, Wisconsin.

Steward Griffith Company
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Well, Mr. Griffith:
Everything you said KIMSUL Insulation would do for my house has been fully realized. We save fuel and are more comfortable, both in summer and winter. It is a pleasure to tell you about this and to recommend KIMSUL as an insulation material and also to recommend your workmanship, which is most excellent.

The KIMSUL which you installed in the store building at Jantzen Beach is another good job and is meeting expectations in every respect.

We believe insulation pays for itself and gives added comfort. We believe KIMSUL is unexcelled for insulation and your workmanship tops, and it will be a pleasure to recommend you and your product to anyone needing insulation.

Sincerely,

JANTZEN KNITTING MILLS

President

November 5, 1945

*KIMSUL (trade-mark) means Kimberly-Clark Insulation
design for lasting appreciation with Dow Plastics

Ranch house, Georgian, colonial, modern—the architectural success of any home hinges largely upon selection of the most suitable materials for every detail. That's why architects and builders, constantly searching for better materials, have given prompt approval to screen cloth made of Saran, a plastic produced by Dow. Saran screen is architecturally desirable both in function and decoration. It adds pleasing color to homes. It is flexible and therefore easy to install. It resists weather and cannot rust, which eliminates staining and discoloration of painted surfaces. It is extremely serviceable. It is easily kept clean by washing...Saran screen is one of many ways that Dow plastics can help build more beautiful, more enjoyable homes. Dow suggests that you look into their further possibilities now.

PLAN NOW WITH THESE DOW PLASTICS

Saran for colorful rustproof screen; plumbing parts and equipment; name plates; wire coating; paint brush handles. Styron for brilliant lighting fixtures; escutcheons; decorative objects and trim; insulators; food-handling equipment. Ethocel for modern window blinds; extruded shapes for kitchen trim; rods, tubes and bars. Properties of these Dow plastics make them adaptable to other architectural uses under development.
LETTERS

SEND FOR THIS HELPFUL BOOK FOR A.I.A. FILE 14-K

"ANCHOR PROTECTIVE FENCES" is packed with information that will help you in specifying fence for all kinds of installations. It's both a catalog and a specification manual ... illustrating many types and uses of Anchor Chain Link Fence ... picturing many prominent industrial and institutional set-ups ... containing detailed structural diagrams and specification tables.

The four exclusive ANCHOR features are detailed in drawings and photographs: Deep-Driven Anchors, which hold the fence permanently erect and in line in any weather; Square Frame Gates, amazingly free from warping and sagging; Square Terminal Posts and U-Bar Line Posts, which increase strength and durability.

This informative book is yours for the asking. Just write for your free copy to: Anchor Fence Co., 6635 Eastern Ave., Baltimore 24, Maryland.

higher than reason could conceive ... In America economy dominates everything and without prejudice. A farmer's plow meets an accident; he abandons it in the field and has another brought out. It isn't repaired, it's replaced. It isn't a matter of waste. The American has figured out that the salary of the repairer, the hours of work he's lost, the complication would cost more than simply buying a new machine. I give you this example because this scrapiron rotting away in the weeds has inspired a group of canvases.

Farmer's scrapheap

Scrapheap abstraction, Leger

"Yes. Let's get back to painting. "How can a French artist get along who suddenly finds himself before such an unbridling of brutal force?"

"A young one would perhaps be pulverized, but for a man of my age, in the sixties, solid as I am, it is very different. There I felt very much at ease and I took advantage of it. When one is in a country other than his own—while retaining his potential, he must put himself into the rhythm of the country and take part in it. That had already happened to me in the war of 1914-18. I took advantage of it. It was then that the mechanical epoch of my painting began. In America all is rough and strong, like the climate. The temperature goes from —22° to 122°. Sometimes when leaving an overheated house, I've felt the cold strike me a blow in the face. Only the strong can resist. I've worked much over there.

A few months ago I saw a group of young paintings at Louis Carre's—but they were some old canvases. I'm bringing some very new works. I've also made some large plastic decorations which you already know (Continued on page 62)

If Fence is one of Your Problems

Screw Anchors

For easy and neat installation of wall fixtures and accessories.

Fastens securely in any type wall from concrete to thin fiber-board.

Anchor will not fall when screw is removed.

ASK YOUR JOBBER

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CHENEY FLASHING 3-Way Bond
16 OZ. COPPER

CHENEY FLASHING REGLET
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CHENEY FLASHING is again being made by the original inventor who pioneered the art of thru-wall flashing eighteen years ago.

No thru-wall flashing can operate successfully unless it has the two very important features that are found in CHENEY FLASHING—proven weep-hole drainage and the three-way bond, vertical as well as longitudinal and lateral.

Remember, the inferior two-way flashings, cramped copper and membranes, have neither the vertical bond nor do they drain moisture from the wall fast enough. Furthermore, their first cost advantage has disappeared because today Cheney Flashing is no longer a specialty—it's a standard commodity.

CHENEY INDUSTRIES, Trenton, N. J.

CHENEY INDUSTRIES, Trenton, N. J.
PROPER TEMPERATURE CONDITIONS ENCOURAGE EFFICIENCY OF WORKERS AND SAVE TONS OF FUEL

Since 1928... the men and women employed in the Oneida Community Ltd. Kenwood building have given little thought to the regulation of heat in their offices. It is AUTOMATIC. The Johnson Temperature Control System is always on the job. No shivering with cold—no overheated, lagging workers. 57 individual room thermostats operate 111 radiator valves in this Oneida Community Administration and Office building—to maintain correct temperatures, to provide healthful comfort and to save large quantities of fuel.

The uniformity of Johnson performance means that plant operators enjoy maximum convenience with minimum effort. They are able to turn their attention to other important work. Look into the advantages of Johnson Automatic Control Systems. There is a Johnson engineer near you who will be glad to talk over the desirable features and savings that the Johnson engineered Control will bring to your building... regardless of whether or not the building is old or new. Johnson maintains direct branch offices in principal cities. Call or write for a conference at your convenience. Johnson Service Company, Milwaukee 2, Wisconsin.
ALLIED BUILDING CREDITS, INC.

offers

Complete Instalment Note and Mortgage
Services for the Building Industry

ALLIED Building Credits, Inc., financial services cover every phase of residential construction, from one structure to 1,000 or more, from land purchase to the final Package Mortgage. We believe the services rendered by ABC are the most complete, comprehensive and economical available to the home builder today. Among them are:

- SUBDIVISION DEVELOPMENT (LAND PURCHASE)
- CONSTRUCTION LOANS
- CONSTRUCTION MATERIAL FINANCING
- PACKAGE MORTGAGE ON COMPLETE STRUCTURE
- MORTGAGE CANCELLATION PLAN

The 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 sickness or temporary disability. It assures mortgage-free ownership to the buyer in the event of death or permanent, total disability. The mortgage Cancellation Plan overcomes fear of the future—the chief resistance of many otherwise ready to buy.

Complete Instalment Note Services

These services cover repairs, remodeling and additions to all types of structures—new non-residential buildings, plus equipment and appliances. You can make more, bigger and easier sales by offering ABC terms—“Nothing down, budget payments”, from $30 up—from 6 to 60 months or more to pay—no collection headaches. ABC’s complete note services give you control of every sale.

For complete information on Simplified Procedure, Modern Rates, Terms and Services, write to Allied Building Credits, Inc., 2519 First National Bank Building, St. Paul 1, Minnesota. Offices in principal cities.

ALLIED BUILDING CREDITS, INC.

2519 First National Bank Bldg., St. Paul 1, Minnesota
Pre-Sealed!  Pre-Fit!

Douglas Fir Doors
Assure A Better-Fitting
Better-Looking Installation!

PRE-SEALED
Douglas fir doors are available pre-sealed to save on-the-job finishing time. Eliminates the need for one prime coat, reduces moisture, improves dimensional stability.

PRE-FIT
Douglas fir doors are available pre-fit to exact net book sizes to save on-the-job sawing and fitting and to reduce the danger of marring or "butchering" due to dull or improper tools.

FACTRI-FIT
Douglas fir doors are also available FACTRI-FIT — not only pre-sealed and pre-fit, but completely machined as well: gained for hinges and bored or mortised for locks. The slight additional cost is more than offset by savings on the job.

Durable, attractive Douglas fir doors — made from sturdy, vertical-grain, old-growth heartwood — are now available pre-sealed and pre-fit. This means a reduction of on-the-job labor and assures a better-fitting, better-looking installation for your client. Write the Fir Door Institute for catalog showing complete line of Douglas Fir Interior Doors, Tru-Fit Entrance Doors, and new specialty items. See your lumber dealer for prices and delivery information.

Douglas Fir DOORS
FIR DOOR INSTITUTE
Tacoma 2, Wash.

THE NATIONAL ASSOCIATION OF FIR DOOR MANUFACTURERS
about, but it was rather a rest for me. I was struck by the intensity of the contrasts of movement. It's what I've tried to express in painting."

"By what means?"

"I painted—as I've told you—a group of American landscapes, being inspired by the contrast presented by an abandoned machine—become old scrapiron—and the vegetation which devours it. Nature eats it. It has disappeared, under the weeds and wild flowers. The opposition between this pile of twisted metal and the marguerites which decorate it produces a vivid charm."

"So much for the contrast. But the movement?"

"Over there I painted in a much more realistic manner than before. I tried to translate the character of the human body evolving in space without any point of contact with the ground. I achieved it by studying the movements of swimmers diving into the water from very high. This thrilled me—you'll see what I've done with it. To express movement also, I've taken for a theme some cyclists—handsome boys and beautiful girls in red, yellow, green sweaters. I've a gouache here which I'll show you."

"There is in it an intensity of very dynamic movement—and such color."

"I've dissociated the color from the design. I've liberated the color from the form by disposing it over large areas without making it fit the contours of objects. If that way keeps all its force and the design also."

"Have you brought many things?"

"I've about forty canvases—a third of what I painted there. I had an exhibition every year. The galleries follow the general rhythm, you must always show something new."

"Are they interested in painting?"

"Very much. Beautiful pictures are seen. 57th Street is better equipped than the Riche la Boetie. The Americans like that. Collectors haven't sold their canvases during the crisis. There are a lot of people in the museums. One day, leaving an exhibit, I was approached by a taxi driver who wanted an explanation of one of my designs. I tell you—it's an amazing country."

"And still you come back to France—"

"One always returns to Paris—it's a sentimental matter. For a Frenchman or somebody who's lived here, France exercises an irresistible attraction. But I don't want to slander America. Above all faults the Americans may have—there is the deep sense of liberty they have. It is futile to look elsewhere for a spirit as liberal."

CAPTAIN CHARLES PORTER

Electric Water Heater Section

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

AMEXOR • B.R.W. • CLARK ELECTROMASTER • FORDEN •
HORSEPOWER • GENERAL ELECTRIC • HOPKINSON •
HYSTER • KELVINATOR • MONARCH • Norge •
PENCO • REX • RHEEM • SEALEXTRIC • SMITHWAY •
TERMOGRAY • THERMO-WATT • UNIVERSAL •
WESTINGHOUSE

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

Electric WATER HEATER!
These Magazines know what Women want

WOMAN'S HOME COMPANION survey shows that more women plan to buy an Electric Range than any other type!

McCALL'S MAGAZINE readers have made the Modern 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 the 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 two-thirds of white farmers, the Electric Range is the 2-to-1 choice!

Their Surveys show the swing is to

Electric Ranges

Leave it to the magazines to find out what their readers want. Survey after survey shows that women prefer the convenience, cleanliness, dependability and economy of modern electric cooking!

Pre-war sales figures add further proof to this trend. Between 1933 and 1941, sales of Electric Ranges increased over 900%!

There are no two ways about it—to cash in on this growing demand, you must wire the new homes you build for Electric Ranges. Built-in, the cost of such wiring is negligible, but the selling power is tremendous!

Electric Range Section
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
155 E. 44th Street, New York 17, N. Y.
INSULATION

OUTSIDE
On outer-walls, Insulite Bildrite Sheathing, asphalt treated throughout the board, builds a wind-proofed, weather-tight wall of high insulation efficiency, superior bracing strength.

VAPOR CONTROL
Insulite Lok-Joint Lath, with asphalt barrier against the studs, retards vapor travel. And Insulite sheathing, being permeable to vapor, permits what little vapor that escapes the barrier to pass toward the outside.

INSULATION

INSIDE
On inner-walls, Insulite Lok-Joint Lath builds a second wall of insulation, a strong, rigid plastering surface.

INSULITE
Insulates as you build

The original wood fiber structural Insulating Board... made exclusively from wood
A color arrangement such as this induces a feeling of well-being which aids the enjoyment of good food, well served.

Warm glowing colors in this entrance foyer express a feeling of welcome and create a sense of cheerfulness.

Color Dynamics...

Pittsburgh's exclusive painting system helps you to plan color arrangements that are not only pleasing to the eye but also add to the health, comfort and efficiency of your clientele.

Soft blue-green on walls of this private office rests the eyes and draws together colors on furniture and drapes.

NOW . . . Get the Benefits from the ENERGY IN COLOR . . . with Scientific Accuracy!

Paint RIGHT with COLOR DYNAMICS
Paint BEST with PITTSBURGH PAINTS!

The benefits of COLOR DYNAMICS are made more enduring when you use Pittsburgh's long-lasting quality paints. There's a PITTSBURGH PAINT for every need:

WALLHIDE—in three types. PDX—extra durable finish which can be washed repeatedly without streaking or spotting. SEMI-GLOSS—for higher sheen. FLAT—velvet-like finish for offices, libraries and dining rooms. These paints are enriched with "Vitalized Oils" for long-lasting protection.

WATERSPAR ENAMEL—for woodwork, furniture, metal trim—gives a china-like gloss which resists marring and abrasion.

FLORHIDE—for floor surfaces. Quick-drying, tough finish which can be scrubbed frequently with soap solutions.

People who work or live in public or semi-public buildings appreciate those things which help to keep them going . . . with greater mental efficiency . . . with less physical strain . . . with greater comfort and restfulness.

Pittsburgh's science of COLOR DYNAMICS enables executives responsible for maintenance to specify with scientific accuracy color arrangements that retard fatigue, stimulate energy, improve morale, increase safety and promote well-being. There is no longer any reason for the depressing monotonous found so often in offices, hotels, restaurants and hospitals.

This new method of painting is based on the influence of the energy in color upon normal human beings. Laboratory tests have proved that color can be used to help people relax, feel more cheerful, inspire trust and confidence, create better feeling among employees.

With COLOR DYNAMICS you can also make offices or living quarters seem more spacious and attractive. Rooms can be made to appear longer or wider, ceilings higher or lower, halls lighter and wider.

For a complete explanation of what COLOR DYNAMICS is and how it works, write for a free, profusely illustrated booklet, "COLOR DYNAMICS for Office Buildings, Hotels and Restaurants!" Pittsburgh Plate Glass Company, Paint Division, Dept. AF-4, Pittsburgh 22, Pa.
THE BETTER TO SHOW
YOUR SHOES, SIR!

Eye-appeal can influence many a sale. And eye-appeal can start with your Kentile floor—anywhere—in an exclusive shop, a popular restaurant, or a super-market. Kentile will set the tone and define the character.

But Kentile does more than look smart. Experience has proved that Kentile will outlast any other type of floor covering! Kentile is moisture and stain proof. Kentile absorbs shocks and sounds, and "cushions" the feet. It's tough—stabbing heels, dirt and scum, make no impression on Kentile. It is the finest flooring combination of beauty, plus economy, plus endurance you can find. Get ALL the facts on Kentile in the booklet offered below.

DURABLE! Kentile is virtually unequalled for wear. It shows no mop marks, isn't scarred by scuffing. Never curls or buckles, isn't roughened by friction! Kentile floors, laid 14 years ago in Rockefeller Center, show no signs of traffic wear.

ECONOMICAL! Kentile is the lowest cost type of flooring you could buy. In addition, it wears indefinitely—never loses its colors—and can be laid faster!

VERSATILE! Not only does Kentile permit you to have your own individual color schemes and designs, but alterations in floor planning are simple—the necessary new tiles are the only ones that must be laid.

Altogether, Kentile offers 15 different advantages. They're all told in the new, richly illustrated full-color catalogue that shows all the Kentile colors and some of the countless patterns possible—plus full-color pictures of Kentile in actual use. Send for your copy today—no obligation.

KENTILE
Asphalt Tile
Trade Mark Reg.

DAVID E. KENNEDY, Inc.
68 Second Avenue, Brooklyn 13, N. Y.
208 Bona Allen Bldg., Atlanta 5, Ga.
605 Market Street, San Francisco 5, California
90 No. Michigan Ave., Chicago 2, Illinois
152 Stetler Bldg., Boston 16, Mass.
614 Olympia Road, Pittsburgh 13, Pa.
3211 National Broadcasting Co. Bldg., Cleveland 14, Ohio
Right at your fingertips is a "private doorman"—one of the newest, most appreciated of all home conveniences.

The Avco Automatic Door Operator is an electronic device, controlled by any one of three buttons—one is inside your car, another in the garage, a third inside the house. At the touch of any button, garage doors may be opened or closed. Also, at slight extra cost, garage lights and house entrance lights may be turned on or off automatically.

Quickly and easily installed on any standard type of garage door, the Avco Automatic Door Operator is guaranteed to give continuous, carefree, low-cost operation. For full information about this modern convenience, that costs only a few cents a day to operate, wire or write today.

AVCO Automatic DOOR OPERATOR

THE HORTON MANUFACTURING DIVISION — THE AVIATION CORPORATION

DEPT. A1, CIRCLEVILLE OHIO
WRIGHTFLOR
Colors are Built in

That's Wright! This tile keeps its color to the end because the colors are not merely on the surface—they go clear through. It is possible to produce this extraordinary tile in the lighter, lovelier shades that lend themselves so well to modern decorating, in addition to the richer, darker shades for floors where practicality is of prime importance.

Wrightflor is compounded from synthetic rubber and other virgin materials...moulded and vulcanized under high temperature and hydraulic pressure...resulting in these outstanding advantages:

1. Smooth, hard density surface...resists heaviest traffic abuse...won't crack, chip break or dent.
2. Resiliency of Wrightflor makes it easy and quiet to walk on.
3. Impervious to alkalies, inks, grease and oil...won't crack, chip break or dent.
4. The numerous attractive mottled colors can be laid in any number of imaginative patterns.
5. Lasts smooth over wood or concrete—old and new.
6. Requires no special care...only damp mopping, buffing and occasional waxing.

Where traffic is heavy, where beauty and low maintenance are necessities, Wright Rubber Tile is right. Include Wrightflor in your plans. Color samples with prices and specifications can be obtained by writing to Wright Rubber Products Division, Taylor Manufacturing Company, 3663 W. Meinecke Ave., Milwaukee 10, Wisconsin.

WHERE'S WRIGHT?

Competition Base
Finish your flooring job—rubber tile, linoleum, asphalt, terrazo or wood—with Wright-On-Top Compression Base. Providing a tension when installed, this patented rubber base overlaps floor edge...stays snug despite floor shrinkage...seals against dirt and water...eliminates border scribbling. Specify Wright-On-Top Compression Base for every flooring job.

WRIGHT RUBBER TILE
Flooring of Distinction.

Dear Reader:

This issue results largely from a companion marriage between the Editors of the Forum and of Fortune. While individuals engaging in such a relationship are often considered social outcasts, we trust the April issues of these magazines will be both socially and, more important, intellectually acceptable. Speaking for ourselves, we found the "honeymoon" provocative, exhausting and end-satisfying.

Research for the issues was pooled, and it was a large pool. We asked Patricia Divver of Fortune's Editorial Board to cast a beautiful, dark, appraising eye at the mass and estimate 1) How much it weighed? 2) How many pages of research were garnered? 3) How many words of research were written? Her answers 1) "Oh gosh!" 2) "Gee whiz!" 3) "Great God!"

FORTUNE'S Diver
Provoked by this vague, attractively worded request, we next visited Fortune's librarian, Olga Anderson, custodian of the archives. Obviously, we should have gone to Miss Anderson in the first place. With a pretty shake of her up-swept head, as she whistled one bar of "Do not put bananas in the refrigerator," Miss Anderson gave out..."Not counting oodles, just oodles, of stuff already in the combined Fortune-Forum library, the research collected specially for the Housing numbers weighs 234 pounds!" Our curiosity thoroughly aroused by now, we made a hand count of all Fortune and Forum researchers with the result that we found one young lady who weighed 98 pounds and another who weighed 136 pounds. Our choice was clear; either we could sit with this research on our lap or, at no greater discomfort, with two researchers on our lap. (To be concluded next month.)

* * *

Yesterday the General Motors strike was settled. Today, to ride in a cab from 49th Street straight down Fifth Avenue to 34th Street took 17½ minutes. Said the driver, "This town is going to choke itself to death. Someday businessmen are going to move out where there's some room for themselves and their help!" Department of Urban Rehabilitation please take note.

* * *

The Fourth Estate is heard from again as two more top-flight journalists comment on the new Forum.

GOOD HOUSEKEEPING

"You have made that wonderful magazine of yours even better than it was before." HERBERT R. MAYES, Editor

PARENTS MAGAZINE

"Congratulations to the editors of the new Forum! It is an excellent job, and I know it will be received with great enthusiasm among all the building interests. The new features and its increased size should bring even greater success to an exceedingly important publication." GEORGE J. HECHT, President

At press time, along with everyone else in the building business, we await official publication of the STOP BUILDING order, expected this week. Rumors and counter-rumors are everywhere. Regardless of the wording of the order, its administration will determine the immediate fate of thousands of projects and those connected with them. It is clear that the Expediter-Administrator intends to get as much housing built as quickly as possible. But it is equally clear that much other construction must proceed. How else maintain our economy, employment and a functioning construction industry ready for the unprecedented general building program the U. S. so badly needs? As he tosses in his sleep these nights, many a building man (veterans included) is heard to pray—"Wyatt, please!"
Give your clients Indoor Comfort "De Luxe"

... with Climatrol

Climatrol is a system for conditioning and handling air... which enables you to deliver "Climate Control"

Climatrol is your assurance of providing home owners with True Indoor Comfort... and winning their lasting good will. You not only enable them to enjoy today's higher standards of indoor comfort, but you also put them in a position to take advantage of future developments which can be added to the original Climatrol installation.

Indoor comfort depends upon the condition of the air in the home. When you install a system that is basically designed to treat and handle air — as a permanent "built-in" feature of the home—you are creating a sound long-range investment for your client.

And when it's a Climatrol system, you also know that you can depend on the performance record of a company that has specialized in home comfort for 89 years. 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. Consult your nearest Climatrol "comfort merchant."

Write for bulletins.

L. J. MUELLER FURNACE CO.
2001 WEST OKLAHOMA AVENUE, MILWAUKEE 7, WISCONSIN
Portland wholesale distributing firms  
make 71% of all wholesale sales* in the state!

Portland is Oregon's distributing center for building material. Five key wholesale building supply firms are located here. In addition, practically all nationally-known building material lines are distributed by these wholesalers or through factory branches in Portland.

It is logical that Portland should be the wholesale distributing center for Oregon and southwestern Washington, because Portland does more building than all the rest of the area. In 1945, Portland totaled 63% of the dollar value of building permits issued in this territory.
Portland's Wholesale Building Material Distributors Can Deliver the Goods for You!

MASONS SUPPLY COMPANY .......................... 2637 S.E. Twelfth
McCRAKEN-RIPLEY AND COMPANY .................. 2221 N. Albina
A. McMILLAN AND COMPANY ...................... 220 S.E. Ankeny
PACIFIC BUILDING MATERIALS COMPANY ............. 400 N. Thompson
JAMES A. C. TAIT & COMPANY ...................... 316 S.E. Madison

The Journal Does MORE Than Cover The Market... it carries your advertising to the men and women who distribute and retail your products!

*Of the 448 Men and Women—Truck Drivers to Executives—Employed by Portland's Building Material Wholesalers—97% Read The Journal Regularly.

*Of the 576 Men and Women Employed in Portland's 159 Retail Building Material Stores—95% Read The Journal Regularly.

The Journal is your trade merchandising medium as well as your consumer advertising medium in Portland!

*Figures from an Independent Survey made December, 1945.

The JOURNAL PORTLAND, OREGON Afternoon and Sunday Member Metropolitan and Pacific Parade Groups

MASS PRODUCED DWELLINGS for BETTER LIVING...

National Homes, of superior construction and individualized beauty, are designed to fill the greatest need of the post-war building market—more homes of quality for more people, at lower cost! National Homes have steel columns and beams, steel open-web bar joists, panelized floors, aluminum windows, and insulated exterior walls and ceilings. Three standard sizes available, 24'-6" x 28'-6", 24'-6" x 32'-6", and 24'-6" x 36'-6".

Wilson Wyatt, ebullient new National Housing Administrator who is valiantly trying to pull American homebuilding out of its bottle-neck (p. 96), got his present hectic position in spite of a delayed telephone call. In his former Louisville Mayor's office, Wyatt hush-bushed an excited secretary into holding a Washington phone call until he finished a leisurely ten-minute chat with a friend in New York. Finally picking up the other connection, he was appalled to hear a mild voice say, "This is Harry Truman. Can you come to Washington right away on an important job?" Wyatt's acceptance plunged him into a furious schedule of round-the-clock work sessions often lasting from 8:00 a.m. until 5:00 the next morning, pushed into the dim and dreamy past his less wakeful Louisville days once described by Time magazine under the caption, "Spellbinder." Said Time: "In Louisville, Mayor Wilson Wyatt made an electrically transcribed speech, played the record back to hear how he sounded, fell asleep before he had finished.

Buckminster Fuller, whose original Dymaxion house shocked conventional architects twenty years ago, is at last giving his critics the laugh with a perfected Dymaxion design ready for mass production at Beech Aircraft (p. 129). Prescient inventor, cartographer and mathematician, Bucky has been in revolt against a conservative universe (including a long line of prim New England ancestors) ever since he burst Harvard's austere undergraduate bounds to entertain the entire chorus of a New York musical comedy. Among his more startling inventions are a three-wheeled car, a system of mathematics which he calls "energetic geometry" and a Dymaxion globe of the world made from non-distorting squares and triangles combined into a jagged sphere. World-changer Fuller is intrigued with spheres, is built like one and, to keep up with his whirling brain, has developed the clock-cheating habit of sleeping only two hours in 24.

Jim Hansen, President of the newly formed Storagewall Corporation (p. 143), is a man with a passion for precision and a disdain for tolerance (engineering, not socio-political). Against rebellious murmurs from a crew of conventionally trained craftsmen, Hansen reduced the tolerance on his prefabricated cabinets from the usual 1/16 in. to zero, or a perilously close facsimile. This display of micrometer accuracy is only one of many for Mr. Hansen. The legend goes that when Jim was running a railroad through the Tennessee mountains, his two survey parties, starting from different states, shook hands within ¼ in. of each other.
Let it rain... let it pour! U-S-G Sheathing weathered all weather, stacked on the job, nailed on the studs, stacked in open sheds. That's what the U-S-G Laboratories proved in a recent test. They drenched big panels of U-S-G Sheathing with 165 inches of simulated rainfall in just 15 days... more rain than the average United States locality receives in 5½ years. Absorption was only 3.1% by weight... and there was no warping, no buckling, no opening of joints. Now available in limited quantities. For test-it-yourself samples and merchandising helps, ask your U-S-G salesman or write 300 W. Adams, Chicago 6.

United States Gypsum
For Building • For Industry
Gypsum • Lime • Steel • Insulation • Roofing • Paint
You can readily see from this illustration why Anaconda Through-Wall Flashing is known as "the flashing that drains itself dry on a level bed." The die-stamped dam and corrugations provide positive drainage in the desired direction, intercepting and disposing of wind-driven rain and moisture penetrating the masonry.

Equally evident is the fact that this preformed flashing is easy to install. Because of the flat selvage, sharp bends for counter flashing, or for locking to adjacent metal, are easily made. And merely by nesting one or two corrugations, Anaconda Through-Wall Flashing is readily locked endwise to form water-tight joints.

The photograph below shows the Grafton, West Virginia, High School, in which this durable, rustproof flashing provides positive protection against seepage, and decreases the risk of heaving by frost.

For detailed information on Anaconda Through-Wall Flashing, write for Publication C-28.
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, are pioneers in offering the “Packaged Mortgage”.

Full details of this simplified, cost-cutting plan will be sent upon request. Send coupon for folder and name of nearest loan correspondent.
For FAST and DURABLE CONCRETE CONSTRUCTION
It's CF&I WELDED WIRE FABRIC
The uniformly spaced... pre-assembled... ready-to-lay reinforcement.
Government surveys show that of all those planning to build or buy new homes, two-thirds are families with children.

In a recent survey among families with children PARENTS' MAGAZINE learned some things that will surprise you. The facts unearthed in this study are accurate because:

- They were obtained in the name of PARENTS' MAGAZINE, a trusted counsellor in American homes where there are children.
- They represent an adequate cross-section of opinion.
- They embody the thinking of parents who definitely plan to build, buy or modernize homes in the near future.

You'll find these facts invaluable... you'll find them in a specially-prepared book just off the press... you'll find the book on your desk within a few days after you write your request on your business letterhead.

SUPPLY IS LIMITED—WRITE TODAY!
A—The Kinnear Motor Operator saves effort, time, and manpower. It goes into action instantly at the touch of a control button—opening, closing, or stopping the door with smooth speed and efficiency. It's a sturdy, integral unit featuring a specially designed torque-output motor, machine-cut gears, and bronze bushings that assure lasting, trouble-free operation.

B—The same bulldog ruggedness and high operating efficiency are featured in the sturdy, all-steel, interlocking-slat construction of Kinnear Rolling Doors. Coiling into small space above the lintel, Kinnear Doors permit full use of all floor and ceiling space around doorways, remaining out of the way and safe from damage when open. These and other basic advantages have made Kinnear a first choice for nearly half a century!

C—Remote Control adds still further convenience and economy by permitting more strategic placing of control buttons, or centralized control stations for any number of doors. It helps eliminate doorway "bottlenecks," and cuts heating and air-conditioning costs by encouraging prompt door closure at all times. Remote control assures maximum advantages from the smooth, easy, time-saving action of Kinnear Motor Operated Rolling Doors.

Write today for complete information on the ABCS of dependable door satisfaction at its best.

THE KINNEAR MANUFACTURING COMPANY

THE URBAN LAND INSTITUTE has organized a council of business leaders from principal U. S. cities, selected geographically to provide an authoritative and representative unit. This group, to be known as the Downtown Business District Council, will act as a clearing house for widespread information and experience on solving the problems of large cities. The council has now under study the questions of transportation, parking, taxation, smoke and noise, zoning, leases and urban redevelopment programs. The results of its studies will later be published in technical bulletins. Members of the Council include: A. J. Stewart, Louisville, Chairman; Paul McCord, Indianapolis; Foster Winter, Detroit; Newton Farr, Chicago; L. J. Sheridan, Chicago; E. W. Bedford, Omaha; L. F. Eppich, Denver; H. J. Tobin, Milwaukee; Hobart Brady, Wichita; Richard Seltzer, Philadelphia; W. H. Ballard, Boston; Walter Schmidt, Cincinnati; Winston Wheeler, Wichita; Henry Miller, Dallas; David Simpson, Portland, Ore.; Clarence Tarley, St. Louis; Warren Morris, Cleveland; Alvin Cates, Atlanta; Burrows Johnson, New Orleans; Ward Gifford; Kansas City; Norman Ogilvie, San Francisco; and Leslie Williams, New York.

THE COMMITTEE on Opportunities for Veterans in the Construction Industry has prepared a booklet entitled Opportunity Unlimited—a Guide for Veterans Interested in the Construction Industry. This presents a brief but detailed outline of the major professions, skilled trades, apprentice training and business opportunities in the building industry, and should be of interest not only to the veteran but to anyone wishing to enter one of these fields. Copies may be secured (10 cents each) by writing to E. L. Chandler, Sect. of Opportunities for Veterans in the Construction Industry, Room 703 Defense Bldg., 1026 17th Street, NW, Washington 6, D. C.

THE BUILDERS & TRADERS EXCHANGE, Detroit, announces the beginning of the 21st term of its evening school. Echlim M. Kaake, project manager for Albert Kahn Associates, continues as instructor-in-charge and will teach the advanced classes. Raymond Malchie will be in charge of the beginners group.

THE ASSOCIATION OF COLLEGIATE SCHOOLS OF ARCHITECTURE expects that increasing enrollments at schools of architecture may demand additional teachers in the near future. Those qualified and interested in teaching positions should send their personnel records to Prof. Paul Weigel, Sect'y of the Assn. at the Department of Architecture, Kansas State College, Manhattan, Kan.

WILLIAM WURSTER & THEODORE BERNARDI announce the addition of Mr. Donn Emmons as a member of the firm. Mr. Emmons, recently in the U. S. Naval Reserve, has been with the office since 1938. The new firm name will be Wurster, Bernardi and Emmons, architects, San Francisco, Calif.

RALPH S. LAMIE of H. K. Ferguson Co., has been named chemical consultant to the National Resources Commission of the Chinese government. Still retaining his position with the Ferguson Co., Mr. Lamie will go to Formosa to assist in China's reconstruction.

WILLIAM WEBSTER & THEODORE BERNARDI announce the addition of Mr. Denn Emmons as a member of the firm. Mr. Emmons, recently in the U. S. Naval Reserve, has been with the office since 1938. The new firm name will be Wurster, Bernardi and Emmons, architects, San Francisco, Calif.

Ralph S. Lamie of H. K. Ferguson Co., has been named chemical consultant to the National Resources Commission of the Chinese government. Still retaining his position with the Ferguson Co., Mr. Lamie will go to Formosa to assist in China's reconstruction.

MR. CHARLES KLOPP, architect, has returned from duty in the U. S. Navy to join H. W. Lochner & Co., engineers and architects, Chicago. The practice of the firm in municipal engineering and city planning now includes architectural service.

Appointment of Dr. Waldo H. Kliewer as director of research has been announced by the Minneapolis-Honeywell Regulator Co. Dr. Kliewer will (Continued on page 78)
build with...

VIKING
A POTENT NAME IN AIR CONDITIONING
WINTER, SUMMER AND YEAR 'ROUND

Woler Hcateri
Year-round Air
Oil and Goi
Condilionerj
Conversion
Eurneri
Room Coolers
Domestic Stokers
Utility Room Furnaces
Floor Furnace
Space Heaters
Year-round Air Conditioners

SUB-CONTRACT TO THE VIKING INSTALLING CONTRACTOR

He Installs Good Jobs—VIKING units are good—sound design features, precision manufacture with unexcelled mass production facilities, proven in nationwide use.

He Can Handle Any Job—The VIKING line of heating, cooling and air conditioning is complete—for every fuel—gravity or forced air—basement or utility room.

He Meets Schedules—Every VIKING dealer has the active support of his VIKING distributor who carries an inventory of all the items needed for the bill of materials on your job. Your subcontractor is relieved of purchasing from many sources, unloading cars, delivery, order expediting, shortage and transportation claims. His entire time is devoted to installing on schedules which fit into those of the other crafts and subcontractors. His distributor assists in financing, engineering and service.

He Protects Your Reputation—Long after you have delivered a house to the owner, the mechanical equipment may need service or adjustment. He expects immediate intelligent help—otherwise he is critical of his builder. The VIKING installing contractor is a permanent local merchant who maintains a year round service department, to help the owner, thus protecting you from criticism. His VIKING distributor assists by maintaining a parts service and a competent service consultant.

LET'S LOOK AT THE VIKING INSTALLING CONTRACTOR

1. Technical ability—to lay out a good job.
2. Mechanical ability and facilities—for good installation.
3. Service facilities—year round department for cooling and heating.
4. A permanent, local Merchant—available to the owner whenever needed.
5. Support of a substantial distributor with inventories, financial, engineering and service assistance.
6. A business man who handles his sub-contracts on a business basis—provides a good job to specifications on schedule and contributes more than his share to satisfying your user.

THE VIKING MFG. CORPORATION
1747 CHESTER AVE., CLEVELAND 14, OHIO
coordinate research activities in all Honeywell divisions in Minneapolis and will instigate new research projects in the field of automatic control devices.

Harry Cutler, recently released from the Coast Guard, has been named director of publicity of the Prefabricated Home Manufacturers' Institute, Washington, D. C.

Miss Beth Peterson, for the past ten years State extension specialist in textiles and clothing at Iowa State College, Ames, Iowa, has been appointed home economies consultant in the Extension Division, Public Relations Dept. of the Du Pont Co.

EXHIBITIONS

The Central Pier Company announces the plans for the Tenth Annual Model Homes Exhibit which opens May 25, 1946 and operates four months to October 1, 1946. The exhibit will be located on Central Pier on the Atlantic City Boardwalk. The plans contemplate an exhibit consisting of five full size houses, completely furnished, equipped and landscaped. Many lines of merchandise are to be represented in the exhibit and in the construction of the houses. Names and addresses of people interested in various products on display are to be taken and will be sent directly to the manufacturer. Floor plans, construction outlines and photographs of the houses may be purchased.

Harvard University Graduate School of Design offers two or three fellowships (not to exceed $1,500 each) for advanced study in City or Regional Planning for the academic year 1946-7. Applications should be made before April 15 to the Chairman of the City Planning Department, Robinson Hall, Harvard University, Cambridge, Mass. and should include an account of the applicant's training and experience with an outline of the study or research to be undertaken were he to receive a fellowship. Fellowships are usually open to candidates for the Master's or Doctorate degrees.

The Museum of Modern Art, N. Y., has announced that in addition to its present hours it will remain open every Thursday until 10 P.M., with a film showing at 8:15 P.M. This is due to increased attendance, which in the past six months was 56,000 over the previous six. Since it is impossible at this time to enlarge the Museum physically this is the only way its actual capacity can be expanded.

AWARDS

The 40 finalists in the Fifth Annual Science Talent Search of the Westinghouse Educational Foundation will go to Washington to compete for the $11,000 in scholarships to be distributed. Four-year scholarships of $2,400 each will be given to the top boy and girl, along with 8 other prizes of $400 each. The $3,000 remaining will be distributed at the discretion of the judges.

COMPETITION

A. F. Davis of the Lincoln Electric Co. has donated a fund to present four annual cash prizes totalling $700 to undergraduate authors and publications printing the two best articles on welding during the preceding year. To the author and publisher of the best article will go $200 each; to those of the second best, $150 each. The first awards will be given for papers published between now and July 1, 1946. Presentation of prizes will be in October, 1946.

SCHOLARSHIPS

The John Stewardson Memorial Scholarship in architecture offers a prize of the value of $1,000 to study architecture to citizens of the U. S. with the equivalent of four years training in either college or office (Continued on page 82)
BUILD WITH
STRAN STEEL

BUILD FOR ECONOMY, PERMANENCE
AND FIRE-SAFETY

Because they feel that basic improvements begin with the frame, many architects and builders are planning their new buildings around Stran-Steel, the material that makes steel framing practical and economical for lightweight structures.

Workmen using ordinary carpenter's tools find Stran-Steel fast and easy to erect. Framing members are assembled with self-threading screws. Studs and joists embody the exclusive Stran-Steel nailing groove, which permits collateral materials to be nailed directly to framing members. The completed frame is durable, fire-safe, sag-proof . . . of uniform quality throughout . . . low in original cost, inexpensive to maintain.

In order to offer greater investment value in an apartment or housing project, single home or store—or in any similar structure—build with Stran-Steel! For further 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
Whether under the pressure of the emergency program—or in the normal process of peacetime building—these two companies look forward to serving the public with quality homes!

YOUR PREFABRICATED HOME...

will have the experience of over a half-century of New England craftsmanship found in—

E. F. Hodgson Co. Homes

And will have the thoughtful engineering and latest design in homes built and developed for the war effort by—

Allied Housing Associates, Inc.

Central Office - 730 Fifth Avenue, New York, N. Y.
You could have specified this door

any height and width  any skin material, with or without windows
to open completely in ONE MINUTE, if speed is needed
electric or manual operation — it's fully counterbalanced
all sections reaching peak at same time, yet able to be stopped at any point to save heat
any number of sliding pilot doors
independent doors, but not obstructed by a dividing member
lowest section conforming to ground slope

Robertson Vertical Lift Door

H. H. ROBERTSON CO.

2403 Farmers Bank Building Pittsburgh 22, Pa.
Offices in 50 Principal Cities World-Wide Building Service

Note that the sections of this Door nest above the opening and in front of the main truss. The Door subtracts nothing from the working area of the building. Ceiling — walls — floor — outside approaches, completely unobstructed. Furthermore, the vagaries of weather which usually play havoc with large doors have no influence on the Vertical Lift. Ground rise, caused by frost, or roof sag, caused by snow, do not buckle and jam the Robertson Door. Snow or sand drifts do not block it.

