



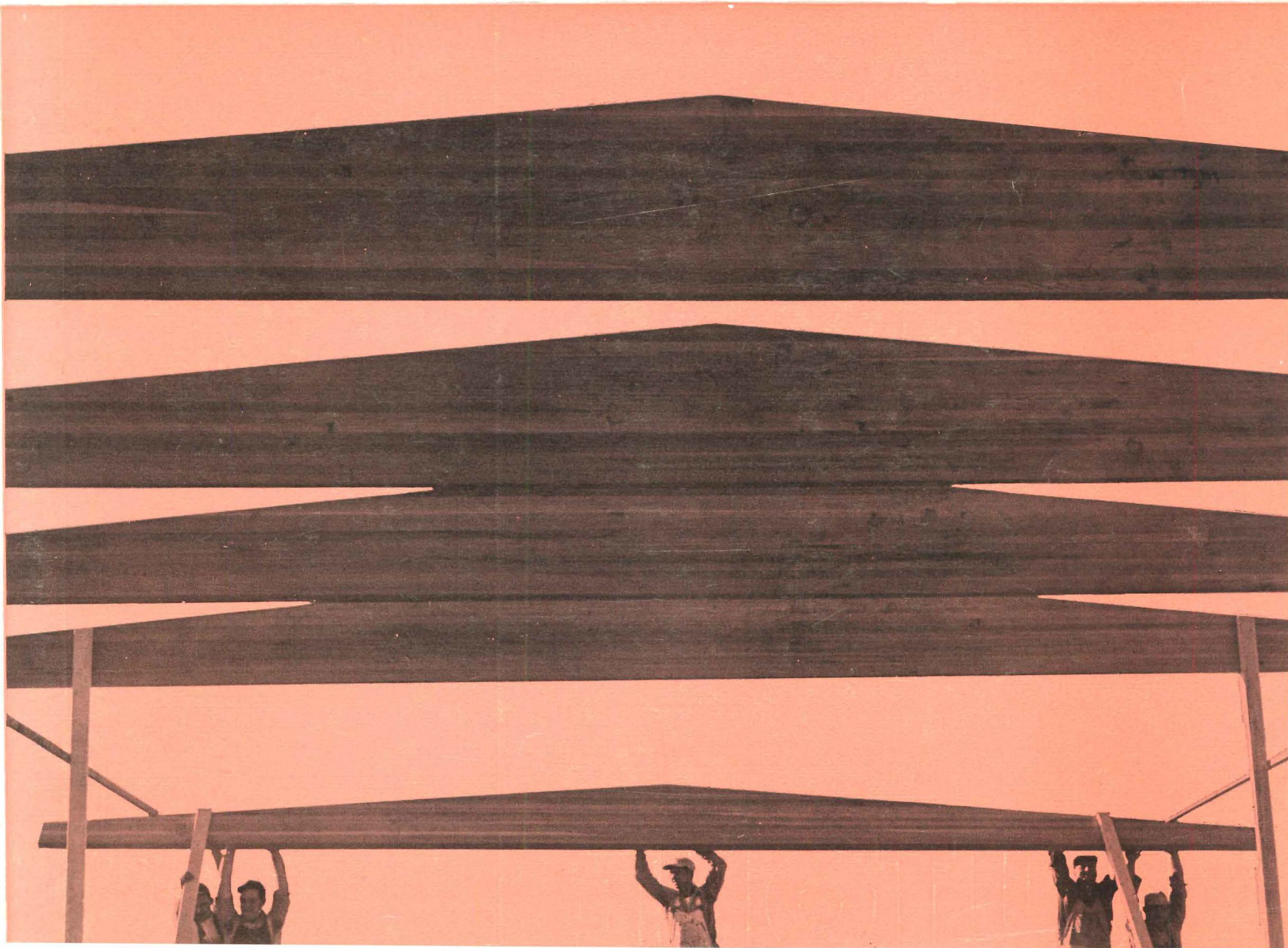
ideas

January 1955

# house + home

For complete contents (see p. 109)

- Editorial** An open letter to the President of the USA (p. 126)
- Heating** Round Table approves proposal for rating the heating efficiency of any house (p. 138)  
Electric heat: can it be used in builder houses? (p. 154)
- Experimental roofs** A roundup of advanced studies by eight custom-house architects (p. 130)
- Materials** Top builders and architects pick their favorite products of '54 (p. 150)  
California builder uses slab doors as prefab panels (p. 148)
- Acoustics** Smart builders begin to offer sound-conditioning (p. 160)
- Frank Lloyd Wright** Delineates how he uses concrete blocks in his Usonian Automatic house (p. 166)
- Structure** Is single-story construction moving away from stud framing? (p. 112 and below)

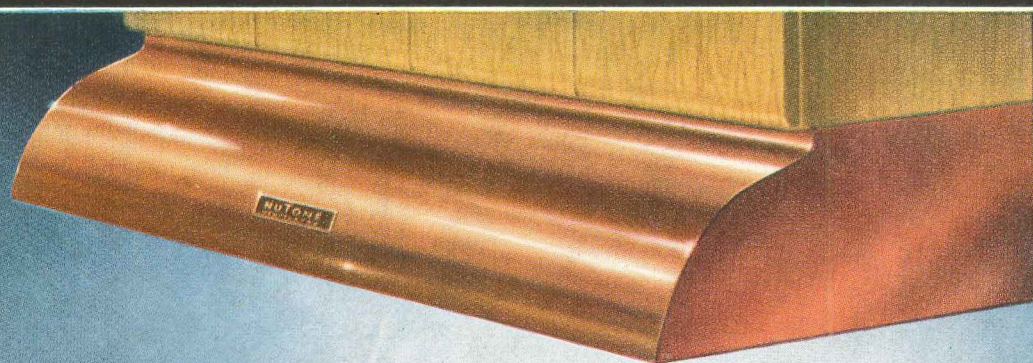




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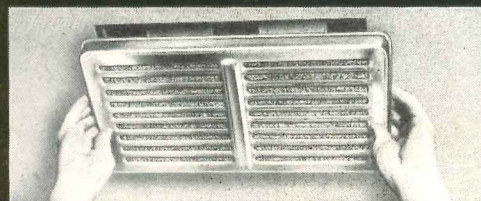
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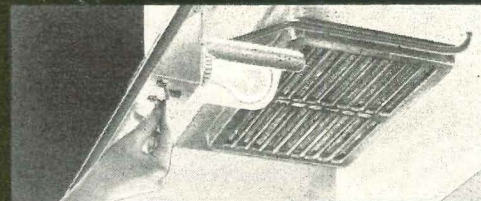
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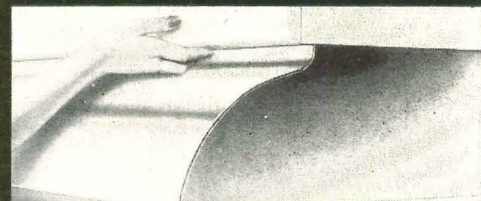
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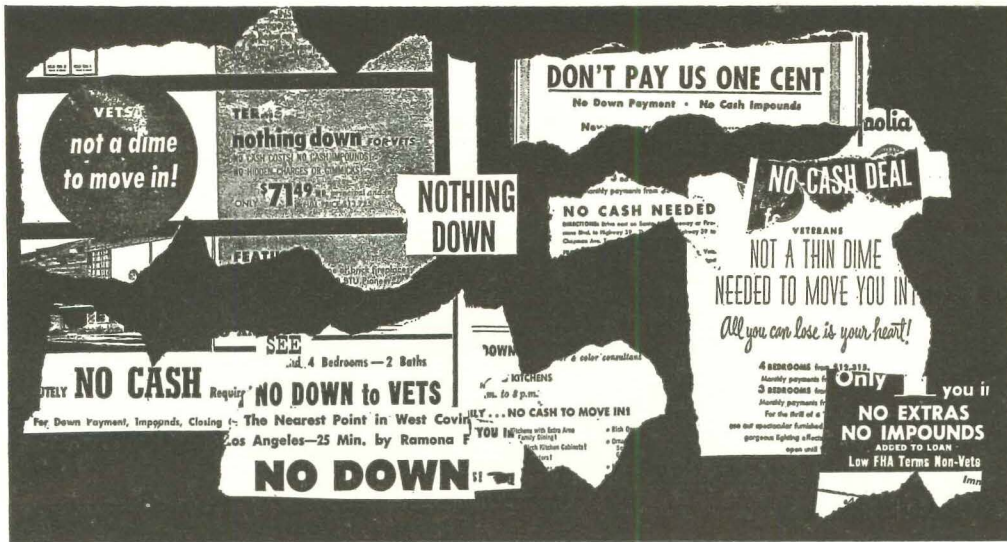
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## Housing spurts ahead of materials

**Shortages of gypsum board appear in a few cities, and experts begin to ask if the boom shows signs of getting out of control amid easy money, no-down loans**

A lot of mortgage bankers and savings and loan men had already expressed their discontent with the no-down payment and the 30-year loan. Forcing the 1955 housing boom at its peak with such devices seemed to them foolhardy at best; at worst, an approach to inflationary disaster. Last month comment on the problem was forthcoming from other quarters.

Said President Perry Willits of the Florida Home Builders Assn.: "I feel that I am speaking for a majority of the members of our association in saying that we believe a purchaser should have a substantial equity in the property he is purchasing."

As explained by Walter E. Hoadley Jr., chairman of construction statistics for the US Chamber of Commerce (and just promoted to treasurer of Armstrong Cork Co.): "There is plainly some official apprehension that, in the residential sector, the 1954 housing legislation may have produced an engine of expansion so powerful that it might easily get out of control. Should housebuilding in the early part of 1955 expand much more rapidly than at an annual rate of 1.2 million new units, that expansion might itself produce the appearance, as well as the effect, of a tightening of the money supply."

**Treasury policy.** Yet the administration's monetary policy has been, and is likely to remain, opposed to hard money and high interest rates. The cry is ample credit—with a weather eye cocked, of course, for any sign of dangerous inflation, at which time a dose of restraint could be administered with dispatch. The administration's money managers had learned some lessons. They had learned that exercising controls on the economy is a more sensitive procedure than they had perhaps thought; and they had learned that if restraint is needed, it should be applied immediately. With the so-called built-in controls better entrenched than ever (10 million

persons added to social security rolls last year, for example), the economy as a whole looked solid.

But what of the homebuilding sector? Top financial authorities in Washington, if pressed to name a segment of the credit supply that might be excessive, had to admit that easy mortgage money was the likely candidate. Yet Congress had put its blessing on the easy loan, through the new Housing Act, and many in the building field were pleased.

**Headlong momentum.** The fact that construction had rarely had such a year as '54, and was now commonly referred to as the beneficent balance wheel of the economy, had perhaps lulled some people into false security. Now, thought several well posted mortgage lenders, it will be between one and three years before the housing market faces "a new day of reckoning." That day could well be here now, they added, were it not for the expansive influence of the no-no down payment and the 30-year loan.

The no-down payment system, incidentally, had been developed to a nicety in Garden Grove outside Los Angeles. Homestead Park Homes were paying their customers' closing costs with checks for \$300 placed in escrow. They had devised this attraction when the VA approved their house for about \$300 more than they were charging. The houses were moving well at \$12,900.

Meantime, the yardstick of vacancy rates was being trotted out to gauge the effect of suburban building. The fact that the yardstick was about as rubbery as they come, because of a shortage of figures, was no help.

**Suburban urge.** Everybody knew about the trend to the suburbs. The tough part was determining what sort of vacancy percentages it was causing in the cities as easy purchase terms siphoned renters into homes of their own. Economist Hoadley estimated in a

speech in Chicago in November that there had been "a fairly sharp rise in housing vacancies during recent months." He felt there was "good reason to believe" that it was as high as 6% nationally—compared to the 5% accepted as normal in pre-war days. Hoadley's information was based on sample studies of housing conditions assembled for Armstrong Cork. He pointed out that official information on the subject presented "a serious gap in statistics," added that the "proposed new housing census certainly deserves the support of everyone interested in building activity." He also was careful to say that he did not expect the vacancy development to affect new home building in the near future—it was just that in time the factor could "begin to dampen the entire real estate market."

What spot check figures were available gave mixed support to the 6% theory. Rental vacancies in Memphis and Shelby County had been estimated by FHA as between 4 and 4½%. In San Antonio, on an all-residential basis, it was 4.44%. In Syracuse, N.Y.: 1.6%. NAREB was working up a survey on vacancy rates on a national level, which might throw more light on the situation. Meantime, with government-insured rental applications close to rock bottom (see p. 136), planners were looking forward to the famous 1960 family-formation rush, apparently in hopes that it would fill the existent buildings.

**What price materials?** Booming building needed materials. In some instances, the boom was bigger than the supply. Composition sheathing was being allocated by some manufacturers in the seasonal peak. Gypsum board, in tight supply all year, was scarcer than usual in some areas. "It isn't a case of being real tough to get—not like the war," said a big manufacturer. "It's just that people can't get immediate delivery." A situation had developed where dealers were placing orders with a number of manufacturers in hopes of getting the stuff sometime; how many of these orders would be bona fide when supply was increased was questioned by one manufacturer. Areas where plasterboard was in particularly short supply—and builders were scrounging for any they could get—were Florida, Georgia and parts of Oklahoma.

Prices, however, showed no strong trend to increase. Cement went up in the Northeast by 15¢ a barrel, partly because of a couple of wage increases in the plants, but this brought the area's price per barrel only up to the rest of the nation—at about \$2.90 a barrel. Another rise: fir plywood up about 3% at some plants in the Northwest.

Gypsum and cement manufacturers, meanwhile, were on an expansion march. US Gypsum Co. planned to spend about \$25 million in expanding production capacity. Lone Star Cement Co. will spend \$14 million for remodeling and enlarging three plants. Universal Atlas Cement, US Steel's subsidiary, planned a new plant in Gary, Ind. with capacity of 3 million barrels a year.



# Biggest homebuilders of 1954

## Bill Levitt, with 4,900 reported starts, keeps his title as the No. 1 builder

The nation's biggest builders—in terms of volume output—seem to be getting a bit smaller.

This trend (not unexpected, incidentally) turned up last month in HOUSE & HOME's second annual survey of who started the most houses last year—one- and two-family dwellings, that is, excluding prefabs. Of the eight firms appearing for the second time, five began notably fewer homes in '54. The underlying causes appear to be income tax and, more importantly, the increasing difficulty of assembling large tracts of land where people want to live. The trend confirms and strengthens a recent forecast by H. E. Riley, chief of the Bureau of Labor Statistics' construction division, that the biggest big builders are unlikely to grow any bigger (H&H, Oct. '54, News).

In all, the 14 biggest operatives in HOUSE & HOME's compilation accounted for some 34,125 of the year's anticipated output of 1.2 million units—about 2.8%. Last year, the 14 top builders started 41,473 units, or 3.77% of the annual total—which also suggests the shrinkage prophets are on the right track.

Bustling William J. Levitt, who figures he has put up upwards of 55,000 houses in the postwar housing boom, kept his rank as No. 1 volume builder. Levitt says he began 4,900 more houses last year in Levittown, Pa., where homebuilding spurred by US Steel's new plant is continuing to transform once rural Bucks County into a vast suburb.

Among the top 14, Levitt was the only builder whose output was concentrated on one site. Eight of the others were serving southern California (mostly Los Angeles) where housing developments were springing up so fast that some builders say it is now impossible to find fresh sites even in the broad San Fernando Valley. Three others (Centex, F&S and Earl Smith) remained (as last year) leaders among the new breed of operators who achieve volume by spreading their activity over as many as 14 cities or from one side of the nation to the other. Many of the big 14 will put up higher priced homes in '55.

LIFE: Anthony Linck

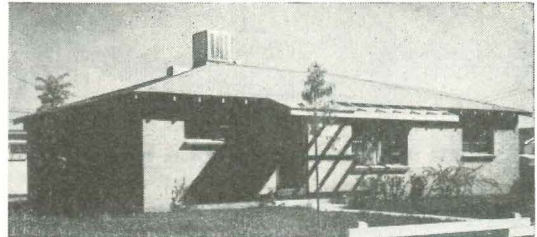


**1** **LEVITT & SONS** maintains its postwar position as the nation's biggest volume builder. President William J. Levitt (pictured) reported starting 4,900 houses in Levittown, Pa. priced from \$8,990 for a two-bedroom, one-bath house (the Rancher) to \$16,990 for the Country Clubber. Most popular house was the Jubilee (above), a three-bedroom, two-story unit for \$10,990.

Adeo Studie

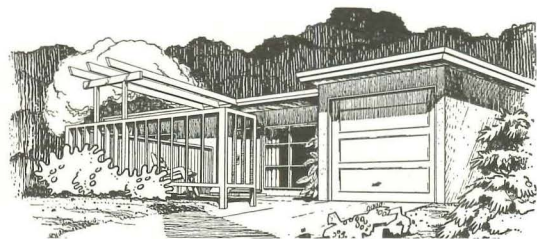


**2** **MORRIS & ZUCKERMAN:** Firms headed by Barney R. Morris (above) and Edward K. Zuckerman started 1,916 houses (above) in southwest Los Angeles (three and four bedrooms, two baths, two-car garage, \$14-17,000), plus 2,000 houses in the city's northeast section (\$11,535-12,085). Probable total for 1955: same as last year.



**3**

**F & S CONSTRUCTION CO., INC.** headed by Sam Hoffman, reported 2,858 houses in Phoenix, Salt Lake City and Denver. The company output was 80% devoted to the Clayton (above), a three-bedroom, two-bath house selling for \$7,600 in Phoenix (concrete block), \$10,400 in Denver (brick veneer), and \$9,250 (concrete block, with carport) in Salt Lake City. 1955 plans: 5,500 houses.



**4**

**EARL W. SMITH** started 2,816 houses in 28 tracts covering a 300 mi. span in northern California. Smith's houses varied in size from 750 sq. ft. to 1,160 sq. ft., in price from \$7,000 to \$10,400. Largest groups: 462 in Montalvin Manor in the San Francisco East Bay, 258 in Salinas, 244 in Fairmede at Richmond. Smith's 1955 plans call for same volume as 1954.

Don Alpern



**5**

**ALDON CONSTRUCTION CO.** (Don Metz, pictured) started 2,535 houses in southern California and Arizona: 509 at Lakewood, 624 at Buena Park (1,350 sq. ft., four bedroom with two baths, \$13,725 is pictured), 1,187 in the San Fernando Valley, and 430 with Del E. Webb in San Diego (half credited here to each). Other Aldon principals: Ira H. Oberndorfer, Willard Woodrow.

Julius Shulman

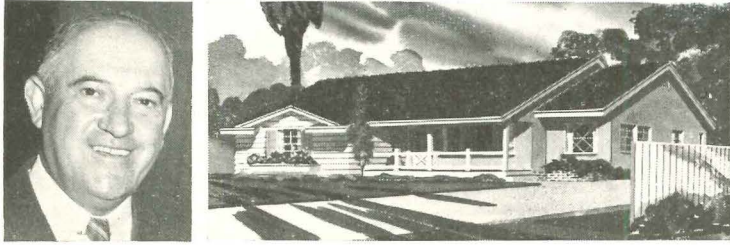


**6**

**REPUBLIC CONSTRUCTION CORP.,** with Herbert Kronish at the helm, started 2,479 houses in southern California and Nevada. Best-seller (pictured) was a four-bedroom, two-bath model containing 1,345 sq. ft., priced at \$8,995. Only other '54 models: a two-bedroom house at \$6,995; a three-bedroom at \$7,995. Plans for 1955: 25-40% more output.

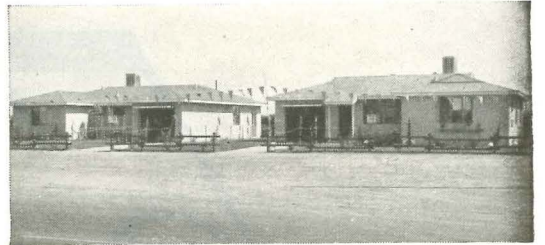


*Jos. Alpern*



**7**

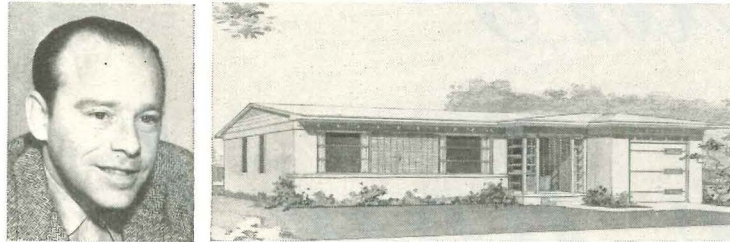
**BOLLENBACHER & KELTON:** Walter Bollenbacher and Louis L. Kelton (above) put 2,187 houses under construction in the Los Angeles and San Diego areas. Most popular: the stucco and redwood Miramar (pictured) with three bedrooms, two baths. Price range for their models was \$11,000-14,000 in San Diego, \$9,000-13,000 in Los Angeles. Programmed for 1955: 2,500 houses.



**11**

**McDONALD BROS.,** a general partnership of Lloyd L. McDonald (pictured), Bernard A. McDonald and Adrian L. Wilbur, started 1,917 houses in southern California in the \$8,000-9,500 price bracket, all called Highland Village. Most popular: the McDonald (r), 960 sq. ft., \$8,000; the Highlander (l), 1,190 sq. ft., \$9,000. '55 outlook: 3,000 houses, including a contemporary group.

*S. Haskins*



**8**

**CENTEX CONSTRUCTION CO., INC.** (Tom Lively, president) started 2,084 single-family houses in Texas, Illinois and Arkansas, plus 2,352 multifamily units. Sales prices: \$10,000-12,000. Shown above is three-bedroom, one-and-a-half bath, brick-veneer Dallas model (\$11,200). The '55 plans: more houses than '54. Minority housing built in '54, contemplated for '55.



**12**

**DEL WEBB CONSTRUCTION CO.** (Del E. Webb, president, pictured), began 1,858 single-family homes, counting 1,000 at the copper mining town of San Manuel, Ariz., half of the 430 built jointly with Aldon in San Diego and 643 elsewhere in Arizona. Model above: \$15,900, 1,540 sq. ft. house at Phoenix. The '55 plans include 1,000 more houses at San Diego, 1,200 in Phoenix.

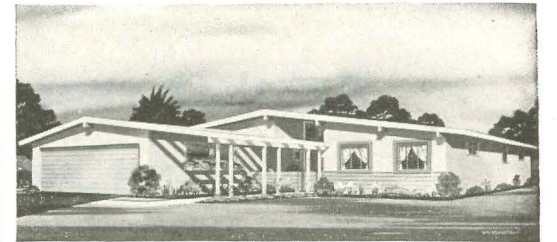
*Omer Gray*



**9**

**MILTON KAUFFMAN CONSTRUCTION CORP.** (Milton Kauffman, president), reported single-family housing starts of 2,044 in 1954. Sites were: Torrance, West Covina, Norwalk and Whittier, all southern California. Pictured: a two-story, 1,200 sq. ft., four-bedroom, two-bath model sold in Norwalk for \$9,500. Kauffman's plans for 1955 call for 2,500 houses in the same areas.

*E. Alexander*

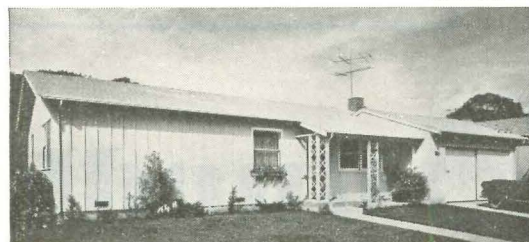


*Adco Studios*

**13**

**DILLER-KALSMAN,** a partnership of Richard S. Diller (above) and Irving Kalsman, started 1,821 houses in and around Los Angeles. Sunkist Gardens, in the San Gabriel Valley, features three- and four-bedroom houses (pictured) priced at \$11,535 and \$12,085, respectively, in "colonial, modern and transitional styles." The '55 program: 1,551 houses.

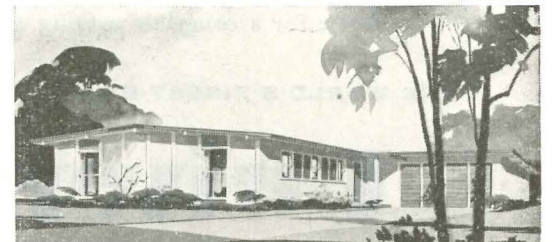
*Lagsdin*



*Moulin Studio*

**10**

**HOMES BY STERLING** (Andy Oddstad, president) started construction on 1,921 houses in Santa Clara and San Mateo Counties, south of San Francisco. Prices started at \$9,950 for a three-bedroom, one-bath house, went up to \$18,000 for a three-bedroom, two-bath split level. The '55 plans: "at least 2,800 houses, priced from \$9,950 all the way to \$20,000.



*R. C. Quale Assoc.*

**14**

**HADLEY-CHERRY, INC.,** (Ray K. Cherry, president, pictured) scattered their 1,594 homes in Los Angeles County. One of their best buys (above): a four-bedroom, two-bath and garage model for \$9,250, sold with conventional financing, move-in fee of \$395. Customers build up down payment during six months of "rent." Plans for '55: about 1,400 houses.



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## SIDELIGHTS

### Washington inside

Public housing and HHFA officials settled a hassle last month over an interpretation of the 1954 Housing Act that could have stopped public housing dead. The law permits public housing to be built only for families displaced from their homes by public improvements, like expressways, redevelopment, etc. The sticker is that big cities like New York and Chicago can care for all their displacees through normal turnover in existing public housing. Cole's lawyers came up with a liberal interpretation: "Turnover vacancies should be considered as rehousing resources only to the extent they can reasonably be expected to become available" to displacees. This may spare the nation's big cities from being completely cut off from new public housing.

### FHA backlog (cont'd)

Except in a half-dozen cities, FHA expects to have its backlog of applications trimmed down to normal again by this month. Between the end of October and Nov. 26—latest available figures—the pile up of insurance requests on new construction was cut from 34,000 to 30,000 units. On existing houses, it was trimmed from 29,000 to 26,500. Next worry: if the spring rush is as big as some FHA offices expect, a new backlog will begin growing unless FHA gets Budget Bureau permission to hire still more people.

### Congress may probe VA abuses

Shyster tactics involving resale of VA-guaranteed homes—with the veteran most often left holding the bag—may come up for investigation in the new Congress.

Rep. Olin Teague (D, Tex.), who has proved in past probes that he is no headline hunter but genuinely wants to give the vets a break, would handle the job. Teague, who is in line to head the House veterans affairs committee, recently expressed himself as disturbed over a new wave of complaints that veterans are being induced to go through with loan applications without ever intending to occupy the homes they buy. Glib dealers anxious to obtain favorable financing talk them into deals—sometimes with a bribe—under which the veteran, after financing approval, sells the house and transfers his guaranteed loan to the new buyer. Not only are such deals a perversion of the VA program, but they leave the veteran on the hook. He can transfer his loan, but not his liability; if there is a default, he is stuck. (Only 1.14% of the close to 3 million VA loans outstanding have gone into default.) There have also been reports that operators out for a fast dollar have contacted many a veteran about to default on his loan and persuaded him to hand over the property, GI financing and all. They then rent the property for enough over the carrying charges to net a nice profit, get out from under if there is a lull in the market.

### Rent control for HHFA

If war comes, HHFA will take charge of rent control and housing allocation. The new duties were handed to the housing agency in a recent ODM directive on mobilization plans. The broad result is further centralization in HHFA of government authority over housing.

### Battle of St. Clair Shores

Detroit homebuilders went to court last month to try to force suburban St. Clair Shores to cancel a 50% increase in building permit fees. The test suit was being watched across the nation by builders facing increased restrictions by communities.

Homebuilding volume had nearly doubled in St. Clair Shores this year and the city, worried over the resulting shortage of community facilities, especially schools, had banned housing construction entirely for three weeks, then compromised by upping permit fees—from \$78 to \$141 on a \$10,000 house, for instance. Three other suburbs promptly did the same.

Said President John D. Harrison of the Builders' Assn. of Metropolitan Detroit, who brought the suit: "We have a responsibility to the families who need housing to keep the cost of new homes as low as possible. Our lawyers tell us that building permit fees cannot be used as taxes in disguise." Even St. Clair Shores' old fees, said Harrison, would bring the city some \$250,000 this year. He said this far exceeded the cost of running the building department and making inspections. Retorted Mayor Thomas S. Welsh: "Some of these big real estate developers may be accustomed to having the federal government subsidize their projects, but St. Clair Shores is too small to do it for them."

### Bank, in test case, repays FHA on sour Title I loan

FHA's steady campaign to restore the Title I repair program to the good graces of everyone took a notable turn in a first-of-its-kind case in California.

The Alameda branch of the Bank of America had been sued by the government for not exercising "prudent judgment" in granting a \$2,144 Title I loan to a 65-year-old widow with a total income of \$130 a month. When the woman, who was already paying \$35 a month on a mortgage, defaulted on the repair loan, the government made it good to the bank and then sued. Result: a settlement out of court by the bank for the full amount of the loan.

**Concentrated fire.** The Alameda incident was the first instance of a lending institution being so directly blamed for a defaulted Title I loan. Till now, the courts had been hammering at the dealers and salesmen. Close to 1,000 of the latter have been subjected to FHA's so-called precautionary measures since April, said the agency, and "several hundred cases" had been referred to the FBI. The precautionary measure technique means simply that FHA refers questionable firm names to lending institutions as deserving of "special scrutiny" before a loan is made.

Meantime, business in the billion dollar home improvement industry—it produces about 16% of FHA's total income—continued good. The number of lenders participating in it had increased, according to Commissioner Norman Mason, since the lending institutions started assuming a portion of the risk last Sept. 1. And the number of loans insured the first ten months of 1954 had dropped only slightly: from 1,559,500 in the same period in 1953 to 1,355,600.



### HHFA conference studies Negro housing problems

An impressively complete collection of leaders of the diverse interests—public and private—concerned with Negro housing problems sat down together for two days last month to try to figure out some answers.

The occasion pictured above was the first meeting of HHFA's new advisory conference on minority housing, called by the housing agency at the behest of President Eisenhower. The 43 participants ranged all the way from the American Bankers Assn., MBA, NAHB, NAREB, AFL, NAHRO and Urban League to the Zion Church. They agreed land acquisition was now the No. 1 problem, mortgage financing No. 2. Spokesmen for Negro groups like the NAACP

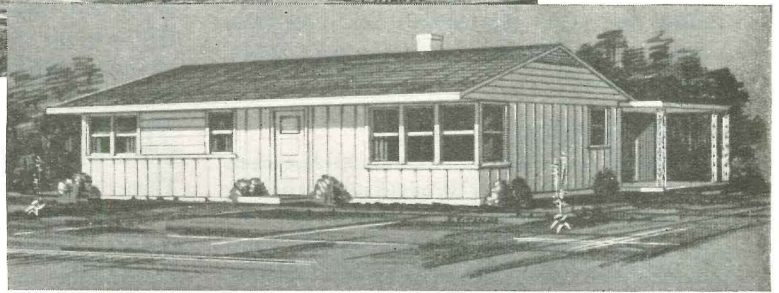
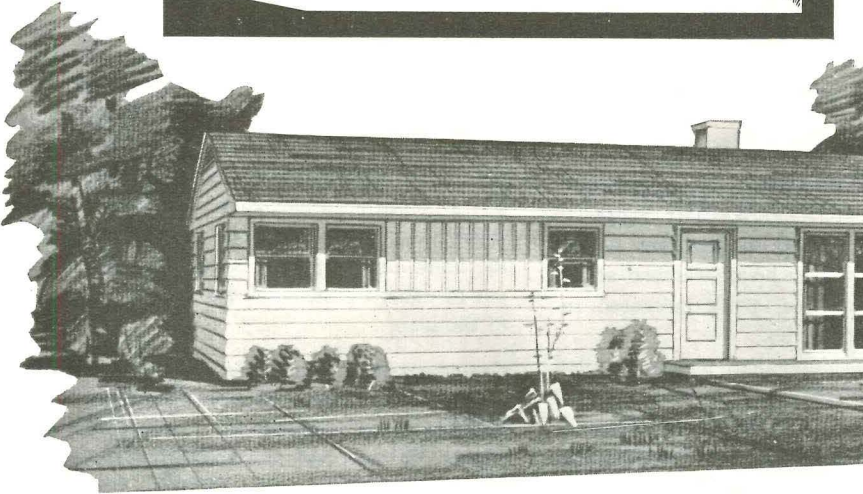
left no doubt they think an open occupancy requirement under FHA is the only answer (H&H, Dec. '54, News). Private industry representatives pointed out that this would probably jeopardize future FHA appropriations, since southern congressmen would likely balk.

HHF Administrator Albert M. Cole, who presided, called the session a "very successful exploration of the problems." He asserted: "A great deal of significant progress in this field is already under way or planned for the immediate future. Complex problems remain which can, and I believe will, be resolved through increased understanding, confidence and cooperation between all groups at this conference."



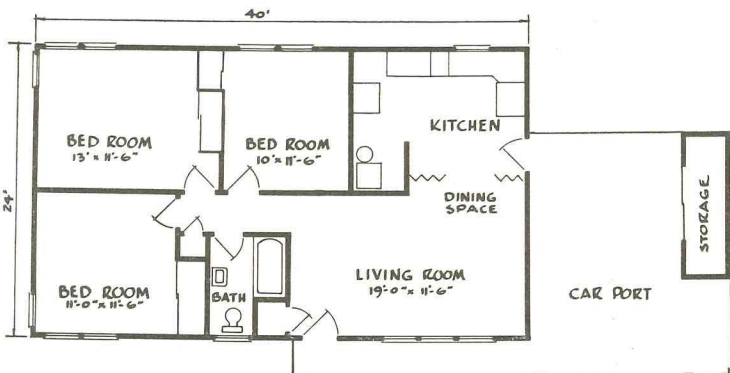


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## PEOPLE: Bill Divers quits Home Loan Bank to head S&L Foundation; B. T. Fitzpatrick resigns HHFA post

**William K. Divers**, a Truman appointee and now the lone Democrat on the Home Loan Bank Board, resigned effective Jan. 1 to become president of the Savings & Loan Foundation Inc., a new educational group of federally insured institutions. Board Chairman is **Ernest T. Trigg** of Philadelphia. Headquarters will be in Washington.

Divers said the new organization will neither conflict nor compete with the nation's two savings and loan organizations (which are trying to work out a merger agreement), the US Savings & Loan League and the National Savings & Loan League. Among other things, the two leagues present the industry's viewpoint to Congress and take stands on legislative matters. Divers said his foundation is prohibited from lobbying by its articles of incorporation. Its sole purpose, he explained, will be educational and advertising programs to make the public more conscious of the role of S&Ls. Divers believes it will be the first national advertising program ever undertaken by insured institutions.

A fund of \$750,000 a year for three years has been subscribed by foundation members. There are 3,400 insured institutions. Last month, 1,000 of them had joined the new organization.

Before his appointment to the Home Loan Bank Board in 1947, Cincinnati-born Divers was one of Housing Expediter Wilson Wyatt's top assistants. Earlier, he was Chicago regional director for the National Housing Agency—HHFA's predecessor.



DIVERS

FHA's long search for new executives to bolster its morale and efficiency turned up two new assistant commissioners last month. Named to a policy planning post: **Thomas F. Johnson**, young economist from Alexandria, Va. To direct the agency's insuring operations: **Henry M. Day** of Salt Lake City. The posts pay \$12,000 a year.

Johnson, who is 34, will supervise the program division, including FHA research and statistics. He received his Ph. D. in economics from the University of Virginia in 1949, since then has served as an economist with the Dept. of Agriculture and with the US Chamber of Commerce. While with the Chamber, he edited the monthly newsletter, *Economic Intelligence*, and served as secretary to several sub-committees. He is a Navy veteran.

Day, a longtime local GOPolitic just turned 50, has been FHA director for Utah since September, 1953. When he took office, the office was processing about 120 loan applications a month and getting around 60% of them cleared in 14 days or less. By the time he left, loan applications had quadrupled, yet 97% were being cleared within two weeks. Day, rightfully proud of the record, used down-to-earth pep talks to increase his staff's activity. "I sought and obtained permission to work the staff overtime. We got some extra help. We met frequently, and all the workers accepted the point of



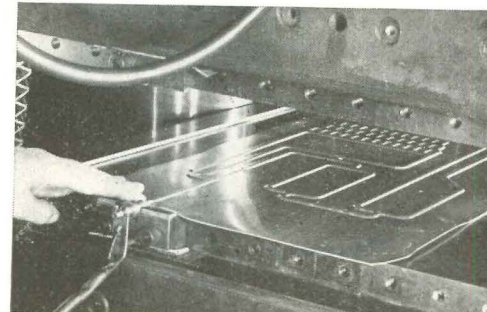
DAY

view that we were performing an important task for the people of Utah. . . ." In his job in Washington he will attack application backlogs on a national basis. His business philosophy: "I have always felt that if you take business in the door, you have an obligation to render a service. That applies whether you are directing a government office or a private business."

HHFA's **B. T. Fitzpatrick**, long deputy administrator but more recently general counsel, resigned last month.

Ever since the GOP took over the White House, job-hungry politicians had been after HHFA administrator **Albert M. Cole** to oust Fitzpatrick. Cole resisted; he relied heavily on his No. 1 aide's widely respected know how. Careerist Fitzpatrick had been with HHFA since it was created, as deputy administrator since Congress established the job in 1949 and as general counsel since before that. When the FHA scandal broke last April, Investigator **William McKenna** was moved in as deputy administrator. Fitzpatrick remained chief attorney and the principal official technician in charge of drafting the 1954 Housing Act. When Congress, well sold on Fitzpatrick's abilities, put through an amendment sparing him a pay cut, Washington dopesters figured "Fitz" would stay on.

His resignation came suddenly—"for reasons," he wrote Cole, "which you are fully aware of and . . . which I am sure are fully understandable to all who have been associated with me here." He added his "deep appreciation" for the "confidence and trust which you placed in me." Accepting with "regret," Cole praised Fitzpatrick



### Tubing blown in solid metal promises cheaper heating

A startling process by which, for the first time tubing is blown inside a solid sheet of metal, promises far-reaching changes in heating and cooling of homes. Olin Mathieson Chemical Corp. took the wraps off the process recently after ten years of experiment and three years of pilot production. This is how it works:

On a flat sheet of aluminum, copper or steel alloy, a secret stop-weld compound (it contains graphite) is painted by silk screen in the desired tubing pattern. The silk-screened sheet is heat-bonded to an identically sized sheet of the same metal—a well-known process in which the pattern is elongated several times. Then the sandwich sheet is annealed, fusing it into a single molecular mass except where the stop-weld pattern lies. Next, it is trimmed to bare the lead-in end of the stop-weld pattern. A needle, like one used to blow up a football, is inserted (cut, above left) and the bonded plate is placed in a hydraulic press. Under 3,000 lbs. air pressure, the painted pattern inflates to become tubing inside a solid sheet (cut, above right).

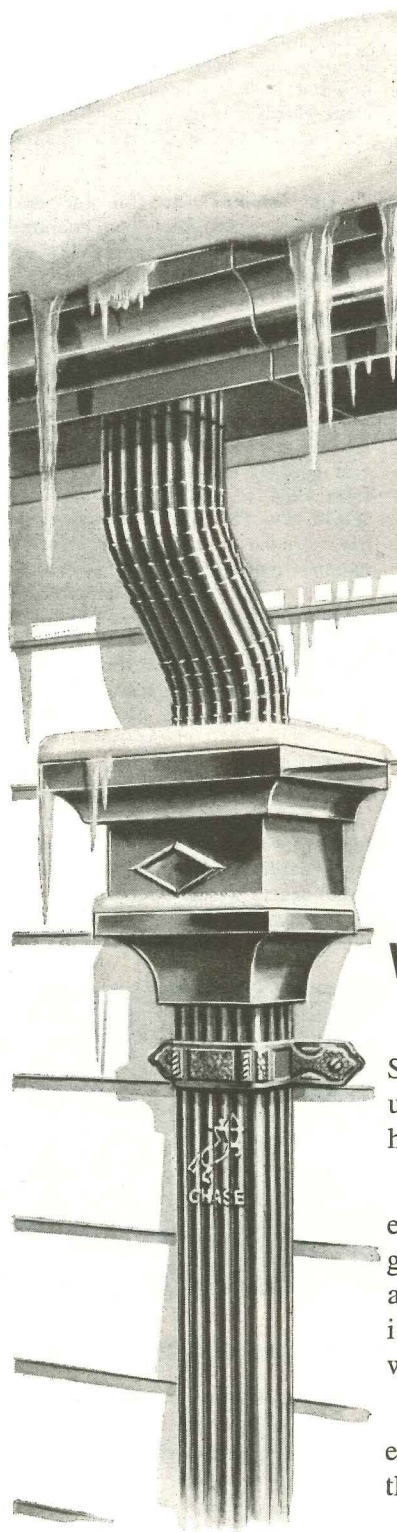
for "unswerving loyalty and dedication to duty," adding: "Your judgment, based upon your long years of devotion and experience, has been of enormous help to me."

Fitzpatrick's departure, effective Jan. 3, left the top three jobs under Cole vacant. McKenna had not been replaced, and Ass't Administrator **Neal Hardy**, another Democratic holdover, quit last summer to join NAHB's Washington Staff.

**T. (for Thomas) B. (for Bertram) King**, for nearly ten years chief loan guarantee officer for VA in Washington, resigned last month to join National Homes Acceptance Corp. On Jan. 10, King will become No. 2 executive in the mortgage arm of the big prefab firm under Executive Vice President **Frank P. Flynn Jr.** Rhode Island-born King, now 49, began his career as an attorney for National City Bank of New York after winning his law degree at Harvard in 1929. He was executive assistant to the associate general counsel of the Home Owner's Loan Corp. from 1934 to 1939, joined VA at the end of World War II. Under his supervision, GI loans have swelled to account for nearly 25% of the nation's mortgage debt. The 3.3 million individual loans VA has guaranteed on new and existing houses total some \$23 billion. In joining National Homes, King took himself out of the running for the vacant Democratic seat on the Home Loan Bank Board created by the resignation of **William K. Divers** (see col. 1).

**CONGRATULATIONS:** To **Charles S. Leopold**, Philadelphia heating and air-conditioning engineer, for winning the F. Paul Anderson medal, highest award of the American Society of Heating and Ventilating Engineers, for "outstanding contributions to the advancement of human comfort in heating, ventilating and air conditioning;" to the **Building Construction Employers Assn. of**





# EXTRA STRONG

**CHASE<sup>®</sup> copper roofing products  
withstand the weight of snow and ice!**

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Baltimore	Cleveland	Grand Rapids †	Los Angeles	New Orleans	Providence	Seattle
Boston	Dallas	Houston	Milwaukee	New York	Rochester †	Waterbury



Chicago, for winning the American Trade Assn. Executives' top prize among state and local associations for averting jurisdictional disputes and work stoppages in the building industry (**H. Mayne Stanton**, executive secretary of the Construction Employers, said 230 jurisdictional disputes have been settled without strikes since creation of a joint conference board with AFL trades unions in 1914).

Former NAHB President **Bill Atkinson**, now prospering as a land developer, lumber dealer, and shopping center promoter in Midwest City, Okla., is enlarging the celebrated house on his pony farm to an over-all length of 292' of handsome brick colonial.

Trials of AFL building labor bosses in Illinois and eastern Missouri resulted in two more convictions last month. **Evan Dale** and **James Bateman** were found guilty on two counts of attempting to extort slightly over \$1 million from Ebasco Services, Inc. when the company was building the atomic energy project in Joppa, Ill. Dale, president of the district council of hodcarriers and laborers in southern Illinois, was individually found guilty on another charge of extorting \$7,500 from a subcontractor at Joppa. He has headed Republican labor groups in Illinois for the past 14 years. Bateman, in power for about the same length of time, is business agent for a pipefitters' local in Murphysboro, Ill. The indictments stemmed from an intensive investigation of labor racketeering started in the summer of 1951 by the *St. Louis Post-Dispatch*. Dale and Bateman were the thirteenth and fourteenth to be convicted.

**Henry F. Fett**, 51, Detroit builder who had played an active part in the growth of NAHB for 15 years, died of a heart attack on Nov. 29 while addressing a meeting of Detroit homebuilders on the coming NAHB convention in Chicago. He was chairman of the convention last year and had been named again to manage this year's. Fett went into the real estate business in 1934 (after a stretch in the insurance business) and at the time of his death headed Henry F. Fett, Inc. and the Owen Construction Co. He estimated that since 1939,



FETT

when he built his first homes, he had put up about 1,000 houses. In 1953, the Detroit builders association chose him to build their annual "Ideal Home" for the local home show. Fett held a number of offices with NAHB, including a director's post, regional vice president, and member of the executive committee.

