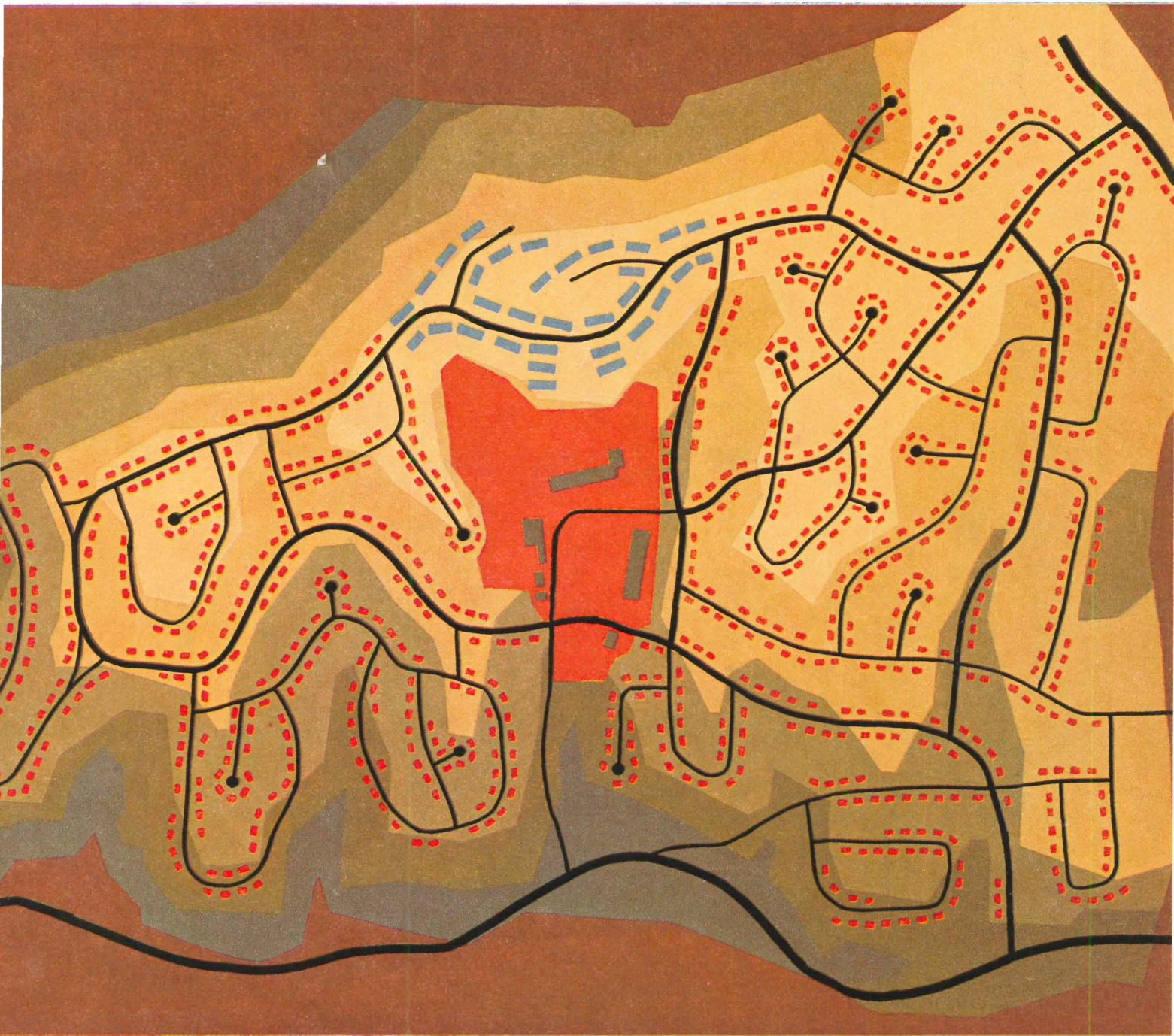


# House & Home

January 1956 Six dollars a year—one dollar a copy



Garden City: Where everybody gains from better planning — page 146

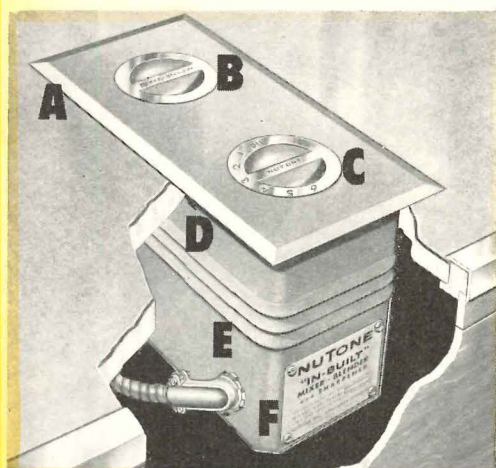
■ Dallas: What you can learn from the buyers' market — page 114

How to build the component way — page 160

Mass market architect shows his new ideas for tomorrow — page 128

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# use & Home

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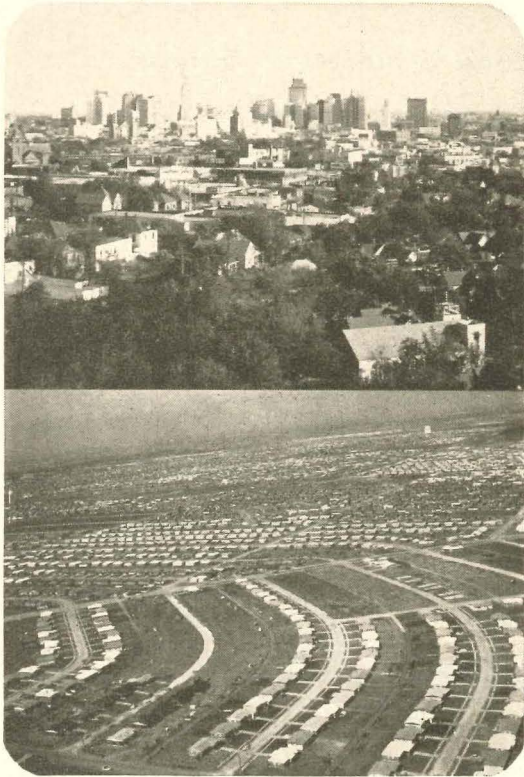
Drawing by Natalie Forsberg



Before the buyers market hits you, too . . .

## LET'S LOOK AT

Thomas Hollyman



Squire Haskins

## THE DALLAS MARKET

Let's see what it takes to sell new houses

when vacancies near 6%

and 12,000 new families

can pick and choose

from 18,000 new houses

*It would be well worth your while  
to take a trip to Dallas  
to see for yourself what happens  
when 700 home builders plunge head-  
long into a buyers' market  
for which few if any were prepared*

**B**ooming Dallas is just about home building's strongest market. It is so strong that up to last year every house sold—good, bad or indifferent.

This market was so easy to sell most builders of almost the same house—a well-built brick affair in a good area per dollar and no new-fangled innovations to scare anyone away.

It was so strong that even policemen, firemen, pilots and other amateurs took to home building as a side line to pick up some easy money. It was so strong it took little selling—many small builders just left their homes open and waited for buyers to telephone an agent. It was so easy no Dallas builder, big or small, saw any reason to pay commissions to get a realtor's help in selling his houses.

It was so strong few builders felt they had to add special sales appeals to their old models. It was so easy that builders saw any reason to have their houses specially designed by an architect. (Most Dallas builders get their designs from two big plan factories, the Plan Shop and Milam & Roper, who have a near monopoly in Dallas. FHA and VA offices, offer a choice of 3,000 plans a year for the first four repeats, \$5 a house thereafter.)

It was so easy few Dallas builders cared if their FHA and VA offices were among the most reactionary in the country, hard to sell on anything new.

It was so easy that way back in 1950 NAHB President Tom Coogan warned the Dallas builders to up-date their product before they hit a tougher market. It was so easy that last year . . .

### The Dallas builders outdid themselves

They tried to sell new houses 50% faster than in the booming Dallas was growing—18,000 new houses a month in a market that was gaining 12,000 families, more new houses than the builders in any other area except Los Angeles, New York and Chicago built.

They sold all but about 1,000 of them. But when Dallas turned overnight into a buyers' market, the houses—the biggest and perhaps the toughest built in the market, with the highest vacancy rate in the country—

So now Dallas is just about the best place to see what happens when the market catches up with the builders and parts the sheep from the goats.

What kind of houses are now too hard to sell?

Which builders are still zooming along, increasing their sales? And why? And how?

# When the public was given a chance to choose . . .

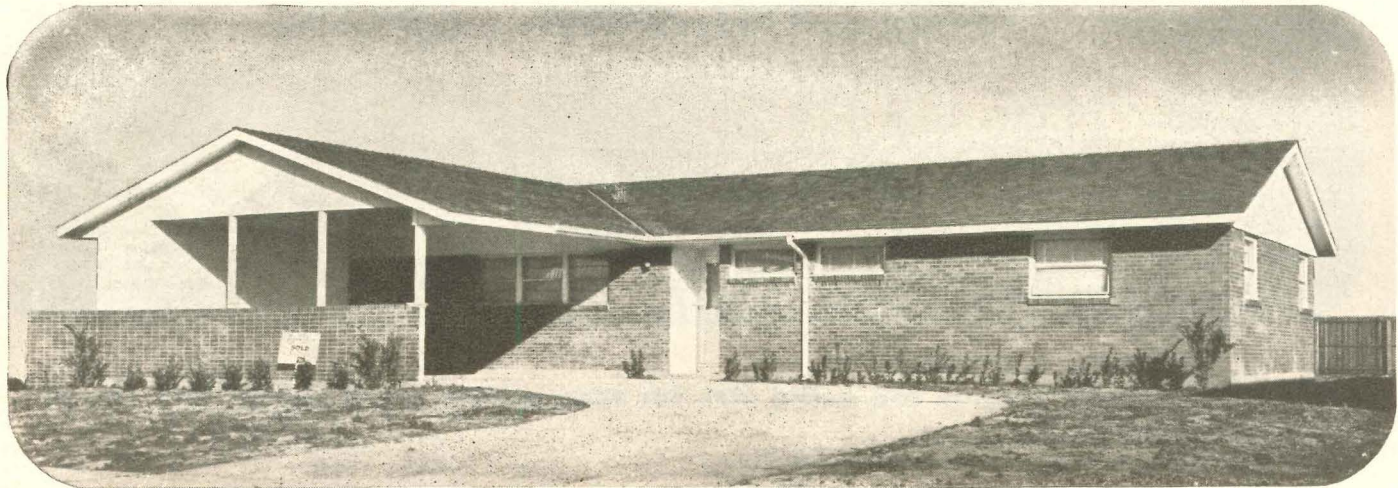
Dallas Home Builders Magazine



## These old reliables moved slowly, even at 30 years, nothing down

After three months 18 out of 30 of these \$15,000 to \$17,000 houses in north-east Dallas were still standing unsold. One explanation may be location: the same model sold 12 out of 25 in a month in an easier-to-reach tract. Sales would have been slower, the builders concede, had they not added dishwashers and garbage disposers as "extras" at no added charge. It takes more than easy terms to sell houses in Dallas now.

Hence Griffith



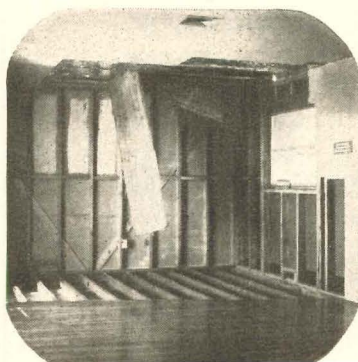
## But this new model is sold way ahead at \$2,500 cash to veterans

Builders Fox & Jacobs sold a house a working day all fall at \$18,000 to \$20,000. Buyers liked these 1,700 sq. ft. houses.

### Because:

1. They are air-conditioned. Dallas is one of the hottest big US cities. Average temperature in August is 96.1°. But very few builders cash in on summer cooling.

2. They are \$20,000 houses in a \$25,000 neighborhood.



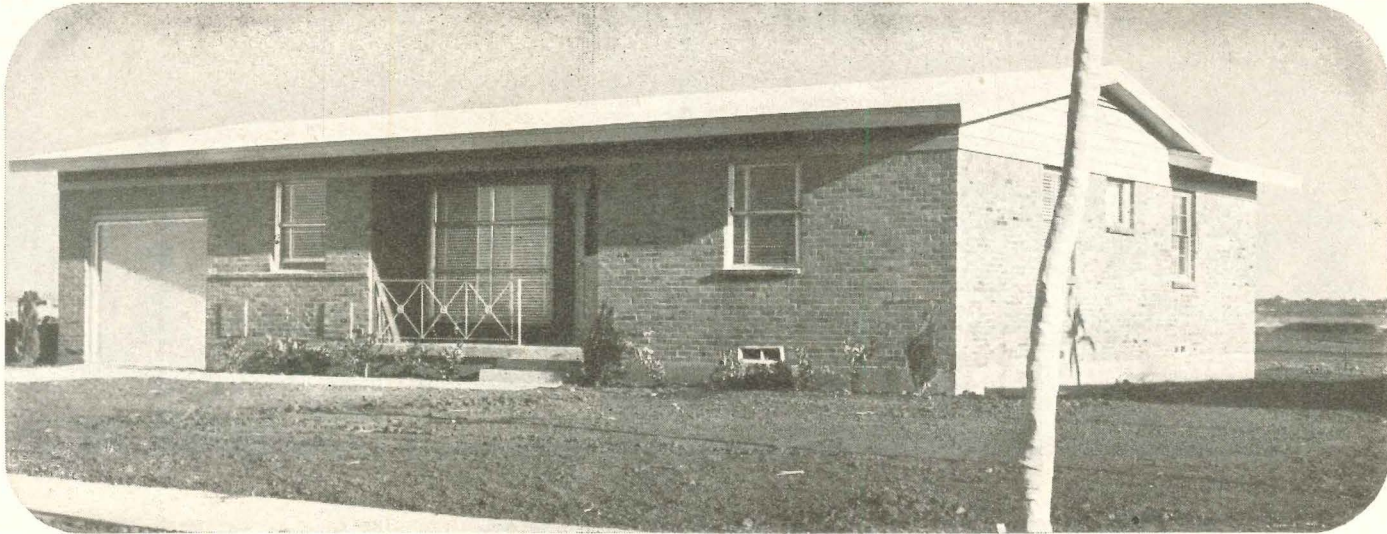
3. They are on big lots (three per acre), many planned on cul-de-sacs to get small front yards and big back yards.

4. They offer clean, simple design.

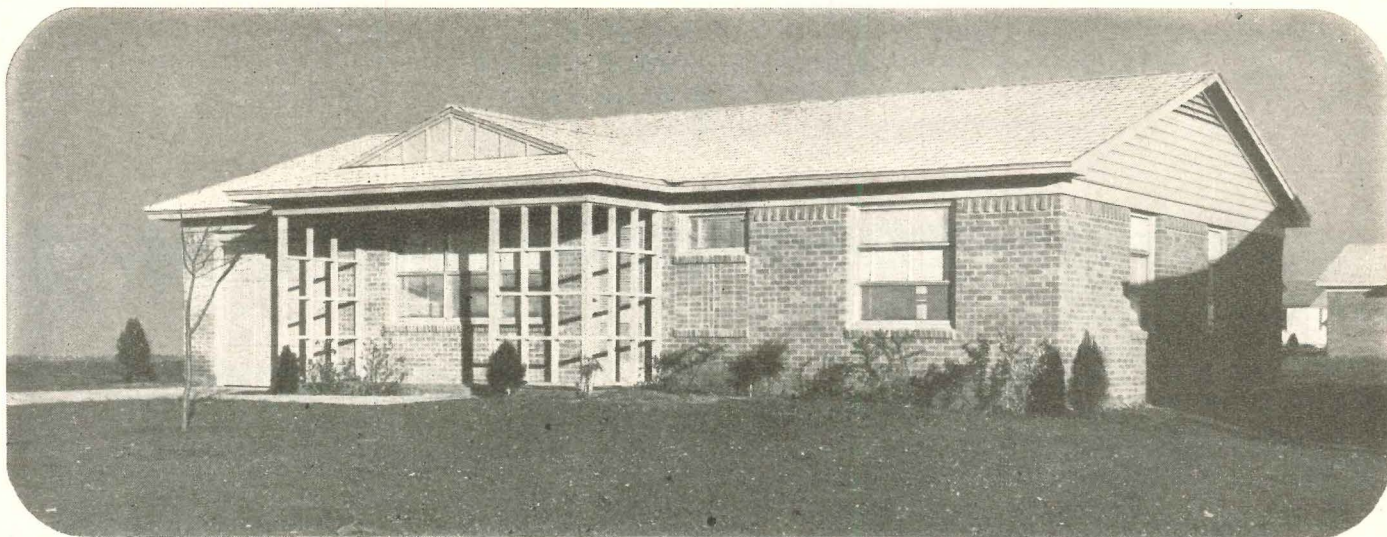
5. They are a lot of house for the money.

6. They offer better storage. Many have walk-in closets.

7. They are well built, and the builders showed off their good construction in their model house (see picture). The wood floor above the slab was planned to provide a



**These homes were selling much faster last fall . . .**



**. . . than these houses the same size for less money right across the street**

**Because** buyers liked the sliding glass wall and the little paved patio off the kitchen-family room.

That, at least, is the only explanation Builders Lewis & Lamberth can give why their 1,080 sq. ft. houses are selling faster at \$11,400 than otherwise quite similar 1,050 sq. ft. houses priced \$1,100 cheaper right opposite. The builder across the road seems to agree: his next houses will offer sliding glass walls, too.

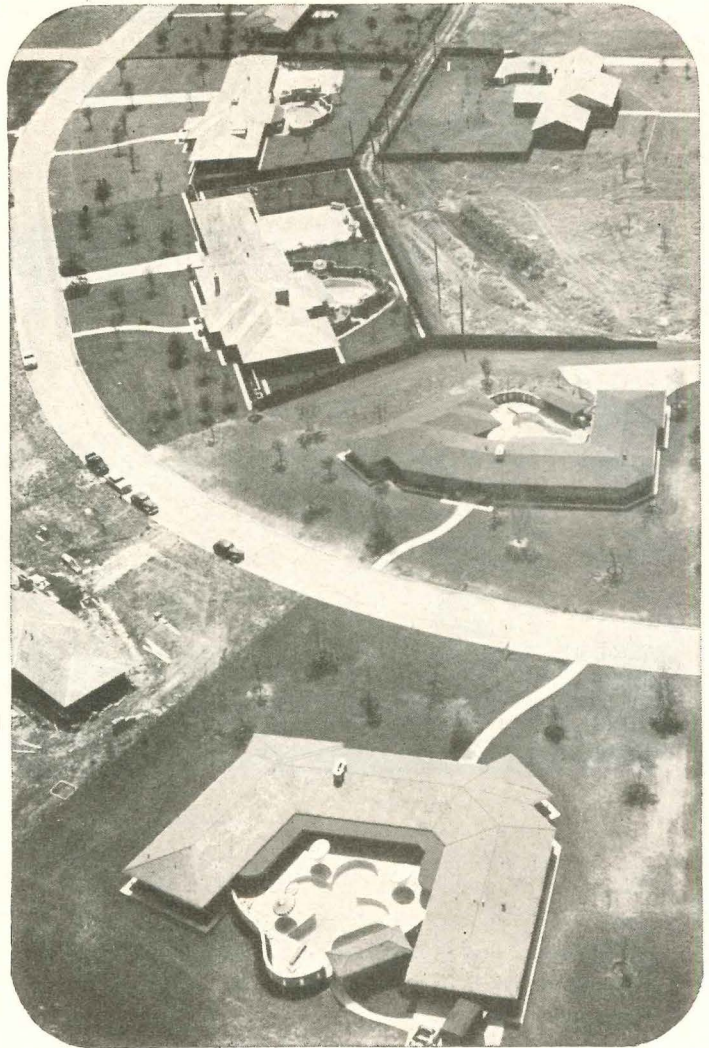
One big reason people move to the suburbs is to enjoy some indoor-outdoor living instead of being cooped up inside four walls, but until Leslie Hill brought the Cliff May house to Dallas no major builder there tried to cash in on this obvious sales appeal. Now several builders have had such success with window walls and paved patios that others are rushing to copy.



## Plush houses like these are still selling well

There's plenty of money for new houses in Dallas. Builder Hal Anderson puts up long rows of houses like these on speculation, sold 30 in 1955 at \$100,000 to \$175,000 apiece. Recent buyers include some of Dallas' more prosperous builders. Anderson's houses are all pretty much alike except for their different swimming pool shapes. He does most of his own design.

Luxury apartments are also in strong demand while many low rent apartments go begging.



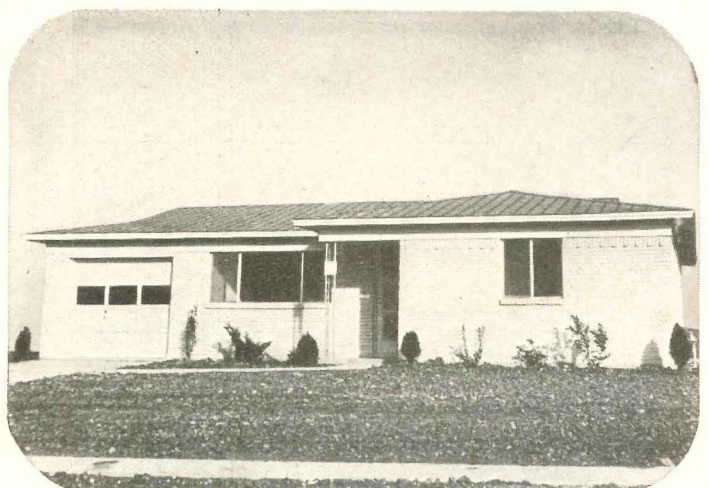
## Good salesmanship can still keep houses like this moving

The Melton brothers may not build the best-looking houses in Dallas county—as this example in their newest development shows—but they know how to sell and they work at it. Unlike most Dallas builders, they're out on the job every weekend waiting to hail prospects as they drive by. Result: they are still selling houses as fast as they can build them.

Some of Lawrence Melton's advice on selling is worth repeating. For example:

Don't try to sell an \$11,000 house like this to a man who drives by in a Cadillac.

Don't try to sell an \$11,000 house to a man who drives by in any new car. He'll



be a bad credit risk, for the auto salesman got him first.

Many small builders in Dallas could profit by the Melton's example and work harder at selling. Many of them just leave their houses open and untended, even on weekends. They still expect the prospective buyer to look them up and ask to buy the house if he likes it.



**This biggest builder sold 1,300 houses because  
he undersold his small competitors by \$1,000**



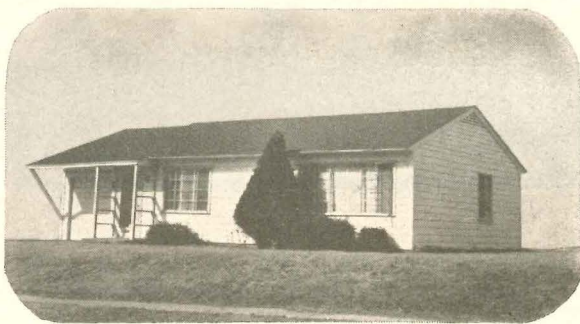
This is the best-selling house in Dallas for just one reason: it is the most for the money offered by any builder there, and most-house-for-the-money always sells. Other Dallas builders agree it is priced well below the market.

Builder of this house is Tom Lively's Centex Construction Co., by far the biggest builder in Dallas and one of the two or three biggest in the country. Centex develops its own land, buys materials by the carload, has unbeatable financing resources. It is a cost-cutting mass producer, never building less than 300 units at a crack.

The moral and the lesson is clear: when the chips are down, the big builders can make a profit selling houses a lot cheaper than small builders.

Centex sells 1,100 and 1,200 sq. ft. brick houses on well-landscaped lots at \$11,000 to \$12,000. They include silent wall switches, glass-enclosed bathtubs, garbage disposers, double sinks and vegetable sprays, wiring for television, metal Venetian blinds, 12'-wide garages. Tom Lively sold more houses in Dallas in 1955 than in 1954, but he is not satisfied, plans quite a few changes this year, including sliding glass walls, two-car garages.

## Rental properties like this are hard hit



Vacancies hit 50% last summer in 187 two-bedroom rental units like this (above) built by Leslie Hill right after the war. Hill filled them up again by offering them for sale at \$150 down and \$75 a month for 18 years (he had been renting them for \$74). This is equal to about \$8,000 a house, a very profitable deal.

Somebody has to be hurt if Dallas builders are to sell their new houses so much faster than new families are added to the market. It's simple arithmetic that you can't sell 18,000 new houses to 12,000 new families: you have to pull 6,000 families out of existing homes and push the vacancies up.

So far the only people hurt are the owners of rental property. Less than 2% of the 160,000 or so owner-occupied houses are vacant, and used-house prices are still steady. (Sales through the Multiple Listing averaged \$14,519 in 1953; \$13,499 in 1954; \$13,972 in 1955). But rental units are a different story. Some 10,000 are now vacant. Census says vacancies in big rental projects average 12½%, but Dallas bankers say this figure is inflated by heavy vacancies in a big public housing project.

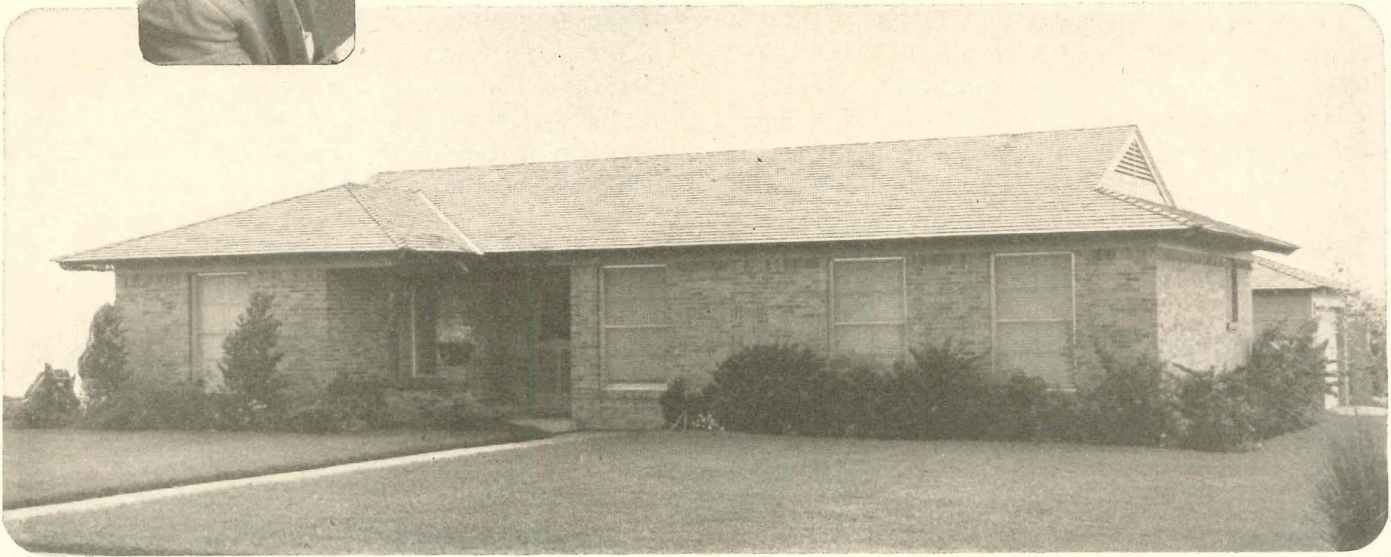
For the heavy rental vacancies there are two reasons:

1. FHA and VA make it cheaper to buy.
2. Only one or two Dallas builders like Leland Lee (see opposite page) are making a direct drive to sell new houses to present home owners.





**This little builder zoomed his sales 600 %  
by using trade-ins to tap a big new market**



There are 160,000 home owners in Dallas, many of whom would like to move to a better house if they were not stuck with the old one.

But Leland Lee is the only Dallas builder making a major effort to tap this market of second-time buyers. He does it by trading, and trading has enabled Lee to boost his new-house sales from only 15 a year three years ago to more than 100 a year now. In one week last November Lee sold five houses by taking old homes in trade.

No other Dallas builder consistently uses the trade-in to make it easy for home owners to get their money out of their old houses. No other builder whole-heartedly uses trade-ins to help Dallas home owners get out of their inadequate homes into the big new houses they want.

That's one major reason why Dallas builders have built themselves into a buyers' market. As HOUSE & HOME pointed out last November, "Without trade-ins (builders) will find themselves stuck in the old market, selling (as now) mostly to three groups whose home buying power averages well below the national average—renters, newlyweds and migrants from other states."

Lee does not rely on trades alone, of course, to sell houses. He offers traders good value in his new houses. For \$15,500 they get a lot of well-planned space, including a family room with a built-in \$25 desk, a built-in bathroom clock (with plug-in for coffee maker), a clothes closet next to the half-bath so the owner can later convert it to a full bath, rounded baseboard corners to make sweeping easy.



**This four-way trade found four owners wanting to buy a better house.**

Photos: Bert France

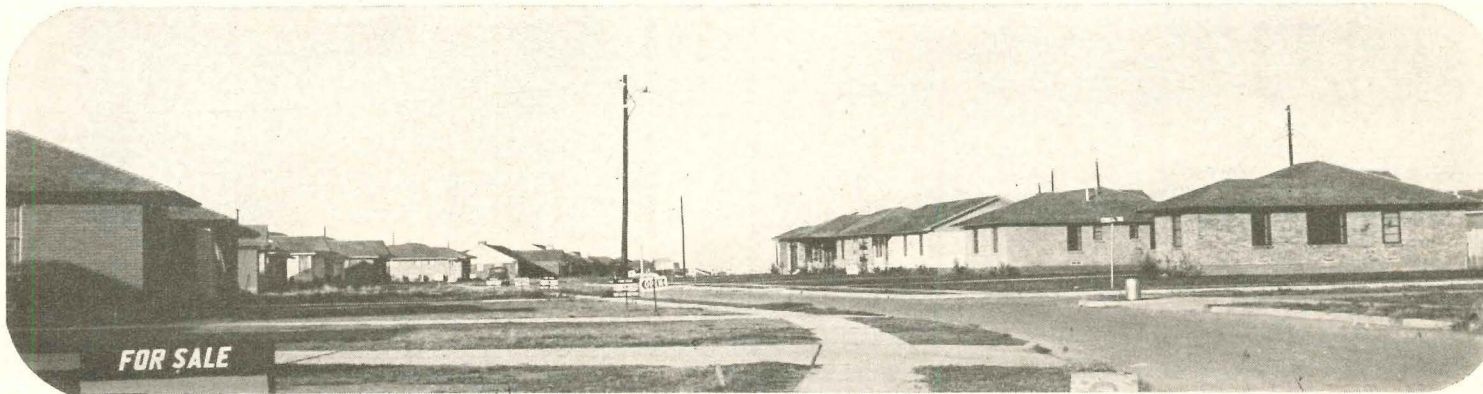
Now the big question is:

## Should the home builders cut back 30%?

**If so**, the kind of house they are building this year will do, for the 12,000 new families would then have to take the 12,000 new houses offered them. And anyhow, people without a home aren't necessarily looking for something new and different. Many just want a place like everyone else, and it is often easier to sell them something familiar than something new, even if the new is better.

**If not**, the builders need to offer a new and snappier model. To sell 18,000 houses again this year they must sell 6,000 Dallas people who already have homes. That means the builder must add strong new sales appeals to the new houses and so make thousands of home owners dissatisfied with their present homes and ready and eager to move to the new ones.

On this street you can see "for sale" signs of half a dozen small builders



### Will small builders like these take the rap if home building is cut back?

Almost all Dallas builders think somebody should cut back, but few of them plan to take the cut themselves if they can help it. Most of the full-time operators are making 1956 plans to build and sell as many houses as in 1955. But many believe the small builders (especially the part-time builders) will have trouble getting mortgage money and this will drive them out of the market. (Plenty of big builders are having trouble getting mortgage money, too.)

Up to now, Dallas has been a small builder's paradise, for Dallas has several big land developers opening up new tracts and making it easy for small builders to get sites. As a result, builders of fewer than 10 houses a year account for a bigger proportion of Dallas home building than they do nationally.

### Fortunately:

**There are plenty of new sales appeals and sales methods waiting for the Dallas builders to use:**

Dallas houses have many good points. For example, they use brick veneer all around, instead of using cheaper facing on sides and rear. They show few banana splits, i.e., facades variegated with different materials in two or three vertical stripes. They have good area per dollar. They put all their space and money above ground, mostly on slabs. They use 100 amp entry boxes and 3-wire feeds to permit adequate wiring. They seldom use the 2'-high windows that turn bedrooms into cells in so many other cities.

But Dallas builders who want to sell more houses in a tougher

market have a choice of many selling tools, few have been used.

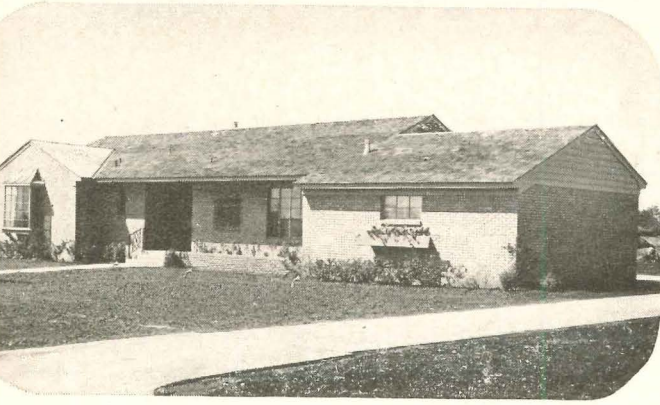
**1. Air conditioning.** Dallas is so hot almost everybody wants it. All new houses above \$20,000 have to have it, but only a handful of builders include it in any model under \$18,000. So far, FHA and VA have discouraged air conditioning by boosting minimum income requirements \$100 a month, though a good cooling system averages only \$120 a year operating cost in a small house properly shaded and fully insulated.

Much has been learned about how to install a better central system for less since Dallas builders first tried cooling to small houses four years ago and found the public not yet ready to pay the extra cost.

**2. Indoor-outdoor living.** That's what people move to the suburbs for. But few Dallas builders offer it.

**3. Less housework.** Almost every woman will go for a lot

Hence Griffith

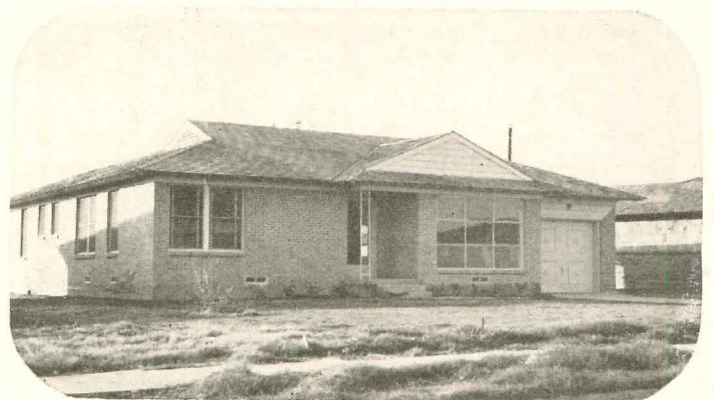
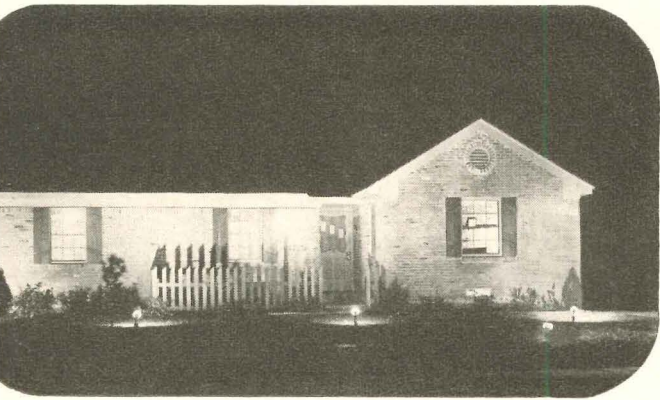


Dallas H.B.A.