A Robertson representative will be glad to show you how the sound principle of Vertical Lift can be harmonized with the details of your architectural designs. For Door literature write—
Diagram shows alternate layouts for power distribution and control... (A) from Busway to Control Center and thru Flex-A-Power and Flex-A-Plugs to load... or (B) from Busway to Control Center, thence direct to load.

THREE PREFERRED PRODUCTS

Try as hard as you will in planning an Electrical Distribution System and you'll wind up with three preferred products.

(1) BUSWAY... for your heavy duty electrical highways from transformer secondaries... or from main to sub-distribution control points... also quite frequently as a medium for interconnection of two switchboards thru a bus-tie breaker. Capacities from 600 to 4000 amperes although 2000 ampere feeders (maximum) are desirable from an economical viewpoint.

(2) FLEX-A-POWER... for distribution to loads. The 225 ampere size will be your "best buy".

(3) CONTROL CENTER (preferred over conventional distribution panelboards)... which receives its power from (1) and then distributes that power thru (2)... or, depending upon type of occupancy, direct to load.

These Trumbull Products are now serving many plants whose names read like a veritable roster of Industry's "Who's Who". You can't go wrong in following suit.

THE TRUMBULL ELECTRIC MFG. CO. • PLAINVILLE, CONN.
OTHER FACTORIES AT NORWOOD, O. — SEATTLE — SAN FRANCISCO — LOS ANGELES
Showing the essential construction stripped of stacks and partitions. Steel plate floor and structural stack columns are designed, fabricated, and spaced accurately to bookstack tolerances to accommodate the equipment shown in the floor plan.

Adaptable for various library requirements

Before the introduction of the Snead Stack System the layout of a new library was more or less a compromise between immediate requirements and those of the foreseeable future. Once completed, the fixed nature of the stackroom made it impractical to rearrange the layout radically to meet changing conditions.

With the Snead Stack System complete adaptability of space for any desired rearrangement is available at any time, and changes may be made quickly, easily, and inexpensively. The intermediate stack columns and shelves are removable, allowing the open space to be used for book storage, reading rooms, staff work space, carrels, offices, etc. Sections of the floor consisting of prefabricated steel plates covered with resilient tile may be removed to permit relocation of stairs, or for the formation of a full-height reading room within the stack area. Stacks may be rearranged without leaving marks on the floor or ceiling.

This multiplicity of uses of the stack area permits the cubical contents to be utilized fully as well as efficiently at all times. Send for catalog describing this revolutionary improvement in stack construction today.

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.
The sensational growth of Radiant Panel Heating has made necessary the development of special equipment to best serve its unusual characteristics. Designed with these requirements in mind, the Hoffman 90 Series System precisely controls and maintains the relatively low temperature required by radiant panels. It has proved its merit in thousands of forced hot water heating systems now in operation.

In this system, water is continuously circulated through the panels by the Hoffman Circulator. As long as the heat requirement of the panels is satisfied, the Hoffman Control Valve remains closed, and the circulating stream by-passes the boiler. When the circulating water begins to lose heat, the Control Valve is slowly opened by the Hoffman 90 Series Controller, permitting hot water from the boiler to enter the system. Just enough is admitted to maintain the proper temperature in the panels.

Obviously, the mechanical brain of the system is the Hoffman 90 Series Controller. The coordinated action of its Outdoor and Water Temperature Bulbs automatically selects the water temperature necessary to keep the building at the desired degree of warmth. With delicate precision, this Control smoothly varies the temperature of the continuously circulating water, so that the heat supply is always exactly equalized with the heat loss.

The complete story is too long to tell here—write today for descriptive booklet.

Hoffman Specialty Co., Dept. AF-4, 1001 York St., Indianapolis, Famous for Hoffman Valves, Traps, Vacuum and Condensation Pumps, Forced Hot Water Heating Systems.
for Better
BUILT-IN KITCHENS...

Specify Square D Multi-Breakers

In homes you design with modern "built-in" kitchens, include a kitchen-installed Square D Multi-breaker to control the electrical "built-in" appliances.*

The Square D Multi-breaker provides the necessary disconnecting means required by the National Electrical Code, in addition to furnishing separate automatic overload protection for the wiring and each major appliance. A Multi-breaker providing this added convenience and protection, installed in the kitchen, costs no more (sometimes less) than the old-fashioned method of running long circuit wires from a remote point.

Multi-breakers eliminate fuses completely. Current is cut off automatically when a short circuit or overload occurs. A simple movement of the lever restores current after the cause of the overload has been removed. There are no delays, nothing to replace.

Protect major appliances with one Multi-Breaker

Top illustration shows kitchen-located Multi-breaker arranged to protect general lighting and appliance circuits, plus these five major appliances:

1. Range
2. Garbage Disposal Unit
3. Dishwasher
4. Refrigerator
5. Deep Freezer Unit

*Squares D Multi-breakers now may be included in house-financing plans in many states.

SQUARE D COMPANY

Detroit • Milwaukee • Los Angeles
It ends the great American traffic jam at the oven door. An exclusive feature of Estate Heatrola Ranges that's getting an enthusiastic welcome by housewives from coast to coast.

Prospective clients of yours are undoubtedly among the millions who are reading about the Bar-B-Kewer, one of the most important basic improvements in range design in years. And chances are, they have a copy of the full-color, 16-page Estate booklet, "A Gallery of Practical Plans for Your Dreamlined Kitchen". Many of the kitchen ideas they'll discuss with you will probably come right out of that booklet. And no wonder. It's full of smart details, interesting kitchen features...new plans and specifications which will inspire your original kitchen designs. Full information, too, on Estate Heatrola Ranges. You'll want a copy for your "active" file. Just mail the coupon, today.

Estate Heatrola Ranges
City Gas, L. P. ("Bottled")
Gas, Electric

THE ESTATE STOVE COMPANY
DEPT. AF-4, HAMILTON, OHIO

Please send me my copy of the booklet, "A Gallery of Practical Plans for Your Dreamlined Kitchen", containing full-color kitchen plans and information about the new Estate Heatrola Ranges.

Name
Address
City
County
State

*Reg. U. S. Patent Office

EWALD R. FROOSE and ALBERT C. MAACK, architects, announce their association with Rex L. Becker in a partnership for the practice of architecture under the firm name of Froose, Maack & Becker, at 705 Olive St., St. Louis 1, Mo.

THEODORE L. SOONTEP, AIA, architect, having served with the office of chief surgeon, E.T.O.U.S. Army, announces the reopening of his office devoted mainly to the specialized practice of hospital planning, design and construction at 369 Lexington Ave., New York, N. Y.

HOWARD SHARP, consulting illuminating engineer, announces the opening of an office at 82 Smallwood Dr., Snyder 21, N. Y.

EDWIN A. KEEBLE, architect, is reopening his office in the Cotton States Building, Nashville, Tenn.

SIDNEY SHRUCILFF, formerly Lt. Commander USNR, has rejoined his father, Arthur Shurcliffe, in the practice of landscape architecture at 14 Beacon St., Boston, Mass. The firm is also opening a branch office in Dedham, Mass.

W. MANCHESTER HUDSON, announces the opening of his office for the practice of architecture at 113½ W. Main Street, Spartanburg, S. C.

ROLLIN WOLF and WILLARD HAHN, registered architects, are forming a partnership under the firm name of Wolf & Hahn with offices at 459 Hamilton Street, Allentown, Pa.

GARRET BECKER, architect, announces the opening of an office in Ridgefield, Conn.

LT. BERNARD HARRISON, JR., USNR, is reopening his office for the practice of architecture at 120 E. 65th St., N. Y. Prior to the war Lt. Harrison had his own practice and was chief zone architect in the northeastern states for FHA.

PAUL WIANT, AIA and Am. Soc. C. E., Director of the Union Architectural Service in China, is now moving his base center from Foochow to Shanghai while still retaining an office in the former city.

WILLIAM FOX, JR., architect, is opening an office in the Wilma Bldg., Missoula, Mont.

MILDRED MOONEY announces the opening of a studio for the construction of accurate architectural scale models under the firm name of Mooney Miniatures at Rahway, N. J.

ANTHONY THORMIN, AIA, is resuming practice with offices at 672 S. Lafayette Park Place, Los Angeles 5, Calif.

ALBERT ROLLER, architect, San Francisco, announces the opening of a Los Angeles office at Subway Terminal Bldg., 517 S. Hill Street.

JOHN CROSS, AIA, and his son, H. PAGE CROSS, until lately a captain in the Marine Corps, announce that they are forming an architectural firm, Cross & Son, at 730 5th Ave., N. Y.

CHARLES STROTHOFF, formerly executive director of the City of Richmond Housing Authority, is resuming the practice of architecture at 1855 Market St., San Francisco, Calif.

BRITON MARTIN, having returned from service in the U. S. Army Air Corps, is reopening his office for general architectural practice at 315 S. 15th St., Philadelphia, Pa.

WILLIS L. STEPHENS, architect, has opened his office for the practice of architecture at 1201 Kings Ave., Jacksonville 7, Fla.

HARRY A. BROOKER, architect, has resumed private practice at 706 Crosby St., Akron, O. (Continued on page 90)
This is flexicore! The New, Long-span Concrete Floor and Roof Slab

- Steel-Reinforced. Permanent.
- Dual-celled... Less Materials!
- Secure Against Fire, Rot, Termites.
- Insulating—Sound-deadening.
- Arrives Ready to Install.
- Lengths up to 22½ ft.
- Cross Section—6” x 12”

It Speeds HOUSING Construction!

Flexicore permits complete architectural freedom of design. Erection and installations are simple, quick, labor-saving. (See A and B.) Follow-up trades move in at once. Provides smooth, level floor base and finished ready-to-paint ceiling (C). Production now under way at key distribution centers. So... “Get the Score on Flexicore!” ... Data, sketchbooks, engineering and technical service available. Don’t delay ... Write today!

You Can Do More with flexicore*

THE FLEXICORE CO., INC. 220 E. 42nd St., NEW YORK 17, N.Y.

*Trademark... Product developed by Price Brothers Co., Dayton, Ohio
Design all three in one—with multiple units of prefabricated STORAGEWALL.

You've probably already heard about it. Soon you'll be able to design with it.

If you haven't heard about it, the name itself tells you what it is.

STORAGEWALL is composed of unique, new, prefabricated units which, put together, make both the wall itself and storage space. It can be used for any wall between any rooms in the house, thus providing two-way storage, i.e., in two rooms at once.

The storage units—in natural or painted wood—are bookcases, wardrobes, china cabinets, shoe cabinets, linen closets, etc. There are built-in furniture units, too—desks, dressers, vanities, radio and phonograph cabinets—

You—the architect or builder—choose which units you want to fit your designs and your needs. The units are easily assembled in a great variety of wall patterns.

Storage problems solved
You can see quickly how STORAGEWALL lets you solve one of the housewives' greatest problem—space for specialized storage.

That's why STORAGEWALL was developed—to provide compactness and space economy, particularly for the moderately-priced homes so urgently needed now.

While serving as the wall itself, STORAGEWALL utilizes otherwise wasted space. Every cubic foot of it can be used for compact, handy storage space—or built-in furniture.

STORAGEWALL is flexible
STORAGEWALL fits whatever space you have available. The cabinet units are provided in many different sizes, built on the 6-inch module. You can use STORAGEWALL as a full partition or as a low wall. You can place it in the form of an "L" or "T". Or, you can back it up against existing walls. It is flexible in height, depth, width and direction.

As you design with STORAGEWALL you will discover new and functional uses for it.

Write for leaflet
There isn't room here to tell you the full story of STORAGEWALL. Elsewhere in this magazine is a more complete, illustrated story. To get all the details, write for a free copy of our illustrated leaflet and special order blank.

STORAGEWALL, Inc.
11 West 42nd Street
New York, N. Y.
Typical piping installation constructed with threadless Silbraz joints which insure maintenance free service as long as the piping lasts.

Silbraz threadless joints are not only as strong as the copper and brass pipe and tubing they join, but also fully as ductile.

That's why Silbraz joints are unaffected by any vibration, shock, temperature and pressure changes that the pipe or tubing itself will stand—as proved by thousands of installations in buildings, ships, Diesel engines, etc.

Silbraz joints derive their properties from the rings of SIL-FOS which make them—rings that come as inserts in the bores of fittings, flanges and valves created for threadless installations.

For SIL-FOS is the low-temperature silver brazing alloy known and used throughout industry for joining non-ferrous metals because of the strong, ductile, leak-tight joints it makes in these metals.

These properties make Silbraz joined piping the equivalent of a one-piece, leak-proof system—permanently maintenance free.
Although the Skipper definitely is a low-cost shower designed for small homes with a limited budget, the material used in its construction is of the best quality. Walls are Bonderized Galvanized Steel with baked-on synthetic enamel finish, the same as used in higher priced Fiat showers. The essential qualities of long life construction developed by Fiat over many years of shower cabinet building are incorporated in the Skipper.

One feature of this shower of particular interest to plumbers and builders is the ease and speed of erection on the job. The walls are partly assembled at the factory. Side walls and stiles are made in one piece — tension locking joints for the rear corners are formed as an integral part of the back wall panel — this pre-fabrication gives the erector a shower body complete in three pieces with only two corner tension locking joints to slip into place.

**SPECIFICATIONS** — SIZE 32 x 32 x 76

**WALLS**—BONDERIZED, GALVANIZED STEEL. Finished inside and out with white baked-on synthetic enamel.

**RECEPTOR**—Semi-flat standard type Stonex; 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.

**FIAT METAL MANUFACTURING COMPANY**
205 Roscoe St., Chicago 13, III.
21-45 Borden Ave., Long Island City 1, N. Y.
2 S. San Gabriel Blvd., Pasadena 8, Calif.

**ANNOUNCEMENTS**

Jesse M. Page, Jr., AIA, architect, has returned from active duty with the Seabees, and announces the reopening of his office for the practice of architecture at 116½ W. Martin St., Raleigh, N. C.

Marc Edelitz & Son, Inc., builders, announce the opening of offices in the Grand Central Terminal Bldg., New York, N. Y.

F. Herbert Radey and Clarence L. MacNelly, architects and engineers are combining the personnel of both their organizations to render professional service in building research, design and supervision of construction with offices at 101 N 7th St., Camden, N. J.

Hart, Jerman & Associates, architects, announce the opening of offices at 247 Park Ave., N. Y.

Daniel Perry, AIA, is reopening his architectural office at 1213 Main Street, Port Jefferson, N. Y.

Daniel Bodin, AIA, announces that Willard N. Lamberson, AIA, has now become a partner in his architectural firm, which will now be known as Bodin & Lamberson, Atlanta, Ga. Clarence Smith, AIA, is an associate member of the new firm.

S. J. Gladerson, architect, is now located at 14 E. 39th St., N. Y.

Harold Wilson announces the opening of an office for the practice of architecture at 125 Coulter Ave., Ardmore, Pa.

Archie Photopapas, AIA, is resuming the practice of general architecture at his new office, 441 Lexington Ave., N. Y.

Joseph Watterson, AIA, is reopening his architectural office in the Dade Bros. Bldg., Old Country Road, Mineola, L. I.

Stuart Jester, engineer, and Adolph Brukin, architect, announce the merging of their organizations in offices located at 675 3rd Ave., N. Y.

Charles Bauer, Jr. is opening an office for the practice of architecture at 1180 Raymond Blvd., Newark 2, N. J.

Lt. Cecil Henderson, USNR, having been released from active duty, will resumed the practice of architecture at 253 Worth Avenue, Palm Beach, Fla.

Thomas Nelson, member of the American Society of Landscape Architects, and formerly a Charles Elliot Fellow in Landscape Architecture from Harvard University, is opening an office at 503 Republic Bldg., Louisville 2, Ky. He offers service in site planning as well as landscape architecture.

Oliver D. Ruse and Dale E. Ruse announce their association as partners under the firm name Ruse Lumber Co. with offices at 302 W. Fremont St., Stockton, Calif.

Sasco Co., Inc., 475 5th Ave., New York, makers of steam traps, temperature control and heating specialties have opened an office at 1129 Vermont Ave., Washington, D. C.

Died

Henry J. Olschewsky, prominent Seattle architect. Mr. Olschewsky, a graduate of the University of Washington, had spent his whole building career in the Northwest.

**CORRECTION**

Prof. Charles H. Warner, Jr.'s name was, we regret, omitted from the list of those credited with advising on the Ingersoll Utility Unit. Mr. Warner worked closely with Architect Ralph Galley in analyzing the twelve house plans, and with the individual architects on ideas contributing to the Unit itself.
• Hard to believe, but this beautiful lawn is actually the roof of an apartment garage! It's a modern roof, covered with luxurious grass and shrubbery. Putting valuable roof space to work is typical of the new architectural trend—not only as garden areas but for practical utility as well. Sunny, safe areas for schools; storage and heavy traffic roofs for factories—yes, even roof parking lots are a practical possibility today, not just something to be hoped for tomorrow!

Proved-in-performance specifications—worked out by Ruberoid engineers—are available now for all these recent roof developments. Ruberoid Approved Roofing Contractors, located in principal cities and towns, are ready to give you assistance in planning and executing them. No matter what type roof you may have in mind—Asbestos Felt and Asphalt, Coal Tar Pitch and Tarred Felt, or Asphalt Felt and Asphalt—call a Ruberoid Approved Roofer. His assistance, based on long experience and backed by a complete line of materials—all from the same source—assures you of the right roof for any job!

RUBEROID
BUilt-UP ROOFING
The RUBEROID Co., Executive Offices: 500 Fifth Ave., N. Y. 18, N. Y.

RUBEROID
HANDY ROOF INCLINE FINDER
For Your Superintendent
This useful pendulum device instantly gives the roof incline in inches per foot. Helps determine proper type of roof. Made of transparent plastic, can also be used as a protractor.
FREE ON REQUEST!
On the job... day in and day out... Herman Nelson Unit Blowers are providing better working conditions in plants, factories and commercial establishments all over America. They are helping to speed up production, to cut down accidents and to reduce absenteeism.

Architects, Engineers and Builders can specify Herman Nelson Unit Blowers with confidence. Like all other Herman Nelson Products — these unit blowers provide the maximum in both efficiency and operating economy. Into their design and construction have gone the engineering skill, research developments and exacting manufacturing methods amassed by The Herman Nelson Corporation in 40 years devoted exclusively to the production of quality heating and ventilating equipment.

Consult THE NEAREST HERMAN NELSON PRODUCT APPLICATION ENGINEER OR DISTRIBUTOR. He will provide practical as well as technical assistance in the most satisfactory solution of any heating or ventilating problem.

THE HERMAN NELSON CORPORATION
for 40 years manufacturers of quality heating and ventilating products
MOLINE, ILLINOIS
Housing in Crisis

The editors of this magazine are unable to recall a time when building was so beset by confusion. Background for this confusion is the Veterans’ Emergency Housing Program by Wilson Wyatt. Some of the confusion comes from misunderstanding produced when the government attempted, with only partial success, to jam through Congress a number of legislative proposals which had not been adequately previewed for either the building industry or Congress itself. But that was only where the confusion began. It has now become clear that the housing program has been seized upon as the chief point of attack by those outside of government who wish the immediate removal of controls and the chief point of support by those within government who wish controls maintained, as long as the emergency exists. Thus Building finds itself unhappily cast in the role of hero or villain depending upon which side of the orchestra you sit.

Clear beyond dispute is the fact that an emergency exists, that housing is truly in crisis. Less generally understood is the further and even more important fact that the peak of this crisis is neither passed nor here, but inevitably due some months from now. Meanwhile, what is being lost is time, and in this emergency time is measured at the rate of 3,000 houses a day. Another point which is fogged in confusion is the key point of all, the purpose of this program. That purpose is to provide an adequate supply of housing for veterans at prices they can afford. In appraising the program, whether in its controversial detail or as a whole, it is within the framework of that purpose that everything else must be viewed.

Building greeted the Wyatt program with something less than cheers. That reaction should not be hard for anyone to understand who will recall what Building has been through during the last decade and a half. First, there was the depression, then the depression’s aftermath, followed by several short but abortive feints at recovery, and finally came the war which made extraordinary demands of Building accompanied by bedeviling restrictions and regulations.

With this unhappy prelude, Building faced war’s end with high confidence born of a vast backlog of building demand, not just for houses but for every known kind of structure. And it faced this fine prospect certain that in place of controls and regulations would stand a government offering the industry nothing more sinister than a friendly pat on the back. Small wonder that Building looks enviously at automobiles and nylons and a host of other industries and wishes that it too might enjoy even a brief respite from something called “the public interest.”

Despite the fact that everyone in the industry yearns for the day when controls will go off, at the moment that is merely an unpious hope. Actually, the removal of controls would produce in much exaggerated form the same result that followed the premature lifting of L-41. First viewed as a bonanza, that hasty action is now generally seen as a complete bust. What would happen if controls were completely removed now need not be left to conjecture. Out of the resulting chaos would come even more stringent regulations by government and a better than even chance that a major share of the housing would be assumed by government, in unhappy contrast to the Wyatt program which places 90 per cent of the goal in the hands of private enterprise.
THE WYATT PROGRAM

Premium Payments:
It is unfortunate that the most questionable proposal of the Wyatt program is the one intended to solve the most critical problem — premium payments to step-up production of essential materials and equipment to an eight-fold expansion of 1945 levels. The government's claim is that if industry-wide price increases were used, these increases would multiply as the products pass from the producers through several channels of distribution into the finished house and that the over-all result of a general price-increase policy would add substantially to costs, already beyond the veteran's reach in many cases. It is proposed to substitute for price increases, in some cases, a premium or subsidy payment to selected producers. Those selected would include 1) producers unable to compete with more efficient manufacturers under existing price ceilings, 2) producers needing subsidy to absorb higher costs, such as overtime essential to expanded production, 3) producers needing subsidy for the development of new materials and substitutes for materials in critical supply.

The producing segment of the industry is almost unanimously opposed to premium payments. Reasonable and prompt increases in price ceilings, the producers argue, are all that are needed to produce every last shingle and nail required for the program. This view they support by pointing to innumerable inequalities in OPA prices which in many cases have forced production into more profitable, unnecessary items, thus adding to the shortages of unprofitable essential items. Further, they state that the complex administrative procedure implicit in premium payments would delay production increases for many months, a delay which prompt increases of ceiling prices would eliminate.

This dispute will not yield exclusively to logic. If Congress awards Mr. Wyatt his premium payments appropriation, he will have to depend heavily on his ability to recreate a war attitude on the part of industry. With Congressional action still in doubt, industry is holding fast to the view that ceiling increases will work, premium payments will not.

If the public could be assured that a nominal increase in ceiling prices would not bring in its wake demands from labor for wage increases, necessarily followed by further ceiling increases, and the activation of a rapidly ascending spiral, the course would be clear. At the moment what seems clear is that Congress is more ready to go along with Mr. Wyatt than when the House knocked premium payments out of the legislation a month ago.

Ceilings on Land and Houses:
The other major controversial proposal in the Wyatt program which Congress once rejected, soon will reconsider, is the government's insistence that ceilings be placed on land and on existing houses. Mr. Wyatt argues that it will get nowhere to control successfully the cost of new housing if the ground on which it must be placed is permitted to spiral in value. He points out that real estate prices have already mounted dangerously and demands that this be stopped.

Generally, he argues that it is manifestly unfair to place a ceiling on the price of new houses and to permit unrestrained speculation in existing houses. Therefore, he proposes that existing houses may be sold at whatever price is agreed upon by the buyer and seller and that this price then become the ceiling for subsequent sales during the emergency.

While some adjustment in rents may be necessary to bring them in line with other commodity prices, few will argue that rent control has not been a good thing. Control of land and of prices of existing houses seems to many equally essential.

These proposals and others in the program are meeting expected resistance for expected reasons, but also because the period of emergency has not been spelled out. Here again time is measured not by the calendar but in dwelling units.

Prefabication:
Also awaiting Congressional reconsideration is the proposal to offer purchase contracts to prefabricators. Some of the original opposition to this feature has subsided as conventional builders came to realize they were given as large a share of the program as they could possibly be expected to handle. However, these builders are still concerned about the diversion of short materials from the conventional market. If the program is to approach this year's target, it will demand not only existing prefab capacity, but greatly expanded production. The emergence of the spectacular Fuller house (see p. 129) offers important possibilities for exploring the truly mass-produced house which uses the minimum of conventional building materials.

Building Codes:
Already started under Department of Commerce sponsorship is an organized drive to modernize building codes. Long-overdue sanction on codes which have negated attempts to reduce house cost may prove one of the far reaching permanent benefits of the Wyatt program. The codes are, of course, a matter for local determination, and the government's effort will be to stimulate voluntary action in each community. This will be implemented by development of model codes sufficiently flexible to meet individual community requirements.

Labor:
Mr. Wyatt has received firm assurances of "war-time" cooperation from the all-important AFoFL and the less important CIO. Whether this moves from lip service into real hip service depends on these things: 1) quieting of the intramural squabbles which currently beset both unions; 2) willingness of local union leaders to follow national union policies; 3) willing acceptance by AFoFL of the Stu-Order, which seems certain to dislocate severely those trades which depend on major construction in metropolitan areas. Again, as with the producers, the question is whether or not Mr. Wyatt can recapture the war-time spirit.

Wagner-Elender-Taft Bill:
This legislation, which has been in process for many months, is in the main aimed at long-range objectives. It does include an inadequate provision for public housing which has implications in the emergency program. But its chief claim to emergency consideration is its pr
posed Title IV, which provides 95 per cent FHA loans on houses $5,000 and under with 4 per cent interest, 32 year term and with firm commitments to the builder. This provision is in some ways comparable to the proposed revival of FHA Title VI, which appears in the Patman Bill. It is probable that the Patman Bill will receive Congressional clearance before consideration of the Wagner-Ellender-Taft Bill. Proponents and opponents of the latter measure are equally vociferous in claiming it will and will not pass. Earlier action on the remaining features of the Wyatt program will furnish a clue to the ultimate fate of the Wagner-Ellender-Taft Bill. Even though this Bill may be less essential than other parts of the Wyatt program, its long-range provisions for urban redevelopment, etc., offer solid reasons for adopting this legislation at an early date so that planning may proceed against the time when normal building will be resumed.

**Rental Housing**

Evidence is abundant that the majority of veterans should not undertake home ownership at this time. Nor do they wish to. Many are not yet permanently employed, many have not even decided in what part of the country they wish to seek permanent employment. These circumstances underline the necessity for large-scale rental building—not likely to result from any provisions of the present plan. It is widely believed that additional incentives must be provided by the government to induce the building of rental housing. It is rumored that the Administrator has up his sleeve a plan to permit 10 per cent annual depreciation on rental housing for a period of five years. This would virtually free all rental income of taxes and the houses would be sufficiently devaluated during that period to meet replacement costs when present abnormal prices have stabilized at a somewhat lower level.

**Administration**

In whatever form Congress molds the Wyatt program, there is no easy solution to its administrative features. Study of the chart (see p. 97) discloses a highly complex procedure requiring the direct collaboration of no less than 11 government agencies, along with the fullest support of the building industry itself. The difficulty of staffing the program competently, of getting rid of endless red tape and delays is a Herculean job. More than anything else, Mr. Wyatt has to bet on speed. His administration at the national, regional and local levels must set the pace. He has said, we cannot have "building as usual, labor as usual, neither can we have government as usual." The building industry, moved by its universal desire to get rid of controls and yet at its normal peace-time job, has every incentive to complete the housing program in record-breaking fashion. The sooner the veterans are housed, the sooner will Building resume normal operation.

Mr. Wyatt has impressed Building with his grasp of the problems, his energy, his frankness and his reasonableness. He is away to a fighting start, and if dynamic leadership can bring the program through successfully, no better man for the job could be found. While the building industry is certain to gripe, and at times gripe loud, it will meet Mr. Wyatt a good deal more than half way. The Administrator, a practiced hand at winning friends and influencing people, now is driving on a two-way street.

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**HIGH SPOTS OF THE WYATT PLAN**

The "Veterans' Emergency Housing Program" was presented to the President and by him to the public on February 7.

- Production of 2.7 million dwelling units by the end of 1947. This year's quota includes 700,000 conventionally constructed units and 250,000 prefabricated permanent units plus 250,000 temporary units to be provided at government expense ($250 million) by transplating demobilized war housing. Next year's target is 900,000 conventional units and 600,000 prefs.

- Priorities for the construction of housing selling complete with lot for less than $10,000 or renting for less than $80. But Wyatt's aim is to limit about half of all the houses to be built in a community to the lowest practicable price (under $6,000 or $50 rental if possible) and to let the balance go up as high as $10,000 if necessary.

- Increased production of building materials through premium payments, price adjustments, accelerated tax amortization, federal loans for plant conversion and expansion, and the lease or sale of surplus war plants.

- An advance in on-site and off-site labor from 650,000 to 2,150,000 by mid-1947 by means of a large scale apprentice training program, labor recruiting drives and a boost in abnormally low wages.

- Reenactment of FHA's Title VI to provide 90 per cent loans direct to builders.

- Price ceilings on new and existing houses and building lots plus continuation of rent control.

- A so-called "stop-order" which will curtail non-essential or deferrable residential and non-residential construction (by perhaps as much as 25 to 50 per cent) and thus channel more building materials into small houses.

- Community committees appointed by mayors to break local bottlenecks, including obsolete building codes, and otherwise to expedite the program.
THESE: APPLY TO: FOR THESE SERVICES:

MATERIALS PRODUCERS
They must increase their output eight-fold between lost year and next.

RFC
Reconstruction Finance Corporation

WAA
War Assets Administration

OPA
Office of Price Administration

CPA
Civilian Production Administration

BUREAU OF INTERNAL REVENUE

LOCAL EXPEDITERS AND COMMUNITY COMMITTEES

HOME BUILDERS
They must erect 700,000 houses of conventional construction by the end of 1946 and 900,000 next year.

FHA
Federal Public Housing Authority

LOCAL EXPEDITERS AND COMMUNITY COMMITTEES

OTHER BUILDERS
They will be called on to supply 250,000 units in 1946, an additional 600,000 the following year.

RFC
Reconstruction Finance Corporation

CPA
Civilian Production Administration

WAA
War Assets Administration

BUREAU OF INTERNAL REVENUE

OPA
Office of Price Administration

LOCAL EXPEDITERS AND COMMUNITY COMMITTEES

COMMUNITY COMMITTEES

PREFABRICATORS
They will be called on to supply 250,000 units in 1946, an additional 600,000 the following year.

FPHA
Federal Public Housing Authority

FWA
Federal Works Agency

LOCAL EXPEDITERS AND COMMUNITY COMMITTEES

COMMUNITY OFFICIALS
From them will come the impetus and the initiation of many housing projects.

FPHA
Federal Public Housing Authority

FWA
Federal Works Agency

LOCAL EXPEDITERS AND COMMUNITY COMMITTEES

PREMIUM PAYMENTS FOR INCREASED PRODUCTION
Manufacturers of certain building materials in short supply will receive a premium payment or bonus for boosting production beyond the level achieved during a government-specified base period. Payments may vary from locality to locality and from plant to plant. If Wyatt succeeds in getting this portion of his program through Congress, payments will be made through RFC from a $600 million fund established for the purpose. While most premiums will be paid in cash, it is possible that some will be made in the form of grants of surplus government property. Estimate is that a $400 million slice of the proposed appropriation will be spent during 1946 and 1947 on the production of more than $4 billion of conventional materials for housing.

PREMIUM PAYMENTS FOR PRODUCTION OF NEW MATERIALS
One-third of the $600 million fund referred to above will be earmarked for grants to manufacturers to cover risks and research costs involved in the production of new and experimental building materials.

PRODUCTION LOANS
Short- and long-term government credit is contemplated to finance industrial plant conversion and expansion where private capital is unsuitable.

LEASE OR PURCHASE OF SURPLUS WAR PLANTS
Plants owned by RFC or any other government agency are assigned to WAA as soon as they are declared surplus.

PRICE ACTION ON BUILDING MATERIALS
Acting on its own initiative or on CPA recommendations, OPA may grant price increases for deserving materials. These may be in conjunction with or in place of premium payments. OPA will also rule on wage-price adjustments which producers may claim necessary to cover increased production of new building materials. Premium payments granted by RFC are subject to OPA approval.

ALLOCATION OF PRODUCTION
CPA will advise producers as to how much of their production must be set aside for the filling of HH priority orders.

PRIORITY FOR EQUIPMENT
Since most industrial plant equipment is still rationed, material producers must obtain priorities for new manufacturing equipment before they can obtain the equipment.

TAX AMORTIZATION OF PLANTS
Although enabling legislation must first be provided, the emergency housing program contemplates accelerated tax amortization of new building production facilities.

ASSISTANCE
in trouble-shooting of all kinds, in the recruiting of labor and in the breaking of local bottlenecks holding up deliveries of raw materials and manufacturing equipment.

MATERIAL AND EQUIPMENT PRIORITIES
The existing HH priority system will continue to govern the allocation of scarce materials from manufacturers' "set-asides" to housing. Builders will submit to FHA field offices plans of their proposed houses which the program limits to $6,000 in sales prices and $50 in monthly rentals ($100 and $90 in high-cost areas). Other requirements: housing must be conspicuously labeled as rentals for veterans and must be held for veteran purchase for at least 30 days after completion.

TITLE VI FINANCING
Builders may obtain mortgages covering 90 per cent of valuation for properties selling up to $9,000. Title VI permits the builder to be the mortgagor, brings in the advantages of FHA's mortgage insurance before the purchaser of the house is found.

ASSISTANCE
in labor recruitment, in obtaining code revisions to permit emergency construction or remodeling, in rezoning of land for subdivisions, in combating black markets, in seeking federal assistance and cooperation in the development of building sites.

ASSISTANCE AND APPROVAL
Interpretation of the "stop-order" which will curtail nonessential and deferable construction rests with CPA field men and local expediters, with community committees and local officials serving as counsel. They will either veto a proposed project or recommend that exceptions be made to permit its construction. Projects under construction, regardless of their nature, will be permitted to continue to completion.

GOVERNMENT PURCHASE CONTRACTS
The program calls upon RFC to guarantee a prefabricator a market for a certain number of units. On the other hand, the prefabricator must prove that his product is sound, according to government standards to be formulated by the National Housing Administration's Technical Division, that it will be sold for about $3,500 (for a one-bedroom house, F.O.B. plant, including equipment, excluding land and erection cost), that he has an effective distribution plan and that he is prepared to turn out a specified number of units during the life of the government contract. Under the terms of this contract, government will purchase whatever units the prefabricator fails to sell. All administrative work in conjunction with the development of standards and the checking of applications will be handled by government. Public cost of this phase of the program is estimated at $25 to 50 million.

PRIORITY
and allocation of materials.

PLANT FACILITIES
The government will make surplus war plants and equipment available to prefabricators.

TAX AMORTIZATION OF PLANTS
Although enabling legislation must first be provided, accelerated tax amortization of production facilities is contemplated.

WAGE-PRICE ADJUSTMENTS
may be made to cover the cost of experimental and development research in the production of prefabricated houses of new design or construction.

ASSISTANCE
in the breaking of local bottlenecks in the supply of labor and materials.

GOVERNMENT HOUSING
Temporary government housing will be provided by FPHA to augment permanent construction by private enterprise.

OTHER PUBLIC CONSTRUCTION
The construction of federally-aided buildings and utilities may be required in conjunction with the provision of large amounts of housing. FWA will also provide community facilities for government financed temporary housing projects, and may be called upon to assist in preparation of housing sites.

ASSISTANCE
in the development of home-sharing programs for veterans, in securing the extension of emergency building codes and the modernization of permanent codes, in the assembly of sites for temporary housing projects, in combating black market activities in labor, materials and rents, in the provision of transportation and services for new residential developments.
...AND THIS IS THE ORGANIZATION TO MAKE WYATT'S HOUSING PLAN WORK

REGIONAL AND LOCAL OFFICES of all government agencies participating in the Wyatt emergency housing program will be the contact points between private industry, which will do the building, and government, which will provide the guidance and the financial assistance. Most important from the home builder's point of view will be the offices of nine regional housing expediters under Wyatt's Director of Field Operations and the regional offices of the Federal Housing Administration. Assisting in the local front will be FHA's 72 farflung offices, which among other things will process priority applications, the local housing authorities of the Federal Public Housing Authority and the local representatives of all the other government agencies listed above. As explained in the chart to the left, it is to these offices that the various manufacturers and local representatives of the building industry will take their emergency housing problems.

COMMUNITY COMMITTEES, appointed by mayors and comprised of representatives of local government, labor, veterans, builders, material producers, mortgage lenders, chambers of commerce and other interested groups, are to be the foundation on which Wyatt would build his emergency housing program. Their prime purpose would be to clear away obstacles which might impede progress of local housing efforts. They will: 1) assure veterans of first preference on existing and new housing, 2) develop home sharing programs, 3) secure extension of emergency building codes and modernization of permanent codes, 4) encourage conversion of existing construction to provide additional dwelling units, 5) speed up inspections and issuance of building permits by local authorities, 6) provide sites for federally-financed temporary housing, 7) discourage black market activities, 8) assist in recruiting and training labor, 9) break local building material bottlenecks, 10) disseminate housing information to veterans, 11) assist in providing adequate transportation and services for new housing developments, and 12) help in the preparation of land and facilities for these projects. The nucleus for such committees already exists in many localities in FHA's local housing authorities and in unaffiliated citizen's housing committees. Relationship between these community committees and the other factors in the housing field is outlined in the chart to the left. The formation of community committees is a local responsibility.
MATERIAL SHORTAGES

The FORUM puts requirements beside production, shows graphically why Wyatt's housing plan calls for a sizable boost in materials output, some curtailment of deferrable nonresidential construction.

CRITICALLY SHORT

With operations reduced to snail speed, house builders are amply aware of material shortages. Less appreciated is the scope and significance of these shortages in terms of the proposed Wyatt program which would put housebuilding under forced draft during the next two years. To point up this significance, the FORUM presents herewith a graphic and factual analysis of each scarce building material, measures the size of the Wyatt program in terms of material requirements, indicates why a curtailment of nonessential construction is necessary to permit housebuilding in quantity and illustrates the need for increased production all down the line.

Based on Civilian Production Administration estimates covering the 2.7 million housing units called for by the Wyatt plan, the charts on these and the following pages show 1946 and 1947 requirements for each material expressed as a percentage of its current annual rate of production. Since each chart shows current production as 100 per cent, the charts for the various materials are comparable, show the relative supply and demand situation in each industry. The bars indicating 1946 and 1947 needs for each material are comprised of two pieces: the first shows housing requirements; the second, requirements for other types of construction which are subject to curtailment by last month's government order freezing non-essential building. The astronomical statistics of material production and requirements on which these charts are based are shown within the bars.

### LUMBER

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
<th>5,000 million bd. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946 NEEDS</td>
<td>HOUSING - 7,600 million</td>
</tr>
<tr>
<td>1947 NEEDS</td>
<td>HOUSING - 9,000 million</td>
</tr>
</tbody>
</table>

### SOFTWOOD PLYWOOD

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
<th>3,000 million sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946 NEEDS</td>
<td>HOUSING - 1,100 million</td>
</tr>
<tr>
<td>1947 NEEDS</td>
<td>HOUSING - 2,400 million</td>
</tr>
</tbody>
</table>

### BRICK

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
<th>5,200 million bricks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946 NEEDS</td>
<td>HOUSING - 3,100 million</td>
</tr>
<tr>
<td>1947 NEEDS</td>
<td>HOUSING - 4,000 million</td>
</tr>
</tbody>
</table>

### GYPSUM BOARD AND LATH

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
<th>2,100 million sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946 NEEDS</td>
<td>HOUSING - 2,600 million</td>
</tr>
<tr>
<td>1947 NEEDS</td>
<td>HOUSING - 4,000 million</td>
</tr>
</tbody>
</table>

### CAST IRON SOIL PIPE

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
<th>644,000 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946 NEEDS</td>
<td>HOUSING - 260,000</td>
</tr>
<tr>
<td>1947 NEEDS</td>
<td>HOUSING - 338,000</td>
</tr>
</tbody>
</table>

### BATHTUBS

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
<th>504,000 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946 NEEDS</td>
<td>HOUSING - 1,025,000</td>
</tr>
<tr>
<td>1947 NEEDS</td>
<td>HOUSING - 1,475,000</td>
</tr>
</tbody>
</table>

### CAST IRON RADIATION

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
<th>11.9 million sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946 NEEDS</td>
<td>HOUSING - 905 million</td>
</tr>
<tr>
<td>1947 NEEDS</td>
<td>HOUSING - 12.3 million</td>
</tr>
</tbody>
</table>

PERCENT OF CURRENT ANNUAL PRODUCTION

## The Architectural FORUM April 1946
As indicated by the chart to the left which covers only that portion of lumber production suitable for building, almost all nonresidential construction would have to cease to make available enough lumber for the houses Mr. Wyatt has called for in 1946. And, at the current production rate, the situation would be even less favorable in 1947. Behind the lumber shortage in the East and South are OPA ceiling prices which have forced 40 per cent of southern pine production capacity to shut down and have diverted much of the balance to exporters and railroads who pay higher prices than builders. On the other side of the country, production of western lumber has been adversely affected by labor shortages, strikes and wage-price difficulties. Recent OPA price increases, demanded by lumbermen to offset wage increases, were limited to logs and shingles, did not help boost production of the kind of lumber builders need most. According to the National Manufacturers Assn., production of lumber during the first nine weeks of 1946 was running well under that for the comparable 1945 period, but the trend was hopefully upward. Thus, southern pine production by 111 reporting mills was only 84 per cent of the 1945 total during the first nine weeks, but was up to 105 per cent in the last week of the period. Production by 135 western mills ran 74 and 78 per cent, respectively. The only types of lumber being produced in greater quantity than last year are southern cypress and northern hemlock. Production of other types of lumber during the nine-week period varied between 15 and 88 per cent of comparable 1945 totals. Production of California redwood is furthest behind in this respect.

