

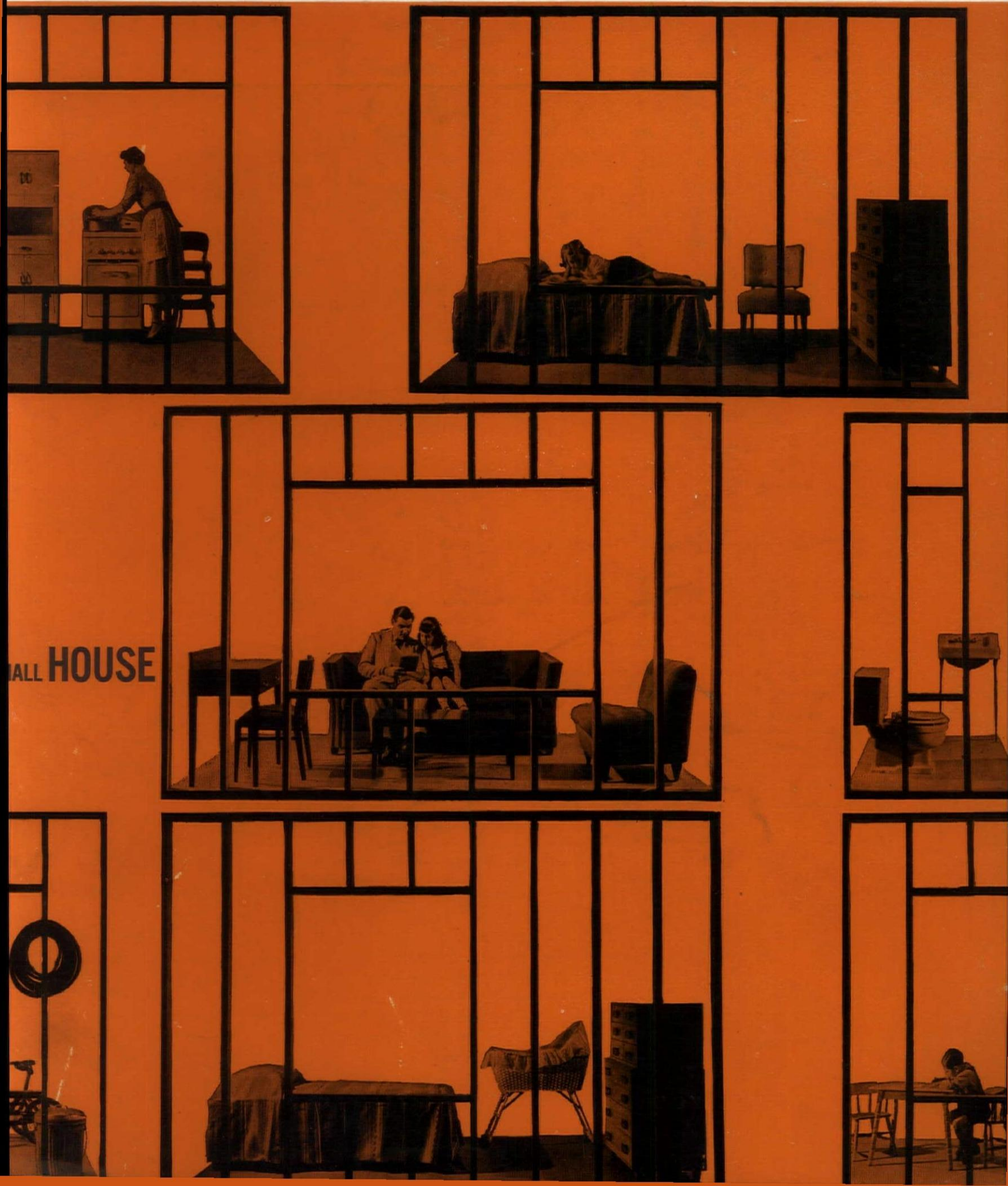
MAY 1950

ARCHITECTURAL

# forum

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THE MAGAZINE OF BUILDING



ALL HOUSE

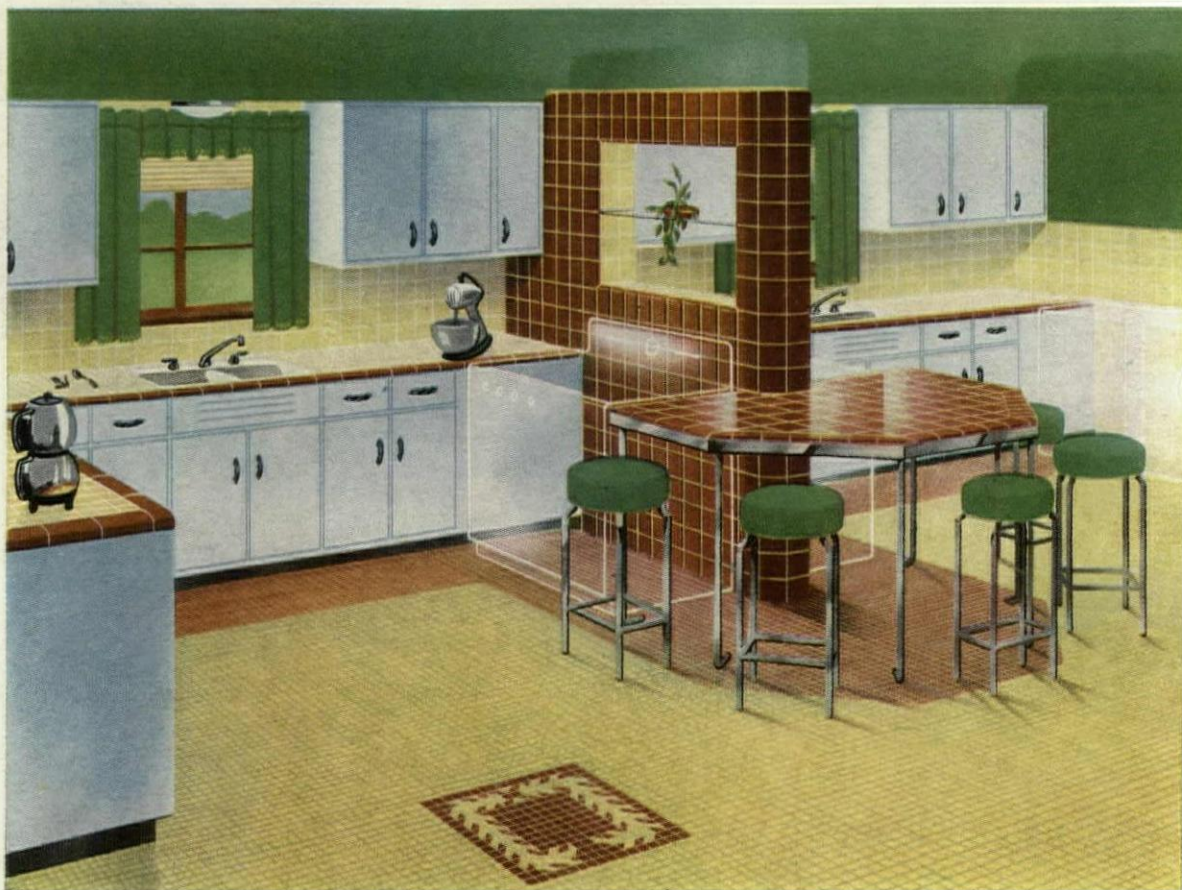


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2. Donald H. Drummond, Mission, Kan.
3. J. L. Eichler, Sunnyvale, Calif.
4. Thomas P. Coogan Co., Miami, Fla.
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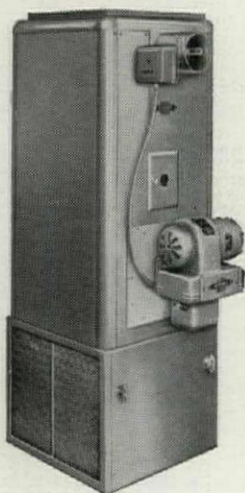
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Build Sales Appeal into your new homes . . . With

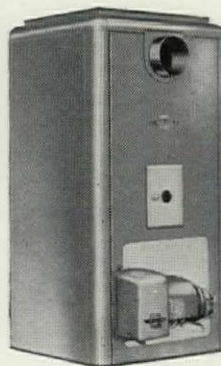
# DELCO-HEAT Conditionairs

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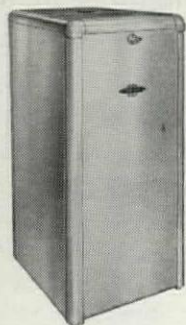
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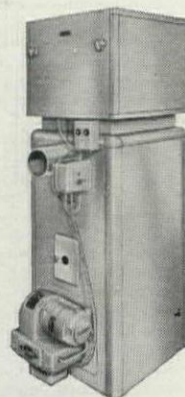


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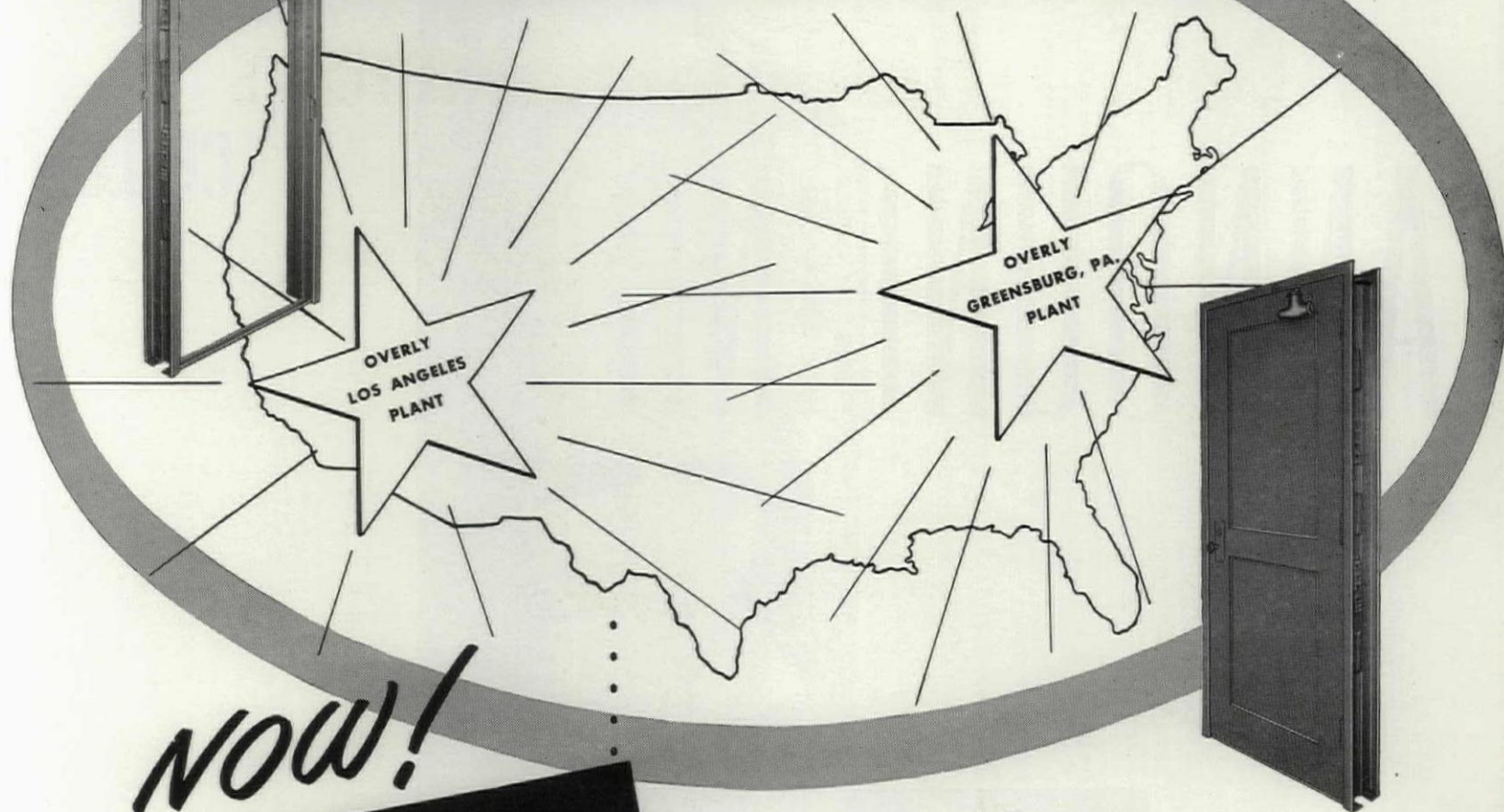
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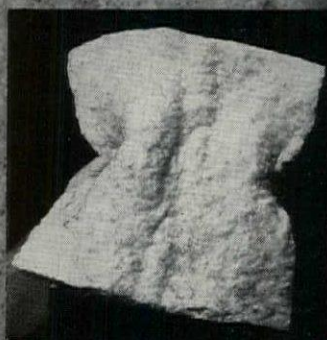
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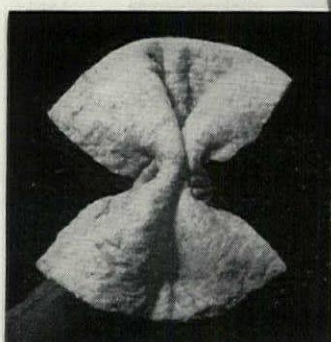


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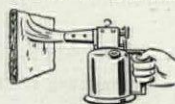


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*A Triumph of* PRODUCTION

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And SPUNFIRM has a *decreased* moisture absorp-

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SPUNFIRM combines both thermal insulating and sound-deadening properties and when used in walls or ceilings, eliminates the need for more than one product.

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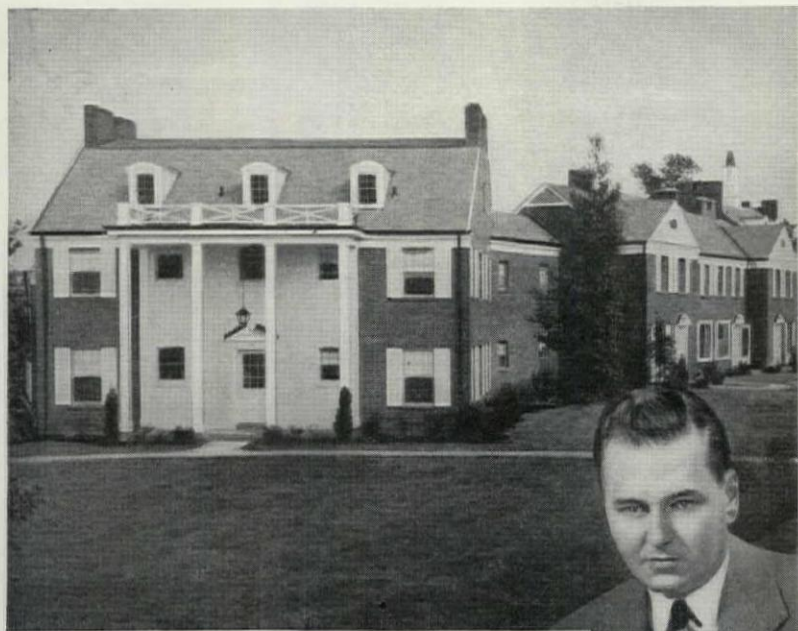
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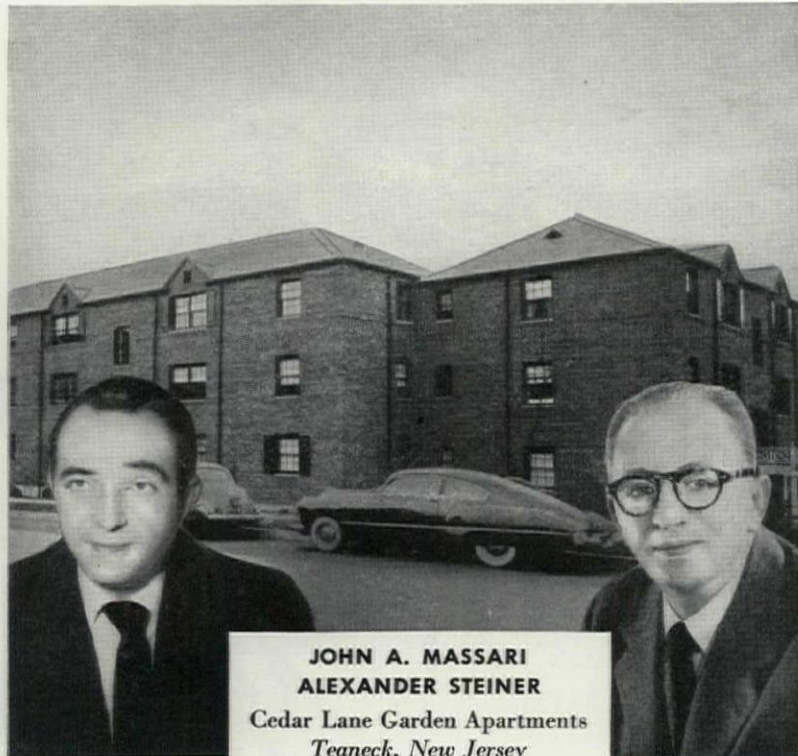
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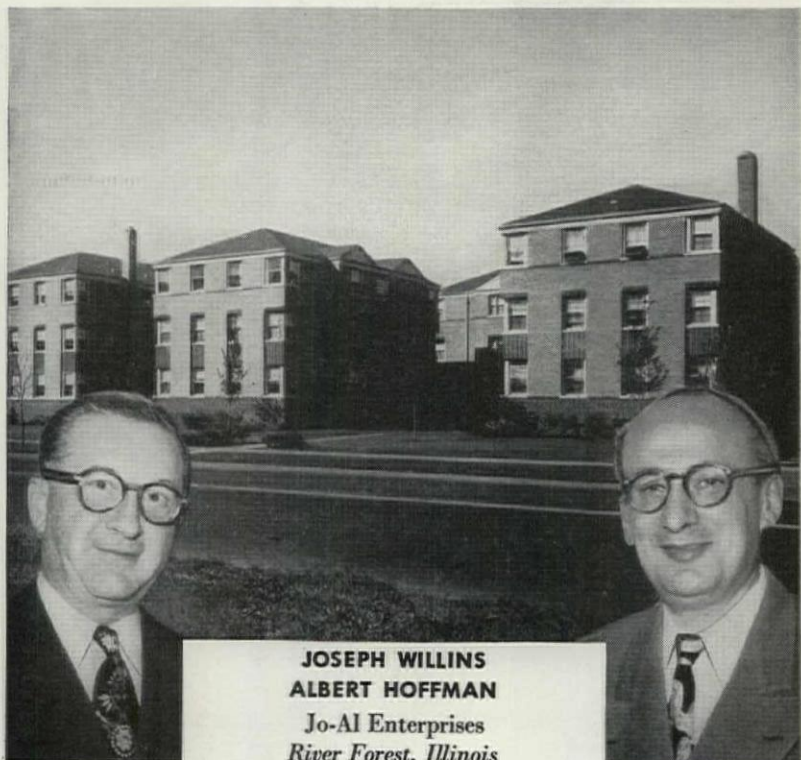
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## TAKE IT FROM THESE

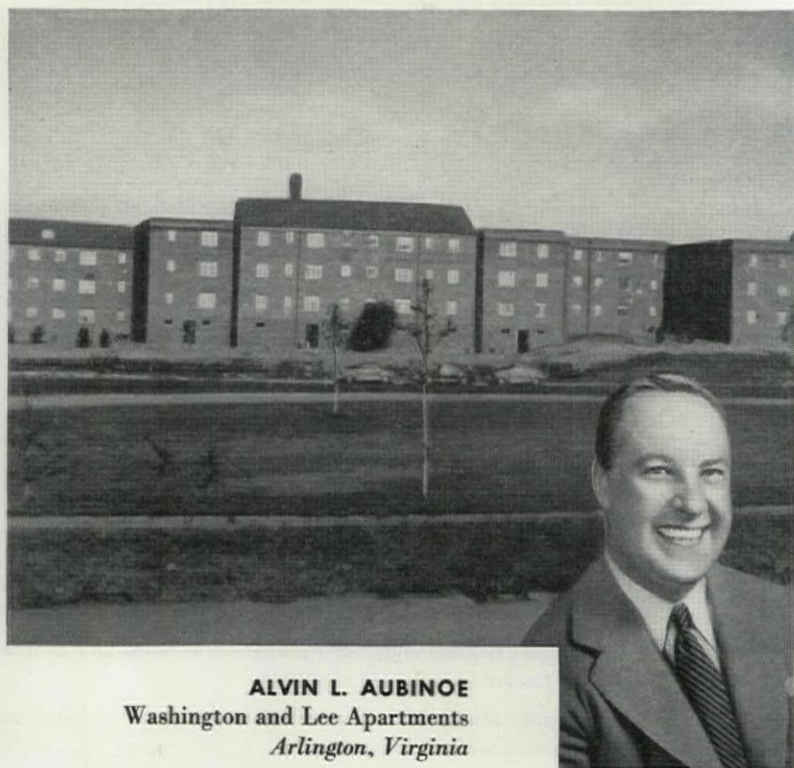
## *successful* APARTMENT BUILDERS!

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## WASHINGTON

**NEW HOUSING BILL** boosts FHA's Title II and VA 501 financing, extends combination FHA-VA loan, provides direct loans to veterans, ousts aid to co-ops

After having been threatened with a Spring drought, the building industry heaved a sigh of relief late last month when Congress finally cleared the new housing bill. In addition to replenishing FHA's almost dried-up reservoirs of insurance authority, the measure gives the government's major housing programs a general overhauling and tuning up.

The present 95 per cent, 30-year financing deal in FHA's Title II is adjusted upward to cover a maximum house value of \$8,000 (in high cost areas; otherwise, \$7,000) with \$1,000 tacked on for each bedroom over two. These mortgages may run for 30 years. Provision is also made for financing a new bargain-basement type of house under Title I—a 95 per cent loan on houses carrying price tags up to \$5,900. The veterans' home loan program is liberalized by increasing the amount of the federal guarantee and extending the loan period to 30 years. Previously the Veterans Administration guaranteed 50 per cent of a home loan to veterans up to a maximum commitment of \$4,000. The new version makes the government responsible for 60 per cent of the loss and raises its maximum liability to \$7,500. It also extends VA home benefits to widows of war casualties.

**Title II boost.** Title II was given a \$2.25 billion boost in its insurance ceiling—ample to carry it along for a full year despite the record rate at which applications are pouring in. The remodeling and repair section under Title I, which died statutorily on March 1, was recalled to life and given a new insurance kitty. Combination FHA-VA loans—Section 505 (a) of the Servicemen's Readjustment act of 1941—which were supposed to get the axe on September 1, were given a reprieve until December 31.

Congress also gave builders an unexpected break by providing an extra amount of insurance authority to wind up the 608 rental housing program. It raised the ceiling by \$500 million to take care of applications piled up in the last minute rush. However, it stipulated that only projects submitted on or prior to March 1 could qualify. Financing would still be on the basis of 90 per cent replacement cost.

**Fanny May fund.** Other features included a shot in the arm for Fanny May (see *Money*), a \$150 million fund for the VA to use in making direct loans to veterans who can not get 4 per cent money commercially and who are good credit risks, \$300 million for 2½ per cent direct loans from HHFA to colleges for the construction of student dormitories, and an amendment giving HHFA a more workable procedure for disposing

of the government's war housing projects. Permission was granted HHFA to turn its remaining temporary war housing units over to local governments that wanted them and to convert its permanent units into public housing at the election of local housing authorities.

Finally, a new rental housing program was set up under a glamorized 207 to take the place of the expiring 608. Builders can now get loans up to 90 per cent of the first \$7,000 of value per dwelling unit in a multi-family development and 60 per cent of the excess value over \$7,000 up to a maximum mortgage of \$8,100. But there is a gimmick. If the apartment building averages fewer than 4½ rooms per unit, the financing will be much less favorable. The maximum mortgage per unit will be held down to \$7,200, the idea being to discourage "efficiency" or one-room units.

**Co-op amputation.** But what gave industry men double cause for rejoicing was the amputation of the co-op section. This was the much publicized concoction that the Administration had dished up for aiding "middle income" families in obtaining loans for co-operative housing projects at under-the-market interest rates. President Truman and Chairman Boyle of the Democratic National Committee tried in vain to turn on the political heat. Congress could not be budged. In the House, 81 Democrats—most but not all from the Dixiecrat wing—joined with virtually the entire Republican membership in tossing out the proposal. The vote on the rejection motion was 218 to 155. In the Senate, the vote had been closer—a 43 to 38 squelch. A last minute attempt

by the proponents to save the day by a flanking maneuver was turned aside. It was a proposal to hike the interest to the FHA standard of 4 per cent for multi-family housing, and to reduce the size of the program to a paltry \$500 million. Congress refused to be fooled by this foot-in-the door technique.

**Unanimous condemnation.** There was obviously more behind the defeat than political shenanigans. The building industry had been unanimous in its condemnation. It was opposed, not through an antipathy toward cooperatives as such but simply because it did not like the idea of playing favorites between self-supporting citizens. In fact, the lending segment of the industry had been more worked up over this latest Administration brain storm than it had over public housing. Savings and Loan associations could easily foresee the squeeze that was in store for them if the government started hammering down the already low interest rates in the home lending field. It would be hard for many of them to stay in business. Congressmen from small town districts, where thrift institutions of this sort play an important part in the local economy, were quick to see the point too. It all helped to turn the tide.

**Campaign issue.** Few felt that the surge was permanently checked. There were powerful forces lined up behind the drive for better housing for "in-between" families and it would be foolish to assume that one defeat would discourage them. Moreover, there was no doubt that the issue would be tossed into the election campaign next fall. Administration leaders had made this plain during the floor fight on the proposal. As a sort of kickoff, it was expected that when Truman signed the bill he would deplore the omission of the middle-income family section and give the "selfish real estate lobby" another piece of his mind.

**NEXT HOUSING BILL** might create 100 per cent FHA loans, transfer Fanny May

Hardly had the weary members of the Senate and House Banking Committees recovered from their legislative labors on the general housing bill than they found that HHFA Administrator Raymond Foley had the glint of another housing bill in his eye: legislation to create a veterans housing program in FHA rivaling the one already ensconced in VA—full 100 per cent mortgages, at 4 per cent with no insurance



## TERMS OF NEW HOUSING BILL

	LOAN LIMIT	LOAN TERMS
<b>The low-cost house</b> (Title II of FHA, section 203(b) (2) (D))		
Loans to builders	85% of long term value but no loan may exceed \$5,950 (\$850 more may be added in high cost areas), with \$950 additional allowance for third bedroom, and another \$950 for a fourth	30 years, 4½%
Loans to owners	95% of long-term value but no loan may exceed \$6,650 (an additional \$950 allowed in high cost areas), with \$950 additional allowance for third bedroom and another \$950 for a fourth	30 years, 4½%
Loan to owners (Firm commitments to builders on 80% of first \$7,000, 60% on remainder).	95% on first \$7,000 of long-term value (percentage decreases on a sliding scale to 86% on \$11,000 house)	25 years, 4½%
<b>Rental housing</b>		
TEMPORARY PROGRAM (608 of FHA.) Permits the processing of applications on hand when program expired on March 1. To be eligible applications must have been submitted by March 1.	90% of value	32 years, 4%
PERMANENT PROGRAM (Title II, 207)		
Apartments with 4½ rooms or more per unit.	90% of value per family unit up to first \$7,000 plus 60% over this amount up to top mortgage of \$8,100 pfu. (i.e. mortgage on apartment building cannot exceed average of this amount per family unit)	32 yrs., 7 mos., 4%
Apartments with less than 4½ rooms per unit.	Maximum mortgage pfu cannot exceed \$7,200	
<b>Veterans housing</b>		
Home loan program (section 501 of Servicemen's Readjustment Act).	Veterans Administration guarantees 60% of loan up to maximum commitment of \$7,500	30 years, 4%
Combination FHA-VA loans (section 505-(a). Extends this program to December 31, 1950.	FHA insures first mortgage up to \$16,000; VA guarantees second mortgage up to \$4,000	
Direct loans by VA to veterans who are good credit risks and can't get 4% money elsewhere.	Loans up to \$10,000	30 years, 4%
<b>Minimum house and modernization program</b> (Title I, FHA)		
Loans for building small houses in suburban sections (less exacting neighborhood standards than under Title II). Loans to builders under this section are on an 85% ratio with mortgage limit of \$4,350 with additional \$650 for high cost areas).	95% up to \$4,750 (\$5,600 in high cost areas)	30 years, 4½%
Remodeling and repair loans to owners.	\$2,500 up to 3 years (\$10,000 limit for multi-family housing)	Under \$2,500, \$5 per \$100 Over \$2,500, \$4 per \$100
<b>Student and faculty housing</b>		
Direct loans from HHFA to finance construction of dormitories and faculty housing at colleges.	Amount of individual loan left at discretion of HHFA Administrator	40 years, 2½%

premium (FORUM, Mar. '50). This would be a roundabout way of hijacking the VA operation since it has been amply demonstrated that, given the same terms, most builders would choose the FHA. They prefer it not only for its smoother processing procedure but also because it provides better access to construction loans.

Veterans groups would be sure to object to such FHA encroachment. They have always been suspicious of FHA. On the other hand, they consider that VA gives them a better break because it was set up for the sole purpose of helping veterans. Committee members, having no wish to tangle with veterans organizations, hoped Foley's new plan would get lost somewhere in the shuffle before it reached them. To builders, however, who had been given a narrow reprieve on the combination FHA-VA loan (which they consider necessary) but who knew that Congress would not prolong it indefinitely, Foley's plan seemed interesting indeed.

**Fanny May transfer.** A second section of the bill being ghosted in the inner recesses of the housing agency, was less controversial. It was aimed at transferring Fanny May to the HHFA. As a matter of fact, this would be a shift that might well meet with approval on Capitol Hill. Senator Fulbright, (D) of Arkansas, who heads the Banking Committee's subcommittee on the RFC, has had the same idea for months. However, RFC was not expected to be highly elated over the prospect of losing its star boarder. In addition to giving Fanny May a new home, the contemplated legislation would also restore FHA's authority to charter private mortgage associations. The FHA had been given this power in its original act but, since it never seemed to attract much interest, Congress decided to repeal the provision some years ago. Apparently, Foley & Company were more optimistic about getting some nibbles this time.

**Purchase limitations.** The new mortgage associations to be chartered (the hope is that there will be more than one) would be limited to purchasing federally insured mortgages. They would issue debentures against these mortgages. Theory is that investors such as life insurance companies would find the debentures an attractive buy not only because they would be backed by insured mortgages but also because FHA would supervise the operation of the associations.

The advantages of having the control of private mortgage associations placed in the same bureau with the government's own mortgage buying agency, are readily apparent. Better integration could be achieved,



for one thing. Also, private mortgage associations could get off to a better start if they were able to begin operations with a sizable nest egg of mortgages. They could begin selling their debentures sooner. The point of it all is that under joint operation, it would be easier to engineer a deal whereby Fanny May could sell the associations some of its portfolio at convenient terms.

### **RENT CONTROL extension goes to Congress, but passage is unlikely**

To advocates of Rent Control, the future looked grim last month. The bills tossed into the hopper early in the month by Majority Leader Lucas in the Senate and Democratic Party Warhorse Sabath in the House provide merely for straight continuation of controls for another year after the present expiration date of June 30.

The implications in this type of bill are plain. The Administration strategists obviously realize that they will have to do a lot of bargaining to wrangle through any kind of extension; they do not want to start in making concessions.

Since early 1942 when rent control was clamped on as a wartime measure, a succession of administrators, coordinators, and expeditors have thumped the green plush covered tables in Congressional hearing rooms each year and given the same spiel: "The housing supply is still tight and it would cause undue hardship to take off the rent ceilings." Following the repeal of other wartime controls and the revival of building after the war, the story has sounded less and less convincing to Congress. As a result, extension bills in recent years have met increasing resistance and have been whittled down in scope. Last year, for example, Congress coupled its grudging assent with insistence on the adoption of the so-called "local option" amendment under which cities and states were permitted to establish their own controls or remove them entirely (a privilege exercised by seven states and 246 cities).

With half the rental areas in the country now decontrolled (and only two states—New York and Maryland—prepared to establish local controls if federal controls die), the Administration is sticking to its story that there would be suffering in the remaining places—mostly the larger cities—if controls were abolished. But this time not even the regular quarterbacks want to carry the ball—Lucas and Sabath were called on when Chairmen Maybank and Spence of the Senate and House Banking Committees balked at sponsoring the new continuation bills.

Possibly the Administration realized as

well as anyone that it is going to be hard to explain to Congress why rent control is still necessary when Federal Reserve Board figures show that families in the \$2,000 to \$5,000 income bracket are only paying 13 per cent of their income for rent. The commonly accepted ratio is 20 per cent.

### **SAVINGS AND LOANS talk themselves out of income taxes**

As an offset against revenue that would be lost if some of the war-born excise taxes are repealed, the House Ways and Means Committee has been poking around for existing loopholes that can be plugged. One of the ideas stirred up last month sent chills coursing down the spines of Savings and Loans. The proposal: Why not subject Savings and Loan Associations to federal income taxes on their earnings the same as banks? It is true that these institutions have enjoyed a tax exempt status because they are cooperatives. Savings and Loan representatives were quick to go to the committee, stress the mutual ownership nature of their enterprises, point out that application of the tax would increase the cost of home purchasing and penalize thrift. All indications are that they have talked themselves out of the danger for the time being. But there is some uneasiness that the dud might go off at a future session; particularly if the business community keeps sniping at cooperatives.

## **ECONOMY**

### **HIGH LUMBER COSTS lead the attack on the "steady price" front**

Said one West Coast Builder last month, explaining why the cost of his development had gone up 50 cents a sq. ft.: "Last year we paid \$55 a thousand for No. 2 or better fir and now it's costing us \$72." In Pittsburgh, a thousand board feet of fir has gone up \$15 since last Spring. New Jersey builders were paying \$88-\$92 for 2 x 4's, compared with \$75-\$78 last summer; and 5/16 in. plywood, when it could be found, cost \$95 compared with \$68 six months ago. Elsewhere, through most parts of the country, builders nervously ticked off the rising costs of such vital lumber products as doors and window frames.

Lumber, more than any other material, held the natural components of a real price spiral. The stimulus of 1949's unforeseen heavy building, spilling over through the winter into 1950, had sharpened the demand. The severe storms which swept the Pacific Northwest for a good part of the

### **MILITARY HOUSING amendments suggested by building group**

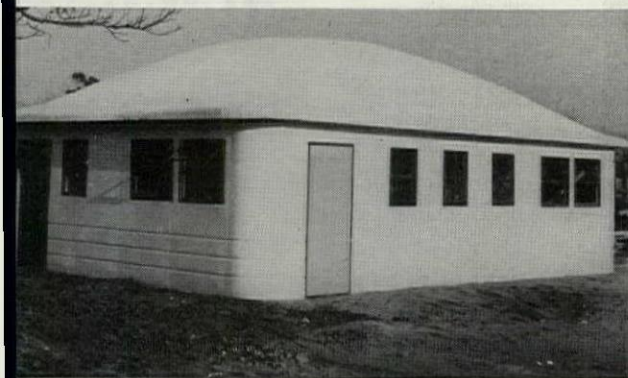
With a minor operation, the ailing Wherry Military Housing bill could soon be put back on its feet. This was the opinion of a crack team of private consultants called in by Pentagon officials to see what was wrong with the program under which FHA insures 90 per cent mortgages on privately financed housing projects built on military reservations. Main participants in the huddle were Architect Betram E. Giesecke of Austin, Banker Frank McKenney of Indianapolis, and Realtor Clarence H. Low.

Their prescription: Instead of requiring each builder submitting a proposal to work up his own plans, let the commander of the military base take the initiative. He would be permitted to advance funds to an architect for a set of plans that could be used as a basis for all bids. In this way builders would not be faced with the possibility of losing the time and money they put into the plans if they were unsuccessful in their bids; would presumably show a greater interest in getting in the running. At the same time the military authorities would get projects more suited to the needs of their married officers and non-coms and more within the limitation of the rents that could be afforded. Idea, of course, would be that the successful bidder would repay the advance for the architectural service from the proceeds of his FHA mortgage loan.

winter, virtually halting lumber mill production, while lumber-hungry eastern and midwestern builders made good use of mild weather, had reduced the supply. By last month, some lumber grades were almost back to their high peak of 1947. The average quoted price of Douglas fir in the Northwest mills (which contribute about half the entire U. S. lumber supply) was 20 per cent higher than last August, and some grades were reportedly up as much as 50 per cent. The Western Pine Assn. released these figures, showing the upward swing: Ponderosa Pine—from \$66.35 a thousand board feet last October to \$68.32 now; Larch and Douglas fir produced by pine mills—from \$56.70 to \$59.65; white fir—from \$49.16 to \$52.17. BLS' wholesale index showed an average 3 per cent rise in lumber prices since January.