**The typical 1955 home in Dallas**

Dallas H.B.A.



**adds a bedroom to the 1951 model**



Dallas H.B.A.

ng kitchen. With built-ins and the package mortgage you often sell a whole new house equipped with oven, burner top, washer, disposer, refrigerator, exhaust fan and home laundry less cash than it takes to modernize the kitchen in an old house. no Dallas builder under \$20,000 includes more than the user (quite common), range (rare) and dishwasher (fairly mon).

**Color.** This is a great new sales tool that has to be handled t, but Dallas builders are just beginning to employ a color sultant.

**Better design.** Only a few Dallas builders pay enough for s to get anything more than plan shop service.

**Insulation.** There is plenty of new data now to make quate insulation worth far more in sales appeal than it costs.

But in hot Dallas few builders put any insulation in the walls or more than 2" in the ceiling. Now mortgage lenders are beginning to insist on more.

**7. Good storage.**

**8. Trade-ins.** See page 119.

**9. Harder selling.** Many houses might sell faster if the builder were out on the job to sell it himself or get a realtor to help him.

**Unfortunately:**

Some of these features take time to catch on. It's too bad more Dallas builders haven't been showing and publicizing the advantages of these new figures. If they had, more home owners would be dissatisfied with their old houses by now.

Competition will be much tougher in 1956 than it was in 1955 for builders who don't plan any changes in their models.

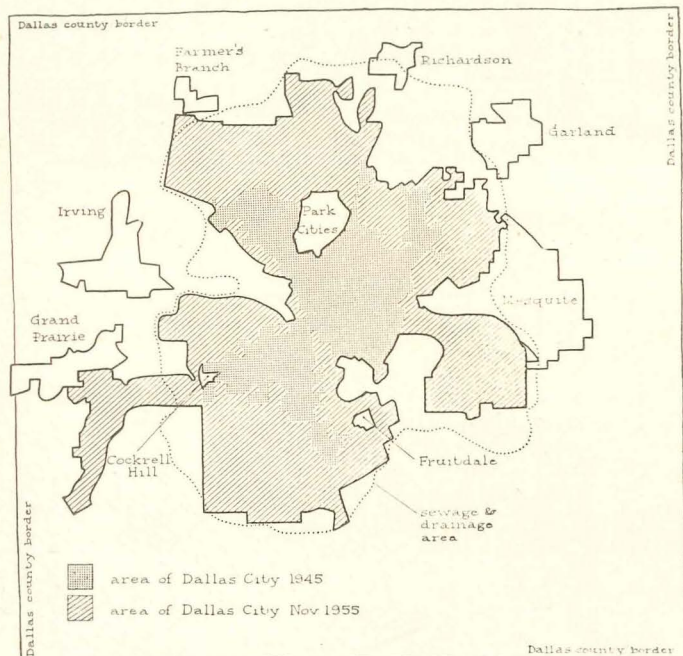
Probably the greatest single advance in home-building in Dallas this year will come out of new designs and materials offered by Architect Tom Scott Dean of Texas Industries, a masonry block manufacturer for which Dean is consultant. He has "engineered" several contemporary houses for low-cost mass-production with masonry blocks, and several Texas and Louisiana builders already have made plans to build \$6,000,000 of these houses. Whether any are built in Dallas depends on reaction of the local VA and FHA offices (see picture on opposite page, center).

Milam & Roper, who provide plans for nearly half the Dallas builders, are advising all clients to eliminate the dining room completely, make living rooms bigger, and enlarge the kitchen-dining nook to make it a real family room. Most M&R clients will add sliding glass doors off the rear family rooms; some will add paved patios outside. Nearly all M&R clients will offer two-car garages, even if it means redividing to 70' lots. (M&R report bigger demand for a second garage space than for a second bath!)

The first completely contemporary houses (not only in appearance but in construction methods used) to be volume-built in Dallas will be introduced this month or next by Lewis & Lamberth. These will be structural brick, and L&L expects these \$15,000-\$18,000 houses will cost them much less than conventional houses the same size (about 1,500 sq. ft.).

Others planning improved models include Leland Lee (better traffic plan and two-car garages), the Melton brothers (\$9,000 two-bedroom, 1½-bath, two-carport houses with "all glass in the rear opening on patios"), Leslie Hill ("18,000 to \$25,000 houses fully air conditioned and as fully equipped as we can make them").

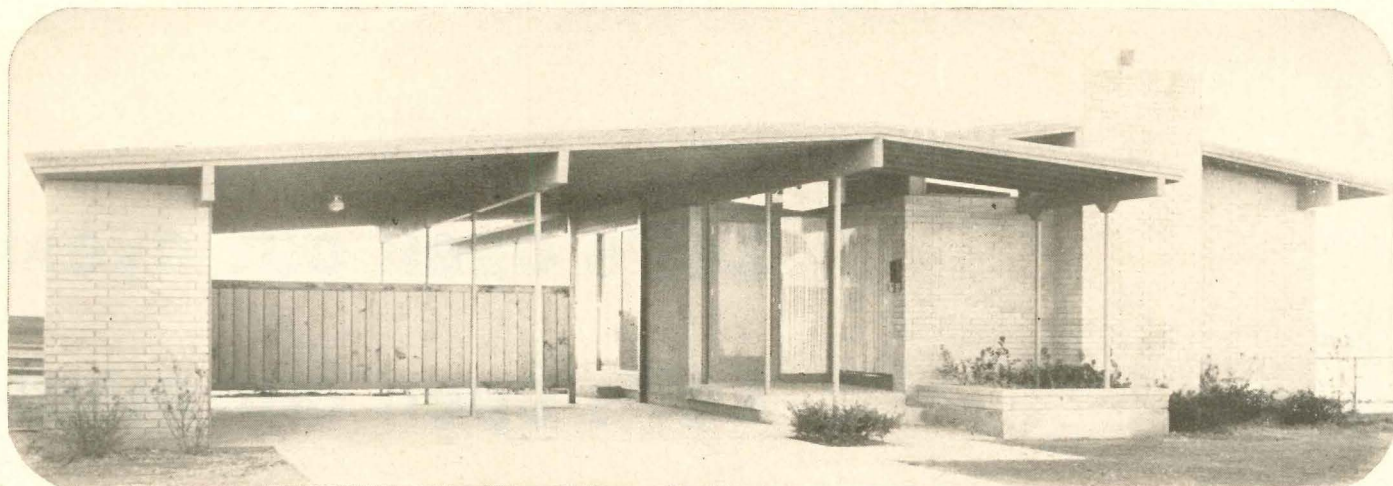
National Homes' Dealer Bailey Johnson expects to increase his sales this year in suburban Mesquite by shifting from frame to brick veneer models, offering 22 of the new NH plans. A number of these prefabs will include air conditioning, double carports, range, refrigerator and color kitchens at \$11,500 to \$12,000.



Well-planned orderly city growth will bail out those whose houses have sold slowly, but meantime carrying charges are eating deep into their profits. This map indicates how fast Dallas is growing. The city has doubled its area from about 100 to 200 sq. mi. in ten years. Population has grown from 615,000 in 1950 to 800,000 now, is headed for 1,500,000 by 1975.

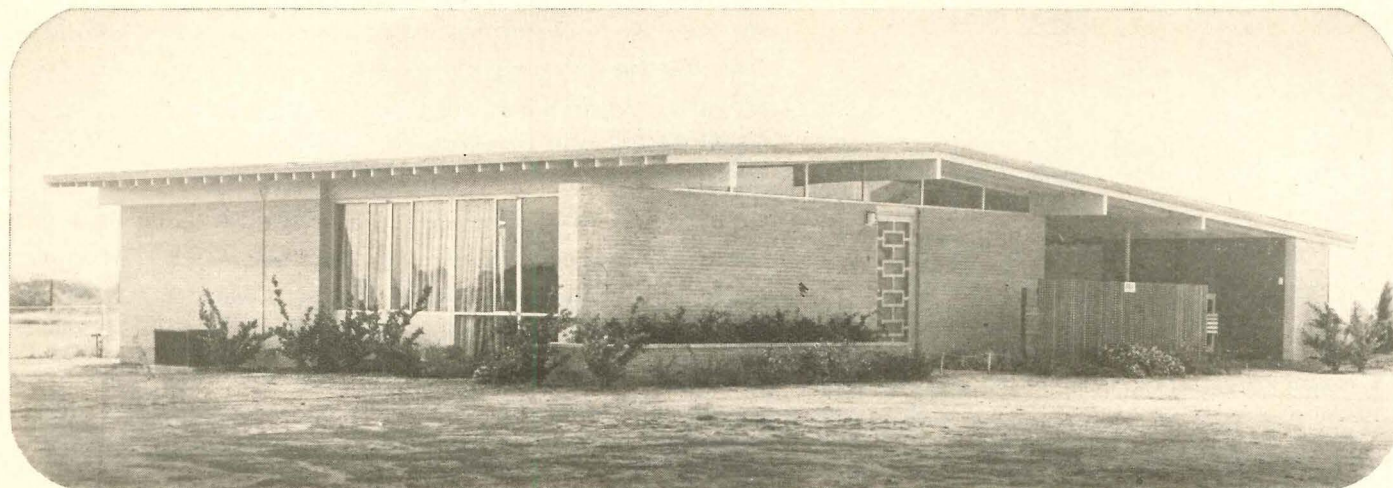
The city plan commission, headed by Marvin Springer, makes sure the growth is orderly. State law makes annexation easy, and Springer sees to it that developers provide all school locations (at raw acreage prices), sewerage and other improvements that home buyers need. Many Dallas builders are active in city government.

## Some even plan to offer good modern design

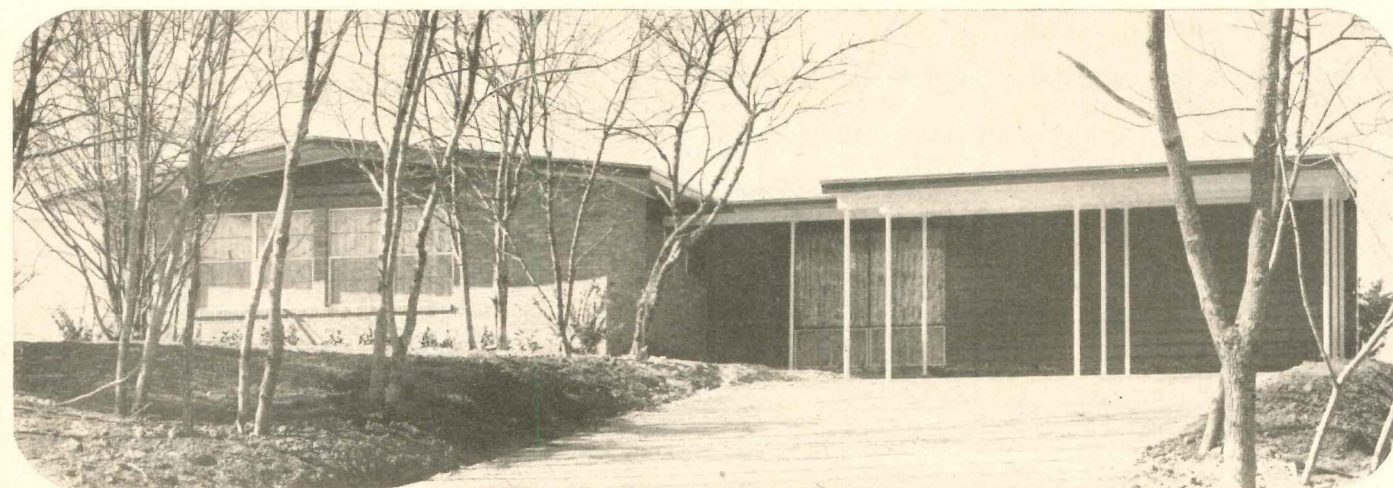


*Hence Griffith*

This house was sold to the first couple who walked in on opening night at the Dallas' Parade of Homes last September. Builder Gordon Nichols, who previously had built contemporary houses only on contract, also took ten more orders for this \$19,000 air-conditioned home with fully-equipped kitchen. Now he has turned speculative builder, is starting to build 40 of these and other contemporary houses, all designed by Architect Tom Scott Dean.



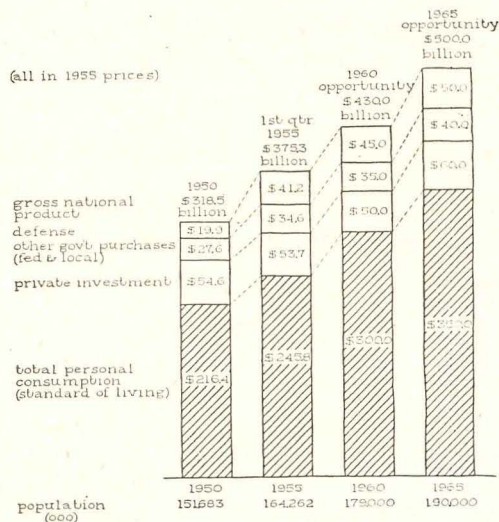
More than 100 of these \$12,500 air-conditioned houses will be built this year in Dallas by M. C. Cole, provided he and his architect, Tom Scott Dean, can persuade the VA to qualify the masonry block construction. In any case, Cole plans to build a large number of \$10,000 three-bedroom brick houses, designed by Fort Worth Architects Horton & Wright, using the same sloping roof design.



*Hence Griffith*

Tips Co. has sold half a dozen of these houses designed by Architect Bill Benson

Look at the soaring  
standard of living



This graph was prepared by Dr. Arno Johnson, economist of the J. Walter Thompson Co., to show how fast the Standard of living will have to rise to achieve the \$500 billion economy the President envisions for 1955.

"It would be very easy to build too many houses if they were of the wrong type and placed in the wrong locations. It would appear to be difficult under current conditions, however, to build too many well designed and properly equipped houses located in desirable neighborhoods."

Statement issued August 1955  
by the Trends & Policy Committee,  
U. S. Savings & Loan League

# Let's open our eyes! Let's open our minds

## Editor's note:

All prices and incomes cited in this editorial are in constant dollars.

And before you read the editorial let us assume you know as we do there are many special or local conditions which call for special solutions. For example, we both know that:

1. Migration creates special needs. A vacant low-cost house in Portland, Me. is no help to a family looking for a low-cost house in Portland, Ore. We know that low-cost housing must still be built in new communities that do not have a surplus of cheap housing left over from before the war (though we do think it most significant that small house prices are now falling in Los Angeles).

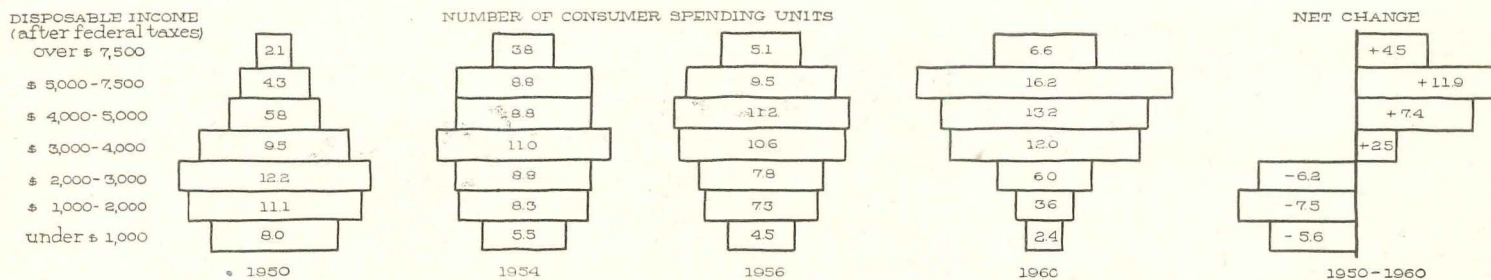
2. There is still no good answer to the need of decent low-cost housing close in to high-land-cost areas like New York and Chicago. (One answer might be the proposal presented by Gene Conser of NAREB for Federal insured mortgages on individual apartments.)

3. Racial barriers create difficulties that may require low-rent new construction if growing minorities cannot expand into good old units.

4. Many small low-cost units will be needed for the aged, often in places where not enough of that kind of housing can be found or created in existing structures.

But just for once let's take our eyes off these special conditions and look at our problem whole.

Look how the income pyramid is turning upside down



Source: 1950 (on 1949 incomes) and 1954 (on 1953 incomes) from Federal Reserve Board Survey of Consumer Finances—Federal Reserve Bulletin, June and July 1954. 1956 estimated by Dr. Arno Johnson, on basis of income trends in 1955. 1960 estimated by Dr. Johnson on basis of possible \$430 billion Gross National Product and \$320 billion of disposal income. These figures cannot be correlated directly with housing units, for more millions of families include two or more wage earners, i.e., consumer units. This graph is in 1955 dollars.

This editorial was written  
in collaboration with  
home building's No. 1 economist,  
**Miles L. Colean**

Two most dangerous canards of 1955 were these:

**We built too many new homes.**

**We built too few homes for lower-income families.**

Start the New Year right by debunking these two untruths before they do serious harm to our industry and before they do still more serious harm to the American standard of housing.

Set the mortgage lenders straight. Let's set the Administration

Let's set Congress straight. Let's set the public housers straight. Let's set ourselves straight.

Call for answers to these three questions:

**Question No. 1. How can anyone talk seriously about "overbuilding" until we build enough good housing to empty perhaps 10,000,000 old units no longer fit for human habitation.**

Why do these shameful units command inflated rents and prices for just one reason: We still have a tragic shortage of better housing. They are needed for just one reason: somebody has to live there until we can build good housing to go around. Most of the people who live there can afford much better homes—if the better homes were available.

**Question No. 2. Why should we be urged and driven to build more cheap housing when even now the U.S. has a hangover surplus of at least 5,000,000 more low-cost units than we have low-income families left who can afford nothing better?**

America is wiping out poverty so fast that the under \$3,000-a-year family is vanishing American. Their numbers have dropped from over 10 million in 1941 to around 4,500,000 today, will drop below 3,000,000 by 1965 and will fall still lower by 1965.

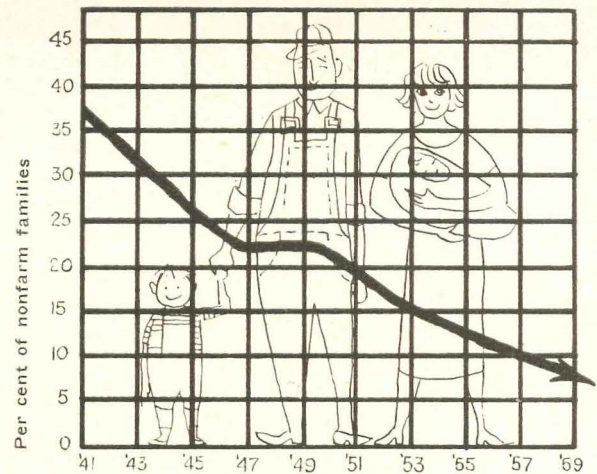
Should we build more cheap units for a market that will be gone by the wind before a quarter of the mortgage is paid off? Let's fix up our surplus prewar housing to last until the need disappears.

**Question No. 3. Where would the auto industry be today if its consumer credit were rationed (as ours is) to provide just one car per household for the year's 900,000 net new households and get just 5% of the 6,000,000 hopeless junkers off the road?**

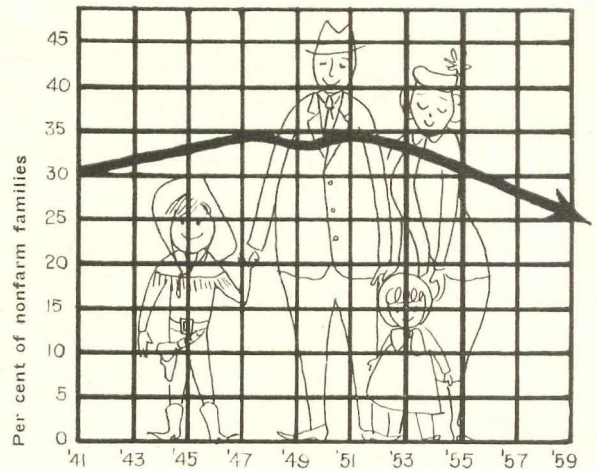
It is high time to learn a lesson from the automakers and stop thinking about our industry, our market, and our responsibility for housing in terms much better.

Let's see what kind of homes—and how many—we will need for the \$10-billion-a-year economy President Eisenhower has declared "attainable and essential to our national security and well-being" in 1965. President Eisenhower is talking in constant dollars, so that means a 50% rise in the American standard of living within ten years—the American standard of housing included. (See graph, page 124, col. 1.)

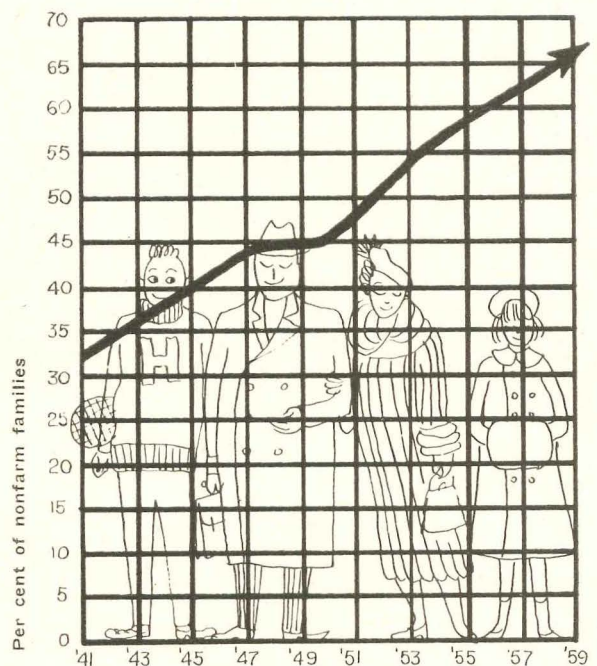
Stop thinking in terms of yesterday's half-as-rich America. Let's start thinking about tomorrow as if it were yesterday. What may have been true in 1950 is no longer true in 1956; it will be still less true in 1960 and (continued)



The under \$3,000 group is losing families fast



The \$3,000 to \$4,999 income group has stopped growing



Families earning over \$5,000 are growing fast

	1941	1947	1950	1953	1959
Number of nonfarm families in thousands					
Under \$3,000	10,090	6,979	7,451	5,233	3,000
\$3,000 - 4,999	8,143	10,590	11,219	11,093	10,000
\$5,000 and over	8,607	13,556	15,470	19,302	25,500
<b>Total</b>	<b>26,840</b>	<b>31,125</b>	<b>34,140</b>	<b>35,628</b>	<b>38,500</b>

All figures have been adjusted to 1953 dollars to avoid distortion by inflationary trends. Figures for 1953 are taken directly from the March 1955 issue of *Survey of Current Business*, official publication of the US Department of Commerce. Figures for 1947 and 1950 are from the same source adjusted to 1953 dollars. Figures for 1959 are House & HOME's projection of these 1947-1953 trends. Figures for 1941 are based on material underlying Selma Goldsmith et al., "Size Distribution of Income Since the Mid-Thirties," *The Review of Economics and Statistics*, Feb. 1954. Figures are before taxes and leave out unattached individuals because relatively few of them are prospec-

*The whole housing market is exploding and turning upside down before us. Let's open our eyes. Let's open our minds. And let's ask ourselves two key questions:*

**Question No. 4. Why does the average family spend less of its rising income now than it used to spend to buy or rent a good home?**

**Why do we let every other dynamic industry outsell us year after year in competition for the consumer's bigger and bigger buying power?**

Since 1929 the American standard of dress has doubled. The American standard of diet has soared. Spending for recreation has zoomed, and the American standard of transportation by car, train, and plane has climbed clear out of sight.

But many critics think the American standard of housing is actually lower today than it was in 1929, for old houses have been falling into decay faster than we have built good new houses to replace them.

Most of the old houses are still with us, 30 years older. We have built barely enough new homes to keep up with population growth—and most of them very small homes at that.

**Question No. 5. Why don't we try harder to sell more houses to the millions of newly prosperous families who can afford to move to much better homes?**

**Why do we direct most of our sales effort at people who can barely afford to buy—people who can buy only if the Government guarantees their credit and lets them buy for next to nothing down and 30 years to pay?**

There are 14 million more families now than there were in 1941 with income over \$5,000, i.e. families who could afford to pay \$12,500 or more (in constant 1955 dollars) to buy a home. We haven't sold more than 3,000,000 of them. Why don't we try harder to sell the other 12 million?

There are 6,000,000 more families who can afford to pay \$18,000 or more to buy a better home. We haven't sold more than 1,000,000 of them. Why don't we go out and sell the other 5,000,000?

There are several million less families now than there were in 1941 with income under \$5,000, i.e. less families who can't afford to pay \$12,500 for a home. We have already sold more 7,000,000 new houses since the war to this dwindling market. Why can't we take our eyes off these marginal buyers and go after the unsold millions who now have plenty of money to buy?

These three questions bring us at long last to the heart and center of the housing problem in America today. More specifically, they bring us straight to the heart and center of the home building industry's problem today.

Perhaps their importance will be clearer if we restate them a little differently:

**Question No. 6. How can we compete more effectively and successfully with other industries? How can we begin getting our share of the bigger consumer spending?**

That means, among other things: how fast and how far can we raise the efficiency and economy of our production to offer better and better value. For unless we offer much better value we can be very sure consumers will continue to spend their added dollars where they can get more for the money. They will continue to buy more television sets than bathtubs, more cars than kitchens.

Despite all our progress since the war, home building is still among the most wasteful and inefficient of industries. But the experience of these years has at last shown us what steps to take to cut our costs 30% or 40% at

**Says FORTUNE:**

**The average family's income will be \$8,000 by 1980; that means it can afford a \$20,000 house!**

*The most stupendous prediction that can be made about the U. S. economy, 1955-80, pivots upon one percentage point. The prediction is this:*

U. S. productivity, which has been increasing at an average of 2% a year for nearly a century, will probably increase, over the next quarter-century, by an annual average of about 3%. If this extra percentage point materializes, it will remake America, and its effects will be felt everywhere in the world. . . .

If U. S. productivity rises at an average annual rate of only 2%, production per man-hour will double in 35 years, increase four times in 70 years, eight times in 105 years. But if American productivity rises at an annual rate of 3%, production per man-hour will double in less than 24 years, increase four times in 47 years, eight times in 70 years. The implications of 3% are staggering. . . .

The present generation of young Americans can reasonably expect, before 1980, to share in a living standard of chromatic variety and enormous quantity—*enough to provide the average industrial worker with more purchasing power than the average junior executive has today.* . . .

The national living standard, which has risen more than 65% in the past quarter-century, could rise much more in the next quarter-century. Spendable income per average family ought to rise from \$4,400 now to some \$8,000 (in 1955 dollars), and at the same time the average work week ought to decline from 41 to about 35 hours. (By the year 2000, spendable income per family unit could rise to more than \$15,000.)

The data on the years prior to 1870 are very crude, but they strongly suggest that the rate of increase from 1850 to 1870 was less than 1.5%. Between 1870 and 1920, however, the rate rose to 1.6%. Since 1920 productivity has been rising by 2.5%, and since 1947 by 2.9%. Thus the long-term trend for the whole economy, projected over the next 25 years, indicates an average increase in productivity of at least 3%.

There are many excellent reasons why the 3% rate should be achieved. . . .

1. Rising productivity begets rising productivity. For example, the construction of the railroads, which raised transportation productivity enormously, also generated higher farm productivity by giving farmers a reason to grow more. . . .

2. At the same time, invention and innovation have been accelerating. And not only is research being accelerated; its practical application is probably being accelerated still more. Automation and electronic computers are possibly no more revolutionary than past technical "revolutions," but the celerity with which they are being adopted probably will turn out to be revolutionary. . . .

3. . . . Wage pressures have been a powerful general stimulant to productivity.



to increase the value per dollar in our product 50% or more. The question now is: when will we take these steps? Among them are:

1. Industrial standardization, so we can build our houses with parts, not pieces. (See pages 130-133, 160-167.)
2. More and better use of better power tools (see pages 136-143.)
3. Mechanized material handling. This could save us \$1 billion a year. (See pages 136-137.)
4. Better design. This is the cheapest way to add value, for it costs no more to build a house planned for better living than a poor one.
5. Code reform.
6. Better land planning for more enjoyment of the land. Today most houses are as wasteful of their site as they are of labor and materials. (See pages 146-153.)
7. Streamlined distribution, with prices and markups based on the realities of tomorrow's industrialized home building instead of yesterday's handicraft.

**Question No. 7. How can we unfreeze the ownership of 25 million owner-occupied houses and set those owners free to buy the far better homes most of them can now afford?**

**How can we begin to tap the \$100 billion equity in these 25 million homes to provide more-than-adequate down payments for home building boom almost past all imagining?**

Today there are millions of home owners living in \$12,000 houses who could afford \$20,000 or \$25,000 homes, millions of owners living in \$10,000 homes who could afford \$15,000 homes, millions of owners living in \$8,000 homes who could afford \$12,000 homes. The average renter moves every two or three years as his income lets him afford a nicer place. Millions of home owners would like to move too if they could get out of their present homes without taking too big a loss. Spot samplings in old houses in Indiana and new houses on Long Island both showed nearly half the owners wanted to move to a better home.

If we can get together with the realtors and make home ownership even half as fluid as trade-ins have made car ownership, we would have found the answer to 90% of our present problems. We would have found the answer to community facilities, for we would then be free to build the kind of new house every community would welcome. We would have found the best way to help all American families, rich and poor, enjoy the far better homes they can now afford—and the still better homes they can afford tomorrow.

The automakers have not built a really cheap new car in nearly 30 years, nor they cannot build a new car cheap enough to match the values car buyers get in the used car market. It is high time for us to learn the same lesson:

**We cannot raise the American standard of housing by feeding cheap houses in at the bottom.**

**We can raise the American standard of housing only by building good houses and making trade-up work through trade-ins.**

Then each new house, like each new car, would start half a dozen families playing musical chairs with houses as they now do with cars, with each family moving to a nicer home and leaving a junker vacant at the end of the game, ready to be torn down.

\* \* \*

These are our great problems: 1) how to offer far better values and so get a better share of the bigger consumer dollar; 2) how to unfreeze the ownership of homes and so tap the \$100 billion equity now tied up in old houses.

The faster we solve these two big problems the sooner we can forget about contentious issues like overbuilding and get down to matters like where can we get the mortgage money, where can we get the labor, where can we get the materials, where can we get the land and how can we get the community facilities we will need to rehouse America as America can soon afford to be

## Will home building get its share of this bigger spending?

**FORTUNE Thinks Not, Because . . .**

*1. Consumers, no matter how prosperous they become, will tend to spend their money where they get the most of it.*

For example: it is often said that "nobody (meaning only a couple of million Americans) can afford servants today." Actually plenty of Americans, probably more of them than ever before, could "afford" servants, but they don't have them simply because they can get so much more for their money elsewhere.

Because keeping a servant costs as much as keeping three motorcars or carrying a \$50,000 house, many well-to-do people prefer to spend the money on luxuries other than servants. If keeping a servant in 1980 costs as much as keeping three motorcars and carrying a \$75,000 house, well-to-do-people will tend more than ever not to "afford" full-time servants. . . .

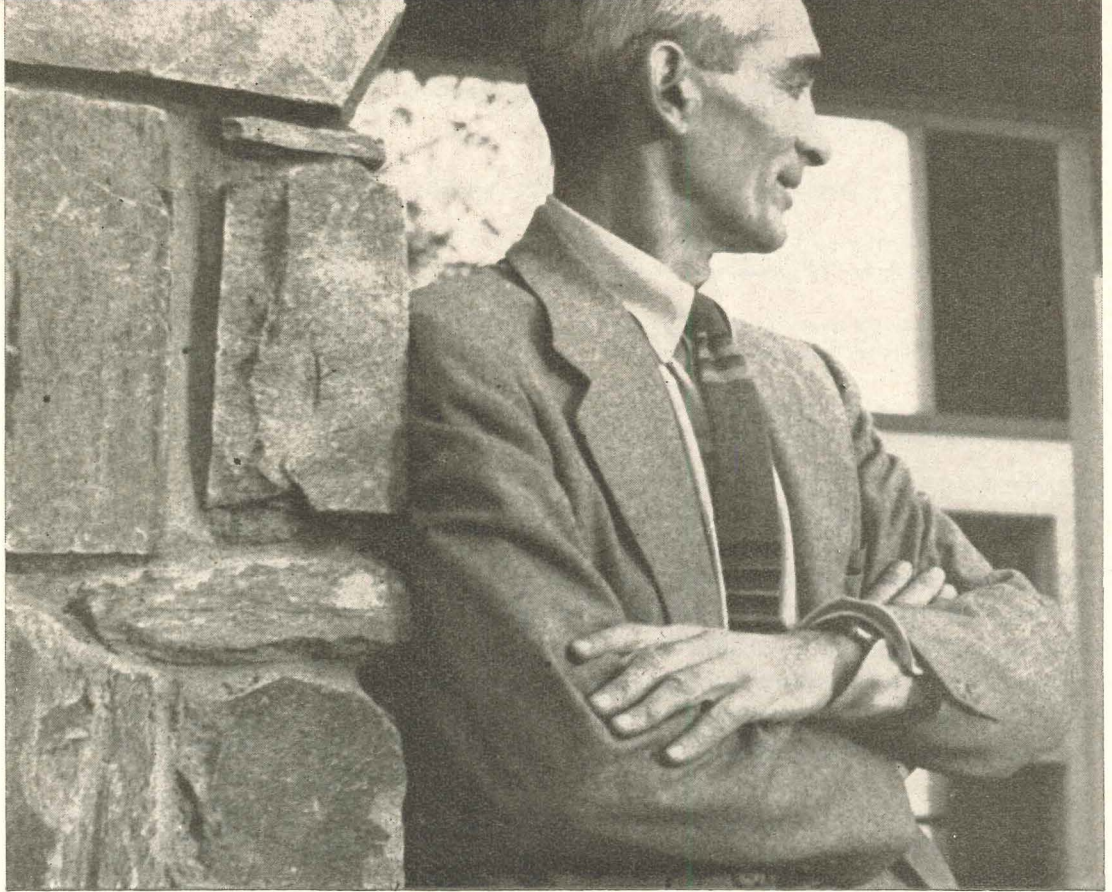
*2. So consumers will tend to spend their money on those goods whose productivity has kept up with or bettered the average, and will tend to pass up those whose productivity has not. . . .*

*3. The least progressive industry is construction, which has probably been increasing its productivity at less than 1.5% a year. (Some studies show practically no increase at all.)*

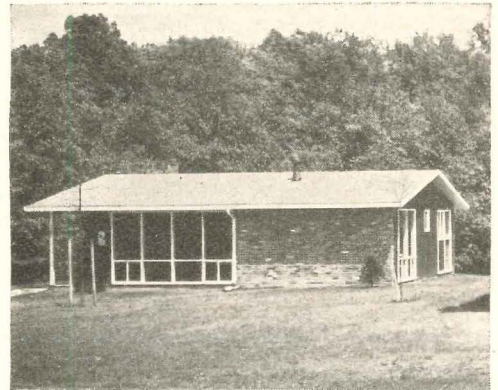
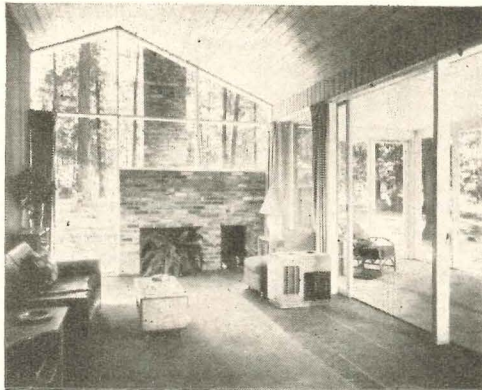
The industry's backwardness is partly because much of the construction dollar goes into repair work (including painting and plumbing), whose efficiency is notoriously low, partly because the industry is made up of thousands of small-scale operators who are ridden by restrictive practices, and handicapped by weather, building edes, and their own inertia. . . .