Although the plywood industry has a production capacity of 4 billions sq. ft.—double the prewar figure—only 2.5 billion of it is now in use, and less than half of that is turning out the softwood plywood used by house builders. As shown by the chart, the current rate of production will just barely meet this year’s housing needs, will fall far short of the 1947 housing requirement. And, the chart is based on the assumption that none of this softwood will go into boats, refrigerator cars, machine shop patterns, automobile components, etc., manufacturers of which could use the entire output. (The use of softwood plywood in nonresidential construction is negligible.) Production is currently far behind demand, but the supply situation is improving. According to the industry, a large increase in production may be expected only if government relaxes its timber conservation policy on the rate at which peeker logs (especially Douglas fir) may be cut or authorizes logging of government land. Subsidies or premium payments might lower the hardwood price to a level competitive with softwood plywood, encourage its use in building.

Still in the critical classification, brick production is improving as it has each month during the past year. The current annual rate of output was set in January when monthly production advanced 14 per cent over December and almost doubled the January 1945 total. However, shipments continue to exceed production and have cut stocks to an all-time low. Current brick production will barely take care of 1946 housing needs, assuming (falsely, of course) that not a single brick goes into nonresidential construction. Adequate production facilities are available to meet the entire needs of the current year (the industry’s 1941 production would do it) but during the war 40 per cent of the brick yards closed for lack of manpower, and only a third of them have reopened. The trouble is that the industry offers labor unattractive work at unattractive wages, and producers hesitate to increase wages and, in turn, prices for fear that the higher prices would prompt builders to look for substitutes.

The entire current annual rate of production of these materials is inadequate to meet housing requirements alone. Even the 2.8 billion sq. ft. produced in the industry’s peak year (1941) would not do it. Thus, increased production and larger production capacity are indicated, if the projected goal of 2.7 million houses is to be reached in the next two years. Holding back production of both is the difficulty of obtaining paper liner and the fact that OPA ceiling prices have made other gypsum products more profitable to produce. However, lath production is regaining its former position among gypsum products: at year-end about 40 per cent of all shipments were lath as compared with the 25 per cent average for the first half of 1945. By combining the entire production of all types of wallboard such as Celotex, Masonite and Homasote (estimated at 2.7 billion sq. ft. for 1946) with that of gypsum products, building would have all the interior wall finish it needs this year. However, even in normal years, only about half of all these non-gypsum wall materials are employed in building construction.

At current production rates (down 55 per cent from 1941 levels) makers of cast iron soil pipe can only take care of half the total 1946 building need. Fortunately, production is increasing—but not as rapidly as orders, and stocks are negligible. Crucially important, the soil pipe industry is small, comprised of only 52 foundries and concentrated in two states (Alabama and Tennessee) which turn out about two-thirds of the total U.S. production. Although the industry has received three price increases within the last nine months, has boosted wages 10 per cent and hired 25 per cent more employees, a labor shortage is still the major reason for the material shortage—it accounts for the complete shutdown of 11 of the 52 foundries. Production has also been held back by the scarcity of pig iron and its divergence into other types of castings.

Like soil pipe, bathtubs are made primarily of cast iron, are therefore critically short for the same reasons. Capacity of the industry is about 1.5 million tubs per year, enough to take care of all requirements, but production in normal years has amounted to only 1 million, and today it is running about half that. At year-end production amounted to 40,000 tubs a month. This must be boosted to an average of 90,000 tubs a month to meet the requirements of housing. Now that the steel strike is settled, production of sheet steel tubs, which began on a large scale before the strike, will be resumed and will help relieve the shortage. Showers and earthenware tubs will also pinch-hit for cast iron tubs.

Most critically short of all materials, cast iron radiation at current production levels will fill less than a half of 1946 housing needs, despite the fact that the need is limited to only about one-fifth of the total projected houses. (Most houses are heated with warm air systems.) Several factors account for the shortage: 1) Comparatively low radiator prices encourage manufacturers to concentrate on more profitable castings of other types. 2) Dirty, dangerous foundry work and low wages are unattractive to labor. 3) Pig iron is short. 4) High freight rates make it uneconomical to ship western pig iron to production centers. Thus, solution to the radiation problem hinges on increased wages, price increases or subsidies and lower shipping rates.
SERIOUSLY SHORT

Although varying local circumstances might indicate otherwise, an over-all examination of supply and demand factors reveals that shortages of these materials, while serious, are less acute than those shown on preceding page.

SHORT

Neither critical nor serious but definitely short is the supply of these two materials. Fortunate for housing is the fact that only a small per cent of their production is required in residential construction.

POSSIBLY SHORT

While these materials are hard to find in many localities, on a nationwide basis their supply and production is relatively satisfactory.

NO SHORTAGE

These materials are the most important among the few which are generally available.

STRUCTURAL CLAY TILE

<table>
<thead>
<tr>
<th>PERCENT OF CURRENT ANNUAL PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
</tr>
<tr>
<td>150</td>
</tr>
<tr>
<td>250</td>
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<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>327,000 tons</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1946 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 200,000</td>
</tr>
<tr>
<td>OTHER - 1,000,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1947 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 260,000</td>
</tr>
<tr>
<td>OTHER - 980,000</td>
</tr>
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</table>

CONCRETE BLOCKS

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>415 million blocks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1946 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 425 million</td>
</tr>
<tr>
<td>OTHER - 352 million</td>
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<table>
<thead>
<tr>
<th>1947 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 680 million</td>
</tr>
<tr>
<td>OTHER - 235 million</td>
</tr>
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</table>

WARM AIR HEATING SYSTEMS

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>150,000 units</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1946 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 597,000</td>
</tr>
<tr>
<td>OTHER - 300,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1947 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 890,000</td>
</tr>
<tr>
<td>OTHER - 200,000</td>
</tr>
</tbody>
</table>

CLAY SEWER PIPE

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>720,000 tons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1946 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 37,000</td>
</tr>
<tr>
<td>OTHER - 1,300,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1947 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 54,000</td>
</tr>
<tr>
<td>OTHER - 1,250,000</td>
</tr>
</tbody>
</table>

ASPHALT ROOFING

<table>
<thead>
<tr>
<th>CURRENT PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.5 million square</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1946 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 5.5 million</td>
</tr>
<tr>
<td>OTHER - 0.5 million</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1947 NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING - 5.6 million</td>
</tr>
<tr>
<td>OTHER - 0.4 million</td>
</tr>
</tbody>
</table>

STRUCTURAL STEEL. Shortages of raw materials and skilled workers combine to produce a tight supply of structural shapes. Last year, orders ran more than 40 per cent above shipments, and unfilled orders now equal five months' shipments at the current rate of production.

NAILS. Short in many localities, the supply of nails may improve gradually as a result of the steel strike settlement.

CEMENT. Although production of Portland cement declined at year-end, so did shipments, and there has been a slight increase in stocks which are now considered ample. The industry is localized, and suppliers are plentiful. No difficulty in future supply is anticipated.

PLASTER. The supply situation in plaster is comparable to that of cement—no difficulty is anticipated.

GLASS. Window glass is in a satisfactory position, mainly because producers are numerous.

ELECTRICAL GOODS. Production is steadily increasing and, although subject to some interruptions, should meet requirements. Outlet boxes, fixtures, etc. are generally available; special devices and ornamental fixtures are not. The supply of conductors is also tight. Conduit production is on the up, but unfilled orders are now equivalent to about three months' output at the current production rate.
Although current production of this material is up 16 per cent from last year's output (740,000 tons) and is constantly increasing, supplies are still seriously short of total building requirements. However, as indicated by the chart, all except a relatively small amount of tile production normally goes into nonresidential building. In normal times only a quarter of structural tile goes into the average house, but the current brick shortage has increased the demand for this material in masonry house construction. Factors affecting tile production are roughly the same as those which control the brick industry—low wages and resultant manpower shortage. In fact, brick and structural clay tile are, in most cases, jointly manufactured. Current production of structural clay tile is about 75 per cent of the 1941 rate.

The concrete block industry is comprised of many local enterprises, is therefore difficult to appraise on a nationwide basis. Most authorities agree, however, that current over-all production falls seriously short of building requirements, is not enough to provide foundations for the 1946-7 housing program. Raw materials are plentiful; the shortage of blocks results from inadequate plant capacity and lack of manufacturing equipment. Until such equipment is made available to manufacturers through priorities, block production will not improve materially. Ducking the shortage, an increasing number of builders are pouring their basement walls or erecting basementless houses on concrete mats.

Due to scarcities of sheet and strip steel for furnaces and ducts, the production of equipment for warm air heating systems, although well above wartime levels, is still inadequate to meet the needs of housing alone. A production boost of about 20 per cent is required to provide equipment for the eight out of ten houses which are normally heated with air. This is unlikely for steel used in this equipment will continue to be the scarcest of all shapes due to demands from the automobile and other consumer-goods industries. The combined shortages of radiation and warm air equipment provide an opening for the development of radiant heating systems and the introduction of electrical heating.

Although production of asphalt roofing materials is close to capacity, it falls short of total anticipated building requirements for 1946 and 1947. Capacity production would also be slightly short of demand. However, since most of the materials are used on nonresidential building and for the reroofing of old houses, a small curtailment of this type of work would satisfy new house requirements. Production will increase only if there is a corresponding increase in the currently short supply of dry felts which are basic in the production of asphalt roofing. Normally accounting for about three-fourths of all roofing in use, asphalt materials may give ground to shingles, slate and even metal squares.

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**Non-Housing Materials**

**Hardware.** Although many types of hardware are generally available, the supply of special items and finishes and cast iron items is limited. The 10 per cent price rise granted manufacturers on March 13 should improve the situation.

**Brass and Copper Goods.** Although production is steadily increasing, supplies are small due to heavy requirements.

**PLUMBING.** Materials such as pipe, fittings and fixtures verge on short supply for reasons similar to those presented in the discussion of soil pipe, radiation and bathtubs above.

**Paint.** The supply of wartime quality paints is adequate. Good paints are scarce, and their production may be hampered by increasing stringency in raw material supplies—particularly fluxseed and lead.
A nationwide look at **THE UNDER-$10,000 HOUSE** and the mood of those who build it.

**FORUM survey reveals that—**

- **today's house**
  - covers 930 square feet
  - looks like always
  - but costs 43 per cent more

- **today's builder**
  - has plenty of troubles
  - blames them on Government
  - but builds despite them

---

Presented on these pages are the opinions of important and busy builders. Although the FORUM survey is based on reports from builders who will produce only a few houses this year and from some who will not build at all, a mere glance at the size of the average respondent's operations (93 houses a year) indicates that the FORUM survey concentrated on the country's larger operative builders. Their importance in the industry may be further judged by their 1941 production of 13,804 houses, about 4 per cent of all the privately financed single-family dwellings erected in urban areas during that last prewar year. Providing a broad national base for the survey, the 216 respondents represent all parts of the country, half from 126 cities in 44 states and the District of Columbia.

To these builders the FORUM put several questions concerning their efforts to relieve the nation's housing shortage. Those who had houses under construction were asked to detail their problems or, if construction was progressing satisfactorily, to bare the secrets of their success. Other questions were aimed at determining what can be built for how much in today's inflated market; the under-$10,000 houses presented on these pages are selling for close to the government-set amounts to a surprising average of 36 per cent over the prewar price.

Many builders by-pass dealers, go directly to mills to pick up whatever lumber is available, haul it long distances in their own transportation. (A New York builder pays $107 more than the prewar price.) Although dissatisfied with the supply and changing requirements. Many are employing substitutes for critical items—Gunite for exterior finish, linoleum for hard wood flooring, plywood for subflooring, tiling for bathtubs. Some are writing mail order houses for small weekly shipments of such hard-to-find items as nails. Many are recutting old-sized lumber to dimensions required for building—six-by-sixes are sliced twice to produce rafters. Old second-hand lumber is often resurfaced, used again. Likewise, bricks, concrete or other materials is replaced blocks, and foundations are becoming increasingly popular.

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One Cleveland builder travelled 194 miles one day in search of nails, came home with only four kgs. Although he will not admit it publicly, many a house builder is biding against commercial and industrial buyers in high priced black markets—an anonymous Pittsburgher has paid $175 per thousand for black market hard wood flooring, $107 more than the prewar price. Several builders report they have hired "expeditors" who spend all their time shopping for materials.

Those builders who have stood by one material dealer throughout the seller's market of the past few years are having less difficulty now than those who shopped around from dealer to dealer. As never before, getting materials is a matter of who knows who, and for how long. On the other hand, there are builders who, ignoring the shortages, are building as much of as many houses as possible with available materials and will make no effort to finish them until scarce materials appear. They admit this system is neither efficient, nor economical, but claim it keeps them busy and prepares them for the day when they can get what they want.

The foregoing expedients in any combina-
tion do not solve the builders' current material problems. To wit, the average builder is spending about twice as much time completing his houses as was necessary five years ago. Most of the delay is attributable to shortages of plumbing and fixtures, lumber and millwork, rock lath, nails, soil pipe and brick—in that order.

LABOR. Another important contributor to construction delay is labor. It is not only difficult to find, but, according to these builders, inefficient when measured by 1941 standards. And, wages have increased in inverse proportion to the quantity and quality of the work performed. Hopeful, however, is opinion expressed by many that the worst is over—at least insofar as labor supply is concerned. Veterans are filling the ranks in increasing numbers, permitting builders to shift slower, older men inside their houses and to fire those who are grossly inefficient.

Although most respondents in the FORUM survey look for an eventual drop in material prices, they are reconciled to continued high labor costs. But they are not reconciled to labor's narrow-minded attitude toward the adoption of labor saving methods of construction and its apparent desire to do as little work as possible.

COSTS. No one anticipates that building costs will ever return to prewar levels. Averaging the opinions of all builders participating in the survey, today's house costs 43% more than a 1941 house of comparable size and construction. Based on 216 builders' experience, this figure is considered accurate for the country as a whole. However, like costs themselves, the rise depends on local circumstances, varies considerably between states.

Increased material costs and labor wages are only partially accountable for the total increase in building costs. A large part stems from the increased difficulty of building which is reflected in the builders' overhead. For instance, one Houston builder who broke down his costs for the FORUM showed his overhead and miscellaneous expenses to have increased 183% since 1941; a builder in Detroit has seen his overhead go up 120% per cent.

GOVERNMENT. Acute though they are, the problems of materials, labor and costs do not give house builders as big a headache as government. Almost unanimously, they blame government for their present trying circumstances. Government, they say, has caused the materials shortage by setting prices on many materials so low that manufacturers, finding that they cannot produce them at a profit, have turned to production of more favorably priced items for which there is little demand, or they have sent down completely. Most frequently cited in this connection are the gypsum, lumber and clay products industries. Governments policies are blamed 1) for the creation of black markets dealing in what little building materials are available and 2) for not cracking down on the relatively wealthy commercial and industrial buyers who patronize these illegal markets. More blame is heaped on Washington for permitting the export of such scarce materials as lumber, and, although few builders could point definitely to the location of government stock piles, for the Army's and Navy's hoarding of building supplies. Government is further accused of fostering higher cost housing by its lopsided program of boosting wages and, at the same time, limiting prices—in manufacturing industries as well as in building. The industry is opposed to inflation, but it is just as strongly opposed to government methods of combatting it. Firm believers in the laws of supply and demand, builders hold that what Washington is trying to do can best be accomplished by complete return to free competitive enterprise. They admit that such a step would be accompanied by a short period of rising prices, but claim that the trend would level off as soon as materials became available in quantity. Then, they argue, prices would move downward as building and competition increased.

Although the industry offers no specific plan toward solution of the critical housing problem, it believes that the problem would disappear within two years if industry were completely unshackled. In brief, builders would trade the Wyatt program for a bright green light, and they will bet Mr. Wyatt even money that they would beat him to his goal.

HOUSES. Although opposed to government control, the housebuilding industry will not sit idly by and remain inactive if and when Congress endorses the Wyatt program. If, as advertised by Mr. Wyatt, the granting of government subsidies to manufacturers will make materials available in quantity, private building will do the rest, let veterans have first whack at a huge volume of houses.

Samples of what they will build are shown on the accompanying pages. Those which are shown in picture are prewar houses which will be duplicated in 1946. Many shown in rendering have just come off the drafting boards, have not yet been built. As is apparent from a brief study of these pictures and renderings, 1946 houses differ little from their predecessors.

Although it is impossible to quote prices until houses are finished, all houses shown on these pages were submitted to the FORUM as examples of the under-$10,000 property—house and lot. In view of wide local variations in construction costs, the houses presented have not been tagged with individual prices. More significant, pricewise, is the tabulation on page 107 which indicates that despite today's high costs, houses selling with lots for less than $5,000 will be built in 23 states, that those selling for less than $7,500 will be

(Continued on page 106)
BUILDERS' COMMENT

CHANGES IN INDUSTRY AND HOUSES

Myers Brothers, Los Angeles, Calif.
For a long time we had concentrated on heavy construction, but during the war we got into home building in a big way. It is something we cannot get out of now. By the end of this year I should see clear my postwar plans and begin building 1,200 homes a year.

John R. Worthman Inc., Ft. Wayne, Ind.
In 1941 about 95 per cent of our houses were custom built. In 1948 all of our houses will be sold after they are built—under the merchant builder plan. We are now using site fabrication in group building.

Whatley, Davin & Co., Jacksonville, Fla.
The house actually being built now is probably inferior to the prewar house, but within two years it should be superior because of improved methods of construction and better and newer materials.

Lakewood Housing Corp., Denver, Colo.
Overhead and the cost of assembly of materials are triple today over 1941. Working capital required is four times more.

Goodyear & Co., Charlotte, N. C.
We subcontracted before the war; today we do all the work to cut cost.

Kirkpatrick & Person, Gaineville, Fla.
Bookkeeping is quite a problem, 100 per cent more than formerly. Office overhead is much more, due to difficulty of obtaining materials.

Doney & Layton, Salt Lake City, Utah
We will put into our houses from now on more dishwashers, refrigerators, ranges, etc., than we did before the war.

George A. Pettitome, Cleveland, Ohio
I have developed a new radiant heating system. Our houses will have plenty of glass windows and flat roofs. Flooring will be asphalt tile because of the scarcity and poor quality of oak flooring.

BIG OPERATIONS AND PREFABRICATION

Gamble Building Co., Denver, Colo.
Obviously, we must use factory methods of production. Most builders are prepared to do this when volume materials permit.

Charlotte Lumber Co., Charlotte, N. C.
We have entered the prefabric field 100 per cent, believe it is the only solution for the small home shortage.

The Dilmons, Builders, Cincinnati, Ohio
Our work in postwar will be better organized and wherever possible, machinery will be employed. More wages will have to be paid and more production expected from them than in the past. I look for mass production as it was never dreamed of before.

Capritz Const. Co., Washington, D. C.
Emphasis will be placed on sub-assembly operations to effect economy in construction. Such prefab components will be stairs, roof overhangs, porch roofs, partitions and linen cabinets.

We do more site prefabrication today than prior to the war. This speeds up the work. We use power equipment on the job, building up a whole section at once.

Santa Ana Homes Co., Witter, Calif.
We have learned mass production—formerly starting 10 at a time, now 40 or 50 or more. We must develop our own land and build in our own developments to build in numbers.

(Continued on page 107.)
produced in 42 of the 44 states surveyed. In fact, although the industry's official spokesmen argue that government's $6,000-$10,000 ceilings on selling prices are too low, 65 per cent of the houses proposed for production this year by respondents in the Forum survey are scheduled to sell with lot for less than $7,500, and 15 per cent will be below $5,000.

These proposed houses are not unduly small. The average under-$5,000 house will have four rooms and bath, 680 sq. ft. of floor space. In the $5,000-$7,500 bracket the average is five rooms and 885 sq. ft. Between $7,500 and $10,000 the average is five to six rooms covering 1,090 sq. ft. Considering all under $10,000 houses as a group, the average unit will contain 5.2 rooms and bath, provide 930 sq. ft.

EQUIPMENT. Although today's houses are smaller, and more costly than prewar houses, they contain a greater amount of kitchen equipment—one trend the public will eye with favor. As shown in the table on page 107, 28 per cent of all under-$10,000 houses to be built by participants in the Forum survey will include a range in the selling price. Seventeen per cent will also provide a refrigerator, and about 5 per cent will include such deluxe items as washing machines, garbage disposal units and dish washers. Although these items will increase the houses' sales prices, the buyers' monthly costs will be lowered by their inclusion, for the equipment will be covered by the house's long-term mortgage instead of purchased on the costly installment plan.

PRODUCTION. Just as they have affected the house, war and its aftermath have wrought several changes in the house builder's methods of doing business. Smaller operators are becoming big; big operators are becoming bigger. Wartime building taught many of them the tricks and economies of large scale operations, and they are carrying this newly acquired know-how over into their peacetime programs. Of the several builders who complained to the Forum that times were too tough to permit any house building, all were small operators who had built only a handful of houses per year in the past.

Another significant trend is indicated by the numerous builders who stated that they were combining the economies of large scale operations with prefabrication (on-site as well as in-factory). Despite publicity to the contrary, many of them see prefabrication as low cost housing's white hope and plan to prefabricate or use prefabricated house parts to an increasing extent in future operations.

OUTLOOK. If the house building industry can be taken at its word, the Forum survey indicates that the veteran will not have to wait long for his house once the cork is pulled from the material bottleneck. Builders are ready to produce houses at top speed and in quantities never before attempted. They have the land, the financing and the know-how; they are gradually coralling the labor. They lack only materials. When and however the materials are made available—a decision which rests mostly with government and the producers—private enterprise will put them to good use.
KITCHEN EQUIPMENT IN 1946 HOUSES BY PRICE CLASS

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Under $5,000</th>
<th>$5,000—$7,500</th>
<th>$7,500—$10,000</th>
<th>Total Under $10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total houses in</td>
<td>2,833</td>
<td>9,610</td>
<td>7,674</td>
<td>20,117</td>
</tr>
<tr>
<td>price class</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Range</td>
<td>897</td>
<td>2,165</td>
<td>2,478</td>
<td>5,530</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>797</td>
<td>1,410</td>
<td>1,118</td>
<td>3,325</td>
</tr>
<tr>
<td>Washing machine</td>
<td>72</td>
<td>575</td>
<td>402</td>
<td>1,049</td>
</tr>
<tr>
<td>Freezer</td>
<td>0</td>
<td>50</td>
<td>44</td>
<td>94</td>
</tr>
<tr>
<td>Garbage disposer</td>
<td>100</td>
<td>554</td>
<td>527</td>
<td>1,185</td>
</tr>
<tr>
<td>Dish washer</td>
<td>1</td>
<td>585</td>
<td>527</td>
<td>1,122</td>
</tr>
</tbody>
</table>

LABOR SUPPLY, EFFICIENCY AND WAGES

The only solution to the shortage of homes in the country today is production of materials in adequate quantities and a consciousness on the part of labor of the absolute necessity of getting down to work.

Modern Housing Corp., River Edge, N. J. We pay labor $16 per day (foreman $18 steady pace) and yet it only produces about 75 per cent of what it did in 1941 when wages were 88 per day.

STENBERG CONSTR. CO., St. Paul, Minn.

We found that due to shortage of materials and lack of individual production, the mechanical trades are running from 75 to 300 per cent above those of 1940. Total labor cost on general construction has increased 50 per cent, 30 per cent of this represents the wage increase and the balance representing loss of efficiency.


Majority of the carpenters, painters, masons, etc. do not have the experience to do first class work. There are too many war-time mechanics. The average mechanic produces 20 per cent less than in 1941.

ARVID E. CARLSON, Minneapolis, Minn.

The only solution to the shortage of homes is mass production.

LABORERS’ COMMENT (Cont’d.)
BUILDERS' COMMENT (Cont'd.)

rolling and eliminate black market prices and practices.

Churchill Constr. Co., Los Angeles, Calif.
The bottleneck of the entire building industry lies in Washington in the OPA. Unless prices are allowed to reach a proper level for profit to the manufacturers, there will not be enough material produced to meet the demand. The OPA must assume a more realistic attitude.

Kingsley Homes, Inc., Union, N. J.
If all Government controls were removed, competition would soon reduce profit taking to a minimum and so likewise prevent any danger of great inflation.

John J. Laphet, Portland, Ore.
If the strikes are not settled soon and the OPA does not grant some price raises for certain products, we are going to miss the boat. The delay caused is draining reserves of prospective buyers as well as causing unemployment.

Edmund J. Sullivan, Chicago, Ill.
The only way to put building on a sound basis is to eliminate all threats of controls such as the Parmally bill threatens to shoulder on the business. While I am no more in favor of run-away inflation than anyone else, I believe that good old American brand of free enterprise and competition will more quickly put this business on a sound economical basis than all the rules OPA or others could think up.

HOPE AND OPTIMISM

F. L. Palmer Realty Co., Indianapolis, Ind.
I have been building houses for 40 years. Prior to 1942 I built what I could sell most readily in a competitive market. . . . Today, with all the restrictions, many of which are too restrictive, the best way is to conform to rules and regulations with as little griping and crying as healthful and build as many houses as possible, as that is the only way to permanently relieve the housing shortage. Too many are talking; too few are building.

The David Oakes, Portland, Ore.
Building today is more interesting, and a better value can be built into the house through use of many new products.

Rocky Mountain Homes, Inc., Denver, Colo.
If materials bottlenecks can be broken, builders will be much better off than ever before, for they have become more enterprising during the past few years and have learned new and better methods.

Arthur T. McIntosh & Co., Chicago, Ill.
We believe in going ahead. We intend to operate just as if we were sure of getting what we need. We hope we shall get it. But, we will build anyway. If we only get the brick wall up, we will have that much more done and be ready to proceed when we can.

I am not a crackpot democrat, but I like the way the administration has handled us. We would be in a “hellava” fix without government regulation. The housing situation out here has been in a fit of hysteria. Thank God we have had some control. If some of our construction men had played ball and quit their crying, they could have made, as I did, a fair profit. But they got panicly instead of getting busy.

Kaiser Community Homes, Los Angeles, Calif.
It is not generally known that it takes longer to prepare the land for building than to build the houses. Six months are required, on the average, to complete the engineering and install the improvements. When it is remembered that wartime restrictions were lifted only a few months ago, it will be seen that considerable progress has been made.

DISPAIR AND PESSIMISM

M. C. Back & Co., Denver, Colo.
If it were not for the tremendous demand for houses and, consequently, the eager acceptance of anything at any price or terms by the buyers, I would definitely not attempt to build any houses.

C. R. Jones, Baltimore, Md.
We are finding material markets so tight and Government rules and regulations so troublesome that unless there is a marked improvement we intend to abandon our program for 200 houses this year.

Holland Lumber Co., Panama City, Fla.
Lack of materials, labor inefficiency and indifference have caused us to abandon any plans for building at this time.

Farnier & Dicken, Tulsa, Okla.
We are not doing any building and do not contemplate any. The situation is much too complicated to justify construction of any kind of a house.

Robert W. Gillette, Nashua, N. H.
As an extremely small builder who could be wrong, I believe that the building business as I have known it is done.

At our wits' end.

MISCELLANEOUS SUBJECTS

Marion Lumber and Mill Co., Moscow, Idaho
We ask that the exportation of critical materials be stopped so as to give our GI's homes and jobs. We are really obligated to our boys.

David B. Ratliff, Reno, Nev.
My biggest complaint is that speculators and real estate men are making the large profits out of old and new houses. My only suggestion is that we should be better organized and work together.

George Building Co., Newark, N. J.
Everybody feels that, "why worry, the forecloser of the house will eventually pay." This is wrong and bad for the industry. I am only interested in building houses of good quality with as much speed as possible at the lowest possible price.

We feel it is going to be the job of the individual developer and builder to absorb some of the increased cost of his houses or finished products by means of increased efficiency in operation from his point of view and from the labor trades' point of view.

Harold D. Cook, Portland, Ore.
I am building houses today that very few GI's can afford to own or buy. Not one young couple in ten that put down on a $5,000 house in normal times. The need is for more apartments for rent . . . We are forcing people to buy houses who should be renting.

Parent Homes Inc., S. Berwick, Me.
What I feel is most needed is a longer term mortgage for financing these homes. A 33 or 35 year plan would allow builders to put these houses on the market for rent which is the greatest demand today.
BIG BILL HUTCHESON
rules the carpenters and the carpenters rule the show.

This article is reprinted from the April, 1945 issue of FORTUNE

William Levi Hutcheson, seventy-two, is best remembered as the man whom John L. Lewis smacked on the jaw at the 1935 convention of the American Federation of Labor in Atlantic City. Indeed it would not be stretching the truth to say that Big Bill Hutcheson literally goaded Lewis into starting the C.I.O. It would not please Hutcheson to be tagged as the inspiration of the C.I.O.; Hutcheson's lifelong addictions are Methodism, Masonry, and the Republican party. And among his peers his reputation is founded on something far firmer than physical combat. The most significant fact about Hutcheson is his absolute dictatorship of the United Brotherhood of Carpenters and Joiners, and the Brotherhood controls all who work with wood—from logging to the most exquisite cabinetwork. It was the vastness of the carpenters' domain that sparked the old crack: "God created the forests and He gave them to Bill Hutcheson."

Big Bill has been an almost irresistible target for attack throughout the thirty years he has been president of the powerful Brotherhood and the fifteen years he has been the dominant personality in the even more powerful Building Trades Department of the American Federation of Labor. Hutcheson has been called more names from more differing points of view than has any other American labor leader save John Lewis. He has been derided, in his own union and from the left, as a reactionary, a strikebreaker, a stooge for the employers, and a complacent friend of racketeers. He has been assailed from the right as a dictatorial operator of a labor monopoly that conspires to restrain trade and ruin free enterprise. Both kinds of obloquy have done him as little harm as they have Lewis. Big Bill doesn't take criticism very graciously, but neither does he take it to heart. He seems to expect it and to regard it as nothing but the wails of the weak and frustrated.

Today things could not possibly be pleasanter for Big Bill. His sovereignty over the Brotherhood is complete and uncontested. He rules twice as many union members as before the war (claimed: 722,000). The union's treasury has over $9 million in cash and government bonds (it had less than $1 million prewar). When, in a few weeks, the Brotherhood holds its first convention since 1940, he is sure to be nominated for another four-year presidential term, probably unanimously. And so far as human foresight can discern, his son, Maurice, will move without opposition from the first vice presidency into his father's place whenever Big Bill is willing to retire.

Yet these are only half his blessings. His huge frame (six feet one and a half inches) is free from infirmities and far from flabby—his weight of 220 hasn't varied more than twenty pounds either way since early manhood. True, he is quite bald, and his once handsome face has become pudgy and jowled. But his quick, suspicious brown eyes peer as intently and perceive men's motives as surely as they ever did. He still hunts, fishes, and plays golf, and has provided himself with a hunting lodge and a few acres of Wisconsin woodland, and a pleasant two-story house
overlooking Lake Hollingsworth at Lakeland, Florida, in addition to his home in Indianapolis, where the United Brotherhood maintains its headquarters in a building of its own. He is utterly without self-doubt and has managed to retain, practically untoasted, what Santayana called animal faith. Millions may be concerned about the housing shortage or the general plight of the world but not Big Bill Hutcheson. The few pragmatic rules by which he has lived seem to him to be adequate for any possible future and he does not propose to dally with change.

This fact has very great importance in the present building crisis. It means that the carpenters—and the other building-trade unions over which Hutcheson has influence—will defend, with strikes if necessary, the same restrictive working rules and jurisdictional decisions (and lack of decisions) that have afflicted the building industry in the past.

Hutcheson is not very sympathetic with the hue and cry over working rules. He thinks their restrictive aspects have been vastly distorted. Most builders agree with him, though they will complain about some specific example of feather-bedding whenever a working rule hits them in the face. Nor does he fear a shortage of skilled labor on the building trades. He insists there will be enough carpenters (though maybe not enough lumberjacks) for any amount of building this country can do, and his doubled membership is corroborating evidence.

The importance of jurisdictional disputes, at least, Hutcheson does not try to brush aside. On this subject he will not, indeed he cannot, budge. Preserving work for the carpenter is one of the most vital things the Brotherhood does for the individual dues payer, and Hutcheson knows that his own job and power depend on the militancy with which he fights any union that claims jurisdiction over work that carpenters have always done. "Once wood, it is always the right of the carpenter to install it, no matter what the new material is," he has said. Frank Duffy, the Brotherhood's secretary and historian, goes even further. Duffy complained recently that when he coined the slogan, "If there's carpenter work to be done on land or sea it belongs to the Brotherhood," he was guilty of laxity. "I should have said," he now contends, "if it's on land or sea or in the air or under the sea."

Labor history is littered with the jurisdictional rows resulting from this policy. For thirty years the carpenters have been fighting the machinists over who can install machinery in a factory, and the International Machinists Union has just withdrawn from the A. F. of L. (it did so several times before) because the A. F. of L. won't back up its own decision (made in 1914), which gave the machinists jurisdiction. The famous Anheuser-Busch case, which had the effect of exempting unions from antitrust actions, was over this issue; the Supreme Court at one critical moment decided the Brotherhood and Hutcheson were not conspiring to restrain trade, even though their fight with the machinists kept the brewery from completing a new plant. The carpenters have battled the metalworkers for nineteen years over who shall install trim that is now metal but was once wood. The carpenters have even fought the plumbers—over who shall install metal medicine cabinets. Big Bill Hutcheson says jurisdictional disputes are bad, but as inevitable as death and taxes. "Even men in the Brotherhood say to me, 'Bill, why don't you settle them?' I say, 'How? Tell me how? There's one way to settle them and only one—give up work carpenters have always done and are entitled to. Is that what the carpenters want?"

Hutcheson offers absolutely no hope of ridding the building industry of jurisdictional disputes. He is almost as hopeless about graft and racketeering in the building trades. He says that employers are often more to blame, and when he was asked what he would do to officials of his own union who had succumbed, he said that if it was too flagrant he would tell the erring brother to lay off, not to be too susceptible.

OUT OF THE MICHIGAN WOODS

Hutcheson's ancestry is Scotch-Irish. His father was a ship carpenter in Bay County, Michigan, where a magnificent stand of white pine was being lumbered and a little boat-building to serve the Great Lakes had begun. He married Elizabeth Culver, of a Pennsylvanian Dutch family that had migrated to Michigan. They had five children—two girls, William Levi (born on February 7, 1874), and two more boys. One was a carpenter and is dead. The other boy, christened simply Bud, is now fifty-six and works in the power plant at the home for aged carpenters that the Brotherhood maintains at Lakeland, Florida, and that figures so largely in Big Bill's career. Hutcheson looks back upon his Michigan farm boyhood with affection. He thinks he learned from it everything that is important to a man, to a real American. He had only a few years of country schooling, and got that in the fields after the potatoes were dug, by walking a mile and a half each way. He had to pass through a settlement of German Lutheran immigrants, whose children lay in wait for him. "I learned that it is better to fight than to turn tail," Hutcheson says, "and I've never forgotten it."

He began earning his own living when he was sixteen—helping to erect barns, carpentering in the mines, and working on whatever he could find in the rural areas outside Bay City and Saginaw. At nineteen he married Bessie King, who bore him Maurice (in 1897), two daughters, and a boy who died in childhood. They were divorced in 1928. In 1902 he went to work as a carpenter, at 20 cents an hour, for the Dow Chemical Co. in Midland, and joined the union.

THE ETERNAL CARPENTERS

In 1902 the United Brotherhood of Carpenters and Joiners was the most powerful component of the American Federation of Labor, which the Brotherhood had helped to create soon after its own birth in 1881. The Brotherhood instigated and led, in 1899, the American

(Continued on page 166)

Hutcheson Jr. speaks

(Whenever 72-year-old Big Bill Hutcheson steps out of the rough-and-tumble of union politics for a rocking chair at the Carpenters' sumptuous Lakeland, Fla. home, Maurice Hutcheson, now first vice-president, will become top man in the powerful Brotherhood. Already Maurice relieves his father of many administrative responsibilities, including that of speaking to the press—a chore which old-line union leaders, notoriously close-mouthed, like to avoid as much as possible.)

Do you think that the CIO, as has been charged, will use Wyatt's emergency program as an excuse to launch a big organizing drive in the building field? They might. Personally I don't think so. But they might. They've tried it before, but they never got any place.

Does the Brotherhood plan any special effort to organize prefab plants? Whenever a plant opens, we try to organize it. No special new effort will be made, because our field men are already at work organizing new plants as they open. Some of the new plants are already organized because the companies were already established and are just branching into prefab.

Do you think prefab will be very important in total housebuilding volume? If the prefabricated postwar house is like the one built during the war, they won't be very acceptable. They will mean increasing the slums instead of decreasing them.

Do you foresee any jurisdictional problems in connection with prefab and the new materials which Wyatt expects to introduce in housebuilding? No.

Do you agree with Wyatt that housebuilding labor must be tripled to start 2,700,000 houses by 1947? I don't know where Wyatt has drawn his conclusions regarding that. If other forms of building are eliminated, already existent labor would be devoted to the housebuilding program. The building trades were big enough during the war to handle the big emergency program and I think that they are big enough now. Remember that we have a lot of veterans—carpenters union men—coming back, plus the increase in apprentices.

How many carpenter's apprentices are now in training over the country? I can't say. With 2,600 local unions throughout the country, no effort has been made to compile such statistics.

Do you think that the impending stop-order on all but veterans' housebuilding will mean substantial unemployment in some building trades? I don't think so. But if certain materials are not utilized, there will be some drops in such trades as ironworkers, stonemasons and bricklayers.
TEN PRIZE-WINNING HOUSES

in Chicago Tribune contest tackle the problems presented by narrow lots.

To encourage design of houses to suit average families and fit average lots, and to give its Sunday Edition a timely topic to talk about, the Chicago Tribune last September launched its "Chicagooland Prize Homes Competition". Last month the winners were announced (Forum, Mar. '46, p. 84). This month, the FORUM presents its selection of the ten best low-cost houses among the 24 prize designs.

Keynote of the Tribune competition was practicality. Its purpose was "to create designs... worthy of recommendation to families... of the Middle West as embodying sound and practical principles of construction and design." The Tribune further warned contestants that "practicality" was to be the major consideration of the jury of practical men (five architects, three builders) in their judgment of entries. Finally, it was stated that prizes would go only to "the best designs of dwellings which are marketable to the public and attractive as investments to builders and lending agencies."

With such emphasis on practicality, it is significant that, in picking winners, the jury decided that houses of contemporary design best met the requirements. All examples of traditional architecture were among the 1,943 entries which also ran. Commented Architect Boyd Hill, professional adviser of "the competition", "The contemporary trend of architecture was followed by more than half of the competent entries... In general, they seemed inclined to move away from the formal type of design which we have been accustomed to look for in home architecture".

Looking at all entries, the jury noted these specific design trends: 1) provision of space for relaxation and open air living, 2) position of garage at the front of the house, 3) inclusion of more than one bathroom and 4) location of laundry facilities on the ground floor.

Featured for five weeks on the cover of its Sunday Color Graphic section and displayed a month at Chicago's Art Institute, the Tribune houses were enthusiastically received by the public—so much so that Sunday Editor Ardis M. Kennedy revised his original plan to limit publication to prize winners, will feature honorably-mentioned houses throughout the year.

The houses presented herewith are divided into two groups: on this and the next two pages are six solutions to Problem No. 1; on the following two pages are four solutions to Problem No. 2. The problems' limitations:

<table>
<thead>
<tr>
<th>Lot size</th>
<th>Problem 1</th>
<th>Problem 2</th>
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<tbody>
<tr>
<td>House width</td>
<td>24 ft.</td>
<td>30 ft.</td>
</tr>
<tr>
<td>Floor area</td>
<td>1,100 sq. ft.</td>
<td>1,400 sq. ft.</td>
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<tr>
<td>Children</td>
<td>Son (6)</td>
<td>Son (12 and Daughter 8)</td>
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ARTHUR SACKVILLE-WEST, Colorado Springs, Colo., designer.