**Builders hopeful.** So far, not many builders have hiked the prices of their houses. They have been reluctant to do so because: 1) up to now, they have been using lumber





### ATOMIC AGE HOUSE, all concrete, sells in California for \$3,600

Perhaps the first builder in the U. S. to permit its building operation to be influenced by the wave of hydrogen bomb headlines, Conair Sales Inc., of Van Nuys, Calif., has come up with an "atomic age" house: an all-concrete, steel-reinforced unit which its producers claim to be not only bomb-resistant but earthquake, heat, cold, moisture, and fireproof as well. The two-bedroom house can be built in 12 hours, and will sell for approximately \$3,600.

To achieve the strength which the sponsors hope will see this house through an atomic blast, liquid cement is applied pneumatically over steel reinforcing mesh supported temporarily by a glass fiber rectangular balloon.



Photos (below): Walter A. Slattery



### USONIA CO-OPS receive financing

Shown here are two cooperatively-built houses in the Usonia group which recently received financing (see story, page 13). One (right) was designed by Paul Schweikher and Winston Elting, Illinois architects, the other (above) by David Henken. Like their neighbors, both structures feature extensive use of glass, wide roof overhangs, terraces and large fireplaces. Materials in their natural forms are favored throughout, with native stone, brick, concrete and unpainted cypress predominating. Scheduled for Spring completion is the first of five homes designed by Frank Lloyd Wright.



on which the price has not risen (most of the marked up lumber is being delivered now); 2) the competition which characterizes the new market has made most builders eager to believe that the increase was temporary and prices would level off soon. At the beginning of the month, they were still holding out for that possibility (see p. 86).

They were getting dubious encouragement from lumbermen. Some mill operators looked for a leveling off within two to four months. Others weren't so sure. If lumber labor pressed for wage increases, prices would probably go up even a little more, they thought.

**Increases elsewhere.** Lumber's story was reflected, although not so dramatically, in other materials. Zinc and tin showed slight increases. Scattered reports indicated an inching upward of pipe, bricks, plumbing fixtures, paint and nails. A Cleveland building company estimated that the jump in steel prices had made hardware about 26 per cent more costly than it was a year ago. A strike at National Gypsum and an impending strike at U. S. Gypsum caused a serious shortage of plasterboard.

Almost all prices which were down were the result of special conditions: asphalt shingle manufacturers were in the midst of a price-cutting war and the keen competition of kitchen appliance makers was having a happy effect on the prices of ranges, refrigerators, washers, etc.

It was just such uncertainties as these, and the big uncertainty of labor (see *Labor*) which sharpened builders' cautious attitudes considerably during the month. The determination to hold the price line on houses seemed to be wavering just a little. Detroit Builder Rodney Lockwood, perhaps more nervous than the rest, even resurrected the banished ghost of the first hectic post-war era. Said he: "From now on, we are adding an escalator clause to all uncompleted houses."

### RECORD MORTGAGE LENDING boosts total debt to peak of \$38 billion

Reflecting the all-time record in residential building, mortgage lending activity during 1949 was also at an all time high. During the year, \$11,828,000,000 in nonfarm mortgages of \$20,000 or less were recorded. The corresponding figure for 1948, the previous all-time record, was \$11,605,000,000.

Government's influence was felt on about 33 per cent of this activity (which includes new and existing structures.) FHA loans on 1- to 4-family houses amounted to \$2,304,000,000. VA guaranteed loans came to



\$1,424,000,000. In addition, about \$1 billion of FHA insured loans for rental property were closed during the year, representing about 70 per cent of the total loans on multi-family structures.

Another all time high last year was hit by the volume of home mortgage debt, which reached \$38 billion. (Compared with personal disposable income, however, it was still below prewar standards. According to government estimates, last year's high represented 20 per cent of such income, compared with 25 per cent in 1939.)

### MARCH BUILDING boosts 1950's first quarter to new record: \$4.4 billion

No matter how many records Building had set in 1949 (see above), it was working feverishly to beat them all in 1950. And, during the first quarter of the year at least, it succeeded.

As March chalked up a whopping \$1.5 billion worth of construction put in place (8 per cent above the revised February estimate and 18 per cent more than March last year), BLS and the Commerce Department added up the construction activity of "the largest first quarter total on record": \$4.4 billion worth, 18 per cent above the total for the first quarter of last year. Homebuilding (\$1.9 billion) accounted for 44 per cent of the quarter's total; in 1949 it amounted to about 35 per cent.

Homebuilding in March alone (\$620 million) was 48 per cent above its record last March; it was also 5 per cent higher than in February. Total new privately financed construction work during the month amounted to \$1,125 million (up 5 per cent from February and 18 per cent from March 1949).

Public construction (\$375 million) jumped 15 per cent from February, and 19 per cent from March 1949.

### CONTRACTORS see a lot of building ahead, but also a lot of bidders

The men who build the nation's heavy structures aren't worried about a curtailment of construction in 1950. But they are a little worried about the intensity with which competition has returned to their field.

At their annual meeting last month in San Francisco, the Associated General Contractors looked forward to a record breaking \$30 billion worth of work in the year — \$750 million better than 1949. Two-thirds of it would be for new construction, the rest for maintenance and repair. And, if the economy began to sag anywhere, the federal government was prepared to bolster it with a giant construction program. J. W.



**NEW AGC PRESIDENT** Walter L. Couse, Detroit, takes over from Retiring President Adolph Teichert, Jr., San Francisco.

Follin, from the General Services Administration, was on hand to assure them of that. (The government's standby construction program, which would put up about \$350 million worth of federal buildings, "does not begin to cover even all the urgently needed building," said Follin. To satisfy the government's needs would "require an annual construction program approaching a half billion dollars.")

**Hungry bidders.** But if 1950's total construction pie would be bigger than it ever had, there would also be more people cutting it up. AGC's membership had more than doubled since 1939. Competition was fiercer than it had been in the lean thirties; 20 bids for a single job was not unusual, the contractors said.

Contract splitting is on the increase, too. Many customers now ask for one set of bids for excavation, another for plumbing and heating, another for machinery installation. Separate contractors are awarded to the low bidder in each category.

All this means that the cost of building has been cut a lot more than standard indexes show. The contractors figured that the price the customer pays is down at least 10 per cent from the 1948 peak, on the

average. A members' poll, just finished by the Association, shows that the cost of building factories, stores and big apartment buildings is now only 85 per cent of the 1948 peak. Heavy construction — dams, bridges, pipelines, railroads, public works — is down by 10 per cent. Most expect reduced costs for both these classes to hold steady throughout 1950. But cost of highly competitive highway construction is down 13 per cent and still sliding.

So long as the total construction pie stayed big enough, even present tough competition would not be more than healthy, contractors agreed. What were the chances beyond 1950? On this momentous question, the convention listened thoughtfully to economist Edwin G. Nourse. Nourse gravely told them he saw "no occasion for business to go into the storm cellar." Strong factors continue to shore up the economy: "We still have considerable momentum from the high level of governmental, business and private spending which characterized 1949." But Nourse thought unemployment figures (down to 7 per cent in January as compared to 4½ per cent a year ago) "will certainly bear close watching month by month from here on in."

**Caution in expansion.** How does industry feel about any more building? Nourse thought "managers will be little disposed to expand plant capacity very greatly from present levels until they have felt out the ability of our normally growing market to continue to absorb the full product of our present capacity. Prudence will dictate also that they consider investment plans in the light of obligations assumed under recent pension contracts or others which will probably develop in increasing numbers." Nourse's construction advice to business: "Forward commitments should be reasonable but should take full account of the strong growth factor in our economy."

## MONEY

### MODERN CO-OP gets financing from Savings & Loan in New York

Even as Congress was administering last rites for the President's ambitious cooperative housing scheme, a lusty private New York co-op was proving itself a pace-setter in more ways than one.

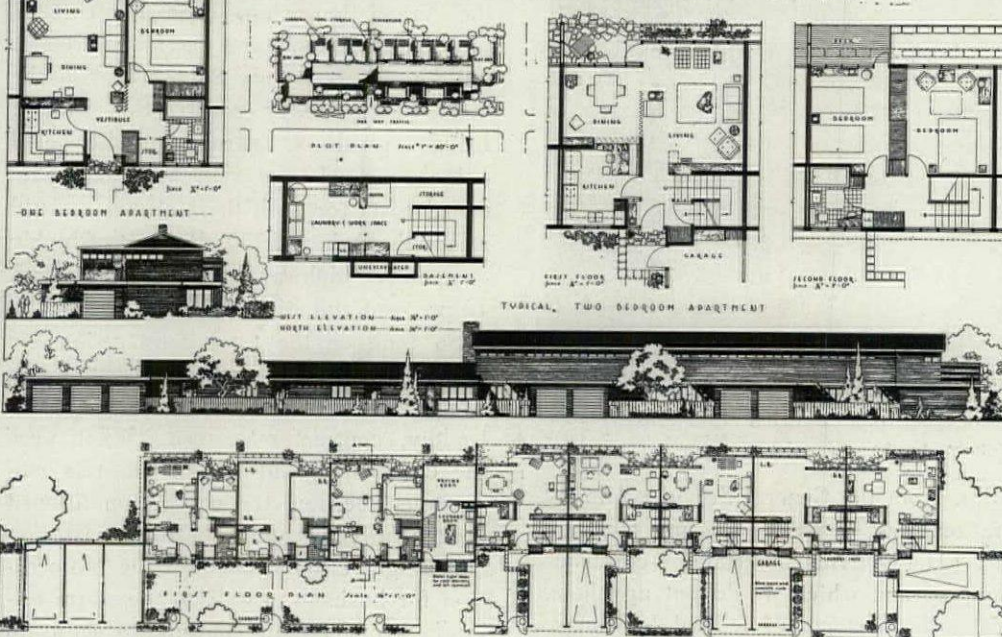
Usonia Homes, a 50-house development on a rolling, wooded 97-acre site in Westchester County, succeeded last month in placing mortgages for its first 12 units with the Knickerbocker Federal Savings and Loan Assn. of New York. The loans run from 10 to 20 years, bear interest at 4¾

per cent. They represented a singular victory for the Westchester cooperators over the twin bugaboo of prejudice among lenders against both cooperative ownership and contemporary design. (The victory, of course, was not quite complete. Mortgage coverage on the units ranged from 60-70 per cent. FHLB regulations permit 80 per cent of appraisal, which in actual practice — according to one Knickerbocker official — has amounted to 70 to 75 per cent of selling price on houses in the Usonia cost range.) Not only were all the houses to be of uncompromisingly modern design (see pictures, p. 12), but the site plan (designed by





## WOOD GARDEN APARTMENT COMPETITION



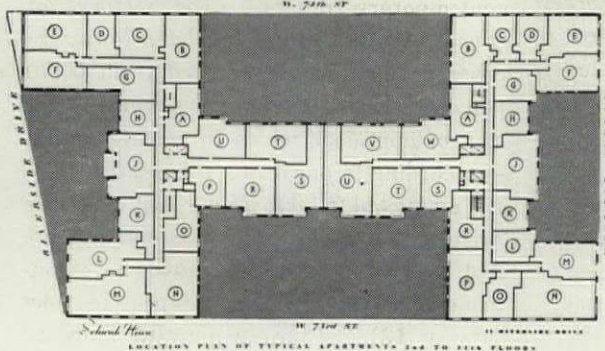
### WOOD APARTMENT COMPETITION winners announced

The design (above) of M. E. Freitag (left), Iowa State College student, took first prize last month in a multi-family, wood construction, suburban located, garden apartment competition sponsored by the Timber Engineering Co., affiliated

with the National Lumber Manufacturers Association. The winning entry was commended for its orientation "for both sun and view."

First prize winner in the Student Awards Division was E. A. Ingram, Jr., Texas A & M student.

Louis H. Dreyer



### "WORLD'S LARGEST APARTMENT HOUSE"

Rising on the site of one of New York City's Riverside Drive mansions is a 17-story, 654-unit apartment house which its builders call the "world's largest single-unit apartment house." The Schwab House, which will have a total of 2,221 rooms, will cost approximately \$12 million.

Sylvan Bien is the architect.

Frank Lloyd Wright) promised to be even more unconventional, calling for plots in circular shapes. To avoid the difficulty of insuring titles to circular sites, the mortgage loans will be secured by normally-shaped plots with the circular forms preserved within the group by mutual agreement.

**End to talk.** Terms of the mortgage contract call for direct loans to the cooperative on each individual house.

(Both the co-op and the individual member sign each mortgage. Each member purchases stock in the cooperative corporation equal to his house cost plus a prorata share of land and improvement cost.)

W. A. Slattery



Boecher

Said Knickerbocker President Louis T. Boecher: "This should put an end once and for all to the talk that bankers are not progressive, that we will not lend money on modern homes, nor finance a cooperative."

Each of the 50 houses (15 are now a-building) is designed by an architect chosen by the individual co-op member from a panel that includes such well-known architects as Wright, Schweikher and Elting, and Alden B. Dow. Costs range from \$15,000 to \$35,000 per unit. Also contemplated are elaborate cooperatively-built community facilities such as nursery school, community house, playground, athletic field, natural swimming pool, ski slope and miniature demonstration farm for the children.

### FANNY MAY'S SPREE of buying and selling becomes critical

"The whole question of what to do about Fanny May," said one Washington economist last month, "has been made immediately critical."

As RFC's bouncing daughter ran out of mortgage-buying funds and went skipping to Congress for more, there were few in the building industry who would disagree—neither those who had been pumping for her banishment, nor those who had been for giving her all the spending money she needed. Fanny May's strange behavior last month disturbed both groups.

**Selling spurt.** The new cheap money climate, which had brought a lot of private investors back to the 4 per cent market, had also given a spurt to Fanny May's mortgage selling business. Even investors who have been reluctant to make VA 501 loans on



their own have been willing to buy them at a premium from Fanny May because they were "seasoned." (By midmonth, Fanny May had sold \$80 million worth of mortgages and had given option for the sale of another \$275 million worth.)

All this was great encouragement for those who maintained that Fanny May, alone among most government children, was a self-supporting agency. She could make enough on the mortgages she sold (at premiums ranging from  $\frac{1}{2}$  point on 501's to 2 points on FHA Title II  $4\frac{1}{2}$  per cent loans, and with a fee charged for issuing commitments to buy mortgages) to buy up all the mortgages she had to, and still show a substantial profit. (One government official estimated that Fanny May would clear enough in 1950 to wipe out RFC's \$3 million Lustron loss.)

**Budget drain.** But just as she was riding high last month, Fanny May announced a couple of rigorous new purchase rules (no more 501's would be bought which included closing costs, or which have not previously been approved specifically by VA) and was immediately swamped with enough commitment requests wanting to get in before the deadline, to drain her of the fiscal year's operating budget.

Congress, faced with the fact that half the 25,000 VA-financed homes being built each month depend on Fanny May purchase, quickly dropped more spending money into her purse—but only \$250 million, instead of the \$750 she had wanted. And to show its growing disapproval of her, Congress sternly forbade Fanny May to make any more advance commitments. Industry men, knowing that advance commitments have been the basis of most of Fanny May's activity (she has commitments now on projects that won't be started until September) wondered whether Congress was about to do away with the whole procedure of the government's underpinning the secondary market.

**Future possibilities.** And if Congress should decide that the time is ripe to settle Fanny May's future, how would it do it? There were several possibilities:

1) Keep Fanny May entirely self-supporting by encouraging private investors to buy even more heavily from Fanny May. This, some thought, could be done by having Fanny May sell her mortgages at par. The main objection to this was RFC's. It saw no reason why it should cut down on its own profit.

2) Let the private investors form a national mortgage association of their own, as the Mortgage Bankers Association has

been suggesting for several months (FORUM, Feb. '50). MBA indicated at its midwinter conference in Chicago last month that it was still willing to take on the job, no matter how difficult the technicalities might be (see cut).

3) Set up a private mortgage association chartered by FHA and subject to FHA regulation. HHF Administrator Raymond Foley was thinking out loud about such a plan (see *Washington*), which would be much the same as that outlined by the MBA, but with one exception: the new association might not be granted the tax exemptions which MBA thought necessary.



**Tired suggestion.** There was, of course, one final possibility, but it was not a new one; it was the same suggestion which mortgage men had wearily been getting around to ever since heavy government mortgage-buying first became a problem: take the controls off VA-guaranteed loans. Since the greatest part of Fanny May's business was in VA 4 per cent loans (which were made in the first place only with advance commitment from Fanny May), Fanny May would be reduced to its original standby status in a free market. VA had made it clear enough that there would be no interest rate increase, but the same old wistful rumor that it might be changing its mind was still circulating through Washington, adding to the dizziness of the atmosphere in which Fanny May cavorted.

## LUSTRON will keep going another month at least, under new receiver

Under receiver Clyde M. Foraker (formerly U. S. Deputy Collector of Internal Revenue for Ohio) the Lustron Corp. limped through March on a curtailed basis. Its expenses had been drastically slashed. Its top officials, including President Carl Strandlund, had been ousted. The receiver was doing his level best to reduce the operating deficit which amounted to \$600,000 in January. He had made substantial progress along this line by his rigid economies and by withholding interest due the RFC on its huge \$37 $\frac{1}{2}$  million loan.

At month's end, the leading question was: how much longer could operations be continued? The court would have the final say although it would be largely guided by what RFC wanted. Indications were that RFC would agree to keeping things going for another month at least. Its reasons: Remaining material on hand could be processed into complete housing packages (115 more housing assemblies had been run off the line during the first month under the receiver). More important, negotiations for the sale of the property before final liquidation could be pursued a little longer.

While Congressional critics thought it was not trying too hard, RFC was still doing some desultory dickering. One bidder was reported to be willing to put \$5 million into the deal. The RFC was also reported to be willing to make some concession by writing down its claim. Obviously it would have to consent to some adjustment of the debt. Otherwise no sensible bidder would come in until the remaining assets of the business were put through the wringer.

## LABOR

### HIGHER WAGES AND PREMIUMS add to builders' Spring worries

High on the list of just about every builder's Spring worries was Building Labor. Already considerably harrassed by rising material prices (see *Economy*) and the uncertain condition of the government's secondary market (see *Money*), the industry steeled itself for what appeared to be a certain wave of higher labor costs.

Contracts were running out in many areas, and the negotiations already started showed labor's confidence: In Detroit, where contracts expire May 1, painters are asking an additional 40 cents an hour; the total de-

mands of building labor there will amount to a 5-7 per cent increase. Eighteen AFL building trades unions in Cleveland have already succeeded in winning a \$1 a day pay hike.

But there was more to the builder's labor headache than the prospect of wage increases. In cities where the scarcity of the labor force had begun to be felt, builders had been obliged to revive the discarded, costly practice of paying premiums. Hard-to-find bricklayers and plasterers in Chicago were getting extra pay. Philadelphia builders were paying 15 cents above contract scale to bricklayers and carpenters. One Detroit construction corporation was re-



portedly giving 30 per cent over union scale to masons.

Congress had removed the greatest potential of scarce labor when it eliminated the co-op provision from its new housing bill (see *Washington*), but the problem was by no means solved. The builder's headache faced the certain prospect of being compounded, as heavy Spring building makes good craftsmen harder to find than ever.

## MARKET

### 1949 HOUSE BOOM grew on cost adjustment and 608 financing

What last year's housebuilding boom had meant to local building markets was plain when the Federal Housing Administration published its annual map last month (see below). Almost everywhere 1949 had been a better building year than the year before, and 19 FHA insuring offices showed increases of over 50 per cent in house starts. The housebuilding upsurge reflected in FHA insurance activity had two main causes: 1) the cost adjustment which the industry had made early in the year; and 2) 608 insurance for rental building. But these national forces were shaped by local conditions to some surprising results. For example, great population growth combined with favorable 608 conditions to move

Washington, D. C. up to third place in total number of starts. Because of heavy 608 building, New York this year nosed out Los Angeles as the No. 1 volume area. Perhaps even more interesting than absolute volume was the number of units started per 10,000 families. A high ratio on this basis reflects a high rate of expansion in the local economy. On this basis, the five leading areas were: Washington, D. C., Miami, Dallas, Albuquerque, Camden, N. J.

### THE TYPICAL HOUSE: Washington survey points to disappearance of basement

The Labor Department's Bureau of Labor Statistics, which compiles a lot of statistics each month about the production of homes, last month took a look at the houses in its own neighborhood and released a composite statistical picture of the house itself. Covering all the 3,190 houses built in Washington, D. C.'s metropolitan area during the last three months of 1949, the survey shows that the typical house is one-story high, has a ground floor utility room where basements are not provided, a fireplace, a brick veneer facing over masonry (in accordance with local tradition), plastered walls, hot air heating, one bathroom, and steel window frames (a specification influenced by the masonry construction).

Following is a detailed analysis of the

3,190 houses, 94 per cent of which were produced by merchant builders:

Characteristics	Number	Per cent
Number of stories:		
One .....	1,570	49
One-and-a-half .....	860	27
Two .....	760	24
Basement .....	1,650	52
Utility room (no basement) .....	1,470	46
Attic suitable for finishing .....	970	30
Fireplace .....	1,190	37
Porch .....	770	24
Garage .....	240	8
Electricity .....	3,180	100
Using community water supply system .....	3,060	96
Using community sewage-disposal system .....	3,000	94
Exterior wall material:		
Brick facing over masonry .....	1,770	55
Brick veneer over wood frame .....	240	8
Frame .....	590	19
Asbestos shingle .....	390	12
All other .....	200	6
Interior wall material:		
Plaster wall .....	1,880	59
Other (mainly gypsum based) .....	1,310	41
Heating facilities:		
Hot air (ducts) .....	3,020	95
Hot water (radiators) .....	70	2
Steam .....	*	*
Hot water-panel ("radiant") .....	*	*
Bathroom facilities:		
1 complete bathroom .....	2,790	87
More than 1 bathroom .....	380	12
Window frames:		
Steel .....	1,660	52
Wood .....	1,530	48
Operative-built .....	3,010	94
Owner or contractor-built .....	180	6
Total .....	3,190	100

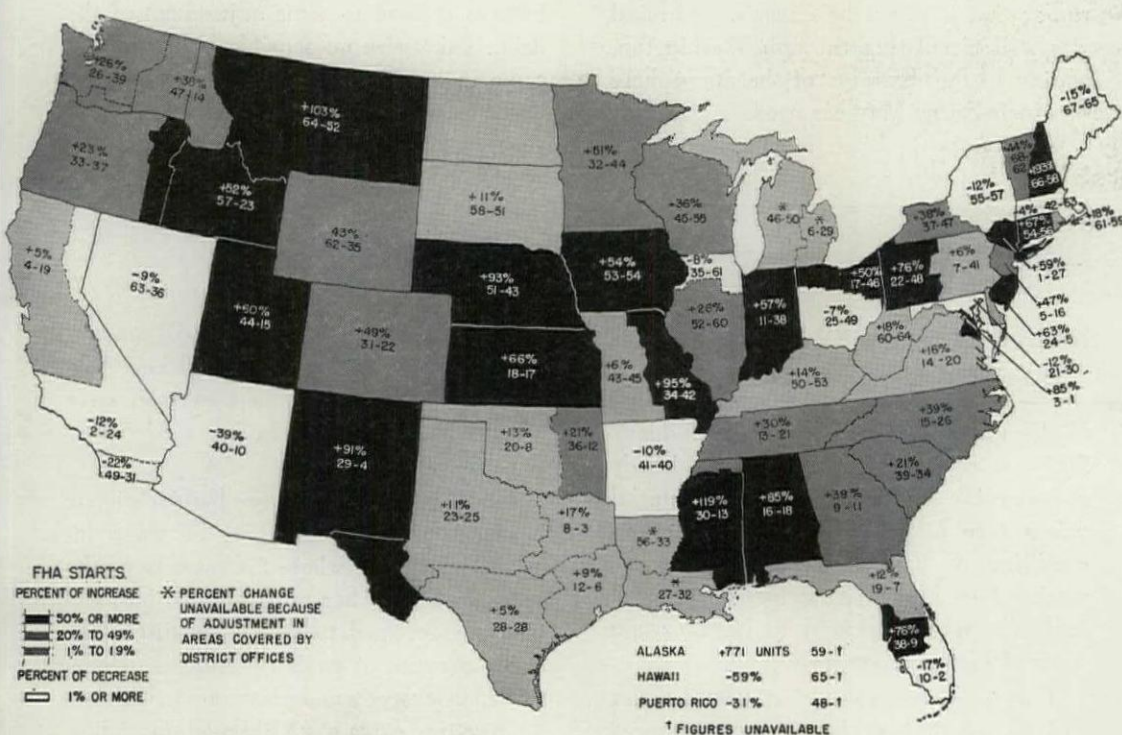
\* Less than 1%.

A similar survey of apartment units, practically all of which were in 5-or-more-family structures, indicates that 39 per cent were served by elevators, all were of brick-veneered masonry construction, 89 per cent were plastered, 71 per cent were equipped with hot water radiators, 90 per cent had steel window frames. Somewhat surprising is the fact that 16 per cent of the apartment units were radiant heated and 10 per cent were steam heated, while less than 1 per cent of the detached houses used either of these types of heating.

## PEOPLE

Preliminary study and negotiations were under way in St. Louis last month on an urban redevelopment scheme that would yield possibly 3,000 Negro rental units (one and two story row houses) to be built by IBEC Housing Corp. with its one-a-day brand concrete forms (FORUM, Sept. '49). Participating in the discussions with St. Louis' Mayor Joseph Darst were IBEC Board Chairman **Wallace K. Harrison** and New York Realtor **William Zeckendorf**, representing **Nelson Rockefeller**, who was reputedly interested in teaming up with St. Louis investors to back the \$15 million program.

(Continued on page 20)



**PERCENTAGE FIGURE** on top line in each FHA insuring area indicates amount of change in FHA house starts between 1948 and 1949. On

second line, first figure shows how area ranks in number of starts; second figure shows how it ranks in per-capita starts.





**Now homes in all  
price ranges can have  
pegged oak floors**

For years, pegged oak floors laid in random-widths have meant luxury and quality to style-conscious home owners. But the high cost of installation has limited their use to higher priced homes.

Now Bruce has developed the new Ranch Plank Floor that is moderate in cost because it's pegged and completely finished at the factory and is installed exactly like strip flooring. The alternate  $2\frac{1}{4}$ " and  $3\frac{1}{4}$ " strips give the beautiful decorative effect of a random-width plank floor. But Ranch Planks have none of the installation problems and expansion hazards of wide oak planks.

Architects and interior decorators praise the new Ranch Plank Floor for all types of homes and apartments. Owners say it's one of the most admired features of their homes.

Give *your* homes this plus value that lifts them out of the ordinary class. See our catalog in Sweet's 1950 File. For complete data and new booklet with color photographs of Ranch Plank Floors, write: E. L. BRUCE CO., MEMPHIS 1, TENN.

*Bruce Ranch Plank Floor*



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For big homes and little homes, for country homes and city apartments . . . specifying tile is quick and easy with American-Olean's new Color Book of Tile.

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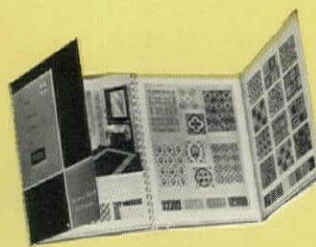
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Easy  
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**See it...  
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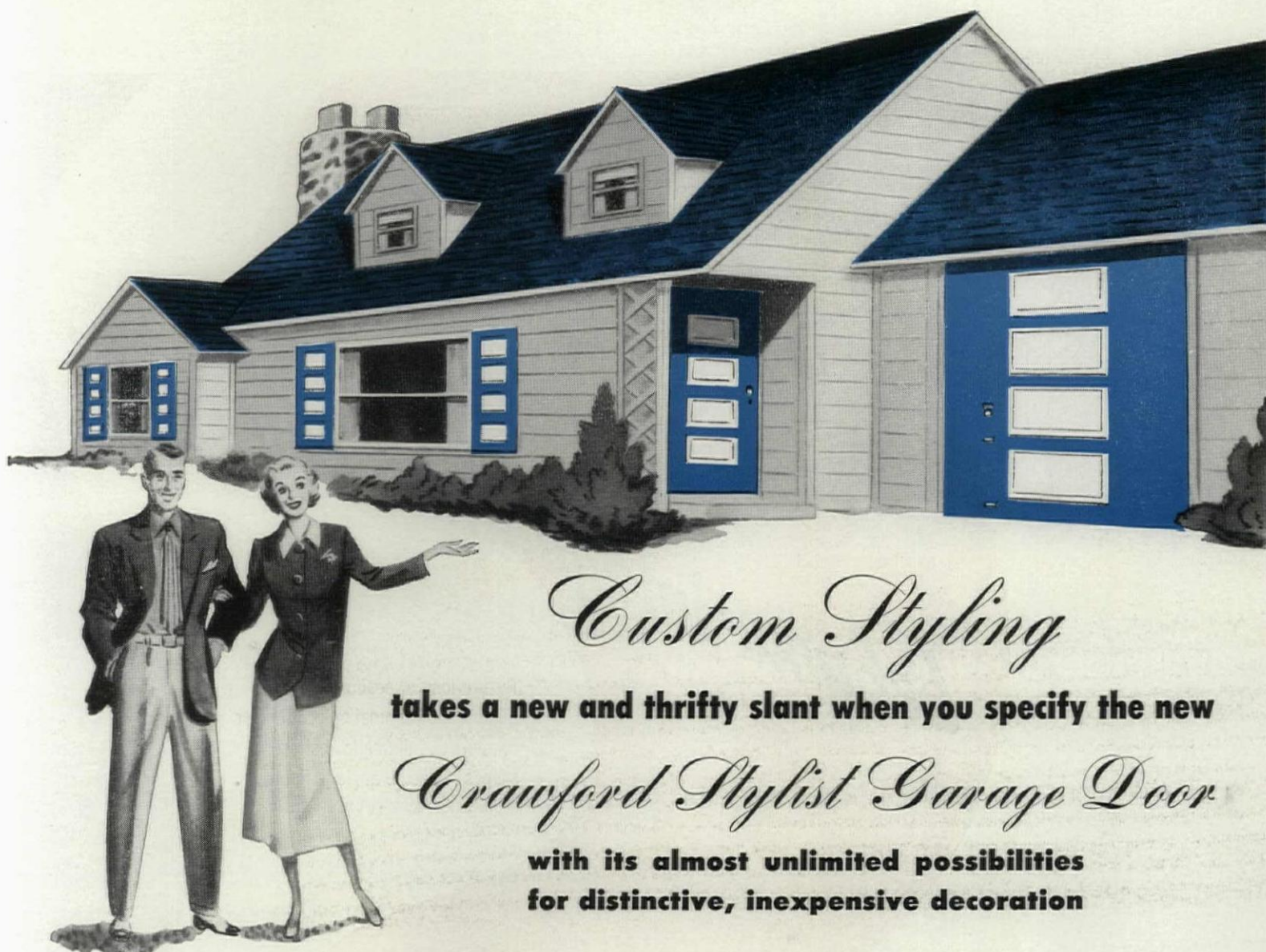
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*Custom Styling*  
**takes a new and thrifty slant when you specify the new**  
*Crawford Stylist Garage Door*  
**with its almost unlimited possibilities**  
**for distinctive, inexpensive decoration**

Crawford Marvel-Lift Stylist is the new, sectional, garage door with all-flush, all-hardwood plywood panels electronically laminated to a corrugated, 3-ply hardwood core.

There's almost no limit to what you can do in using the STYLIST to make the small home exterior distinctive and different for this is indeed "the garage door of 1000 faces."

The flush hardwood panels may be left plain and protected with any suitable coating. Or, they may be decorated with applied moldings in any desired pattern and finished in rich and distinctive colors to achieve striking and effective design.

Thus, you can put beauty and personality into one of the largest and most visible areas of the modern home frontage—the garage door. You can provide custom styling without the penalty of custom-built price for the STYLIST costs little more than standard doors and simple, inexpensive decoration is remarkably effective. The same decorative motif can be repeated in front

door and shutters to produce a decorative ensemble which can be gay, charming, colorful, dignified—anything you want.

The STYLIST comes in standard and extra wide singles and in full-width doubles, and is equipped with the famous Crawford Marvel-Lift Mechanism for fingertip operation. Can be equipped with Crawford Marvel-Lift Electric Operator with push-button control on car dash.

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## Crawford Door Co.

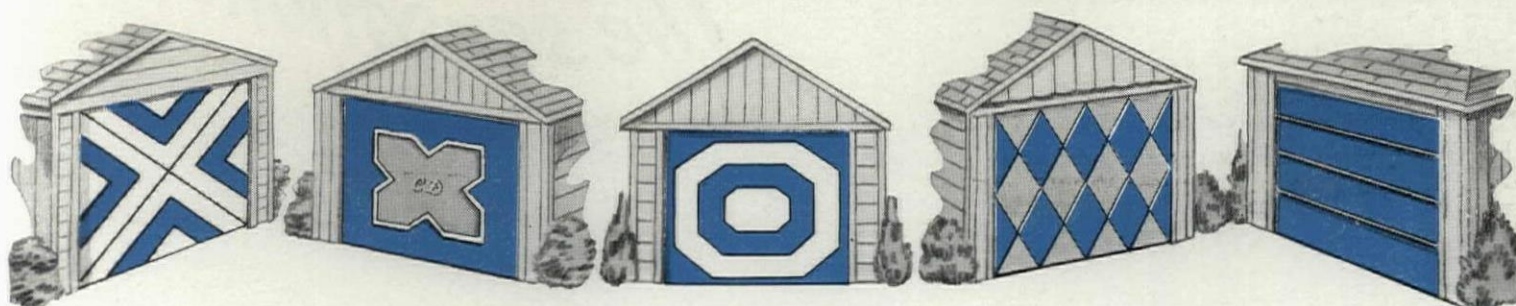
### MAIN PLANT:

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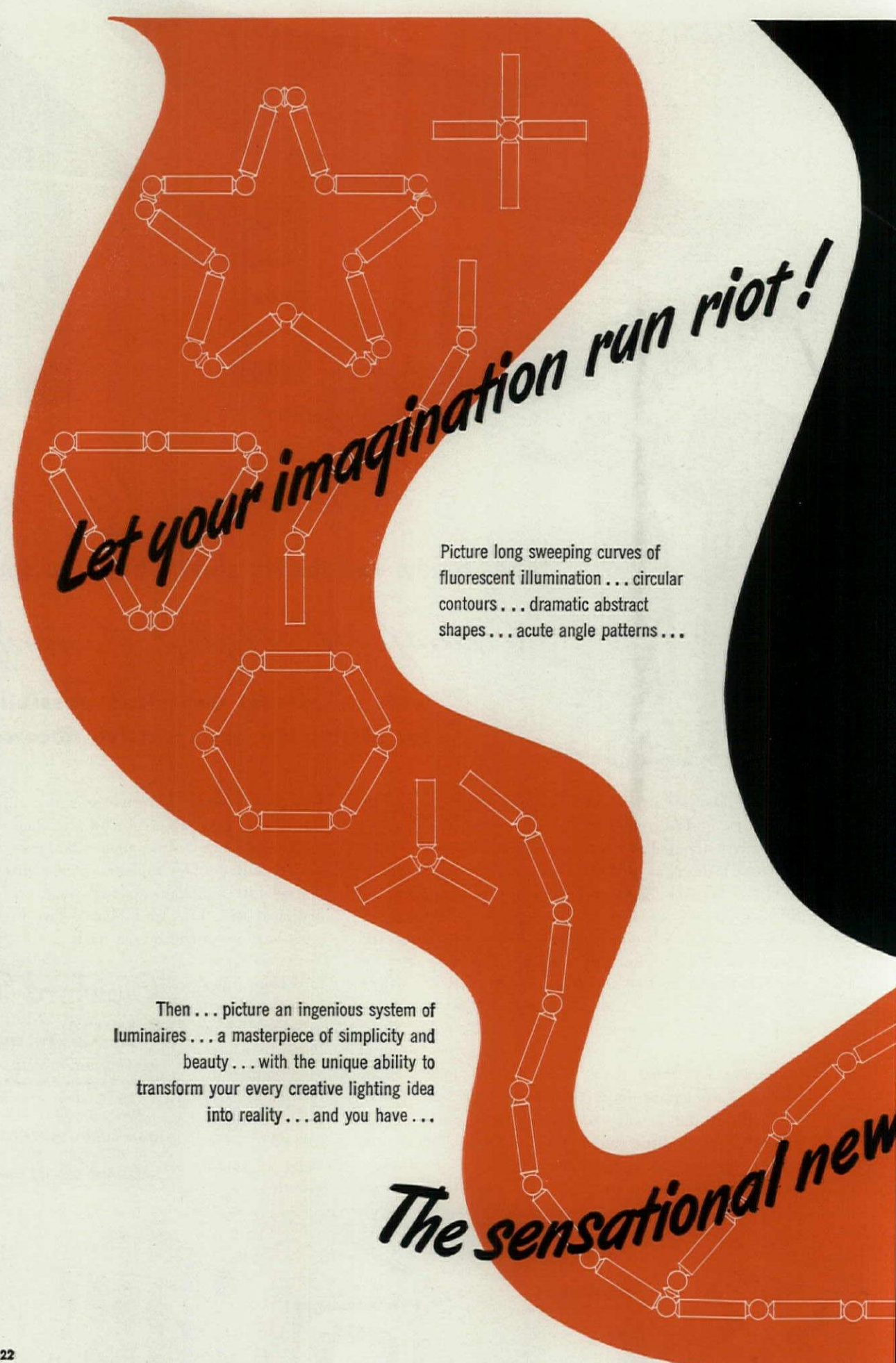
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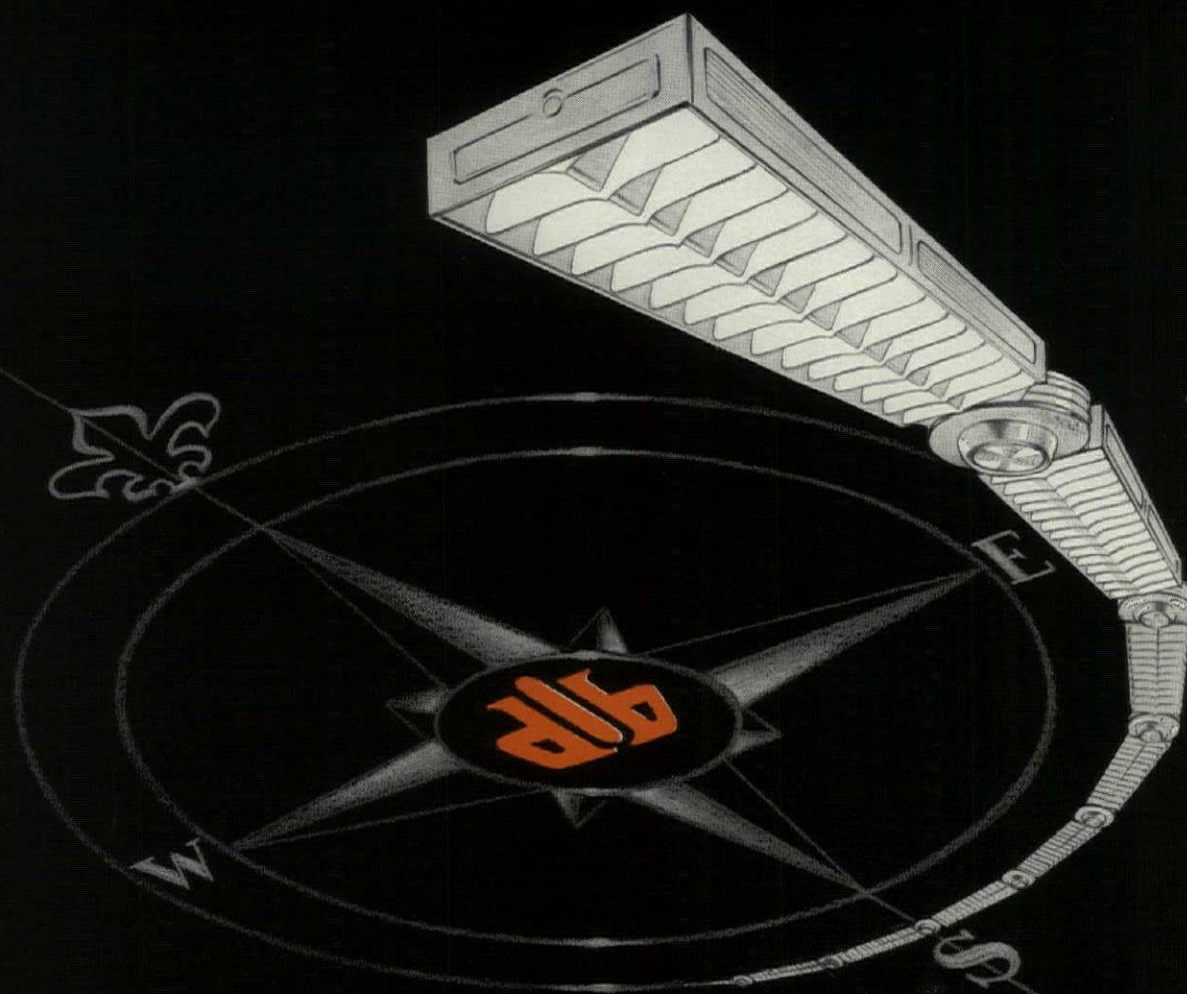
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Picture long sweeping curves of  
fluorescent illumination . . . circular  
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shapes . . . acute angle patterns . . .