. . . Yet it is evident to anyone who has looked closely at the building industry that it has been making progress in recent years. House contractors have reduced costs and prices not only by mass buying, but by efficient organization of man-power and material handling. If the prefabricated house continues to gain popularity, it may mount a breakthrough in the productivity of house building. And the repair business is encountering stiff competition on the part of millions of do-it-yourselfers, who in 1953 laid down 50% of all the asphalt-tile flooring, applied 75% of the paint, and pasted up 60% of the wallpaper bought in the U. S. . . .

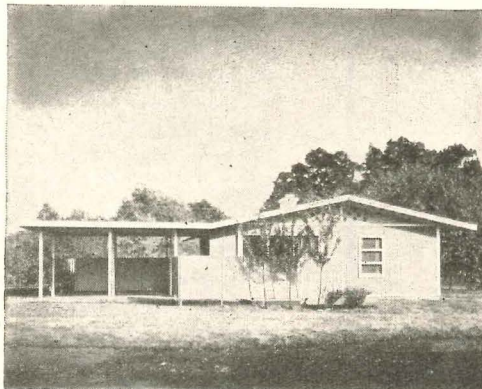
. . . Industrial and commercial contractors are improving their efficiency by means of precast concrete parts, prefabricated forms, and by such practices as pouring cement in all kinds of weather. Highway construction is vastly more efficient than it was even 20 years ago. Moreover, the pressure of rising productivity in other industries, which is driving the already high price of construction labor to still higher levels, should make for additional improve-



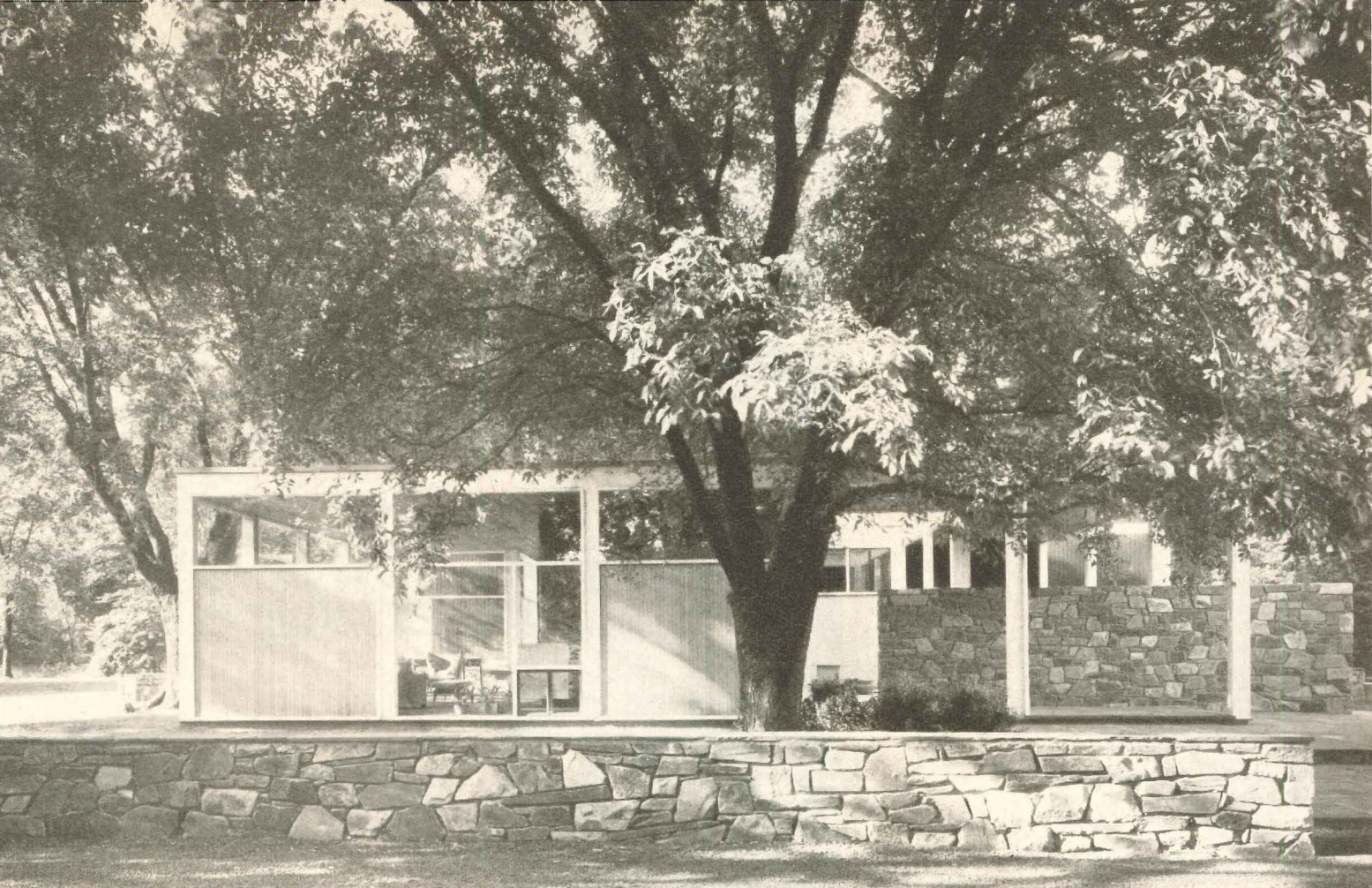
## A TOP BUILDERS' HOUSE ARCHITECT



Here are some of his volume built houses



Photos: Robert C. Lautman



## TRIES A NEW HOUSE FOR TOMORROW

At 49 Charles M. Goodman has few rivals for the title, "production house architect." Since World War II 32,500 Goodman-designed houses have been built in the U.S.

**In this house (above) which he has just built for himself, Goodman tested new ideas that may soon be adopted in many successful builder houses:**

1. a cost-cutting construction technique that requires no finish carpentry on the site (see pp. 130-131) ;
2. a way to borrow "prefab" money-saving techniques and use them even in one-at-a-time houses (see p. 132) ;
3. a half dozen new uses for familiar old materials and for other materials that are brand new to home building (see p. 133) ;
4. a method for making open-plan houses look bigger (see p. 134) ;
5. a site arrangement that uses the land between neighboring houses for outdoor living (see p. 135) .

The production houses shown on the opposite page are typical of Goodman's recent work in this field. They show innovations which have been widely accepted from coast to coast. As architect for the nation's largest prefabricator and for leading builders in the Washington area, Goodman qualifies as an expert on the mass market. On the following pages he shows his new house, explains his ideas and gives his views of the future.

Says Goodman about home building, "To paraphrase a famous saying, the only thing we have to change is our attitude to change itself. US industry prospers by constant change. Unless we in home building become mentally and emotionally conditioned to constant change, we will never become an industry."

**Last month, Architect Goodman entertained a visitor who wanted to see what Goodman's house could teach him**

*Visitor:* I haven't done any modern houses. **Most other builders tell me modern houses cost much more than traditional ones.** Your house looks simple enough, but simple-looking things often cost more.

*Goodman:* **There's no reason why they should**—my own house is proof of that.

*Visitor:* How?

*Goodman:* Well, when you build a traditional house, you really build two houses. First, rough carpenters who are fast and inaccurate, put up the framing. Then you call in the finish men. They are slow, expensive, and accurate, and in effect they build a second house around the rough framing.

*Visitor:* That's about right.

*Goodman:* Now in modern houses we try to express and expose the structure. This means our "rough" framing has to be accurate and so we end up using finish men on most of the work.

*Visitor:* And that's where I go broke.

*Goodman:* You do if you try to build entirely on the site. That would mean you'd have your finish men working on the exposed structure and structural millwork out in the open. And that's an expensive proposition.

*Visitor:* You said you had licked the problem.

*Goodman:* **Yes, we licked the cost problem by building our house in a shop instead of on the site. We had our finish men work under cover, with power tools and jig tables. And we used our rough men on the site to assemble the things our finish men had made in the shop.**

*Visitor:* What did they make in the shop?

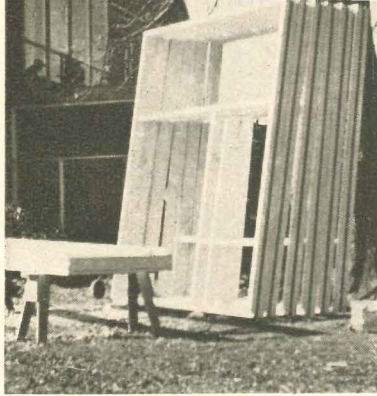
*Goodman:* We designed a series of identical millwork frames, 8' wide and 10' high, made up of the simplest cross-sections that anyone with a table saw and a dado-head can turn out for himself from 2" x 6"s or 2" x 8"s. These millwork sections were glued together on a jig table in the shop, to precise dimensions.

*Visitor:* But you didn't fill all the frames with glass?

*Goodman:* No, some were glass, some part glass, part siding. Those around our patio we left entirely open. **We made up 21 frames in all,** and each frame had a long spline glued into it on one side.

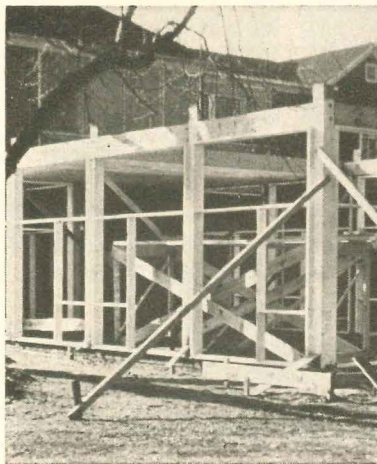
*Visitor:* You used the splines to connect the frames?

*Goodman:* That's right. The next frame has a dado cut along its edge, and the spline fits into that dado.



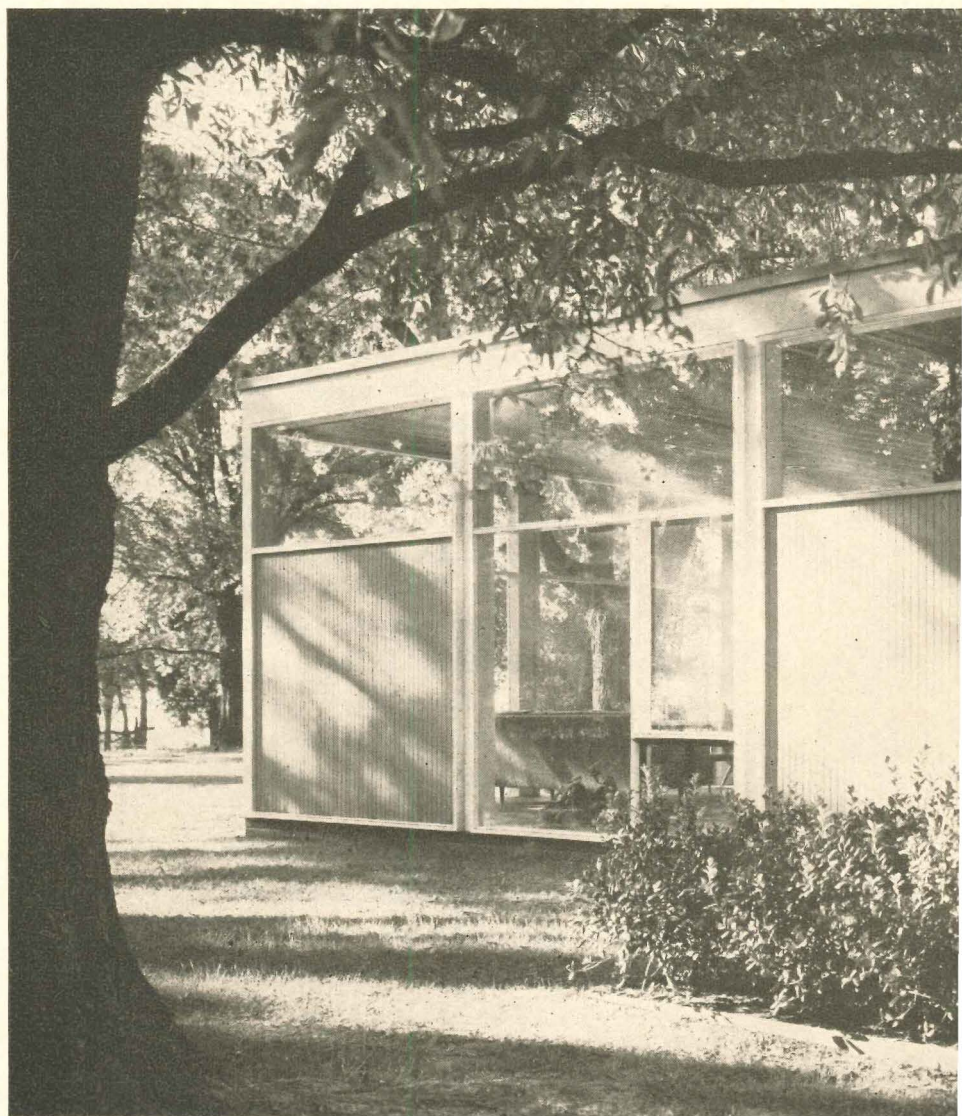
Wall panels (left) for Goodman house were fabricated in a shop, are shown stacked up after arrival on job. To use highly paid, finish carpenters to best advantage, Goodman put them to work under cover where the men would have power tools and jig tables to speed the precision work. House required 21 wall panels in all. Each measured 8' wide by 10' high.

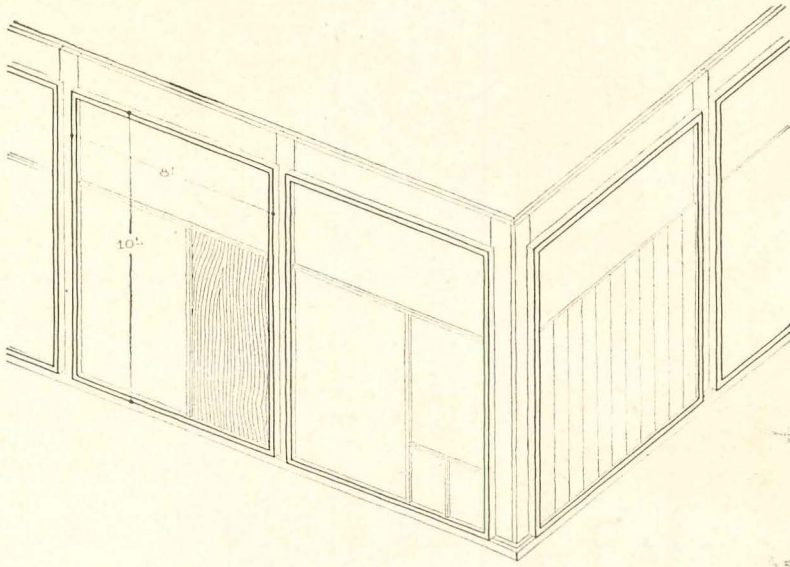
Diagram (opposite) shows how the panels were fitted together. All rough framing in the walls was eliminated because each panel-connection forms a strong, wood H-column made up of three 2" x 8"s.



Millwork panels (left) are now beginning to go up. As joining frames were connected by a spline that fits into a dado cut along the vertical edges of each frame. A continuous header of two 2" x 12"s connects the splines, lines up and braces the panels, and will support the roof-joists.

New wing of Goodman house (below) is now assembled and closed in. It took three carpenters three days to put up all the walls. Some of the panels are all glass, others are part glass, part siding. Horizontal rail is at 7' door height, carries curtain track on inside.





**Goodman on carpentry:**

**Modern design + conventional carpentry = high costs**

**Modern design + modern carpentry = economy, strength**



*Visitor:* Did it take long to put up the walls?

*Goodman:* It took only two days for three carpenters to put up all the frames. Of course the slab wasn't accurate down to  $\frac{1}{8}$ "—slabs never are. But it was a cinch to plane down the edges of the splines and take up any inaccuracies that way. You see, the men start at one corner and then they put up the next wall panel and then the next. You have a slightly different detail for the splines at all corners—just a simple rabbet.

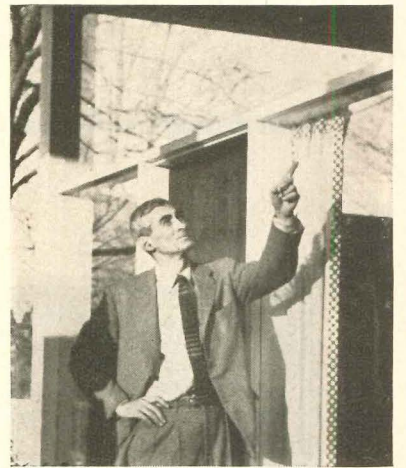
*Visitor:* Where did you put your studs?

*Goodman:* The really great thing about this system is that it allowed us to leave out the structure . . .

*Visitor:* It what?

*Goodman:* It let us skip the rough framing altogether. At these panel-connections you get a perfect, wooden H-column, just about the strongest structural column shape you can find. And you get it without the slightest waste of material. Some builders use twice the material they need for structural strength. First they put up studs, 16" on centers. Then they cover the studs with enough material to hold up two additional houses.

In our house, we use every stick of wood and we use it well. We don't waste any of it. Every 2" x 8" is put to work twice: first as a surround for



a panel, and next as the flange of a column.

*Visitor:* What about the roof?

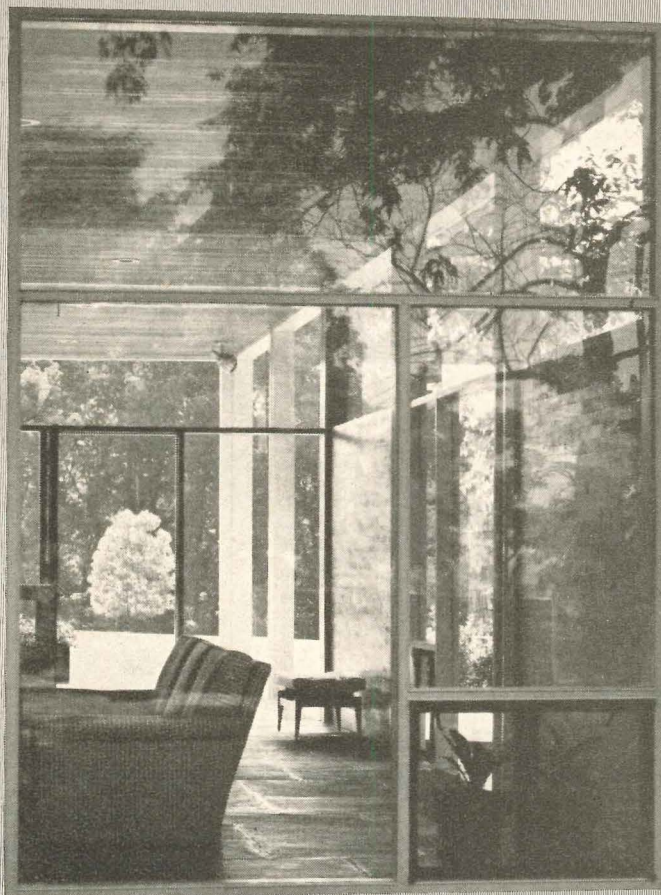
*Goodman:* It's supported on a continuous lintel of two 2" x 12"s that are bolted into the spline. The lintel then supports the roof joists.

*Visitor:* So even the lintel is put to work twice?

*Goodman:* That's correct, it not only lines up and stiffens all the panels, it also supports the roof.

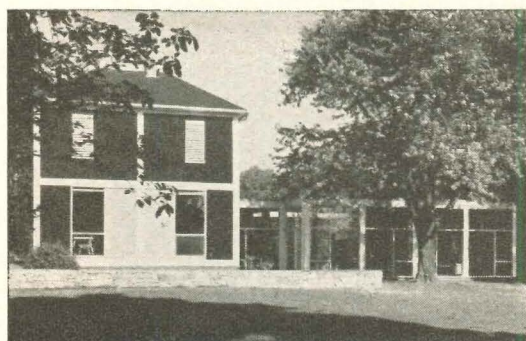
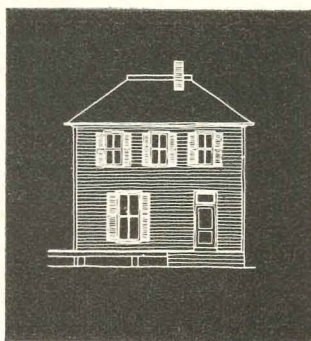
*Visitor:* Your system can really work with any roof, can't it?

*Goodman:* Sure. You can use a flat roof without overhangs, as we did. Or you can use a flat roof with overhangs, in which case you just rest your joists on top of the lintel. And, of course, you can use pitched roof trusses, etc. in the same way.



Typical 8' by 10' panel silhouetted against facade. 21 similar panels form the walls.

## Goodman on millwork: fabricate in the shop, assemble on the site



Remodeled old wing has new Inserts of glass. They were shop-fabricated just like the panels in new wing.

*Visitor:* You are really sold on this new structural system?

*Goodman:* Completely. It even worked in the remodeling of the old house, in which we have lived for years.

I have been talking only about the new wing so far, but **even in the old house, where we put in big glass walls, we made those walls in a shop.** Then we shipped them to the

site, fully glazed. And only then did we rip open the old walls for the rough opening.

**Opening up the wall and closing it again with the glass panels took only a few hours.**

This was in the middle of winter, and while we were actually living in the old house.

But the real moral of our construction story, I think, is this:

**When you have precision**

**work to be done, do it under cover** where your skilled men can work best and take the most advantage of power tools and jigs. And then let the assembly of the finished parts of your house be done by rough carpenters on the site, with no chance of error and no waste of time.

*Visitor:* But this kind of prefabrication—I guess that's what it is

—pays off only for big build doesn't it?

*Goodman:* No indeed, it paid in our own, one-time house, it is now paying off for my relatively small builder-clients outside Washington. **All you need in the way of a plant, is a table saw with a couple accessories,** and a big shed which to work. Almost any builder has that.

*Visitor:* Didn't you use a lot of new materials?

*Goodman:* No—all we did was use old materials in new ways. We used flooring on the ceiling, for example.

*Visitor:* Why?

*Goodman:* I like the color and texture of wood, its acoustic qualities, its ease of maintenance. We used mirrors for the back-splash in our kitchen to make

the kitchen surfaces look bigger and to help light them up.

*Visitor:* Your kitchen fans look unusual.

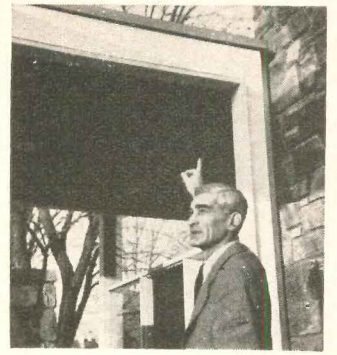
*Goodman:* Those are roof ventilators generally used in factories.

*Visitor:* What about your finishes?

*Goodman:* We found a "color developer" manufactured for the photographic industry, and we used that to finish the wood.

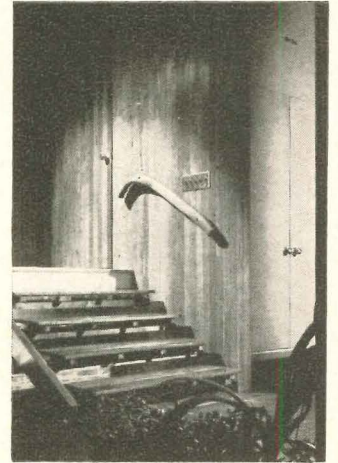
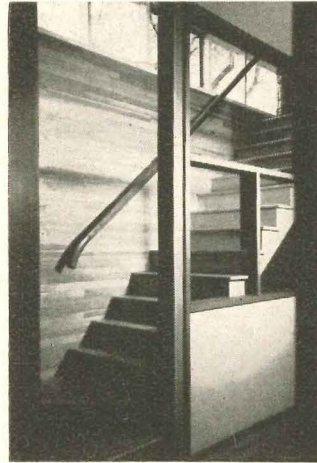
*Visitor:* There must be lots of stuff we have passed up till now.

*Goodman:* I wish you could see my office. It's crammed full with catalogues, samples, bits and pieces of equipment, new extrusions in metals and plastics. Some of the things I collect aren't even made for the home building industry at all. **We haven't even begun to exhaust the materials and gadgets available to us today.**



### **Goodman on materials:**

**Never skimp on imagination**



Wood flooring used as horizontal and vertical siding (above) and as ceiling finish (below). Goodman likes to experiment with new materials and finishes, finds many useful ones outside homebuilding.



*Visitor:* Mr. Goodman, so far you haven't said anything about the plan ideas in your house.

*Goodman:* I suppose the chief problem in most builder houses today is to make a small house on a small lot look bigger and act bigger. My house isn't small, but our planning ideas are even more valid in the smaller house.

*Visitor:* How can you apply them if you don't have the space?

*Goodman:* You have to give even more careful thought to planning in a small house, because in a small house you have to make every inch count. Now, our house has an "open plan" like most good builder houses today. But our open plan is not just one big room that you see all at once as you walk in the front door.

*Visitor:* That's one thing I don't like about many modern houses.

*Goodman:* If you come into an open plan living area and can take in everything at first glance the house seems small. You've lost the feeling that there's more than you can see, the traditional feeling of being in a house.

*Visitor:* How did you prevent that in your own house?

*Goodman:* Let me take you on a conducted tour. We'll start at the front door and walk right through the house. (1) All we can see at first is the entry area plus a small corner of the living room. The rest is shielded by the fireplace.

Let's go on. We are now looking straight back in the direction from which we came, and yet we see something new again: a spacious patio, and a lawn (2).

Continuing on our way . . . as we walk up toward the old house, we get another new view to the left (3)—trees, flowers, lawn. The house unfolds before you gradually, not all at once.

*Visitor:* So your house looks big partly because it's so full of different things to see?

*Goodman:* Exactly. And the same principle applies to any builder house, however small. An open plan isn't just an empty plan—it has to be handled in a very subtle way to keep it from being boring and obvious. By the way, we did the same thing in planning the outdoors.

*Visitor:* How?

*Goodman:* We used a lot of little elements: fences, pools, retaining walls, paved areas and so on. They make the garden much more interesting to look at because

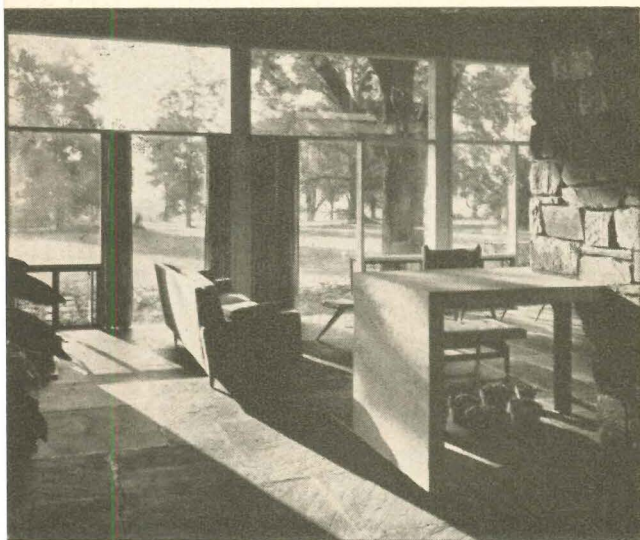
there's so much to see. A lawn can get very dull. This plan (opposite) shows how a lawn can be divided up to make more interesting.

*Visitor:* One last question: could a builder expect to get help from his architect on all these things that you've been talking about?

*Goodman:* Certainly. Architects aren't just exterior decorators. They have to develop a complete, economical structural system, and then they have to choose which to design. They have to consult with experts on materials and finishes. They have to be planners. They shouldn't try to "package a mediocre product to make it sell better, but to make a product better all the way through: better in its structure, better in its appearance, better in its economics, more delightful to live in, and thus easier to sell.

### Goodman on planning: Dividers make open plan look big and interesting

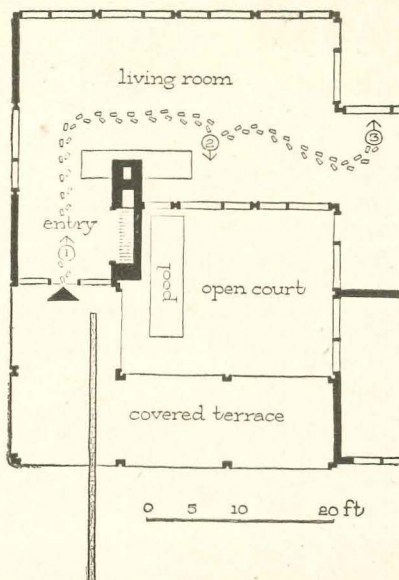
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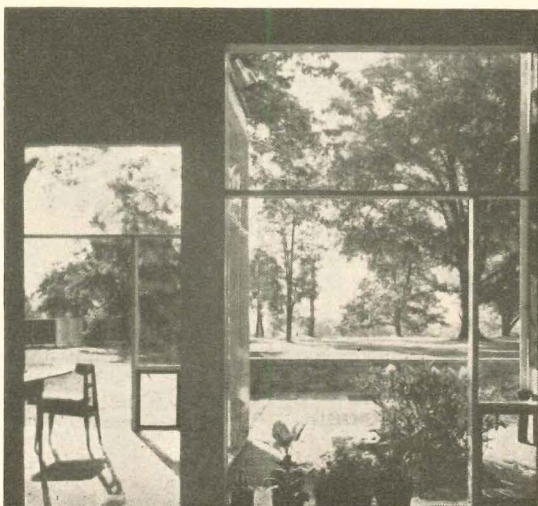


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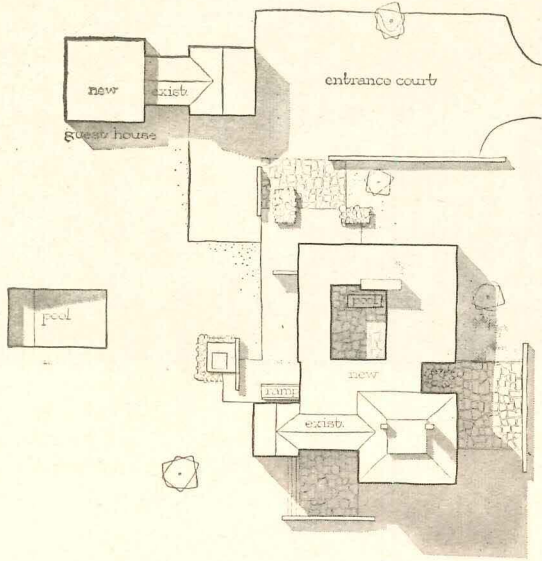
3.

Divisions in open plan help to screen parts of the living room, thus create areas of privacy. (Plan and photos numbered to show tour through house.)

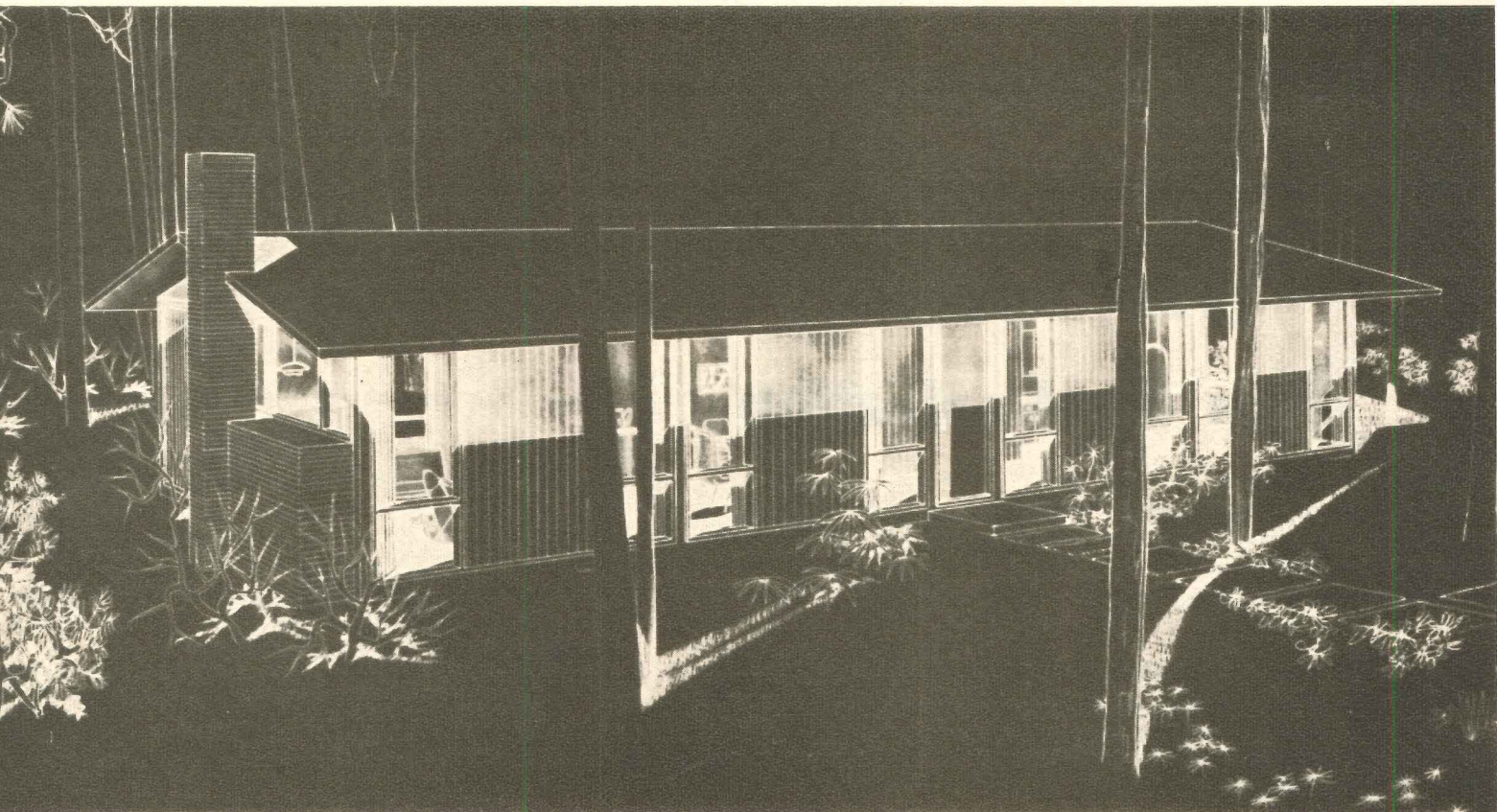




**Goodman on outdoor living:  
Site houses to shield each other**



Site plan (left) shows how Goodman used free-standing retaining walls, paved terraces, fences and other buildings to create space divisions outdoors. Result is similar to that obtained inside the house: a series of views that change as you walk around and a series of shielded areas for outdoor living. The most intimate outdoor area, the semienclosed patio is shown above.