Of the four homes shown on this spread, each designed for a long, narrow lot (30 by 150 ft.), this pleasingly simple house would be the least costly to build. By following the common practice of placing the house in the center of the lot with separate garage in rear, available garden spaces are unfortunately broken up. Though the main entrance is well located between sleeping and living areas, the kitchen is difficult to reach both from the interior and exterior. Living and dining spaces open on the private rear lot area, but direct access by at least one door would facilitate outdoor activities.

RAY STUERMER, Chicago, Ill., designer.

Here another designer places his house in the center of the lot with separate garage in rear, with consequent loss of garden area. Privacy for living room is reduced by the street front location, thought the sheltered court compensates somewhat (if the neighbors on the next lot 6 ft. away are not too nosey). The bedrooms look out on the rear garden, but force a long, unsheltered trip from garage to kitchen side door. Most inconvenient feature is dining area, placed directly in main circulation of entire house—a feature that only eat-and-run commuters will appreciate.
D. CODER TAYLOR, Evanston, Ill., designer.

This house offers an unusual amount of privacy within the confines of a typical city lot. An outdoor living area is sheltered from the street by the garage, whose rear forms a covered play space. Privacy from neighbors on adjacent lots is provided by a high wall on one side of the outdoor living area and the living room itself shelters the rest. A projection of the garage roof along one side furnishes covered access for visitors arriving on foot. Wide windows and a door open each of the bedrooms to the pleasant rear garden. Chief plan faults are dark central corridor and awkward duplicate baths.

J. FLOYD YEWELL, New York, N. Y., designer.

A most practical arrangement of garage and service areas distinguishes this design. Both main and service entrances open off an attractive forecourt, while members of the family arriving by car have but a step or two to reach the kitchen with the usual shopping bundles. A thoughtful feature is the small drying and child’s play yard adjacent to the laundry room. Windows from floor to ceiling open the end of the living room to a view of the terrace and rear garden, flanked on one side by the well-arranged bedroom wing.
C. S. WOOLFORD, JR., South Orange, N. J., and R. D. PETERSON, JR.,
New York, N. Y. designers.

On this page are shown two homes for a 30 by 150 ft. lot using two-story
plans. In the house above, the location of the garage on the street side
adjacent to service facilities, and the bedrooms over the living room,
reserves much of the lot for a private rear garden, and a plan of outstand­
ing convenience and spaciousness is achieved. In elevation, the projecting
one-story garage-service wing breaks up the cube-like preciseness of the
usual small two-story house. Windows of laundry, kitchen, and dining
areas open into a sheltered play court for easy supervision of children.
A downstairs lavatory and an upstairs study-guest room are added con­
veniences.

C. W. SCHROEDER, Chicago, Ill., designer.

Here corner windows and glass brick have been added to a stripped down
traditional house in the hope of making it appear "modern." The plan is
wasteful of space in living room, bedrooms and bath, while omitting the
conveniences of laundry, pantry and garage workshop; and the stairway
opening directly into the living room is particularly awkward. Privacy
from the street and from neighbors has been given little consideration.
A rear garage breaks up the garden area, and forces the usual unsheltered
dash in bad weather. The simplicity of mass would lower construction
costs and is the best feature of the elevation.
MRS. LUCILE McKIRAHAN, Stuttgart, Ark., designer.

The houses on this and the following page are designed for a lot 50 by 150 ft. and a family of four, but the additional lot width seems to have given little added inspiration. Though generally undistinguished, this house does possess orderliness, as seen in the arrangement of kitchen, heater and bath rooms in a single line for economical plumbing, and the compact organization of the bedroom wing. A projection of the garage roof protects the approach to the main door, and a spacious porch shared by both the living room and den opens toward the rear garden.

ERIC WENSTRAND, Chicago, Ill., designer.

Again, privacy and garden beauty are ignored. Here the designer has caused the few windows of his living room to face directly upon the street; and, in addition, he proposes to make a summer porch even nearer the street by providing overhead doors on three sides of the garage. The remainder of the lot apparently has nothing to do with the house, the bedrooms being arranged in tight formation with very small windows, and connected by a completely dark corridor. Size of chimney suggests open hearth cooking practised in the 18th century.
HEIDT ASSOCIATES, Orange, Tex., designers.

These two houses take full advantage of their lots. The living room here is placed to view the length of the rear garden, flanked by the bedroom wing. Chief criticism of the plan is its unnecessary complexity. For instance, a visitor on foot would have some difficulty locating the main door, and the circulation to bedroom wing must always detour about the dining table. The large southern terrace is a fine feature, but the orientation of all bedrooms to the north is questionable.

W. R. BURNS, Harrisburg, Pa., designer.

Though the problem of the too dominant garage has been solved here by turning it at a right angle to the approach, the visitor might well be confused as to where to enter this informal house, whose main doorway seems to be at the far end of its garden terrace. But, once oriented, he should find the house extremely livable, with its generous living-dining room intimately connected with the sheltered court garden, and its bedrooms opening to a private garden in the rear. The outdoor fireplace near the kitchen makes terrace dining a convenient feature.
LOW COST HOUSES

A portfolio of homes coming within the cost limitations of the Wyatt Program.

Soon the demand for low cost houses, liberated by the government program, will burst over the nation. The building world is busy planning houses. To prove again that low cost of house need not mean low standards of design, the FORUM presents a group of well-planned, inexpensive houses published during the past ten years. Though new materials and techniques born of war experiences will be incorporated in many structures, the best small houses of the past decade offer use-tested pointers to today's designers and builders.

VICTORINE and SAMUEL HOMSEY, architects.

The usual box shape associated with low cost homes is here relieved by inexpensive trellis porches at front and back. Additional character is given by projecting and exposing the rafters of the flat roof. The interior is notable for its ample closets and spacious appearance created by the offset arrangement of kitchen, dining section and living room. Appropriate furnishing sets an example too seldom seen in low cost houses.
Where stock elements of traditional pattern are to be used, this house furnishes a simple, economical pattern. Kitchen and bath plumbing are placed back to back; bedrooms have needed privacy; and hall space is kept to a minimum. With slight rearrangement, an interior stairway to the attic can be provided.

Here is another variation on the minimum box plan in a modified traditional form. Corner windows bring more light into the interior, and the arrangement of entrance, kitchen and living areas makes for better circulation and furniture arrangement than in the house immediately above. A floor level heater unit can be substituted for basement stair if desired.

In this ranch house developed and built by the FSA in California, the high pitch of the more traditional roofs shown above has been modified, and a roof extension creates a car shed. To provide a sleeping porch, bath and kitchen are placed in center of plan, lighted and ventilated by a clerestory formed by a projection of one plane of the roof.
HOLDEN, MCLAUGHLIN and Associates, architects.

A still-interesting suggestion is this demountable house built experimentally by American Houses, Inc., to prove that 1942 defense housing standards were wastefully high. The design shown here has 28 per cent less area, three less windows, and one less exterior door than required by government standards. Though the living room is questionably small, the space-saving conveniences of bunked beds, and combined hanging, shelf and desk units should not be overlooked.

TENNESSEE VALLEY AUTHORITY, architects.

Built on the site with conventional materials and methods, these attractive frame houses were made demountable by a few simple expedients, to permit subsequent removal and reuse. Twenty houses have been in successful operation since 1944 at Smith Creek Village, Tenn. The well-planned living-dining and kitchen unit may have either two or three bedrooms, to form a house of unusual charm.
DONALD DWIGHT WILLIAMS, architect.

This minimum house for a young couple with a limited budget clearly illustrates that small size need be no deterrent to good design. Within the limits of three basic rooms—living, sleeping and work areas—the architect has worked out a convenient and deceptively spacious plan. The bedroom and compact kitchen-utility-storage unit are grouped toward the road, thus insuring privacy for the rear living room and adjoining outdoor terrace. Worst feature of an otherwise good solution is that the bathroom can be reached only through the bedroom.

F. J. McCARTHY, architect.

The house shown at left was built for a woman who combines work with keeping house for a college-age daughter and who enjoys informal entertaining. Ease of maintenance was therefore one of its most important requirements. A maximum pre-war price of $2,000 was also a determining factor in its extreme simplicity. Although the rooms are few they are comparatively large and the kitchen includes space for dining as well as cooking. Living room and bedroom are oriented toward the south, but receive an extra dose of sun from clerestory windows at the north.
MARIO CORBETT, architect.

This straightforward house was built for a prewar cost of only $4,300 including both architect's and landscaping fees. Such a low price for a home which includes two bedrooms, garage and a mezzanine study, is the result of a simple rectangular plan plus the use of inexpensive yet durable woods in its construction. The study above the garage can be used either as a den or an extra bedroom and a separate entrance stairway makes it practical as a rental unit. The living room has a large window of fixed glass; other windows are out-opening casements hung on the studs.

COURTNEY STEWART & ROBERT HANSEN, architects.

This informal bungalow was designed as a bachelor's winter quarters in South Florida. Because of its site, only 200 ft. from the ocean, an elongated plan proved to be the best solution to both view and ventilation. Although there is only one bedroom, built-in bunks on the porch and in the living room provide overflow accommodations. The kitchen, although small, contains 70 cu. ft. of storage space. Prewar cost at 29¢ a cu. ft. was only $3,450.
Robert M. Little, architect.

Part of a 40 unit development in Fort Lauderdale, Fla., this house illustrates the part standardization can play in reducing price. All of the homes have the same floor plan, but vary in respect to rooflines, carport treatment and exterior details, thus avoiding the monotony of exact repetition. The prewar price of $3,560 (including land cost of $500) provides two bedrooms, generous closets and an excellent arrangement of the dining alcove seldom found in one-story houses of this price class.

B. W. Crain, Jr., architect.

The house shown below, built as part of the Garden Oaks development in Houston, Tex., is another example of how standardization can be made to count. Although minimum family units sold at $3,195, each house gains individuality by the use of inexpensive but imaginative exterior detailing. An interesting feature of the interior plan is the recess between closets in the bedrooms, designed to accommodate a dressing table or chest out of the path of circulation, increasing free area in the rooms.
ANTHONY LORD, architect.

This example represents a laudable effort to arrive at a minimum-cost house. Materials and fittings, such as the two-light double-hung windows, were the cheapest available. An interior partition was saved by making the kitchen an alcove off the living room. A coal burning fireplace of the circulating warm air type provides heat. Access to storage space in the attic is provided by a built-in ladder visible in the interior view at right. Prewar cost: $2,500. Cubage: 10,813.

JOHN J. ROWLAND and EDWARD D. STONE, architects.

Cherry Point Homes in North Carolina was one of the best solutions to low-cost emergency housing to come out of the war. The house above is perhaps the handsomest of the four types developed, all of which have low-pitched shed roofs with broad overhangs to shade the windows. Open planning and dwarf partitions are used throughout to increase the apparent size of rooms. Both one and two bedroom plans are shown at right, each having the typical trellis-screened service and drying yards.
ALDEN B. DOW, architect.

One of many low-cost designs submitted to remedy the war housing shortage in Midland, Mich., the modest price of this home ($4,551.46 including land) is a direct result of its technical excellence. Of conventional frame construction, the design was worked out on a modular system and sheet materials used throughout for exterior and interior finishes. The bay window did not add to the foundation cost since it was cantilevered out from the wall. This window employs combined fixed and movable sash, another practical economy measure. Three bedrooms and a generous kitchen with space for dining put this house in the category of "a lot for a little."

DONALD THOMPSON, architect.

This is an example of the kind of house which could be had prewar for $3,100 plus a goodly amount of sweat and tears. The owner, who was also the designer and builder, evolved a simple structural system of 4 by 8 plywood panels which he made in the basement of a nearby house and subsequently assembled on the job. The hip roof and floor framing is conventional. Both plan and exterior are straightforward without being austere and the clean lines are enhanced by an attractive use of simple materials. The time put in by the owner only partially accounts for two bedrooms and a dining alcove at a small price.
An interesting variation of the low-cost, one-bedroom design which rises above mediocrity is the handsome ranch-type house above. Its elongated plan is one of the best tricks for making a small house appear much larger. The projecting study at the right breaks the possible monotony of a strictly inline scheme. There is an excellent treatment of the living area, with an unusual window-conservatory separated from the living room by a glazed sliding panel. Such a feature is usually found only in homes much more expensive than $3,500, the cost of this house before the war.

The designer terms this small home "the least common denominator in housing." Its two bedrooms, large living room and dining alcove provide plenty of space for a small family. These requirements are met in their simplest form, making it economical throughout. In use, the house has been found to have added advantages of low taxes and low heating costs. Its traditional exterior is made less stereotyped by a recessed porch with unusual lattice details, and the conventional white finish can be spruced up at intervals with ten dollars worth of paint and a few weekends of brushwork by the owner.
HUGH STUBBINS, architect.

Built in 1942 by the Division of Defense Housing as rental units for personnel of the new air base at Windsor Locks, Conn., these houses are a model of honest efficiency. Quick access to the coal used for heating, cooking, and hot water is provided by a side entrance to a small service yard. The heating unit is located next to the stove near the center of the house, and hot air is supplied through ducts in the attic space. In the plan with three bedrooms, a plywood screen creates a hallway for greater privacy. Note sunshield for attachment above larger windows facing south.
W. D. RIDDLE, architect.

A low cost home with an admirable quality of spaciousness is this house cleverly adapted to a typical 40 ft. by 150 ft. city lot. By placing the garage toward the street, the entire rear of the lot becomes a private garden upon which open the living-dining room and kitchen. Note that the living-dining and kitchen areas are really one continuous space—a feature the owner-architect has found most satisfactory. Water heater, washer and furnace are grouped together between bath and nursery, and concealed behind flush doors.

ROYAL BARRY WILLS, architect; HUGH A. STUBBINS, associate.

A pleasant small house designed to be comparable in size and convenience to a small apartment, with building and maintenance costs to equal the rent of an apartment. Windows of living-dining room are oriented to south, and two outdoor areas protected from winds are provided. Plumbing is economically placed back to back. Here, as in other houses in this portfolio, storage closet openings are supplied with curtains rather than doors to save cost.
This war housing unit has achieved great popularity, and is a fine improvement on the standard 24 ft. by 30 ft., four room, one story house. Added space is gained for the living room by use of a large bay window, cantilevered out from the foundation. A dining alcove pleasantly placed by a window is created by a plywood panel projecting from one side of the entrance doorway. Stairway from upstairs bedrooms descends conveniently just outside bathroom door. An unusual amount of glass has been concentrated in the living-dining-kitchen work areas, where it is most needed. A full basement is provided for heating plant and storage.
According to Richard Buckminster Fuller's raciest prediction, it would have taken two decades to see his industrialized house in production. But back in 1927 he could not foresee the war, its technological progress, and its aftermath. Today, the first full size house stands finished in Wichita, Kan.

Literally and figuratively, Fuller's house has come down to earth. Instead of being suspended a full story in the air, the present version is only a few inches above ground. From the original hexagon has evolved a highly integrated and refined hemispherical shape. Many remember Fuller's lecture campaigns during the late twenties and early thirties when, armed with a demountable scale model, he harangued saucer-eyed audiences everywhere from Marshall Field's department store to Harvard's cloistered halls. In those days his idea seemed unworldly and few people saw its full implication.

Inevitably, refinement brought simplification. Whereas the bulky mast of Dymaxion I enclosed an elevator, a three-minute laundry and all utility services, the first two have been omitted, the column slenderized. All the best features of the original house have been retained. Added, is the Dymaxion bathroom, a simple four-element monocoque designed during that period when the house was being held in abeyance pending the will of Fuller and God, and the development of suitable materials.

From the beginning the most ardent Fuller followers were haunted by thinking the industrially produced house would be too bizarre and mechanistic to achieve popular acceptance. But even those who are shocked by the circular exterior are won over once they get inside. The interior is amazingly light and spacious, the mild curve of the outer wall conveys far less severity than the conventional rectangular room. The quality and craftsmanship of the materials used contribute a feeling of real luxury. People from all over the U. S. have been shown through the prototype and among housewives the reaction is usually one of rapture.

If vision, courage and conviction in the face of crushing opposition are marks of greatness, there are not enough laurels for the Fuller crown. To fulfillment he has made only one known concession—relinquishment of the term Dymaxion. Time and again, just as people came to the secure conclusion that both the engineer and his weird house had faded into oblivion, up they popped in another spot with renewed vigor and several improvements. Through thick and thin Fuller has plugged his basic idea that provision of good shelter within the price range of the masses comes only with industrial production in huge quantity. Mass manufacture cannot be effected without mobility of both the raw materials and the end product. Weight, that ball and chain of the building industry, blocks mobility. By substituting aluminum, stainless steel and plastic for bricks and lumber, the Fuller house quits the stone age. Tension, rather than compression, is the basic structural principle.
Designed from the inside out, the form of the Fuller house is the logical solution for an engineering problem demanding highest performance per pound of material. Every teenager knows that a circle offers more area in relation to the linear measurement of enclosure than any other form, but the sense of space this house achieves is spectacular. Naturally in a hemisphere the same law acts in three dimensions. While the gently domed ceiling, rising to a height of sixteen ft. at the center, contributes greatly, more important is the panoramic effect of the sweeping, curved Plexiglas window. Another 200 sq. ft. of floor space can be gained by adding a balcony across the top of the living room partitions.

The stiffness of flat sheet metal is negligible without corrugation or reinforcement. Curved in an arc or cylinder, as in the Fuller house, it acquires tremendous strength since the outer surface is thrown into tension while the inner surface is compressed. The same principle applies to the Plexiglas. All structural materials used are non-combustible and non-corrosive.

Based on the engineering formula of supporting weight by tension, the body of the all-metal Fuller house hangs, or floats, from a central mast. To facilitate manufacture and shipment, this is made up of seven stainless steel pipes. The mast represents the sole compression element of the structure. From it hang three circular rings connected by tension cables. The rings provide rigidity and act as a framework for the metal skin of the roof. Cables, triangulated from the mast, weave through the successive rings, are then brought down to support the floor. Cable ends terminate in steel anchor rods placed at intervals around the house. Since the floor is actually suspended, neither walls nor partitions have any load to bear, the entire weight of the structure being transferred to the central mast. The flat sling pitch of the roof permits tension cables to be concealed in the air space between it and the ceiling. Arched roof carlings, grooved in section, rest directly on the compression rings. Supporting the butt of two roof petals, they act as inside gutters and expansion joints. Between the outer skin and cable network is one or more layers of aluminum insulating foil. Roof carlings lead to a circular gutter which runs around the house inside the walls at the edge of the roof. From this gutter rainwater drains through interior downspouts to a second circular gutter near the bottom of the house from which it is discharged.

Astounding is the fact that the entire house (except for kitchen equipment), can be shipped in a container like the one at the right which measures 16 ft., in length and 4½ ft., in diameter.
CENTRAL MAST is the structural and service core of the house. To its base, concealed by partitions, are connected all utilities. Through it operate the air conditioning and heating systems. From it concealed light is diffused across curved ceiling, illuminating entire room without glare.

OUTER VERTICAL SKIN is half plastic, half aluminum. Three bands, one a Plexiglas window strip, overlap each other from top to bottom. Sections of the upper aluminum band can be hand lowered to open screened areas for ventilation when air conditioning is not required. Plexiglas window is sealed. When in place, aluminum sections are anchored by cables and hooks that fasten along top of window frame.

BUILT-IN SCREENS around the house are of rust and mildew-proof plastic, can be cleaned with soap and water. Though they are not as strong as metal screens, cables and overhang of window sill protect them from hard exterior knocks. Partially concealed lower gutter (left) is made of synthetic rubber extrusions. Interior drainage system prevents water from freezing. Vertical and diagonal cable anchorage under house are designed to counteract any torque in the structure.
FABRICATION AND ERECTION are two clearcut operations. Exclusive of service facilities, the house includes only fifty types of parts. Exterior skin is shipped flat, curved to shape on the site. No part weighs more than 30 lbs. Truly industrialized production requires that factory operations be confined to the manufacture and packing of parts, but these include many devices to facilitate site assembly. Holes for the two types of fastenings used, bolts and "blind" rivets, are gang punched at the plant and colored for identification. Parts are crated in reverse order of assembly so that they are removed in proper sequence. Using trained service crews and mechanized equipment, erection is estimated to take 160 man hours—two days work for a ten man crew.

STORAGE space is all contained by the interior partitions which, having no load-bearing function, are hollow. Large closets, one in the entrance hall and one in each bedroom, have doors that pivot on center turning the closet "inside out". Circular dress and shoe racks on the backs of the doors swing into the room for easy access. Corners at rear of closets are occupied by small triangular cupboards with Plexiglas doors intended for hats and accessories.

A unique Fuller device, in word and deed, are the "Ovolving shelves", also located in the partitions. Behind a shoulder height slot in the wall are nine metal shelves on a vertical, motor-driven conveyor belt which rotates at the push of a button. Beyond economy of space this has the advantage of utilizing full partition height for storage that necessitates neither reaching up nor bending down.
ENTRANCE to Fuller house illustrates adaptability of aircraft production technique. Like doors on planes or ships, this one is rounded at the top, narrows toward the sill. Interior view shows high aluminum baseboard, curved at the bottom to facilitate cleaning. New alloys of this type are more resistant to abrasion than were earlier forms of aluminum. Partitions offer straight wall areas convenient for placing large, rectangular furnishings, though isometric view (right) shows how easily a double bed may be used along the curved wall.

EARLY VERSION of the Dymaxion bathroom (above) has been improved upon in the new Fuller house. From a production viewpoint, however, it remains the same—a completely equipped four-section unit stamped out of aluminum. Partition between bath and lavatory sections is ceiling height. High sill between is actually the side of the tub. Vertical and horizontal corners are rounded for easy cleaning and aluminum can be finished with waterproof plastic paint in any color. One of the bathroom’s simplest additions is a recessed medicine cabinet in the right wall over the wash basin. A mirror on the inside of the door necessitates the cabinet’s being kept open while mirror is in use, eliminates the maddening, if involuntary, opening and shutting of cabinet door during dressing.
HEATING AND VENTILATING

Not only do the stressed structural system and hemispherical shape of the Fuller house provide minimum weight with maximum space; in combination with the materials used, they produce a structure of high thermal efficiency. Its domed aluminum roof reflects the sun's heat in summer. The same action on the part of the aluminum ceiling retains indoor heat during the winter. Between the two, foil insulation and a carefully calculated air space contribute additional protection.

As in a plane, aerodynamics plays a vital part in the Fuller house. It is, in fact, a key element of the ventilating system. The revolving cone on the roof, always facing into the wind, creates a low pressure area in its wake which draws warm exhaust air up and out of the central mast. Intake through ducts in the roof and beneath the house therefore becomes automatic. The size of the cone is large enough (18 feet in diameter) to prevent it jittering in the breeze and to provide adequate drawing power. Along with the heating unit, air filtering, cooling and dehumidifying equipment is designed to operate on gas, oil or electricity. Fuller's research has shown that in the case of a conventional square or rectangular house the low pressure area in its lee is proportionately very large and has the effect of drawing warm, or high pressured air out of the house. Thus valuable heat escapes through innumerable tiny cracks and poorly fitting windows. Materials and precision manufacture of the Fuller house greatly simplify sealing it against heat loss.

Its shape abets natural dynamics. This applies to light, sound and smell as well as heat and air. The structure is engineered to withstand wind velocities up to 180 m.p.h., and is virtually tornado-proof. Under radical conditions the giant ventilating cone is capable of rising two feet on the central mast thus producing immediate equalization of indoor and outdoor air pressures. Mast and cable supports run continuously from the top of the house to the ground creating better-than-average protection against lightning.

OVERALL PLAN of the Fuller house has been worked out with the same effective simplicity as the engineering. All circulation is on the periphery; all space-division is accomplished with prefitted storage equipment; all of the service portions containing mechanical equipment adjoin the central mast. Result is a surprisingly flexible, livable arrangement of three generous rooms plus two baths, entrance hall and kitchen, complete with "front" and "back" doors.
PREFABRICATION

Mr. Wyatt's estimate of its potential spotlights the fact that it is fast reaching a big-business status.

ASSEMBLY LINE METHODS PRODUCED THESE VARIED HOUSES: PREFABRICATORS ARE PROUD THAT THEY HAVE DISGUISED IT SO WELL

Whatever else it may have accomplished, Wilson Wyatt's housing program has served to focus attention on the central problems facing the industry. It is a sort of check-list of remedies for private housing's ailments. And while many disagree with the remedies, none publicly question the reality of the ailments. Among many significant proposals, Mr. Wyatt's report puts the government on record as believing that—given the wherewithal—the prefabrication industry can produce 850,000 housing units by the end of 1947. The fact that such an assignment was seriously proposed of itself gives new stature to the prefabs. Often interred but never successfully buried, a fifteen-year-old interest in prefabs has flared to a new high.

Prefabricators seriously consider Mr. Wyatt's proposal as both possible and entirely practicable. They have always taken themselves seriously—a fact which often provided amusement for their more skeptical critics. Not until a war record of some 200,000 successfully erected and functioning house units was hung up did tradition-minded housing men admit that there might be something to these disturbing newcomers. And even then, they persisted in believing, prefabrication would be small, restricted to the types which its wartime performance proved it could handle—temporary and emergency units, or less complicated and finicky houses for farmers and vacationers.

Conventional house builders admit that they cannot possibly produce 3 million units by the end of 1947—a figure reached by the experts and not questioned by the house-famished public. There is certainly plenty of room for newcomers in the field. Will prefab fill the bill? To date, the question has scarcely been asked by builders. In spite of common knowledge that U. S. Steel is backing Gunnison's prefab house and that Beech Aircraft is acting as sponsor to Fuller's far more revolutionary product, it was not until the Housing Administrator put actual figures to paper that the full impact of the prefab's potential was felt. Eight hundred and fifty thousand units is approximately a third of the emergency small house program, a slice which may well run to four billion dollars. The prefabber's bland acceptance of Mr. Wyatt's assignment may be arrant optimism but far-sighted building men are uncomfortably aware of the prefab's challenge.

Whether because they were confused, critical or merely cautious, the prefabricators themselves were surprisingly quiet in their reactions to the Wyatt proposals. This was all the stranger in view of the flat guarantee he offered them of purchase contracts assuring capacity operation and the premiums on the development of experimental materials and types (Forum, March '46). Unofficially however, most of them seemed pleased. And well they might, for in addition to the government's commitments, there were these added advantages to their position:

1) They could use wartime government-built factories.
2) They could use semi-skilled labor from wartime industry.
3) They could operate successfully on scattered, improved city lots—no large-scale developments were needed to hold down unit costs.
4) They could get adequate financing.

Against this happy augury, they had of course real problems. These fell under four broad headings: the necessity of establishing an effective distribution and merchandising set-up; the nationwide crisis in building materials (since the majority of prefabs are of lumber and plywood, they enjoy no advantage over conventional houses in this respect); the revision of hostile building codes; and a resolution of prefab's difficulties with craft unions.

If successful on a large scale, prefabrication might put idle plants and men to work on a spectacular scale, and thus loom large in post-war economic security plans. Certainly many giant, now-deserted war plants, with their long one-story assembly-lines, are ideal for the mass production of houses. Similarly, prefabrication on such a scale would offer constructive and year-round work for the army of semi-skilled labor from those very plants. In fact, one of its most valuable assets
in the coming building marathon should prove to be precisely that it could operate successfully without the aid of the skilled building trades, already in urgent demand by conventional house builders. The ability of the factory method to absorb untrained labor effectively in mass-production proved itself during the war. Prefabbers have long contended that the same technique might well be used to make the peace more livable. “You have to train a mechanic to build a house,” says Jacques (HomeOla) Willis, “but you don’t have to train a grandmother to build an airplane.”

Another factor which might work to prefab advantage is its ability to build profitably on scattered individual lots. This would ensure the fullest use of existing utilities — sewers, water, streets, etc. — before asking municipal aid to provide them in new outlying developments. For the majority of conventional builders, such small, improved lots are impractical. Their cost is higher than the raw land on which the operative builder normally works, yet it must still come out of what is certain to be a government-controlled sales price. Mr. Wyatt, who cautiously called the prefabs’ attention to these city lots, was afraid that there might not be enough to go around. But if the National Association of Real Estate Board’s estimate is anywhere near correct, there are some 30,000,000 such parcels awaiting the prefab touch.

**A long list of producers, a wide range of products.**

From all appearances, it looked as if the world was ready for prefabrication; but was prefabrication ready for the world? More and more, the public was looking behind the scenes. What it saw was hardly startling. There was only one Fuller, and scant trace of all the designs which had made the wartime Sunday supplements ring with prophecy. The majority of prefabricators were showing new models which, in appearance, were as much as possible like the old ones. To anyone who questioned this determined conversatism in a field which so many still consider radical, the prefabricators were apt to reply that they were merely offering the public what it wanted.

The public would discover that prefabrication had, for better or worse, taken on the aspects as well as the stature of “big business.” There were already some 75 firms in the field (see complete list on p. 190) and daily more were casting their hat in the ring. Prefab already had its roster of “big names” which promised to become as familiar as Ford or Packard: Gunnison, National, Allied, Johnson, Pease, Green, Willis, Precision-Built—these and many others already had their product on the market. And the field was beginning to fill with enterprising newcomers—Fuller, Anchorage, Defoe, Shelter Industries, General Panel, to take a random handful.

The public would be surprised at the wide range of products which the term “prefabrication” nowadays encompasses. Eventually, it will discover that there are many levels at which a company may specialize in house fabrication—panels, walls, complete sections, even the entire house shell. It will see that this specialization applies to a whole spectrum of products which range from Fuller’s unfamiliar-looking unit, complete beyond even the best present-day standards (p. 129); through the “key-in-the-lock” house, the “packaged” house and the “basic” house; around to the lumber dealers who keep abreast of the movement—but clear of disputes—by carrying precut lumber.

Most of the house manufacturers are apparently committed to fabricating their product out of conventional lumber and plywood, styled as much like the conventional houses as possible. There are exceptions in this matter of styling: Prenco in Portland, Ore., Green’s Ready-Built in Illinois, Shelter Industries in New York are all showing models which pay no lip-service to Cape Cod. Prefabricators in wood seem, in turn, about evenly divided between those using a stud-and-building-board panel, with an outer veneer of clapboard or shingle, and those preferring a single “stressed-skin” plywood panel employing war-perfected phenolic bonding methods. At least one (Pease) uses the plywood type panel but nails a clapboard sheathing to it on the site. Concrete, because of its availability and low skilled labor demands, seems a promising second (Vacuum Concrete, Tilt-Up,

### Some well-known prefabricators

**| NAMES | RANGE OF SELLING PRICES** | NUMBER ROOMS IN MINIMUM HOUSE |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>ALLIED HOUSING ASSOCIATES INC.</td>
<td>$6,500 min. 5,500 max.</td>
<td>2 bedrooms, living room, kitchen, dining room, bath, utility room, 24′ x 28′ (over-all)</td>
</tr>
<tr>
<td>AMERICAN HOUSES INC.</td>
<td></td>
<td>panels only</td>
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<tr>
<td>ANCHORAGE HOMES INC.</td>
<td>$3,757 min. 7,500 max.</td>
<td>2 bedrooms, living room, kitchen, dinette, bath, utility room, 24′ x 32′ (over-all)</td>
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<tr>
<td>CAPITAL PREFABRICATORS INC.</td>
<td>$5,000 min. 8,000 max.</td>
<td>2 bedrooms, living room, kitchen, bath, 27′ x 19′ (over-all)</td>
</tr>
<tr>
<td>CRAWFORD COMPANY</td>
<td>$5,000 min. 8,000 max.</td>
<td>2 bedrooms, living room, kitchen, bath, utility room, 24′ x 32′ (over-all)</td>
</tr>
<tr>
<td>DEFOE SHIPBUILDING INC.</td>
<td>$4,500 min. 10,000 max.</td>
<td>2 bedrooms, living room, kitchen, dining room, 24′ x 28′ (over-all)</td>
</tr>
<tr>
<td>IVON R. FORD LUMBER CO.</td>
<td>$5,850 min. 10,000 max.</td>
<td>2 bedrooms, living room, dining room, kitchen, bath, 24′ x 28′ (over-all)</td>
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<tr>
<td>GREEN LUMBER CO.</td>
<td>$5,849 min. 6,500 max.</td>
<td>2 bedrooms, living room, kitchen, dining room, bath, utility room, 19′ 6″ x 28′ 6″ (over-all)</td>
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<tr>
<td>GREEN'S READY-BUILT HOMES</td>
<td>$5,500 min. 10,000 max.</td>
<td>1 bedroom, living room, kitchen, dining room, utility room, 19′ 6″ x 28′ 6″ (over-all)</td>
</tr>
<tr>
<td>GUNNISON HOMES INC.</td>
<td>$3,500 min. 10,000 max.</td>
<td>2 bedrooms, living room, kitchen, dining room, bath, utility room, 24′ x 28′ (over-all)</td>
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<tr>
<td>HARNISCHFEGER CO.</td>
<td>$4,000 min. 8,000 max.</td>
<td>(data not received in time for inclusion)</td>
</tr>
<tr>
<td>E. F. HODGSON CO.</td>
<td>$3,200 min. 6,000 max.</td>
<td>1 bedroom, living room, kitchen, bath, utility room, 36′ x 18′ (over-all)</td>
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<td>HOUSTON READY-CUT HOUSES</td>
<td>$5,000 min. 10,000 max.</td>
<td>2 bedrooms, living room, kitchen, bath</td>
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<tr>
<td>JOHN A. JOHNSON CONTRACTING CO.</td>
<td>$5,500 min. 15,000 max.</td>
<td>2 bedrooms, living room, kitchen, utility room, porch, living room, 32′ x 20′ (over-all)</td>
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<tr>
<td>NATIONAL HOMES CORP.</td>
<td>$4,750 min. 6,000 max.</td>
<td>2 bedrooms, living room, kitchen, dinette, bath, basement, 24′ 3/4″ x 28′ 1/4″ (over-all)</td>
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<td>PEASE WOODWORK CORP.</td>
<td>$6,000 min. 7,000 max.</td>
<td>2 bedrooms, living room, kitchen, bath, utility room, 24′ x 30′ (over-all)</td>
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<td>PLAINFIELD LUMBER &amp; SUPPLY CO.</td>
<td>$4,000 min. 10,000 max.</td>
<td>2 bedrooms, living room, kitchen, bath, entry, 24′ x 24′ (over-all)</td>
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<td>PREBUILT CO.</td>
<td>$3,400 min.</td>
<td>2 bedrooms, living room, kitchen, dinette, bath, 30′ x 32′ (over-all)</td>
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<tr>
<td>PRECISION-BUILT HOMES CORP.</td>
<td>$5,500 min. 10,000 max.</td>
<td>2 bedrooms, living room, kitchen, utility room, 24′ x 24′ (over-all)</td>
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<tr>
<td>PREFABRICATION ENGINEERING CO.</td>
<td>$5,250 min. 10,000 max.</td>
<td>2 bedrooms, living room, dining room, kitchen, bath, utility room, 24′ x 24′ (over-all)</td>
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<td>PRODUCTION LINE STRUCTURES</td>
<td>$1,600 min.</td>
<td>living room-bedroom, kitchen, 16′ 6″ x 24′ (over-all)</td>
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<td>SHELTER INDUSTRIES INC.</td>
<td>$4,997 min. 5,891 max.</td>
<td>2 bedrooms, living room, kitchen, bath, 28′ 6″ x 20′ 6″ (over-all)</td>
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<td>TOVELL CONSTRUCTION CO.</td>
<td>$3,600 min. 5,000 max.</td>
<td>2 bedrooms, living room, kitchen, 24′ x 24′ (over-all)</td>
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<tr>
<td>WILLISWAY &amp; HOMEOLA</td>
<td>$3,500 min. 4,000 max.</td>
<td>2 bedrooms, living room, kitchen, bath, 20′ x 24′ (over-all)</td>
</tr>
</tbody>
</table>

* For a more complete list of prefabers see p. 190.
**FACTS AND FIGURES ON THEIR HOUSES**

<table>
<thead>
<tr>
<th>Plywood panels</th>
<th>Wire, plumbing, heat, foundation</th>
<th>Range, refrigerator, hot water heater</th>
<th>Authorized dealers</th>
<th>Savings &amp; Loan Assn.</th>
<th>Eastern seaboard</th>
<th>5,850</th>
<th>7,800</th>
<th>over 7,000</th>
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<tr>
<td>Wood panels—4' x 8'</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater</td>
<td>Builders and architects</td>
<td>FHA and local finance</td>
<td>250 mile radius Waltham, Mass.</td>
<td>2,500</td>
<td>10,000</td>
<td>about 3,000</td>
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<td>Siding, int-composition</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater</td>
<td>Dept. stores &amp; various types of dealers</td>
<td>FHA &amp; local finance</td>
<td>250 mile radius Austin, Texas</td>
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<td>2,400</td>
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<td>Siding, wood panels</td>
<td>Wiring, plumbing, heat</td>
<td>Hot water heater, garage</td>
<td>Special orderers &amp; dealers</td>
<td>FHA</td>
<td>250 mile radius Baton Rouge, La.</td>
<td>1,800</td>
<td>2,300</td>
<td>about 9,000</td>
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<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater</td>
<td>Authorized dealers</td>
<td>FHA</td>
<td>250 mile radius Bay City, Mich.</td>
<td>500</td>
<td>2,000</td>
<td></td>
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<td>Size plywood sections</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater</td>
<td>Authorized dealers</td>
<td>FHA</td>
<td>Areas of 6 plants</td>
<td>5,850</td>
<td>7,800</td>
<td>1,500</td>
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<tr>
<td>Siding, position board</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater</td>
<td>Authorized dealers</td>
<td>FHA</td>
<td>Throughout the South</td>
<td>5,850</td>
<td>7,800</td>
<td>5,000 plus war work</td>
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<tr>
<td>Plywood panels &amp; skin</td>
<td>Wiring, plumbing, heat (radiant), foundation</td>
<td>Hot water heater, range, refrigerator, complete laundry, water-cooled roof, thermostatic glass, built-in furniture, fireplace</td>
<td>Real estate dealers &amp; supervisors</td>
<td>FHA &amp; Savings &amp; Loan Assns. principally</td>
<td>2-300 mile radius Rockford, Ill.</td>
<td>1,000</td>
<td>2,000</td>
<td>300</td>
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<tr>
<td>Panels 4' x 4' stressed</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater, range, refrigerator, complete laundry, water-cooled roof, thermostatic glass, built-in furniture, fireplace</td>
<td>Various dealers</td>
<td>FHA</td>
<td>200 mile radius New Albany, Ind.</td>
<td>2,600</td>
<td>7,500</td>
<td>1,500 plus war work</td>
</tr>
<tr>
<td>Siding, int-plywood</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater, range, refrigerator, complete laundry, water-cooled roof, thermostatic glass, built-in furniture, fireplace</td>
<td>FHA</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>FHA</td>
<td>300-mile radius from Hamilton, Ohio</td>
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<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater</td>
<td>FHA</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>FHA</td>
<td>15-20 mile radius from Plainsfield, N. J.</td>
<td>1,100</td>
<td>1,560</td>
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<td>Siding, position board</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Washing machine, range, fireplace, range</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>500</td>
<td>8,500</td>
<td>1,000</td>
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<tr>
<td>Siding, position board</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Hot water heater, range, some landscaping</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>FHA &amp; Savings &amp; Loan Assns.</td>
<td>3,120</td>
<td>4,160</td>
<td>2,300</td>
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<tr>
<td>Plywood panels, whole room sections</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Landscape (for add. $1,000, built-in furniture, refrigerator, washing machine)</td>
<td>Thru self-developed manufacture</td>
<td>FHA &amp; others</td>
<td>FHA &amp; others</td>
<td>5,200</td>
<td>3,000</td>
<td>1,000</td>
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<tr>
<td>Panels, wood framing</td>
<td>Wiring, plumbing, heat, foundation</td>
<td>Full heating, foundation, plumbing, wiring</td>
<td>Contractors</td>
<td>Allied Building Credit</td>
<td>California</td>
<td>3,000</td>
<td>6,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Plywood panels, heat</td>
<td>Wiring, plumbing, heat</td>
<td>Hot water heater, range, refrigerator, built-in beds (Borg-Warner Ingersoll unit)</td>
<td>Thru manufacturers</td>
<td>FHA &amp; others</td>
<td>FHA &amp; others</td>
<td>3,120</td>
<td>4,160</td>
<td>2,300</td>
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<tr>
<td>Panel composition board</td>
<td>Plumbing, heat (no roof covering, wiring, chimney, or paint)</td>
<td>Hot water heater, range, refrigerator</td>
<td>Dept. stores</td>
<td>FHA &amp; others</td>
<td>FHA &amp; others</td>
<td>5,200</td>
<td>3,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Tentative prices on firms' cheapest and most expensive models.

