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LLOYD WRIGHT designs a prefabricated house—page 117

■ Prefabrication's Year: the models, the men, the market—page 130

What's new in components for 1957—page 160

How to choose and use the right outside paint—page 170

Floor Plan for a Quick Sale



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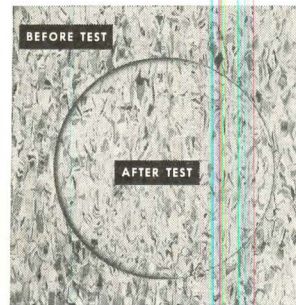
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House & Home

DECEMBER 1956

PREFABRICATION ISSUE

STORY OF THE MONTH

- 130 *What happened to prefabrication in 1956?*

MARKETS

- 155 *Listen in on Washington's best known secret*
166 *Who says America has been building too many houses?*

NEW HOUSES

- 117 *Frank Lloyd Wright designs his first prefab*
122 *The leading prefabbers show their 1957 models*
146 *What you can learn from the world's biggest prefabs*

BUILDER'S STORY

- 138 *Why I switched to prefabs*

MERCHANDISING

- 140 *17 prefabbers pick their 1956 sales leaders*
174 *Directory of prefabricators*

PRODUCTS AND PRACTICE

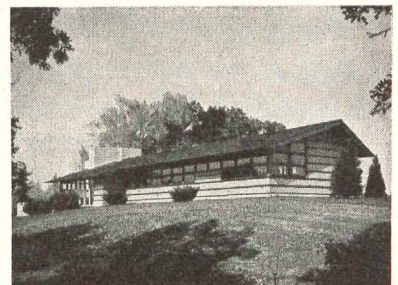
- 160 *What's new in components for 1957?*
168 *How to choose and use outside paint*
172 *Seven experts tell you their seven best ways to build better for less*
178 *New Products*

NEWS

- 36 *HHFA's Cole vows to aid housing, but Congress may balk*
41 *Staff reports on US Savings & Loan League, PHMI, NAREB, NAHRO conventions*
48 *How government controls has unstabilized the mortgage market*
33 *Index to these and other News reports*

DEPARTMENTS

- 97 *What the Leaders are Doing*
104 *Letters*
186 *Technical News*
240 *Technical Publications*
250 *Advertising Index*



Cover: Frank Lloyd Wright's prefab for Ed

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Volume X, No. 6



TODAY'S PREFABS:

A challenge to *all* of home building

Figures often lie. At least, they don't always tell the *whole* truth.

Take the figure for prefabs sold in 1956: that figure is only 7% of all US home building for the year—hardly more than a drop in the bucket, you might think.

Well, think again. For prefabrication's influence on *all* US home building in 1956 was much greater than the sales figures indicate.

And prefabrication's influence on *all* US home building in 1957 will be greater still.

It will be greater in design and it will be greater in construction. It will be greater in those two fields because here the prefab industry is not only pointing the way, but also forcing its chief competitors—the on-site builders—to raise their sights, and to raise them fast. Here is how and why:

Design standards are up throughout the prefab industry

Leading prefabbers have now retained the best US architects to design new models for them (see opposite page). This means not only that prefabs will be better to live in and better to look at—it also means that *those who compete with prefabs will be forced to turn out a better product.*

And prefabrication techniques are making big strides too

Here again it's not numbers but influence that counts. For what the prefabbers are doing to industrialize home building is duplicated by on-site builders throughout the country.

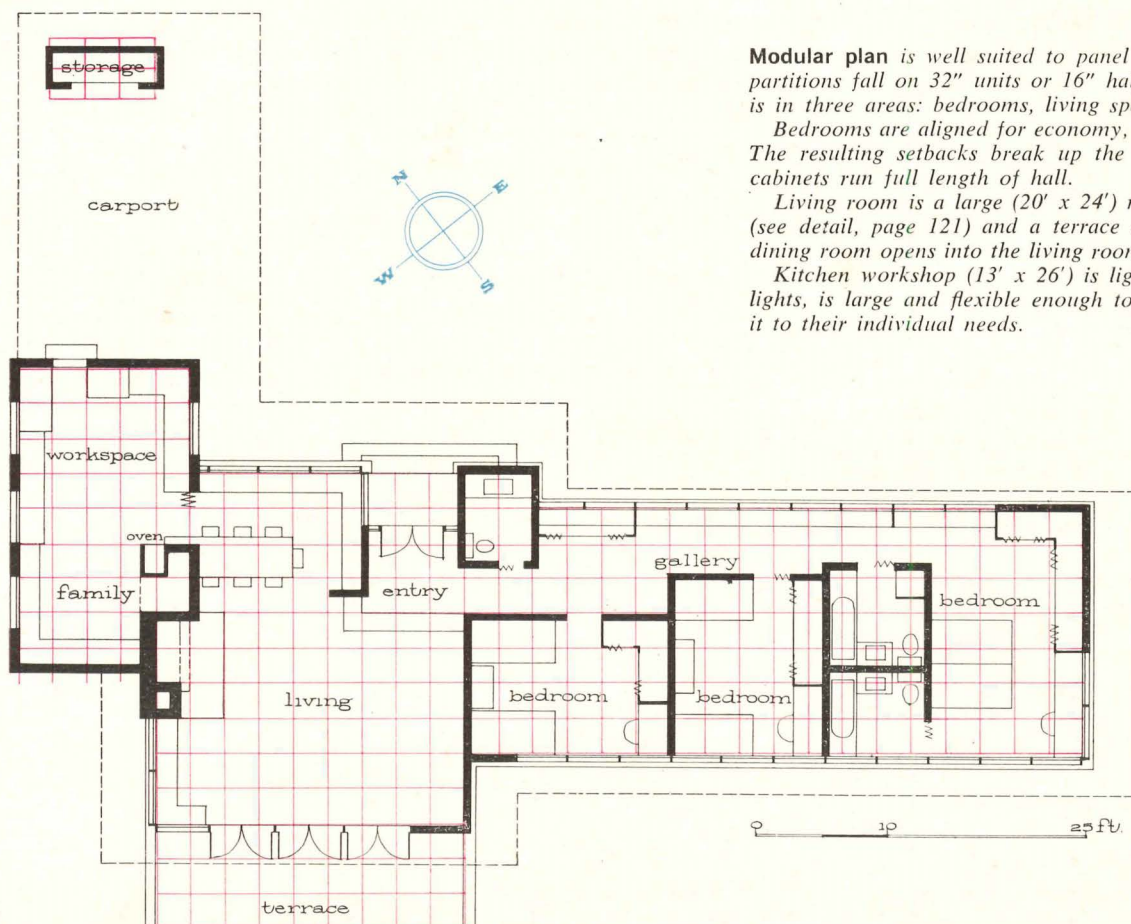
Or if it isn't, it had better be—soon! For unless US home builders start producing more with less labor and less waste of materials, our industry will not cash in on more than a small part of its vastly expanding potential market. For some startling facts about that coming demand, see the articles on pages 155 and 166.

Prefabrication's 7% of the home building market may be a drop in the bucket, but that drop begins to look like a pretty powerful dose of good medicine. It's a dose that has done much to change home building to date, that will do a lot more to change home building tomorrow.

And whether you are an architect or an on-site builder, a prefab dealer or a lumber dealer, a realtor or a mortgage banker, that drop in the bucket may do a lot to change your place in our industry.



Long, low house stretches 83', has large glass areas on southern side. House was oriented to the site by Wright.

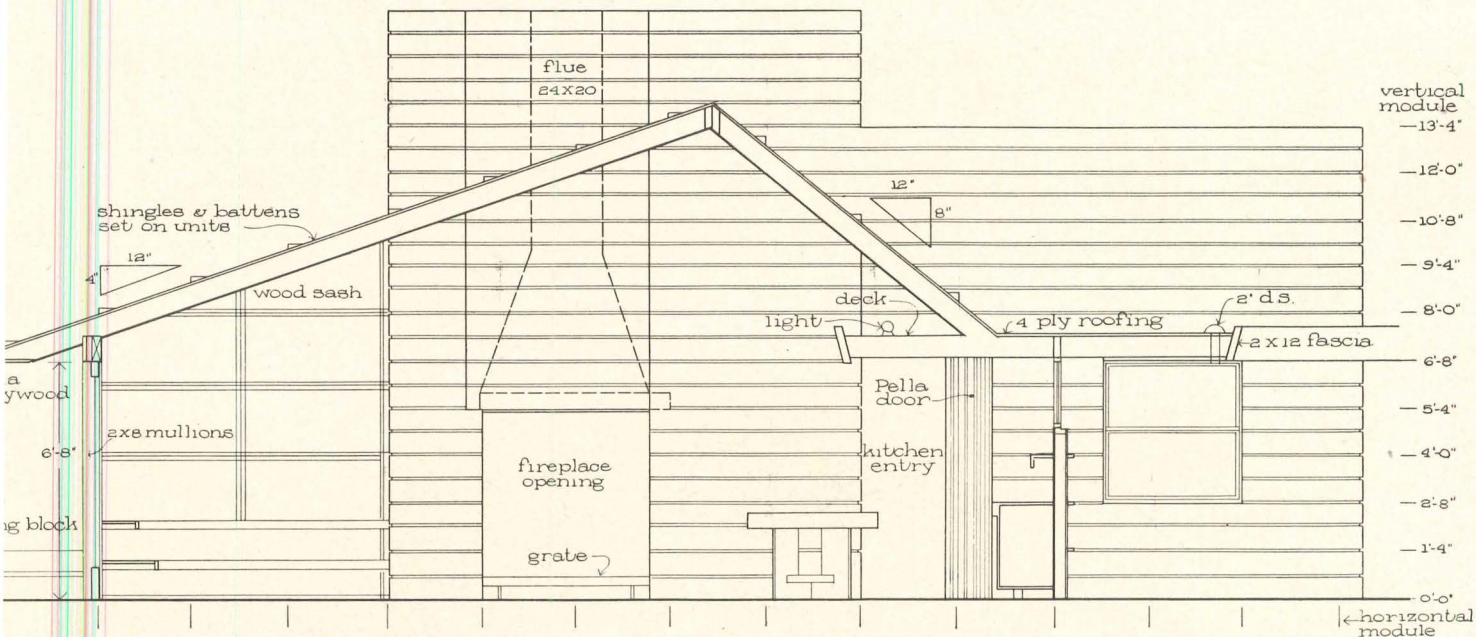


Modular plan is well suited to panel structure as all walls and partitions fall on 32" units or 16" half-units. Basically the plan is in three areas: bedrooms, living space, work space.

Bedrooms are aligned for economy, but are of different depths. The resulting setbacks break up the long gallery-hall. Storage cabinets run full length of hall.

Living room is a large (20' x 24') room with a huge fireplace (see detail, page 121) and a terrace opening off it. A full-size dining room opens into the living room.

Kitchen workshop (13' x 26') is lighted by windows and skylights, is large and flexible enough to let different buyers adapt it to their individual needs.



Cross section through living room shows construction of double-pitch roof with ridge off-center. Deck at right carries rafters, spans between fireplace mass and wall return at front door. As

in most Wright houses, built-in cabinets and shelves are important decorative features. Economical flat roof is used over those parts of house that jog out from the basic plan rectangle.

Here is how Frank Lloyd Wright designs for prefabrication

Some of the elements in this prefabricated house are essentially the same as you'll find in almost any of Wright's custom built houses (for example, the floors). But in other cases (the walls, for instance) Wright has obviously engineered for mass production techniques. Here, step by step, is how the house is built:

Foundation. "A house should have a sturdy base," says Wright. Here the foundation extends 4" beyond the house to keep water away from the footings (see wall section, page 121). While the pilot model shown here is built over crawl space, a basement will be optional. For basement access, a stairway will replace present powder room (see plan, opposite page). Heating for the house is provided by subfloor furnace (150,000 Btu output) and a plenum system.

Floors. Framing under floors is 2 x 10" joists with 1" of plywood subfloor. Finish flooring is a rubber sheet product manufactured in large pieces that fit the unit system of the house plan and look like large glossy red tiles. Wright has used this same flooring in many commercial buildings.

Walls. A feature that Prefabber Erdman feels is important in selling his "sturdy-construction-conscious" market is the conventional 2 x 4" framing in the walls. Outside walls are faced with a slightly textured Masonite board.

Wood battens are nailed on at 16" vertical centers to seal joints and provide strong horizontal lines. These battens have a drip milled into the underside. Inside walls are faced with 1/4" mahogany plywood (in full size 4 x 8' sheets), with a somewhat smaller batten also on 16" centers. Wall sections are cut and assembled in Erdman's factory in full-size pieces, loaded and trucked to the building site.

Windows. Stock awning-type wood windows are used throughout. They are fitted together with a double 2 x 4" bearing mullion between each 4' window. Combining window openings is a cost-saving technique advocated by the Illinois Small Homes Council and practiced by Wright for 60 years.

Roof. With the ridge off-center, the roof has a distinctive double pitch (see section above). Erdman finds that the special cuts required for this are easily mass-produced. Framing is entirely of 2 x 8"s. Interior ceilings follow the roof pitch, and are faced with gypsum wallboard. Roofing on pitched roofs is asphalt shingles with battens that follow plan module. Over flat roofs it is 4-ply built-up roofing with gravel topping.

The roof is precut by Erdman, is assembled on the job rather than in his factory.

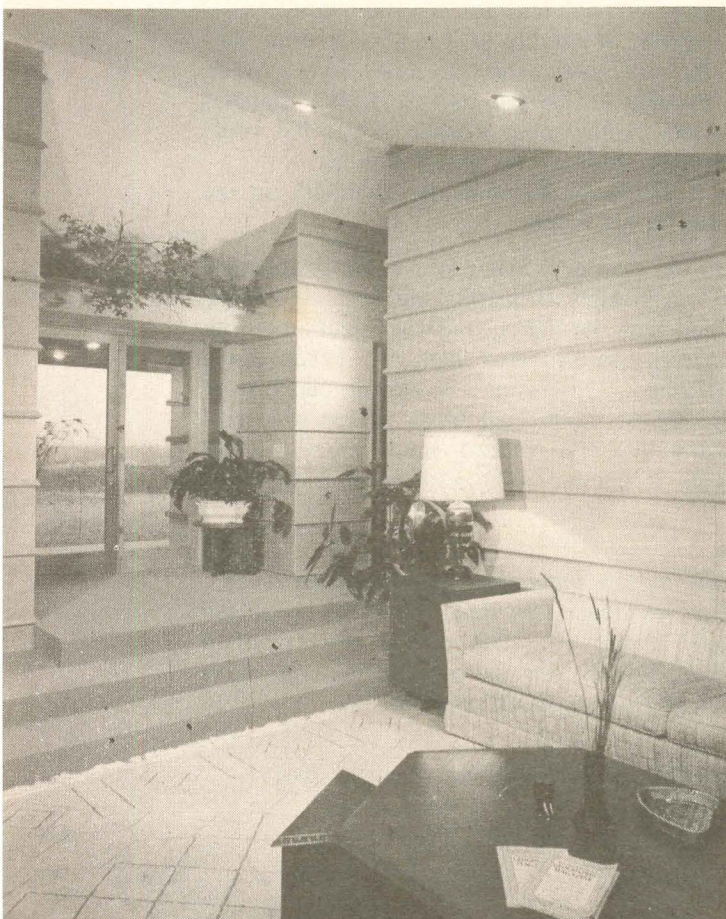
Masonry. In the masonry section of the house standard 8 x 8 x 16" lightweight insulating block is used. The cores are filled with insulation and the blocks are run through a masonry saw to give them 5/8" bevels along the horizontal edges. The result is a V-joint, emphasized by the flush vertical joints. All block masonry is reinforced horizontally with welded mesh every second course. Block is painted with waterproof paint after erection.

"This is the biggest thing that ever happened to us," says Madison prefabber Marshall Erdman. It is the largest model made by 250-unit-per-year Erdman Homes, which already has several smaller one-story models and a split-level on the market.

For further details on this house, turn the page.



Living room floor level is 16" lower than bedrooms. As in rest of house, natural wood walls, battens are handsome, integral ornament.

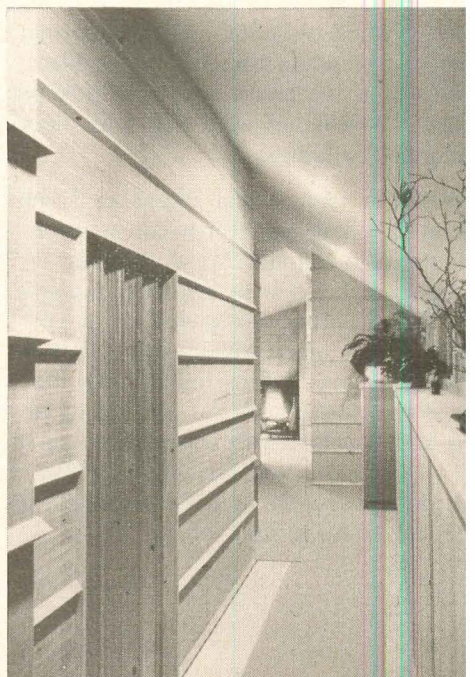


Wall panels create interior ornament

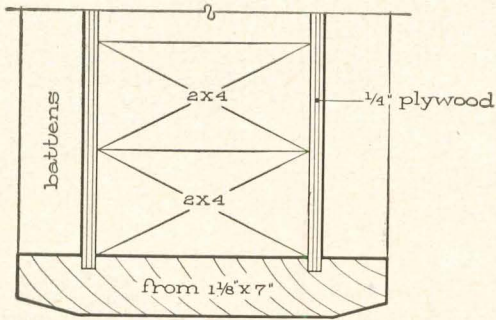
Entry (left) provides extra light and view for living room. Powder room is at right, bedrooms further along hall. Note recessed lighting.

Long gallery (right) is broken up by jogs in wall, has storage cabinets running its full length below the windows.

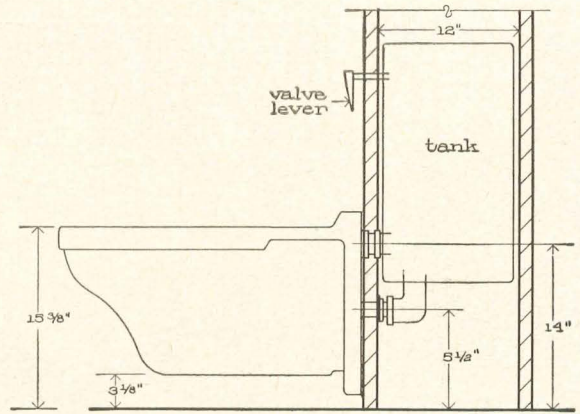
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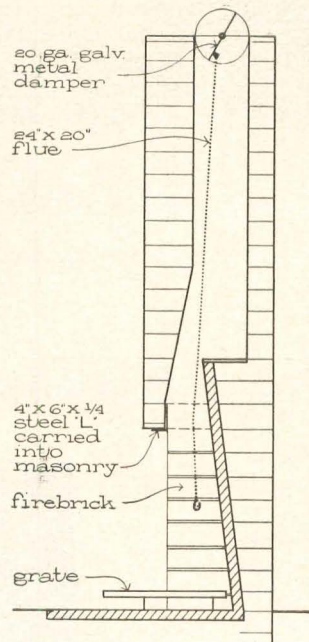
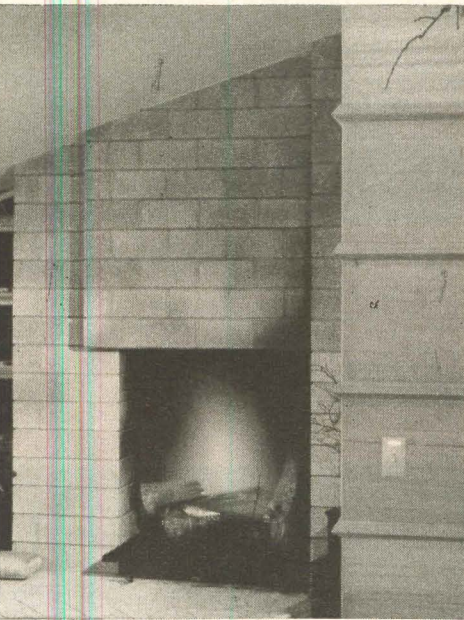
These are important details



Interior door jamb is in one piece, is milled in one operation. It eliminates scribing of plywood, which fits into grooves, also acts as terminal for battens. The use of folding doors throughout the interior of the house eliminates the need for protruding door stops.

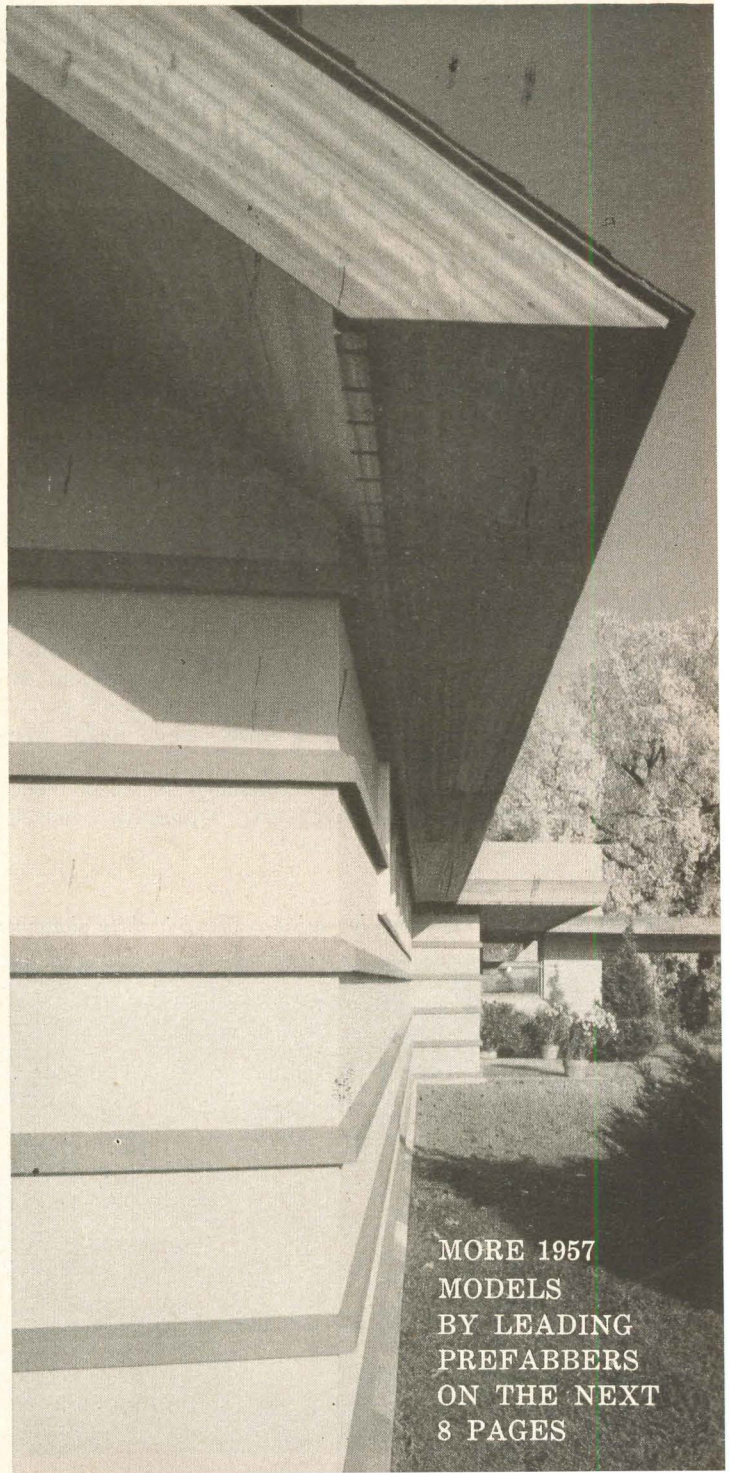
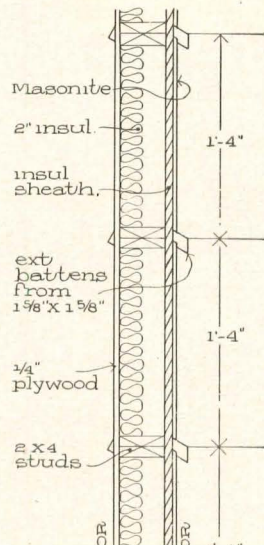
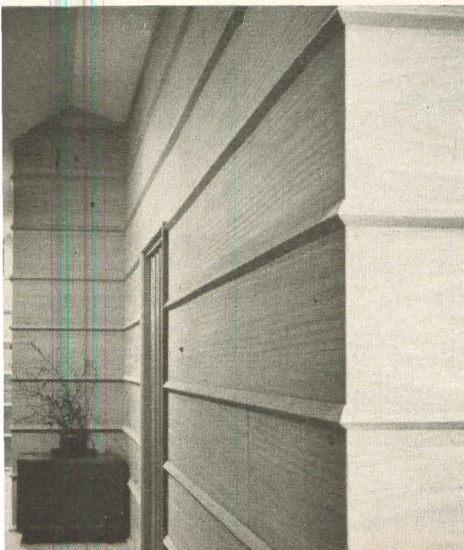


Wall-hung toilet is an innovation. Still in experimental stage, it combines a standard wall-hung bowl and a porcelain tank that is recessed 12" in wall. Manufacturer will have similar arrangement for 6" or 8" wall available next year, possibly with flush valve.

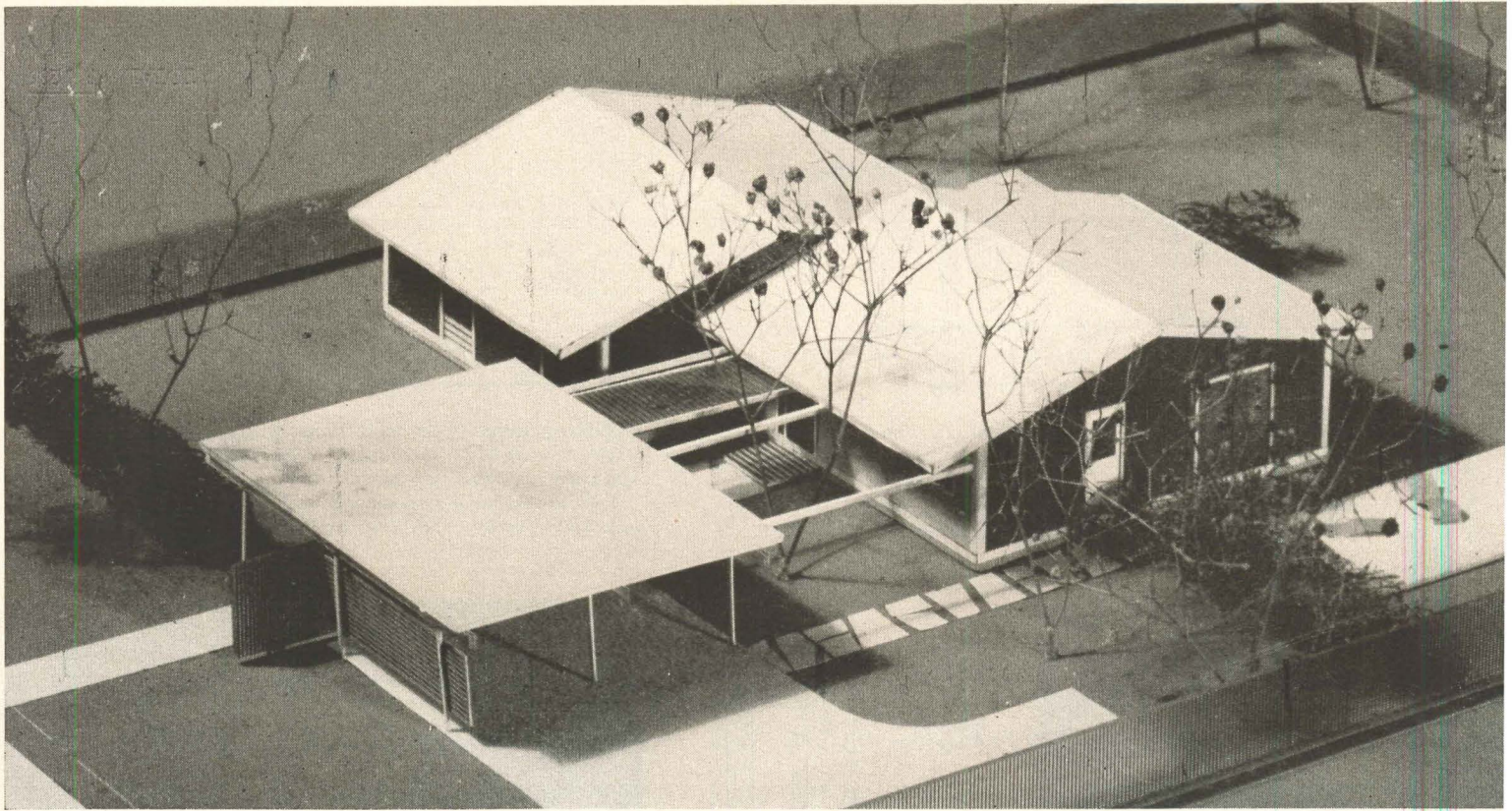


Fireplace detail shows use of standard concrete block with beveled horizontal edges and flush vertical joints. Opening is 4' wide, 5'-4" high, offering maximum heat reflection. Fire is built on a strap iron grate raised 4" above floor. Chimney damper is optional.

Typical wall section (below) shows battens on 16" vertical module, for both interior (left) and exterior (right). Exterior battens are painted to contrast with siding. Mahogany interior battens have refined profile. Prefabber can cut molding inexpensively.



MORE 1957
MODELS
BY LEADING
PREFABBERS
ON THE NEXT
8 PAGES



Scale model shows typical exterior design. The house can be varied by using alternate plans (below), different lot placement, or exterior finishes.

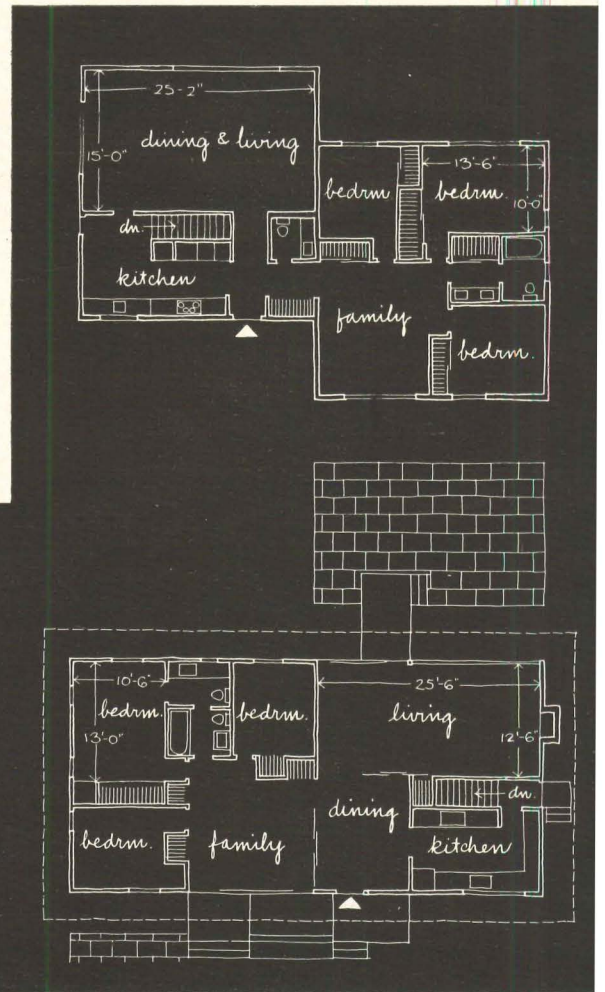
Here is Modern's new plan for a flexible prefab

Architect Yamasaki designed this model for maximum flexibility in size, orientation and plan.

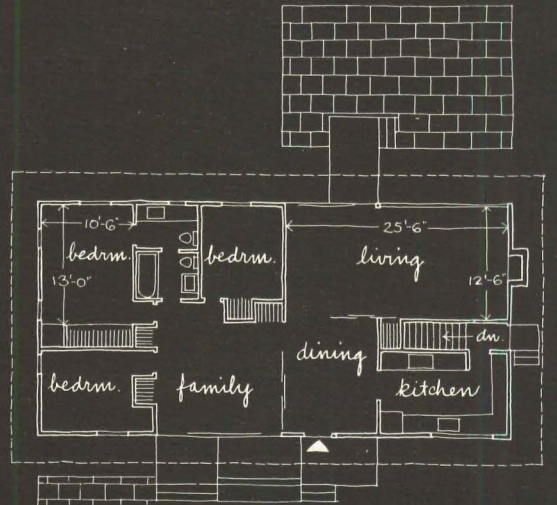
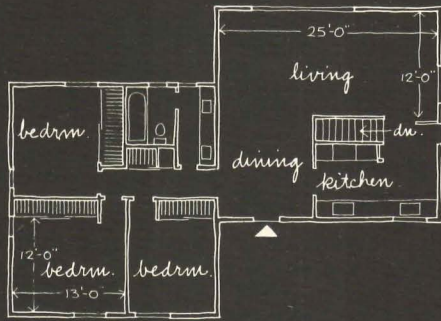
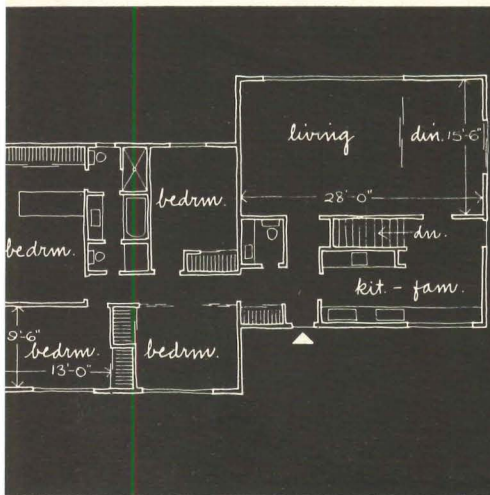
His scheme is based on two zones: one for living, dining and cooking, the other for bedrooms and baths. He offers three different plans for each zone; they can be combined to suit the site and the family.

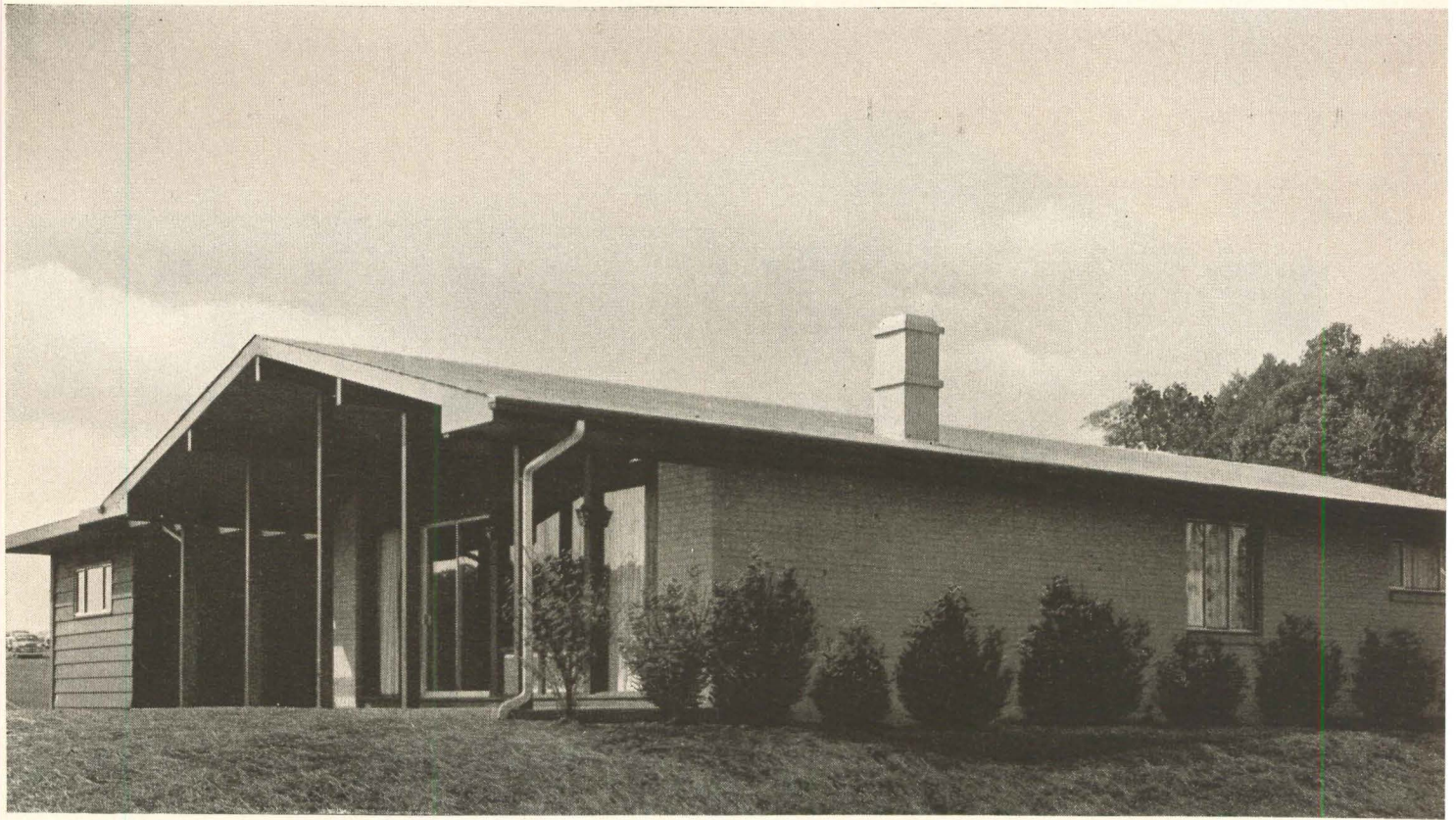
For example: with a sloping site the two zones might be separated by a flight of stairs. With a narrow site, the zones can be lined up the long way of the lot. A large family which seldom entertains can have three bedrooms and a family room in one zone, while a small family might want plenty of space for entertainment.

Because the wall panels are interchangeable, each zone can easily be made larger or smaller. Architects: Yamasaki, Leinweber, & Associates.



Model plan (upper right) can be varied as shown in three alternates (below).





Glass wall at rear of contemporary model opens living area to terrace. Ceiling beams continue through wall to support 6'-8" overhang.

This glass-end ranch is big news in a conservative market

Admiral's big market, Pittsburgh, has long favored traditional styles. But for 1957 Admiral is breaking with the past and offering this big contemporary model.

Chief feature is a big glass wall that opens up the whole daytime area at the rear of the house. A 6'-8" overhang shades this glass and protects the terrace. To add to the contemporary look the garage is tied into the house by a trellis. The 1,232 sq. ft. house retails for \$18,390 with basement but without lot.

Inside the three-bedroom model, living and sleeping areas are neatly zoned. A second bath opens to the entrance hall for easy access from the daytime side of the plan.

Admiral's sales are directed three ways. Like the rest of the prefab industry, the company sells to dealers (who generally build on odd lots and small developments) and to tract builders. But Admiral's third direct customer is the consumer. The manufacturer, not the dealer, does the selling job.

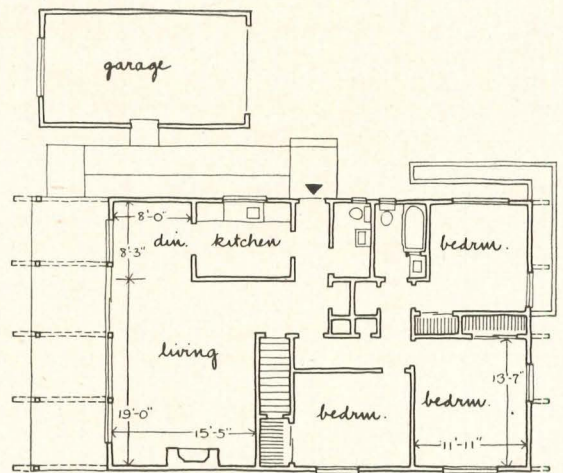
To sell the home buyer, Admiral uses model houses just as a dealer would. When the prospect already owns his lot, Admiral can quote him a firm price for the house and its erection, complete. After the sale is made the job is turned over to a dealer who builds the house.

Admiral's quotations to the buyer are based on a detailed schedule prepared for each model and agreed to by the dealers and subcontractors who carry out the work for the buyer.

This prepricing system is a valuable tool for Admiral when the prospect wants the whole story there and then.

Here is the prepricing schedule for Admiral's new contemporary model:

Shell, including beams, glass doors, garage, garage door	\$ 5,995
Trim, with select flooring	1,125
Shell erection	1,025
Garage and trellis installation	205
Trim erection	365
Plumbing (with service lines)	1,750
Drywall	950
Wiring	650
Heating	825

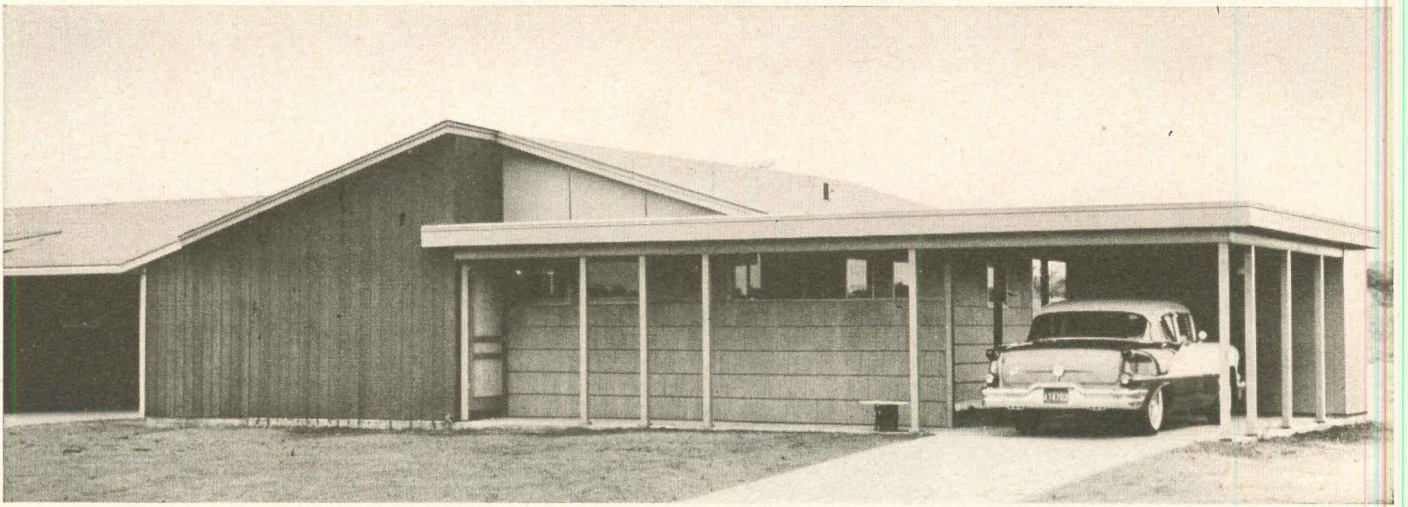


Plan sets bedrooms and one bath apart from the living area.