**And here is the first builder house based entirely on all these experiments**

At Hollin Hills, Va., Goodman's client, Builder Robert Davenport, has now completed and sold more than 30 houses like the one shown above. All of them use the same structural system Goodman pioneered in his own

house, except that all shop-fabricated wall panels are 12' wide instead of 8'. Goodman found the 12' dimension gave him a good bedroom width and two panels added up to a good living room length./END



Photos: Walter Daran

# Round Table explores how to speed great savings from mechanization

Why is our industry so slow to realize the great economies offered by power tools and power handling of materials in unit loads? And what can be done to cash in on those savings faster?

Detailed answers to those billion dollar questions were agreed to last month at a Round Table jointly sponsored by HOUSE & HOME, The Prefabricated Home Manufacturers Institute, and the Lumber Dealers Research Council.

On the next seven pages you will find Part I of their report, dealing mostly with how to save more money with power tools. Part II will be published in our next issue, dealing mostly with how to save more money through mechanical materials handling.

## The panel

### TECHNICAL ADVISER

JAMES T. LENDRUM, *AIA director*  
*Small Homes Council, University of Illinois*

### MODERATOR

P. I. PRENTICE, *editor and publisher*  
*HOUSE & HOME*

## For the Customers

### NATIONAL RETAIL LUMBER DEALERS ASSOCIATION

CLARENCE THOMPSON, *chairman*  
*Lumber Dealers' Research Council*  
RAYMON H. HARRELL, *research director*  
*Lumber Dealers' Research Council*  
JOHN MOELING, *chairman, planning committee*  
*Materials handling section, Lumber Dealers'*  
*Research Council*  
R. L. SWEET, *executive committee*  
*Lumber Dealers' Research Council*

### PREFABRICATED HOME MANUFACTURERS

PETER S. KNOX, *president*  
*PHMI*  
*President P. S. Knox Corp.*  
JOHN E. BAUER, *president*  
*Precisions Homes*  
HENRY HARNISCHFEGER, *executive vice president*  
*Harnischfeger Corp.*  
ROBERT LYLE, *president*  
*Modern Homes Corp.*  
GEORGE E. PRICE, *vice president*  
*National Homes, Inc.*  
DONALD SCHOLZ, *president*  
*Scholz Homes, Inc.*  
HARRY H. STEIDLE, *manager*  
*Prefabricated Home Manufacturers Institute*

### NATIONAL ASSOCIATION OF HOME BUILDERS

DAVID SLIPHER, *chairman*  
*Research Institute*  
RALPH JOHNSON, *technical director*  
ERNEST ZERBLE, *chairman*  
*Small Builders Committee*  
JOSEPH GOLDMAN, *vice president*  
*American Community Homes*  
WILLIAM WEIST, *chief engineer*  
*Place & Co.*  
LEONARD HAEGER, *technical director*  
*Levitt & Sons, Inc.*

### AMERICAN INSTITUTE OF ARCHITECTS

JOHN HIGHLAND, *past chairman*  
*Home Building Industry Committee*

## Round Table Report: Part I

# \$1 billion saving makes essential better team work in our industry

Last of the great industries, home building is now well started on its industrial revolution.

Eventually this industrialization will let us produce much better houses for much less money. It will let us share with home buyers the great savings offered by industrial standardization and industrial mechanization.

But right now today the sober truth is that:

**We have hardly touched the \$1 billion-a-year savings offered by industrial standardization.** We cannot realize those savings until we translate today's near-miss standards into usable standards to which all building component manufacturers can design a great variety of products that will fit together with minimum waste of material and minimum waste of labor.

*To provide a basis for those more precise standards has been the goal of five earlier Round Tables in 1955.*

**We have hardly scratched the surface of the \$1 billion-a-year-plus savings offered by industrial mechanization.\*** So the manufacturers assure us, and we agree. We cannot achieve more than a fraction of those savings without much better team work between architects, builders, lumber dealers, common carriers, manufacturers of building products, and manufacturers of all the varied tools by which building components are shaped or fastened or moved. We cannot achieve those savings without much better communication throughout our industry, better understanding, better selling. At many points we cannot achieve those savings until manufacturers study our needs more closely and develop new machinery to meet those needs.

Too many builders and their architects are planning houses based on their knowledge of yesterday's tools. Too many manufacturers are offering tools based on their knowledge of yesterday's houses and yesterday's building materials.

*To provide a basis for that better understanding and that better team work is the purpose of this Round Table.*

### the Manufacturers

#### TOOL MAKERS

- S. H. CROSS, vice president and general manager  
Electric Tools Div., The Stanley Works
- R. G. HORNER, vice president  
Black & Decker Manufacturing Co.
- TRUMAN JONES, general sales manager  
De Walt, Inc.
- IRVING G. MEYER, sales manager  
Delta Power Tool Div., Rockwell Manufacturing Co.
- MATHEW PATULSKI  
Porter-Cable Machine Co.
- PAUL WATTS, vice president  
Skill Corp.

#### FASTENERS

- JAMES CLARKE, sales service manager  
Ramsel Fastening System, Olin Mathieson  
Chemical Corp.
- WILLIAM COOK, assistant sales manager  
Stanley Steel Strapping Div., The Stanley Works

#### TRACTOR AND MOVING EQUIPMENT

- FRANK CONOVER, manager industrial sales  
Tractor & Implement Div., Ford Motor Co.

#### TRENCHING EQUIPMENT

- ROBERT W. HUMES  
Sherman Products, Inc.
- J. A. PENOTE, vice president and general sales  
manager  
Cleveland Trencher Co.

#### SCREW DRIVING EQUIPMENT

- CHARLES A. SNYDER, chairman of the executive  
committee  
Richmond Screw Anchor Co., Inc.

#### TRUCKS

- ROY ROBINSON, president  
Pre-Fab Transit Co.

#### MATERIALS HANDLING

- JAMES H. W. CONKLIN, general sales manager  
Phila. division  
Yale & Towne Manufacturing Co.
- R. H. DAVIES, vice president  
Clark Equipment Co.
- R. L. FAIRBANK, sales manager  
Tow Motor Corp.
- RICHARD JAY, sales manager  
Gar Wood Industries, Inc.
- DAVID MILLIGAN, vice president  
American Tractor Corp.
- ROBERT F. MOODY, sales manager  
Hyster Co.
- RUSSELL A. MOORE, sales manager Traveloader  
Baker-Raulung Co.

#### POWER MACHINERY

- NELSON THOMPSON, vice president and general  
sales manager  
Homelite Corp.

#### CONVEYORS

- PAUL R. HATCHER, manager  
Materials Handling Div., Richards-Wilcox  
Manufacturing Co.



*Lendrum*: A good power cutting job is \$400 to \$500 a house cheaper than a hand job.

Mechanization is a broad subject. It covers mechanization of the tools by which building parts are cut and shaped, the tools by which building parts are fastened together, the tools by which the site is prepared for building. It also covers mechanization of the handling of materials in transit, at the mill or factory, at the lumber yard, and at the site.

Each of these six uses presents a different problem. For example:

Cutting is now in transition, shifting from site to lumber yard or factory.

Fastening cannot be mechanized without a whole new set of tools, for nailing and gluing.

Site preparation is almost 100% mechanized already on large tracts, but smaller builders need a new kind of multipurpose unit.

Materials handling in transit requires new-model railroad cars and trucks.

Better materials handling in the yards must often wait for new yards rather than new equipment.

No one knows the best answer to better materials handling at the site.

But all the aspects of industrial mechanization are inextricably interrelated one with another, and inextricably interrelated with industrial standardization. The more we standardize dimensions, the further back in the industrial process we can do the cutting and dimensioning. The more efficiently we mechanize the cutting, the more important it becomes to mechanize the handling. The more we mechanize the handling at one point, the more important it becomes not to lose that saving for want of mechanized handling at some other point.

So, before we study the problem of mechanization bit by bit, we must first consider the problem whole.

## Here are two examples of the great savings offered by mechanization

**1. Carpenter labor costs can be cut 20 %** by substituting power tools to cut and shape components for hand labor. Perhaps equally important, power tools offer a built-in accuracy to match the work of yesterday's artisans. With today's high level of wages there is no question in any of our minds that every possible cutting operation should be mechanized. The only question is what cutting should be done at the site or what cutting can best be done at factory or lumber yard, where more expensive equipment can be installed and kept busy. (Many yards have found they can save the entire cost of their lumber precutting service by making better use of longer lengths and by cutting out defects and so upgrading their lumber.)

**2. Materials handling costs can be cut 50 %** if manufacturers, railroads, car builders, truck builders, lumber yards, building prefabricators, and material handling equipment makers all work together to develop and use the most economical means of handling materials from start to finish. This is another way of saying that efficient materials handling can cut home building costs by more than \$1 billion a year, for some informed estimates suggest that more than 25% of today's home building cost lies in materials handling from mill to final erection.

### It is easy enough for us to agree that

1. Mechanization offers these billion dollar savings;
2. These savings are essential to the long range progress and prosperity of our industry;
3. In the more competitive years ahead builders and lumber dealers who do not take advantage of these savings will find it hard to stay in business;
4. Building product manufacturers will find sales hard to hold against competition if they do not adapt their products and their packaging to the mechanization needs of their customers and distributors;
5. Mechanization is the only way we can spread our available labor over the great increase in home building volume that is sure to tax all our resources in the sixties.

### But all this is easier said than done

The closer we study mechanization the clearer we see there is no quick and easy way to get everybody in our industry to take full advantage of its economies. We have no short cut to recommend, but we do believe a clearer understanding of the problem may help all to work together better and so speed the progress of mechanization.

## Here, briefly are some of the problems:

### Problem No. 1: the builder and the reluctant artisan

Our discussions have revealed a market-paradox. If you want to sell more portable tools for use at the site you must sell them over the head of the man who will give you the order. Here is a case where the most important man is not the buyer.

Most portable power tools are bought by merchant builders, carpenters, electricians, and small contractor builders, and we are agreed that this is where their ownership should lie. For then the men who actually use the tools will take better care of them. The demand for more labor-saving tools has not and will not come from the merchant builders, subcontractors, and small contractors who actually buy them. There is no pressure or expectation of use expecting any tradesman to get excited about a new way to make his bill smaller. On the contrary, the carpenters

(even though they are the least obstructionist of building labor) fought the introduction of these labor-saving tools for years and in some places still raise major obstacles to their use.

Most carpenters have now learned to like power tools because they make their work easier and pleasanter. But the big pressure to increase their use has not and will not come from men who charge by the hour. It has come and will continue to come from men whose profit depends on reducing the number of man hours worked; i.e., from the merchant builders and, most particularly, the larger builders.

For example:

*Example No. 1*—the portable electric saw came on the market around 1913 but it did not come into any broad use

until World War II, when the big builders working on army contracts forced its acceptance.

*Example No. 2*—the only way big builder Levitt could persuade his subs to give portable power tools a trial was to buy them for his own account and lend them to the workmen. Two years later he was able to sell all of them to the subs second hand, and today he owns no power tools at all.

Most merchant builders try to own as little equipment as possible, preferring to have the ownership lie with their subcontractors. Nevertheless, the customers among us are unanimous in assuring the manufacturers that the merchant builder is the No. 1 buying influence and the first man to sell in the market for all mechanical equipment to be used at the site.

### Problem No. 2: the chicken and the egg

Again and again we run into the question of who should make the first move towards mechanization. For example: Should the architect work out his design and then persuade his builder to take full advantage of mechanical equipment and then persuade his builder

to install it? Or should the builder mechanize and then look for an architect who will take full advantage of his equipment?

Should the lumber yard equip for mechanical unloading of freight cars

before the mills are ready to offer unit loads on the cars? Or should the lumber mills equip for unit loading (at a first cost of about \$80,000 per \$1,000,000 of sales) when only one lumber yard in ten is equipped to unload them?

### Problem No. 3: the horizontal manufacturer

Home building is just one among many industries served by the power tool and materials handling manufacturers.

On the good side this means home building benefits by quantity production economies that would be impossible if homes were their only market. It also means that the manufacturers have had the time needed to carry many of their products to a high point of perfection; for example, saws that cut to a tolerance

of thousandths, saws whose accepted blade speed is 15,000' per minute, saws that are controlled by a punch tape.

On the bad side it means that few of these manufacturers have had time to study our needs, which are often quite special. Few have had time even to do a special educational selling job to help us see how we can best use their equipment.

As a result, some of the tools we need most are not available. Some of the tools

available need minor changes to be much more useful. And most of the available tools are not used in home building as widely or as wisely as they should be.

The customers among us believe that, as America's third largest industry, home building now offers such a profitable sales potential that some smart manufacturers could hit the jackpot by establishing closer contacts throughout our industry and focusing more effort directly on its needs.

## Problem No. 4: the ½-hr.-a-day user



*Harnischfeger:* The higher your volume the more kinds of tool you can use.



*Bauer:* If you don't build 20 or 25 houses a year you can't use your tools more than 50% of the time.



*Scholz:* I don't believe even the smallest builder can afford to hang his own doors.

Here is another paradox. Any builder who does not use power tools to cut his costs will find it hard to stay in business; but mechanization works so fast that small builders who buy their own tools often find it hard to take full advantage of their efficiency. For example:

With a router a carpenter can fit and hang 20, 30 or more doors in a day instead of six. But the average house has only eight doors!

With a forklift a laborer can pick up a ton at a time and move it 40' in less than a minute. But that means he can move all the materials for a whole house from road to site in less than an hour!

The speed with which cutting tools work is one more reason why small builders prefer to have their subcontractors own

their portable tools, for they can't carry their tools from job to job and keep them in use. It is one more reason why many builders, both large and small, their cutting should be concentrated in their factories, and lumber yards, where the first cost of more expensive (and efficient) tools can be justified by keeping them busy most of the time.

The smaller the builder, the less probable he finds it to tie up his own money in machinery, for if a tool fast enough for 100 houses a year can be used on only five the capital cost per house is 20 times as big. That is one good reason why a recent University of California survey of Bay Region builders showed that builders of 25 or more houses average more than three times as big an investment in tools and equipment as builders of less than 10 houses a year.



*Meyer:* The power tool manufacturers have built into the power tool the accuracy that your grandfather had in his hands.



*Knox:* I would rather pay \$5,000 and get a saw that will do the job.



*Steidle:* Instead of boring one hole at a time we are boring-25!

## Problem No. 5: the forgotten architect

Many mechanization savings can be realized only if the architect designs the house to take advantage of them. Architects have been pioneers in modular coordination and dimensional standardization. They are now creating a new architectural style much better suited to today's production methods than any of

the traditional styles, most of which developed before we even had iron nails to hold boards together.

We believe all this makes it important to keep architects up to date on what the new tools and materials handling equipment can do, important to help them figure out ways to design to take full

advantage of the mechanization.

It is important to inform the customer architect who is pioneering the new architecture. It is still more important to inform the production architect, whose fast winning acceptance as the industrial designer of our industry and will soon be designing more than half the new houses



*Moeling:* Let's talk about cutting at the lumber yard.



*Thompson:* The less cutting has to be done at the site the better for the builder.



*Zerble:* We want more parts and less pieces, but there isn't a lumber yard in my town equipped to do the cutting for me.

### Problem No. 6: the uneven revolutions

Evolutionary changes are taking place simultaneously in home building, prefabrication, and lumber dealing.

When these simultaneous revolutions are completed we believe most materials handling will be mechanized and most components will be precut, predrilled, and pre-fitted off the site in a prefabricator's factory, or a volume builder's shed, a local lumber yard, or a lumber mill, or a manufacturer's plant. We are agreed that the further back in the production line the cutting can be pushed, the better; the less cutting and fitting has to be done at the site the better for everyone, including the cutting tool manufacturer.

But progress in these revolutions has been very uneven. The builder who wants to buy all his lumber precut may find it hard to find a local lumber yard prepared to offer this service, for less than half the cost. Only 26,000 yards are so equipped. Consequently the precutting yards will find that many small builders are really self-employed carpenters who do not plan their purchases carefully enough to permit pre-

cutting and who might prefer to spread their self-employment further by doing their own cutting, rather than pay to have it done for them.

Until and unless the components come to the site precut these four cutting tools will be needed (often in multiple) on almost every house, owned either by the builder or, more often, bought at his insistence by his subs:

1. A heavy duty 7" or 8" portable saw (about \$85 to \$140);
2. A 1/4-in. heavy duty drill (about \$45);
3. A portable electric router for cabinet work, hanging doors, and cutting off butts and jams (about \$52.50);
4. A radial saw (about \$400-\$450), with a trailer to put it on (about \$125) and a \$10 cover. This is the power tool carpenters use most and like best.
5. A generator if he is building before the power lines reach his site.

The need for all these on-site cutting

tools will diminish as the cutting moves further back up the production line. The greater availability of prehung doors and factory built cabinets is cutting into the market for routers just as this fine tool is winning wide acceptance. But even the prefabricators recommend that all their builders own a power drill; and except on true prefabs portable saws will always be useful at the job to correct errors and oversights and handle last minute changes for the home buyer.

In the long run moving the cutting back from the site will create a bigger power tool market, for much more expensive and efficient cutting tools can be used where cutting can be concentrated.

Up to now power tool progress has concentrated on the substitution of mechanical power and mechanical skill for human muscles and human skills on relatively simple single operations. The concentration of cutting in yards and factories will permit a second long step forward—the development of multiple operation tools.



*Conover:* We have attachments to do lots of things.



*Haeger:* We would love to have a machine that would help us nail dry wall, and sheathing.



*Lytle:* If you could put an air compressor on the tractor, that would be wonderful.



*Jones:* Would you like a generator under the hood of your car or truck that would run up to 5 h.p. motors?

## Big machines have cut site costs; now we need a small jack-of-all-jobs

Site preparation is already the most highly mechanized and therefore the most efficient and economical part of home building. Bulldozers are clearing the site, and grading the land at a fraction of yesterday's hand shovel cost. Sheepfoot rollers are compacting level building lots on hillside sites which were thought impossible just a few years ago. Trenchers are making slab house foundations ready to pour in half an hour, digging sewer and water supply trenches equally fast. Prefabricated forms are speeding accurate and economical foundations. Big road-laying machines are putting in streets cheaper in 1956 than they could be laid in 1948.

Almost all today's site preparation equipment is expensive (\$9,000 to \$100,000) special purpose machinery. It does its job so fast that even a big builder can seldom keep it busy enough to justify owning it himself. Almost always it is owned by a subcontractor who moves it from job to job, some times taking it to

another home builder's tract, often using it for some other industry's needs. (One subcontractor in Los Angeles has used his trenchers to dig foundations for 51,000 houses by hundreds of different builders.)

Nevertheless the one best way to increase the use (and thereby the sale) of site preparation equipment is to teach more builders (and their architects and site planners) how to take fuller advantage of all the savings and efficiencies it offers.

But this better understanding of how to use the subcontractors' highly specialized equipment is not the whole answer.

**Our industry urgently needs a brand new kind of multipurpose unit for use at the site**—a unit that medium-sized builders could own themselves and shift quickly and easily from one kind of work to another, thereby keeping it busy a large part of the time. If, with various attachments, the same mobile power plant

could be used to unload and move materials, dig trenches and foundations, finish grading the site, vibrate cement, and generate power to run tools and compressors for paint sprays and pneumatic nailers on tracts out beyond the power line, we believe many builders would find this new tool as essential as they now find a pick-up truck. Preferably it should run on treads rather than tires, for two reasons:

1. because it might often have to operate on rough ground and over ditches and
2. because foundation walls require an accuracy that might be difficult to maintain on rubber tires, which might skid an inch or two off the line.

We are more than pleased to learn that several combination units of this type may soon be available for around \$5,000 and we recommend that all large and medium-sized builders give careful study to the savings they might make possible

## Better tools to fasten parts together are the tool makers' big new challenge

The new portable tool that builders and prefabricators are most eager to use is not yet available—a self-feeding pneumatic (or perhaps electric) nailer as light as a portable saw that will drive 60 or more regular nails a minute, not just down, but also up or at any angle. No nailer now on the market meets these specifications, but some of them come close enough to encourage us to hope that what we want can be developed soon.

Important today, such a tool will become relatively more and more important as cutting moves back from the site to the mill, factory, lumber yard or shed. In fact, some prefabricators think the day will come when such tools for fastening presized parts together will be the only erection tools needed at the site.

When the Detroit builders gave their Home Show house as a prize for guessing the number of nails required in its construction, the right answer was 59,000.

The nail demonstration house built at Virginia Polytechnic Institute used 65,910 nails, including 12,900 framing nails, 9,000 sheathing nails, 4,000 building nails, 7,000 casing nails, 7,500 shingle nails, 4,900 subflooring nails and 2,600 finished flooring nails.

Most of these thousands of nails are still driven the way nails were driven 200 years ago, mostly because power nailers now available are too heavy. How could a carpenter hold a 200-lb. nailer against the studs to attach the building paper, or haul a 200-lb. nailer up to the roof to attach the sheathing?

Lack of a light weight power nailer can only stimulate the home building industry to more and more interest in adhesives as a substitute for nails. Some increased use of adhesives is probably inevitable as better adhesives and better spreaders are developed — including, specifically, a power spreader that will work on vertical

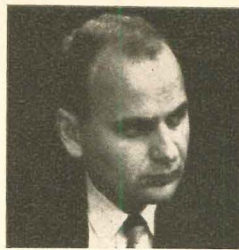
surfaces—for adhesives offer the inherent advantage of making better use of the strength of wood (for example, much less lumber is needed for a glued truss than for a nailed or bolted truss). But with a good power nailer there is no good reason nails should lose out for attaching building paper, shingles, sheathing, and many other items.

Perhaps the most intriguing new fastener now on the market is a power-actuated tool for driving bolts to tie the frame to the foundation. We believe this would be more widely used if it could fire one or eight cartridges without reloading, even though this might increase its first cost from \$125 to \$200. It would also be more widely used if builders were made to understand how safe and foolproof it has now been made. Its purpose is not just to save time in fastening, but to end the need of setting bolts in the slab and makes the slab much easier to finish.

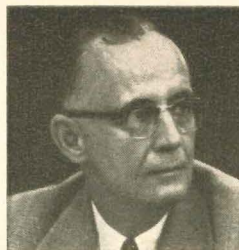




*Clarke:* Perhaps we have neglected the home building field.



*Paulski:* The builder buys to save money.



*Cross:* The investment in power tools must pay off.



*Horner:* We must show the builder a saving.



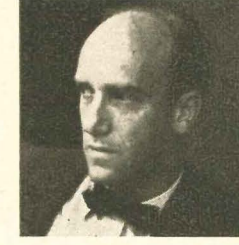
*Goldman:* If I were selling power tools I would demonstrate them on the job.



*Highland:* Architects and builders both want competent technical advice on how to save money with power tools.



*Johnson:* You will sell more tools if you get out on the site and do some cost engineering for the builder.



*Weist:* We don't pay consumer prices for anything.

## Here are five ways to encourage better use of cost-cutting tools

*The economies offered by power tools are important to the progress and prosperity of our industry that the customers among whom we would like to help the manufacturers stimulate their use. The manufacturers of tools they serve so many other industries that they often find it hard to give home building special study, and some of them have asked our advice on how to increase their sales. Here are our suggestions:*

**The most important man to sell** power tools for use at the site is the merchant builder, even though he is seldom the man who should actually buy tools (see page 9). The reason the merchant builder is so important is that he has the greatest stake in getting costs down.

**The best places to sell** more bench tools are the lumber yard, the prefabricator's factory, and the volume builder's cutting shed, for that is where more efficient and more expensive equipment can be kept on hand. The more hours the tools are used, the more profitable they become and

the better satisfied the owner. Builders of less than 50 houses can seldom keep any bench tool other than a radial saw busy enough to be profitable; builders of less than 25 houses, never.

The lumber dealer is important in every stage of mechanization. He is just about the best prospect for bench power tools. He is the logical outlet to sell portable tools to builders and subcontractors. He is providing most of the drive for mechanized material handling from mill to site.

**3. The best way to increase the sale** of power tools is to increase their use. This means educating more people who can influence power tools use on how to save money by using them. It means educating not only the carpenter, but the builder, the architect, even the lender (the prefabricator knows already). Until they understand what each tool can do to cut costs on the jobs they sponsor, design or finance, there is not much use telling them a competitive story about your tool being stronger, faster, lighter, or cheaper than some competing

tool of whose function and value they are likewise uninformed.

**4. The best way to make a sale** is to show the prospect right where he works how the tool or equipment would save him time and money. The salesman knows what his product can do, and as he watches the prospect's operation he can see and demonstrate many uses and savings the prospect cannot be expected to see for himself.

This closer contact would also help the manufacturers by giving them a much better understanding of what the builder needs and how the builder thinks. Too many manufacturers have told us frankly they sell their tools to dealers and do not know who buys them from the dealers or how they are used.

**5. Power tools need servicing.** If the manufacturers will tie servicing in with their sales, they will have less trouble with building professionals over price and discounts. Incidentally, the servicing will help them sell more buyers a second tool.



*Enote:* The foundation should be power-laid accurately.

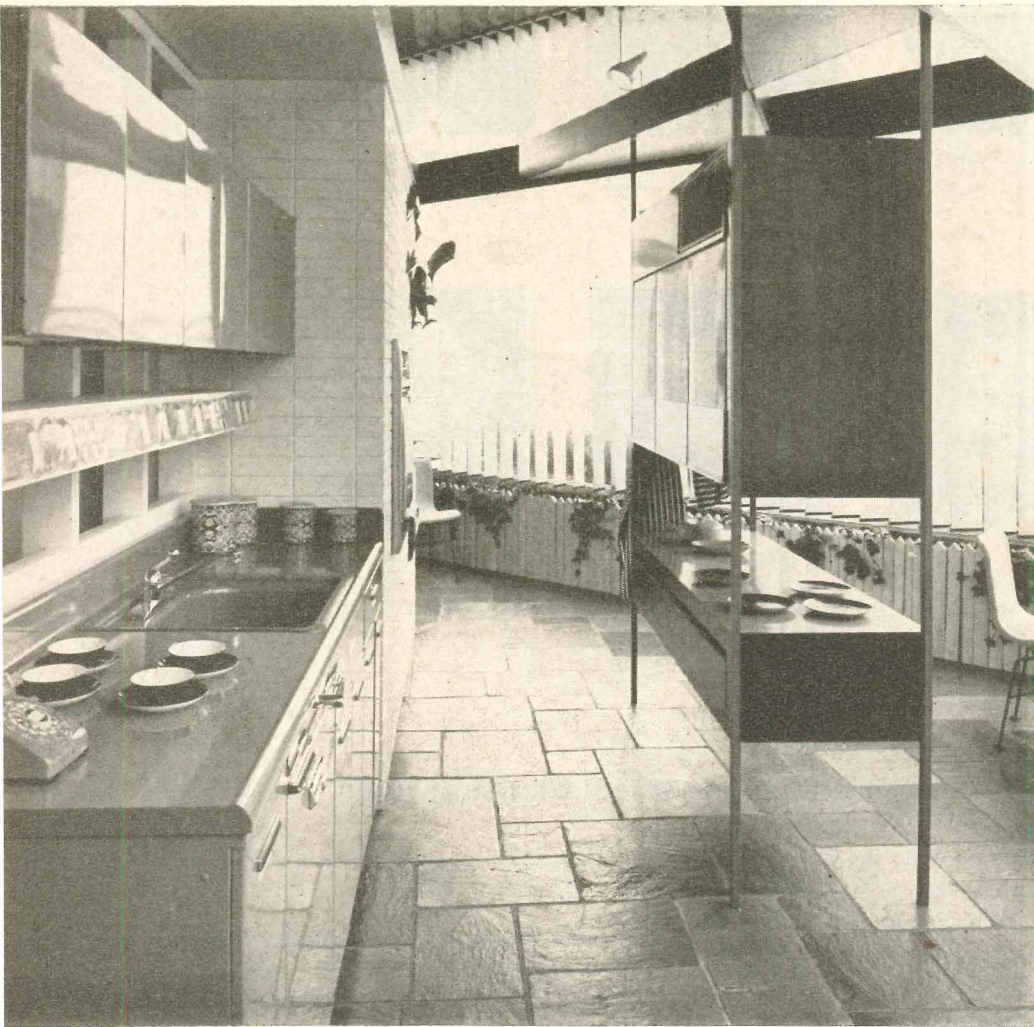


*Jay:* A ladder machine will dig foundations with square corners.



*Price:* We recommend that all our builders own a generator and

The second installment of this Round Table report will be published next month. It details the problems and opportunities of cheaper materials handling at the mill, on the railroad, at the lumber yard, on the highway, and at the site.



**Wall refrigerator**, used as a room divider to separate kitchen from eating area is a new idea. It also provides counter space with two-way shelves. Oven and burner top shown below are at far end of masonry wall seen in large photo (left). This is one of eight new GE kitchens, each having several different coordinated color schemes.



## KITCHENS GET EXCITING NEW LOOK

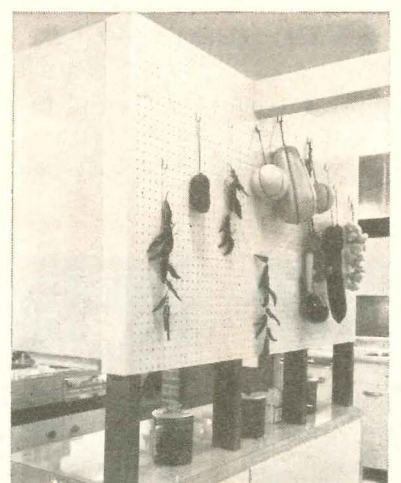
*When you redesign the kitchen of your next model house, show your buyers how they can personalize it, as the General Electric Co. has done in a series of completely decorated new kitchens shown this month to builders and dealers in Louisville, Ky.*



**Family room** kitchen has work counter, sit-down sink, copper hood.



**Refrigerator-freezer** stands free, has counter, storage, close to stove.



**Pegboard panel**, on back of refrigerator, provides place for decoration.



**Western ranch kitchen** uses two contrasting colors, woodtone brown and turquoise green in appliances and decorations that demonstrate how a builder or designer can successfully use more than one color. Designed for informal living this kitchen has stone floor, masonry wall with fireplace. Easy chairs create a pleasant effect. Merchandising ideas like these from General Electric help sell houses.



**Garden City**, 600 acres in suburban Pittsburgh, offers pattern for successful community planning

## GOOD LAND PLANNING CREATES



**Street layout** follows natural lines of terrain, saves trees

**Pittsburgh's new Garden City shows how land planning is a key to good public relations.**

With an ultimate goal of 1,500 houses, Garden City is bigger than most projects. Big, too, is the sponsoring organization, a veteran building team brought together by four brothers named Sampson and a fifth partner, Russell T. Miller.

But mere size does not make Garden City newsworthy. What does is the way Sampson-Miller cast off practices still followed by many others.

- Where many builders bulldoze their way through the terrain, spoiling natural contours and knocking off trees, *Sampson-Miller worked with nature, planned streets to follow terrain, saved trees and created a green belt around three sides of the property.*
- Where many builders let someone else worry about schools, churches, recreation areas, *Sampson-Miller made generous provision for community facilities.*



**Site plan** was dictated by desire to create an attractive background for family living, even though this cost the builder extra money and effort. No thoroughfare was allowed to cut across the property. Instead, a 60' street (with 4' paving)—shown in photo, above, and indicated by heavy line in plan, left—loops around the entire project and comes within ¼ mile of the furthest house. Other streets have T-shaped safety intersections and are paved to a width of 24'. Long blocks reduce the need for cross streets, paving and man holes, cost 8% less than gridiron scheme. Builders put in 15 miles of paved streets, 23 miles of gas lines, 30 miles of sewers, invested \$2.5 million before getting any return. Each house is sited to its own 60' to 70' lot and sells for \$12,500 to \$22,500.

Robert E. Dick



**Planning team** includes builders, architect, engineer, land planner and sales manager

## GOOD WILL AND ATTRACTS BUYERS

Where many builders pay little heed to the appearance or livability of the neighborhood, *Sampson-Miller planned for tomorrow as well as for today.*

Every builder needs the good will of local townspeople. Without it he must sledgehammer his way through opposition to his project and perhaps spend huge sums in advertising just to overcome a poor initial impression. Former NAHB president Dick Hughes says, "One of the home builder's biggest problems is that he's not wanted in most towns."

Where many builders encounter hostility from the towns they want to build in, Sampson-Miller enjoys active good will. **Differences in attitude toward land planning explains why the public welcomes one builder and shuns another.**

Sampson-Miller's formula is no product of beginner's luck. Pittsburgh's largest builder, the firm has behind it experience gained in building 5,000 houses since 1946.

How can smaller builders profit by Sampson-Miller's example? Features like Garden City's cannot be contained in a tract of 25, 50 or 100 houses. To follow this pattern, small builders would need cooperative land purchase and development. But any builder, regardless of size, can make better use of his land if he adopts Sampson-Miller's *attitude* towards planning.