**OTHER DEATHS:** **Henry R. Hickman**, 57, treasurer of the B. F. Saul Real Estate Co. in Washington, veteran of both world wars, Nov. 26 in Washington; **Dewey L. Mead**, 56, San Francisco painting contractor, former president of the city's AFL building trades council and long-time member of the city's board of supervisors, Nov. 26 in Chicago; **Mrs. Catherine Baker Sleeper**, 56, wife and close business associate of Architect **Harold Sleeper** (former president of the New York Chapter, AIA), herself an active worker in architects' groups in the city, killed in an auto collision in New Haven Nov. 28; **Morris Macht**, 64, president of the big Welsh Construction Co. in Baltimore, Nov. 29 in Baltimore; **Russell F. Whitehead**, 70, architectural editor and authority on early American architecture, formerly with *Architectural Record* and *Pencil Points* (forerunner of *Progressive Architecture*), Dec. 2 at his home in Albuquerque, N. M.; **Frank Williams**, 89, city planning and zoning expert, author of many books derived from 40 years' in the field, Dec. 5 in New York.

## Sweeping Supreme Court decision upholds redevelopment, land seizure for aesthetics

Urban redevelopment has won a far-reaching victory in the US Supreme Court. In its first opinion on the subject, the court not only called redevelopment and slum clearance constitutional in the broadest possible terms, but also approved use of eminent domain to seize private property for "aesthetic" reasons.

The unanimous ruling, written by Justice William O. Douglas, applies specifically to the owners of a small Washington department store who claimed their rights would be violated if the store were wiped out in a slum clearance program projected for the area. They contended it was unconstitutional to include the property in the condemned area because it was not itself in slum condition, and, moreover, because under the District of Columbia Redevelopment Act the land would be redeveloped for private, not public, use.

**Question of welfare.** Overruling these points, Justice Douglas held that Congress, in enacting the District Act, had made a valid "legislative determination" that it was the "policy" of the US to promote the public welfare in the district by eliminating injurious conditions by all "necessary and appropriate" means. He wrote: "Once the object is within the authority of Congress, the means by which it will be attained is also for Congress to determine. Here one of the means chosen is the use of private enterprise for redevelopment of the area . . . Subject to specific constitutional limitations, when the legislature has spoken, the public interest has been declared in terms well-nigh conclusive. In such cases, the legislature, not the judiciary, is the main guardian of the public needs to be served . . ."

Justice Douglas called slum clearance legislation an exercise of the police powers of the state, ruling that the "more conspicuous examples . . . merely illustrate the scope of the power and do not delimit it. . . ."

"We do not sit to determine whether a particular housing project is or is not desirable. The concept of the public welfare is broad and inclusive. . . . The values it represents are spiritual as well as physical, aesthetic as well as monetary. It is within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well balanced as well as carefully patrolled. In the present case, the Congress and its authorized agencies have made determinations that take into account a wide variety of values. It is not for us to reappraise them. If those who govern the District of Columbia decide that the nation's capital should be beautiful as well as sanitary, there is nothing in the 5th Amendment that stands in the way."

**Good with the bad.** The 8 to 0 decision also dealt with other recurrent legal con-

troversies in redevelopment. Two of them: ▶ "If owner after owner were permitted to resist these redevelopment programs on the ground that his particular property was not being used against the public interest, integrated plans for redevelopment would suffer greatly." ▶ "Property may, of course, be taken for this redevelopment which, standing by itself, is innocuous and unoffending. . . . It is not for the courts to oversee the choice of the boundary line nor to sit in review on the size of a particular project area."

### HHFA names first city for urban renewal program

Critics of the administration's urban renewal program (notably labor spokesmen) have harped on the theory that it may bog down because it will take years for all but big cities to develop the "workable program" that is now prerequisite to federal aid.

When HHFA, in mid-November, approved the first "workable program" of a US city, it could scarcely have picked a better community to argue that the critics might be wrong. The approval went to Clarksville, Tenn. (pop. 22,000), some 45 mi. northwest of Nashville. To develop its workable plan for stopping blight, junior-sized Clarksville, which has no planning technicians, hired consulting engineers King & Clark to work out the necessary comprehensive plan to permit federal aid for public housing, redevelopment, FHA. Secs. 220 and 221. HHFA's yardstick for a workable program (which applies nationally) and how Clarksville met it:

1. A comprehensive system of codes and ordinances prescribing adequate minimum standards of health, sanitation and safety under which dwellings may be occupied. Clarksville had all but a housing code and had scheduled this for adoption.
2. A comprehensive general plan for the community including, as a bare minimum, a thoroughfare plan, zoning ordinance and land-use plan. Clarksville adopted a thoroughfare plan and, with technical aid from the state planning commission, is well along on land use and zoning.
3. Studies to show what neighborhoods can be rehabilitated, which should be rebuilt. State planners and the Clarksville Housing Authority helped city officials spot eight likely areas.
4. Administrative authority really to enforce codes and ordinances. Said HHFA: ". . . [These] have been or will be provided."
5. Recognition that more outlays of city cash will be required. Clarksville pledged the needed funds.
6. Plans to rehouse displaced families in "decent, safe and sanitary" quarters. Clarksville will use vacancies in private housing, rehabilitation and has applied for another 100 units of public housing.
7. Wide enough community participation to assure continued support of urban renewal. Among other things, HHFA noted: "Meetings have been held by the housing authority with Negro groups, who expressed full support."

By late November HHFA had only five other applications: Chicago, Somerville, Mass., Portsmouth, N.H., Lewisburg, Tenn. and New Orleans.





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the draft-free G-E Air-Wall system.

G.E. gives you an extra "carry-over", too. Folks have confidence in the quality standards of the builder with the foresight of specifying G-E Home Heating and Cooling.

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size or oversize, you use the minimum floor space, or, on some models, no floor space at all.

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Invite your G-E dealer in to see you today to tell you all the G-E "Big Plus" facts. He's listed in the Yellow Pages of your phone book.

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HOUSING STATISTICS

Population trends show where housing should boom in future

Government statistics are continuing to shed important light on the location and nature of tomorrow's booming housing markets.

In 15 states, according to a recent report of the Census Bureau,\* there has been a net civilian in-migration of 25,000 or more between April 1, '50 and July 1, '53. Building economists think these states are most likely to produce the most homebuilding in the years ahead, not only because the in-movement represents a corresponding demand for more housing units, but also because the very fact of net in-movement indicates better than average job or health or retirement opportunities. States involved, and the net in-migration:

California .....	977,000	Texas .....	75,000
Florida .....	429,000	Maryland .....	71,000
Michigan .....	185,000	Illinois .....	53,000
New Jersey .....	157,000	New York .....	51,000
Ohio .....	126,000	Indiana .....	41,000
Arizona .....	122,000	Nevada .....	36,000
Connecticut .....	98,000	Delaware .....	25,000
Massachusetts .....	86,000		

It is unsurprising to find house-hungry California and Florida at the head of the list. In-migration accounted for half or more of their net population gain between 1950 and 1953. But five other states (Connecticut, New Jersey, Delaware, Arizona and Nevada) can also claim this distinction, suggesting that housing will continue to boom there, too, perhaps more than a lot of builders think.

The astonishing mobility of the nation's population—in one four-year postwar period some 78 million Americans, a number equal to half the population, changed residences—has fallen most heavily on the suburbs, as the table below shows. Its compiler, HHFA Planner E. Everett Ashley, suggests the extent of this dramatic metropolitanization of the US population "still needs to be appreciated and then pondered because of its far-reaching economic, social and political implications."

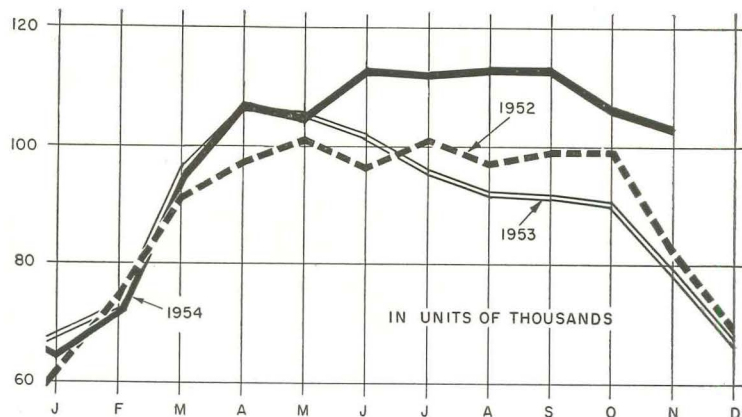
\* Census Bureau, Current Population Reports, series P-25, No. 97

NEW DWELLING UNITS IN SELECTED METROPOLITAN AREAS

Standard metropolitan area	Units authorized in 1953			Central city units authorized—% of total	
	Total S.M.A.	Central city	Urban ring	In 1953	In 1950
Atlanta .....	8,961	3,785	5,176	42%	28%
Baltimore .....	13,691	4,706	8,985	34	48
Boston .....	11,781	1,273	10,508	11	15
Chicago .....	39,936	10,390	29,546	26	37
Cincinnati .....	5,754	1,613	4,141	28	55
Cleveland .....	10,667	2,219	8,448	21	18
Dallas .....	10,230	6,397	3,833	63	73
Denver .....	8,214	3,726	4,488	45	62
Detroit .....	30,581	5,531	25,050	18	32
Hartford .....	3,147	365	2,782	12	17
Indianapolis .....	5,296	1,764	3,532	33	58
Kansas City .....	4,942	1,905	3,037	39	32
Los Angeles .....	93,604	29,439	64,165	31	31
Miami .....	17,213	3,855	13,358	22	24
Milwaukee .....	7,773	4,368	3,405	56	54
Minneapolis-St. Paul....	7,035	2,440	4,595	35	49
New York-Newark-J.C....	74,906	22,186	52,720	30	32
Philadelphia .....	20,266	6,922	13,344	34	42
Richmond .....	2,795	650	2,145	23	29
St. Louis .....	9,776	1,415	8,361	14	22
Salt Lake City.....	2,544	625	1,919	25	53
San Antonio .....	5,669	5,126	543	90	80
San Francisco-Oakland..	21,812	2,815	18,997	13	17
Seattle .....	7,077	2,136	4,941	30	44
Washington, D.C. ....	22,726	5,384	17,340	24	19

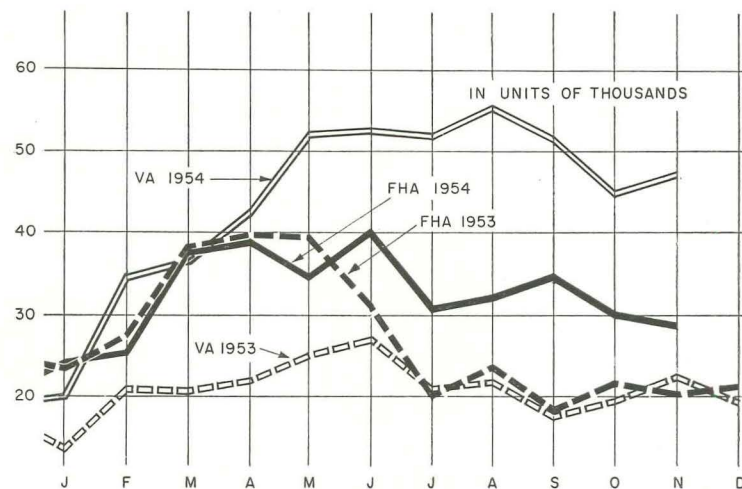
Source: based on US Bureau of Labor statistics

PRIVATE HOUSING STARTS



Private housing starts in November shattered all records for the month. The total was 102,700 units; the old November high was 82,700 in 1950. November public housing: 300 units.

VA AND FHA APPLICATIONS



VA appraisal requests for proposed homes for November 1954 totaled 47,729, more than double the comparable total for 1953. Total new-house FHA applications in November: 28,735.

MORTGAGE MARKET QUOTATIONS

(Originations quoted at net cost, secondary market sales quoted with servicing by seller) As reported to House & Home the week ending Dec. 17

City	FHA 4 1/2's		5% equity or more VA 4 1/2's		No down payment VA 4 1/2's	
	Origina-tions	Secon-dary	Origina-tions	Secon-dary	Origina-tions	Secon-dary
Boston local	par-101	a	par-101	a	par-101	a
Out-of-state	a	99-par	a	99-par	a	97-99
Chicago	97-99	99-par	97-99	99-par	96-97	98-99
Denver	99-par	99-par	99-par	99-par	99-par	99-par
Detroit	97 1/2-99	a	97 1/2-99	a	96 1/2	a
Houston	par	par	99 1/2-par	99 1/2-par	97 1/2-99	97 1/2-99
Jacksonville†	par	par	par	par	97-98††	97-98††
Kansas City	99-par	par	99-par	par	96 1/2-97	98
Los Angeles	99-99 1/2	99-99 1/2	98-98 1/2	98-98 1/2	97-97 1/2	97-97 1/2
New York	par	par	par	par	par	par
Philadelphia	par	par	par	par	99-par	99-par
Portland, Ore.*	par	par	99	99	98	98
San Francisco	par	par	par	par	95-98	95-98
Washington, D.C.	par	par	par	99 1/2-par	99 1/2-par	98-par

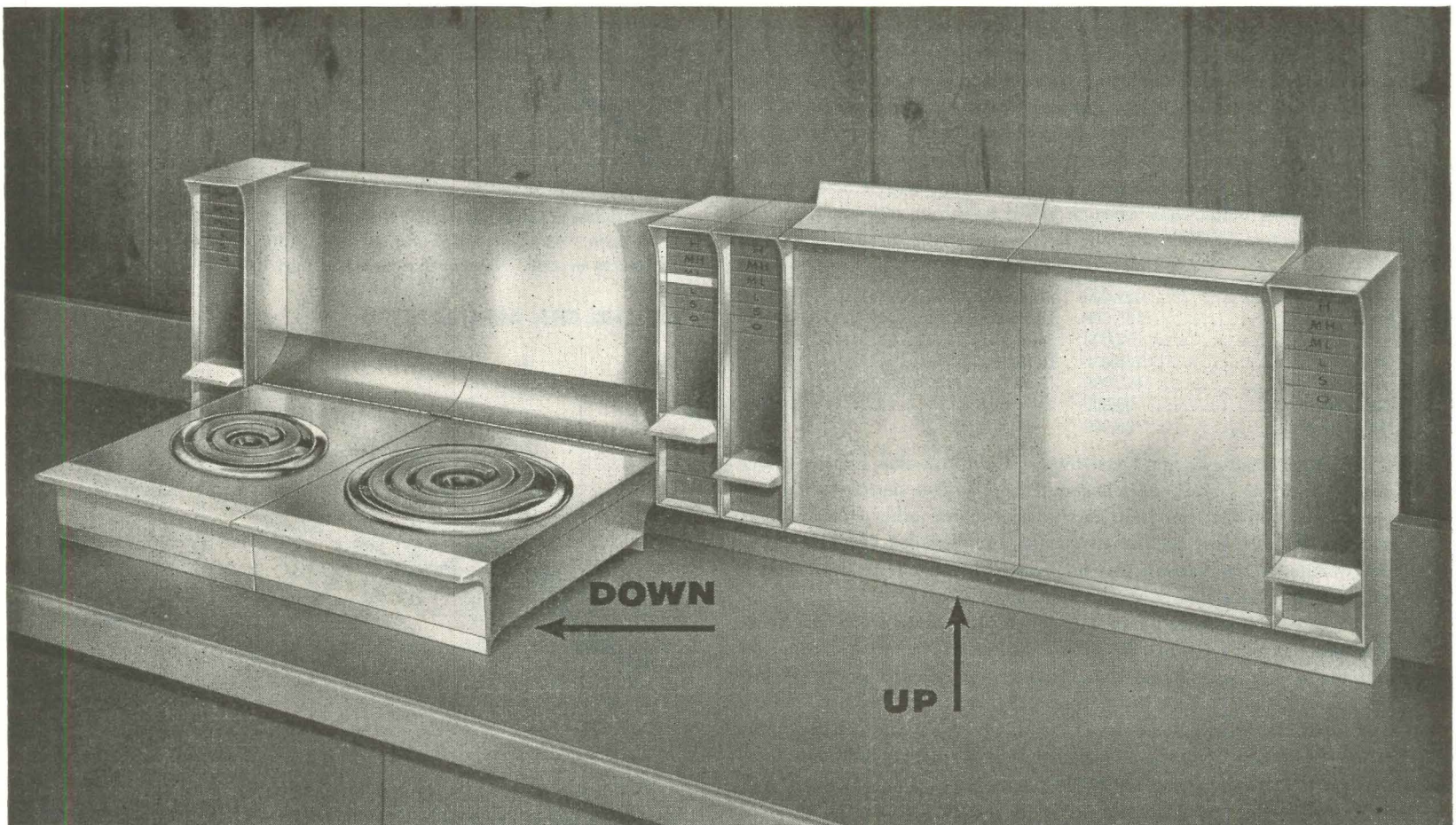
\* No market. † Probable prices throughout Florida. †† Without closing costs in cash.

SOURCES: Boston, Robert M. Morgan, vice pres., Boston Five Cents Savings Bank; Chicago, Maurice A. Pollak, vice pres. & secy., Draper & Kramer Inc.; Denver, C. A. Bacon, vice pres., Mortgage Investments Co.; Detroit, Robert H. Pease, pres., Detroit Mortgage & Realty Co.; Houston, Donald McGregor, exec. vice pres., T. J. Bettes Co.; Jacksonville, John D. Yates, vice pres., Stockton, Whatley, Davin & Co.; Kansas City, Byron T. Shutz, pres., Herbert V. Jones & Co.; Los Angeles, John D. Engle, pres., Insurance Funds Mortgage Co.; New York, John Halperin, pres., J. Halperin & Co.; Philadelphia, W. A. Clarke, pres., W. A. Clarke Mortgage Co., Portland, Franklin W. White, pres., Securities, Inc.; San Francisco, William A. Marcus, senior vice pres., American Trust Co.; Washington, D. C., George W. De Franceaux, pres., Frederick W. Berens, Inc.



FRIGIDAIRE ANNOUNCES

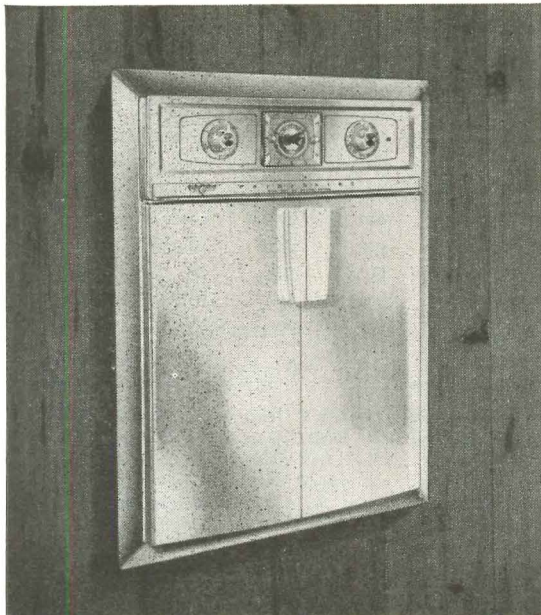
# Revolutionary New "Built-In" Range Units



**Believe it or not, this is the "Top of the Range" for your new built-in kitchens!**

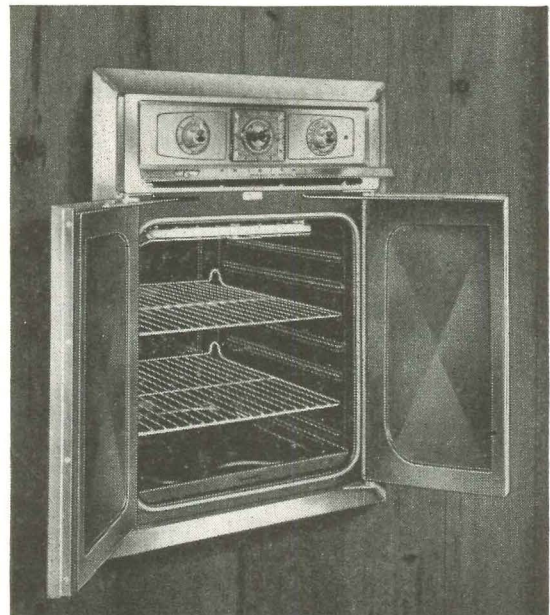
This brand new design from Frigidaire and General Motors sets the pace for built-in surface cooking in today's modern homes. Separately controlled "Fold-Back" units use no work surface in up position. Simply pull down individually for cooking.

Lift back up and unit turns off automatically, leaving all of counter top free for other use. Each section contains one 6" and one 8" Radiantube Surface Unit. Needs only a 30" wall surface for each section. Stainless steel, plastic trim.



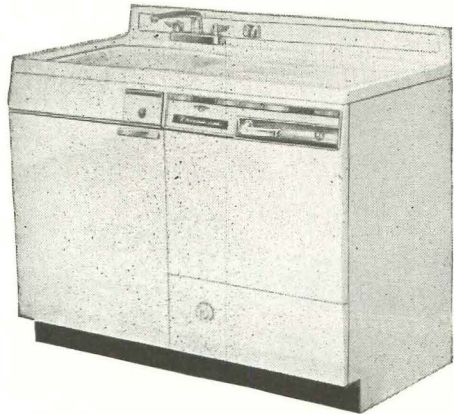
## Frigidaire Giant Imperial Wall Oven with revolutionary new "French Doors"

Here's the first full-size built-in oven—17" wide; 18" high; 20½" deep. Same size, same wonderful baking and roasting features you'll find in Frigidaire's finest ranges. Exclusive new "French Doors" swing out, and back out of way to save kitchen space. No awkward pull-down doors—no groping at arm's length. Give women quick, easy access to food they're cooking. Easy to use, easy to clean. Up-top controls at easy-reach level are out of children's reach, protected from heat when broiling. Cook-Master Oven Control turns oven on, cooks meal, turns oven off—all automatically! Separate frame and oven install easily into cabinet or wall space.





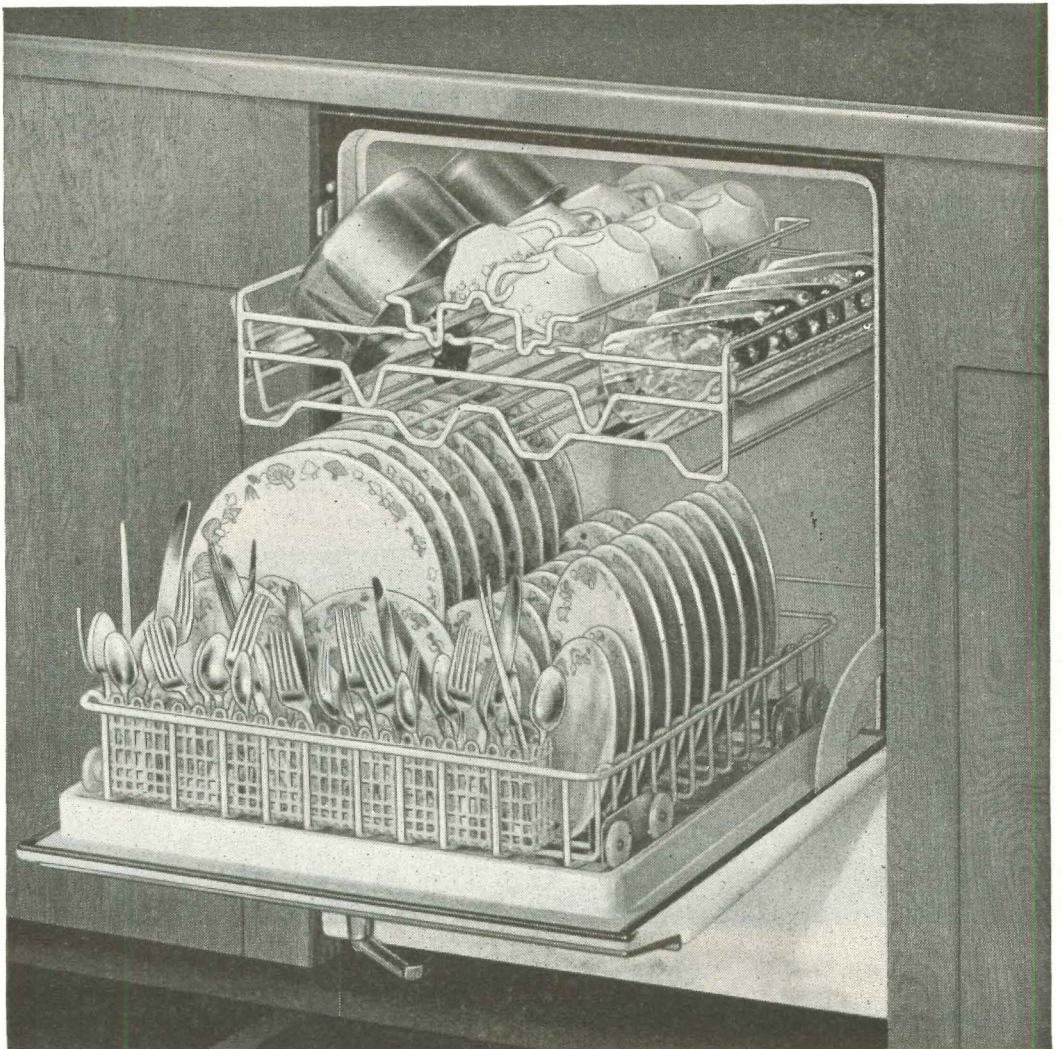
# ... and New Automatic Dishwashers



**Exclusive "Turbo-Spray" Action  
makes 5-minute  
dishwashing come true!**

Builders know that a vital factor in selling new homes is the fulfilling of housewives' dreams of completely automatic kitchens. And the final sale-clincher is an automatic dishwasher that (1) really saves time and work, and (2) bears the world-famous Frigidaire trade-mark. And here it is at last! Here's a dishwasher that frees women from the tiresome chore of pre-rinsing by hand and simplifies loading. Exclusive "Turbo-Spray" Action really scrubs away egg yolk, lipstick and hardened grease. It makes the dream of 5-minute dishwashing come true—2 minutes to scrape, once over lightly—3 minutes to load, then push the button. Pre-rinses, washes, double-rinses and dries with Radiantube heat.

In addition to the undercounter model, Frigidaire also makes a sink-combination, a cabinet model and a portable model. All with Lifetime Porcelain rust protection where it counts the most. All in a choice of Sherwood Green, Stratford Yellow or snowy white.



New Frigidaire Food Waste Disposers are easily installed on most sinks. Fast-operating and dependable. Shreds bulky foods, cuts fibrous foods, pulverizes brittle foods.

**See all these new Frigidaire models  
at the 1955 National Association  
of Home Builders Show**

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## **Frigidaire Appliances** Built and backed by General Motors

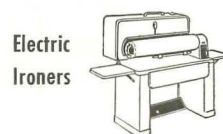
Now builders can offer the sales magic of a COMPLETE Frigidaire kitchen and laundry



Refrigerators



Automatic Washers and Electric Dryers



Electric Ironers



Chest-type and Upright Food Freezers



Upright and Table-Top Electric Water Heaters



Electric Ranges

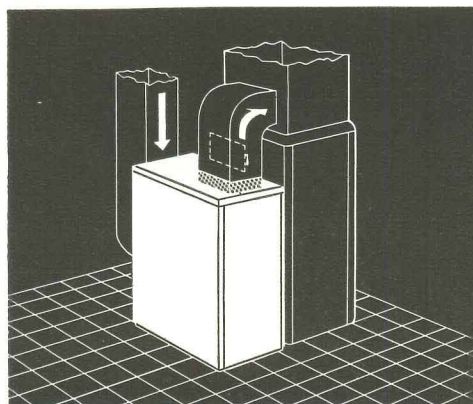


Air Conditioners

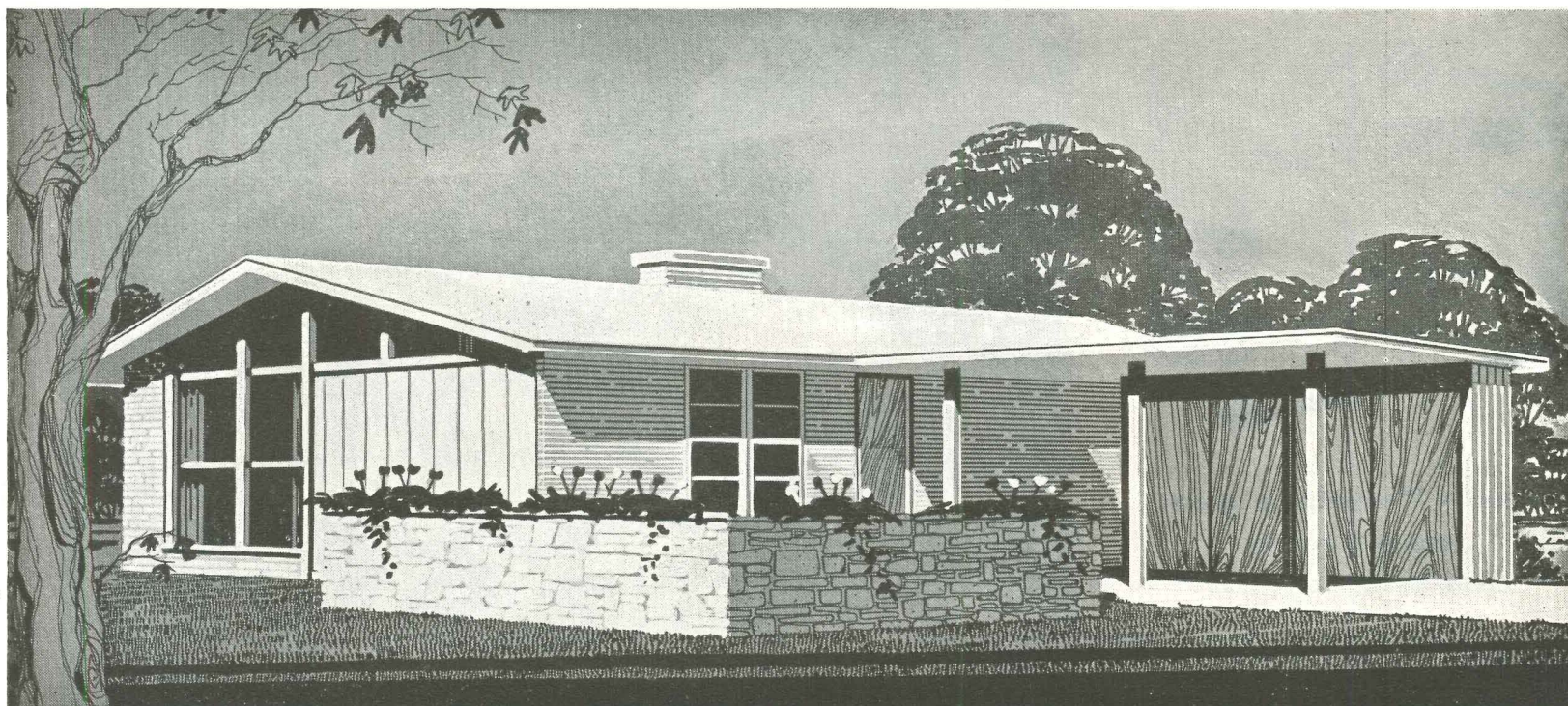
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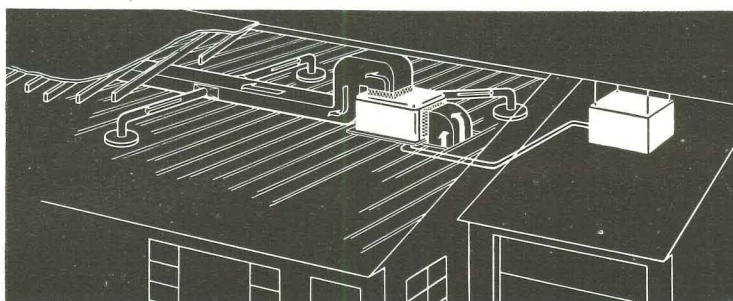
Installed with forced-air furnace



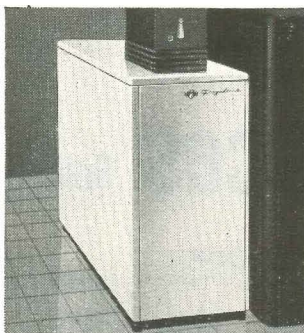
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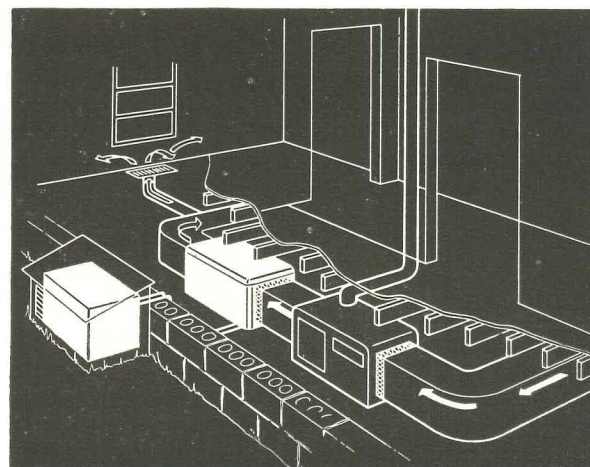
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## Delegates ponder competition from liberalized FHA terms

Three problems seemed uppermost in the minds of the 3,000 delegates at the US Savings & Loan League's 62nd annual convention in Los Angeles: 1) the threat presented by FHA's liberalized home loans under the new Housing Act; 2) how to broaden the loan associations' investment areas; 3) a desire to achieve independent status for the Home Loan Bank.

Competition from newly liberalized FHA loans was the chief problem, but there was small sign that anyone at the convention was losing sleep over it. A sampling of comment: ▶ "Our big problem will be adjusting to the new Housing Act. We will adjust ourselves to this problem and will solve it as we have all others. It will take a little time." (Julius E. Schroeder, president of First Federal Savings & Loan Assn., Charleston, S.C.)

▶ "It is becoming more apparent with the passage of time that savings and loan people will have to recognize the threat of the FHA and will have to adjust themselves to maintain a competitive position. You can rest assured that we will be competitive." (W. W. McAllister Jr., president of San Antonio Savings & Loan Assn.)

▶ "We won't have any trouble for the next few years. We just have to watch out that we don't talk ourselves into making bad loans, like a 30-year loan. We're well set on the savings end." (F. J. McCue, president of Eureka Savings & Loan Assn., Eureka, Kan.)

**Cleared for action.** The US League has a proposition before the Home Loan Bank Board asking that S&L associations be allowed to increase their loans from the present 80% to 90% of appraised value. Favorable action on this proposition and also on a request that the loan period be extended from 20 to 25 years was expected. And members will go after legislation to enable them to broaden

their investment portfolios (83% of the industry's \$30 billion of assets are in home loans). Said new President J. Howard Edgerton: "We want to be granted the same privileges as mutual savings banks. We want to be able to invest some of our capital in high-class corporate and municipal securities."

This change, said Edgerton, could be better effected if the Home Loan Bank Board is restored to its former status as an independent agency. (It has been under HHFA for 12 years.) Edgerton and others at the convention pointed out that broadening of investment holdings would be particularly advantageous to the industry if and when the homebuilding boom levels off. "Building might taper off in 1956," said Edgerton, "and that's one reason we want greater investment diversification."

President Edgerton expects to spend more time on league business during the coming year than on his own. A lot of it, judging from the discussion, will be to lobby for legislative breaks, largely in Washington.

**More to come.** Outgoing President Ralph Crosby, who noted that from the standpoint of flexibility and speed the conventional loan will always be preferred, announced that less than 10% of conventional loans on existing houses made by S&L men in 1953 were for longer than 17-year maturity. And only 7% were as much as 75% of the purchase price of the house. Predictions at the convention were that by 1960 S&L associations, now making 37% of all home loans in the nation, would be making 50%; and their \$30 billion of assets will have increased to \$50 billion.

New vice president of the US League—in line to fill the president's spot next year—is Walter H. Dreier of Evansville, Ind., president of Union Federal Savings & Loan Assn. and former president of the Indiana Savings & Loan League.



J. HOWARD EDGERTON

### New league president likes to hunt, fish, fly own plane

James Howard Edgerton, the 46-year-old Californian chosen to head the US Savings & Loan League, is an embodiment of the industry's aggressiveness and energy. Edgerton passed his bar exams in 1930, jumped into the savings and loan business in the mid-thirties, and expanded with the industry. He is president of the California Savings & Loan Assn. in Los Angeles which, with assets of \$115 million, ranks 12th largest in the nation. "People like the way we do business because we give them service," he said recently. "We have been doing a tremendous job of public relations and we are community-minded. . . ."

Edgerton migrated from Arkansas to Arizona as a child, formed an affinity for hunting and fishing which still exists. His family moved to Los Angeles when he was 12 and after a stint at a military school there he entered the University of Southern California (where he was active on the campus newspaper) and was graduated from its law school in 1930. When the law firm he was working for assigned him to reorganize a small savings and loan company—Railway Mutual Building & Loan Assn.—Edgerton obliged and six years later took over active management of the company and gave up the law. Edgerton attributes the growth of the firm (from a mere \$300,000 assets when he took over) to "doing a job of public relations in an area with a heavy residential population." He says: "When new areas developed we didn't wait for the people to come to us. We went to them. We built branch offices and we offered them things like plenty of parking space, a chance to deposit their sav-

(continued on p. 62)



**NAREB PRESIDENT** Ronald Chinnock (l) chats between sessions with Ralph Crosby, outgoing president of the US League, and J. Hamilton Cheston (r), president of the National Assn. of Mutual Savings Banks.



# “Here’s how we save with Bildrite!”



Alfred Wetor (left) verifies Bildrite cost savings reported on these pages with Insulite representative, Bill Berg. Mr. Wetor is Past President, Milwaukee Builders Association and a Director, National Association of Home Builders. He has been active in Milwaukee's annual Parade of Homes since its inception in 1941. His firm builds 32 to 35 homes a year in the \$17,500 to \$25,000 class.

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SAN ANTONIO.....		Central Distributing Co.
SALT LAKE CITY.....	<b>UTAH</b>	Sirevell-Paterson Hdwe. Co.
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MILWAUKEE.....		Graybar Electric Co., Inc.

report made Eastern investors newly aware of the area's timber industry and for the first time gave them a scientific diagnosis of where it is heading.

**Broker opinion.** Harry Grande, a leading Seattle investment broker (chiefly timber), reported that conversations with his clients and colleagues confirm the impression that the report gave the market a nudge. He has had 5,000 digests of the report printed and sent to investment officers all over the country.

Grande quotes Lawrence Arnold, chairman of the Seattle First National Bank, as saying at lunch: "Hardly a week goes by now when somebody from New England or New York representing a pension trust, a mutual fund—some fraternal fund of size—doesn't check in with us and ask entry to, say, one of Phil Weyerhaeuser's chief lieutenants. They go down there, spend the day asking questions and come back saying: 'Well, we ought to have a few thousand shares of that in our portfolio.'"

Edmund F. Maxwell of Blyth & Co.: "There is absolutely no question the report had a huge impression on long-term investors. . . ."

Not all the experts, of course, were as enthusiastic. Lowell Kuebler, investment officer for the Seattle First National, pointed out that pulp and paper activity had been heavy before the report "because new investment has been justified by the facts for a long time now." Kuebler: "The report is still too new to have sunk in much yet, though it probably has, and will, intrigue more easterners in time."

From Harold Cameron, president of both the Pacific Northwest Co. and of Equity Fund, Inc.: "For my nickel's worth, the effect of the report is more in the line of confirming the opinions of professional investors held over a long period."

## Industry plans new drive for improved statistics

Rebuffed last year in its efforts to wangle \$1.1 million from Congress to improve the much lamented accuracy of construction statistics, the building industry has begun marshaling its forces for another try.

A mid-November conference at the Commerce Dept. heard Walter W. Schneider, construction statistics chief for Commerce's business and defense services administration, outline this five-point program:

1) More information from primary sources to increase accuracy of the widely quoted figures on expenditures for new construction (Schneider called 35% of the present figures of uncertain value); 2) direct field surveys to get data on "fix-up" expenditures; 3) semi-annual surveys of housing vacancies in metropolitan areas; 4) material use surveys, a topic on which current information is relatively vague; 5) complete revision of the building materials production index to include items not now used, such as window glass, asphalt tile, aluminum products.

(NEWS continued on p. 71)

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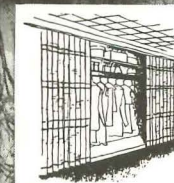
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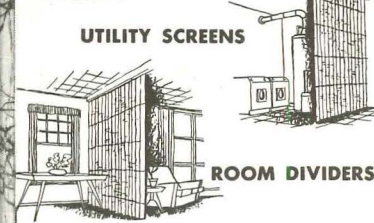
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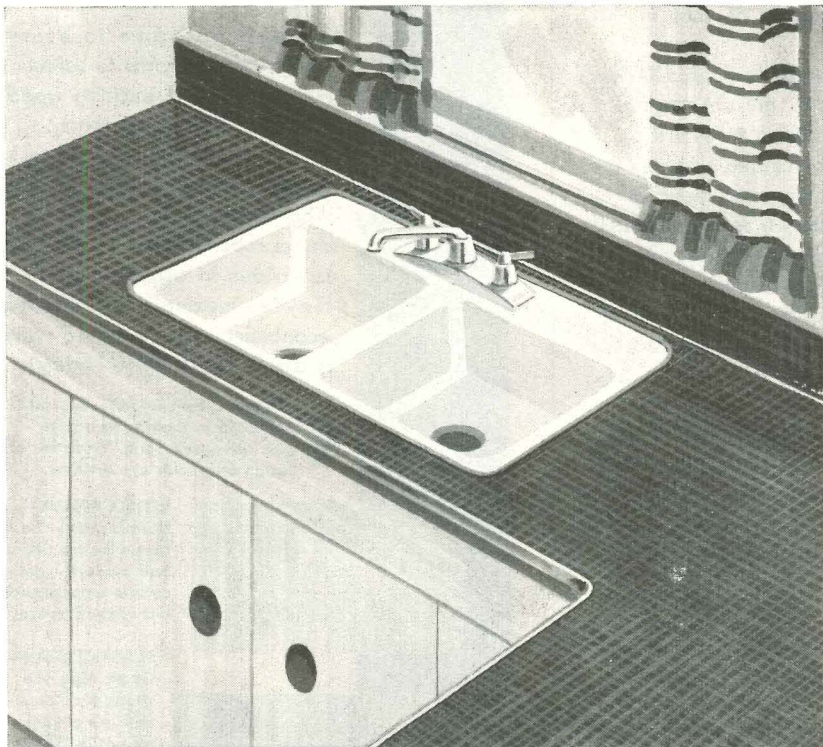
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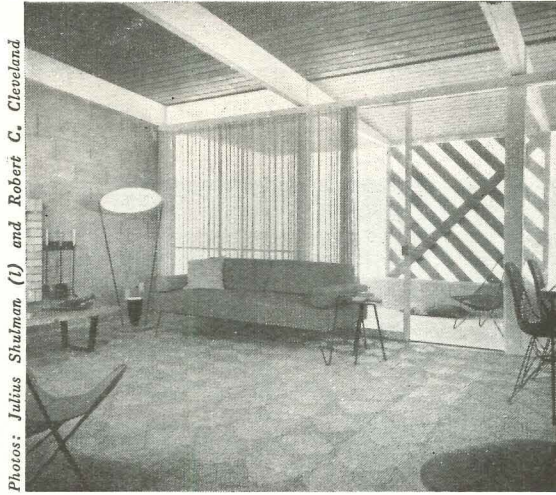
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Photos: Julius Shulman (l) and Robert C. Cleveland

THORNTON ABELL HOUSE (LEFT) AND CAUGHEY &amp; TERNSTROM BEACH HOUSE

## BUILDERS AT WORK:

### California AIA winners

Four homes received awards—one honorable mention and three citations—from the Southern California Chapter, AIA, in the organization's latest examination of building in the area during the past three years. The four:

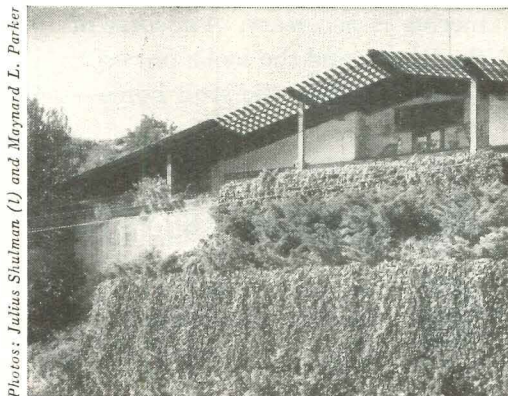
▶ **Thornton Abell**, for a spacious model home with traffic-free living room (see cut, above left) shown at the 1952 Construction Industries Exposition and Home Show of Southern California. (The house, owned by the contractor, was removed after the show.) It was distinguished by its blank wall facing the driveway (for privacy) and by the color integration of the indoor-outdoor living space.