***Based only on existing plants: 1946 figures cover remaining nine months of year.
JIG-BORN PANELS are the basic element of most current-prefab systems. Some of them are merely the conventional stud wall, minus plaster and fabricated in sections. Others are structurally more advanced. With few exceptions, they are wood, with factory installed windows, doors and trim.

FACTORY FINISHES of exterior and interior surfaces are more and more a feature of the prefab, with parquet and linoleum floors, painted and papered walls, etc. The increased care required in handling, shipping and installation is more than offset by savings in labor and materials at the site.

LeTourneau J. Metal is least active of all: Fuller's house is, of course, largely of aluminum; and in Denver, Convertible Homes, Inc., is offering locally an all-sheet-metal model, see p. . . . But so far, neither metal nor concrete are statistically important in the picture. This strikes many outsiders as odd, if not indeed risky, for it means that the prefabs are as liable to a lumber famine as are their conventional cousins.

Nor are the prefabs remarkable for their equipment. They have not latched on to the flood of new kitchens, prefab baths and packaged utilities as might have been expected. The reasons for this are many and varied and, from the standpoint of the prefabricator at least, valid. Decisive factors are probably cost and availability. Shelter Industries, Inc., plans to build all its models around the new Ingersoll Utility Unit (FORUM, Feb. '46). Green's Ready-Built boasts such features as radiantly-heated floors and a water-cooled roof. But these are exceptional: most prefabs will be no more completely equipped than houses by the local builder.

Sobriety of design and material may reassure a public as yet uncertain about prefabrication. There still remains the question of price. The prices quoted (tentatively, like everything in today's building) seem to fall within the Wyatt program. But not until after this first testing period is over can prefab's early promise of drastic cost-cuts be confirmed. Fortunately, this does not present an overwhelming obstacle. For example, Anchorage Homes, who will not be ready for production until early summer, have already had over 45,000 requests for their houses. With so great a demand, prefab needs only to produce as good a house as conventional building.

TRANSPORTATION makes distribution spotty.

But most prefab manufacturers, even those with a factory full of finished house parts, have not yet faced their most worrisome problems. Most immediate is that of transportation. George Price of National Homes is typical in preferring delivery by truck because he can accurately time its arrival on the lot. Controlling this, he can then have his erection crew on hand to set shell on foundation without any waste of time. However, he estimates that 225 miles is as far as the parts can be economically sent by truck, and so limits his area of operation to within this distance of his plant. Most other prefabricators agree with this estimate, although some believe they can cover a radius of as high as 300 or 350 miles around the plant.

Two methods are being proposed to overcome such territorial limitations—and both will soon be seen in actual operation. The first is to set up a chain of plants throughout the country. This has already been done by Ivan Ford, Johnson Contracting Corp. and Precision-Built, with Gunnison and many others planning to follow in their footsteps. The second is to make the house parts light and simple enough to be shipped easily and inexpensively. This plan, which in the long run may prove the more workable, is being adopted by Fuller and Willis. In other words, as the chart indicates, availability of the prefab is still spotty and is likely to remain so until existing firms extend their coverage or new ones appear to fill up the gaps.

Having assumed that he can ship his house cheaply and safely to the site, the manufacturer has still to set up effective machinery to insure its efficient installation on the lot. During the war, prefabricating companies worked directly with the government. There they had few if any site-connected problems: streets, utilities, sidewalks and landscaping were all handled by separate contractors. The individual purchaser, who will in future form the bulk of the prefab market, may not understand this fact: and from lack of understanding, endless headaches may arise. Fear of this possibility underlies Wyatt's insistence that all prefabs who wish government sponsorship must formulate "an effective plan for distribution and erection which will . . . insure that houses will be put up promptly." The prefabricators them-
selves know this. Says a Washington prefab leader: "What the prefabricator must have is integrated producer control. He must oversee everything—land, financing, building permits. Its [prefab's] opportunity is in the market of people who don't know about and don't worry about these things."

**The local dealer is the key to prefab's success.**

To insure satisfactory provision for all these details the manufacturer must either find or create a personage new to the building scene. Various titles by different companies but most accurately described as a “housedealer” he must combine functions previously allotted to several distinct members of the building fraternity. The prime requisite of this new personage is summed up in a favorite prefab phrase—he must have a “whale of a lot of know-how.” For this reason, Harry Steidle of the Prefabricated Home Manufacturers Institute does not see how “the department store angle” will work out in prefab marketing. For in many respects it leaves the purchaser with the worst of the house-building operation still to face: a lot to buy, contracts to let on erection and equipment, utilities to be connected, etc., etc. Even if the store itself assumes responsibility for handling such details, unnecessary cost, confusion and delay are almost certainly implied. For this reason Gunnison, Allied, Pease and a number of others insist on full-time dealers to install their houses. Green’s Ready-Built Houses will be sold to local realtors but will have a supervisor to oversee construction. Willis and a number of others whose contacts with lumber dealers have always been very close, will sell through them and train a representative to give assistance on erection problems.

The dealer’s position, however, will cover much more than installation. He will be the manufacturer’s most important public relations man, for through him primarily the public will learn the facts of prefabrication. It will be his job to explain just what the price of his particular brand of house will cover, show reasons for parts omitted. It is the dealer, also, who will have to point out to the uninstructed layman (at least during the near-future interim before products become more standardized) whether or not the brand and model of house he is buying includes plumbing, wiring, bathroom fixtures, a heating system, interior and exterior finish, range, refrigerator and cabinets; whether the particular lot the buyer has chosen has convenient utility outlets; or what extra cost will be implied if the house is said to cover all facilities “to one foot outside the house.”

Through the dealer, many house purchasers will learn for the first time that the prefab price does not include the cost of the lot (usually about $500 extra). Often the thought of having to find a suitable place to build is more discouraging to the would-be house buyer than the additional charge. The progressive dealer will be careful to minimize this initial discovery by having on hand lists of the lots available in their vicinity. He will also realize the advertising value of siting his product in as good a neighborhood as possible. Such a policy will make his transactions with the financing agency friendlier, for it acts as good insurance that the buyer (whose payments will be spread over 20 years) will want to keep up his equity in the property. Other important dealer functions will be to provide and supervise laying of foundations, erection of chimneys, installing sewer and water connections. Even grading, walks, driveways, and landscaping may have to be provided by the dealer in order to hold costs down and service up.

Financial backing—also a dealer responsibility and once a doubtful factor in a prefabricator’s plan—has turned out to be one of his easier problems. In spite of the protests of opposing (and influential) interests that prefab represents nothing but a fly-by-night idea, the canny dollars and cents men have caught the whiff of profits from the prefab camp. A typical reaction was noted in the conclusion of a report made at a meeting of the Savings and Loan League in Dallas last December, “the prefabricated home industry is destined to play an increasingly important part in the Home Market in which we are interested. We should gear our operations to meet the needs of the Prefabricated Home Industry, and thus be able to share in the profitable business to be derived from it.” These men, like Mr. Wyatt, seemingly have been convinced that prefabrication has a sizable future in the small house field. As for the problem of cutting red tape in the house-buying transaction, Gunnison’s plan is a prime example of what speed can be attained by efficient forethought. Within 24 hours of receiving the purchaser’s signature, a Gunnison dealer can complete all financing arrangements.

**Codes and craft labor: can the prefab by-pass them?**

In addition to a carefully thought-out program for dealing with the individual consumer, prefabrication must resolve two difficulties in dealing with the community as a whole. The first concerns the 2,000 building codes which are in effect through various parts of the U. S. These were set up to specify requirements for conventional building methods and materials. They bear little or no relation to the new materials and processes available in industrial production. A code, for instance, is apt to specify that a wall of such-and-such material must be so-and-so thick. Such a clause would bar prefabs (along with many other developments) from its locality. Yet mere thickness is no longer an adequate measure of structural efficiency—the 2 in. stressed-skin panel much used in prefab construction may be stronger than its 6 in. equivalent in stud, plaster and clapboard. Gunnison, for example, claims that his construction can resist winds of up to 200 mph as against 70 mph for conventional frame construction; that his floor panels have a live load limit of 650 lbs. psf against 50 for the ordinary framing. And, under present conditions, such claims can be disputed but not disproved. The pressure for change is so great, however, that most cities are admitting that their building codes must recognize the realities of modern structure. Two of the most influential offenders in this respect, Chicago and Pittsburgh, are already setting a good example by starting immediately on extensive code revisions.

Labor is another unit in the community which has found some of its premises rendered obsolete by the prefab’s advance. Here, too, measures designed to protect the worker under traditional site-labor conditions have proved inadequate to cope with the exigencies of factory production. Labor leaders—reassured by the fact that union
LE TOURNEAU'S "BUNGALOW BIDDY" LAYS A HOUSE A DAY.

INNER FORM, with doors windows and reinforcing in place, is covered by outer form in "Biddy" (above). Concrete is then poured (right, above).

24 HOURS LATER concrete has set. Inner form is retracted, "Biddy" picks up outer form and cast house.

TRANSPORTING house inside outer form to home site, "Biddy" lowers it onto already prepared footings.

RAISING outer form, finished shell is revealed. Radiant heating coils are set, concrete floors poured.

FINISHED HOUSE measured 24 by 30 ft., has 18 ft. living room. Partitions can be placed as desired.

WIDE DIVERGENCE IN STYLING OF PREFABS.

In all this flood of prefabricational optimism, there is little mention of what has always been the prefab's soundest reason for existence—namely, that industrial production would offer better money. And this proposition still remains to be proved in real life. For the present, it may suffice that the prefabs do their part in filling the aching cavity of America's house shortage. But for the long haul that is not enough. Far-sighted prefabers are already aware of this hazard, though they have varying estimates of the danger. Long before the present emergency ends, they hope to have consolidated their position in the public's affection. To win this affection they will have to dry-clean the prefab of negative connotations—many of them based on ignorance or malice, some of them based upon hard facts. They will have to slay once and for all the conformation in the public mind between the prefab and a trailer, a shoddy tourist court, a wartime expedient, a temporary stop-gap, a minimal dwelling. They must convince the public that the prefab can be permanent, good-looking and "homey."

The tactic generally accepted at the moment is that of turning out a prefab which no one can spot—a gabled cottage so perfectly camouflaged as to pass for a conventional house built by conventional means. Is this "protective coloration" the correct approach? There are those who disagree—Buckminster Fuller for one. He has always held that this involved so many compromises with the essential logic of industrial production as to render it meaningless. You either have a house produced industrially, with all the features which only straight-line industrial production can achieve, or you don't. There are no greys in this analysis—it is black or white. Certainly this is evident in the striking model which he and Beech Aircraft introduced last month (see p. 129). Impressed observers, lay and professional, see only one feature reminiscent of the past—the living room has a fireplace. How the public would receive this precedent-shattering house is a matter for speculation, not prophecy. But one thing is certain: Fuller has established the other end of the scale by which the public will measure the prefab.

Closer to Fuller than to Gannison are designs like those by George Fred Keck for Green Ready-Built or by Donald Deskey Associates for Shelter Industries. These houses are based upon the assumption that American house-buyers—after five years of enforced idleness during which they could do nothing but read up on the subject—are now prepared for modern domestic architecture. They are, according to this analysis, more desirous that a window admit a lot of winter sunshine than that it be shaped like a dormer; more intent that the roof be an effective barrier against heat and cold than that it be pitched at this or that historical angle; more eager that walls be strong than that they be clapboard. These modernists guess that the returned veteran in particular is thinking along these lines. And there is some evidence and a lot of "informed opinion" that firms like Green and Shelter are guessing right.

Time will toll which of these policies will prove correct—which of the prefabbers will grow and prosper, which will wither and disappear. Such changes inside a new and expanding field seem inevitable. It also seems inevitable that there will be inside the field a steady movement of individual prefabricators towards genuine factory production of houses. Time will tell: but no more time is needed to see what the prefabbers have for a decade been shouting: the prefabrication industry is here to stay.
STORAGEWALL
Prefabricated units based on FORUM's original design will soon be available throughout the U.S.

Over a year ago Forum editors, seeking a solution to the lack of convenient closet space in the average home, came up with a new conception of organized storage which they christened the Storagewall. Instead of a regulation closet fitted with gadgetry, the new scheme was a series of shallow cupboard units to be substituted for non-bearing partitions throughout the house. A new company, the Storagewall, Inc., has been formed to prefabricate these units and now, after months of development work, the perfected designs are ready for manufacture. Pilot production is already underway in the New York area and the units will be available throughout the entire country within the year.

This means that, for the first time, a truly flexible solution to the problem of household storage will benefit from the economies of mass production. Heretofore, architects have supplemented closets by means of specially designed wall cabinets, but custom construction placed such units inevitably in the luxury class. Closets and cupboards which actually are the wall offer distinct advantages not found in the ordinary “built-in” job.

Perhaps the most important single feature of the Storagewall is its multiplicity of cabinets sized to fit together in innumerable combinations. In addition to closets and cupboards, the selection includes many pieces of actual furniture, all variations on a simple structural design. These basic units, worked out on a 6 in. module, come in 140 different sizes, allowing the homebuilder a wide choice in making up his own individual Storagewall.

The modular system of construction is also an important factor in installation and makes the Storagewall peculiarly adaptable to the remodeling of existing homes. No matter what the dimensions of the space it is intended to span, a combination of units can be worked out which will bring the total length to within 6 in. of the desired dimension. The remaining gap can be closed with a maximum of 3 in. trim at either end. Of equal importance is the simple, yet ingenious base which holds the entire wall in place, contains a leveling device to equalize floor height and provides a secure method of turning corners with the Storagewall.

These flexible construction features allow the architect great freedom when including the pre-built cabinets in his design. Both L-shaped and T-shaped arrangements are possible and the units can also be set as a projecting half-wall between living and dining areas. Doors can be incorporated into a full wall at any point.

In spite of the great variety of the units offered, the problems of transportation and pre-sales storage is negligible. This results from the standardized construction system. All units are to be shipped unassembled as flat parts, stored in this form and made up to order. Special Storagewall connectors will be supplied which will make assembly of the units a simple operation and sub-assemblies of several units can be completed in the shop before delivery to facilitate installation. Walls are easily demounted and reassembled to meet changing conditions after installation. Examples of assembly and construction are shown on the following pages.

* Copyright 1946, Storagewall Inc.
Storagewall's structural system makes installation easy, assembly flexible and the inclusion of doors, plumb

The Storagewall shown at the right was assembled by two workmen in 3 hours. Such ease of installation results from the simple structural system on which all units are based. Sides, tops and bottoms are fabricated from two narrow ribs of hardwood connected by a web of plywood or hardboard on the inner side. Thus, a continuous channel is formed around the outside of each unit deep enough to accommodate narrow strips of wood which act as connectors. When two units are placed together, screws can be inserted from either side into the common connector strip, joining the two securely. The outer ribs conceal this connection and, in addition, act as a trim between units when the wall is assembled. Narrow, lengthwise stringers projecting from the base, fit exactly inside each unit's bottom ribs, firmly aligning all the units in the entire Storagewall. Connector strips fastened to the side wall secure it at either end.

The back of each unit is designed with a similar system of channels to allow attachment of cabinets at right angles or back to back. Exposed backs, sides and tops are covered with finish panels which may extend over one or more units.

WALL DEPTHS ranging from 1 ft. to 4 ft. are by combining the three standard unit sizes of 1 ft. 6 in. and 2 ft. Arrangement of units either single or double; flush or projecting diagrams at left show only a few of the many plans which it is possible to work out with this flexible system.

CORNERS can be varied because of Storagewall's flexible design, which permits connection of cabinets in any direction. Diagrams show (top to bottom) a T-shaped arrangement suitable for abutting partitions; an L-shaped scheme minus the corner unit; L-shaped arrangement with a half-front on the corner unit; L-shaped plan with corner unit opening into another room.

ELECTRICAL OUTLETS (below) can easily be installed in the hollow base of the Storagewall. Space between the ribs of box ends is large enough to accommodate conduit and plumbing supply lines.

DOORS can be framed at almost any point in the Storagewall, but certain features must be taken into consideration. Although standard sizes of doors are not mandatory, the 2 ft. 6 in. wide cabinet unit is sized to take a regulation 2 ft. 4 in. door with 1 in. trim; the 3 ft. unit accommodates the standard 2 ft. 8 in. door with 2 in. trim. Diagrams at lower right show position of door between a variety of Storagewall arrangements. In each case the door must be set clear of cabinet unit openings.
Installation of the Storagewall is illustrated by these on-the-job photographs. Left to right a workman is 1) leveling base by tapping opposed wedges. 2) lifting sub-assembly of four units onto the base. 3) fastening the second sub-assembly to the first. 4) placing coat closet against wall stringers at opposite end. 5) slipping final unit down from above. 6) applying trim which has been scribed to the irregularities of the wall.

HEIGHT can be built up with the Storagewall system of 6 in. increments to fit any room dimension leaving a maximum of 6 in. at the top for trim or furring. High ceilings make it more practical to far down, keeping the Storagewall an average height. This method can also be used to fill in space if an unusually low cabinet section is desired.

UNIT TYPES represent small, useful cabinet groupings which may be ordered as sub-assemblies. Height, width and depth vary according to the combination used. Those shown above include desk, radio, single and double chest assemblies topped by shelves and cupboard units with hinged doors.
A typical Storagewall assembly solves the problem of adequate storage space by

**BOY'S STORAGEWALL** includes a large wardrobe with adjustable shelves (above). The clothes rod, attached to the bottom shelf is within easy reach of a small child, can be moved up by changing shelf position as he grows taller. Also provided are a large bureau, a bookcase, a game cabinet and two dead storage units for out-of-season equipment.

**BOY'S ROOM** takes less space, includes handy built-in cabinets.

**PARENTS' ROOM**

**CONVENTIONAL CLOSETS** provide haphazard storage, make it necessary to crowd rooms with furniture.
The advantages of Storagewall are best illustrated by a sample assembly planned to answer specific needs. The one shown on these pages solves the problem of storage for a typical two-bedroom arrangement, formerly serviced by central closets between the two rooms. A linen closet opening into the hall from this center partition was also part of the original scheme. Although not a conspicuously inconvenient plan, the disadvantages of this ordinary closet system have become apparent to many families through daily use. Parents are forced to share the one closet in their bedroom, overcrowding it, jumbling male and female belongings, losing small articles in its depths. The child has no suitable space for games and odds and ends which do not logically hang from hangers. To supplement wardrobe storage, chests of drawers are essential, but they clutter the space, making the rooms appear smaller.

Substitution of the Storagewall for closets actually cuts down the total cubage of storage space, but by using this space to best advantage, greatly increases its total usefulness. The parents’ room is given two wardrobes plus shoe cabinets, dead storage, a bureau and concealed tray drawers. The boy’s room is equipped with game closet, bookshelves and bureau in addition to the wardrobe. Supplemental furniture which formerly crowded the floor area, is now included in wall storage, giving a more spacious look to the rooms. The hall linen closet is still a part of the new scheme. Although the Storagewall is not cheap, it cannot be compared in cost to either furniture or standard partitions since it is a combination of both, and less expensive than their combined price.
Selected assemblies, planned to meet typical problems, can be ordered as a unit from the distributor.

**LIVING-DINING** Storagewall (above) separates these two areas and creates a quiet corner for relaxation or study. The low wall on the living room side contains a radio, phonograph, space for records and books; the adjoining wall a loudspeaker storage cabinet, shelves and dropleaf desk. A spacious china cupboard topped by drawers for silver is included on the dining side.

**LIVING-BEDROOM** arrangement (below) illustrates the use of Storagewall in conjunction with other furniture and as a background for paintings. Couches are placed directly against chest units which open toward the bed-room; pictures are hung on back of bookshelves which front toward the living room. Note corner unit with radio.

**STORAGEWALL UNITS** also make handsome pieces of separate furniture (right), can be used in this manner when an entire new wall is not practical. This is a sensible method of collecting parts of a full Storagewall one piece at a time.
PACKAGED KITCHENS

They fit the plan but not the budget of Mr. Wyatt's homes for veterans.

A short six months ago it might have seemed to even a close observer that, for all the fine talk about "postwar" kitchens, we were actually no closer to a packaged unit than we had been a decade before. Yet already the wind has wheeled to another quarter. Scarcely a week goes by without a new unit appearing—neat and compact, easy to install, easy to use and easy to finance. In the past three months FORUM has reported three such bonafide units and one extensive piece of research on the subject.* In the following pages are shown five more, together with one that is at the drawing board stage. And anyone who thinks the process will stop there should go back to the Cornell kitchen study (FORUM, Feb. and March, '45) or forward to page 214 of this issue. At the laboratory level, the whole field of kitchen design is in a ferment.

Whatever the status of the house as a whole, it looks as though the bottleneck at the kitchen level has been broken wide open.

As might be expected, these units show a wide variety of approaches to a central problem. The manufacturers have different things to sell and different ways to sell them. Their designers, in turn, have varying concepts of what a kitchen should do and what a housewife expects it to look like. Factors like these create a range of distinct types. There is, for example, the so-called "cast" unit where the entire kitchen is fabricated into a single piece, like a chest of drawers. Designer J. J. Little's unit belongs in this category. Some of the new kitchens are sectional; like Raymond Loewy's design, they may be bought and installed by the running foot. Some of them are a cross between these two; thus Guyon Earle's design is essentially "cast" but is fabricated in sections for easier handling and installation.

The facilities included in these new kitchens also fluctuate—depending again on what the manufacturer has to sell. For a company which does not make either ranges or refrigerators, Loewy has designed a comparatively simple unit. On the other hand, White's design—for a large and experienced manufacturer of hotel and institutional feeding equipment—includes everything but the salt shaker. Most of the models, for the present at least, tend to be minimal. They emphasize the essential elements of the kitchen—sink, refrigerator and cooking unit, together with a certain amount of counter and storage space. This tendency has obvious merits. On the one hand, it holds down the weight, size and cost of the unit at a time when all three are at a premium. On the other, it permits a certain flexibility in adjusting the unit to individual plans. For a very small house or apartment, the unit can serve as a complete kitchen, while in less crowded plans it can be expanded by the addition of extra storage, counter and shelf space.

From the standpoint of design, the new units present a somewhat uneven picture. There still persists a tendency to streamline everything, as though aerodynamics were a critical factor in the movement of a door. And the designs still aspire to a sort of monolithic monumentality more appropriate to a tomb than a range. At the same time, they yield those smooth surfaces, rounded corners and minimal joints demanded by the housewife. There is also encouraging evidence that designers are no longer content with merely enclosing so much raw space and calling it storage; instead, they begin to see that the cook needs specialized storage facilities for far more instruments and supplies than a skilled mechanic.

Right now, there is little talk about costs. The industrial parents of all these new kitchens are either unwilling or unable to talk prices. But since most of the companies are newcomers to this field, preparing to tilt lances with well-established manufacturers of plumbing and kitchen equipment, one thing seems certain. The new units must compete in price with the conventionally assembled equivalent. Nor is it too much to predict that, with the keen competition already afoot, they will ultimately cost less.

* In January Forum readers saw Canada jump the gun with Comstock Co.'s Unitility—kitchen, bath and house heater in a 9 ft. cube. In February came Ingersol Steel's Unitility Unit inspired by the same basic concept but smaller and canner in design. That same month began a two-part study of the kitchen by two (female) kitchen specialists, some of whose conclusions were at sharp variance with even these postwar designs. And in March they saw the fabulous kitchen of Fritz Burns' showcase house.
CONVENTIONAL CABINETS, occupying this 10 ft. wall, would provide about 36 linear ft. of shelf frontage while the revolving shelves of the White Compact expose about 124 linear ft. of immediately visible and accessible storage space. One detail not yet satisfactorily solved is provision of tightly sealed joints in finished assembly.

CHARLES C. WHITE

Kitchen Compact employs a new principle in which everything but the sink revolves on its vertical axis.

The perennial problem of what to do with a cabinet door when open has led Charles C. White, New York architect-inventor, to a quite novel solution. By making his cabinets circular instead of square in plan, he has been able to use a revolving door. Hung inside the frame of the cabinet proper, this door pivots around and back out of the way when not in use. Such a door forced him to develop a new system for supporting shelves. By a centilevered bracket Mr. White supports each circular shelf at one point—its center. The bracket itself is adjustable—thanks to the way its three prongs snap into the vertical lines of lugs welded to the cabinet wall. The result is a shelf which is removable for washing, adjustable for height and revolvable for easy access and visibility—three very desirable properties for any system of shelving. This principle of revolving doors and shelves has been applied not merely to the cabinets but to the refrigerator and range as well—again with interesting results.

Neat engineering, both from the standpoint of installation and performance, marks the job. The basic units are all cylinders, in five diameters and a variety of heights. Together with the perforated base on which the units sit and the rigid, self-aligning metal frame on which they hang, they constitute a system which can be assembled in short order by one or two mechanics with scarcely more than a wrench. Refrigerator, sink and cooking units are available in different sizes and may be placed where desired in both vertical and horizontal planes. Hence the system is remarkably flexible.

The entire kitchen is of enameled sheet steel except for sink, counter and splashboard—which are stainless steel—and refrigerator and oven interiors—which are of aluminized aluminum. The curved surfaces of the doors lend them stiffness, while their overhead pivoted support gives them fingertip action and eliminates need for handles or catches. The designer has exploited the interstices between the cylinders for purposes of ventilation. Since these are continuous both below and above the counter, he needs only to connect them to a horizontal overhead duct. With the perforated base extending under the entire kitchen, he can thus vent the refrigerator, ovens, and surface cooking units, as well as the room itself.

The White Kitchen Compact will be manufactured and distributed by Nathan Strauss-Duparquet, Inc., New York.

EASY INSTALLATION is one great merit of the White Kitchen Compact. Key to the system is its self-supporting and self-aligning metal frame which is independent of the walls and needs only a level floor to sit on. In this minimal unit for hotel and apartment use, the combined sink-stove unit is placed on its perforated recessed base (1). Next to it is the refrigerator (2), which will be topped by a square stainless steel counter flush with range top. Wall cabinets with individual electric broiler and oven in bottom are then hung (3) by means of lugs which fit snugly into keyhole slots in the frame (4, 5). Last comes the stainless steel splashboard (6).
INDIVIDUAL BROILER and oven may be hung anywhere. Broiler has adjustable, ratchet-operated shelf; both units are electric, with insulated doors, revolving and removable. Heat converts cases above into two warming closets.

CIRCULAR PRINCIPLE has had a startling effect on the stove. Divorced from the oven, the surface-cooking unit comes in three sizes—two of them in combination with sink—and is available for either gas or electricity. The top is vented through the interstices behind the cases which hang above it. Although shown here atop the oven, it can of course be placed anywhere along the counter.

LARGE OVEN heavily insulated, has three revolving shelves. The one in the center is not adjustable, being directly over the heating element. The top and bottom shelves may be adjusted by an outside crank: in addition, the bottom broiling shelf swings out of the oven.

Circular shelves and revolving doors enable small, unused areas to be put to work.

HOW THE SINK WORKS: When not in use (above) steel lid is flush with counter. Removed, circular ket for dishes is disclosed. Bottom
DEVELOPING, which can carry full load of canned goods without binding at pivot, is adjustable, removable and revolvable. Disappearing doors have finger-tip action, stop at any desired position. Both shelves and brackets can be removed for cleaning enamel interior.

CORNER COMPACT: A complete kitchen in a space 5 ft. 6 in. square is readily achieved with large diameter base and wall units for the interior corner.

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DEVELOPING, which can carry full load of canned goods without binding at pivot, is adjustable, removable and revolvable. Disappearing doors have finger-tip action, stop at any desired position. Both shelves and brackets can be removed for cleaning enamel interior.

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**REYNOLDS METALS** produces a kitchen designed by a builder who didn’t like existing equipment.

A “strip” kitchen in the strictest sense of the word, this 7 ft. model is designed by Guyon L. C. Earle and manufactured by Reynolds Metals Co. It differs from its pre-war ancestor (produced by Earle himself) largely in Reynolds’ restyling—which involved extravagant black drawer pulls on the cabinets and an embossed “mural” on the oven door. But it differs from its competitors in several important respects—not least of which is the fact that it is made entirely of aluminum (except for the stainless steel counter and sink, and the molded plastic liner in the refrigerator.) This refrigerator is a feature of which Mr. Earle, who designed and patented it, is especially proud. L-shaped in silhouette, it consists of a cupboard at counter level and three drawers below. These drawers are designed to minimize heat leakage, close tightly by a special gravity-operated catch when within an inch of the opening. The bottom drawer alone will hold sixteen bottles and has a special meat compartment large enough to take a fifteen lb. turkey. Also included are a freezing unit with a 96 cube capacity, special compartments for frozen food and, according to the manufacturer, more accessible storage space than any 10 cu. ft. box on the market. The compressor is located beneath the counter alongside the drawers and its excess heat is used in dish-drying compartment above sink.

Earle’s design makes use of the space immediately above and behind the counter. Since in terms of easy access and visibility, this is one of the most valuable storage areas in the kitchen, the Reynolds unit seems to have stolen the march on some of its contemporaries.

The Reynolds unit will ultimately be available in a smaller (5 ft. 6 in.) model and several larger sizes. For the present, however, production will be confined to one standard model. It will be completely manufactured by Reynolds for either gas or electricity. It will be sold, installed and serviced by local dealers.
J. J. LITTLE designs this compact unit with powdered accessories reminiscent of the dentist's chair

The fact that a kitchen is already on the market does not of course prove that it is more a better design than one which is still on the drafting boards, awaiting a commercial sponsor. Thus, J. J. Little Associates of Toledo have designed this unit which, for all its gadgets, includes some quite valid contributions to the field. It is a "cast" unit, predicated on a sharp division of kitchen activities into two main operations—meal preparation and clean-up. Instead of providing facilities for these two operations in a strip, L- or U-shape, Little has folded them back-to-back to create a free-standing unit. As in many current designs, both range and refrigerator are broken down into specialized compartments. But Little has gone one step further and provided two sinks—a small one on the cooking side for washing vegetables and a larger one facing it for washing dishes. The range is at the outer end. Little also proposes that a flexible metal shaft like a dentist's be used as a single power-source for all mechanized operations (left, above)—vegetable scrubbing (4), glass washing (3), even stirring food while it is cooking (2). This shaft could be housed in an overhead track (which would also house lighting and stove ventilation, left below); or it could be housed on a spool below the counter and snap back when not in use. Items like percolators plug directly into outlets (1).
AMERICAN CENTRAL produces a sectional cabinet line for good looks, easy installation and moderate cost

While it was sponsoring long-term, basic research in kitchen design (Forum, Feb., March, '46), the American Central Manufacturing Corp., was likewise keeping an eye on the immediate postwar market. To get a line of moderately priced sinks and cabinets into the field at the earliest possible moment, it set Raymond Loewy Associates to work. Last month the results were on display in Chicago. A "sectional" line which can be had by the running foot, the new cabinets are marked by many detailed innovations. Handles are eliminated on drawers and upper cabinet doors by a concealed groove along the bottom, while catches have been replaced by a special hinge which holds the doors tightly shut. The units, which are entirely of rust-proofed, enamel metal, are all designed to eliminate sharp corners and provide continuous working surfaces. Linoleum-covered steel counters are bolted together on bottom side and sealed with special compound to insure tight joint.

SECTIONAL UNITS have consistent heights, depths and surfaces for easy jointing. Note concealed door pulls (below).

DOUBLE SINK boasts concealed pull-out hose and spray. Button on nozzle controls spray. Soap is held by lugs on grooved drain board.

GROOVED DOOR bottom eliminates handle, gives lighting space for counter below.

GROOVED DOOR bottom eliminates handle, gives lighting space for counter below.

CUTLERY DRAWERS have sliding, divided trays, linoleum-lined. Note shape of front.

BREAD BOX slides on noiseless plastic bearings. It lifts out when fully extended.

A new line of wall and base cabinets gives the Crosley Corp. a completely matched kitchen. They constitute a standard line of twelve sectional units—six pairs of wall and base cabinets in various lengths and with various sinks. Unlike many sectional lines, however, each unit is finished on both ends (as well as front and top) so that it can be used independently. The cabinets incorporate many new features in design, including such items as a kneehole cabinet sink, specialized storage facilities for bread, silver, garbage can, etc. Most interesting feature of the new line is the wall cupboards. These have sloping fronts with fluted glass sliding doors and strip lighting along the bottom which lights both counters below and, by means of a glass panel, the interior of cupboards above.

CROSLEY line features illuminated, glass-fronted cabinets

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It's a cinch to solve most of your door problems with Ro-Way Overhead Type Doors. When you specify RO-WAY, you know you're getting what no other doors can offer—all of these 5 extra-value features:

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*ask your architect

SERVEL, Inc., adds stove vent and warming cabinet to its line

New features of Servel's "Unified Gas Kitchen" include spice boxes along bottom of wall cabinets; a cereal storage and warming closet fitting over the refrigerator and using its waste heat; and a self-contained ventilation system for the stove. Most interesting of the three is the stove vent (below); designed by Servel's own engineers, it consists of an exhaust fan and removable filters incorporated into a metal cabinet which matches other cabinets in size and styling. When the range is in use, the quarter-round hood opens out and up to funnel gases from oven and range top into filters.

Range top and oven vented through hood
Spice shelves open
Lowered warming case fits over refrigerator

HAND STORAGE SPACE for much used items like spices is provided by a line of shallow cupboards with quarter-round drop-front doors. The stove vent (below) exhausts steam-, grease- and odor-laden gases from stove top and oven. When not in use, the rounded hood pivots back to match doors of spice cabinets.

Room air pulled into cabinet through tower
Hood pivot back, urban stove is not being used
Gases from stove top and oven pulled through removable filters

Hand Storage Space

153

The Architectural FORUM April 1946
TEAMWORK brings RESULTS

Anything can happen when there's a smoothly operating team! And what actually does happen when you specify Columbia window shades or Venetian blinds is that you're assuring your clients years of good service. This is because Columbia believes in teamwork between manufacturer and dealers.

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Columbia WINDOW SHADES AND VENETIAN BLINDS

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

U.S. farmers today face as extensive a job of building repair, reconstruction and replacement as the City of London. Age and neglect have exacted the price of a blitz. Where buildings are still sound or in need of minor repairs, they are often functionally out of date. House, barn, shed, crop-storage building and livestock housing belong largely and literally to horse and buggy times. Most of the farm buildings of Illinois—a prosperous state, for example—were built before the first year of this century. In cultural terms, the machine-tooled farm has made only a half-turn to the machine age. The tractor sits in a horse barn, a pleasant anachronism if the alleyways were not too small for tractor-driven manure spreaders and loaders and if the hayloft did not require unnecessary lifting and heavy supporting trusses. Yet such buildings represent a capital outlay that few farmers can afford to scrap. Inefficiency is thus often suffered, even in rich black-earthed Iowa, as a practical matter. But inefficiency is not all.

The farm plant of the U.S. is in a state of emergency. Having declined in total national value since 1920, it fell $3 billion between the last two censuses: from $13 to $10 billion, or 26 per cent in ten years—not to speak of a further precipitous drop presumed to have taken place in the war years. Wear and tear, represented in such cool figures, are outpacing the farmer's ability to reconstruct. The most ambitious programs of the President and Congress will cut down nature's depreciative lead, but they still leave the farmer runner-up. To him, however, the consideration of his building headaches for the first time as a national problem is an omen of better things to come.

The upper third of the farming population, producers of 84 per cent of all marketed farm products is in a good financial position and has already begun to repair and rebuild along the lines of expediency, with the labor, construction talent, materials and prefabricated units available. But in the White House, in Congress, in the agricultural colleges and among thoughtful farmers, the longer and larger view is regarded as a prerequisite to a good job of detailed reconstruction. This includes the building problems of the middle third, producers of 13 per cent of marketed farm products, and the lower third, producers of only 3 per cent. The latter of necessity are viewed from a social rather than a straight production and construction standpoint.

The national farm construction job lacks preeminently an architectural profession devoted to rural problems: architects are almost exclusively concerned with urban building. It has the benefit of the immense good thought which has been given to its complexities by agriculturists in various regions. They more than anyone, living close to the farmer and articulating his needs, are in possession of wide knowledge of what might be done to house the farmer, his animals, tools and crops, with efficiency and rural beauty. The farm building program will depend in good measure upon their thoughts.

What some of these agricultural experts think has been conveyed to Fortune's Farm Column by letter and is here reprinted from that magazine's April issue. Like most scientists they begin with a question mark: what type of buildings and building materials? And their answer is experiment. The world of industry and skilled labor lies all around the farms of the land; yet the best informed do not want to say at this time how the farmer should delve into these riches. They want first to test materials and methods in operation. And so they recommend first an immediate, rapid and large-scale program of research and experiment, an undisputedly proper action for federal and state governments and agricultural colleges, for the purpose of informing the farmer, the carpenter, the architect and the manufacturer of what farm needs really are and how they can be satisfied.

The major national problems on which they appear generally to agree are these:

That present structures must be repaired, remodeled or replaced with the object of translating modern changes in production methods into modern efficient building design and layout. The pick-up hay baler, for example, requires only a simple one-story shed rather than a big general-purpose barn for storage.

The modern farm plant must have a convertible design. Permanent structures must have flexibility, to allow for still newer production methods. It would be folly to assume that the production methods of today are the last word and merely to set the farmer's buildings in another groove.

The farm home must have a design peculiar to rural life, including, for example, an efficient medium-sized kitchen layout, a utility room off the kitchen, and a general design that will accommodate, if not at present then at some future date, such utilities as electric light, heat, power, water supply, plumbing, ventilation and an interior bathroom. And since the farm wife and children and old people spend most of their life in the house, it could well have more comfort and charm than most farm houses have today.

Regional opinion is varied, sometimes pungent.

(Continued on page 162)
DEFEO HOMES CAN ANSWER YOUR HOUSING PROBLEM

THE Housing Division of the Defoe Shipbuilding Company was developed with a two-fold purpose—to maintain, as closely as possible, the wartime employment level upon which the people of the industrial area in which the plant is located had come to depend and to offer the public a new solution to America's housing problem.

- With this in mind, Defoe designers and engineers were called upon to create a new line of homes which would bring to their owners the comforts of functional design, the ease of maintenance made possible by modern compact construction—plus the economies of mass production methods. In addition, they must be built to outlast houses of standard construction!

- The Defoe organization has delivered. The skill and experience acquired by more than forty years of fine workmanship and adherence to the age-old traditions of the shipbuilder's art have brought into being an entirely new concept of gracious living. The Defoe Homes reach new highs in comfort and convenience. While there is nothing fantastic or extreme about them, they are certainly a radical departure from any prewar "prefabricated" houses or temporary wartime structures.

- With the war won and with great hope for a permanent peace just ahead, "Better Things for Better Living" is the slogan for the coming era. The Defoe Homes will be a worthwhile contribution to the good times ahead.

This attractive Cape Cod home can be erected by the Defoe system. Variations in floor plan and exterior treatment can be made to satisfy individual requirements. This, like all Defoe Homes, can be purchased with or without the breezeway and garage.

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ILLINOIS: “Principal problems of the north central region are conversion of existing barns to modern production, more adequate grain and corn storage, hay and fodder storage, shelters for machinery and equipment, and adequate poultry housing. Specifically, we find that about 25 per cent of existing farm buildings are probably not worth repairing. Only 30 to 40 per cent of the structural parts are in good condition. The average present age of buildings in Illinois: houses forty-three years, general-purpose barns forty, dairy barns thirty-six, other groups from twenty to thirty-five years...

“Probably less than a fourth of the total number of farm buildings will be replaced with new construction; the major job will be repair or conversion of existing structures.

“With the largest proportion of tenant-operated farms, the responsibility for building improvement lies with the owner, who must give most attention to structures essential to the operation of the farm...

“We have no reason to doubt that the Producer’s Council estimate of $1.3 billion a year spent on U. S. farm building for ten years will no more than meet the need.

“The efficient economical structures on the farm will come as the result of one or more of the following:

1. Some prefabrication. In our judgment the bulk of prefabrication will be the small, light, movable structures and the parts or sections of trusses, rafters, panels, and millwork.

2. Considerable unit sales or what is called packaged selling wherein the supplier and his contractor submit the complete proposal for a finished job.

3. A great deal of traditional building, on the site, with small service crews and the farmer’s assistance...”
—Deane G. Currier, Department of Agricultural Engineering, University of Illinois.

MINNESOTA: “The professional person who is closest to the farmer and to the situation in general is the rural carpenter or builder. He is on the job in 90 per cent of the cases where the building is constructed, and is in the best strategic position to furnish advice. The result is a very ordinary and in most cases inadequate structure. A better trained builder is needed.

If the farmer could buy a barn or a granary made to definite specifications from a catalogue, much as he buys a tractor or a hay loader, I believe he could exercise pretty fair judgment in selecting an appropriate building to meet his needs...”
—A. J. Schwantes, Agricultural Engineering Division, Department of Agriculture, University of Minnesota.