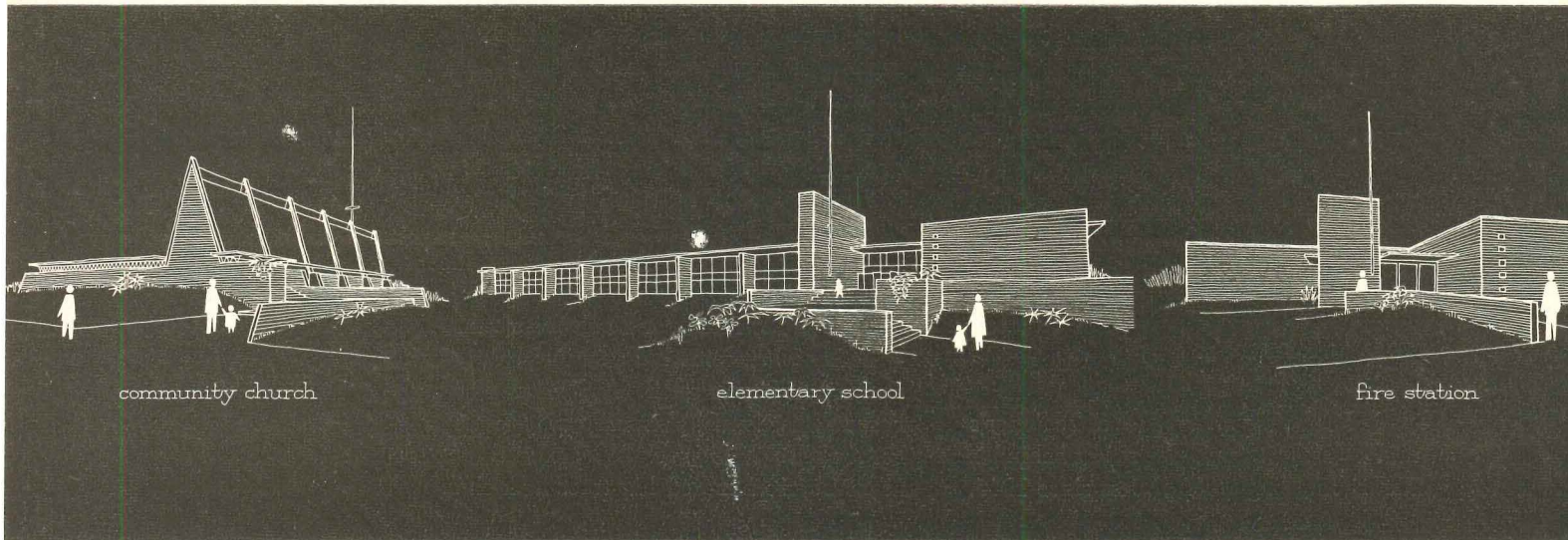
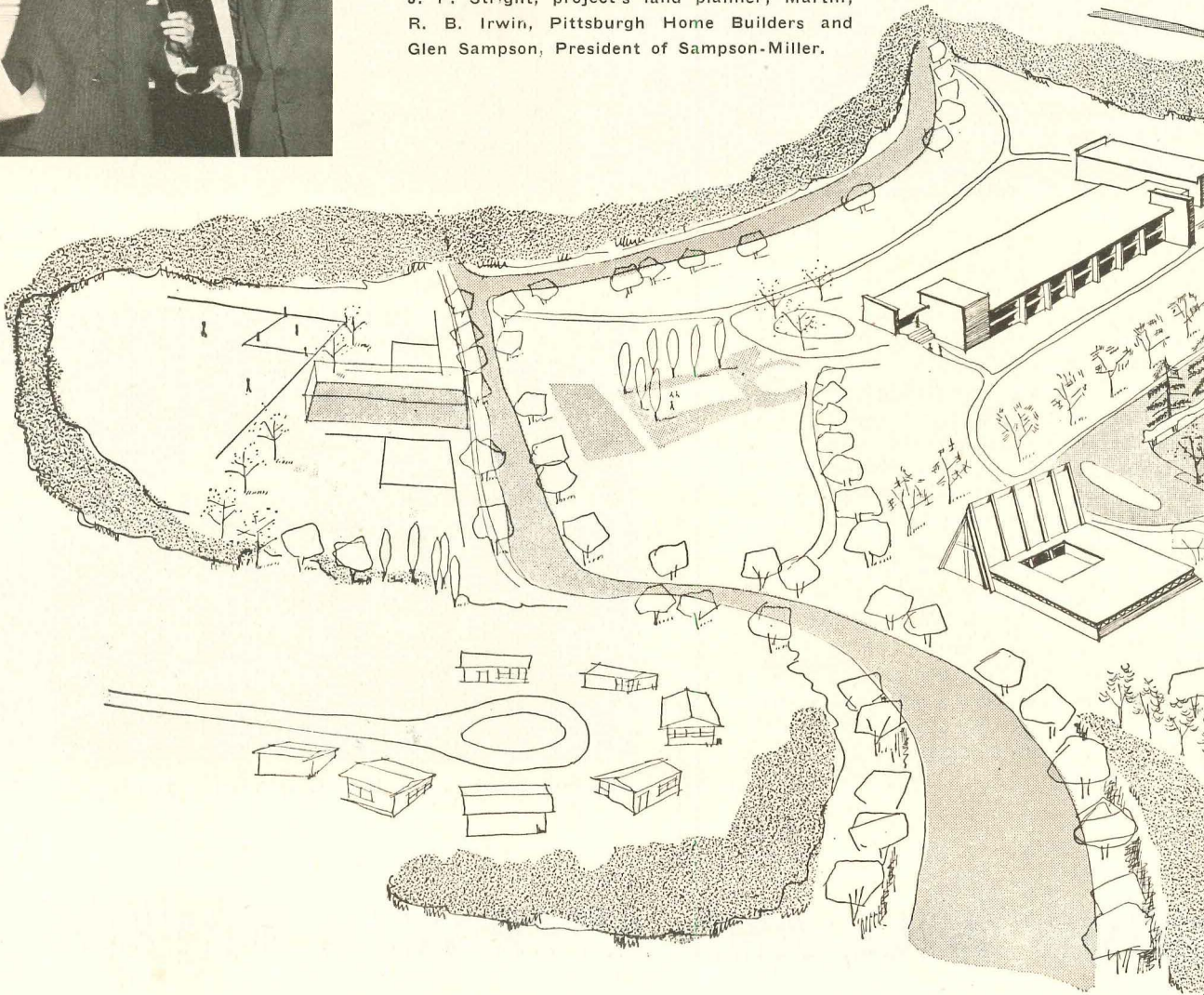
**Chief reason for Garden City's fine streets and excellent facilities is the builder's recognition of the importance of land planning and the employment of a professional planner.**

He is Jennings F. Stright, once Pittsburgh's city planner. Sampson-Miller's planning costs for Garden City were \$20 more per lot than for earlier projects.

Today when some builders find sales slow, business at Garden City is good. And when money is hard to borrow, Garden City's mortgages are being bought by Pittsburgh's Mellon National Bank, a lender which never before handled big tract financing.



**Motion picture film**, being examined by Park Martin, President of American Society of Planning Officials, tells story of Garden City's planning. Picture shows entire project in scale model, with close-ups of community features. Film, presented to more than 50 civic groups, helped builder win local cooperation by showing character of new community and telling how Sampson-Miller would assist on schools, water and sewers. In picture, left to right are: F. B. Wimer, Pittsburgh Home Builders President; J. F. Stright, project's land planner; Martin; R. B. Irwin, Pittsburgh Home Builders and Glen Sampson, President of Sampson-Miller.

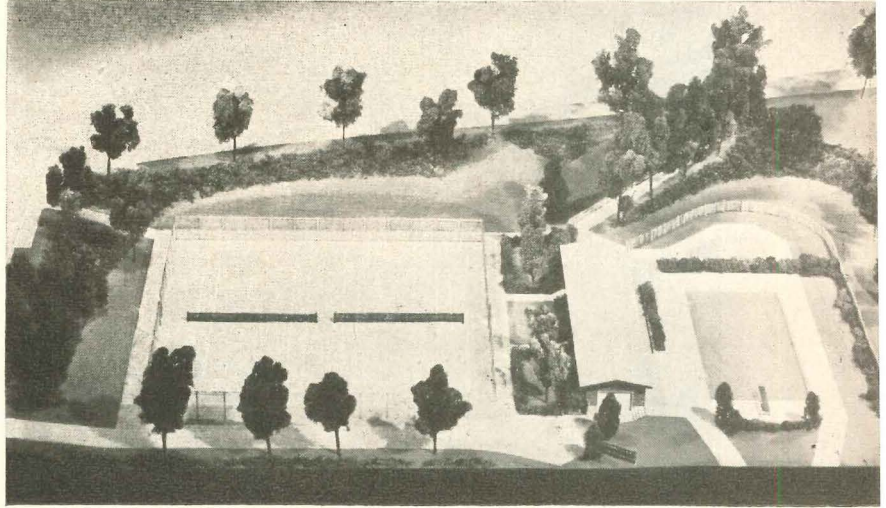


community church

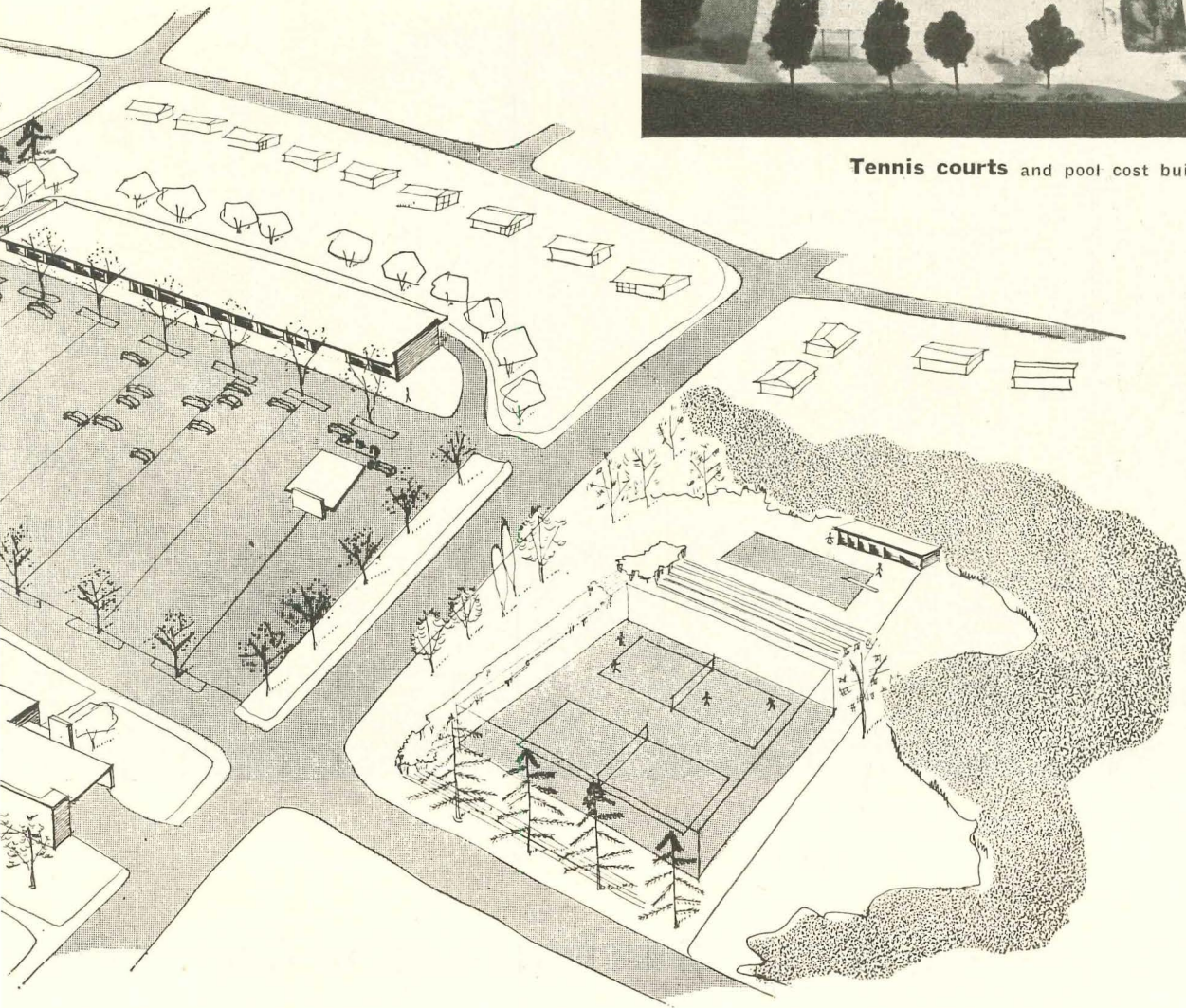
elementary school

fire station

Arthur A. Preston



Tennis courts and pool cost builders \$75,000



## Civic center is Garden City's great drawing card

This well-planned community center is the heart of Garden City and its greatest single attraction.

Center includes an elementary school, community building, church, fire station, medical office building, shopping center, swimming pool, tennis courts and other recreation areas, plus facilities for parking. A second school and more playgrounds will be added later.

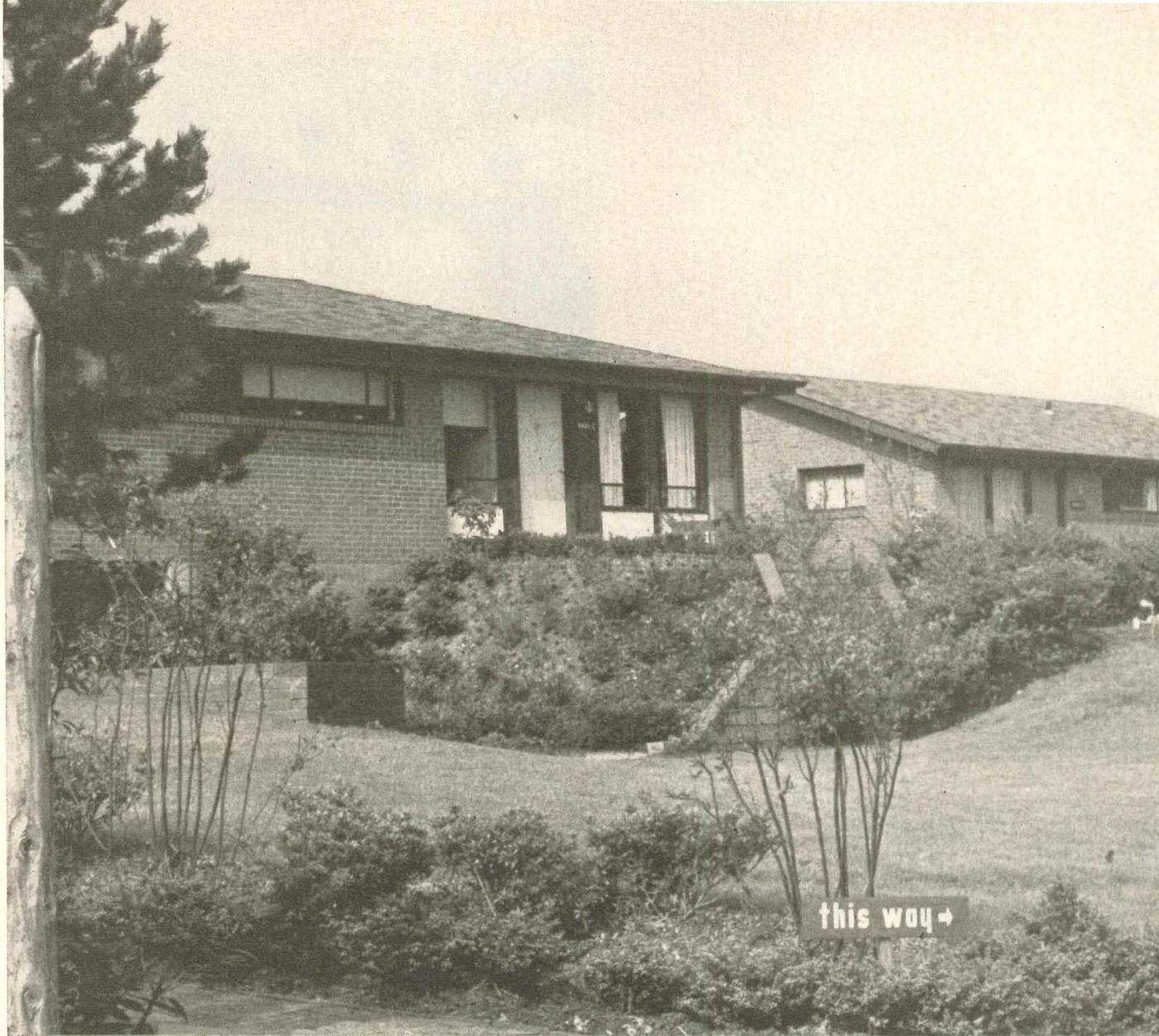
Woods and sloping ground separate the center from houses. No school bus is needed because every house is within walking distance of a school. Plan gives children direct access to school and playgrounds without entering shopping center-area. Trucks going to the stores pass no homes.

son-Miller is contributing the land for community church, is spending \$75,000 for a swimming pool and tennis courts, and is providing other recreation areas at its own expense.

Neighborhood shopping center is a 50,000 sq. ft. building which Sampson-Miller will sell outright to its tenants. In planning for stores at Garden City no attempt was made to create competition to huge shopping center southeast of the property.

Other community facilities donated to the town by the builder are: a \$250,000 sewage plant, \$600,000 worth of sewer lines and \$255,000 worth of storm sewers.

Because the local water supply was inadequate, Sampson Miller agreed to buy water from a new water



**Sales models** benefit from painstaking attention: strategic placement, handsome landscaping and an effective backdrop of fencing

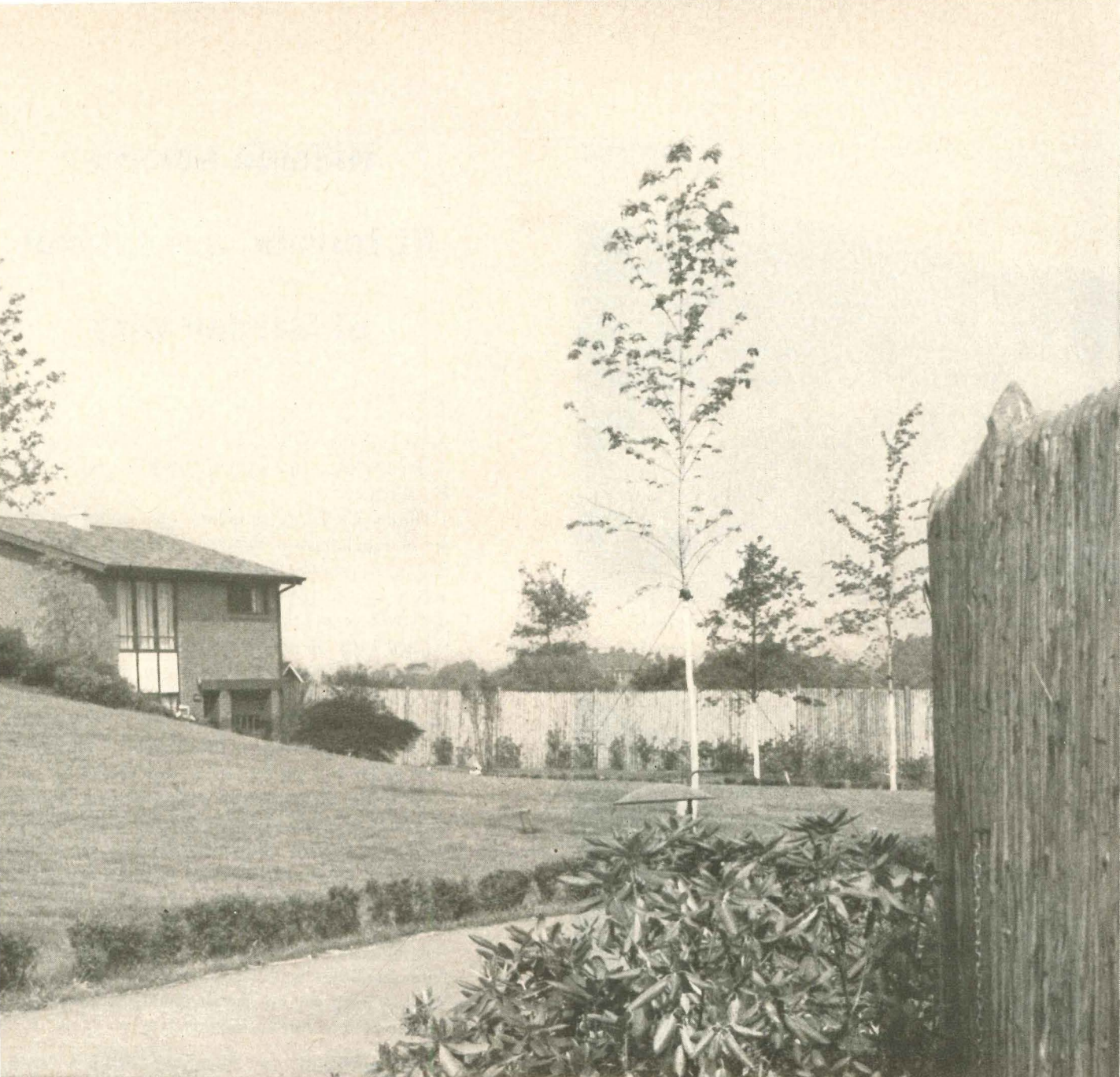


**Sales office** (above) is located to the immediate left of model houses shown in center spread. An important part of Sampson-Miller's merchandising plan, sales office looks substantial and professional, lends dignity to the sales force. Formerly, when sales offices were in basement of model house business was concentrated in week-end period. Now, buyers come in every day and salesmen can make better use of their time. Right: one of main entrances to the Garden City property.

## Merchandising at Garden City







## on a par with excellence of builder's planning

To sell Garden City's houses, Sampson-Miller leaves nothing to chance.

**Model houses dominate a hillside where they can be seen from main highway. They are expertly landscaped and flood-lighted at night. Display is supported by handsome sales office.**

Garden City's sales headquarters is located off the main property but just across the street from it and right next door to a large and much-visited suburban shopping center. As great care was taken in furnishing the models (see next page) as in making the exteriors attractive.

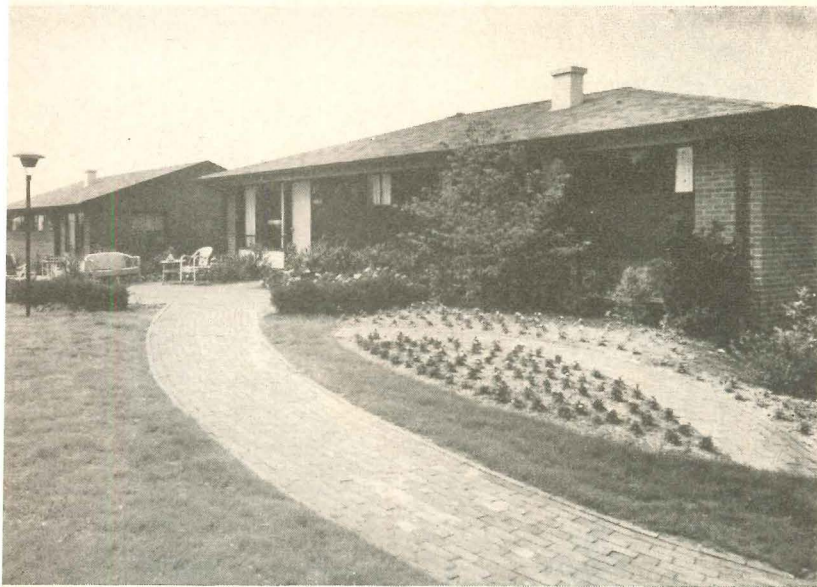
Models were designed to feature ideas which Pittsburgh buyers favor. Brick construction has strong appeal in this area where smoke used to be a hazard for painted wood siding. Garden City's models also show

Customer research reveals that the development's No. 1 appeal to home buyers is its over-all community character. So the sales office is used to display a scale model of the neighborhood center, sketches of swimming pool and community buildings.

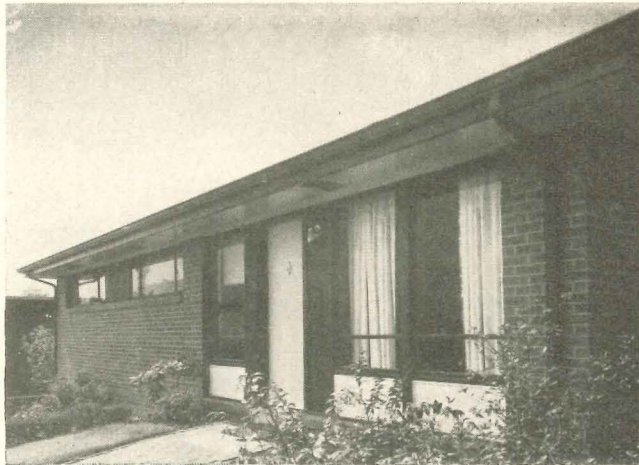
About 300 houses have been sold since late last spring and sales continue well ahead of construction. The firm figures selling costs for 1956 will be lowest in its history because "nearly everyone in Pittsburgh now knows what Garden City has to offer."

**But merchandising does not stop with the sale. Sampson-Miller works to keep the buyer sold.**

A home planning director calls on new families, offers free advice on colors and furnishings. An inspector makes a moving-day check, calls back 30 days later and again in six months. Interest taken in buyers



**Landscaped models** give buyers do-it-yourself ideas



**Second best seller** is \$15,800, has three bedrooms

## Hillside houses fit terrain, are typical of Garden City

Because there is almost no level land in Pittsburgh, both builders and the public have learned to like hillside houses.

Unlike California builders who carve flat lots out of rough terrain, Sampson-Miller makes a partial excavation to get a lower floor. House buyers argue strongly over the merits of the high side of the street versus the low side, but fortunately for Garden City, the public seems evenly divided.

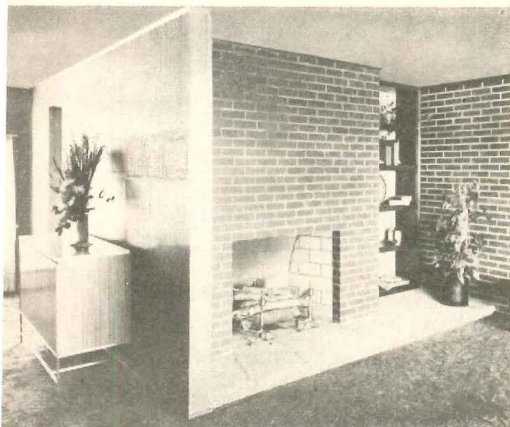
The house shown at right is on the high side, has its garage entrance at front. But this same house is also built on the low side of street with a driveway extending to rear garage. This gives the builder two variations for each model.

Architect Richard Benn designed these Garden City houses as improved versions of earlier Sampson-Miller models. Interior plans are more nearly open than they used to be and wood paneling and interior brick walls are popular. Other sales features include: termite capped foundation, full insulation, truss roofs, copper plumbing, hardwood floors, steel casement windows, sliding closet doors, 220 v. wiring, ample electrical outlets and exhaust fans in bath as well as kitchen.

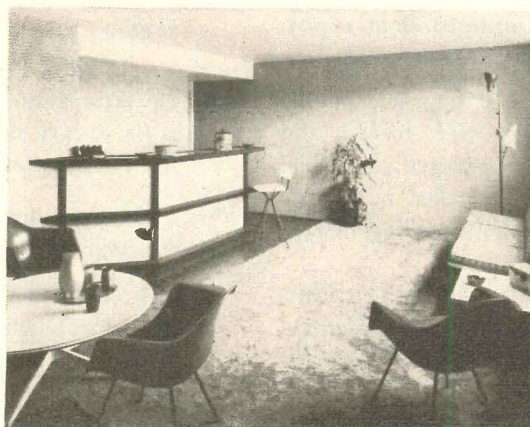
**In addition to Sampson-Miller's own models, other builders will put up several groups of custom-designed houses in Garden City to sell at prices from \$20,000 to \$30,000.**

Sampson-Miller has also set aside 20 acres near the Civic Center which may be used for row houses if the market seems suitable later this year. The firm would like to include rental units to help diversify the population. But with prices from \$12,500 to \$30,000, Garden City already gets more variation than most developments.

Fireplace, brick walls are buyer favorites

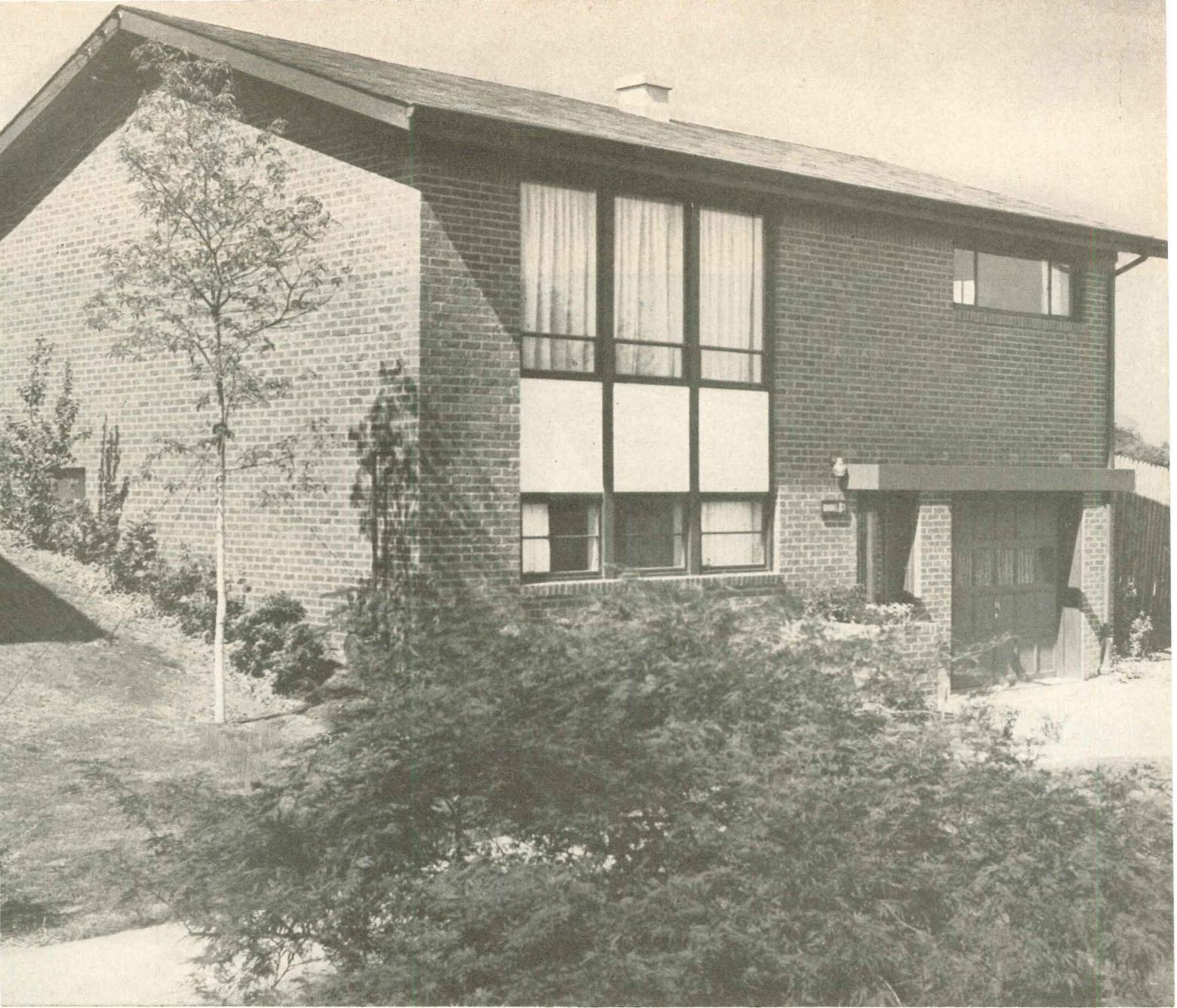


Recreation room is popular option



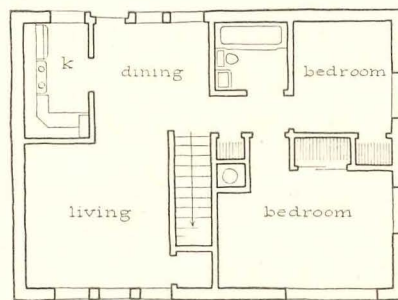
Wood paneling is well liked





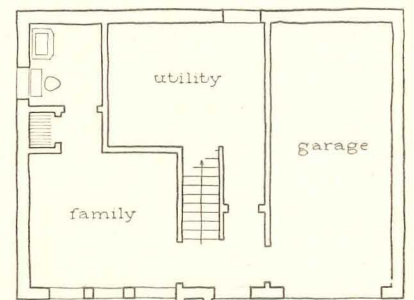
**All-brick house** with panelized windows is Garden City leader

**Best seller** at Garden City is hillside house (above) which sells for \$13,990 with lower floor finished. It features a family room (or third bedroom) and a half bathroom, plus garage and utility room. It is 33'4" x 27'0". House costs \$625 less with lower floor unfinished, but few buy it that way. A larger version 38' x 27', has three bedrooms upstairs, large family purpose room and powder room below, plus car garage. It sells for \$22,500 /END



upper level

0 5 10 15ft



lower level

Dining ell adds space to living room



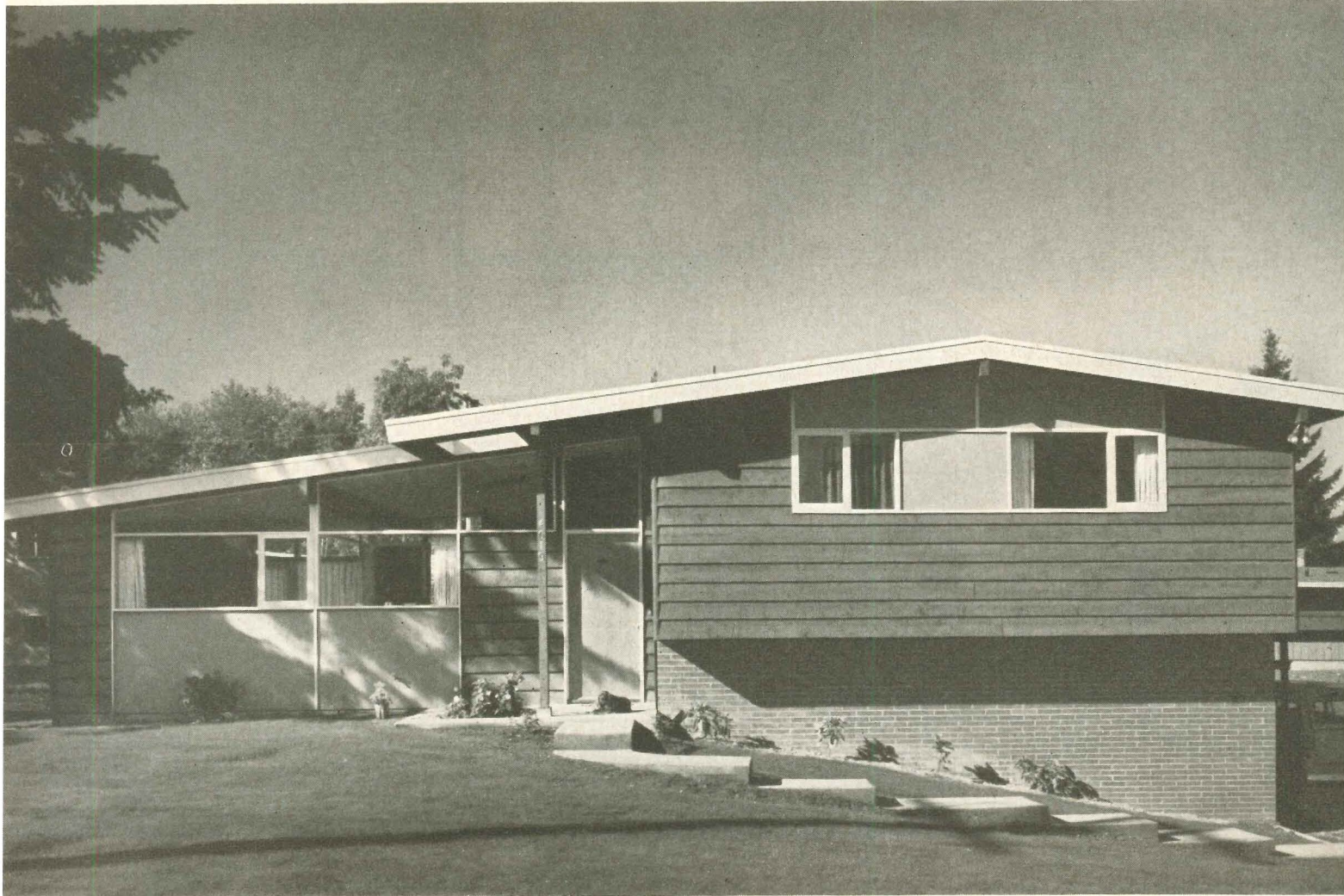
Sliding glass cabinet doors are attraction



Photos: Marc Neuhoj;

# 6 MORE WAYS

These six suggestions were prepared in collaboration with James T. Lendrum, AIA Director, Small Homes Council



**Built-up member** for window frame effects substantial savings where large glass areas are used

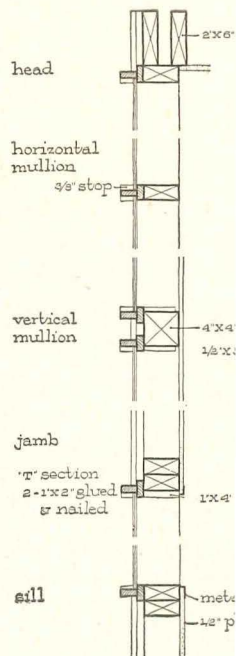
## 50 Built-up member simplifies window frame

Use of large areas of fixed glass, especially in gable-end windows and other locations where unusual sizes or shapes are required, complicates the problem of getting adequate window frames and increases their cost.