▶ **Caughey & Ternstrom**, for a 959 sq. ft. weekend beach house (Earl T. Hilburg, owner) on a 35'-wide lot with 3' setbacks (see cut, above right). Brilliant colors are used. The sand patio is protected on four sides from neighbors and wind; the living room is pitched down toward the west and protected to reduce ocean glare. Materials: redwood and concrete block.

▶ **Smith & Williams**, an honorable mention—one of the five top awards—for a 1,421 sq. ft. home in South Pasadena (Rene Levenant, owner) on an old grown-over carriage road winding through pine planting (see cut, below left). The house is anchored against the hill at the edge of the old road, and stretches over its lower level. Scrap redwood siding is used as an economy device and to catch sunlight color at joints.

▶ **Wallace Neff**, for a 4,800 sq. ft. house in Beverly Hills (S. K. Eisen, owner) with three bedrooms and three baths and maid's room and bath (see cut, below right). Neff used white-painted brick and exposed timber roof construction in the home, raised above a heavily hedged approach.

Judges were Architects John Lyon Reid of San Francisco, O'Neil Ford of San Antonio and Paul Thiry of Seattle.



Photos: Julius Shulman (l) and Maynard L. Parker

AWARD WINNERS BY ARCHITECTS SMITH &amp; WILLIAMS (LEFT) AND WALLACE NEFF

### The new land developers

The advent of big-money developers into the subdivision field was more and more noticeable.

"Subdivision filings in California continued at a rate unprecedented for the fall months," reported Real Estate Commissioner **D. D. Watson**. September's figure of 289 new tracts was 50% above the count last year. The September showing was due mainly to activity in the Los Angeles area, said Watson, where more than half the state's total was stacked up for the highest monthly total in the history of the office.

Prime example of what was going on was announcement of a no-less-than-colossal project to occupy more than half of the scenic Palos Verdes peninsula about 20 mi. from the heart of Los Angeles. The 7,000-acre Rancho Palos Verdes will be developed with an ultimate investment of "hundreds of millions" by the **Great Lakes Carbon Corp.** and the **Capital Co.**, the latter a subsidiary of **Transamerica**. Architects **Pereira & Luckman** have been engaged to work out the master plan.

**Sacramento**, enjoying such a boom that builders from out of town were beginning to reach out for business there, had its share of jumbo subdivisions. A couple: **Boswell-Alliance Construction Co.**'s plans for 700 three- and four-bedroom homes in the \$10,500 to \$14,500 range designed by **John L. Kies**, of contemporary trend with much color and glass patio doors; an **Artz & Cook** project, using **Cowal** houses, about a mile from the Boswell-Alliance south of the city.

**Florida** was bucking all the competition from California it could. Late November brought one of the biggest subdivision starts. **Robert W. Gordon** and **H. J. Siegel** showed seven model homes—"Happiness House," "Enchanted Cottage" and "Golden Dream" were among them—in their projected 4,000-home Miramar development in Broward County. The homes will vary from \$6,996 to \$11,450 and from two bedrooms to four on minimum lots of 75' x 100'. Veterans are offered

a no-down-payment deal and nonveterans among the first 100 home buyers will be allowed in on no-down-payment conventionals.

In **Indianapolis**, **National Homes** was working on what would be one of its biggest projects in the nation—\$12 million worth of development, including 1,200 homes. **J. & L. Realty, Inc.** and **Holiday Park Realty Corp.** had set up models.

**Kansas City** faced up to a couple of medium-to-large developments—a 500-home project by **James H. Stanton Construction** and an 800-house plan by the **Peterson-Byers Development Co.**, both scheduled for first occupancy in early spring.

### Architect at work

Architect **Fran Schroeder** of Indianapolis has built up a head of steam in the past few months to bring the contemporary house to his home city. Schroeder's aggressive campaign is one third education (he writes an architectural column for the *Indianapolis Times*), one third on-the-spot design (see cut) and one third a progressive stimulation of builder and lumber customers to carry through on his ideas.

One of Schroeder's houses is the low-pitched three-bedroom pictured below, with attached carport and tall, vertical windows in the living room. A good description: transitional contemporary—and a substantial cut above the run-of-the-



H &amp; H staff photo

### WELL-FENCED CONTEMPORARY

mill builder house. Schroeder's house is built on crawl space and has hardwood floors (no basement because VA would not make enough allowance for it), low-pitched roof and a good job of fencing. An unorthodox aspect: the carport is on the living-room side because Schroeder wanted a sheltered front entrance, figured that the logical place for an entrance from the driveway was the living room, not the kitchen.

Indianapolis is not currently noted for speedy turnover in new homes (especially contemporaries) and Schroeder's models have moved slowly. But he thinks now he is over the hump. **M & D Builders** is putting up his houses and Schroeder thinks **Mrs. Ted Marbraugh**, head of the firm, will promote his contemporaries. He is also designing for Builder **Bob Wirsching**, who is developing one of the nicest sections of rolling country outside Indianapolis, called Devon Woods. Schroeder made contact with both these builders through the **Burnet-Binford Lumber Co.**, which works closely with architects on panelized wall construction. Schroeder uses miniature models of his homes (instead of color renderings) to stir up business, feels that his newspaper columns did a lot to enlighten local builders on the possibilities of contemporary architecture.

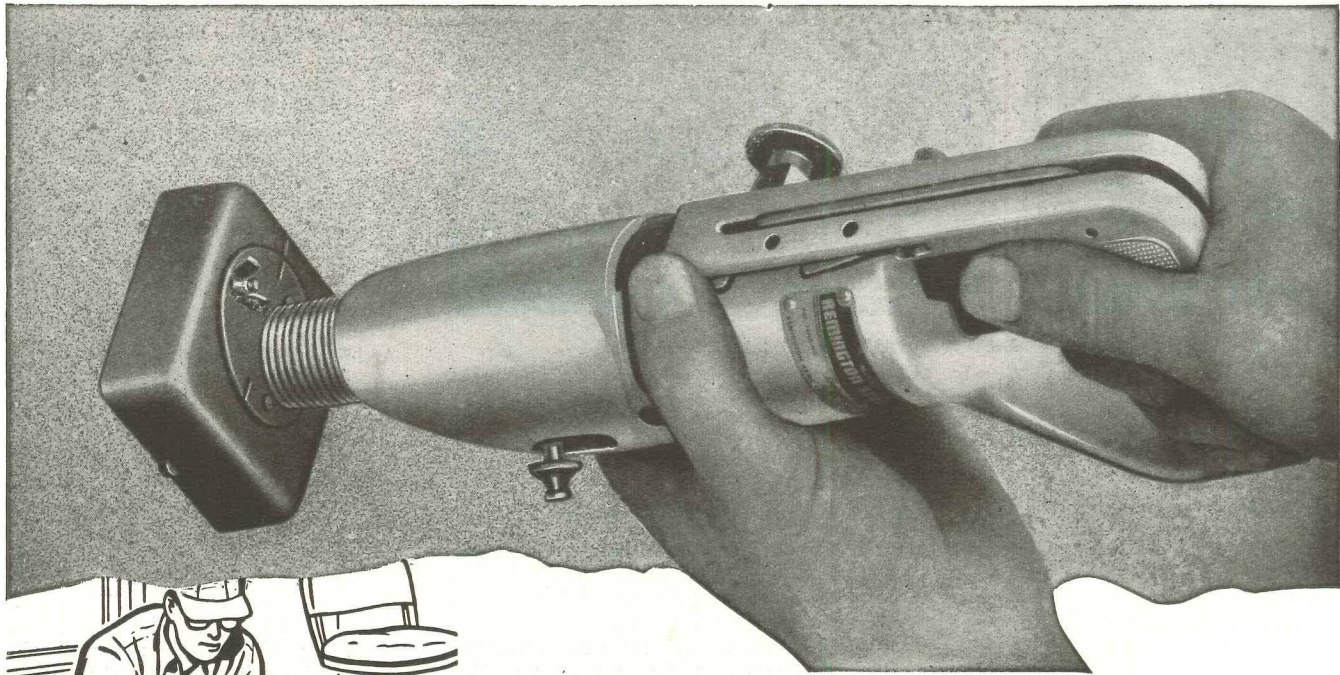
### Markets to come

Bridge and waterway development that will provide a springboard for homebuilding in years to come was much in evidence last month. In Manhattan, a \$46 million bond issue was floated to finance the **Greater New Orleans Expressway**, a 24-mi. span across Lake Pontchartrain that will open the way for suburban development with quick access to the city, which is now hemmed in on three sides by the lake, the Mississippi and by marshes.

In Marin County north of San Francisco, construction of a bridge linking Richmond with Pt.

(continued on p. 74)





Anchoring seats, bar stools to concrete



2" x 4" plates to concrete floor



Carpet gripper anchored to concrete

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## BUILDERS AT WORK (continued)

when he plans to put up one of different design. Sales of his Ebenreiter Lumber Co. are divided half-and-half to contractors and the general public; the Ebenreiter Woodworking Co. supplies architectural woodworking to the Midwest.

### More planned communities

Big developments were mushrooming:

▶ **Don M. Casto Sr.** announced work would start at once on a five-year, \$20 million project on a 140-acre tract north of Columbus. Included: 2,000 apartments, a medical center, hotels, office structures and—later—a small shopping center. Developing corporation: University City Inc.

▶ Builder **Sam Hoffman** of Phoenix (F&S Construction Co.) invaded the eastern seaboard. He plans to build 4,000 homes in Upper Marlboro, Md., as the first part of a \$60 million development in Maryland's Prince George County. Included: churches, shopping center, schools.

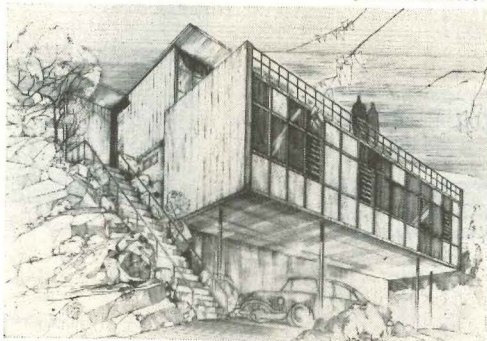
▶ Farmers Branch, a 100-year-old Dallas suburb, learned that **Cato Corp.** of Dallas will erect a \$30 million planned community on a 500-acre tract. It will be called Valwood Park, have 2,000 homes, shopping center, parks, churches, schools. Sitework was underway on the first 400 homes.

▶ In one of the biggest realty deals in Milwaukee County history, **Wisconsin Realty Co.** signed up for 185 acres of Greendale (recently sold by the US), planned 325 homes. **Robert Rasche** will do the design. Landscape architect: **Robert Boerner.**

### Homes for a by-passed hillside

Along the mudflat eastern edge of San Francisco Bay, close by Golden Gate Fields race track, rises a great, eucalyptus-mantled dome of rock and clay called Albany Hill. Although streets were carved into its steep east side during WPA days, Albany

*J. Black & Assoc.*



HOUSE FOR A CALIFORNIA HILLSIDE

Hill had remained undeveloped while the postwar housing boom filled up the surrounding fields.

Last month, work was about to begin on the inevitable development of Albany Hill into a residential community. **Hill Aire Homes, Inc.** (**O. A. Goth**, president; **W. D. Hammond**, vice president) was planning to put 60 single-family homes (see cut) on the bottom slopes, some 80 to 100 apartment units on the middle slopes and a 200-unit luxury hotel (if it can get a zoning variance from the city of Albany) on the summit.

Plans by Architects **Bernard J. Sabaroff** and **Harold C. Dow** will keep excavation for the houses to a cost-saving minimum by setting back the second story to conform to the land contour.

"We feel the public is willing to forego the pleasure of level living to gain spectacular views from the hill," says Dow. The 1,260 sq. ft. house (plus 400 sq. ft. of deck, 400 sq. ft. of patio and 400 sq. ft. of carport) will sell for about \$20,000. Dow expects one construction detail to be a cost-saver: the shed roof will be laminated 2 x 3s with the lower edges stained before erection, eliminating need for finish painting.



LONDON EXHIBIT CONTRASTS REMODELED FLATS (R) WITH 19TH-CENTURY ORIGINAL (L)

## Britain, long tied to subsidized housing, tries rehabilitation with government paying half

Britain, having topped its goal of 300,000 new housing units a year, has turned major attention to the same problem that has become a No. 1 objective for the US housing industry: rehabilitation.

The British effort, which basically recognizes that fixing up existing dwellings is one of the best ways to provide good low-cost housing, differs significantly from US rehabilitation on two points:

1. The British government is encouraging repair and improvement of old homes with 50% grants, whereas in the US the fix-up program is entirely up to private enterprise except that FHA will insure loans up to 95% of the FHA valuation (under Sec. 220), or up to 90% (under the Title I repair program).

2. In England, public housers are pushing the fix-up program instead of fighting it (sometimes covertly).

**Rent control and neglect.** Almost 40% of Britain's private housing (5.75 million out of 13.5 million houses) is more than 65 years old. But most of it is still structurally sound and salvageable. Many houses have never been equipped with modern conveniences, lack

toilet facilities, electricity or even running water. Few people wanted to live in them. Few landlords, who have been saddled with rent control since 1920, would spare the expense of keeping them in repair. Each year of neglect pushed them further toward slums.

The socialist government's Housing Act of 1949 had attempted to cope with the need for rehabilitation. It permitted local public housing authorities to pay half the cost of converting a large old house into a multiple dwelling or improving an old house by installing modern conveniences. But it tied the grant up with so many ifs, ands and buts (cost had to be between \$420 and \$2,080, remodeled unit had to have expected life of 30 years, rent after fix-up could only rise 6% of landlord's cost for improvements) that up to Nov. '53 only 3,700 units had been improved. Housing authorities and private owners alike thought the procedure too complicated and demanding to be worth-while.

**'New homes from old houses.'** Last year, the Tory government under Housing Minister Harold Macmillan set out to overhaul the Act. The resulting drive to push

*(continued on p. 86)*



OLD KITCHEN in demonstration house bears sign advising: "Grants can help you transform old kitchens into new."



REMODELED KITCHEN is in flat furnished entirely with second-hand gear painted or recovered by volunteer women for only \$630.



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VOLUME VII, NUMBER 1



39 NEWS

90 EVENTS

110 NEW IDEAS

112 IS THIS THE NEW LOOK IN FRAMING? THREE IDEAS IN STRUCTURE

- 113
1. Concrete bents frame a flexible plan by Architect Bruce McCarty in a house built by Martin Bartling. At Knoxville, Tenn.
  2. Double posts, beams and planks open a custom house by Architects Bassetti & Morse in all directions. At Portland, Ore.
  3. Laminated and modular walls give a custom finish to Kaye Corp. house designed by Architects Hart & Weiss. Near Cleveland.

126 EDITORIAL

An open letter to the President of the USA.

130 EIGHT EXPERIMENTAL ROOFS

Designed by Architects George Frank Ligar, Twitchell & Rudolph, The Cincinnati Organization, Harry Weese, Ulric Franzen, Eliot Noyes, Roger Lee, Torben & Strandgaard.

136 NEWS

138 PROPOSAL FOR A THERMAL CONSTRUCTION STANDARD

Made by Professor F. W. Hutchinson and endorsed by a Round Table of heating experts, associations, and builders.

144 NEW PAPER HOUSE IS STRONG, INSULATED AND CHEAP

Designed by Architect Paul Rudolph, this house at Sarasota, Fla. explores the potentials of a paper-honeycomb panel.

148 IN CALIFORNIA, SLAB DOORS USED AS PREFAB PANELS

Builder Henry C. Cox puts a familiar product to a new use in a show house in Los Angeles, finds it cuts construction time.

150 "MY FAVORITE PRODUCT"—PICKED BY THE MEN WHO USE THEM

Sixteen leading builders and architects select the new products which have performed best for them during the past year.

154 ELECTRIC HEAT—CAN THE BUILDER HOUSE USE IT?

Test cases in developments indicate that operating costs may make it competitive with other heating systems.

157 BIG BRICKS HOLD BIG HOUSE COST TO \$9,950

For his newest Salt Lake City development, Builder Alan Brockbank produces a large brick to cut construction time.

160 A QUIET HOUSE IS A BETTER HOUSE AND EASIER TO SELL

Sound-conditioning is a big problem in view of the increase of noise-makers in today's houses. Ways to solve it.

166 FRANK LLOYD WRIGHT AND "THE NATURAL HOUSE"

In his new book he delineates how he uses concrete blocks in his Usonian Automatic houses, designed to reach middle-income families.

178 LETTERS

202 NEW PRODUCTS

248 TECHNICAL PUBLICATIONS

Cover: laminated roof beams being tilted into place in Hart & Weiss builder house (see p. 124). Photo: Joe Munroe.



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new ideas **new ideas** new ideas new ideas

January in Chicago is synonymous with NAHB's annual convention and home show of new products.

And January in HOUSE & HOME is synonymous with a certain kind of home show, also—a home show of ideas.

For every growing industry operates on two levels: one, the level of here and now, the level of today's market place, the level of the products, the plans, the techniques that have passed all the tests and are ready for use—right now.

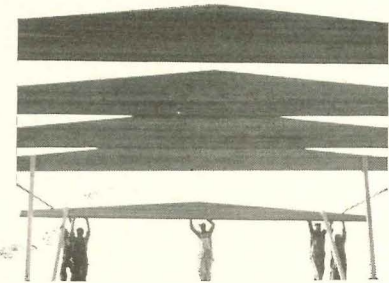
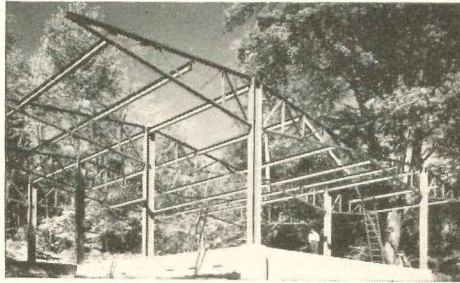
The other is the level of tomorrow, the level of advanced studies, of pipe dreams. No growing industry can do without it. No industry keeps growing unless someone, somewhere, continues to watch out for pie in the sky.

HOUSE & HOME is interested in both kinds of home show—the home show of today as well as the home show of tomorrow. But since Chicago, this month, is doing a bang-up job about today, HOUSE & HOME may perhaps be forgiven for deciding, this month, to pay a big share of its attention to tomorrow—to houses of paper and air, to roofs straight out of science fiction, to builder houses of glass and to an old gentleman who keeps on, year after year, making some of the youngsters look like doddering old conservatives.

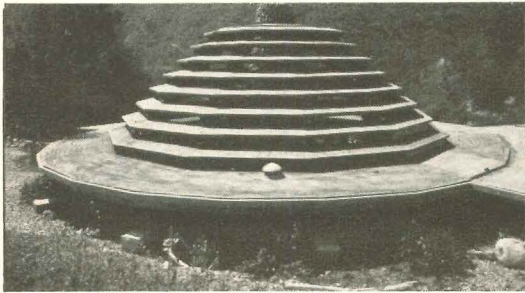
And just in case anybody thinks that sound and serious people in homebuilding are not just as excited about tomorrow as they are about today, they might be interested in what an official of a large New York insurance firm said when he was asked recently why he bought mortgages from a Southwestern builder. He said: "We like those people. They're not afraid of tomorrow!"



1. Hinged steel roof umbrella, p. 135



2. Shaped and laminated roof girders, p. 122



3. Skylight without sky glare, p. 132



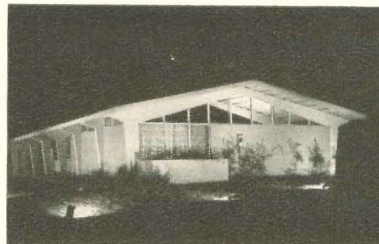
4. A new masonry block system from FLLW, p. 166



5. Advantages of a flat plank roof, p. 118

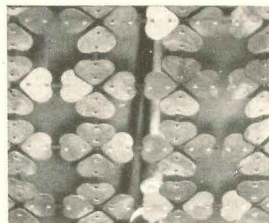
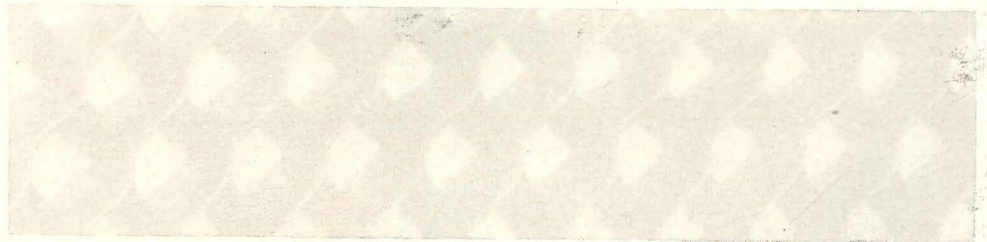


7. Are steel trusses practical? p. 150



6. Concrete bents form a framing system, p. 113

8. How good is a paper house? p. 144



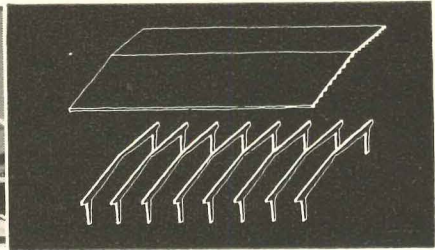
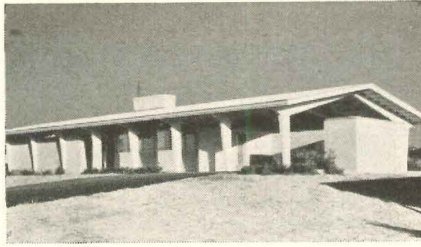
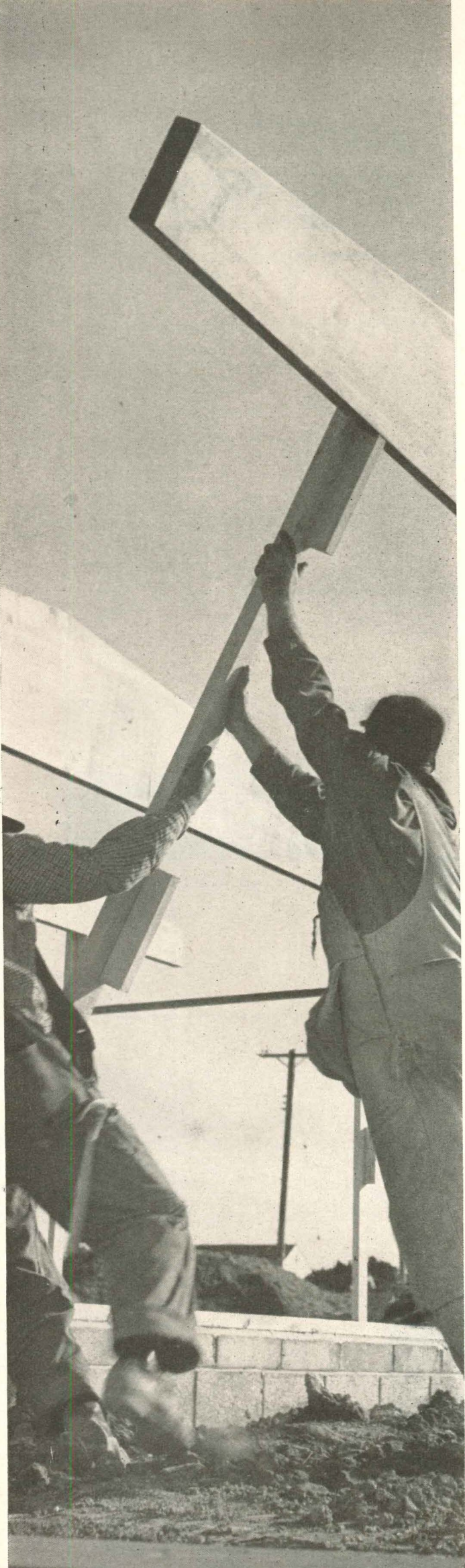
9. To quiet a noisy house, p. 160



10. Flush doors can make a house, p. 148

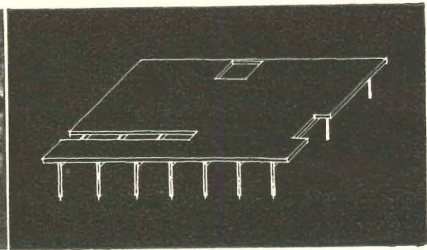
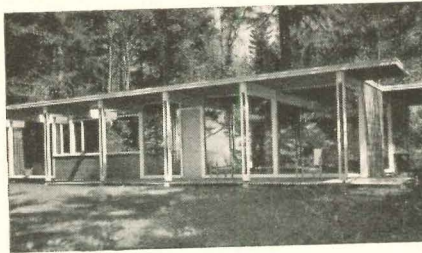
Photos: © Ezra Stoller; J. Munroe; J. Shulman; H. Levitt; Dearborn-Massar; E. Silva, courtesy Living for Young Homemakers; Dewey G. Mears; R. C. Cleveland.





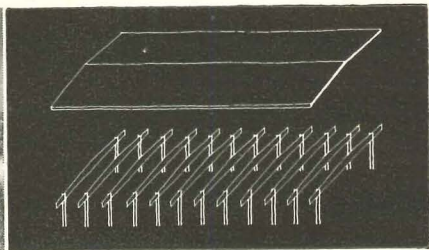
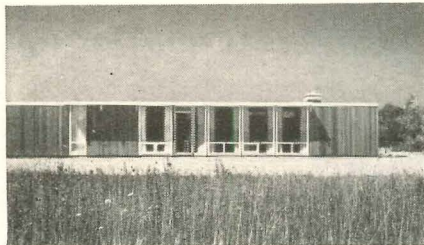
**In Knoxville, reinforced concrete bents.**  
A builder house for Martin Bartling by  
Architect Bruce McCarty (see opp.).

**Is this**



**In Seattle, double posts, beams and  
planks.** An AIA prize winner by Archi-  
tects Bassetti & Morse (see p. 118).

**the new look**



**In Cleveland, double posts and laminated  
beams.** A builder house by Architects  
Hart & Weiss (see p. 122).

**in framing?**

**3 ideas for structures**

It was sure to happen sooner or later: no architect or builder in his right mind could go on indefinitely building one-story houses with a stud frame designed to hold up two-story houses (plus attics).

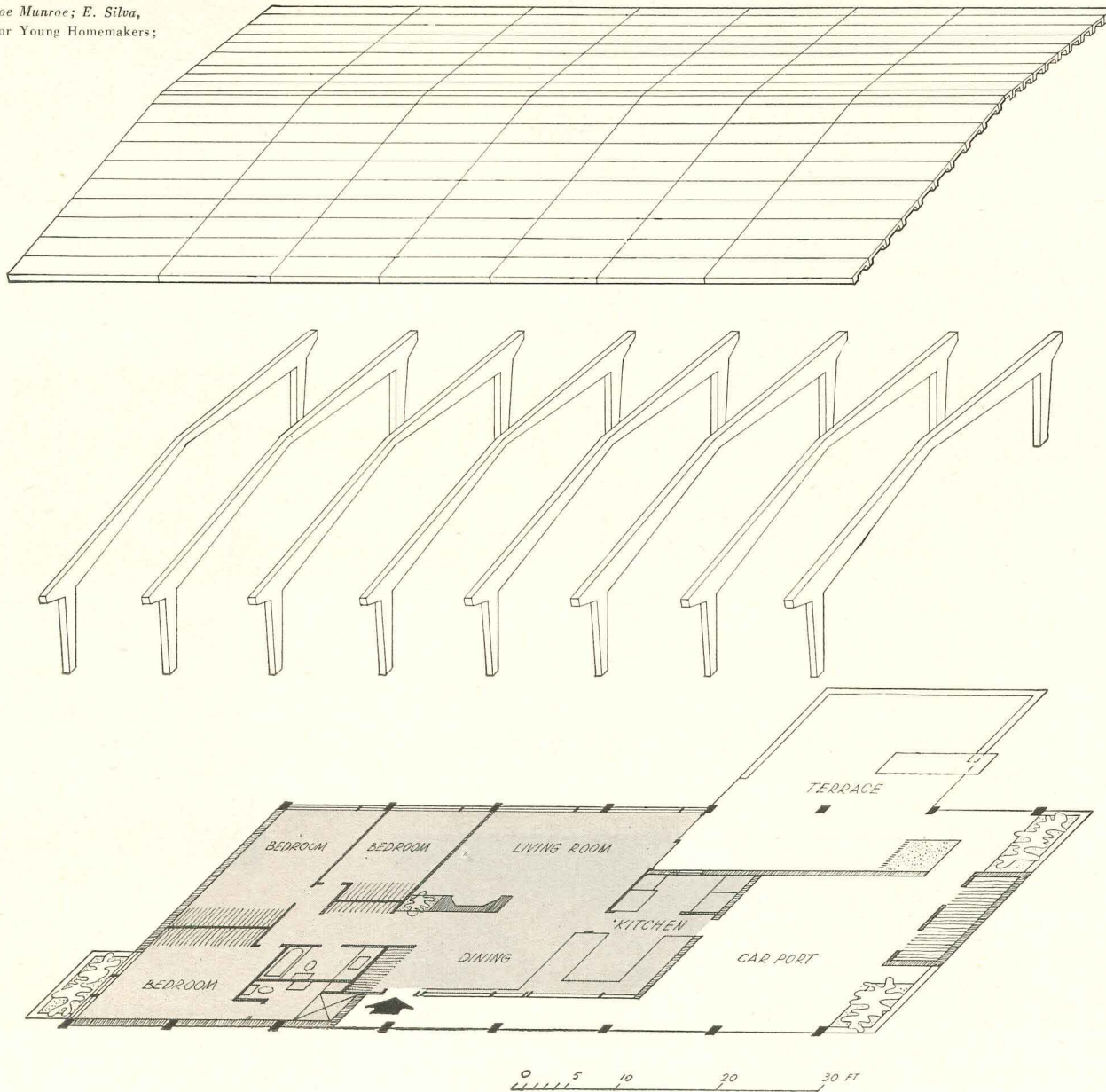
And no architect or builder in his right mind could go on indefinitely building houses with large glass walls using a stud frame designed for houses with little peep-hole windows.

The big news in structures is that the change seems to have come at last. The three houses on the next 13 pages have this in common: they are one-story structures, and each holds up the roof on a few strong posts, spaced far apart (to make room for wide sheets of glass between posts). The first house is framed with reinforced concrete bents, more than 10' apart; the second has double posts, beams and planks spaced 8' apart; and the third uses a 6' center-to-center spacing for its elegant, laminated girders.

If this is not the end of the traditional stud frame, it certainly looks like the beginning of the end. And not only like the beginning of the end of inefficient construction: for the new kind of framing is almost certain to bring about better design, simpler facade rhythms, more open plans and lower costs.



Photos (opp.): Joe Munroe; E. Silva,  
courtesy Living for Young Homemakers;  
Dearborn-Massar



## 1. Concrete bents frame flexible plan

**Martin Bartling Jr.** has built a new kind of house in Knoxville using a precast concrete frame and concrete roof planks.

In this big house, a guinea-pig venture, eight arches, 10'-8" o.c., with a 29'-4" span, carry all the roof loads. Each arch is formed of a pair of huge bents, each bent weighing 1,600 lb. A mere 1/2" dowel pin joins each pair at the ridge of the roof, 12' above the slab floor. Each bent has a compressive strength of 6,000 lb. per sq. in., can bear a total load of 16,000 lb. They are made of lightweight concrete (100 lb. per sq. in.) as are the 2' x 10'-8" precast concrete planks that bridge the bents to form both ceiling and roof.

And it is a handsome house, too, as the photographs show.

The manufacturer of the bents, precast roof panels and masonry exterior wall blocks originated the structural members and cooperated in putting up the house. The company already has several clients as a result of the Bartling house and expects to sell various types of the bents to commercial as well as residential builders.

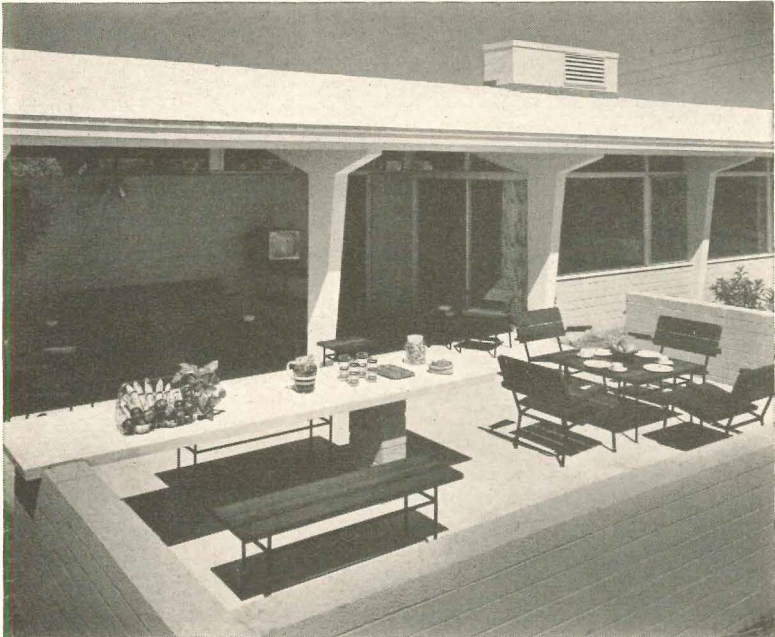
One definite client for some time to come is Martin Bartling. Of those who saw the house (built as a Parade Show model), 95% liked it, he says. This spring he will build more like it.

**As a building method,** Bartling found the concrete construction practical, cheap and quick in the very first house—although, he says, "I made at least \$2,000 worth of mistakes." The completed house (with 3,250 sq. ft. under roof and 1,500 sq. ft. enclosed) sold for \$27,500 on a 120' x 210' lot valued at \$3,500. But Bartling believes the next ones, slightly smaller, can sell for only \$16,000 including large lots.

The method also allowed great latitude in design, despite the seeming inflexibility of the big bents. All walls are freestanding, can be placed wherever the architect pleases. In the first house, Architect Bruce McCarty chose to use less than half the roof area for the house proper, the remaining area for double carport, partially covered terrace, wide eaves.



## CONCRETE BENTS



**Terrace** on south side of house is 21' wide, extends 24' from house and is half under roof. The precast concrete table is 10' long. Wall, formed of the same building blocks as those in exterior wall of house, is painted salmon color.

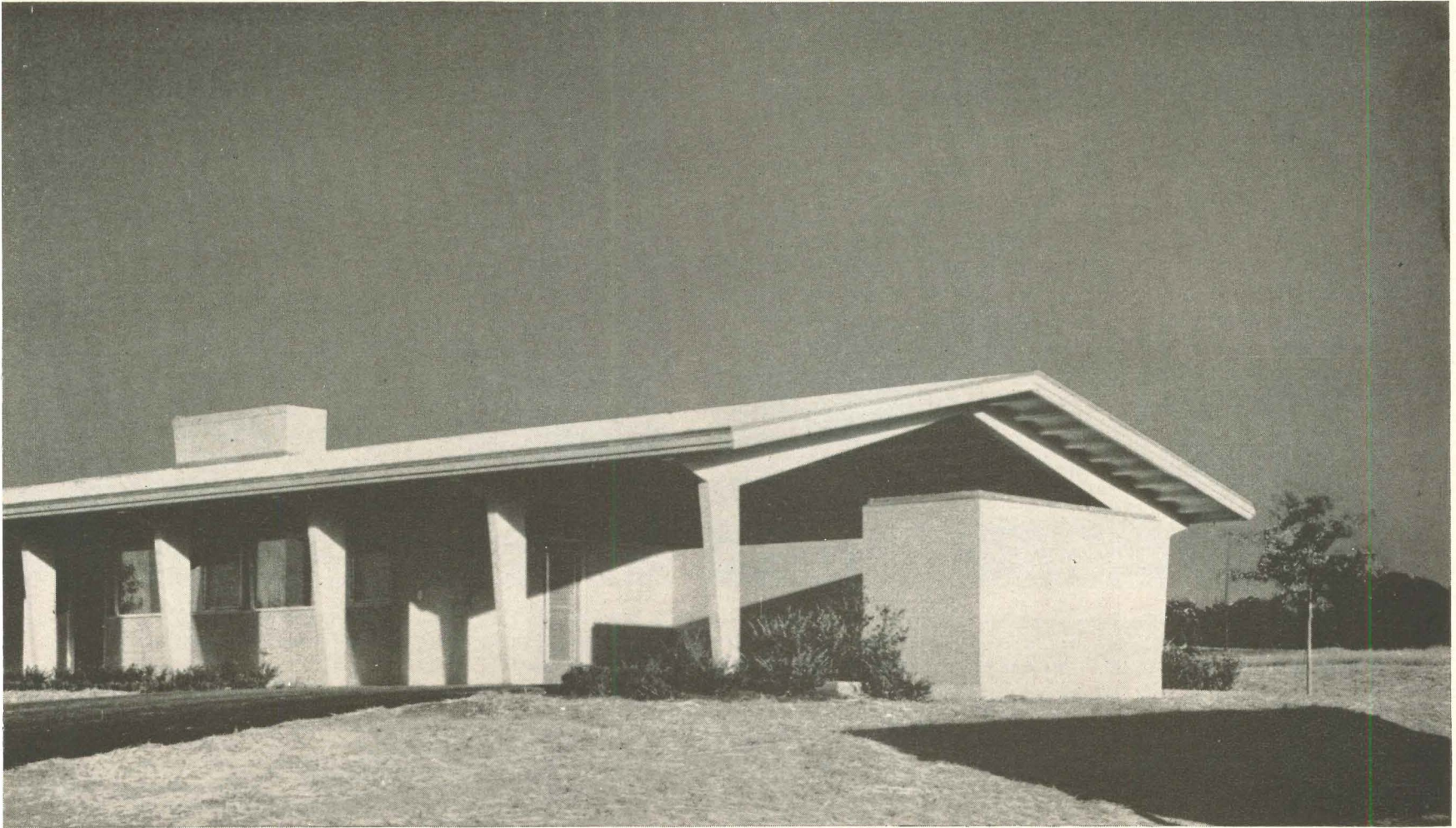
## Inside and outside the bents dominate



LOCATION: Knoxville, Tenn.  
PAINTER, WEEKS & McCARTY, architects  
MARTIN BARTLING JR., builder  
SOUTHERN CONCRETE STONE CO., sponsor  
and developer of bents  
FAULKNER NURSERY, Maryville, Tenn., landscaper

**Living room**, viewed from terrace, is 21' long, 14'-8" wide and opens off left to dining area. Fireplace is made of same vermiculite-filled blocks as those used in exterior walls. Exposed blocks cut down noise, as do the pan-shaped concrete ceiling slabs which act as a series of baffles. In later houses, slab doors will be used as wall panels instead of plywood to cut costs.





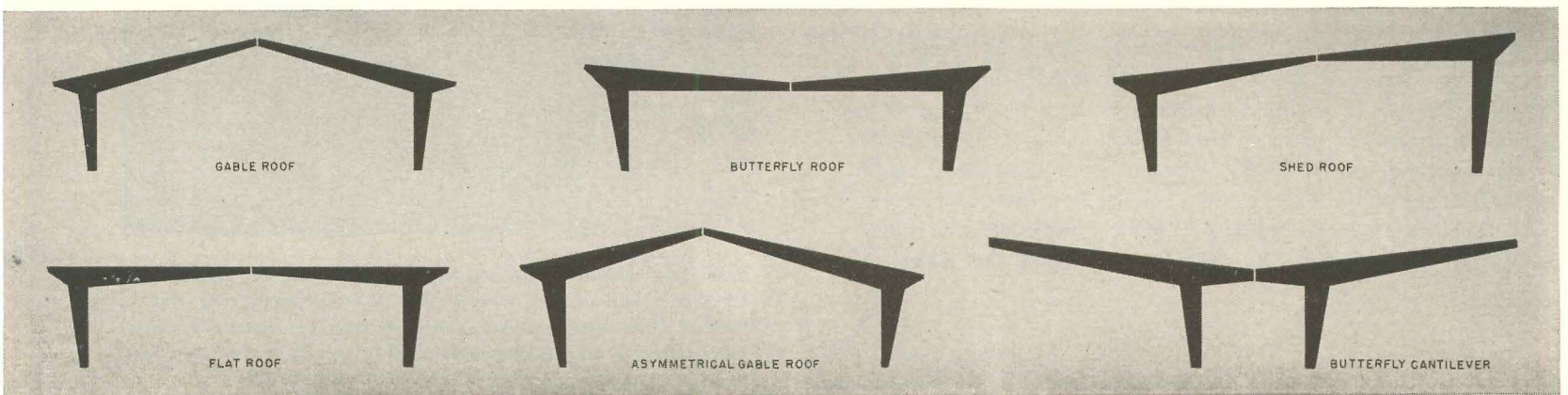
**Big carport** in experimental house is 21' square. On one side it is next to kitchen; on the other (right) is a storage room. In carport and throughout house, slab is terrazzo-

covered. House is heated electrically through floor. Eight pairs of bents are spaced 10'-8" apart along house. Roof area measures 29'-4" wide and about 80' long.

## Bents come in many shapes and sizes

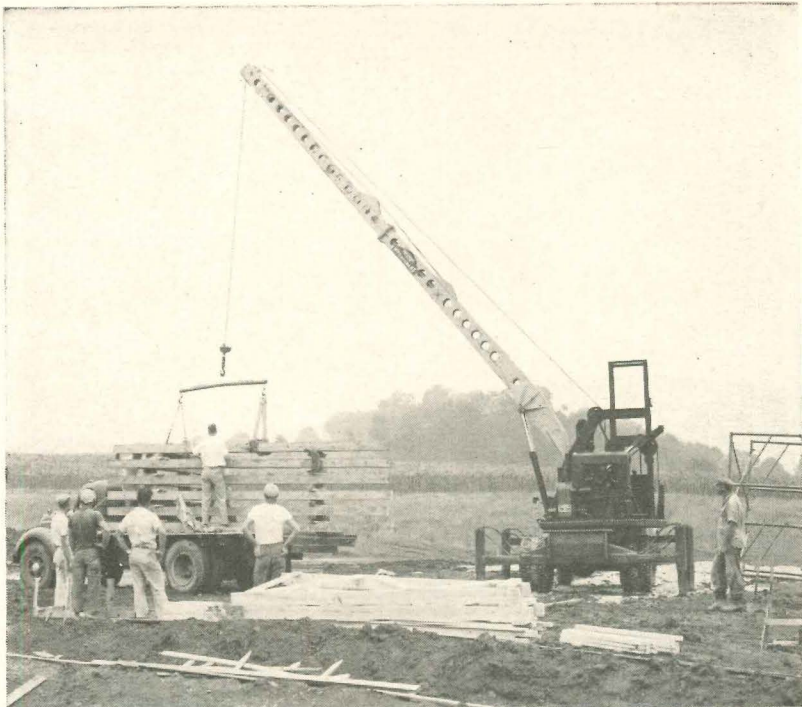
In the short time since the Bartling house went on display the concrete manufacturer has taken orders for bents from several commercial builders—and one man who is building a \$50,000 custom house. Architects are designing a doctor's clinic based on the flat bent (below, left), two churches with a "steep

V" (not shown) and a restaurant having the gable bents. There is almost no limit to the variety of sizes and shapes of arches that can be made with these bents. No bugs developed in the system in the Bartling house. Bartling agrees with the makers that the system "has tremendous possibilities."