Birch cabinets	535
Tile, kitchen floor, bath and powder room	120
Sand and finish floors	105
Brick, including planters	1,300
Plastic tile	350
Foundation, including excavation, windows, column supports ..	1,685
Painting including chimney flashing	725
Porch and breezeway floors and black top driveway	570
Freight (two trips)	110
TOTAL...	\$18,390

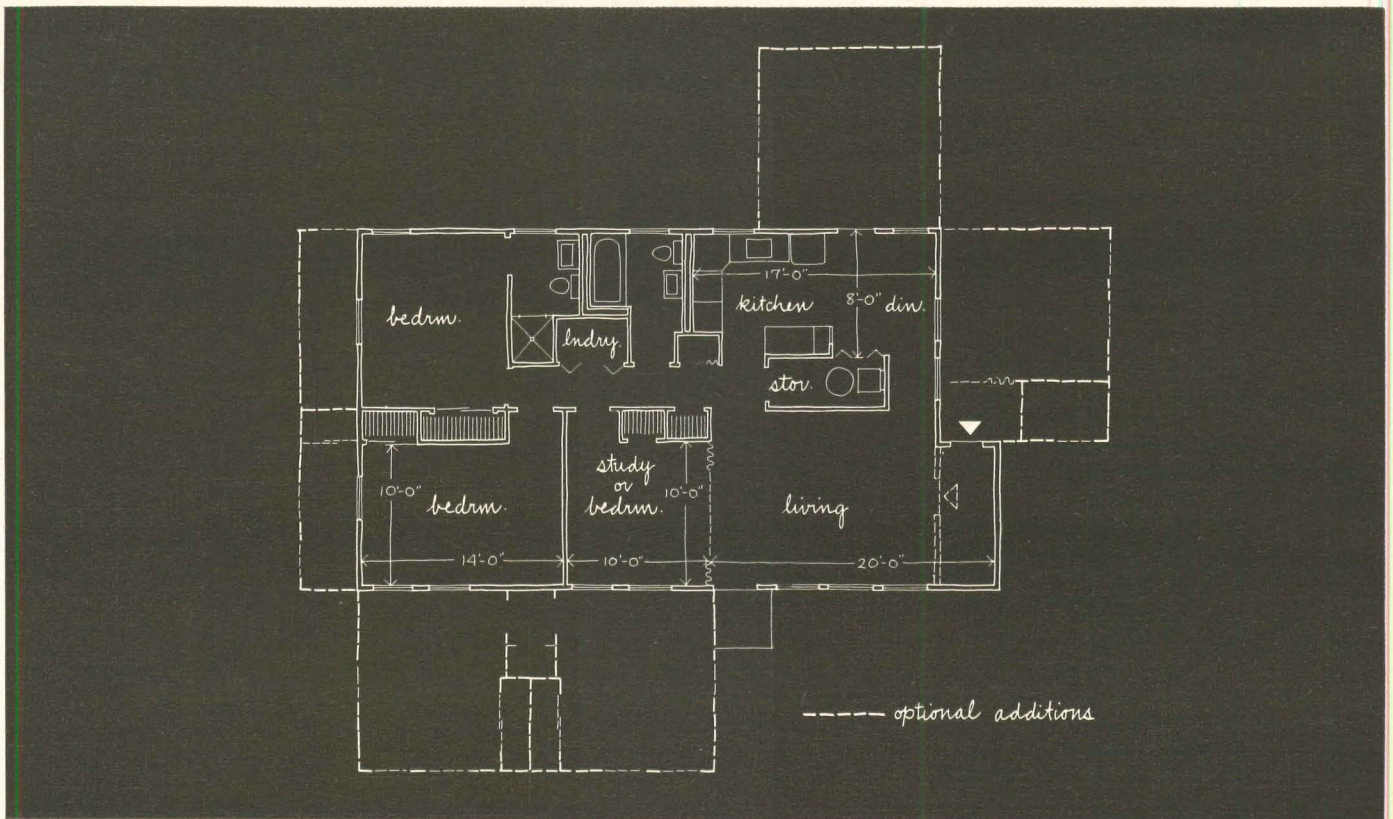
Optional extras as shown:

Fireplace	\$ 350
Stone entrance	140
Simplex disappearing stairwell	45
Shower door	50
Landscaping	700
TOTAL...	\$ 1,285



View from street shows house turned long way of lot, with living and dining rooms toward the street. Carport is next to kitchen.

Variable plan fits this house to most markets



Plan with heavy outline is the basic one. Entire family rooms and extra bedrooms may be added, and basic rooms sizes increased.



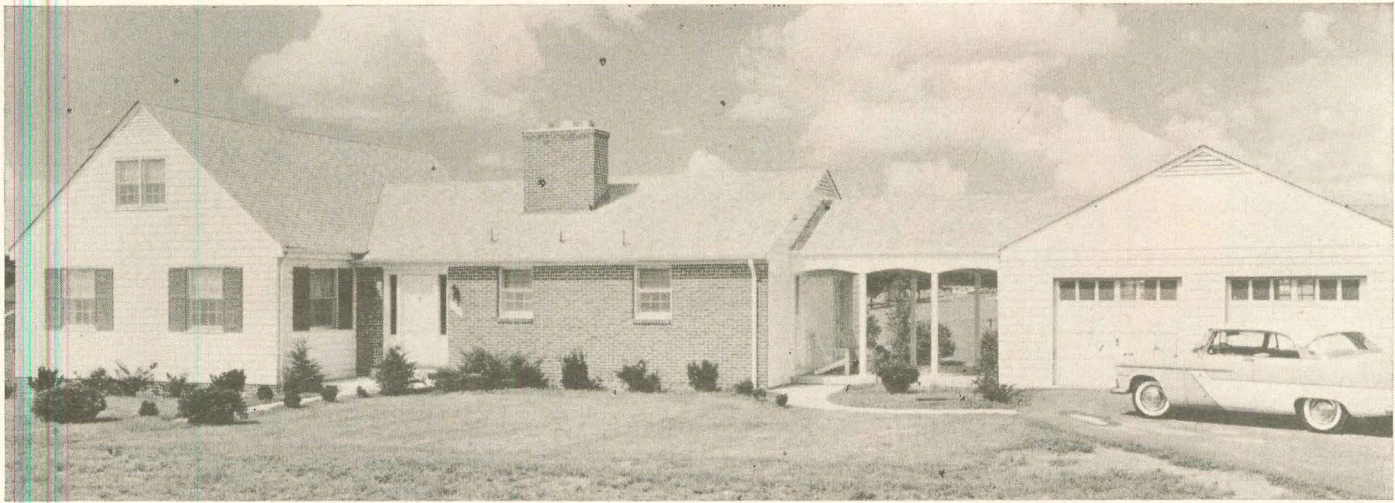
Living room walls show how random grooves hide joints.

As the above plan shows, US Steel has developed a house that can be expanded in any direction.

The basic package has three bedrooms, two baths, living and dining rooms and kitchen. It sells for \$11,800. Because the house uses a standard stressed-skin panel unit, the basic size can be freely expanded, the number of rooms freely increased. Steel's top price is expected to be about \$20,000.

US Steel claims that this use of stressed-skin panels makes their models particularly safe for hurricane-belt construction.

The interior wall panel is random-grooved to hide the actual panel joints. Made of plywood, the panel is first grooved, then sprayed with a filler, sprayed with a lacquer and then baked, and finally, sanded. As a result, its hard surface is equally resistant to dirt and small children.



Breezeway between house and garage makes extra living space that can be easily screened. Basement adds to indoor floor area.

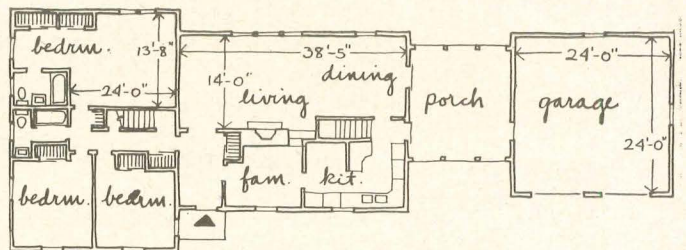
Here's a five-bedroom prefab with a traditional look

This prefabricated house gets a traditional look from its materials, height, and decorative details.

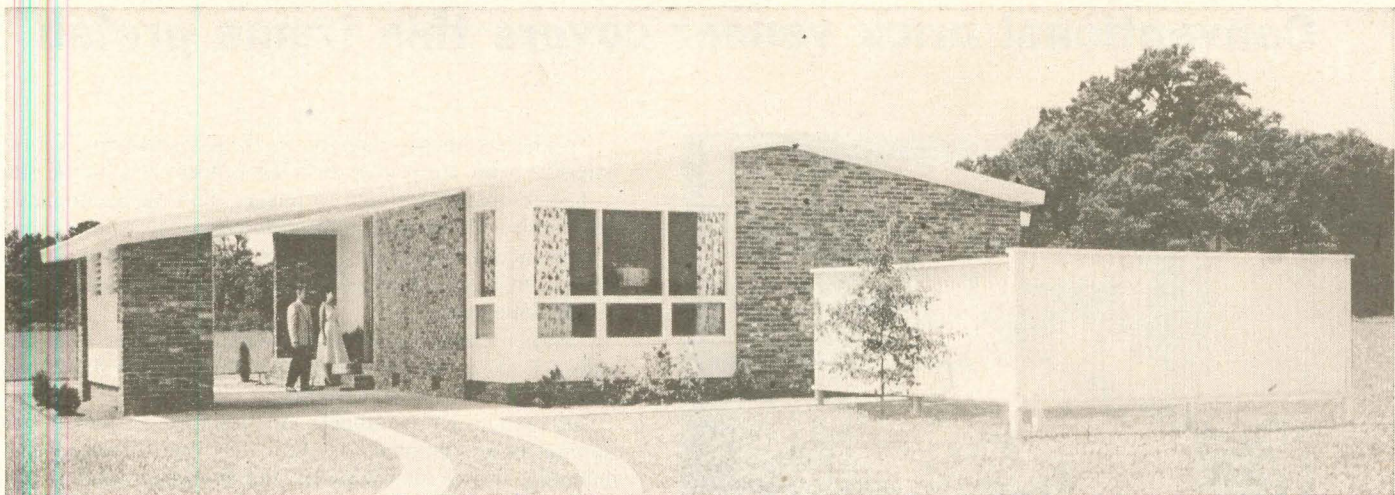
Its materials are brick and white clapboard siding. Its height is a story and a half—like the old Cape Cod house—which gets in two of the bedrooms and another bath.

The decorative details include the shutters on the bedroom wing and the sidelights at the front door, which are direct descendants of the colonial.

The price range on this model is from \$30,000 to \$45,000, depending on options.



Plan concentrates all bedrooms in one wing for privacy.

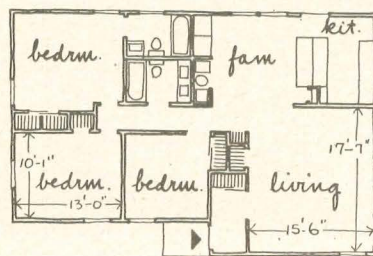


Street side is faced by living room and kitchen (behind screen at right in photo). All bedrooms look to the rear of the lot for extra privacy.

Contemporary's price ranges from \$15,000 to \$25,000

Because American plans to distribute this 1,200 sq. ft. house from Maine to Georgia, it will have a \$10,000 spread in its price with lot. The biggest reasons are the extreme difference in land and labor costs between different parts of this large sales area.

Another reason is the wide choice of options for this model, which can be built with or without items like the carport, fire-place and basement. When a basement is included, the stairs go in the place shown on the plan for the heater and laundry equipment. In the present location they are screened from the family room by a sliding louvered door (also optional).



Open plan makes family, living rooms one large space.

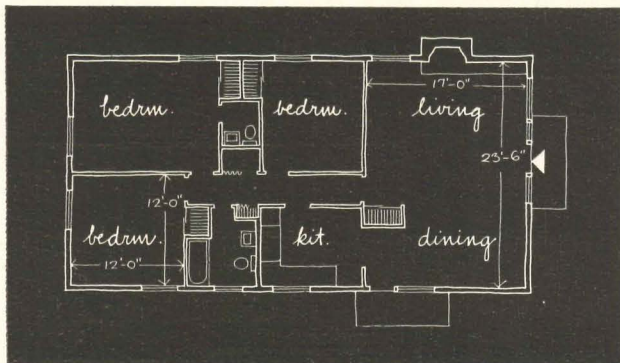


Carport and storage area is separated from family entrance by 12' covered walkway, forming a patio. Fencing screens the patio from street.

Conventional brick veneer covers this frame prefab



Kitchen has the usual appliances; washer dryer are optional.



Plan gives kitchen control of entrances and private patio.

To give its houses a custom look, Knox Homes is finishing exteriors with conventional brick veneer, laid at the site.

The company feels that its buyers want the economies of a fab house with the look of a custom design. This is their answer.

The model shown gets extra texture and color variety by using old brick set off by gray wood trim and a front door painted a light blue-green.

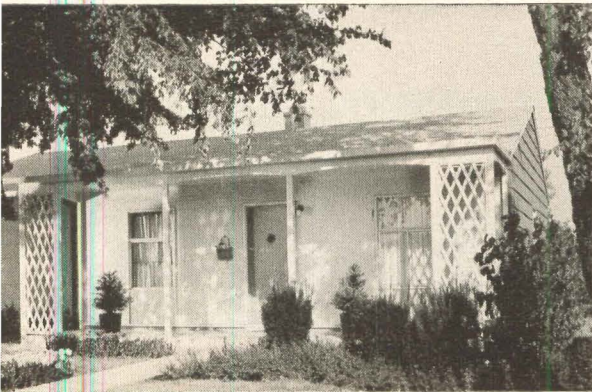
Another change makes this model 4' longer than last year's, adding 48 sq. ft. to the living and dining areas and 24 sq. ft. to each of the two rear bedrooms.

All regular Knox models are designed to include air conditioning as an optional feature. This one is priced at \$16,000, including the air conditioning and the usual kitchen appliances but exclusive of land.

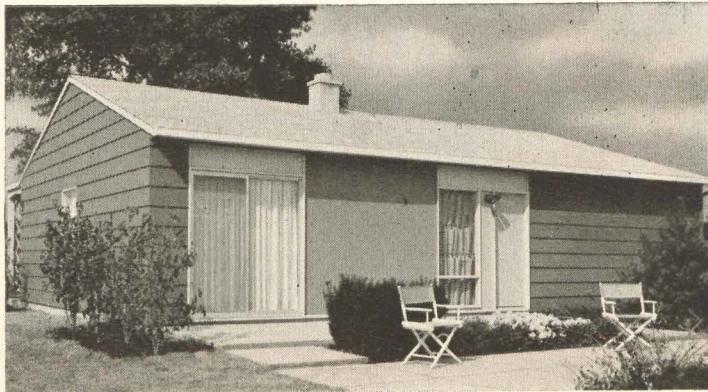
Architect: John McCabe, Knox staff. Area: 1,253 sq. ft.



Living room repeats old brick of the exterior in fireplace and hearth.



of this new National house has a latticed front porch about which can be screened in easily. Exterior siding is Masonite.



Rear terrace is reached through dining room's sliding glass doors, left, or through kitchen door, center. Outside storage area is at far right.

front porch is matched by a terrace at the rear

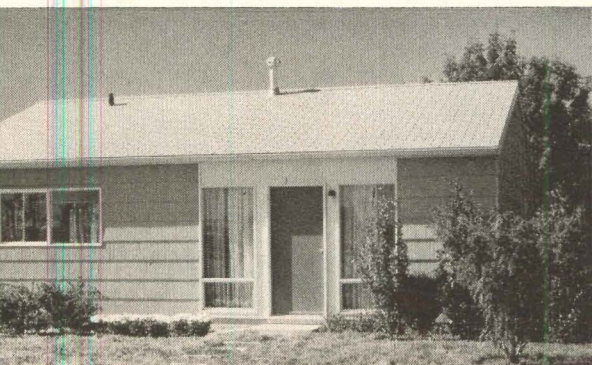
design for outdoor living has gone full circle in this architect Charles Goodman for National.

fashioned front porch, which went out when on-grade entry came in, is used here to provide pleasant outdoor space and add some decoration to the simple lines of the

re outdoor living space is provided by the terrace at the rear of the house. The terrace can easily be reached from the dining room area or the kitchen (photo top right).

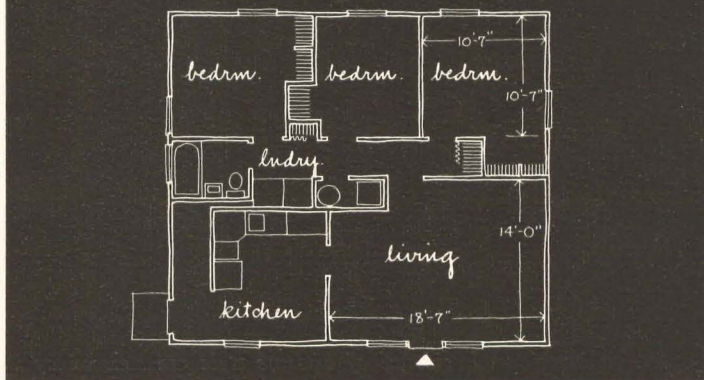
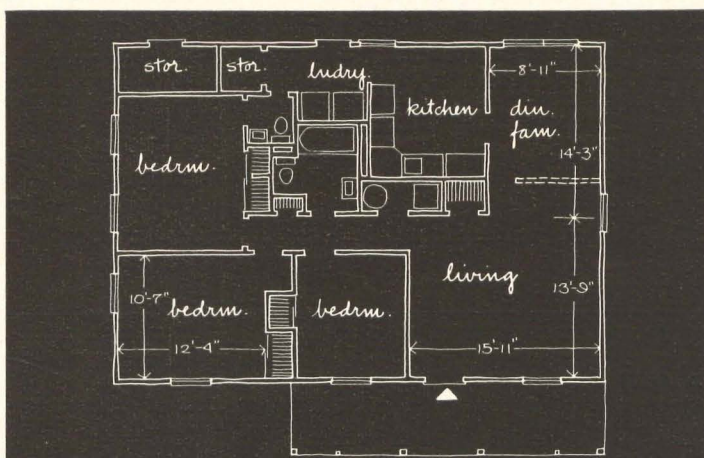
and big change in this house in one National is making its 1957 models: the total depth is increased from the former standard 24' to 28'. A truss spans the 28' depth so all interior walls are nonload-bearing and can be moved best for the plan. The 28' depth also makes it possible to shorten the length of the house to fit it to a narrow lot line.

without land: \$10,900. Area: 1,126 sq. ft.



two side windows give it extra importance in the design.

Plan (just below) shows how National centers plumbing in core.



Plan (bottom) offers three bedrooms in less than 950 sq. ft. of house.

's a model aimed at the low-income market

money market this year has yanked the rug out from under the working man!" says Jim Price of National Homes.

National is making a bid for this lower-income market with a (plus land) model shown here. Price believes that with available mortgage financing, this house is within reach of a veteran earning no more than \$71 a week. (Required for veterans is only \$64 a week.)

Every price goes hand in hand with reduced labor costs.

These are the result of increased factory fabrication (H&H, Oct. '56, p. 58). By extensive precutting, preassembling, and pre-finishing in the factory, National has cut expensive on-site labor time to 4½ days.

The second important fact about this house is that, as with the larger model (top of page) it will have a depth of 28'. Last year's models were 24' deep. Over-all size of this three bedroom model is 28'-8" x 32'-8".

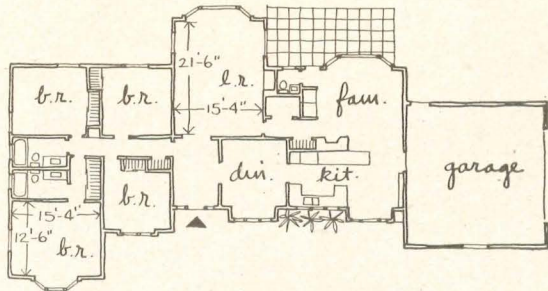


J. T. Strong

One of five traditional houses added to the Scholz line is the Lake Forest, which will sell for about \$25,000 to \$30,000 plus lot.

1957 MODEL BY SCHOLZ

Here's a surprise shift from contemporary to traditional

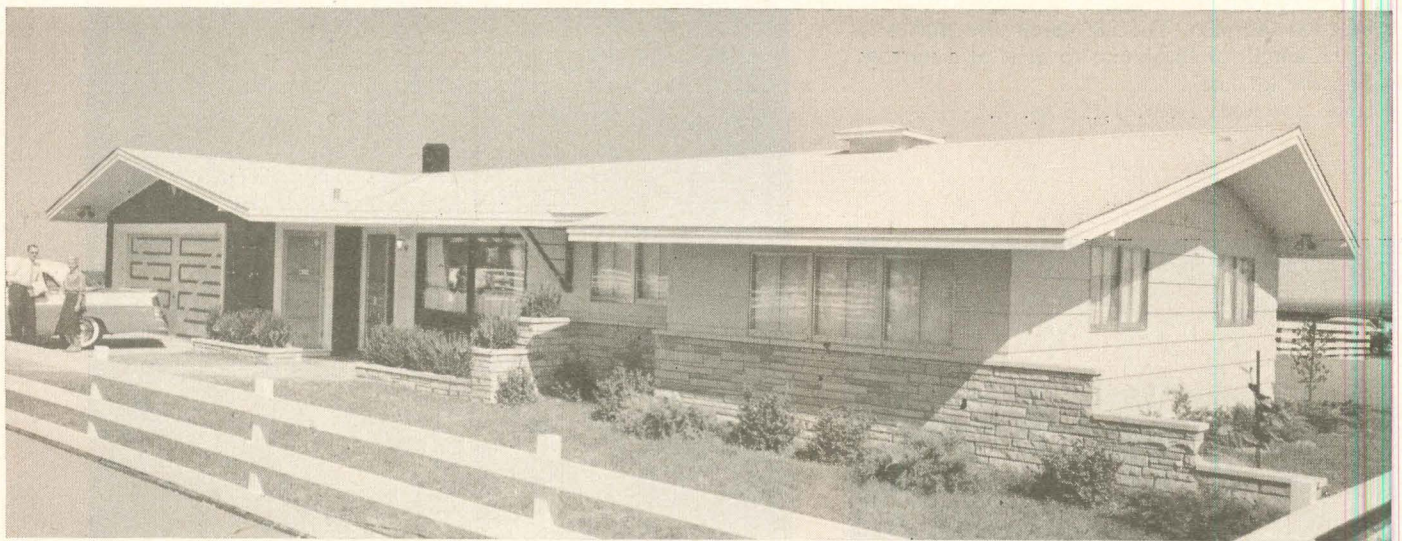


About 2,800 sq. ft. are provided in four-bedroom, 2½-bath plan.

Don Scholz is going back to his first love. His new models are almost exact copies of the traditional designs he was building conventionally before he started pre-fabbing contemporary houses in 1952.

The five traditional models which Scholz will sell in 1957 range in price from \$10,000 to \$50,000. The smallest is delivered in three completely finished sections on a special wheel carriage. It can be erected by crane in one day (page 134).

Scholz is also continuing his contemporary house line. He added the new traditional designs to broaden his market.

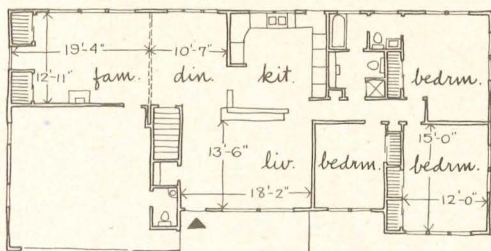


W. C. Runder

Plenty of space on one floor, avoidance of extreme style are stressed by Best Homes for this new and larger '57 model.

1957 MODEL BY BEST

This large house aims at the growing luxury market



2,103-sq.-ft. plan offers half-bath in garage for children's use.

"All the recommendations" of the Women's Housing Congress (see H&H, June '56) are included in this big new ranch house.

That's the claim made by W. G. Best Homes for its Mid-America model, which will sell for \$27,500-\$31,500, plus lot. The company has been building in the \$8,000 to \$15,000 bracket. This wide price range, which skips the medium-price market, reflects Best's great flexibility in engineering and production techniques. (All its houses can be expanded in 2' modules.)



William Wollin

Improved design and a larger plan mark this new Thyer model. It has more open planning and living area faces to rear of lot.

1957 MODEL BY THYER

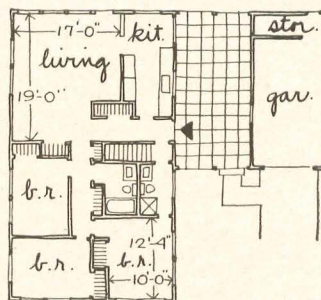
Breezeway and garage make this house look larger

This model is larger than last year's and looks it. Though a basic rectangle, the garage extension gives this Starlighter model an L-shape look.

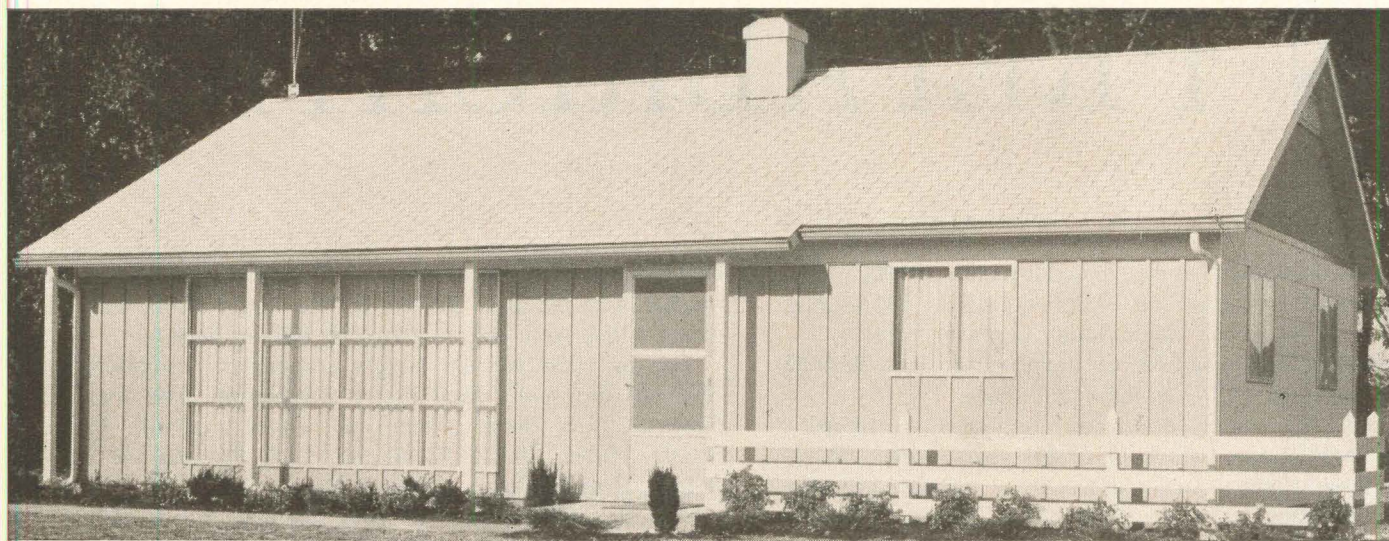
Buyers can have either the open breezeway or an enclosed family room. Gable or hip roofs range from 5-in-12 to 2-in-12 pitches.

Architect Thaddeus Hurd's design provides for a 10" drop siding on the front, redwood on interior walls, large glass areas for the living room at the rear.

Price of the 1957 Starlighter model: \$15,000 with lot. (Thyer expects to edge upward towards the \$18,000-20,000 price class.)



Three-bedroom plan has two baths, 1,200 sq. ft. of floor space.



Large windows, plenty of attic storage are included in this wholly prefabricated house which sells for \$10.28 per sq. ft. of floor space.

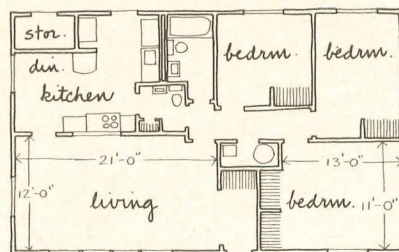
1957 MODEL BY GENERAL

The whole house comes complete on one truck

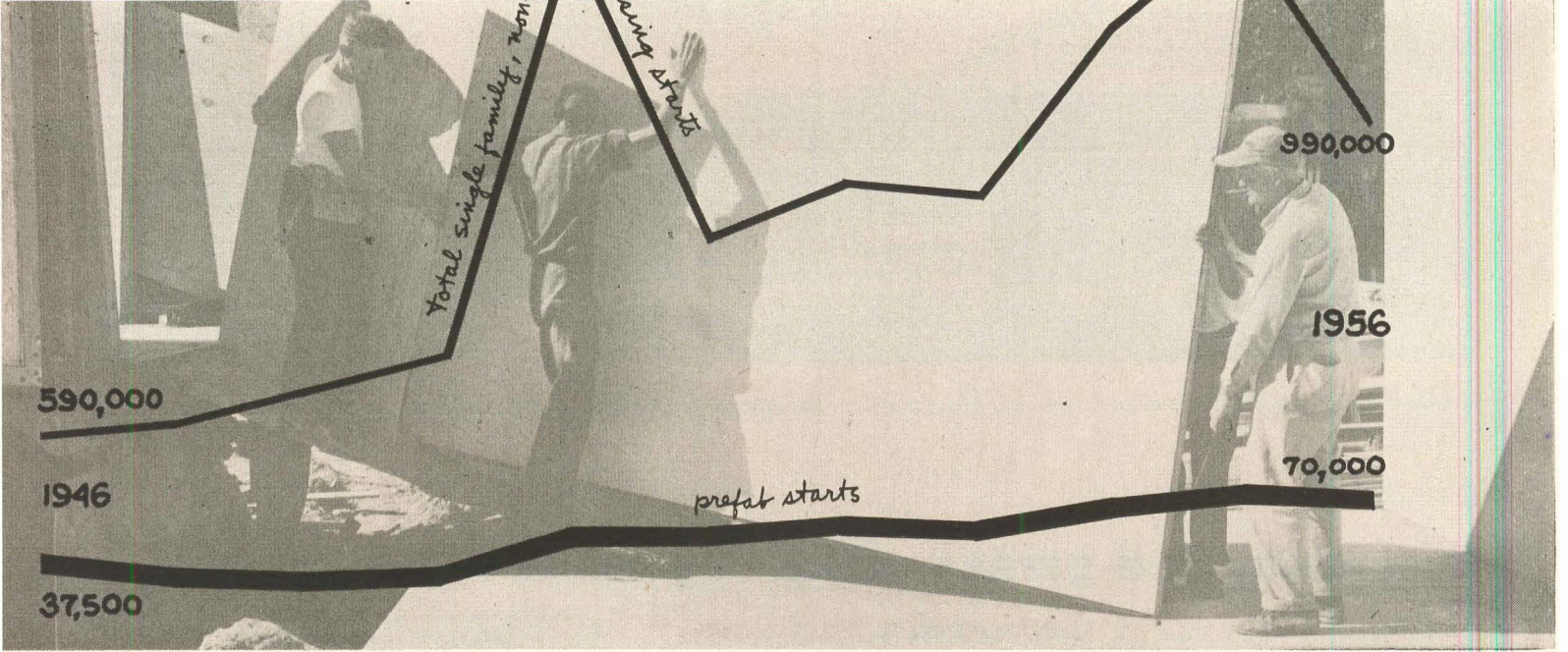
Here is the most completely prefabricated house on the market today.

Only 100 man-hours are needed to erect it from the time the truck brings the parts to the lot.

This new model, the Highlander, closely resembles General's only other model. The new 1,004-sq.-ft. house is 2' wider, a foot longer, has an extra half bath. The General Homes package includes completely finished walls (all wiring in), plumbing tree, cabinets, space heater, roof panels, etc./END.



Three bedroom house includes 1,004 sq. ft. and 1½ baths.



House & Home's 4th

ANNUAL REPORT ON PREFABRICATION

The 116 prefabricators listed in HOUSE & HOME's current directory* will produce 70,000 houses in 1956—just about 7% of the year's single-family nonfarm starts.

By contrast, last year 88 of them turned out 93,000 houses, 7¾% of 1955's comparable starts.

For 1957 the usually optimistic prefabbers are tempering their predictions (which in recent years proved to be two or three times actual) down to a modest 115,000 houses. Privately, most of them hedge even this figure. Best appraisal of their real hope: about 100,000 starts.

Why prefab did better than it looks

On the face of it, the 1956 reversal of prefab's trend toward a greater share of the total market called for an explanation. Prefabrication's friends were quick to offer one.

They pointed out that most (over 80%) of all prefab houses are financed by government-backed insurance and the 1956 mortgage crisis cut back FHA and VA starts far more than it did those financed by conventional mortgages. But—ran their argument—prefab house starts fared much better than the FHA-VA average.

The figures support the prefabbers' case: although their output was down 23% for 1956, total VA starts fell 32% and FHA starts tumbled 44%.

Perhaps one of the reasons the prefabbers were better

* Prefabbers listed in the directory include only those who market their products through builder organizations; this year's 40 or more producers of "shell" houses may have accounted for another 10,000 units. See page 174.

able to deal with the red tape of the government mortgage market was the part played by the larger firms and the services they were able to give their builder-dealers.

For in 1956 the 16 largest companies accounted for 55% of the year's total prefab production. The top 16: National, US Steel, American, Thyer, Inland, Pease, Scholz, Huber, Place, Richmond, LFI, Presidential, Page & Hill, Harnischfeger, Admiral, Best.

An unexpected source of sales this year was the bigger, higher-priced house market. Producers climbed the price scale (page 132) and tapped a second-time buyers' market that once belonged only to the custom-house builder.

The best-selling prefab models (page 140) were often these bigger houses. Prefabbers were preparing to build more of them next year and also to offer new low-price models in an effort to revive the low-cost market.

New markets may help in 1957

Many prefabbers were bidding hard for a large 1957 share of the Capehart Act's 168,000 military housing units. Some were looking to motels, schools and clinics as a new outlet for production (page 137).

On the geographical sales front, prefabbers in 1956 were breaking out of their traditional Midwest stronghold, the so-called prefab triangle. The market was steadily moving East and as the market moved so did the plants (page 133).

In design, the prefabbers were ranging wide in an effort

to please all tastes. Though many new contemporary models were being introduced for the 1957 market, there was a noticeable increase in colonial houses and several firms fell back on features like scalloped porch valances or diamond windows (page 122).

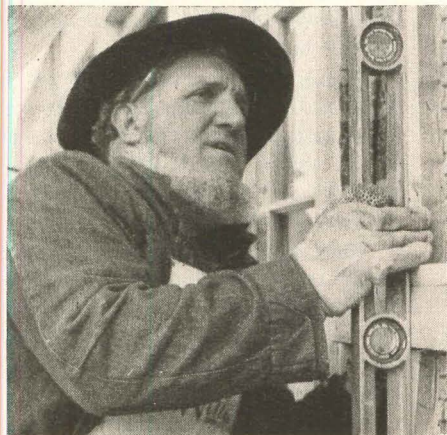
But the big design news for 1956 was Frank Lloyd Wright's first prefabricated house (page 117), a design certain to swell the favorable publicity which prefabrication had in the shelter and home service magazines.

The prefabber's psychological "package" grew bigger because of the design, merchandising, financing, land purchase and sales helps that most prefabbers offered along with their actual house package (page 135). Prefabbers got professional help from ad agencies, market analysts, land planners as well as architects. The benefits were passed on to their builders in a better house for better sales.

The increase of over 1,000 builder-dealers (page 133) gave prefabrication new problems even as it helped solve some old ones. For the builders were demanding and getting more service, but prefabbers were hard put to find personnel to render it (page 159).

At year's end it looked to many as if the prefabbers had most of what they needed for the long pull.

They had plant capacity to produce over half of all the houses that are likely to be built next year. They were especially strong in that part of the market that depends on government-backed mortgage financing. Their factories had an edge over rising on-site labor costs and the growing shortage of skilled on-site labor. They had a record of success in winning public participation in their capital expansion. Their one great unsolved problem was how to get and train the manpower they needed.



Amish carpenter squaring up wall panel symbolizes prefab's new acceptance. "American Homes" reports Amish crew (traditionally wary of new ideas) prefers to work on prefabs over conventional houses.

ABC's

OF PREFABRICATION

Question: *When is a house a prefab?*

Answer: When the major, bulky parts of the house—in the main carpentry items like exterior panels, roof trusses or roof panels and preassembled or precut floor systems—are manufactured and packaged in a plant for shipment to the site.

Question: *What's the difference between precutting and prefabbing?*

Answer: Precutting is the first step in the manufacture of a house. In prefabbing the precut pieces are assembled at the plant.

Question: *How is component building different from prefabbing?*

Answer: In component building major parts of the house (like prehung doors, storage walls, roof trusses, wall panels, etc.) are selected by the builder and bought separately (often from several different makers).

Question: *Do I have to be an established builder to become a prefab dealer?*

Answer: No. But experience in a related field (like real estate) is helpful and success in some business venture gives you a greater edge.

Question: *How much capital do I need?*

Answer: Estimates run from \$10,000 to \$25,000. Ownership of land plus a good credit rating lowers capital requirements.

Question: *Do I have to build only prefabs?*

Answer: No.

Question: *How do I buy a prefab?*

Answer: Write on your letterhead to any one of the 119 prefab house manufacturers listed in the Prefab Directory, beginning on p. 174. The company will mail you literature and ask you to get in touch with one of its salesmen (he will probably get a carbon of the company's letter).

Question: *Do I have to be close to a prefab factory?*

Answer: Not necessarily. Most prefabbers will ship 250 miles (overnight trucking distance) but shipments of from 350 to 500 miles are possible.

Question: *How do I pay for the prefab house?*

Answer: Payment ranges from C.O.D. with a discount to a 120-day payment

(by which time you should have received interim construction payments from your bank).

Question: *Can I mix the brands of prefabs I build?*

Answer: Yes. But some manufacturers frown on this and at least one will not do business with you unless you build his house exclusively.

Question: *How do I know prefabs will fit my local building code?*

Answer: All prefab houses can pass a reasonable code. In some cases the manufacturer may need to show local building officials evidence to prove that his product meets or exceeds code requirements. Areas which discriminate against "prefabs" as such are disappearing.

Question: *Do I use the same craft unions to build prefabs as for conventional building?*

Answer: Yes. In some cases some crafts are eliminated at the local level (e.g., glazers) but your work crew will include carpenters, masons, laborers, plumbers, electricians and painters. Many have less work to perform.

Question: *What is included in the prefab "package?"*

Answer: Prefab packages vary with the manufacturer. Some ship only the "carpentry" of the house. Others put in not only wall, roof and floor panels, but plumbing pipes, stacks and fixtures, furnaces and air conditioning equipment, kitchen cabinets and built-in appliances, plus paint, wallpaper, rugs and all the necessary finishing materials, except brick. The most fully "packaged" houses consist of everything but the lot, landscaping, walks and driveway.

Question: *How long does it take to put up a prefab house?*

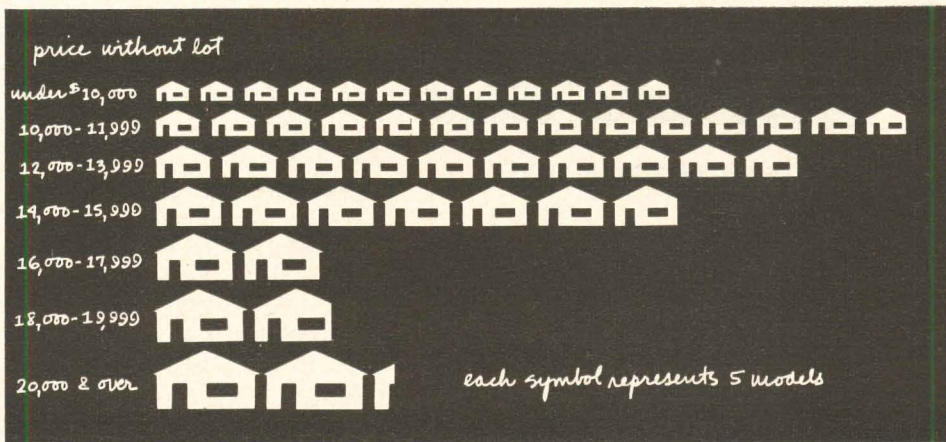
Answer: A prefab with about 1,100 sq. ft. can be put under roof in one day with a six to eight man crew. Its completion time will range from two weeks to one month depending on efficiency and degree of coordination between subcontractors.

Question: *What advantages are claimed for prefabrication?*

Answer: Faster building time, less dependency on the weather, lower overhead, more control over material costs, faster turnover, less (and usually lower) direct labor, plus better design and merchandising and financing aids.

Question: *What do opponents say is wrong with prefabrication?*

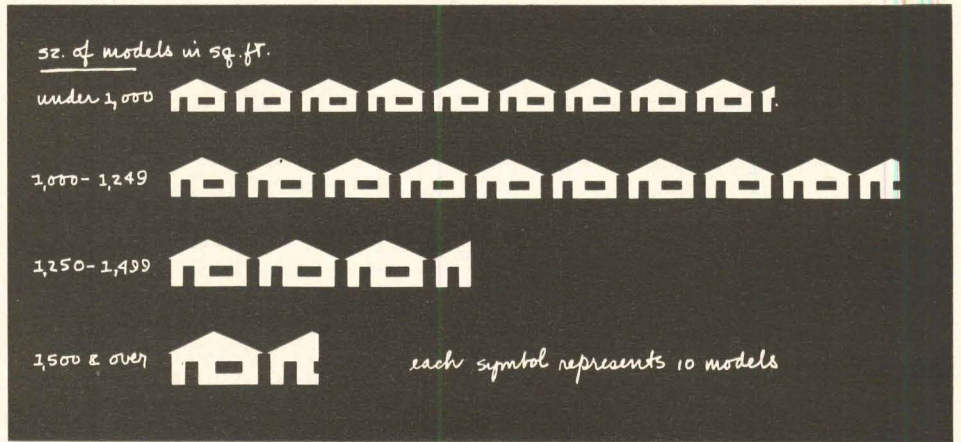
Answer: Less control over the product, higher cost for materials, loss of time caused by parts missing from the package, failure to pass codes in some areas.



87 firms reporting

BIGGER, MORE EXPENSIVE PREFABS TOOK A LARGER SHARE OF THE MARKET

Size of prefabs increased (see chart, right). In 1956, for the first time, most prefabricated houses had over 1,000 sq. ft. of living space. More than 20% of the active models had over 1,250 sq. ft. of living space, a new high. While there was still a big market for small houses, it became increasingly difficult to qualify buyers for houses under 1,000 sq. ft. People wanted and needed more space and they were willing to pay for it. And institutional lenders became increasingly hesitant to put their money on models whose small size might make them undesirable family units in ten to 20 years, or even sooner in some markets.



87 firms reporting

To meet buyers' demands prefabbers offered more space, more models

Mayfield Photos



Variety of models made possible by use of prefabs is shown in this photo of Lincoln Village, Columbus, Ohio. Midwest Homes put over a dozen models in the project.

One thing was sure in 1956: buyers shied away from look-alike tracts and too-small houses.

There were hardly any two-bedroom prefabs on the market. And the only time you could sell look-alike houses was when your prices were the lowest for miles around.

Actually more different prefab models were available than ever before. Manufacturers reported 238 actively-selling models on the market. If a builder-dealer didn't find all the variety he wanted with one maker, he could add any number of other models from other manufacturers. Few prefabbers felt they could object to a dealer building houses of other companies—they were glad to sell anything.

More house for the money

In the low-cost market manufacturers like General Industries, National, Best, Thyer and American were making three-bedroom, bath-and-a-half houses that sold for \$10,000 to \$12,000 without lot. With better cost control, more ability to finance and helps for the builder, prefabbers stole a march over many builders of conventional low-cost houses.

Much greater acceptance of prefabbing by house buyers, let manufacturers move into the high-priced house bracket. Sec-

ond-time buyers accounted for most of the increased sale of higher-priced prefabs. "Once a homeowner—always an expert" is no longer an idle phrase.

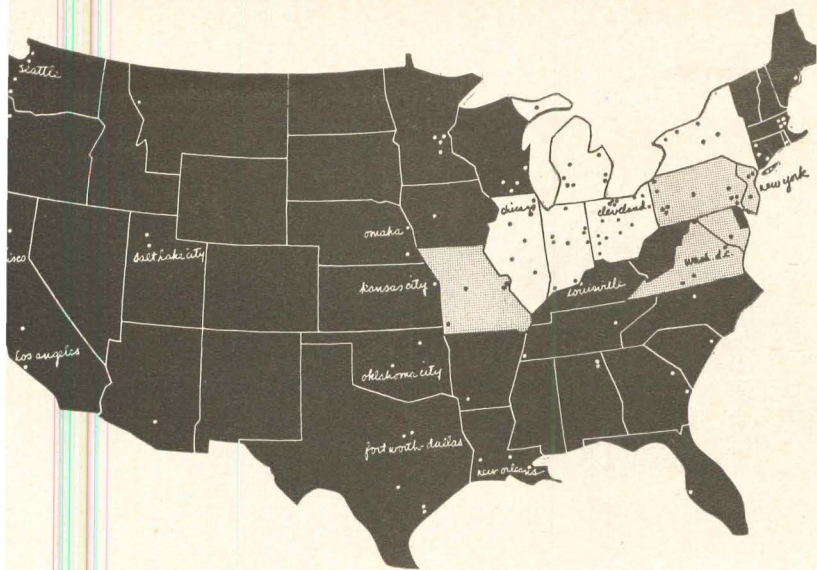
Second-time buyers are demanding

Dealers found more and more prospects who went through model houses asking about wall framing, roofing, plumbing and electrical systems. Usually they turned out to be second-time buyers who knew what they wanted and had the money to pay for it.

These buyers wanted and got much more of a custom-look as well as sounder construction. To meet this new demand many prefabbers have geared a large part or all of their production to the "custom" house.

Since manufacturers are now able to make almost anything the market wants, prefabbers have made significant inroads in new areas. In the once tradition-bound East, gains in acceptance were most evident.