SOUTH DAKOTA: “Two outstanding problems for this region are (1) the use of low-cost open sheds and windbreaks for the protection of range cattle and sheep in the western half of the state (the range country) during the cold stormy weather (the majority of ranchers provide no artificial shelter for livestock); and (2) more consideration to the design of dwelling houses to fit in with the landscape and terrain...”
—H. H. De Long, Department of Agricultural Engineering, South Dakota State College.

UTAH: “Many of our buildings have not had any paint or repairs since they were built.”
—Spencer H. Davis, Department of Agricultural Engineering, Utah State Agricultural College.

IDAHO: “The special problem of our region is to meet the competition that farm structures will have with automobiles, radio, television, frozen storage, and other things that farmers are interested in buying...”
—Hobart Bresford, Department of Agricultural Engineering, University of Idaho.

MASSACHUSETTS: Professor Miner J. Markson of Massachusetts State College observes that architecture and engineering have been applied to rural construction chiefly in his state, elsewhere hardly at all; the farm world has the need and the wherewithal to use these professions extensively.

NEW JERSEY: “Farming is by and large a specialized activity in New Jersey as compared with the general farming which characterizes many of the other areas. We are, therefore, interested in larger poultry houses, milking barns specifically planned for a dairy herd, packing and storage structures in connection with fruit and vegetable production. We believe that there is great room for improvement in structural design in all of these classes. One of the problems which must be overcome is the tendency for local builders to follow traditional patterns of construction and traditional materials. It will not be easy to win them...”
—W. C. Krueger, Extension Agricultural Engineer, New Jersey State College of Agriculture.

SOUTH CAROLINA: “The special problems in South Carolina are (1) the farm residence (Continued on page 164)
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Specifications that cover these points solve the detail of hardware to complete approval of your clients—and to the advancement of your reputation.

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FARM CONSTRUCTION

and (2) adequate buildings for storing feed, particularly corn and small grain. This has not been a major grain-producing region, and our farm structures are not suitable for storing large quantities of grain. In addition we have an insect problem that is much more serious than in other parts of the U.S...."

—George B. Nutt, Department of Agricultural Engineering, Clemson Agricultural College.

ALABAMA: "In this region, agriculture is going through a decided change. The farmers are shifting from a cotton economy to diversified farming in which livestock plays a large part. Under the old system, service buildings were of minor importance. Now we must design service buildings for this new type of farming as it would not be economical to use the same type of service buildings which are used in the North...."

—I. H. Neal, Department of Agricultural Engineering, Alabama Polytechnic Institute.

VIRGINIA: "It has been estimated that Virginia farmers alone will spend at least $200 million on farm buildings in the ten-year postwar period...."

—Charles E. Seitz, Extension Agricultural Engineer, Virginia Polytechnic Institute.

WEST VIRGINIA: "Our particular regional problems are better housing conditions for about 75 per cent of our farms, including architectural design, and better sites for both houses and barns, better water supply and sanitation. West Virginia has a wonderful opportunity to locate farm buildings on more desirable sites...."

—C. R. Orton, Dean and Director, West Virginia University.

TEXAS: "We feel that the improvement of insulation and ventilation, probably in connection with a newly developed combination cooling-and-heating air system, would be of great help to the comfort not only of the rural people but also those living in villages and small towns. In this connection, we feel that the orientation of the house to get the advantages of the summer breezes and the winter sunlight should be considered in the designing and arranging of the farm home, as well as buildings for the livestock. Other special problems of this region are dampness, which causes mildew of paints, and, in the south, termites...."

—H. P. Smith, Division of Agricultural Engineering, Texas Agricultural Experiment Station.

OKLAHOMA: "The idea that a farm woman with no training at all, little concept of modern gadgets as applied to daily routine, can direct the building of an improved farm dwelling is trusting to lots of luck; yet that is the way Oklahoma farm homes come into being when they come.... I am sure convertibility is a large factor in utility; we must be able by simple means to make a shed serve as stable, cotton storage, warehouse, and workshop. This means discarding the hammer and taking up the speed wrench; using bolts and screws in the place of nails and staples. Material must not be destroyed or misshapen with saw and plane, but set in place with the precision of a die—cast bearing, readily demountable again. The old-fashioned scaffolding must be replaced with the hoist in structural work. For the [Oklahoma] tenant there is only one possible program—get what he can and move on. The time may come when enterprising tenants will prefer to have portable houses and take these along on the trek from farm to farm just as they do their mules and farm tools. Usually the tenant sits in his car during a rain because the car leaks less than the roof...."

—Leslie E. Hazen, Department of Agricultural Engineering, Oklahoma Agricultural and Mechanical College.

From coast to coast the experts agree that the farm home should have modern design adapted to rural life, including, for example, an efficient medium-sized kitchen layout, a utility room off the kitchen, and a general plan that will accommodate, if not at present at some future date, such utilities as electric light, heat, power, water supply, plumbing, ventilation, and an interior bathroom. Since the farm wife, the children, and the old people spend most of their time in the farmhouse, it should be designed for greater comfort and charm.
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there's reason in ROOFS

As part of its 1946 editorial program, House & Garden reports each month to its readers on some phase of home-building.

April House & Garden discusses roofs — flat or peaked, salt box or lean-to... shows the time and place for shingle, tile, asbestos-cement, metal or built-up materials.

A survey shows that 45 out of 100 House & Garden families plan to build or buy a house; 30 out of 100 have remodeling plans. Here are sales-making customers,— people with incomes and influence. 60% are executives or professional men; 33% are officers or directors of one or more companies. The houses they build, the products they use, will set the standard of quality in their communities.

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BOSS CARPENTER

(Continued from page 111)

Federation of Labor’s fight for the eight-hour day. Under politically wise President William D. Huber of New York, who held office from 1899 to 1913, the Brotherhood hammered out a mechanism of control from the top that remains to this day. There are reasons why democracy does not seem to be a carpenter’s primary desire. Some go back to medieval times when the carpenters’ guilds were trade associations and labor unions combined, and members had no appeal from their decisions. The first efforts at trade unionism in the U. S. involved carpenters, and the present Brotherhood likes to trace its descent from the Carpenters Company of Philadelphia, founded in 1724. By 1800 there were a dozen active carpenters’ unions.

The specific means by which one man controls the United Brotherhood, however, emerged only after the rise of the business agent. The explosion of the Haymarket bomb was the signal for a widespread anti-labor campaign. In the ensuing struggles the carpenters found it necessary to empower the walking delegate (as the business agent was then called) to call a strike without consulting the membership in order to time strike action most effectively. This power gave business agents an importance on which many have capitalized—hence the rackets that have afflicted building-trades unions, of which the Brotherhood has had its share. Moreover, business agents soon realized that their power depended on keeping their jobs, and union politics became their primary concern. Business agents usually know of job opportunities before ordinary union members, and can dispense such valuable information to men who will vote as the business agent wants. And since business agents are supervised by the international organizers, and the organizers are appointed by the international president, a chain of command is established by which delegates to the convention can be hand-picked and the incumbent officers sure of re-election. The system has worked for Bill Hutcheson for more than thirty years.

Hutcheson became a business agent for his local in Saginaw four years after he became a union member. He now says he did not want the job, and refused it until he got definite assurances of at least a six-month tenure and $18 a week plus $1.50 a day for expenses. His physical size and his farm-bred physical strength were very useful to him in his new activities. Stories of his hand-to-hand encounters with three or more scabs at a time are still told in Saginaw. But he was much more than a bruiser. He began to learn that men can be bought as well as bullied—and that they can also be broken by methods other than violence. Indeed, he learned so fast that he was soon as a delegate to the 1910 convention. Three years later he was elected second vice president of the Brotherhood—at a convention whose presidential votes were fraudulently counted. In those days, he says, he slept only when he had nothing else to do.

In two years Hutcheson was President of the Brotherhood—the result, as even he admits, of two kinds of luck. Soon after Hutcheson’s election as second vice president, Arthur Quinn (the first vice president) announced that New Jersey politics and the possibilities of labor banking in his home town of Perth Amboy were engaging more and more of his time and that since the first vice president was obliged by the constitution to live in Indianapolis he would be very glad indeed to switch vice presidencies with Brother Hutcheson, which he did in 1913. Two years later President James Kirby, dining in Washington, at some bad lobster, developed what was thought to be pomegranate poisoning, and died. It was later said, from a ruptured appendix. Big Bill Hutcheson succeeded, at the age of forty-one.

The New York carpenters had won, with a strike, a wage increase of 50 cents a day for 14,000 of their 17,000 members. After several months of negotiation to include the other 3,000 it was decided to strike. Hutcheson forbade it—but gave no reason. The carpenters struck. Hutcheson himself then negotiated independently with the employers and came up with a contract that temporarily made ineffective the 50-cent increase already granted. Hutcheson today insists that the 50-cent increase was retained, though it was in the form of two 25-cent increases spaced over several months. He also says that his primary purpose was to establish a uniform wage in all five New York City boroughs and thus get rid of the levies of Manhattan.
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designed to meet FHA's
full lending requirements.

Office and Factory
LAUREL, MISSISSIPPI

local on Brooklyn brothers who came to
Manhattan to get the higher scale.

Hutcheson was not very successful in ex-
plaining things to the New York carpen-
ters. They voted 11,745 to 119 against the
contract he had made in their name, and
refused to work. He himself says his life
was threatened on several occasions. The
suspended unions appealed to the courts
for an injunction restraining Hutcheson
from expelling them, and ultimately won.

However, Hutcheson did not take them
back as they were—he consolidated them
into forty fewer units.

The aftermath is one of Hutcheson's most
persistent memories. Of the few New York
locals he did not suspend one was run by
Robert P. Brindell, a Providence, Rhode
Island, drugstore clerk who amassed $2
million in various kinds of rackets involving
building contractors and building unions.

After the 1920 Lockwood investigation into
the high cost of living in New York, he
went to Sing Sing. Samuel Untermeyer, one
of the investigators, communicated some of
the facts to the American Federation of
Labor in a telegram that contained this
sentence: "The Federation will be excep-
tionally fortunate if the Carpenters' Union
can rid itself of Brindell's crony, Hutche-
son, who has been an evil influence."

Although Hutcheson never exposed him-
self so completely again, seldom a year goes
by but some local rebels at what he does.

In 1924 the Chicago locals refused to ac-
ccept a contract Hutcheson made over their
heads, which they regarded as equivalent
to establishing open-shop conditions.

In 1926 he expelled a Communist-led local in
New York, and later had the ritual of the
Brotherhood changed to exclude Commu-
nists. When it was pointed out that the
union's constitution guaranteed religious
and political liberty, Hutcheson ruled that
communism was not a political belief but
a subversive farrago concocted for the bene-
fit of Russian foreign policy. Frank Duffy,
the venerable secretary of the Brotherhood
(he is now eighty-four and has been gen-
eral secretary for forty-five years), read to
the convention excerpts from the Daily
Worker in a speech that made it plain that
the expelled New Yorkers had intended, if
they could, to take the union away from
Hutcheson, Duffy & Co.

In the late twenties the Baltimore locals
were bickering among themselves and
asked the international office to appoint a
representative to settle the underlying con-
licts. Hutcheson sent a man named Henry
W. Blumenberg, who reigned in Baltimore
until 1943. When the locals finally broke
his stranglehold, a quarter-million dollars

(Continued on page 170)
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BOSS CARPENTER

The home is a three-story, stucco-concrete edifice of imitation Spanish architecture built on the shore of Lake Gibson in such a way that it resembles a resort hotel. Its patios are filled with azaleas and hibiscus, its lawns are lined with palm trees, and the old carpenters sitting on the front porch can look into as nice a grove of pine, oak, and cypress as has ever been laden with Spanish moss. The sun in winter is warm and comforting; in summer, so the well-disposed occupants of the home say, the heat is not too bad, though the chiggers, gnats, and mosquitoes are. It is impossible to see anything but winter sunshine, without a certain shadow for Big Bill Hutcherson's pride.

Inside, there is a dark and dense population of the home, even on the worst days. All old people have their own idiosyncrasies: aged carpenters savor being silent and alone. But there is never completely alone, for each of the housemates claims two rooms, and in the home houses two men, and therefore four beds, and therefore eight cushions, and therefore sixteen arms, and therefore a certain amount of fellowship and companionship.

WHERE OLD CARPENTERS CAN DIE
Nothing Hutchinson has ever done has created so much persistent criticism within the Brotherhood as the National Home of the United Brotherhood of Carpenters and Joiners of America at Lakeland, Florida. There, after thirty years of consecutive union membership, and after he has become sixty-five, a single carpenter can live free of all expense. He need pay nothing to enter and will get his food, lodging, clothing and tobacco for the rest of his life. Since the home opened in 1928 there have been 858 occupants, whose stay, before death comes, averages a little better than six years. Half the Brotherhood thinks the home a grandiose mistake and a monument to Big Bill's vanity. Half thinks it has been worth all the time and money it cost. Whichever faction may be right, it is certain that the best energies of the Brotherhood for a decade went into the creation of the home.

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Why ex-corporal Jones wants more doors

Ex-corporal Jones spent many a long month in an open barracks with dozens of other men. His wife “doubled up” with the in-laws for the duration. No wonder they both want more interior doors in their new home—more ways to guard privacy and comfort!

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000 figures out to around $1,800 per man. Old carpenters who do not go to the home draw a pension of only $15 a month. And now, with social security and old-age pensions, the home seems more of an anachronism than an advantage. However, it is certainly an advertisement for the Brotherhood and still an inspiration to dues payers. It is also a pleasant place for the executive board to hold its winter meetings. Recently, the conventions of the Brotherhood have also been held there.

BIG BILL VERSUS JOHN L.
Throughout the early thirties, when John L. Lewis was urging the A. F. of L. to undertake the organization of workers in the great mass-production industries of steel, auto, and rubber, Hutcherson assumed command of the old guard within the A. F. of L. opposing Lewis. Although Hutcherson's own membership had been decimated by the depression (it was down to around 150,000), he did not hesitate to devote his energies and his union's money to combating industrial unionism. He declared that unionization on an industrial, instead of a craft, basis was "a wild dream." He insisted that industrial unions would mean the end of the Brotherhood and he threatened, after the A. F. of L. had suspended the ten unions that originally formed the C.I.O., to take his Brotherhood out of the A. F. of L. unless the C.I.O. unions were expelled.

Lewis had always been, by virtue of the size and cohesion of his United Mine Workers, the strongest man in the A. F. of L., and for several years had had hopes that the implacable opposition of the leaders of the building-trades unions could be battered down. At the 1934 convention the answer had not been an unequivocal no, but at the 1935 convention the old guard, led by Hutcherson, succeeded in voting down a proposal that the A. F. of L. organize steel and auto vertically. The Lewis forces did not capitulate even then, and when one of them got the floor and continued the debate, Hutcherson rose and reminded Bill Green, who was presiding, that the brother was out of order.

John Lewis was furious and exclaimed that Hutcherson's parliamentary maneuver was pretty "small potatoes." Hutcherson replied that he had been reared on small potatoes and that that was why "I am so small." Lewis shouted that Hutcherson's opposition to industrial unions was "pretty small stuff." Hutcherson yelled: "We could have made you small and kept you off the executive council, you crazy bastard."

Whereupon Lewis' fist landed on Hutcherson's jaw. Big Bill took a swing at Lewis (Continued on page 174)

Don't miss seeing the April issue of THE MARCH OF TIME on AMERICA'S HOUSING CRISIS

This March of Time reports on what caused the U. S. housing crisis. Shows what's being done about it. Emphasizes the need for prefab as a partial solution.

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Bruce Finished Floors
and went sprawling across a table and down to the floor.

Lewis and Hutcheson have long since been reconciled, and Hutcheson promoted John L.’s recent return to the A. F. of L. Big Bill now says with a smile that he guesses he goaded John too much and that “I’ve asked John why he ever started the C.I.O. He told me that he did it because he was tired of the coal operators telling him, whenever he tried to raise the wages of his miners, that he was asking for more than the workers in steel, auto, and rubber were getting. I told John that if he had only come to me and explained it that way, things would have been different. I asked him why he hadn’t, and he said he wished he had, that it was just one of those things he forgot.”

There are many indications that Hutcheson and Lewis intend to get as many C.I.O. industrial unions into the A. F. of L. as they can. Hutcheson says that so far as the carpenters are concerned, there is no objection to the auto workers, for example, coming in “if only they will get to the point where they will have sense enough to let us [i.e., the Brotherhood] put up any new plant the auto industry constructs.” Hutcheson says that the more ticklish problem of which union shall have jurisdiction over maintenance carpenters can be adjudicated later.

THE SATISFIED MAN

The war, to Big Bill Hutcheson, chiefly meant an enormous expansion of the Brotherhood. He had been on the executive council of the America First Committee and only came out for lend-lease and aid to Russia just before Pearl Harbor. He is still an isolationist at heart, takes a dim view of the U.N.O., and is rabidly anti-Lussia. Of course, he exploits the role of the Brotherhood in the war effort, and points with professional pride to all the plants, camps, and canteens his members erected, to the 70,000 carpenters who were in the services, and to the fact that the Brotherhood will admit veterans without an initiation fee.

He thinks the present membership of 722,000 will not diminish—certainly not for some years. For one thing, 100,000 of it represents the loggers and sawmill workers of the Northwest whom he succeeded in getting away from the C.I.O. For another, there will be plenty of work in the immediate future for even the wartime newcomers in the building trades. Hutcheson is even willing to concede that if permanent government projects (no leaf-raking) are spaced right, work can be plentiful for his carpenters indefinitely.

The Brotherhood’s international treasury now takes in about $5 million a year, chiefly from per-capita dues of 75 cents—of which 35 cents goes to the home-and-pension fund, 5 cents to subsidizing the Brotherhood’s magazine, The Carpenter, and the remaining 35 cents to the costs of the international office and the death and disability benefits (these amount to about $600,000 a year, and are in the form of burial donations of up to $300 for a carpenter and $75 for his wife, and total-disability payment of $400 top). The locals collect dues of from $1.50 to $2.50 a month. Initiation fees range from $10 to $50.

Hutcheson thinks the Brotherhood is “cheaply run.” His salary is $10,400 a year and hasn’t been raised since 1929 (John L. Lewis gets $25,000 a year from the miners, and Dan Tobin gets $30,000 a year from the teamsters). Recently, he says that he himself got the salary of his son, the Brotherhood’s first vice president, to $350 a week, the salary of the other general officers to $225. But he didn’t raise his own. The general officers, including Hutcheson, together spend about $25,000 a year for expenses a year. The district board members, of whom there are seven, representing geographical divisions of the U.S. and Canada, spend a little more. They make $150 a week. Monthly financial statements are sent to each local.

Although Hutcheson’s enemies in the C.I.O. delight in ridiculing what they call his economic and political illiteracy, and say he has “never been guilty of backing a labor program,” Hutcheson does have a trade union policy that he claims has stood the test of time. He says the primary function of the Brotherhood is to safeguard the wages and working conditions of its members. The home, pensions, death-and-disability donations are secondary.

During his thirty-year presidency the average daily wage for an eight-hour day has risen from a little under $5 to a little over $12. (Big Bill acknowledges that this was not due to his efforts alone.) The Brotherhood has also been more advanced in its attitude toward apprentices than other craft unions. Its constitution provides that there can be one apprentice for every two journeymen. But there is an item in the official platform of the Brotherhood that Big Bill would like to forget. It appears on the inside back cover of the booklet containing the Brotherhood’s constitution and espouses public ownership of all utilities. When asked about it Hutcheson hastily says “It isn’t in the constitution.”

A DYNASTY?

At seventy-two, Big Bill Hutcheson recognizes that there is danger that he may

(Continued on page 176)
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The photograph above shows part of the 100 homes recently prefabricated by CILCO for the Massachusetts Institute of Technology to accommodate married veterans returning to complete their education. These homes, located on a tract adjacent to the Institute’s educational buildings, provide every convenience for simple and effective living.

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M.I.T. War Veterans

Hutcheson’s present benignity derives from his satisfaction over the fact that Maurice is at hand to keep things running as they always have. He says no one in the union has a wider acquaintance than Maurice and that if he can’t run the Brotherhood “I don’t know who can.” And it must be admitted that the docile personnel of the general executive board does not appear to furnish a rival for Maurice. Moreover, Hutcheson says Maurice is handling problems that he, Big Bill, knows nothing about, notably prefabrication. On prefabrication Maurice is as sound as his father: the Brotherhood will put up any prefabricated house that its members have made, but not a prefabricated house made by C.I.O. or nonunion labor. Maurice also seems to take an interest in new materials—provided, of course, they do not furnish a pretext to other unions to claim work traditionally done by carpenters. And the traditions of the Carpenters and Joiners are ancient.
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It is the new Curtis Silentite Self-fitting Window.

In the original Silentite, Curtis pioneered the pre-fit "Insulated" window. The new Silentite is a self-fitting window—and a vastly better window! It represents another basic Curtis improvement in window design, an engineered unit with unique advantages. The many famous features of the original Silentite have been retained—and new ones added.

The new Silentite provides 20% increased weather-tightness which means greater fuel savings—new locking features—new ease of operation—new simplicity of installation which lowers cost! Study the features at the right—then you'll know why the new self-fitting Silentite introduces a new era in window utility and satisfaction.
Why This New Curtis Silentite is a Self-fitting Window

Self-fitting
For Greater Weather-tightness

Made of wood—in itself a non-conductor of heat and cold—the new Silentite has "floating" chemically treated wood sliding bars, and these are seated on full-length double Z-type bronze weather-strips. (See diagram.) Sash (A) operates against sliding bead (D), which presses against metal Z-type weather-stripping (C) in frame (B). The new design of the meeting rail overcomes the problem of weather-stripping between two window sections!

Self-fitting—For Easier Operation
The "floating" weather-stripping forms a wood-to-wood contact with the sash. Easy to operate when new, the self-fitting Silentite continues to work smoothly with use. There can be no sticking, no binding. And the new Silentite uses the famous Silentite spring suspension—no weights, cords or pulleys to get out of order.

Self-fitting—For Locking Safety
The new self-fitting Silentite locks in two positions—automatically! You can leave this window open six inches for ventilation—yet be sure that no intruder can enter, for it locks when open. The new lock also eliminates the damage often done to bars or head jamb with ordinary locks. One sash lock furnished with each unit.

Self-fitting—For Simple Installation
See how easy it is to install a Silentite self-fitting window! The sash is put in with minimum effort—yet, once installed, is firmly in place. Here’s a big economy in installation—another reason why we say "Silentite is really a self-fitting window!" Top and bottom sash easily removed from inside by removal of one inside stop only.

Plus these and many other famous Silentite features
- A complete unit including frame, pre-fit window, screen, storm sash and trim. All parts of unit are carton-packed.
- New style pre-fit combination screen and storm sash eliminates changing and storing. (Separate units available if desired.)
- All parts of units carefully engineered for perfect coordination in the completed job.
- Extreme weather-tightness between frame members, and frame and wall.
- Improved weather-stripping installed with frame and window. No muss or bother later.
- Effective meeting rail weather-strips are applied at the factory—also the new head stop and head weather-strip are installed in the frame at factory.

In Canada: C. EDWARDS & CO., Ltd.
Ottawa, Canada
The U. S. is suffering from a housing shortage, probably its worst since 1607, when John Smith wondered where he would spend his first night in Virginia. Not that the housing problem is in the forefront of everybody's mind. Even when the word "shortage" is mentioned, clothing, butter, and sugar, rather than housing, are the responses most frequently given. When asked which one or two shortages they are noticing most now, only 8.8 per cent of the people say housing as against 40 per cent who say clothing, 25 who say butter, and 23 who say sugar. Among women, four times as many mention stockings as mention housing.

But once the Survey focuses on housing, a sharp sense of shortage immediately becomes apparent. Two-thirds of the people are aware of a serious housing shortage in their own communities. One-fifth say they are doubling up because of lack of homes. Another one-fifth are out looking for a place to live. Were homes less difficult to find, apparently nearly a third of all families would be house hunting.

The U. S. people are strikingly in favor of positive government action to end the severe shortage. A majority of those with opinions want the government to embark on a large-scale building program. More than three-fifths want ceiling prices on building materials retained; three-quarters want such materials channeled into the low-cost residential field by government action; four-fifths want the line held on rent ceilings. All these measures happen to be fairly close to recommendations announced by Housing Expediter Wilson W. Wyatt after this Survey was finished (see "Mr. Wyatt's Shortage" on page 100). The people seem to be in a mood to put overwhelming political pressure behind Mr. Wyatt's program.

A. The housing shortage

Q. Would you say there is a serious shortage of housing around here, that there is no real shortage at all?

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Far West</th>
<th>Southeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious shortage</td>
<td>64.4%</td>
<td>77.5%</td>
<td>51.5%</td>
</tr>
<tr>
<td>Some shortage</td>
<td>27.3%</td>
<td>17.7%</td>
<td>34.0%</td>
</tr>
<tr>
<td>No real shortage</td>
<td>5.2%</td>
<td>4.1%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Don't know</td>
<td>3.1%</td>
<td>.7%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

Even on farms, four out of five people say there is shortage to greater or lesser degree.

Q. We're trying to find out how many people have had to double up because of the housing shortage. Have any doubled up in your home because of the housing shortage?

<table>
<thead>
<tr>
<th></th>
<th>No veteran in household</th>
<th>Veteran in household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18.7%</td>
<td>10.5%</td>
</tr>
<tr>
<td>No</td>
<td>79.5%</td>
<td>88.0%</td>
</tr>
<tr>
<td>No answer</td>
<td>1.8%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Hardship, as reflected by doubling up, is greatest in the lower-middle (23.2 per cent) and poor (18.3 per cent) income groups than in the rich or upper-middle groups (approximately 12 per cent each). As might be expected from answers to the previous question, doubling up is at its highest in the Far West, where over one-quarter are sharing living space. Curiously, in the Southeast where the shortage is least noticed, the proportion doubled up is nearly as high as in the Far West.

Q. Are you looking right now for some place else to live? (If "No") Would you be looking if there were no housing shortage?

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>No veteran in household</th>
<th>Veteran in household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking for a place to live</td>
<td>19.0%</td>
<td>51.0%</td>
<td></td>
</tr>
<tr>
<td>Would be looking if no housing shortage</td>
<td>12.8%</td>
<td>31.8%</td>
<td></td>
</tr>
<tr>
<td>Plans to stay in present home for time being</td>
<td>65.4%</td>
<td>51.0%</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td>2.8%</td>
<td>1.5%</td>
<td></td>
</tr>
</tbody>
</table>

The great search is largely a youth movement: among those aged 21 to 34, some 45 per cent either are looking or would be if there were no shortage. Among veterans the figure is 47.1 per cent. The percentage increases as wealth decreases. The geographic breakdown shows that house hunting is at its height in the North Atlantic states and in the Far West.

B. What to do about it

1. Solution

Q. Do you see the present housing shortage as a problem that industry, if left...
pretty much alone, would be able to work out itself, or as a problem that won't get straightened out until the government does a lot more than it has?

### Table:  
<table>
<thead>
<tr>
<th>Industry left pretty much alone</th>
<th>Upper</th>
<th>Lower</th>
<th>Rich</th>
<th>middle</th>
<th>middle</th>
<th>Poor</th>
<th>Veterans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Rich</td>
<td>middle</td>
<td>middle</td>
<td>Poor</td>
<td>Veterans</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38.5%</td>
<td>63.4%</td>
<td>55.5%</td>
<td>38.6%</td>
<td>19.0%</td>
<td>36.3%</td>
<td></td>
</tr>
</tbody>
</table>

Q. Here are some steps the government might take in the housing shortage which have been favored by some people and not by others. Do you think the government should or should not—?

<table>
<thead>
<tr>
<th>Should</th>
<th>Don't</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Outlook

Q. As things look to you now, do you think it is likely or unlikely that:

<table>
<thead>
<tr>
<th>Likely</th>
<th>Unlikely</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The housing shortage will be ended in a reasonable length of time

| 40.3% | 46.0% | 13.7% |

To compare opinions about the housing shortage with those on other outstanding domestic problems, the Survey also asked whether it is likely or unlikely that (a) much higher prices will be prevented and (b) we will have a widespread depression within a few years. On the first, nearly 60 per cent say "unlikely" to the possibility of holding the price line, which is not exactly a vote of confidence in Chester Bowles. On the second, gloom also prevails: 55 per cent expect a depression in a few years. Plotted against previous soundings of the public economic mood, this figure shows an abrupt reversal of trend. In the summer of 1944, 50 per cent expected a depression within ten years after the end of the war; a year later, and again.
foundation to Chimney between “Sunrise and Sunset”

- OLA DEALER -

MINNESOTA

Brownston
Fullerton Lumber Company
Cambridge
Fullerton Lumber Company
Duluth
Fullerton Lumber Company
Eveleth
Fullerton Lumber Company
Fairfax
Fullerton Lumber Company
Gaylord
Fullerton Lumber Company
Paynsville
Fullerton Lumber Company
Rockford
Fullerton Lumber Company
Watertown
Fullerton Lumber Company

MISSOURI

Albany
Fullerton Lumber Company
Kansas City
A. D. Thompson Lbr. Co.
Liberty
H. R. Banks Lumber Co.
Marble Hill
C. F. Hopkins Home No. 2
Maryville
Fullerton Lumber Company
Sedalia
Home Lumber Company
St. Joseph
South Park Lumber Co.

MONTANA

Baker
Fullerton Lumber Company
Terry
Fullerton Lumber Company
Wibaux
Fullerton Lumber Company

NEBRASKA (Cont'd)

Elsberry
Fullerton Lumber Company
Green Isle
Micklin Lumber Co.
Ingham
Fullerton Lumber Company
Jackson
Fullerton Lumber Company
Kimball
Fullerton Lumber Company

OHIO

Akron
Horrine Lumber Co.
Alliance
Fullerton Lumber Company
Bellefontaine
Logan County Lbr. & Sup. Co.
Paines City
Celina Lbr. & Sup. Co.
Lima
Allen County Lumber & Sup. Company
Cleveland
Lumber Co.
Marietta
The Avenue Lbr. & Sup. Co.
Mt. Vernon
The Kilpatrick Lbr. & Sup.
Springfield
The Clark County Lbr. Co.
Troy
Troy Lumber Co.

OKLAHOMA

Alpine
Ames Lumber Company
Alva
Ames Lumber Company
Blackwell
Ames Lumber Company
Laumon
Ames Lumber Company
Miami
Tri-State Lumber Company
Oklahoma City
Barnett Stewart, Lumber
Valleymore
Thompson-Parker Lumber Co.
Webster
Thompson-Parker Lumber Co.

PENNSYLVANIA

Fairchance
Darby-Humbert Lumber Co.
Troy
F. P. Case and Sons

SOUTH DAKOTA (Cont'd)

Armour
Fullerton Lumber Company
Burke
Fullerton Lumber Company
Colome
Fullerton Lumber Company
Corson
Fullerton Lumber Company

TWIN LAKES

ica & Blood Co.
on
Lumber & Supply Co.
oc
terson Co., Inc.
shs
tom Lumber Company

Wyoming

Casper
O. L. Walker Lumber Co.
Cheyenne
P. J. Black Lumber Company
Douglas
Converse Lumber Company
Lander
Noble Lumber Company
Rawlins
H. J. Brown
Riverton
Noble Lumber Company

Wheatland
Fullerton Lumber Company

Wheatland Lumber Company

BUT CARRIES A BIG "SPEAK"

183
"Easy does it" when you specify

EAGLE Ready-To-Use WHITE LEAD PAINT

Here’s a paint with a new plus—greater brushability. It gives better, more even coverage—leaves practically no brush marks. It’s a more satisfactory paint for home owners, easier for painters to use. The velvety smoothness of Eagle RTU is a triumph of Eagler-Picher research.

From the original white lead formula

Master architects and builders recognize that for 2000 years white lead has had no equal for durability, beauty and economy. Eagle Ready-To-Use White Lead Paint retains the qualities of the original white lead formula, adds new convenience. It is ready to open, stir and apply. This marvelous paint will give stalwart protection to the surfaces of your buildings. It dries to a whiter white, doesn’t crack or scale, but “breathes” with the surface. It ages gracefully by even chalking.

Two forms: Primer Sealer and Outside White. One, two, and five gallon pails.

THE EAGLE-PICHER COMPANY
Cincinnati (1), Ohio
Member of the Lead Industries Association

---

last January, the figure was approximately 44 per cent.

C. The housing market

Turning to the housing market, the Survey first examines that third of the nation that definitely wants to move. Among this group, houses are in greater demand than apartments, and prospective builders and owners slightly outnumber prospective rent payers. Would-be builders and buyers claim they are ready to pay an average maximum of approximately $6,100. More than a fourth of the people think there is a good chance of building or buying a year.

Q. What are you (or would you be) looking for, an apartment or a house? (If “house”) Do you prefer to buy, build or rent it?

Buy house 7.6%
Build house 7.0 14.6%
Rent house 6.3
Rent apartment 7.8
Undecided 3.1

---

In the North Atlantic states close to half of the home seekers want apartments. In the Far West two out of three want to build or buy.

Q. (If “house” above) What is the most you would be willing to pay?

Based on those who want to buy

<table>
<thead>
<tr>
<th>Amount</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $3,000</td>
<td>12.5%</td>
</tr>
<tr>
<td>$3,000 to $3,999</td>
<td>11.0%</td>
</tr>
<tr>
<td>$4,000 to $4,999</td>
<td>10.4%</td>
</tr>
<tr>
<td>$5,000 to $5,999</td>
<td>11.9%</td>
</tr>
<tr>
<td>$6,000 to $7,499</td>
<td>15.8%</td>
</tr>
<tr>
<td>$7,500 to $9,999</td>
<td>14.9%</td>
</tr>
<tr>
<td>$10,000 and over</td>
<td>14.7%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>8.8%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Based on number who want to rent

<table>
<thead>
<tr>
<th>Amount</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $20 a month</td>
<td>23.3%</td>
</tr>
<tr>
<td>$20 to $29.99 a month</td>
<td>21.4%</td>
</tr>
<tr>
<td>$30 to $39.99 a month</td>
<td>18.2%</td>
</tr>
<tr>
<td>$40 to $49.99 a month</td>
<td>13.6%</td>
</tr>
<tr>
<td>$50 to $74.99 a month</td>
<td>11.8%</td>
</tr>
<tr>
<td>$75 and over a month</td>
<td>6.8%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>5.0%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Wilson Wyatt’s report to the President said: “. . . the largest part of residential building materials must be channeled, through priorities and allocations, into homes selling for $6,000 or less including land, or renting for not more than $50 a month.” The Survey’s findings indicate that Mr. Wyatt’s recommendations would cover nearly half of the prospective builders or buyers and over three-quarters of those who wish to build or buy. It has been observed from past Surveys that when answering questions having to do with prices, respondents definitely exaggerate ability to pay. This may well turn out that more than half of those who wish to build or buy will come under the $6,000 ceiling.

(Continued on page 186)
Two handy tools for **EMPHASIS** lighting!

**G-E Projector Lamps**

Rugged G-E Projector Lamps can be exposed to rain or snow. Outdoors, they’ll light up loading docks, signs, doorways, drives, terraces and walks. Inside, both G-E Projector and Reflector Lamps are great for flood and spotlighting... not only for merchants’ show windows and floor displays, but for buildings and offices, too!

They’ll fit into adjustable sockets on posts or walls, or can be swivel mounted in overhead fluorescent fixtures.

Wherever your client’s plans require the use of more supplementary light for better lighting control, greater protection and more concentration over a spot or an entire area, these G-E lamps offer a practical and inexpensive solution. Be sure to make them a part of your lighting plans for—emphasis lighting.

Ask a consultant from one of our lamp offices about all of the newer G-E Lamps... Projector, Reflector, Fluorescent, Slimline, Circline, Silvered Bowl and many others.

**G-E Reflector Lamps**

G-E Projector Lamps

G-E Reflector Lamps

The constant aim of G-E lamp research is to make **G-E LAMPS** Stay Brighter Longer!

**GENERAL ELECTRIC**
THE FORTUNE SURVEY

2. The next five years

Q. Do you want to buy or build a year-around house for yourself within the next five years?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>National average</td>
<td>39.0%</td>
<td>35.6%</td>
<td>15.3%</td>
</tr>
<tr>
<td>Rich</td>
<td>29.9%</td>
<td>38.6%</td>
<td>31.5%</td>
</tr>
<tr>
<td>Upper-middle</td>
<td>35.6%</td>
<td>56.4%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

Q. Of course no one knows for sure, but do you think the chances are good or not very good that you actually will buy or build a house within the next five years? (If "good") Which will you probably do, buy or build?

---

3. Likes and dislikes

Q. We'd like to know how you feel about the building industry as a whole—over the last twenty-five years or so, do you feel that the building industry has given people in America good, only fair, or poor value for their money when they build homes?

<table>
<thead>
<tr>
<th></th>
<th>Good</th>
<th>Only fair</th>
<th>Poor</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>National average</td>
<td>45.6%</td>
<td>25.5%</td>
<td>8.9%</td>
<td>20.0%</td>
</tr>
</tbody>
</table>

In other words, the building industry has a clear vote of confidence from less than half the country. Those who rated it "poor" or "only fair" gave as their principal reasons inferior product (36 per cent), price too high (31 per cent). Yet building is not much less esteemed than the classic automobile industry. Thirty-four per cent think that the automobile industry has given the public more for its money while 29.4 per cent think the building industry has given more. The remainder either feel that both have given the same value or say they do not know. When asked to compare building with the furniture industry, the vote of those with opinions was better than three to two in favor of building.

Q. If there were nothing to keep you from living wherever you wanted to, in what kind of location would you choose to live?

<table>
<thead>
<tr>
<th>Where they now live</th>
<th>A large city</th>
<th>A small city</th>
<th>A small town close to a city</th>
<th>Small town distant from city</th>
<th>Out in the country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A large</td>
<td>A small</td>
<td>A small town</td>
<td>Small town distant from</td>
<td>Out in the country</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>close to a city</td>
<td>city</td>
<td></td>
</tr>
<tr>
<td>Over 100,000</td>
<td>36.2%</td>
<td>10.4%</td>
<td>36.5%</td>
<td>2.8%</td>
<td>11.1%</td>
</tr>
<tr>
<td>25,000 to 100,000</td>
<td>6.8%</td>
<td>43.3%</td>
<td>26.9%</td>
<td>4.4%</td>
<td>16.4%</td>
</tr>
<tr>
<td>2,500 to 25,000</td>
<td>6.9%</td>
<td>27.8%</td>
<td>46.5%</td>
<td>3.2%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Under 2,500 and rural</td>
<td>6.1%</td>
<td>16.4%</td>
<td>49.0%</td>
<td>6.9%</td>
<td>35.0%</td>
</tr>
<tr>
<td>non-farm</td>
<td>0.6%</td>
<td>6.5%</td>
<td>18.1%</td>
<td>1.1%</td>
<td>71.7%</td>
</tr>
<tr>
<td>Rural farm</td>
<td>14.7%</td>
<td>17.6%</td>
<td>35.8%</td>
<td>3.5%</td>
<td>26.0%</td>
</tr>
<tr>
<td>National average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Continued on page 188)
Smartly Styled, with all the Economies of PREFABRICATION

This smartly styled, prefabricated two-bedroom house is only one of several houses we plan to place in production as building materials become available. Since prefabrication was much in the limelight during the war years, and made such a record in turning out hutments and emergency housing for war workers, there has been built up in the minds of some prospects that prefabrication means "cracker box" construction. Houses such as the one shown above will do much to disprove that feeling and assure prospects that prefabricated houses can be smartly styled and of permanent construction.

Houses such as this and the others in the Houston Ready-Cut line will pass on to the buyer the many economies of mass production and at the same time give livability, comfort, durability, and the greatest value per dollar invested. They surpass the rigid standards of the National Bureau of Standards' Commercial Standard CS 125-45.

The recent development of plans to let prefabricators have access to materials for low-cost house mass-production will afford some relief from the critical housing shortage. Our company, and the others who are members of the Prefabricated Home Manufacturers' Institute, are ready to begin production immediately as materials are released.

The established retail dealer selling this and the other prefabricated houses in our line will be able to offer his prospects a known value, a known size, quality and price, and he will be able to close sales more quickly. Initial distribution of our houses will be on a regional basis, insuring speedy relief from the housing shortage close at home, and following the national plan of preference for returned veterans.

INSIST ON HOUSES MEETING COMMERCIAL STANDARD CS125-45

HOUSTON Ready-Cut HOUSE CO.
Prefabicators Since 1917
P. O. BOX 124
HOUSTON 1, TEXAS
THE FORTUNE SURVEY

Building
3 MILLION
MORE PROSPECTS
FOR YOU

FREE

The Saturday Evening Post carried this amazing story of Cotton Insulation to its 3½ million readers March 16th. In April, American Home and Small Homes Guide will carry the same story to 3,000,000 more home owners and prospective builders.