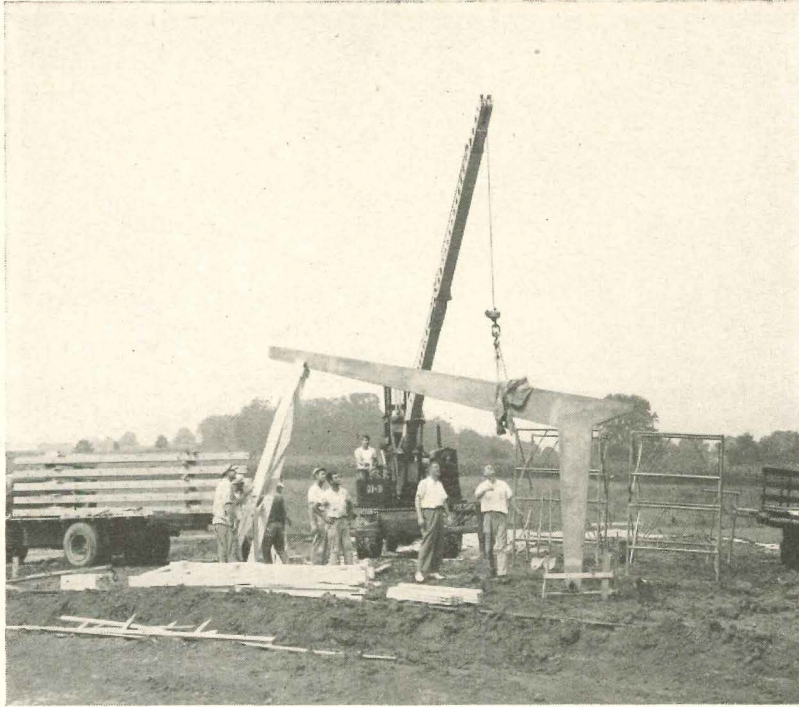




## CONCRETE BENTS



1. After footings hardened, Bartling's crew was ready to go to work putting up the bents. Crane and its operator were hired for \$12 an hour. Crew included four laborers and supervisor. Here the first bent is ready to come off truck.



2. Crane lifts bent to its footing, which is 2' square and 1' deep. The 1,600-lb. bent is only 8" thick at either end and 20" thick at its widest point at angle.

## Bents and roof were up in a day and a half

**Always a fast builder,** Martin Bartling set speed records for himself with this big house. It was built in two weeks.

Three men spent two days laying the footings, which then hardened in two days. Two thirds of the bents and roof slabs were up at the end of the fifth day, and all were in place the afternoon of the sixth. After that Bartling's crew worked faster than usual—partly because they could work under roof and partly because the house had to be rushed for the Parade of Homes show.

► **Costs were low.** Bartling paid \$1.15 per sq. ft. for footings, bents and roof. The terrazzo-covered slab cost 85¢ a sq. ft. and the exterior walls of vermiculite-filled masonry blocks cost 65¢ a sq. ft. The house is heated through the floor by electricity, a Bartling specialty. "Post-and-beam construction would possibly be more economical," Bartling says, "but it would not create the same architectural effect."

► **"Nothing went sour."** The precast concrete members developed no "bugs" of any kind, although one Bartling mistake, he concedes, was in wiring by conduits through the bents. This proved too expensive. Also, Millard Warren, head of the Southern Concrete Stone Co., feels the concrete could have been made somewhat less brittle than it was. In the first house the stress was on getting utmost strength. John S. Barber of the stone company was the engineer in charge of developing the bents.

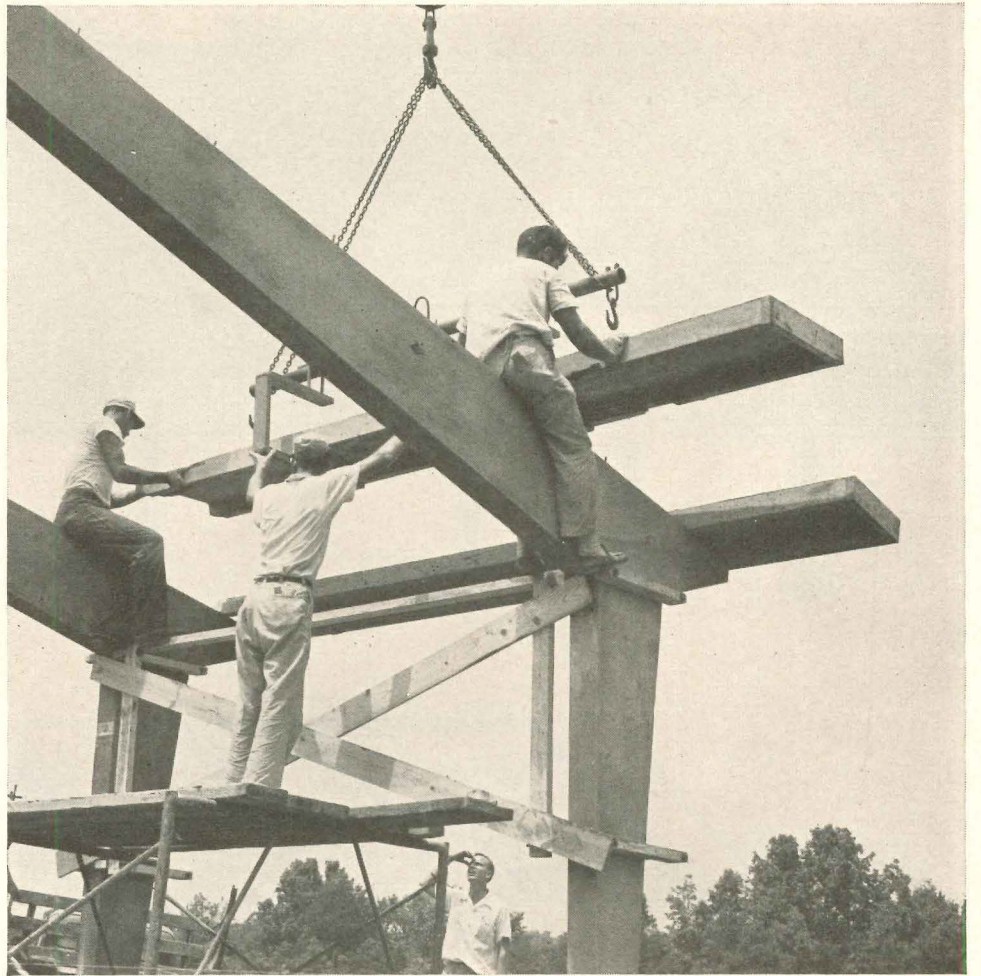


5. Footing connection includes built-in device to make bents plumb. Base of bent has 4" x 3" steel box to which reinforcing steel is welded. Box section projects on each side, has holes for anchor bolts. Bent is plumbed by adjustment of nuts over and under connection plate. Tie rod relieves bent of any outward thrust.





3. Bents are joined at ridge of house. Dowel pin drops through top of one bent into hole in a steel pin inserted through steel plates built into each bent.



4. Precast concrete roof members are hoisted to roof and placed  $\frac{3}{8}$ " apart across the bents. Each is notched to fit over bents, which have

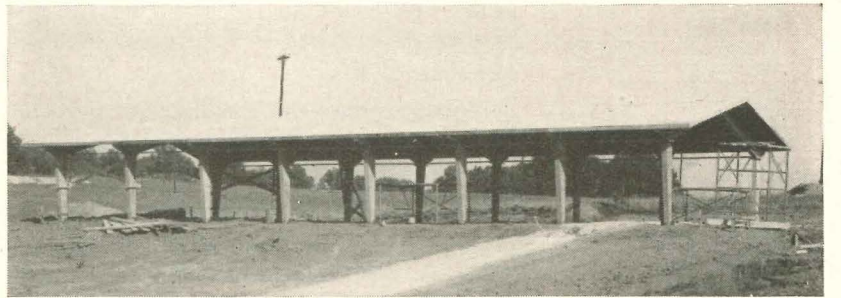
built-in steel pins to hold lateral roof planks. A 2" fiber insulation topped with built-up roof and white marble chips completes the roof.



6. Temporary bracing supports bents as workmen here prepare to add more concrete roof slabs. Lateral stability is primarily obtained through the masonry walls put between bents later; transverse stability by the hinge action at each footing and where bents meet at ridge.

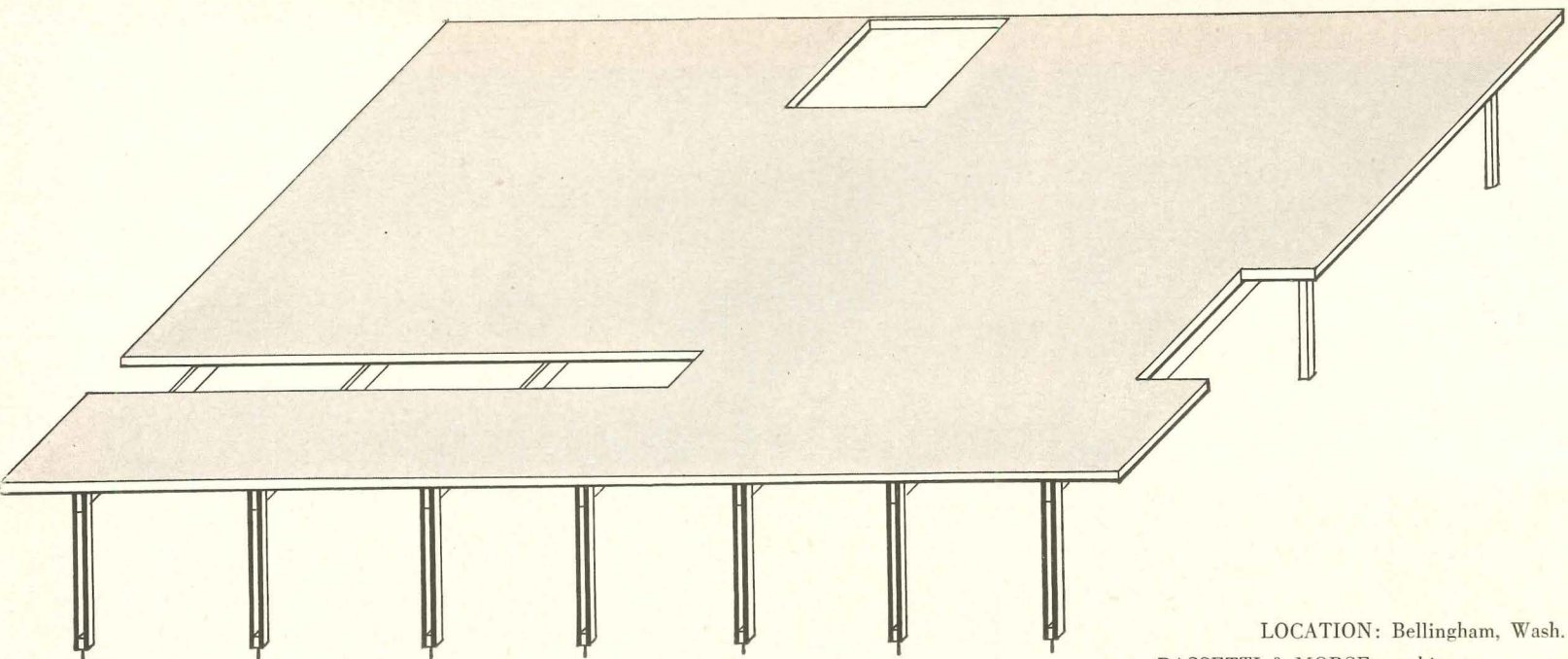


7. Roof planks were put on as soon as possible after each pair of bents went up. This picture was taken about two hours after first bent was installed.

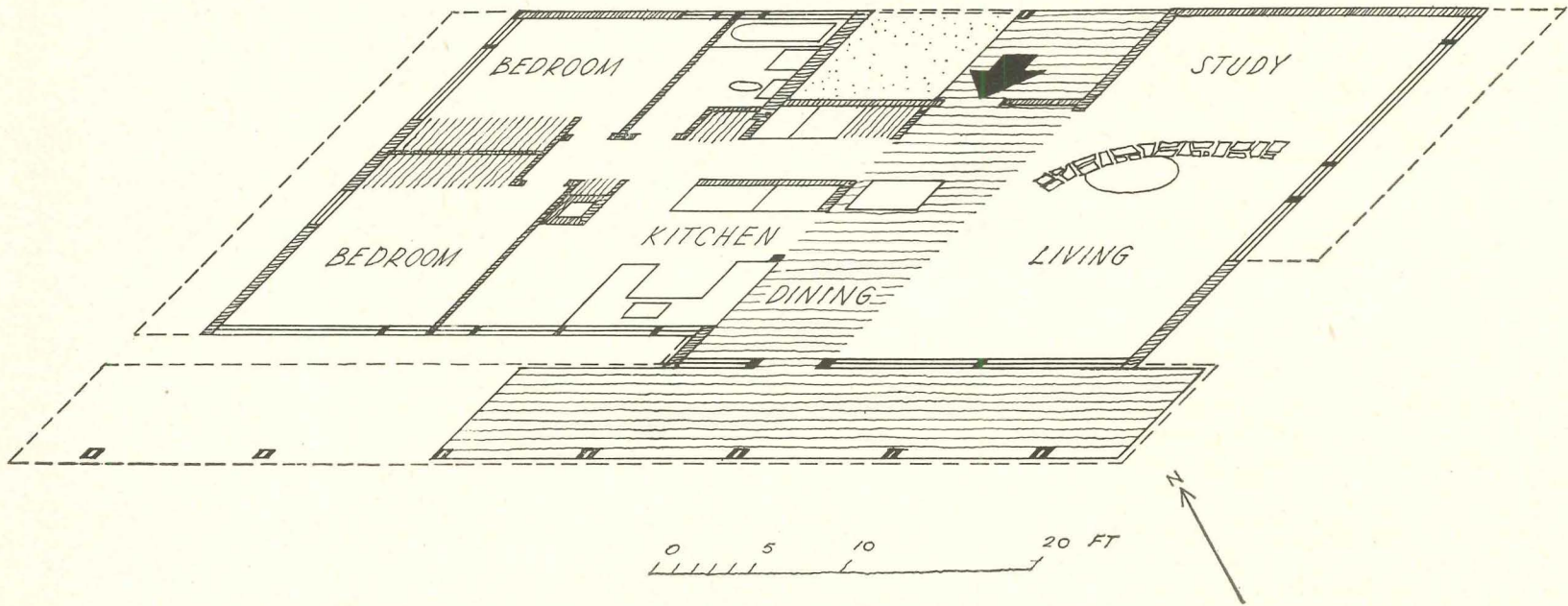


8. Completed structure photographed next day. Crane was used a total of 12 hours. Bartling believes only eight hours will be necessary next time.





LOCATION: Bellingham, Wash.  
 BASSETTI & MORSE: architects  
 WALKER & FLORENCE, general contractors



ideas for structures

## 2. Double posts, beams and planks

A year ago the American Institute of Architects picked this Seattle house for its National Award of Merit because it seemed to demonstrate three points with unusual clarity:

It demonstrates the simplicity of post-and-beam framing, and shows some unusual details in the use of this framing system.

It demonstrates the amazing flexibility of a flat plank roof and shows how easy it is to plan skylights, overhangs and canopies in such a roof at will.

And it demonstrates how a neat integration of plan, structure and wall treatment pays off in overall building economies. At a mere \$10.50 a sq. ft., this house looks like a well-finished piece of furniture rather than a product of rough carpentry.

### Double posts embrace the beams

How to connect post to beam and how to set post on footing are the two toughest problems in any post-and-beam structure.

The answer Architects Bassetti & Morse provided in this little house is disarmingly simple: split the post in two, i.e., instead of a 4" x 4" post every 8', take two 2" x 4"s—which are drier anyway—and space them apart to grasp the 4" x 12" beam at the top. Two 1/2" bolts with washers complete the connection (see detail opposite). The result is a stronger post, for the double-strut with its spacer (made of a bolt and a short length of pipe) is a nominal 8" wide, thus acts like an 8"-wide column for the purpose of lateral bracing.





Photos: Dearborn-Massar

## open this house in all directions

The footing detail is just as neat: to protect the wood against the moisture of the ground, the architects raised each double post 2" off the footing by balancing each on a pipe set into the concrete.

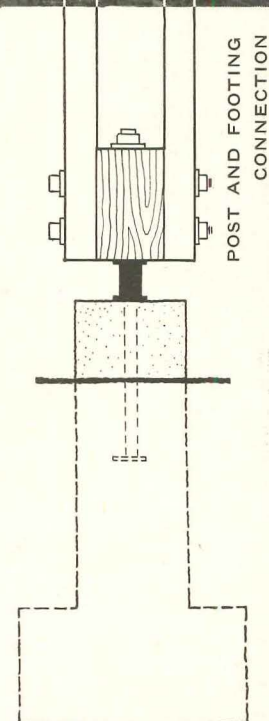
Bassetti & Morse pulled the row of double posts out and away from the glassy southwest facade of their house to avoid complicating their mullion details with an overly heavy column, and to get a 6' deep overhang-canopy along that side of the building. The 4" x 12" girders do not span the entire depth of the house since it proved simple to make them coincide with lines of interior partitions, and thus give them additional, intermediate supports. Posts on the northeast side of the house are ordinary 4" x 4"s, braced by solid wall panels and buried in them.

### Flat plank roof pulls out like taffy

A flat roof has plenty of advantages, rarely demonstrated as clearly as they were demonstrated here.

For example, a flat roof can be pulled out like taffy to form overhangs only where glass calls for overhangs. Conversely, holes can be cut into a flat plank roof wherever some light is needed—over a small patio, say, or to get light into an inside bath. Bassetti & Morse had no inside rooms to cope with here, but their free handling of the 1½"-thick, T&G plank roof shows its potentials to the full.

Rigid insulation, 1½" thick, was applied to the underside of the plank roof to conceal the inexpensive grade of wood used for the actual deck.





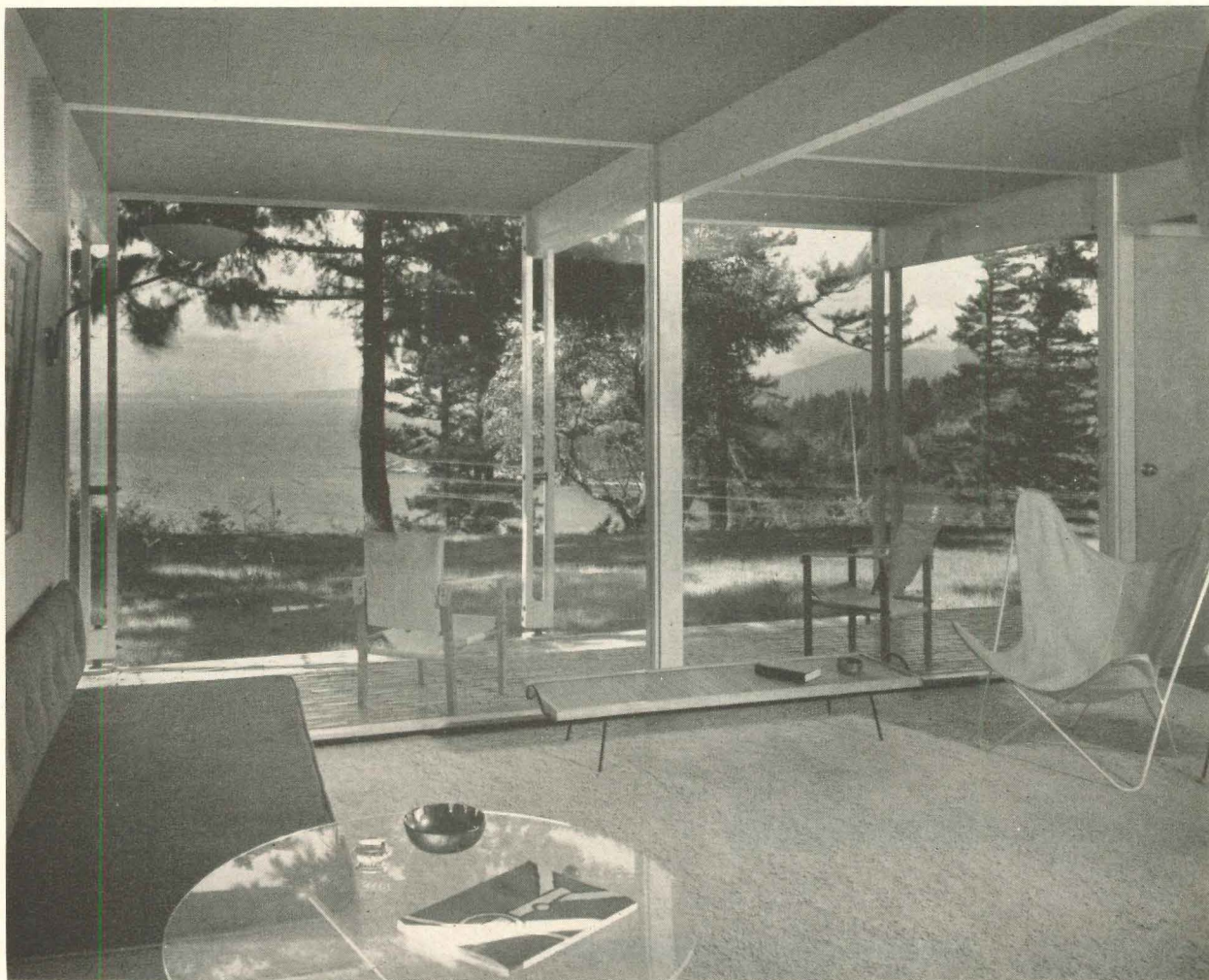
## DOUBLE POST AND BEAM



Stone "partition" screens study area from living room. Note slots of glass between ends of beams on northeast side of house. Bringing wall up to underside of beam and filling in the rest with glass makes for neat, simple details.



Roof slot (see also opp.) gives extra light to bedroom, was easily produced by omitting a few roof planks—demonstrating a major advantage of the flat roof. Note pipe-separator between posts, and pipe supports on footings (see opposite).



Glass wall is amply shaded by 6' overhang. Mullions are structural 4" x 4"s rather than double posts, since latter would look too clumsy between sheets of glass.

## Design integration is key to low cost

In this house the structure, the plan and the wall treatment fit hand in glove. Because post-and-beam framing is so open, the plan can be open (and, conversely, the open plan called for an open frame). Because the framing system leaves wide, nonstructural gaps, the walls could be treated as alternately *transparent and opaque*

*screens*, rather than as heavy monoliths punched full of holes. And because the plan took advantage of the structure (instead of trying to fight it), and because the wall treatment made a virtue of the post-and-beam frame, this well-finished 1,200 sq. ft. house for a young couple could be built—on a custom basis—for only \$12,500.



Overhang turns into semidetached canopy without effort. Roof slot meanwhile helps to light bedrooms—and permits glimpses of starlit sky at night.





Photos (except below): Joe Munroe



#### ideas for structures

### 3. Laminated beams and modular walls give

The 66 running feet of redwood and glass above are the facade of the most advanced builder house in Ohio. It is also a house with enough new structural ideas to have kept Cleveland FHA appraisers fascinated for months (see opp.). As for design ideas—the pictures on these pages tell their own story.

**Every so often** a house comes along that confounds most of the skeptics in homebuilding. This is a fine case in point.

Here are some of the traditional misconceptions challenged by this unusual house:

*Misconception No. 1:* that Middle West home buyers are not ready for modern architecture. **Fact:** this house, designed by two young architects, ex-students of vanguardist Mies van der Rohe, sold six times over on the first day (prices are in \$18,000 to \$20,500 bracket), another six times shortly thereafter. A total of 54 houses will be under construction by spring because the demand is so great.

*Misconception No. 2:* that the public does not like flat roofs. **Fact:** this house was built as a flattop and also with a low-pitched roof. Home buyers preferred the flattop model. (Admittedly, it was slightly cheaper, but they preferred its appearance, too.)

*Misconception No. 3:* that architects can only contribute facade

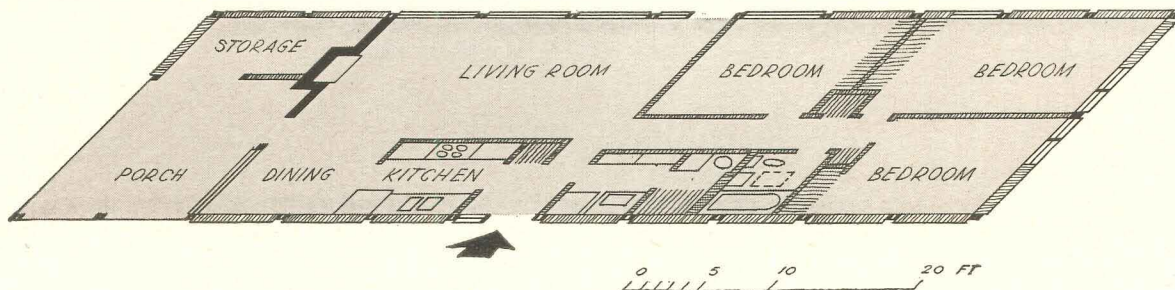
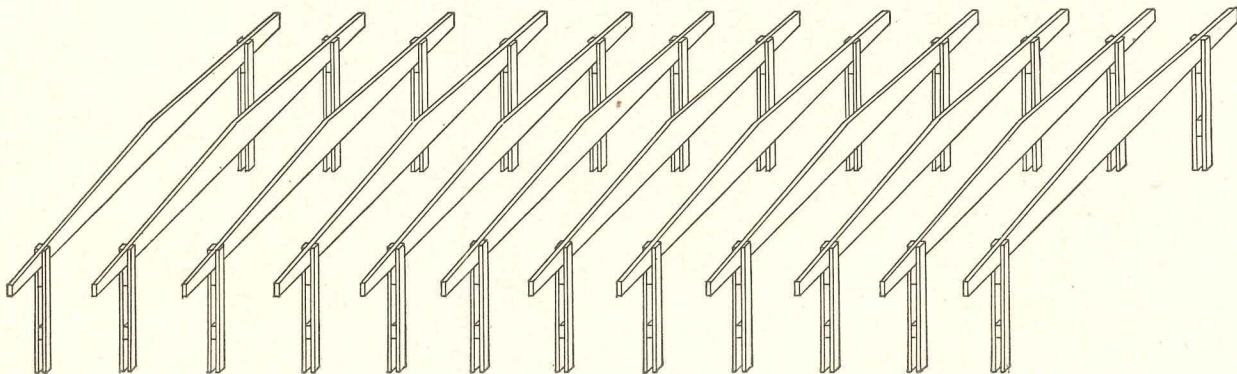
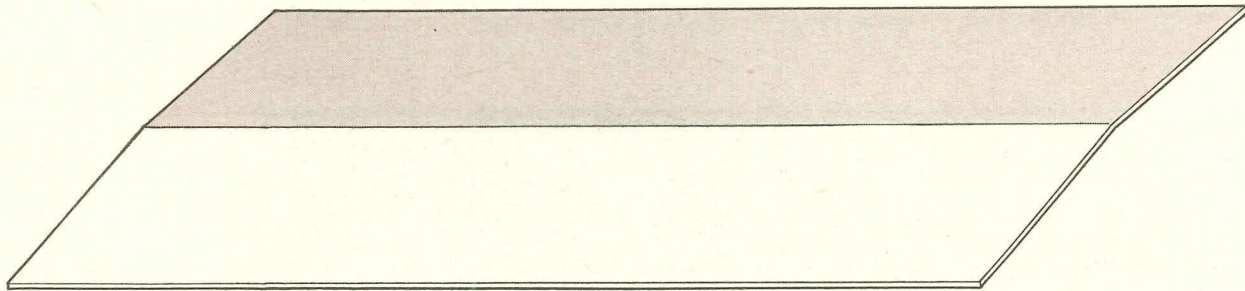
decoration to the builder house. **Fact:** Architects Hart & Weiss worked on everything, from a radically new structural system (see opp.), through planning, to helping indoctrinate the salesmen. They will soon design a shopping center for the project. Say the builders: "We pay high fees and we do not expect to make a large profit on each home. The architects work very closely with our excellent foreman and the public reaction has been wonderful."

*Misconception No. 4:* that FHA will not approve advanced design. **Fact:** "All homes are being built under FHA supervision," say the builders, "and to date our commitments have equaled purchase prices."

*Misconception No. 5:* that you need *old-fashioned* know-how to be a successful builder. **Fact:** these builders were largely inexperienced—one is a realtor, the other a real estate lawyer—and they already manage to give their customers more space and bigger lots for less money than any of their nearby competitors.

Time will tell whether these new Ohio builders can keep up their current pace. Meanwhile, their model house has enough new construction ideas to give builders throughout the US plenty of things to think about.





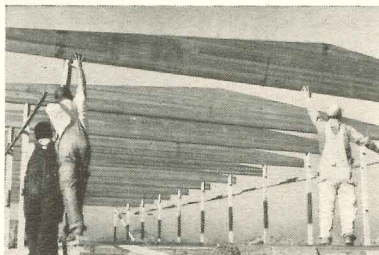
## this builder house a custom finish

### Laminated beams instead of trusses

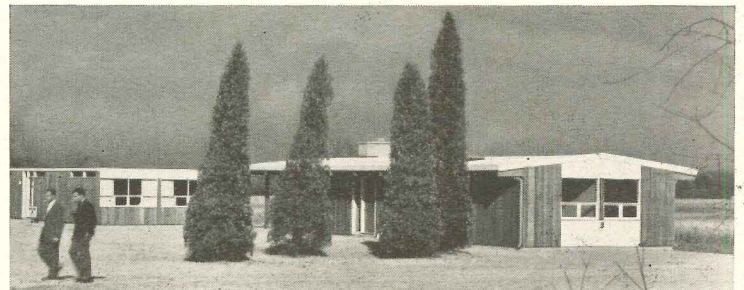
The structure of these houses is simple: double posts made of 2" x 4"s, 6' o.c., carry laminated beams that have a clear span of 21'-6" (and 3'-6" overhangs beyond the posts where necessary). The roof is made up of 2" x 6" planks and prefabricated wall panels fit into the spaces between posts.

The laminated beams were chosen in both flat- and pitched-roof models for their greater strength (a mere 2½" x 13" beam does the job on this 21'-6" span), for their good finish (important since they are left exposed) and for their precision. They also come in just about any shape. Because the structure is standardized to a high degree, it was important to find a type of roof framing which permitted the use of the same post-and-beam and roof-and-wall connections regardless of whether the roof was flat or pitched. The shaped, laminated beam makes that possible.

The shaped beams for the pitched-roof model are admittedly expensive: about \$900 for the dozen needed in each house. But the only alternatives would have been a) two short beams meeting in a ridge beam, or b) a conventional truss (which would have meant adding a finished ceiling). The architects felt that the one-piece laminated beams did the job better and more cheaply.

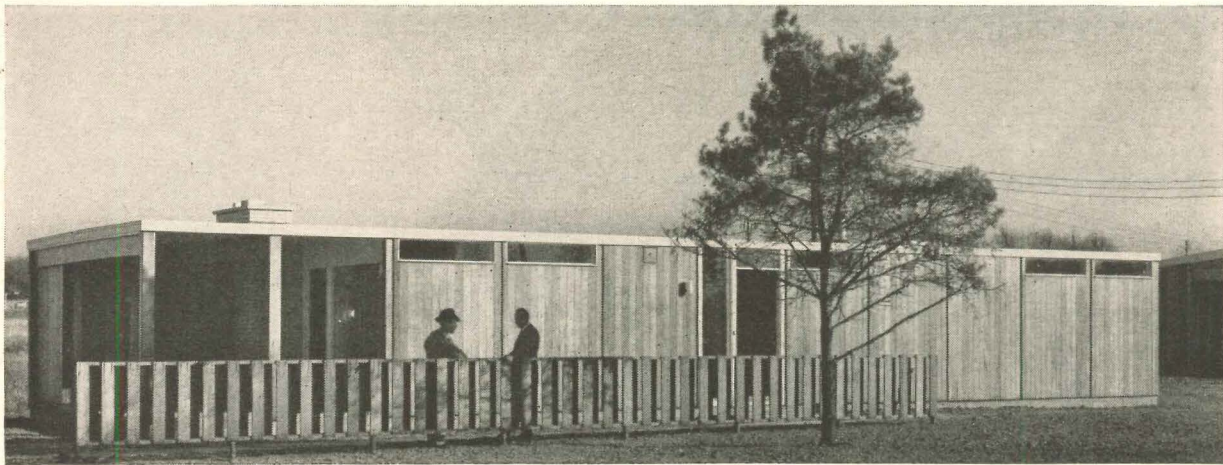


Two house types—two types of laminated beams. Result: most details in pitched- and flat-roofed models (see below) can be identical. Exception: end walls in pitched-roof model are adjusted to gable end.





## LAMINATED BEAMS



LOCATION: Strongsville, Ohio  
HART & WEISS, architects  
KAYE INVESTMENT CORP. (Richard A. Koplou  
and Irving W. Konigsberg), builders  
VICTOR SHELDON, landscape architect  
ALMOUR MORTGAGES, financing

**Entrance side** of flattop is 66' long, articulated by the 6'-wide modular panels, with occasional strips of "privacy windows" between ends of beams. These houses have three bedrooms, one bath, generous laundry room, unusual amount of storage and a porch. Cost: \$17,950 (\$2,650 down). Garage is extra. 3,000 visitors saw houses on opening day, bought six immediately, preferred flattops. Bathroom has plastic skylight for better lighting and greater privacy. Exterior is redwood siding.

**Living area** has 24'-long glass wall. Laminated beams are light, strong and free of check marks (which seem to trouble buyers of ordinary post-and-beam houses). Of two model houses originally built, flattop was shown with modern furniture (below), pitched-roof model with Early American to demonstrate that new architecture went well with either.





### Teamwork on the job

These houses are unusually well engineered for quantity-production: the wall panels fit into the structural frame with the greatest of ease. From the start the architects worked hand in hand with an enthusiastic foreman, discussed the novel structural system with him. Result: it now takes only an hour for carpenters to tilt up into place the 12 post-and-laminated-beam frames which support each house (see cover). After that roof planks are nailed to the beams to provide protection for all remaining operations.

The structural frame is so flexible that Architects Hart & Weiss have been able to develop several different plans for the same structure. Some of these will have a basement rather than a slab. As soon as FHA gets around to appraising these models, the builders will start putting them up.

Granted that this new development is off to a good start, how about the future? Say Builders Koplow & Konigsberg: "Our original intention was to complete the 100-acre development in about four years, but in view of the enthusiastic public acceptance and very fine spirit of teamwork which has developed among ourselves—builders, architects and tradesmen—we expect to finish the project in half that time."



**Brick fireplace** (above) is treated as wall-element, fits well into modular structure. Heating is warm air perimeter type with floor registers.



**Dramatic glass wall** faces away from street, so living room enjoys plenty of privacy. One important "dividend" builders got by employing good modern architects was plenty of free publicity in the Cleveland newspapers. Architects Hart & Weiss will soon design a small shopping center as part of this development, hope to experiment with new site planning ideas as well before they are through.



AN OPEN LETTER

TO THE PRESIDENT

OF THE UNITED STATES

ON BEHALF OF THE

HOMEBUILDING INDUSTRY

**Dear Mr. President:**

Now that the election is over, we urge, advise and entreat you to find out for yourself what today's true situation is in housing and the housing agencies—what needs to be done, what needs to be stopped. *And why.*

Your present easy money policies are booming homebuilding as never before, so concern for our industry's profits today is no part of the reason we urge you to take a closer look at what has been or is being done with your implied approval.

**We just think you would be surprised and troubled by what that closer look would show you—**

We think you would be troubled by the many unfairnesses manifest in both FHA investigations, troubled by the half-truths and even bold untruths given official utterance, troubled by the politics that are being played, troubled by the general confusion in housing that is now hidden behind the easy money boom, troubled by the way this confusion and lack of direction is now frustrating the program you had previously endorsed for housing progress.

And we think it is high time someone spoke up honestly and clearly in defense of our industry and helped you find out what is going on.



Nobody doubts even for an instant your own high purposes in housing as in every other field, but you deserve and need better advice on housing than you have been getting these past nine months.

**Little of this advice has been constructive. Much has been bad—and some has been dangerous for your administration**

Some of this bad advice must have come from men who are themselves uninformed on housing and do not understand the very complex partnership of government and business through FHA that changed homebuilding from a backward handicraft to a dynamic industry and made it a mainstay of national prosperity—all at no cost to the taxpayers.

But most of the bad advice must have come from men whose primary interest in housing is political rather than social and economic—advisers who care less about helping you find better solutions for our many remaining housing problems than they care about shouting up an old scandal for partisan advantage.

We endorse and support your basic concept of government by delegating responsibility to able lieutenants and then relying on their guidance.

**We only wish you would put your faith in just such strong and well-informed lieutenants in the field of housing, too**

Your administration got off to a wonderful start in housing because you picked your first housing advisers from the outstanding leaders of our industry—architects, builders, lenders, realtors, suppliers, and spokesmen for the public interest groups most deeply concerned with better homes. These men helped you develop a fine new middle-of-the-road program of housing progress and reform—a program to save the taxpayers billions of dollars, a program to bring housing policy back in line with changing housing needs, a program to raise housing standards and build more quality homes, a program to reverse the spread of blight.

Who persuaded you to turn away from these informed counselors?

**In difficult times like this it is worse than confusing not to know who is calling the signals**

Who were the men from other departments and agencies who moved in on housing last April? Who forced the hand of the administrator to whom titular authority for housing had been given? Who were the members of your fateful five-man housing committee? Is this committee still in charge?

No doubt these new advisers told you they were driving out corruption, restoring faith in the government service, cleaning up abuses, and enforcing long needed moral reforms.

But if you wish to get at the truth quickly, you might do well to insist on a straight answer to these four questions.

**For the questions, turn the page**



**Question No. 1: Has the FHA purge raised the standards of public service as you hoped?**

**You will find the answer is no.** The purge has driven more good men than bad out of FHA, eliminated more live wires than dead wood. The headline-hunting methods used to expose a few malefactors have so discredited, dishonored, and demoralized the agency that able and devoted public servants are quitting faster than FHA can replace them. You were fortunate indeed that Norman Mason was willing to accept the post of FHA commissioner under such difficult circumstances, but did you know that for eight months he has found it impossible to get a good permanent man to fill even the No. 1 job on his staff? Too few people realize the enormous handicaps under which he is trying to rebuild the FHA organization and restore its morale.

**Question No. 2: Has the attack on FHA won the respect of men who know?**

**Once again the answer is no.** In all the housing industry there is hardly a leader who does not believe the purge is more political than moral. It was not a Democrat but the Republican president of a big New York bank who explained angrily that "FHA was the best of all the New Deal agencies, so the Republicans felt they had to do something to discredit it."

Everyone agrees that corruption must be rooted out of government and malefactors must be brought to justice. But no one familiar with the great public service FHA performed over 20 years in raising housing standards and enabling millions of families to buy better homes will believe it was necessary to shame its entire staff to expose a few men who had fallen for temptation.

**Question No. 3: Are the probes and purges furthering your own housing program?**

**Once again the answer is no.** Only the most debatable feature of the new housing law is really working—the extreme liberalization of insured and guaranteed mortgage credit put into effect at the peak of a building boom. The more constructive ideas and reforms you sponsored are being largely nullified, partly by some of the mistaken restrictions tacked onto your program as a result of the scandal headlines, partly because Congress declined to let FHA spend enough of its own income to handle its new assignments, partly because the purges have so terrorized the agency around which your housing program was built, that it is afraid to assume responsibility.

**Question No. 4: Has the probe brought a salutary reform in the use of federal mortgage credit?**

**Once again the answer is no.** Your partisans have noisily locked the door through which 608 builders mortgaged out six years ago\*, but what if anything did they do to halt equally questionable happenings in 1954—happenings which are worrying every responsible leader of our industry?

Today the housing shortage which may have justified Sec. 608 is long past; yet your administration is now guaranteeing not 90% but 100% loans on houses selling for nearly twice the 608 limit! How can this fail to inflate prices and focus buyer interest on easy terms rather than quality and long-time value? What greater temptation could be offered to take a big profit out of the mortgage money? Why do you think as much as \$300 is being bid to induce veterans to buy a \$12,900 house for nothing down?

\*This magazine is no apologist for everything that went on under Sec. 608. Five years ago this month we called it a program of public risk for private profit and explained in detail how a builder of reasonable acumen could take up to 12% cash out of his government-insured loan. Except for filling in some names, all the recent headlines have revealed very little that Senator Capehart could not have read in ARCHITECTURAL FORUM for January 1950. For that matter, they have revealed little that Senator Long did not warn the Senate to expect when he vainly urged the Senate to provide safeguards against mortgaging out back in 1948.

But Sec. 608 was always recognized as an emergency measure to meet an explosive war-born shortage of rental housing for returning veterans; furthermore, the 608 program included a price ceiling of \$8,100 per unit and at least in theory set a loan ceiling of 90% of estimated cost.



We realize that you are already carrying tremendous responsibilities at home and abroad, responsibilities for war and peace, responsibilities for world trade and world prosperity. We realize that you must delegate many decisions, and so we hesitate to ask your special attention to the problems of our industry.

**But here are four more reasons why we believe homebuilding should have your careful consideration at this time:**

**1. Homebuilding is far too important to be left a political football**

There is no other industry so dynamic, no other industry that can do as much to sustain the prosperity which is so essential to the success of your administration. There is no other industry which touches so closely the lives of so many millions of families, no other industry whose full production is so necessary if we are to raise our American standard of living.

**2. There is no industry in which the federal government is so deeply involved  
(except perhaps agriculture)**

Twenty-two years ago FORTUNE, called housing the industry capitalism forgot, a disgrace to our free enterprise economy. The partnership with government first proposed by President Hoover and realized under Presidents Roosevelt and Truman has brought the industrial revolution to homebuilding and raised housing standards from coast to coast.

**3. Your Party has walked into a dangerous political position in housing**

The Republicans have lost control of the Senate and House investigating committees—the sounding board for scandal that Walter Lippmann called the biggest prize at stake in last November's election. You could have real trouble if the Democrats decide it is their turn to make political hay of what your administration let happen in home finance in 1954.

Until the muckraking started last spring Republicans and Democrats had worked together for 20 years on a bipartisan housing program, and even last summer the Democrats gave you good support on the Housing Act which could have been—and still can be made—one of the outstanding legislative achievements of your administration. After what has happened in the past nine months no one less than yourself can hope to re-establish that bipartisan collaboration in housing before it is too late.

**4. There is still a tremendous need of constructive leadership in housing**

Here are just a few of the major problems within homebuilding which merit your personal attention:

- How to get politics out of FHA and FHA permanently out of politics, just as everyone agrees the Federal Reserve should be kept out of politics.
- How to reduce the government's vast contingent liability for mortgages.
- How to reconcile the needless conflict between conventional and insured lending so that each can make its best contribution to help all Americans have better homes. Would the English plan of insuring only the risk portion of the loan be better as well as cheaper than our system of charging too low a premium on the risk portion and too high a premium on the balance?
- How to help the FHA Commissioner in his single-handed crusade to modernize his agency's appraisal attitudes and find a better solution to the problem of standards.
- How to bring enough more money into the mortgage market to make the new Housing Act work.
- How to reconcile the FHA and VA lending programs and stop VA abuses.

For these and many other constructive steps your interest and guidance are urgently needed.