More inquiries poured in from new areas, and some companies were swamped with questions from places they'd never heard from before. To see how acceptance of prefabrication spread, look at the map on the next page.



prefab sales are moving east faster than west

Five of the top ten states in prefabs are now in the east. But Ohio, Illinois and Indiana, where fabrication got its first real roots, still continue to take almost half of total production. New York ranks fourth in the nation with Pennsylvania, New Jersey and Maryland standing 6th, 7th

and 8th respectively. Michigan, Missouri and Virginia are 5th, 9th and 10th in sales. Prefabrication is also moving with strength into Iowa, Louisiana, Minnesota and Wisconsin. Georgia and Florida still hold a share of the market, and Massachusetts, Connecticut, North Carolina and Alabama are gathering

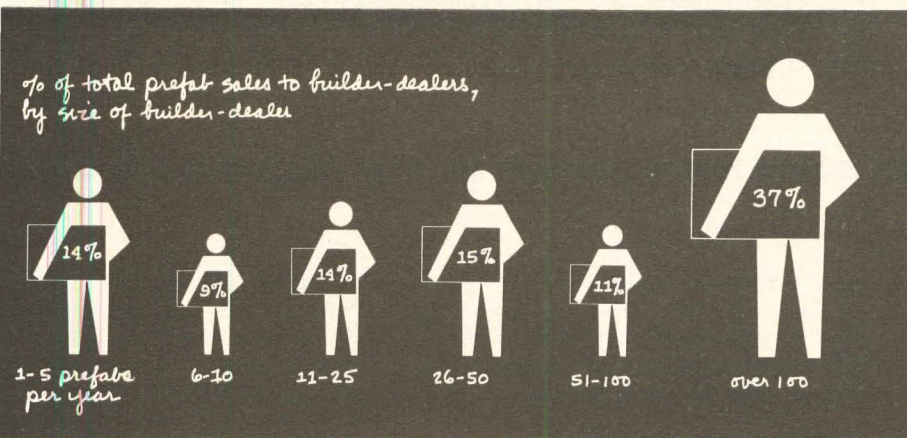
momentum as good areas for prefabs. The great plains states and Nevada are major areas largely introduced by prefabricating.

Cost-control is big factor

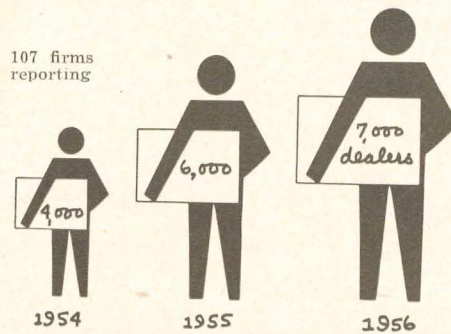
Prefab's speed, its control over costs and its financing helps are primarily responsible for opening up the eastern market. Rising costs in the east have reduced the edge that highly competitive builders and subcontractors used to have over prefabricators. The wide variety of designs now available in prefabs has also helped to break the east's resistance.

While the same factors apply to other areas of the country where prefab sales are building up, the east is important because of its population concentration.

As the map shows, prefab plant locations closely correlate with sales areas because overnight trucking radius still is the best maximum distance for prefabricators to ship. If a truck loads by day, travels at night and can unload first thing in the morning, both prefabricator and dealer save money. Trucks are kept moving, plant labor kept busy and construction crews at the site are not waiting around at \$2.50 to \$3.50 an hour.



firms reporting



Prefabbers added 1,000 new dealers
The chart shows the increase of new dealers slowing down in 1956: there was a 2,000 gain in '55 over '54, compared to this year's reported gain of about 1,000.

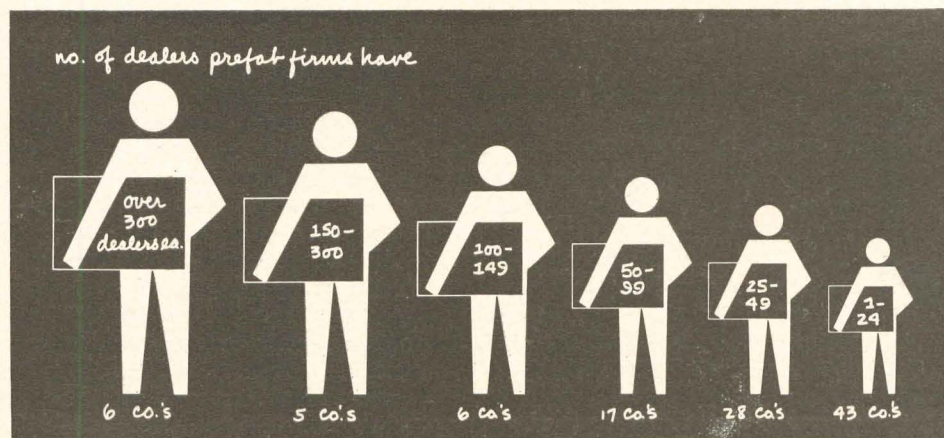
larger builder-dealers are prefab's biggest market

As the above chart shows, the biggest part of prefab production in 1956 went to big builder-dealers.

This conclusion is based on a 14-firm sampling of sales patterns (sales of these representative companies total almost 100,000 houses in 1956).

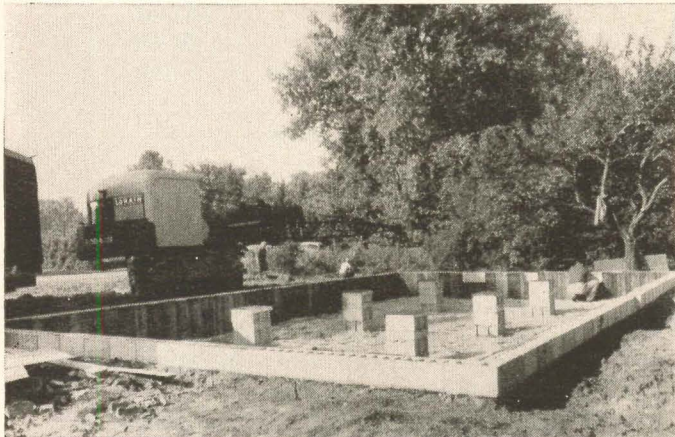
Many small companies, as well as big ones, sold a major share of their production to high-volume dealers. Manufacturers point out that fast erection time and prefab cost control pay off best in large projects.

The fact that many firms sold a big chunk of their production to a few big dealers is also indicated by the chart at right. Some 43 firms had less than 24 dealers each to handle their production.



105 firms reporting

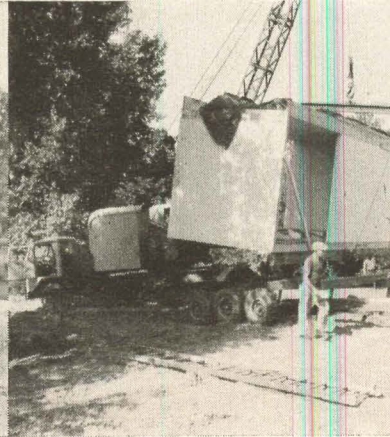
ALMOST HALF THE PREFABBERS HAVE FEWER THAN 24 DEALERS EACH



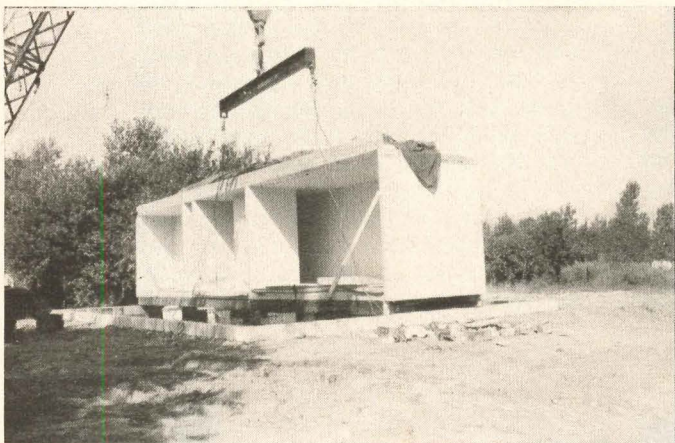
Power crane awaits truck at foundation.



Low-boy trailer is backed on site.



Middle section swings off trailer



Section goes in place quickly.



Painted house, complete with all mechanicals, is finished by four men in a d

The small house package came more complete, but bigger models did

This house (Scholz's new Belle-Aire model) was shipped to its site in three sections—with everything complete from carpet to plumbing.

The only work performed on site was the building of foundation, walks, driveway, landscaping, joining the sections together and hooking up electricity, waste, fuel and water lines.

Working from a completed foundation four men fitted the sections together, raised the roof—"built" the house—in one day. Licensed subcontractors made the utility connections.

Package eases labor problem

More fully fabricated than most models, this house is nonetheless a good example of the way prefabbers were attempting in 1956 to help home building get around the shortage and high cost of skilled field labor.

National Homes is another example of the same trend. This fall the company brought out a brand new \$7,500 model that cuts on-site labor to 4½ days (page 127). General Homes, Best, Inland, Midwest, and US Steel all now have low-cost houses in nearly complete packages.

Some prefabbers and many big builders were predicting that the fully fabri-

cated small house might once again make the under-\$10,000 price bracket a big factor in the market, especially in areas where new industrial construction is creating a need for mass housing.

Builder favors big package

Les Taubman, big Detroit builder who plans to "go mobile" and build low-priced houses wherever industry is locating cites three advantages of the fully fabricated house:

1. In out-of-the-way places skilled labor is non-existent: you either bring it in or pick up unskilled labor.
2. The more complete the house when it is delivered to the site, the better the builder can control his costs.
3. New towns seldom have restrictive codes that outlaw the savings possible from new techniques.

But despite all the advantages of the complete package, many prefabbers found they had to compromise short of full fabrication in order to fit the package to the delivery truck. For low-cost houses, most prefabbers said, this means putting the whole package on *one* truck, even though that generally means shipping partly disassembled.

Truck size is an even more important limitation on package size for higher-

priced houses than it is in the field. Two trucks are ordinarily deliver the wood-carpentry, dr roofing and kitchen cabinets for sq. ft. house with a two-car Items like appliances, plumbing storm doors and windows and can seldom be fitted in.

Big houses must compromise

In 1956 the prefabber comp by making whatever he did del complete as possible. For exam preprimed or prestained his preh terior doors and preglazed his metal sliding units.

Codes also were still working complete fabrication of the larger Big houses were usually shipped to lished communities where res codes veto techniques like precast fab plumbing.

Finally, prefabbers found that of higher-priced models frequently ed special features and other no ard items that made it impractic attempt to do the whole job on t tory production line.

So the size of the package fo larger houses remained mostl changed in 1956, and probabl change little more during the nex

Now there's more merchandising than ever in the "package"

Thyer Mfg. Corp.

Many a prefab builder-dealer would be quick to tell you that the merchandising help his prefabbers gave him in 1956 was one of the most important items in the prefab "package."

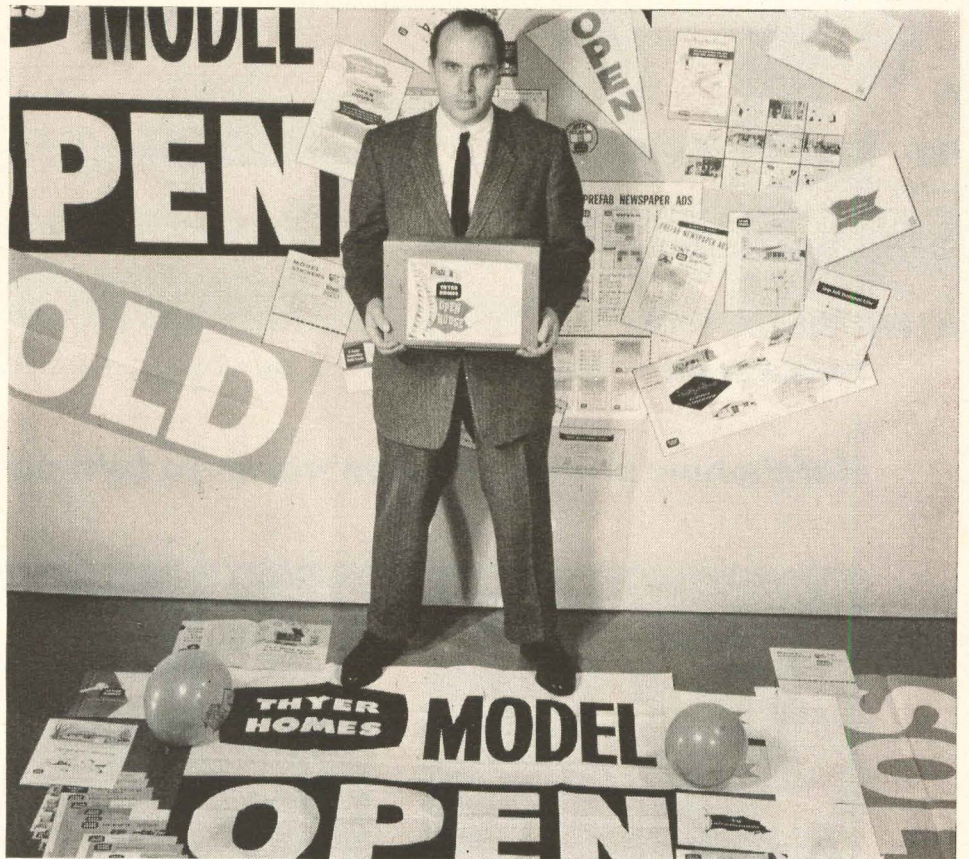
Point-of-sale kits like the one shown at right, decorating "packages" and advertising funds became standard items.

The model house was a sales must and many companies began to offer 90- to 120-day financing to help their dealers get new models fast.

Some prefabbers started employing professional decorators to specify just the right furniture for each model. Sometimes they arranged for the dealer to get the furniture at large discounts through local outlets. (Many builder-dealers report that when local stores decorate models, the house often has to compete with the furniture.)

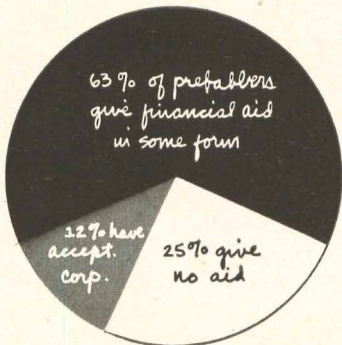
Prefabbers also put their advertising agencies to work helping local dealers. Mats for newspaper ads, copy for spot radio announcements, publicity releases, brochures were frequently furnished.

Many manufacturers made their dealers an allowance for local newspaper or radio advertising—provided the maker's name was used in the advertisement along with the dealer's.



Point-of-sale kit includes direction signs, balloons, brochures, placards and ads as shown.

Prefabbers gave dealers more help with their financing, land and sales

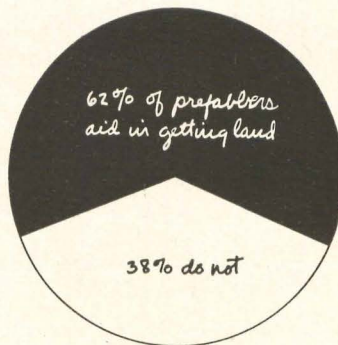


110 firms reporting

HOW THEY HELPED FINANCE

In this tight money year most companies took advantage of their size to set up financing plans that insurance companies and other big lenders felt they could safely take part in. The great majority of manufacturers offered help ranging from securing money from investment syndicates down to negotiating mortgages with local correspondents.

Some companies occasionally even took over the whole money job for dealers: supplying funds for everything from site preparation to permanent mortgage, including the cost of labor. Only 25% firms gave no special help to dealers.



115 firms reporting

WHAT THEY DID ABOUT LAND

Every year the problem of land gets tougher, and this year almost two-thirds of all prefabbers helped dealers get sites.

Prefab salesmen spent a lot of time hunting for land and setting up deals for their builders. Some companies handled all the financial and legal details. In some cases prefabbers even moved dealers into new areas where they had found land.

Many prefabbers did the site planning for their dealers after engineers had made topographical surveys. This service often included planning color and exteriors to insure variety in the houses.



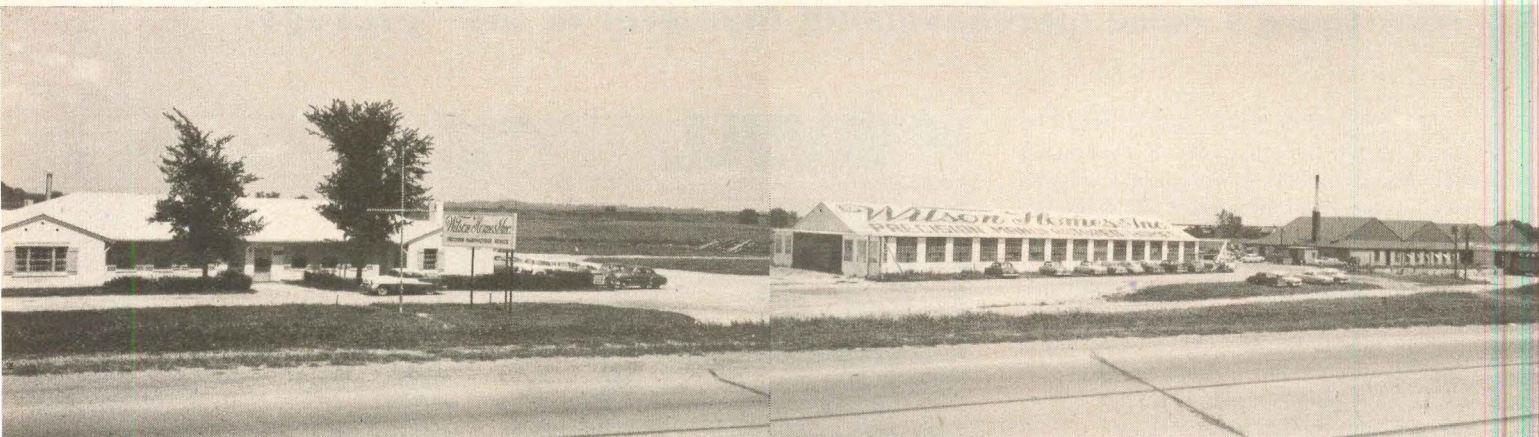
116 firms reporting

HOW THEY USED ARCHITECTS

The architect's help was a major factor in moving prefabs into the market for larger, higher-priced homes.

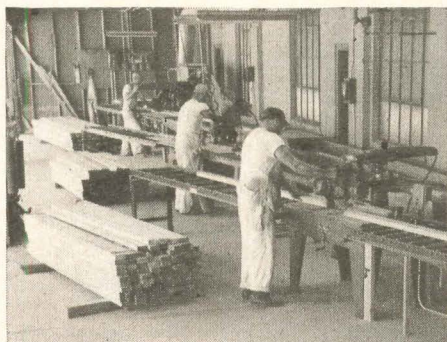
Over 75% of prefabbers retained registered architects to design their houses and credited them for a large part of prefabrication's new public acceptance.

The shift to larger houses (where buyers had more to spend for what they wanted) meant more custom prefabbing and more special changes in the package. With architects on their staffs, prefabbers easily handled a greater number of models and wider flexibility in plans that their new market developed.

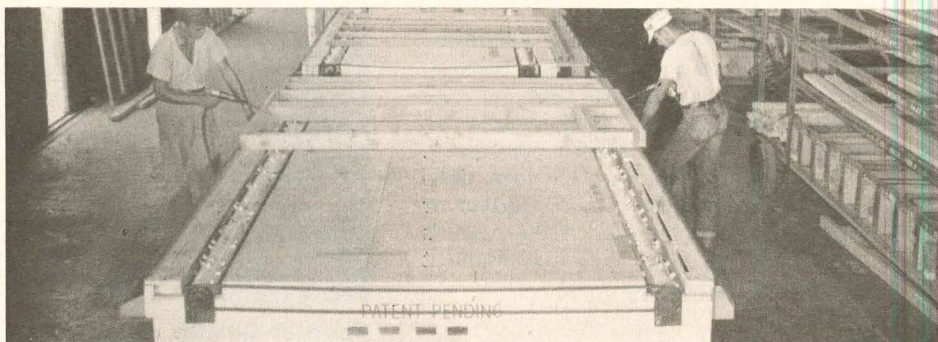


New 50-acre site of Wilson Homes plant north of St. Louis is on old airfield. Offices (left), main plant (right center), material storage (right).

Here's how production line works to turn out houses in a new prefab plant

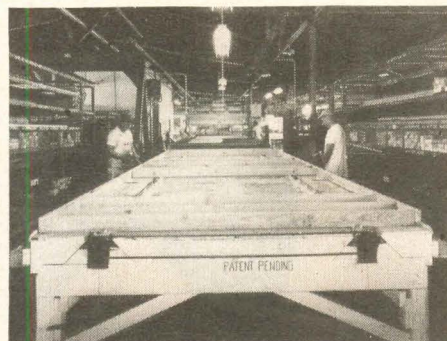


Framing is cut by three radial saws feeding to a conveyor that carries cut material to a point where it's stacked up on pallets.

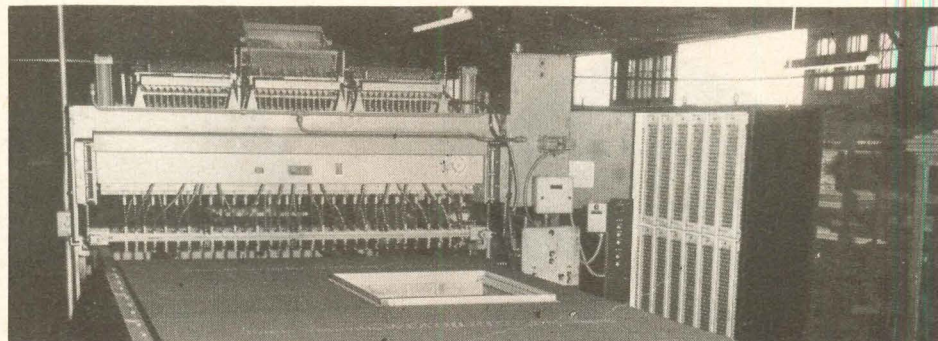


Assembly jigs for interior partitions have rotating arms at either side fitted with lugs to space studs and cripples for a wide variety of panels. Arms are rotated to bring a new pattern of lugs in position for a new panel. Lugs are welded on steel pipe arms.

ety of panels. Arms are rotated to bring a new pattern of lugs in position for a new panel. Lugs are welded on steel pipe arms.

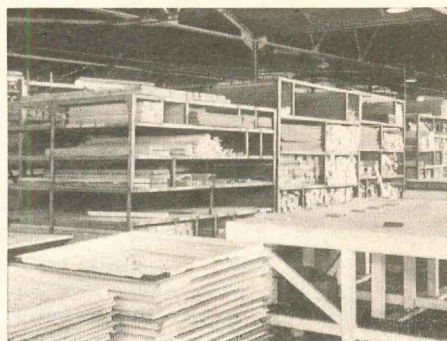


Exterior wall assembly jig shows link chain (foreground) controlling rotating arms as in the interior panel jig table, above right.

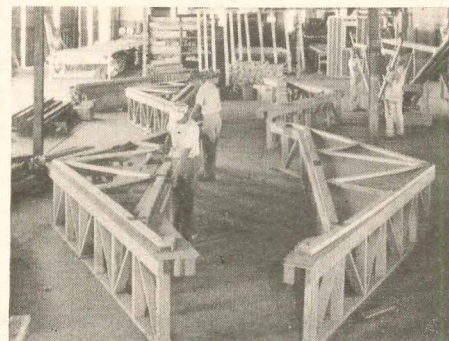


Nailing machine fastens insulating sheathing on outside wall framing. This machine, which cost \$50,000, has 3,400 switches,

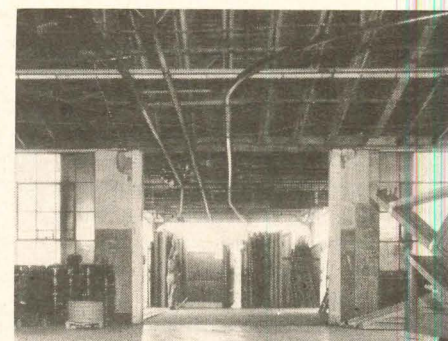
right, that can set 14 different nailing patterns for as many different wall panels. The nailer is by Food Machinery & Chemical.



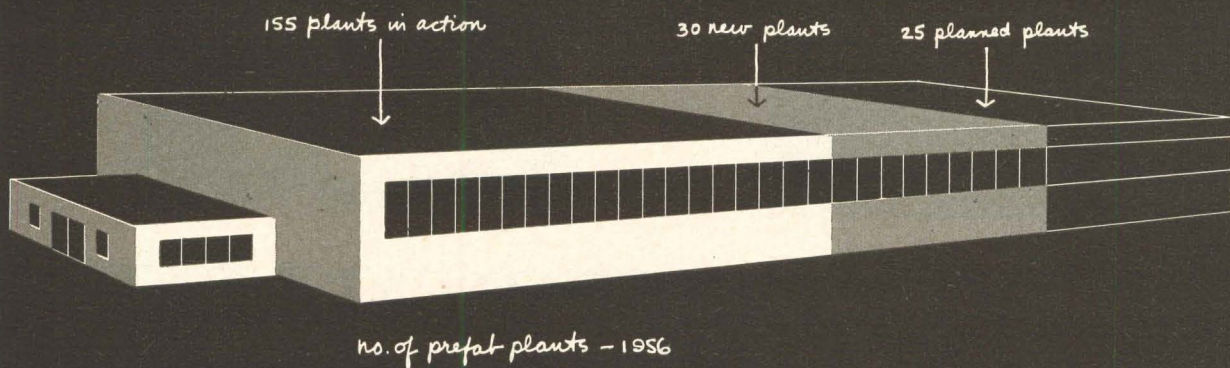
Material racks, background, are on wheels. At night they're moved out to the storage sheds and loaded for next day's production.



Truss jigs space members for nailing metal gussets exactly. Right rear, trusses are placed on dollies and banded for shipping.



Overhead loading rails carry panels to trucks. Rail ends are hinged to swing from one truck to another in loading dock, rear.



Clear section of pictogram represents existing prefab plants, gray tone indicates new facilities, unfinished part is for future plans.

Prefabbers now have big plants, but still lack manpower for real boom

As the pictogram shows, by 1956 prefabrication had ample plants to take care of a big gain in sales.

With over \$55 million already invested in plant and equipment and another \$5 million slated for the next few years, the prefabbers have enough machinery to produce about half the single-family dwellings required in a "normal" year.

The limit on prefab's growth potential is its shortage of trained personnel. No one is more aware of this than the prefabbers themselves; during 1956 they continued to raid each other as the quickest way to get trained people.

As a result it is not unusual to find sales executives who have worked for three or four of their present competitors. Production personnel are also on the move: one production man applying for a job with a new company made special note of the fact that he had bossed production for three other prefabbers. Executives to head and staff the prefabbers' mortgage or acceptance subsidiaries are practically nowhere to be found.

Firms raid each other

Prefabbers also raid each other for dealers. This problem is a direct result of salesmen shifting from one company to another: invariably they take some of their old customers over to the new company. So the old company has to find and train new dealers as well as new salesmen and as often as not starts another round of raiding.

Good salesmen are invaluable, but, says one prefabber, "Today we don't need to sell nearly so much as we need to service." Here's why:

Prefabrication is now adding almost as much value to its product through better design, financing, color control, merchandising helps, and the like, as through the shop-cutting, assembly, and packaging of the house itself. All of these services require a trained staff of specialists and executives. In fact, groans one prefabber: "It's even hard to find a good

advertising agency that understands the building business."

To overcome the shortage of experienced people, this year several more prefab firms set up formal training programs. One of the pioneers in this field is George A. Cowee Jr., vice president in charge of sales for National Homes. How Cowee's training course works, as reported by one graduate of the program: "After a couple of months you start

wondering what's the matter with people that they aren't all buying prefabricated houses."

Despite all its problems in 1956, prefabrication continued to grow in maturity. With more people investing in the stock and more industrial leaders becoming directors of the companies, prefabbers were gaining a wider acceptance which will, they hope, help them find more personnel as well as more sales.



Prefab motels like this are going up all over US

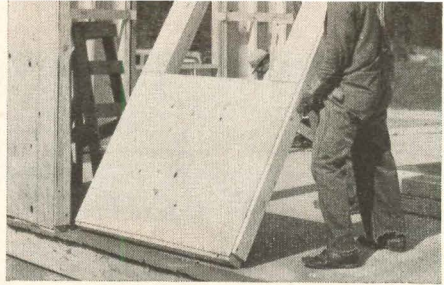
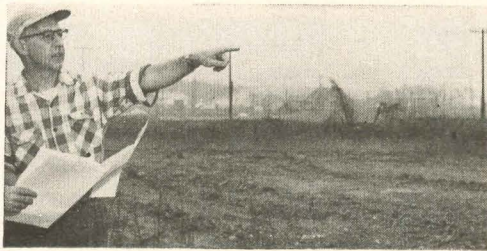
In 1956 prefabbers found new outlets in two booming markets

They are: (1) The motels to go with the nation's \$33 billion of new highways and (2) the schools that almost every US city needs today.

Fairhill, Inc. of Memphis is a case in point. Their trucks (shown in the photo above) delivered a 35-unit motel to a site alongside a Mississippi highway where it was erected in one day. Like many other prefabbers, Fairhill was alert to the motel market even before the fed-

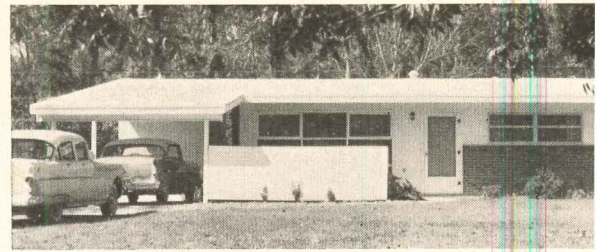
eral highway program was voted, now has orders on hand for several motels.

Prefabbers are no longer restricting themselves to wood or one-story buildings. National has a two-story college dormitory in the works. Both US Steel and Scholz have engineered two-story rigid steel frame units that lend themselves to a variety of applications, including schools, apartments, stores, even hospitals. The need for fireproof structures is forcing prefabbers to look into the possibilities of working with metal. /END



Thompson's

"I SWITCHED TO PREFABS"



"I've found prefabrication a more efficient way of building. It gives me more time for the *business* of building," says Grant Kittle of Madison, Wis.

Now 33 and president of the Madison builders association (NAHB affiliate), Kittle started building after graduation from the University of Wisconsin School of Commerce where he studied Light Construction and Real Estate. He says, "I found a good deal of the material I learned in commerce—two thirds of my four-year course—more than helpful in the building business. Marketing, labor management and accounting helped most." One-third of Kittle's courses were in engineering.

Kittle built conventional houses first, averaged 11 houses a year for three years. The next four years he built prefabs and brought his average up to 20.

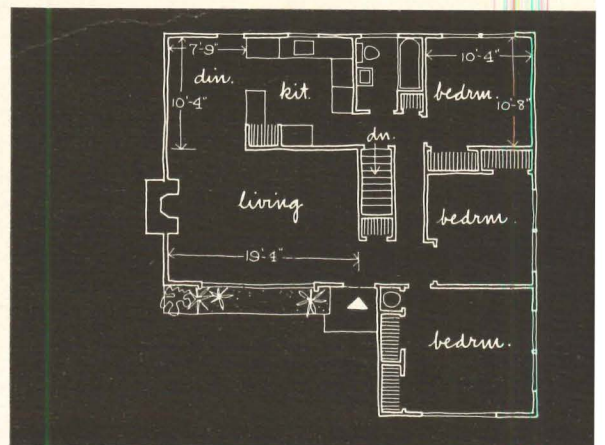
Getting a late start this year (July) because completing a contract on a campus dormitory nonetheless produced as many houses (19) in the half as he had produced all of the previous year.

"Dealing with a prefab company is just like I first-rate counselor on your management team. Times you can't see what's going on right in your backyard. I had my mind changed about what price house was selling by the visits the company man paid me. I moved up to \$15,000 and houses this year. Next year I think it probably \$20,000 houses.

"Frankly, I'd have gone crazy trying to build VA houses without the prefabber's help."

1. "Prefabs provide market-tested design"

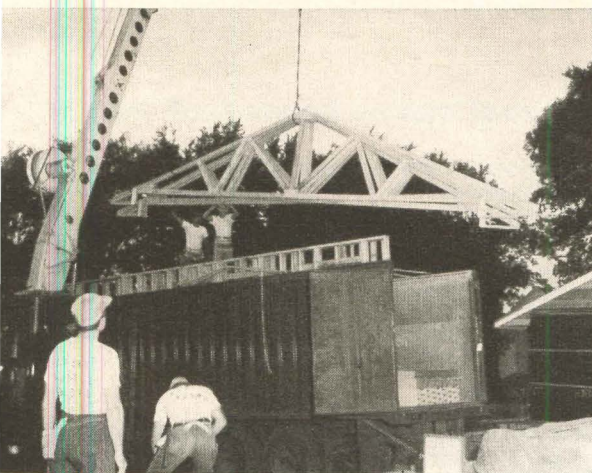
"When I built conventionally, I built the kind of houses—on speculation. It surprised me how far away I was from what the public wanted. I spent most of my time building houses to 'personalize' them for customers. With prefabs, I use market-tested design. A small-volume builder doesn't have the capital or staff to experiment with design. Two or three mistakes can break him. Experienced professionals know what the market wants."





“Prefabs let me grow with a small staff”

“...ication is my way of getting into volume while keeping supervision and overhead—always a fixed item—down to a minimum. My total labor force is five or six carpenters and two laborers. I’ve got one foreman-supervisor. Because I don’t have to spend too much supervisory time myself, I have more time to administration, merchandising, selling and accounting. Speedier building helps me turn over my capital faster.”



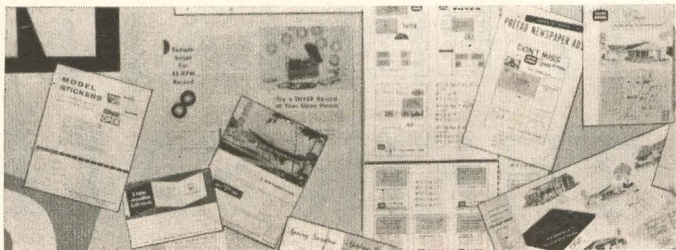
“Prefabs save me 5% over conventional”

“...on my experience in conventional building, I figure I can save 5% building the prefab way. I don’t save the 5% on the house, but when the year is over I can check my books and find that much. I save on direct labor, use less supervision and have practically no waste in materials. Fewer troubles, less delay and account for the rest. I use a crane because I can hire it for an hour. It keeps my crew fresh to set trusses after they are set up.”



“Prefab salesman is like one of my staff”

“...it from Elmer Swanson, the Thyer salesman who has been on my account, is always a big help to me. He sees other builders all the time and picks up techniques that he passes on to me. He knows the product as well or better than I do. He is around for our model house openings, even brings his own bulldogs land for me. He knows what financing is available. He’s johnny-on-the-spot whenever I need him—for anything.”



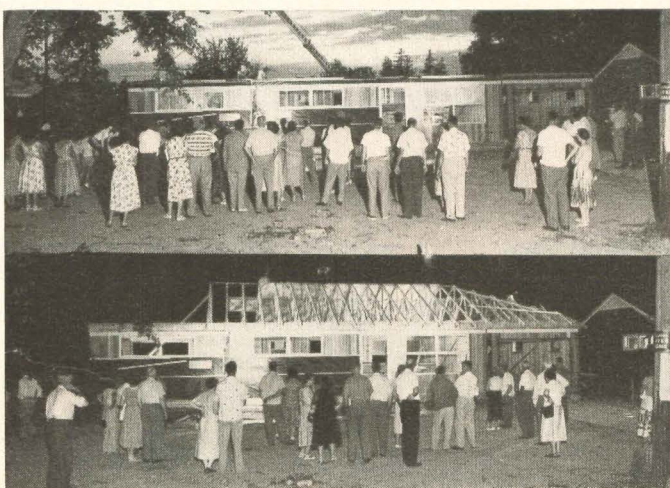
5. “Prefabber offers me merchandising aids”

“How could a small-volume builder possibly afford all the merchandising material the prefabber supplies? I get handout literature, open-house signs, arrows, phonograph records, color photographs, stickers, publicity releases and newspaper ads. I can get as much material as I want and fit it to one house or 20 houses. This merchandising material is professionally prepared, something I’d find hard to match even if I could afford it.”



6. “Prefabs assure steady material supply”

“As long as I’ve built prefabs—four years—I’ve been able to get materials when they’ve been in short supply for other builders. In the summer of ’55 it was gypsum dry wall. Sometimes it’s Thermopane. Sometimes it’s the right kind of lumber. I’ve never been caught short, or, more importantly, delayed for lack of materials. And it’s never cost me a nickel if I was shorted on a delivery. The salesman makes sure of that.”



7. “Prefabber thinks up promotion ideas”

“I would never have thought of some of the promotions I tried—nor would I have had the time to put them on by myself. Last summer I built a house under lights. We chose the evening so husbands as well as wives could see how our houses were built.

“We attracted thousands of people we never could have attracted otherwise. Of the several, I tried, it was my most successful promotion.”/END

17 PREFABBERS PICK THEIR SALES LEADERS

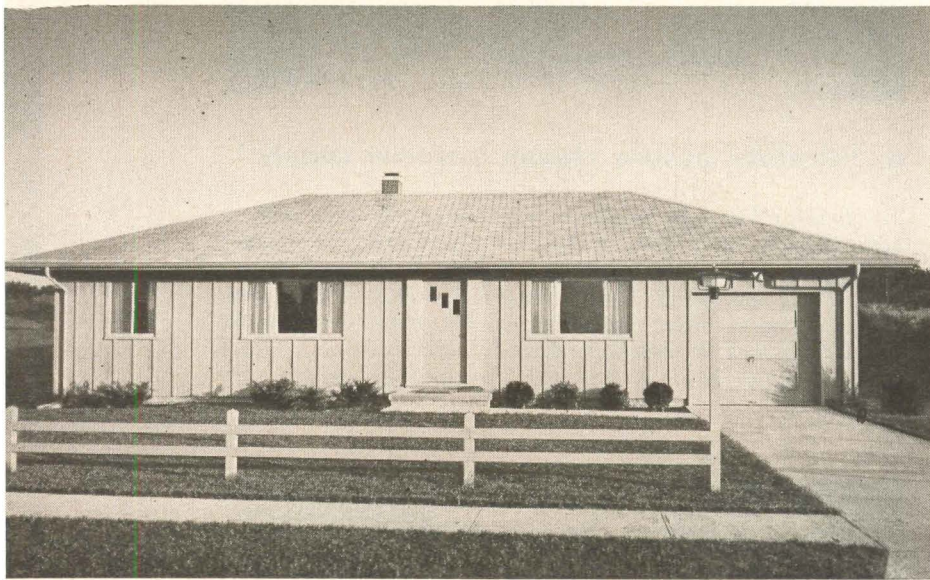
This year you could get almost anything you wanted in a prefab house, but the one thing most people looked for was: *more space*.

So big split levels, ranches and two-story houses got a much bigger share of the market than in 1955. In small houses, offsets were added to living rooms to make L-shaped models which sold better for more money.

The 17 houses shown here and on the next five pages are a good cross-section of what the prefabrication industry was selling in 1956.

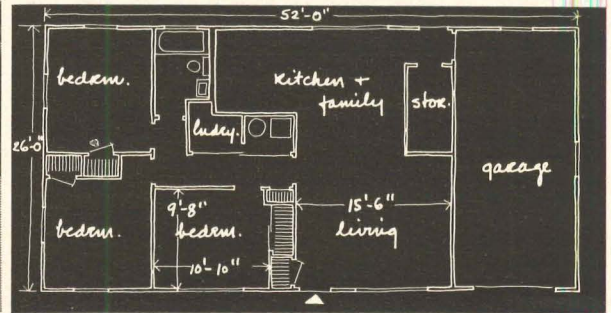
Each house was named by its maker as his sales leader. HOUSE & HOME publishes them as a fair, random sample of top selling houses, *not as a rating-list of the year's best sellers*.

New Century: the hip roof makes house look bigger

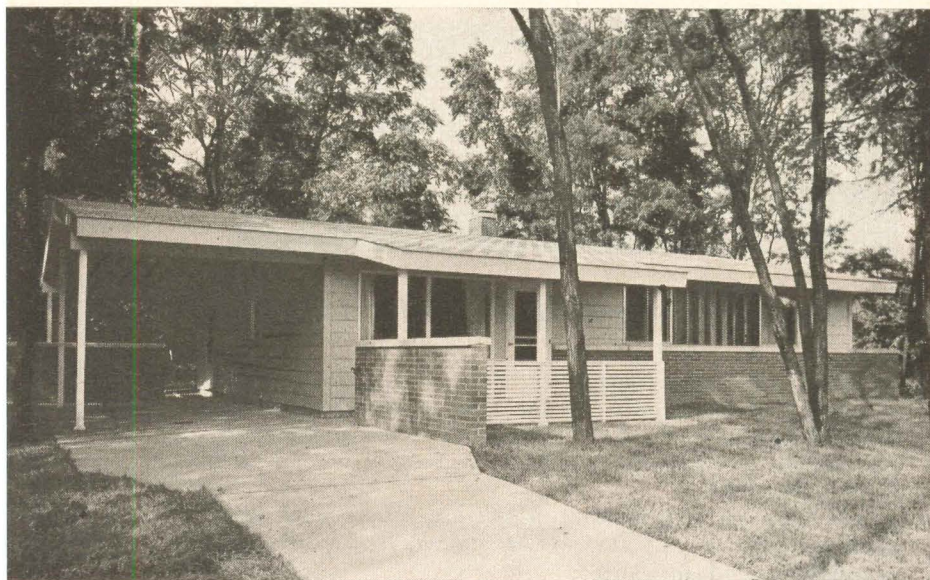


Many of today's buyers seem to favor the more gradual lines of a hip roof. The sloping roof-line of this fast selling small house gives it an illusion of greater length than it would have with gables.

New Century offers this board-and-batten model in either standard framing or stressed-skin plywood and with more than a dozen variations. In this version, with a big open living-kitchen-family area, it totals 1,040 sq. ft., sells for \$10,750 without lot and garage.



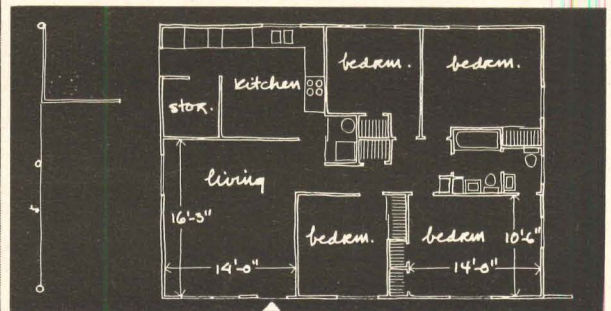
Richmond: people like the porch on this model



More and more people want "three dimensional" fronts on their houses. Richmond finds that porches, brick walls and dado bring buyers out to see the house shown here.

When buyers get inside this house they find the answer to a growing family's needs: four bedrooms and 1½ baths. A storage room and plenty of closet space are sale closers.

Called the Champ, this best seller has 1,165 sq. ft., retails at \$11,200 without lot.



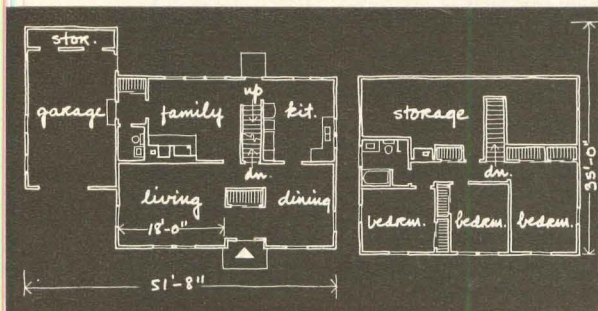
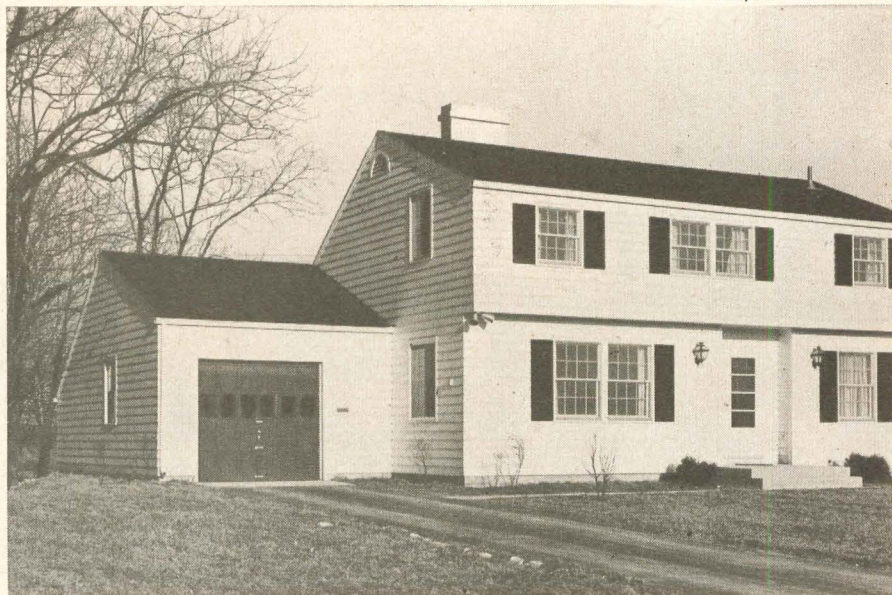
Midwest: two stories give buyers space they want

Nils Lindquist

This New England salt box house is selling fast in Ohio, and for a good reason: it provides 1,629 sq. ft. for \$18,500 (without lot).