Then . . . picture an ingenious system of  
luminaires . . . a masterpiece of simplicity and  
beauty . . . with the unique ability to  
transform your every creative lighting idea  
into reality . . . and you have . . .

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A "package" of spectacular new versatility  
 . . . circular lens units or spots with  
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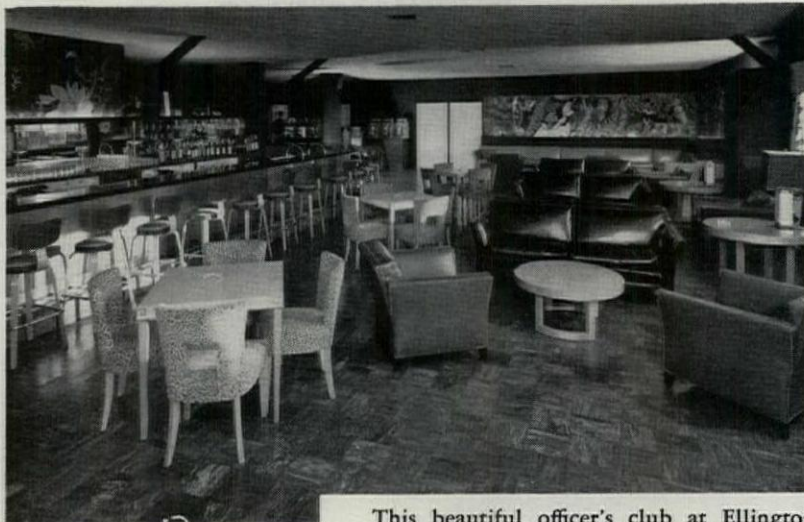
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## The U. S. Air Force is **TOUGH** on an Enemy in the Air...



This beautiful officer's club at Ellington Field, near Houston, Texas, is a "pace setter" for officer's clubs throughout the nation. The swank Congo Bar shown here is one of several luxurious rooms in the club featuring **WRIGHT RUBBER TILE**.

## and **ROUGH** on Officer's Club Flooring!

Selecting the right flooring for an officer's club is a special challenge. The requirements are high—and architects know it. That is why time and again, they specify **WRIGHT RUBBER TILE** for the "tough" jobs.

They know that an officer's club floor must be beautiful. It must be comfortable and able to withstand damage from spilled drinks, cigarette butts and frequent re-arrangement of heavy furniture. It must be in good, pleasing taste, quiet, and unbelievably durable. **WRIGHT RUBBER TILE**, the nation's first rubber tile floor covering, meets all these requirements.

Non-porosity gives **WRIGHT RUBBER TILE** a resistance to damage unequalled by any other floor covering, as well as unparalleled beauty and long life.

No wonder Ellington Field officers chose Wright, the oldest and best known rubber tile in existence.

A floor covering that meets the requirements of an officer's club will be ideal for any room where luxury and resistance to hard wear and damage are paramount. That's why architects everywhere are consistently specifying **WRIGHT RUBBER TILE** for every job.

Write us for the new booklet for architects—  
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- ♦ **WRIGHTEX**—Soft Rubber Tile
- ♦ **WRIGHTFLOR**—Hard Surface Rubber Tile
- ♦ **WRIGHT-ON-TOP** Compression Cove Base

## NEWS

### PEOPLE

Long Island Wonder Builder **Bill Levitt** (see p. 136) is used to confounding the rest of the housebuilding industry and the general public with big operations. Last month he announced the details of one of the biggest yet: a com-



F. Merkert

plicated real estate transaction in which he practically gave away 4,020 rental houses in his mammoth Levittown\* (Levitt still has 1,400 rental houses left), at an undisclosed profit to his firm which could be as much as \$3 million. When he agreed to sell the Bethpage Realty Corp., a Levitt subsidiary which owned title to the rental houses, to a practically penniless Philadelphia educational group called Junto, for \$5,150,000, with \$1,500,000 down, Junto secured from a Philadelphia bank a weekend loan sufficient to make the down payment. Then, out of \$5 million in Bethpage's treasury (made up of working capital and profits), Junto repaid the bank and turned over to Levitt \$3,400,000. That left Junto still owing Levitt \$250,000, which it promised to pay before the end of the year. (It will be able to do so easily with the rents it takes in.) Building Levitt was well pleased. He had been able to get the capital out of Bethpage by paying only a long term capital gains tax of 25 per cent, instead of an ordinary income tax which would be, as he put it "conceivably in the top brackets." (Levitt will continue to operate and manage the rental units for Junto.)

National Association of Real Estate Board President **Robert Gerholz** and Executive Vice President **Herbert Nelson** made plans for a two week jaunt to Great Britain, Belgium and France, where they will "study property ownership and all phases of private home building and real estate practice." Before leaving, Nelson took a long look at the domestic scene and came up with a happy prediction: "In the great decade now beginning, real estate values will increase at least 50 per cent."

*House Beautiful* Editor **Elizabeth Gordon**, who has striven hard to represent architects to the housebuilding public, last month tried a reverse of sorts. For the *Journal of the A.I.A.* she clicked off a long list of "what is wrong

\* Since relatively little equity has accumulated on the houses, what the new buyer actually was "giving" was the privilege of paying off a remaining \$25 million mortgage debt.

(Continued on page 26)



**IF THERE EVER WAS A REASON FOR NOT USING  
WALL TYPE FIXTURES, IT NO LONGER EXISTS!**

# ZURN *Found*

## the Simple, Fast, Safe Way to Install Wall Type Fixtures

The Zurn Way of installing wall type fixtures gets fixtures up off the floor and takes the load off the wall. Zurn Wall Closet Fittings and Carriers are engineered to provide fixture support free of the wall—safely, securely and in perfect alignment. The Zurn Way of installing wall type fixtures reduces time-cost—adjustments are simple and time-wasting grief and guesswork are avoided.

Wall type fixtures reduce cleaning and maintenance costs over the years—free floor areas provide a clean sweep of the floor—cleaning is quicker and easier.

Wall type fixtures and the Zurn Way of installing them provide the broadest protection against premature obsolescence in toilet rooms. Zurn Wall Closet Fittings and Wall Fixture Carriers are designed for any type or make of wall type fixture. Consult a Zurn representative for more details.

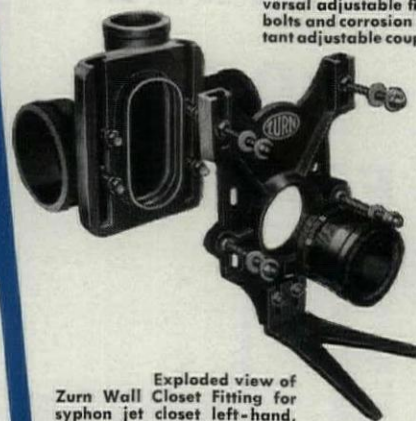
### J. A. ZURN MFG. CO.

Plumbing Division • ERIE, PA., U. S. A.  
Sales Offices in All Principal Cities

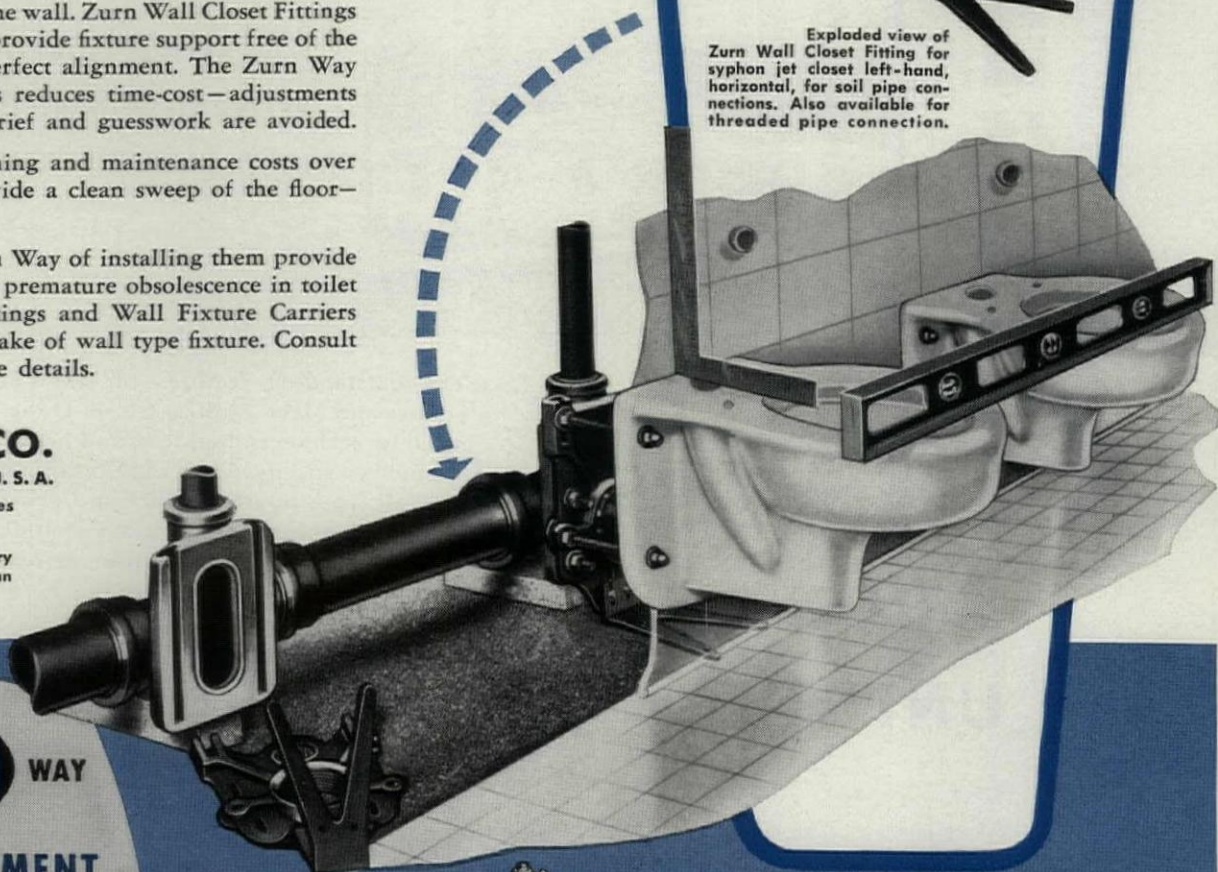
Pre-eminent Manufacturer of Sanitary  
Products for the Protection of Human  
Health and Modern Structures.

Wall closet fitting—  
horizontal, single  
type shown with con-  
nections for soil pipe.

Syphon jet closet car-  
rier face plate with uni-  
versal adjustable fixture  
bolts and corrosion resis-  
tant adjustable coupling.



Exploded view of  
Zurn Wall Closet Fitting for  
syphon jet closet left-hand,  
horizontal, for soil pipe con-  
nections. Also available for  
threaded pipe connection.



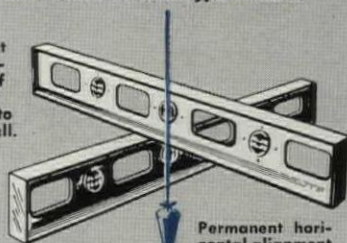
One of several  
types of Zurn Engi-  
neered Carriers for  
wall type urinals.



### THE **ZURN** WAY PERFECT ALIGNMENT IN ALL 3 DIRECTIONS

Obtained with Exclusive Adjustment  
Features of Zurn Wall Closet Fittings  
And Carriers... For The Support of All Types  
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Exact  
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ment of  
fixture  
at 90° to  
the wall.



Vertical adjustment  
of fixture to any  
required height  
from the floor.

Permanent hori-  
zontal alignment  
of each fixture  
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J. A. ZURN MFG. CO. • PLUMBING DIVISION • ERIE, PA., U. S. A.

Please send me the new Zurn "Carrier Catalog and Handbook No. 50"  
for wall type fixture plumbing.

Name and Title .....

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Please attach to your business letterhead.

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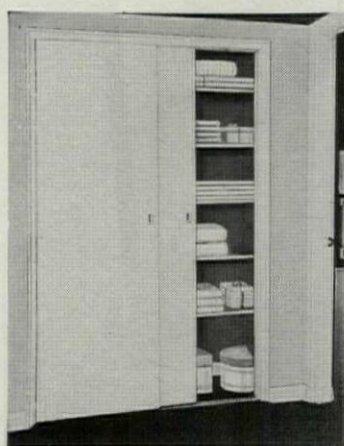
# AMWELD

## INTERIOR

### *Flush* STEEL

### DOORS

### and FRAMES



FOR BETTER QUALITY . . .  
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IN THE SMALL HOME

## SLIDING CLOSET DOOR UNITS

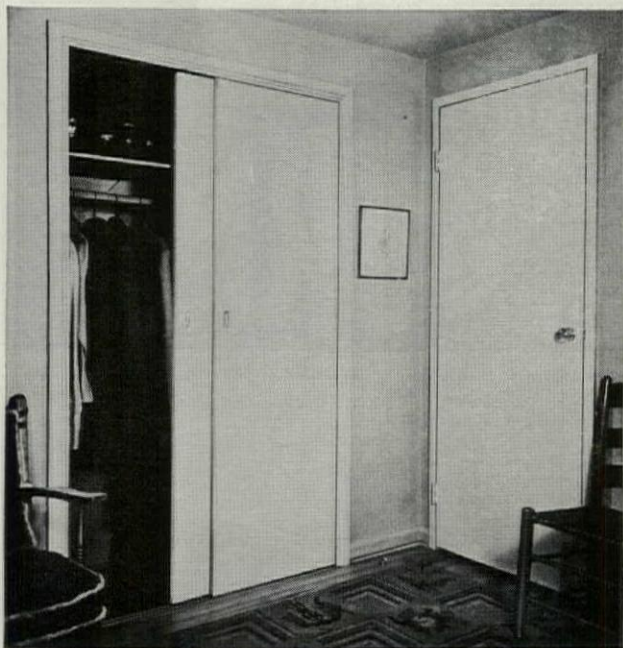


The outstanding features of AMWELD Interior Steel Doors and Frames and Metal Sliding Closet Door Units have been quickly recognized by architects, builders, and home owners throughout the nation. Architects specify AMWELD Building Products because they blend with all types of architecture and provide lasting beauty . . . builders, because they conform to today's modern construction standards and lend themselves to installation in one-fifth of the time required for "assembled-on-the-job" units . . . owners, because of their beauty, low cost, and trouble-free service.

Meeting every small home interior requirement, the complete standard line of AMWELD Building Products is backed by a third of a century of quality manufacturing experience. Doors are furnished from 1'6" to 3'0" widths in standard 6'8" height, either right or left hand. Blanket type filler retards sound and fire; repels vermin and moisture. Welded one piece frames are furnished to match and are suitable to all types of wall construction. AMWELD Metal Sliding Closet Door Units are furnished for 3', 4', 5' and 6' openings; two doors per opening with a one piece welded frame.

Small homes require the use of every square foot of space. . . . With AMWELD Closet Door Units, there is no necessity to move chairs or furniture when entrance to closets is required. Steel doors do not warp! For ease of operation, doors move on ball-bearing rollers. Two guide keepers with felt pads on top of each door, deaden sound, keep doors from sticking, binding and derailing.

For complete description of AMWELD Interior Steel Doors and Frames — Sliding Closet Door Units, see Sweet's 1950 Architectural and Builder's File, No. 16A, or write us. We'll gladly furnish catalog, selection charts and installation diagrams.



BUILDING PRODUCTS DIVISION

**THE AMERICAN WELDING & MANUFACTURING CO.**

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## **New WALL RADIATION for Schools, Institutional, Commercial, Industrial and Residential uses**

• *Fedders Wall Radiation* provides new lower costs...easier and greater space-saving installations...lighter weight...easier handling...easier stocking.



TYPE EM ENCLOSURE  
fabricated from  
expanded metal.

Increased efficiency of transferring heat is assured by the pattern stamped in the fins which creates a turbulent scrubbing action of airflow against fins. This die-formed pattern also produces greater fin strength.

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*Fedders Wall Radiation* for steam and hot water lines is available in lengths from 2 to 12 feet in 6 inch increments. 38 and 50 fins per foot on 1½ inch tube and 24 fins per foot on 2 inch tubes. Write for catalog WR-C1 TODAY.

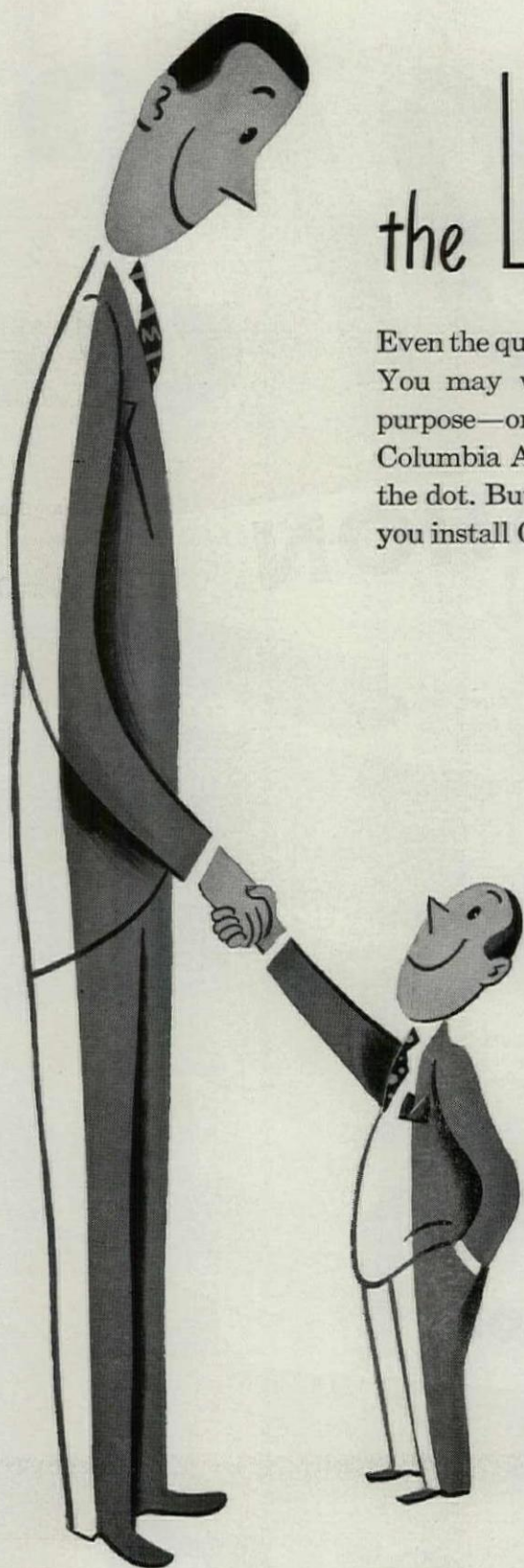
TYPE FT ENCLOSURE  
having flat top  
with die-cut grille.

TYPE ST ENCLOSURE  
having sloping top  
with die-formed  
louwered grille.

**FEDDERS-QUIGAN CORPORATION**  
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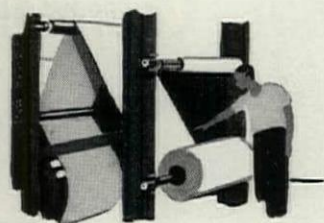
# *Quigan*



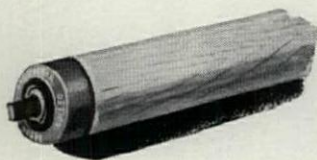


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Even the queerest window shade requirements don't baffle Columbia! You may want extra long, skinny shades for some mysterious purpose—or jumbo shades that sound impossibly large. Just see your Columbia Authorized Dealer and he'll follow your specifications to the dot. But versatility is only one of the big benefits you get when you install Columbia Window Shades. Some others are:



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WINDOW SHADES  
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We will gladly submit *specifications* for shades that can become a part of the General Contractors bid. This includes a recommendation for correct type of fabric, mechanism and color; method of manufacture and proper installation. Let us call on you and discuss your particular problems.

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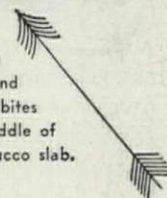


**you get tough  
crack-resistant stucco  
when you  
back it with  
Pittsburgh  
Steeltex**



Here's why you can stop worrying about the permanence of a stucco wall when you back it with *Pittsburgh Steeltex*. First, the tough, welded steel mesh sinks deep into the stucco slab providing positive resistance to distortion. Second, the specially designed backing helps proper setting and retards the deadly penetration of moisture. For further good reasons to specify *Steeltex* for stucco see Sweet's or write for Catalog D.S. 131, Dept. AF, Pittsburgh Steel Products Co., Grant Building, Pittsburgh 30, Pa.

Take a look at the way  
the heavy welded and  
galvanized steel mesh bites  
deep into the middle of  
the stucco slab.



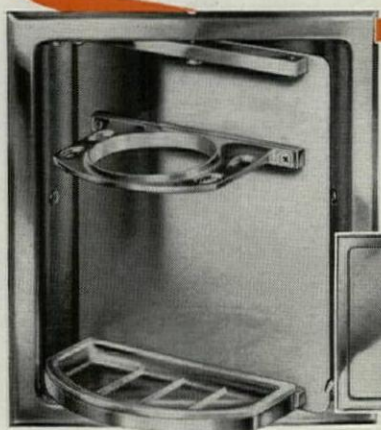
**Pittsburgh Steel Products Company**  
A Subsidiary of Pittsburgh Steel Company  
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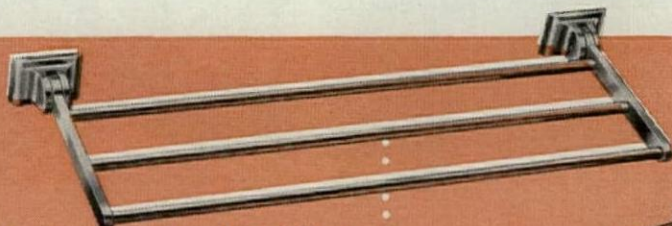
## There's something **SPECIAL** about bathrooms when accessories are **HALL-MACK**

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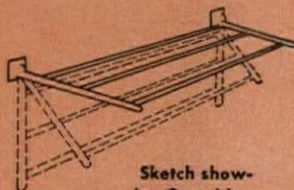
In Hall-Mack's complete selection of bathroom accessories you'll find unique special accessories like these—made to add the final touch of convenience and appearance to any bathroom...



THIS BEAUTIFUL Concealed Lavatory Unit is a perfect companion for all other Hall-Mack Accessories. Soap, tumbler and toothbrush are ready at the touch of a finger—yet smartly concealed when not in use. These bathroom necessities are mounted on a revolving panel, and only a polished chrome surface flush with the bathroom wall is visible when the unit is closed...



AND HERE IS a three-bar Adjustable Towel Rack—a real space-saver. It's instantly adjusted to any of three positions (horizontal, 45°, or down) and is ideal for drying hosiery, for displaying guest towels, and for bath towel storage. Drops down out of the way when not in use, yet provides so much extra convenience when needed.



Sketch showing 3 positions of Towel Rack

LOOK FOR all of the extra qualities in bathroom accessories—and you'll choose Hall-Mack! Remember—there is a complete line to give you the right accessories for every bathroom need. Hall-Mack also makes a full selection of fine Medicine Cabinets and other recessed specialties. Write for details. Hall-Mack Company, 1344 W. Washington Blvd., Los Angeles 7, California.



with architects." Some of them: 1) "Architects tend to ignore the definition of the project as laid down by the client;" 2) "Too many... design without any regard to cost;" 3) "They swallow whole the manufacturer's claims without bothering to check them...;" 4) "They don't understand the basic laws of physics that govern the performance of materials;" 5) "Too many architects design to impress other architects;" 6) "Too many... copy the idioms of modern design without understanding their functional reason for existing in the first place;" 7) "Too many are quite inept at site solutions;" 8) "Too many act as though beauty were their *only* aim."

Eyeing suspiciously the copied 18th century elegance of Williamsburg, Va., where he was addressing a Colonial House and Garden symposium, **Joseph Hudnut**, dean of Harvard Uni-



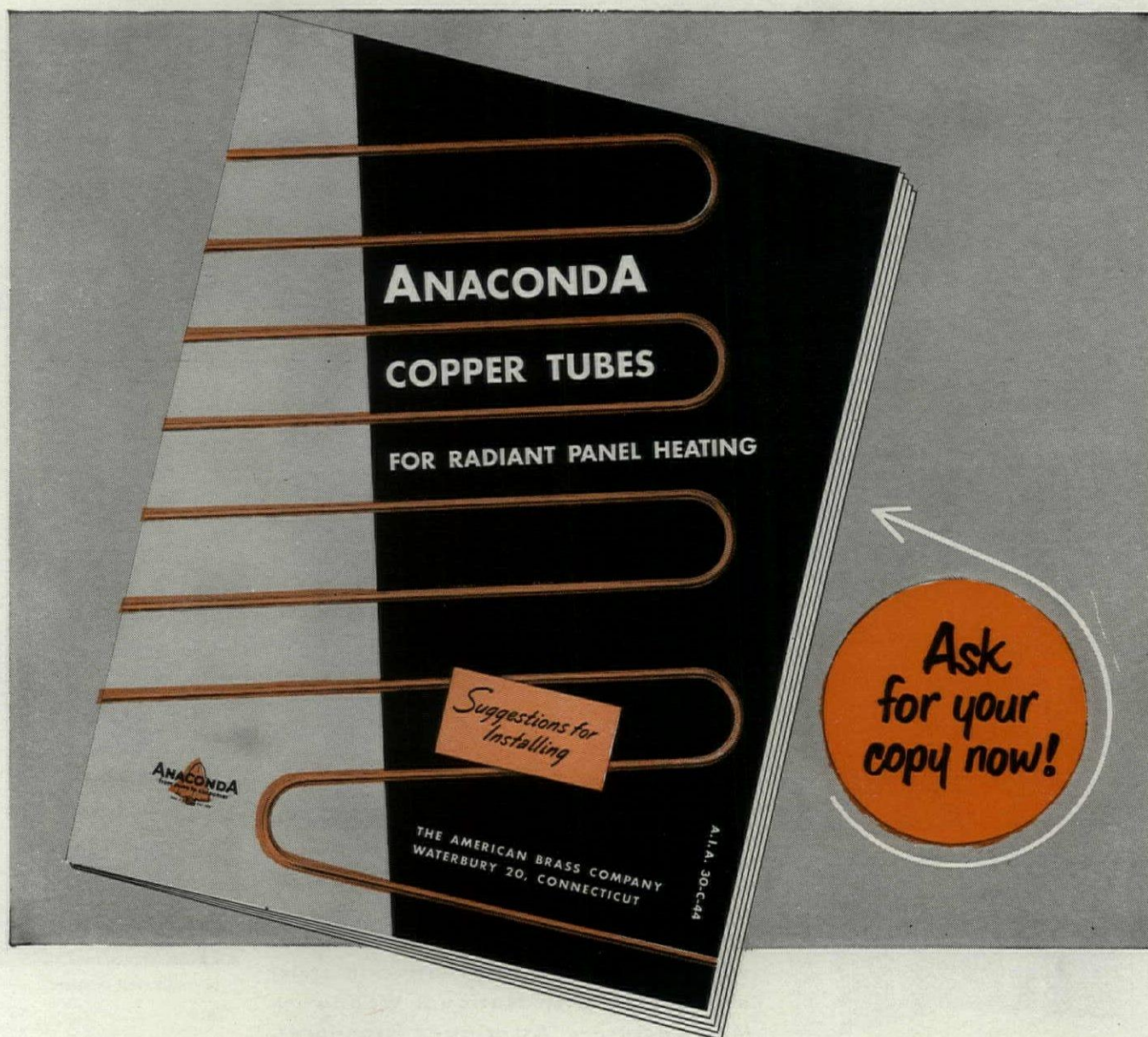
T. L. Thomas

versity's graduate school of design, issued an elegant 20th century blast at Williamsburg's Georgian imitation. American colonial architecture, said Hudnut, was "walled in a clear and well lit prison of English taste." He called Williamsburg a

"splinter of England" which showed nothing of American building ideas. "It did not occur to Americans of the Revolutionary era," said Hudnut, "that a new art might be built upon the institutions of new liberty and grandeur."

Swiss Architect **Alfred Roth**, a visiting professor at St. Louis' Washington University, told a St. Louis reporter that, to somebody coming from Europe, the U. S. seemed "fresh, modern and progressive." Then the reporter took him on a tour of the city's slums. Looking at the dismal tenements on St. Louis' South Broadway, Roth revised his viewpoint. "I've been many times in the slums of London," said he, "I've seen the devastated regions of western Europe, but I've never seen anything like this before." Told that one problem in slum clearance was the intermediate housing of the people living in the buildings, Roth explained how they did it in Switzerland: a demonstration unit is built in the slum area to show the people what their housing will be like; then emergency pre-fab housing is put up for the dispossessed, and "modern homes are built in the areas where the rotting buildings now stand." Roth had a good word for other American efforts: "Your modern schools," he said, "are the best in the world."