**The editors of House & Home**





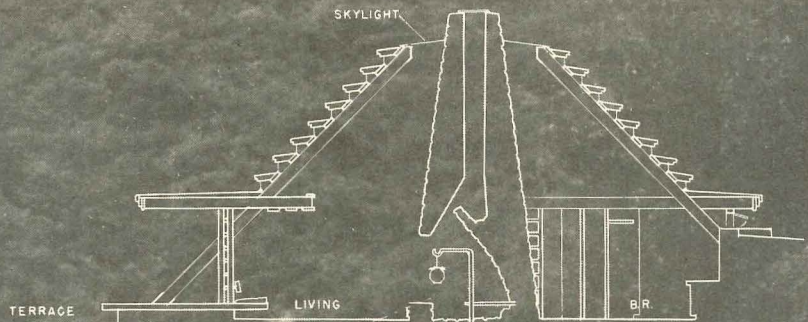
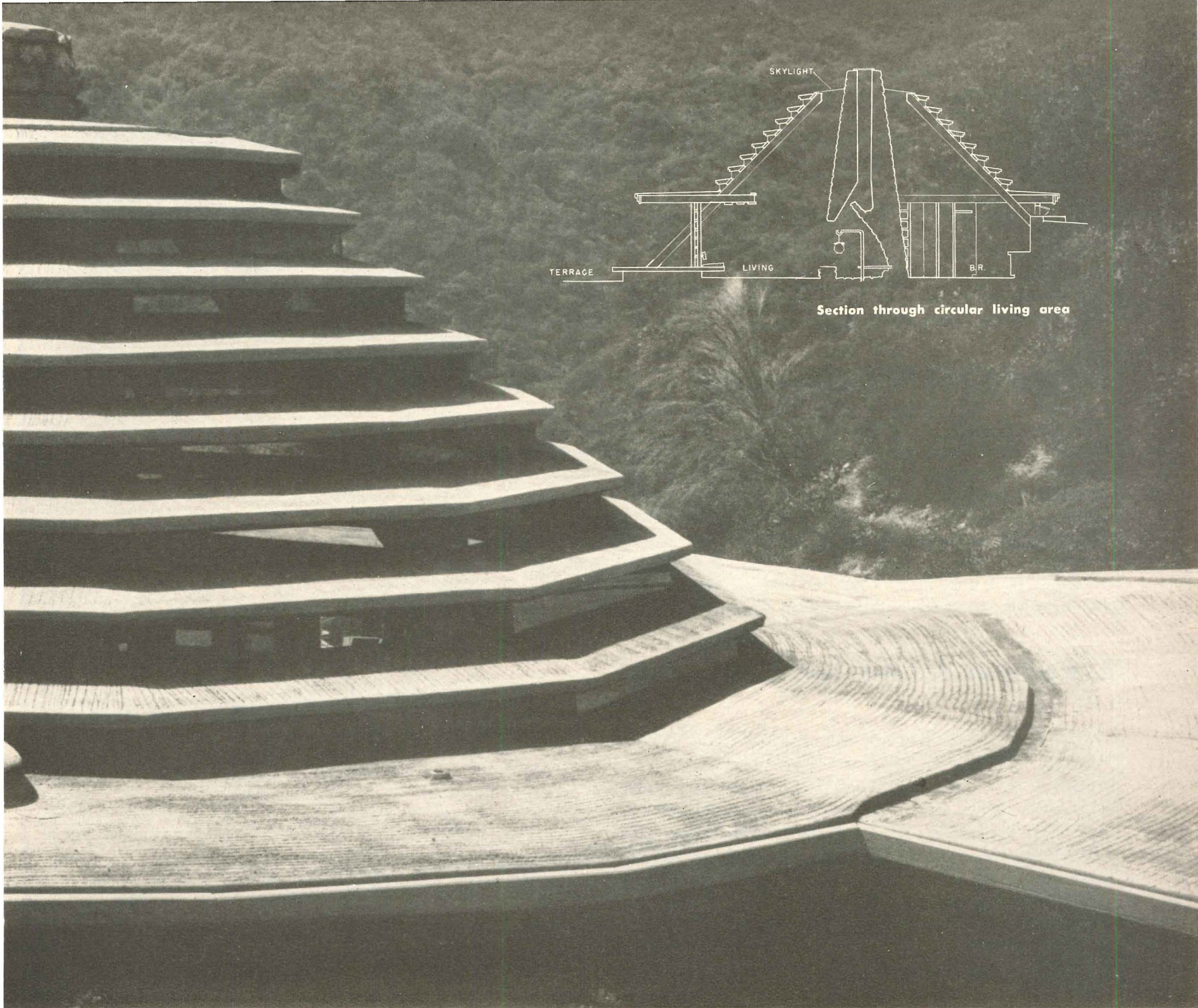
## Eight experimental roofs

No part of the house is more trouble than the roof. Even the simplest flattop calls for the work of three or four entirely different trades (all of which get into each other's way). And after the average roof is all built, it is likely to continue as the No. 1 maintenance problem during the life of the house.

The architect-designed custom house is the laboratory of the homebuilding industry, and the "roof department" in that laboratory has been working overtime for the past couple of years. On these six pages is a report on the latest experiments. Some of the ideas are about ready for use in the volume-built house. Others are still strictly in the realm of science fiction.

But we all remember that some recent truths to come out of the laboratories have made the science fiction writers look like dolts. For all we know, some of these experimental roofs may be out of the lab and in the market place before the new year is out.





Section through circular living area

Photos: Julius Shulman

## 1. Beehive roof for better light

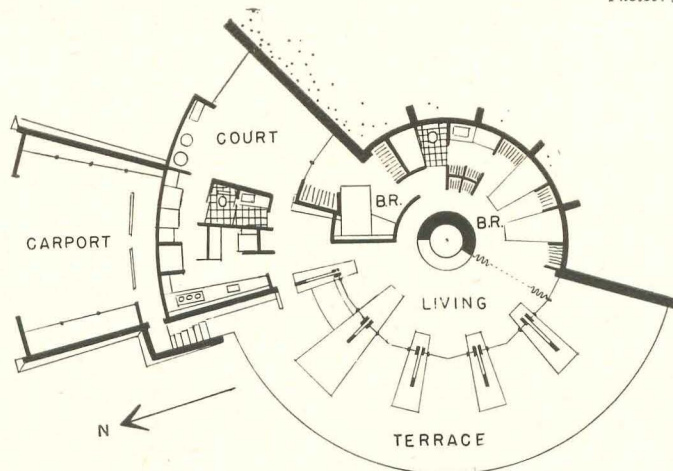
*Purpose:* to create a glareless skylight dome over the living area. To let sun into the house at all hours of the day, and to permit glimpses of moon and stars at night. To draw heat and smells away from the living area into the funnel-shaped ceiling.

*Solution:* concentric rings of lightweight concrete, stepped back like a stair, with recessed risers of heat-absorbing glass (see section). "Treads" act as louvers against sky glare, "risers" permit ever changing pattern of sunlight on central stone chimney. Chimney penetrates roof at apex, through circular sky dome.

*Architect:* George Frank Ligar

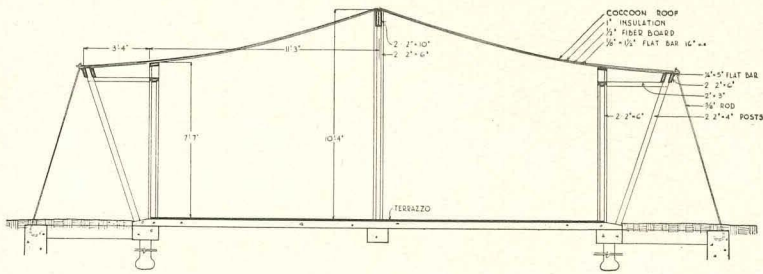
*Location:* Hollywood, Calif.

*General contractor:* architectonic builders



Rear of circular house is buried in hillside up to eaves. Cantilevered concrete benches and tables extend through glass wall onto terrace to the west (see right).





Architects: Twitchell & Rudolph  
 Location: Sarasota, Fla.  
 General contractor: Associated Builders, Inc.



## 2. Plastic roof in suspension

*Purpose:* to exploit the tensile strength of steel in roof structures; to develop a thin roof sandwich flexible enough to withstand some movement in the tentlike form.

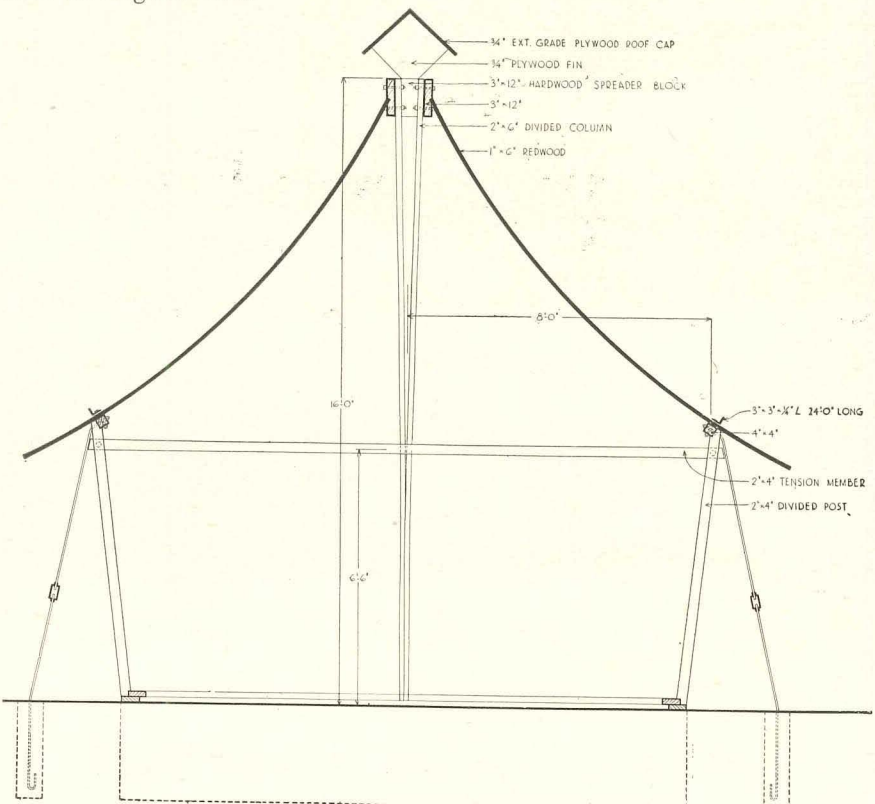
*Solution:* steel bands,  $\frac{1}{2}$ " x  $\frac{1}{4}$ " in cross section, were hung 12" o.c. between three rows of more or less traditional post-and-beam frames running the length of the house. The steel bands support a sandwich of  $\frac{1}{2}$ " fiberboard and 1" insulation, sprayed top and bottom with the plastic developed by the Navy for mothballing during World War II. Steel bands (and, thus, the roof profile) were permitted to assume tentlike sag. Plastic spray is flexible, stretchable to three times its length, will then return to its original form.

## 3. Redwood tent for a garden

*Purpose:* to develop an extremely light, nonweatherproof garden shelter—a small teahouse next to a backyard pool.

*Solution:* 1" x 6" T&G redwood boards were butted and nailed into a rabbet cut into each of the ridge beams (two 3" x 12"s—see section). A temporary batten was placed on the outside face of the boards, and wires with turnbuckles were stretched between battens on opposite roof planes until the two halves were drawn together approximately into present position. Boards were then nailed into eave beam and the angle (which doubles as a gutter) was bolted through to the eave beam from the outside. When the temporary wires were removed, the redwood planes snapped into a slightly flatter arc. Double supporting struts, cross ties and rods that tie the roof to the ground counteract the outward thrust.

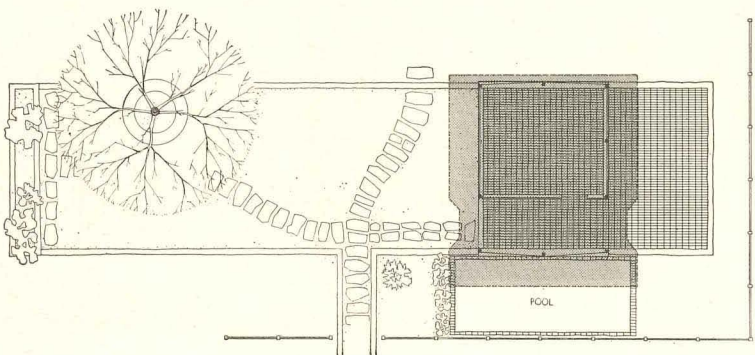
This unusual roof form reversed the normal stresses in just about every structural member: ridge beam tends to bend *upward*, most supports are in *tension*, and sole important compression members are the short struts under the eave beam.



Photos: (top) Rodney McCay Morgan



Architects: The Cincinnati Organization (John M. Garber, designer)  
 Location: Cincinnati, Ohio  
 Labor: William Boswell (owner)

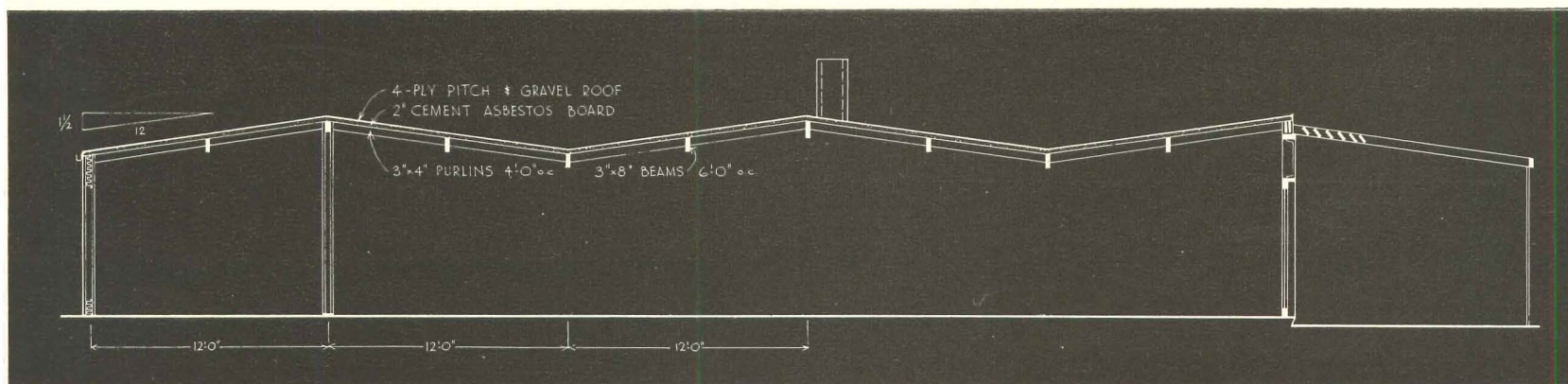




*Purpose:* to design a regular roof of identical, short spans to cover an irregular plan.  
*Solution:* a succession of short-span, low-pitched ( $1\frac{1}{2}$  in 12) roofs. Each complete roof triangle is 24' wide, supported at both ends and in the center. Framing members are light—3" x 8" beams, 6' o.c., and 3" x 4" purlins, 4' o.c. 2" thick, manufactured planking spans each 4' x 6' roof bay without intermediate supports. Roof valleys serve as gutters, have 3" leaders at each end. Roofing is 4-ply, built-up.  
*Architect and engineer:* Harry Weese  
*Location:* Barrington, Ill.  
*General contractor:* Spencer Rieke



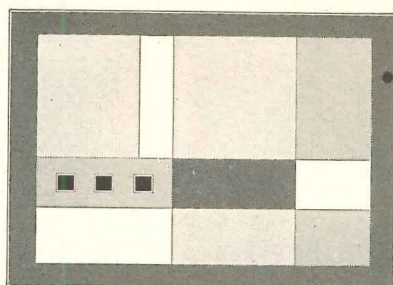
#### 4. Roller-coaster roof for an irregular plan



#### 5. Decorated roof

for a better

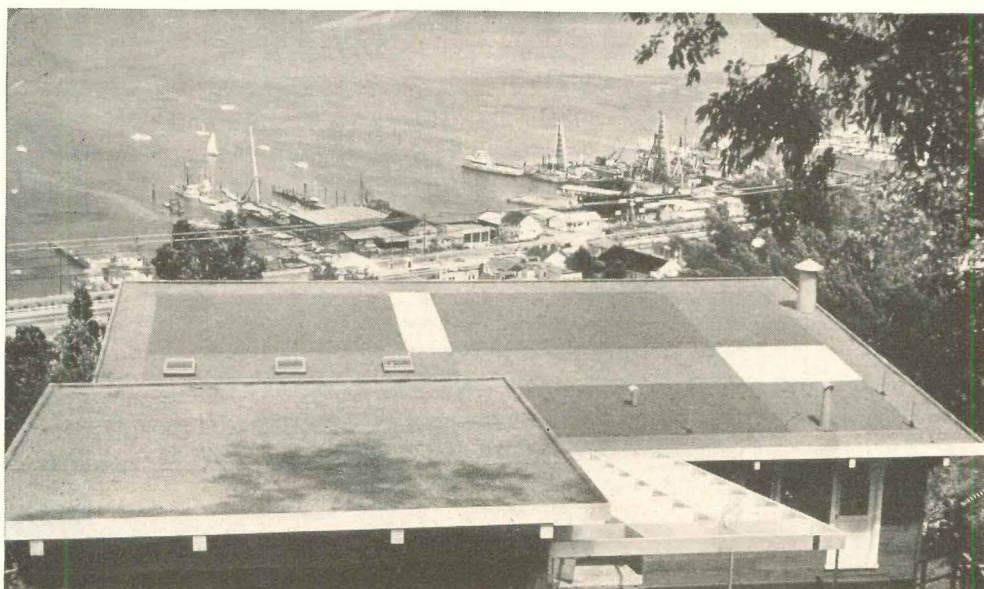
bird's-eye view



*Purpose:* to make a shed roof on a hillside house attractive when seen from uphill side. (This is a common problem in such hillside-lot areas as the Bay region, where most houses are seen from *above* rather than from a level point or from below, and where few houses present anything but a mess of vents, chimney pots and power lines to the onlooker.)

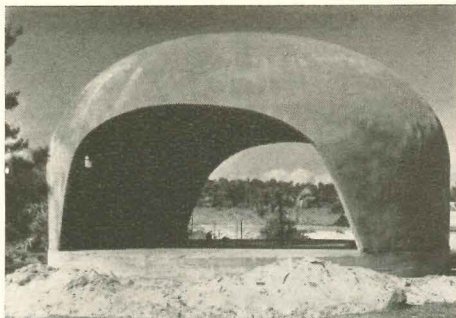
*Solution:* a rectilinear, abstract design in different colors placed on top of the composition roofing. Materials include gray gravel, crushed red brick, white rock and purple pumice. Three squares are skylights.

*Architect:* Torben Strandgaard  
*Location:* Sausalito, Calif.  
*General contractor:* William McEwan





## 6. Concrete bubble sprayed on a balloon



Eliot Noyes & Associates

*Purpose:* to build a house shell combining roof and walls in one monolithic form, and using Airform construction process (invented by Architect Wallace Neff).

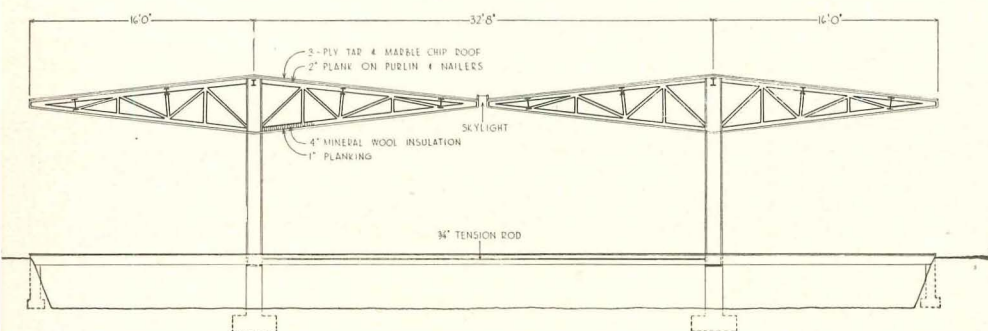
*Solution:* a 30'-diameter flat-bottomed balloon was inflated to its full 14' height, covered with reinforcing mesh, then sprayed with gunnite. Actually, spraying process is in two steps to permit insertion of vapor seal and glass-fiber insulation between double-shells, each of which is 2" thick.

When completed, shell can accommodate two bedrooms, bath, kitchen, dining room, living room. All window and door openings are grouped together within two arched cutouts. When built in quantities, houses can sell for \$6,000. For the present, only two model houses have been completed, but others are planned.

*Architect:* Eliot Noyes

*Location:* Hobe Sound, Fla.

*Manufacturer:* Airform International Construction Co.



©Ezra Stoller



## 8. Double-diamond umbrella to shelter 64' in a single span

*Purpose:* to develop a very long span roof structure supported on only eight small points, capable of protecting an area of 2,600 sq. ft., and constructed of very light steel only.

*Solution:* four double-diamond shaped, three-hinged steel arches, supported on eight WF sections, each about 6" x 12" in size. All sides of diamonds now being closed in, but 10"-wide slot between tips of diamonds will be glazed to form long skylight down center line of house, interrupted only by hinge connectors. Tie rods join columns at footings.

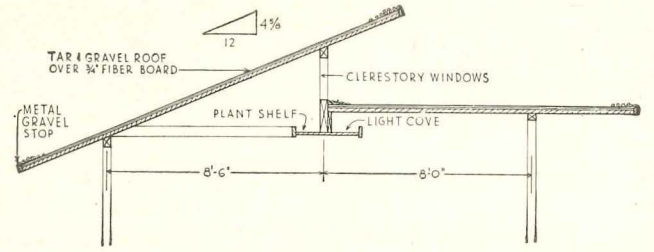
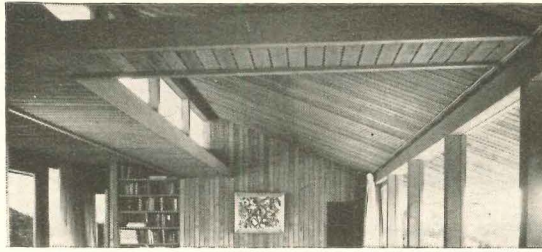
Entire steel structure, including purlins, weighed 12,000 lb., cost \$2,700 erected in one day. (Arches alone weighed only 7,300 lb.) All steel members extremely light to facilitate handling in small, local shop. Some of the results: 16'-deep overhangs on two sides of house. A completely free plan since entire 2,600 sq. ft. roof supported on only 4 sq. ft. of structure. Elegance as well as superior strength.

*Architect:* Ulrich Franzen

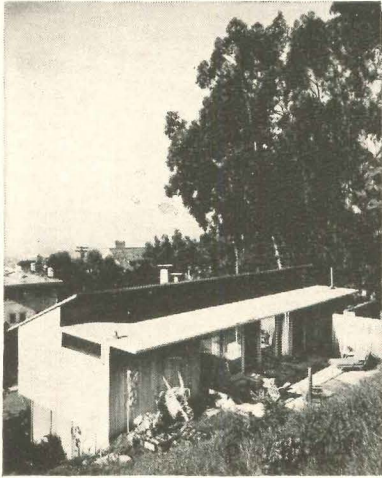
*Location:* Rye, N.Y.

*General contractor:* Rayback, Inc.





T. Osmundson

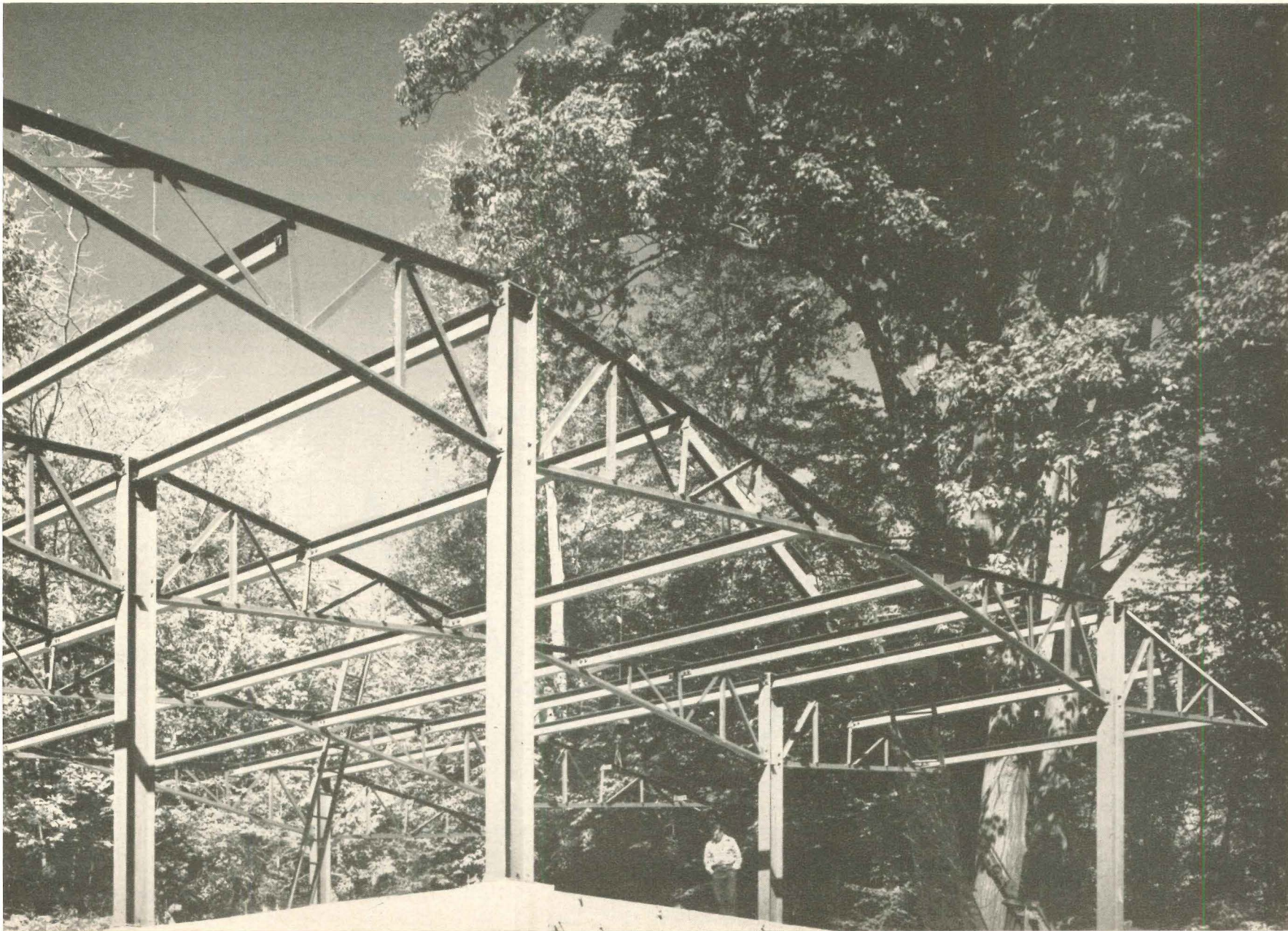


*Purpose:* to bring the east sun into a house whose entire orientation is westward and down a steep (30°) slope. (Other possible uses: to bring light into a string of windowless, inside rooms without resorting to individual skylights.)

*Solution:* make half your roof a single-pitched shed structure, the other half flat. Conceal center girder in the ceiling break. Cut down on roof spans to eliminate joists, make do with 2" T&G planks. (This particular house is only 17' deep, thus divides into two short spans easily bridged by planks—especially in no-snow-load areas.) Additional results: reduction of sky glare from west because interior is backlit through clerestories. Note simple cove-lighting detail.

## 7. Clerestory roof to catch the morning sun

*Architect:* Roger Lee  
*Location:* Berkeley, Calif.  
*General contractor:* Willis Foster





# Rental housing: is it worth the trouble?

**Builders agree FHA rules have killed 207. Can you build middle-income rentals without 207? Probably not, but some lenders think it is unnecessary amid easy money**

Rental housing, unlike Scrooge's partner, was not dead to begin with. It sickened only recently, after exposure to a double malady compounded of FHA probe and Housing Act restrictions. And it was not yet completely dead; just moribund.

By the time the new Housing Act blessed the American home with terms giving nearly everybody who shares in the gross national product a chance to buy a house, the rental builders must already have seen the writing on the wall. And when they became aware of what they were up against under the revised Sec. 207, they were shocked into vituperative inaction. The senatorial exploration of FHA, with special attention to 608ers, was small help.

**Main prop gone.** There was no doubt that middle-income rental housing had gotten it—at least temporarily—in the neck (see chart). Applications for Sec. 207 units slumped sharply last summer; Sec. 213 applications hit zero in August, September and October.

"No builder in his right mind would look at 207," said a New York builder recently. "They've utterly ruined housing for the middle-income bracket." This seemingly extreme view was fairly widespread. Reasons for the project builder's initial discontent with the revised Sec. 207 were two: 1) he was confounded by the number of instances of FHA control, especially clauses on limitation of profits in the new charter and 2) he was unused to these terms and, therefore, taken by surprise by them.

**Tight little ceiling.** Under the new 207 regulations—superficially they show benefits to the builder in the shape of higher allowances on construction cost per dwelling—FHA is entitled to its customary ownership of the preferred stock. This gives the agency control of the corporation. The reason is simple. The preferred stock shall be delivered to FHA "in order that the commissioner . . . may regulate and restrict the corporation as to rent or sales, charges, capital structure, rate of return and methods of operation . . . and to enable the commissioner to protect the contingent liability of FHA. . . ."

Hard on the heels of the cost certification requirement (which NAHB has called sufficient in itself to balk any extensive middle-bracket rental housing) comes news that new 207s will be limited dividend corporations, with dividends limited by FHA to 5%. (This procedure gives rise to the logical question

in builders' minds: "Why is there need for a dividend limitation when the apartment rents are being limited and approved by the government?") FHA is also empowered to take over the project at any time, a power reinforced with a clause to the effect that the agency does not have to turn the project back until it is entirely satisfied with the new setup and by a list of eight "events" whose occurrence shall constitute default and allow the government to step in and—if it so chooses—remove the directors of the corporation. These "events" constituting default include any restriction of leasing because of race or color or because of children in the family; more important, any failure of the company to report to FHA changes in ownership of the controlling stock or of the corporation's executive personnel.

**Needed: money.** "Rental housing is normally not an attractive investment for investment capital." This financial thesis—founded on the multiple hazards of large outlays well in advance of income, vulnerability to rent control, tax rate changes and rising costs—slows participation in restricted mortgages to a crawl. The trouble has always been that in a speculative endeavor like apartment building the builder cannot be content with any 3% or 4% on his investment. Real estate is not readily convertible, like chemical and copper stocks, and the builder is certain that he does not want to get stuck with a property. Liberal financing is essential. With a 90% mortgage, for example, on a \$20,000 unit, the builder can get his 15% return and amortize the loan (at 4%)

for a rental income of \$1,020. With a 75% mortgage, this income must rise to \$1,350. Thus the trend to luxury apartments—and their attendant higher risk—begins. The fact that the government-insurance programs have tightened therefore means that the consumer is in for higher rents (see tables).

"I don't look for any rental housing," said one mortgage man last month, "as long as the rules stay the same."

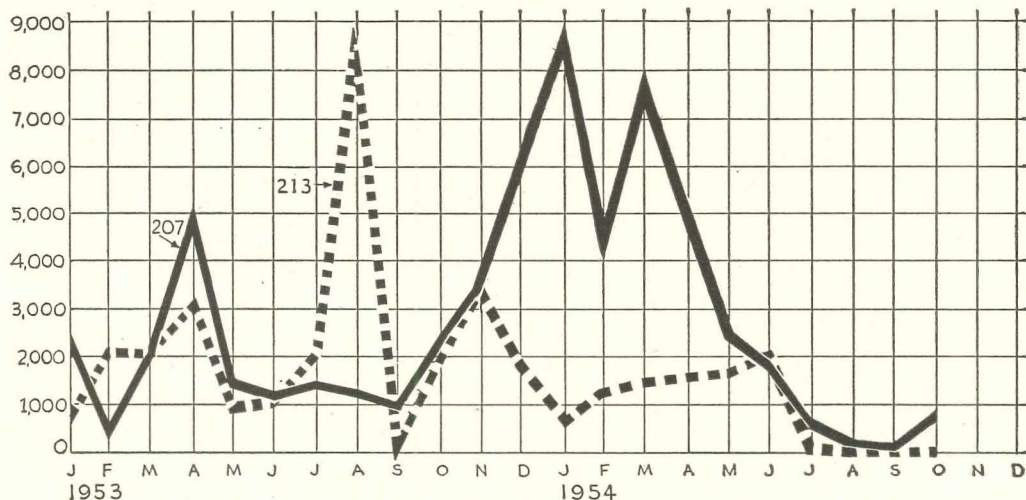
"Insured rental housing is a dead issue," commented an Eastern builder—more sensitive than some, perhaps, because of the questioning he went through on his 608s. "It's a question of investing a tremendous amount of money in a project under some one else's control where you can't get a take."

Dave Slipher of Builder Fritz Burns' Los Angeles organization saw hope ahead: "It would be a mistake to say that nothing is going to happen. The federal tools are getting rusty and will be for some time to come, but there has to be a considerable time lag during which the new machinery can be examined."

President Wallace Moir of the Mortgage Bankers' Assn. feels that the new law is not the ome some make it out to be: "The requirements of 207 are no stronger than the requirements of a life insurance company lending 80 or 90% on a bond issue. Bond issues would require no dividends over a specified amount until reserves are established. These are not requirements that aren't already being made in financing generally."

**What price conventional?** With an at least temporary stoppage of FHA rental mortgages, the logical way out was to rely on conventional building for the housing needs of renters. This solution was complicated by the fact that conventional money was swinging unswervingly to luxury-type apartments, at rents outdistancing an extraordinarily large segment of the population. Conventional projects

**HOUSING UNITS IN APPLICATIONS FOR 207 AND 213 MORTGAGES**



Latest trend in the precipitous up-and-down totals of 207 and 213 applications in the past two years is the collapse in the third quarter of 1954, after passage of the new Housing Act.



in the middle brackets—the two-story variety common in a large number of areas other than New York—were up against a different pull: “the vital pressures,” as they have been called, were urging the citizen to purchase a suburban dwelling.

The other question: is rental housing needed? Some mortgage men thought it “would be a good thing to have a breather,” let home construction have its head while builders got used to the new 207. Perhaps Sec. 220 would come in for use when urban renewal gathered steam. (Predictions were that 220 would be as slow to catch on as 207, because it would be governed by the same rules. Under such circumstances, as pointed out by NAHB’s Richard Hughes and NAREB’s John Williamson, both 220 and 221 would seriously dampen the administration’s high hopes for urban renewal.) The danger in the “breather” school of thought was that homebuilding might grow too big a head in the interim. With inducements to the prospective home owner being laid on with a trowel some thinkers ventured a word of caution: “Those things are awful bad because when a depression comes and you need those special tools you find that you’ve already used them.”

The other objection to the premise that there is enough rental housing around now so that things can be allowed to slide for a while is that the government’s original intervention in the housing field was to iron out the peaks and valleys in the business. Why stabilize one part of the industry and not the other? If left to its own devices, rental housing would undoubtedly follow the old boom and bust pattern of yore.

## FINANCING SHOWS HOW NEW LAW HIKES RENT

Sec. 207—old version  
as administered by FHA

**Typical 207 case under the old version of the law with 10% equity computed in accordance with Sec. 207 procedures:**

100 units, 450 rooms. Cost of \$9,000 per unit. Total .....	\$900,000
Mortgage 80% of value or FHA estimate of cost, whichever is less	720,000
Operating costs \$60 per room per yr.	\$27,000
R. E. taxes \$25 per room per yr.	11,250
Replacement reserve \$10 per room per yr.	4,500
<b>Total .....</b>	<b>\$42,750</b>
7% net on estimated cost of \$900,000 for debt service and return before taxes. (207 debt service ¾% higher than 608*.....)	63,000
<b>Required annual gross .....</b>	<b>\$105,750</b>
Required rent schedule to produce necessary gross at 93% occupancy	113,708
Necessary monthly gross schedule	9,476
<b>Necessary monthly rent per unit..</b>	<b>\$94.76</b>

\*Debt service computed in accordance with Sec. 207 requirements which were higher than under Sec. 608; 7% figure includes return for equity.

## Capehart committee report raps industry, blames FHA administration for scandals

The Senate banking committee last month laid primary blame for abuses in the post-war 608 boom and in the Title I repair program on “maladministration by FHA.” In a 140-page report issued Dec. 20, the committee also charged officers of NAHB and MBA with seeking to impede the investigation. Both organizations promptly denied it.

With Democrats taking control of Congress, the report, which bristled with names and profits of alleged wrongdoers, could well be headed for “file and forget” limbo. Sen. John Sparkman (D, Ala.), a senior member of the committee, commented that while he favored a continuing investigation of federal housing programs, he opposed any probe designed to “drag out a lot of dead carcasses.”



CAPEHART

**Controversial language.** The six committee Democrats approved issuance of the report only after Chairman Homer Capehart (R, Ind.) watered down many of his original conclusions and deleted an accusation that the irregularities constituted “the biggest scandal in the history of our government.” (So Capehart issued this charge in a “personal” press release.) Even so, the Democrats had reservations. They were especially critical of the

Sec. 207—new version

**Same case (assuming constant costs), assuming investors are willing to have investment returned over five years before taxes:**

Assume 20% cash investment and assume 20% return on investment. Such return would recapture the investment in five years without tax on return. Taxes, however, would prevent such recapture and actual period of recapture would depend on tax positions of corporation and owner. 100 units, 450 rooms. Cost of \$9,000 per unit.	
Total .....	\$900,000
Mortgage 80% of cost.....	720,000
<b>Cash equity .....</b>	<b>\$180,000</b>
Operating costs \$60 per room per yr.	\$27,000
R. E. taxes \$25 per room per yr.	11,250
Replacement reserve \$10 per room per yr.	4,500
<b>Total .....</b>	<b>\$42,750</b>
6¾% debt service on \$720,000*..	48,600
20% on equity of \$180,000*.....	36,000
<b>Required annual gross .....</b>	<b>\$127,350</b>
Required rent schedule to produce necessary gross at 93% occupancy	136,935
Necessary monthly gross schedule	11,411
<b>Necessary monthly rent per unit..</b>	<b>\$114.11</b>

\*Debt service computed in accordance with Sec. 207 procedures; return to equity shown separately.

frequent use of the word “fraud” in the report: “It is going too far . . . to imply, as we believe the report does, that all who over-estimated costs and received excessive mortgage money were guilty of legal ‘fraud’ . . .”

Sen. Capehart’s committee held 43 days of public hearings in seven cities, looked into 543 projects insured under 608 (out of a total 7,045) and found that in 437 of these the mortgage proceeds “exceeded all costs of every kind or description.” This had occurred, said the committee, through the coexistence of a “few greedy and sometimes dishonest builders” and “incompetent, lax and sometimes dishonest FHA employees.” The committee noted that Congress had provided particular legal machinery for persons willfully making false statements in FHA applications, blistered the agency with: “FHA not only ignored that criminal provision of the act, but it virtually invited builders to make false statements in their applications by publicly stating that it would not consider incorrect statements in applications as having any materiality.”

**Jacked-up rents.** The report noted that the government has sustained no actual loss so far on the 608 program (defaults have been more than offset by reserves of \$105.2 million FHA has from insurance premiums). But it dwelt on the “large sums in extra rent” tenants are paying because of inflated mortgages. The senators figured that for “every \$1 million of excessive estimate, the tenants may pay as much as \$65,000 a year excessive rent. . . .” Using the committee’s finding that some \$75 million worth of windfalls occurred in the 543 projects examined, it would appear that the “extra rent” bill comes to some \$4.9 million a year. Retorted the Democratic committee minority: “In all likelihood the . . . competitive . . . effect of the [465,683] units developed under 608 reduced rents far more than rents were increased by mortgaging out.”

**Misled, deceived?** The report asserted that FHA “deceived” Congress and the housing industry “misled” it in testimony in 1949 and 1950 by insisting substantial mortgaging out under 608 was unlikely, if not impossible. It named former FHA Commissioner Franklin D. Richards, ousted Asst. Commissioner Clyde L. Powell and ex-NAHB President Rodney Lockwood and Mortgage Banker Will Clarke as sources of such testimony.

It attacked NAHB and MBA by name in a section asserting industry associations “sought to thwart and minimize” the probe and “. . . devoted themselves to justifying the activities of an uscrupulous few.”

In rebuttal, both Hughes and Neel insisted they had not tried to impede the inquiry. Hughes added NAHB “repeatedly acted to assist [it].” Democrats called it unfair to impugn their “honesty and integrity.”



# Experts urge simple new yardstick

Photos: Alexandre Georges



## Round Table participants

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**Arthur M. Watkins**  
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# to show if house is built to save heat

*At the invitation of HOUSE & HOME 37 key architects, heating engineers, builders, housing officials, and interested manufacturers met to consider a notable proposal—a simple index figure which would make it easy for any home buyer to make thermal comparisons and see which house is best built to keep out the cold and keep fuel bills low. This index was developed by F. W. Hutchinson, Professor of Engineering at the University of California.*

*The Round Table was almost unanimous in its enthusiasm for the proposal and in recommending it for early approval and acceptance by all associations and government agencies concerned with better housing, including specifically FHA and VA and also AIA, NAHB, ASHVE, ASRE.*

*A few of the panel's enthusiastic comments are reported under the photographs. Below is Professor Hutchinson's proposal:*



**F. W. Hutchinson**, 44-year-old professor of mechanical engineering at the University of California, ranks as one of the country's top authorities on heat flow. He has written booklets for industry, five engineering textbooks (three as coauthor), over 100 technical papers and has made studies on heating and cooling in some 33 countries throughout the world. In US housing, Hutchinson is known especially for his postwar development work on radiant heating.

Known also as a mathematician with "the rare ability to reduce complex theory down to practical working equations," he has served as a consultant to such industrial kingpins as Libbey-Owens-Ford, Minneapolis-Honeywell and Revere Copper & Brass. His latest work, published here, has already won plaudits from experts who call it "one of the greatest ideas yet in home heating." It has enormous potential value to everyone concerned with homebuilding.

## A proposal for a thermal construction standard

by **F. W. Hutchinson** Professor of Mechanical Engineering, University of California, Berkeley, Calif.

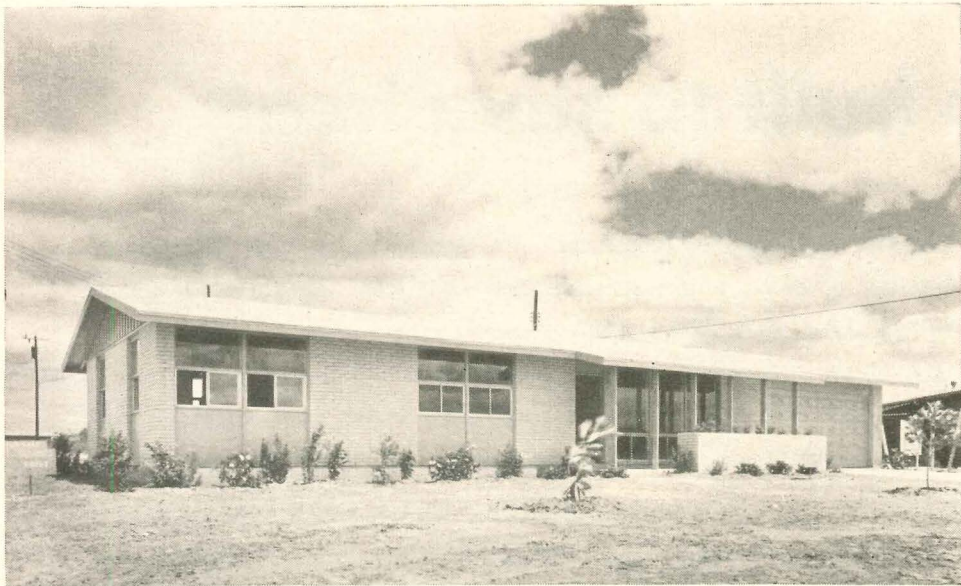
Lack of an adequate thermal standard for houses is causing a multimillion dollar loss to conscientious architects, builders and heating engineers, as well as to countless American home owners.

Lack of such a standard is encouraging the use of shoddy, thermally inefficient building materials and thereby reducing the market for quality products, whether insulation, glass, roofing or window frames.

This lack favors the less competent architect at the expense of the more competent; it gives more sales to the less scrupulous builder by making the scrupulous builder face ridiculously unfair competition. It penalizes the skilled heating engineer and favors the rule-of-thumb designer. And it adds to the financial burden of the home buyer, not merely for a brief period, but throughout the entire life of his house.

Everyone agrees that an uninsulated house, lacking weatherstripping and with single glazing, will be costly to keep at a comfortable temperature. Everyone agrees that insulation, double glazing, tight construction, and weather stripping will make the house more comfortable at less year-to-year expense.





In Texas, this 1,200 sq. ft. Air-Conditioned Village house has a 3.9 HEF based on a 50,700 Btu per hour heat loss at 20° outside temperature. Although ceiling has 3½" of insulation, walls are lightly insulated (.23 U) and slab lacks edge in-

sulation. House has large 28.5% area of single glass, whereas 15% glass would give a 4.6 HEFg and thus a .7 Glass Correction Factor. Heating bills, however, should be moderate because HEF can be lower for houses in the South.

PROPOSAL *continued*

## Needed: a thermal standard for every house

But until we can all agree on a standard of thermal construction, how can an architect or a builder justify the extra cost of optimum insulation? (Today, competitors using minimum insulation can nonetheless advertise their homes as "fully insulated.")

How can the architect show his client that the added hours needed for good thermal design represent dollars well spent?

How can the builder of quality houses demonstrate that his effectively insulated quality house is thermally superior to the "fully insulated" house of poor thermal construction?

How can the heating engineer and the heating contractor show that high heating costs result from a good heating system in a thermally poor house just as readily as from a poor heating system in a thermally good house?