A fourth bedroom can be added to the 3-bedroom-and-storage second floor. A generous-size family room (almost a "must" in this price class) and a separate dining space are included in the big first floor.

Centrally placed closet is the only divider in open dining-living area.

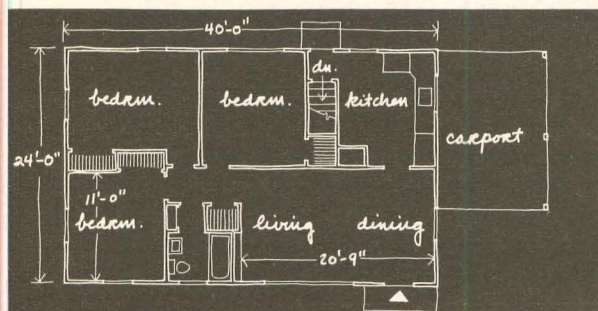
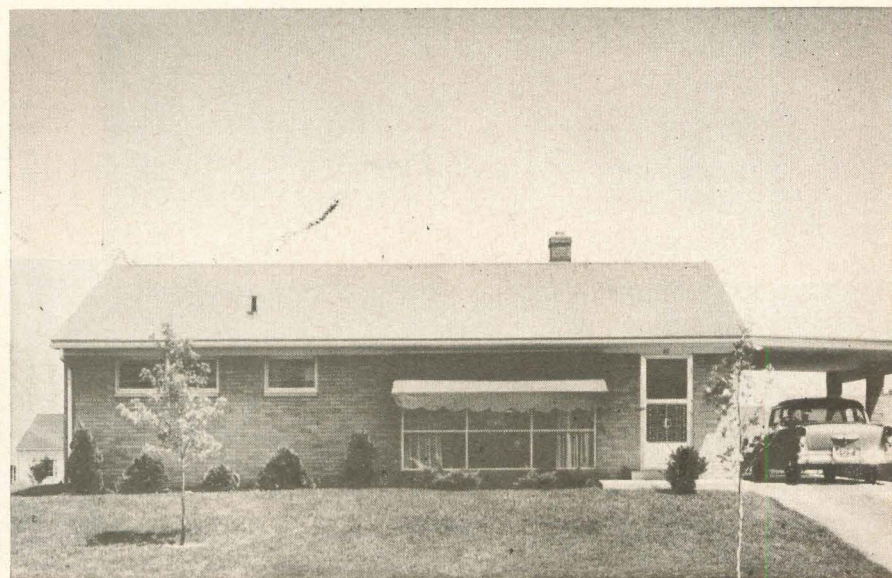


Inland: the picture window opens up the facade

Buyers like the trend to more glass, whether in contemporary or traditional models. Sales are built into this 960 sq. ft. house by the nine-light window which opens up the 20' long living-dining area.

To get shade, Inland uses the appeal of wide (2'-8") overhangs front and back. The basic house retails for \$10,500 without lot.

Since basements are almost a must in Inland's market, one is provided: The staircase leads to lower level recreation area.

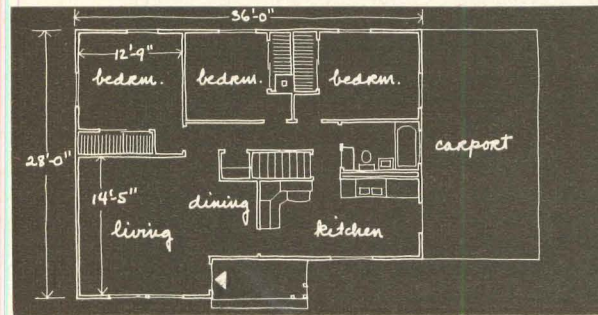
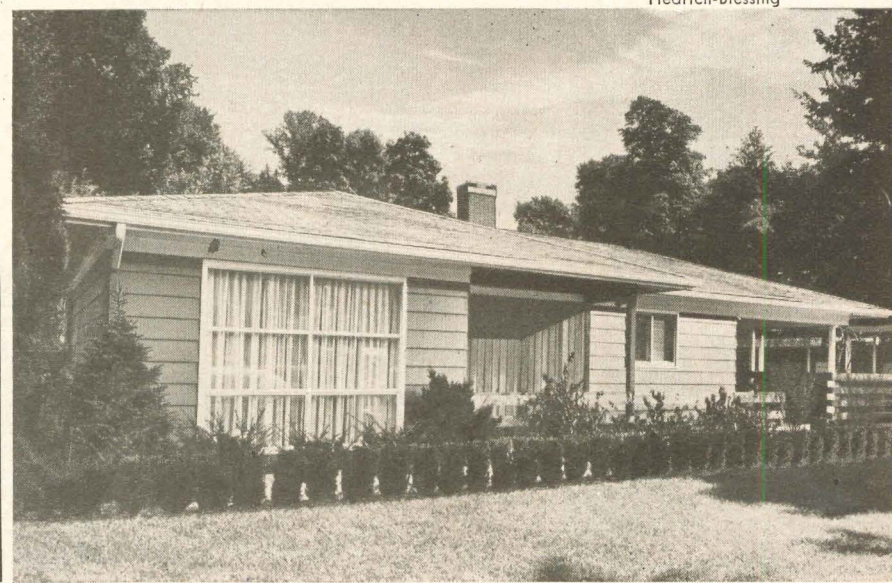


Harnischfeger: a small house gets an L look

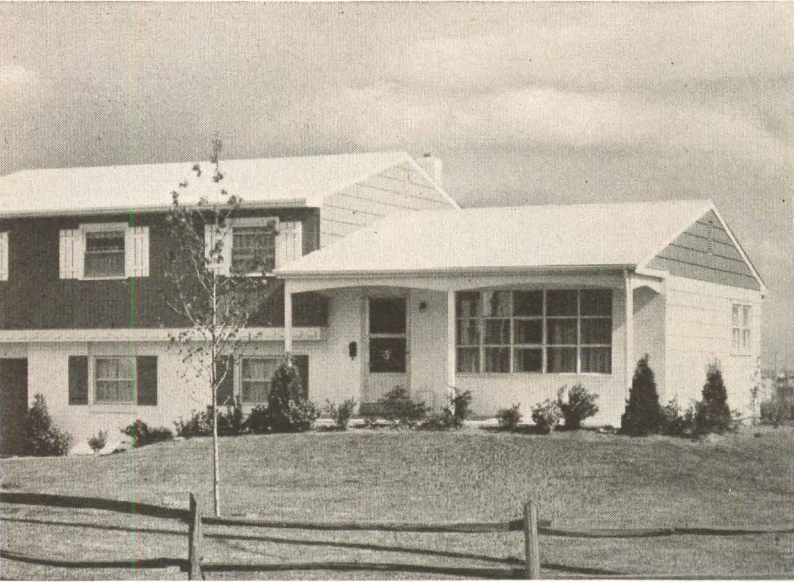
Hedrich-Blessing

An L-shaped house always looks bigger than a rectangular house, and a few changes can give an L-look to a rectangular house. Harnischfeger made this house their best seller by adding a simple jog to the living room wall. Then two hip-roof sections were added to accent the L-shape. A porch, vertical and horizontal siding and big picture window complete the treatment.

With three bedrooms and a big kitchen, this 930 sq. ft. model sells for \$12,200 without lot.

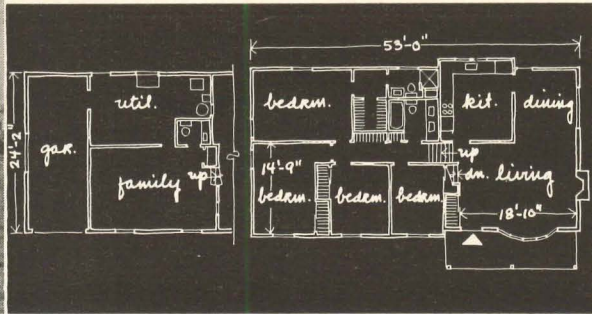


Presidential: the top price model is tops in sales

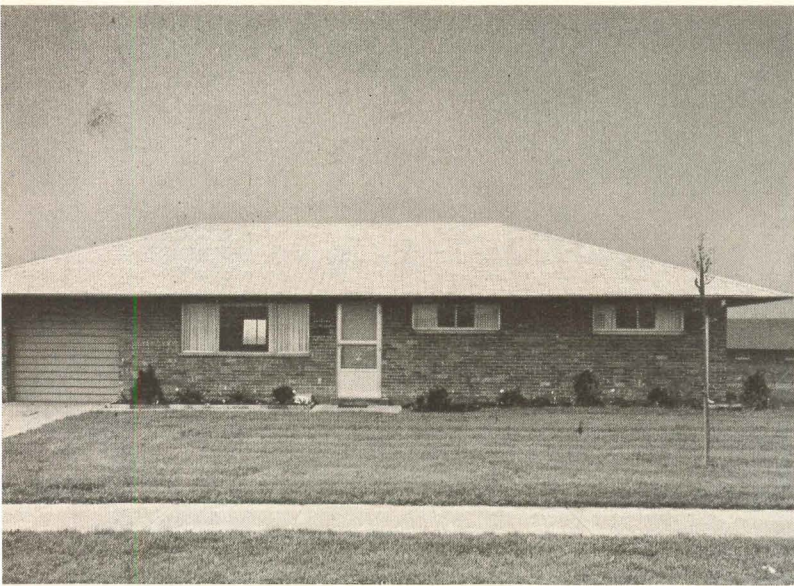


This 1,950 sq. ft. house retails at \$16,000 (without lot) and outsells Presidential's low-cost models.

In the new trend to higher-priced houses this model tells a story. It gives the buyers lots and lots of space; four bedrooms, 2½ baths, family living, and dining rooms. Plus generous closets. Presidential made it a split because a split gives the most space with the smallest traffic pattern. The model has a touch of New England in its exterior.

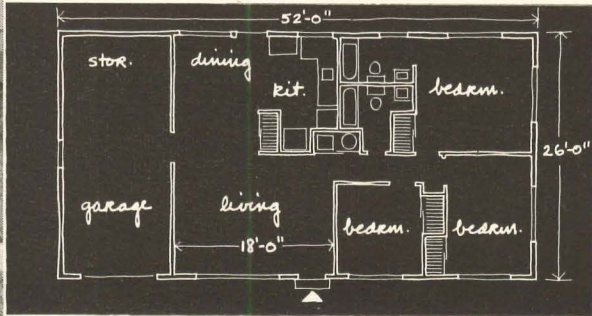


Huber: this big hip-roof house sells for \$12,000



Three bedrooms, two baths and 1,040 sq. ft. in this low-cost house made 1956 sales history in Dayton.

The houses outsold everything within reach and buyers got more than space, their number one requirement. For two examples of what else they got: today's popular sweeping hip-roof and Dayton's almost "must" brick exteriors. Huber achieves variety in the appearance of his houses by using different looking brick from 25 suppliers.

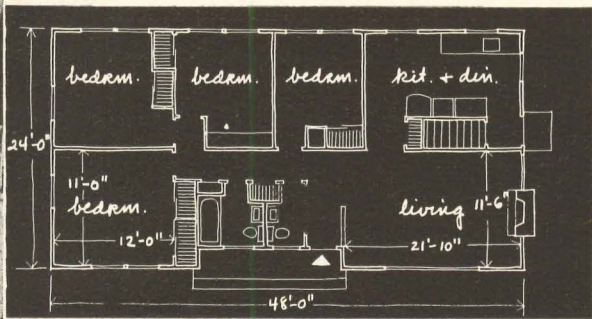


Page & Hill: four bedrooms meet today's market



At \$13,500 (without lot) this house brought in families by the dozen. In 1,120 sq. ft. Page & Hill worked in not only four bedrooms, but give a bath-and-a-half, a kitchen big enough for family meals and a 22' long living room.

In an area where buyers insist on basements, dealers offer a fireplace in a lower-level recreation room for only \$100 more than cost of the "extra" first floor fireplace. Garages cost \$800 to \$1,000.



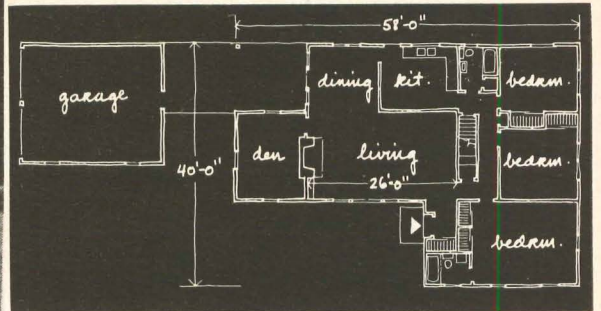
Pease: colonial treatment comes back strong



A front-runner in the high-price market, this clapboard model sells fast at \$20,000 without lot.

Placing the garage in line with the L-shape makes the house look bigger and gives it its colonial look. Breezeway division between house and garage is an attractive break in front elevation.

Inside the 1,463 sq. ft. house, the bedroom hall gives direct access to the kitchen. A study off the 26' living room is well away from daily activity.



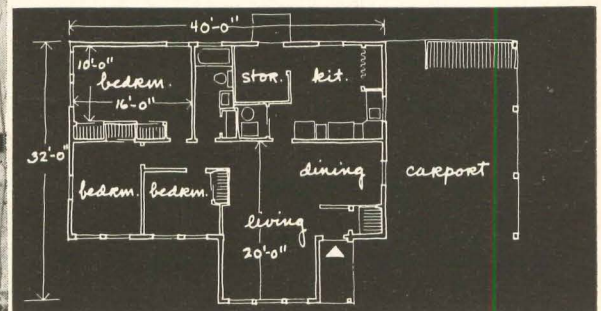
US Steel: here's a popular two-zone plan



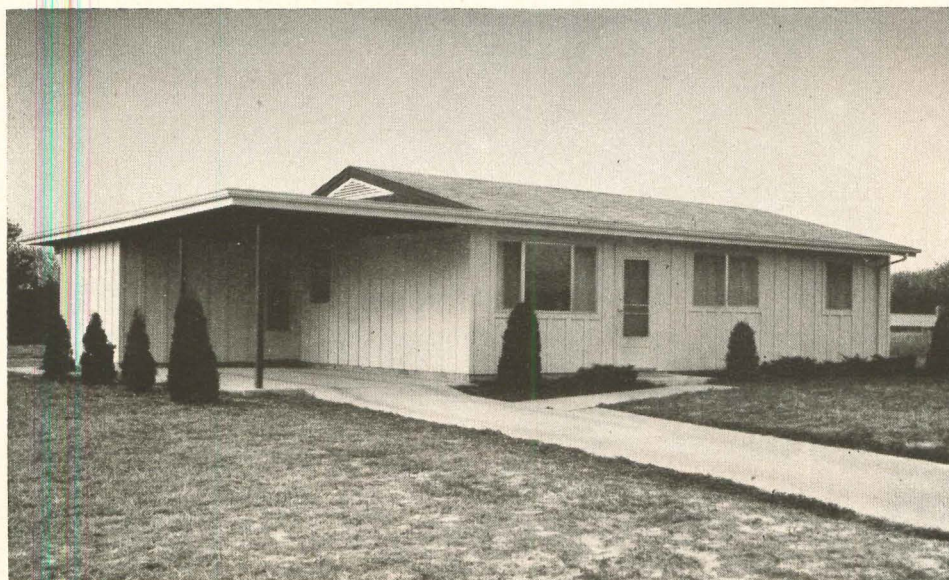
A functional use of a living room offset makes a definite split between living and sleeping area.

The L-shaped daytime area does more than zone the house. It also gives buyers the more interesting exterior they look for today's house. Offset has big bay window, makes the whole house look larger.

The lacquer finished plywood of the stressed-skin panels makes a warm and light interior. The 1,054 sq. ft. house sells for \$11,750 without lot.



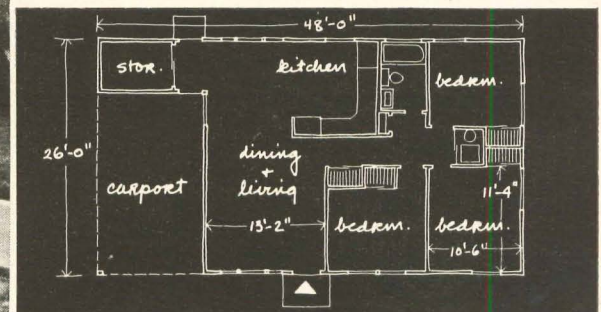
Best: flat top carport saves extra roof cost



Every nickel counts in today's market, and Best saved their buyers a lot of roof framing by stopping their gables at the side of the house. But they kept the long look by carrying the eaves line out over the carport and storage unit.

The 1,000 sq. ft. house is sold retail at around \$10,500 without lot.

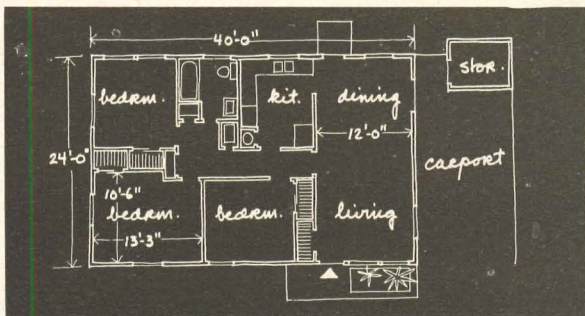
Typical of Best's popular models, this house has an open kitchen-dining-living area.



Thyer: 12 different exteriors sell one basic plan

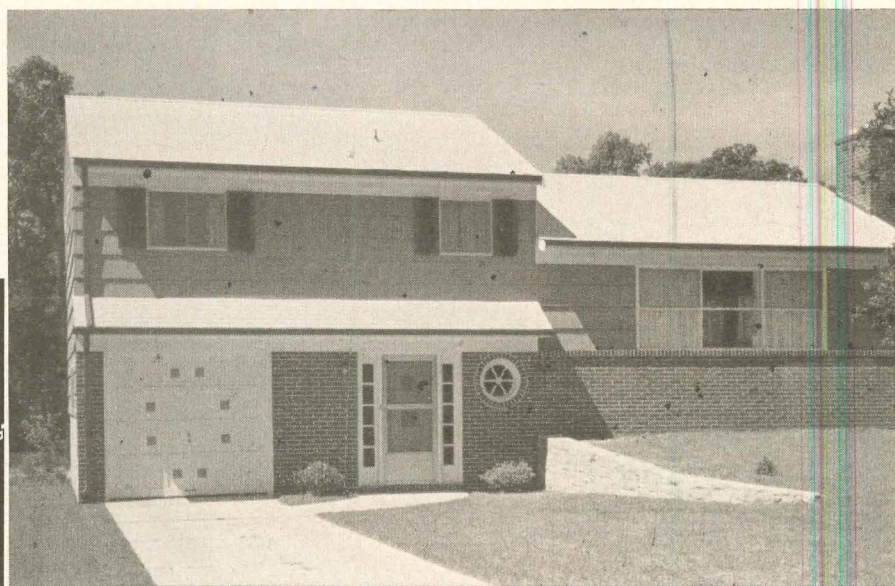
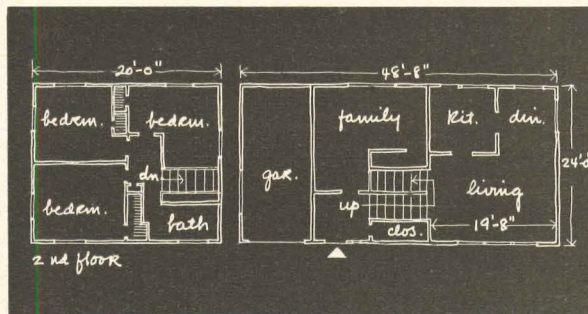
A builder can use 3-12, 5-12, hip or gable roofs interchangeably on Thyer's best selling three-bedroom house. He can get even more variety in his project by different exterior treatments with brick, wood and fiber shingles and bevel siding.

The trellis work under overhang and window boxes can be used to vary the front elevations for individual sales interest. The 958 sq. ft. house sells for \$9,500 without carport or lot.



Maryland: three roof lines do the trick

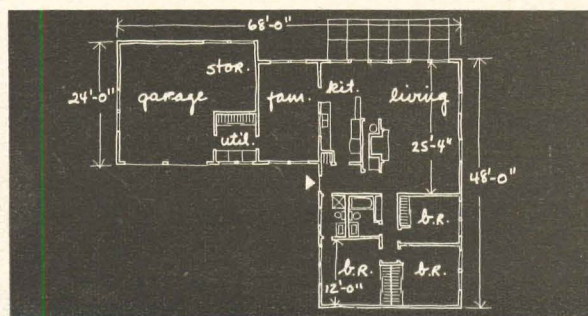
Today's market likes a horizontal emphasis and Maryland housing gets it in this fast selling split with three roof lines. The two-story section, that might otherwise look tower-like is spread out by the mid-height overhang. Roof over the living room, right, midway between the other two roof lines, seems not only to stretch the house lengthwise, but also deepens it by giving this wing a setback look. The 1,344 sq. ft. model sells for \$15,000 without lot.



Scholz: the exterior is almost a signature

Buyers get the best of Scholz' two-style treatment in his all-time best seller, Rocky River. While the front has the traditional porch and diamond window, the house opens up with a big contemporary interior. The open living-dining-kitchen area looks out through big glass walls to a rear terrace.

Bath at the front entrance serves guests as well as the master bedroom. The big 1,750 sq. ft. model sells at \$25,000 without lot.

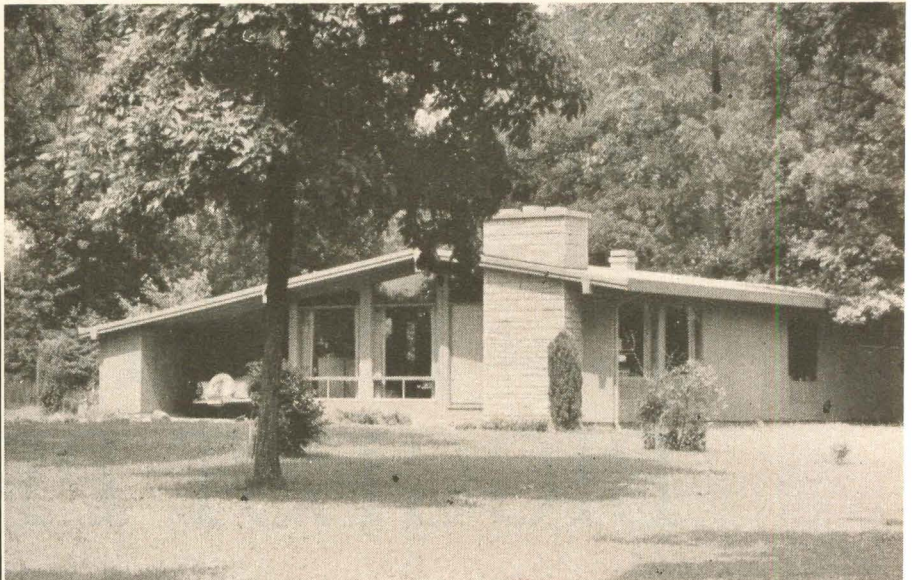
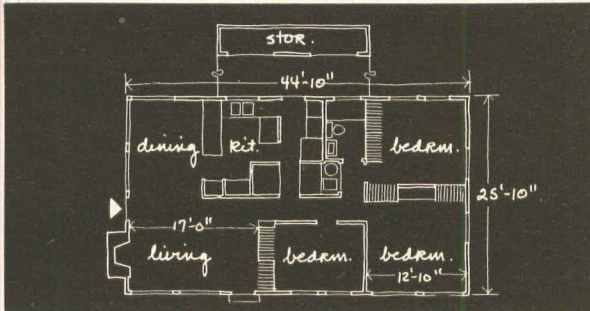


Modular: sweeping roof line is the secret

A roof that makes this house much more than just a basic plan also makes it a best seller.

This 1,170 sq. ft. ranch is turned into a contemporary because the roof permits a high open beam ceiling, wide overhangs and window walls. At the back of the house the roof sweeps out over the carport and big storage unit to pull them in as integral parts of the house.

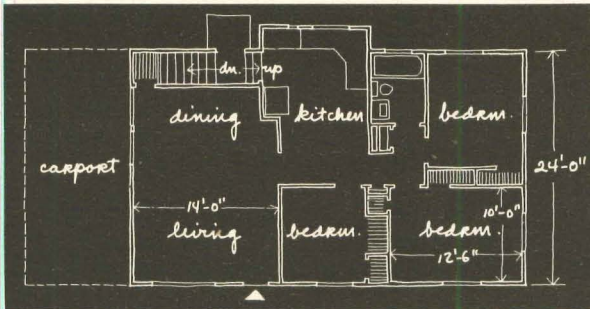
The house retails without lot at \$16,300.



Wilson: the big kitchen is the big feature

Many families want big kitchens, and in this 990 sq. ft. model Wilson extended his kitchen past the rear of the house to seat the whole family at breakfast and lunch. Wilson's big kitchens are strong sales points in all his models.

More weight is also given to the outside of this small house by its wide overhangs and the trellis beside the front door. With full basement, it sells well at \$12,200 without lot.

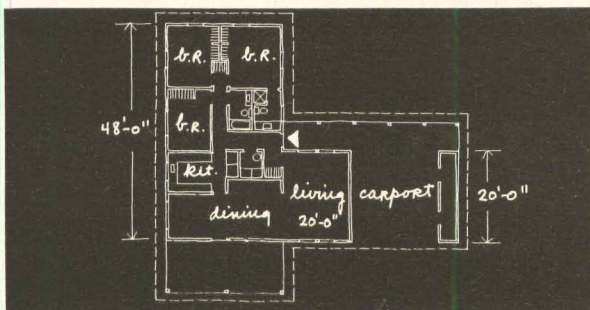


S. Ashen-Brenner Studios

Fairhill: the open L-plan is a hit in the South

In Memphis this big contemporary is a best seller in a tradition-conscious market. The big 1,700 sq. ft. model brings in buyers with its open living-dining area, glass walls, beamed ceilings and deep overhangs. The exterior can be varied with horizontal and vertical natural wood siding.

Living is divided from sleeping area by utility cluster. The three bedrooms and two baths are big and generous. The house retails at around \$19,000 without lot./END.



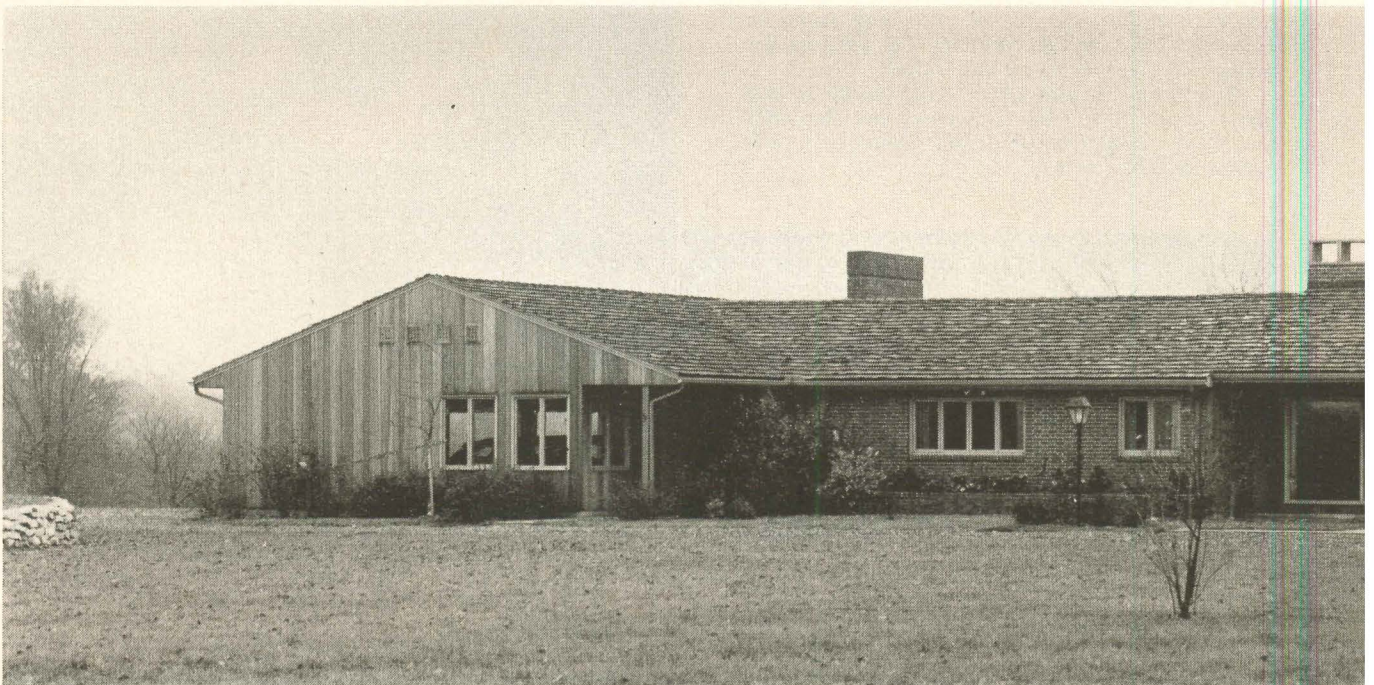
Hitchings-Newman

Question: What kind of houses do big prefabbers live in?

Answer: IN THE WORLD'S BIGGEST PREFABS

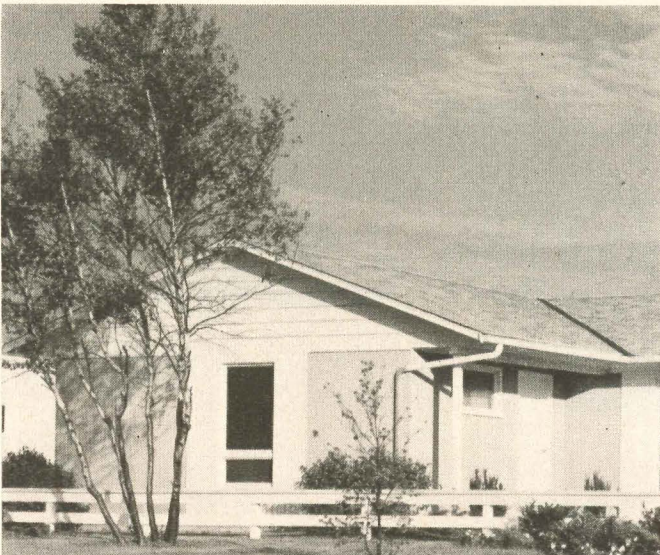
(and they assemble them out of standard panels)

For example:



Midwest's president John Morley built this luxury house

R. Marvin Wilson



And he used panels and components just like those in
← this regular production model



Buell-Kraft Studio

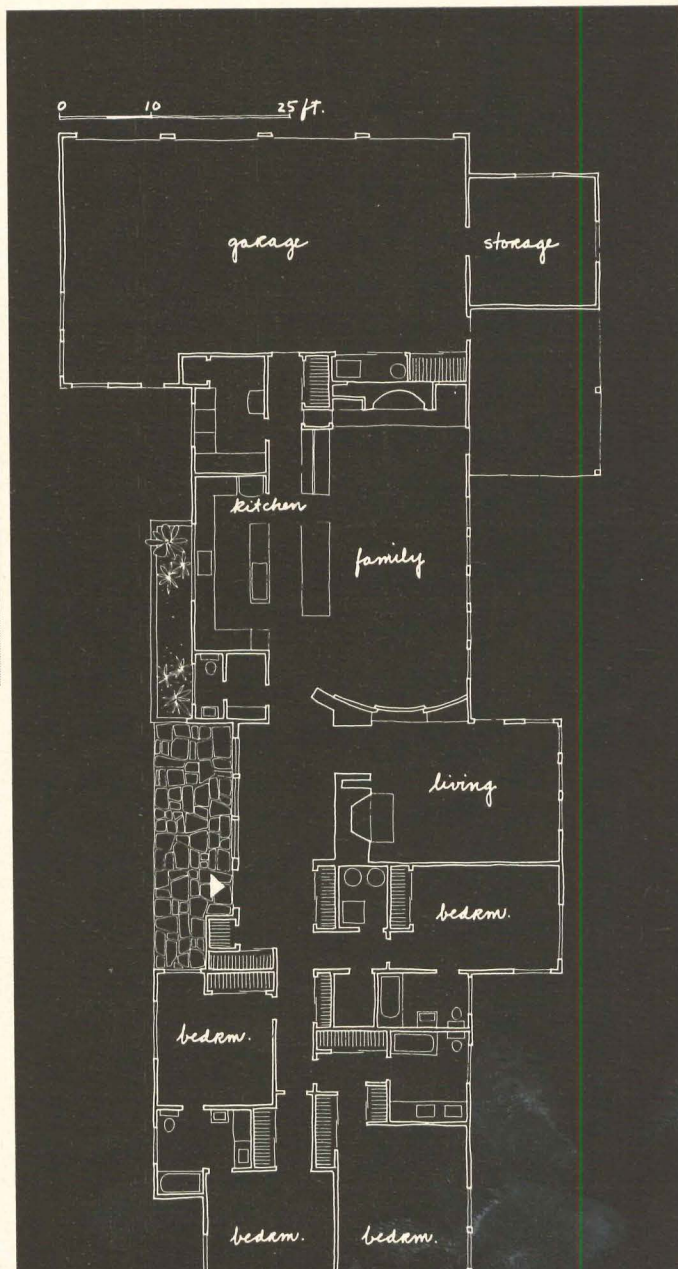
Family-room-kitchen has scissor truss ceiling. The white pine walls are from a 90-yr. old barn.

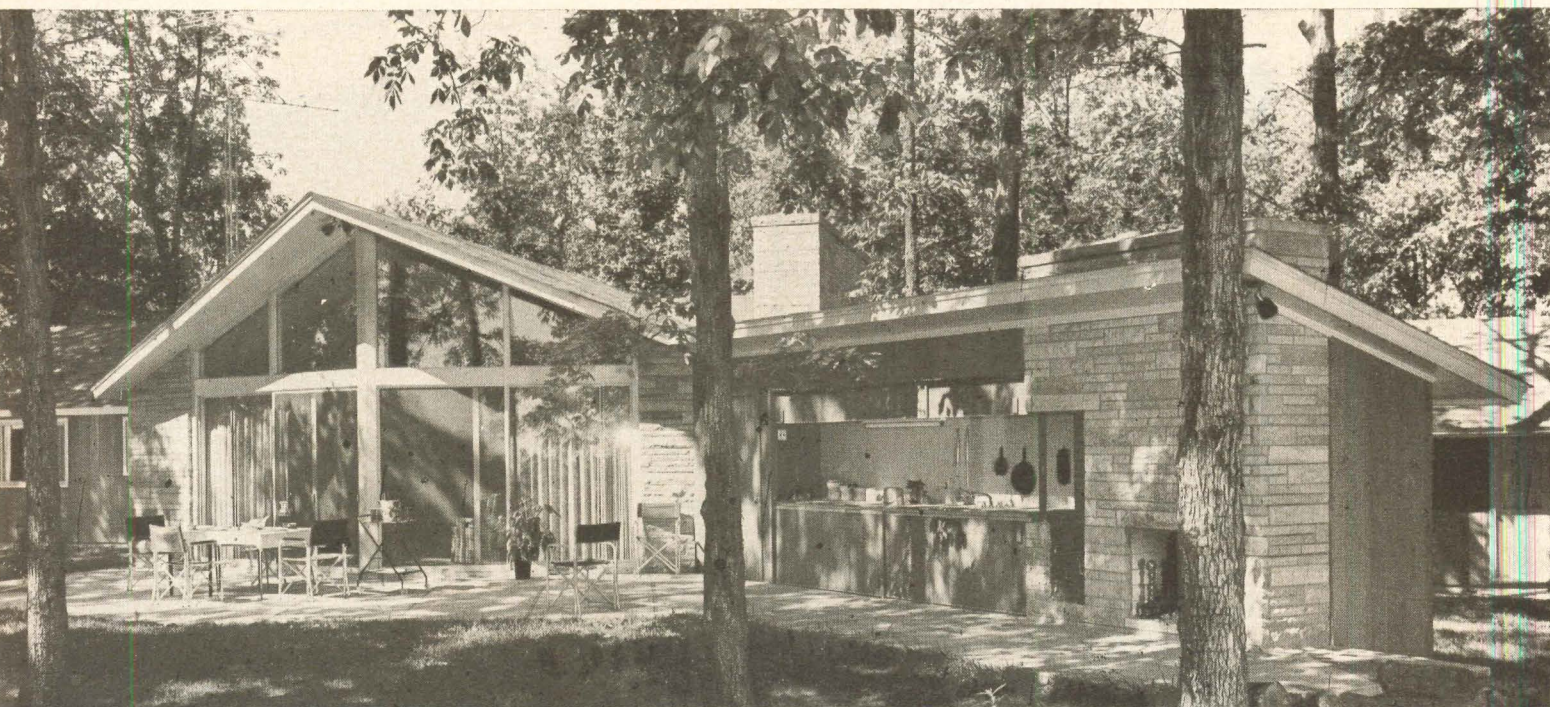


When John Morley wanted a new house for his 80 acre farm outside Mansfield, Ohio it was both logical and practical for him to build it of standard parts from his Midwest sources. Midwest's architect John Highland put it together out of what was essentially four regular prefab houses. "This way of combining component parts will catch on and more," says Morley. "We saved money because we knew what we were doing. After our slab was in, a five-man crew put up the walls and sheathed the roof in two weeks."

The system Morley used has worked well for other prefab clients. The houses of three who have built this year are featured on the following pages. They, too, show that pre-cast construction makes sense for large as well as small houses.

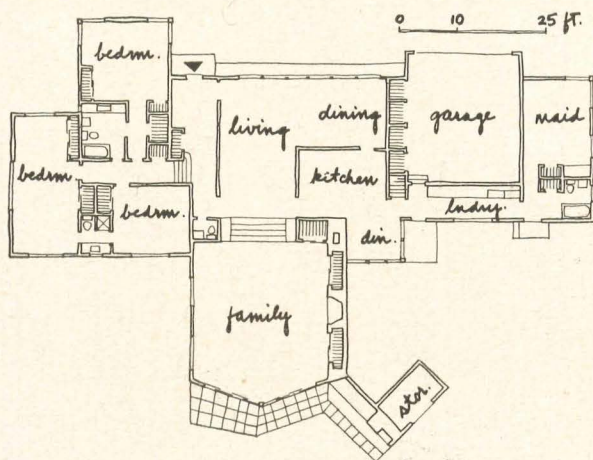
This rectangular house (plan, left) was tailor made out of standard parts for the Morleys. Oversize garage is at left (top) then service area, kitchen-family room, formal living, bedrooms in 4,600 sq. ft. house. →





Terrace wing with glass-gabled family-room and outdoor kitchen was nonstock. But all parts are now regular catalogue items.

This glamorous house belongs to New Century's John King



Plan shows a basically rectangular pattern plus one wing.

New Century Homes has always built a high proportion of special-order houses. This big one for its president is the largest the factory has ever turned out, but it involved no difficult problems. Even the nonstock walls and roof for the oversize family room were easily designed and fabricated.

An interesting by-product developed from it: a Terre Haute doctor, reading *HOUSE & HOME*'s prefab issue last December, noticed that prefabbers were building big houses and got in touch with New Century. The doctor had spent \$3,000 on house plans but had junked them when bids came in far above his budget. King showed him this house and the doctor decided it was just what he wanted. Duplicated with minor changes, the house cost the doctor about \$52,000, plus land and special appliances—far less than the bids for his earlier design.



Formal living room is at front of house, and like kitchen and bedroom areas, has flat ceilings, stock windows and walls.



Family room is five steps up from formal living room as house has been built on gently sloping ground.



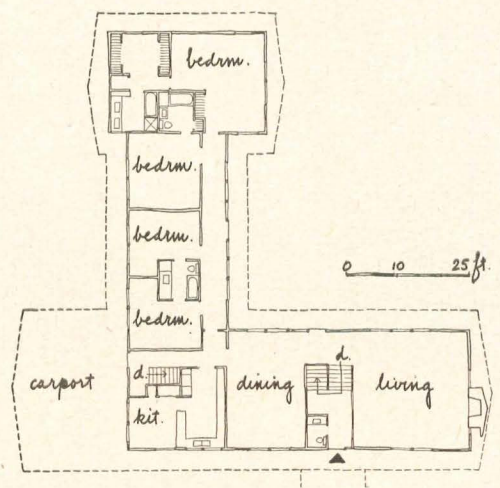
Long, L-shaped house has narrow end to street, which is at right in photo above. Porte-cochere acts as a second carport.

Richmond's Charles Travers prefabbed this handsome house

This roomy, comfortable house not only gives the president of Richmond Homes an attractive place to live in but it has become a merchandising lesson to his salesmen and builders.

Although it was finished only a few months ago, the house has already served as a prototype for a second house which has been put together out of Richmond parts. While Travers thinks Richmond's bread and butter will always be its smaller houses, a few luxury models like this raise company prestige, let people know that prefabs can be big and impressive.

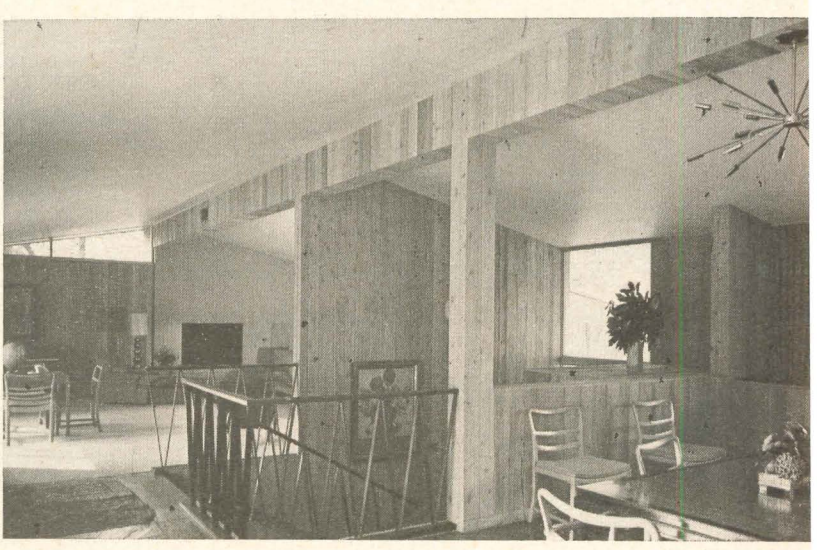
In houses like this there are also lessons for custom builders. Components are less expensive simply because they are stock parts, often duplicated. But the real saving is in time. While most big houses take eight months to a year to build, these can be finished in less than half that time.



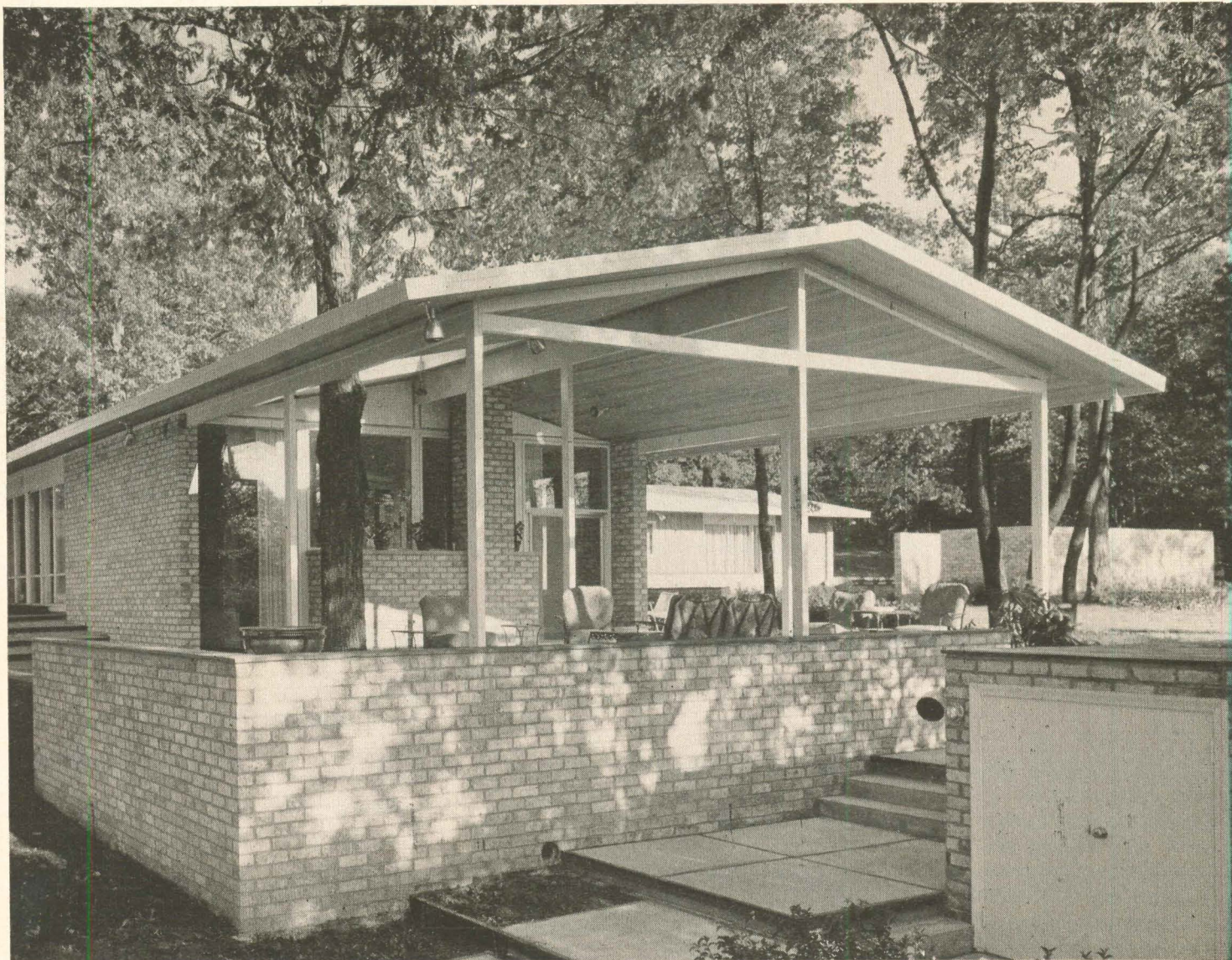
Plan separates living and sleeping areas. Architect: John Gerard.