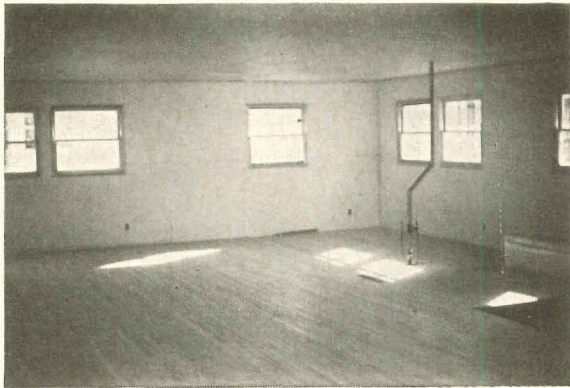
To meet this problem Architect Seth M. Fulcher of Seattle, Wash., has developed, for builder E. B. Vaughters, a built-up member which can be used in a great variety of locations. The built-up member is basically a T-shaped section made up of two 1" x 2" members glued and nailed. Waterproof glue, of course, is used throughout. The built-up member is cheaper than the same size piece cut from a solid, and Vaughters reports he gets better finish and better quality lumber than

he would if the section were milled. The special section is used either as a jamb or a head section and with slight modification it can also be used as a sill. Vaughters reports:

"It coordinates with the framing, is flexible, and works with all types of sizes and openings. It is watertight, looks well, and even in our competitive market we use it in homes of all price ranges. It is the best we've seen yet from a cost standpoint, but it would be rather difficult to say just how much we save per house with this member. Perhaps it would be safer to say we couldn't build this house unless we had a flexible, economical, window detail like this."



# TO BUILD BETTER FOR LESS



**One-room technique** adaptation eliminates wall step

## 51 Modified

### “one-room” system

John Blanchon of Olathe, Kan. has modified the one-room technique for home building (No. 44 of “Ways to Build Better for Less,” H&H, Aug. '55) to achieve additional savings in cost.

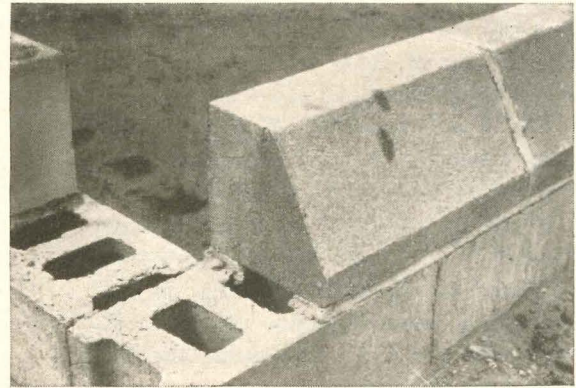
Blanchon points out that the standard one-room technique frequently requires: 1) additional FHA inspections to check the outside wall framing before dry-wall is applied and before the regular inspection of framing on interior partitions; 2) an extra trip for the electrician to rough in wiring on interior partitions.

Blanchon reports he avoids these delays this way: “I can make the greatest savings by installing the dry-wall over the entire ceiling and laying oak floor over the entire floor area of the house.”

Under the Blanchon system, the dry-wall is installed on the ceiling, the finish floor is installed next, then all interior partitions put in place. The result: one FHA inspection instead of two; the electrician can rough in the entire house at one time.

Blanchon believes the cost of an extra inspection about equals any loss he might have from not installing dry-wall over all of the exterior walls before setting partitions. The net savings, therefore, are in avoiding: 1) the loss of time which results from waiting for an inspection and 2) the electrician's extra work.

Although Builder Blanchon has not tried it, it is quite possible to plaster the entire ceiling, then install the floor and partitions. This additional modification would be helpful in areas where it is difficult to get a good dry-wall taping job, particularly on ceilings, or when a “shell house” is being built.



**Concrete slab** foundation detail saves form cost

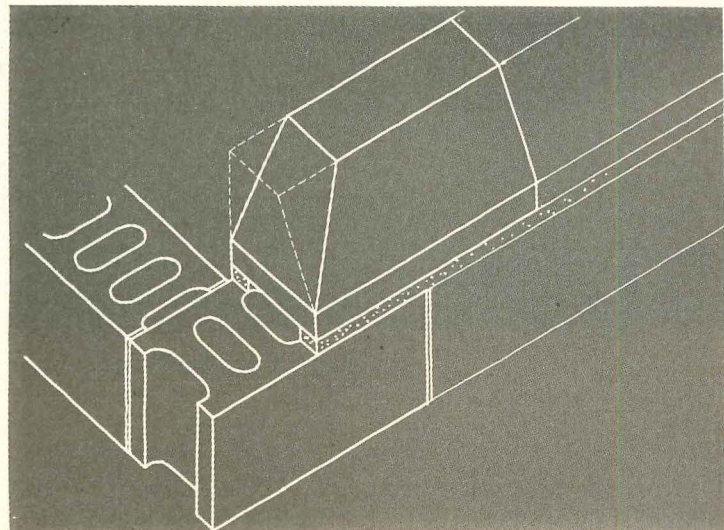
## 52 Special concrete block

### simplifies foundation

Jerry Henry of Frank J. Henry Inc., Wisconsin Rapids, Wis., uses a special concrete block as a cap to his concrete masonry rim wall foundation. He reports: “In 1952 we used a special foundation block very similar to one of the details suggested in the BRAB report to FHA (H&H, Sept. '55). The block makes it easy to install insulation, by doing away with the awkward spot on the interior where the insulation is exposed and, of course, it eliminates the necessity for pouring a cap block in place.

A local plant made our blocks for us, and they cost only a few cents more than regular ones. At the exterior corners, we cut the block with a saw (see drawing), and on interior corners we coped the blocks. Finish job is neat, savings over a poured-in-place beam are about 25¢ to 30¢ per ft.”

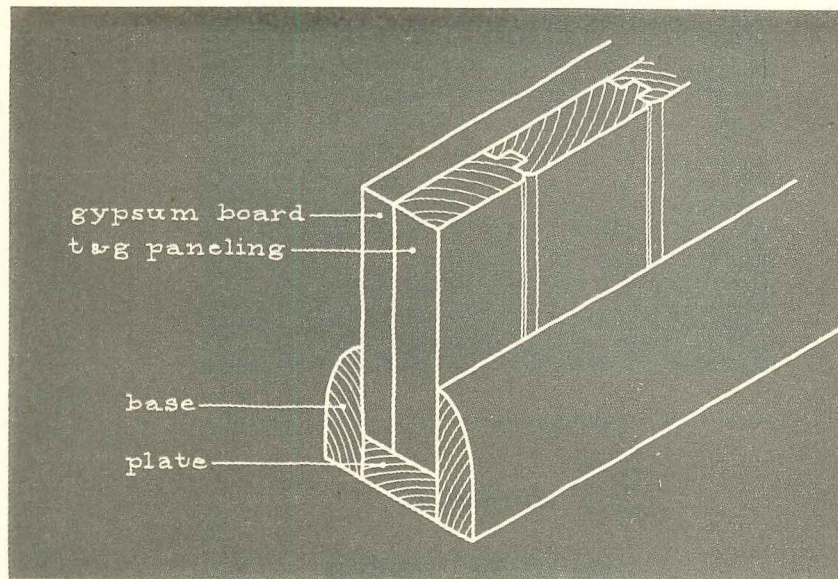
**Saw trims concrete** block at exterior corners



You can use a studless wall with an overall thickness of about  $1\frac{1}{4}$ " for partitions, like those between adjacent bedrooms.

The combination is  $\frac{1}{2}$ " gypsum dry-wall, together with  $\frac{3}{4}$ " T & G wood paneling installed vertically. The wall effects a saving in space of  $3\frac{5}{8}$ " and eliminates the cost of the studs. The wallboard may be nailed to the wood paneling, or you can use an adhesive. Using adhesive will help reduce cost by simplifying the job of spotting nailheads.

A series of tests of this type of wall were made as part of a Small Homes Council project carried out by William H. Kapple and Walter H. Lewis and it proved to be entirely satisfactory for impact as well as uniform load. Sound transmission qualities are not better but not much worse than for an ordinary stud partition. Thin-wall studless panels are engineered for the purpose they serve—enclosure walls rather than load-bearing.



Thin, studless wall is a practical interior partition

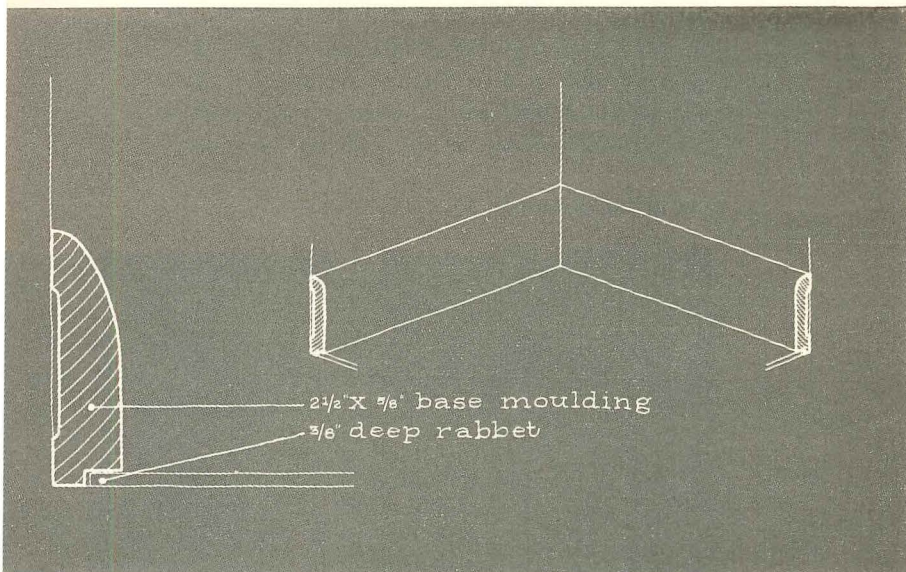
### Base detail

#### saves carpenters a trip

"A slight change in the profile of a base eliminates the need for a return trip by the carpenters," says Lanford Keith of Roswell, N. M.

When asphalt tile is the finish flooring a common procedure is to have the carpenters fit the base, but not install it until after the asphalt tile has been laid. This means a return trip for the carpenters and often, additional painting as well. By cutting a rabbet in the bottom of the one-piece base as shown in the drawing, the base can be installed along with the rest of the trim.

The floor layers slip the tile under the base and get a better job than they would if they attempted to scribe the tile to an already installed mold. Both the carpenters and the floor layers like the detail, and Keith reports the savings on eliminating return trip for the carpenters runs at least \$10 to \$15 a house, depending on the size of the structure.



Rabbet on baseboard accommodates finish flooring

## Rack simplifies handling trusses and gable ends

Material handling amounts to a surprisingly high percentage of the total cost of construction. Some builders at H&H's Round Table estimated it runs from 25 to 40% of the sales price of a house.

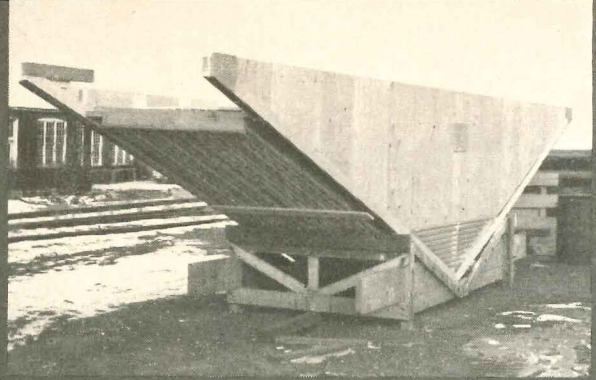
To reduce some of this expense, David Squires, manager and material handling expert of Thompson Lumber Co., Champaign, Ill., has developed a very simple rack or cradle which he uses in the delivery of roof trusses and gable ends to a project being built by Dean Evans, of Champaign.

When the truss is finished in the jig, it is set directly into the cradle and never handled again by manpower until it is ready to be lifted onto the side walls of the house. The rack, with two gable ends and enough trusses for one house, is loaded onto a dump truck with a fork lift. At the site, the complete package is dumped and is ready for the erection crew. Occasionally, a regular roller bed lumber truck is used and the operation is satisfactory with either type equipment.

The rack supports the trusses in the proper position—they are weakest when turned horizontally or flat and the joints could be damaged by rough handling. It also holds the gable ends so they may be primed by the painter at the job before they are set in place on the walls.

The trusses and gable ends are not strapped to the cradle. The only fastening is a simple scrap of wood laid across the top and attached to the gable ends.

Dave Squires reports they have not determined the actual dollar savings that result from use of the rack, but there are five ways in which they save: 1) storage at the yard where the trusses are fabricated; 2) truck loading at the yard; 3) truck unloading at the site; 4) painting and storage at the site; 5) simplified handling by the erection crew.



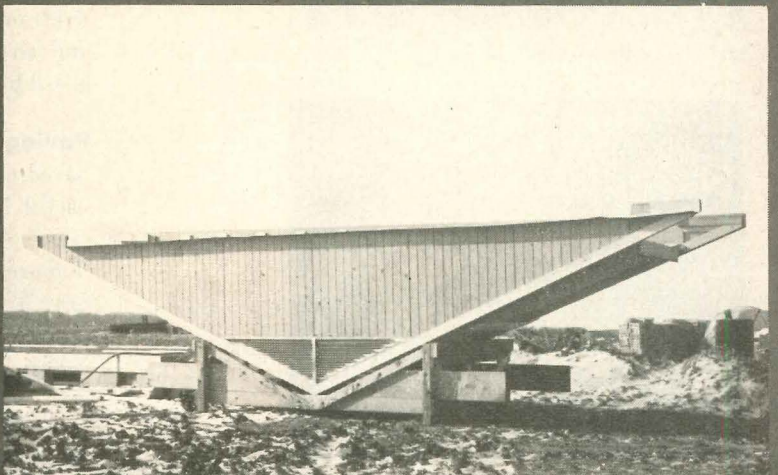
Trusses and gable ends are set directly in cradle



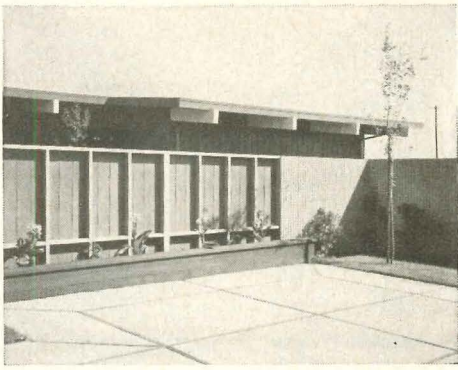
Fork lift loads truck that delivers entire package



Trusses and ends are held securely for priming

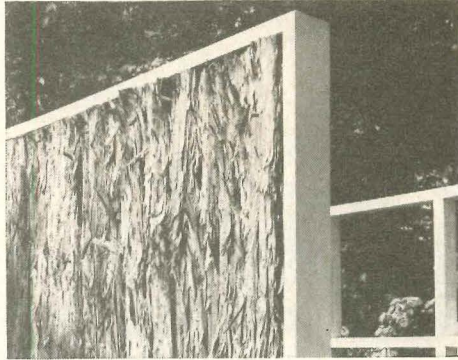


## Fences

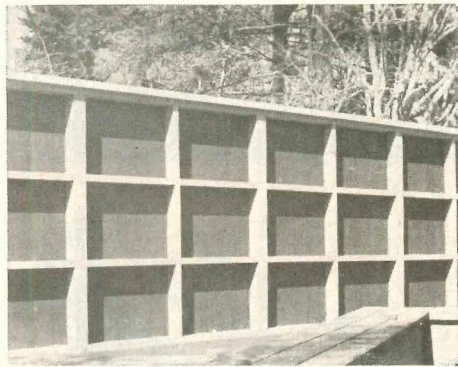


Russell Iltig

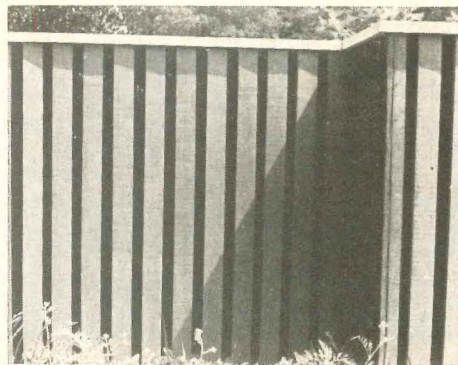
Modern panels divide lots



Redwood bark makes textured design



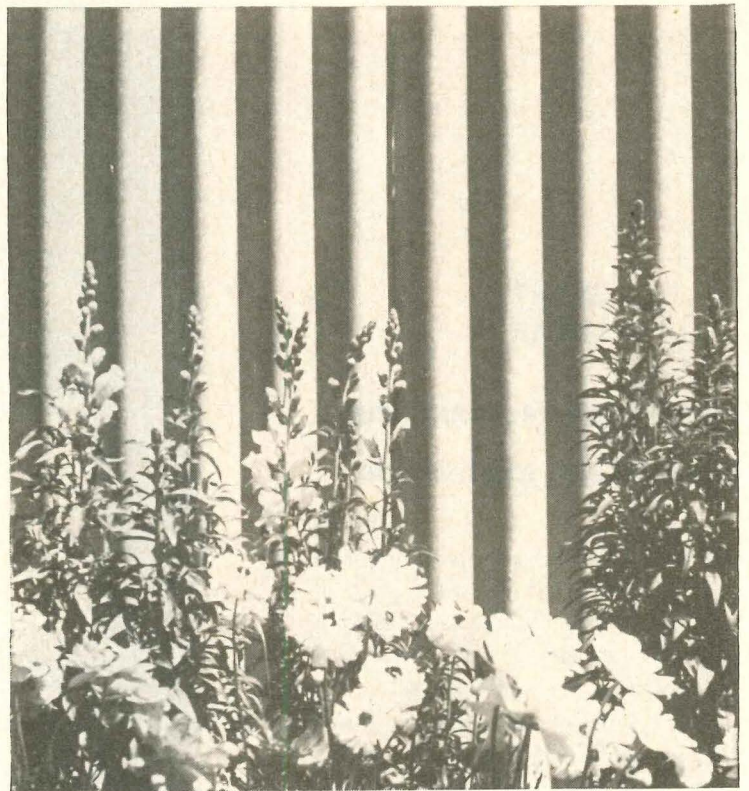
Shadow heightens egg-crate pattern



Battens, paint create open feeling



Wood panes set off garden effects



Corrugated asbestos has elements of good fence: texture, shadow, concealment

New ways to

# HELP THE LOT SELL THE HOUSE

**I**ngenious landscaping can save you money while it helps sell houses. Ideas shown here, the work of Thomas D. Church, exemplify resourceful lot treatment that is high in buyer appeal.

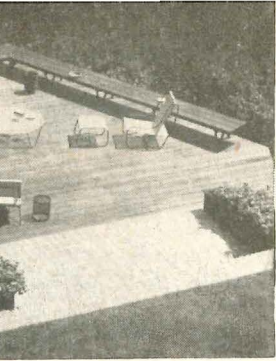
**Fences:** an imaginatively-designed fence which gives privacy while it creates outdoor "rooms" can sell a small lot. Wire and wood are cheap, but you need to mix style with your 2 x 4s.

**Decks:** before you order fill or a bulldozer to push land around, try sidestepping a grading problem with a wooden deck that extends out from the house over the slope and gives the buyer a view and an easy-to-maintain terrace. Use a deck, too, when it's not possible to get level space by filling or by retaining walls.

**Paving:** a few extra yards of concrete will provide generous paved areas. This paving may cost far less than grass sod, is more useful because it serves as terrace area, is easier to care for than grass. Adding color, texture and pattern to the concrete will make it more attractive. Earth colors like buff, tan, brown and warm gray are safest. You can get texture variations by brooming the surface or exposing the aggregate. Wood, brick, tile or mosaic pebbles add pattern, act as expansion joints.

These practical ideas are from *Gardens are for People*, a book by famed landscape architect Thomas D. Church (published by Reinhold Publishing Co., \$10).





## Decks

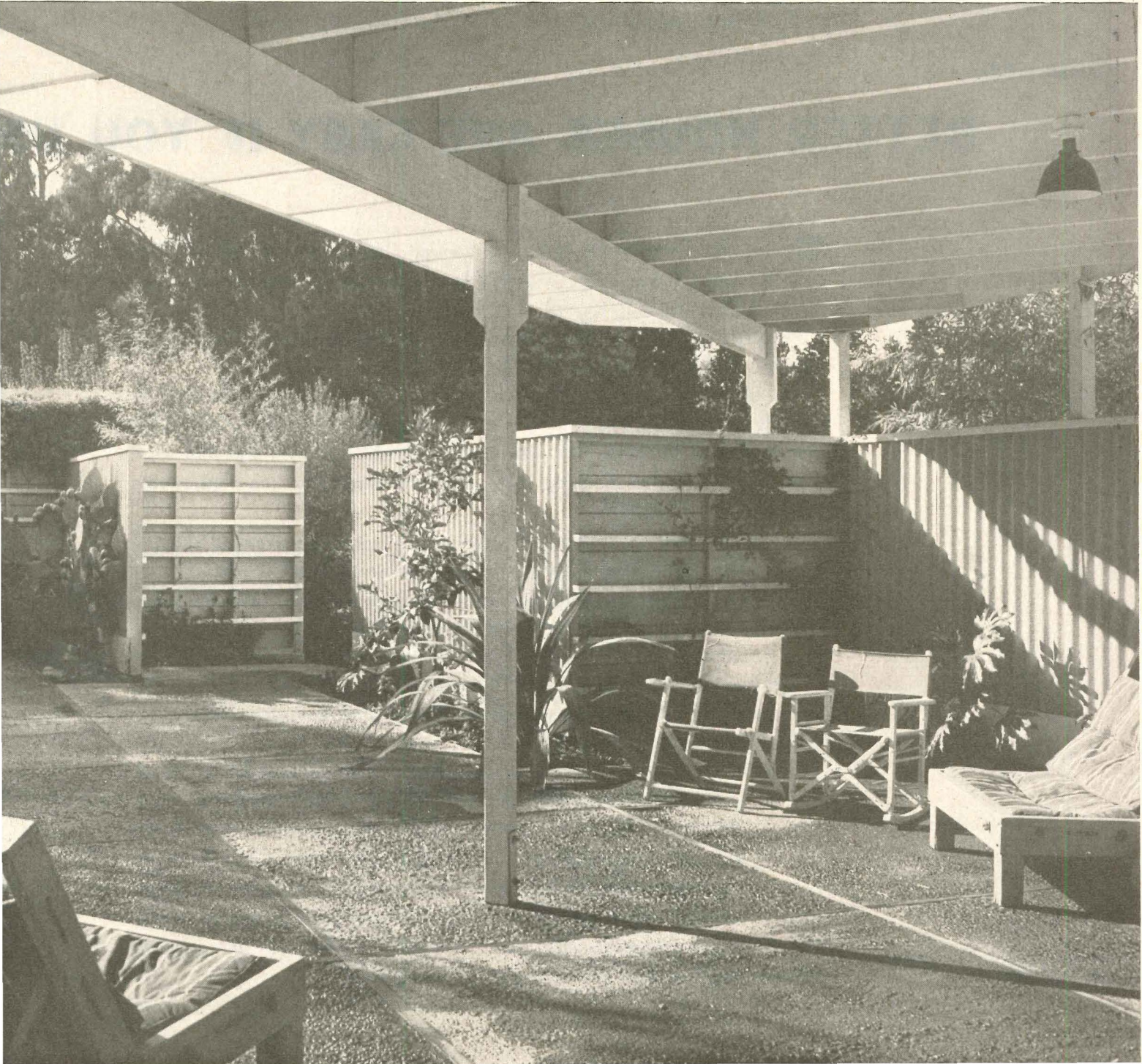
Broad decks capture view, solve slope problems

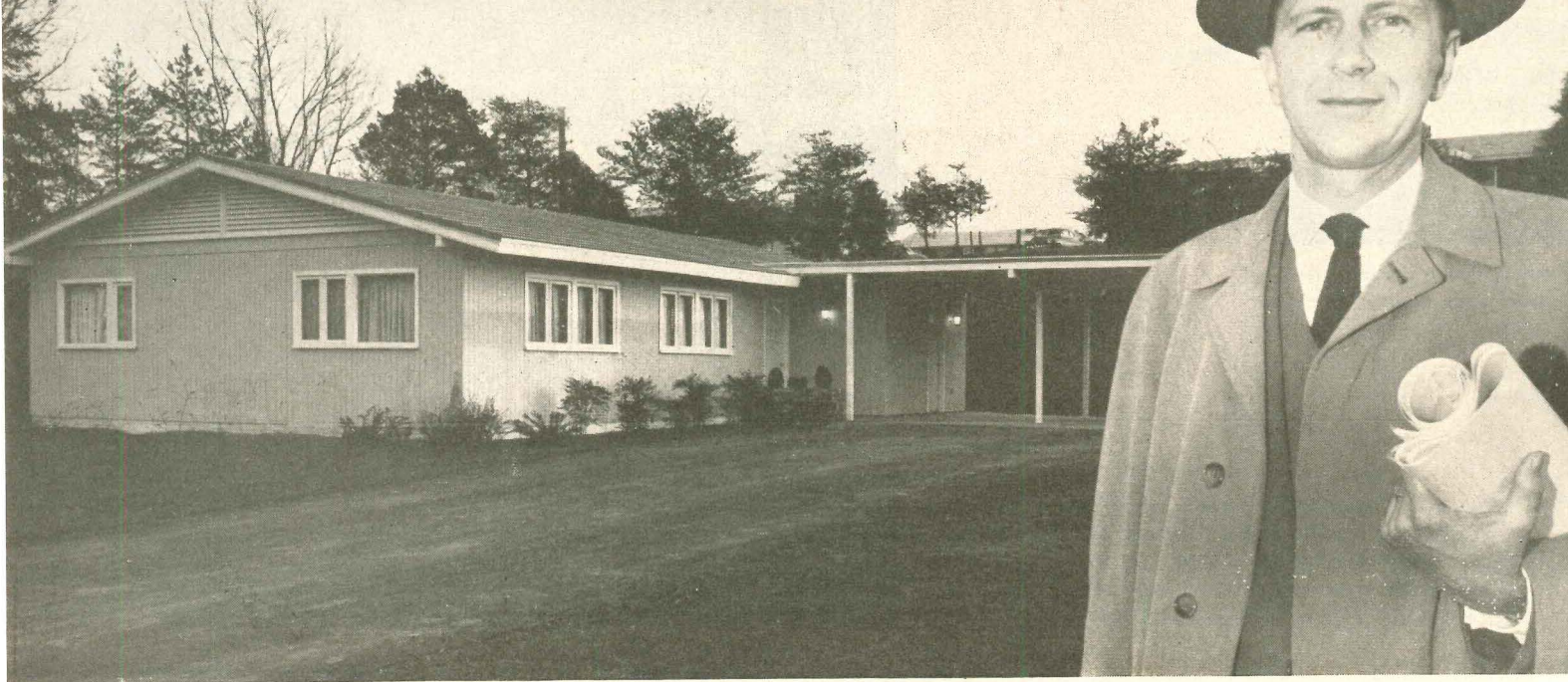


## Paving

Paving and fence create outdoor rooms, help owner use every inch of his lot. Right: perimeter is varied to prevent "boxed-in" feeling. Below: squares of redwood 2 x 4 headers separate broomed aggregate paving, give it decorative interest of an interior "floor."

*Philip Fein*





**Martin Bartling** and his newest, nearest all-component house (see pp. 166-167 for interior views and floor plan)

Small builder says:

## BETTER HOUSES ARE EASY IF YOU USE

**M**y first panelized houses went up smoother, faster and sold quicker than any other house I ever built," reports Martin Bartling of Knoxville, a small-volume builder since 1945.

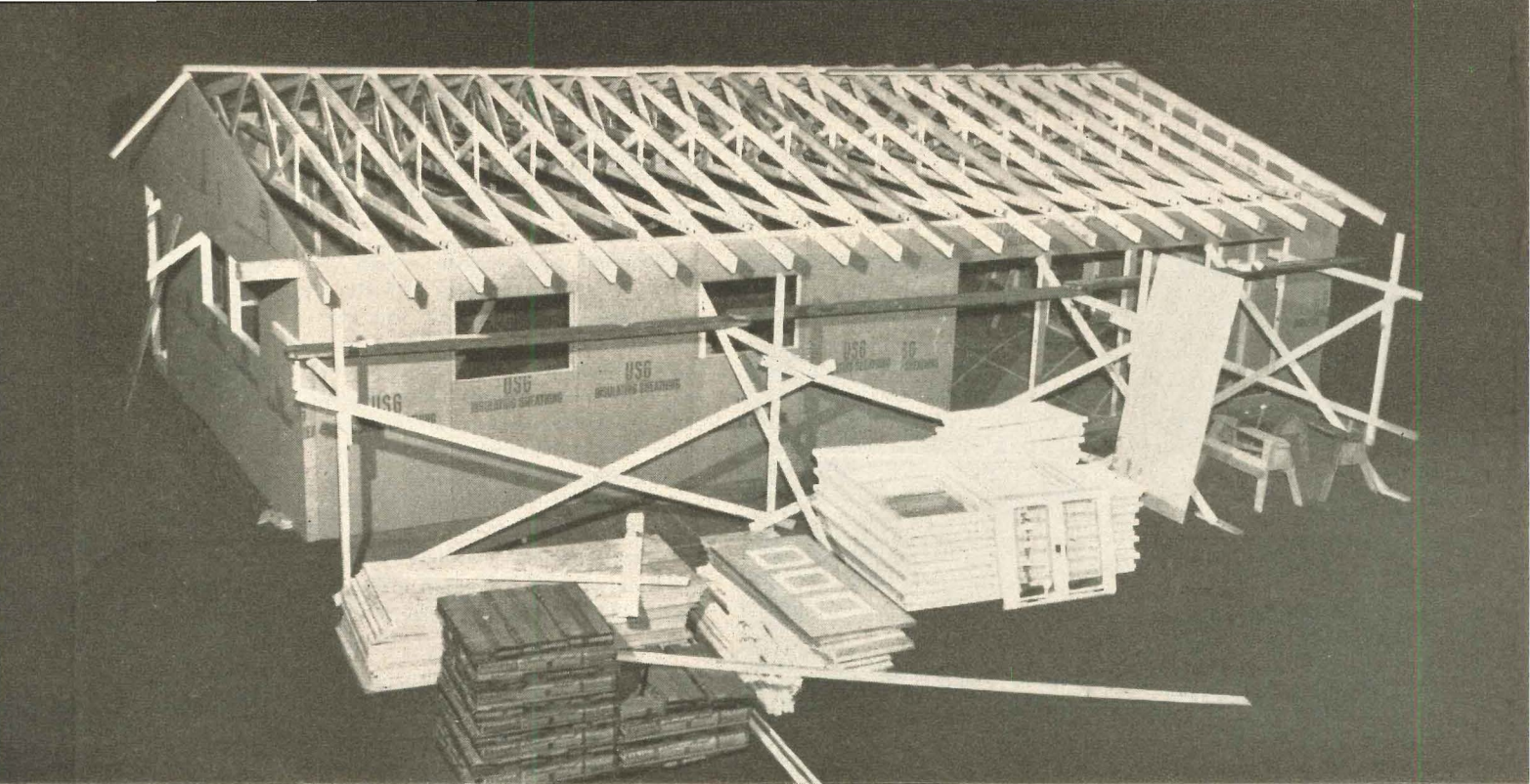
**Bartling's newest model, shown behind him in photo above, is an almost completely component-built house.**

It is put together from bigger parts and fewer pieces than were used in any other of the 12,000 component-houses erected by builders since the Lumber Research Council first introduced its Lu-Re-Co panel and roof truss system in 1954. For Bartling does not limit himself to the components Lu-Re-Co makes available:

- He has adopted an integral decking-insulating-roofing material that requires only a tenth as many pieces as used in conventional roofing.
- His local lumber yard supplies him with preassembled gable ends and window walls made up of stock windows in tandem.
- He has developed a new interior partitioning system that makes walls and storage facilities out of flush panel doors combined with metal splines. (His Components Inc. of Knoxville will put the spine-panels and other components on the market early this year.)

A former chairman of NAHB's famed Trade Secrets Committee and now a trustee of the NAHB Research Institute, Bartling is no stranger to better building techniques. Says he: "Building with bigger and fewer parts is the most logical and economical way to simplify the entire home building operation: architects can provide more economical small-house design by selecting standardized parts from a catalogue; FHA can use basic parts as a pricing tool to determine valuations; builders can rearrange the parts to suit their local markets and their own individuality."

*Photos: (top opp.) Geo. A. Padginton;  
(bot. r.) courtesy L. A. Darling Co.;  
(others) Paul Fogarty Studio*

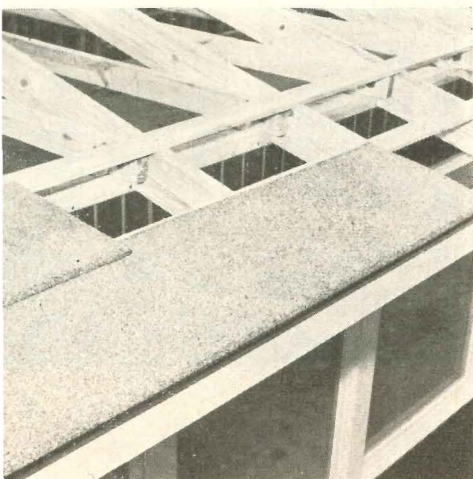


**Lu-Re-Co panels** (\$7.10 each), roof trusses (\$14.20 each), form major structure of Bartling's house

## BIGGER AND FEWER PARTS



**Gable end** (\$45) is built in lumber yard



**Shingle deck** costs \$31 per square in place

For years builders have dreamed about building from components like these.

The ideal: to be able to select such parts from a building "catalogue" and put them together in a variety of ways to produce many kinds of houses.

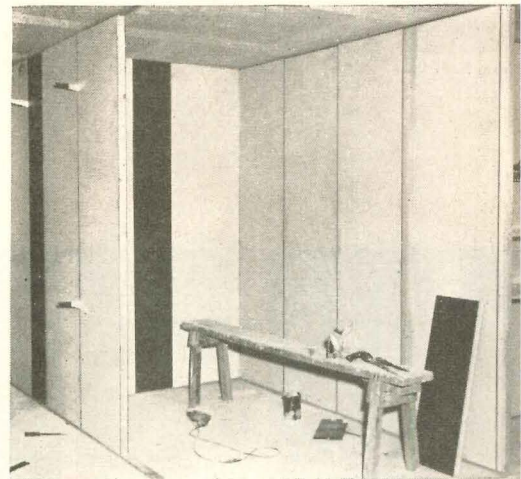
**The biggest obstacle: standard dimensions to enable these parts to fit together on site easily and accurately.**

Lack of dimensionally standardized parts (e.g.: windows sized to stud spacing) has retarded the component approach to building. But in the last two years great progress has been made:

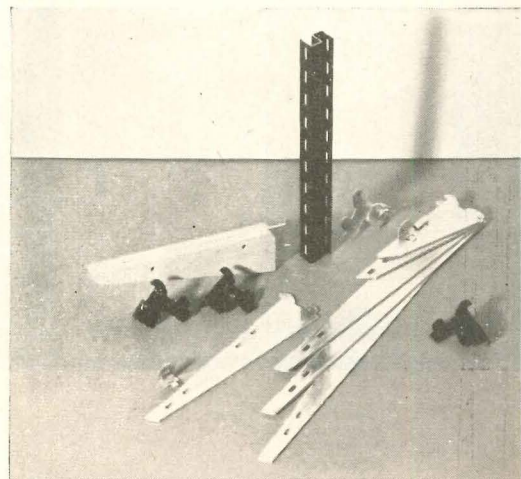
- The Lumber Dealers Research Council has promoted preassembly of modular 4' x 8' wall panels.
- Window manufacturers have created new window sizes to fit the panels.
- FHA approved 2' o.c. stud spacing that makes 2' o.c. truss roof framing practical and economical.

Meanwhile, dimensionally standard sheet materials virtually made the 8' ceiling height universal and gable ends and window walls became increasingly available.