Cotton Insulation is available now, ready for you to sell now. No labor problem—home owners can easily install it themselves. Workmen don’t mind handling Cotton Insulation. It doesn’t irritate the skin.

The 32-page booklet “Cotton Insulation” contains all the amazing facts that are causing home owners by the thousands to specify this flame proof, lighter weight, more efficient Insulation.

Send the coupon below for your copy now—IT’S FREE!

NATIONAL COTTON COUNCIL
COTTON INSULATION ASSOCIATION

NATIONAL COTTON COUNCIL
Box 18, Dept. F, Memphis 1, Tennessee

Q. What are the two or three things about your present home you wish your...
Let this Mark of Merit be your guide
when you specify heating and plumbing products

It identifies products that are designed and engineered to give long, efficient service

And families pay no more for kitchen sinks and laundry trays that carry this famous Mark of Merit. It says they're designed to make housework lighter—your kitchen brighter.

Be sure you're right when you select or specify winter air conditioners or warm air furnaces. When they bear the American-Standard Mark of Merit you're assured of less worry, less work, less money for operation and upkeep.

You want assurance of health and comfort when you select radiator heating for your buildings. That's what you get when you select or specify time-tested, performance-proved American-Standard units.

ONE of the most important decisions you have to make is the choice of heating equipment and plumbing fixtures. When you specify, be sure. And you are sure when you select or recommend products that bear the familiar American-Standard Mark of Merit.

You are sure of the finest in design, quality and efficiency ... for American-Standard Products are backed by many millions of dollars spent in research. Time-tested and performance-proved, they have been Serving the Nations' Health and Comfort for more than half a century. Yet they cost no more than others and are available for modernization jobs on our convenient FHA Time Payment Plan.

For information, contact your Heating and Plumbing Contractor. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.
Here is the building material with outstanding features of operation.

The big sizes—up to 8' x 14'—make it possible to avoid all unsightly batten strips and unnecessary wall joints. Simultaneously they reduce the number of handling and nailing operations.

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Draftless air-diffusion—plus illumination—

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ANEMO-LIGHT

The ANEMO-LIGHT is a combination of the ANEMOSTAT draftless air-diffuser and a built-in light. It is designed to provide draftless, even distribution of air—both heated and cooled—for equalizing temperature and humidity throughout the room . . . as well as to provide scientific lighting.

The section of the ANEMO-LIGHT which serves as the air-diffuser is of special design and dimensions—different than the standard ANEMOSTAT. The largest member has a handsome fluted, polished edge. The inner members are also polished. The complete fixture is of the recessed type, fitting tightly against the ceiling with a minimum projection below the ceiling line. It is spun of aluminum, polished and sprayed with clear lacquer.

The ANEMO-LIGHT is so constructed that, like the standard ANEMOSTAT air-diffuser, it will draftlessly and quietly diffuse any volume of air supplied to the device at any velocity. At the different velocities recommended for rooms used for different purposes, the increase in decibel rating by the ANEMO-LIGHT itself is negligible.

The lighting unit is a Holophane Reflector Refractor. Its sparkling, crystal, prismatic glass is pleasing in appearance. When lighted, a portion of the reflected light is thrown on to the flaring cones of the air-distribution section of the device, which effects a luminous quality, lending a fluorescent appearance to the entire fixture.
In conjunction with its nationwide survey of the housebuilding industry (p. 103), the Forum requested its correspondents in 16 of the largest U. S. home building centers to conduct local surveys, report the status of building operations and the attitude of builders. Following are excerpts from their reports.

Baltimore
Principal change in the local building picture, as seen by one of the community's most important rowhouse builders, is the emergence of additional large scale builders. Before the war these builders erected from 25 to 30 units. Then they got into war housing in one form or another, and now are branching out into the 200-250-unit-per-year class. Labor will be adequate to put to use all the material made available for house construction in this area.

Boston
One of the biggest builders in the state is planning a 1,000 house development, is now completing two experimental houses of plywood construction with concrete mat foundations and radiant heating. Through economies in design and construction and mass production, he believes that he can produce a $5,000 house this year which will be as good as the houses he was building for this price before the war. Another local leader also points to an innovation—a "building expediter" who goes on a "Cook's tour" every day for building supplies. He is a shopping expert who gets into the markets early every morning, and it is expected that he may be retained in this capacity for a long time to come. Builders, in general, are erecting experimental houses, not for sale as yet—not until they learn something of the prices and costs involved.

Chicago
Unions may be persuaded to permit carpenter shop prefabrication of wall panels, such as is done now in one local suburb. Most of the houses planned will come close to the $10,000 limit. Return of Title VI would treble or quadruple the volume of house construction. Says George F. Nixon, Republican member of Cook County Board of Commissioners and leading home builder for many years: "Home ownership for veterans could be made easier in four ways: 1) By revision of outdated building codes . . . 2) Manufacturers of home building materials and equipment must cooperate to hold down their prices and simplify their distribution operations to eliminate a multiplicity of middlemen's profits between maker and user. 3) An agreement with labor unions to abolish for the benefit of their brothers-in-arms a goodly portion of the make-work regulations now in vogue and the acceptance of many labor saving devices. 4) Provide by legislation mortgage terms and interest rates approximating those proposed for farmers and CIO members in the Wagner-Flelder-Taft bill—a 90 per cent mortgage with amortization terms up to 40 years and an interest rate of 3 per cent."

Cleveland
Nails by mail order—that is how one big house builder is supplementing the kegs he can beg, borrow or buy in northern Ohio hardware stores. He has been receiving 25 lb. packages of nails from a Chicago firm. Says he: "They limit 25 pounds to a mail order, so I send a new order every day. Labor still is scarce. One builder explains: "Veterans are taking it easy, wanting to build for their own bosses for a while. When their novelty wears off and their funds run low they will go back to work." Builders talk of premiums being paid to attract workers—well above union scale of wages—and of "rare and unfamiliar" grades of lumber being delivered at prices about double pre-war prices for regular grades. One builder on one occasion drove to Berea, Strongsville, Medina, Mantua, Garrettsville and Chagrin Falls in an effort to get nails. He covered 194 miles and came home with 900 kegs. Same builder has had to cut up boxes to make up siding.

Denver
The Denver Assn. of Home Builders has surveyed the field, found that the 81 builders who account for 80 per cent of the home building in the city, have 1,480 houses under construction, 1,081 of which are in detached dwellings. Of the latter number, 928 were at a standstill because of the inability of the builders to obtain craftsmen of correct sort or another. To complete 1,480 units these builders required these staggered amounts of materials: 4,979,866 bricks, 3,657,734 board feet of dimensional lumber, 3,242,256 board feet of rough lumber, 373,160 board feet of finished lumber, 1,572,067 feet of flooring, 12,282 doors, 5,372 bathtubs and 28,730 feet of soil pipe. A large portion of these items are scarce; for instance, where Denver houses require about 65 feet of 6 in. soil pipe per unit, the city is receiving only about 10 feet per day. (At this rate it would take more than seven and a half years to complete the houses now under construction in Denver—Ed.) Despite current difficulties, Denver builders propose to go building, indicate that they will build 1,200 detached dwellings and 360 multiple units.
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in 1946—of the total, 2,750 will sell with lot for less than $10,000.

DETRIOT
The spirits of local builders are at an all-time low. The HH priority program got off to a bad start. Builders claim, the FHA does not deny it, that in nine out of ten cases FHA returns the priority application on grounds that the proposed prices are too high and demands a breakdown of construction costs. The local builders are up in arms at what they believe is a perversion of the HH program into an instrument of price control. One builder who proposed to build 300 veterans' houses states that FHA's estimate of a fair price actually runs as much as $1,000 under today's actual costs. It is held that OPA is unrealistic in attempting to base current prices on prewar prices. Says Detroit housing Commissioner Charles Edgecomb: "You can not have a 150 billion dollar economy and still buy eggs at 20 cents a dozen." The building trade is in favor of price stabilization—rational planning is impossible until prices are stabilized—but believes that the sights must be raised. Building overhead costs are running approximately double prewar costs. It is stated that a builder today is likely to spend $50 in labor and time trying to find sufficient rock lath for a five-room house. Because OPA will not permit an adequate price rise, local brick yards are unable to obtain sufficient labor to supply Detroit needs; builders are therefore buying brick in other parts of the country, and the cost of transportation brings the price of the out-of-town brick above that which the local yards need in order to produce on a large scale. The building trades are slowly increasing the number of apprentices, but builders agree that labor efficiency is at an all-time low. They hope to see some improvement eventually when the number of available workers increases and inefficiency can be punished by firing. The local builders advocate a three-point program on the part of government: 1) priorities for house builders, 2) revision of OPA pricing policies for building materials, and 3) revival of FHA's Title VI. With such help and an adequate supply of materials, Detroit builders have pledged 20,000 houses for 1946—all under $7,000 and, if Title VI is revived, half of them under $6,000.

HOUSTON
Brightest spot is the return of skilled labor from the wars. Says one builder: "We can now take the older men and put them to work inside, allowing the younger men to do the roofing and other jobs that youth can handle faster and with more safety."

LOS ANGELES
Builders are beginning to hit the stride of the fast and heavy building pace of the late Twenties and early Thirties. Materials are flowing more easily, and while still critically short in some of the crafts, labor is more plentiful than it has been for the past five years. Small homebuilders, generally happy with the HH priority system, Chief complaints are the delays caused by the priority routine and the length of time it takes to complete a house—about twice as long as in prewar days. Some heavy construction contractors turned to house building during the war, now plan to stay in the business. Many builders are veering the financing away from FHA toward building and loan associations. Main reason for this is that the associations do not hold up as long as do FHA inspections. Often an association will virtually waive examination of a dwelling, provided the builder's reputation is good. Time-conscious builders find this an important consideration.

MIAMI
A local contracting firm has developed a method of using Gunite for home construction. Gunite houses are being built slightly under the cost of a similar home concrete block—the predominate type of construction here. The new process involves shooting the Gunite against sheet rock rather than wooden frames which here fore made the process expensive.

NEW ORLEANS
A recent survey reveals that New Orleans expects to spend nearly 150 million dollars in the next seven years for home construction and the purchase and improvement of existing homes. However, at present building is at a virtual standstill because of material and labor shortages and high cost that available. Little low cost building is underway or being planned in the city. OPA and the government are bitterly blocked almost all attempts at home building. The black market, say the spokesman, channels most supplies into business buildings, for home builders cannot compete with them and are unwilling to patronize the over-price dealers.

NEW YORK CITY
While most builders have large plans for the future, their current operations (Continued on page 196)
SMART BRIGHT CHEERFUL

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Designed to make maximum use of precious inches . . . and thus provide GENUINE kitchen convenience in unbelievably compact space.

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Made for long, tough service without trouble to tenants . . . with negligible upkeep costs for owners.

Ranges [electric or gas] and refrigerators are improved models of those which proved their worth in more than 40,000 prewar installations. Exposed surfaces are genuine vitreous porcelain . . . quickly cleansable with soap and water and forever free from need of repainting.

Write for catalog showing available models and name and location of our nearest representative.

(Model shown is Murphy Cabranette Kitchen No. 480 . . . full kitchen convenience in two by four feet)

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sans antonio

Eighty per cent of local residential building permits are running under $5,000. It is a case of styling the house for the customers’ pocketbook. After comparing notes with a local banker, one builder has estimated that only 10 per cent of the veterans swarming back to San Antonio can afford a home, based on their wages, costing more than $4,000 for house and lot. Materials are being obtained by sheer persistence and covering every possible source. Lumber has even brought up from Old Mexico at a cost of $135 per thousand ft. for No. 1 Ponderosa Pine of grade inferior to that priced locally at $87.50. It is almost impossible for an individual to contract for the building of a house. Main reason seems to be the difficulty in satisfying the customer under present conditions and the time involved. One builder volunteered that six out of the 10 houses he was building six months ago were contract jobs and that these six took much time to handle as all the others put together. A city official predicts that 3,000 to 4,000 houses will be constructed in the city this year—provided, as always, that materials are available.

SAN FRANCISCO

Houses under construction represent only shelter—they have no refinements—but this is not the case with the best builders can build under present conditions. Says one, “Anyone who told you they are building as good a house now as they did before the war is lying.” Opinion is that prices will not go down much from 1939 levels, at least for the foreseeable future, but materials will be less plentiful. The building boom has run up as high as $45,000. Volume builders, on the other hand, are concentrating their plans on houses which will come just under the “ceiling price”. Most of their activities will remain potential until government policies and regulations have crystallized; material shortages and conflicting official talk and actions concerning priorities, ceiling prices and other government controls have frightened many a local house builder into doing nothing for the time being.

PITTSBURGH

Two outstanding things: 1) all are mad at OPA regulations and want them lifted immediately and 2) any contractor who is doing much building is patronizing black markets. Executive secretary of local home builders’ association claims—and so do others—that, if the OPA would grant price increases for scarce materials, the black market would be wiped out and housing boom. He said the Allegheny County builders are planning some 4,200 homes this year, 6,500 if materials become available. One big builder is not having much trouble with materials, but, while he will not say so publicly, he will admit confidentially that he would not be able to finish his houses unless he used black market materials. He says black market prices are from 15 to 20 per cent above ceilings and that, if OPA would grant price increases, he would be able to buy the materials for less than he is now paying through the black market. As an example of black market prices, another builder says he has to pay $175 a thousand feet for hardwood flooring, while before the war he paid $68. Home builders are no longer afraid of going into mass production on a big scale. The builder who used to put up about 25 houses a year would quadruple his volume if given the chance.

ST. LOUIS

One progressive builder has switched from concrete blocks to poured concrete for more economic foundations; another notes a trend toward spreading out the houses in width, “We make them more ranch type and give the buyers more ground.”

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St. Louis

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EXHIBITS

New York City's Whitney Museum gave abstract art a place of honor and larger space than ever before in last month's Annual Exhibition of Contemporary American Sculpture, Watercolors and Drawings. This prominence for abstract art is all the more remarkable when one remembers that the Whitney has long clung to its own coterie or "school" of so-called American genre painters and has turned many young painters towards realism in art. For this, if for no other reason, the exhibit merits the attention of architects.

Some of the earliest experimenters and theorists in abstract art were architects: notably Mondrian and LeCorbusier. It is easy to find an analogy between the main purpose of abstract art and that of modern architecture: a deliberate intent to sweep away the archaic tradition of representationalism in painting, the clutter of over-ornate unfunctional facades in architecture. Because their bases are similar and development parallel, one might have hoped that modern architects would find in abstract art the thing they need for their modern buildings. One's hopes are somewhat dashed, however, by the Whitney's exhibit. Somehow these American abstractionists have not solved the problem of relating their work to either the room it will exist in or the world in which they live. Each artist here is concerned with sweeping away old idioms. But, having done that, this preoccupation seems to turn even more completely than before to his own self, to his isolation from the world he lives in and others live in. The result is too often a negation of tradition with no new or substantial symbolism to take its place.

To those architects who think about it, painting and sculpture should have a particular relationship or frame of reference—that a work of art be part of the building. (see cut) Many painters and sculptors seem to have forgotten this relationship, their paintings more often being conceived for frames, and sculpture for pedestals than for room interiors or for building exteriors. This isolation of the artist or sculptor is not wholly of his own making, of course. Many have long realized that architects, artists, and clients should more often work together on a project, even on the smallest painting—that there should be a modern democratic equivalent of the old feudal system of commissioning works of art. But it seems that one of the happy intimacies which has gone out of the world of art is for an artist to paint a particular picture for a particular person or place or occasion. It is the loss of this relationship which creates a vacuum in which any artist—whether representational, abstract or surrealist—must work in comparative isolation. It is an unfortunate situation for both art and architecture.

Among the abstract watercolors shown at the Whitney, those of Schanker, Baziotes, Mark Tobey, Hans Moller, have a charm and whimsicality often lacking in the more serious abstractionists; John von Wicht (see cut) and Stuart Davis express a more mathematical bent. The sculpture is better than in previous years, but still disappointing when considered in relation to architecture. (Continued on page 200)
How Architects Can Make Restaurants More Profitable

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They're thoroughly dependable — time-tested all over America. Behind them is Chrysler Corporation, with its great reputation for engineering and mass production skill. It will pay you to specify this modern, simplified form of air conditioning. Write Airtemp Division of Chrysler Corporation, Dayton 1, Ohio. In Canada: Therm-O-Rite Products, Ltd., Toronto, Ont.

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One finds work of relative newcomers to the Whitney like David Smith and Theodore Roszak. Noguchi (see cut), who has really experimented more than anyone with sculptural forms as part of buildings, turns out a tour de force in marble which might have more properly been done in metal; and Wharton Esherick has been more concerned with Archipenko than with Architecture.

But if the abstract portion of the show is disappointing, it does not follow that the remainder is any more exciting. The old-time representational Whitney crowd seems paler and less vigorous than before: among the watercolorists Marin, Burchfield, Reginald Marsh and Waldo Pierce are dim reflections of their past glory. Some of the newer comers hang brighter, sharper representations of the American landscape: Dong Kingman, Barse Miller, Anne Poor in their watercolors and drawings; Maldarelli and Marion Walton, for example, in their sculpture. Hovannes' piece (see cut, p. 198) is the best adapted to architecture.

The Whitney is changing, though, and perhaps one can hope that the American artist's place in society is changing too.—E.B.


One book, let alone two, on the color and furnishing of a contemporary home should put a gleam in the public eye and unless the public pulse is deliberately misleading, these two volumes will be pounced on with avidity. Together they furnish an eloquent comparison of the English and American versions of interior design. The latter selection is naturally more familiar but unfortunately its chief virtue lies in the contrast revealed between architect and decorator-designed interiors, a characteristic ignored by the author but obvious from the photographs. Due to the selection, however, both categories display self-conscious, arid arrangements. Few examples show any real imagination or spontaneity. Mr. Storey, a graduate of the Julliard Academy in Paris and author of several other books, (Beauty in Home Furnishings, Period Influences in Interior Decoration) reveals himself still unweaned from a pattern of living that would countenance only "formal" and "informal" rooms. He has no truck with the latter, either. Offering advice on the furnishing of modern interiors that turns out to be as rigid as the formula for a Louis XVI salon, he says: "Too delicate tints (for the living room) are usually ruled out as being inappropriate. A room's colors, it must be remembered, have a relation to the degree of formality of the furnishings; subtle harmonies are best worked out in formal interiors, and more naive contrasts in informal arrangements . . . While a living room should not be too individual, the owner's interests may well be expressed in the furnishings. Shelves for the book lover's volumes or the antiquarian's collections of glass or pottery are easily fitted into the ensemble." This describes as well as anything the tone of the entire book and casts some light—fuzzy though it may be—on the motive of selection.

The British book, Colour Schemes and Modern Furnishing, is, by way of contrast, interesting for the alien nature of the interiors it presents. Most have a quaintness unfamiliar to the American eye, some recall the Anglo-sophistication of a Galsworthy novel, others reveal an unfortunate hangover from the modernistic French decor of the twenties. Mr. Patmore takes a far more esthetic approach than Mr. Storey, concerning himself with the subtleties rather than the obvious effects, with accessories, not as a group, but for individual merit and contribution.

Neither book, unfortunately, fills the broad need for a really informative and imaginative work on interior design. Each is, in its own way, specialized and limited. The houses shown are all strictly urban in character and are not particularly recent, at that. A generous assortment of color plates is included in both instances. M.S. (Continued on page 202)
The showroom homes of the nation

This *Time* reader's dwelling in Houston is a perfect example of the "showroom" home. For, in new *Time* homes like this, thousands of prospective home builders see new building products in use, hear them recommended, borrow ideas and features they like.

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Prime building prospects of the nation right now are America's returning veterans — who will naturally be among the first to buy and build as they resume their places in community and business life. And speaking of this homecoming young executive market, Army, Navy and Marine officers vote "*Time* is our favorite magazine."
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The potential home owner can become a remarkably well versed fellow if he reads only about one-fourth of the books on house building now flooding the market. This latest addition has in its favor an unusually high content of hard facts and sound thinking. Houses included range from $5,000 to $10,000. The authors make little attempt to force a given style on their readers and for this reason will undoubtedly win a good many admirers. Emphasis and much needed enlightenment on the legal and financial aspects of building or buying admirably round out the text. While The Book of Houses is neither as snappy nor as glib as Tomorrow's House, it is broader in scope, filled with useful information. In the preface the authors explain their stand on design saying: "Most of the structures shown have traditional styles because most of the homes you will find for sale are traditional — Cape Cod, Georgian, Ranch house, what-not — and the chances are you prefer these kinds anyway. The authors believe that in a house designed in the modern functional style you get more for your money. But there is no point in including primarily "modern houses" when the average home buyer won't be able to find more than a few in his locality. Besides, most of the beautiful modern designs (replete with modern furniture) are slanted at the $20,000 — $30,000 pocketbook — not yours and ours."

It is unfortunate that the publishers' budget could not permit a more elaborate presentation but the book is, nevertheless, about the best two dollar investment possible. M.S.

RECENT CITY PLANNING REPORTS

MIAMI CITY PLANNING. 1945. City Planning Board of the City of Miami. 33 pp. Illustrated. 9 x 11'/4.

Features plans for a Pan-American Center to be constructed on a city-owned island near Miami. This includes an auditorium, buildings for the various Pan-American nations, a Garden of the Americas and a Tower of Eternal Peace.


Interesting because of the city's proposal to use Quonset huts to meet the housing emergency.


An extensive plan for a step by step process of development and replacement of the center of the city which features a spacious central mall.


A good general review of urban growth and development with particular emphasis on the city's transportation systems.
Kelvinator refrigerators have an unbeaten record for trouble-free performance over years and years of service. That's because they're powered by the famous sealed-in-steel Polarsphere lubricated for life and because Kelvinator's thirty years of experience in building fine refrigeration appliances and equipment have given Kelvinator engineers and craftsmen real know-how in building refrigerators that perform dependably!

That's why Kelvinator refrigerators cost less to own... and that's why users so consistently express satisfaction with Kelvinator's longer life, lower maintenance and fewer replacements. For homes or apartments, you will find that Kelvinators really do cost less to own!

For full information, contact your local Kelvinator dealer. You'll find his name and phone number in the Classified Directory or you can write to Kelvinator, Detroit 32, Michigan.

PROPERTY MANAGERS BACK THAT UP

...in letters now in Kelvinator's files:

 MASSACHUSETTS—"Regarding our experience with the performance of the 300 Kelvinator refrigerators which have been in use here since July 1, 1941... as yet we have not had a motor failure."

 KENTUCKY—"This is to advise that the 250 Kelvinators installed in our project have given perfect satisfaction, and not one penny has been spent for repairs or otherwise during the three years they have been in constant use which, to our way of thinking, is remarkable."
Corbin Unit Locks chosen for
Boys' Town building program

TEEN-AGED boys are rough on hardware. Leo A. Daly Company, Architects, of Omaha, Nebr., say . . . "it is very important that the hardware in Boys' Town buildings be very durable . . . capable of standing the hard wear it is bound to get. We feel that Corbin hardware meets this important requirement."

The ease of installation of the famous Corbin Unit Lock (Pat. No. 41,961) was another factor in the Architect's decision to specify Corbin hardware for the Trade School Building, The Administration Welfare Building, the High School, and the twenty-five residence units in the $3,000,000 building expansion program at Father Flanagan's nationally famed Boys' Town.

Since 1899, when Corbin Unit Locks were introduced, they have been specified by Architects for outstanding commercial, civic and other types of monumental buildings from coast-to-coast.

Corbin Cast Bronze Unit Lock, America design, specified for Boys' Town. This lock was used on all office entrance doors throughout Rockefeller Center, except on the R. K. O. Bldg. Sets are shipped assembled, as shown, eliminating the danger of missing parts. Adjustable to different thicknesses of doors. Frame is one solid piece, holding all the parts; no possibility of displacement.
Aluminum and magnesium painted in gay and gaudy colors can add considerably to the gala appearance of Merry-Go-Rounds in a post-war world. By lightening construction, these alloys can decrease the cost of operation. Aluminum and magnesium are due to play a prominent role in the fabrication of many new products that you will see. Our Engineering staff will be glad to discuss with you the many sales and cost-cutting features of these light alloys in relation to your own products.
For exciting new...

INTERIOR REMODELING

Genuine Structural Bends Original of Tempered Masonite

Made of strong tempered Masonite preswood, 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...convenient to install. Time saved...durability, too...afford unlimited opportunities at low cost in stock. WRITE FOR CATALOG...PLAN YOUR NEEDS...PLACE ORDER NOW.

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W. L. STENSGAARD AND ASSOCIATES, INC.

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Frame with Reynolds Aluminum standard rolled structural shapes

As indicated in the illustration above, the new Reynolds standard structural shapes offer a particularly effective solution to the problem of framing wherever strength must be combined with lightness. Architects will recognize the following advantages:

1. Aluminum today is strong. Pound for pound, shapes rolled of Reynolds Aluminum Alloys are stronger than those of many structural steels.

2. Aluminum is light. It weighs only ¼ as much as a corresponding section of steel.

3. Aluminum is rustproof. It remains resistant to attack by a wide variety of corroding elements.

4. Aluminum is easy to fabricate... easy to handle. Thus, valuable construction time is saved when Reynolds shapes are used.

Write for complete information on sizes, prices and deliveries. Reynolds technicians are at your service. Offices in principal cities. Phone nearest office or write Reynolds Metals Company, Aluminum Division, 2528 South Third Street, Louisville 1, Kentucky.

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Equal angles, sizes 3" x 3" and 4" x 4"; standard gauges \( \frac{3}{8} \)" to \( \frac{1}{2} \)" and \( \frac{3}{4} \)" to \( \frac{5}{8} \)" respectively; lengths 15' to 45' are ready. Orders for other sizes, equal and unequal angles, channels, are now being accepted.
Type "R" Steel Boilers
For HOMES and SMALL BUILDINGS

Eye Appeal that "Sells"
Plus Inside Features that "Save"

Even a basement boiler room can be attractive. When available there will be different jackets with "eye-appeal" for Kewanee Type "R" to suit almost every desire. BUT OF GREATER IMPORTANCE is the steel heating unit inside.

Note the high firebox for more complete combustion (even in this smallest size steel boiler made) . . . long two-pass travel of the hot gases which extracts the maximum amount of usable heat . . . large water content and unobstructed waterways. These Kewanee features save fuel.

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208 The Architectural FORUM April 1946
THERE'S PROOF APLENTY...

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SAVE MAINTENANCE

A look at the past gives you a look into the future for aluminum windows. Their superiority is constantly being demonstrated in buildings of all types.

For example, take the building illustrated here. After 14 years, its 3100 Alcoa Aluminum windows operate just as smooth as the day they were installed... and they've never been painted.

Check some aluminum windows yourself. Ask about their maintenance cost. We believe you will convince yourself that windows of Alcoa Aluminum belong at the top of your list for the buildings you are now planning.

Aluminum Company of America, 1866 Gulf Building, Pittsburgh 19, Pennsylvania.

With Alcoa Aluminum Windows You Can Count On...

- Low maintenance
- No rust
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- Low installation cost
- Maximum glass area
- Better appearance

Whenever your plans call for copper tube (iron pipe size) or brass pipe — especially in public, industrial or commercial buildings — specify patented threadless Silbraz joints made with Walseal valves, fittings and flanges. Silbraz joints effectively produce strong, lasting pipe runs. These modern joints provide positive protection against leaks by actually becoming a part of the pipe itself. They make a “one-piece” pipe line that will not creep or pull apart under any pressure, shock or vibration that the pipe itself can withstand.

Easily installed by oxyacetylene torch brazing, Silbraz joints are the sure answer to low-cost assemblies that will require neither maintenance nor repair in the years to come. Ask your nearest Walworth distributor, or write for copy of Circular 84 giving complete data on Walseal Silbraz joints.

*Patented — Reg. U.S. Patent Office

Make it a “one-piece pipe line” with WALSEAL

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The sure way to cut the cost of pipe maintenance

on all copper tube or brass pipe runs

...SPECIFY THREADLESS

SILBRAZ JOINTS
A novel system of construction which promises real economies in light, one and two story structures has been recently patented by a young Georgia architect, R. William Marshall. Actually more of a structural principle than a system—since it can be executed in wood, metal or concrete with a wide variety of detail—the Marshall method employs a series of two or more V-shaped vertical members which interlock to form a W. They are designed to replace the conventional column or loadbearing wall. When anchored at two or more points to concrete piers, these members achieve stability in a transverse plane. Rigidity in the other direction is achieved by longitudinal joists and curtain walls. To reduce heavy framing to a minimum and to get maximum performance out of his principal W-shaped members, Marshall suspends his exterior walls and the outer edges of his floors. Metal rods in tension carry this load. Prefabricated panels may then be slipped into place along continuous horizontal splines carried by these rods.

In these days of acute shortages of structural materials, Marshall’s system has much to recommend it for row housing. It has considerable flexibility, permitting staggered floors and the creation of cantilevers and balconies without complicated framing. It reduces foundations to a minimum, with a consequent reduction in labor and material. Site preparation—especially on level terrain—is greatly reduced. And in wood or metal, the entire structure is susceptible to a high degree of shop-fabrication.

HEAVY FRAMING MEMBERS are reduced in number by use of Interlocking V’s instead of columns or loadbearing walls. Application to row housing is demonstrated by architect Marshall’s sketch below. Entire structure is free of contact with ground, simplifying grading and foundations, termite and fungus control. Since walls and outer edge of floors can be suspended, system permits overhangs and set-backs with minimum structural complications.
LIQUID HEAT POWERS DOMESTIC UTILITIES. Using a new fluid which does not freeze at \(-67^\circ F\) and does not boil until at least \(-23^\circ F\), liquid heat powers domestic utilities.

**Circulation System** is simple, powered by a small centrifugal pump and operated at atmospheric pressure. High temperatures of liquid necessitated special insulation and pipe fabrication. Although ordinary pipe was found satisfactory, careful jointing was essential. 2 in. of fiber glass insulation was found adequate under test conditions.

**Heat Economizer** Flue gas temperatures were halved—with consequent increase in efficiency and safety—by by-passing both returning liquid and fresh air for combustion around flue between boiler and chimney.

**PILOT INSTALLATION** at Jersey plant (above). Experimental ovens (left) have no ventilation.
800 °F, the Pierce Foundation proves the practicability of a single energy-source for the house. The system is scheduled for commercial production.

The idea of using a high boiling point liquid for all domestic heating, cooking and refrigeration is intriguing and not especially new. But until recently, it had not been much beyond the realm of speculation. Water turns to steam at 212°F and hence cannot be used to fry an egg, bake a cake or run a gas (absorption type) refrigerator. A fluid into which much more heat could be pumped—say 500° or 600°F—without evaporating would obviously do the trick. But where to find such a fluid?

As long ago as 1935 Orion O. Oaks, Chief Engineer of the John B. Pierce Foundation, had experimented with the idea but had had to abandon it because any available fluid with such a high boiling point had too high a freezing point for practical use. During the war years, the log jam was broken with the perfection of a fluid with the jaw-breaking name of tetracresylsilicate and the following remarkable properties:

1) Boiling point—817° to 825°F
2) Solidifying point—undetermined; though liquid viscous at —65°F
3) Extremely fluid at temperatures above 100°F
4) Viscosity similar to SAE 20° at 70°F
5) Specific gravity—1.13
6) Specific heat—0.43
7) Nonpoisonous
8) Noncorrosive
9) Nonexplosive
10) Nontoxic

With this fluid fully developed, the Foundation and Mr. Oaks were able to proceed with laboratory tests of an experimental system. The results have now been released—and they indicate that liquid heat can be used to do all the household chores at about 50 per cent less operating cost than conventional utilities.

Mr. Oakes' objective was to design a system which would supply all of the services from a single heat source, employing a liquid as the heat—or energy—transfer medium. This medium would then be used to operate the house heating, domestic hot water supply, cooking, baking, refrigerating, drying, air conditioning, and generating electrical energy for light and power. The liquid would be raised to the desired temperature by burning any type of fuel—coal, gas or oil—in an efficient furnace, and the heat distributed by means of the liquid to the various equipment units. Losses would be limited to those of the boiler and the radiation from the transmission lines and equipment units.

The experimental installation at Raritan, N. J. consists of a hand-fired coal boiler where the liquid is raised to the necessary temperature, unit heater, hot water heater, steam generator, refrigerator, cooking unit and oven. These are connected by a closed system for circulating the hot fluid to all equipment and returning it to the boiler.

The most remarkable aspect of the entire set-up is an item which really makes it practicable for domestic application—is the individual, automatic temperature control. This control substitutes for the thermostat in conventional systems. It is a completely self-contained apparatus, activated by the heat of the system itself, which can be set at any temperature from "off" to the maximum provided by the system. Under test, this control was successful in maintaining required temperatures within a very narrow margin.

**Primary generator** in the system is a conventional liquid-tube, liquid-wall boiler. Although it might obviously be stoker-, oil- or gas-fired, in this experiment it was deliberately hand-fired to test the system under the least favorable conditions. (It was found, incidentally, that a maximum lapse of 45 min. intervened between laying the fire and reaching the desired temperature for the fluid.) To reduce flue temperatures and to make the system as economical as possible, flue gasses were used to preheat air entering the combustion chamber and to preheat the liquid returning from the circuit. By this shrewd device, flue gas temperatures were halved and over-all heat conversion efficiency raised to well over 80 per cent.

Since the fluid is circulated at atmospheric pressure, the small pump at the end of the return has merely to correct for whatever head there is in the installation. An expansion tank is connected to high point of circuit.

To develop the maximum ease and efficiency of operation in such a primary generator, Mr. Oaks is now building one of his own design. This generator will be automatically fired and thermostatically controlled, with heat economizing features built into compact case.

**House heating unit**, at the temperatures easily available in the heated liquid, could be either steam, hot water or hot air; and the liquid could also serve a summer cooling system of the absorption type if desired. But Mr. Oaks relied upon a small unit heater to get an approximate expression of a hot air application. Tests showed the following performance:

<table>
<thead>
<tr>
<th>Test</th>
<th>Total heating surface</th>
<th>Outlet area</th>
<th>Velocity of leaving air</th>
<th>Entering air temperature</th>
<th>Leaking air temperature</th>
<th>Volume of leaving air</th>
<th>Entering liquid temperature</th>
<th>Leaving liquid temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.76 sq. ft.</td>
<td>0.505 sq. ft.</td>
<td>600 fpm</td>
<td>80°F</td>
<td>200°F</td>
<td>545 cu. ft.</td>
<td>550°F</td>
<td>475°F</td>
</tr>
</tbody>
</table>

From these tests, he concludes that, thanks to higher temperatures and higher air velocities, hot air heating coils can be reduced to one-quarter conventional size.

**Hot water heater** employs conventional type heat exchanger with submerged hot liquid coils. Although in the test installation it was of the tankless, instantaneous type, it could be used in connection with storage tank.

*The Foundation controls the patents and plans to license the manufacture of the miracle liquid. (Continued on page 214)*
PRODUCTS AND PRACTICE

Cooking Unit Here the application of liquid heat required the complete redesign of the conventional stove, with its flame or coil. Mr. Oaks' solution was a heavily-insulated, metal sheathed strip, rather like a cafeteria steam table in appearance. Into this are countersunk double-walled depressions of various sizes and depths. Slipping snugly into these depressions are removable cooking utensils with insulated covers. The unit also has a griddle for surface cooking and a low-temperature service plate, both flush with the top. Each pot and plate has an individual automatic control for any desired temperature. Time required for reaching a working temperature was 30 seconds.

Refrigerator The experimental system used a pre-war unit of the gas-fired, absorption type. Only alteration involved substituting hot liquid for gas flame. Performance over entire test period was satisfactory.

Baking Unit is also of special design. For experimental purposes, it consists of two heavily-insulated, double-walled metal ovens of standard size. One has a door which slides vertically, the other one a door hinged on the side; both proved equally satisfactory. The double walls and top constitute the heat source. Here, by means of staggered baffles, the heated fluid is evenly distributed over the entire surface. As in the other units, the temperature control is individual and automatic. The ovens were not ventilated and "all experiments to date indicate that no ventilation is necessary or desirable." A maximum of two minutes was required to raise ovens to working temperature and cooking times for various dishes were just about cut in half.

Turbo-Electric Plant As an adjunct to this system, but independent of it, Mr. Oaks has suggested a turbo-electric plant. This addition would produce an entirely autonomous system of domestic utilities and make it very attractive for any house beyond the reach of gas mains, power lines and oil trucks. At the same time, it permits an increase in the overall efficiency of the system. The liquid heat would be used to produce high temperature steam which would in turn operate a turbine. Hooked up with a generator, electrical energy sufficient for ordinary domestic purposes could be produced. Since the turbine would use only a fraction of this energy, however, two further alternatives are added to increase its efficiency. The surplus steam could be used to preheat hot water and supplement house heating; or it could be put through a condenser to create a vacuum to boost the turbine's work.

Convinced that the system has proved its practicality and economy, the Foundation is now in process of licensing both the production of its fluid and the basic patents covering the system as a whole. It is too early to say who will have it for sale and when, but it is apparent that conventional domestic utilities face strong competition from a new quarter.

Ultimately this might cost no more than 50 cents a gallon—and since it is chemically both stable and inert, "refilling" the system might be necessary only at five year intervals.
BUILDINGS—employing a minimum number of standard shapes—demonstrate low-cost, superior construction at University of Wisconsin.

One of the nation’s most backward classes of buildings—those for the farm—came in for a general overhauling last month when the University of Wisconsin’s East Hill Farm at Madison, Wis., was unveiled. In both plan and construction, the new project represents current trends in farm building design and reflects the degree to which agricultural production is being industrialized. At East Hill, the barn has become a plant: and though urban eyebrows may be raised at buildings which provide “milking parlors” and “loafing areas” for dairy cows, the project is the result of deadly-serious research.

Working under a grant established by the Carnegie-Illinois Steel Corporation, Wisconsin’s Prof. Stanley A. Witzel has produced a group of specialized buildings without architectural pretensions but incorporating many interesting features. His primary object was to demonstrate the possibility of low-cost, long-lived, fire-resistant dairy plants. Although no attempt was made to limit materials to steel exclusively, it was largely used for a number of reasons. Developments in portable welding and ready accessibility of such equipment make site-welding practical, even to rural users. Experienced war-trained welders are now available throughout the country. And by designing the structures of a minimum number of standard shapes, local dealers can easily stock all necessary parts.

It was found that in the construction of many one-story buildings having clear spans from 24 ft. to 40 ft., a maximum of nine—and possibly as few as five—sizes of steel members are needed for the framework. At the Wisconsin project, the following stock structural shapes were used: angle roof truss and struts, 1½ by 1½ by 3/16 in.; angle roof truss and window sill, 2 by 1½ by 3/16 in.; 4 inch H beam at 10 lbs., column; 5 in. channel at 6.7 lbs., roof purlin for 12 ft. span; 3½ by 2½ by ½ in. angle, eave member; 3 in. channel at 5 lbs. roof purlin for 8 ft. span; and 2½ by 1½ by 3/16 in. angle roof truss for 40 ft. span.

All surfacing of roofs and exterior and interior walls was in steel sheets, spray-painted after erection. In the heated and insulated portions of the project, wood studs and joists were used to simplify attachment of interior steel walls and ceilings. Elsewhere the superstructure is entirely of steel.

Based on the experience at East Hill Farms, pilot plans and structural details for many different types of farm buildings having clear spans of 24 ft. and upward, will be prepared by the Carnegie-Illinois Steel Corp. These drawings will be available by mid-summer.
STEEL PANEL CONSTRUCTION for soundproof rooms provides attenuation comparable to hollow tile walls.

Unusual steel panels for constructing lightweight demountable soundproof rooms have been developed by the Bell Telephone Laboratories for use in their new buildings at Murray Hill, N. J. Having an over-all thickness of 3 in., the panels are formed of two composite sheets of steel cemented to composition board with a layer of rock wool attached to the inner face of one of the sheets. This construction eliminates any mechanical coupling of the two components of the panel which might occur if the rock wool had been packed between them. Thus discontinuity is achieved.

For acoustic efficiency and protection against fire, the company previously constructed its soundproof rooms of hollow tile plastered on both sides. These rooms were expensive to construct, noisy and dirty to dismantle, and had practically no salvage value.

The new panel construction (see chart) shows that it is inherently capable of giving substantially the same protection as a single hollow tile wall. The steel panels weigh only 7 lbs. per sq. ft. as compared to 31 lbs. per sq. ft. for a tile partition with 3/4 in. plaster on both sides. The construction and dismounting of rooms using these panels involves little dirt or noise, and allows salvage of practically all the material. Although this system was designed for specialized use, it has obvious applications to a wide range of conditions where maximum sound attenuation is desired with a minimum of weight or bulk.