Suntrap patio is formed by two wings of house. This whole area is being developed into a California style garden.

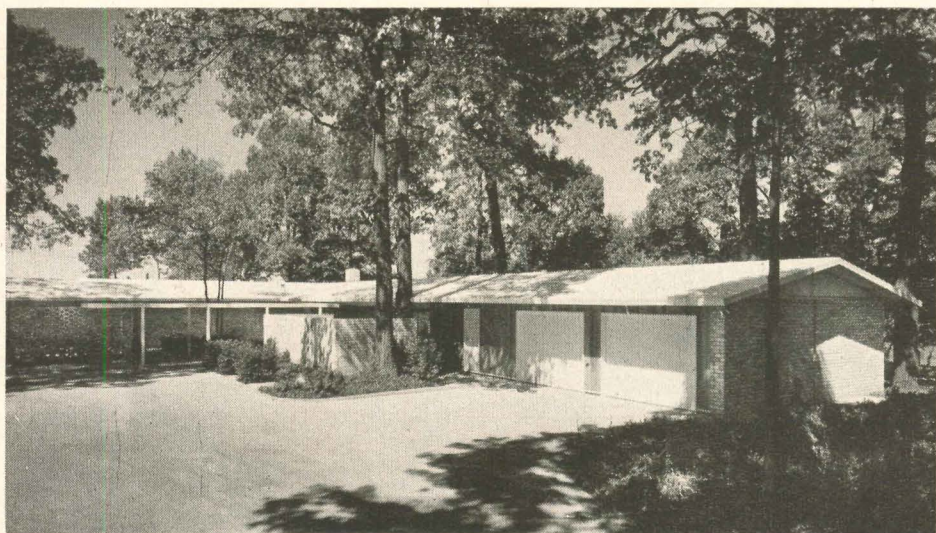


Living room is on far side of stairs leading down to entrance hall. Stairs continue to the family room under living area.



Covered porch outside family room is one of several outdoor living areas planned for intimate family use and for big parties.

Biggest prefabber, Jim Price of National,



Paved entrance court gives impression of a sunny glade in the woods.

Prefabrication's No. 1 salesman now lives in prefabrication's No. 1 house—No. 1 in size and luxury.

Never has a salesman had a more glamorous sample to show his customers.

Jim Price leads visitors around his house with justifiable pride. "This shows what you can do with panels," he says. "You can build anything that money can buy—and do it much faster. We built this in two months and ten days. Usually a house of this size would take a full year or more."

Equally proud is Architect Charles M. Goodman. Did the use of prefab parts hold him back? "Not at all," he says. "You dominate the component—it doesn't dominate you. From these parts an imaginative architect can design anything."



Plants and patios were designed by Goodman with same painstaking care he gave house, which he sited to save every possible tree.

Builds the biggest prefab of them all

This is a custom house built on a basis of mass-produced, standardized components. The plan, however, is designed for the specific living requirements of a particular family."

The big house has 5,200 sq. ft. of enclosed space plus a garage, two porches and about 1,000 sq. ft. of terrace. Panels have gypsum wallboard on the inside, Douglas fir plywood on the outside covered by pressure siding or oversize, handmade bricks.

Cost of house including \$12,000 lot is around \$125,000, but less expensive materials, built-ins, special fittings could reduce price to \$90,000.

continued on next page

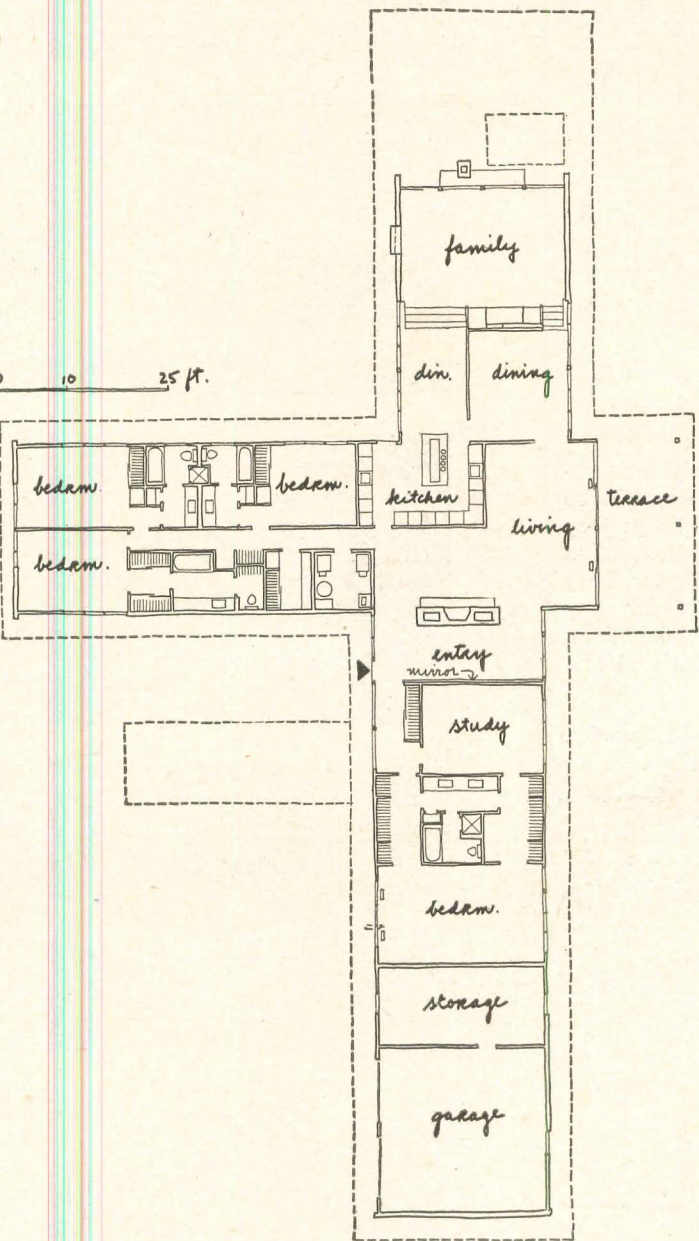
...al entrance (right) adds both dignity

Photos: Hedrich-Blessing





Jim Price's kitchen is at heart of house, equally accessible from all three wings



The Price house is divided into three zones: parents' area wing projecting toward bottom of plan; children's wing and room for guests (wing projecting to left) and common space of living, dining and kitchen areas. Thus both of the college-age children can entertain their own friends, and parents can entertain, without disturbing other members of the family.

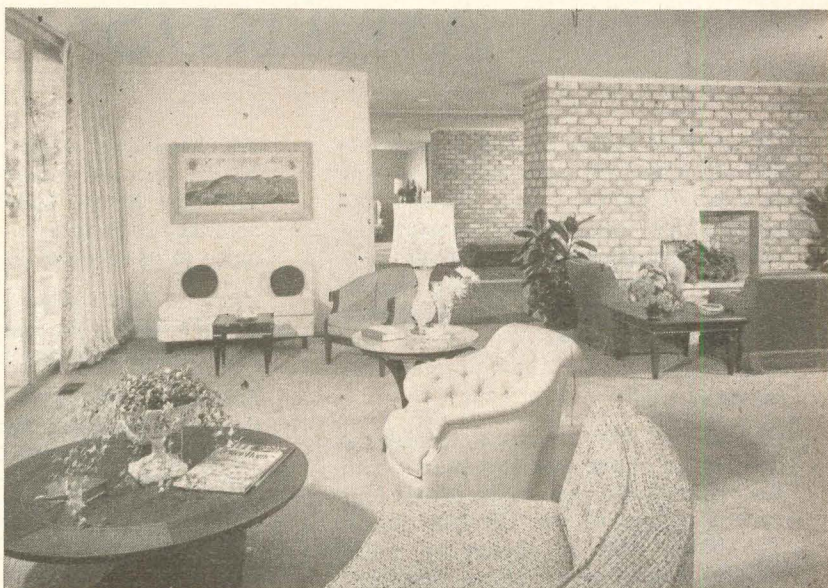
Handsome kitchen is forerunner of Frigidaire's new line of kitchen components. Goodman designed the island cooking, communication center. Back splashes are mirrored./END.



Breakfast room (right) is between kitchen and family room. Window wall is of standard construction, faces south to one of many patios.



Formal entrance hall has an enormous mirrored wall, at right above.

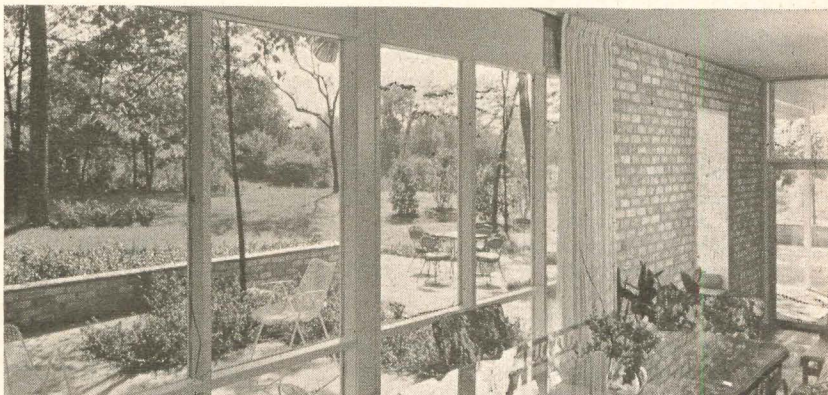


Living room is L-shape, as plan shows, is on rear side of house.



Photos: Hedrich-Blessing

Family room (above and at top of plan) is close to kitchen, opens to big porch.



In celebration of its Centennial in 1957,

THE AMERICAN INSTITUTE OF ARCHITECTS

is sponsoring a program of

HOMES FOR BETTER LIVING AWARDS

As in 1956, HOUSE & HOME magazine and the NAHB will cooperate in the new HOMES FOR BETTER LIVING AWARDS program. This time, BETTER HOMES and GARDENS magazine and NBC will also participate. Thirteen other national organizations listed below will also cooperate in the program. Some of the award winning houses in the 1956 program are shown at right.

Purpose of the program to pick the best houses of the past two years—both custom-built and mass-produced—in four eastern regions of the US (see rules). The houses will be chosen by a distinguished jury of architects, landscape architects, representatives of the home building industry and by the editors of HOUSE & HOME and BETTER HOMES and GARDENS.

Among the members of last year's jury were Architects Pietro Belluschi, Charles Goodman and Clarence Stein; Builders Joseph Haverstick and Earl Smith; Editors Mary Hamman (LIFE) and Proctor Mellquist (SUNSET).

Here are the principal conditions:

You must send in your entry slips before February 15, 1957.

Use form on page 136.

Your entry must be postmarked before midnight of March 30, 1957.

Here are the rules in part:

• The houses submitted must be built since January 1954, and located in: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Puerto Rico, Virgin Islands, Canal Zone, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, District of Columbia, Virginia, North Carolina, South Carolina, Georgia, Florida.

• Awards will be made in two major categories:
1. Houses designed specifically for an individual owner, divided according to size:
a) Under 1,600 sq. ft. of living space.
b) Between 1,600 sq. ft. and 2,800 sq. ft. of living space.
c) Over 2,800 sq. ft. of living space.
2. Houses designed for a merchant builder and sold speculatively, divided into three classes:

The house you submit must be designed by a registered architect but it can be submitted by the builder, owner or the architect so long as the others involved agree to its submission.

And you must follow the program rules in submitting your entry. The rules (in part) are printed below.

Because of the AIA Centennial celebration, the award-winning houses will be given the widest possible publicity: they will be exhibited at the AIA Convention and at the National Housing Center. They will be published in the participating magazines. They will be publicized on radio and TV and in the national and local press.

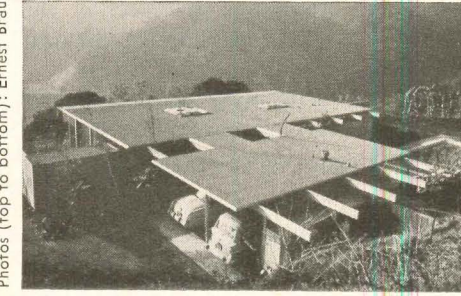
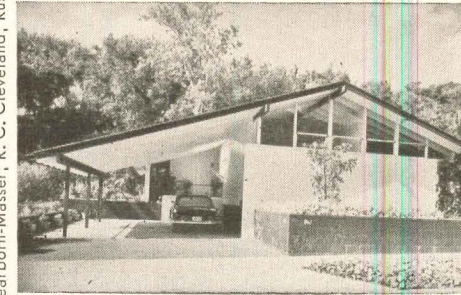
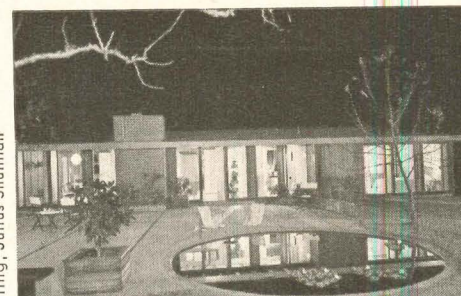
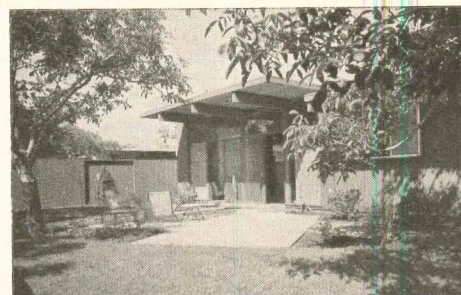
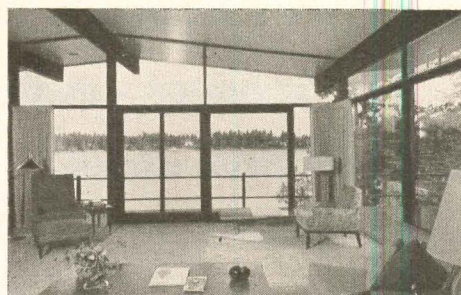
Very little time remains for photography. So send in your entry slip today.

Cooperating associations:

American Bankers Association
American Society of Landscape Architects
Institute of Life Insurance
Mortgage Bankers Association of America
National Association of Home Builders
National Association of Mutual Savings Banks
National Association of Real Estate Boards
National Retail Lumber Dealers Association
National Savings & Loan League
Prefabricated Home Manufacturers' Institute
Producers' Council, Inc.
US Savings & Loan League
US Chamber of Commerce

- a) Under \$15,000.
- b) \$15,000 to \$20,000.
- c) Over \$20,000.

• All notifications of entry shall be submitted on the entry slip printed on p. 236, accompanied by a check for \$10 for each house entered. Mail to "Homes for Better Living Awards," c/o American Institute of Architects, 1735 New York Ave., N.W., Washington 6, D.C. A separate entry slip shall be submitted for each project entered. Additional slips are available from the AIA, HOUSE & HOME and BETTER HOMES AND GARDENS.
• All entries must comply with the regulations listed in the program. The program is also available from the sponsor and the principal participants, and will be sent automatically to anyone submitting an entry slip.



Photos (top to bottom): Ernest Braun; Dearborn-Masser; R. C. Cleveland; Russell Illig; Julius Schulman

Now let's listen in together on

WASHINGTON'S BEST KNOWN SECRET



Today's best known secret in Washington is a sensational "foreglimpse" of future housing needs. Every one in the know has read it in mimeographed form; every one in the know is talking about it and arguing about it; now HOUSE & HOME is proud to print it for the first time on the pages which follow.

Its anonymous author is the best informed housing expert in official Washington. He calls it an "exercise" because "there are too many delicate assumptions involved to classify it as a forecast or even a projection." But as an exercise, he says, "It helps to bring out certain logical implications that may be expected from current trends."

Most sensational of these "implications" are:

1. By 1960 America will have an enormous surplus of low-cost housing even if no more low-cost units are built.
To be precise, the 1960 surplus of cheap housing will be 4,580,000 units if we assume that each family will choose to live in a home worth roughly one year's income. *See Table 6 page 158. The surplus will be very much bigger if we assume (as FHA usually does) that a family can afford a home that costs a little less than two years' income.*
2. Because of this great surplus of low value units, price declines in the lower price range "will probably be large." *This will make it harder than ever to sell cheap new houses.*
3. In the higher price ranges demand will be very strong.

Perhaps the best thing HOUSE & HOME has done for its readers has been to warn them again and again (beginning as far back as October 1952 with the Round Table report on the Too Cheap House) that the market for cheap houses would soon be overbuilt, but that an enormous new quality market was opening up for builders smart enough to offer home buyers a very different and much more attractive house.

Much of the time HOUSE & HOME has been alone in warning its readers they must learn to sell the quality market if they want to continue in home building. Now the Government's No. 1 housing economist is saying the same thing.

On the following pages you will find the "exercise," printed in full except for a few sentences left out to save space. The headlines are ours; so are the comments interpolated in italics. And we have changed the order to let readers who do not want to wade through all the statistical calculations get quickly to the point.

(continued)

This expert study of future housing needs suggests big changes in US housing policy

Says the anonymous author in conclusion:

What light does all this shed on current public policies in the housing field? The following points stand out:

1. The emphasis on the "minimum house" which has dominated public and private policy in housing (and still does) is about to become obsolete. Existing housing, adequately maintained, will soon provide plenty of minimum housing of acceptable standards and still leave the country with a huge problem of converting and demolishing a large part of the existing stock.
2. The emphasis on public housing will probably decrease. *(This is a very cautious understatement. The "exercise indicates that in 1960 there will be 21,730,000 dwelling units available with a capital value of \$5,600 to \$5,700 of 1953 value (\$5,000 of 1950 value—see Table 4 p. 158. But this country is wiping out poverty so fast that by 1960 there will probably be less than 3,000,000 non-farm families left with family incomes under \$3,000.—ED.)*
3. The emphasis on urban rehabilitation as contrasted with slum clearance will grow.
4. The FHA and VA programs are due for radical and fundamental redesign to remove or reduce incentives for the "minimum house" and to increase incentives (a) for better quality new construction with more living space and amenities, and (b) for upgrading existing housing.
5. The 30-year amortization may have to be curtailed for the "minimum house" *(because minimum houses will probably depreciate so much faster than better houses that minimum houses will probably be worth less than the mortgage balance for the first 15 years of a 30-year low-down-payment loan).*

The big new demand for housing will come from upgrading and faster obsolescence

Some of the market implications of this foreglimpse are:

1. In the lower price ranges, where supplies will be very large compared with demand, declines in value will probably be large. In the higher price ranges, where demand will be very strong, price declines should be small or absent altogether.

If the 2% depreciation rate assumed *(in the calculations at the bottom of page 159 Table 11)* is about right on the average, the rate in the \$15,000 and over group might average only 1%, and that in the \$5,000 to \$10,000 group 3% or more. In view of the plethora of structures in the "less than \$5,000" group, their market prices are likely to reflect mainly land values and suitability of the sites and structures for upgrading or conversion to other uses.

2. Just to keep up with net new family formation, an annual rate of 1,100,000 starts would be sufficient in each decade up to 1980.
3. The large growth indicated in the demand for residential construction will be in response to obsolescence of existing housing rather than growth of households.

Table 1

Decade	Increase in households	Gross additions to housing stock demanded
1950-1960	9.4 Millions	15.8
1960-1970	8.5	11.7
1970-1980	10.2	20.1

Obsolescence shows up as being very heavy in the current decade 1950-1960, probably reflecting in part the extraordinary volume of low-value makeshift housing units that were registered in the Census of 1950. Some of this large number may be traceable to the low level of residential construction activities during the decade of the 30's and the first half of the 40's. The surplus of unwanted units standing in 1960 will

not be greatly increased during the decade of 1960-1970. A surplus of large proportions, however, will develop in the decade 1970-1980. It will exist predominantly in the \$5,000-\$10,000 value category of the 1950 Census, the category that includes most of the "minimum housing" erected under the stimulus and spiral incentive of national policy immediately following the war.

4. Only part of the demand for better quality housing will be reflected in "starts"—that is, completely new construction. Part of the demand will be met by rebuilding and upgrading the existing housing stock, so not all of the units that appear as "surplus" in the table at the bottom of this page (**Table 3**) will be demolished or vacant, and not all of the gross additions will be new.
5. In each decade, as can be seen from **Table 2**, a larger proportion of the high-valued units demanded than of the low-valued must be met from new construction (*obviously, construction under \$5,000 is neither needed nor possible.*—ED.)

**PROPORTION OF DEMAND TO BE MET BY NEW CONSTRUCTION EACH DECADE, 1950-1980
BY VALUE**

Decade	Value at end of decade	Demanded (end of decade) Number in thousands	Supplied by new construction (during decade)	
			Number in thousands	Percent of demanded
1950-1960	\$ 5,000-\$ 9,999	15,980	6,650	42%
	\$10,000-\$14,999	7,540	4,600	61%
	\$15,000 and over	5,840	4,590	79%
1960-1970	\$ 5,000-\$ 9,999	18,900	4,980	26%
	\$10,000-\$14,999	8,910	3,170	36%
	\$15,000 and over	6,910	3,520	51%
1970-1980	\$ 5,000-\$ 9,999	21,150	4,690	22%
	\$10,000-\$14,999	12,550	5,760	46%
	\$15,000 and over	13,680	9,670	71%

Table 2

Housing demand is shifting sharply upwards; by 1960 we will have far too many cheap homes

With larger household incomes, people in general will want much better housing than is provided in the "less than \$5,000" category if their spending for housing as compared to other outlets of expenditures remains the same as in 1950 (*i.e., if we assume people will continue to live in houses worth only one year's income*).

This contrast is brought out in the following table, where housing demand for 1980 is projected on the basis of the population and income projections given, above.

Capital values	1980 demand for housing units	1950 housing stock in 1980	Excess or deficiency (—) of demand in 1980
Under \$5,000	17,820 thousand units	24,920 thousand units	— 7,100 thousand units
\$ 5,000-\$ 9,999	21,150	5,620	+15,530
\$10,000-\$14,999	12,550	12,550	+11,290
Over \$15,000	13,680	+13,680
Total	65,200	31,800	+33,400

Table 3

The contrast presented by the above computations is rather startling. It suggests that:

1. The demand for new housing will be 40% larger than would be required by the increase in households alone;
2. Unwanted, surplus empty housing units may constitute a major problem in the years ahead;
3. New home building will absorb a much larger volume of America's economic resources than would

(continued)

be expected on the basis of starts, because the market will demand a rise in the quality and real cost of housing.

The above figures, which contrast the 1950 situation with the tentative 1980 situation, are not adequate to portray the full extent of this problem. They span the 30 years as a whole, 30 years in which the rate of increase in households will be greatest toward the end, 30 years also in each of which many housing units will be built, which in turn will have depreciated in value by 1980.

To squeeze the most light out of this exercise, data for the period have been broken down by decades and analyzed

in the same manner described above. The following table uses these results to show by decades the rate at which the problem of empty, surplus housing units may be expected to appear.

It indicates the development of a huge supply of obsolete, surplus housing in the current decade 1950-1960, a position approaching balance in the decade 1960-1970, and another huge surplus, equivalent to 40% of the demand for this class of housing in the decades of 1970-1980.

HOUSING STOCK VALUED AT LESS THAN \$5,000 BY DECADE, 1950-1980

	1950-1960	1960-1970	1970-1980	Thousand units
Standing at beginning of decade ¹ .	18,680	17,150	20,280	
Standing at end of decade ² .	21,730	21,140	25,000	
Demanded at end of decade	17,150	20,280	17,820	
Surplus at end of decade	4,580	860	7,180	
Surplus as percent of stock demanded at end of decade	27	4	40	

¹ After dropping surplus developed during preceding decade.

² After allowance for casualty loss and depreciation in value but before allowance for withdrawal for lack of demand.

Table 4

The same methods used to derive these surplus estimates can be used to indicate the number and price ranges of the new housing units that will need to be built each decade between 1950 and 1980. The relevant table follows:

ADDITIONS TO HOUSING STOCK DEMANDED EACH DECADE, 1950-1980

	Value (at end of decade)	1950-1960	1960-1970	1970-1980	Thousand units
		Demanded at end of decade	\$5,000 and over	29,360	
	\$5,000-\$9,999	15,980	18,900	21,510	
	\$10,000-\$14,999	7,540	8,910	12,550	
	\$15,000 and over	5,840	6,910	13,680	
In existence throughout decade	\$5,000 and over	13,520	23,050	27,260	
	\$5,000-\$9,999	9,330	13,920	16,460	
	\$10,000-\$14,999	2,940	5,740	6,790	
	\$15,000 and over	1,250	3,390	4,010	
Additions required during decade	\$5,000 and over	15,840	11,670	20,120	
	\$5,000-\$9,999	6,650	4,980	4,690	
	\$10,000-\$14,999	4,600	3,170	5,760	
	\$15,000 and over	4,590	3,520	9,670	

Table 5

Here are the figures and the arithmetic that lead to the conclusions told above

In 1950 there were 37 million nonfarm households in the US . . . the Census shows that the value of housing they occupied tended to vary with household income as follows:

Household income	Millions of households	Median value of housing occupied
Less than \$5,000	18.7	\$4,370
\$5,000-\$9,999	11.9	7,810
\$10,000-\$14,999	4.2	12,390
\$15,000 and over	2.3	18,340
All incomes	37.1	4,970

Table 6

This tendency of value of housing to vary with the income of the occupants opens up an opportunity for an interesting exercise that may throw light on several problems.

For example, most of the adults who will head up house-

(A very important point to note here is that in 1950 the average family lived in a home whose value was only about one year's income, whereas FHA experience shows that the cost of houses bought is now averaging nearly two years' income. In other words, from FHA income statistics, the average family could have afforded twice as good a home.—ED.)

holds between now and 1980 are already born, so we have the basis for fairly adequate projections of the numbers of households that will be demanding housing each decade through 1980. One such projection, based on population projections made by the Census Bureau (Projection A), indi-

cates that the total number of consumer units may increase from 48.9 million in 1950 to 71.2 million in 1980, and the number of nonfarm households from 37.1 million to 65.2 million:

	Population (in millions)	Consumer units (in millions)	Nonfarm households (in millions)
1950	151.7	48.9	37.1
1960	177.8	54.4	46.5
1970	204.6	62.0	55.0
1980	240.0	71.2	65.2
Change, percent 1950-1980	58%	46%	76%

Table 7

We are also becoming increasingly familiar with projections of gross national product and personal income based on certain stated assumptions with respect to growth of the labor force, rate of unemployment, growth of productivity, and average hours worked. If we make such projections in 1953 dollars, also deriving the growth of the labor force from a Census projection, and assuming unemployment as 4% of the labor force, growth in productivity at 2½% per an-

Table 9 below indicates an enormous decrease by 1980, from 35.2 million to 20.4 million in the number of consumer units with incomes of less than \$5,000, and an even greater increase in the number of consumer units with incomes above \$5,000. This shift in income distribution should be accompanied by a shift in the quality of housing demanded.

MILLIONS OF CONSUMER UNITS BY INCOME GROUP 1950-1980

Income group	1950	1960	1970	1980	Change 1950-1980
All incomes	48.9	54.4	62.0	71.2	+22.3
Under \$5,000	35.2	26.6	22.8	20.4	-14.8
\$5,000-\$9,999	11.3	21.6	26.8	29.6	18.3
\$10,000-\$14,999	1.5	3.8	8.4	13.8	12.3
Over \$15,000	1.0	2.3	4.2	7.3	6.3

Table 9

This raises questions about the future demand for our present housing stock. How far will it go in meeting our future housing needs? How much new residential construction should we expect, not only to house our increasing population but also to meet rising standards of living? The reverse of this picture raises questions about the amount of demolition we may face, the magnitude of the emerging problem of slum clearance, and the necessity for improving and upgrading rather than merely maintaining our existing housing.

To get at this problem requires a series of projections even more tenuously constructed than those presented above. We know from the 1950 Census a few things about the housing stock as it existed at that time. There were 37,110,000 nonfarm housing units occupied at that time, and they were valued as follows:

	Number
All values	37.1 millions
Less than \$5,000	18.7
\$5,000-\$9,999	11.9
\$10,000-\$14,999	4.2
\$15,000 and over	2.3

Table 10

The noteworthy fact is that half of our housing stock in 1950 was valued at less than \$5,000, the general category

num, and a decline in average hours worked of ½% per annum, total and average income of consumer units will increase between 1950 and 1980 as follows:

INCOME OF CONSUMER UNITS (before taxes, at 1953 prices)

	Total	Average per consumer unit
1950	239 (billions of \$)	\$4,888
1960	335	\$6,204
1970	472	\$7,613
1980	640	\$8,989
Change, 1950-1980	+401	+\$4,101

Table 8

Now, if the 1950 relationship between household income and the capital value of the house occupied should continue to hold, this large rise in average income per consumer unit would indicate a substantial increase not only in the total demand for housing arising out of population growth, but also in the demand for better housing. To estimate how large this would be and the price brackets in which it would fall requires first an estimate of the distribution of the increased income as between different income groups. The estimates of this distribution assume that the present relative distribution is maintained in **Table 9**.

where these projections would indicate that demand is going to decrease sharply by 1980.

We cannot compare directly this stock with projected 1980 demands, however, since housing depreciates. Let us assume that over 30 years from 1950 to 1980 the 1950 stock depreciates at a rate of 2% per year. Unfortunately, we have little empirical evidence from which to draw a defensible depreciation rate, and the proper rate may be higher or lower than 2%. We do know it is probably wrong in one respect. In what follows, it has been applied to the 1950 value of both house and land. With a rapidly growing population, there will be many cases in which the land included in the estimate will not depreciate, but will be unchanged or appreciate. Because of the tenuous nature of the depreciation estimates, the magnitudes in the memorandum which are affected by the depreciation computation are subject to a considerable margin of error.

Taking the figures as they are, however, and allowing for some disappearance, due to fire, flood, and demolition not related directly to housing market developments, as well as for depreciation at the rate of 2% per annum, it becomes apparent that by 1980 the great bulk of the stock of housing in existence in 1950 would be valued at less than \$5,000. This is indicated in the following table:

Capital value	Housing stock 1950	1950 Housing stock in 1980	Change 1950-1980
Less than \$5,000	18,680 (thousand units)	24,920 (thousand units)	6,240
\$5,000-\$9,999	11,930	5,620	-6,310
\$10,000-\$14,999	4,160	1,260	-2,900
Over \$15,000	2,340	...	-2,340
Disappeared	...	5,310	5,310
Total	37,110	37,110

Table 11

In their Components Clinic at Chicago this month, 6,000 members of the National Retail Lumber Dealers will see the answer to this question:

WHAT'S NEW IN COMPONENTS FOR 1957?



Panels. Newest item is the Lu-Re-Co structural floor panel, which will be shown to the lumber dealers. They'll also see how partition panels can be adapted for roof construction. Also expected: a new window in several sizes to use with 4' o.c. wall framing and be combined to make one complete modular unit. For the new floor panel, see opposite page.



Trusses. Added to earlier glue-nailed (and just nailed) connections are metal joint connectors. The lumber dealers at Chicago will see the Sanford truss with its steel grip-plate, first reported in H&H's Dec. '54 issue. Still another new joint connector is shown on page 162. Big news is Small Homes Council's glue-nailed hip roof truss (see page 165).



Mechanical equipment. As air conditioning grows more popular, more builders will install cooling. And all trends in mechanical equipment point to smaller and more efficient units for both heating and cooling. Now a brand new component combines the basic heating-cooling parts in one package that also includes the water heater and a prefab flue (see page 163).



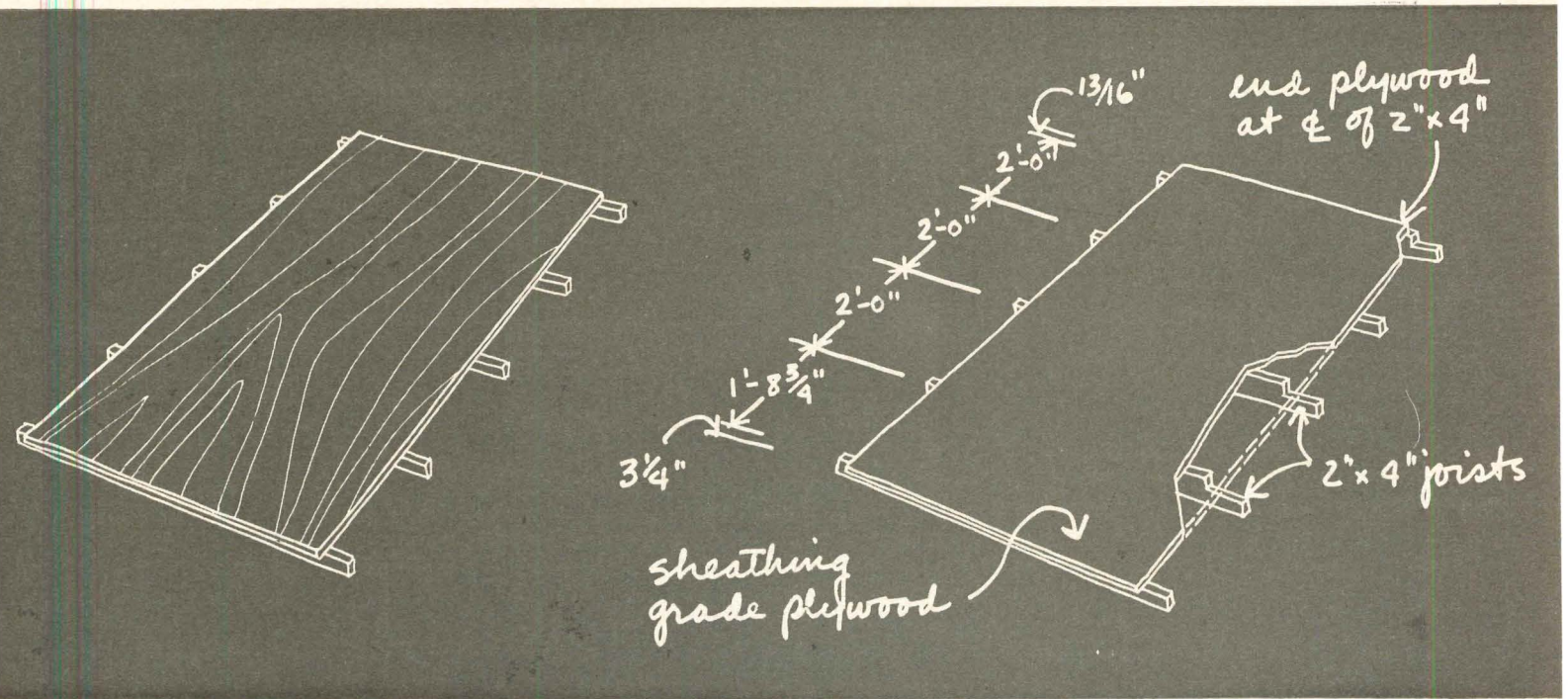
Plumbing. The prefab builder has been using preassembled plumbing walls since 1955. Now other builders are finding out about them, and where codes allow, they're the coming thing for tract and even custom houses. The lumber dealers will see the one on page 164.



Ductwork. Now you can have shipped to the site a heating duct, with its fittings, that has been engineered to your requirements and is factory-cut and assembled (see page 164).



Kitchens. Several manufacturers are developing designs that combine appliances and cabinets in standard lengths and heights to fit modular plans. Some of the components which the lumber dealers will see in Chicago are used in the kitchen shown on page 152.

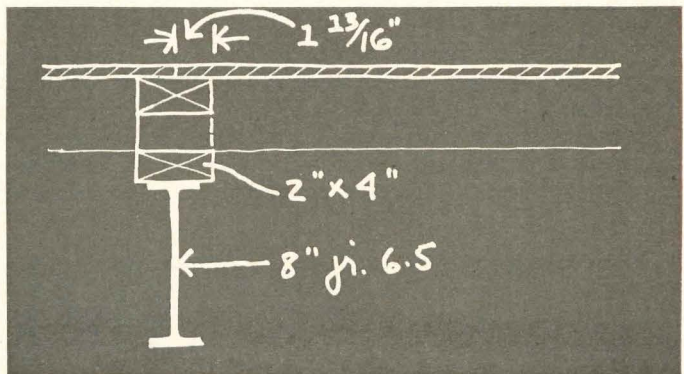
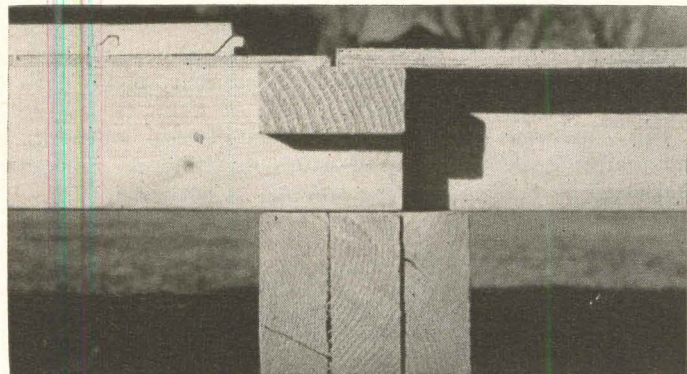


Now Lu-Re-Co offers you this new structural floor panel system

This new structural floor unit is the latest panel to be developed by Lu-Re-Co, and it will be featured at the NRLDA "Components Clinic" in Chicago. Not only will it be assembled for the dealers; it will be used to make the platforms for all the other demonstrations.

Like Lu-Re-Co's earlier exterior wall and interior partition

panels, this is basically a 4 x 8' plywood section on a 2 x 4" frame. It too lends itself to efficient panelization because it: (1) uses a minimum number of standard sizes and grades of yard lumber; (2) can be put together in the shop or at the site by relatively unskilled labor; (3) fits the 4' module and (4) is light enough (90 lbs.) to be handled by two men.



IT WORKS WITH BUILT-UP WOOD GIRDERS

In this particular panel (top of page) five 2 x 4" cross members support the plywood and serve as joists. In turn, they can be carried on built-up wood girders, spaced 4' o.c.

If the panel is to be covered with a resilient flooring (asphalt tile, cork, rubber or vinyl), 5/8" plywood should be used. For other flooring materials, 1/2" plywood is enough.

AND IT CAN BE USED OVER STEEL FRAMING

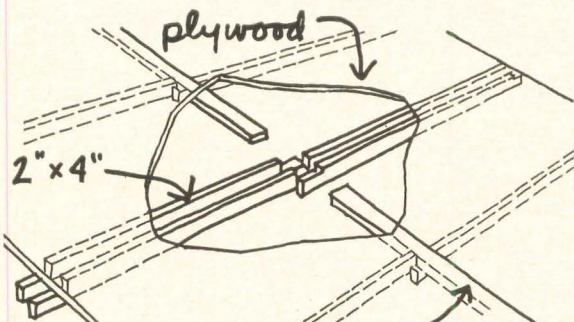
By using a 2 x 4" nailer to carry two interlocking panels, the new floor panel can be adapted for use with steel framing, as shown above.

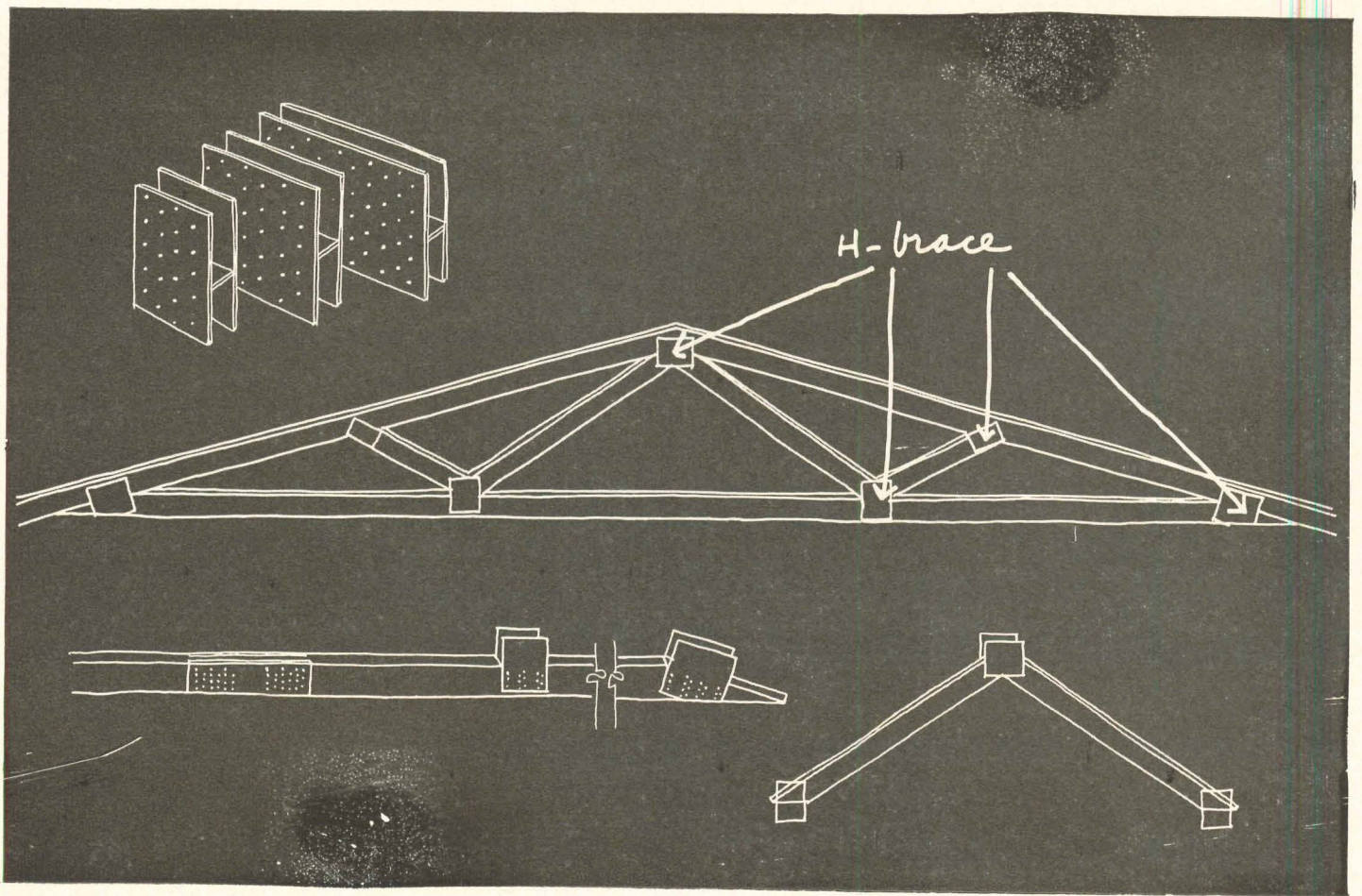
The 2 x 4" cross members are designed so the panels interlock (top of page and below). Interlocking is assisted if alternate panels are reversed when laid in rows across a building.

WOOD SPLINES CONNECT THE PANELS (left)

Projecting ends of the 2 x 4" cross members are notched. This allows 2 x 4" splines to run the full length of the panels, serve as supporting nailers for the plywood edges and connect adjoining panels.

Tests and studies were made by Frank M. Lescher, AIA, at the University of Illinois' Small Homes Council, under a grant from the Lumber Dealers' Research Council.





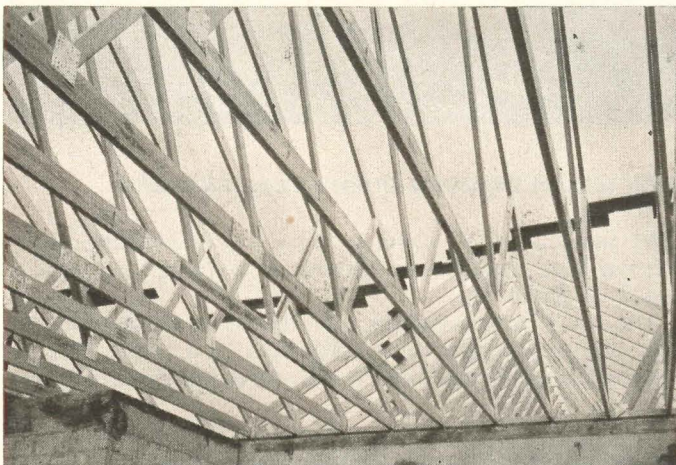
Here's another new way to fasten a one-plane truss together

The H-shaped connector shown above is a 20-gauge galvanized steel coupling which keeps all the members of a truss in one plane.