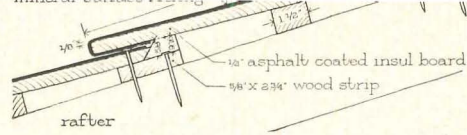
Now Bartling's new interior partition system, based on 2'-wide flush wood panels, fits into the standard scheme.



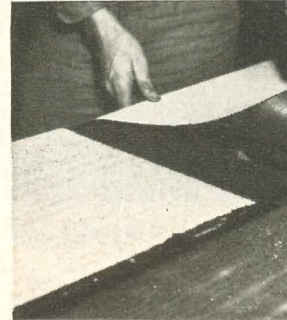
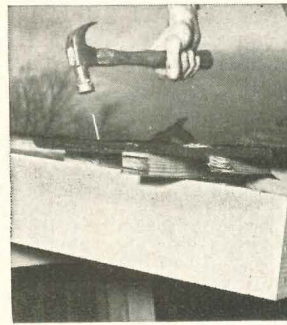
**Flush panel** partitions cost 45¢ per sq. ft.



**Splines** for hardware cost 25¢ per lin. ft.



**Armor-cel** roof system shown in drawing above combines structural roof deck, insulation, felt and roof covering in one unit. Locking and center wood strips add strength. As shown in photo (right) units overlap and are nailed twice per truss. When assembled, units expose 13" to weather on pitches 3 in 12 or higher and 1/2" shadow line at interlock. Using power saw to cut, three-man crew can lay 15 squares per day. Bartling says insulating value of product is much superior to conventional roofing.



Photos: (above) courtesy Armor-Cel

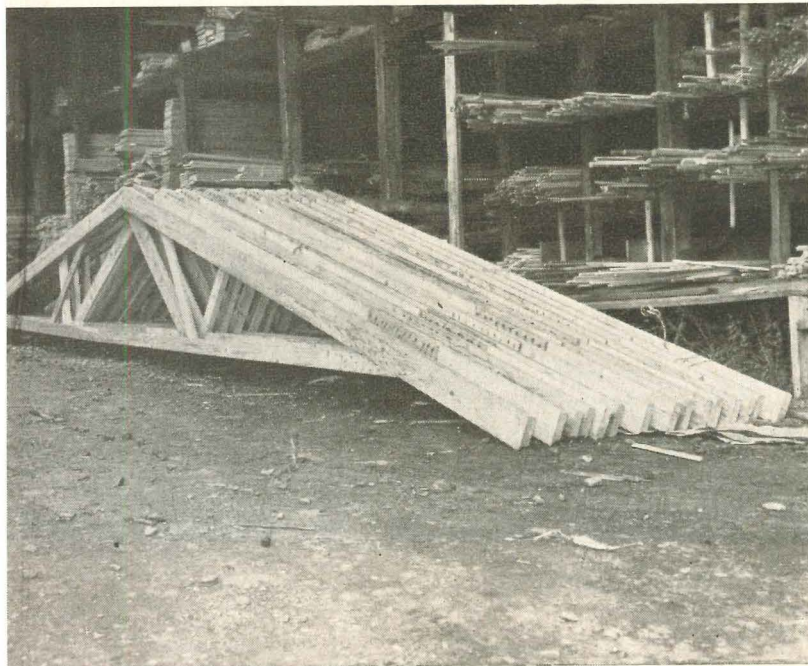
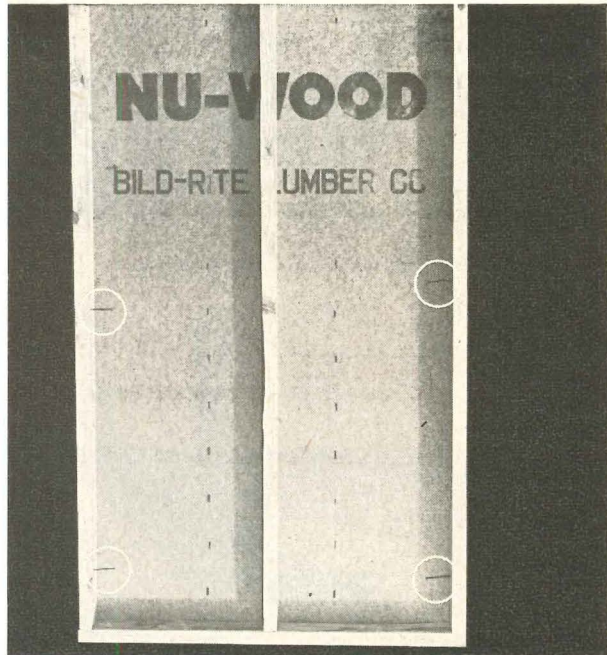


Photo: (above, opp. & bot. r.) Paul A. Fogarty Studio

**Trusses** (left) are valuable chiefly, says Bartling, because they get you inside a house faster and let you do more: "The house becomes a big, open and uncluttered room in which ceilings, floors and outside walls can be finished in one unbroken sweep." Many truss designs are available through local lumber yards.

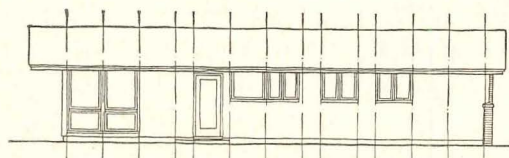
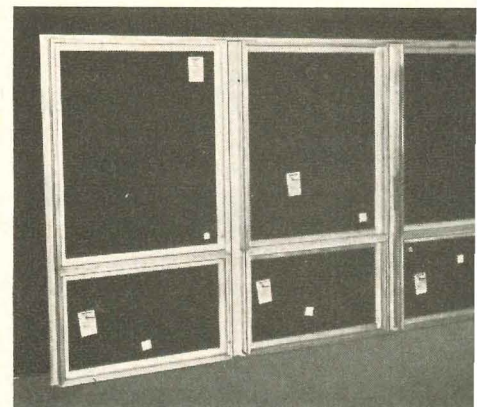
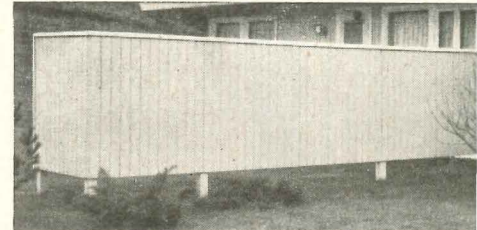
## Using exterior components like these

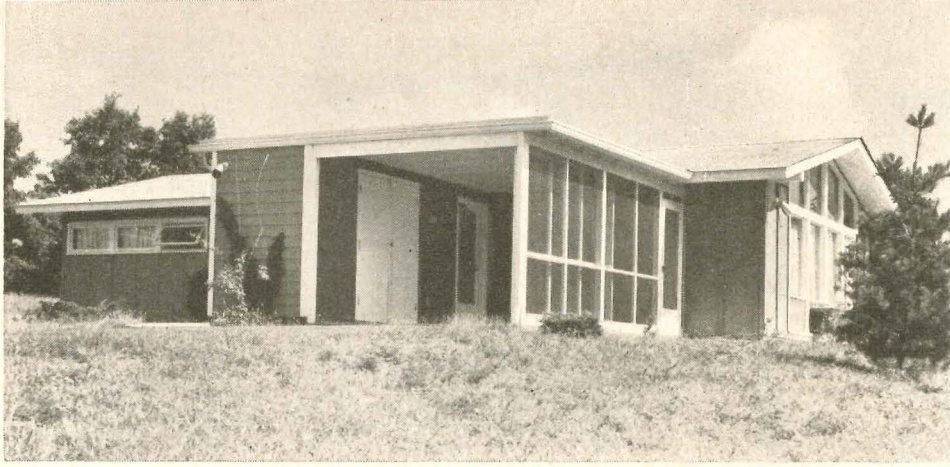


**Prenailed panels** (left) can be quickly joined together. Prenailing was suggested by Knoxville Lumber Dealer Stuart Fonde. Technique frees workmen to use both hands on the heavy panels without needing to reach in pocket for nails.

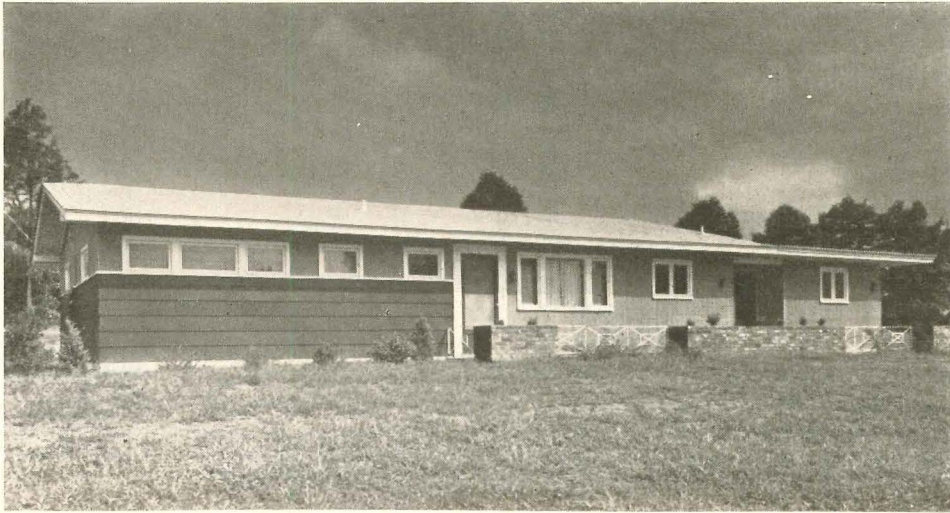
**Bartling's fences** (top right) are built by local lumber companies, Faragut or City Lumber. Bartling finds fences required for houses with large glass areas. Stock windows (bottom right) are joined in tandem to form window wall. Bartling pays lumber yards 50¢ per window for joining.

**Working drawing** of elevation (below) used instead of floor plans, prevents mistakes in putting paneled houses together. "It's easier to identify position of a panel from an elevation," says Bartling. Same drawings are used by lumber companies when they make up the panels.

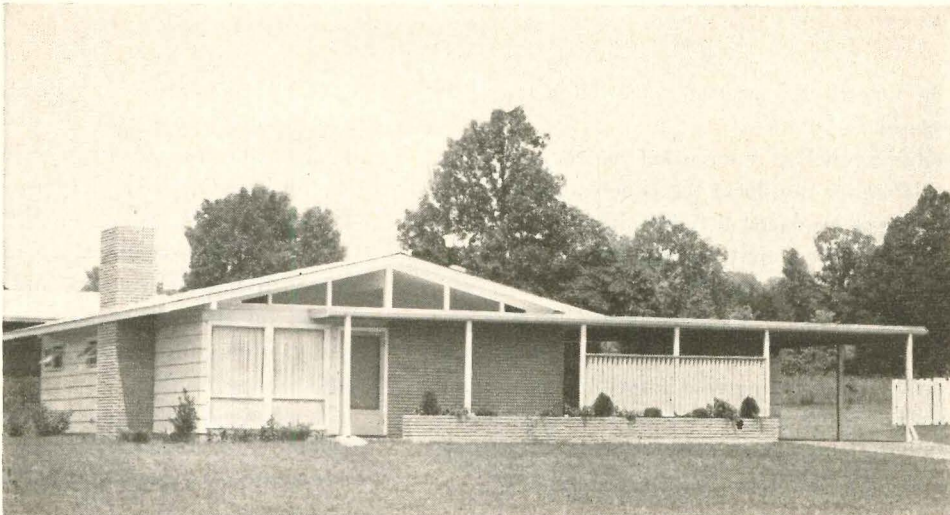




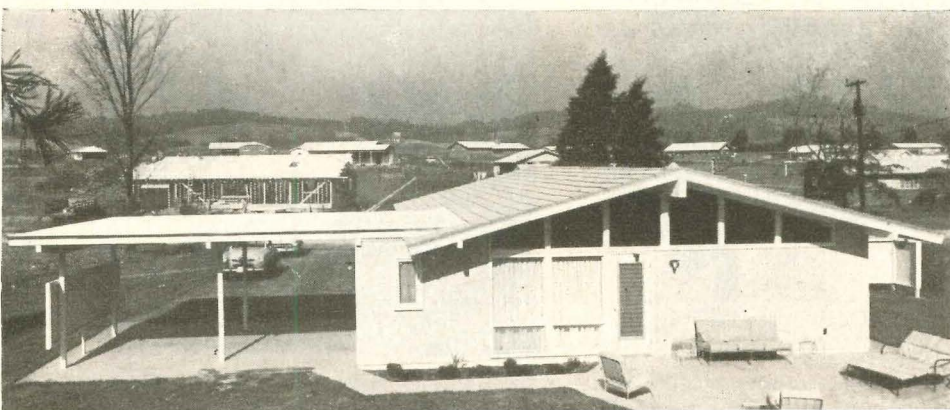
**Panelized houses** look different even though built from same components. Reason: a change in exterior materials, fenestration and orientation.

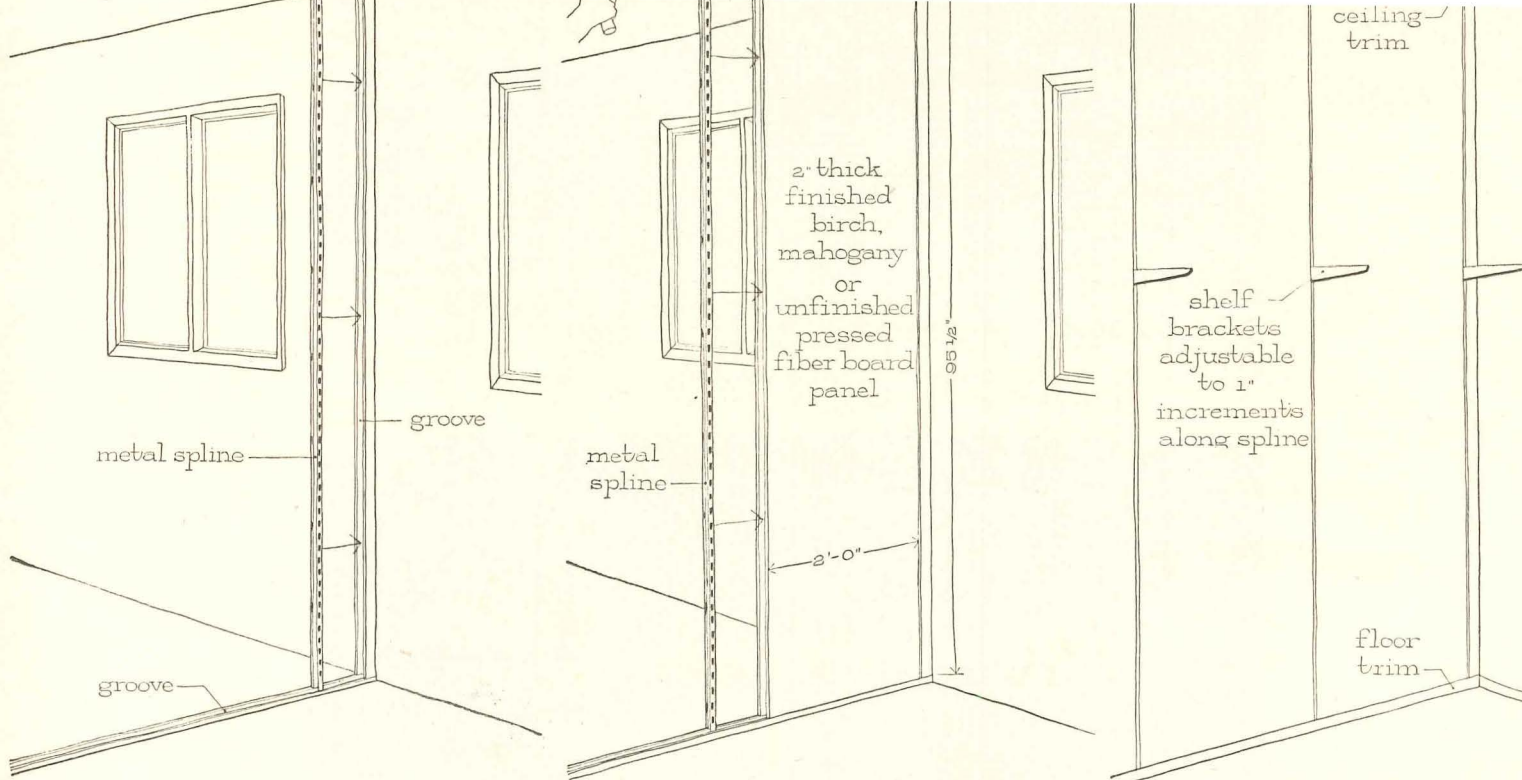


## you can build many types of houses



**Landscaped house** (immediately above) identical in size and price with two houses shown above is different in appearance. Bartling's current 1,340 sq. ft. model (below) sells for \$18,000.





**Grooved  $\frac{3}{4}$ " x 2"** runners are nailed to floor and ceiling. A 2" x 4" starter post, plumbed with shingles at wall, receives first metal spline for system.

**Plywood panel** is friction fitted to runners by wood splines. Panels are face nailed at joints where base, ceiling trim cover unfinished joints.

**Shelf brackets** are hooked into splines buried between panels. Two men can erect all partitions in day's time. Wiring is in panel's hollow core.

## New interior components give complete flexibility

Here is the newest and most complete interior component system on the market.

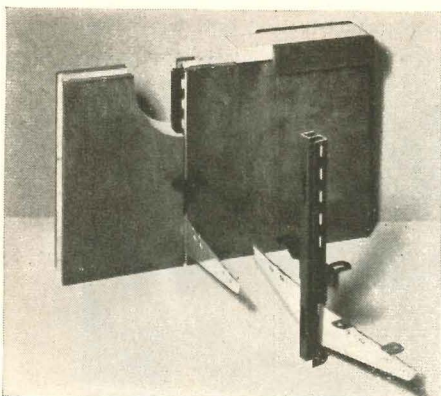
By combining hollow core wood panels and an S-shaped metal spline that locks the panels together, Martin Bartling has produced a lightweight, thin-wall interior partition system that can be used throughout a trussed-roof house.

"Component building has the speed, ease and cost control advantages of prefabrication without high freight costs," says Bartling who points out that enough interior partitions for nine houses can be loaded aboard one truck. (He buys heavy, bulky exterior components shown on pp. 162-3 from local lumber dealers.)

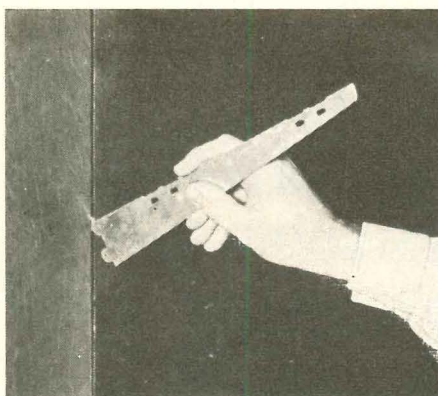
"With this interior component system," Bartling says, "any builder can customize the interior of his houses at minimum cost simply by using the spline-panel system for some walls and interior Lu-Re-Co panels for others that are to get a gypsum facing."

**The dividends Bartling gets from use of the thin-wall panels throughout his new 1,340-sq. ft. house are the addition of 14 sq. ft. more interior space, plus conversion of each wall into a potential storage facility.**

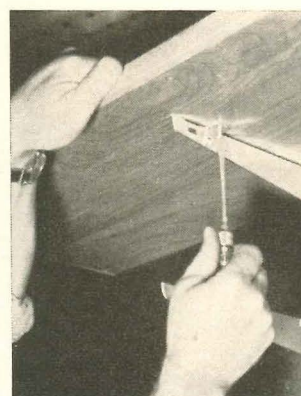
The dividend of component building as a whole, he believes, is a psychological one: "The finished house is the product of the builder's own individual skill."



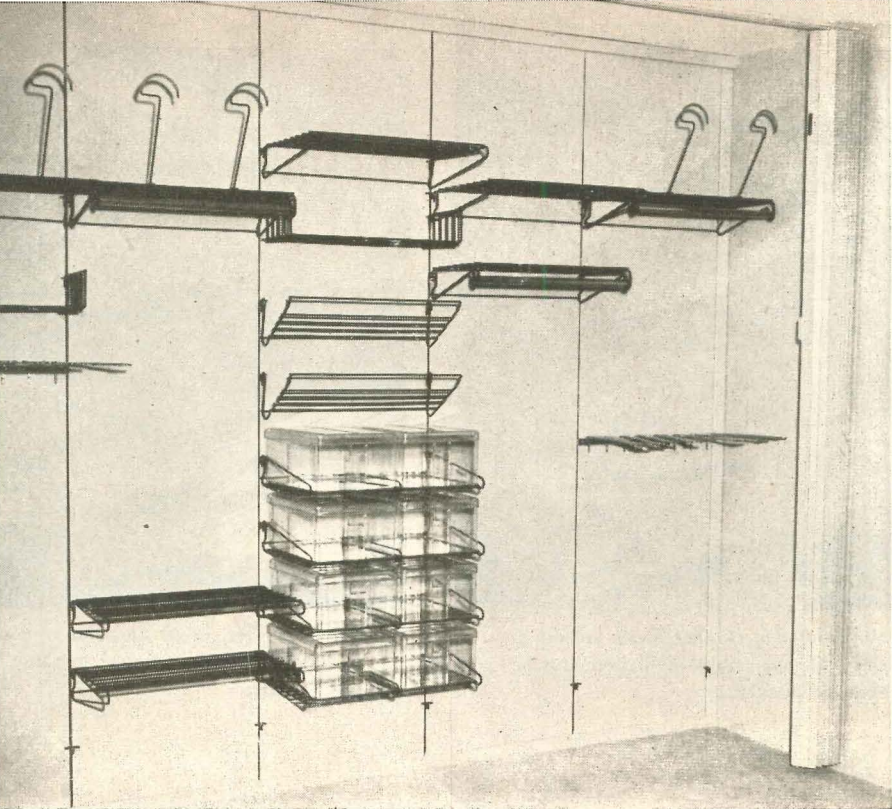
Cutaway: metal spline (foreground) is recessed into grooved flush panels (rear).



Shelf bracket is hooked to spline. There is no through joint to transmit sound.



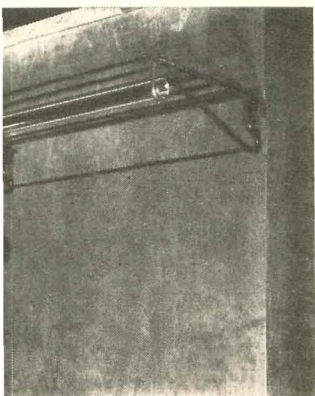
Shelf clips fit bracket, can be screwed to shelf or rack.



**Partition wall** of closet is made up entirely of 2"-thick, 2'-wide hollow core panels running from floor to ceiling and joined by metal splines. Storage hardware is inserted into splines any where along the length of the splines in 1" increments of height. Spline-panel system permits full-dimensional use of closet. As shown in lower photo, shelves and clothes poles at varied convenient heights waste no space since additional shelves or plastic drawers can be fitted above or below.



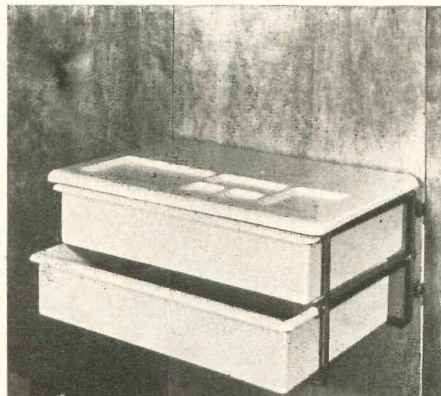
*Patents applied for, L. A. Darling Co.*



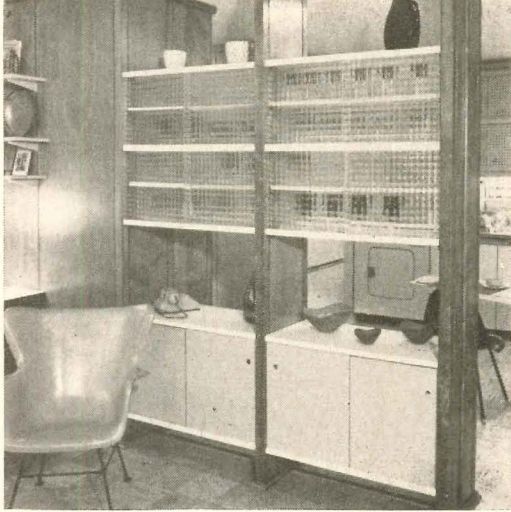
Wire shelf and clothes pole adjusts to any height.



Various depths of shelving are available to meet specific requirements.



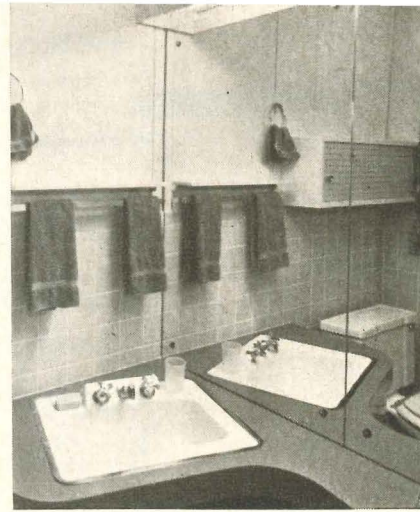
Even drawers can be fitted to track hardware attached to metal splines.



China cabinet-pass through combination hangs from nonload-bearing partitions fitted with splines.



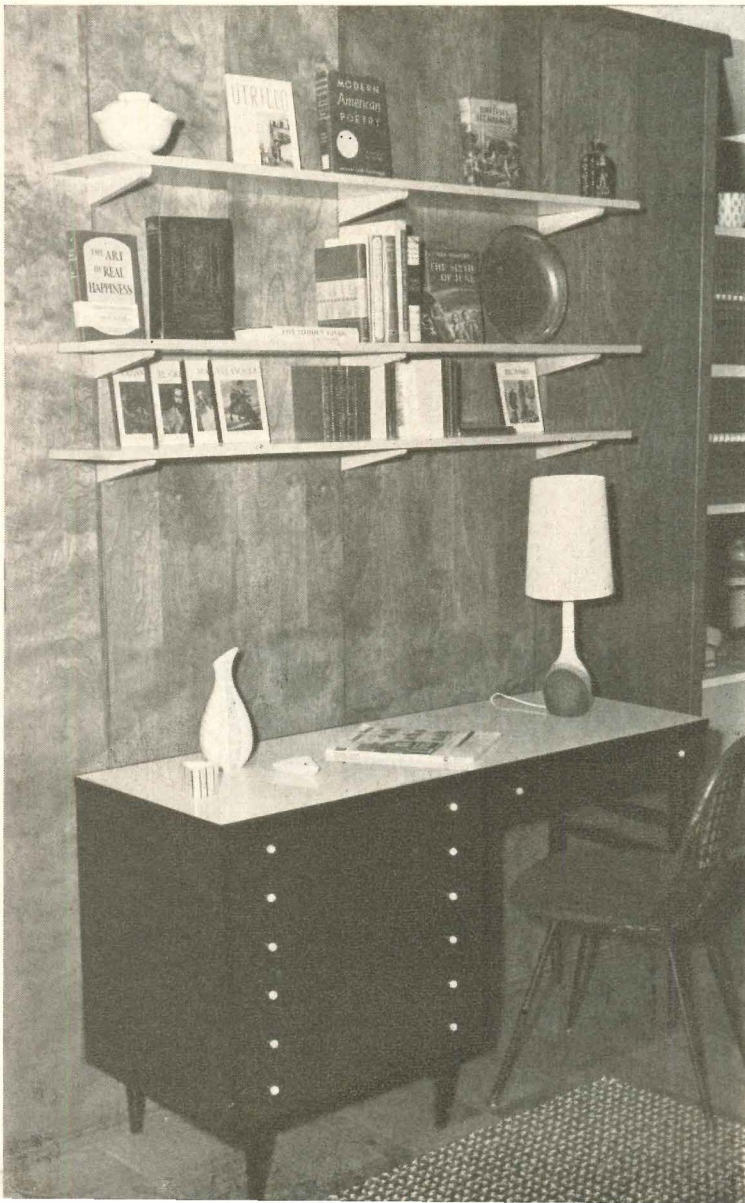
Sliding kitchen cabinet doors are hung from wall over built-in kitchen appliances, work surface.



Bathroom cabinet, towel bar and ring and shelf can easily be moved to convenient heights.

## Spline panels, used in every room of Bartling's house

Spline support-system used on shelves above desk can support desk tops as shown in photo opposite.



Storage is the big selling feature of Martin Bartling's newest house (exterior shown on p. 160).

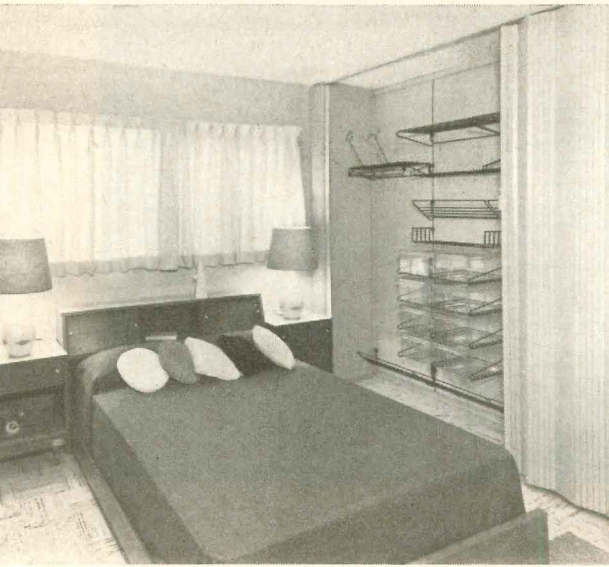
He has scotched the home buyer's most frequently heard complaint: lack of storage or storage in the wrong place. He has utilized every interior partition to make a closet, shelf, rack, cabinet or a piece of built-in furniture or equipment.

"I've had the same storage problems other builders have," says Bartling. "Because I've eliminated the basement and lowered the roof pitch over the attic my houses are short of traditional storage facilities. And yet people are buying more things than ever and need a place to put all these possessions. So I figured the one best way to give them back the storage they lost was to put it on the walls. The raves we got from people who toured our first model house proves we were right."

But did people object to the paneled look? "No one even mentioned it," says Bartling. "The only comments we got were on the convenience of storage. **The paneled look is not objectionable when it has a function** and the function was apparent everywhere people saw a shelf, hanger or built-in. If anything, we've undershot the market for built-in furniture. People expressed a desire for even more built-ins."

MARTIN BARTLING, builder  
 LOCATION: Knoxville, Tenn.  
 WILLIAM A. SLOAN JR., architect  
 JAMES CLEVELAND, decorator





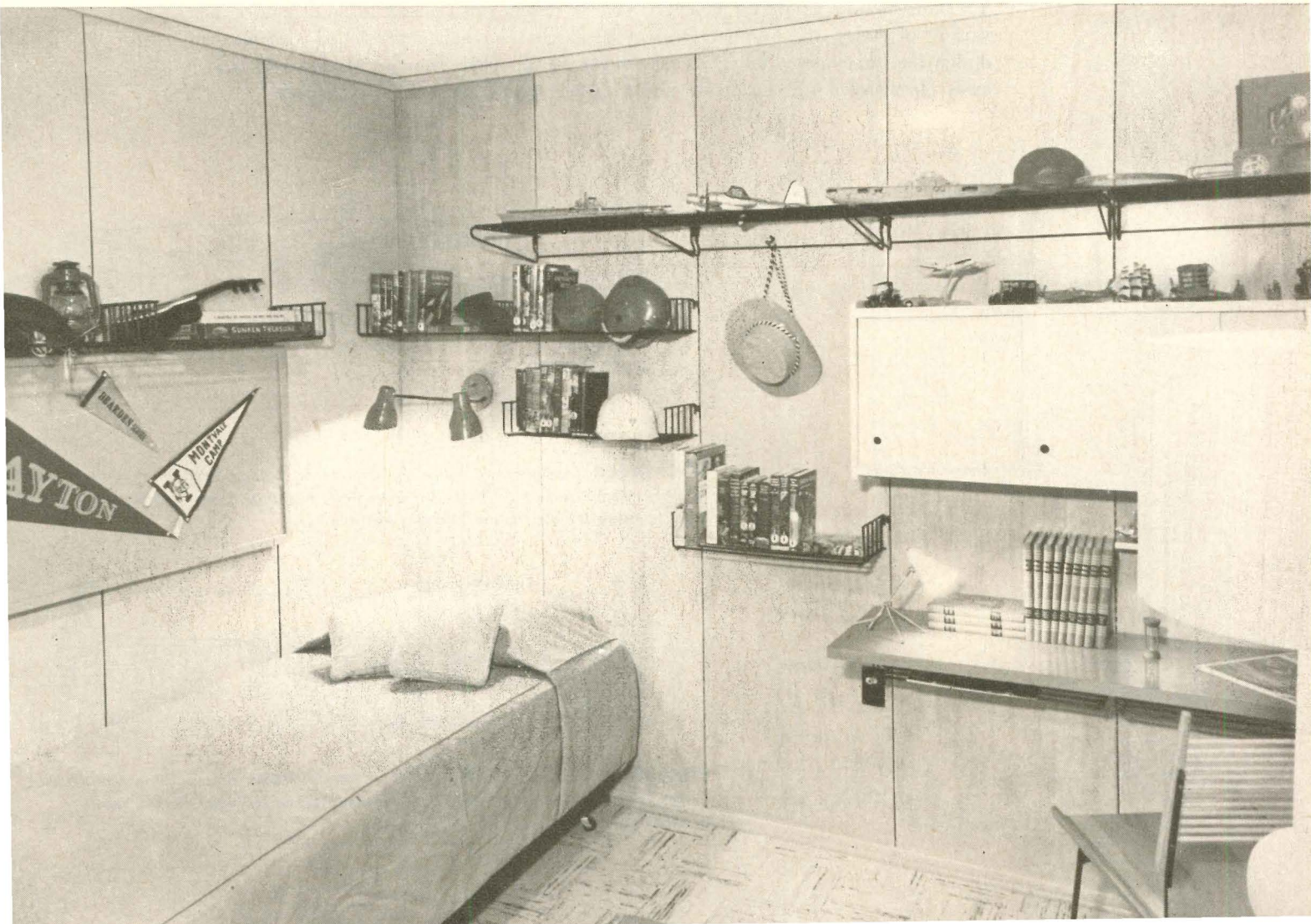
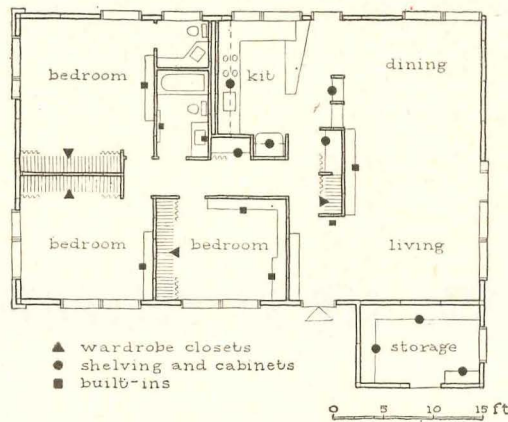
Biggest merchandising attraction of spline-panel system is fully storage-equipped bedroom closet.