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*Radiant heating*  
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*Seven pages of practical, readily usable tables*

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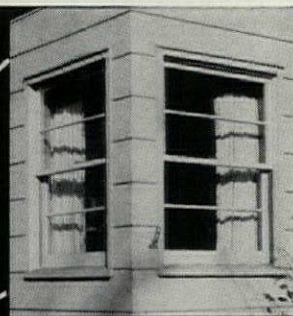
You can design it better with **ANACONDA<sup>®</sup>**  
**COPPER TUBES**



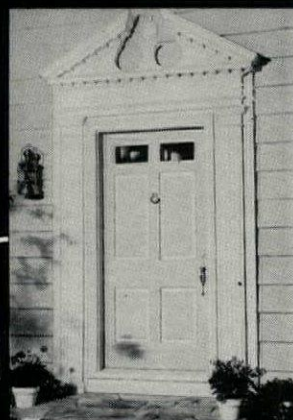
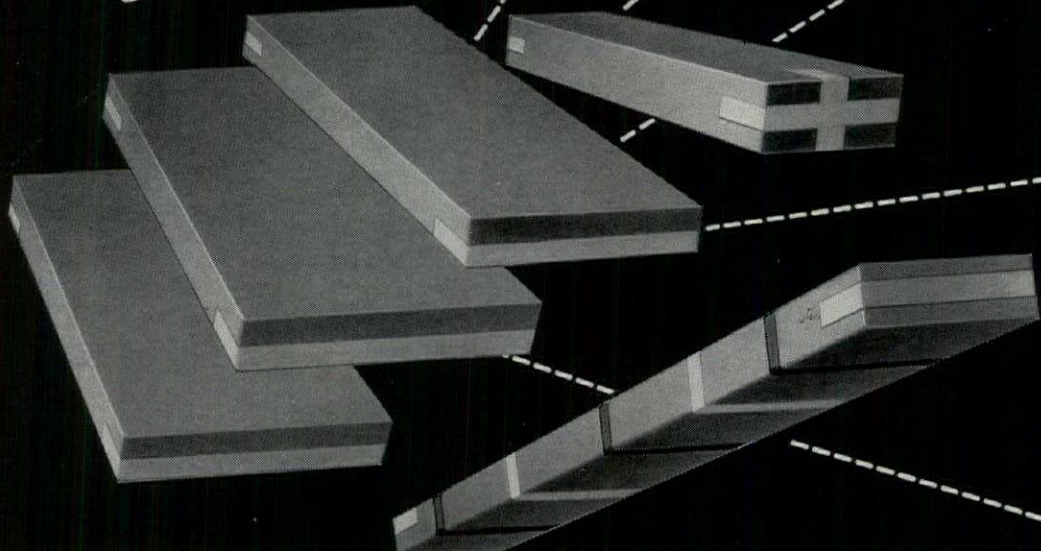
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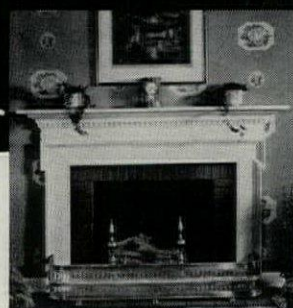
Nu-Style Unit Cabinets



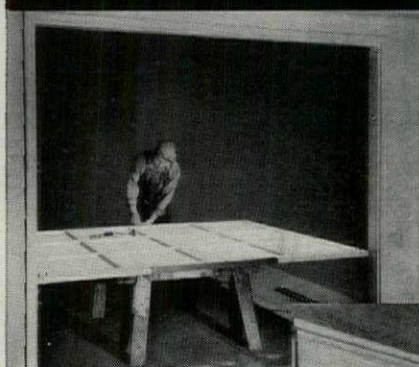
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Bilt-Well Entrances



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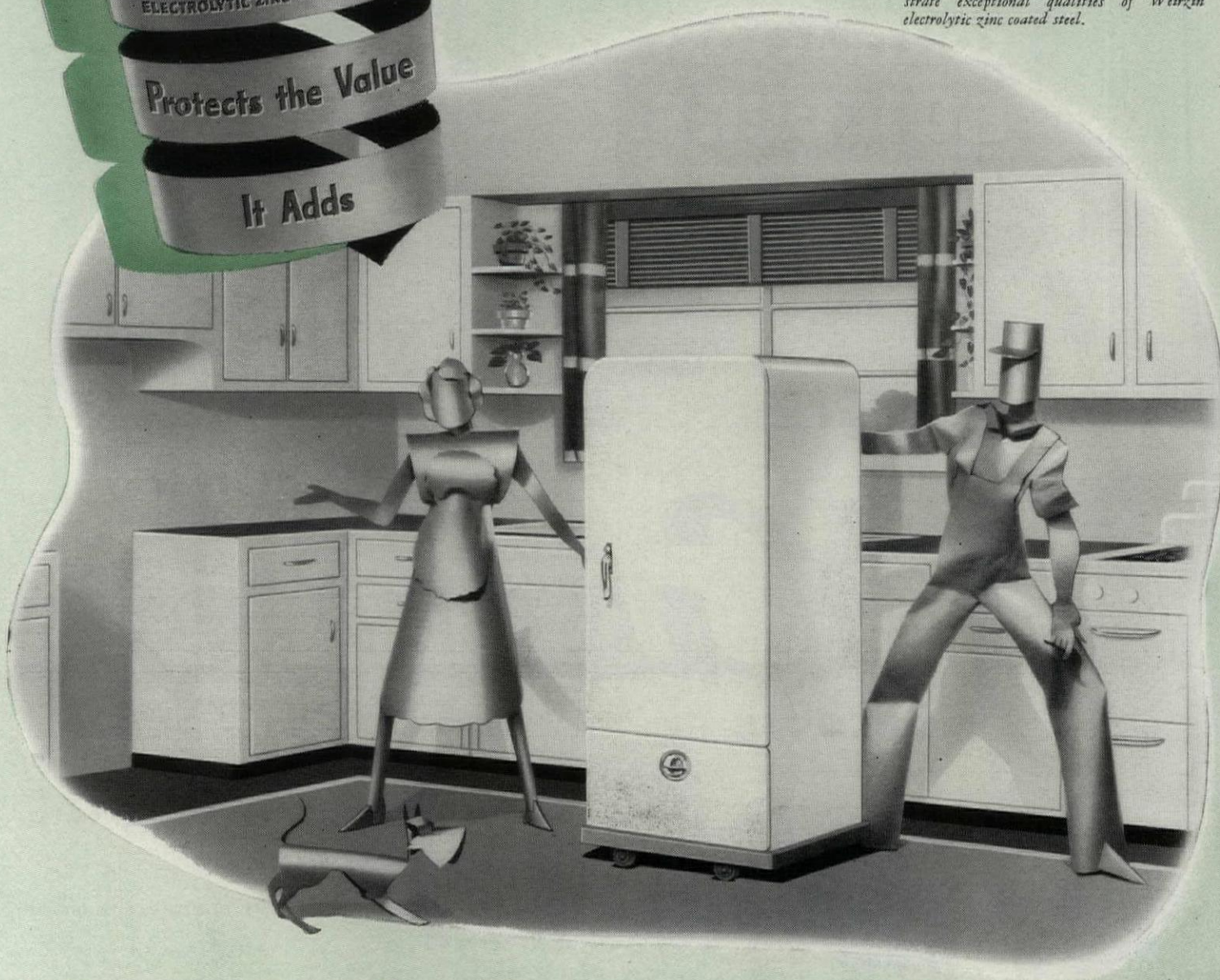


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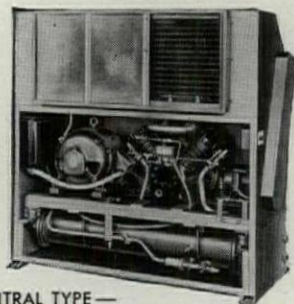
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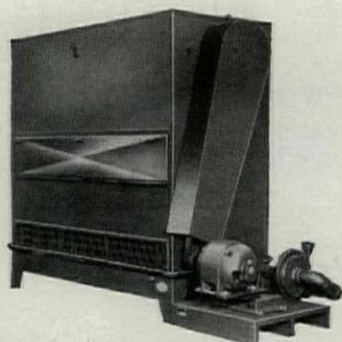
*See the  
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Catalog  
in Sweet's  
1950 Architectural  
File*



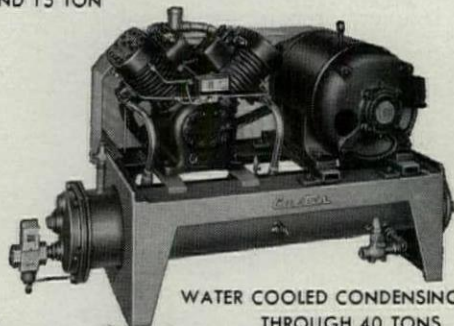
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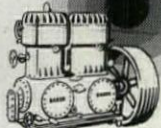
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## LETTERS

### CURTAIN WALLS

Forum:

. . . The Curtain Wall article (Mar. '50) certainly covers the subject from all angles and is quite comprehensive. I am sure the information will be of use to engineers, architects, contractors, building officials and other agencies of the construction industry . . . FORUM is to be congratulated. . . .

A. H. BAUM  
Building Commissioner  
Department of Public Safety  
Division of Building and Inspection  
St. Louis, Mo.

Forum:

Looking back just a few years to the time when my nose was first rubbed in the subject, I am amazed at the progress which has been made. The article is an excellent summary of this progress.

Congratulations on a splendid, timely article. Now if we just had a large group of aggressive fabricators of wall panels, we would be set.

W. B. PIERCE, Manager  
Sales Development & Engineering  
Service Department  
Allegheny Ludlum Steel Corp.  
Brackenridge, Pa.

Forum:

It is certainly true by and large that the building industry hasn't really scratched the surface on this important subject any more than they have done so on the so-called prefab. Our industry is so bound by tradition that in almost any part of it, it takes practically superhuman effort to vary from accepted practice. Perhaps the fault may be shared by all of us alike. We need articles of this type to provoke us to thought and action.

Our first postwar commission was a 22-story office building, known first as the Tishman and then as the Universal Pictures Building. I gazed out of my window in mid-Manhattan to see a pretty good cross-section of office buildings and realized that our delicate steel framework was still archaically clad. We then tried to do something about it with the help of Fred Severud. It was only a small step but we finally did arrive at a continuous window without a cantilever and thus got rid of the masonry verticals. The horizontal spandrels, however, were still 4 in. of limestone backed by 8 in. of masonry and the 4 hr. spandrel was still law. Now the code allows a 2 hr. wall, but where is the building to take advantage of it? Seems as if here's one time where the code is ahead of the practitioner and of industry, but I don't believe it will be for long. The only thing remaining to lick is the spandrel and it shouldn't be too difficult.

Perhaps the immediate trouble lies in the fact that we have developed a "sandwich" complex probably influenced by our midday diet, as well as certain plywood concerns. We have tried to

catch the wall on the run as we have our lunch with the resultant effect of some indigestion. On the one hand we do have our accepted practice of heavy walls and on the other as yet no proper method of the sandwich. Perhaps the immediate solution lies somewhere between, such as Fred Severud's scheme for stainless steel, air space and 4 in. to 5 in. of concrete. [See Severud's letter, below—Ed.]

We were commissioned last summer by the State of New York to investigate possible savings in construction costs. One of the items we discovered was mandatory in their standards was a double wall—each section 1 ft. thick with an air space between. Our "normal" solution which would save hundreds of thousands of dollars was 4 in. brick, 8 in. back-up and 2 in. of furring tile. We are sure that certain State authorities will consider this a "jerry" built affair and insist on the double wall. In working on this problem with Fred Severud we have also offered a cavity wall consisting of two 4 in. walls with a 2 in. air space. If we think of conventional heating and cooling, the 3 ft. high minimum spandrel demanded by law (New York City), should present no handicap as floor thickness plus 2 ft. 6 in. for normal sill height should pose no problem. I believe the trick here, assuming the 3 ft. or more spandrel, is to design an interchangeable wall and window panel. In other words, an insulated panel in metal, or other material, that would not have a different legal status than the window.

Using the same method of structure as in the Tishman Building, we designed a small office building at 30th Street and the Avenue of the Americas. Since our structural supports were 10 ft. on centers, our resultant spandrel beam (steel) was a 7 in. channel which was inverted or upset into the area above the floor. On an 11 ft. 3 in. floor to floor height we had a 3 ft. 0 in. spandrel and an 8 ft. 3 in. window, but the spandrel was clad in 4 in. of limestone with an 8 in. brick back-up.

ROBERT AILAN JACOBS  
Kahn & Jacobs, Architects  
New York, N. Y.

• Additional comments by Architect Jacobs were printed with the original Curtain Wall article.—Ed.

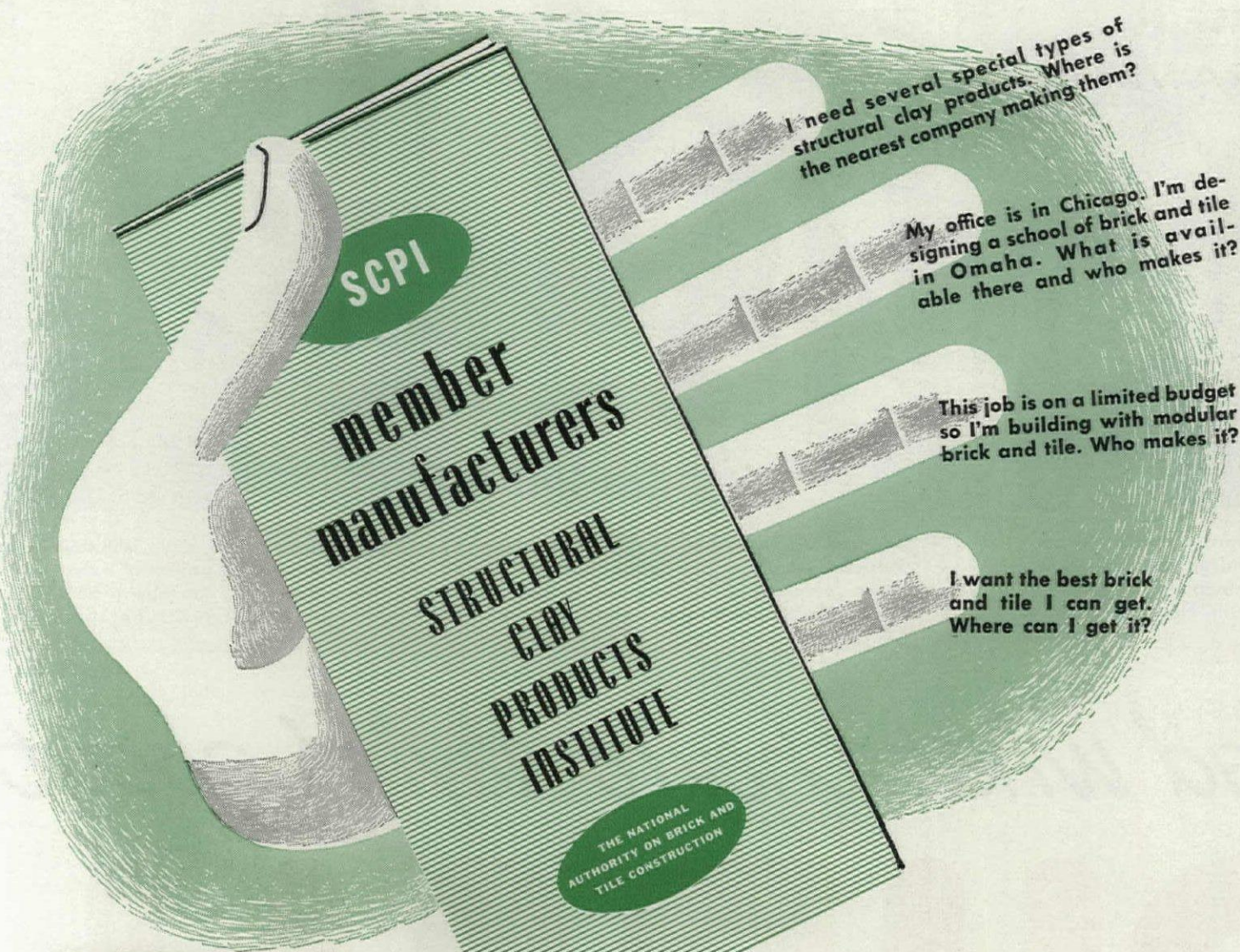
Forum:

The factual information that is presented in the Curtain Wall article is of great value, but I cannot quite agree with the conclusions drawn. As I see it, the thinking seems to be wedded to combining too many elements in one panel, and therefore, incurring unnecessary complications.

In order to convey my thoughts in a direct way, I would like to describe the approach that we, in collaboration with Kahn & Jacobs, Architects, are taking to solve a specific problem involving the use of an exterior metal finish. The problem must be solved within the requirements of the New York City Building Code and the building will be a reinforced concrete structure, al-

(Continued on page 36)





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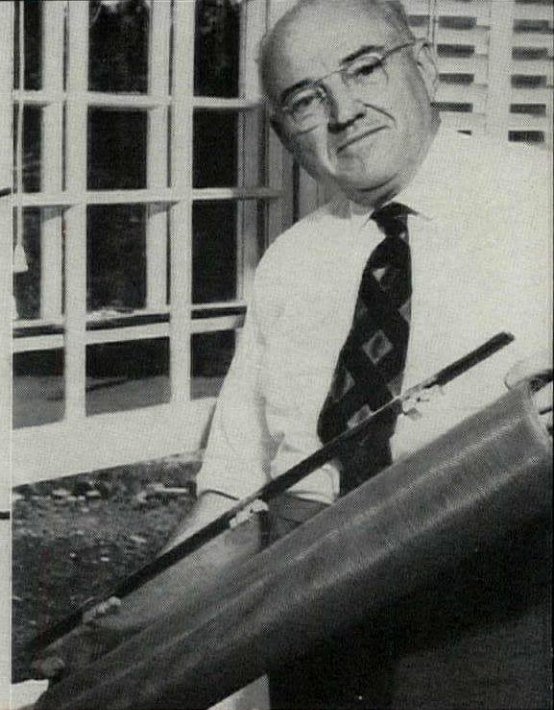




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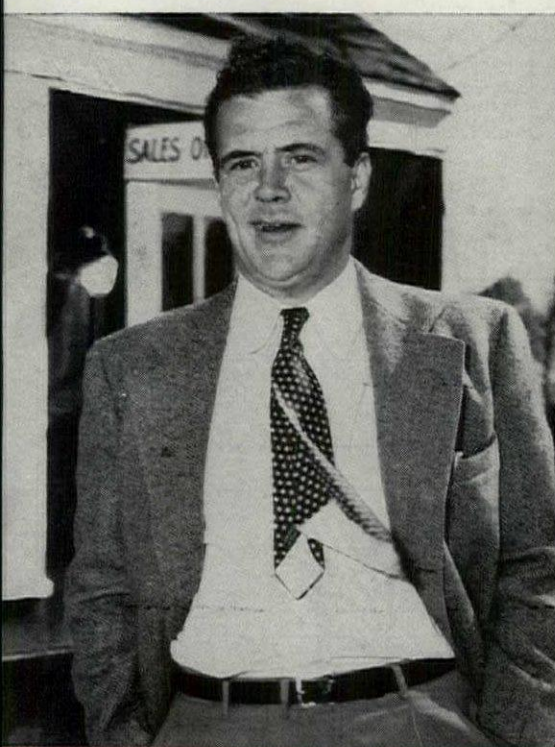
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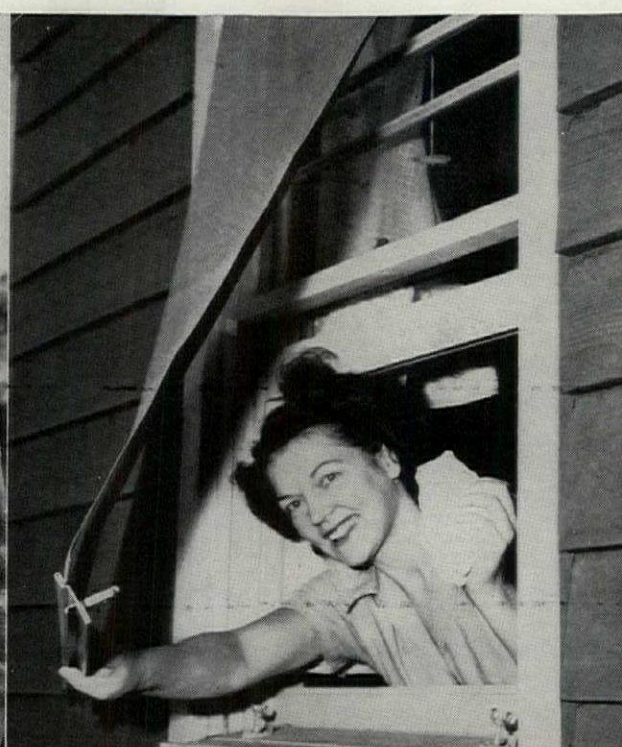
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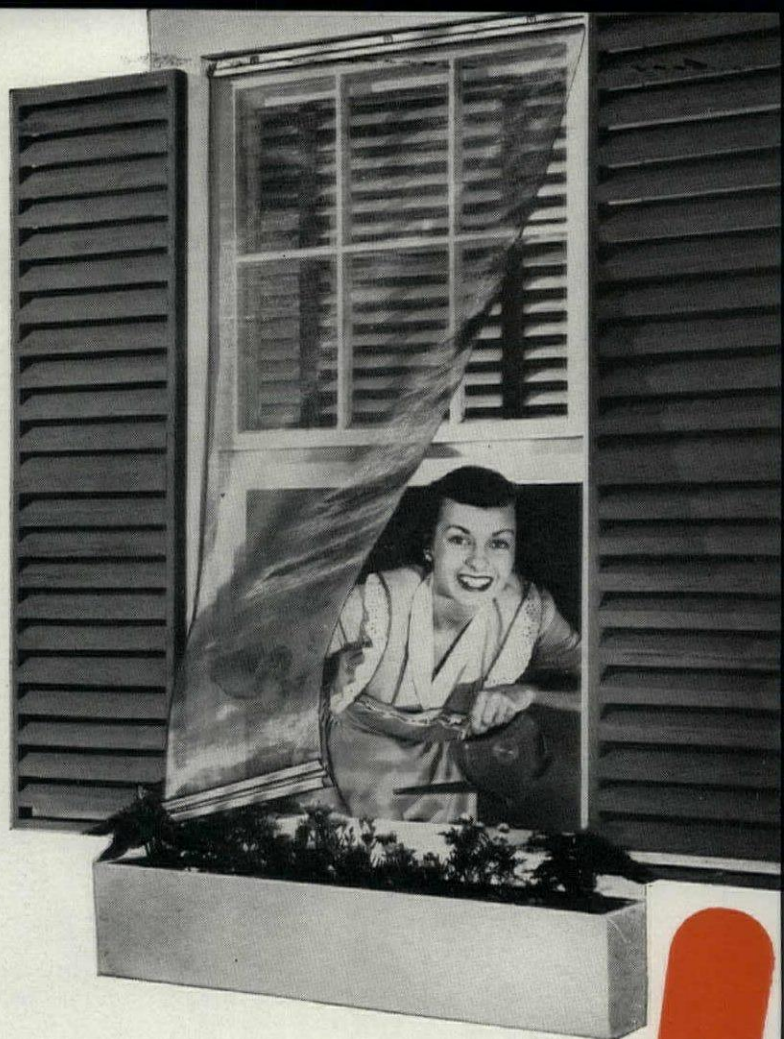
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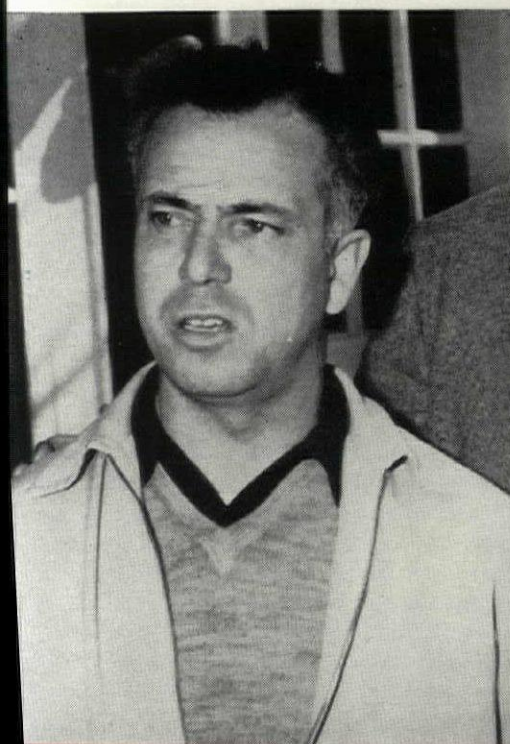
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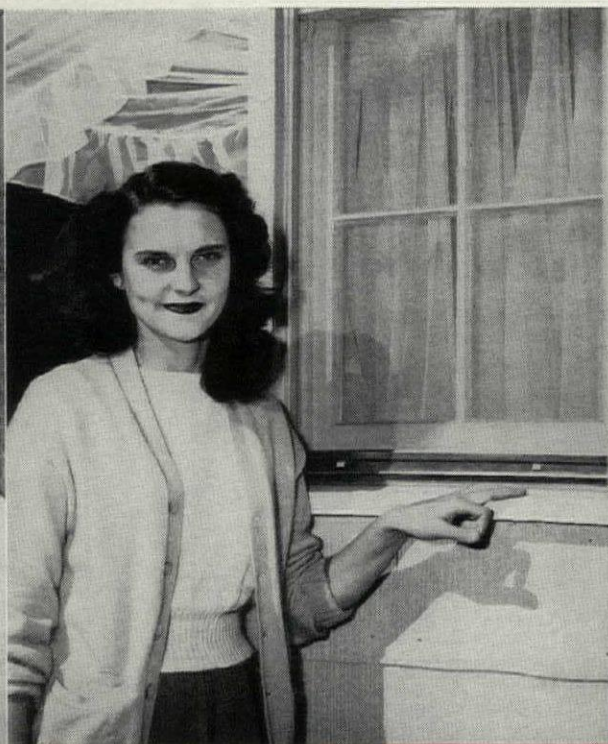


# SCREENS!



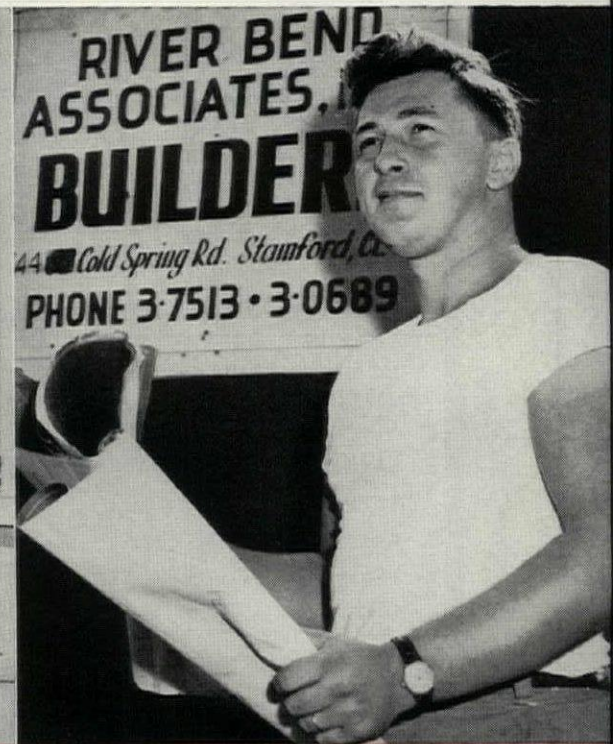
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## LETTERS

though similar logic would also hold for a building with a structural steel frame.

1. Since a spandrel beam is required at the outside to carry the load, this beam can just as readily be extended above the floor to sill height as a combination of the spandrel beams and a fire and wind resistant wall element.

2. The Code allows a 5 in. reinforced concrete panel wall, so if such a thickness is selected, no further approvals need be obtained. The Code requires that in business structures over 40 ft. high a space of at least 3 ft. between the top of one opening and the bottom of the one next above must be enclosed with approved wall construction. (This is to prevent fire from one story licking into the one above.) By bringing the 5 in. reinforced concrete wall up to a height of 3 ft. minus the thickness of the slab, this Code requirement is satisfied.

3. Obviously a 5 in. reinforced concrete wall is not sufficient weather protection. By giving it a smooth interior finish, no furring is required, provided the wall is insulated. The insulation logically belongs on the outside. In this position, it must of course be protected against the elements and that is where a metal facing comes in.

4. We consider it very important at the present time to ventilate the space directly behind the metal. Until further information is gained we would rather not take the chance with a tight metal enclosure. A construction with an air space behind the metal also has the very great advantage that it facilitates all joint details. Some water penetration at the joints is not objectionable since water will be free to come and go without hurting the structure. It also means that temperature stresses become unimportant because the outer skin can readily be detailed with all the tolerances required if absolutely tight joints are not required.

5. The resultant structure is then one where the cost of the spandrel beam is largely eliminated. In the cost analysis this amounts to approximately 20 per cent of the wall and, therefore, represents a large item. The furring is eliminated and—a very important item—the spandrel wall is made integrally with the floor slabs by the same contractor and does not, therefore, represent a separate operation. The total thickness of such a wall is 8 in.

By implication the Code permits a metal panel between the windows above the 3 ft. fire band. We are proposing, therefore, to use filler panels between the windows about  $3\frac{1}{2}$  in. thick, consisting of an inner finely perforated metal plate, backed up by insulation and then separated by a small air space from the outer metal covering. In that way, a very light and inexpensive panel can be formed of equal strength with the windows, more fire resistive and with a great saving of space.

I am personally not in favor of trying at this time to establish sandwich panels or other panels where the metal skin is backed up by any ma-

(Continued on page 42)



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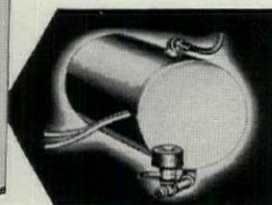


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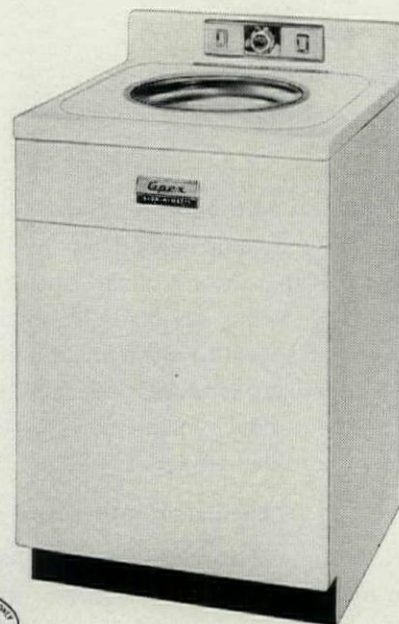
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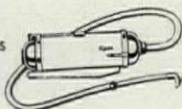
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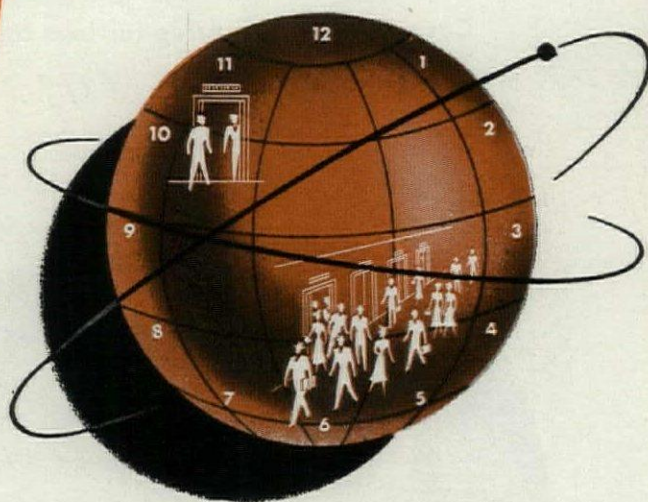
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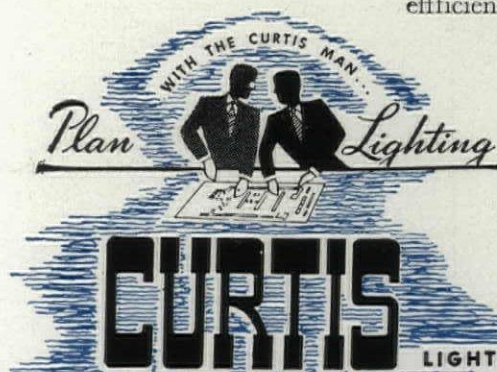
THE MOST *Beautiful* INDIRECT INCANDESCENT LUMINAIRE



*The New Curtis* SNO-FLAKE

**DECORATIVE** ❄️ **EFFICIENT** ❄️ **ECONOMICAL**

Curtis SNO-FLAKE presents an entirely new concept of design for indirect incandescent illumination. It combines startling beauty with many functional features. The SNO-FLAKE'S high efficiency and economy in installation and maintenance make this excellent new unit ideal for school rooms, offices, stores, and other commercial interiors. The die-cast aluminum louver follows a pleasing geometric pattern that blends with any decorative scheme. Open top and bottom, this louver requires a minimum of maintenance. Original efficiency of the luminaire is regained with each relamping. The SNO-FLAKE utilizes either 300 or 500 watt silvered bowl lamps which assure the high efficiency demanded for modern illumination.



Full technical details and specifications on the SNO-FLAKE are illustrated and described in Bulletin No. 8. Write Dpt. SF41 for your free copy to supplement your Curtis Catalog.



LIGHTING, INC., 6135 W. 65TH ST., CHICAGO 38, ILLINOIS



# "LOOKERS become BUYERS

when equipment includes Electric Water Heaters,"

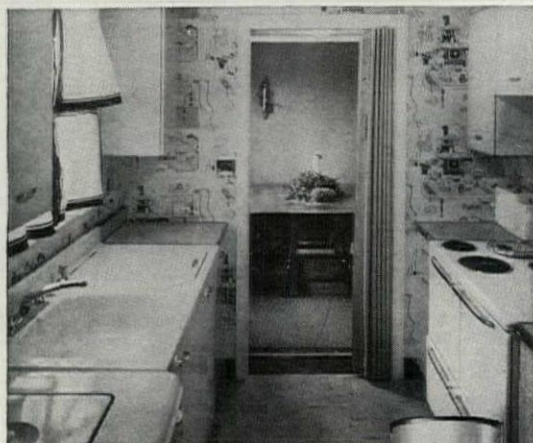
says Mr. Arnold Hartmann of Oak Hill Village in Newton Centre, Mass.

"I've been a master builder for over 25 years," says Mr. Hartmann, "and I know from experience that when a home includes modern electric appliances like the Electric Water Heater it sells easier and faster." National sales and survey figures back up this statement. They show that the nationwide demand for Electric Water Heaters continues to grow.



• These beautiful homes at Baldpate in Oak Hill Village, Newton Centre, Mass., have six rooms all on one floor. Equipment in the utility room includes a 52-gallon Electric Water Heater.

• The all-electric kitchen includes two appliances which need an adequate supply of automatic hot water—the dishwasher and clothes washer. The modern, automatic Electric Water Heater fills this need.



—of course . . . it's Electric!

It pays to install Electric Water Heaters. They're completely automatic, clean, dependable in operation. They save money for builder and customer alike. Installation can be made anywhere—no flue or vent. This shortens hot water lines, cuts piping cost, prevents water waste. Fully-insulated storage tank for extra economy of operation. Safety, with all-electric, dependable temperature control.

## ELECTRIC WATER HEATER SECTION

National Electrical Manufacturers Association • 155 East 44th Street, New York 17, N. Y.  
ALLCRAFT • BAUER • BRADFORD • CROSLY • FAIRBANKS-MORSE • FOWLER • FRIGIDAIRE •  
GENERAL ELECTRIC • HOTPOINT • HOTSTREAM • JOHN WOOD • KELVINATOR • LAWSON • MERTLAND •  
MONARCH • NORGE • PEMCO • REX • RHEEM • SELECTRIC • SEPco • A. O. SMITH • THERMOGRAY •  
TOASTMASTER • UNIVERSAL • WESIX • WESTINGHOUSE

*It's EASY to  
INSTALL an* **ELECTRIC WATER  
HEATER**  
in a house wired for an Electric Range!

## LETTERS

terial whatsoever. I think it is safer from a vapor penetration standpoint, much more economical and very much more readily installed, when a ventilated air space is the next door neighbor to the metal covering. Why burden a new material with unnecessary complications when it can act so much better alone?

Each project will, of course, have its own peculiar requirements, but in most cases, I believe that the sequence of metal skin, air space, then insulation, is so logical that it will apply in most cases. It is also obvious that if the spandrel beam can be made to function both as a load carrying member, fire and wind resistive element, and in addition provide an interior finished surface, it would be rather foolish to introduce extra elements to serve these functions. Such a construction also has the great advantage that it lends great rigidity to the walls. This, in turn, is reflected as lower maintenance throughout the building. The stiffer the building the less it is subject to plaster cracks.

FRED N. SEVERUD  
Severud-Elstad-Krueger  
Consulting Engineers  
New York, N. Y.

## MORE GROSS THAN NET

Forum:

The apartment feature in your January issue was splendid; however, your financial statement of the three-story apartment house in Seattle (p. 110) seemed quite erroneous.

You state that the total capital invested was \$141,000; the total income for the year was \$17,280 (or a 12.25 per cent gross on the investment); expenses and maintenance were \$2,300 (or 1.63 per cent of capital per year), thus leaving a net profit of \$15,000 or 10 to 11 per cent profit annually.

Never before have I seen this \$15,000 defined as net profit. You have failed to deduct depreciation from your gross. This will be between 3 and 4 per cent per year. Also, you must subtract the payments on your \$68,400 loan, which will run you about 2½ per cent annually. Now your "true net profit" is, at the highest, less than 5 per cent and is considered in most real estate circles to be a fair net return on an investment.

E. J. SCHICKLI, JR.,  
Boston, Mass.

• As reader Schickli points out, the \$15,000 was more gross than net.—Ed.

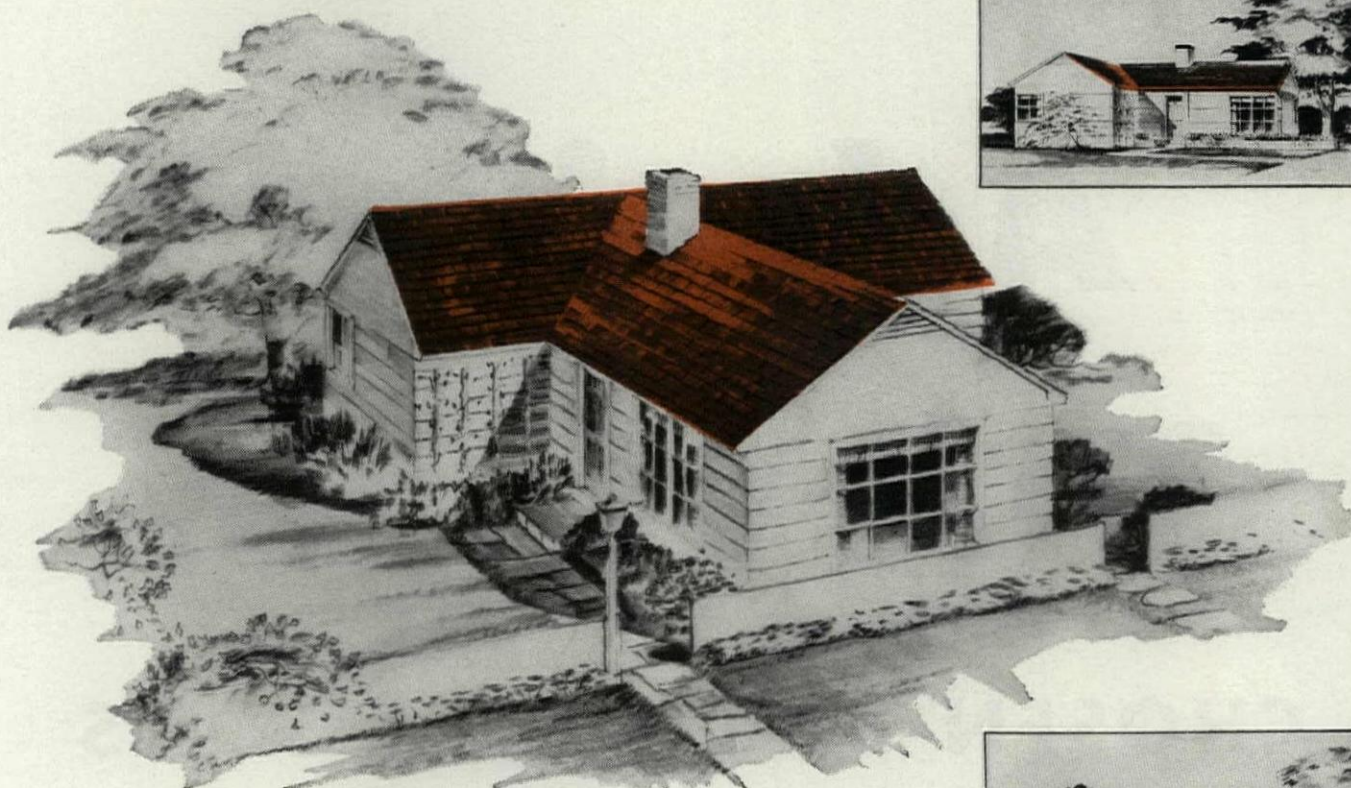
## FHA APARTMENT DESIGN

Forum:

If you would like to shake the confidence of some of your subscribers, just write a few more articles like "Apartment Boom" (Jan. '50). Specifically: 1) *It is not* "possible for almost anybody of moderate acumen to become an apartment owner without spending a cent of his

(Continued on page 48)





## RUBEROID wraps up the sale of "GOOD AMERICAN HOMES"

A distinctive Ruberoid roof on top—and Ruberoid Asbestos-cement siding on the walls—these are the attractive and sales-helping "wrappings" for the five basic house designs in the "Good American Home Program". The houses (sketched on this page) were designed by the noted architect Randolph Evans to provide budget homes to fit the requirements of a large majority of American families. An important part of their planned economy is contained in the slogan: "More Years For Your Building Dollar With Ruberoid."