How can the manufacturer of an excellent insulating material show the consumer, in simple terms, exactly what its value would be in the consumer's particular house?

Most important of all, how can the prospective home owner determine, *in advance of purchase*, whether a house will retain the heat required for comfort, or—sieve-like—dissipate excess heat and excess dollars through the walls, the floor and the roof?

Unfortunately, there is now no simple answer to these questions. Hourly heat loss is, of course, an indication of seasonal fuel costs, but heat loss varies with the size and location as well as with thermal "quality." What is needed is a simple standard that will permit direct comparison of thermal quality of any two houses, regardless of differences in their size and regardless of the fact that one of them may be located in Maine and the other one may be in California.

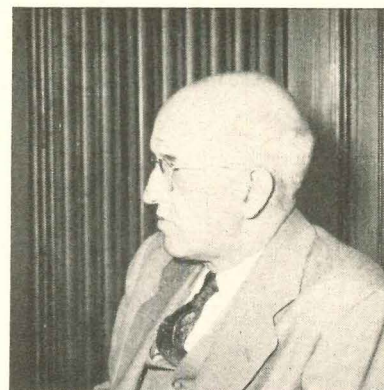
What the house buyer needs is a simple integration of the different thermal conditions in each house to give a single number that can be used directly to compare that house thermally with other houses that may differ in size or location.



**Charles S. Leopold:** The problem is to evaluate the added cost of proper insulation.

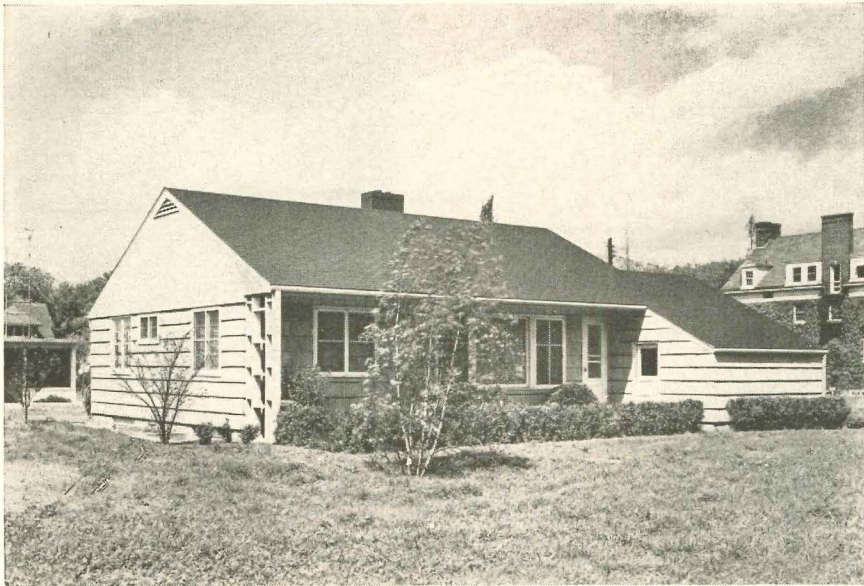


**Jack Kice:** If we had something like this rating on blueprints it would help a great deal. There's no question about its importance.



**Tyler S. Rogers:** This is a great idea—one of the hottest ideas that has come down the line.





**High HEF of 8.5** for University of Illinois test house means low fuel bills: house can be heated and cooled anywhere in US for less than \$150 a year, University study shows. Chief reasons for high HEF: 3" wall insulation, 4" over ceiling, double

glass. Without insulation HEF drops to 3.13 and heating costs triple. Total heating and cooling would run from \$250 to over \$400 a year, depending on location. Yet total cost of insulation is estimated at "less than \$240."

## How to find the HEF of a house

**Example:** one-story, 1,040 sq. ft. University of Illinois test house (left). The basic equation for all houses is

$$HEF = \frac{A_t (t - t_o)}{Q}$$

$A_t$  equals the total "shell" area of house.

$t$  equals desired interior temperature.

$t_o$  equals design value, outside winter temperature.

$Q^*$  equals the total heat loss.

For this house, the total exterior walls, glass, floor and roof add up to an  $A_t$  of 3,201 sq. ft., the desired inside temperature is 75°, the outside winter temperature is -10° and the heat loss is 32,000 Btu's per hour.

$$\text{Thus HEF} = \frac{3,201 \times 85}{32,000} = 8.5$$

Now this 8.5 HEF is for the actual house (left) with 273 sq. ft. of glass (24.3%) in its walls. If the house had 15% glass the heat loss would drop to 28,000 Btu's. This is easily calculated by simply changing two steps in the original heat loss figures. The Heating Economy Factor, HEFg, for glass is then equal to  $\frac{3,201 \times 85}{28,000}$  or 9.1. The Glass Correction Factor, Gf, is found by simply subtracting the actual HEF from HEFg:  $9.1 - 8.5$  and the result is a Gf of .6.

\* In order to permit fair and accurate HEF comparisons the heat loss,  $Q$ , should be calculated by the methods of the ASHVE GUIDE.

## The basis for a simple standard is already in widespread use

At some point in the design of any house it becomes necessary to determine the size of the heating plant. Since size depends on capacity, it follows that the architect, or engineer, or heating contractor must calculate the total hourly rate of heat loss which occurs by transmission through the floor, walls, and roof and by infiltrations through cracks around doors and windows; this quantity of total heat loss is denoted by the symbol  $Q$ . The heat loss is based on design conditions; thus with  $t$  as the room air temperature and  $t_o$  as the design value of the outside air temperature, the heat loss,  $Q$ , will depend on the air-to-air temperature difference,  $t$  minus  $t_o$  ( $t - t_o$ ).

Now let  $A_t$  represent the total external surface area of exterior walls, glass, floor, and roof—the "shell" area of the house. From the three known numbers indicated by  $A_t$ ,  $Q$ , and  $t - t_o$ , we can establish a simple and easily computed standard, the "Heating Economy Factor" (HEF), which alone will serve to identify the house as thermally excellent, good, fair, or poor. In equation form:

$$\text{Heating Economy Factor, HEF} = \frac{A_t (t - t_o)}{Q}$$

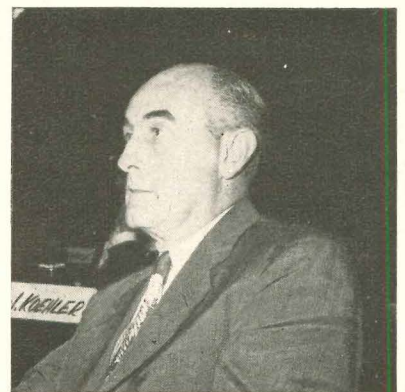
This equation offers these clear advantages:

1. The rating for virtually all structures will have a numerical value between 1 and 10.
2. The lower the value the lower the thermal economy of the construction; the higher the value the higher the thermal economy.

Although the HEF as defined above is a new term, it is new only with respect to the generalization and interpretation of information which is already known. In effect, the HEF is just a new method of "packaging" the end result of otherwise necessary calculations; its intent is to provide a means of interpreting complex engineering data in terms which will have meaning to the consumer. In purchasing an automobile the prospective owner knows the term "gasoline mileage" even though he may not know *why* it is what it is; in purchasing a home the prospective owner might likewise be interested in the Heating Economy Factor.



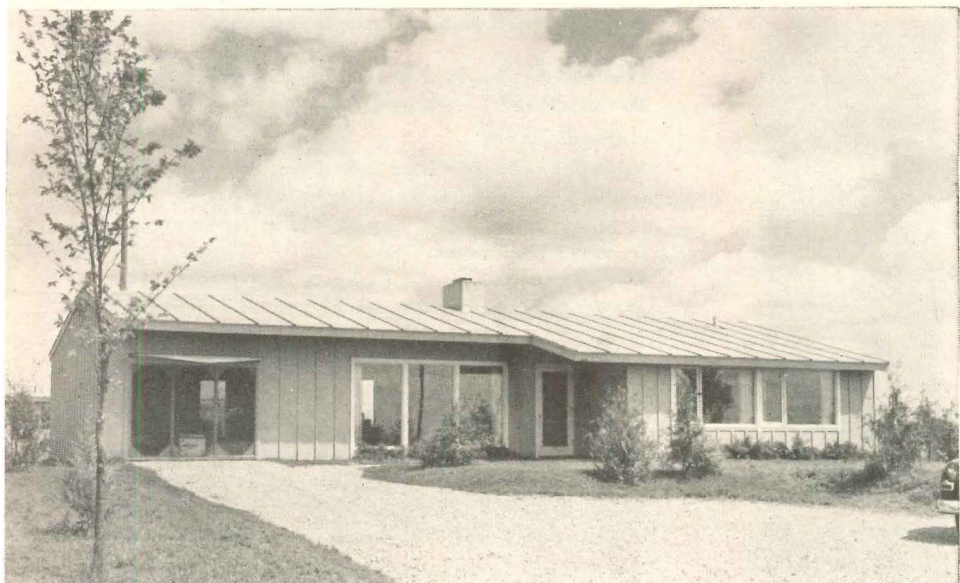
**Walter A. Taylor:** We're on the track of something pretty important. My only note of caution is that it be kept as an economy measure of thermal rating only.



**Fred McGhan:** But we must develop one acceptable method of calculation for total heat loss.



## THERMAL EFFICIENCY



**Minneapolis house** has high HEF of 9.3 because of low 40,000 Btu heat loss, despite  $-20^{\circ}$  winter temperature and large (28%) glass area. This shows glassy houses can have low fuel bills in cold climates—as low as \$84 a year for this 1,250 sq. ft. house, according to Builder Robert Norsen. Reason for high HEF: 6" of roof insulation, 3" in walls, double glazing for all windows and an insulating cork floor over the slab. The HEF that results really pays off for the owners of the house.

PROPOSAL *continued*

## How to give credit for large areas of glass

**The Glass Correction Factor.** The basic equation for HEF is open to only one major criticism. The cheapest way to get a high rating is to reduce the glass area, since heat transmission through single glass is about ten times the heat transmission through a well-insulated wall, and even with double glazing, it is roughly five times as much. To deliver builders from this temptation, it seems desirable to have a glass correction factor, to let the builder show, for purposes of comparison, what the HEF of his house would have been with 15% glass in the walls (a fair norm, a little below average).

To determine the Glass Correction Factor,  $G_f$ , the designer would simply go back to his original calculations and compute what the total heat loss,  $Q_g$ , of the house would have been with 15% glass in the walls.  $Q_g$  is then divided into the figure  $At$  ( $t-t_o$ ), as before, to get  $HEF_g$ —the heating economy factor if the same house had 15% glass. By subtracting the HEF of the actual house from  $HEF_g$  you get the term  $G_f$ —the Glass Correction Factor. Thus, if each set of house plans showed the two numbers

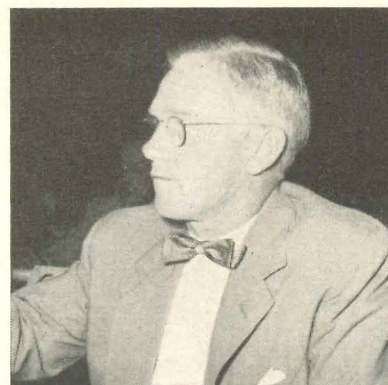
### HEF and $G_f$

the architect, builder, engineer, and prospective owner would each have full information as to the thermal adequacy of the structure and how far this was affected by the added glass area the owner liked so much.

The general acceptance of HEF as a thermal construction standard would permit direct comparison of the thermal characteristics of structures without respect to their relative size or their geographical location. A high value HEF means good heating economy (low operating cost) regardless of whether the structure is a one-room home or a 200-room hotel, regardless of whether it is located in Maine or California. Once the HEF has been determined, the structure is graded as thermally poor, fair, average, good, or excellent.

A similar cooling economy factor is even more badly needed, and as soon as there is more general agreement on how to calculate the heat gain of a structure during the cooling season, the same equation used to develop the heating economy rating can be used to develop a cooling economy rating.

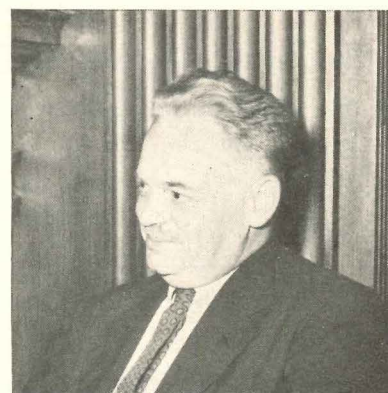
Once the HEF is brought into general use it may be possible to correlate it with the efficiency rating of the over-all heating and cooling system and the distribution system into a single all-embracing standard.



**William H. Scheick:** Our job is to get it simple enough so that the home owner will accept it easily as a yardstick just as he accepts the yardstick of horsepower in a car.

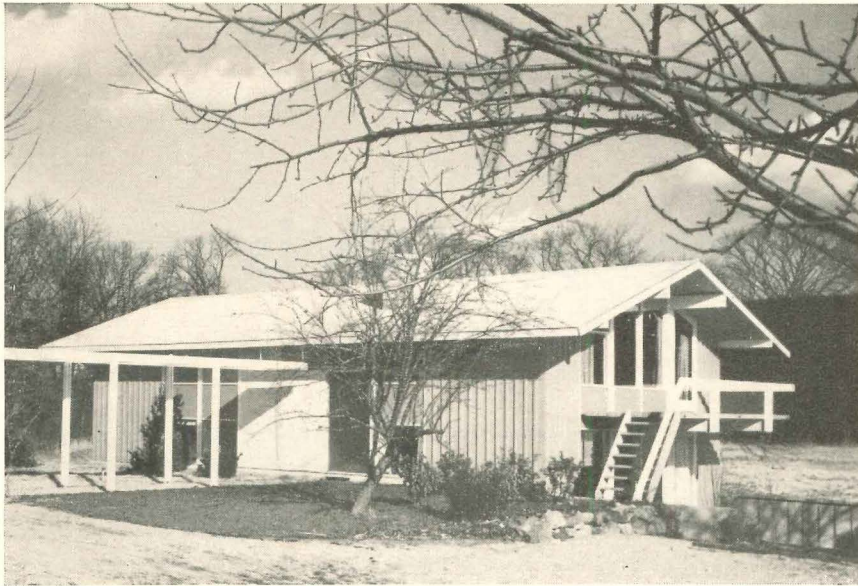


**William Gillett:** Is it possible to segregate wall openings and rate them by themselves?



**Leonard Haeger:** A very sound idea. We're talking about more than just insulation. It's quite possible now to fulfill FHA requirements and still end up with a house that is either uncomfortable or uneconomical to heat.





**Two-story house** by Architect Carl Koch has HEF of 3.2, based on 92,000 Btu heat loss in Boston. Estimated heating costs: "\$160 to \$200 a year." Exterior walls are 31% single-pane glass; with only 15% glass, HEFg would be 4.5. Koch says big

glass end, right, is always oriented to warm winter sun and "good curtains are more effective than double glazing, which will not pay for itself during life of mortgage." Some engineers, however, disagree.

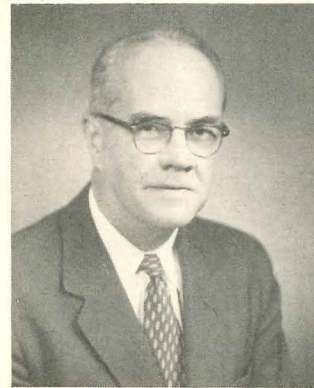
## The standard would greatly help FHA and VA throughout the country

**Regional optimums and regional minima.** One important implied value of the HEF is that it could be used effectively to broaden present Federal Housing Administration and Veterans Administration requirements with respect to minimum thermal effectiveness. Recent trends indicate that both these agencies would prefer to broaden their help to the home owner by encouraging better thermal quality rather than merely policing to protect the home owner from thermally unacceptable construction. If the concept of HEF were to be adopted for this purpose, a first step would be to carry out a statistical regional survey to determine acceptable minima of the HEF for use in preventing poor construction; the corollary would be establishment of regional HEF ranges which would then assure the home owner that his house was not merely acceptable but that it represented average, good, or excellent thermal construction for his section of the country.

The time and cost of such statistical surveys would be insignificant in comparison with the return not only in dollars, but also in comfort and satisfaction to the home owner.

**Benefits.** A suggestion is made for general adoption of a proposed simple rating number, the Heating Economy Factor (HEF), which would serve as a thermal standard. Such a standard would help architects and builders by enabling them to demonstrate to client or prospect the economic advantages of quality construction. The HEF would expose the hidden cost cuts which so often make it hard for the consumer to distinguish the well-built quality home from the house which just meets minimum requirements; it would enable the supplier of thermally effective building materials to show by direct comparison—right on the house plans—the difference between, for example, inadequate insulation and effective insulation; it would permit the home owner to see in round numbers the thermal advantage—for *his* house—of double glazing, or of weatherstripping, or of other differences in its particular construction.

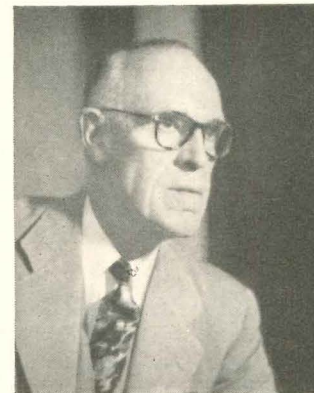
Adoption of such a recognized thermal standard would benefit everyone in the housing business who conscientiously seeks to provide good value to the consumer.



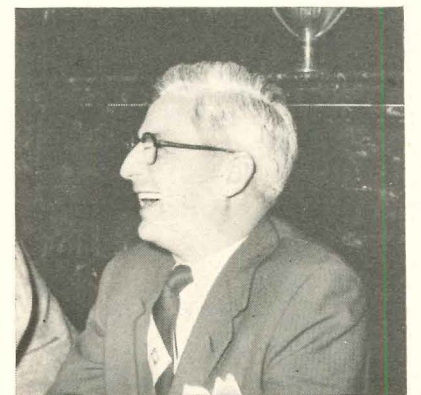
**R. K. Thulman:** We welcome this proposal for educating the consumer. FHA should include it so that the cost of better insulation is recognized in valuations. . . .

Any 1,000 sq. ft. house can be so constructed and so insulated that the cost of heating and cooling it should not be more than \$10 a month. . . .

The Heating Economy Factor is a significant forward step toward a more economical and comfortable house.



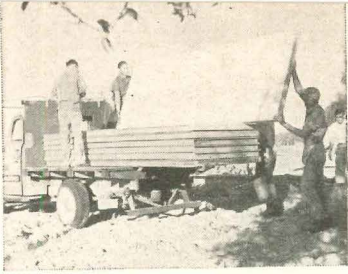
**Doremus Mills:** This is a protection for the home owner. He has a right to know. It should also be a wonderful selling point for the builder. Optimum insulation is not the objective. This is simply a method of rating and comparing thermal capacity.



**Charles Bowser:** FHA would be tickled to death if such a rating could be arrived at.

Our appraiser could then give a higher valuation to the house with a more economical heating factor and it would be a more marketable house. Our objective is to increase the quality of the homes and reduce the expense to the buyer. This proposal would certainly be important to the home-buying public.

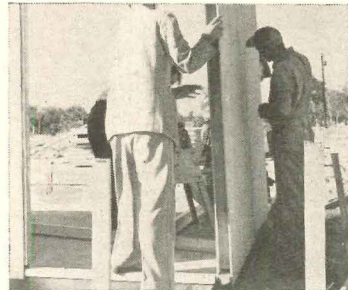




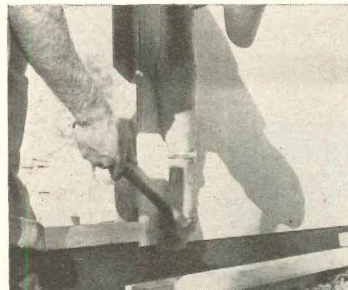
Photographs show how a good prefab system can speed up erection, even in single houses.



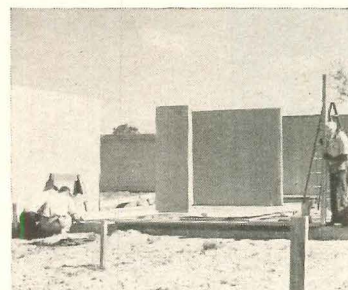
After honeycomb panels have been delivered, each is lined up on a 2' x 3' plate.



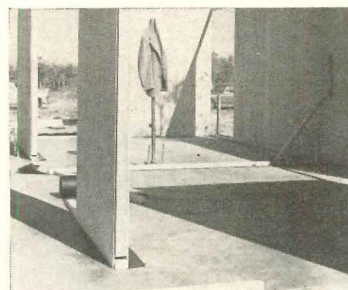
Panels are cupped open 3/4" at one end to grasp projecting stud of next panel (see detail).



Exterior plywood overlaps plate by 3/8" for fast nailing. Each wall panel weighs 86 lb.



Same panels quickly line up on inside rails for interior partitions.



Open chase at top and bottom of panels provides double tunnel around house for quick, convenient wiring.



Rigid roof panels weigh 120 lb. each, span 12' with no more than "usual deflection" under load.



At day's end whole house is closed in—convincing evidence that prefabrication is a natural even for one-time structures.

## ideas for materials

# Paper prefab is strong,

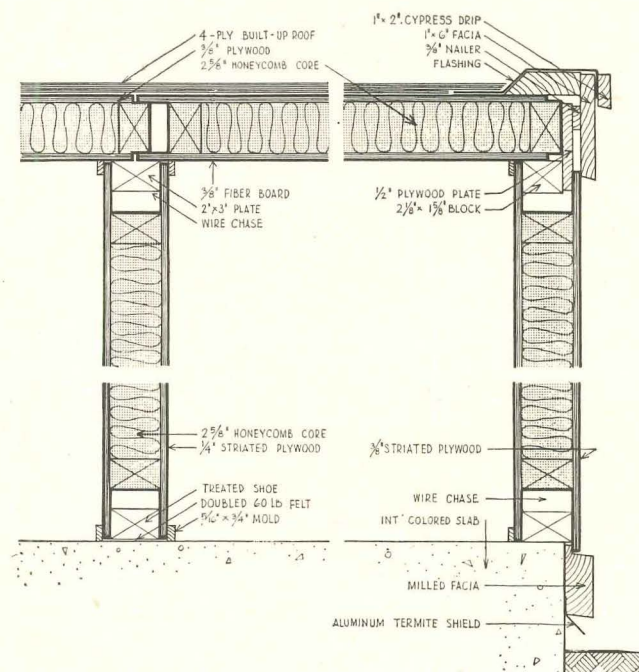
A stiff honeycomb of paper has amazing strength and durability, already proved in structures like airplane bulkheads which really have to be strong.

How the lessons learned in the air can be applied on the ground is shown by this Florida house which went up for \$8.50 a sq. ft.—remarkable for a one-house-at-a-time price. Prefabbed honeycomb panels, 4' x 8' units for walls, 4' x 12's for the roof turned the trick.

The panels are made locally with a core of 2 5/8"-thick paper honeycomb, which is bought in thin, collapsed sheets for about \$500 a ton. The sheets are expanded and glued to the inside face of a sheet of plywood. Then the other side of the sandwich is glued on, using a hot press, and both sides are also nailed to an edge-frame of 2" x 3"s. All this is done on jigs to assure a flat and true panel. Details and all dimensions are shown below.

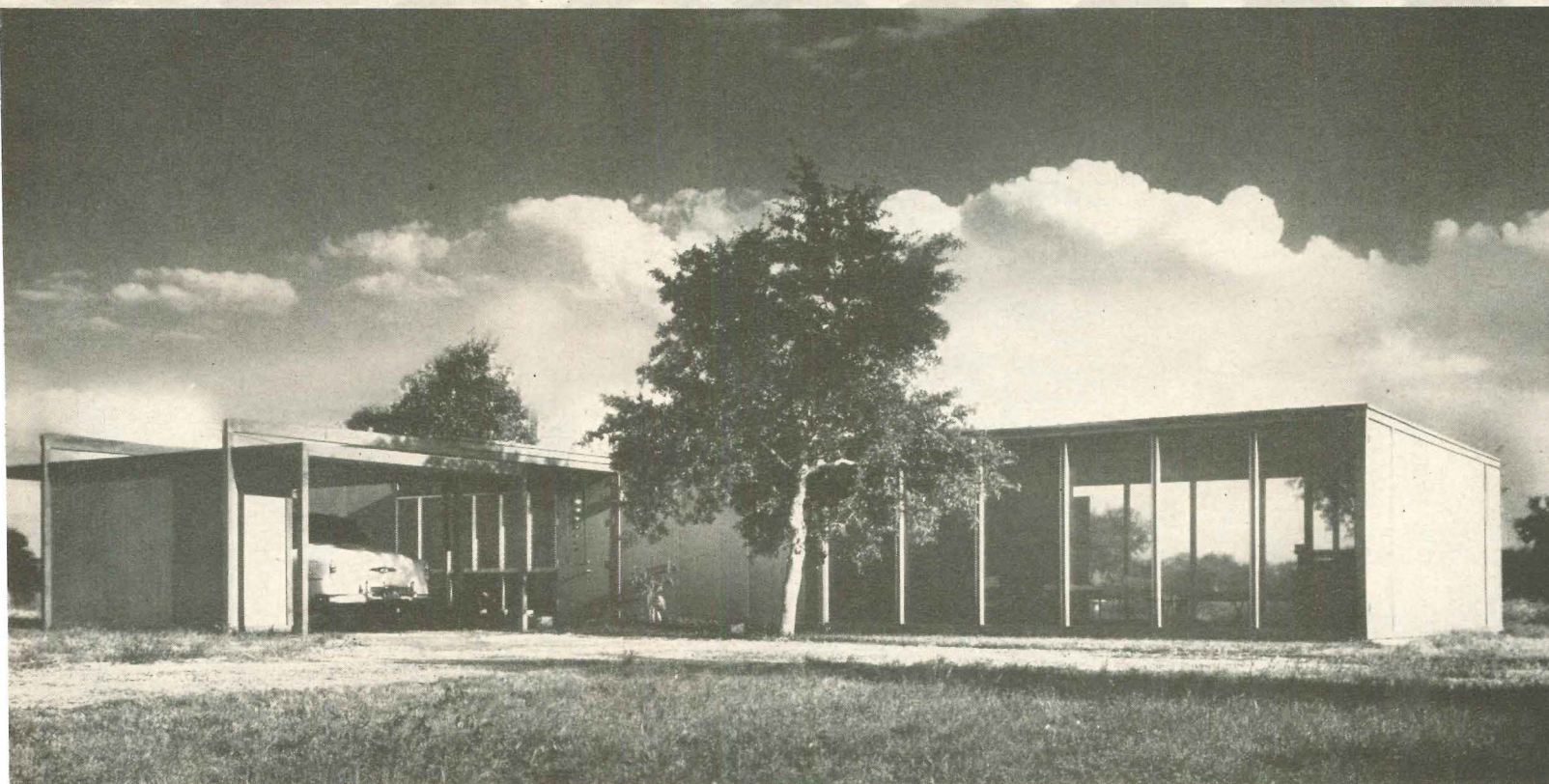
A 2 5/8" honeycomb core with a 3/4" air cell gives the walls a U factor of .12, the roof .11, according to the fabricator. This is as good as a regular frame house with 2" of bulk insulation in walls and roof. Other panels can be made with even better U factors by 1) using a slightly thicker core, or 2) filling the core with a granular material like perlite.

Impregnating the honeycomb with a phenol resin gives high resistance against bugs, moisture and rot. As for strength, honeycomb panels tested by the army have withstood an 80 lb. per sq. ft. roof load, which is equivalent to 13' of snow, and a side load of 60 lb., equivalent to a 150-mph hurricane.





## well insulated and cheap



LOCATION: Sarasota, Fla.  
PAUL RUDOLPH: architect  
UNION BAG & PAPER CORP., honeycomb core  
CLIMATE CONTROL, INC.: panel fabricator

This neat little house by Architect Rudolph is an excellent example of how structure and design can work together to produce a handsome product at low cost. The walls and roof—about 2,500 sq. ft. of structural honeycomb panels—went up in one day at an erection cost of 4¢ a sq. ft. (54 man-hours). The 35 wall panels were made for 81¢ per sq. ft. and the 29 roof ones for 75¢—the cost varying because different surfaces were used.

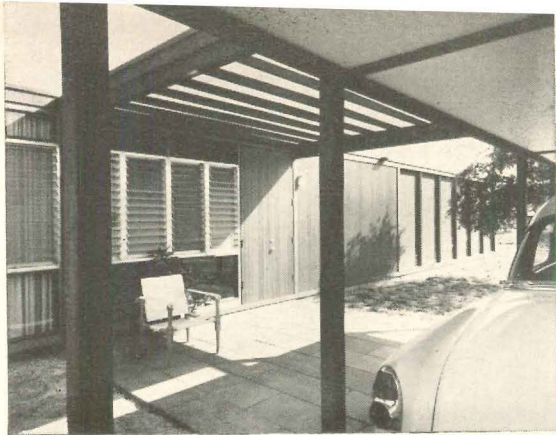
Honeycomb is used throughout the house: even the doors and interior partitions (except for wet-wall stud partitions) were made of it. Wiring is quickly threaded through a 1" chase left open at the top and bottom of each panel. The honeycomb's final advantage: good sound absorption.

The key to any good paper house is how well the panels are designed and fabricated. These panels are the end product of extended research by the local maker, who emphasizes strongly that the right kind of glue and special equipment like a hot press are essential for a rugged panel.

The future looks so good for paper houses that several big firms will introduce new honeycomb products soon and experts predict that present sales of 1.25 million board feet a year will skyrocket to about 10 million a year by 1960.



PAPER HOUSE



← **Sheltered entrance** provides cool and inviting path to house. Joints between panels do not show because of striated plywood exterior.

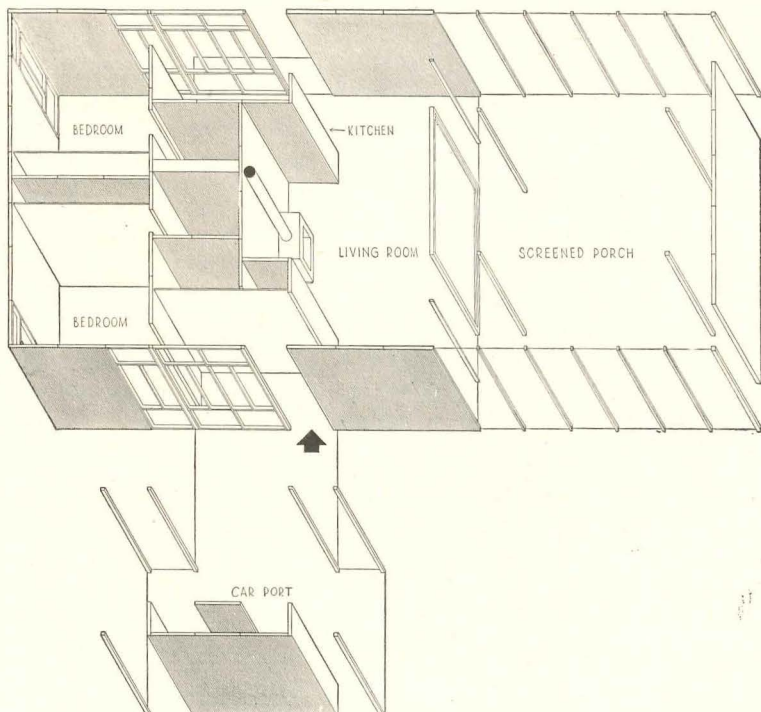


← **Interior partitions** are also honeycomb panels, as shown here in living room. They give uniform finish inside and out, throughout the house.

Photos: Lionel Freedman



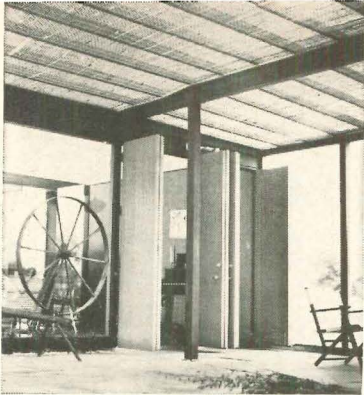
↑ **Compact kitchen** is flooded with light from floor-to-ceiling glass. Wall cabinets supply open and closed storage. All surfaces are easy to maintain.



← **Unusual plan** is free of the forest of studs found in houses with conventional framing; this structural system only uses a vertical panel spline every 4'. The plan was tailored to the needs of an elderly woman and her companion. Basic house of 1,010 sq. ft. is trisected into three 12' zones: bedroom strip on the left, utility core down the middle, living room on the right—this latter space flanked on its right by screened and roofed patio.

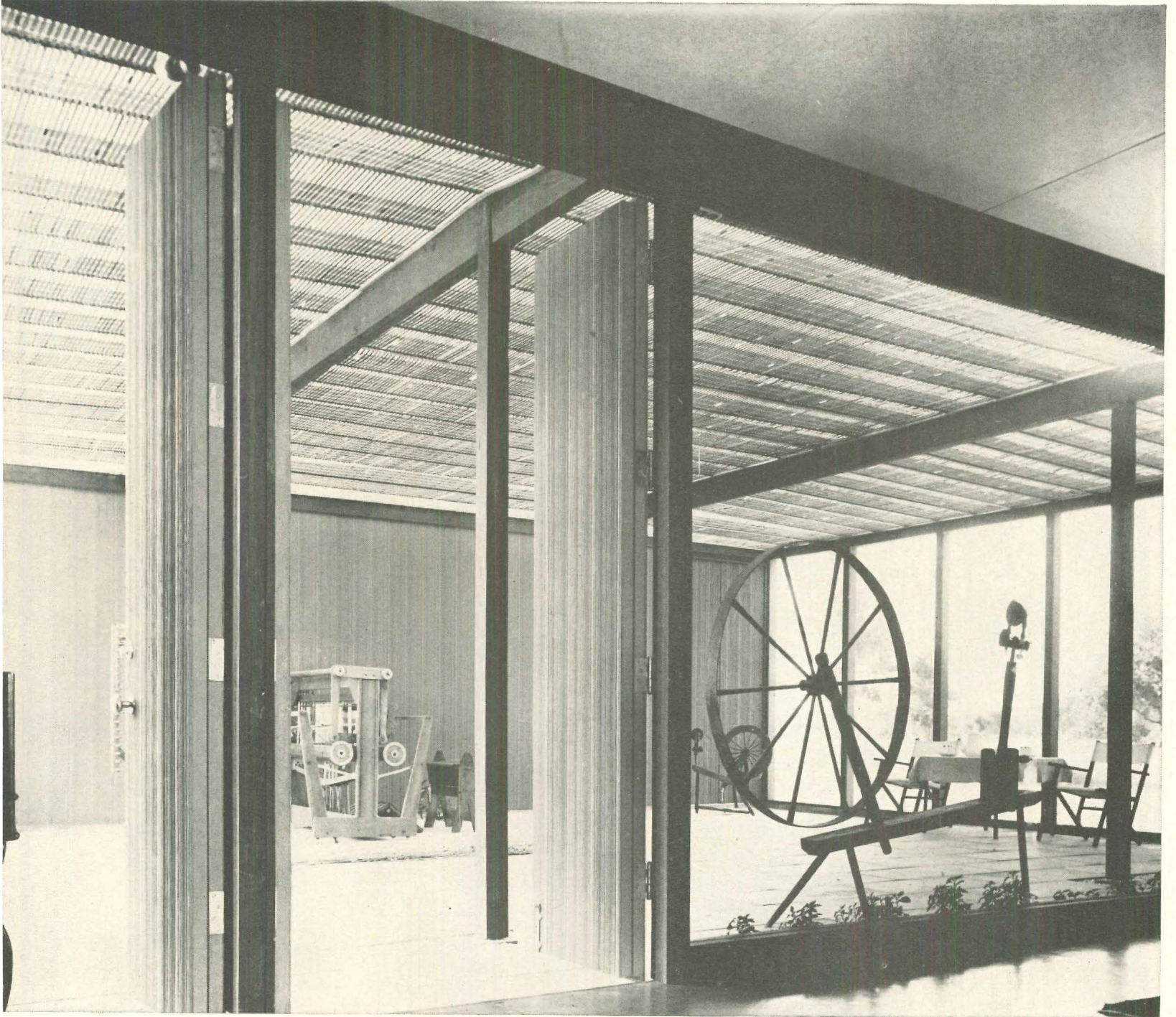
**Modular panels give**





**Sky curtain**, under ceiling of screened patio, was made by owner whose avocation is weaving. Protected patio—popular in Florida houses—is 675 sq. ft. of bonus living space at less than \$5 a sq. ft.

*Photos: William Amick*



**paper house handsome appearance inside and out**

JANUARY 1955

147

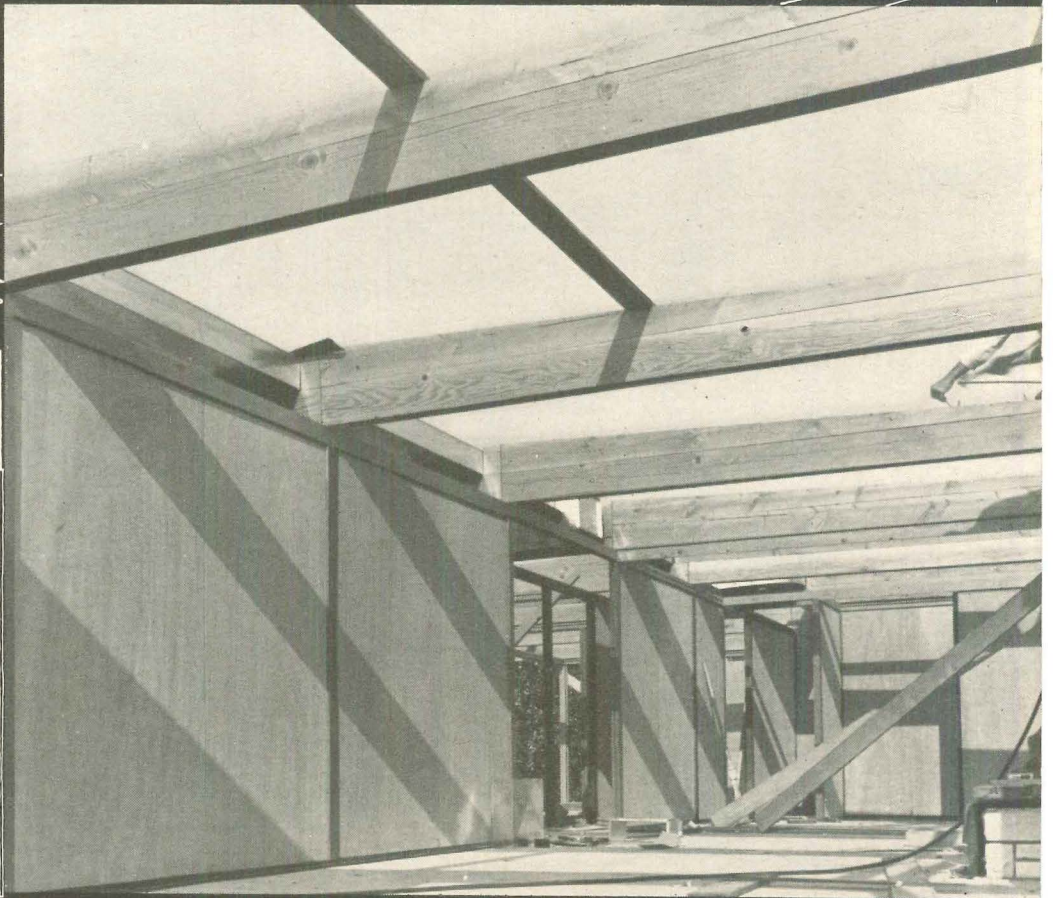
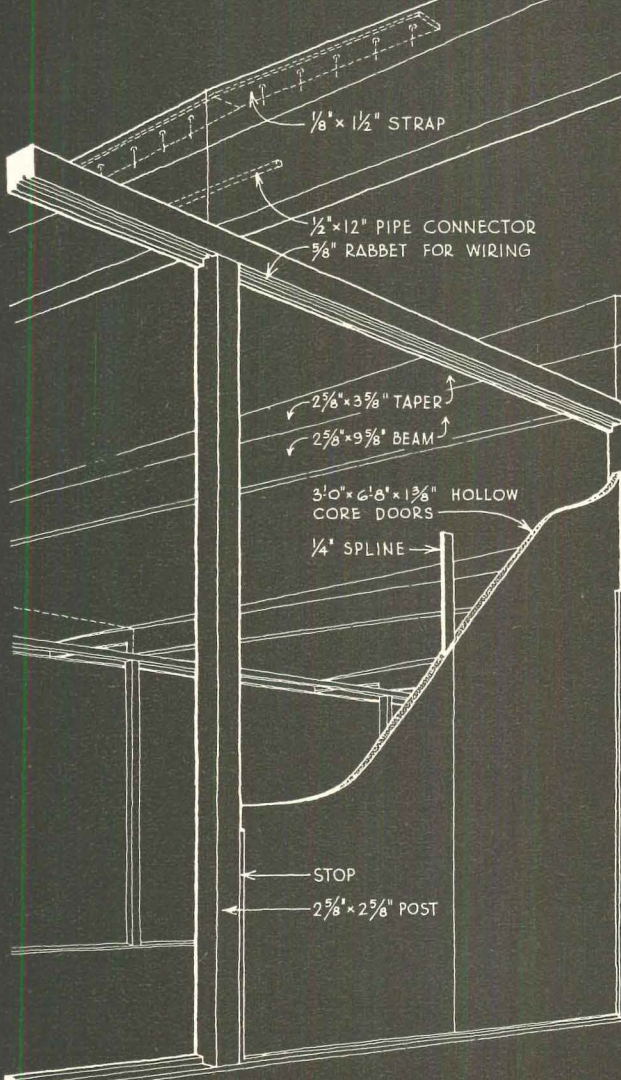


## interior walls

**Laminated beam** of which left half is being pushed into position against right half. Note  $\frac{1}{2}$ " x 12" pipe connector. New-type beams are of 2 x 4's laid flat and glued as below, rather than as in large photo. Ridge joint is later toenailed.



**Rich wood panels** are framed by exposed roof and wall structural members. Many builders have considered using doors for interior partitions and photo shows one way to do this. Wiring is in concealed raceways in posts and beams.



ideas in materials

# In California, slab doors become prefab



LOCATION: Los Angeles County Fair, Pomona, Calif.  
 HENRY C. COX & AFFILIATED CO.'s: developers and builders

A headliner at the Los Angeles County Fair last fall was a house built of flush doors. Called the "Panel-aire," it used one of the few building materials that has not risen in cost in recent years.

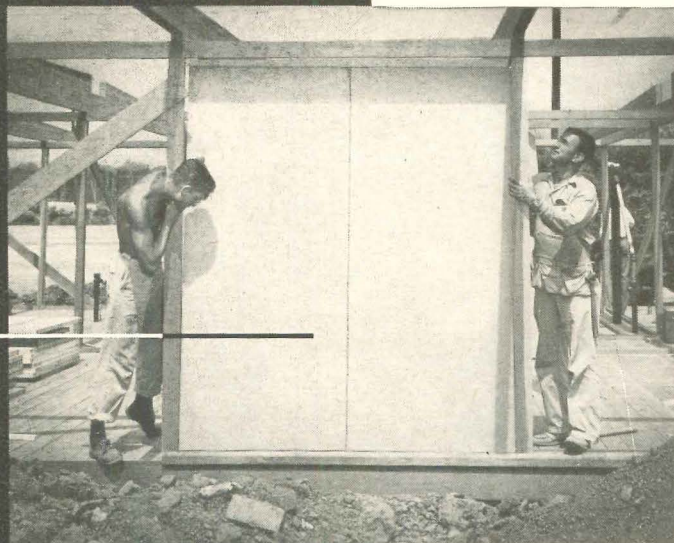
The slab-door house was developed by Big Builder Henry C. Cox who had built two earlier experimental models. Reaction from South California builders was so favorable he plans to sell the house as a prefabricated package when he gets FHA approval. Cox claims his method of building is 10% cheaper and 60% faster than conventional systems.

Panels, as shown in the photographs, are made of a pair of doors each 3' wide and 6'-8" high which are joined by a hardwood spline, for which Cox has patents pending. This panel is set between posts and beams to form both ceilings and walls. A 2 5/8" x 3 5/8" plate raises beams 7'-3" above the floor. Ceiling height is 7'-8" at outside walls, about 8' at the center ridge. Interior faces of the panels are mahogany, exteriors are pressed fiberboard. Except for an enclosed 3/8" of fiberboard insulation, these are standard doors made on standard presses. Their insulating U-factor is 0.33.