Some of the advantages that metal joint connectors bring to one-plane truss construction are: greater rigidity, reduction in movement at the joints and no gussets or lapped joints to

increase the width of the trusses. The one-plane, metal-fastened truss can also be assembled and erected quicker than the two-plane truss, it is claimed.

This connector is sold only to prefabricators, millworks, and lumber dealers who manufacture for builders. Designs engineered by the company are FHA and VA approved.



BIG SAVING FROM TRUSSES IS IN PARTITION COST

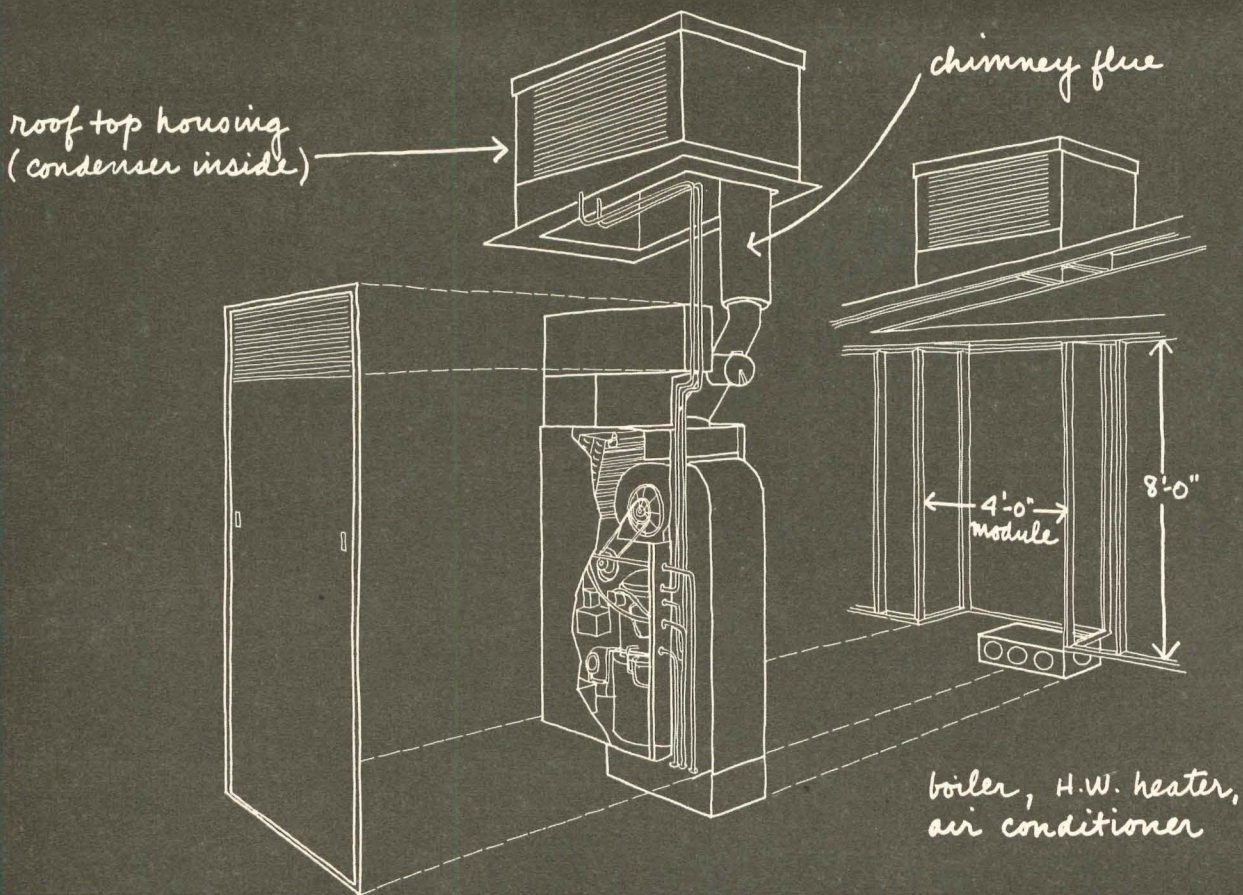
One prime advantage to trusses is that you can use nonload-bearing partitions. These take less material to build and so take less time to put together, and they don't need a foundation.

Further saving can be made by spacing the trusses farther apart: they need not be the usual 16" o.c. This cuts down on the number you need and on labor time.



ONE-PLANE TRUSS STACKS, SHIPS IN LESS SPACE

The one-plane truss is far more compact to ship than a truss with overlapping members. The top photo shows a truck carrying 15 two-plane trusses. Bottom photo shows one carrying 15 one-plane trusses. The compact height means that a truck can carry more trusses, still clear underpasses. One-plane trusses also save storage space in the shop and on the job.



This five-part heating-cooling plant comes complete in one package

The five basic parts of a heating-cooling system have been combined in this package unit by Dick Pollman, designer for Scholz Homes.

The five parts include:

1. heating boiler;
2. air conditioner;
3. three-gallon instantaneous hot water heater;
4. prefabricated chimney flue, and
5. condenser for the air conditioner.

All these parts fit into two small assemblies. The condenser, which goes on the roof, is 4'-0" x 2'-8", and the main cabinet, for first floor or basement, takes 3'-8" x 2'-0" of floor space.

The package unit saves on-site labor costs

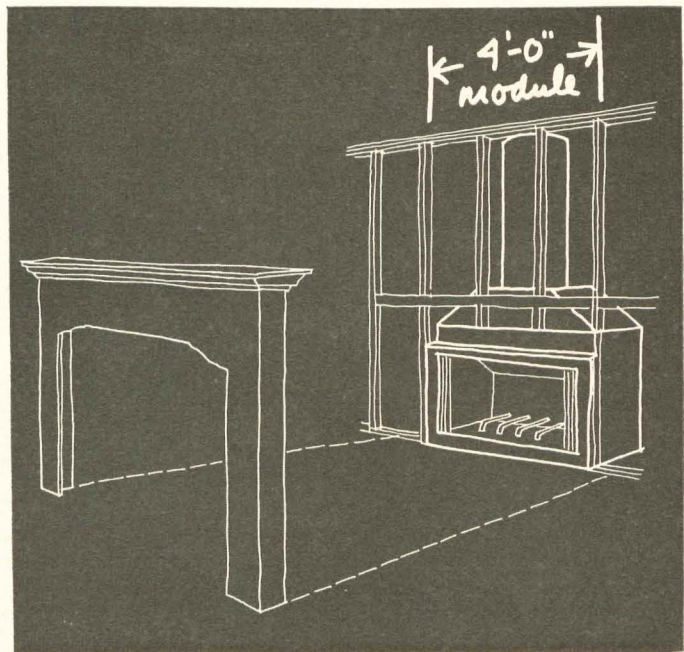
According to Pollman, the whole package can be installed without taking off the front cover of the unit. The only necessary connections are for the fuel lines (gas or oil), the hot and cold water lines, electricity (a simple plug-in connection), and the condensate drain.

The domestic hot water coil runs through the boiler, which is kept at 190° to provide hot water even when the house is not being heated.

Pollman estimates that builders should be able to save about 25% of the combined cost of separate heating, cooling and hot water units because this package eliminates so much of the on-site time spent in assembling the separate items. The package is priced at about \$1,000.

Standard air conditioning and heating parts are being used. This should make for simplified service.

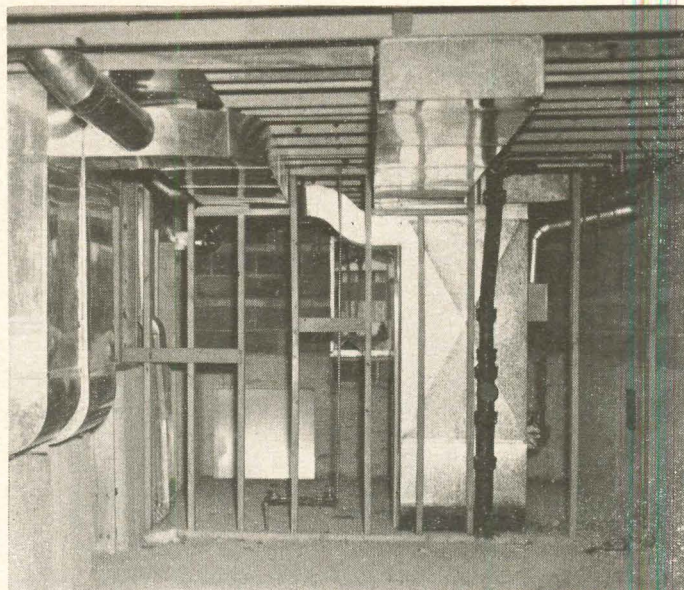
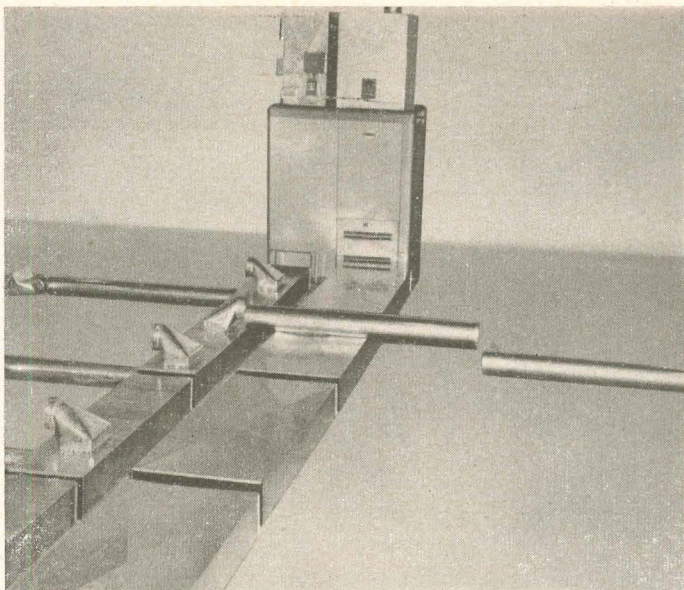
The prefab chimney fits between roof framing which is set at the usual 16" on centers. Total weight of the roof package unit does not exceed 150 lbs., so no special roof framing is needed for it.



FIREPLACE PACKAGE WORKS WITH FIVE-PART UNIT

This fireplace is set alongside the package unit, in the same 2' deep wall shown above. The package's roof housing is large enough to include a second flue for the fireplace.

The new fireplace component costs about \$200 and can be set in place in an hour by the average carpenter. The fireplace can be faced by component-mantels, or 1" thick brick or stone.



These ready-made ducts and fittings go quickly into place

These ducts, pipes and fittings for a heating system are not only factory-built; they can be engineered for each particular model in a development.

Also, they are prepacked for each house and clearly marked for each stage of the ductwork layout. As a result, there's a minimum of on-site sorting and confusion. This of course

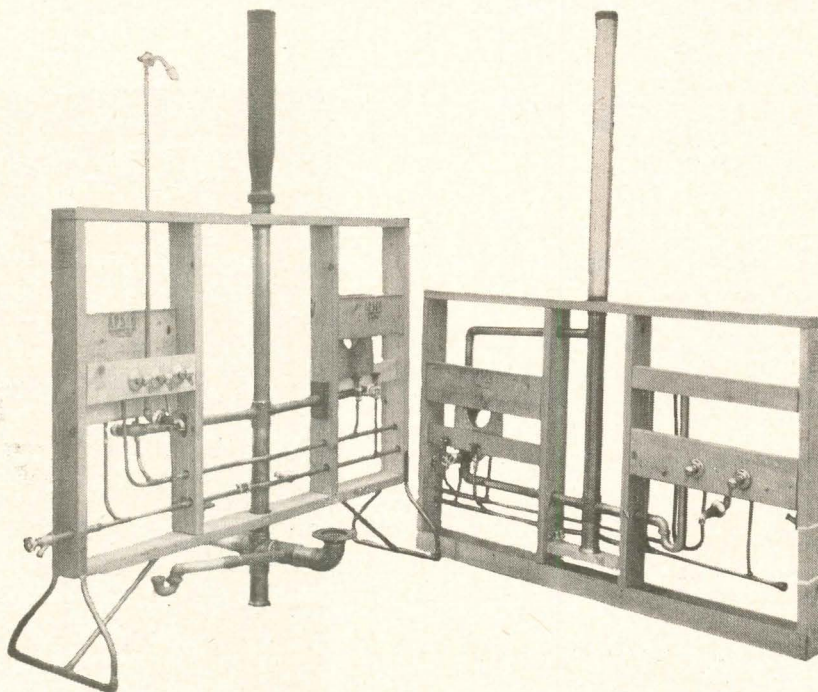
means that the heating contractor saves on each job and can pass part of the savings on to the builder.

The fittings also go in faster and easier because they can be cut for a precision-fit in the factory.

The factory design and packaging insures a uniform heating system for each house in a development.



PLUMBING



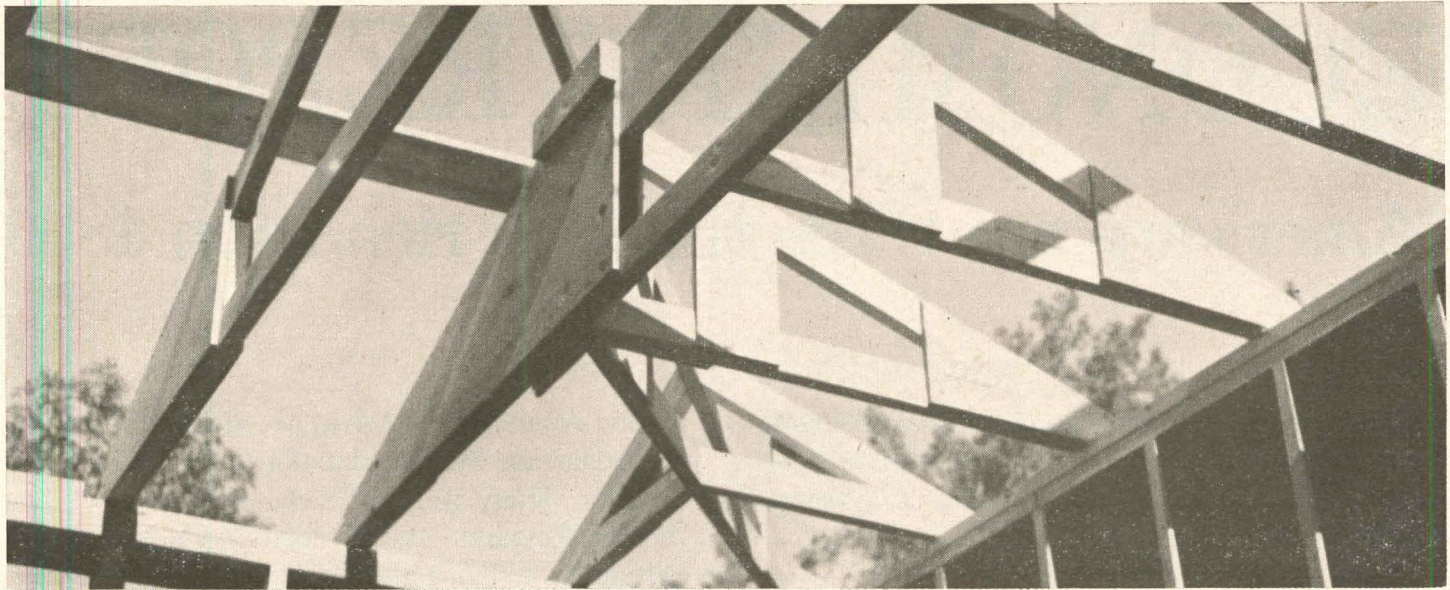
This preassembled plumbing wall works for one house or 1,000

The preassembled plumbing wall, already widely used by builders of prefabricated houses, is now available to all builders as a component. It will be on view at the lumber dealers' show in Chicago.

Project plumbers for tract and custom houses are finding that a pre-assembled wall unit like this saves them many

on-site hours and means a saving for the builder as well.

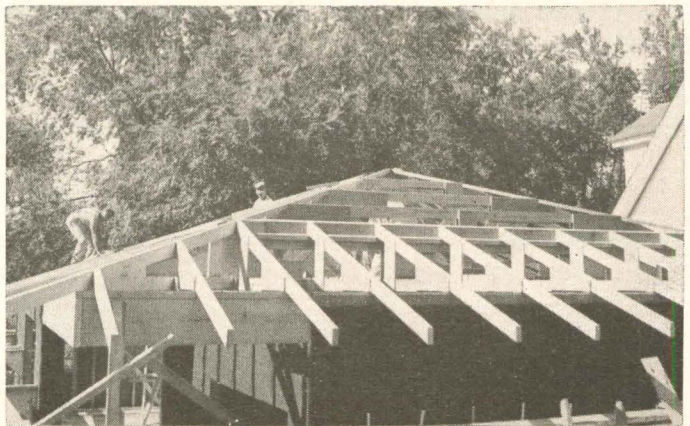
The present walls will serve the bath alone, or can be used as a wet wall between bath and kitchen. Bath layout need not be on just one wall; as shown above, plumbing units can also work off opposite or adjoining walls. The plumbing wall can be used in on-slab, crawl-space or basement houses.



This big component is the new glue-nailed truss for hip-roofs

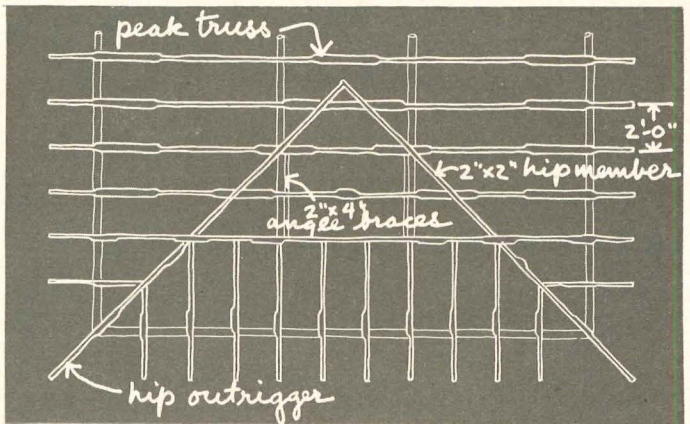
ALL THESE TRUSSES ARE DESIGNED FOR A 3:12 SLOPE

Basic members are peak trusses, hip-end trusses, outriggers, and hip members. Peak trusses form the usual pitched roof; flat top-chord trusses are used for the hip-end. Line of outriggers project from hip-end truss to carry out the roof line and form the overhang. The house (by Robertson Construction Co., Lincoln, Neb.) uses trusses designed for a span under 25'.



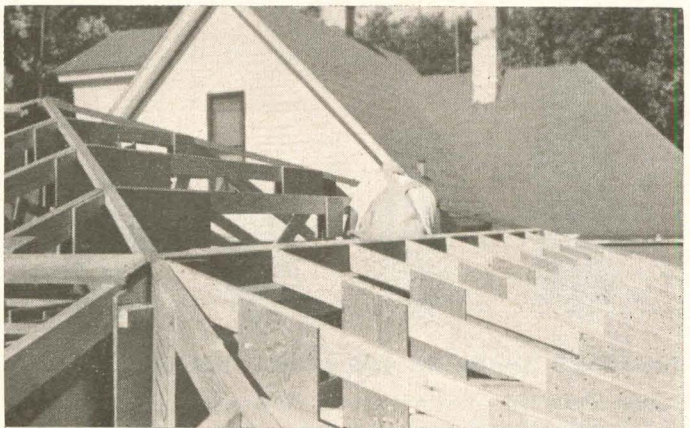
FOUR BASIC FRAMING MEMBERS ARE USED

Framing members shown in drawing are for a span 21'-0" to 24'-8". Other trusses are available for spans up to 28'-8" but these larger spans require more hip-end trusses and outriggers. Trusses and outriggers are spaced 2' o.c. to get a maximum number of standard dimensions. The only important variable dimension is in the length of the "flat top-chord" of the hip-end trusses. Hip-roofed trusses are the newest glue-nailed trusses developed (and copyrighted) by the Small Homes Council.



HERE'S HOW ROOF'S SIDE AND END SLOPES INTERSECT

The hip outrigger, center, continues the line of the hip member carried in the notched hip-end trusses. Hip-members meet between the hip-end and peak trusses. Design of hip-end trusses involved extensive testing to find a truss that could vary the length of its top chord without significant effect on its actual deflection./END



ECONOMISTS' REPORT:

“Americans are three times as rich as in 1890,

Who says America has been building too many houses? Who says Americans are spending too much for houses? Who says housing is absorbing too much of our industrial wealth?

Now at last we can get at the facts to answer these challenges. The facts are marshalled in a 519-page book called “Capital Formation in Residential Real Estate” (Princeton University Press, \$10). The facts were developed with part of a \$460,000 grant from the Life Insurance Association of America. They were gathered by Dr. Leo Grebler, now on the staff of the Council of Eco-

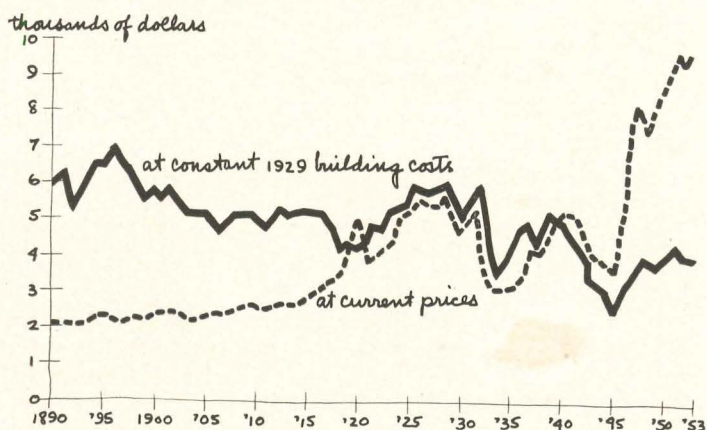
nomics Advisers; Dr. David M. Blank of Columbia Broadcasting System, and Dr. Louis Winnick of ACTION. Study was for National Bureau of Economic Research and Columbia University's Institute for Urban Land Use and Housing Studies.

What the facts add up to is briefly this:

The potential market for houses in the years ahead is bigger than ever.

BUT

Right now the home building industry is being badly outsold and undersold by other industries competing for the consumer dollar.



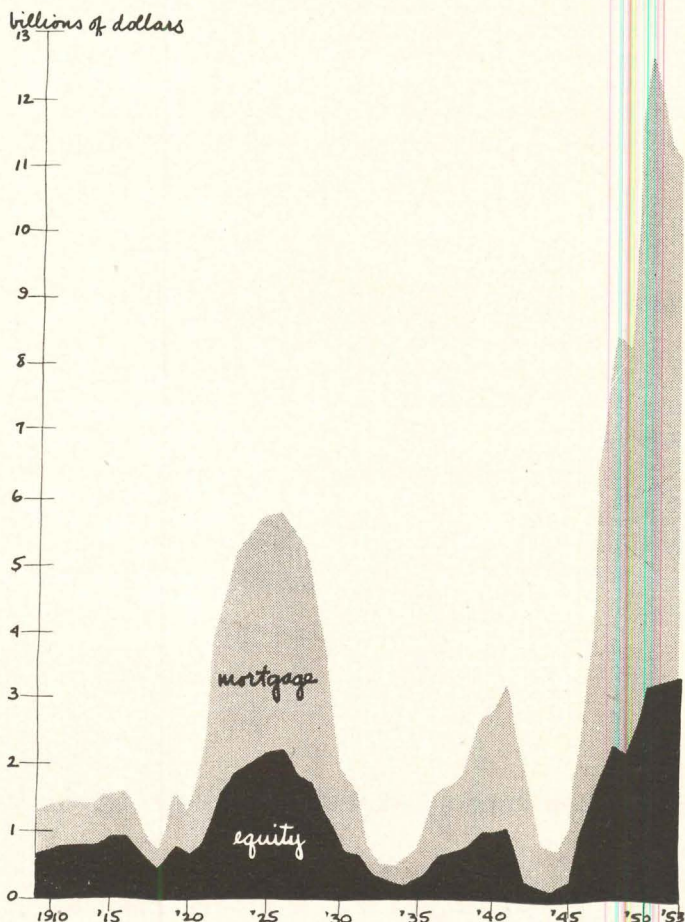
THE CHANGING COST OF HOME CONSTRUCTION

In current \$, houses cost much more, but costs have risen so fast that people are getting less house for more money (see Fact 2).



HOUSING'S SHARE OF THE CONSUMER DOLLAR

Capital formation in residential real estate amounted to 11.2% of all consumer expenditures in 1891 but by 1950 had fallen to 3.6%.



THE BUYER'S EQUITY IN THE NEW HOUSE

Mortgages have never, in any five-year period since 1911, provided over 75% of total capital invested in new houses (see Fact 8).

but they spend very little more for a home”

FACT NO. 1

Despite the enormous gain in spending power since 1890, *per capita* value of housing today is little more than it was then—and actually is less than it was between 1900 and 1940. Here are the figures (in constant 1929 dollars):

\$658 per person in 1890	
793	1900
792	1910
747	1920
870	1930
779	1940
703	1950
740	1955

In contrast, per capita consumer capital in other products increased from \$218 in 1900 to \$452 in 1948. Says the report: “Housing has not responded to rising income. Housing has declined not only in relative terms, but in absolute per capita measures. Newer goods and services have competed more successfully for a place in family budgets.”

FACT NO. 2

Actually the average new home buyer in 1955 bought 31% less house than the average new home buyer in 1896.

Here is the average price of new houses at constant 1929 building costs for representative years since 1890:

1890	\$6,143	1945	\$2,457
1896	6,712	1951	4,162
1921	3,998	1952	3,877
1929	5,972	1953	4,064
1934	3,635	1954	4,174
1939	5,057	1955	4,622

FACT NO. 3

One big reason consumers with three times as much money decided not to spend the increase for better homes is that home building costs have gone up so much faster than the price of other products competing for the consumer's dollar.

Here are the cost changes from 1890 to 1950:

Residential construction costsup 340%
General price indexup 160%

FACT NO. 4

One reason home building costs climbed faster than other prices is that building material prices rose faster than other commodities from 1890 to 1950:

Building material pricesup 343%
Wholesale prices of all commoditiesup 187%

FACT NO. 5

But the biggest reason is that home building still requires so much on-site labor, and from 1890 to 1950 construction wages rose 851.2%, faster than the 768.5% rise in factory wages.

FACT NO. 6

Land costs are a smaller factor in housing costs than in 1890. In 1953 land represented only 16.9% of the cost; in 1890 it was 40%. Reason for the decline: in 1890 people had to live within walking distance. The automobile has opened up new acreage for houses ten times as fast as the population has grown.

FACT NO. 7

In 1891 housing was 8.2% of the national product; in 1929 it was only 3.7%, and in 1950 it was only 2.7%.

FACT NO. 8

Home buyers put up a far bigger equity than has been supposed. “Even during the recent postwar years of high-percentage debt financing under government aid programs and during the height of the boom of the Twenties, equity funds were close to 30% of total expenditures (see chart).”

FACT NO. 9

“The number of additional [nonfarm] households between 1900 and 1975 is likely to exceed any increment on record,” but economists still can't agree on a figure. Low estimate of the increase is 18,700,000; high is 34,600,000. This last figure almost equals 1950's total of 37,100,000 nonfarm homes.

FACT NO. 10

Migration will increase the demand for new houses. “Internal migration may create large, persistent pockets of vacancies” in some areas, “leading ultimately to abandonment or demolition of nonfarm dwellings.”

FACT NO. 11

As real income advances, the “traditional notion” of only one dwelling per household will have to be revised. Evidence shows a trend already toward many more seasonal houses.

FACT NO. 12

Some 300,000 dwelling units a year may be withdrawn from the housing stock yearly in the foreseeable future. “Demolitions for the first time in many years if not in the history of residential real estate in this country, seem to reach proportions calling for a large volume of new construction over and above the long-term rate of net household formation.”

FACT NO. 13

The authors believe it possible that consumer preference for houses may increase. And “larger numbers of households might trade old for new units if the latter were vastly superior in design, style, location and quality.”

FACT NO. 14

Although some costs have increased, others have come down. Here are some of these contributing factors:

- Improved design has made smaller houses as desirable as yesterday's much larger houses.
- Lighter materials and construction have pared building costs.
- Houses also tend to be smaller because more of them are being bought by lower-income families.
- More houses are built in the suburbs, where costs are lower than in the city.
- More houses are built today in the West and South, where the climate is easier./END

HOW TO CHOOSE AND USE THE RIGHT OUTSIDE PAINT

US Forest Products Laboratory

sums up 30 years of research into the painting of wood siding

Builders know what they want in an outside paint for new wood.

They want it (1) to go on fast and easy; (2) to be bright in color and glossy in sheen; (3) to be durable and (4) to resist blistering under tough moisture conditions. They would also prefer that it (5) not mildew or (6) discolor under metal corrosion or chemical fumes.

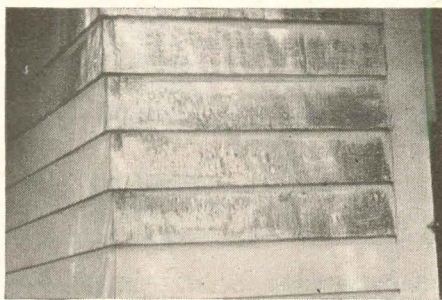
Good paints have most virtues

No one paint has all these desirable traits in optimum degree, but all the major types have most of them. That's the conclusion reached by the US Forest Products Laboratory in their newest report: "Wood Siding—How To Install It, Paint It, Care For It." The report outlines the properties of various types of outside paint, classifying them according to pigment.

Some of the good points, like a bright sheen or fast dirt shedding, are plus values, not directly affecting the life or

service of the paint film. Others are more basic, and a shortcoming can result in early paint failure.

Premature paint failures on new siding are most often due to two prime causes: chemical discoloration and



LEAD TURNS BLACK DUE TO FUME

moisture-based blistering and peeling.

Paints containing lead (see chart) will turn black if exposed to hydrogen sulfide fumes in the air. This chemical may occur near industrial plants, oil refineries, railroads, can even be

caused by decaying vegetation in polluted streams. So-called "fumeproof" paints are made without lead pigment, and thus resist sulfide attack.

Water is an enemy

Blistering and peeling are much more common on new houses because of the build-up of moisture in the wall behind the siding. Sometimes this takes the form of water vapor from moist air within, other times it is free water that has forced its way in through openings in the wall. Most of this water can be stopped by good construction methods (page 171), but if the builder expects a heavy moisture build-up after occupancy, he should choose his paint type with this in mind.

FPL advises every builder to study the conditions that affect paint in his area and in his particular house. He must decide what things his buyers want most in a paint, then choose the type that comes closest.

PAINT CHARACTERISTICS

PAINT TYPE (BY PIGMENT)

	DURABILITY	NORMAL RATE OF CHALKING GOOD REPAINTING SURFACE	CLEAN, HIGHLY REFLECTIVE COLOR	DIRT SHEDDING	RESISTANCE TO METAL CORROSION	RESISTANCE TO HYDROGEN SULFIDE FUMES	RESISTANCE TO MILDEW	MOISTURE SENSITIVITY
WHITE LEAD IN OIL	good	fairly rapid wear repaint	off white	poor	good	poor	vulnerable	good
TITANIUM-LEAD-ZINC	good	slow wear good repaint if coat is not too thick	excellent	excellent	poor	excellent	immune	sensitive
TITANIUM-ZINC	good	medium wear good repaint	excellent	excellent	poor	excellent	immune	sensitive
TITANIUM-LEAD	good	medium wear good repaint	excellent	average	good	poor	vulnerable	good
TITANIUM IN ALKYD RESIN	good	slow wear good repaint	low gloss	excellent	good	excellent	vulnerable	good
DARK COLOR PIGMENT (TRIM)	best	slowest wear good repaint	excellent	excellent	good	excellent	vulnerable	good

*Magnesium silicate, another commonly used pigment, is not used for hiding power, but is added to the opaque pigments to improve durability and to retard premature checking and cracking.

Data from US Forest Products Laboratory report

This chart rates paints according to eight most-wanted characteristics

Listed above are the different outside paints, with FPL's evaluation of their desirable qualities.

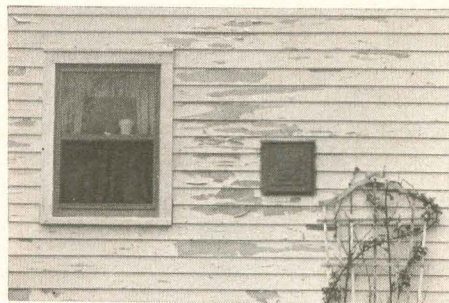
To use this chart, pick the paint hallmarks most important for your houses, then check the paints to see how each measures up. For example, if industrial fumes are serious, you should avoid lead pigment paint; if mildew is likely, you will want zinc in your formulation; if your buyers like a low gloss paint, low luster alkyd resin paints are indicated.

Under it all: the primer

No paint job is any better than its prime coat. If this layer fails, all fails. Builders start from scratch, and the first coat can determine how paint will serve during the lifetime of the building. The prime coat has to provide a base for all future repainting; it must have strong adhesion to the wood.

Regular outside finish paints should not be used as primers, FPL says, since

they usually contain zinc oxide, a moisture sensitive pigment. Most manufacturers make up zinc-free primers for use under their mixed pigment paints. FPL suggests that you always use the same type of primer and finish paint to



VAPOR IN WALLS CAN PEEL PAINT

avoid any chance of incompatibility. Flat-grained wood with wide summerwood bands should be primed with aluminum pigmented primer, the report says. Ordinary primer will flake off rapidly from summerwood or knotty areas.

Some paints are used as both primer and finish coat (white lead, titanium-lead, and titanium-in-alkyd). They have no moisture sensitive pigment, and are sold as "blister resistant."

Controversial zinc oxide

Though paint men seem in agreement on zinc-free primers, FPL's finding that "where moisture troubles are widespread, a zinc-free paint is to be preferred" arouses both belief and disbelief among paint men. Some agree that moisture-inert pigments are safer, but others feel that since failures occur between wood and primer, it is enough if the primer is zinc-free.

But the formulation that discards zinc oxides gives up many virtues, too. Zinc gives white paint a high, bright gloss, it is mildew resistant, and has a tough, slow-wearing surface.

For differing views on this disputed point, turn the page.

Experts disagree on the role zinc oxide plays in moisture-caused failures

"Zinc-containing paints have been found to swell much more than wood when wet and must therefore be classified as moisture-sensitive. They blister more readily on contact with water than do the other types of paint. Under some conditions, contact with water may not cause zinc-containing paints to blister but may simply induce premature cracking, curling and flaking If there is doubt (about moisture), one of the zinc-free paints is the wiser choice."

Forest Products Laboratory
Bulletin No. 52

"Prime coat is critical." William Januelson, paint chemist, Arco Co. says:

"I feel that the prime coat is the critical one, since failures occur at the wood-paint interface. Finish coats need not be zinc-free."

"Shortsighted." J. L. Kimberly, executive vice president, American Zinc Institute says:

"We suggest that the evidence on hand does not warrant the [FPL] opinion concerning second coats."

"Extensive tests by our membership have established that a standard two-coat paint system—zinc-free primer and standard exterior finish with zinc oxide—is quite blister resistant. Blister box tests, as well as field tests, support this position. It seems clearly established that the coat of paint applied directly to the wood governs the resistance to blistering of the entire paint film."

"It seems shortsighted to sacrifice the desirable properties of zinc oxide: mildew resistance, good whiteness or color retention and years of resistance to the deteriorating effects of weather."

"Not desirable." Lloyd Owen, technical director, paint sales, American-Marietta Co. says:

"We believe that zinc is not desirable in a primer, and where moisture is a problem, it is preferable that zinc oxide be kept out of the finish coat."

"One of the ways." Robert Jamieson, technical director, Benj. Moore Co.

"Omission of zinc oxide is only one of the ways of getting blister resistance."

"Zinc not sole test." Sherman F. Carlson, Cleveland Technical Service, Sherwin-Williams Co.

"Good exterior paint formulation is not based entirely on choice of pigment. Presence or omission of zinc-oxide does not indicate that blistering or peeling will occur."

Three-coat paint job is your best bet for the best paint film and service

In its new report, FPL discards the agency's long-time endorsement of two-coat paint systems for new wood, and comes out strongly for a three-coat first-time paint job.

Reason: it is difficult, if not impossible, to get the proper thickness (4½-5 mils., about the thickness of a dollar bill) with one coat of primer and one coat of finish paint, using today's formulations. Because of the growth of

the nonprofessional market for paint, most mixtures are made for maximum ease of application, rather than for heavy film build-up, FPL's experts say.

At a recent cost-cutting conference in Washington, D.C., sponsored by the National Housing Center, and under the direction of NAHB's Research Institute (see also page 172) builders complained that they could not get the 5 mil. thickness in a two-coat opera-

tion. Said Wallace (Bud) Arters:

"I think we're a big enough industry to get the paint we want, rather than a thinned down version created for the do-it-yourself" market.

Put down that thinner

The paint industry insists that any such complaint is unjustified. Paint makers point out they can make paint with any desired viscosity, but they cannot be sure that the builder will get all the hiding power they build into the paint.

Already on the market are "one-coat outside paints" with a high percentage of opaque pigments, made to give the same hiding power in one coat as expected from two of old-type paints. But if the painter thins the paint to get the workability he likes, he sacrifices this opacity by making the same amount of pigment do extra work.

As one paint chemist said: "If a builder wants the full hiding power we put into paint, let him take away his painter's bucket of thinner. Use the paint as we make it, instead of changing the formulation by adding thinner. It's just not the same paint anymore."

For today's average outside paints, the 4½-5 mil. thickness can be built up by applying one coat of primer at a rate of 600 sq. ft. per gal, and two coats of finish paint at 700 sq. ft. per gal each.



BEST RESULTS COME FROM LETTING EACH COAT DRY A DAY OR TWO



Four ways to keep water out and stop moisture-caused paint failures:

1. BLOCK IT OUT

A tight vapor barrier in outside walls can halt the movement of built-up moisture vapor into the vulnerable wall cavities. Washers, dryers, cooking, showers, even body heat builds up vapor pressure that drives right through walls and condenses on the back of the colder siding. Asphalt



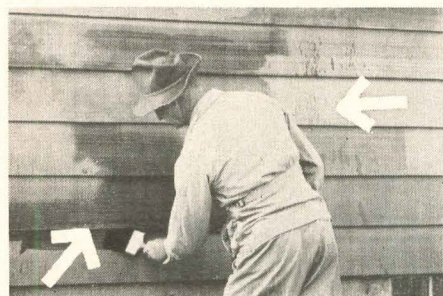
coated paper, aluminum foil, and polyethylene film will all do the job, as will two coats of the new latex-base interior paints on inside walls. Ventilation in kitchen and bath will help carry moisture safely outside the house.

2. DRAIN IT OUT

Where gutters are installed, they must be hung low enough from the eaves to permit melting roof snow to slide off. If they are too high, "ice dams" build up in the snow-clogged



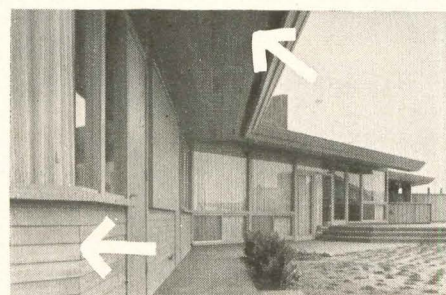
gutters and the overflow seeps into the walls through the eaves. Gutters must also be pitched steeply enough to carry water off rapidly and have enough downspouts to handle the flow of any downpour. Flashing in roof valleys, along dormers and chimneys and over windows and doors also serve to guarantee dry walls.



3. BRUSH IT OUT

Water can be stopped dead in its cracks with new water-repellent pres-

ervatives. Compounded of waxes, resins and oils, the liquid is brushed into all joints before painting, and causes water to slide off, instead of working between siding courses and soaking the backs of the boards. Some experts recommend dipping instead of brushing to get the fullest effectiveness.



4. LOCK IT OUT

Lap and butt joints in siding should be square and tight to stop penetration of rain and snow. Bevel siding should overlap 1"-1 1/4", and courses over windows and doors must be continuous. Careful fitting of corners will prevent hollows where water can collect. Where dormers meet roof, siding is cut 1" short, so water cannot soak into the end grain. All but the heaviest driven storm water can be kept from the siding by generous overhangs that prevent capillary inroads by keeping rain from falling on the walls./END

7 Housing Center experts recommend their BEST WAYS TO BUILD BETTER FOR LESS

Sixty top architects, builders and engineers who met in Washington last month to exchange ideas for cost cutting techniques* found more than half their potential savings outlawed by local codes, union resistance and FHA-VA regulations.

The meeting was the first of a series sponsored by the National Housing Center and directed by the Research Institute of the National Association of Home Builders. Series goal: A better low-cost house.

Here are cost-saving devices that were suggested but which run into regulatory obstacles in most locales:

- **Use of a grade beam** instead of a continuous footing for foundation walls. This eliminates earth digging and concrete by substituting regularly spaced concrete piers for the contin-

*Some members of the conference felt that better business methods were more important cost cutters than new building techniques. See News section for story.

uous frost-depth footing around the perimeter of a house. Savings: an estimated \$100 per house.

- **Pouring basement floor** and footings in one operation for foundation walls in basement-type houses. This method cuts to two stages the traditional three-stage approach to getting a basement under a house. Time saved cuts building costs, and the level floor area on which workmen can perform adds additional cost-saving dividends. Total: as much as \$100 per house.

- **Use of spray equipment** to put the last layer of joint cement on gypsum wallboard. When casein paint is used as a vehicle for the cement or when dime store color is added, a one-coat finish can be applied over an entire wall surface for low-cost houses.

- **Use of asphalt** for sidewalks where walks are required.

- **Use of preglazed windows.** (One builder got around union objections by using jalousie windows—no framing around glass. Since a jalousie would not be a window without the glass, he reasoned, “unions could not object”.)

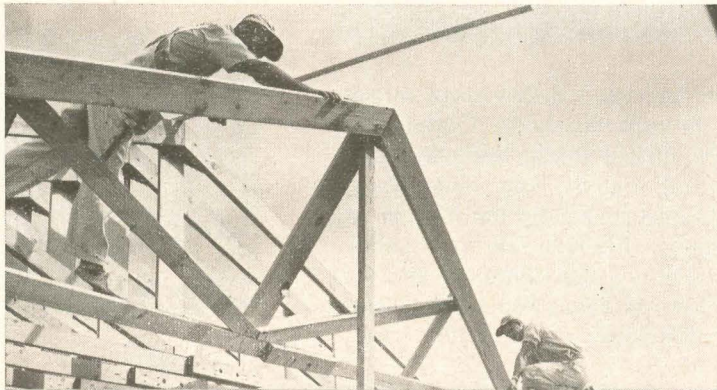
Commenting on these new but often impracticable ideas, keynoter Andy Place, Indiana builder, suggested: “Like the farmer we’ve got to ask ourselves if we’re farming as well as we really know how.”

Significantly seven basic, usable techniques also suggested at the conference are, as Pennsylvania builder Bud Arters put it: “practicable but not-frequently-enough-practiced.”

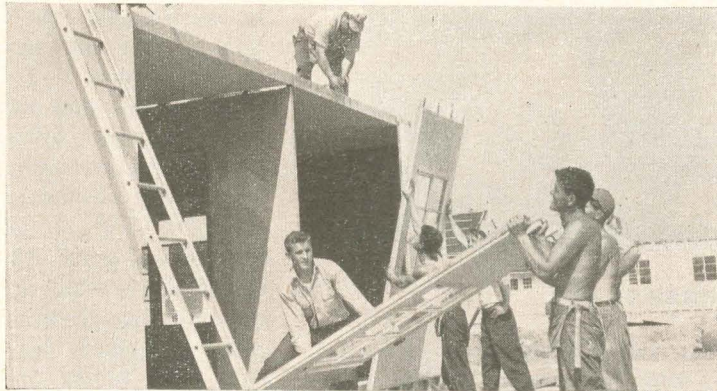
All seven are shown below and on the opposite page. All seven are suitable for big and small builders alike. (And all seven have previously appeared in HOUSE & HOME.) Urged General Chairman Alan Brockbank: “Put as many of these techniques into use as possible.”



Peter Braun: trusses give roof and ceiling framing in one.



Joe Goldman: no one on the job stands idle with tilt-up.



1

Use a roof truss

At least 25% less labor is needed if you use roof trusses instead of conventional rafters and joists. On a completed roof, trusses can save a neat 28% in materials.

Ordinary nailed trusses are economical for spans from 20' to 32'. They can be shop or site assembled, are easily stored. (“10 ways to cut costs”; H&H Jan. '53)

2

Tilt-up exterior walls

You save 20-30% in labor over conventional assembly because men can work more efficiently on the flat subfloor.