Many of these "Good American Homes" will be built in groups—and their roof lines are prominent. The

selection of colors and blends in a choice of TITE-ON, TIMBERGRAIN and THICKBUTT shingle designs provides the most versatile color-styling opportunities any builder could look for. And for the sidewalls there are a dozen available varieties of types and colors in Ruberoid Asbestos-cement sidings to complement the roof selection.

Should you desire to tie in with the "Good American Home" program in your locality, Ruberoid can be of help to you in getting started.

If you would like information about how the program works we'll see that you get full details on your request.

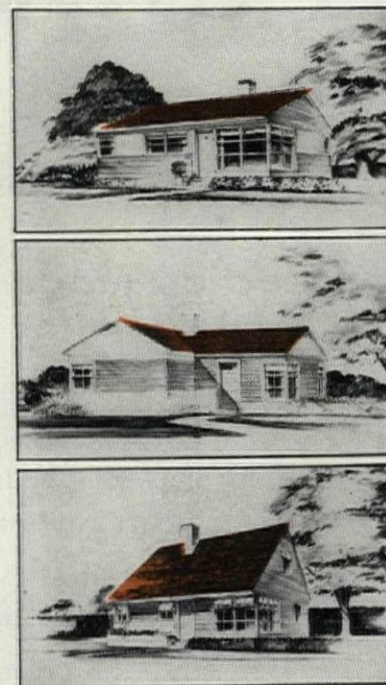
**GIVE YOUR CUSTOMERS MORE YEARS  
FOR THEIR BUILDING DOLLARS WITH RUBEROID**

The **RUBEROID** Co.

**BUILDING MATERIALS' FOR HOME, FARM AND INDUSTRY**

Executive Offices: 500 Fifth Ave., New York 18, N. Y.

Sales Offices: BALTIMORE, MD. • BOUND BROOK, N. J. • CHICAGO, ILL. • DALLAS, TEXAS • ERIE, PENN. • MINNEAPOLIS, MINN. • MILLIS, MASS. • MOBILE, ALA.



Ruberoid Asphalt Shingles and Asbestos Siding featured exclusively, nation-wide, in the Good American Home Program.



A D M I R A L . . . A M E R I C A ' S   S M A R T   S E T

# **Admiral Television**

**CHOSEN BY LEVITT & SONS**

**4,000 Homes to Have "Built-in" Admiral TV Chassis**

**Selection Made After Exhaustive Tests of Leading Makes**

Levitt & Sons new development at Levittown, L. I., will have this important added installation . . . Admiral Television . . . chosen after exhaustive tests of leading makes.

Buyers of the 4,000 homes in Levitt's development will enjoy these sensational Admiral features:

Clearest pictures of them all . . . superpower for dependable performance even in outlying "fringe" areas . . . tuning easy as a radio.

Admiral is proud of Levitt's choice . . . professional confirmation of what TV users everywhere have learned . . . *that Admiral Television is engineered to outperform any set, anywhere, any time.*

**Admiral Corporation, CHICAGO 47, ILLINOIS**

**WORLD'S LARGEST MANUFACTURER OF TELEVISION COMBINATIONS**

**SEE! HEAR! ON TELEVISION! "STOP THE MUSIC," ABC-TV Network, Thursdays, 8 PM, EST:**

**"LIGHTS OUT," NBC-TV Stations, Mondays 9 PM, EST.**

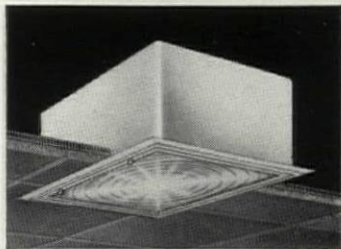


# Corridors can be beautiful, too



## the *Leader* CORRI-Lite transforms long, dim halls into bright, cheerful areas

**LEADER DIRECTIONAL  
INCANDESCENT LIGHT**  
Cat. No. RA-765



For stairwells and other critical areas. Durable, quality fixtures, with directional lens. Easy to service. Available in various wattages up to 300.



Corridors... no matter how well designed and appointed... are apt to be gloomy, tired-looking affairs. Install LEADER CORRI-Lites, and even the plainest passageways instantly become invitingly bright and cheerful! The CORRI-Lite... with its graceful design of baffles... is equally helpful in lending a lively lift to other narrow sites... narrow rooms, offices, stores.

### SPECIFICATIONS

CORRI-Lite can be furnished for use with regular 40-watt fluorescent tubes or for use with 60", 72" and 96" Slimline tubes. Installation may be made with individual units, or in a continuous row, as pictured above. Baffles add to beauty of this fixture and give correct shielding. Made of 20 gauge steel. Completely wired and ready for installation. Get complete specifications.

*Sold and installed only by the better  
electrical wholesalers and contractors*

**LEADER ELECTRIC COMPANY**

3500 North Kedzie Avenue • Chicago 18, Illinois  
Leader Electric Western—800 One Hundredth Avenue, Oakland 3, Cal.





## Rose-Covered Cottage or Queen of the Skyline

# ...THERE'S A WELDWOOD DOOR TO DO THE JOB

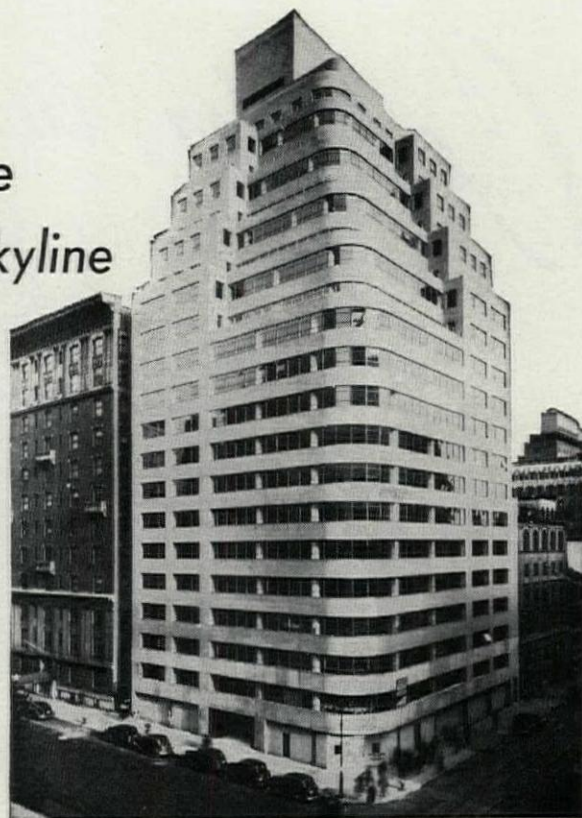
When you specify Weldwood Flush Doors, you combine convenience with quality material and real economy.

For here is a line of doors to fill almost any standard opening.

**WELDWOOD FIRE DOORS.** Absolute fire protection combined with the striking beauty of genuine birch face veneer. A large variety of other fine decorative hardwoods is available on special order. This is the *only* wood-faced fire door that carries the Underwriters' Label for Class "B" openings.

**WELDWOOD STANDARD MINERAL CORE FLUSH DOORS.** Guaranteed against swelling and sticking in summer... or shrinking and rattling in winter. Excellent for interior or exterior openings in schools, offices, hospitals, hotels or other institutional buildings. Incombustible mineral core provides increased fire resistance, exceptional dimensional stability, resistance to vermin and decay and insulating qualities superior to double glazing.

**WELDWOOD SOLID LUMBER STAVED CORE FLUSH DOORS.** Core is of thoroughly kiln-dried hardwood staves, laminated under pressure with waterproof glue



This recently completed office building in New York City contains 600 Weldwood Fire Doors. Uris Brothers Construction Co. built it. Designing architects were Emery Roth & Son. One of many major installations using Weldwood Fire Doors.

and high frequency heat. Top and bottom members are of glued up stock. This door has a high degree of dimensional stability, unusual versatility. Hardware, lights and louvers can be custom-positioned. Available in a wide variety of handsome hardwood faces.

### MENGEL HARDWOOD HOLLOW CORE FLUSH DOOR.

Grid-core construction...dovetailed, wedge-locked joints on rails and stiles...and a wide variety of hardwood facings combine to make a door with a well-earned reputation for durability, beauty and economy. Meet low-budget requirements with this high-quality door.

\* \* \*

Complete information and specification data on the entire Weldwood line of Doors is listed in Sweet's, or may be had quickly by writing our nearest office.

## WELDWOOD Plywood

*Weldwood Plywood is manufactured and distributed by:*

UNITED STATES PLYWOOD CORPORATION      U.S.-MENGEL PLYWOODS, INC.  
New York 18, N. Y.      Louisville 1, Ky.

*Distributing units in Albany, Baltimore, Boston, Brooklyn, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Fresno, Glendale, Hartford (East), High Point, Indianapolis, Knoxville, Los Angeles, Milwaukee, Newark, New Hyde Park (L. I., N. Y.), New York, Oakland, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, San Francisco, Seattle, Spokane, St. Paul, Washington, D. C. Also U. S.-Mengel Plywoods, Inc., distributing units in Atlanta, Birmingham, Dallas, Houston, Jacksonville, Kansas City, Kans., Louisville, Memphis, New Orleans, San Antonio, St. Louis, Tampa. In Canada: United States Plywood of Canada, Limited, Toronto. Send inquiries to nearest point.*

Weldwood® Hardwood Plywood  
Douglas Fir Weldwood  
Mengel Flush Doors  
Douglas Fir Doors  
Overhead Garage Doors  
Molded Plywood  
Armormply® (metal-faced plywood)

Tekwood® (paper-faced plywood)  
Weldwood Glue® and other adhesives  
Weldtex® (striated plywood)  
Micarta®  
Flexwood®  
Firzite®  
Weldwood Fire Doors  
Weldwood Flush Veneer Doors

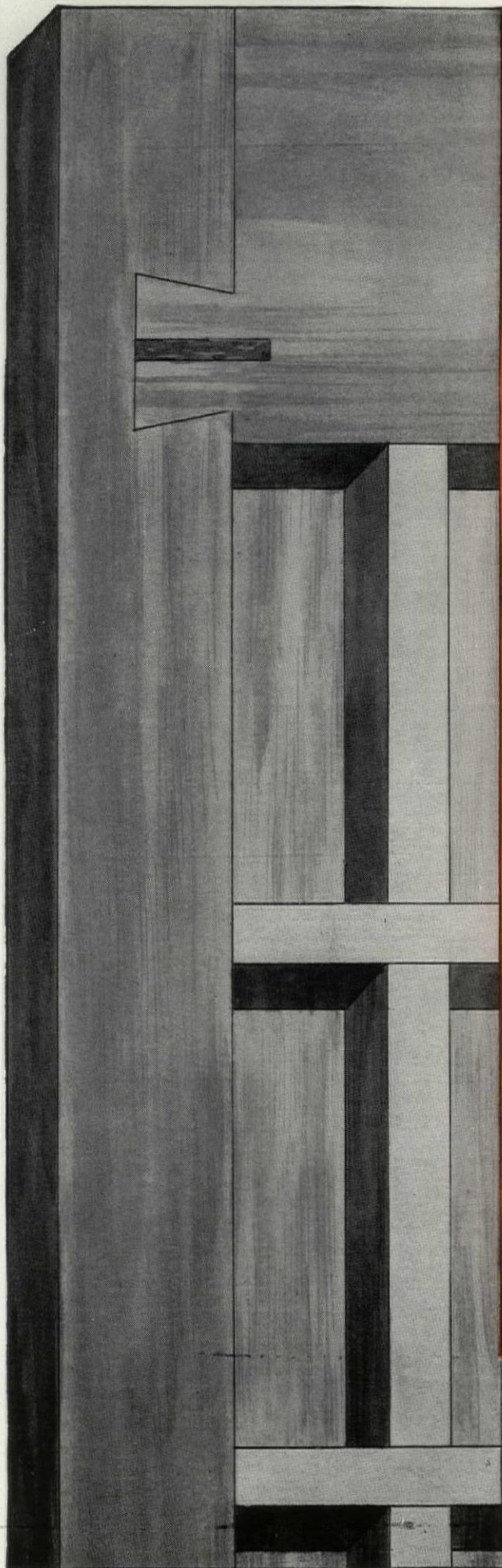
\*Reg. U. S. Pat. Off.



Plastics and Wood  
Welded for Good

*Interior grade Weldwood Plywood is guaranteed for the life of any building in which it is installed*





# MORE

*for your money, in*

## MENGEL

*Hollow-Core Flush*

## DOORS!



Installation and finishing expense leads most architects to demand the extra beauty, durability, economy and *sales appeal* of Mengel Hollow-Core Flush Doors.

- 1 *Balanced* seven-ply construction to provide controlled reaction in changing weather conditions.
- 2 Hardwood construction throughout — stronger, more durable, free from grain-raising, more easily and economically finished.
- 3 Exclusive Insulok grid core material has inherent resiliency, cannot cause warping, nor transfer grid pattern to faces.
- 4 Greater strength. Adequate core stock surface area provides maximum gluing surface and resistance to warpage.
- 5 Precision key-locked dove-tailed joinings of stiles and rails add strength and stability.
- 6 Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory — prefit to standard book sizes.
- 7 Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.
- 8 Mengel Hardwood Flush Doors are economical — no mouldings to paint — no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish — easier to clean and longer-lived.

Write for complete specifications. Use the convenient coupon.

Also see —  
MENGEL STABILIZED SOLID-CORE DOORS  
the finest products of their type on the market.



The Mengel Co., Plywood Division  
2301 South Fourth Street, Louisville, Ky.

Gentlemen: Please send me, without obligation, full specifications on  
\_\_\_\_\_ Mengel Hollow-Core Flush Doors; \_\_\_\_\_ Mengel Stabilized  
Solid-Core Doors.

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

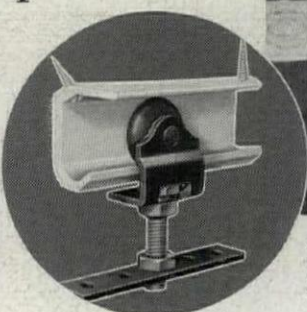




Bedroom closet door with Richards-Wilcox Vanishing Door Hardware. Note that the door does not interfere with the chair, and does not take up any passage space between the bed and wall.

*Every home-owner  
is a hot prospect!*

## ...for R-W Vanishing Doors



Another closet in same home. Note that door vanishing into wall-pocket allows placing of furniture where conventional door would swing.

Silver Streak R-W No. 1019 Vanishing Door Hangers and Aluminum Track

Chairs, beds, and tables can be arranged permanently, more attractively and conveniently in homes where doors operate on Silver Streak R-W No. 1019 Vanishing Door Hangers and Track. Only Silver Streak "opens the door" so completely to modern

living convenience. The newest development in hanger and track, by Richards-Wilcox, for the hanging of lightweight vanishing doors in thin wall-pockets built in a standard 2" x 4" studded wall. Silver Streak is also adapted for use on parallel residential wardrobe doors, 3/4" or more in thickness.

### Another Richards-Wilcox Standout



**R-W's No. 020-2  
Blue Streak**  
Self-Lubrication Door  
Hanger With OILITE  
BRONZE BEARINGS  
(Providing Perpetual  
Lubrication)

For doors 1 1/4" to 2 1/2" thick, weighing up to 300 pounds... on garages, warehouses, factories, stores, barns and similar buildings.

**Rolls on Ball Bearings**—The Silver Streak hanger wheel, made of fine-weave cloth base bakelite, is equipped with extra high finish ball bearings for longer wear and smoother operation.

1880-1950—OVER 70 YEARS



# Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"  
AURORA, ILLINOIS, U.S.A. Branches in all principal cities

SLIDING DOOR HANGERS & TRACK • FIRE DOORS & FIXTURES • GARAGE DOORS & EQUIPMENT  
INDUSTRIAL CONVEYORS & CRANES • SCHOOL WARDROBES & PARTITIONS  
ELEVATOR DOOR OPERATING EQUIPMENT

own money." And most, if not all, of our clients have tried to approach that selfish ideal.

2. "... And wish that standards for the FHA housing had been better." We are not known for using low standards, and our experience with FHA has been to have them ask for higher standards more often than lower ones.

3. To say that "FHA seems irrevocably wedded to the court plan" is absurd. They have welcomed other plans from this office and even helped in their development.

4. The "mortal combat" in defense of court plans was never visible in Chicago FHA.

5. Your equally blanket and chivalrous attitude about the kitchen door takes the heat of the FHA's attitude wherever it might exist. This harmless choice in kitchen door or none is certainly an option of no consequence.

But really the worst thing is the slant in the article. Even when you agree with FHA there is a left-over flavor. Taken statistically, the good and the bad in the article are pretty even, but the thought is intentionally negative.

About the architecture—the FHA in my experience has never asked for bad architecture. If they have approved some for construction it is the fault, either by omission or commission, of the architects, and you should give them, your subscribers, a little constructive hell. The architects are to blame, and sometimes plenty, but not the FHA who have no authority in their regulations to act for esthetic reasons. . . .

ALFRED SHAW, Architect  
Shaw, Metz & Dolio  
Chicago, Ill.

### Forum:

. . . I marvel at the quantity of stimulating material you have brought out in a field held barren by many.

I don't indorse everything you say and admire . . . but on the subject of "608" and FHA, as we know it today, your appraisal (though probably incomplete) is certainly weighted on the right side.

FHA is entitled to look back with pride upon its conquest of the second and third mortgage and upon the broad raising of housing standards which it promoted in its bygone days of chivalry. But this is like looking back upon a promising child who became a whore. We now have a disease problem on our hands.

The most constructive thing you can do, having once waved the yellow flag, is to continue publishing stimulating work in the apartment field wherever you can find it, and to hammer for better standards befitting our urban aspiration—this in the interest of the consumer and of the investor who befriended the child. Or was it the child who befriended the investor?

JULIAN WHITTLESEY  
Mayer & Whittlesey, Architects  
New York, N. Y.

(Continued on page 54)



# Johns-Manville Floorings—

## THERE ARE TWO!



J-M ASPHALT TILE



J-M TERRAFLEX

### 1. J-M ASPHALT TILE . . .

*Modest in price . . . standard of quality for decades!*

### 2. AND J-M TERRAFLEX . . .

*New plastic-asbestos tile—nearest approach to an ideal all-purpose flooring ever developed!*

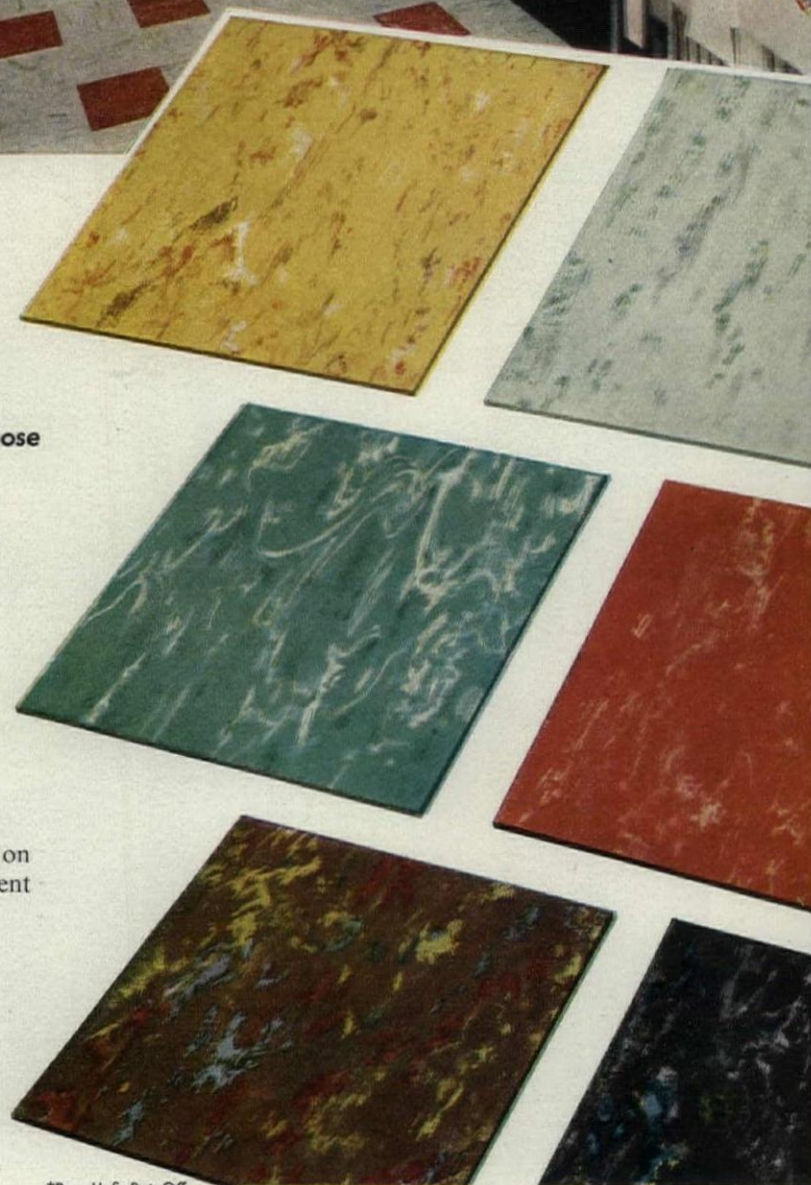
● When you want a quality floor covering at *low initial cost*, you have every reason for preferring J-M Asphalt Tile. It is long-wearing, easy to maintain, and the units come in a wide range of attractive colors. Today asphalt tile is the most widely used and accepted floor covering for all types of commercial and institutional buildings!

**BUT**, when your preference is for the *best* there is, look to Terraflex! It is the revolutionary *new* flooring made of *plastic-asbestos*, pioneered and developed by Johns-Manville. Terraflex will outwear all other types of decorative flooring *two to one*. The resilient tile-like units are *unaffected* by greases, oils, alkaline moisture. They come in clearer, brighter colors . . . can be safely used on concrete floors in contact with the ground...withstand normal movement of wood sub-floors without breaking.

Whether you select J-M Terraflex or J-M Asphalt Tile, your flooring choice will be on a firm foundation. See your J-M Approved Flooring Contractor, or write for our new flooring brochures. Johns-Manville, Box 290, New York 16, N. Y.



## Johns-Manville



\*Reg. U. S. Pat. Off.

J-M ASPHALT TILE FLOORING has the Mark of Distinction



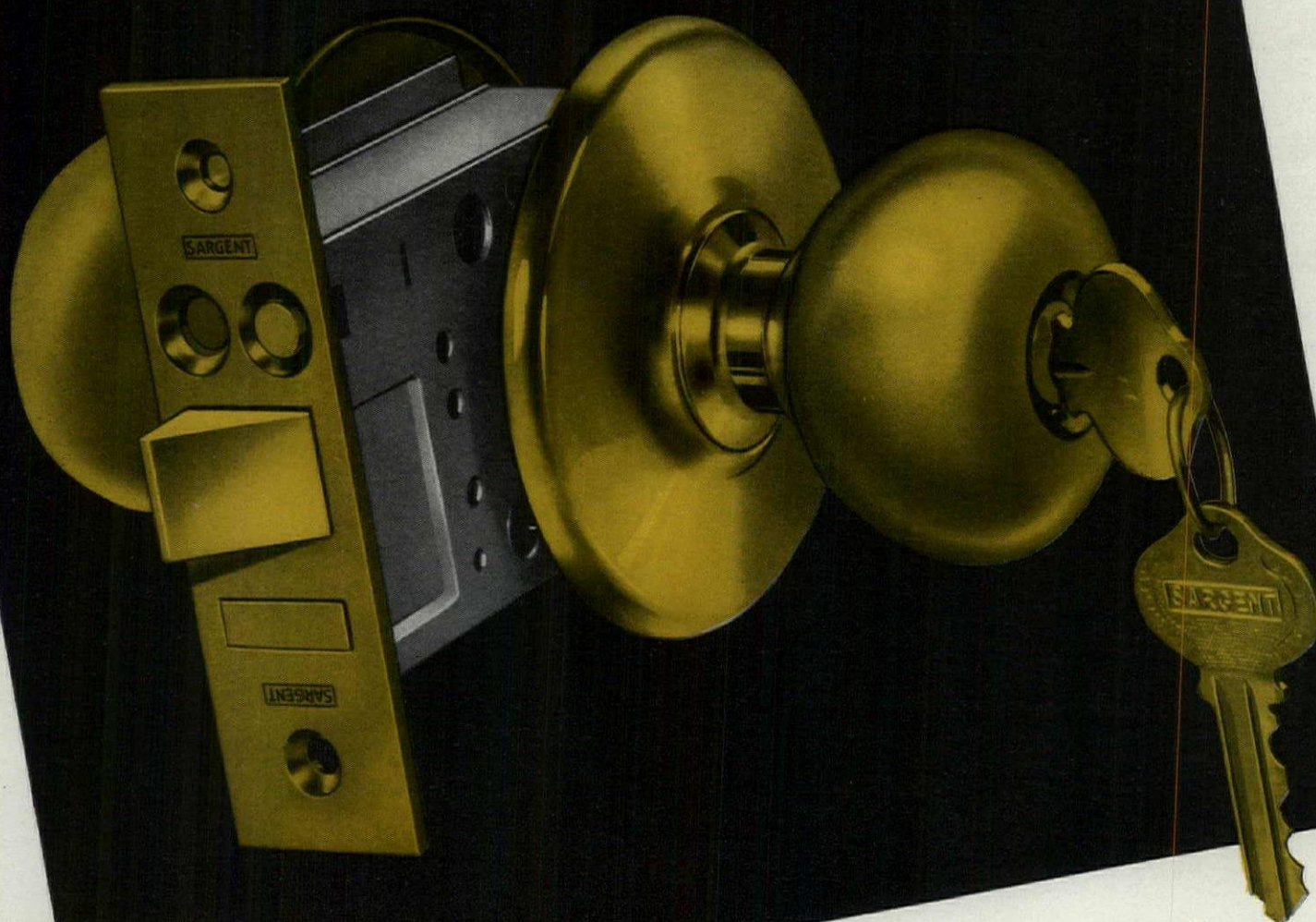
. . . the label of the Asphalt Tile Institute





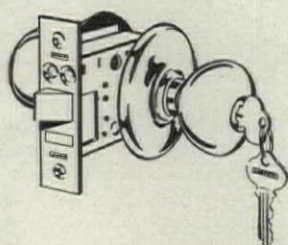
An exterior view of the home of Milton A. Ryan, Texas architect. He has this to say: "Used Sargent Integralocks on outside doors, Sargent 4500 Line Locks on inside doors on my house and the Dodge house. Plan on using Sargent hardware in Revere House Program."

Hardware Supplier:—Dumas Hardware Company, San Antonio, Texas



**INTEGRA/LOCK**  
PRECISION BUILT





# Architects

**find Sargent locks**

**complement**

**their residential**

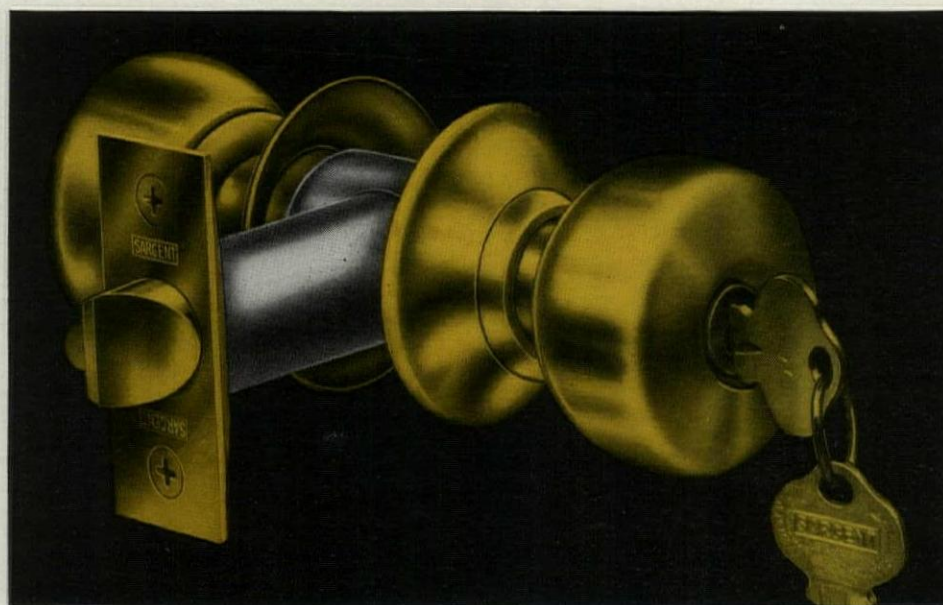
**designs**

More architects are choosing Sargent Locks for use with the homes they plan. For example, there's Milton A. Ryan, San Antonio Texas architect noted for his residential designs. He has installed Sargent locks in his own home, a view of which is shown opposite. He finds they complement and enhance the beauty of the decor. For outside doors he has chosen the Sargent Integralock — for its rugged beauty, its exceptional security. For inside doors the Sargent 4500 Line presents both harmonizing beauty with true economy.

Sargent Integralock — the only lock of its kind. Finishes of sturdy brass, bronze, chrome, and aluminum, it is built to withstand the service of generations. It presents a harmonizing and lasting beauty that enhances any entrance door. Mortise type or unit lock, it has 30% fewer parts, 50% smaller lock case. It cuts 75% off installation time. The ultimate in quality successor to the finest prewar locks yet far less in cost.

Simple in design, beautiful in appearance, it's the result of ten years of engineering study. The Integralock offers in one simple, maintenance-free mechanism all these advantages!

Your nearest Sargent distributor can supply you with data on the Sargent Integralock and Sargent 4500 Line. Write us for his name.



**4500 LINE**

The 4500 Line is a bored-in lock designed to harmonize with interior decor, yet extremely simple to install, sturdy and practical in use.

Integralock

**beauty**

round or square roses, sleek knobs, variety of handsome finishes

**utility**

eleven locking functions, keyhole in knob

**security**

five or six pin cylinder lock equipped with a shear pin safety device in knob

**service**

Maintenance zero sealed all brass and steel mechanism, compact for quick mortise and assembly



## Sargent and Company

NEW YORK NEW HAVEN, CONN., U. S. A. CHICAGO

William 'Bill' Patrick, special sales representative • 383 Talbot St., London, Ontario, Canada





*They're all  
Armstrong's Floors*

**This is Armstrong's Linotile.** Linotile is a resilient floor exclusive with Armstrong. Its reputation for long wear has been gained in busy corridors and lobbies of schools, hospitals, and office buildings. This floor has long been favored by architects and building owners for heavy traffic areas. Linotile's tough composition is highly resistant to indentation, yet its resilience makes it comfortable underfoot. Easy to clean, Linotile minimizes maintenance costs. A variety of sizes, 1/8" thick; fifteen marbled colors for endless design possibilities.



### **This is Armstrong's Asphalt Tile**

An economy floor with unusual beauty and durability; gives good service even under heavy traffic. This floor is not affected by alkaline moisture; can be used in basements and on concrete slabs in direct contact with the ground. Armstrong's Asphalt Tile can be styled to fit in with any decorative effect. Countless designs can be created from the variety of plain and marbled colors. Available in Standard and Greaseproof types; two thicknesses — 1/8" and 3/16".

**For additional data** on Armstrong's Resilient Floors for business and industrial uses—Linotile®, Asphalt Tile, Linoleum, Rubber Tile, Arlon Tile, and Cork Tile—consult Sweet's Architectural File, section number 13e, catalog number 2. For samples and specifications for the various types of Armstrong's Resilient Floors, or help in solving any unusual flooring problems, architects are invited to get in touch with the nearest Armstrong District Office or write directly to the Armstrong Cork Company, Floor Division, 2604 State Street, Lancaster, Penna.

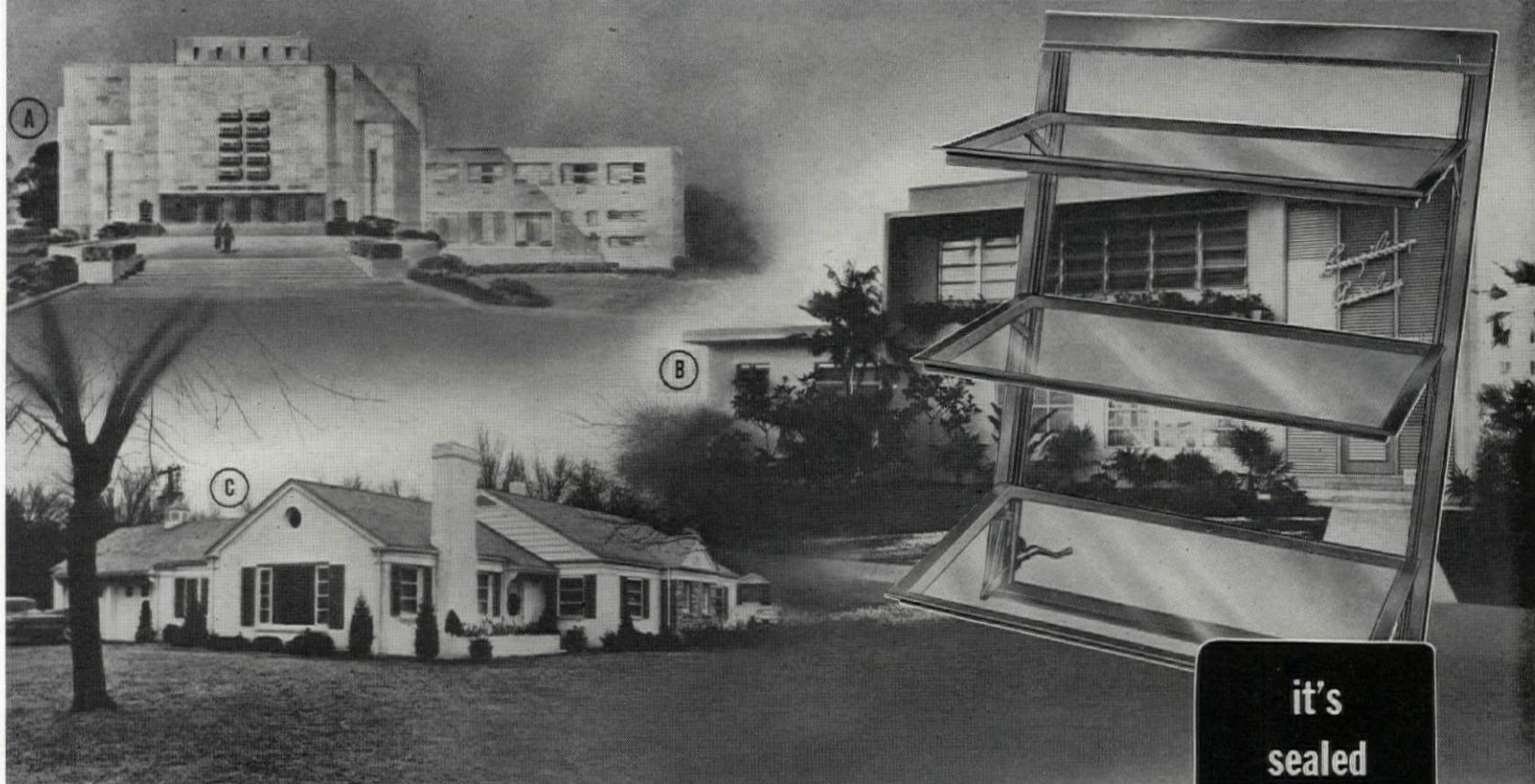


### **This is Armstrong's Linoleum**

Linoleum is the most widely used resilient flooring. Moderate in cost, it offers the greatest choice of colors and designs. Armstrong's Linoleum is made in six types—Plain, Jaspé, Marbelle®, Spatter, Embossed, and Straight Line Inlaid. Available in three thicknesses for various needs. Linoleum's cushioning quality makes it quiet and comfortable to walk on. Recent improvements make Armstrong's Linoleum more durable, easier to clean than ever.