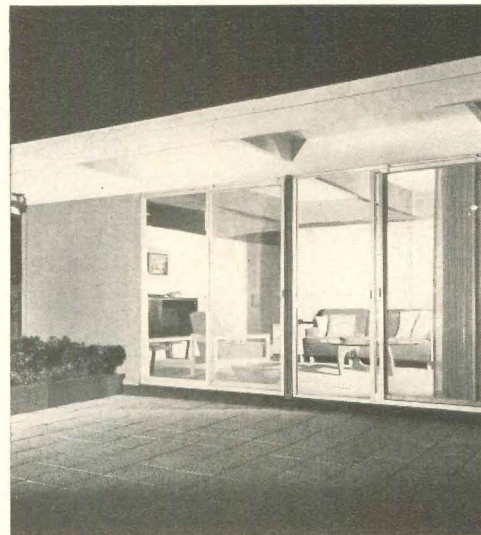
The bottom of the exterior panel is in mastic, secured by a wood shoe, while a 1/2" x 5/8" molding closes the other three sides.

Some visitors pointed out that the all-wood construction, though excellent for interior partitions, might present shrinkage problems when used on the exterior. For interior use, no other system of panels on wood framing could approach flush doors in cost.

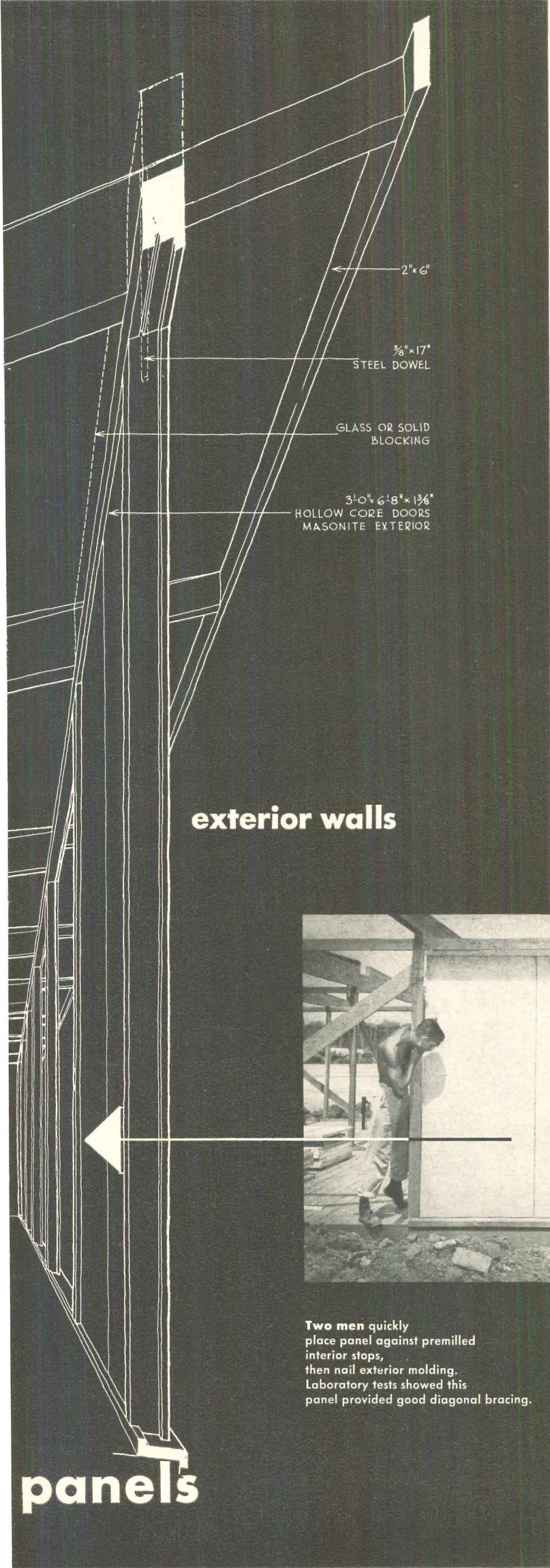
Photos: Robt. C. Cleveland; Nelson



Two men quickly place panel against premilled interior stops, then nail exterior molding. Laboratory tests showed this panel provided good diagonal bracing.



In exhibition house all painting and finishing was done at the factory except for lacquer touch-up on the job. Module of house was set by the 6'-wide panels and the width of stock sliding glass doors.

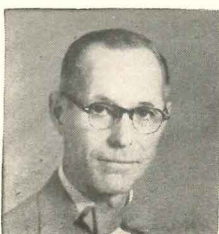




## NEW PRODUCTS

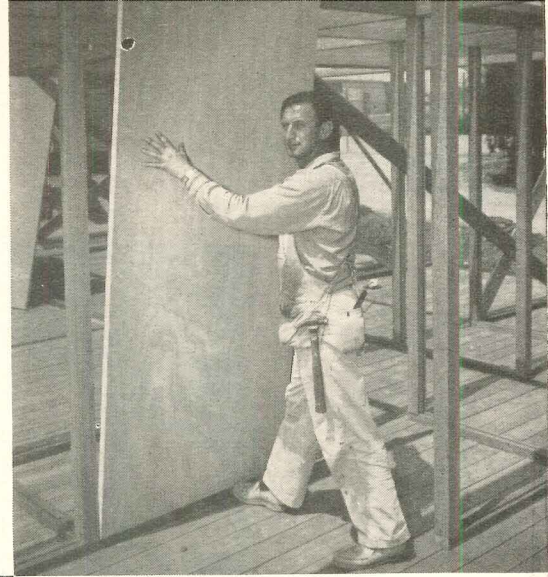


**Herman H. York**, Jamaica, N. Y. architect: "Corrugated reinforced plastic sheets have provided design opportunities for me in carports and patios, as space dividers in open-planned houses, and as solar control in overhangs above windows and doors. They also provide translucent material for kitchen down-lighting."



**John R. Worthman**, Fort Wayne, Ind. builder: "We've learned the appeal of structural beam ceilings; triple-purpose roof decking is the most practical and economical way to build them. Decking, insulation and finished ceiling go on in one operation, and an effective vapor barrier is integral."

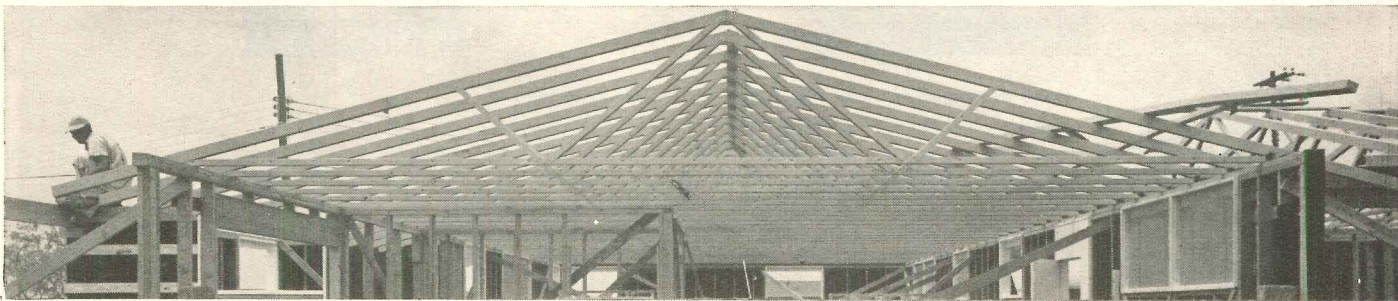




**W. A. (Alex) Simms**, Dayton builder: "Polyethylene film really solves our slab vapor-barrier problems. The film doesn't puncture if walked on, it goes down fast in big (up to 20' widths) sheets, has a high perm rating and costs no more than other products. It is a perfect example of a new material meeting an old need."



**Henry C. Cox**, Garden Grove, Calif. builder: "Mahogany-faced flush doors are saving us 10% in construction costs (p. 148) when used as wall panels. All our framing, including panels and doors, took only six working days by two carpenters."



**C. Allen True**, Fort Worth builder: "Steel roof trusses assure us that there will be no cracked ceilings, regardless of temperature, unequal loading, or varying humidities. These trusses are light in weight and economical to erect, and provide sales appeal, since the structural qualities of steel are well known."

## "My favorite new product" — picked by men who use them

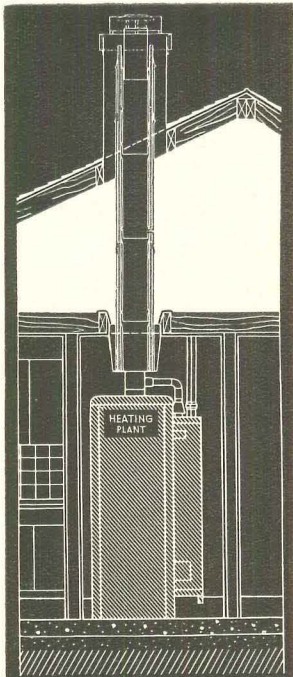
*Builders and architects select the ideas and items they found most valuable among 1954's hundreds of new and improved products*

The proof of the product is in the using, and the products on these pages have this in common: they have all performed successfully under the rigorous conditions of production building. All have survived the intense competition of the flood of new products (H&H devoted over 122 columns in 1954 to reviewing the most significant).

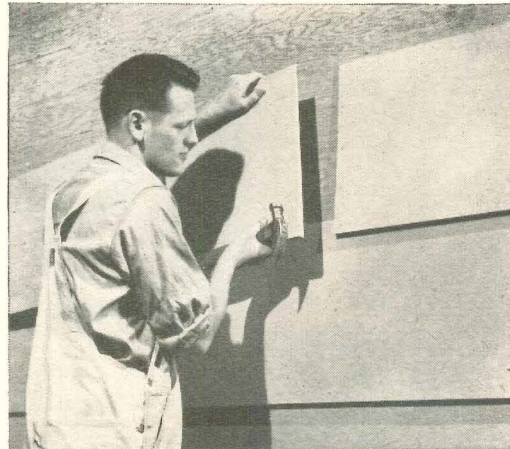
To round up the items on these pages, H&H queried a cross-section of the homebuilding field: "What is the best new product **you** found during 1954?" The answers included a wide range of products that had contributed to better houses, improved design, or more versatile components. These then are the men-in-the-field's "best new products of 1954."



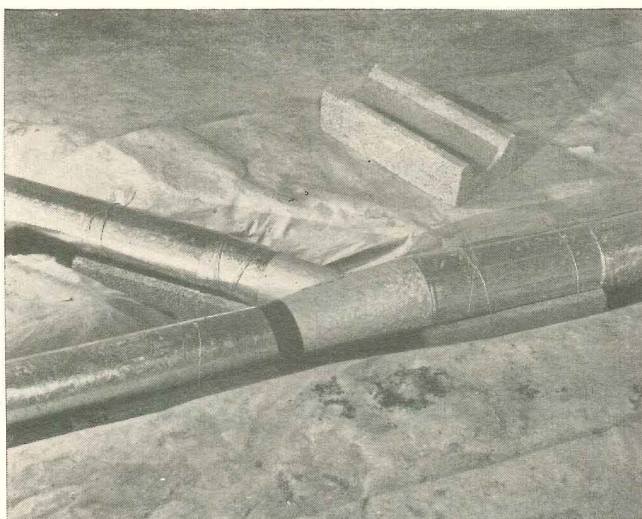
**NEW  
PRODUCTS**



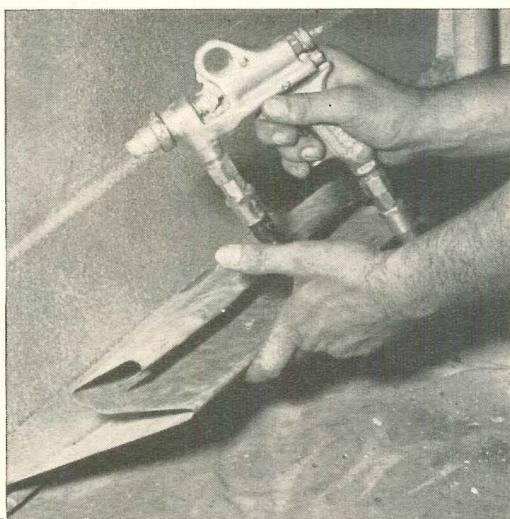
**John D. Harrison**, Detroit builder: "In our one-floor house, space is valuable. A prefabricated chimney that can be hung from the roof and needs no foundation eliminates the cost and saves the floor space of a brick chimney, enabling us to put the water heater in the area saved. Our customers don't even miss the old chimney."



**Al Balch**, Seattle builder: "Resin-faced plywood siding looks like a wide clapboard, with its deep horizontal shadowline, but has plywood's structural qualities. It is factory-preprimed, and the resin facing gives a 'tooth' which permits the application of a perfect coat of paint."



**Don Scholz**, Toledo prefabber and builder: "We were always plagued by perforations in our vapor barrier caused by the stakes that support our perimeter heating ducts. Now we use a precast concrete cradle that supports the ducts, without any damage to the membrane, while the concrete slab is poured around them."

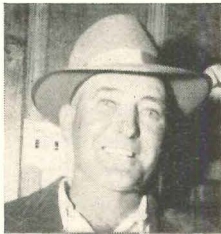


**Elbert L. Fauseff**, Little Rock builder: "Sprayed, multicolored paint goes on fast and easy, has solved all of our painting problems. Our customers are mainly families with children, and the practically indestructible finish goes over big. Over 90% of our buyers choose it."





**Alan E. Brockbank**, Salt Lake City builder: "Plywood itself has been a notable contribution to mass production, but the lack of texture has always been a drawback when it was used as an exterior surface. The new grooved plywood (p. 158) provides a material with all the normal qualities of plywood, plus a pleasing appearance."



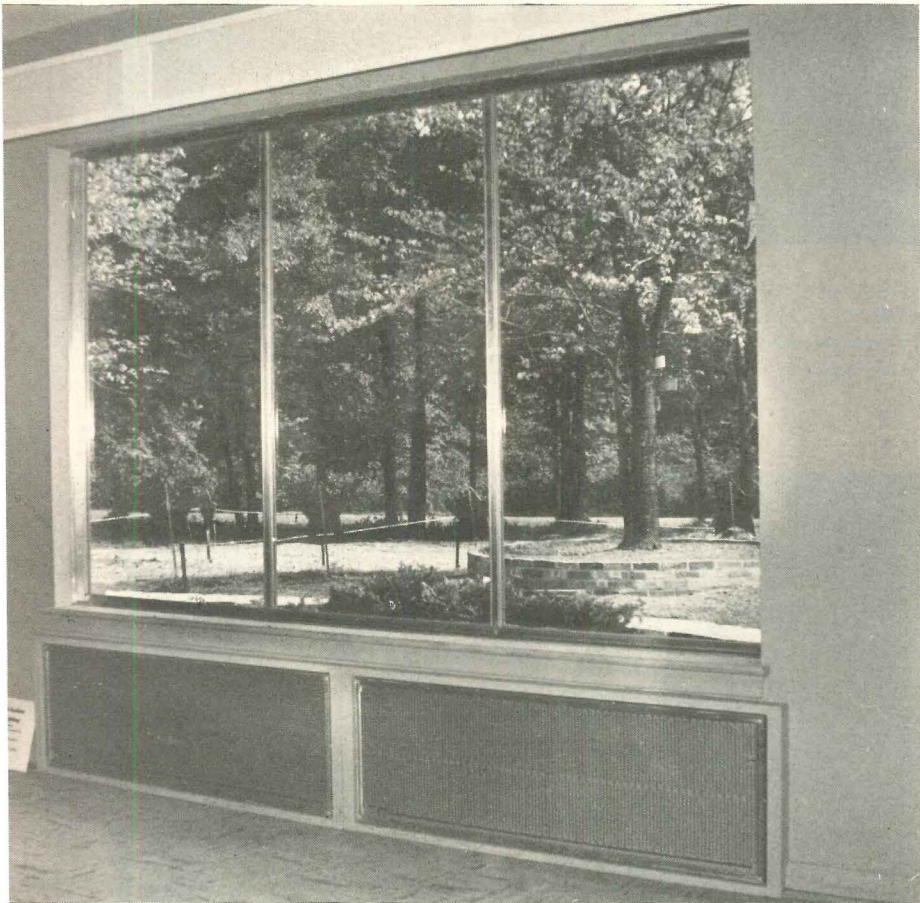
**David W. Fentress**, Norfolk builder: "Electric radiant heat (p. 154) looks like an important new development. It is economical to install, has a wonderful appeal to the customer, and we are getting complete cooperation from our local utility in solving the problems connected with adopting a new product. Most important, we are gathering evidence that this heat need not be expensive to operate, when proper and sufficient insulation is installed."

*continued on p. 194*





*Continental Glassheat*



Good heating practice puts radiant glass panels under windows in Detroit houses

### **What is the newest development in electric heating for houses?**

The attitude of many electric companies has switched from disinterest, even antagonism, to the active promotion of electricity as a heat source.

### **Why has this attitude changed?**

The continuing boom in home air conditioning (almost 100,000 central cooling systems went into homes in 1954) has given many utilities a badly unbalanced summer peak load. Their facilities are geared to the peak, and costs rise rapidly when their equipment is not kept at work most of the year. Also, electric lines and transformers are far more efficient in winter, when ambient air temperatures are low, thus reducing the extra equipment thought necessary to service the added load.

### **Can production builders use this heat?**

In such widely scattered places as New Jersey, Michigan, Indiana and Virginia (all have private utilities), production builders are installing electric heat in their projects. In Fort Wayne, Ind., John Worthman said: "We are convinced that, with our 1½¢ per kw rate, residential electric heat is now very practical, and can be marketed in homes of all price ranges."

### **What does electric heat cost to install?**

Costs vary, but best estimates put installation in new construction at \$35 to \$60 per kw, which means that heating for a 1,000 sq. ft. house would run \$450 to \$750 (including individual room thermostats), depending on the local climate and the type of system selected.

leas for heating

## **Electric heat . . . can the builder**

**The facts and the myths,  
the questions and answers,  
on this controversial  
competitor for the  
builder's heating dollar**

### **What are the advantages of electric heat to the homebuilder?**

The house gets closed in faster. (Builder Bert English, who built a 34-house project in Atlantic City in 1951, estimated that he was able to begin his finishing operations seven to eight days faster.) The cost and floor space of a chimney are eliminated. If a slab is used, there is no delay while perimeter ducts or radiant piping is placed in position. Finally, immediate heat is available, to speed painting, plastering, etc., in inclement weather.

### **How can heat loss be calculated?**

The utility company or an electrical engineer will calculate heat loss for any house, using a locally applicable formula.



Courtesy General Electric Co.

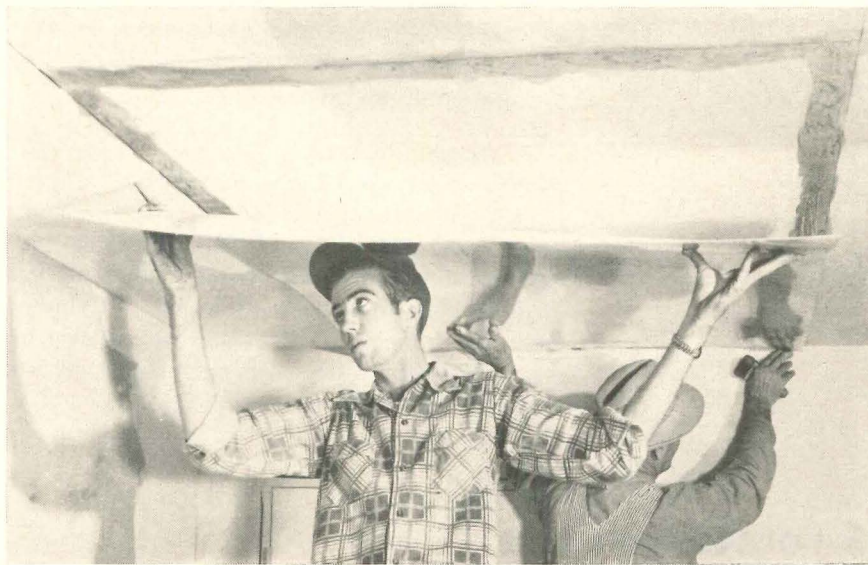


**Stapling gun** fastens heating cable to ceiling before it is covered with plaster or

second layer of dry wall. Circuit connection is seen at wall-ceiling junction.

**Conductive rubber panels**, only 1/8" thick, are attached to new or old ceilings by adhesive, below. Raceway molding at

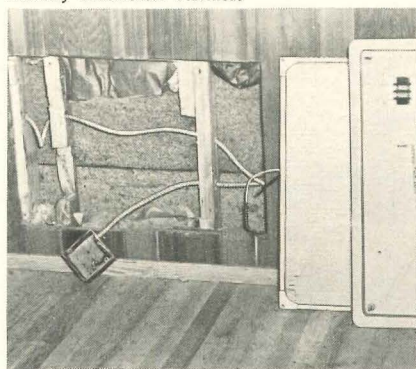
edge of ceiling carries circuit and connections to panels. Rearrangement of carbon molecules makes rubber conductive.



Courtesy US Rubber Co.

## house use it?

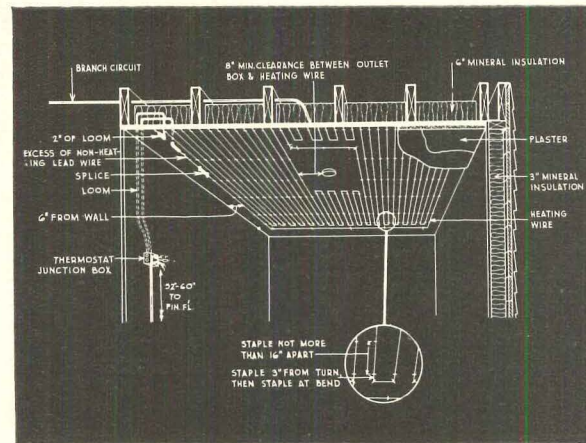
Courtesy Continental Glassheat



**Simplified connection** of radiant-glass panels requires only a simple splice, and attachment of reflective back to studs.



**Conductive metal**, fused into glass panels, acts as path for current. Baseboard units, long and narrow, are also made.



**Cross section** of buried cable method shows how cable is spaced to give even temperatures (120° to 140°) throughout ceiling area. Cable for entire house goes up in five hours.

### What change does electric heat impose on the construction of a house?

Just one—*insulation*. Electric heat is pure energy, and heat losses are expensive. Current insulation requirements for cold regions are: at least 4" in ceilings (6" is better), and 3 5/8" in all exterior walls; 2" edge insulation for slabs, or insulation between the floor joists of a crawl-space or basement house; double glazing or storm windows; weatherstripping at all openings.

### What will it cost customers to operate?

Degree days in a given area, local power rates, and the insulation built into the house will mainly determine this. (In Atlantic City, at 1 3/4¢ per kw, houses were heated for \$170 to \$190 per year; an 1,110 sq. ft. house in a project near Detroit was computed by the Detroit Edison Co. to have an operating cost of \$156 per year, an independent survey of the same house put the figure at \$165.)

### Is electric heat economically feasible anywhere in the US?

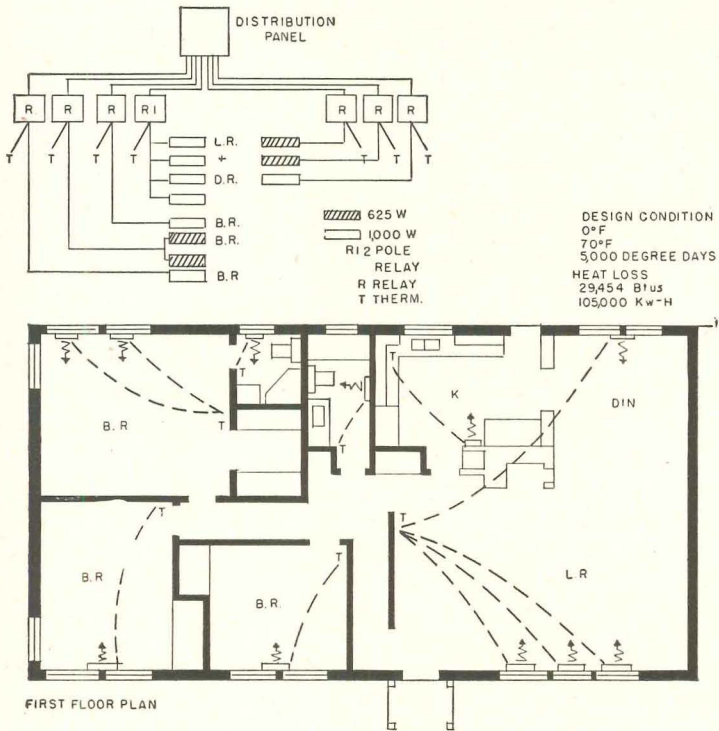
A power rate of 2¢ to 2 1/2¢ per kwh seems to be the breaking point. Above that, the operating expense would be too high for most people. Below that, electricity might be competitive, depending on the local cost of other fuels, or the buyer's willingness to pay some premium for this system. Below 1 1/2¢ per kwh electricity can compete almost everywhere.

### What kind of a system is best?

There are four to choose from: 1) electric cables buried in the ceiling (plaster or dry wall), 2) ceiling panels of conductive rubber, 3) radiant glass panels, and 4) baseboard or wall convectors. Each claims its own advantages, but regardless of claims, all forms of resistance heat produce the same energy, 3,412 Btu's per kwh.



## ELECTRIC HEAT



**Typical wiring** and circuit diagram for wall-heater system shows how all rooms are separate zones, controlled by individual thermostats, permitting varying temperatures in different rooms. When kitchen range is on, heater will probably go off; when bedrooms are unoccupied, lower temperatures will be needed. Many utilities are metering electric heat installation to determine extent and time of day of extra load on facilities, to decide whether they should adopt a "heating rate," similar to the off-hour rate now granted by many utilities for electric water heaters.

### Does installation raise problems for the electrician?

No. All four systems come complete with leads connected with the heating element, and the connection is exactly the same as any other outlet. Naturally, the system will require 240-v. service throughout the house, and all manufacturers recommend a thermostat for each separate heating zone, but the units themselves are factory-wired.

### What about air conditioning?

The insulation requirements for electric heat will make any air-conditioning system more efficient.

### Where does the heat pump come in?

Heat pumps have the advantage of extracting more Btu's per kw than resistance heat, but at extremely low temperatures, when the need for heat is greatest, they are least efficient. Most heat-pump installations use supplementary strip heating elements to boost their output during cold weather.

### What are the first steps to take?

*Consult the local utility.* Unless the utility is interested in adding house-heating customers to its lines, the builder cannot consider offering this feature. The utility must live with the customer and the installation so its cooperation at every step is vital to the success of the system.

## Electric heat would change US roofscapes



Courtesy Atlantic City Electric Co.; photo by Syd Sloan

Chimneyless vista of 34-house project built in Atlantic City in 1951



# Big brick holds big house price to \$9,950

Alan Brockbank now builds a bigger house at a lower price than ever before in Salt Lake City: a 1,121 sq. ft. solid brick house with central heating and a carport for \$9,950.

The new house took a lot of planning. "We spent more time," Brockbank says, "on plans, specifications and engineering than on any house we ever built."

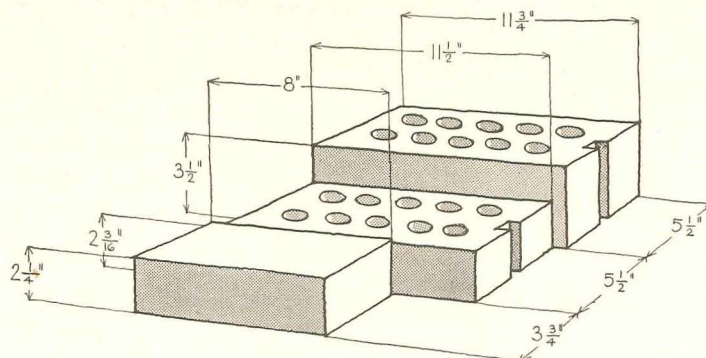
Most interesting ingredient in the plan is his new brick, which is larger than SCR size (see drawing, upper right). He developed it with a local brick company. It goes up fast, lets him build solid masonry construction with a dry-wall interior.

To meet a competitive situation, Brockbank wanted a brick house of around 1,100 sq. ft. and decided that the SCR principle of one solid brick wall was better than brick veneer on a wood frame. He reasoned that if the large SCR brick was better than ordinary brick, a jumbo SCR brick would be better still. The jumbo size has proved him right (see photos next page): this house is the best seller he has ever had.

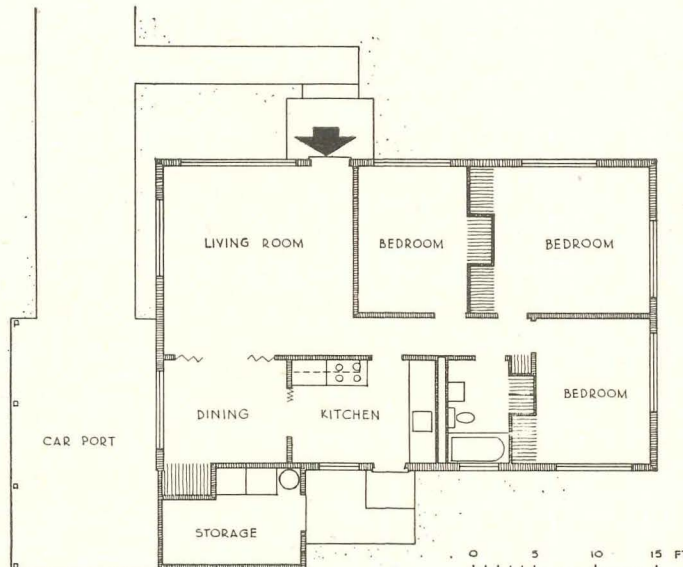
Bricks are three different colors—pink, yellow, white—and also different colored mortars add further variation.

A feature of each house is a storage area of about 100 sq. ft. which also houses the hot water heater and the laundry. It is made of grooved plywood (see p. 153) which gives variation to the houses, a feature Brockbank likes.

A major decision was to build a crawl-space house with a wood floor rather than a slab house with cheaper asphalt tile flooring. His competition used slab construction so Brockbank concluded it would be a good sales feature.



**Jumbo brick** used by Brockbank is largest of three above. Ordinary brick is smallest, with SCR brick in center. Big size goes up fast, permits solid masonry house with dry-wall interiors.



**Plan** above, one of five variations, is for house at extreme right in photo below. Each basic rectangle is same size, with principal variation derived from changes in carport and storage room.

Photos: C. Hal Rumel

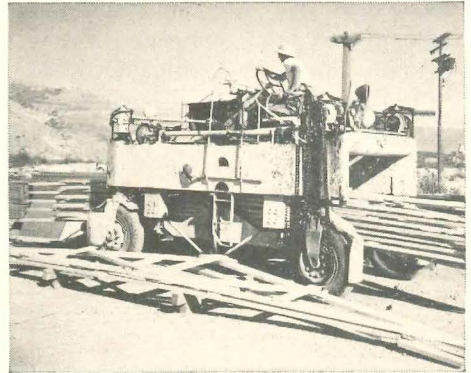




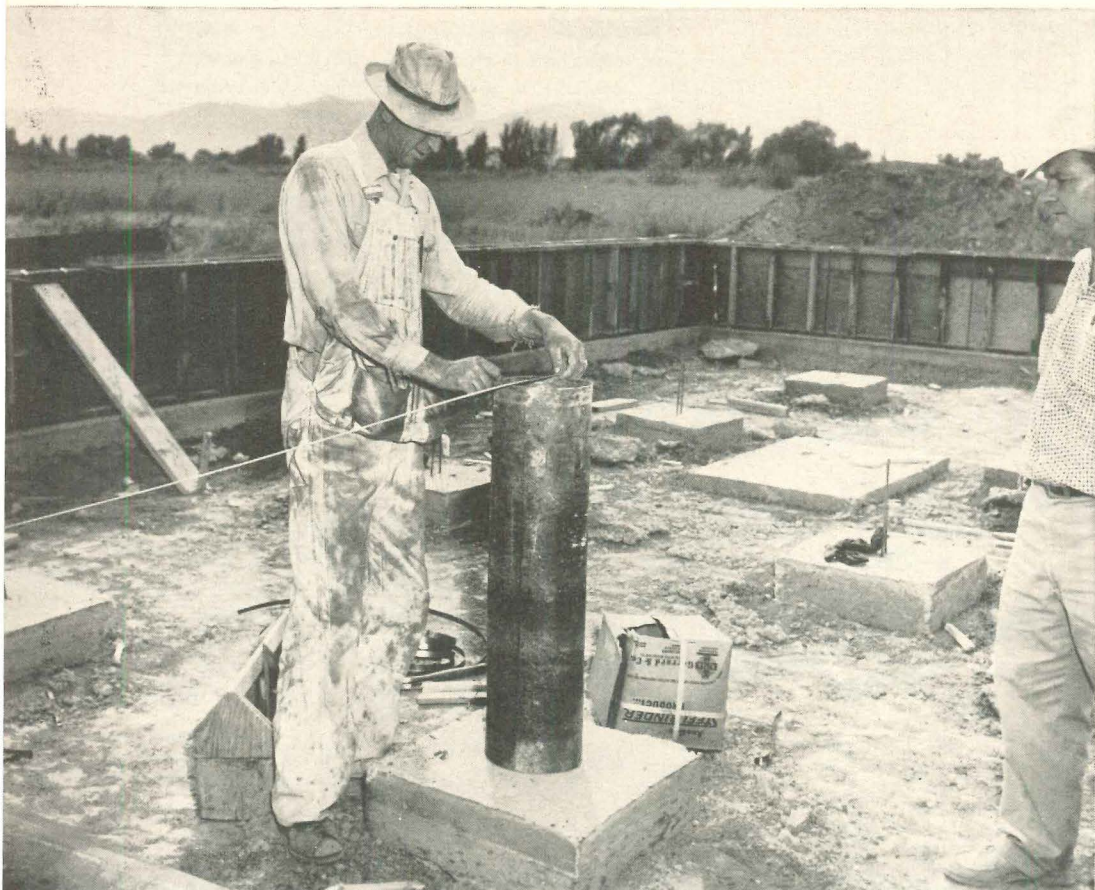
## Preplanned construction is orderly, economical



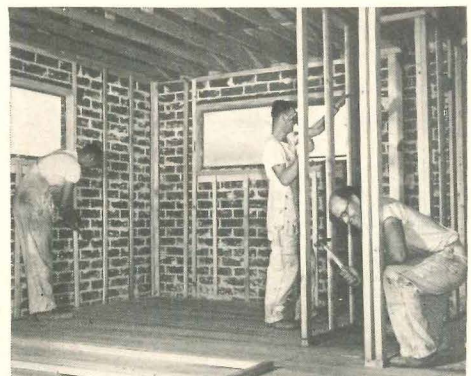
**Steel straps**, easily put on and cut off later, hold metal foundation forms together while concrete is poured. Wood spacers are removed and can be used again.



**"Straddle bug** is most useful machine I have," says Brockbank. It carries almost any kind of load, such as these trusses, from his mill yard directly to the house site.



**Crawl-space house** has reinforced concrete piers (poured into building-paper forms) which support two girders and wood joists. Wood floor costs more but outsells slab.



**Nailing strips** for dry wall are 2-ply with  $\frac{1}{2}$ " asphalt-impregnated material next to brick,  $\frac{3}{4}$ "-thick wood on top for better moisture barrier. Foil-backed dry wall is  $\frac{1}{4}$ " from brick.



**Roll-over shingles** eliminate need to paint fascia, have new color pattern which makes them look thicker, with heavier shadow line. Only gutter is a short strip over front door.



In addition to the construction methods shown in the photographs, Brockbank has used special techniques worth reporting. His plywood roof sheathing is nailed to trusses with a spot nailing machine, using staples which spread out like cotter pins. Tested against conventional hand nailing, the nailing machine proved to be faster. Trusses, all the same length, are made in his yard. Gable ends are textured plywood, and they are also prefabricated by Brockbank.

Warm-air furnace is in the crawl space, below the centrally located hall. Eight radial supply ducts fan out, terminate in floor registers. Pipes warm the crawl space in winter, give some radiant effect. Crawl space has a layer of 55 lb. roofing felt over the ground.

To speed construction Brockbank uses prehung doors, sprays two coats of two-tone paint throughout the interiors and uses a double plumbing wall between the kitchen and bathroom.

Contrary to the trend to more and more subcontracting, Brockbank does as much of his own work as he can, subs out only brick laying, wiring, plumbing labor. While his trusses would permit use of the one-room system, putting up plasterboard on walls and ceilings before installing partitions, he erects partitions first because FHA, VA and the city must each make two inspections. The inspectors want to see the house with partitions in prior to dry walling.



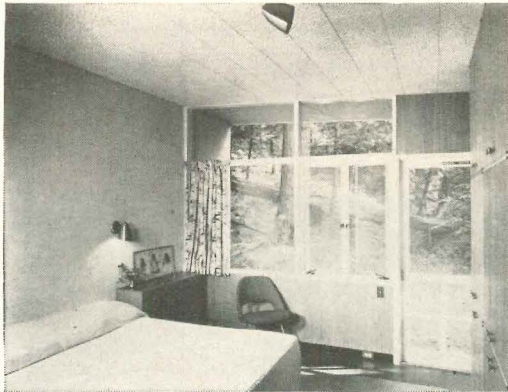
**Seven men** and four helpers put up walls in eight hours, use 2,200 jumbo bricks, 150 half bricks, 300 regular bricks for window sills. Big bricks do not tear masons' hands because workers pick bricks up before they are quite dry, placing fingers over edge, thumb in middle hole on one side. This smooths gripping edge. As experiment, Brockbank built some houses with regular-sized brick, found they cost \$190 more. Bricks were developed and made by Interstate Brick Co.



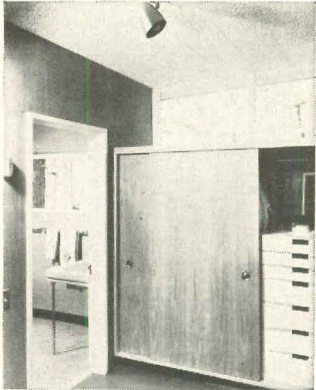


Quiet house in Hanover, N. H.  
designed by Architects  
E. H. and M. K. Hunter.

## A quiet house is a better house



Bedroom noise  
is greatly diminished  
by acoustical tile on ceiling.



Random pattern,  
cane-fiber acoustical tile  
is also used on ceilings  
of bathroom and storage room.

Courtesy Celotex

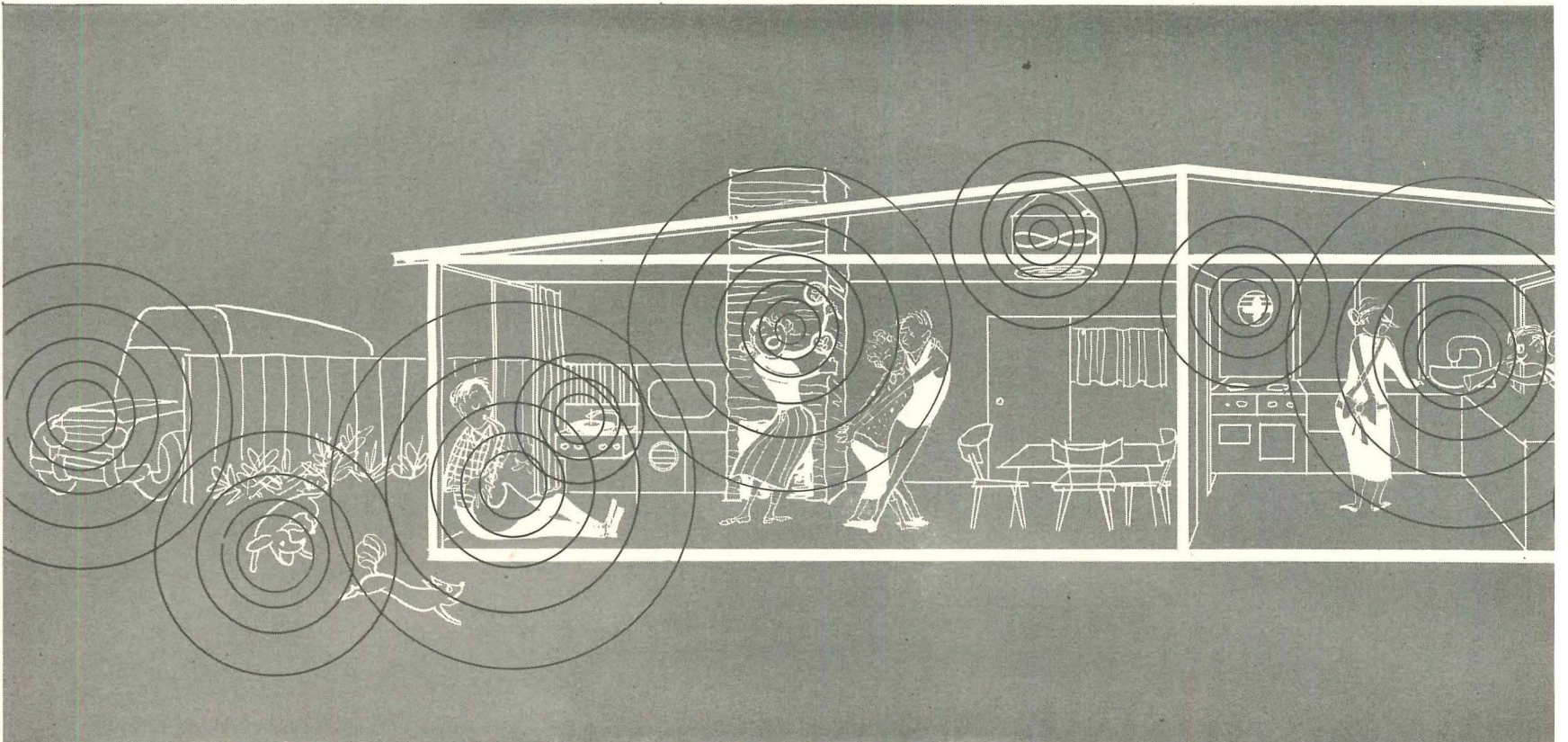
**Houses are getting noisier**, no doubt about it. But there is no real reason why they should be. The builder who realizes this first and does something about sound-conditioning will get the jump on his competitors.

Today's houses are filled with so much sound and so many kinds of sound that many builders and architects are afraid of tackling the problem of noise. Almost no science is so complex and imperfectly studied as acoustics. Many designers feel helpless in the face of its complexity. Many mistakenly think sound-conditioning means pricing a house out of the market.

It is true that today's houses are noisier than yesterday's houses. There are more noise-making machines than ever—mixers and grinders, clothes and dishwashers, vacuum cleaners and furnace fans, air conditioners and radio and TV sets. Floor plans are open, walls are thin, and more and more sound-bouncing glass and dry wall are used.

**Not that today's houses are exactly boiler factories.** In some respects, they have acoustical advantages. Today's one-story houses have no stairwells for noise to travel up and down, no second-story floors to transmit the shock of footsteps to rooms below. Further, it must be remembered that all the

Noise is built into today's house





# ... and easier to sell

world is noisier today, and that people are marvelously able to adapt themselves to a tremendous range of sound (provided they think it necessary).

People do want quiet—relative quiet—and are willing to pay for it. This may come as a surprise to builders who think sound-conditioning expensive. But even the more expensive type of acoustic tile often pays for itself in medium-priced homes. The low-priced home can be designed for more quiet living—and no doubt will be, for sound-conditioning is inevitable in housing. More and more study is being devoted to the subject, more and more new or improved products are coming on the market.

**The advantages** of a quiet house are great for the builder as well as for the home owner. A quiet house is easier to sell because:

- ▶ Sound-conditioning makes a small house feel big, any house feel more solid.
- ▶ Acoustical tile has a high thermal property, cutting heating bills.
- ▶ A house has a decided "plus" even if only one bathroom is *insulated* so as not to transmit noise to adjoining rooms, or if kitchen or playroom is made relatively quiet by use of materials that *absorb* sound.

## A glossary for sound-conditioning

**Acoustics** is the science of sound.

**Noise** is unwanted sound. A sound may be pleasant to one person and unpleasant to another, or unpleasant at one time and pleasant at another to the same person.

**Loudness** (a sensation) depends on intensity and frequency of sound, as well as the characteristics of the individual ear.