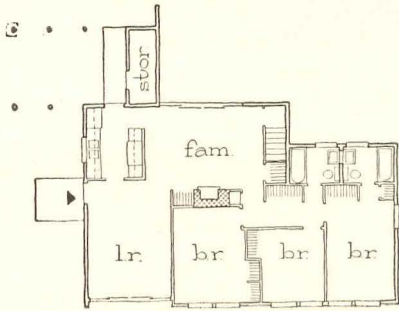
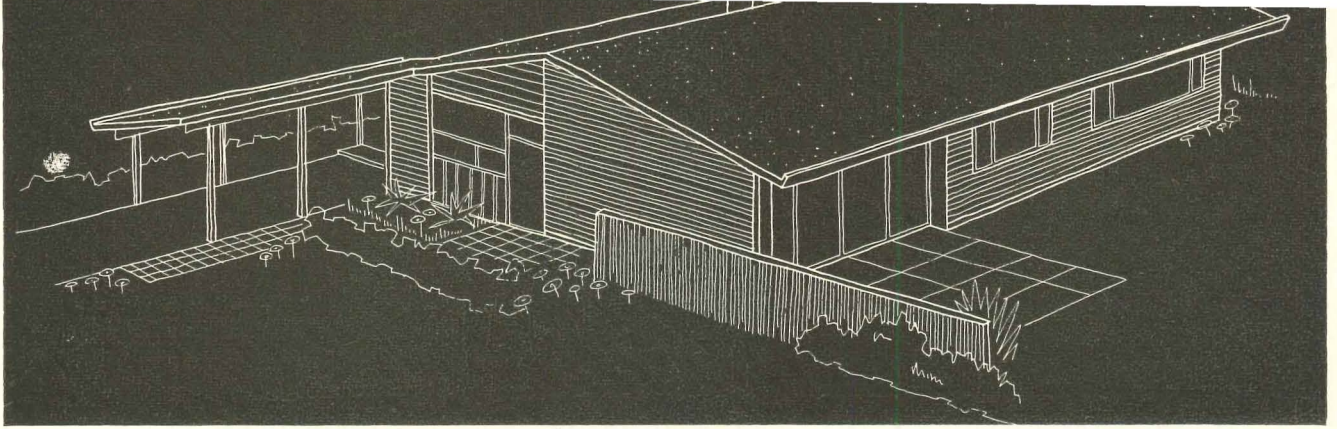


Conventional gypsum wall surrounds house perimeter; only interior partitions are of splines and panels.

## Put the walls to work

"Children's bedrooms can be merchandised if you use smart, new ideas," says Bartling. Here room is equipped for study, play, entertaining and storage.

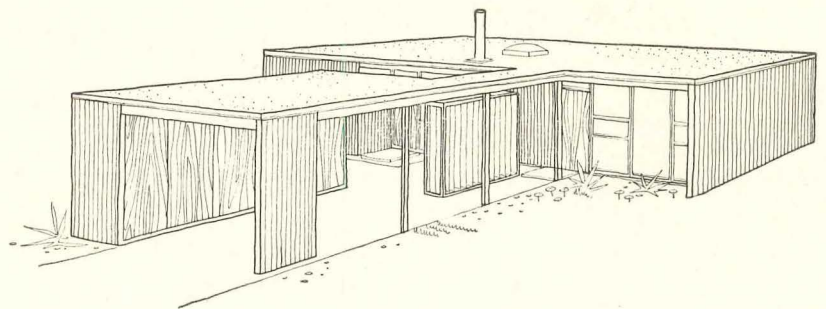
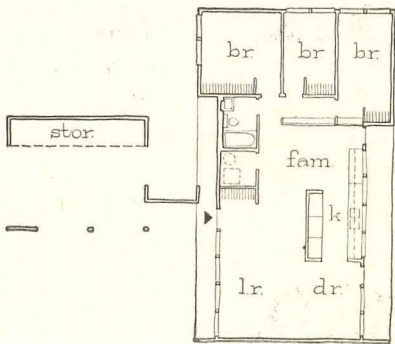




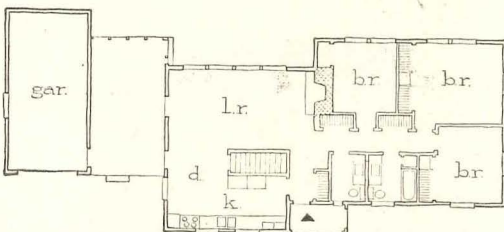
**Ranch style** house with single gable roof by L. Morgan Yost and L. Coder Taylor, architects and engineers, boasts two full baths, full-size family room and fireplace. Lumber Dealers Research Council hopes this house, and others shown here, will prompt architects to design more houses using Lu-Re-Co panels and a soon-to-be announced floor panel system.

## THREE NEW COMPONENT HOUSES

To show how its Lu-Re-Co panel component system can be used to build houses in a variety of styles, the Lumber Dealers Research Council commissioned architects to design the three very different houses shown on this page. Lumber dealers who previously purchased Lu-Re-Co design and engineering kits get the new plans free.



**Flat-roofed** contemporary house by Architects George Fred Keck and William Keck has single bath, three bedrooms, family room and dining area flanking double in-line kitchen, no fireplace.



**Early American** design by Architect Bertram Weber has opposing roof gables, trades breezeway between house and garage for family room seen in other two houses.

# 15 "FAVORITE NEW PRODUCTS"

named by the men who use them

**B**elow, and on the next three pages, you will find 15 products or processes. Each has been named by an architect or builder as the most important product idea he adopted during 1955. Any or all of them may apply directly to the needs of your home building operation.

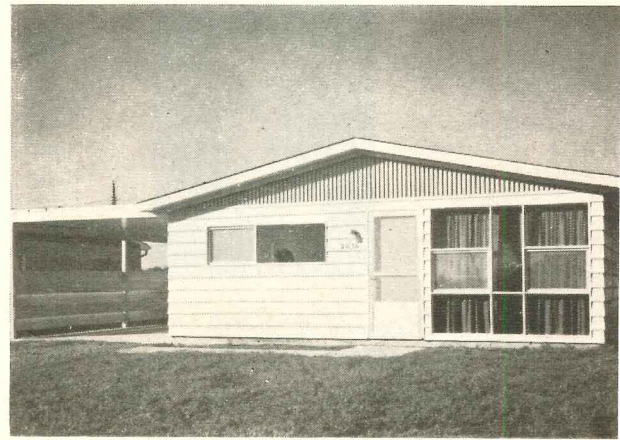
Not all these items are brand new; some of them are new applications of familiar products. But in every case, they helped solve specific design, construction or merchandising problems, and they gained the best accolade any product can get: the approval of the men who use it.



*Robert J. Allen  
builder, Ft. Wayne*

## **Metal gable end**

"We had been concerned for some time about the lack of ventilation in the attic space of our houses, and find that the all-metal louvered gable end gives us full ventilation as well as a pleasing exterior on the sides of our houses."



*Bert C. Yager,  
associate, Albert  
Gersten, builders  
Beverly Hills*

## **Sliding room dividers**

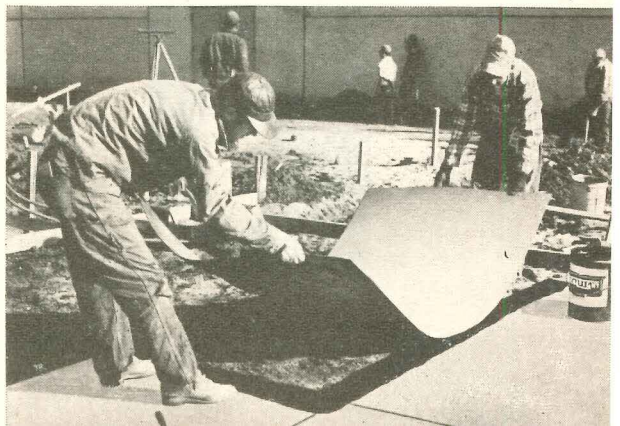
"We have used sliding room dividers in over 300 luxury houses, because we find that the idea of separating the living room from the family room, or kitchen from the family room, adds to the flexibility and customer appeal of the house. It provides privacy without shutting out light. And there are no floor tracks to trip over or to mar carpeting."

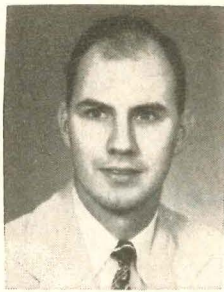


*Herman H. York  
architect, Jamaica, N.Y.*

## **Slab vapor barrier**

"On Long Island, emphasis was placed on family rooms this year, and because these are at ground level, good slabs are increasingly important. A premolded, heavy-weight asphalt membrane vapor seal protected our slabs against moisture vapor penetration."

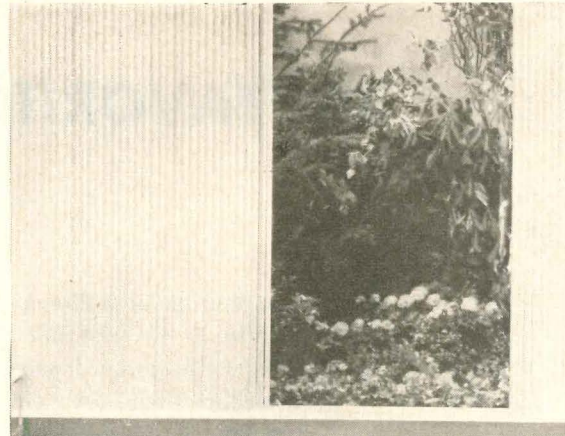




*Gerald A. Gay  
builder, Orlando, Fla.*

### **Vertical Venetian blinds**

“We used three sliding window walls opening onto a patio in our houses, and had the problem of privacy and light control. Vertical Venetian blinds that draw aside like draperies were the answer. We got unanimously favorable reaction to them during our Parade of Homes. People invariably noted that almost 100% of outside light could be cut off.”



*Vermont Marble*



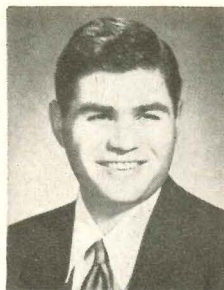
*Reginald E. Marsh  
architect, New York City*

### **Thin marble tile**

“Flexibility in use of new thin marble tile provides designers with new opportunities that were not possible with heavy marble slabs. We are quite enthusiastic about the future of this material and are continuing to specify it. It gives new luster to an old friend.”



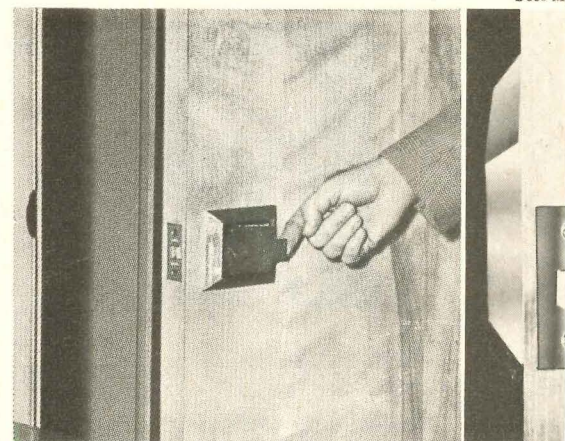
*Soss M*



*Irving Rose  
builder, Detroit*

### **Knobless latch**

“Today’s buyers are looking for modern, clean design, functionalism, and rich appearance. This new knobless door latch offers all three. One finger can flick open a door, and the smooth surface seems to fit and complement our modern flush doors, with their natural wood grain finishes.”



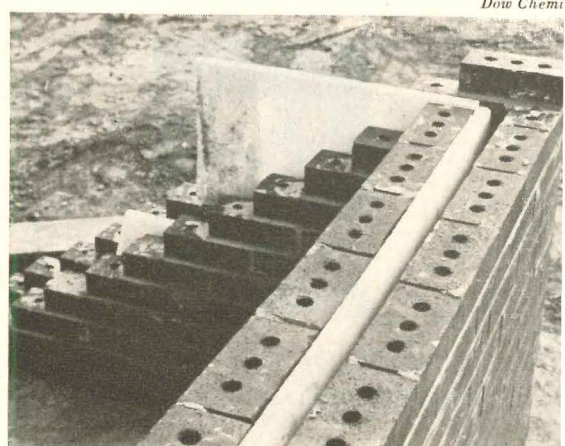
*Dow Chemi*



*Edward F. Fischer  
builder, St. Louis*

### **Foamed plastic**

“We use foamed polystyrene in plank form for perimeter and cavity wall insulation because it is light and easy to handle, comes in long lengths, is vapor and waterproof, and is comparatively cheap in price.”

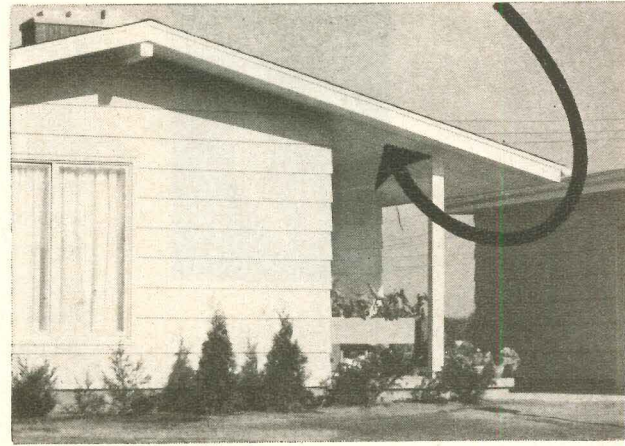




*Fred P. DeBlase*  
builder, Rochester, N.Y.

### Preprimed paneling

“We use preprimed fiber paneling for the underside of our overhangs, and for ceilings in our recreation rooms. It is economical, sizes are less wasteful, and the clip installation method speeds up production and does away with obvious nailing.”



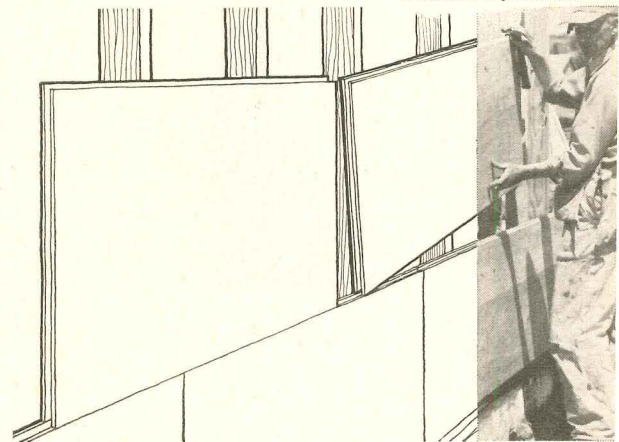
The Upson Co.



*John J. LaPorte*  
builder, Portland, Ore.

### T&G plywood

“In my experience, tongue-and-grooved plywood exterior sheathing has proved both economical and efficient in my building operations. It provides added strength where it is needed most, in the framing of the house.”



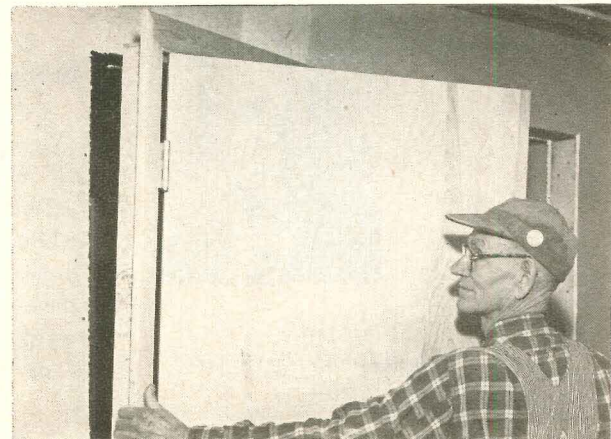
Yancouver Plywood Co.



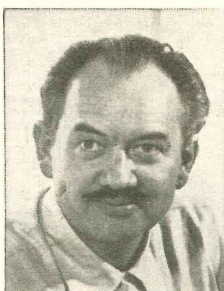
*Marvin B. Myers*  
builder, Rockford, Ill.

### Prehung doors

“We first ordered prehung doors for five houses with skepticism, but the savings in price and labor convinced me and my carpenters. A job that used to take two hours of labor now takes 15 minutes.”



Gemco



*Chris Choate*  
architect, Los Angeles

### Patterned plywood

“My vote is for a system of treating plywood called Moké (plywood is saw-cut, then formed into any of a wide range of geometric patterns). I feel it is important as well as useful because of the great decorative possibilities inherent in it.” (Basic idea for Moké originated with Architect Whitney R. Smith, of Smith & Williams, Pasadena.)



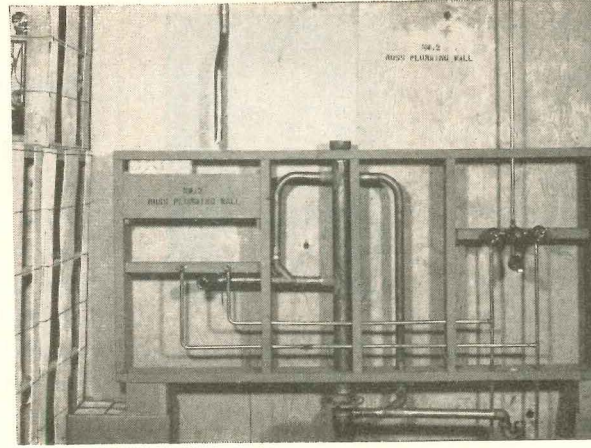
Douglas Fir Plywood Assoc.



*J. S. Weisman  
builder, Pittsburgh*

### **Prefab plumbing wall**

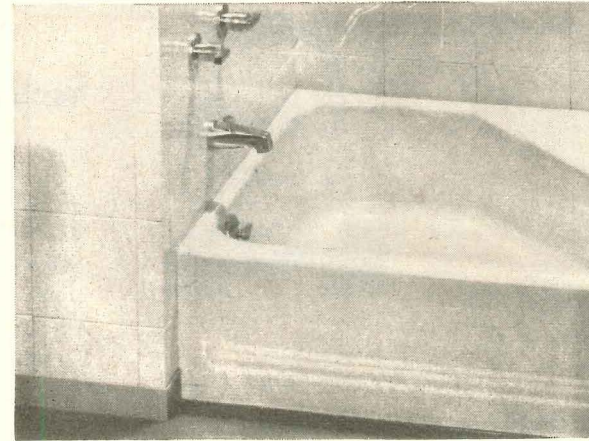
“We have found a prefabricated plumbing wall to be the perfect answer to one of our most pressing problems: providing plumbing for the prefabricated house. With the preassembled unit, the rough plumbing can be installed in less than an hour. And it helps sell the house to the customer, too.”



*William Wilson Wurster  
architect, San Francisco*

### **Small bathtub**

“The small (39" sq.), low, tub is a very great contribution to the small bath. It permits a really good shower, plus tub bathing in limited space.”



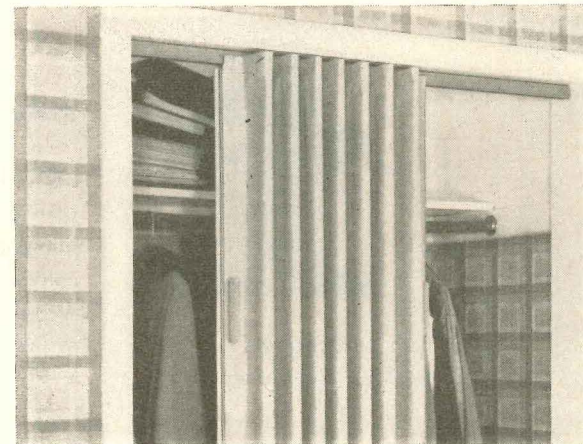
*American-Standard*



*Clifford Orth  
builder, Portland, Ore.*

### **Accordion folding doors**

“We used flexible folding doors on all closet openings, and saved substantially on installation costs while adding usable footage to our homes. Their sturdiness makes them a trouble-free item. No more warping or squeaking from doors—or their new owners!”



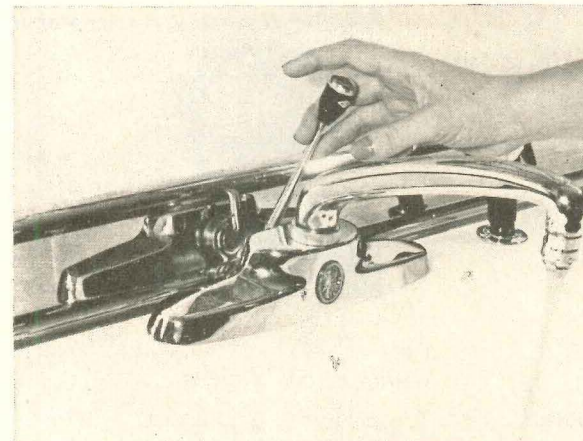
*New Castle Prod*



*Robert P. Gerholz  
builder, Flint, Mich.*

### **Single lever faucets**

“We found the convenience and good looks of the single lever mixing faucets in our kitchens appeal to our women buyers. It's a small item in a house, but it is something they notice, talk about, and remember. And the plumbing installation is no more difficult than with ordinary faucets.”



*The Schaible*

*For more Product News, see p. 180*

# **Sells fast...Insulite up to \$25 per sq.**

**"Buyers sure like high beamed ceilings,"** says Ray Hunke, successful young Wichita builder. "They regard them as a touch of real luxury. Yet with Insulite Roof Deck, I can actually beat conventional construction by about \$15 per square. And compared with other open-beam methods, Insulite Roof Deck saves me \$20 to \$25 per square—that's \$275 on a small home."

Hunke has now built and sold more than 600 homes—thanks, in large part, to his own smart design ideas. The trim, handsome home below features his highly popular exposed beam construction.

Want complete information on this modern roof-and-ceiling method? For easy-to-follow details, cost-comparison sheets and pictures, write Insulite, Minneapolis 2, Minn.

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# Is electric heat about to boom?

**Need for balancing load may boost installations to an estimated 300,000 houses a year by 1963**

*The Public Service Company of Oklahoma is planning to ask formal approval of the state's Corporation Commission to lower electric heat rates to home owners. If approved, the Tulsa company's new rate—cut down from 2 1/2¢ per kw-hr—will put important emphasis on electric heat in an area where natural gas fields abound.*

Does this news from Tulsa mean that electric heat is on the verge of a major market break-through?

Last month, more than 30 years since the first crude electric heating installations were made in some Tacoma, Wash. houses, many experts were beginning to think so.

Today about 300,000 houses in the country are fully heated by electricity. This figure includes resistance systems and heat pumps and represents about 1% of all houses with central heat. "With present sales at about 40,000 completely electrically-heated houses a year, sales in the near future will undoubtedly rise to 100,000 a year," said James E. Goff, vice president of Ceilheat, Inc.

**Utility views changing.** Goff's forecast is based on a widespread change of attitude toward electric heat on the part of US electric utilities. A few years ago hardly a single utility in the country (outside of cheap power areas like the TVA region) would do anything to promote electric heating. "By 1963," says Goff, "we figure 300,000 houses a year will be heated solely by electricity."

According to a recent survey of 420 "representative utilities" by the National Electrical Manufacturers' Assn., more than half, or 58%, now favor electric heat. Only 16% were "unfavorable," with 26% neutral. In the 58% group the talk goes like this:

"We will aggressively promote electric heat in '56," a large eastern utility; "We have a 1 1/2¢ heating rate and love it," a midwest utility; "Have encouraged and modified our rate as further incentive," a southern utility. Significantly, these reactions closely parallel the attitudes of gas companies to gas heat ten years ago.

**Why the views change.** It is no fluke of nature that is bringing about a liking for electric heat on the part of the utilities. One of the big reasons is air conditioning. Thousands of new cooling systems connected to utility lines have pushed summer load peaks to record highs. And utilities are finding they must supply substantially more electric power in summer than in winter (25% more in Tulsa, for example).

Because air conditioning is spreading so fast and so far, many electric utilities find themselves with idle power generators during the winter, even in the North. The utilities urgently need a new winter load for balancing purposes and electric heat seems the best way to get it.



An estimated 91,000 people trooped through 85 model homes last year as American Gas & Electric Co. made electric heat a sales feature in seven-state territory (Michigan to Virginia). House above, by Canton, Ohio builder E. F. Plott has radiant ceiling system.

Within the next five years new air conditioning systems are expected to boost the utilities' summer power peaks by another 18-million kilowatts. To compensate for this rise, US utilities will need five to six million new electrically-heated houses, one expert says.

**Facts for builders.** Builders will find electric heat economical to use, depending mainly on the local power rate and the price of competitive fuels. The cut-off point seems to vary from 1 1/2¢ to about 2¢ per kw-hr. Above 2¢ the operating expense may prove too high, but below 1 1/2¢ electricity can compete in almost any area of the country.

An example is the Indianapolis Power &

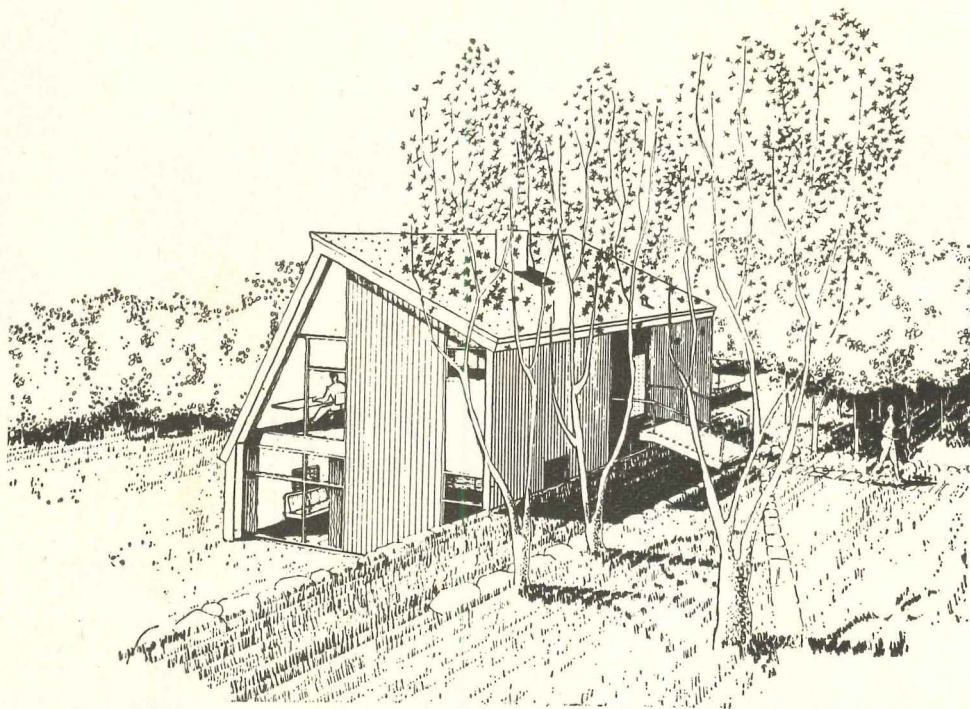
Light Co. which offers a special 1.7¢ rate. Company vice president W. T. Richards told H&H the 1.7¢ rate makes heat pump operating bills in an average 1,250 sq. ft. house comparable to local gas bills, 25% lower than for oil. "Operating costs for electric radiant heat are somewhat higher than for gas or oil, but are compensated by the low installation cost of a radiant system," Richards says.

**Insulation is important.** But no utility in the country will guarantee operating costs without "adequate house insulation"—at least 3" in walls and as much as 6" over ceilings. Moreover, FHA's changes in minimum property requirements last year (July and Sept. H&H News) have boosted insulation standards for electric heat by one-third, call for an over-all heat loss of no more than 40 Btu's per sq. ft. of living area.

Extra insulation cost pays for itself, F. T. Walsh, president of Sunwarm, Inc., points out. With less heat loss resulting, a builder needs less heating equipment. Records show that savings on the heating system are usually greater than the extra insulation cost.

With many builders finding electric heat economical and utilities promoting and encouraging its use, the future, for Walsh and other manufacturers in the field, looks good indeed.

*continued on p. 182*

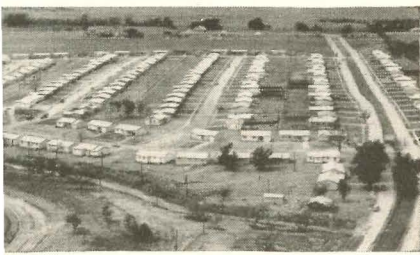
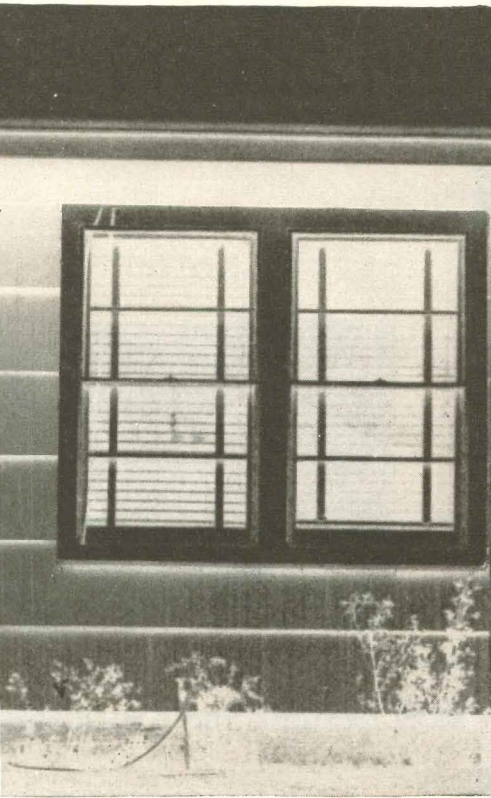


**Solar house** of 1,452 sq. ft. shown above, will be built by MIT near Boston. A 666 sq. ft. collector on south roof is tilted 60° from horizontal to absorb heat. Collector, consisting of two layers of glass spread over black-painted copper sheet, transfers heat to water flowing through pipes underneath. Heated water is piped to 1,500 gallon basement storage tank. Sun warms water to "approximately 150°" for heating, provides "80% to 90%" of heat required annually, including that needed for domestic water. Standby boiler is used on cloudy days. MIT Professor Lawrence B. Anderson says, "operating costs will be very low but initial equipment cost will be too high for average builder in near future." Test house experiment will explore ways of reducing cost.



American Kitchens of copper and  
on rugged steel frame . . . ”

says Mr. C. Grady Cates, Jr., President,  
Hines Building Corporation, Dallas, Texas



an aerial view of some of the homes being  
the Hines Building Corporation in Valwood  
ear Dallas. All 222 homes feature the birch  
oper "Pioneer" by American Kitchens.



Here is how HINES BUILDING CORPORATION used the "Pioneer." This is the "Pioneer" kitchen of one of the 222 homes the Hines Building Corporation is building in Valwood Park, a \$45,000,000 planned community near Dallas. The dramatic beauty of the natural birch and antique copper is a high spot of the home, blends perfectly with the overall design of the home.

For more elaborate kitchens, additional cabinets and accessories can be added, as well as matching antique copper appliances such as the famous American Kitchens "Roto-Tray" Dishwasher, the new American Kitchens "Set-In" Countertop Range, and the new American Kitchens "Set-In" Waist-High Oven. Both range and oven available in gas or electric models.

See the big American Kitchens display at the January Builders' Show, Conrad Hilton Hotel, Chicago!

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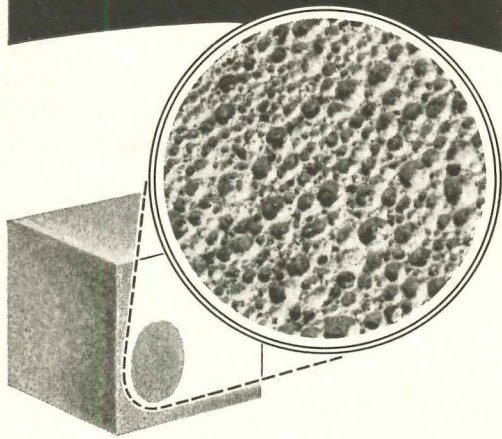
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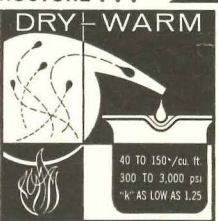
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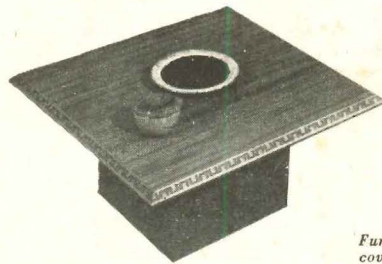
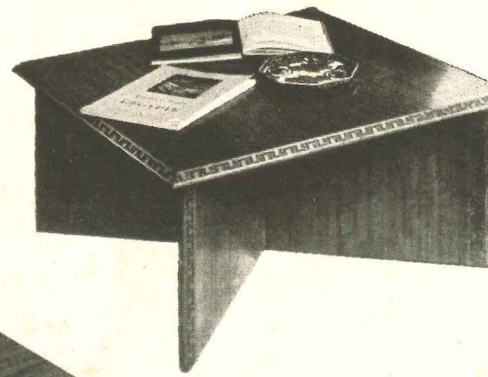
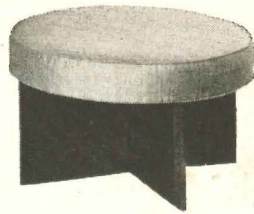
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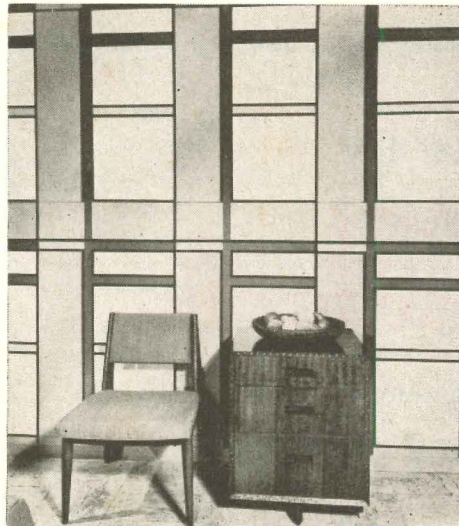
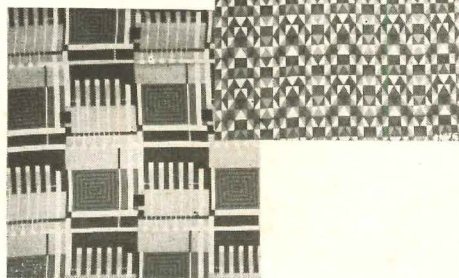
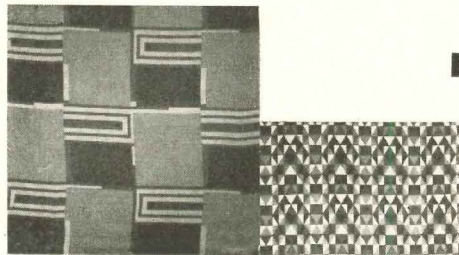


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Furniture made by Heritage-Henredon; fabrics, wall coverings by F. Schumacher.



## FLLW designs home furnishings

a. The furniture, fabrics and wall coverings you see here have been a subject of conversation among architects, builders and decorators for two months. In November, the first Frank Lloyd Wright designs in home furnishings appeared in stores throughout the country. Since that time magazines, newspapers and store displays everywhere have taken more than passing note of Mr. Wright's remarkable efforts in a field new to him, though closely related to his work over the past 60 years and completely integrated with that work.

A carved motif, not unlike the ancient Greek key design in reverse, characterizes the architectural theme of each piece—from the stacking stool to fabric pattern. It is everywhere apparent, calling attention to the long edges of benches and chests, the visual depth to flat fabrics and wall coverings.

These devices are intended to suggest Mr. Wright's architectural objectives as the three-dimensional qualities of fabric patterns tend to enlarge the space in which they are used, so the flexibility of the unit furniture tends to tie to adjoining rooms into an open, flowing whole. To achieve this result, Mr. Wright designed low chests that can turn a corner and thus link one room to the next, cases that will serve as room dividers and thus replace the eye-stopping, solid partitions and tables in triangular shapes that can be combined with others to form a hexagonal whole (and thus help to break the "boxiness" of most rooms).

continued from