# TIGHTEST CLOSING WINDOW EVER PRODUCED!



## AUTO-LOK

**WEATHERSTRIPPED ALUMINUM  
AWNING WINDOW**

**it's  
sealed  
like a  
refrigerator**

**...the first and only window to successfully  
combine the best features of all window types.**

For the first time in window history, here is a window that successfully combines *all* the basic requirements for window perfection as prescribed by the window experts.

With *Auto-Lok* Aluminum Awning Windows you can now give your clients all the natural advantages of awning window design, *plus positive protection against all climatic extremes*, because *Auto-Lok* is the first and only effectively weatherstripped aluminum awning window, with automatic locking features.

Successfully used in every type of architecture throughout the nation, *Auto-Lok* has been acknowledged as the tightest closing window ever produced.

Ask your *Auto-Lok* representative to show you the TATTLE TALE... a brief, but convincing demonstration that proves that *Auto-Lok* is the tightest closing window known to the window industry.

**Write for free pamphlet**

**"What is Important in a Window?"**

For full details consult Sweet's or your *Auto-Lok* distributor (name on request). Write: LUDMAN CORPORATION, Dept. AF-3, P. O. Box 4541, MIAMI, FLORIDA.

### PHOTOS:

(A) Adas Israel Synagogue—Washington, D. C.... Frank Grad & Sons—Washington, D. C., Newark, N. J.—Architects & Engineers. (Wm. L. Drevo, Wash. Rep.)... Cladney Construction Co., Inc.—Washington, D. C.—Gen. Contractor.

(B) Brazilian Garden Apartments—Palm Beach, Florida... Howard Chilton—Palm Beach, Florida—Architect & Owner.

(C) Residence of Mr. & Mrs. Ralph Smith—Toledo, Ohio... R. B. Johns Co., Toledo, Designer & Builder.

## AUTO-LOK

REG. U. S. PAT. OFF.

THE *Ultimate* IN AWNING WINDOWS

ENGINEERED FOR LEADERSHIP BY

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WOOSTER, OHIO

### F. LL. W.'s STORE

Forum:

I am quite sure that in publishing Frank Lloyd Wright's China and Gift Shop (Feb. '50), you fully expected to stir up more than just one hornet's nest...

As a practitioner, laboring in the store field, it is my duty to say something about the lovely bit of nonsense cooked up by Frank Lloyd Wright, lest work of this nature be taken seriously.

The clichés that Wright tosses out are really fundamental principles, the results of good planning, merchandising, etc. Mr. Wright's decision to abandon these clichés, as you call them, of store design, bears a direct parallel, let us say, to a black marketeer who makes a fortune and laughs at the businessman who make an honest living following the usual "clichés" which dictate good sound business. A better comparison that comes to mind would be that of a young lady dressed in a completely transparent plastic costume, saying to a properly clad young woman, "All you have to do is change the fabric of your dress, dearie, and you're sure to be noticed." This store is a perfect example of exhibitionism, with Frank Lloyd Wright's vaunted functionalism completely forgotten.

My lament as a store architect has been that my clients are much too practical as businessmen. The wonderful fantasies that I have attempted to sell my clients as solutions to their problems do not even go into the file; the only repository is the waste paper basket.

Frank Lloyd Wright seems to have found the perfect client who let him violate every rule of good merchandising and then murmurs happily, "Peace, brother, it's wonderful! See how the customers keep rolling in."

I dread to think of what our city streets would look like if all of our retail clients would accept the same disregard of all the rules just as long as we created something different and unusual for them.

The whole matter seems to be summed up in the reference to the ramp as a means of getting from a lower floor to an upper floor. (Wright seems to have overlooked the fact that electric stairs are a modern convenience.) I refer to "old Joe Magnin" who said that the ramp was "just as easy as San Francisco Streets." Perhaps the San Francisco citizens get so accustomed to developing heart trouble climbing their steep hillsides that a ramp such as this is almost like a romp on the lawn. I have found that ramps, no matter where used, are a strenuous way of getting from one level to another, and I have finally given up trying to sell clients the use of the ramp and have accepted such prosaic things as stairs, elevators and electric stairs.

I would love to go on, point by point, tearing Wright's store masterpiece to pieces. No one seems to have raised an eyelid at the fact that he

(Continued on page 60)



# The Newest, Most Revolutionary Heating Unit in the Home-Building Field!

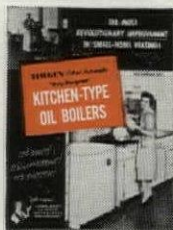
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*Herpolzheimer's, Grand Rapids, Mich.*

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(as pictured) and in the large sidewalk show windows.

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## THE Kawneer COMPANY

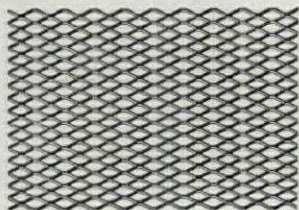
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Store Front Metals • Aluminum Roll-Type Awnings  
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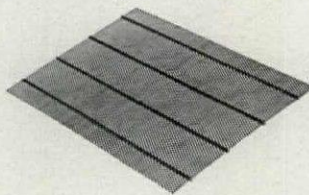


**IN CHICAGO**  
as elsewhere

# Wheeling is



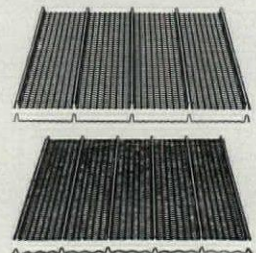
Wheeling Diamond Lath  
Standard and Bantam Mesh



Wheeling Bar-X-Lath  
With solid steel ribs

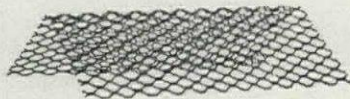


Wheeling Flat Rib  
Metal Lath

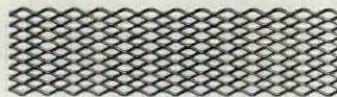


Wheeling  $\frac{3}{4}$ " and  
 $\frac{3}{8}$ " Rib Lath

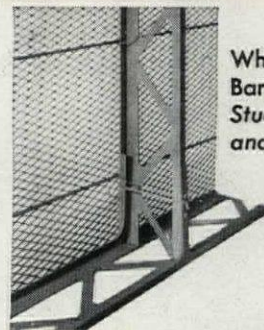
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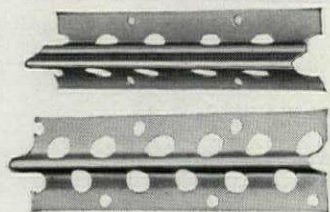


Wheeling  
Bar-Z-Partitions  
Studs, track,  
and Shoes

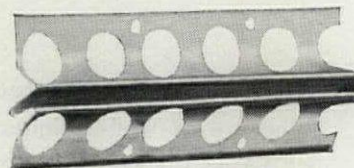


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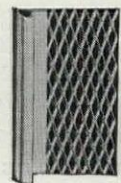
Wheeling Curved and  
Straight Point Base Screed



Wheeling Metal  
Picture Mould

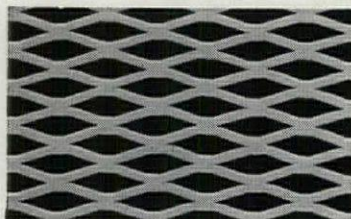


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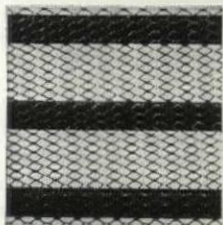




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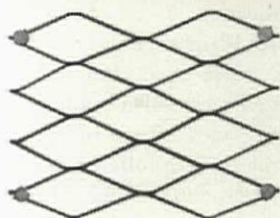


Wheeling Combination  
Lath. Diamond or  
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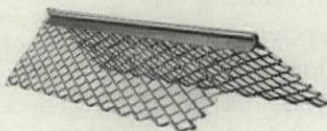


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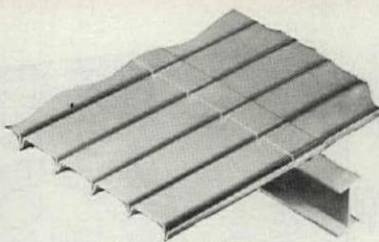
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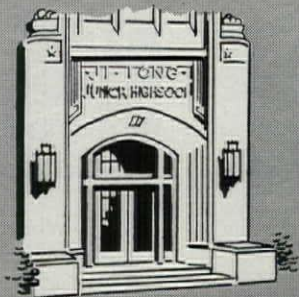
STUCCO



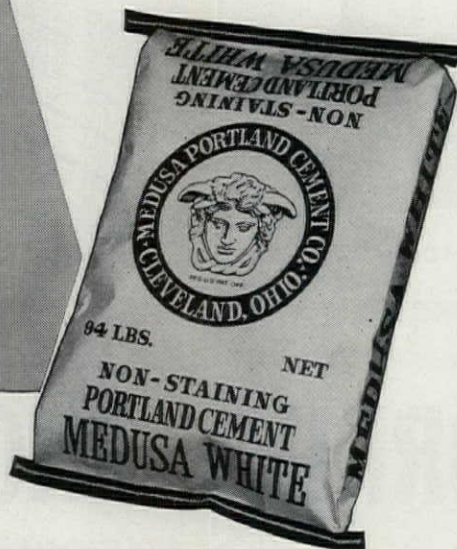
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## LETTERS

could get away with it. Perhaps it is just frustration and jealousy on my part, but I cannot help noticing the bad merchandise layout, the inefficient lighting (the interiors seem to be exclusively lit by the photographer's flood lights), the anachronistic peep-show store front, the half barrel vault supported with the greatest of ease by airy plastic, and the many other items of wonderful nonsense which make up the fantasy which, for want of any other words, I still have to call a store.

MORRIS LAPIDUS, *Architect*  
New York, N. Y.

• It does seem a little tough to find the flaw, where the client "murmurs happily, 'Peace, brother, it's wonderful! See how the customers keep rolling in.'" As for cliché-minded reader Lapidus' suggestion of a \$15,000 electric stair for a two-story store measuring 45 x 60 ft., perhaps he had better think it through again.—Ed.

Forum:

Glad to see the FORUM come back from the worn and faded byways of functionalism and the international style to the path of true architecture with the publication of one of the latest works of Frank Lloyd Wright (Feb. '50). The insistence on stark unadorned functionalism which has characterized most—if not all—of the contents of your recent issues, reflects nothing but the ability of most architects to follow a set path without proclaiming themselves as individuals.

I hope with the publication of Mr. Wright's work the FORUM will set out to publish more of the works of those who honestly admit their indebtedness to him and are trying to reflect that and some of their individual character as artists in their work. Frankly, I am very tired of the cold blooded architect that is so characteristic of the profession at present. . . .

STANLEY M. SHERMAN  
Brooklyn, N. Y.

• Contemporary architecture is becoming a house of many mansions. FORUM's job is to penetrate and present the intention of many architects who may differ almost violently among one another. As reader Sherman indicates, Frank Lloyd Wright's work still stands alone.—Ed.

## GUTHEIM ON HUDNUT

Forum:

Your review of Joseph Hudnut's *Architecture and the Spirit of Man* in the November FORUM was not only less than kind—it was less than fair to readers who expect not merely the opinions of the reviewer but a fair description of what the book is about.

Perhaps you will allow me to call the attention of your readers to the essential point your reviewer failed to notice: here is the wittiest and shrewdest book dealing with architecture we have recently been given. It is specifically addressed to laymen rather than to architects. It

(Continued on page 66)



SINCLAIR RESEARCH LABORATORIES, Harvey, Illinois. Architects, Engineers and Contractors, The Austin Company.



## who said **inspiration** meant **perspiration**?

**N**ot here it doesn't. Not in the Sinclair Refining Company's two new Research buildings. In the Laboratories building Carrier Duct-type Weathermasters are used to maintain a constant temperature and humidity despite highly variable heat loads, keep research equipment and research workers at peak efficiency. In the Administration building, on the other hand, Carrier Conduit Weathermasters permit the occupant of every office to dial his own weather.

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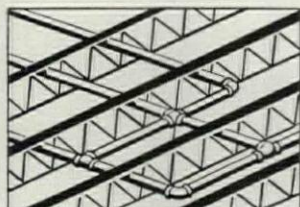
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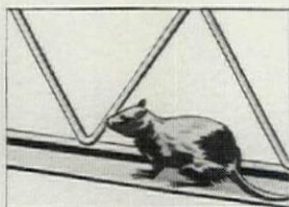
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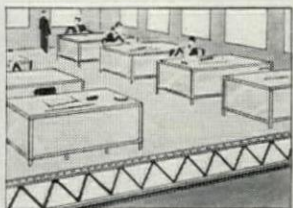
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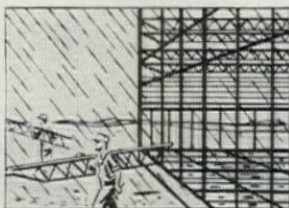
## RADIANT HEATING

through unobstructed flow of heat



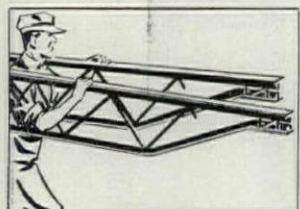
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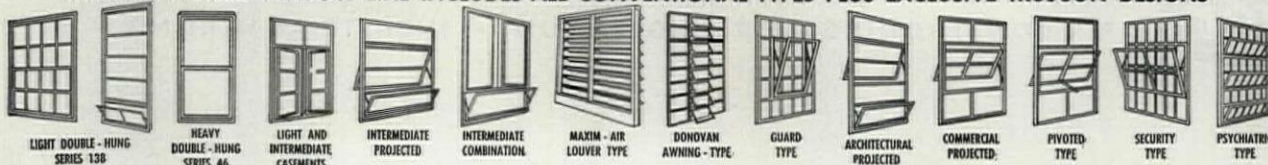
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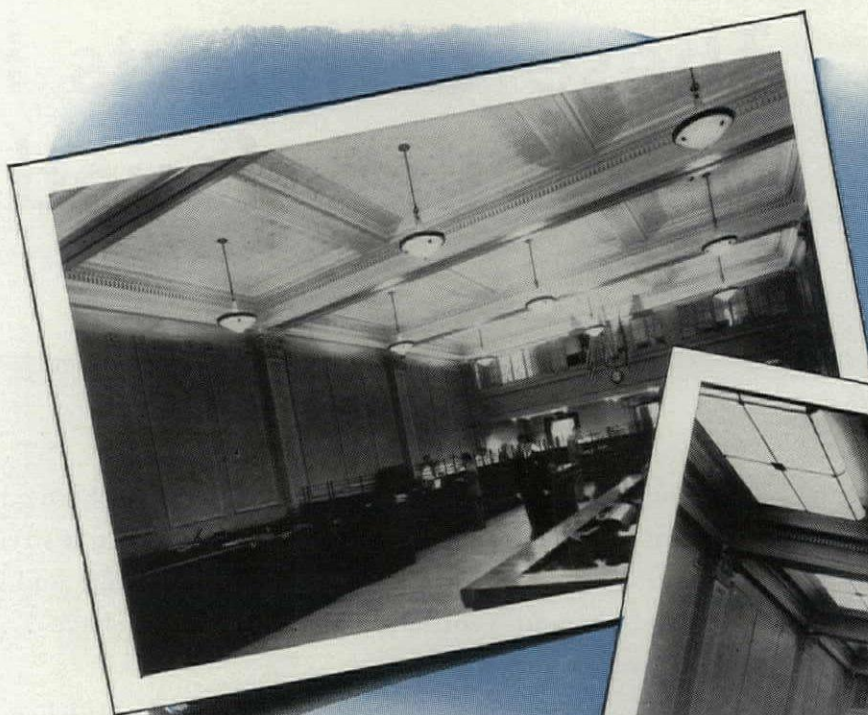
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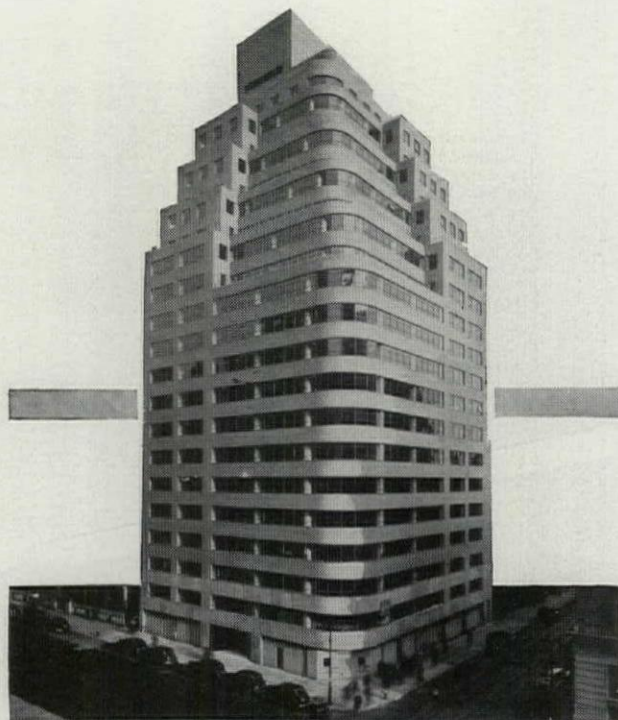
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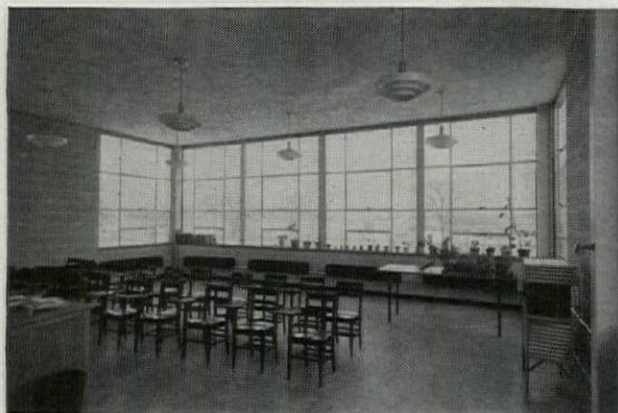
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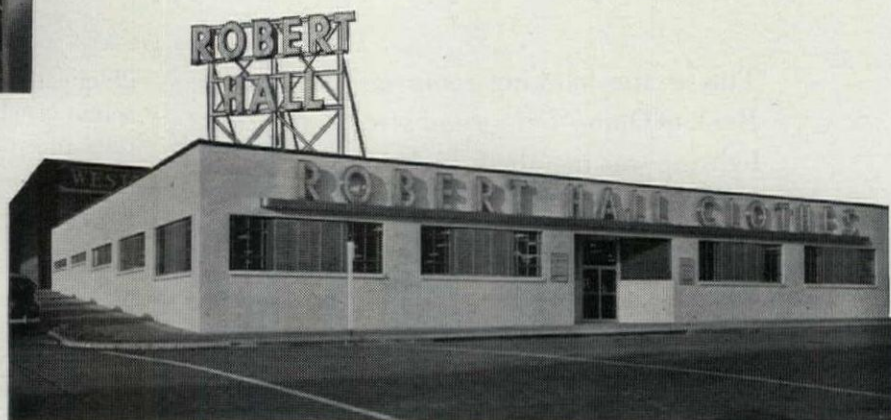
# These architects had ...but they found an



**OFFICE**—Bands of slim-lined Fenestra Projected Steel Windows flood this New York office building with easy-to-work-by daylight. Ventilator arrangements permit controlled fresh-air ventilation . . . whatever the weather. Architect: Emery Roth & Sons, New York. Contractor: Uris Bros., New York.



**SCHOOL**—This ceiling-high wall of Fenestra Intermediate Projected Windows spreads abundant daylight throughout the room. There's an open, free feeling here that makes study more easy and pleasant. Robert N. Mandeville High School, Flint, Michigan. Architect: Bennett & Straight, Dearborn. Contractor: Karl B. Foster, Flint.



**TAILORS**—Needlework needs daylight and plenty of it. In this Seattle shop, Fenestra Intermediate Projected Windows make finicky work more tolerable. And notice how beautifully Fenestra Windows fit the lines of this modern building. Architect: Sigmund Ivarsson, Seattle, Washington. Contractor: Hodges Construction Company.

# Fenestra

## WINDOWS •



# different problems answer in common

design, and quality hardware is used throughout. Workmanship is by the skilled craftsmen of America's oldest and largest Steel Window manufacturer.

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**LABORATORY**—Row upon row of Fenestra Intermediate Windows help light and lighten the task of cancer research in the Sloan-Kettering Institute, Memorial Cancer Center of New York. Architect: Skidmore, Owings & Merrill, New York City. Contractor: Turner Construction Company, New York City.



**RESTAURANT**—Gay and gracious is this dining room of the Seattle-Tacoma Airport . . . because its ceiling-high Fenestra Windows bring in plenty of light and sunshine. Through these open-faced windows, diners can watch the planes as they land and leave. Architect: G. T. Treadwell, Seattle. Contractor: Lease & Leigland, Seattle.



**LAUNDRY**—Here in Bloomington, Ind., a steady stream of fresh air from Fenestra Projected Windows washes away the steam and the smell as clothes are cleaned and ironed. Open-out vents shield the openings . . . rainy weather doesn't matter. Open-in sill vents sweep air upward and guard against drafts. Contractor: Harlos Building Service.

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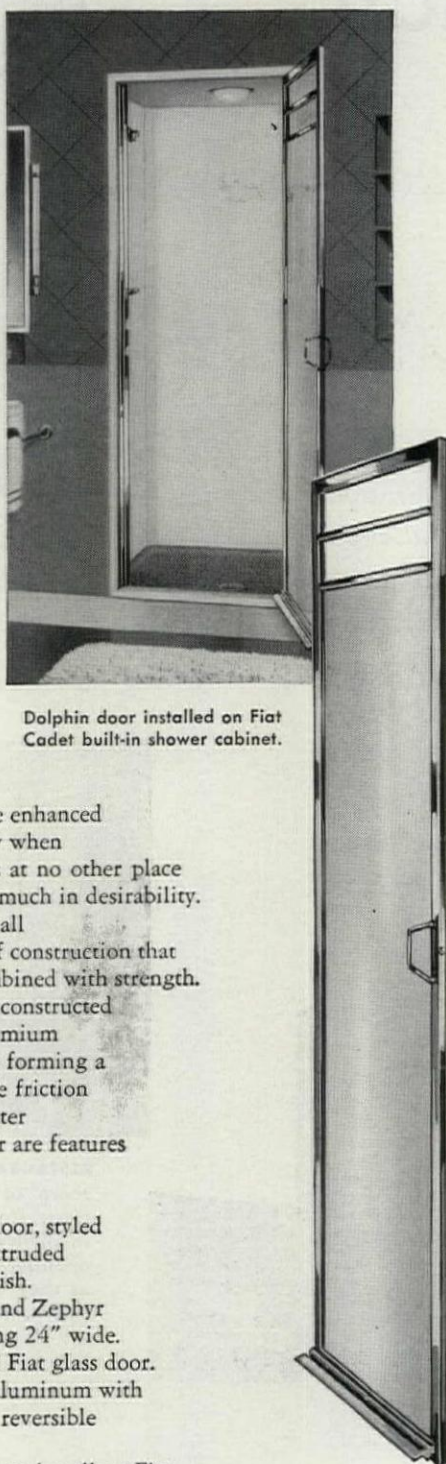
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# FIAT GLASS SHOWER DOORS

...dress up  
the bathroom



Dolphin door installed on Fiat  
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A Fiat glass door greatly improves any shower. Tile, marble, structural glass, or metal showers are enhanced in appearance and practical usability when equipped with a Fiat door. Perhaps at no other place in a house can so little cost mean so much in desirability.

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¶ The Fiat Dolphin shower door is constructed of extruded solid brass, heavily chromium plated with continuous piano hinge forming a smooth-working, rigid door. Double friction bullet catches, offset handles and water channel to prevent dripping on floor are features that mark the Dolphin as the finest in shower bath doors.

¶ The Zephyr is a medium priced door, styled same as the Dolphin but made of extruded aluminum with satin aluminum finish. Standard size of both the Dolphin and Zephyr shower doors is 72" high for opening 24" wide.

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In Canada—Fiat showers are made by The Porcelain and Metal Products, Ltd., Orillia, Ontario

Fiat shower doors have neat, modern  
styling combined with maximum strength.

## LETTERS

will be interesting to architects, perhaps, only to the extent they are interested in good writing, fresh ideas, stimulating expression, but I hope you will agree that it would be a serious underestimation of the profession to deny these interests to many architects.

Architectural books and periodicals in our country accent the practical and the commercial. We receive far less than a desirable ration of literary and esthetic interests. We have no *Architectural Review*, no John Summerson, no Osbert Lancaster. It is, admittedly, a lack. But more, these shortcomings are a particular reason one would wish for Dean Hudnut a greater measure of appreciation than he has found in the columns of your magazine.

FREDERICK GUTHEIM  
*New York Herald Tribune*  
New York, N. Y.

• FORUM's editors yield to none in their admiration of Dean Hudnut's achievements in behalf of architecture. In keeping with FORUM's policy, its reviewer was required to give a competent summary of the book's content, but beyond that, was given full freedom of personal evaluation. The contrary opinion of Mr. Gutheim, whose review in the *Herald Tribune* was, no doubt, equally undictated, is also welcome.  
—Ed.

### MISPLACED CREDIT

Forum:

It is evident that your organization harbors a saboteur sporting a blue sweater and a bulldog on leash. Witness that in the February issue Peter Bent Brigham, the teaching hospital for Harvard Medical School, has been spirited to Hartford. Obviously, it will next be moved onto the New Haven Green.

PAUL F. NOCKA, *Architect*  
Markus & Nocka  
Boston, Mass.

Forum:

... Regarding credit for the origin of the "flexible ceiling" used in the Macy's Kansas City store, as presented in the February FORUM... both Ernest Born and Gruen & Krummeck worked together in developing this basic ceiling type while they were engaged on the interior design of Macy's San Francisco store. ... As consulting architects to R. H. Macy and Co., we reviewed and approved their collaborative work. In turn, Kivett & Myers also collaborated on the final realization of this idea in Macy's Kansas City store. As well, Daniel Schwartzman helped to adapt it to those sales floors for which he was the interior architect. ...

MORRIS KETCHUM, JR., *Architect*  
Ketchum, Gina & Sharp  
New York, N. Y.

• Contrary to a statement made in the February FORUM, Architect Eric Stengade did not design the Danish pavilion at the New York World's Fair. He was assistant to Architect Tyge Hvass.—Ed.





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CEILING



## *...in which large-area low-brightness illumination is integrated with acoustical control*

**W**AKEFIELD BRASS COMPANY is pleased to inform the architectural profession of the availability this summer of luminous-acoustical ceilings for improved seeing and hearing in classrooms, drafting rooms, offices and other areas devoted to critical visual tasks.

### GENERAL DESCRIPTION

The Wakefield Ceiling\* may be described briefly as consisting of Slimline fluorescent lamps suspended from the structural ceiling slab, supported below which at a distance of about 18 inches are thin translucent corrugated plastic sheets. Suspended below the plastic sheets are perforated acoustical baffles, trapezoidal in cross section and filled with sound absorbing material.

### ADVANTAGES

The integration of large-area low-brightness illumination with acoustical control offers advantages which are immediately apparent. When wall materials, colors and furniture are coordinated, The Wakefield Ceiling insures a room with low brightness ratios, excellent light diffusion and efficient sound absorption. The architectural result is quiet and discreet. Concealment of pipes and ducts is accompanied by ready availability for maintenance.

The simplicity of hanger rod and T-bar chassis arrangement insures efficient ceiling attachment and economical installation. The lamps in a single installation may be controlled in various combinations to provide different levels of working illumination.

### PARTIAL CEILING AREAS

Where room design or economics makes it desirable, individual luminous-acoustical panels may be installed. In one such experimental installation, 18 per cent of luminous ceiling area provided 42 footcandles below the luminous panel and 40 footcandles at the walls. Without cleaning for one year, these panels showed 25 per cent depreciation. After cleaning, the illumination was restored to within a few per cent of the original values. The cross section of the structural sides of these partial illumination areas is essentially the same as the trapezoidal acoustical baffle in

the totally luminous ceiling, thus assuring a substantial degree of acoustical control.

### HISTORY

The Wakefield Ceiling has been under development by The F. W. Wakefield Brass Company, Vermilion, Ohio, since 1944. It is the logical extension of a continuing effort to provide high quality lighting through luminous indirect equipment first achieved in the Wakefield COMMODORE (incandescent) in 1935 and then in the Wakefield STAR (fluorescent) in 1945.

Almost simultaneously with the Vermilion studies other studies were under way by C. M. F. Peterson, Parry Moon and H. L. Beckwith. Their large-area lighting installation was first made in Massachusetts Institute of Technology in 1947. Documentation of their work has appeared in several journals recognized by the architectural, engineering and other professions.†

Since the principals in these parallel developments—the Wakefield group on the one hand and the three M.I.T. engineers on the other—were favorably known to each other, it was natural that the professional abilities of the latter should be merged with the engineering and production abilities of the former.

Out of this has come The Wakefield Luminous-Acoustical Ceiling, which will be distributed from Vermilion, Ohio, beginning this summer. Meanwhile consultation at a professional level is immediately available to architects and engineers interested in learning the full story of this significant contribution to a better seeing-hearing environment. All inquiries will be accorded prompt attention by The F. W. Wakefield Brass Company, Vermilion, Ohio.

†ILLUMINATING ENGINEERING, Vol. XLIV, No. 4, April, 1949, "The New Approach to Room Lighting," by Parry Moon.

ARCHITECTURAL RECORD, June, 1949, "Glare Free Lighting Methods," studied by M.I.T., by H. L. Beckwith, C. M. F. Peterson and Parry Moon.

THE SIGHT SAVING REVIEW, National Society for Prevention of Blindness, "School Lighting Studies," by C. M. F. Peterson, Parry Moon, H. L. Beckwith, Pages 216-219.

ELECTRICAL ENGINEERING, July, 1949, "Modern Trends in Room Lighting," by H. L. Beckwith, C. M. F. Peterson and Parry Moon.





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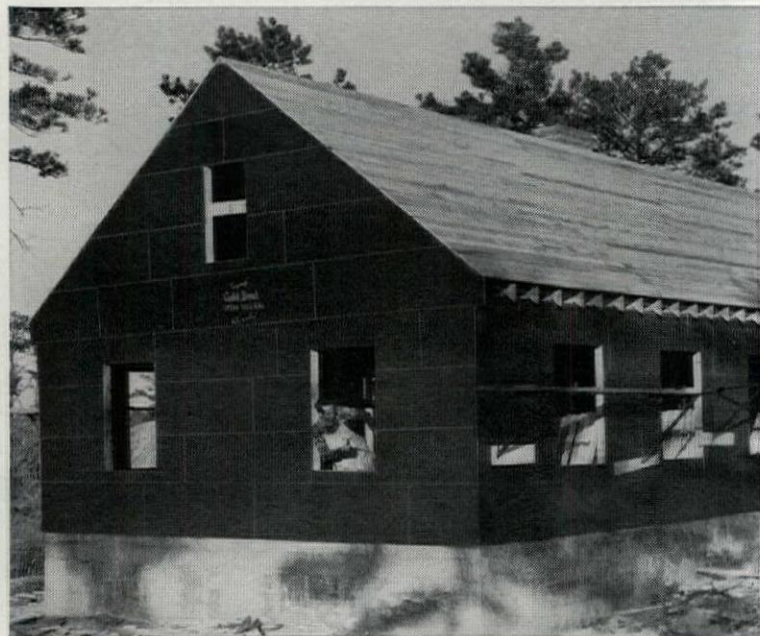


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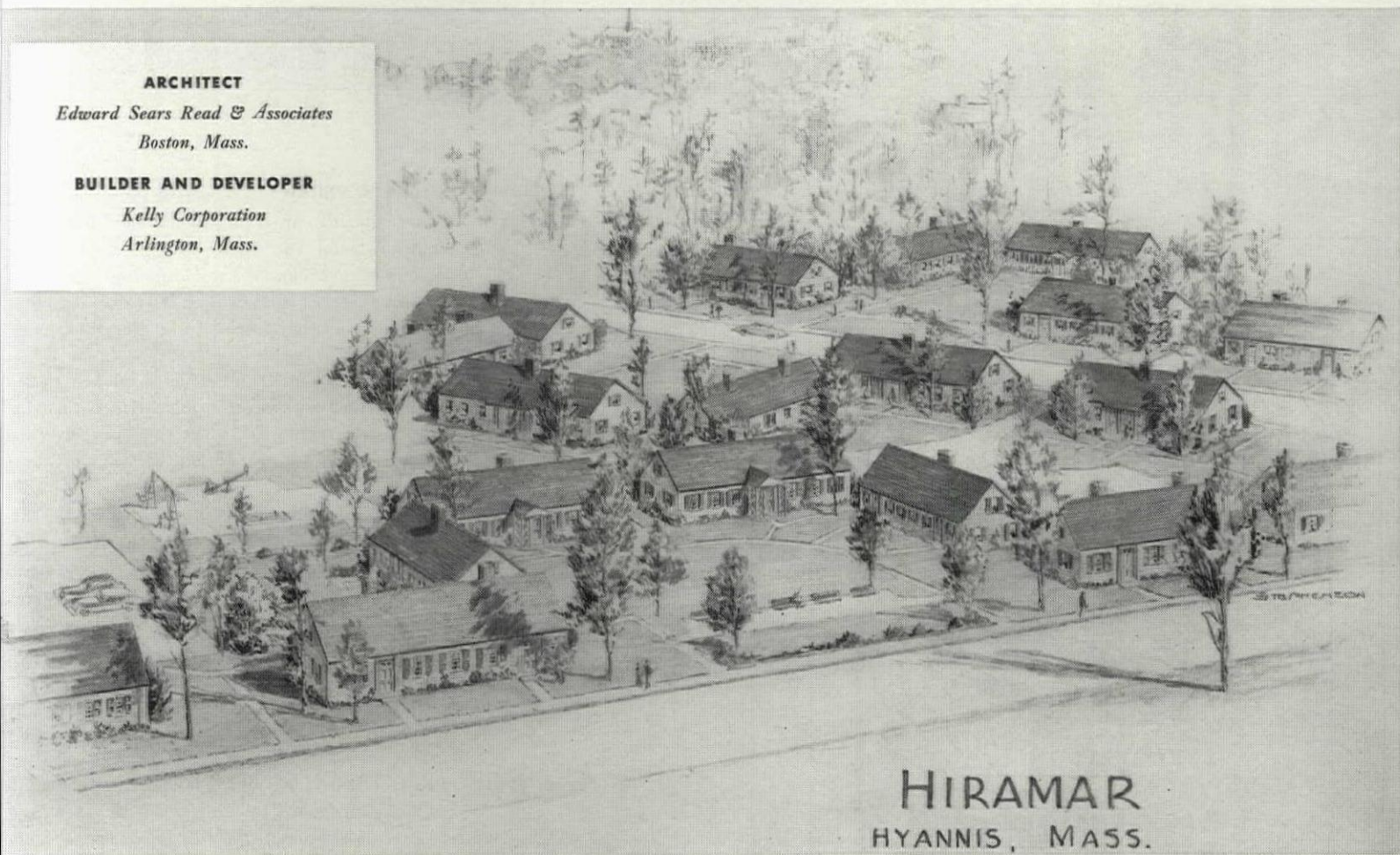


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## BEHIND THE BLUEPRINTS



**HAYDEN H. PHILLIPS** is a native New Zealander whose colorful career began when he left architectural school (at Australia's Melbourne University) to go around the world in a sailing vessel. Dropping anchor at Hawaii, he became a general contractor and for 17 years built everything from homes to highways on its volcanic soil. On a visit to the mainland in 1948, he decided to resume his interrupted architectural studies. He earned his degree at Carnegie Tech last year, prepared his thesis on small house planning (p. 127).