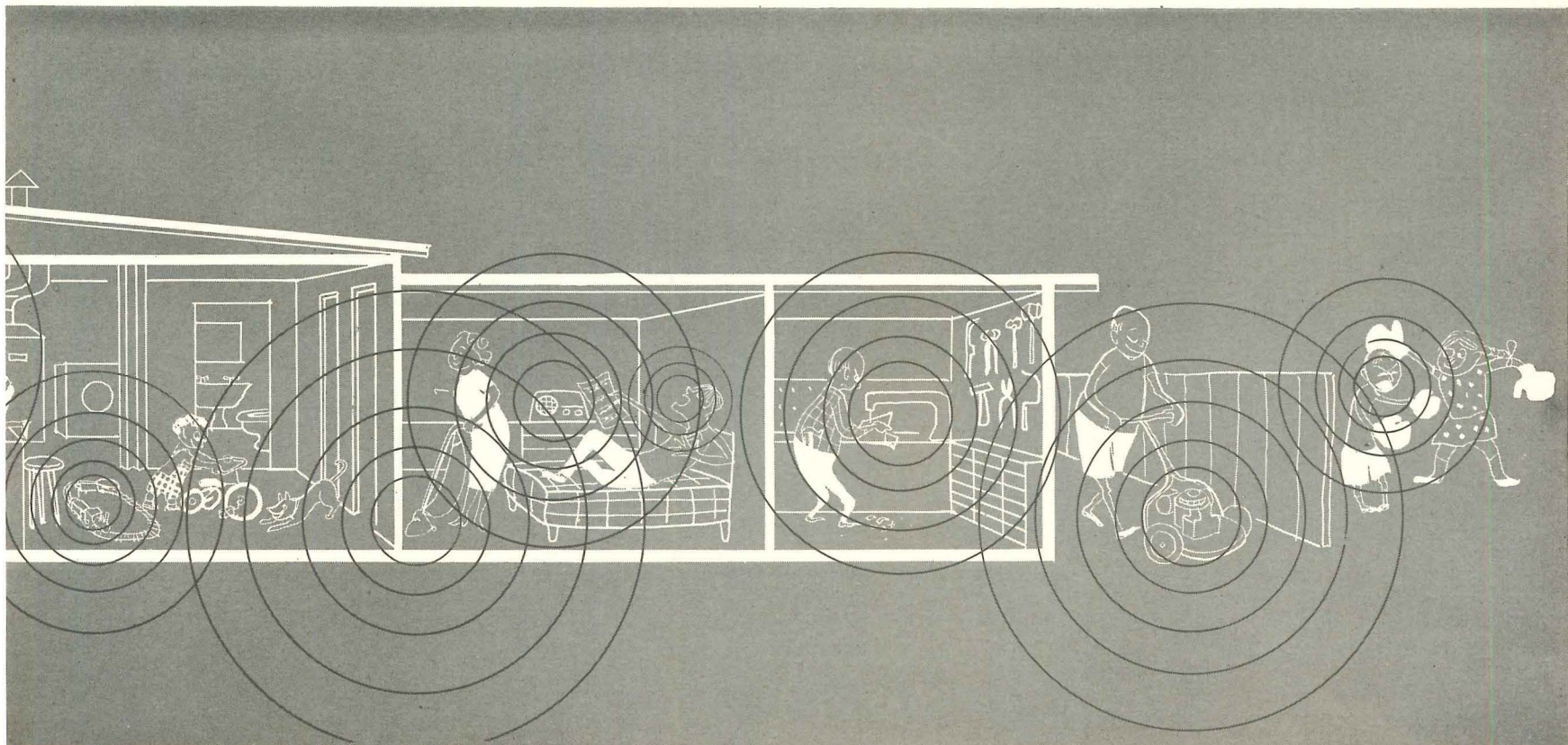
**Decibels** are a measure of sound intensity. A 20-db sound (like quiet conversation) is twice as intense as a 10-db sound (like a whisper). A 30-db sound is twice as intense as a 20-db sound, and so on. A quiet home ranges from about 35 to 45 db. A 120-db sound is physically painful, and is one trillion times more intense than a 1-db sound that is barely audible.

**Sound insulation** refers to reduction of sound transmission between rooms—through walls, doors, windows, floors and ceilings.

**Sound absorption** refers to reduction of "bounce" of sound off various walls and other surfaces, within one room or area. (A good sound absorber usually is a poor sound insulator.)

**Frequency** of sound relates to vibrations (cps) or sound waves. Doubling the frequency vibration raises the pitch of sound one octave (musical scale). Usually, higher pitches are more objectionable. Audible sound ranges from about 20 to 20,000 cps.

**Sound absorption coefficients** are a standard industry rating of absorbent materials on noise reduction. They are reported for six frequencies, each an octave apart, from 125 to 4,000 cps. Most acoustical tiles have ratings suitable for houses.





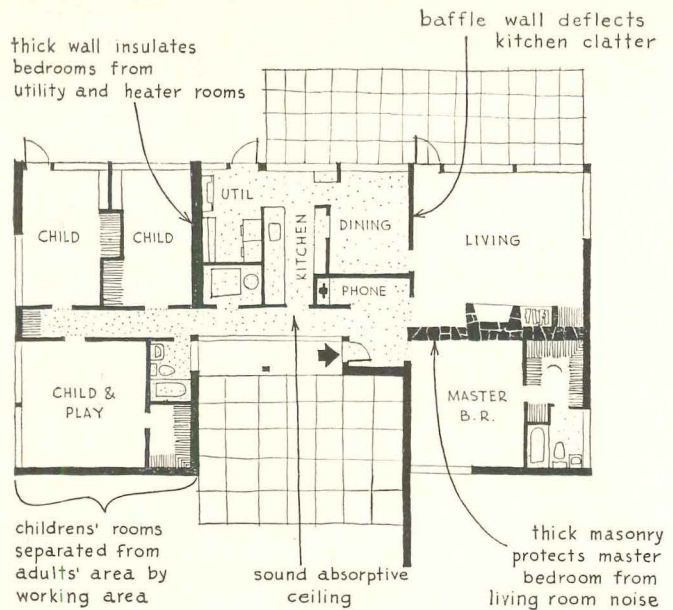
## Sound-conditioning starts on the drawing board

**Unwanted sounds** can be isolated or masked or—best of all, of course—done away with entirely by proper planning and proper construction methods.

Bedrooms and living rooms need most protection from noise. The chief problem is to *insulate* them against outside noises. It is less important to *absorb* sounds originating within these rooms (the contrary is generally true of kitchens and playrooms). On noisy streets, particularly, bedrooms and living rooms should face the rear of the lot.

In floor planning, bedrooms and living room should not be located next to the noise-making areas, or if they are, they should be protected by heavy walls or clothes closets. Bathrooms might well be placed back of a living-room fireplace or be flanked by clothes closets of bedrooms. Ceilings with different height levels act as baffles. Cathedral ceilings help to dissipate sound.

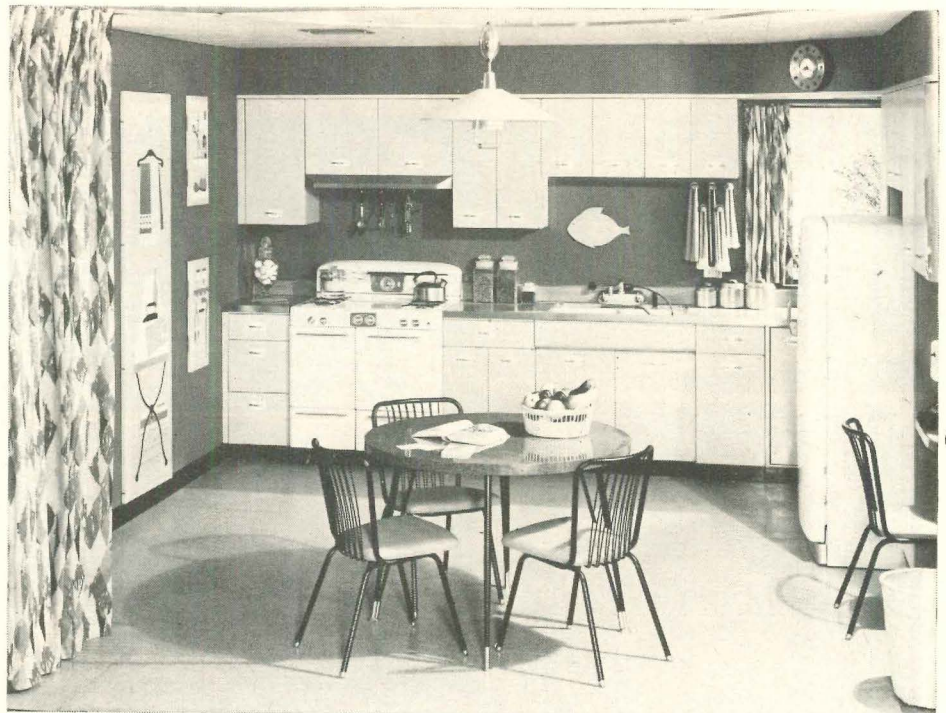
Wherever possible, major appliances should be mounted on resilient bases to prevent vibration. Soil lines from bathrooms should be packed for sound insulation. Weatherstripping should be used on heavy flush doors of bathrooms and some other rooms, for the best attempts at sound-insulation are often defeated by tiny cracks under doors or elsewhere.



**Floor plan** can provide for telephone alcove lined with acoustical tile, hallway with walls and ceiling lined with acoustical tile and perhaps baffles to prevent living-room sounds from reaching bedrooms. Noisy areas are separated both by distance and sound barriers from the quieter areas of house.

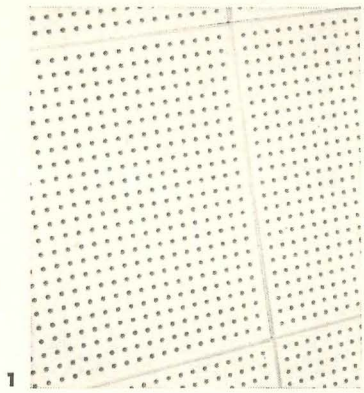


**Pan-shaped** ceiling plates made of precast concrete which form the roof of Martin Bartling house in Knoxville break up sound waves effectively. Cathedral ceiling also contributes to quiet of house (see p. 114).

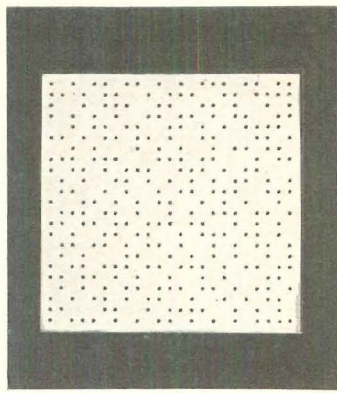


**Sound-conditioned** kitchen designed and built by "Woman's Home Companion" as traveling exhibit has acoustical tile on walls, above cabinets at center and around shallow cabinets at left. Mineral tile is also on ceiling. Steel cabinets have built-in sound deadeners. Curtains and vinyl counters muffle sound.

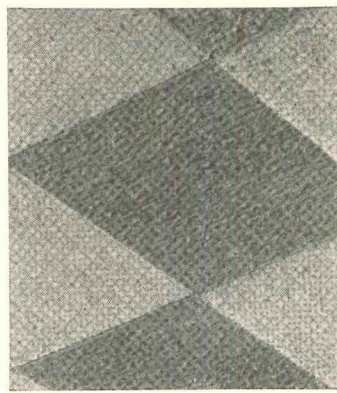




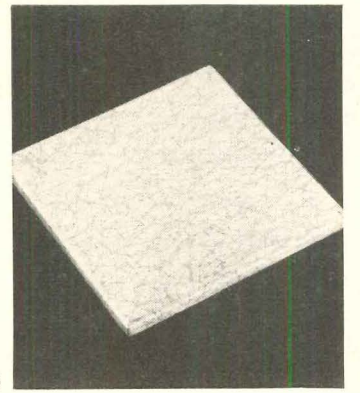
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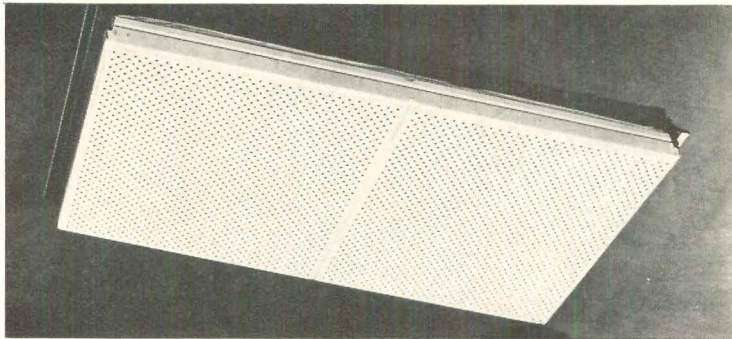
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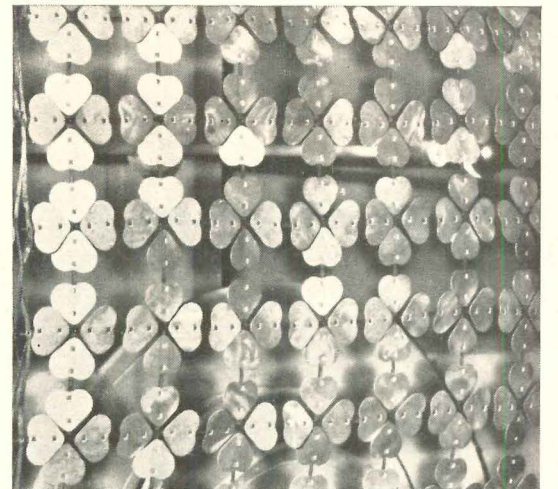
**Monolithic acoustical tiles** with or without perforations extending into an absorptive material are by far the most widely used sound absorbers. Some are cellulose fiber with regular (fig. 1) or irregular (fig. 2) perforations. More expensive are mineral tiles, one type of which is the fiber pad behind perforated metal pans (fig. 3); another type is fissured (fig. 5). Glass-fiber-backed tile with a facing was designed by Walter Dorwin Teague (fig. 4). The plastic film facing vibrates and transmits sound to glass fiber.

## Acoustical tile is often your best bet

Most used of all noise absorbents is acoustical tile. Other good absorbents are acoustical plaster, vermiculite-filled concrete block, cinder block, etc. Tile is perhaps easiest to understand. Regardless of what else may have been done acoustically, good or bad, tile applied to ceilings and walls in any room does give advantages at once apparent to anyone with normal hearing. A noisy room is made more livable; a quiet room is more hushed.



**Fissured acoustical tile** on ceiling in this kitchen and recreation area of Seattle house designed by George Wellington Stoddard & Associates and built by Nels Hedin is a fiber tile, thus low in cost.



**Heart-shaped** aluminum stampings are strung together under ceiling to break up sound waves and scatter them in all directions.

*Photos: E. Silva, courtesy of Living for Young Homemakers; John Bendixsen, courtesy Woman's Home Companion; Armstrong Cork Co.; Simpson Logging Co.; Owens-Corning Fiberglas Corp., and Reynolds Metals Co.*



## QUIET HOUSE

**Sound-conditioning** appears on the verge of a break-through. Reports are beginning to be heard of a number of builders offering quieter houses.

▶ In Milwaukee, an All-Quiet Homes development is planned this spring as a result of a two-house test there last fall.

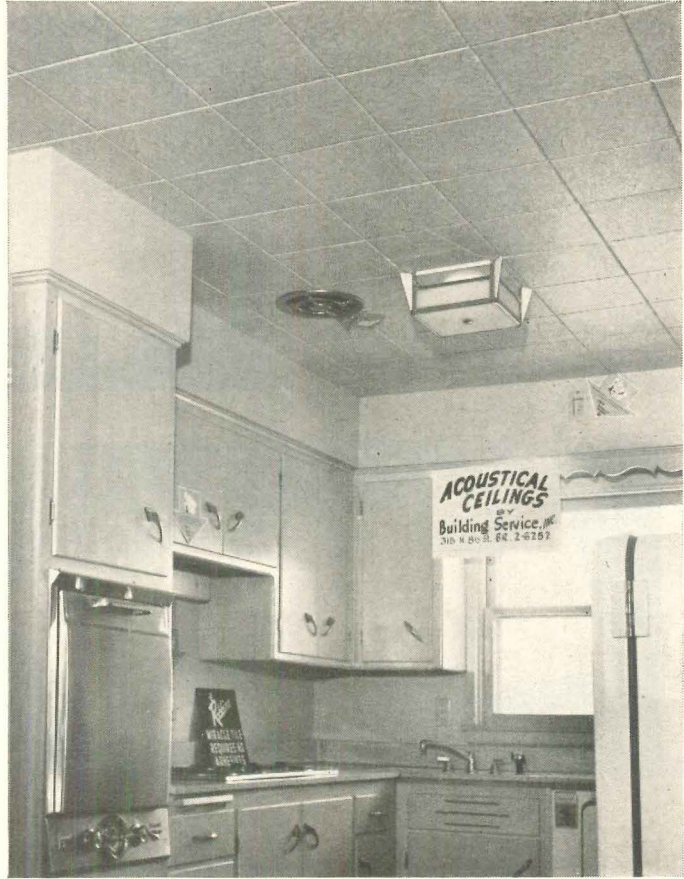
▶ In Miami Beach, Fla., Architect Norman Giller hopes to use acoustical tile in a new project of 5,500 houses.

▶ In many other US cities, Modern Homes dealers (41% to date) plan to install acoustical tile ceilings in prefab houses.

▶ Kitchens and playrooms of Place & Co. prefabs will have glass-fiber acoustical tiles starting this spring.

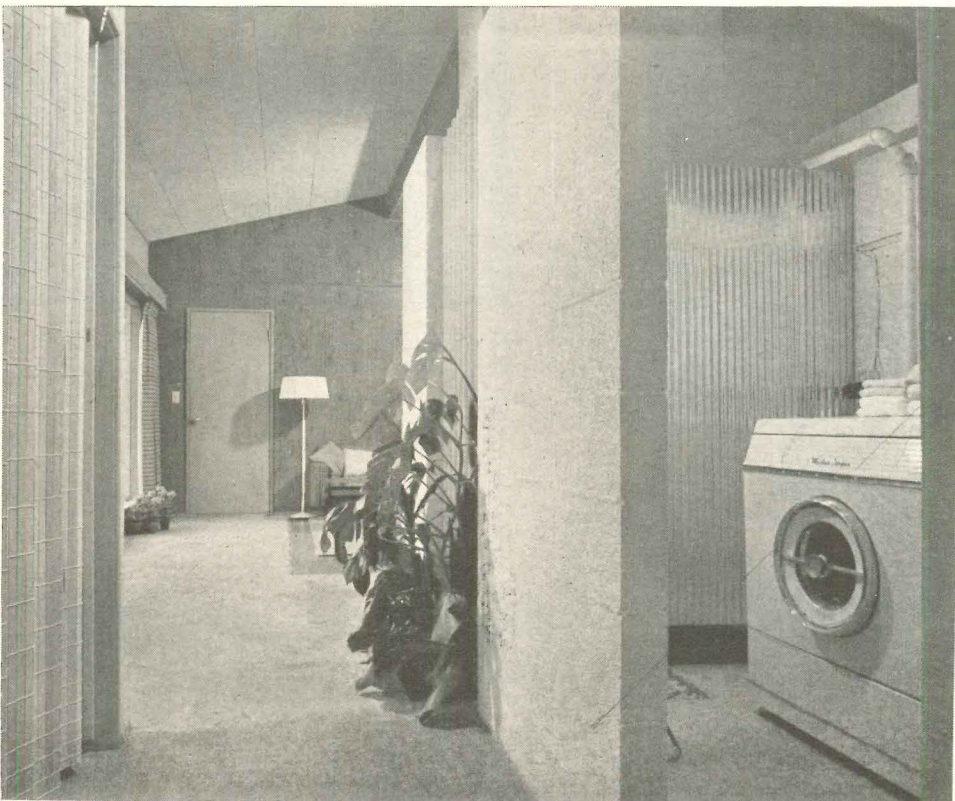
**"Builders should not be scared** of the cost of acoustical tile," says Builder Jack La Bonte, who used it in two Parade of Homes show models in Milwaukee last September. He used comparatively expensive glass-fiber tile in a \$17,800 house and a \$26,900 model, reports enthusiastic reception made it worth the extra expense in both. The tile cost about 45¢ a sq. ft., against a competitive cost of about 15¢ for plaster and 13¢ for dry wall, he says. However, his tile subcontractor and the manufacturer "are giving us a good price" for a substantial number of All-Quiet houses to be built this spring, and La Bonte believes the tile will be close to the cost of other types of ceiling—even practical for houses priced as low as \$15,000 to \$17,000.

In Florida, Architect Giller believes that acoustical tile can be installed for only 10¢ more per sq. ft. than "regular wood construction" ceilings.



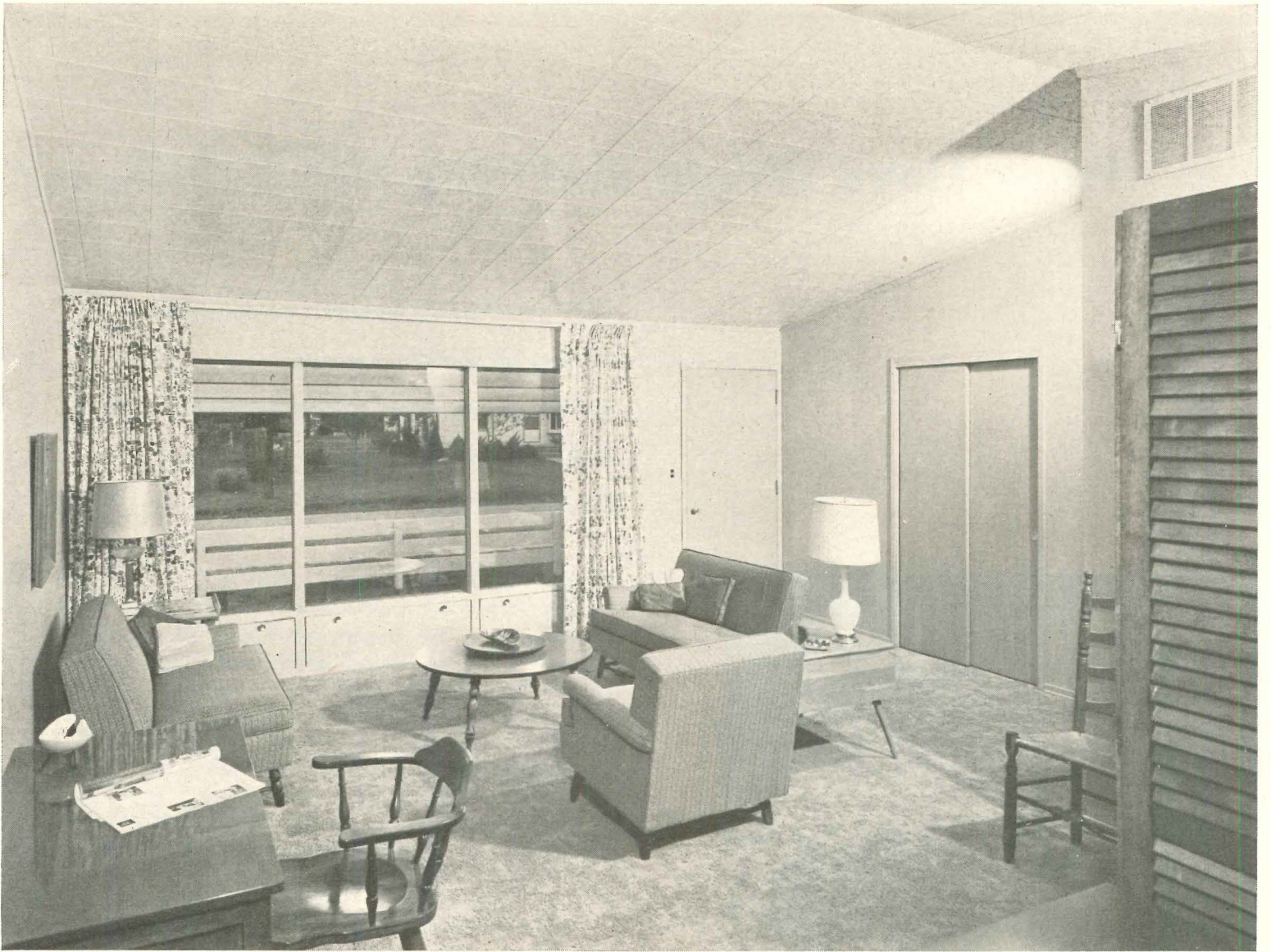
**Acoustical tile** ceiling throughout Rite Realty's Milwaukee Parade of Homes model house not only drew "comments galore" from show visitors last September but helped win Parade's first prize for design. Note how builder placarded the acoustical feature.

## Some builders have already learned the lesson



**Well-planned** sound-conditioning characterized Minneapolis houses built last year by Robert A. Norsen. Besides acoustical tile ceiling, he used heavy cinder blocks to insulate utility-room sounds from adjoining areas, put heavy fireplace between living room and more noisy rooms of house. Floors were cork tile.





Photos: Clair J. Wilson; Photography Inc.; courtesy Armstrong Cork Co. and Reynolds Metals Co.

**Modern Homes prefab** has perforated steel pan acoustical tile over 2" of glass-fiber mineral wool, on 2-12 pitch ceiling. Cost of tile plus 44 hours' labor for 1,000 sq. ft. was \$506. Discounting alternative cost of dry wall and painting, acoustical ceiling can be offered for about \$375 extra.



**Large custom houses**, particularly those with expensive hi-fi systems, are excellent prospects for acoustical tile makers. In this dining room of Omaha home designed by Architect Oscar T. Bowles and built by Bull & Falon, tile combined with heavy rugs and curtains makes for maximum quiet.



## Frank Lloyd Wright and "The Natural House"\*

**In his latest book, America's master architect  
retraces 65 years' experience,  
presents his low-cost, Usonian Automatic house  
and introduces fresh ideas—  
including the one shown here**

Says he: "Every house as a work of art must have a grammar of its own. 'Grammar' in this sense means the same thing in any construction. . . . The grammar of the house is its manifest articulation of all its parts. This will be the 'speech' it uses . . .

"Your limitation of feeling about what you are doing, your choice of materials for the doing (and your budget of course) determine largely what grammar your building will use."

Frank Lloyd Wright has articulated much of the architectural grammar of our day. On the page opposite is shown one facet of the creative imagination which has not only shaped a generation of architecture and architectural taste, but has opened a vista of techniques and ideas for the practical builder.

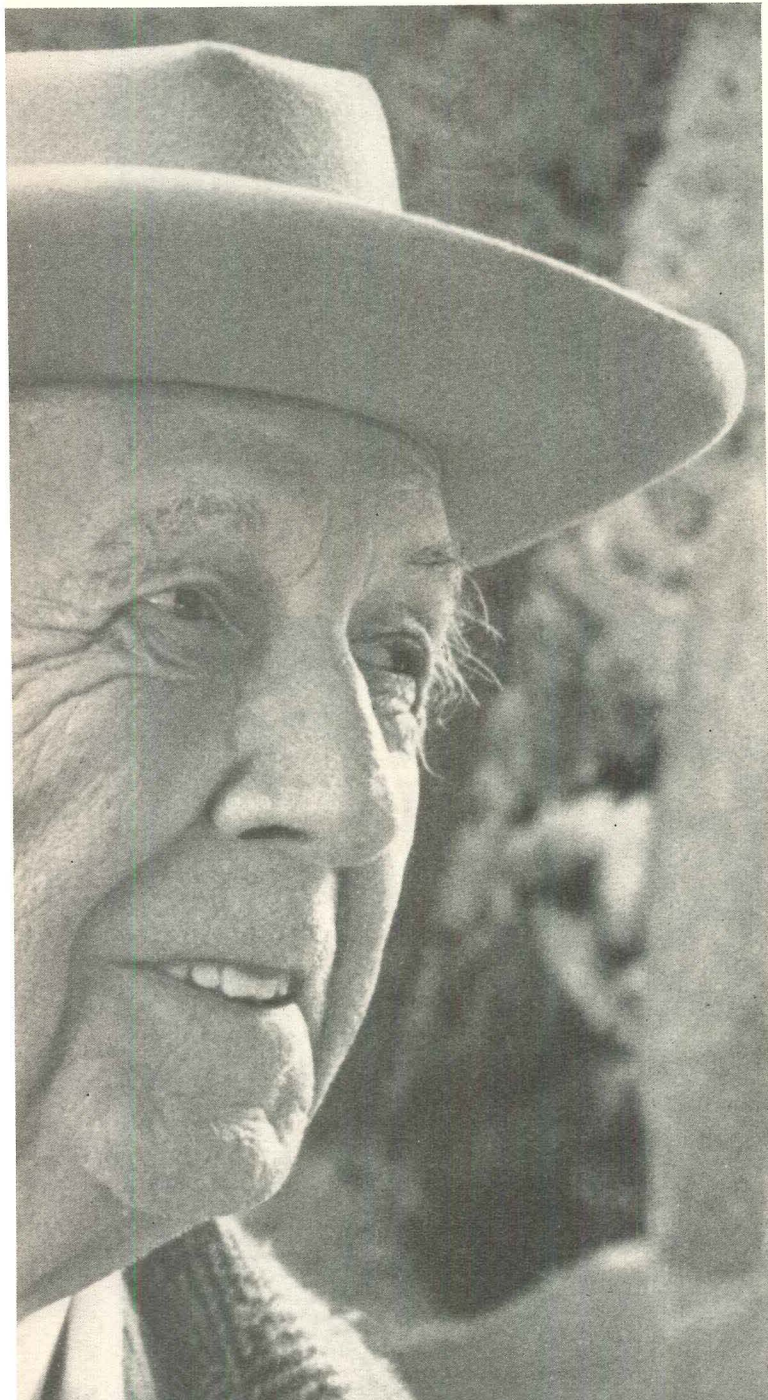
As rehearsed in *HOUSE & HOME* (March '53) many design ideas in our houses, accepted and enjoyed across the US, had their genesis in the work of FLLW: the floor-to-ceiling picture window, the low-pitched roof and wide overhang, the open plan, the kitchen open to the living area, the carport and the realization of the potentials of cement block.

### **Reducing the costs**

Wright is well aware of the pressing problem of costs. He says: "We have gone far in solving this generic problem by the natural concrete house we call the 'Usonian Automatic.' This Usonian house incorporates innovations which reduce most of the heavier building costs, labor in particular. . . . With the limited budget of a GI you cannot pay a plasterer, mason, bricklayer, etc., \$29 a day. . . . To build a low-cost house you must eliminate, so far as possible, the use of skilled labor, now so expensive." (The system is explained briefly, opposite.)

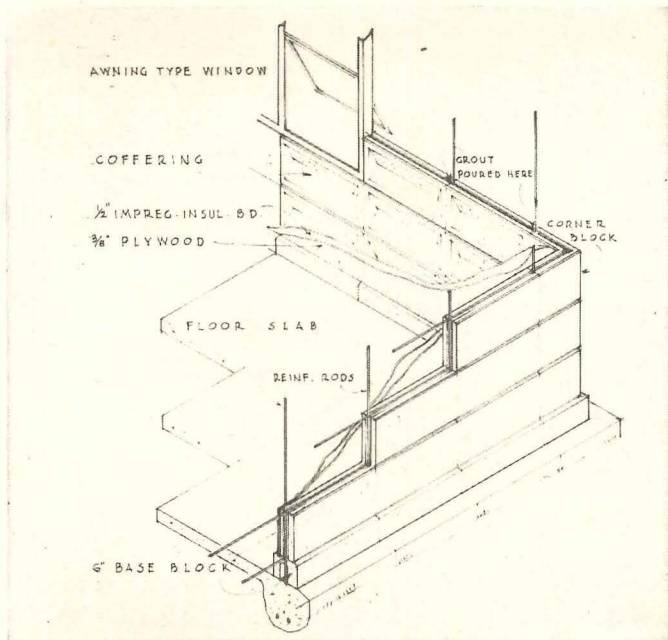
Wright concludes: "Here then, within moderate means for the free man of our democracy, with some intelligence and by his own energy, comes a natural house designed in accordance with the principles of organic architecture. A house that may be put to work in our society and give us an architecture for 'housing' which is becoming to a free society because, though standardized fully, it yet establishes the democratic ideal of variety—the sovereignty of the individual. A true architecture may evolve. As a consequence conformation does not mean stultification but with it imagination may devise and build freely for residential purposes an immensely flexible varied building in groups never lacking in grace or desirable distinction."

\* Published by *Horizon Press*, New York, N. Y. 223 pp. \$6.50

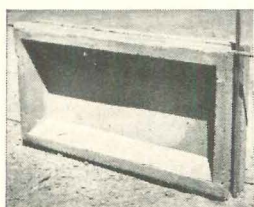
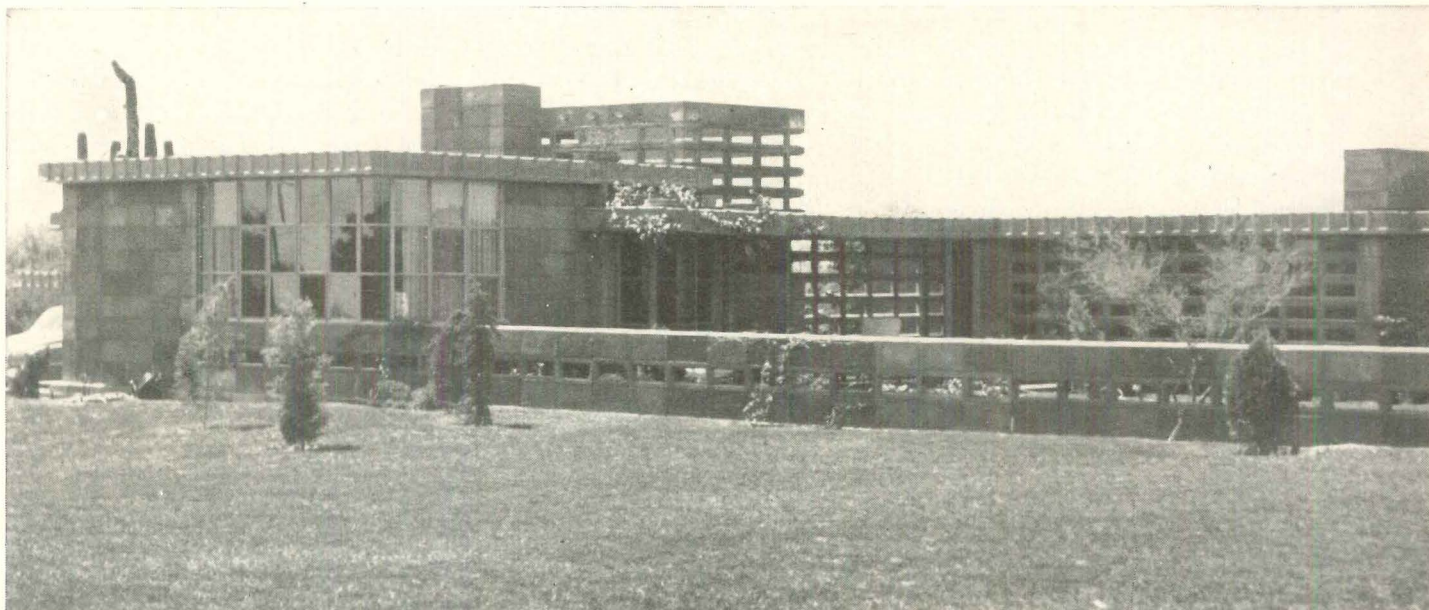


Helen Levitt

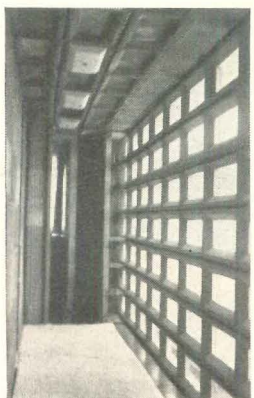




"Usonian Automatic" system has single wall of block 1' x 2' x 3/2" reinforced with 3/8" rods wired at intersections. Inside face of block is coffered to cut its weight and to provide air space after the plywood lining is installed. Lower ends of the vertical reinforcing rods are cast into the floor slab-footing, offering considerable protection against wind loads and earthquake shock. Block is set in place between them and tied together with a cream-consistency grout that is poured into the open block joint. Next course is simply set in place over the one below until ceiling height is reached. Openings are left for the standard section metal windows and doors, which have bearing mullions on the 2' block joints.

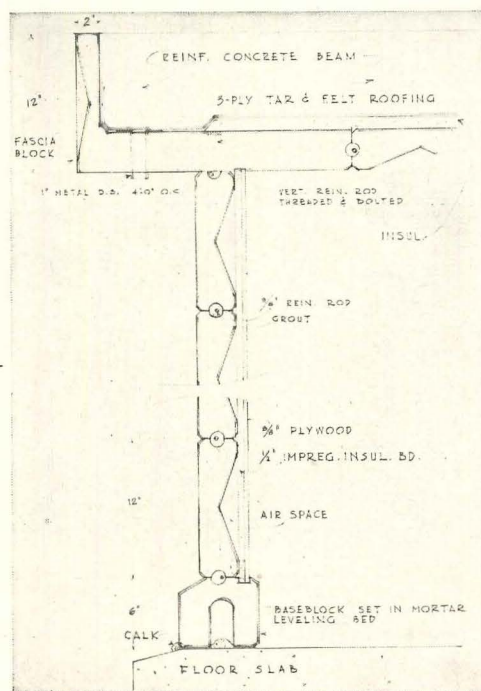


Early block had flat coffer (see left). Molded of moist sand and cement mix, it develops 500-psi compressive strength when properly cured. After some experience, two common laborers set up course around entire perimeter of house (above) in one hour. Since there were no mortar joints, masons' union was not interested.



Simplicity of system is shown in section drawing. Vertical reinforcing rods are threaded at top to receive nut and washer fastening for roof. Of seven block types used, three are shown here in section. Lighting and wiring are in continuous channel suspended below ceiling.

Variation is shown (left) where glazed perforated blocks are used in the wall (note block in ceiling). Perforated block can be left open for screen walls, put in ceiling for skylight. Standard block can have coffering outside for variation in appearance. This is in Adelman house in Phoenix (also shown above).





## "THE NATURAL HOUSE"

**Dry-wall footings:** "One of the best foundations I know of, suitable to many places, is made of shallow trenches about 16" deep and slightly pitched to a drain, filled with broken stone about the size of your fist. Broken stone does not clog up, and provides the drainage beneath the wall that saves it from being lifted by the frost. This type of footing is not applicable to treacherous subsoils."

**The basement:** "In spite of everything you may do, a basement is a noisome, gaseous, damp place. From it come damp atmospheres and unhealthful conditions. Because people rarely go there—and certainly not to live there—it is almost always sure to be an ugly place. The family tendency is to throw things into it, leave them there and forget them. Of course, a basement often is a certain convenience, but these conveniences can now be supplied otherwise. So we decided to eliminate it wherever possible and provide for its equivalent up on the ground level with modern equipment."

**Orientation:** "Ordinarily the house should be set 30-60 to the south, well back on its site so that every room in the house might have sunlight some time in the day. If, however, the house must face north, we always place the clerestory (which serves as a lantern) to the south so that no house need lack sunlight."

**Ventilation:** "The kitchen being one of the places where smells originate, we made that the ventilating flue of the whole house by carrying it up higher than the living room. All the air from the surrounding house was thus drawn up through the kitchen. You might have liver and onions for dinner and never know it in the living room."

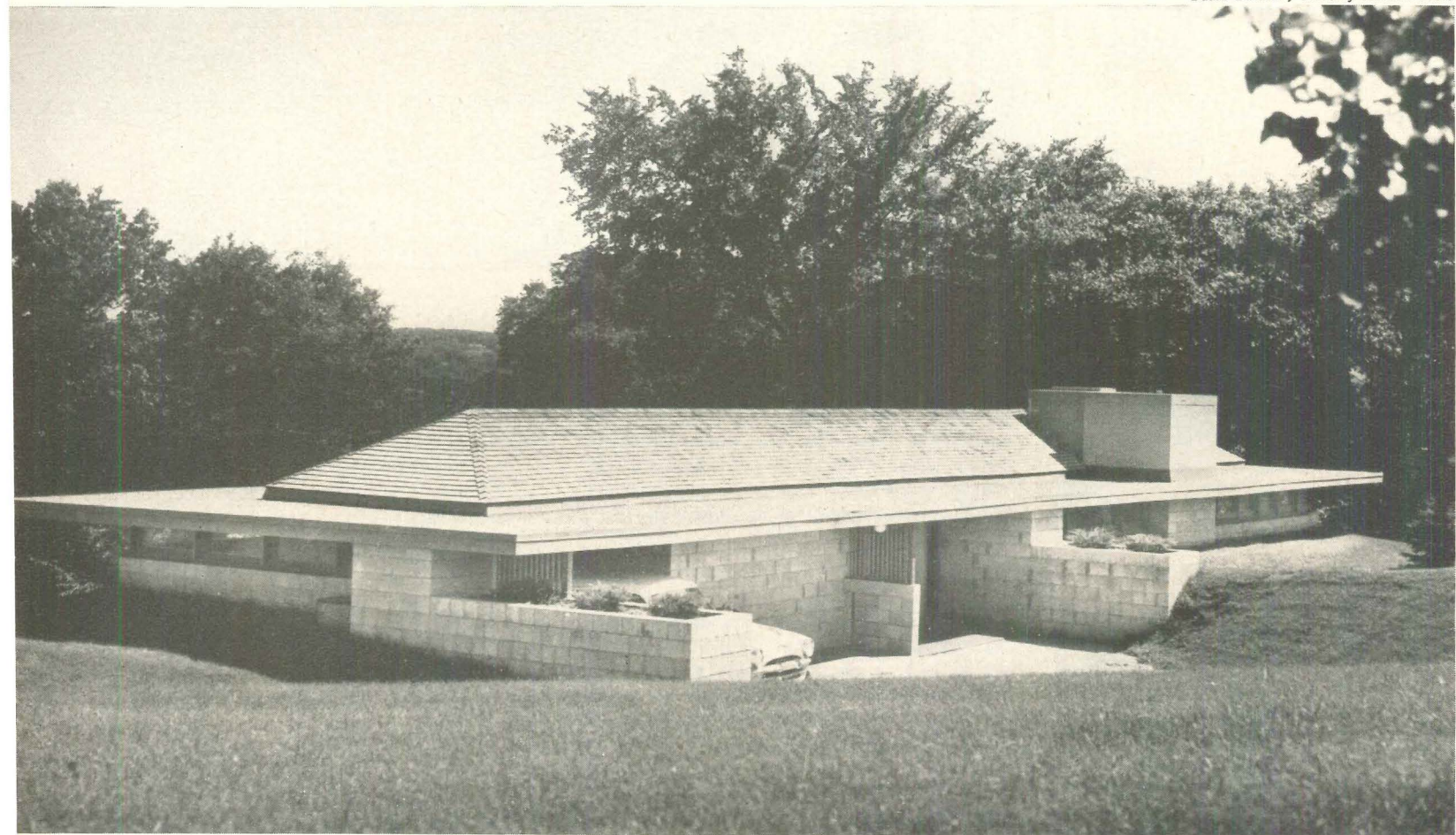
**The kitchen:** "We like to make kitchens small, and put things on ballbearings. We have more money to spend on spaciousness for the rest of the house. I believe in having a kitchen featured as the work space in the Usonian house and a becoming part of the living room—a welcome feature."

**The attic:** "Why waste good livable space with an attic any more than with a basement? And never plan waste space in a house with the idea of eventually converting it into rooms. A house that is planned for a lot of problematical space or space unused to be finished some other day is not likely to be a well-planned house."

**Lighting:** "The best way to light a house is God's way—the natural way, as nearly as possible in the daytime and at night as nearly like the day as may be. As for artificial lighting, it too should be an integral part of the house. In 1893, I began to get rid of the bare light bulb and have ever since been concealing it on interior decks or placing it in recesses in such a way that it comes from the building itself."

**Finish:** "We use nothing applied which tends to eliminate the true character of what is beneath, or which may become a substitute for whatever that may be. Wood is wood, concrete is concrete, stone is stone."

*David Davison; courtesy Horizon Press*



"I gave broad protecting roof-shelter to the whole. Overhangs had double value: shelter and preservation for the walls of the house, as well as this diffusion of reflected light . . . through the 'light screens' that took the place of the walls and were now often the windows in long series."