Wall is nearly finished before it is tilted up (except for doors). Sheathing is used in large pieces, and siding applied in shop. Employees work in greater safety.

(“10 ways to cut costs”; H&H Jan. '53)

3

Precut all framing material

Cutting and fitting each structural member as the house progresses is slow and expensive. Wood members can be precut from working drawings in a mill or your own shop. The advantages:

1. A slight reduction in on-site sawing.
2. A sizable reduction in idle time.
3. Tighter fitting wood members.

("10 ways to cut costs"; H&H Jan. '53)

F. R. Dapprich



Photos: W. Bennett



Dick Dickman: waste from shoo-cut frames makes stakes and cripples.

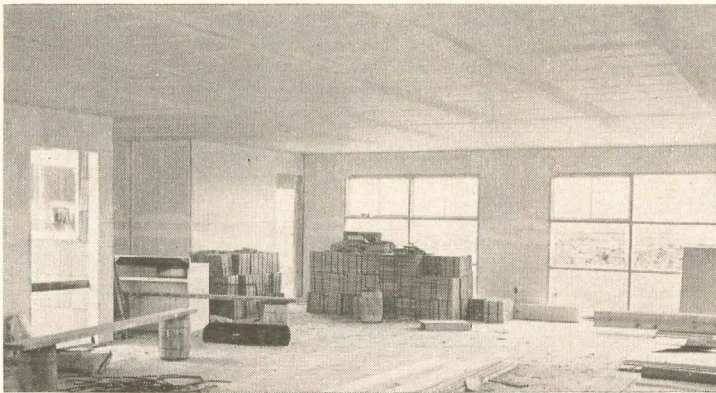
4

Try the "one-room" technique

With truss construction the interior of the house becomes a big open workshop. This makes two big savings possible:

1. Wallboard can be applied to the walls and ceiling with a minimum of cutting and waste, saving up to 50%.
2. Entire house can be floored in one piece, a 2¢ per sq. ft. saving.

("10 ways to cut costs"; H&H Jan. '53)



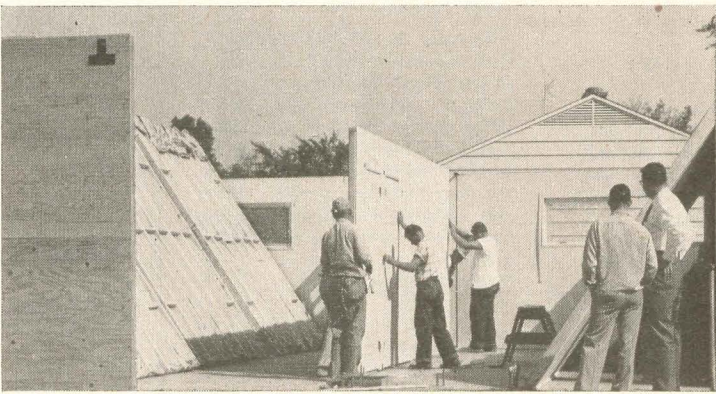
Robert Schmidt: "one-room" lets me integrate trades.

5

Use parts instead of pieces

You can save 30% in wall-framing labor by using panels, reports the Illinois Small Homes Council. Biggest savings come from setting doors and windows in a shop. Waste is cut and walls go up faster for further savings.

Panels are available at many local lumber yards. (See also page 161)
("16 ways to build for less"; H&H Mar. '55)



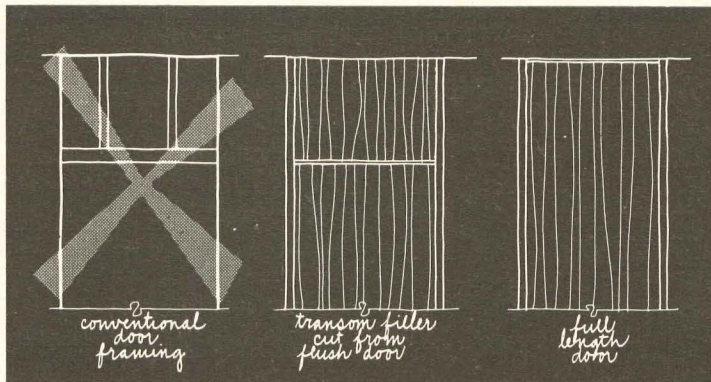
Harry Quinn: house goes up in one day with big pieces.

6

Eliminate framing over doors

Why not eliminate the rough double header and cripples over interior doors? You can do it two ways: 1) by running the doors full height (8' doors can be shop-made economically from 8' plywood); 2) by running jambs to the ceiling, filling transom space with a piece of flush door.

("16 ways to build for less"; H&H Mar. '55)



Bud Arters: I can save \$1 on every door: looks better too.

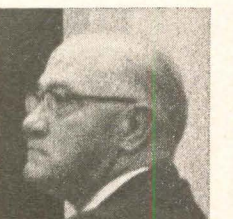
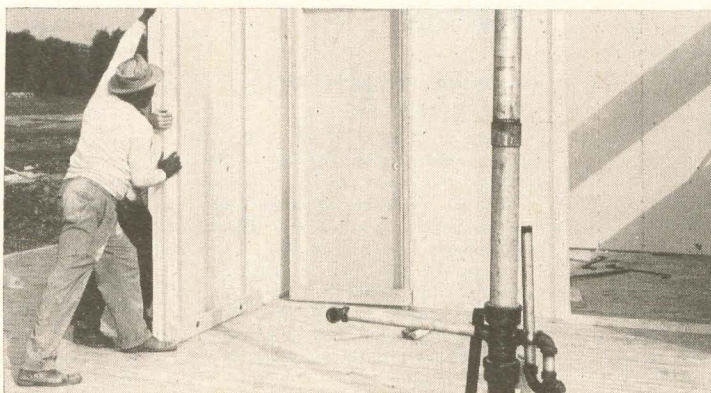
7

Prefabricate the plumbing

You can save \$35 by using prefabricated waste-drain trees. Not only is assembly faster, but the drain is usually better fitted under shop conditions.

There are two types of prefabricated "trees." One is available precast from the manufacturer; the other is preassembled from standard parts.

("Five ways to cut costs"; H&H Feb. '53)



L. Glenn Shields: We encourage prefab plumbing in Detroit.

Photos: (center) Philips; (right) W. Bennett

DIRECTORY

Prefabricated, packaged house firms who sell through builders or dealers

Alabama

LUMBER FABRICATORS, INC. Fort Payne, Ala.

Brand: LFI Homes
President: T. E. Stokes
Sales manager: Myron Raymond
Plant: Fort Payne
Package: room size exterior panels sheathed and sided; windows in place; doors framed; partition panels; trusses; precut floor, roof framing and sheathing; gables; garage or carport.
Optional: air conditioning.

Arkansas

SOUTHERN CLIFF MAY HOMES, INC. Stamps, Ark.

President: D. R. Teis
Sales manager: E. S. Johnson
Plant: Stamps
Package: wall panels completely sheathed and sided; interior partitions framed; exterior door and window panels; precut post and beam rafters, garages and carports; insulation; roofing; trim supplied; storage walls.
Optional: heating, air conditioning, range.

California

CALIFORNIA MODULAR HOMES INC.

Del Paso Heights, Sacramento County, Calif.

President: E. L. Schutt
Sales manager: Jerry W. Schutt
Plant: Del Paso Heights
Package: exterior wall panels pre-cut and preassembled, with board and batten finish applied and primed; precut rafters; interior and exterior trim; all doors prehung; hardware; aluminum and stainless steel windows in frames with sliding sash and screens; bathroom accessories but no plumbing fixtures; roof trusses, storage walls; wall and partition panels.
Optional: carport, garage, metal or wood kitchen cabinets, roof decking, insulation, interior plywood finish, birch interior doors.

MOBILE HOME CORP. Bakersfield, Calif.

Brand: Mobile Homes
President: Hugh Curran
Sales manager: L. D. Ford
Plant: Bakersfield
Package: completely assembled house shipped; includes air conditioning, forced air heating, ceramic tile baths, composition or shingle roof, attached or detached garages, aluminum sash, hardwood floors.

WESTWAY HOMES INC. Los Altos, Calif.

President: Fred H. Tanner
Sales manager: John Martin
Plant: Los Altos
Package: exterior wall panels completely sheathed and sided; aluminum windows in place and glazed; all doors prehung; interior partitions assembled with openings; all other items precut; no wall insulation or gypsum furnished but roof sheathing and insulation is furnished.
Optional: electric appliances, dishwashers, garbage disposer.

Connecticut

FABRICATORS INC. South Norwalk, Conn.

President: P. William Nathan
Sales manager: Paul D. Levine
Plant: South Norwalk
Package: smaller-than-room-size exterior panels sheathed and sided; separate window and door units; window walls; roof and floor panels; bare partition panels; trusses and gables, unassembled storage walls; cabinets; vanity-lavatories; carport.
Optional: heating plant.

WOODCREST LUMBER & MILL-WORK CO., INC. Woodbury, Conn.

Brand: Arbor Homes
President: Paul P. Posin
Plant: Woodbury
Package: exterior wall panels of room size completely sheathed and sided; partitions assembled; all doors prehung with hardware; rafters cut and notched; trusses; storage walls; roof panels; garage or carport; joists; floor panels; flooring; insulation; wallboard; precut doors and package trim; complete carpentry package.
Optional: plumbing and fixtures, heating, air conditioning, wiring, built-in range, refrigerator.

Florida

FLORIDA BUILDERS, INC. St. Petersburg, Fla.

President: John T. Haynsworth
Vice president sales: Martin V. Ahl
Plant: St. Petersburg
Package: room-size or larger exterior panels sheathed and sided; windows in place and glazed, unless casement or jalousie type; prehung doors with hardware; partition frames; trusses; storage walls; cabinets; ceiling and roof panels for some models; vanity-lavatories, garage or carport.

Georgia

KNOX CORP. Thomson, Ga.

President: P. S. Knox, Jr.
Sales director: R. H. Denton
Plant: Thomson
Package: room-size exterior panels sheathed and sided; windows in place and glazed; insulation in; interior gypsum applied; prehung doors with hardware; partition panels; trusses; precut floor system, joists and rafters and roof decking; carport; partition panels; rake panels; gable panels; laminated beams and columns.

YETTER HOMES, INC. Savannah, Ga.

President: George K. Yetter
Plant: Savannah
Package: room-size exterior panels with sheathing; windows and doors in place; partition panels; storage walls; roof and floor panels; trusses; precut roof sheathing; carport.
Optional: air conditioning for some models.

Illinois

W. G. BEST HOMES CO., INC. Effingham, Ill.

President: W. G. Best
Sales manager: George Frederking
Plant: Effingham
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; interior gypsum applied; all doors prehung with hardware; roof trusses and panels; joists and rafters; wall and partition panels; storage walls; garages and carports; permanent finance division.
Optional: vanity-lavatories, air-conditioning, electrical wiring conduit and bases, range, refrigerator.

CRAFT WAY, INC. Aurora, Ill.

President: Jack Von Ehr
Sales manager: A. C. Hyde
Plant: Aurora, Ill.
Package: exterior wall panels sheathed and sided; windows in place and glazed; insulation in; doors prehung with hardware; pre-cut joists and rafters; garage and carport; roof trusses; storage walls; plumbing walls supplied.
Optional: all kitchen appliances, vanity-lavatories.

DOUGLAS HOMES CO. Springfield, Ill.

President: A. H. Lubin
Sales manager: Paul B. Walker
Plant: Springfield

Package: exterior wall panels room size completely sheathed and sided; windows in place and glaze insulation in; all doors prehung with hardware; roof trusses; pre-plywood roof sheathing; pre-cessoffit material; insulation; roof shingles; kitchen cabinets; garage and carports; partition panel complete hardware.
Optional: heating ducts and plan air conditioning, range and refrigerator, vanity-lavatories.

ECONOMY BUILDINGS INC. Chicago, Ill.

President: Richard P. Matthesse
Plant: Chicago
Package: exterior wall panels completely sheathed; windows in place and glazed; doors prehung with hardware; all additional lumber complete house precut; roof shingles; rough and finish hardware.
Optional: oak flooring, shutters.

GBH-WAY HOMES, INC. Walnut, Ill.

President: Clifford M. Hill
Plant: Walnut

THURO BILT HOMES Fairbury, Ill.

President: Edmund B. Kloter
Sales manager: Chris A. Huette, Jr.
Plants: Fairbury, Belleville, O'Hare
Package: exterior wall panels room size completely sheathed and sided; windows in place and glaze insulation in; interior partitions assembled; all doors prehung with hardware, not installed floor package; precut joists and rafters; roof trusses; storage walls; garages and carports.
Optional: vanity-lavatories, heating plants and ducts, built-in range.

Indiana

ACME BUILDING MATERIALS INC.

Indianapolis, Ind.
Brand: Precision Homes
President: John E. Bauer
Sales manager: Louie Moller
Plant: Indianapolis
Package: room-size and small panels framed and sheathed—some exterior finish applied; windows in place and glazed; doors prefit; assembled trusses; partition panels kitchen cabinets; carport.
Optional: heating plant, appliance

ALLEN INDUSTRIES, INC. Fort Wayne, Ind.

Brand: Allen Homes
President: Robert J. Allen
Sales manager: Ralph W. Eaton
Plant: Fort Wayne
Package: 1' to 8' modular panel with sheathing; room-size part

ons; gables; trusses; windows glazed; prehung doors; cabinets; furnace and packaged flue; garage or carport.
Optional: bath fixtures, acoustical tile, plumbing.

GENERAL HOMES, DIV. OF GENERAL INDUSTRIES, INC.

Fort Wayne, Ind.

President: William B. F. Hall
Vice president (sales): Willard M. Jones

Plant: Fort Wayne

Package: larger-than-room-size exterior panels with sheathing and building paper; windows, storm ash, screens in place; trusses; ceiling and roof panels; insulation in place; predecorated interior; cabinets, plumbing assembly; wiring in place; all trim installed and painted; bath fixtures; furnace and chimney; water heater; floor tile; light fixtures; furnish interim financing.

MAY HOMES AND SUPPLIES

Evansville, Ind.

President: Paul J. May

Plant: Evansville

Package: exterior wall panels of room size and as large as 36' completely sheathed and sided; windows in place and glazed; insulation in interior gypsum applied; all doors prehung with hardware; trusses; storage walls; garage or carport; partition panels.

Optional: plumbing, heating, air conditioning, wiring.

NATIONAL HOMES CORP.

Lafayette, Ind.

President: James R. Price

Vice president (sales): George A. Lowee, Jr.

Plants: Lafayette, Horseheads, N. Y., Tyler, Tex.

Package: complete panels for exterior and interior walls, partitions and roof; insulation in place; all windows and doors factory-installed; precut interior and exterior trim; heating; water heater; cabinets; plumbing package; electric fixtures and wiring; all assembly parts precut; Acceptance Corp.

Optional: wood floor package, garage or carport, air conditioning, kitchen appliances, washer, dryer, storm sash or double-glass, outside storage units, porches, fences, attic fan.

NEW CENTURY HOMES, INC.

Lafayette, Ind.

Officers: John T. King, E. S. Lowman, R. H. Kelso

Plant: Lafayette

Package: room-size exterior panels with framing and plywood; windows and doors installed and trimmed; insulation and vapor barrier on exterior walls; ceiling panels; roof panels, gable panels, prime painted and trimmed; floor beams; mesh wire for panels, cutouts for electrical receptacles; garage or carport; trusses in 3/12 or 5/12 pitch; stressed-skin and conventional wall construction.

Optional: hip roof panels installed on gable panels.

PLACE HOMES, INC.

South Bend, Ind.

President: Robert B. Place

Sales manager: William Yeoman

Plant: South Bend

Package: all framing and blocking

precut; trusses; gables; interior doors prehung with hardware; furnace and ducts; vanity-lavatories; room divider screens; garage or carport. Planning interior panels for some models in near future.
Optional: air conditioning.

RICHMOND HOMES, INC.

Richmond, Ind.

President: Charles F. Travers

Vice president (sales): H. Quentin Ramsey

Plant: Richmond

Package: room-size interior panels, two exterior panels to a side, sheathed and sided; windows in place and glazed; prehung doors with hardware; trusses; kitchen cabinets; storage walls; precut joists and rafters; garage or carport; own subsidiary Housing Credit Corp.

Optional: air conditioning.

US STEEL HOMES, INC.

New Albany, Ind.

President: H. D. Moulton

Vice president (sales): D. F. Rucks, Jr.

Plants: New Albany, Harrisburg, Pa.

Package: exterior wall panels are sheathed, insulated; interior finished; windows glazed and trimmed out on interior; all doors hung and trimmed complete; hardware installed; roof trusses and panels; partition panels; carports and garages; gables; roof shingles; chimney; furnace; kitchen cabinets; bath accessories; lighting fixtures; precut soffits and closet material; Credit Corp.

Optional: heating plants and ducts, built-in and free-standing ranges, refrigerators, washer, dryer, garbage disposer, storm windows.

Iowa

KOZY MANUFACTURING CO.

Exira, Iowa

President: T. J. Godwin

Vice president (sales): T. H. Godwin

Plant: Exira

Package: panels up to 20' long sheathed and partially sided; windows in place and glazed; partition panels; prehung doors with hardware; trusses; gables; precut rafters, garage or carport.

Optional: electrical wiring, kitchen cabinets, custom designing available.

Kansas

STANDARD HOMES

Kansas City, Kan.

President: Robert L. Sweet

Plant: Kansas City

Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; all doors prehung with hardware; roof trusses; garages or carports; all materials necessary to complete house except plumbing, heating, and wiring.

WADSWORTH HOMES, INC.

Kansas City, Kan.

President: J. H. Stanton

Sales manager: D. C. Moreland

Package: exterior wall panels com-

pletely sheathed; windows in place and glazed; insulation in; all doors prehung with hardware; trusses; garage or carport; partition panels.

Kentucky

FAIRLANE HOMES, INC.

Louisville, Ky.

President: Edgar W. Archer

Sales manager: Jay D. Baker

Plant: Louisville

Package: exterior wall panels of room size completely sheathed; aluminum windows in place and glazed; interior trim precut; all doors prehung; roof trusses; partition panels; garages and carports.

Optional: built-in range.

Louisiana

CRAWFORD CORP.

Baton Rouge, La.

President: W. H. Crawford

Asst. sales manager: M. R. Groves

Plants: Baton Rouge & Gloster, Miss.

Package: wall-size panels sheathed and sided; windows in place and glazed; exterior doors prehung, sheathed roof panels; precut joists, rafter; partition panels; heating plant and ducts; vanity-lavatories; kitchen cabinets; carport; furnish interim and permanent financing.

Optional: air conditioning.

SOUTHERN CONSTRUCTION CORP.

Lake Charles, La.

Southern Homes

President: C. R. Grein

Sales manager: Lou Hart

Plant: Lake Charles

Package: room size exterior wall panels; partition panels; roof trusses and panels; storage walls; carports.

Optional: vanity-lavatories, heating plants and ducts, built-in range, dishwasher, disposal unit.

UNITED MORTGAGE CORP.

New Orleans, La.

Popular Homes

President: Malcolm A. Coco

Sales manager: Frank J. Frey

Plant: New Orleans

Package: room size exterior panels sheathed and sided; windows in place and glazed; prehung doors; assembled trusses; framed interior partitions; storage walls; overhangs assembled in sections; vanity-lavatories; carport.

Maine

MORGAN C. ELMER, INC.

Rockland, Me.

President: Morgan C. Elmer

Plant: Rockland

Package: exterior wall panels 4' to 8' completely sheathed and partially sided; windows in place and glazed; insulation in; all doors prehung with hardware; roof panels completely insulated with interior surface applied sheathed roof deck; roof trusses; joists and rafters; partition panels; storage walls; garages and carports.

Maryland

DIXIE HOMES

Upper Marlboro, Md.

President: George A. Halfpap, Sr.
Sales manager: George A. Halfpap Jr.

Plant: Upper Marlboro

Package: exterior walls with windows glazed; exterior doors prehung with hardware; interior partitions assembled; roof trusses assembled; floor joists precut and notched; roof panels; carports; joists and rafters; floor panels; precut roofing, siding, insulation, flooring, interior trim, cabinets, interior doors; wall ovens; finish hardware.

MARYLAND HOUSING CORP.

Baltimore, Md.

President: Joe C. Browne

Sales manager: Andrew Soellner

Plant: Baltimore

Package: smaller-than-room-size exterior panels with sheathing and insulation; windows in place and glazed; all doors prehung with hardware; roof and partition panels; trusses; electrical wiring; garage.

PRECISION BUILT HOMES, INC.

Baltimore, Md.

President: William F. Chew

Sales manager: Roy H. Robertson

Plant: Baltimore

Package: full length exterior panels sheathed, sided and insulated; windows in place and glazed; prehung doors with hardware; storage walls; panels for partitions and floors; trusses; finished ceiling applied; wiring in; plumbing assembly; garage or carport.

Optional: heating, bath fixtures, vanity-lavatories.

Massachusetts

FRANKLIN HOMES, INC.

Franklin, Mass.

President: Elmer Swenson

Sales manager: Frank Sullivan

Plant: Franklin

Package: room-size exterior panels sheathed and sided; windows in place and glazed; prehung doors with hardware; partition panels; trusses; storage walls; precut roof sheathing; garage or carport.

Optional: bath fixtures, vanity-lavatories, birch cabinets, ranges gas and electric built-ins, heating plant, wiring.

HODGSON HOUSES, INC.

Dover, Mass.

President: Kenneth W. Spalding

Sales manager: Richard L. Spalding

Plant: Dover

Package: larger-than-room size exterior panels, sheathed and sided; windows in place and glazed; prehung doors with hardware, precut partitions, roof sheathing, subfloor panels.

Optional: garage or carport.

NEW ENGLAND HOMES INC.

Bellingham, Mass.

President: Kelton O. Potter

Sales manager: Lewis L. Stead

Plant: Bellingham

continued on p. 176

Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; all doors prehung with hardware; roof trusses; partition panels; roofing, flooring, interior trim.

Optional: built-in range; kitchen cabinets.

PRE-BILT CONSTRUCTION, INC. North Dartmouth, Mass.

President: Joseph Blum
Sales manager: David Schwartz
Plant: North Dartmouth

Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; all doors prehung with hardware; precut roof panels; joists and precut rafters; garages; precut trim; precut roof sheathing; precut floor panels.

Optional: bathroom fixtures, heating plants and ducts, electrical wiring.

TECHBUILT, INC. Lexington, Mass.

President: Carl Koch
Sales manager: Paul Herrick
Plants: Concord, Mass.; Huntington, L. I.; Urbana, Ill.; Grand Island, Neb.; Whittier, Calif.

Package: modular wall panels 4' and 8' wide with sheathing; glazed window units; all doors prehung with hardware; floor and rafters, stairs; heating plant; wiring; garage or carport.

Optional: air conditioning.

Michigan

A. J. COOK LUMBER CO. Holland, Mich.

Brand: Insul-Stud Homes
President: Alvin J. Cook
Plant: Holland

Package: exterior room size panels or larger with full 1/2 inch insulating panel between studs to allow sheathing and interior surfaces to be applied on site; precut roof panels; precut interior partitions; garages; precut floor joists, ceiling joists, rafters.

MANUFACTURED HOMES, INC. Marshall, Mich.

Brand: Permabilt
President: Louis E. Legg
Sales manager: Vern C. McMahan
Plant: Marshall

Package: exterior wall panels smaller than room size with windows and doors installed; roof trusses; garages; precut plates, ceiling and floor joists, plywood roof sheathing; own finance company, Home Assistance Corp.

MICHIGAN LUMBER FABRICATORS, INC. Elkton, Mich.

President: N. J. Smith
Sales manager: B. G. Wiley
Plant: Elkton

Package: complete floor system; room size and smaller exterior panels with sheathing applied; choice of exterior siding; assembled partitions, roof trusses and gables; prehung exterior and interior doors with hardwood applied; prehung combination doors; aluminum or wood windows glazed, with screens and storms,

Thermopane picture windows, interior and exterior trim.

Optional: gypsum dry wall; insulation; kitchen cabinets, chimney; complete heat system; bath fixtures and accessories.

MODERN HOMES CORP. Dearborn, Mich.

President: Robert J. Lytle
Sales manager: Ralph L. Dabe
Plants: Dearborn; Port Jervis, N. Y.

Package: room size and smaller exterior panels, sheathed, sided and prime painted; windows in place and glazed; insulation in; prehung doors with hardware; floor panels; prefabricated steel bar joists for floors; trusses; precut partitions; cabinets; vanity-lavatories; garage or carport; Acceptance Corp.

Optional: power operated windows, acoustical ceiling, heating, air conditioning.

SECURITY HOMES MFG. CO. Kalamazoo, Mich.

President and sales manager: Fred J. Soppes
Plant: Kalamazoo

Package: smaller-than-room-size exterior panels with sheathing; windows in place and glazed; prehung doors with hardware; partition panels; storage walls; trusses or pre-cut joists and rafters; precut framing materials, roof sheathing; garage or carport; birch kitchen cabinets.

Optional: chimneys, furnace kit, floor tile and wall tile, aluminum storm-screen combinations.

SEMICO INC. Seney, Mich.

President: Milo F. Gonser
Sales manager: Robert Esler
Plant: Seney

Package: smaller-than-room-size panels with sheathing; glazed window units ready for installation; partition panels; trusses; floor and roof panels; storage walls; cabinets; vanity-lavatories; garage or carport.

SERVICE HOME MFG. CO. Grand Rapids, Mich.

Brand: Service Homes
President: Lyle Hoogeboom
Sales manager: Philip LeBlond
Plant: Grand Rapids

Package: exterior walls assembled with insulation, sheathing on; interior walls assembled, studding and plates only; all doors prehung with hardware; separately shipped windows; trusses; garage or carport; precut joists and rafters; precut stairs; kitchen cabinets, chimney, ventilating hoods.

Optional: heating, built-in range and refrigerator.

UNIVERSAL HOMES, INC. Detroit, Mich.

Brand: Universal Production Engineered Homes
President: W. G. Brownlee
Sales manager: Ralph Lynch
Plant: Milan, Mich.

Package: exterior wall sections sheathed and sided; doors and windows in place; partition panels; trusses and precut roof sheathing; precut floor joists and sheathing; garage or carport.

Minnesota

ASSOCIATED HOMES MFG. CO. Minneapolis, Minn.

President: Lyle A. Murray
Sales manager: E. C. Wilhelm
Plant: Minneapolis

Package: exterior wall panels of room size completely sheathed and sided; insulation in; roof trusses; joists and precut rafters; precut partitions and wall panels; carports and precut garages.

NORTHERN HOMES & LUMBER CO. Minneapolis, Minn.

President: C. W. Merchant
Sales manager: R. L. Nelson
Plant: Minneapolis

Package: exterior walls with girts applied for sheathing on site; windows shipped separately; roof trusses; roof sheathing; asphalt shingles; rough and finish hardware; assembled gable ends; precut material for flooring, hip roofs and trim; interior partitions assembled; carports.

Optional: cedar siding, insulation, medicine cabinets.

PAGE & HILL HOMES, INC. Shakopee, Minn.

President: Roger R. Page
Vice president (sales): M. D. Clements
Plants: Shakopee; Albert Lea; Waterville, Minn.

Package: room size exterior panels completely finished; complete partitions; windows; prehung doors with hardware; storage walls; gable or hip roof panels; ceiling panels; most trim installed, some pre-cut; bath accessories.

Missouri

HOME BUILDING CORP. Sedalia, Mo.

Brand: HBC Homes
President: Neal O. Reyburn
Sales manager: Arthur Dahlman
Plant: Sedalia

Package: larger-than-room-size panels with both exterior and interior finish applied and painted; glazed windows installed; doors prehung; storage walls mahogany; all interior mahogany woodwork prefinished; linoleum applied to floor in kitchen and baths; house completely plumbed and wired; roof and ceiling in panels and prefinished; all joists self-concealing; footage from 707 sq. ft. to 1,600 sq. ft.

Optional: heating plant.

MODULAR HOMES, INC. Kirkwood, Mo.

President: Burton W. Duenke
General manager: G. W. Mefferd
Plant: Kirkwood and Valley Park, Mo.

Package: exterior wall panels smaller than room size completely sheathed and sided; windows in place and glazed; all doors prehung with hardware; joists and rafters; partition panels and storage walls; garages and carports; kitchen cabinets.

Optional: vanity-lavatories, built-in range, built-in or wall-hung refrigerator

READY-MADE BUILDINGS, INC. Joplin, Mo.

President: John L. Polston
Sales manager: Ted Hoffman
Plant: Joplin

Package: exterior wall panels room size or smaller; windows in place doors prehung with hardware; roof trusses; joists and rafters; roof and floor panels; partition panels; storage walls; garages and carports kitchen cabinets; exterior siding precut interior studding, drywall

Optional: built-in range, vanity lavatories.

WILSON HOMES, INC. St. Louis County, Mo.

President: Clarence T. Wilson
Plant: St. Louis County

Package: room size exterior panels with sheathing and insulation; windows in place and glazed; all doors prehung with hardware; assembled trusses; partition panels; storage walls; precut roof sheathing; cabinets; bath accessories; some kitchen appliances; garage or carport.

Optional: floor panels, joists and rafters; air conditioning.

Nebraska

PERMCO MFG. CO. Peru, Neb.

Brand: Perma-Bilt Homes
President: Peter G. Holdorf
Plant: Peru

Package: room size exterior panels with sheathing; window and door openings framed; partition panels; trusses; precut roof sheathing, floor joists and subflooring; storage walls; precut soffits; eaves and cornices made up in sections; garage or carport.

New Jersey

PLYMOUTH HOMES, INC. Hillside, N. J.

President: Norman Libman
Sales Manager: A. Greenspan
Plant: Hillside

Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; precut roof and floor; garages and carports.

PRESIDENTIAL HOMES, INC. Pemberton, N. J.

President: Richard L. Duffield
Vice president: Harry C. Smith
Sales manager: Donald J. Peters
Plant: Pemberton

Package: room size and smaller exterior panels with sheathing and insulation; windows in place and glazed, except for fixed lights; partitions framed and assembled; pre-cut floor and roof components; garage or carport. Split-levels; ranches; Cape Cods.

WELL BUILT MFG. CO., INC. Somerville, N. J.

President: Edward A. Chandler
Plant: Somerville

Package: exterior wall panels with siding and sheathing; windows; front and service door installed; precut interior framing and sub-flooring; also ships precut shell of house package.

New York

ALLEGHENY HOMES CORP.

Homer, N. Y.
President: Stanley T. Nadolski
Plant: Homer
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; interior gypsum applied; all doors prehung with hardware; storage walls; roof panels; garage or carport; joists and rafters; partition panels; precut floor system.
Optional: plumbing fixtures; heating; air conditioning; appliances.

BARDEN & ROBESON CORP.

Middleport, N. Y.
President: Bryce Barden
Sales manager: Robert Kruger
Plant: Middleport
Package: exterior wall panels of room size completely sheathed; siding field applied; windows in place and glazed; insulation in; interior gypsum applied; all doors prehung with hardware; complete house panelized.

BUSH PREFABRICATED STRUCTURES, INC.

Huntington Station, N. Y.
President: Clinton G. Bush
Plants: Huntington Station; Glen Cove, N. Y.
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; interior gypsum applied; all doors prehung with hardware; storage walls; stair systems; cabinets; trusses; roof panels; garage or carport; joists and rafters; partition panels; floor panels; precut trim. Sometimes ships completely precut package.
Optional: heating, wiring.

FEDERAL HOMES CORP.

New York City
President: Chris D. Geisler
Plant: Canaan, Conn.
Package: smaller-than-room-size exterior panels sheathed and sided; prehung windows, doors with hardware; partition panels; roof and floor panels, trusses; storage walls; carport.

IVON R. FORD, INC.

McDonough, N. Y.
Brand: Ford Homes
President: Ivon R. Ford
Sales manager: H. C. Belmore
Plant: McDonough
Package: wall-size and smaller panels with sheathing; partition panels; roof trusses and panels; finished floor panels; insulation and wiring installed; windows in place; prehung doors; storage walls; ceiling panels; precut trim.
Optional: heating plant; kitchen cabinets.

GALVIN HOMES, INC.

Rochester, N. Y.
President: John Galvin
Plant: Rochester
Package: exterior wall panels of room size completely sheathed; all doors prehung with hardware; precut rafters and joists; partition panels; storage walls; garages and carports.

GENERAL HOMES

Huntington Station, N. Y.
President: Clinton G. Bush
Plant: Huntington Station
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; interior gypsum applied; all doors prehung with hardware; window walls; stairs; cabinets; trusses; storage walls; roof panels; garage or carport; joists and rafters; partition panels; floor panels; precut trim.
Optional: wiring, appliances.

NORTHERN HOMES, INC.

Hudson Falls, N. Y.
President: Thomas I. Eastwood
Plant: Hudson Falls
Package: room size and smaller exterior panels with sheathing; exterior windows and doors in place; 4' partition panels; floor panels with subflooring; partial trusses; precut joists and rafters; garage or carport.

North Carolina

WRIGHT HOMES, INC.

Durham, N. C.
President: Richard H. Wright, III
Plant: Durham
Package: exterior wall panels of room size completely sheathed; windows in place and glazed; all doors prehung with hardware; trusses; storage walls; roof panels; carports; partition panels; precut floor panels.

Ohio

CONTINENTAL HOMES, INC.

Toledo, Ohio
President: John H. Shuey
Sales manager: Arthur W. Amsler
Plant: Toledo
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; all doors prehung with hardware; roof trusses and panels; joists and rafters; partition panels; garages or carports; precut plywood roof sheathing, floor system, facia.

DUNBAR INDUSTRIES, INC.

Toledo, Ohio
President: R. G. Dunbar
Sales manager: Niel T. Jones
Plant: Toledo
Package: exterior modular 4' wall panels with sheathing applied; windows in place and glazed; insulation in; all doors prehung with hardware; complete gable ends; floor panels; roof trusses, plywood roof sheathing, and gypsum supplied; interior partitions room size; precut lumber, floor joists, girders, stair; own Mortgage Corp.
Optional: prefinished birch kitchen cabinets, attic exhaust fans, steel oven and range, chimneys, asphalt floor tile.

EXPAN HOMES, INC.

Cleveland, Ohio
President: Alex Bruscinio
Sales manager: Minor F. Monroe
Plant: Cleveland
Package: exterior wall panels of room size completely sheathed and

sided; windows in place and glazed; interior doors prehung; trusses; gables assembled; interior partitions; overhang soffits.

H. C. HUBER CONST. CO.

Dayton, Ohio
General manager: Robert Miller
Sales manager: Edward Kostic
Plant: Dayton
Package: room size exterior panels open-framed; prehung doors; partition panels; roof panels; all finishing lumber precut; garage.
Optional: heating, air conditioning.

INDEPENDENT LUMBER CO.

Cleveland, Ohio
Brand: Heritage Homes
General Manager: G. H. Ballinger
Department manager: Wm. A. Bopp.
Plant: Cleveland
Package: modular 4' exterior panels with sheathing; window walls to 12'; windows in place and glazed; prehung doors with hardware; partition panels; trusses; precut joists, rafters, roof sheathing, floor and deck; gables; cabinets; garage or carport.

INLAND HOMES CORP.

Piqua, Ohio
President: E. E. Kurtz
Vice president (sales): Roy E. Hunsaker
Plants: Piqua; Hanover, Pa.
Package: room-size exterior panels sheathed and sided; windows in place and glazed; prehung doors; partition panels; storage walls; trusses; roof and floor panels; joists, rafters, and all floor materials precut; all interior finish and trim; soffits; heating plant; garage. Mortgage Corp.
Optional: air conditioning.

INTERNATIONAL HOMES, INC.

Youngstown, Ohio
President: Myron Agrenovitz
Sales manager: E. B. Osterhout
Plant: Mineral Ridge, Ohio
Package: larger-than-room-size exterior panels sheathed and sided; windows in place and glazed; prehung doors; partition panels; trusses; roof panels with sheathing; storage walls; garage or carport.
Optional: heating plant.

METROPOLITAN HOMES, INC.

Springfield, Ohio
President: Charles E. Fry
Plant: Springfield
Package: room size exterior panels complete except for final paint coat; partition panels framed only; trusses; storage walls; carport.

MIDWEST HOUSES, INC.

Mansfield, Ohio
President: John L. Morley
Vice president (sales): T. G. Barber
Plants: Mansfield; Lexington, Ohio
Package: smaller-than-room-size exterior panels with sheathing; windows in place and glazed; prehung doors; partition panels, trusses, floor panels; vanity-lavatories; garage or carport.
Optional: kitchen built-ins and appliances.

PEASE WOODWORK CO., INC.

Hamilton, Ohio
Brand: Pease Homes
President: John W. Pease
Plant: Hamilton
Package: smaller-than-room-size exterior panels sheathed and framed; window and door openings framed; partition panels; trusses; precut beams, bridging, trim, roofing, siding, birch kitchen cabinets, and millwork.
Optional: attached or detached garages; carports; various kinds and styles of windows, doors, and siding materials; wider roof extensions; steel kitchen cabinets; and vanity-lavatories.

SCHOLZ HOMES, INC.

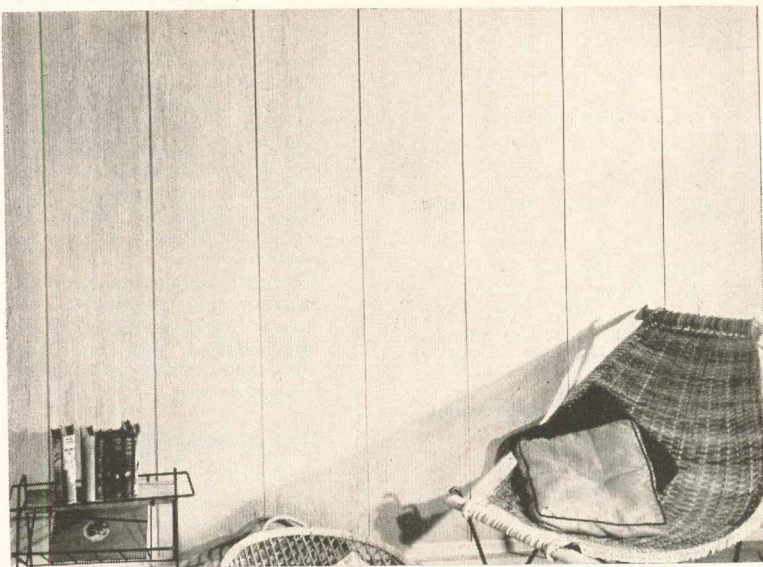
Toledo, Ohio
President: Donald J. Scholz
Sales managers: (West) Bernard Perry; (Central) Harry Leggett; (East) James Hyde
Plants: Toledo; Wilmington, Del.; Seattle, Wash.
Package: smaller - than - room - size exterior panels sheathed and sided; windows in place and glazed; insulation in; interior gypsum applied; prehung doors with hardware; partition panels; storage walls; floor and roof panels; kitchen cabinets; double glazing; garage or carport; Acceptance Corp.
Optional: bath fixtures, vanity-lavatories, plumbing, heating, electrical wiring, air conditioning.

STYLE-RITE HOMES CORP.

Columbus, Ohio
President: W. L. Mainland
Vice president and sales manager: W. J. Kuehnel
Plant: Columbus
Contemporary package: 8' wide wall panels sheathed, sided and insulated; windows in place and glazed; prehung doors with hardware; partition panels; insulated ceiling panels with finished ceiling; precut roof rafters and beams; precut window and door casings; carport.
Ranch line package: 12' wide wall panels, sheathed, sided and insulated; windows in place and glazed; prehung doors with hardware; partition panels; built-up 4/12 slope roof trusses; precut door and window casings.
Optional: attached garage, carport

THE THYER MANUFACTURING CORP.

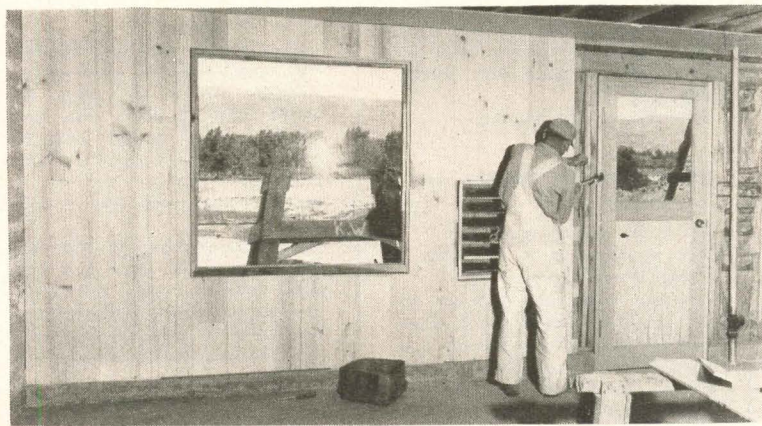
Brand: Thyer Homes
 Toledo, Ohio
President: Frank Thyer
Sales Managers: N. N. Wiebusch, northern div, Scott Grant, southern div.
Plants: Toledo; Jackson, Miss.
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; all doors prehung and routed out for hardware; all exterior trim prime coated; interior partitions without finish; prebuilt trusses; prebuilt gable ends; roof trusses; storage walls; roof panels; precut floor joists; subfloor; garages and carports.
Optional: bathroom fixtures, heating plants, kitchen cabinets, bath wall finish, attic fan, exhaust fan, bathtub door, storm doors and windows, double glazing.



A. You clip these wall panels on the studs

Want a wood paneled room in a package? You can get it from US Plywood and it's called Plankweld. Planks are just over 16" wide, the spacing between most wall studs. To install, all you do is nail a series of specially designed clips to the studs and fit the planks into the clips.

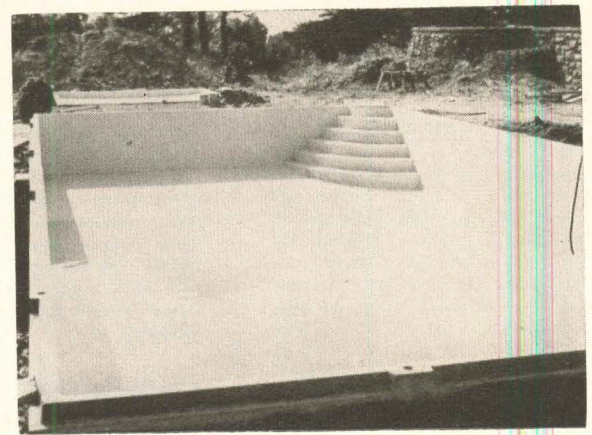
Wood choices range from fine Weldwood hardwoods like birch, walnut, oak and Korina to Philippine mahogany and knotty pine. US Plywood Corp. New York City.



B. These panels interlock to form interior walls

Lockwall panel is designed in 7' and 8' lengths. White pine is run through a molder to pattern, carefully cut at the factory, and matched and beveled to complete pattern work. Stock is then assembled to make a panel 32" wide in lengths given above. Furring strips about 36" long are glued to back of panel, extending about 2" over edges and spaced or notched so panels will interlock. When paneling is started in a room corner, furring strips on one side are sawed off flush with panel edge. With studs 16" o.c., furring strips will extend from opposite edge of 32" panel over a stud. Furring strips are nailed to stud, then interlocked to the next panel. Openings are sawed out just as in Sheetrock or plywood applications. Company says if it is necessary to saw between furring strips below end joint, a short piece may drop out but can be replaced in position above or below the opening.

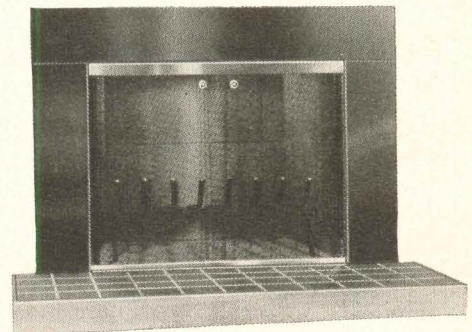
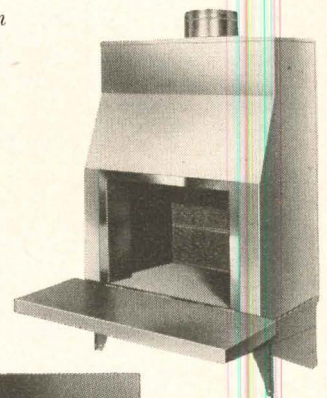
Panel can be installed on waterproofed block or concrete basement walls, over old wall coverings, on ceilings, wainscots. Knotty Idaho white pine panels 32 x 96" cost about \$7 each. Same size panels in clear Idaho white pine are about \$9.50 each. Company is also experimenting with inland red cedar. Potlatch Forests, Inc.



C. Pool's walls go up in four hours

Precast Amcrete pool (20 x 40' size is shown above) can be built in large developments or in private residences. On a fully steel-reinforced poured-concrete floor, with keyways left for panels, precast buttresses are set at the joints of every wall over 20' long, to make a cantilever support for wall sections. Then first precast section is lowered into place. Wall panel, set in keyway, is bolted to buttress and dovetails into next panel. Precast panels need no surfacing other than a rubber-base paint. Company says walls of the 20 x 40' pool can be set in place in less than four hours; on a 45 x 105' pool, walls can go up in a day. Amcrete Corp., Port Chester, N.Y.