**GORDON BRONSON** and **WILLIAM KAUFMAN** are able, young (26 year old) partners in the up-and-coming Gordon Bronson Construction Co. operating near New Brunswick, N. J. (p. 138). With venture capital of \$10,000, they started their first project of 40 homes in the spring of 1949, had built and sold every house within three months. Bronson, an ex-Marine navigator with 4,000 flying hours over the South Pacific, returned to graduate from Yale University in 1947 with honors and a civil engineering degree. Kaufman studied at Cornell University and Columbia Law School, served with the famed "cloak and dagger" O.S.S. in China during World War II, now practices real estate law with his father.



**DONALD H. DRUMMOND** comes from La Jolla, Calif., recalls that Frank Lloyd Wright was on his home town paper route. An alumnus of Stanford University, he was an engineer for St. Louis city planner Harland Bartholomew before the Navy made him a Construction Battalion lieutenant. Since doffing gold braid, he has built speculative (p. 142) and custom houses in Kansas City at the rate of 15 to 20 a year.



**JOSEPH L. EICHLER** is a relative newcomer to housebuilding with 300 homes to his credit since his debut in March, 1947. Born in New York, he graduated from N.Y.U. in 1922 and three years later migrated to California, where for 20 years he was in the butter and egg business and a member of the Chicago Mercantile Exchange. A firm believer in the saleability of speculatively built houses of modern design, he refuses to build in any other style (p. 144).



Builder **THOMAS P. COOGAN** is a New Englander by birth (Springfield, Mass.) and education (M.I.T.), and a Southerner by adoption. From 1941 through the war, Coogan's organization did extensive airport and war housing construction throughout the South, switching in 1946 to speculative homebuilding. Postwar product is Essex Village, an integrated community for 1,000 families at Hialeah, Fla. (p. 147). "Big Tom" is also the builders' statesman, is current president of the National Association of Home Builders and its spokesman on mortgage finance.



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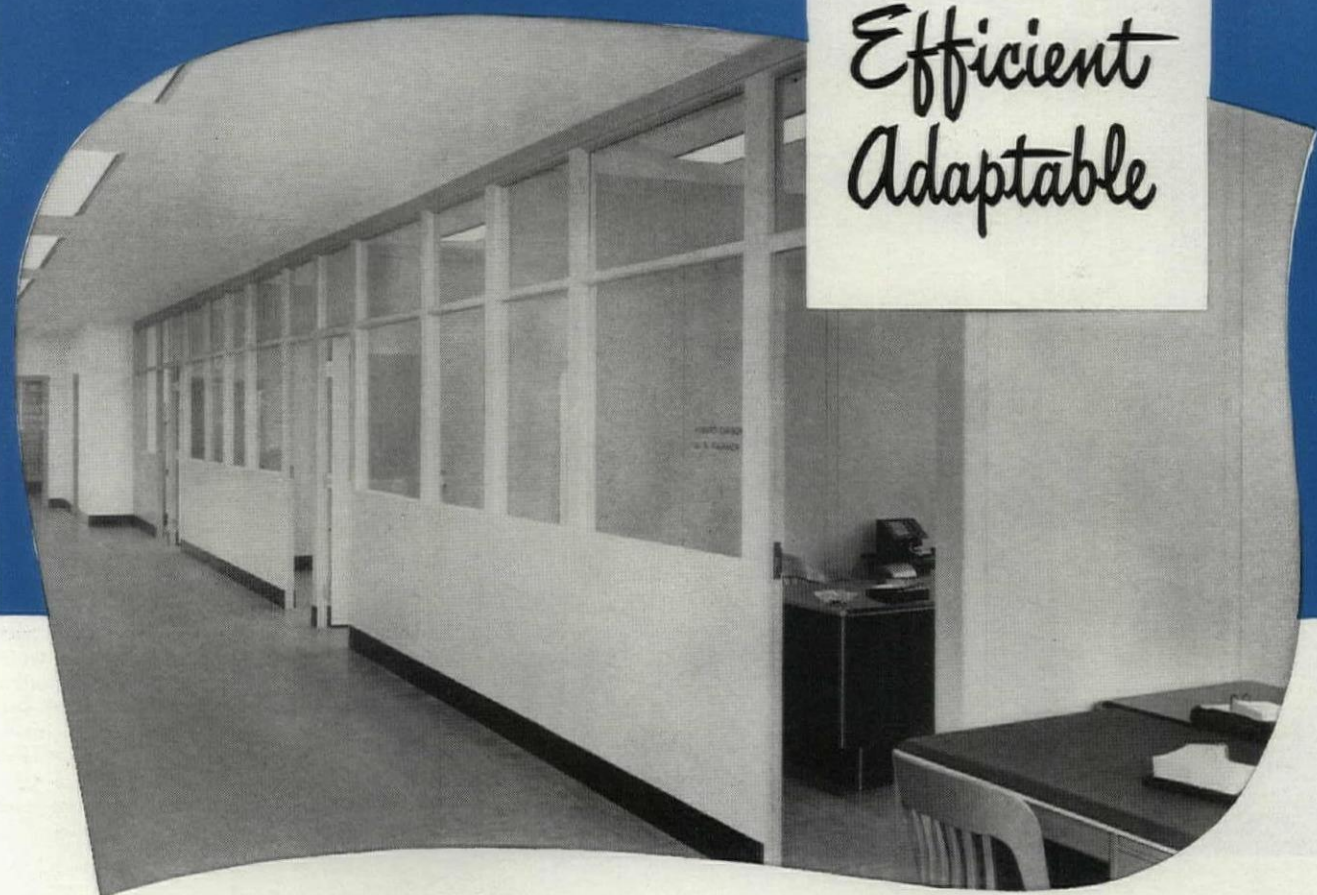


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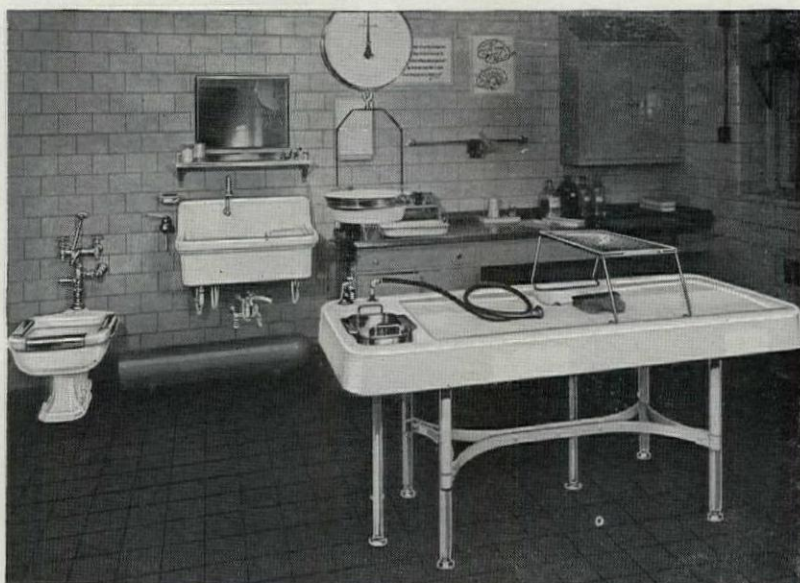




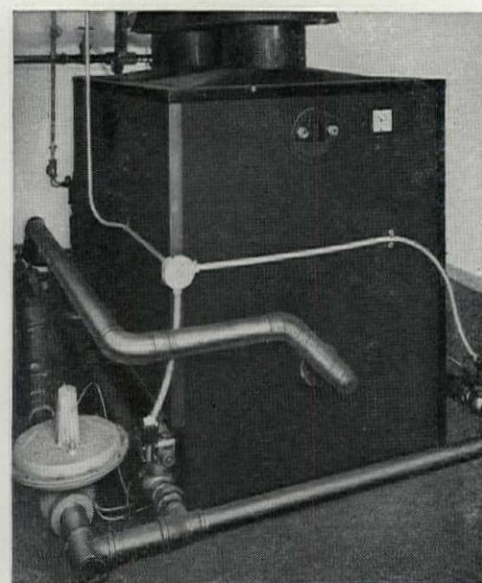
# For the



THERE'S COMFORT, CONVENIENCE AND COLOR in this one room. There's cleverly concealed storage space and carefully contrived utility. Yet there's a provincial air that lends additional charm to an efficient bathroom plan. The unusual design of the **NEO-ANGLE** Bath permits a space-saving corner installation that is convenient and attractive. And the handsome **ROXBURY** Lavatory—with its gleaming non-tarnishing Chromard fittings—and the trim **MASTER ONE-PIECE** Water Closet are fitting complements to the modern decorative scheme. Whatever the color scheme, whatever the architectural plan of the bathroom, there are American-Standard Plumbing Fixtures that will enhance the beauty of the room while affording lasting, efficient service.



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DEPENDABLE, AUTOMATIC HEATING is furnished the Montecito Elementary School in Martinez, California, by this **STANDARD** Gas Boiler. The heating surfaces, burners, controls and other essential features are coordinated to assure maximum output with lowest operating and maintenance cost. Sections are carefully machined for gas-tight joints. Architects: Bamberger & Reid, San Francisco.



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**ALL THE CONVENIENCES OF A RESIDENTIAL BATHROOM** are in this compact bathroom of Eaton's Santa Anita Hotel on U.S. Highway 66 near Pasadena, California. The **MASTER PEMBROKE** Bath is made of rigid cast iron for durability, and finished with a heavy coating of enamel for beauty and ease of cleaning. Lower sides, flatter bottom make bath and shower more convenient. The **CADET** Water Closet is a close-coupled closet combination made of permanently non-absorbent genuine vitreous china. Architect & Building Contractor: Harry Werner.



**LARGEST OFFICE BUILDING** in Southern California—the new \$11,000,000 home of General Petroleum Corporation in Los Angeles. The building is distinguished by its hundreds of wall-supported plumbing fixtures . . . all American-Standard. These quality products are in keeping with the scores of engineering and architectural features that make this one of the nation's most modern structures. The wall-supported plumbing fixtures—which include **FENWICK** and **LUCERNE** Lavatories, **GLENCO** Water Closets and **WASHAL** Urinals—make for neater, cleaner rooms. Architects: Wurdeman & Becket, Los Angeles.



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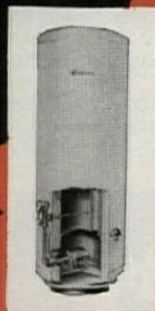
Homeowners want lots of hot water at a low cost, and trouble-free operation. With KOVEN Automatic Electric and Gas Water Heaters, leading architects, builders and plumbers build the customer goodwill that comes of satisfying every demand. These units are completely automatic, silent, safe, attractive! In models and sizes for every requirement. Liberal 10-year guarantees on extra-heavy copper-bearing steel tanks when ordered with cathodic protection.

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**RUSSELL H. BENJAMIN** hails from the Pennsylvania Dutch region of Lebanon, Pa., is an alumnus of Antioch College and Cornell University. For seven years he ran his own civil engineering and land planning office and from 1940 to 1949, he served as project manager and development engineer for several large contractors on housing projects totaling more than 6,000 units. Since last year, Benjamin has been a merchant builder in Englewood, N. J., is currently developing Lyl Forest (p. 156), a 36 unit project in nearby Tenafly.



Architect-builder **HEROLD BRADLEY** is a midwesterner from Omaha, educated at the University of Nebraska and Carnegie Tech. A Pennsylvania resident since 1922, he has had his own architectural practice since 1927. Specialty of the office is recreational design, particularly amusement parks and swimming pools. Soon to be built are three novel year-round, indoor-outdoor pools with movable side walls. Housing is an office hobby which has produced four other small groups outside Pittsburgh similar to Harper Village (p. 158).



**RALPH S. TWITCHELL** and **PAUL RUDOLPH** have chosen the semitropical landscape of Florida's Gulf coast as the locale for their distinguished house designs. Twitchell was trained in architecture and structural engineering at Rollins College, McGill and Columbia Universities. Rudolph studied at Alabama Polytech and at Harvard on a scholarship, was recipient, in 1948, of the Wheelwright Fellowship. Their credo: "... to cut clean and clear through a transitional period to a completely new attitude toward living. ..." (p. 167).



Architect **JOHN FUNK** is a true Californian, born and bred and educated within the state's borders. A native of Upland, he received his bachelor's and master's degrees in architecture from the University of California, the latter in 1935. He served an apprenticeship in the office of William Wurster, and, after a year's travel in Europe, established his own San Francisco architectural office in 1939. The Heckendorf House, a neoclassic in the annals of contemporary house design, came off the Funk drawing board the first year. Of more recent vintage is the Kirby House (p. 176) on Belvedere Island.



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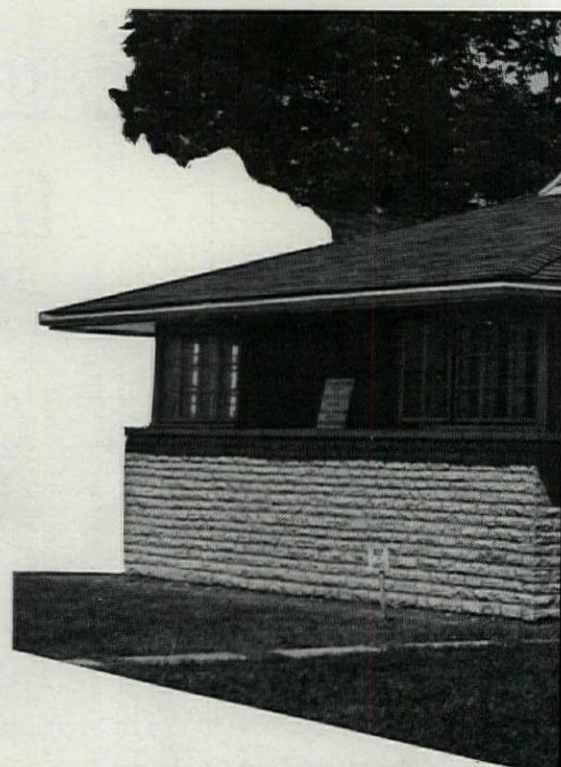
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with these savings...*

Once you decide to include Servel All-Year Air Conditioning, there are a number of conventional features that can be eliminated from a modern home that will balance the added expense of the Air Conditioning. And this exchange wins favor with clients because the things they forego have value only during parts of the year . . . while Servel provides them with perfect comfort the whole year round.



**NO FIREPLACE**



**NO PORCH**



**NO SCREENS**



**LOWER COST  
WINDOW CONSTRUCTION**



**NO ATTIC FAN**



# Put your houses in



In the G-E Kitchen of the Colwick Gardens house, dishes are washed and double-rinsed automatically . . . there's plenty of hot water when it's needed . . . there's a Disposall® for food waste . . . and an electric range that takes the trouble

and guesswork out of cooking.

And, mind you, the complete General Electric Kitchen can be included in *all* homes—even the *lower* priced ones! *It's* designed for, and is bought by, people of moderate means!

## Look what General Electric offers you now!

**General Electric—the world's largest electrical manufacturer—offers you all these advantages:**

- ✓ **Tested merchandising programs** that have helped so many other builders enjoy phenomenal sales results.
- ✓ **The brand of electrical appliances** that people prefer to all others.
- ✓ **Assistance in designing** and improving kitchen layouts for your houses.
- ✓ **One source of supply** for matched equipment . . . a full line of cabinets and appliances.
- ✓ **Fewer headaches.** G-E equipment is world-famous for its dependability!



# The "BEST SELLER" class!

**"People want the magnificent General Electric Dream Kitchen! We sold 51 G-E equipped houses in just 3 weeks!"**

says Mr. CARL T. MITNICK  
of Collingswood Construction Corp., Collingswood, N. J.



first, Mr. Mitnick was amazed at how fast the General Electric Kitchen helped sell his houses. In his words—

"Sales of houses at our Colwick Gardens project have far exceeded our original expectations.

"The General Electric Kitchen, an outstanding feature of these homes, has been exceedingly well accepted by prospective purchasers. We feel that the General Electric equipment, which includes the dishwasher, Disposall®, electric range, and water heater has contributed much to accelerate our sales.

"We sold 51 G-E equipped houses in just three weeks... an average of better than two a day! People want the magnificent General Electric Dream Kitchen.

"We are now starting the second group of homes, and I look forward to General Electric's continued contribution to all our future projects!"

Mr. Mitnick's experience with General Electric equipped homes is not unusual—but rather, *typical*. From Massachusetts, Colorado, Maryland, New York, come similar, enthusiastic reports!



## May we help you— as we have helped Mr. Mitnick?

You pre-sell your houses when you include General Electric Kitchens as part of each house.

Everybody wants all-electric living—and that naturally includes prospects for low-priced houses!!!

Furthermore, of all the electrical appliances available, people prefer *General Electric!* G-E is your best bet!

### As little as \$4.80

In the final analysis, too, the cost of including G-E Kitchens in your houses is not a financial hurdle! You can include *General Electric living in your houses for as little as \$4.80 a month extra when the G-E "Kitchen Package" is included in the long-term realty mortgage.*

Remember, too, that the economical operation, low maintenance and long life of General Electric appliances may offset the slight increase in monthly payments!

**Get Complete Facts** about the G-E "Kitchen Package" through your local General Electric distributor, or write to the Home Bureau, General Electric Company, Bridgeport 2, Conn.

**No sales problem here!**

Thousands of people visited this Colwick Gardens house, and admired the complete G-E Kitchen. Within three weeks all the 51 houses in the first section of the project were sold! Why not let General Electric help sell *your* houses faster, too?

You can put your confidence in—

GENERAL  ELECTRIC





**Don't take chances . . . specify genuine Celotex Roof Insulation!**

## **25 years of actual use prove its UNSURPASSED PERFORMANCE AND ECONOMY**

You can specify Celotex Roof Insulation for use under built-up smooth-surfaced, or gravel-surfaced roofing with complete confidence! For this low-cost *rigid insulation* has proved its exceptional insulating efficiency, true economy, and long service life through a quarter century of use in installations of every sort. Celotex Roof Insulation is available in three types

to meet every requirement—Regular, Pre-Seal with asphalt coating for moisture resistance, and Vapor-Seal with asphalt coating and offset channels to permit equalization of the pressure of air entrapped under roofing. Write now for complete technical data. The Celotex Corporation, Dept. AF-40, 120 South LaSalle Street, Chicago 3, Illinois.

**9 REASONS**  
why more and more  
architects are specifying

**CELOTEX**  
ROOF INSULATION

1. **High insulating efficiency** means greater comfort the year 'round, plus lower heating and air conditioning costs.
2. **Strong and rigid:** can take rough handling during application; so tough you can wheel loaded pitch carts over it without significant surface damage.
3. **Light in weight:** easy to handle, quick and thrifty to apply.
4. **No delamination:** won't pull apart during handling or whipping under wind pressure.
5. **Has hard, square edges** that assure snugger, tighter joints and a more uniform surface.
6. **Gives excellent bond** to roof deck, and also forms a positive bond for hot mopped roofing felts of either the asphalt or coal tar pitch type.
7. **Good nail-holding power:** won't crush when nailed to wood decks; gives uniform surface free of depressions that can weaken roofing.
8. **It is the only roofing** made of long, remarkably strong Louisiana cane fibres, and protected against dry rot, fungus and termites by the exclusive patented Ferox Process.
9. **Low in cost,** high on dependable performance through the years.

**IT PAYS TO SPECIFY GENUINE**

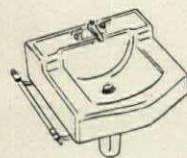
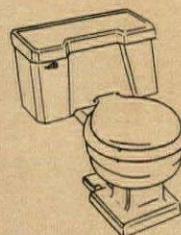
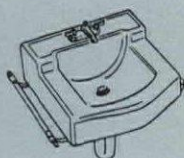
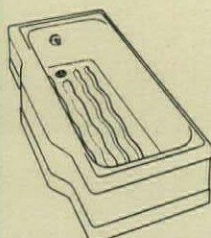
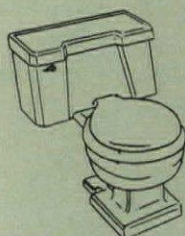
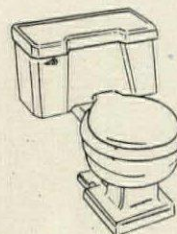
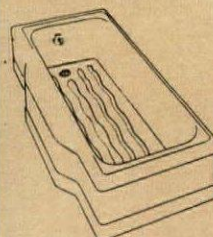
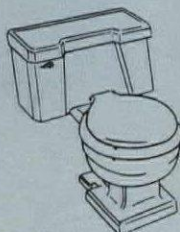
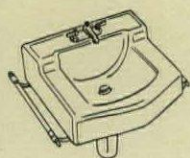
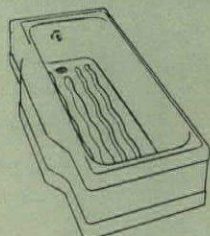
**CELOTEX** ROOF INSULATION  
REG. U. S. PAT. OFF.

THE CELOTEX CORPORATION • CHICAGO 3, ILLINOIS



# TWICE

as many people want colored fixtures as white!



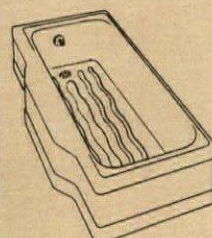
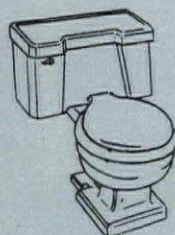
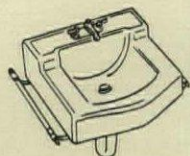
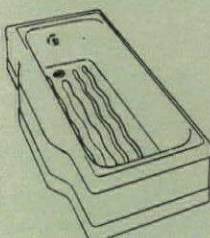
## BRIGGS *Beautyware*

brings them the world's

smartest colored fixtures

at the never before price of only 10% more\* than white!

COPYRIGHT, 1950, BRIGGS MANUFACTURING CO.



Merit Award granted by National Board of Governors of American Society of Industrial Engineers for excellence in engineering and manufacturing.

SEA GREEN

IVORY

SKY BLUE

SANDSTONE

SPARKLING WHITE

Check the latest surveys! You'll find that of all the people asked, two-thirds prefer colored bathroom fixtures. Briggs gives them—and you—a choice of the four most popular decorator colors for only a few dollars more! No wonder successful builders all over the country are specifying Briggs Beautyware in color. No wonder wide-awake plumbing dealers are promoting it for all it's worth! Join them by ordering America's favorite colored fixtures, today!

**BRIGGS MANUFACTURING CO.**  
3001 Miller Ave. Detroit 11, Mich.

\*10% additional charge for colored-ware applies to complete sets including Briggs brass fittings.





Above: Kalistron wainscoting in corridors of New Britain General Hospital, New Britain, Conn. Planned by Justin M. Kearney, Hospital Consultant. Installation, Edwin L. Powell & Co., Inc., Boston, Mass.

## WHY THESE BEAUTIFUL WALLS will stay beautiful...

Where these walls are covered with Kalistron, they're *permanently protected* against bumping, bruising contact made by rolling tables and wheelchairs. That's because Kalistron is *Blanchardized*; this exclusive process fuses rich color to *underside* of transparent vinyl sheeting. Bumps simply cannot bruise the color! A suede-like backing adds further protection, permits easy bonding to wall surfaces.

Kalistron is scuff-resistant; scratch- and spot-resistant; cannot chip, crack or peel; waterproof; cleans with a damp cloth.

Ideal also as an upholstery material. Kalistron won the latest Modern Plastics Award for furniture and interior decorating material.

Coupon below will bring sample of Kalistron, plus top-quality nail-file . . . free. See if you can injure Kalistron even with this file!

**Kalistron**  
EAL. BONDING FOR  
COLOR FUSED TO UNDERSIDE  
PLASTIC COVERING MATERIAL

U. S. Plywood Corp., Dept. F-5  
55 West 44th St., New York 18

Please send me FREE Nail-File Test (swatch of Kalistron plus actual nail-file).

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

Distributed by: U. S. PLYWOOD CORPORATION, N. Y. C. and  
by: DECO SALES, 408 Freylinghuysen Ave., Newark, N. J.

Color fused to  
underside of  
transparent vinyl  
sheet . . . backed  
by flocking



# Roofed with K&M "Century" Asbestos-Cement Shingles

**Modern Style**

**More Durability**

**Moderate Cost**



Architect: Mr. William Z. Bane, Allentown, Pa.

K&M No. 5 Red "Century" Asbestos-Cement Roofing Shingles are used to enhance this fine home.

Invitingly rich appearance gives K&M Asbestos-Cement Shingles an instant strong appeal. Add in low cost application too, along with recognized freedom from maintenance, and you realize why these K&M Shingles enable the architect to offer home owners both beauty and economy.

Savings begin with swift, easy handling of the 24" K&M "Century" units—ready punched and notched for accurate alignment, using only two nails per unit. Then come extra years of protection against any weather—rust and rot—rodents—fire—upkeep cost. All the while, any roof's eye-appeal is preserved by K&M Shingles, with their lastingly attractive texture and *built-in color*. The choice of Black, Spanish Red, White or Surf Green permits of versatility in design and harmony with the environment.

As surely as you can satisfy esthetic considerations, you can meet every demand for economy by employing K&M "Century" Asbestos-Cement Roofing Shingles.

**Original manufacturers  
of Asbestos-Cement Shingles in this country**



Neat, sound work made easy by K&M Roofing Shingles in 24" units (as shown).

## **For Remodeling Projects:**

Applied over wood-shingled or composition roofs, K&M Shingles assure their full fine appearance and protection.

**KEASBEY & MATTISON  
COMPANY • AMBLER • PENNSYLVANIA**





# MERCHANT BUILDER SURVEY

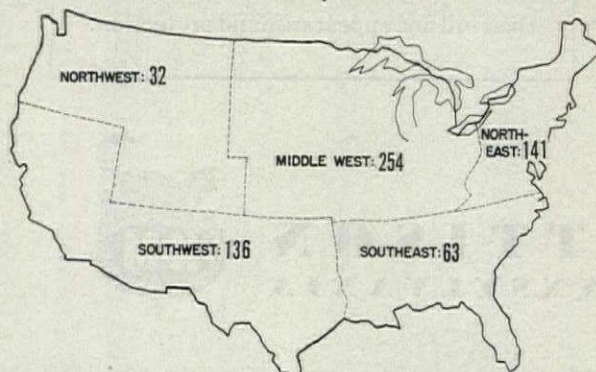
The 1950 small house will be better in design, higher in quality, about the same in size and, for all this, a little less expensive, as the industry tailors its product to a more discriminating public. A FORUM survey of the observations, opinions and plans of 626 housebuilders

For guidance in preparing this special reference number on The Small House, FORUM last month put thirteen leading questions to the industry's leading house builders. Their answers confirm the healthy status of the industry, point out the direction it is headed and spotlight its plans for surmounting such obstacles as are in the way.

The typical merchant builder among the 626 surveyed by FORUM plans to build 122 houses this year—50 per cent more than in 1949. In most sections of the country, these houses will be a little bigger than last year's (averaging 944 to 1,060 sq. ft.) but will usually sell for a little less (\$8,962 in the South to \$11,653 in the Northeast). Although about 20 per cent of these builders anticipate trouble getting FHA to approve their use of new building materials and contemporary principles of site planning and house design, the 626 are almost unanimous in their recognition of an increasing public insistence upon contemporary design principles and quality materials and equipment. The typical builder plans to meet this insistence by building into his houses this year such features as these which spell "quality" to the public: more and better kitchen and laundry equipment, more built-in furniture and storage facilities, better design, bigger picture windows and more brand-name products. He will do this without increasing his sales prices, despite his observation that land, labor and material costs are going up in most areas and that the cost of construction loans and permanent mortgage money will remain at current levels. In this respect his biggest problem will be the high cost of lumber, millwork, plywood and flooring, which 70 per cent of the builders agreed were the materials furthest out of line pricewise. In a similar category on the labor front are the "out-of-line" wages he pays his plumbers, masons, bricklayers and plasterers—73 per cent of the builders pointed the finger of guilt at these trades.

To offset the high cost of these materials and trades, builders will reduce expenses through closer supervision, greater use of power tools, more precutting of parts, more site fabrication, quantity buying and production, and a dozen other economy measures.

Such in brief are the major facts and trends gathered in FORUM's merchant builder survey. No mere flash in Building's



FORUM's survey is based upon questionnaire replies received from 626 home builders in all parts of the country. The geographical distribution of these builders are shown on the map.

pan, this survey is a big and broad sampling of the industry. The 626 participants cover the entire country (see map) and are relatively big builders—the housebuilding pace-setters of their communities whose opinions and actions influence the host of smaller builders who produce only a handful of dwellings each year. The 626 surveyed builders propose to build a total of 77,343 houses this year—close to 10 per cent of the anticipated total for the entire industry.

The observations, opinions and plans of this important segment of the house building industry are detailed and interpreted below under the various questions posed in FORUM's survey:

## By how much do you intend to increase your production during 1950?

Northeast .....	64%
Southeast .....	78%
Middle West .....	54%
Southwest .....	24%
Northwest .....	22%

The average builder covered by FORUM's survey built 82 houses last year, plans to build 122 this year. (Geographically, the 1949 averages ran from 65 in the mid-west to 112 in the southeast; the 1950 averages, from 100 to 209 in the same areas.) It cannot, however, be concluded that the entire industry plans to boost its production 50 per cent in line with the surveyed builders. Being relatively big builders, the latter are better organized and equipped than the typical small builder to take advantage of market trends and to gear their production accordingly.

It is significant that of the 626 builders surveyed, only two dozen indicated that they would build fewer houses this year than last, and, with two exceptions, all these were relatively small builders—producers of less than 20 houses a year.

## How will the size and sales price of your 1950 houses compare with those you built last year?

	Area (sq. ft.)		Sales price		Price per sq. ft.	
	1949	1950	1949	1950	1949	1950
Northeast ...	1,025	994	\$12,005	\$11,652	\$11.71	\$11.72
Southeast ...	965	938	10,171	8,962	10.54	9.55
Mid-west ....	919	944	11,469	11,476	12.48	12.16
Southwest ...	1,079	1,060	10,769	10,289	9.98	9.71
Northwest ...	949	988	10,271	10,739	10.82	10.87

On a country-wide basis new 1950 houses will be about the same as last year's in size. Mid-west and northwest builders contemplate additions of 25 and 39 sq. ft., respectively, which offset the 19 to 29 sq. ft. cuts proposed in the other three geo-



graphical areas. Sales prices, on the other hand, will be generally lower—the cuts ranging from 27 cents per sq. ft. in the southwest and 32 cents in the mid-west to almost a dollar in the southeast. The average northeast builder plans to maintain his last year's unit price; the average northwest builder will raise his a nickel.

The wide variation in unit sales prices between regions (from \$9.55 per sq. ft. in the southeast to \$12.16 in the mid-west) as well as the somewhat narrower variation in average house size (from 938 sq. ft. in the southeast to 1,060 in the southwest) is explained by the regional differences in design, construction, heating systems, insulation, etc.

### In what price range are most of your houses?

Under \$6,000 .....	1%
\$6,000-\$7,000 .....	8%
\$7,000-\$8,000 .....	12%
<b>\$8,000-\$9,000 .....</b>	<b>15%</b>
<b>\$9,000-\$10,000 .....</b>	<b>15%</b>
\$10,000-\$11,000 .....	10%
\$11,000-\$12,000 .....	9%
\$12,000-\$13,000 .....	7%
\$13,000-\$14,000 .....	4%
\$14,000-\$15,000 .....	5%
\$15,000 and over .....	14%
	100%

The answers to this question are significant in that they also answer the implied question, "In what price range is the most potent and profitable market for new houses?" In reply, almost one-third of the builders pointed to the \$8,000-\$10,000 price bracket in which they are operating. While only 9 per cent of the builders are producing houses priced at \$7,000 and less, 51 per cent are included when the field is stretched to \$10,000. In each of the higher price brackets the number of builders gets progressively smaller, as do the number of houses each of them produce.

Geographical variations in the replies to this question were less than might be expected, but they logically followed the temperature zones. Thus, more southeast builders are operating in the \$7,000-\$8,000 range than any other range. At the other extreme, northeast and northwest builders work the \$9,000-\$10,000 field. In between fall the mid-west and southwest where the \$8,000-\$9,000 bracket is the most popular.

### What is the lowest price at which a livable, saleable house can be produced?

Under \$5,000 .....	4%
\$5,000-\$6,000 .....	7%
<b>\$6,000-\$7,000 .....</b>	<b>25%</b>
\$7,000-\$8,000 .....	23%
\$8,000-\$9,000 .....	21%
\$9,000-\$10,000 .....	20%
	100%

As an indication of what can be done to serve the broad base of the new house market, the replies to this question offer an interesting comparison with the replies to the preceding question which indicated what is actually being done to serve the low cost market. Thus, while the tabulation above reveals that 26 per cent of the builders believe that a livable, saleable house can be produced for less than \$7,000, the preceding table shows that only 9 per cent are presently serving the under-\$7,000

market. It is noteworthy, however, that few builders (only 11 per cent) believe that a satisfactory house can be produced for less than \$6,000, and that most of those who hold this opinion operate in the southeast and southwest where construction costs are relatively low.

### Is selling easier or more difficult than a year ago?

Easier .....	30%
More difficult .....	19%
<b>About the same .....</b>	<b>51%</b>

Only one out of five builders anticipate more difficult sales this year—most of them look for a continuation of the same kind of buyer's market as they experienced last year. Perhaps their optimism is based 1) on their better knowledge of what the public wants and 2) on their plans to build salesmanship into their houses. These two facts are revealed in their answers to the questions which follow.

### Is the public becoming more insistent on good house design and on quality materials and equipment?

	Yes	No
Good design .....	95%	5%
Quality materials .....	94%	6%

On no other subject are builders more nearly agreed than in their recognition of the public's increasing demand for both better design and higher quality materials and equipment. ("Better design" to many builders means many things—some of which would make a good contemporary architect wince. Said one bewildered builder: "People these days want advanced traditional with a contemporary influence.")

To determine the extent of FHA's cooperation in helping the public obtain the better design it wants, FORUM sounded out the builders on this subject.

### Does FHA exercise a restrictive influence in the following respects:

	Yes	No
Development of a good site plan .....	20%	80%
Application of modern design principles .....	18%	82%
Use of new materials and techniques .....	18%	82%

The minority report on this subject is more significant than the negative reply of the majority. Thus, one out of five builders stated that he had trouble with FHA and its regulations in the working out of a good site plan and that FHA had prevented him from improving the appearance and livability of his houses through the use of contemporary or modern design principles. (Doubtlessly more than one out of five architects would agree with them.) Even if this group is a small minority, it probably represents the progressive element of the industry whose opinion confirms the belief of many architects that, while FHA was instrumental in raising site planning and house design standards during its early years, it is now retarding further progress. The replies to the third part of the question indicate that a similar proportion of builders is prevented by FHA from trying new materials and construction techniques which these builders would like to use.

(Continued on page 90)



Plan your homes now for—

# WORK-FREE LIVING

**With these brilliant new 1950 Frigidaire Appliances  
from the makers of America's No. 1 Refrigerator!**

**Look what's new in Frigidaire Refrigerators  
for 1950—proof that you can't match a Frigidaire! ▶**

Enjoy the priceless client-satisfaction that's yours with the installation of a 1950 Frigidaire! You'll find a wider-than-ever selection, for there are 3 types, 4 series, 10 sizes! *The Frigidaire De Luxe* (illustrated) with Super-Freezer Chest has new Ice-Blue trim—new adjustable, sliding aluminum shelves—new, extra-deep stack-up Hydrators. The beautiful *Imperial Models* are two-door combination Cold-Wall refrigerators and food freezers. The 1950 *Master Models* have the colder-than-ever Super-Freezer—more food storage in less kitchen space. The new *Frigidaire Standard Models* are low priced, compact, dependable.

All Frigidaire models are powered by the famous Meter-Miser, simplest cold-making mechanism ever built—all are styled by Raymond Loewy. Get full details from your Frigidaire Dealer!

PICK SIZES FROM THIS TABLE *					
Model	Cu. Ft.	Shelf Area (sq. ft.)	Height (inches)	Width ** (inches)	Depth *** (inches)
IM-100	10.0	18.5	65-7/8	34-3/8	29-3/8
IM-80	8.0	16.1	62-1/4	33-3/8	28-1/4
DM-107	10.7	21.5	62-1/4	33-3/8	27-7/8
DM-90	9.0	17.8	57-1/8	31-7/8	27-7/8
MM-110	11.0	20.6	62-1/4	33-3/8	27-7/8
MM-92	9.2	17.0	57-1/8	31-7/8	27-7/8
MM-76	7.6	14.7	57-1/8	31-7/8	26-7/8
ML-171	17.1	32.7	67-3/8	38-7/8	35-1/8
SM-76	7.6	14.4	57-1/8	31-7/8	26-7/8
SM-60	6.0	11.7	51-7/8	24-3/8	26-3/4
AM-60	6.0	11.7	51-7/8	24-3/8	26-3/4
AM-43	4.3	8.0	34-1/2	24-1/2	26-7/8

\*—Send coupon for complete information on all models.

\*\*—Including hardware.

\*\*\*—Including allowance for proper spacing from wall.