COLOR SYSTEM FOR PAINTS standardizes 1,000 shades by prescription mixing.

A new custom color system which standardizes 1,000 interior and exterior paint tints, tones and shades by prescription mixing, has been developed by Carl Foss and Fred Rahr for the Martin Senour Co., Chicago. Known as the Nu-Hue System, it makes possible the selection of paint samples from a scientifically organized color directory to match or harmonize with fabrics or decorating pieces. Each of the 1,000 samples has a rigid standardized formula which can be prescription mixed by the paint dealer in less than 15 minutes. The Nu-Hue System of standardized paint mixing and color matching guarantees absolute accuracy of paint color without experimentation.

It eliminates difficulties of matching wet paint to dry samples and time wasted by painters in trying to blend elusive tints.

Backbone of the Nu-Hue System, which is used only with Nu-Hue paints, are six selected hues of yellow, red, orange, purple, blue and green, plus a neutral gray, three types of white and an extender. Organic in structure, these paints are said to represent advanced scientific development in color manufacture. They are non-gloss, non-dulling, non-fading and have a permanence for both interior and exterior use. The hues used together with the proper white and gray, constitute the method for blending the large number of evenly spaced tints, tones and shades. The most difficult formula consists only of two Nu-Hue colors and simple parts of gray and white. To achieve a deep flat tone, Mix-Ex, a clear extender, is used. By addition of Mix-Ex, and the use of the different types of white, flat, semi-luster and glossy finishes are possible. Formulations for interior and exterior paints are also determined by the type of white used.

The heart of the system is the color directory and color charts. The directory contains actual paint color swatches or cards of the 1,000 different colors arranged in spectral order. The prescription for mixing the exact shade is given on the back of the card by weight, volume and ratio. The charts have a full set of colors arranged for quick matching, and include the prescription or code number of the formula. To operate the system, a card is selected from the color directory to match or harmonize with the carpet or desired object. The exact shade is then mixed by the paint dealer according to the prescription. Color directories and paints are available to decorators, master painters and dealers.
Now Ready for You—

the most beautiful, inspiring and practical

partition catalogs ever published . . . . .

• Every page of these new Hauserman catalogs sparkle with ideas that will help you create building interiors of maximum efficiency, beauty and adaptability. • For your convenience there are two books: General Catalog 46 has 32 pages in full color, dramatically illustrating the uses and advantages of Hauserman Movable Steel Partitions. • Technical Handbook 46T has 42 pages packed with technical facts that are especially valuable to architects, engineers and building managers in planning new construction or remodeling. It will also answer questions about how Hauserman Movable Steel Partitions are designed, fabricated, erected and serviced. Write for your free copies today.

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IN PARTITIONS — adaptability PAYS
This photograph and close-up picture shows how Rusco Awnings enhance the appearance of the famous Bulova Watch Company's New York factory. The modern, streamlined effect is an effective outer reflection of the company's own product style leadership.

**RUSCO All-Metal Venetian Awnings**

for Permanent, Fireproof, Trouble-Free Service

**NOTHING TO STORE, REPAIR OR REPLACE**

- Rusco Venetian Awnings end awning trouble forever! In one permanent installation, these all-metal life-time awnings give you all the best advantages of canvas awnings and Venetian blinds... with none of the disadvantages.

Rusco Awnings provide year-round sun protection, with full ventilation, visibility and light control... adjust instantly at the turn of a crank to any degree of light or shade. They keep heat outside the building walls. And they end the costly seasonal maintenance job of repairing, putting up, taking down and storing awnings. Even in winter, users claim Rusco Awnings are indispensable because of the added weather protection and complete light control.

For air conditioned buildings... and for every commercial building where comfort and heat exclusion is a factor... Rusco Awnings provide a big value in heat control. At the modern Bulova Watch Company plant in New York, for example, it is estimated that installation of Rusco Awnings will cut the summer cooling load up to 20%! In a ten-day test, the awnings were found to reduce the inside temperature of the glass blocks in Bulova's modern windows from 104°F to 82°F!

Made of rust-resistant galvanized and Bonderized steel, Rusco Awnings are finished with two coats of finest baked-on enamel available in many popular colors. If you plan new building, improvements to present buildings, or want to cut air conditioning costs, ask for the engineering facts on these efficient modern awnings. Write The F. C. Russell Company, 1836-AF Euclid Avenue, Cleveland 15, Ohio.

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This interior view shows the pleasing inside appearance of Rusco Venetian Awnings. Use of draperies is not affected.

**RUSCO**

**ALL-METAL VENETIANawnings**

Product of The F. C. Russell Company
1836-AF Euclid Ave., Cleveland 15, Ohio

A simple inside crank operator permits easy adjustment to any degree of light—full visibility to shade in seconds.
Keep SCREENING in mind as you design or build

As you make your plans to meet the unprecedented demands for building of all types—whether you're an architect, merchant builder, pre-fabricator, contractor, or building supply dealer—keep insect screening in mind.

The American people have it on their minds. And 42 out of our 48 states have laws or regulations regarding the use of screening in hotels, restaurants, food, drug, and beverage handling, processing and dispensing establishments. There are laws requiring screening even in tourist and trailer camps.

The New York Wire Cloth Company is headquarters for screening. It is the only company which offers a complete line of insect screening—both metal and plastic. Included in this line are ALDURA aluminum, now made of Alcoa Alclad wire—OPAL, heavy zinc coated—LIBERTY BRONZE—and PLASTISCREEN, the modern miracle plastic screening. There's one for every condition and every pocketbook.

Featured in the three wire screenings is the famous MULTI-STRAND edge which gives extra strength where needed most—in the edge. Printed foot numerals make planning and measuring easy. This edge also speeds installation and stays put.

Ceaseless testing of the finest wire and workmanship assures top quality and uniformity in strength, gauge, weight and body. When you recommend or install these screenings you can feel confident you will be proud of the result.

PLASTISCREEN, made of .015 filament (Dow Chemical Company's Saran), is not new. The first plastic screening ever produced, it appeared on the market in 1942 and then went to war. Here it proved to be a miracle screening under the tests of all climatic conditions. Now it's available again.

Dark antique in color, with a lustrous sheen, PlastiScreen harmonizes with most colors. Its mesh opening lets air through and gives maximum protection against disease carrying insects. It's resilient, rugged and durable—is easy to install. It carries on a proud tradition in screening.

As you design or build, keep ALDURA, OPAL, LIBERTY BRONZE and PLASTISCREEN in mind. They represent the only complete line of insect screening available today. You can rely on all four to meet the highest requirements in screening.

New York Wire Cloth Company, 500 Fifth Ave., New York 18, N. Y.
As America’s architects and builders plan for the greatest home-building program of all time, Rittenhouse announces a radically new kind of electric door chime signal.

By the use of techniques unknown before the war, Rittenhouse has achieved (1) a clear melodious tone new to door chimes, (2) the elimination of “chime static”—objectionable mechanical noises. And, with other new mechanical triumphs, Rittenhouse Chimes promise beauty and charm that will gloriously enhance the interior loveliness of every home.

Rittenhouse Electric Door Chimes have been acknowledged leaders for years. Nationally advertised in the most heavily circulated and finest magazines and newspapers—now and for many years past—Rittenhouse Chimes have gained overwhelming public appeal and acceptance for incomparable tone superiority, exceptionally dependable performance and long life.

Because Rittenhouse Chimes are branded, nationally-known and guarantee the highest standards of chime engineering, architects and builders in every section of the country specify these modern signaling devices with perfect confidence. They assure lasting client and home-owner satisfaction and add prestige to your reputation for good judgment and discrimination.

Today—more than ever before—millions of present and prospective home owners look forward with enthusiasm to the added musical cheer, refinement and utility of Rittenhouse Electric Door Chimes.

Include these modern, better home signals in your specifications

THE A. E. RITTENHOUSE COMPANY, INC.
Honeoye Falls, New York

Both designs come in a stock off-white color and can be painted with any wall paint after hanging. The patterns achieved by the play of light and shadow on the textured surface, may be further emphasized by glazing or antiquing. Preparation of the walls and hanging of sculptured wall coverings is the same as for regular wallpaper except that the paste is used heavier. The necessity of a finish plaster coat is also eliminated by their use. The surface is washable—paste or dirt can readily be sponged off with soap and water. Available in double rolls, 16 yds. long and 10½ in. wide trimmed, the retail price is $15.00 per roll.

Manufacturer: Katzenbach and Warren, Inc., 49 E. 53rd St., New York 22, N. Y.

READY-PASTED CEDAR CLOSET WALLPAPER contains DDT for killing insects.

Moths, ants, flies, mosquitoes, silverfish and many other insects die shortly after coming into contact with this new closet wallpaper which contains 5 per cent of active DDT insecticides in the top coating. It is not hazardous, however, to human beings or domestic animals. Made of genuine cedar wood, a pattern simulating cedar boards and wood grain is achieved with colors containing DDT. The DDT powder applied to the paper is dyed in such a way that it does not show and will not rub off. The paper has a natural cedar odor and is washable. As the paper is ready-pasted, application is made without mess or special tools. It is dipped in water and applied.

Ready-Pasted Cedar Closet Wallpaper comes in packages 48 ft. long by 15 in. wide, sells for $2.98 a package, and is guaranteed effective for a year.

Manufacturer: Trimm Co., Inc., Merchandise Mart, Chicago, Ill.

PACKAGED METAL WINDOW is easily installed.

The new American Home Metal Window comes completely assembled in one package, factory fitted with surround and neat outside trim, glazed, and ready to install. According to the manufacturer, installation can be made in the rough opening in five minutes. Weathertight and fireproof, the units may be used singly or in combination to provide a variety of window arrangements, and is equally adapted to frame, brick or brick veneer construction. Other advantages of this new window include maximum admission of daylight and ventilation up to 100 per cent. The window is easily washed from the inside and provides space for venetian blinds within the reveal. Interchangeable screens, attached to the inside, may be left up all winter, or if taken down, need not be marked. Provision for storm sashing the American Home Window with Mesker’s steel or aluminum storm sash is another feature. This specially designed storm sash is attached in such a way as to open and close automatically with the window vent when the operator is turned. The storm sash is easily hung and snapped to the vent fastener, and being interchangeable for the same size windows, they need not be numbered. Slim lines of frame and muntins, flat areas of the outside trim, three choices of inside finishing including standard wood trim, adapt the window to various exterior and interior styles.

Manufacturer: Mesker Bros., St. Louis, Mo.
It's a mark of modern design to specify both screens and storm sash in one attractive, permanent, All-Aluminum combination unit.

The 'Orange' All-Weather Window consists of a strong, aluminum frame set permanently into the double-hung window frame. Into this aluminum frame slide an upper sash of glass set in extruded aluminum and, depending on the season, a lower frame of aluminum screening or another aluminum-edged pane of glass (upper screen panel optional).

To make the Spring and Fall change-overs, the owner merely exchanges the bottom panels—a twist-of-the-wrist job so easy it can actually be done in seconds from inside. You've solved two of your client's problems in a way he'll appreciate.

Being all aluminum, 'Orange' All-Weather Windows can't warp, swell, rust or stain the facade. They need no painting or repairs, and broken glass can be easily replaced when necessary.

Extruded aluminum in the top and sides of the frame and all edges of the removable units gives 'Orange' All-Weather Windows twice the strength in half the thickness, too—reducing the structural areas and increasing light and air. The total width of all the framing members is narrower than the sash frames themselves.

A detailed, descriptive booklet on 'Orange' All-Aluminum All-Weather Windows will be sent on request, and you'll find complete details in section 18a.9 of the 1946 edition of Sweet's Catalogue.
Architectural Forum's George Nelson and Henry Wright are the authors of this best-selling guide for the home builder...

Four months after publication, this book is selling an average of 3,000 copies a week to laymen and professionals. The fourth edition, now on press, brings total printings to 135,000 copies. Tomorrow's House has brought in more comments from readers than any book on any subject that we have published in recent years. The enthusiastic tenor of most of these comments ("I am overwhelmed at the possibilities for a home" is a typical one) indicates a tremendous growth of interest in the modern house. Tomorrow's House is illustrated with 237 photographs plus innumerable drawings. Its 18 chapters cover every phase of the modern approach to building private homes.

Building professionals endorse TOMORROW'S HOUSE

William L. Pereira:
"I was terribly pleased with every page of the book. It is the most rational and interesting approach to the problem I have ever seen. In the future, if I do houses, I will most certainly present a potential client with a copy of the book. If he doesn't like it, I'm sure he wouldn't like what I would do for him."

Morris Ketchum, Jr.:
"I have read this book with interest. In my opinion it is a clean-cut, vivid summary of the building problems and opportunities that face those who plan to build their own homes today."

Royal Barry Wills:
"It is a real and vital contribution for the man who is planning to build. Every forward-thinking American should read it."

Ely Jacques Kahn:
"This is a very worthwhile while job. As a statement of modern approach to a house it is clear and convincing and should help many who doubt whether the new approach is agreeable to them."

Robert W. Dowling,
President, City Investing Company:
"For approximately 150 years we have forgotten how to build good homes in America. Enough copies of this book will give us the provocative push to recapture the art."

Gardner A. Dailey:
"This book is very timely and has been excellently put together as only George Nelson and Henry Wright could do it. I know of no two other persons so well qualified, and it is with pleasure that I recommend Tomorrow's House to all of my friends and clients."

Richard Marsh Bennett,
Chairman, Department of Architecture,
Yale University:
"Let us hope it influences publishers to print more books like it and people to build houses based on the idea liberated by this thought-provoking book. It represents a new approach to the problem of telling people about the problem of real living."

Frank Lloyd Wright:
"Tomorrow's House is nearest to something intelligent and helpful that I have seen published on the subject."

Mario Corbett:
"Tomorrow's House has been in constant circulation here in the office since its arrival with hearty approval all 'round. It is by far the most important book of its kind."

SIMON AND SCHUSTER, Publishers
Dept. A74, 1230 Sixth Ave., New York 20

Please send me a copy of Tomorrow's House. When the postman delivers it, I will pay him $3.00, plus postage charges. If this book fails to live up to my expectations, I am to return it within 5 days of receipt for a refund of the $3.00.

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□ Check here if you prefer to enclose $3.00 with this coupon, thus saving postage charges. The same refund privilege will apply.
The tremendous increase in public preference for what is generally called "warm-air heat", warrants the attention of architects engaged in new residential designs and modernization of older dwellings.

The reasons for this preference are to be found in the satisfaction of the hundreds of thousands of families whose homes are equipped with forced-warm-air furnaces, forerunner of the even more desirable winter air-conditioners now offered by the industry.

Winter air-conditioning systems provide this exclusive combination of advantages:

1. **WARM AIR**, with room temperatures quickly responding to automatic controls.

2. **CLEAN AIR**—filtered at the central unit, all heat delivered throughout the warm-air duct system is free of nuisance dusts, lint and most air-borne bacteria. Keeps walls and furnishings cleaner. Lightens burden of housekeeping.

3. **MECHANICALLY CIRCULATED AIR** provides the required number of changes per hour, keeps air fresh and clean.

4. **HUMIDIFIED AIR** affords greater physical comfort at lower room temperatures.

   Your clients will be pleased with your recommendation of this basic type of system—warm air, filtered through "DUST-STOP" Air Filters. This Fiberglas product is the outstanding choice of the industry as original equipment because of efficiency, low annual replacement cost and ready availability through dealers from coast to coast.

   For complete information on DUST-STOPS, see Sweet's Files, or write: Owens-Corning Fiberglas Corporation, Dept. 1830, Toledo 1, Ohio. Branches in principal cities.

   *T. M. REG. U. S. PAT. OFF.

   In Canada, Fiberglas Canada Ltd. Oshawa, Ontario.
Airkem, a chemical air freshener, can be applied by either mechanical means or natural evaporation, thus is suitable for all enclosed spaces—whether equipped with air conditioning or central ventilating systems or not. According to the manufacturers, Airkem is composed of a complex group of aromatic substances and activated chlorophyll. It vaporizes into the air, countering existing odors, although it is itself not perceptible when diffused. Developed during the war, it was successfully used in solving odor problems in industry, transport, etc. The Airkem Evapatrol System is a unit which can be engineered into any existing air conditioning or ventilating system. It consists of a reservoir of Airkem, a pump, a regulator and a vaporizer. The vaporizer is cut into the side of the plenum chamber and the reservoir and regulator can be out of sight. By connecting the regulator to an AC-DC electrical outlet, the pump forces Airkem into a nozzle in the vaporizer from where it is sprayed out over a cartridge holding excelsior. As air in the air-conditioning unit bypasses through this cartridge, it evaporates and mixes Airkem with the conditioned air. The regulator can be set to control the pumping impulse, thus governing the amount of Airkem sent through the evaporator according to the needs. The Airkem portable Evapatrol Unit or the 15½ oz. bottle equipped with special wick, serves spaces without mechanical ventilation. The portable unit, made of steel, 14 in. square and 27 in. high, is mounted on casters for easy moving. It differs from the other Evapatrol units in that it uses a motor driven fan to throw the evaporated Airkem into the air. Units require only the refilling of the reservoir at necessary intervals and changing the excelsior cartridge at infrequent intervals. 

Manufacturer: W. H. Wheeler, Inc., 7 E. 47th St., New York 17, N. Y.

PLASTIC DIFFUSER snaps on 4 ft. fluorescent tube to reduce lamp brightness.

Guth PFC-100's are 4 ft. white plastic diffusers that snap easily on or off 40 w. (T12) fluorescent lamps. They reduce lamp brightness 30 per cent and are more efficient (82 per cent T.F.) than glass diffusing panels. Snug-fitting, their spring-like patented design grips the entire length of the lamp. They can be easily removed for cleaning and relamping.


DOORHOLDER holds heavy doors without slipping.

The Doormaster, a patented, spring-loaded doorholder, employs the spring idea in an entirely different way, bringing to bear much greater pressure without slipping. Designed for use in theaters, public buildings, stores, schools, office buildings, homes or wherever a rugged doorholder is needed, the manufacturers claim it will hold the heaviest doors. It is compactly built of aluminum, and has a tough rubber foot firmly mounted to the spring-loaded piston. Closely hugging the door, it eliminates stumbling or tripping, and a bullet-catch holds it firmly up and out of the way when not in use. Two flat head screws mount it to the door. List price is $1.95.

Manufacturer: Swallow Airplane Co., Inc., Wichita 1, Kan.

ROLLING DOOR KITCHEN CABINET provides extra storage space for small items.

Designed to fit under a regular hanging wall cabinet, Youngstown Kitchen's new Rolling Door Cabinet provides extra storage space for small items without interfering with the normal use of the counter. Available in 18 in. and 24 in. widths, it has two shelves for storing spices.
In utility room, kitchen, basement, garage, bath—plan better with BENDIX

The Bendix automatic "washer," Ironer and Dryer are adaptable to any home plan. Here, for instance, the Bendix "trio of tomorrow" have been given their place in the sun, with a modern, compact porch-laundry plan.

The Bendix "washer" lends itself to compact layouts, taking but 4 square feet of floor space. It washes, rinses, dries, cleans and shuts itself off, all automatically! It is available now, and the Bendix Ironer and Dryer will be on the market shortly.

Ask your Bendix distributor for facts on home planning with the Bendix. Or, if you prefer, write us direct.

De Luxe Model  
Design by L. Morgan Yost, A. I. A.
Zonolite Fireproof Plaster Used in Huge Housing Project

Zonolite Plaster Speeds Construction and Provides Values Found in NO Other Material

In "Pittsfield Village," large Michigan housing project, Zonolite Plaster Aggregate was used throughout. This material provided a lightweight, fireproof plaster of high insulating and sound deadening qualities. The Zonolite plaster was applied over gypsum board lath.

Architects and engineers are interested in the weight saving features of Zonolite Plaster Aggregate. It weighs only 8 pounds per cubic foot as compared to 100 pounds per cubic foot for sand, thus greatly reducing dead load in buildings—as much as five tons in the average house. As it applies faster and easier, it speeds up construction.

For full details about Zonolite, fill in and mail the coupon.

UNDERWRITERS GIVE ZONOLITE PLASTER 4-HOUR FIRE RATING

In recent test by Underwriters' Laboratories, Inc. 1 inch of Vermiculite* Plaster on metal lath used as protection for steel floor and structural members, received 4-hour fire rating, the highest rating awarded any material. Chart shows results and maximum temperatures reached, this construction is the lightest, least expensive and thinnest fire protection ever to withstand this test.

*Vermiculite is generic name for Zonolite.

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224 The Architectural FORUM April 1946
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Summer, Winter Hot Water Heat
salt, pepper and other cooking ingredients. It is made of white enameled steel and has a roll-away door of burnished steel strips. This slides up and out of sight, and will stay open or closed without catches.

Manufacturer: Mullins Manufacturing Corp., Warren, Ohio.

DOOR KNOCKER mechanically operates door chimes.

The new Authotone Suburban Chime is a simple, mechanically operated unit that mounts right on the front door and eliminates the expense of wiring, push buttons, transformers, or batteries. It combines a polished brass door knocker on the exterior of the door with a small ivory chime box on the inside. When the knocker is raised, it sounds one tone and a second tone follows when the knocker is released. Notes are clear and can be heard throughout the average house or apartment. The unit is ruggedly constructed and tamperproof, it cannot be removed from the outside of the door, and will withstand severe abuse. Mounted easily with a hand drill and screw driver, it is applicable to any door from 3/4 in. to 2 in. thick. Special adaptors are available for thicker doors.

Manufacturer: Auth Electrical Specialty Co., 422 E. 53rd St., New York 22, N.Y.

SWINGSPOUT FAUCET is functionally designed.

The first of a line of plumbing fixtures to be manufactured by this company, the Commodore, a ledge type of swingspout faucet, offers functional design and lasting service. Emphasis is placed on ease of cleaning and maximum coverage and working clearance. According to the manufacturer, a new method of fabrication insures a production supply equal to the demand at a minimum cost.

Manufacturer: General Tire & Rubber Co., Pasadena, Calif.

COMBINATION TOASTER-COOKER appliance for the kitchenless apartment or quick breakfast at the table.

The Breakfaster is a handy appliance for kitchenless apartments, bachelor quarters or for cooking an off-hour snack or quick breakfast without messing up the kitchen. Providing a quick action toaster and cooker in a single unit, toast is made in a convenient pull-out drawer, while the top plate can be used for cooking, boiling or frying, at the same time. The Breakfaster can be used anywhere, plugging into any 110v. AC or DC electric outlet. Its heating element is entirely covered and the toasting compartment can be easily and quickly removed for cleaning. Retail price is $12.95.

Manufacturer: Calkins Appliance Co., Niles, Mich.

PIPE JOINT COMPOUND in easily usable stick form.

Three or four strokes of Pipetite-Stik, a pipe joint compound in handy stick form, lubricates and completely seals pipe joint threads, nuts, bolts, gaskets, etc. Spreading and filling the threads when turned, it will not flow into or clog even the smallest pipes. It withstands gasoline, oil, butane, propane, Freon, air, water, steam, acid, gas, brine, sulphur dioxide, etc.; it resists vibration, temperature changes, deflection and pressure. Joints sealed with Pipetite-Stik can be easily disconnected months after applying and can be remade without having to clean the threads. The material prevents rusting and contains no lead or injurious ingredients, thus it is applicable to food and refrigeration piping.

Manufacturer: Lake Chemical Co., 607 N. Western Ave., Chicago 12, Ill.

PORTABLE HEATER effects economies for contractors on cold weather jobs.

Experiments using the portable Janitrol heater have resulted in steady and rapid completion of buildings, even in freezing weather. It has proved so...
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The ideal of The Otis Elevator Company for many years has been to provide the best and safest elevator transportation possible. To insure uniformity and the best results, each piece is manufactured by us under strict supervision; and the complete elevator is then installed by trained Otis mechanics.

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Accent on design... Here is an example of how Lupton Metal Windows complement architectural design in the distinctive modern residence. The metal casements are planned to accent trim horizontal lines. Rooms can be brighter, better ventilated. Screening is simple, effective and unobtrusive. Tightly fitting metal frame screens are designed in stock sizes to fit every Lupton Casement. Lupton Metal Windows are delivered as complete units, ready for quick installation. There's a Lupton Window for every type of building—residential, commercial, industrial, institutional. Write for catalog.

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MICHAEL FLYNN MANUFACTURING CO.
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Member of the Metal Window Institute
"Keyed" to the Specific Lighting Job!

The "Know-How" gained during 44 years in Lighting, is built into GUTH FLUORESCENT in tangible quality features, to meet the requirements of any specific lighting job, whether in office, store, factory, school or institution.

The GUTH FLUORESCENT line offers a practical selection of high-performance reflector finishes and reflector types for correct light distribution; proper lamp shielding, built-in, or with louvres or baffles; efficient diffusion, with glass or plastic diffusers. And GUTH FLUORESCENTS are modernly styled in a full range of the newest luminaire developments.

Thus, with GUTH FLUORESCENTS, you have a wide choice of the variables, that control the quantity and quality of light, to assist in the fine engineering required in today's lighting installations.

Data on above Photos: In OFFICE, GUTH FUTURLITERS provide 68 F. C. using 2.3 watts/sq. ft. Mounted in rows spread 8'0" apart on 12'0" ceiling.

In STORE, GUTH FUTURLITERS deliver 64 to 75 F. C. using 3-40W fluorescent lamps per section. Mounted at 9'0" from 12'0" ceiling in rows 8'0" apart.

In FACTORY, GUTH MAZELITES, afford 30 to 32 F. C. of good working light. Mounted 9'6" high on 7'-6" centers in rows 9'-6" apart.
successful in drying plaster, thawing ground, sand and gravel, removing frost from brick, preventing concrete from freezing and other similar applications, that quantity production is now under way. The manufacturer cites one case where a plaster contractor wanted to begin a job when the temperature was zero. In forty minutes after starting the portable unit the inside temperature of the house had risen to 80°F. The rough and finish plaster job was completed and thoroughly dried in 2 1/2 days, with an estimated saving of $75 on the contract. The big portable unit employs the same "whirling flame" heating principle as the tiny Janitrol aircraft heater which solved the heating problem in thousands of military planes. Burning gasoline, kerosene, or light fuel oil, the liquid fuel is introduced into the cylindrical combustion chamber through a spray nozzle. A fan driven by a gasoline engine, or electric motor, supplies the heater with combustion and ventilating air.

Manufacturer: Surface Combustion Corp., 2375 Dorr St., Toledo, Ohio.

CARBIDE TIPPED DRILL BIT for faster drilling of concrete, brick and other masonry materials.

Cyclone Drill-bits, tipped with carbide, are said to drill holes in masonry materials 50 per cent faster and, at the same time, to last 50 per cent to 75 per cent longer than high speed drills. They are used in ordinary rotary electric drills, and eliminate hammering. Carbide, hardest man-made metal, does not lose its cutting edge when running absolutely hot; it can thus be used as a tip on these bits to drill concrete, cement, brick, tile, marble, and other forms of masonry material. Cyclone Drill-bits are also used by machine shops for drilling chilled iron, and for cored holes in aluminum, cast iron, and other types of non-ferrous materials.


PNEUMATIC SCREW DRIVER aids production.

Model 7000 Midget Pneumatic Screw Driver, 4 1/2 in. long, 3/4 in. in diameter and weighing 8 oz., is shortening assembly time and improving efficiency on radio, electronic instrument and electrical appliance manufacture. Fully automatic, it drives screws from No. 1 to No. 6, starting when the tool touches the work. It adjusts itself to driving conditions, the operator merely pressing slightly harder to drive heavy screws than for light ones. Simply constructed and foolproof in operation, the machine has a rotary type motor, 4-blade construction, ball bearings throughout, hardened and ground steel rotor and cylinder. Air consumption is negligible and finder and bits are easily interchangeable for different size screws. The tool is also available with adapter socket for nut setting.


PACKING for wallboards and all types of sheeting, protects corners, cuts shipping costs.

A new method of placing two wirebound mats made of 3/16 in. veneer to 3/8 in. resawn lumber on either side of wallboard or sheeting, makes a relatively lightweight but sturdy crate type package. It is claimed that its use saves 50 per cent in crating time, and 25 per cent saving in container weight, thus cutting the total shipping costs approximately 25 per cent. Adaptable for packing wallboard, tin, enameled sheets, quires of paper and similar articles, the closure can be quickly and securely fastened by one man. The wirebound construction makes possible reinforcement of the crate at points of stress and strain thus eliminating corner breakage, bending, cracking or wrinkling. Mats have been made in lengths ranging from 48 in. to 152 in., but manufacturing procedure makes possible almost any length or width mat suitable for any type of sheeting material.

Manufacturer: Wirebound Box Manufacturers Assn., 105 S. LaSalle St., Chicago 3, Ill.

(Continued on page 234)
ENTRANCES
that invite

Will the new structures you design say "Welcome"? Will their main entrances be a permanent invitation to "come in," both for their tenants and their customers?

Whether your new buildings are "modern" or "traditional," smartly designed architectural metal work can do much to enhance their whole appearance.

There are many uses for architectural metals in every building. In addition to the entrance you can use them with great effectiveness in stairs, balustrades, grilles, windows, doors and all types of decorations, both interior and exterior.

Architectural metals offer you and your clients many outstanding features. Not only can they be fabricated to fit your own ideas of design but, in both ferrous and non-ferrous metals, they offer a wide range of materials, colors and other characteristics from which to choose.

The manufacturers and fabricators of architectural metals are anxious to work with you, to offer helpful suggestions and to be of assistance in any way they can. Consult them whenever you plan new buildings.

Architects who are interested in obtaining a copy of the new Handbook on Stairs and Railings just published by the Association are invited to contact any of the members. For a Directory containing names and addresses of Leading Fabricators write to Dept. AF-4.

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These three Balsam-Wool Data Sheets—dealing with problems on condensation—show the type of special information which these sheets make available to you. The entire series of thirty-two sheets covers a wide variety of insulation application problems—provides authoritative information you'll want for your file. Send today for the complete series of Balsam-Wool Data Sheets—yours without obligation. Just mail the coupon!

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Please send me set of Application Data Sheets.

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Everyone has a pet feature in this bathroom...

"THAT ULTRA-MODERN LOOK... Just the thing I've been looking for to transform our old down-at-the-heels bathroom. Maybe we can't manage the glass brick wall... but the indirect lighting—tile partitions—and most of all, the gorgeous Briggs Beautyware would give me a bathroom I'd be proud to show the world!"

"2-ROOMS-IN-ONE... Now that's a really practical idea, especially for the early morning 'rush hour'. And the smart looking safety-bottom bathtub! All I can say is... somebody at Briggs must have had my harum-scarum kids in mind all the time!"

FREE BOOKLET—"Planning your Bathrooms and Powder Room". Write for yours today.

but they all agree on BRIGGS Beautyware

"THOSE HEAVENLY COLORS... Particularly in the plumbing fixtures! Who would think that anything so functional could be so pretty. And they tell me that despite their 'rich look'... any one of Briggs decorative designs and colors is reasonable enough for the most modest budget!"

IT WON'T BE LONG NOW... until Briggs Beautyware is back on the market in quantities to suit every need and taste. The first of the completely postwar fixtures are off the production line and on the way to your local plumbing contractor. And when you see Briggs Beautyware you will agree they're the smoothest bathroom fixtures since plumbing became a profession!

BRIGGS MANUFACTURING COMPANY - 3007 C MILLER AVENUE - DETROIT 11, MICHIGAN

This advertisement, in full color, appears during 1946, in:
Better Homes & Gardens, March; Saturday Evening Post, April 20; American Home, May
PACKAGED GRAVITY ROLLER CONVEYORS for industrial and commercial use.

These packaged gravity roller conveyors are designed for those who want a limited number of units of simple design for small installations at moderate prices. They have a large number of industrial uses for the handling and transportation of cartons, bales, packages, boxes, crates and many other types of articles. They can also be used in level sections for assembly and packaging operations. Lighter in weight than the prewar conveyor section of similar dimensions, they are available in three straight sections, 10 ft. long and in three widths, 12 in., 18 in., and 24 in.; three 90° curved sections, 12 in., 18 in., and 24 in. wide; and two trestles 18 in. and 24 in. wide. Each item is a complete unit, and combinations of several arrangements of units in straight runs or curves are possible. Regardless of width, Lyon conveyors are good for safe loads up to 200 lbs.

For safety, a small retainer channel under the top flange of the frame rolls covers the ends of the roller shafts. Rollers are mounted on full-length shafts to reduce the wear on the shafts and prevent spreading of frame, especially under impact loads. By setting the rollers slightly above the level of the tops of the side rails, the conveyors will accommodate packages wider than the conveyor section. Rollers are spaced on 4 in. centers, and are fitted with high-grade ball bearings engaged in the ends of the tube rollers by adaptors to ensure perfect alignment of the roller shafts.

**Manufacturer:** Lyon Metal Products, Inc., Aurora, Ill.

**SPOT WELDING MACHINE for fabricating metal parts**

The Besco Tweezer Spot Welding Machine is a portable cabinet unit weighing approximately 25 lbs. to which is attached a pair of insulated, forged copper tweezers and a foot switch. It facilitates welding of small objects, fabricating metal parts measuring .0005 in. to 1/8 in. round or thick. For welding parts from .015 in. through 3/8 in. round, an auxiliary booster unit is used with the machine which increases capacity by 300 per cent. With the use of the tweezers, electrodes are applied directly to the elements to be joined. The tweezers are safe in the hands since current flows through only 1/1000 of a second. The 18 in. leads are plastic covered and flexible. Oxidation is eliminated with the use of the tweezers, and the points require touching up only once a day. To weld, the voltmeter is set and two pieces of metal are held with the tweezers. Pressure is applied and the foot switch operated. For welding some types of heavy gauge metal where more pressure is required, the tweezers may be removed and the machine be connected to a drill press or hand arbor. Copper or copper alloy rods are inserted as electrodes with only the bottom electrode insulated. The Tweezer Spot Welding Machine plugs into 115 v., 60 cycle power supply or can be easily adapted to 220 v. It is listed at $155 f.o.b. Newark and the auxiliary booster unit is listed at $45 f.o.b. Newark. **Manufacturer:** Tweezer-Weld Corp., 280 Plane St., Newark 2, N. J.

**PLASTIC SLIDE RULE offers precision for professionals.**

This 10 in., white plastic, Universal slide rule, known as Plas-Ten has sharp easy-to-read graduations. Its precision, smoothness of operation, easy adjustment make it a rule for professionals. **Manufacturer:** The Frederick Post Co., Box 803, Chicago, Ill.

**DRAFTING INSTRUMENT in adjustable quadrangle form combines many drafting features in one instrument.**

Angles from 0° to 90°; pitch scales from 0 to 24/12; percentage slopes from 0 per cent to 100 per cent; sine or cosine functions and tangents may be found with the S & J Adjustable Quadrangle. Rectangular in shape and measuring 4 in. wide and 11 in. long, the instrument has 8 drawing edges. It may also be used as a triangle. **Manufacturer:** Stewart-Jackson Instrument Co., A. G. Bartlett Bldg., Los Angeles 14, Calif. (Technical Literature, page 238)
Why it will pay your clients
to modernize their plants with

PC GLASS BLOCKS

They can get rid of dark spots in workrooms. Reduce heat losses through lighting areas. Protect precision machinery and goods in process from the effects of excessive condensation, destructive grit and dust infiltration.

They do all of those things—and also save money—by using PC Glass Blocks on new construction and on modernizing projects.

The light-transmission properties of PC Glass Blocks direct ample diffused daylight to areas remote from light openings. So they increase productive floor space, save artificial lighting cost.

The dead air space in PC Glass Blocks gives them definite insulating value, cuts down heat losses, helps to control temperature, humidity, and condensation. So they can save on fuel cost, reduce wear and tear on heating and air-conditioning equipment.

PC Glass Block panels form a solid wall, exclude drafts and dust, dampen distracting sounds. So they save on spoilage and machine repairs, enhance the comfort—hence the production—of workers.

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For complete information about Speakman Closet and Urinal Flush Valves, write for Catalog S-4.
TECHNICAL LITERATURE


This booklet pictorially presents modern applications of Weldwood plywood for commercial interiors. Photographs of actual installations illustrate Weldwood's adaptability to stores, offices, banks, hotels, institutions, bars and restaurants. Text explains how different effects are secured by the choice of woods and finishes.

LIMESTONE. Indiana Limestone, The Nation's Building Stone. Indiana Limestone Institute, Bedford, Ind. 18 pp., 9½ in by 10½ in.

Modern methods of quarrying, milling and carving Indiana Limestone are illustrated in this booklet. It describes how the use of electricity has reduced costs, produced better finishes and provided greater adaptability in uses of stone. Many monumental, state and commercial buildings, churches, schools and homes are pictured to illustrate how limestone is used in modern architecture.

WALL COVERINGS. Miracle Walls by Tylac. Tylac Co., Monticello, Ill. 4 pp., 8½ in by 11 in.

This 1946 color chart illustrates the four basic patterns of Tylac—Tylite, Streamline Tylac, Muralac and Tylac—and the 18 colors in which they are available.


Summarizing the latest authoritative experience of the electrical industry on residential wiring systems, this handbook gives the minimum requirements necessary to provide adequately for present and anticipated needs. It is intended to illustrate how to plan wiring systems and the information contained can be used in planning electrical modernization for existing buildings. Floor plans and text describe modern wiring standards and illustrate how each room in the average house should be wired with the number, type and location of outlets. Practical data on circuit requirements, service entrances and wiring specification forms are also included.

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W H A T E V E R the building interior . . . store or theater, hospital or hotel, private dwelling, office or factory . . . you'll find plastic-finished Marlite paneling answers ideally your requirements for a wall and ceiling decorating material. There's a wide range of colors and patterns and an unusual physical flexibility of material which gives full freedom to architectural ingenuity, while factory-finished Marsh Mouldings and the large wall-size panels of Marlite are pre-engineered to save you time on the drawing board. Equally adaptable to either new construction or modernization, the long wearing beauty and utility of Marlite win lasting client approval always.

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240 The Architectural FORUM April 1946
Research and Plant Expansion: The Flintkote Research Laboratory to be erected at Morristown, New Jersey, pictured above in the architect's rendition, will provide increased facilities to assure new products and continuous improvement of present products. The Company's accelerated program of product research and development and plant expansion and modernization, discussed in the Report of the President, will add substantially to Flintkote's plant facilities and the diversification of its activities.

(Reprinted from page two of the 1945 Flintkote Annual Report released February 28, 1946.)
This study presents the case for central heating at a modern airport center and demonstrates how the application of this principle affects the conception of airport design. One of a series of project studies involving central heating, the hypothetical airport considered is situated in an undeveloped area between cities which do not have the population to support an airport of their own. The project develops the possibility of the airport center having hotels, retail stores, manufacturing plants, etc., surrounding the airport. Advantages the community would receive from a centrally located steam heating and refrigerating plant are outlined, and information consisting of drawings, blue prints, costs data, etc., is presented to show that such a project is economically feasible.
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Trane Turbo-Vacuum and Reciprocating Compressors are only two representative items of the complete line of refrigeration equipment used in Trane Air Conditioning Systems. Turbo-Vacuum Compressors are completely self-contained, hermetically-sealed water chillers of exceptional efficiency. Trane Reciprocating Compressors with or without condensers provide efficient refrigeration for the smaller installations.

Write for Bulletin PB-290, giving technical data on these and other Trane products.

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MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT
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More and more architects are discovering that these attractive, time-resisting shingles are the most versatile and adaptable of all siding materials. For the number of interesting architectural effects is practically without limit.

Yet beauty and adaptability are but two of many factors that have made K&M "Century" Siding Shingles so popular among architects. Neither rain, hail, snow nor temperature extremes adversely affect them. They are proof against fire, rot, rodents, termites and other destroyers. They require no protective paint and no maintenance.

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SCHMIDT & PAOLINELLI, Architects, St. Louis.
E. A. BRUNSON CONSTRUCTION CO., General Contractors, St. Louis.

Photos from left to right: General exterior view; hotel desk; cigar stand; typical suite; powder room; main stairway; mezzanine lounge; hotel lobby; coffee shop.

Appropriately named Hotel Governor, because of the proximity of the Governor's residence and the State Capitol, this recently-built structure is one of Missouri's finest hotels. Modern throughout, its very atmosphere says "Welcome!" to travelers and guests. Especially interesting are large photographic murals in the coffee shop, showing scenes of local historic events.

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George P. Shutt
Advertising Manager
THE ARCHITECTURAL FORUM
350 Fifth Avenue
New York 1, New York

SPECIFICATION A

The advertising pages of Forum are the recognized market place for those engaged in building. A house or any building could be built, completely of products advertised in THE FORUM. While it is not possible to certify building products, it is possible to open these pages only to those manufacturers whose reputation makes it a matter of confidence. This FORUM does.

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