For further information check numbered coupon on p. 246.



D. Here's a new fireplace in a package

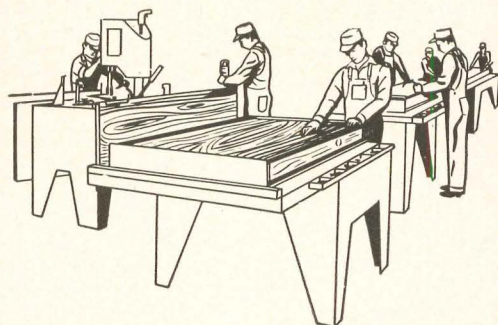
Prefabricated Majestic Thulman fireplace now offers all the parts you need for a finished installation that can be completed in three hours, company claims. The new factory-made accessories include: base platform, hearth (with or without tile), red brick or black glass surround, flexible screen and basket grate. New accessories mean you can buy a complete, packaged fireplace from hearth to roof. The Majestic Co., Inc., Huntington, Ind.

continued on p. 191

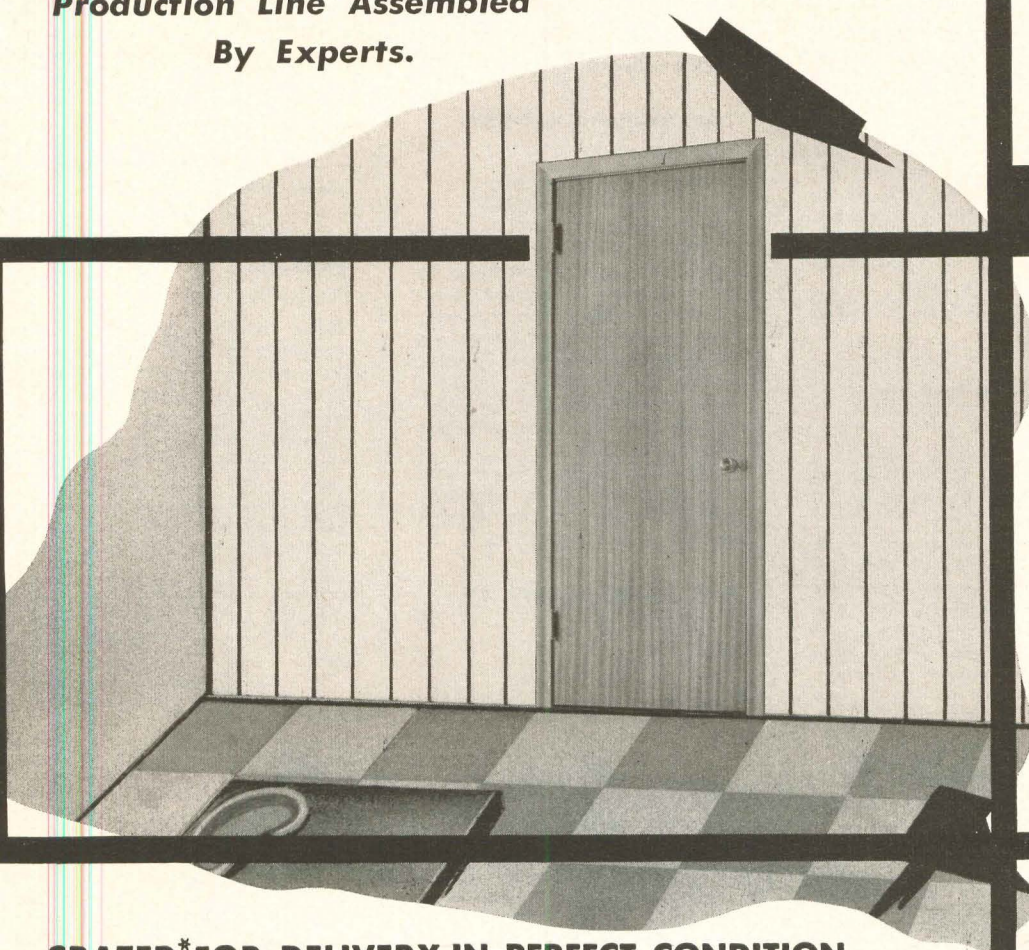
READY HUNG DOORS

JUST RIGHT...MITRE TIGHT

Precision Manufactured On
Specially Designed Machinery...
Production Line Assembled
By Experts.



FROM THE FACTORY



CRATED* FOR DELIVERY IN PERFECT CONDITION

Tension in the steel band exerts equalized pressure (indicated by the arrows) at the corners to draw the frame in tight contact with the rigid door. Frame joints and mitres are therefore rigidly held square and tight by the door itself.

Spacer blocks between the door and frame serve a dual purpose: (1) They block the frame around the door during shipment, and, (2) Are used to maintain proper door clearances while the door is being installed. Faces are protected by cardboard when shipped by common carrier.



*PAT. NO. 2489029



TO THE HOUSE

READY HUNG DOORS MADE BY THESE LEADING WHOLESALERS

- | | | | | | | |
|-------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------|
| ALBANY, N. Y.
Iroquois Millwork Corp. | CHICAGO, ILL.
Morgan Sash & Door Co. | DENVER, COLO.
Lumber Dealers, Inc. | LOS ANGELES, CALIF.
Ready Hung Door Mfg. Co.
Burbank | PITTSBURGH, PENN.
Iron City Sash & Door Co. | SIoux FALLS, S. DAK.
Jordan Millwork Co. | SYRACUSE, N. Y.
Iroquois Door Co. |
| BALTIMORE, MD.
Central Building Supply, Inc. | CINCINNATI, OHIO
Acme Sash & Door Co. | GRAND RAPIDS, MICH.
Porter-Hadley Company | MARION, IND.
General Millwork Corp. | ROCHESTER, N. Y.
The Whitmer-Jackson Co., Inc. | SPRINGFIELD, MO.
Southern Supply Company | TOLEDO, OHIO
Allen A. Smith Co. |
| BIRMINGHAM, ALA.
National Woodworks, Inc. | CLEVELAND, OHIO
The Whitmer-Jackson Co.
Massillon, Ohio | HUNTINGTON, WEST VA.
Iron City Sash & Door Co. | NEW YORK, N. Y.
Bailey-Whalen Co.
West Orange, N. J. | SAGINAW, MICH.
Flint Sash & Door Co., Inc. | ST. LOUIS, MO.
Imse-Schilling Sash & Door Co. | TORONTO, CANADA
C. Lloyd & Son Limited |
| BOSTON, MASS.
W. Hastings & Co., Inc.
Somerville 44, Mass. | DAYTON, OHIO
Dayton Sash & Door Co. | HOUSTON, TEXAS
Southwest Sash & Door Co. | OAKLAND, CALIF.
Ready Hung Door Mfg. Co. | SAN ANTONIO, TEXAS
Ready Hung Door Mfg. Corp. | ST. PAUL, MINN.
Minnesota Wood Specialties, Inc.
St. Paul Park, Minnesota | WACO, TEXAS
Frank Stevens Sash & Door Co. |
| BUFFALO, N. Y.
Iroquois Door Co.
The Whitmer-Jackson Co. | | INDIANAPOLIS, IND.
Midland Building Industries, Inc. | | SEATTLE, WASH.
Acme Millwork, Inc.
Kirkland, Wash. | | |

READY HUNG DOOR CORP., FORT WORTH 2, TEXAS

WEAKLEY MANUFACTURING CO.

Newark, Ohio

President: Robert K. Weakley
Plant: Newark*Package:* room size exterior panels sheathed and sided; windows in place and glazed; interior gypsum applied; partition panels; trusses and precut roof sheathing; precut floor framing and exterior trim; electric outlets with pull wires installed; garage.**Oklahoma****SOUTHERN MILL & MANUFACTURING CO.**

P. O. Box 1087, Tulsa, Okla.

Brand: Southern Mill Homes
President: W. H. Ahrens
Sales manager: Joe W. Fellers
Plant: Tulsa*Package:* room length walls and partitions; windows and exterior doors glazed and hung; hardware applied; lining site-applied after wiring installed; trusses; roof panels; cabinets and all other materials to make complete house except plumbing, heating, wiring and painting.*Optional:* vanity-lavatories, air conditioning.**Oregon****WESTERN MILLS, INC.**

Beaverton, Ore.

Brand: Westcut Homes
President: Aubrey P. Schmidt*Plant:* Beaverton*Package:* room size and smaller exterior panels with sheathing, siding and insulation; windows in place; all doors prehung with hardware; semi-assembled trusses; vanity-lavatories; garage or carport; furnish interim and permanent financing. For export all materials are precut.**Pennsylvania****ADMIRAL HOMES, INC.**

West Newton, Pa.

President: Frank A. Baldus
Sales managers: E.R.L. Palm, Vince Miller, Wm. S. Brown
Plant: West Newton*Package:* up to 30' exterior panels sheathed and sided; windows in place and glazed; prehung doors with hardware; prefabricated gables; interior framing; precut floor materials; partially precut ceiling and roof materials; garage or carport. Acceptance Corp.*Optional:* bath fixtures, kitchen equipment.**AMERICAN HOUSES, INC.**

Allentown, Pa.

President: J. R. H. McDonald
Sales manager: J. F. O'Sullivan
Plants: Allentown; Lumberton, N. C.; Cookeville, Tenn.*Package:* smaller-than-room-size exterior panels with insulations and sheathing; window walls; floor and partition panels; windows in place and glazed; prehung doors with hardware; storage walls; precut closet shelves; carport or garage.*Optional:* air conditioning, lavatories, kitchen cabinets.**COTTMAN PLANNED HOMES, DIV. COTTMAN BUILDERS**

Philadelphia, Pa.

President: Marvin Orleans
Sales managers: Manuel Honig, pre-cutting*Sherman Wagman, prefabbing*
Plant: Philadelphia*Package:* completely precut house or exterior wall panels with sheathing applied, windows and doors in place; interior partitions assembled; prehung interior doors; factory assembled stairs; all rough and finish hardware; garages; all material to completely finish house except paint. Mortgage Corp.**CRESTWOOD HOMES CO.**

Greenville, Pa.

President: C. F. Neubauer
Sales manager: C. D. Rissell
Plant: Greenville*Package:* exterior wall panels of room size completely sheathed and sided; windows in place and glazed; all doors prehung with hardware; roof trusses; partition panels; garages or carports; precut floor and ceiling joists, rafters, sub-floor; window walls; storage walls; furnish interim and assist with permanent financing.*Optional:* plumbing fixtures, heating plants and ducts, air conditioning, wiring built-in or free standing kitchen appliances.**HOG ISLAND LUMBER CO.**

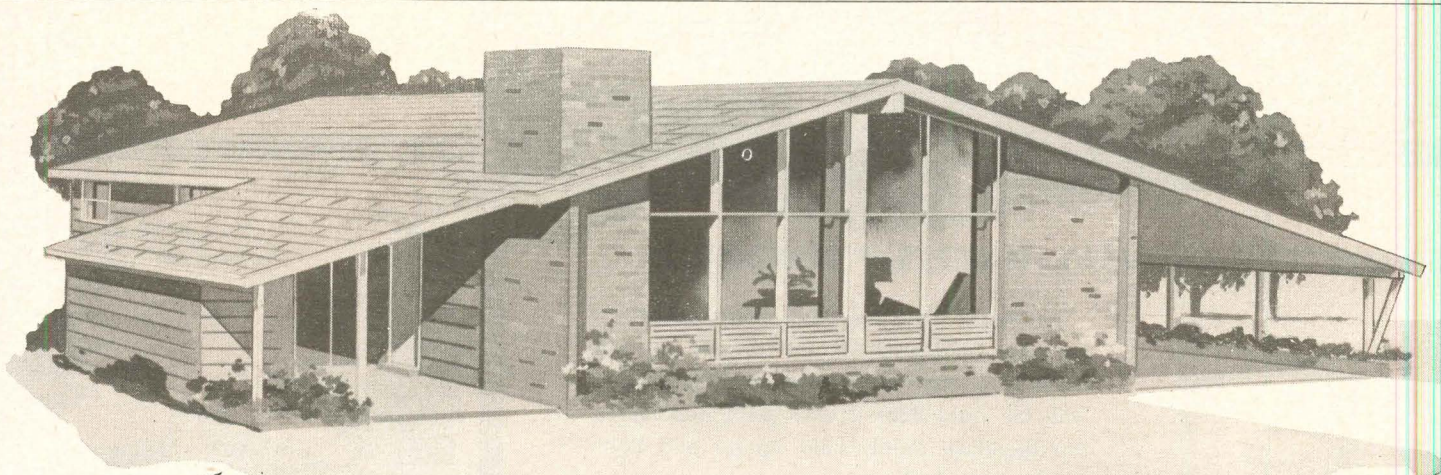
Philadelphia, Pa.

Brand: Hilco Homes
President: Martin Cohen*Sales manager:* Jerome J. Drucker*Plant:* Philadelphia
Package: smaller-than-room-size exterior panels with sheathing; insulation in; precut joists, rafters, interior studs; windows; doors.*Optional:* garage or carport, bath fixtures, vanity-lavatories, heating, wiring, cabinets.**HORSTMAN, INC.**

Erie, Pa.

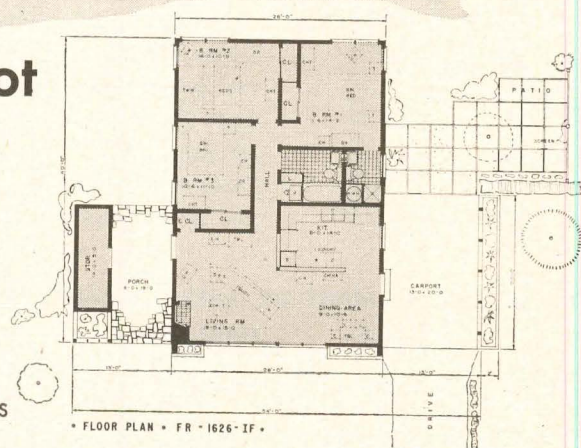
President: Herman Horstman Jr.
Sales manager: Glen Q. Ripley
Plant: Erie*Package:* exterior 12' wall panels completely sheathed; room size interior partitions; precut joists and rafters; windows ready for installation; roof trusses; garages; stairs; gable ends; precut wood bridging and cornice.*Optional:* bathroom fixtures, built-in range, vanity lavatories, heating plants and ducts.**MAIN LINE LUMBER & MILLWORK CO.**

Wayne, Pa.

Brand: Main Line Homes
President: Ralph K. Madway
Sales manager: Herbert L. Gross
Plants: Wayne; Philadelphia, Pa.*Package:* exterior wall panels fully sheathed; windows assembled and glazed; doors ready for installation; precut rafter and ceiling joists; trim; interior partitions; garages and carports; subflooring and finished flooring; roofing and siding.*Optional:* bathroom fixtures, prefab chimneys, heating plants and ducts, air conditioning, refrigerator and range.*continued on p. 182*

Adaptable to any size lot

Shown here is The Franklin Roosevelt, a three-bedroom Lesco Home that reflects a popular new concept in contemporary styling. Cathedral ceilings add charm to the functional interior design. Exterior storage, porch and carport give maximum livability at a minimum cost. Architect-designed in over 30 styles, Lesco Homes go up easily, sell quickly—with two-, three- and four-bedroom styles package-priced at \$4,000 to \$12,000. Completely approved; easily financed. For more information, write: Dept. HH-12.



THE LINE OF THE PRESIDENTS

ONE OF THE SOUTH'S LARGEST MANUFACTURERS OF HOMES...

Serving and Selling builders in Virginia, North and South Carolina, Kentucky, District of Columbia, Delaware, Maryland, Tennessee, West Virginia and Georgia.

AIR CONDITIONING SELLS TODAY'S HOMES



**We build to customer specifications...
In nearly every case the buyer insists
on air conditioning",**

*says A. S. R. Sheppard, President,
Builders Development Corp., Austin, Texas*

air conditioning has been a big factor in home sales," says A. S. R. Sheppard, "especially after the success of the Air Conditioned Village here in 1954. Customers dictate specifications, and in this area homes priced from \$16,000 without air conditioning are at a definite sales disadvantage."

Builders Development Corp. is jointly owned by 8 outstanding Austin, Texas, builders. Using combined resources, they have purchased a 535-acre tract known as Boston Hills, which is being turned into one of the most exclusive developments in the country. Air conditioned exclusively with Typhoon units, Boston Hills, when completed, will be the largest air conditioned development in the country.

In Austin, a home without air conditioning is obsolete

now," continues Mr. Sheppard. "Home buyers insist on it almost every time."

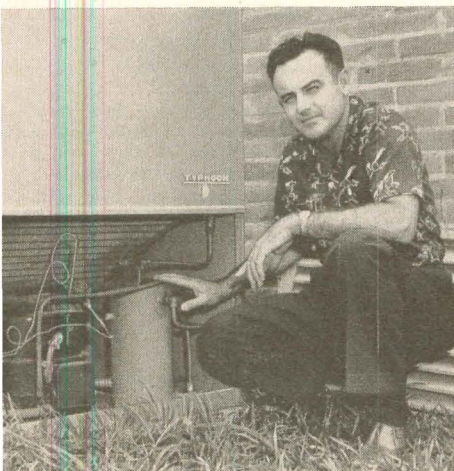
Use these survey facts to help sell the air conditioned homes you build

When Du Pont asked owners what they enjoyed most about their air conditioning, these were some of the answers given:

Feeling of coolness	41%	Rooms clear of dust	8%
Sleep much better	22%	Feel more efficient at work . . .	7%
Freedom from humidity	9%	Family enjoys home life more .	7%

Du Pont's new market survey, from which these figures were taken, was conducted among urban and metropolitan households. Figures represent per cent of respondents who now own air conditioning. Only leading reasons are shown.

Why you should always insist on units charged with "Freon"*



Mr. Sheppard specifies 3- and 5-ton Typhoon units charged with "Freon". They are remarkably free of breakdowns and adaptable to homes in Texas. Ex-

When you select air conditioning units for the homes you build, don't take the refrigerant for granted. No component is more essential to the efficient, trouble-free operation of air conditioning equipment. That's why it's so important to specify Du Pont "Freon" refrigerants for the air conditioning equipment you install.

When you specify a "Freon" refrigerant, you can be sure it will not give you any trouble from acids or moisture. Du Pont's 25-year experience manufacturing "Freon" is your assurance of unsurpassed quality and purity. And you can be sure "Freon" refrigerants are safe—nonflammable, non-explosive, virtually nontoxic.

So plan to include air conditioning in the homes you build and, when you do, insist on a dependable Du Pont "Freon" refrigerant.

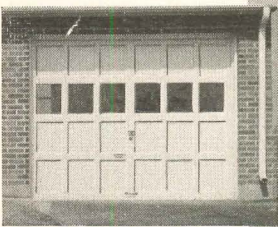
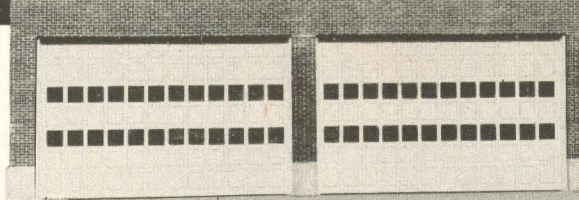
Learn how air conditioning has helped others to sell homes. Send for the Du Pont brochure "What Successful Builders Think of Home Air Conditioning." For your free copy, write to E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division 1212, Wilmington 98, Delaware.



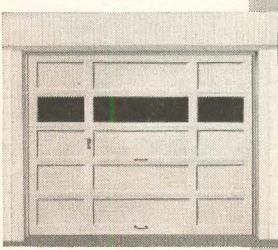
Wedge Tight
calder

OVERHEAD
SECTIONAL
GARAGE
DOORS

COMMERCIAL



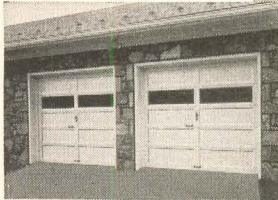
STURDY



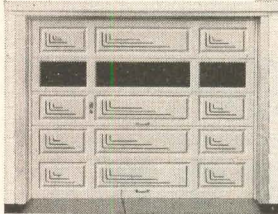
TRILINE



FLUSH



LEVELINE



RAISED PANEL

... a *Style* to blend
with any architecture

... a *Size* to fit any
opening, both residential
and commercial

ALL DOORS FEATURE THE

FAMOUS
Wedge Tight
TRACK



for fast installation, easy
operation. Even a child
can open and close a
Calder door, yet it fits
like part of the wall.

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backed by extensive national
advertising.

Warehouses in: Lancaster,
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Free!
Catalog gives complete
specifications on Calder's
full line. Colorlog shows
the Calder way to
achieve custom effects
without custom costs
when home owners want
decorated garage doors.
Send for your copies
today.

Every Calder door can be equipped
with extension or torsion springs and
can be electrically operated and radio
controlled.

calder

MANUFACTURING CO., Lancaster 15, Pa.

TOWN & COUNTRY FABRICATORS, INC.

Pittsburgh, Pa.
Brand: Town & Country Homes
President: Sidney Bloom
Sales manager: Jerome S. Weisman
Plants: Pittsburgh; Clairton, Pa.
Package: exterior wall panels to 30' sheathed and sided; steel case-ment windows in place and glazed; all doors prehung with hardware; joists and rafters; precut hip or gable roof; assembled stairs; roof sheathing, shingles, finished hardware, trim, flooring, insulation, screens.
Optional: plumbing, heating, wiring, appliances, aluminum or wood casements, birch kitchen units, marble window sills.

South Carolina

DARGAN LUMBER MFG. CO. DARGAN LU-RE-CO HOMES DIV.

Conway, S. C.
President: E. Ervin Dargan
Sales manager: T. A. Snyder
Plant: Conway
Package: exterior wall panels sheathed and insulated with windows in place and glazed and doors prehung; roof trusses; all other lumber and hardware supplied for finishing on site.

South Dakota

BUCKINGHAM WOOD PRODUCTS

Rapid City, S. D.
Brand: Midwestern Homes
President: Glen O. Buckingham
Sales manager: W. P. Myhren
Package: exterior wall panels completely sheathed; all doors prehung with hardware; trusses; roof panels; garage or carport; partition panels; precut floor joists; bridging; truss materials; back-up materials; interior trim materials.
Optional: plumbing package, heating package, air conditioning, wiring package, appliances.

Tennessee

FAIRHILL, INC.

Memphis, Tenn.
President: Charles H. Freeburg
Sales manager: P. A. McCarthy
Plant: Memphis
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; insulation in; interior doors prehung with hardware; preassembled roof trusses; prefinished cabinets; storage walls; joists and rafters; partition panels; garages and carports; precut cornice.
Optional: heating plants and ducts, air conditioning, vanity-lavatories, built-in range.

FONDE'S BUILDERS SUPPLY CO.

Knoxville, Tenn.
President: Stuart Fonde
Sales manager: Ellis Mayers
Plant: Knoxville
Package: exterior wall panels less-than-room-size completely sheathed; windows in place and glazed; all doors prehung with hardware; roof trusses; joists and rafters; precut partition studs; carports; floor joists; closet fronts; bookcases; utility cabinets.
Optional: wall-hung refrigerator.

Texas

FABRICON

Austin, Tex.
President: Ned A. Cole
Plant: Austin
Package: exterior structural parts window walls; partition panels prehung doors; windows, sashes glazed; trusses and gables; roof panels for flat deck only; storage walls and cabinets for complete interior; lavatories, vanity-lavatories; heating plant and ducts; lighting fixtures; garage or carport.
Optional: air conditioning.

HOLIDAY HOUSE MANUFACTURERS CORP.

Fort Worth, Tex.
President: C. Graham Schadt
Plant: Fort Worth
Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed insulation in; all doors prehung with hardware; roof trusses; joists and rafters; partition panels; storage walls; garages and carports.
Optional: heating plants and duct air conditioning, built-in ovens and ranges, bath heaters, wall fans at ventilating hoods, kitchen cabinet vanity-lavatories.

HOUSTON READY-CUT HOUSES CO.

Houston, Tex.
Brand: Houston Homes
President: J. C. Suttles
Plant: Houston
Package: smaller-than-room-size exterior panels with sheathing; windows units; prehung doors; partition panels; trusses; garage or carport
Optional: heating, air conditioning

SOUTHWEST AMERICAN HOUSES, INC.

Houston, Tex.
President: M. L. Westbrook
Sales manager: George E. Finch
Plant: Houston
Package: exterior wall panels room size completely sheathed; windows in place and glazed; all doors prehung with hardware; roof trusses preassembled; cabinets preassembled; joists and rafters; partition panels; storage walls; garage and carports.

TEXAS HOUSING CO.

Dallas, Tex.
President: Winfield Morten
Sales manager: John E. King
Plant: Dallas
Package: smaller-than-room-size panels sheathed, sided and insulated; windows in place and glazed; prefitted doors with hardware; panels for partitions, floor and roof trusses; storage walls; carport.
Optional: garage, heating, air conditioning.

Utah

INTERMOUNTAIN PRECISION BILT HOMES

Ogden, Utah
Partners: Alton E. Wade and Wallace H. Wade
General manager: Blaine Wade
Sales manager: Robert Wade
Plant: Ogden
Package: room size exterior panels

continued on p. 11

HOUSE & HOME

small homes or large homes



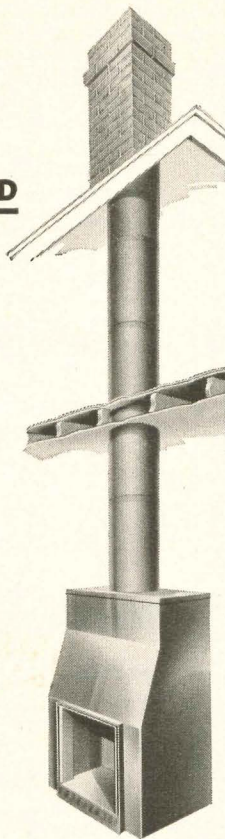
YOU get more quality at less cost with

Majestic

the FULL LINE OF HEATING AND AIR CONDITIONING EQUIPMENT

THULMAN Fireplace AND Chimney

The modern fireplace and chimney—or chimney alone—that cuts installation time and construction costs by *eliminating masonry*. The fireplace, UL-labeled for safety, can be installed on a wood floor with combustible building materials butting directly against the outer casing—all clearances are built in! The chimney is an integral part of the fireplace or, as a separate chimney in the 7-inch flue size, is ideal for the venting of furnaces and other appliances—even incinerators! Listed by Underwriters' Laboratories for all fuels . . . for 1 to 2-story homes with or without basements! No footings—no special construction!



Majestic offers a single source for quality heating equipment of many types—forced warm-air furnaces, matching summer cooling units, and factory-fabricated metal fireplaces and chimneys—all at thrifty prices and all designed for quick, simplified installation to save on-the-job costs.

A FURNACE FOR EVERY HOME NEED

Whatever your need or preference, you can now have the extra advantages of Majestic's quality winter air conditioners. Majestic's full line includes a choice of models for homes of every size. There are automatic gas or oil units suited to every type of modern, forced-air heating system—horizontal flow, downflow, or upflow designs. They range from 76,000 BTU output units (only 22" square at the base) to large furnaces delivering nearly 400,000 BTU. Majestic's counterflow furnaces, a design so often in demand in modern heating systems, deliver rated capacities up to 200,000 BTU!



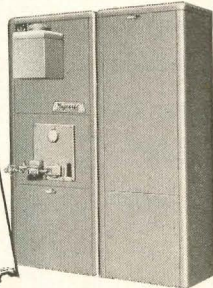
SENSATIONAL NEW AUTOMATIC CONTROL!

Majestic research has developed a new, interlocking control for year-around air conditioning systems that completely solves the re-humidification problem—a problem found in many home conditioning systems. Don't settle on any system until you have full details on this amazing control!

See your Majestic dealer today

A complete line of MATCHING AIR CONDITIONERS

Complete, packaged home air conditioning in matching units—twins in size and appearance—is Majestic's answer to the latest trend in building year-around comfort into American homes. Majestic's line of upflow, downflow, and horizontal flow cooling units—2- and 3-ton capacities in both water-cooled and air-cooled condensers—makes system-matching a cinch! Larger water-cooled units are also available.



See your Majestic dealer today



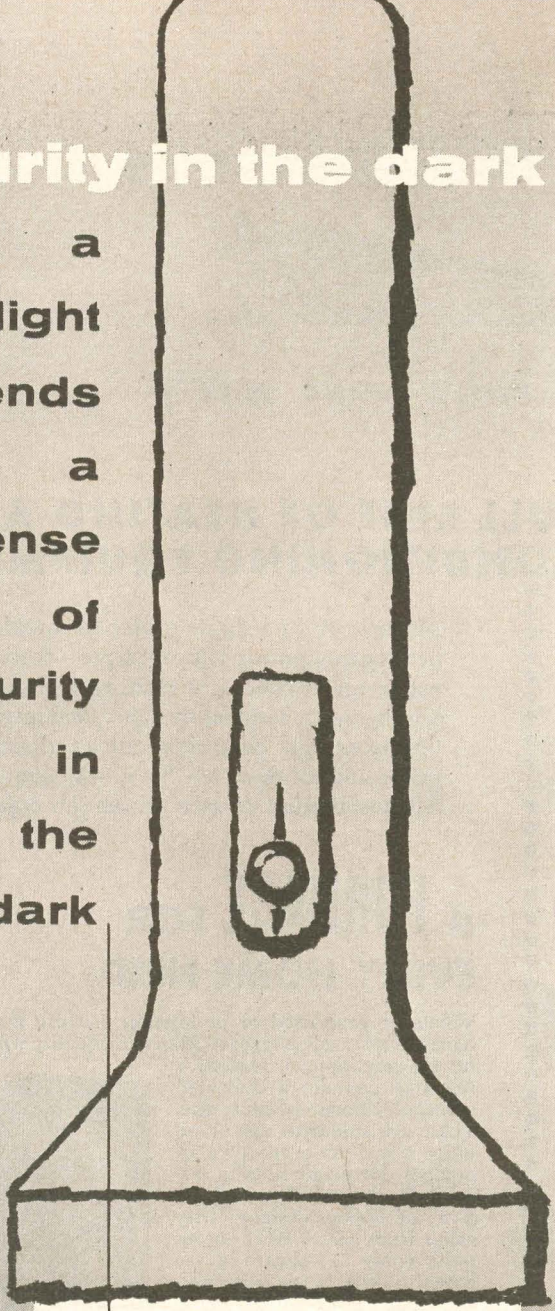
The Majestic Co., Inc.

Majestic

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security in the dark

a
flashlight
lends
a
sense
of
security
in
the
dark



The beacon in the dark areas of real estate titles is title insurance—not just any title insurance but Lawyers Title Insurance. The best known and most accepted title insurance policies in the nation.

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THERE IS NO BETTER TITLE INSURANCE THAN A POLICY ISSUED BY LAWYERS TITLE

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New York, N. Y.
Norfolk, Va.
Pittsburgh, Pa.
Pontiac, Mich.
Richmond, Va.
Roanoke, Va.
Savannah, Ga.
Springfield, Ill.
Toms River, N. J.
Washington, D. C.
White Plains, N. Y.
Wilmington, Del.
Winston-Salem, N. C.
Winter Haven, Fla.

sheathed and sided; windows in place and glazed; partition panels; storage walls; floor panels; trusses; gables; precut trim and cornices; cabinets; prefit doors, hardware, postformed counter tops.

Virginia

CONTINENTAL HOMES, INC.

Boones Mill, Va.

President: Ralph C. Lester
Sales manager: Earle W. Greene
Plant: Boones Mill

Package: exterior wall panels sheathed and sided with insulation, preprimed; gable ends; partition framing precut; roof trusses, sheathing, shingles; windows glazed and in place; doors prehung; gypsum and taping system shipped with finish paint; all other materials for completely finishing house supplied; all plumbing materials to entry 3' outside house; heating furnace; bath and plumbing fixtures; paint.
Optional: garages, carports, breezeways, porches.

LESTER BROS., INC.

Martinsville, Va.

Brand: Lesco Homes
President: Lawson L. Lester Jr.
Plant: Martinsville

Package: exterior wall panels of room size completely sheathed and sided; windows in place and glazed; all doors prehung with hardware; trusses; storage walls; roof panels; garage or carport; partition panels; complete door units and window units; sink tops and cabinets; pre-cut floor joists.
Optional: plumbing, heating, air conditioning, wiring, appliances.

Washington

LOCTWALL CORP.

Lynnwood, Wash.

President: J. H. Bluechel
Sales manager: A. J. Bluechel
Plant: Lynnwood

Package: exterior and interior wall panels smaller than room size complete with doors and windows prehung; precut sheathing; precut flooring; roof trusses; joists and rafters; storage walls; garages and carports; kitchen cabinets; shingles and siding; floor tile; precut ceiling plasterboard.
Optional: bathroom fixtures, heating plant and ducts, built-in range, built-in or wall-hung refrigerator.

LOXIDE STRUCTURES

Tacoma, Wash.

President: Earl Rowe
Sales manager: Albert J. Kemp
Plant: Tacoma

Package: exterior walls of seasoned Western red cedar in plank form grooved for insertion of spline to form both the principal structure and the finished exterior surface; windows and door frames furnished assembled; sash prefinished, hardware attached; roof trusses; gable ends; all other lumber to finish house supplied precut; all rough and finish hardware; kitchen cabinets; finish flooring.

Optional: hand-split cedar shakes, insulation, screens, storm sash and doors, metal kitchen cabinets, mahogany finish.

VIRGINIA LEE HOMES, INC.

Kirkland, Wash.

President: C. F. Dally
Sales manager: R. S. Stanley
Plant: Kirkland

Package: exterior wall panels smaller than room size completely sided with doors and windows in place; precut joists and rafters, roof trusses, roof panels, floor panels, partition panels, garages and carports; laminated beams, storage walls.
Optional: plumbing fixtures, heating, air-conditioning, wiring.

WEST COAST MILLS

Chehalis, Wash.

Brand: Farwest Homes
Partners: Robert H. Thompson and Bennie L. Jones
Sales manager: Eldon Reiley
Plant: Chehalis

Package: exterior walls 24' or smaller completely sheathed and sided; frames and sash in place; precut and partially assembled roof trusses; interior doors prehung with hardware; storage walls and wardrobes; precut flooring, roofing, joists and rafters; garages and carports.

Optional: mahogany trim, screens and storm sash, weatherstripping.

Wisconsin

ELMHURST MANUFACTURING CO.

Janesville, Wis.

President: Charles T. Sanford
Sales manager: W. O. Sanford
Plant: Janesville

Package: exterior wall panels 8' to 16' completely sheathed, sided, and insulated; windows in place and glazed; house prime coated; roof trusses or rafters; joists; partition panels; storage walls; roof panels; garages and carports.
Optional: built-in range.

MARSHALL ERDMAN & ASSOCIATES, INC.

Madison, Wis.

Brand: Erdman Homes
President: Marshall Erdman
Plant: Madison

Package: exterior wall panels of room size, sheathed and sided; windows in place and glazed; roof trusses; interior partitions; precut rafters, ceiling joists, plywood sheathing; kitchen cabinets; furnace; appliances; counter tops; wood flooring; interior doors.
Optional: prefab plumbing.

HARNISCHFEGER HOMES, INC.

Port Washington, Wis.

Brand: P&H Homes
President: Fred J. Samerdyke
Vice president (sales): W. H. McAuliffe.

Plant: Port Washington
Package: room size panels sheathed and insulated; windows in place and glazed; room size partition panels; prehung exterior doors with combination doors and hardware; trusses and roof panels; exterior and interior trim; precut stairways; gables. Acceptance Corp.
Optional: kitchen cabinets and sink.

UNIT STRUCTURES, INC.

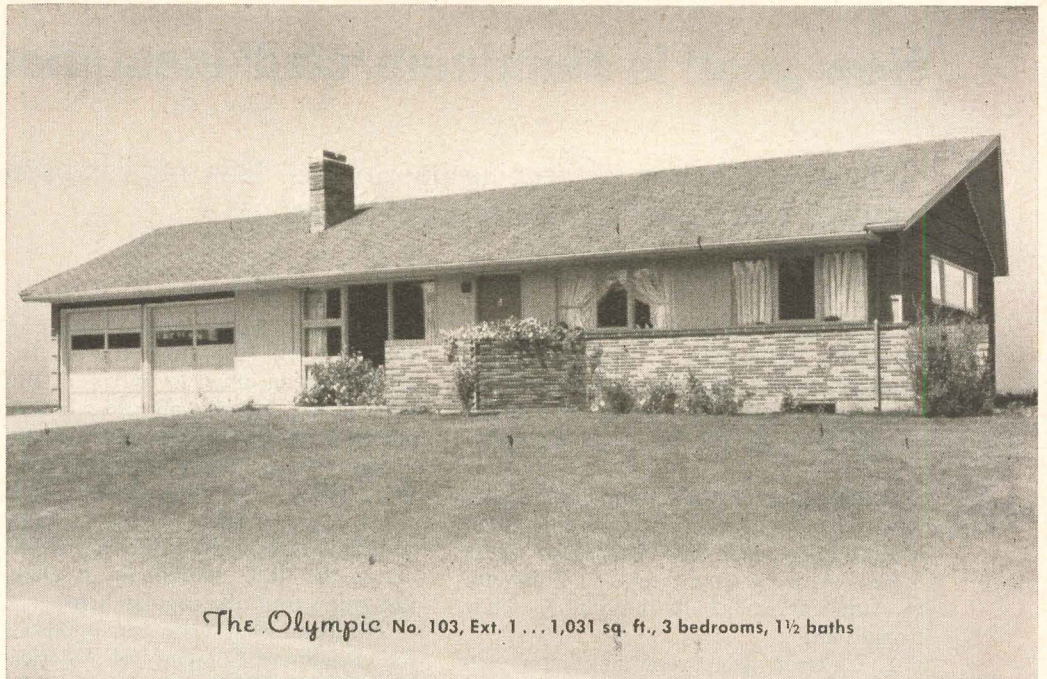
Peshigo, Wis.

Brand: Unit Constructed
President: M. C. Hanisch

continued on p. 210

Builders..

This FARWEST home...built from this package...



The Olympic No. 103, Ext. 1 ... 1,031 sq. ft., 3 bedrooms, 1½ baths

delivered to your city for less than

\$3300⁰⁰*

even as far East as Ohio

Yes—you can now build quality Western-styled fast-selling homes—and at an amazingly low cost. Size and plan variations that meet all building codes, from 800 to 1500 sq. ft. Many exterior finishes that offer a wide variety of contemporary and traditional designs. Direct from timber country to you—only ONE freight charge from our plant to your city. Investigate this amazing series of quality homes soon!

We Invite Builders' Inquiries From the Mid-West and West

APPROXIMATE COSTS PER AREA

MIDWEST \$3125.00
Ill., Wisc., Iowa, Mo., Kan., Nebr.

PACIFIC NORTHWEST 3000.00
Wash., Ore.

ROCKY MOUNTAIN 3100.00
Colo., Utah, Wyo., N. Mex.

EAST MIDWEST 3225.00
Ohio, Ind., Mich.

WESTERN STATES 3075.00
Mont., Idaho, No. Calif., Nev.

SOUTHWEST 3125.00
Texas, Okla., Ark., La.

* Minimum load: 3 houses per flatcar with or without garage

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**N. A. H. B.
EXPOSITION**

January 20-24

Conrad Hilton Hotel, 3rd Floor, Booths 383, 384



Manufactured by
WEST COAST MILLS
Department L, Chehalis, Washington

How good is aluminum 'clad' insulation?

27% to 48% better for keeping houses cool than regular paper wrapped bulk insulation, new research shows

Aluminum covered bulk insulation has long been recognized as highly efficient, especially for keeping houses cool in summer. But up to now nobody ever knew exactly how good such insulation really was.

Precise data on aluminum insulation is now available as a result of new research at the Pennsylvania State University where experts made exhaustive tests on aluminum vs. conventional bulk insulation. They found that:

1. Under a gable roof aluminum covered bulk insulation stops heat flow 28% more effectively than regular paper covered batts or blankets.

2. Under a flat roof, aluminum insulation (over the ceiling) reduces the heat flow by 27% (with no attic ventilation), up to 48% (with 85° attic ventilation).

These are important findings for builders and architects since the roof is the greatest single source of summer heat in most houses (it accounts for as much as 40% of the total summer heat load). So cutting the roof heat load by 27% to 48% can mean substantially cooler houses. This, in turn, can make for big savings in the size of the equipment needed for air conditioning.

How tests were made

The Penn State research was carried out by two of the country's top thermal authorities. Professor E. R. Queer, director of engineering research for the university and Professor F. A. Joy. They used a 156 sq. ft. test house that could be fitted with either a gable or flat roof.

To simulate actual summer conditions both roofs were heated to a surface temperature of 150°. (Temperatures above 150° are often encountered with black roofs). The interior was kept at 75°. The ceiling was insulated in turn with regular kraft paper covered bulk insulation and the same kind of batts covered with perforated aluminum foil. Then a long series of heat flow readings were recorded with special instruments.

Results: With the flat roof, heat flow down through the regular insulation averaged 6 Btu's per sq. ft.; through the aluminum insulation 4.35 Btu's, or 27% less. Under the gable roof, heat flow was reduced from 6.45 Btu's per sq. ft. for the regular insulation to 4.6 for the aluminum, or 28% less.

Test show need for attic ventilation

The initial results noted above were without attic ventilation. Even more striking reductions occurred when air was blown through the space above the insulation to simulate attic ventilation in actual houses.

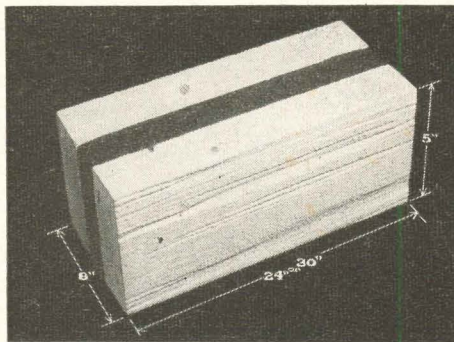
Under the flat roof, for example, heat

flow through the aluminum insulation was cut from the 4.35 Btu's per sq. ft. with no ventilation down to only 1.74 Btu's or 60% lower. Ventilation also increased the efficiency of the regular insulation. But the aluminum insulation was as much as 48% more effective than the regular insulation.

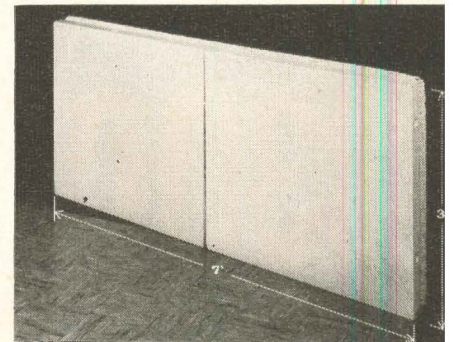
For highly technical reasons, however, ventilation under the gable roof did not increase the 28% superiority of aluminum insulation over the regular batts.

The Penn State tests were sponsored by the Aluminum Company of America (see p. 161, Nov. H&H).

Three new building materials come out of research laboratories



1. **Stone sandwich wall panel**, as developed by Indiana Limestone Institute, is complete through-wall panel: 3" stone face, 2" rigid insulation and natural stone aggregate on inside. It can be plastered or painted. Unit has low U factor (.12), is fireproof and needs no upkeep. Cost will be lower than competitive materials, says ILI.

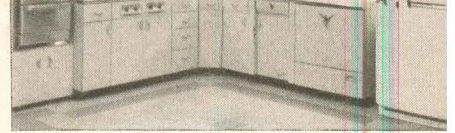


2. **Stone veneer wall panel**, also developed by ILI, consists of 2" stone facing on 2" wood fiber concrete. Though usable in home panel was designed as low cost curtain wall for small buildings and shopping centers. Like sandwich panel (left) veneer panel is limited production with nationwide distribution planned for near future.



New pine sheathing, developed by Western Pine Assn. research laboratory, is low cost lumber product aimed at competing with fiber board and gypsum, which have eaten into lumbermen's sheathing market. Called "sheet-board," panels are made of 3/4" random size boards, sandwiched under pressure

between kraft paper facings on each side, then cut to any standard size. Photo shows 2 x 8' panels, weighing 32 lbs. each, being installed in test house. Western Pine Assn. says panels will cut labor cost by 50%, and sell for \$100 per thousand F.O.B. mill, and be available throughout US in '57.



First all-gas packaged kitchen introduced for builder houses

The "Carefree Kitchen," jointly developed by Youngstown Kitchens, Calor Appliance Co. and the Cribbon & Sexton Co. is based on a 3' module and is designed to meet a wide variety of arrangements.

It has built-in gas range and oven, gas refrigerator, a dishwasher and disposal unit.

The package is achieved by using continuous tops and trim and small sliding door cabinets that fit between the base and wall cabinets. Cost to builders is claimed to be "well below" that of other packaged kitchens. Complete details and photographs will be shown next month in H&H.