◀ **The new Frigidaire "Thrifty-30" Electric Range  
puts a Thrifty Giant Oven in small-home kitchens!**

A perfectly-sized range for small-home kitchens, the Frigidaire Model RM-30 Electric Range (at left) is only 30" wide! It's a *big* range in everything that counts — and it's sensationally low priced! Extra oven space is provided by the *full-width* Thrifty Giant Oven—space enough for 6 big pies! And there are 4 new, faster, 5-Speed Radiantube Cooking Units. Model RM-35 has the new Cook-Master and Super-Size Utensil Drawer. Ask your Frigidaire Dealer for details of the new "Thrifty-30", and other models of Frigidaire Ranges, today!



FIND THE ONE THAT FITS YOUR PLANS, HERE!			
Model	Overall * Height (inches)	Width (inches)	Depth ** (inches)
RK-3	42	21	27
RK-4	42	21	27
RM-30	43	30	27-3/8
RM-35	48-1/2	30	27-3/8
RM-27	48-1/2	40	26-1/2
RM-45	49-1/2	40	26-9/16
RM-65	48-1/2	40	26-9/16
RM-75	48-1/2	40	26-9/16

\*All working surfaces are standard counter height.

\*\* Including hardware.



## A Frigidaire Automatic Laundry is a sales-clincher for new homes! ▶

Your Frigidaire Dealer will demonstrate what little space you need plan in your new homes for these three important Frigidaire work-savers. You can get the jump on competition and add greatly to the sales appeal of your new homes by including in them the Frigidaire Automatic Washer, Automatic Clothes Dryer and Electric Ironer.

And when prospective buyers find that the cost can be included in their long-term mortgage—you've added another sales feature to your appliance-equipped new home Package. Check your Frigidaire Dealer for details.

DIMENSIONS			
Appliance	Height (inches)	Width (inches)	Depth (inches)
Automatic Washer	36-3/4	25	25
Automatic Clothes Dryer	36-5/8	31	26-1/8
Electric Ironer	35 (closed)	36-5/8	17-1/2



## Streamline with Frigidaire Cabinets, Sinks

Use matching Frigidaire wall and base cabinets to provide convenient working surfaces and storage space around the refrigerator and range. Combine them with a Frigidaire Cabinet Sink to make a handy Clean-Up Center. They're all-steel—finished in Durable Dulux—Vitalast Work-Tops.

SIZES AND TYPES AVAILABLE			
Type	Height (inches)	Width (inches)	Depth (inches)
Base Cabinets	40 (36" to work surface)	15 to 30	25
Wall Cabinets	30	15 to 30	13
Wall Cabinets*	18	21 and 36	13
Utility Cabinet	84	21	13
Double-Bowl Sink	40 (36" to work surface)	48	25
Double-Drainboard Sink	40 (36" to work surface)	54	25

\*Corner Wall Cabinet and Base corner filler also available.

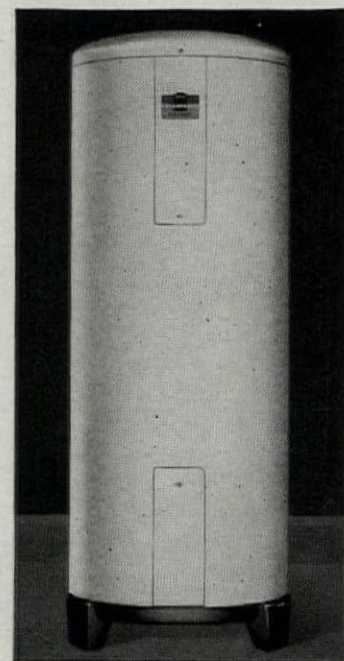
## Now 3 sizes of Frigidaire Food Freezers

Because more and more buyers of new homes are demanding facilities for storing frozen foods, Frigidaire Food Freezers are now available in 8.8, 11.7 and 18 cu. ft. sizes. They're all real savers of food, money and work—and best of all, they preserve the fresh flavor, appearance and nutritional values of the foods kept in them. Latest Raymond Loewy styling—room for up to 630 lbs. of food—utility shelf—2 sliding storage baskets—light in counterbalanced lid—signal light—lock-type latch—white Durable Dulux exterior finish. Powered by the economical Meter-Miser.



## For trouble-free water heating—Frigidaire ▶

Hot water's always on tap in homes equipped with a Frigidaire Electric Water Heater. You just set the automatic temperature control—and forget it. Install these smartly-designed heaters anywhere. They don't need flues—don't make soot. Round, upright style or handy table-top models with porcelain or Vitalast working surfaces—30 to 80 gallon sizes.



## AirConditioned Bedrooms

This new Frigidaire Window-Type Air Conditioner gives around-the-clock comfort in any moderate-sized room—for only pennies a day. It's easy to install—fits double-hung window 29 to 56 in. wide. Quiet—smooth-running—powered by dependable Meter-Miser mechanism.




## End moisture damage automatically

This amazing new Frigidaire Electric Dehumidifier automatically removes excess moisture from air in basements and other closed inside areas—stops rust, mold and mildew damage. No chemicals to handle. Plugs into any standard outlet. Powered by the Meter-Miser, simplest of all refrigerating mechanisms.



You can't match

# FRIGIDAIRE

 Home Appliances

Your Frigidaire dealer will give you details on how all these Frigidaire Appliances can be included in a small homes "package" and be financed with a long term mortgage.

## Mail coupon for full information

Frigidaire Division, General Motors Corp., 1438 Amelia St., Dayton 1, O.  
(In Canada, 701 Commercial Road, Leaside 12, Ont.)

Please send further information about Frigidaire products checked below.

- |   |   |
|---|---|
| <input type="checkbox"/> Refrigerators                    | <input type="checkbox"/> Food Freezers            |
| <input type="checkbox"/> Electric Ranges                  | <input type="checkbox"/> Kitchen Cabinets & Sinks |
| <input type="checkbox"/> Electric Water Heaters           | <input type="checkbox"/> Room Air Conditioners    |
| <input type="checkbox"/> Automatic Washer, Ironer & Dryer | <input type="checkbox"/> Electric Dehumidifier    |

Name.....

Street & No.....

City.....County.....State.....



# Russwin "400" Door Closer with 4-speed control and "Silence Adjustment"

Dual valving plus exclusive "Silence Adjustment" gives silent, complete closing of any door at all closing speeds. Years and years of perfect door control under every condition . . . proving the economy of quality. Russell & Erwin Division, The American Hardware Corp., New Britain, Conn.

This is  
"Silence  
Adjustment"

SINCE 1839  
**RUSSWIN**  
DISTINCTIVE HARDWARE

## MERCHANT BUILDER SURVEY

(Continued from page 87)

List in the order of their sales-generating importance the various means you are using to improve the quality of your houses.

More kitchen-laundry equipment . . .	28%
More built-in features . . . . .	19%
Better design . . . . .	14%
Picture windows . . . . .	9%
Brand name products . . . . .	9%
Better workmanship . . . . .	7%
Radiant heating . . . . .	5%
Better site planning . . . . .	5%
Greater design variation . . . . .	4%
	100%

In their replies to this question builders reveal specifically what the public wants when it says it wants quality. First and foremost, quality seems to mean more kitchen and laundry equipment included in the package mortgage—ranges, refrigerators, clothes washers, dishwashers, garbage disposing sinks, exhaust fans, metal cabinet and counter combinations, plastic counter tops, etc. Next in importance on the quality list is the addition of such built-in features as breakfast bars, dressing tables, chests of drawers, wardrobe-type closets, bookcases, storage cabinets, mirrors, sliding and folding doors, combination screens and storm sash, clothes chutes and other convenience items. The loosely defined quality "better design" ranks a close third, with "better site planning," a poor eighth. Other miscellaneous quality-building details, mentioned too infrequently to be included in the above tabulation, are bathroom tiling, metal door and window trim, marble sills in bathroom and kitchen, revolving shelves, recreation rooms and television rooms.

### What is the local trend of the following costs?

	Up	Down	Steady
Building material costs . . . . .	63%	13%	24%
Building labor wages . . . . .	45%	18%	37%
Mortgage interest rates . . . . .	8%	29%	63%
Land costs . . . . .	70%	12%	18%
House sales prices . . . . .	28%	27%	45%

More significant than the individual cost trends shown above is the startling fact that, while the majority of builders report rising material costs, labor costs and land costs, the majority also report that the trend of house sales prices is steady. Apparently these builders believe that these cost increases can be offset by more economical production techniques—see below. (However, their optimism about holding down their sales prices must be tempered by the possibility that, after the FORUM's poll was concluded in early March, material prices were greater and more wide-spread than many builders anticipated. It remains to be seen whether or not builders can offset and absorb these material price rises to the extent indicated by the FORUM's survey—Ed.)

While in every section of the country there was more agreement (70 per cent average) on the upward trend of land costs than on any other cost classification, the builders are less concerned about this trend than the current high cost of building labor, as shown by their replies to the following question:



Which of the following costs, in your opinion, is furthest out of line?

Building material costs .....	11%
<b>Building labor wages .....</b>	<b>49%</b>
Mortgage interest rates.....	10%
Land costs .....	19%
Land improvement costs.....	11%
	<hr/> 100%

Despite the fact that all costs, with the exception of interest rates, are high and going higher, labor costs in particular are considered most out of line. Almost half the builders were in agreement on this point regardless of the section of the country represented. Land costs are considered next most excessive (19 per cent of the votes) with the costs of materials, money and land improvements running a close race for third place (each with 10-11 per cent of the builders' votes).

Anticipating that builders would accuse labor in general of unduly boosting the cost of houses, FORUM's survey attempted to pin down the accusation with this question:

With reference to building labor wages, which trades, in your opinion, are furthest out of line?

<b>Plumbers .....</b>	<b>24%</b>
Plasterers .....	17%
Masons .....	17%
Bricklayers .....	16%
Carpenters .....	11%
Electricians .....	5%
Lathers .....	4%
Common labor .....	3%
Painters .....	2%
Tile setters .....	1%
	<hr/> 100%

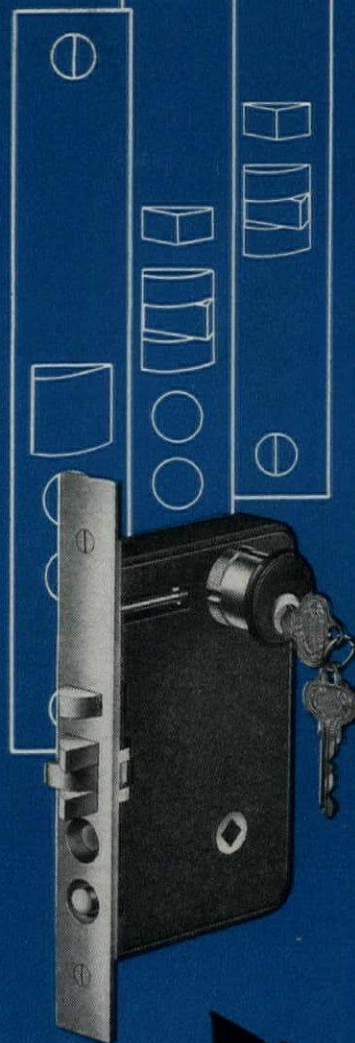
Although plumbers win the dubious honor of being considered the most over-paid workers on house construction (with 24 per cent of the builders' votes), the trowel trades as a group incur a much greater share (50 per cent) of the builders' wrath. Independently, the trowel-wielding plasterers, masons and bricklayers each received 16-17 per cent of the votes in the unpopularity contest; carpenters were fourth with 11 per cent of the votes.

With reference to the cost of building materials, which, in your opinion, are furthest out of line?

<b>Lumber .....</b>	<b>45%</b>
Millwork .....	14%
Plumbing .....	11%
Flooring .....	6%
Steel .....	6%
Plywood .....	5%
Brick .....	4%
Concrete .....	4%
Metals .....	2%
Gypsum products .....	2%
Electrical supplies .....	1%
	<hr/> 100%

(Continued on page 94)

# Russwin "Ten Strike" Cylinder Locks... One size case for 30 lock functions



The greatest development in the simplification of cylinder locks. Simpler to specify, easier to install and a better lock for every door, for every dollar... proving the economy of quality. Russell & Erwin Division, The American Hardware Corp., New Britain, Conn.

SINCE 1839  
**RUSSWIN**  
DISTINCTIVE HARDWARE





WINDOWALLS illustrated are Andersen Casement Window Units in combination with fixed double glazing.

*Windowalls* **ANDERSEN** \*





**THREE VIEWS IN ONE** is the effect achieved by Architect Magnus Jemne's interesting use of Andersen WINDOWALLS around the corner of this lakeside Minnesota home.

These WINDOWALLS are constructed of lasting, beautiful wood... wood which blends with the room's paneled walls... wood whose insulating qualities reduce heat losses and help control troublesome condensation. These wood windows play a dual role as WINDOWALLS. They

serve as windows by bringing in sunshine and fresh air and the owner's prized view; and as walls they keep the room snug and comfortable.

Specification data on Andersen WINDOWALLS is in Sweet's Architectural and Builders' Catalogs. See your local mill-work dealer or write us for further information, including the new Andersen WINDOWALL Tracing Detail File for architects and designers.

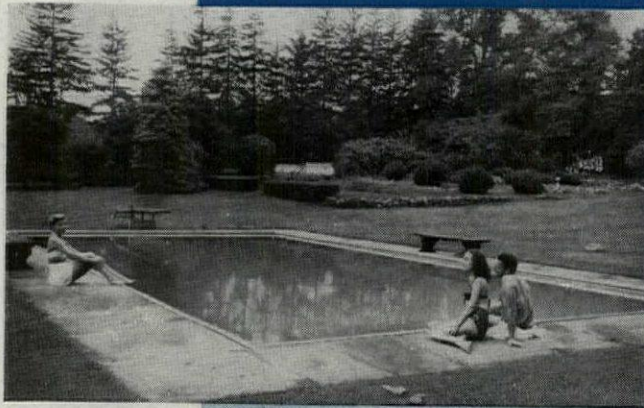
\*TRADEMARK OF ANDERSEN CORPORATION

*Andersen Corporation* • BAYPORT • MINNESOTA

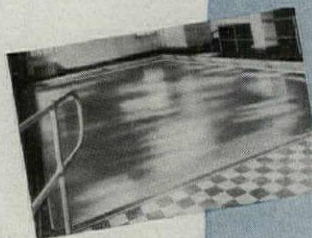


# ALL STEEL SWIMMING POOLS

BY **Koven**



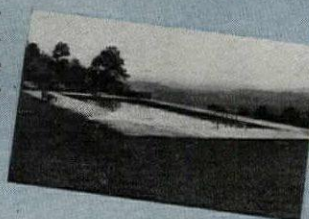
- **low initial cost**
- **lower upkeep**
- **the only leak-proof type of pool built**



Modern, trouble-free welded steel pools by KOVEN have demonstrated their superiority over all other type pools through

the years — on hotel and club grounds, at private estates, in hospitals, at municipal projects. Architects and builders, recognizing the dependable quality of KOVEN all steel swimming pools, recommend them for indoor as well as outdoor installations. Not only is their initial price low, but maintenance costs are low, too.

KOVEN steel pools are built of heavy steel plate, shipped knocked down, then field welded and erected with suitable structural reinforcing and bracing. Scuppers, which are designed to maintain water level at 2½" below top edge of pool, can be plugged if top water level is desired. Ladder at diving area and stairway at shallow end are supplied. Filtration, chlorination and lighting can be furnished by KOVEN at added cost.



**ANY SIZE, STYLE OR SHAPE POOL CAN BE ORDERED**  
Free informative booklet sent on request. Write or call KOVEN now—no obligation.

**KOVEN STEEL SWIMMING POOLS, INC.**  
A DIVISION OF L. O. KOVEN & BRO., INC.  
154 OGDEN AVENUE, JERSEY CITY 7, N. J.  
Plants: Jersey City, N. J. Dover, N. J.

## MERCHANT BUILDER SURVEY

(Continued from page 91)

In replying to this question builders were undoubtedly influenced by the relative importance of the various materials used in house construction. Lumber and wood products (millwork, flooring and plywood), which are used in greater quantities than any other kind of material, were mentioned by 67 per cent of the builders as the most over-priced materials in a house. Plumbing materials (pipe, fittings and fixtures) are also seriously out-of-line price-wise according to 11 per cent of the surveyed builders. On the other hand, materials used by the high-priced trowel trades (brick, concrete and gypsum products) together received only 10 per cent of the votes. Steel, whose high price last month prompted a Congressional investigation, was mentioned by only 6 per cent of the builders—probably because they use so little of it.

**List in the order of their dollar-and-cents importance the various techniques and materials you use to reduce costs:**

Power tools .....	11%	35%
Precutting of lumber .....	11%	
Preassembly of parts .....	7%	
Site fabrication .....	6%	
<b>Close supervision .....</b>	<b>14%</b>	11%
Dry wall construction .....	12%	
Quantity buying .....	7%	
Volume production .....	4%	
Standardization of parts .....	5%	8%
Uniformity of design .....	3%	
Slab floor construction .....	6%	8%
Asphalt tile flooring .....	2%	
Subcontracting .....	4%	100%
Asbestos cement siding .....	4%	
No subcontracting .....	2%	
Forced air heating .....	1%	
Prefabricated parts .....	1%	

From the answers to this question it is apparent that partial industrialization of the building operation is considered the most fruitful means of reducing costs. More than one-third of the builders consider the use of power tools, the precutting of lumber, the pre-assembly of parts (such as roof trusses, wall frames and plumbing trees) and on-site prefabrication in general to be the most important means of saving construction money. However, when considered individually none of these techniques ranked as high in importance as "close supervision," which 14 per cent of the builders hold to be the key secret to cost reduction. Similarly, dry wall construction, with 12 per cent of the votes, is considered an important cost saver. Further down the list is an interesting contradiction: 4 per cent of the builders think money can be saved by subcontracting a larger portion of their work, while contrary-wise, 2 per cent feel that they can reduce costs by eliminating subcontractors entirely. Only a scant 1 per cent of the builders consider the use of factory prefabricated houses or house parts a way to lower their costs—probably because only a very few of them have had any actual experience with such construction.

The significance of the foregoing list of cost-reducing techniques and materials is best measured by the fact that the builders participating in FORUM's survey believe that by using these money-saving devices they can hold down the sales prices of their houses despite rising land, material and labor costs.



# Bids over the budget?



Unless you figure feeders in  
*Aluminum* you don't

# figure low

Figure your industrial plant feeders both ways—in aluminum and in copper. You'll be pleasantly surprised by the savings you get with *aluminum*.

For prices, call one of the manufacturers listed below.

For copy of "Questions & Answers About Aluminum Conductors", call your nearby Alcoa Sales Office, or write ALUMINUM COMPANY OF AMERICA, 1778D Gulf Building, Pittsburgh 19, Pennsylvania.

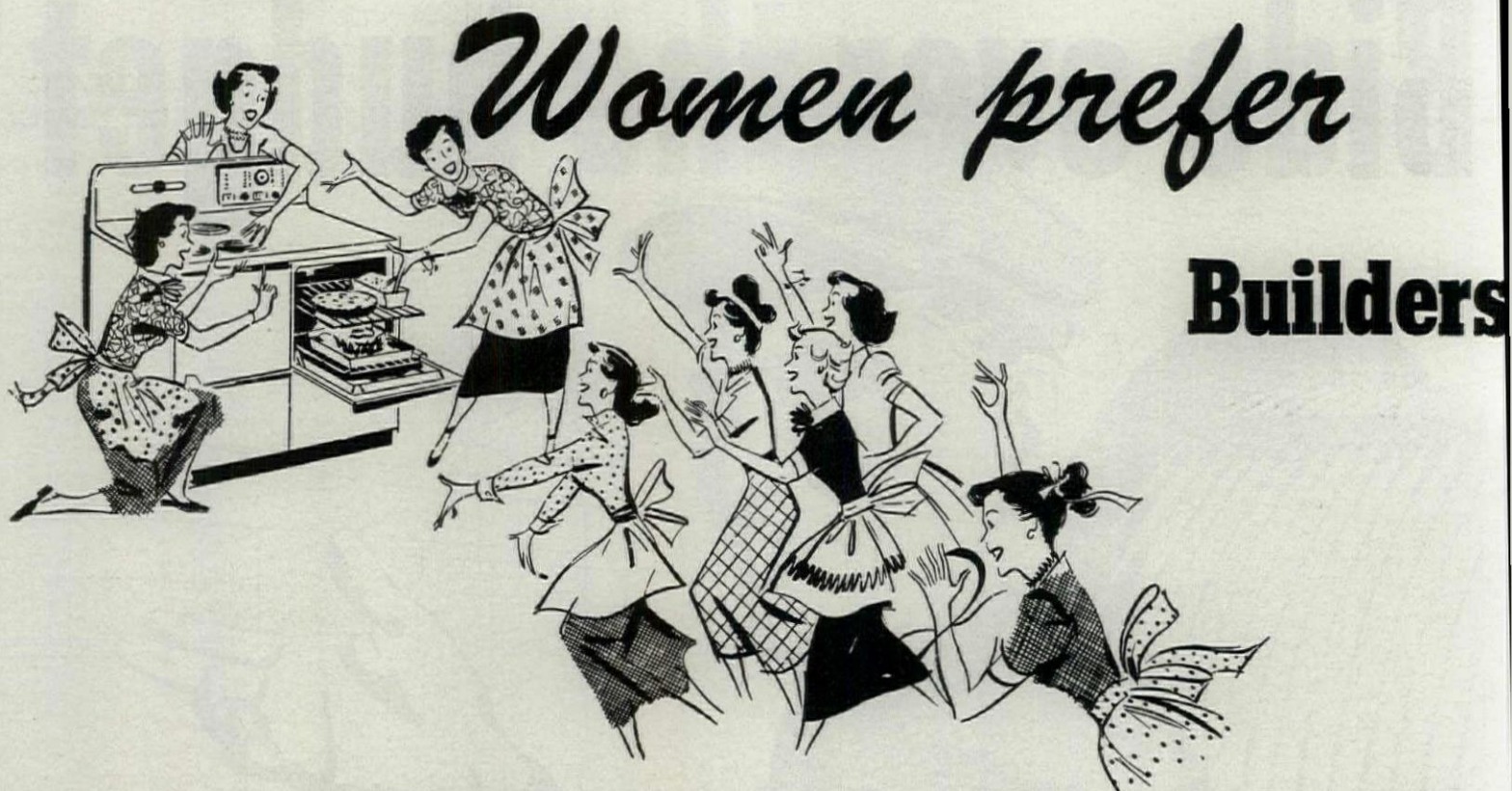


# Aluminum Conductors

of ALCOA **EC** ALUMINUM are made by

Anaconda Wire & Cable Company  
Collyer Insulated Wire Company  
Crescent Insulated Wire & Cable Company  
General Cable Corporation  
The Okonite Company  
United States Rubber Company





# Women prefer

# Builders

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sales faster  
and easier

Sales come easy when you give homemakers what they want. Greater sales of new homes are made the year 'round, when you increase home values without increasing home costs.

**HOTPOINT**  
pushbutton  
cooking

We don't have to tell you that the woman is the deciding factor in new home selection. When she is pleased, the sale is practically made. Women everywhere are quick to recognize the added value and beauty given to any home by Hotpoint All-Electric Kitchens and Home Laundries.

The revolutionary new Hotpoint Range is the ultimate in simple, safe, clean, modern cooking! The easy-to-use, easy-to-see, easy-to-reach pushbutton controls for surface and oven cooking reduce cooking to childlike simplicity—eliminate all guesswork and worry—raise cooking results to a new peak of accurate perfection.

*—When you specify* **Hotpoint** *you specify consumer preference!*

Preference for Hotpoint is a result of Hotpoint's reputation for top quality, built up through the years.  
Women have learned to look to Hotpoint for the finest first.

RANGES • REFRIGERATORS • DISHWASHERS • DISPOSALS® • WATER HEATERS • FOOD FREEZERS • AUTOMATIC WASHERS



# Hotpoint...

## can bank on that!



### HOTPOINT AUTOMATIC DISHWASHER

The sensational new Hotpoint Automatic Dishwasher features simple control—front opening—overhead spray—extra large capacity and electric-heat drying and table top surface. Modern women thrill at Hotpoint's modern advancements because these and many other amazing features add up to **NO MORE DISHPAN DRUDGERY—NO MORE DISHPAN HANDS.**



### HOTPOINT REFRIGERATORS

Here is the world's most treasured Refrigerator. It has a real Food Freezer—No-defrost Refrigerator Unit—Hi Humidity Storage—Left-over Rack—Butter Conditioner—Easy Release Ice Trays—Sliding and Guarded Adjustable Shelves—Tall Bottle Zone and Fiberglas® Insulation on all six sides.



### HOTPOINT AUTOMATIC CLOTHES WASHER

Hotpoint's fluid drive means smooth, trouble-free operations even with unbalanced load. No bolting down. Convenient Top Opening—Assured Safe, Thorough Washing with Three-Zone action—Wonder-dial Control—Automatic Drain Pump—Deep Overflow Rinse—Sediment Ejector—White Porcelain Spin Tub—Porcelain Drain Tub and Complete Flexibility of operation means family wash done as efficiently, as quickly and cleanly as twentieth-century science can devise. No more Blue Mondays!



### HOTPOINT AUTOMATIC ELECTRIC WATER HEATER

This Hotpoint Water Heater is backed by a liberal warranty and 10-year protection plan. Equipped with "Magic Circle" Pressurized Conduction Calrod® Units—Automatic Thermostat Control—Fiberglas® Blanket Insulation—New Built-in Hot Water Trap—New Cold Water Baffle—Heavy Gauge long-life Steel Tank—White Baked-on Cal-gloss Finish and simplicity of operation makes Hotpoint a real Sales Point.



### HOTPOINT DISPOSALL® GARBAGE DISPOSER

With Hotpoint Disposall® the kitchen stays clean, sinks stay clean and hands stay clean. Food refuse vanishes immediately. No Garbage odor—no carrying of Garbage to the Garbage can—Costs less than 10¢ per month to operate. Just scrape food refuse into drain, turn on cold water and garbage worries are banished forever.

## Hotpoint prices are lower than you think!

Because of the many sensational value-giving features found in all Hotpoint Kitchen and Home Laundry Electrical Appliances, you may be of the opinion that Hotpoint's price range exceeds that of other well known manufacturers. A comparison of prices will prove that Hotpoint's price structure is strictly competitive.

### Include Hotpoint Electric Living in Your Realty Mortgage

For a small addition to the long term realty mortgage, you can offer your prospects all the conveniences of Hotpoint Kitchens and Home Laundries. The economies effected through long life and low maintenance of Hotpoint Appliances easily balance off these increased monthly payments.

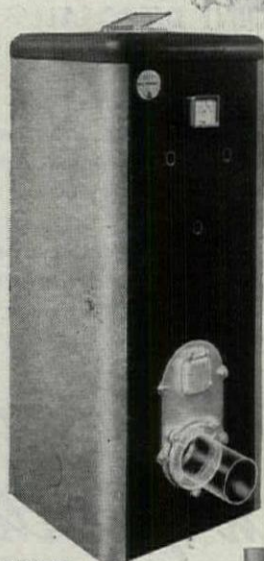
# Hotpoint Inc.

(A General Electric Affiliate)

CLOTHES DRYERS • ROTARY IRONERS • CABINETS

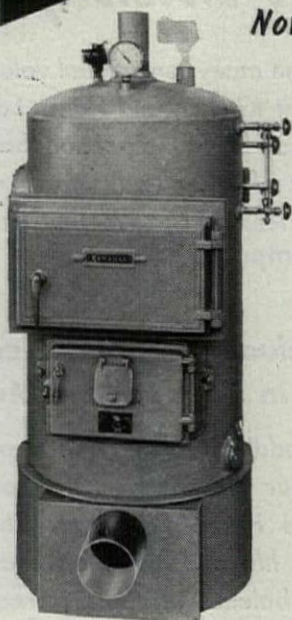
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**KEWANEE**  
Cottage Boiler

Vertical Tube style  
for hot water heat  
in small homes.



**KEWANEE**  
Round Type "R"

330 to 900-sq. ft.  
steam radiation,  
Jacketed or un-  
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# KEWANEE

## STEEL BOILERS

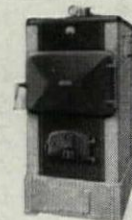
Whether heated with conventional radiators, wall, floor or ceiling panels, or radiant baseboard . . . with oil, gas or coal (hand or stoker fired) . . . there is a Kewanee Steel Boiler just right for the purpose. And each size and type provides that extra dependability with economy of fuel which has made Kewanee Boilers famous for more than 80 years.

*Now — for the budget home* there is the new Kewanee Cottage Boiler; a sturdy steel vertical tube unit in a smart two-tone green, insulated jacket. Rated to produce 77,000 Btu, this Kewanee is capable of producing enough extra heat to take care of overloads of 50% and more.

As an additional feature, a built-in copper coil water heater provides an abundance of hot water for kitchen, bath and laundry. Yet, with all of these "big boiler" characteristics, the Cottage Boiler is so priced that it comes well within the limits of the modest budget.

### For Large Homes and Medium Size Buildings

Type "R" Square Heat fills a long felt need. It is built in 8 sizes to heat 740 to 3000-sq. ft. steam radiation; or 1180 to 4800-sq. ft. water radiation; and capable of operating at full efficiency whether the boiler is just "loafing along" in mild weather or being pushed far beyond its rated capacity when temperatures tumble below zero.



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# KOPPERS ROOFS CAN BE BONDED AGAINST REPAIR COSTS -for 10, 15 or even 20 years!

**KOPPERS COMPANY, INC.**  
PITTSBURGH, PENNSYLVANIA  
**ROOF GUARANTEE BOND**  
National Surety Corporation  
NEW YORK, N. Y.

**Know All Men by These Presents:** That we, Koppers Company, Inc., a corporation of the State of Delaware, with an office and place of business in the City of Pittsburgh, Pennsylvania, (hereinafter referred to as the Principal), and National Surety Corporation, a corporation of the State of New York, with an office and place of business at 110 John Street, New York City, (hereinafter referred to as the Surety), are jointly and severally bound to the owner named below in a sum not exceeding \$\_\_\_\_\_ in lawful money of the United States of America, for the payment of (these presents).

**Whereas:** The Principal has sold the material and labor for constructing a roof of the type herein specified in accordance with the Principal's specifications for Koppers Roofs on the building described below, and guaranteed for the period specified below, to-wit:

Owner \_\_\_\_\_  
Location of Building \_\_\_\_\_  
Character of Building \_\_\_\_\_  
No. of Squares \_\_\_\_\_  
Type of Roof \_\_\_\_\_  
Date of Completion \_\_\_\_\_  
Years (not to exceed 20 years) after date of completion \_\_\_\_\_  
Roofing Contractor \_\_\_\_\_

**And whereas:** The Principal has sold the material and labor for constructing a roof of the type herein specified in accordance with the Principal's specifications for Koppers Roofs on the building described below, and guaranteed for the period specified below, to-wit:

**Now, Therefore, if the Principal, its successors, and assigns, shall in all things well and truly perform and observe all the covenants, agreements, stipulations and conditions above in law performed and observed by it, then the obligation shall be void, otherwise to be in full force and effect.**

By \_\_\_\_\_ National Surety Corporation  
By \_\_\_\_\_ Koppers Company, Inc.

FOR as long as 20 years—the owner, whose roof is Bonded,\* pays nothing for repairs. That's the remarkable story of a remarkable Bonded Roof—Koppers.

Koppers Company, Inc. and the National Surety Corporation jointly issue Roof Guarantee Bonds. And are they taking chances? No indeed, because these conservative companies are backing that unbeatable roofing combination—Koppers Coal Tar Pitch and Tarred Felt.

When a roof is built-up with Koppers Pitch and Felt, it resists prolonged contact with water. It has unusual tensile strength. It is "self-sealing" if small breaks occur. And when gravel or slag is embedded in a heavy pouring of Koppers Pitch, the roof surface is armored against hail, driving rain, sleet and snow. No wonder such roofs can be Bonded!

Koppers Roofing Bonds are issued for 10, 15 or 20 years according to the type of roof applied. In all cases, before a roof can be Bonded, certain conditions must be met and certain specifications followed. Competent builders and roofing contractors can readily fulfill the requirements.

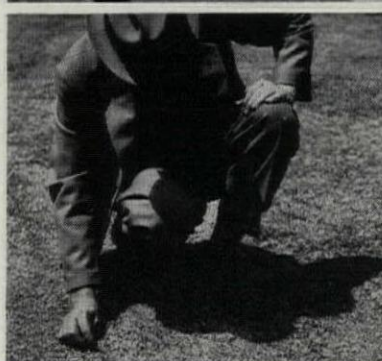
With or without a Bond to back it up, a Koppers Built-Up Roof is a good roof. But it's important to know about Koppers Roofing Bonds. They are a powerful sales help; they give added prestige to contractors. As for owners, they are always pleased by the extra protection these Bonds provide. Write for full information.

**KOPPERS COMPANY, INC.** • **Pittsburgh 19, Pa.**

\*Koppers issues Roof Guarantee Bonds in such sections of the United States as are covered by its inspection service.



A Koppers representative inspects the roof during construction to make sure that it is built according to specifications.



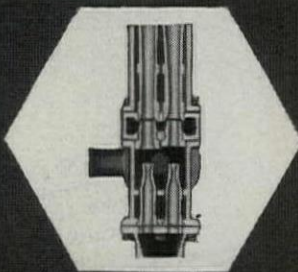
A Koppers representative inspects each Bonded Roof approximately two years after construction. If there are any signs of trouble, the roof is put into first-class condition (under the terms of the Bond) without expense to the owner.



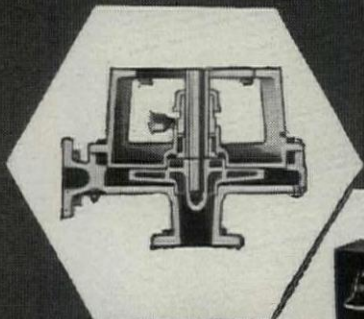
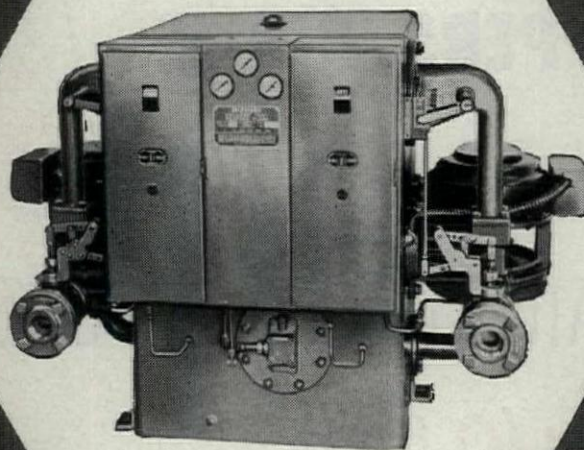
• SPECIFY KOPPERS FOR LONG-LIFE ROOFING •



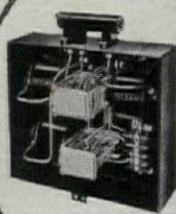
first you see  
the difference  
...then  
you pocket it!



**UNSURPASSED PERFORMANCE**  
—Brass jet exhaustors create high vacuum.



**LOWEST COST MAINTENANCE**  
—Simple water impeller eliminates all close tolerances.



**UP TO 40% FUEL SAVING**—Differential Controller varies vacuum up to 26 inches.

**DUNHAM VACUUM PUMPS** step up to steam circulation ... **lower fuel costs.** Your clients get more heat for their money when you specify a Dunham Vacuum Pump. *Designed to pull up to 26 inches of vacuum*, these pumps easily handle the requirements of any steam heating system. Provide better circulation and control of steam ... shorten "heating up" periods.

Dunham Vacuum Pumps are extremely simple and compact in design. The only principal moving element is the water impeller. Flow of water through the exhaustor jets creates a high vacuum ... maintains positive pressure to discharge condensate direct to boiler. There are no moving parts under vacuum ... no close tolerance parts to slip out of adjustment.

Available as single or duplex units—in a full range of capacities to meet most heating demands. Dunham Vacuum Pumps are ready for immediate operation on delivery.

**These Pumps Help Dunham Differential Heating Cut Fuel Costs up to 40%**  
These pumps are the heart of the famous Dunham Vari-Vac\* Heating System ... the precision temperature control system that, for example, has enabled the Millard Fillmore Hospital, Buffalo, N. Y., to save 37.8% annually on steam consumed since 1935.

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Write today for your free copy of File No. 4C-2-8, giving complete facts and figures about these cost-saving Vacuum Pumps and other Dunham Heating Products. C. A. Dunham Co., 400 W. Madison St., Chicago 6, Ill.  
*In Canada:* C. A. Dunham Co., Ltd., Toronto.  
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\*Variable Vacuum

**FROM A SINGLE TRAP ... TO A COMPLETELY ENGINEERED SYSTEM ...**



**HEATING  
MEANS BETTER HEATING**



for *extra whiteness*

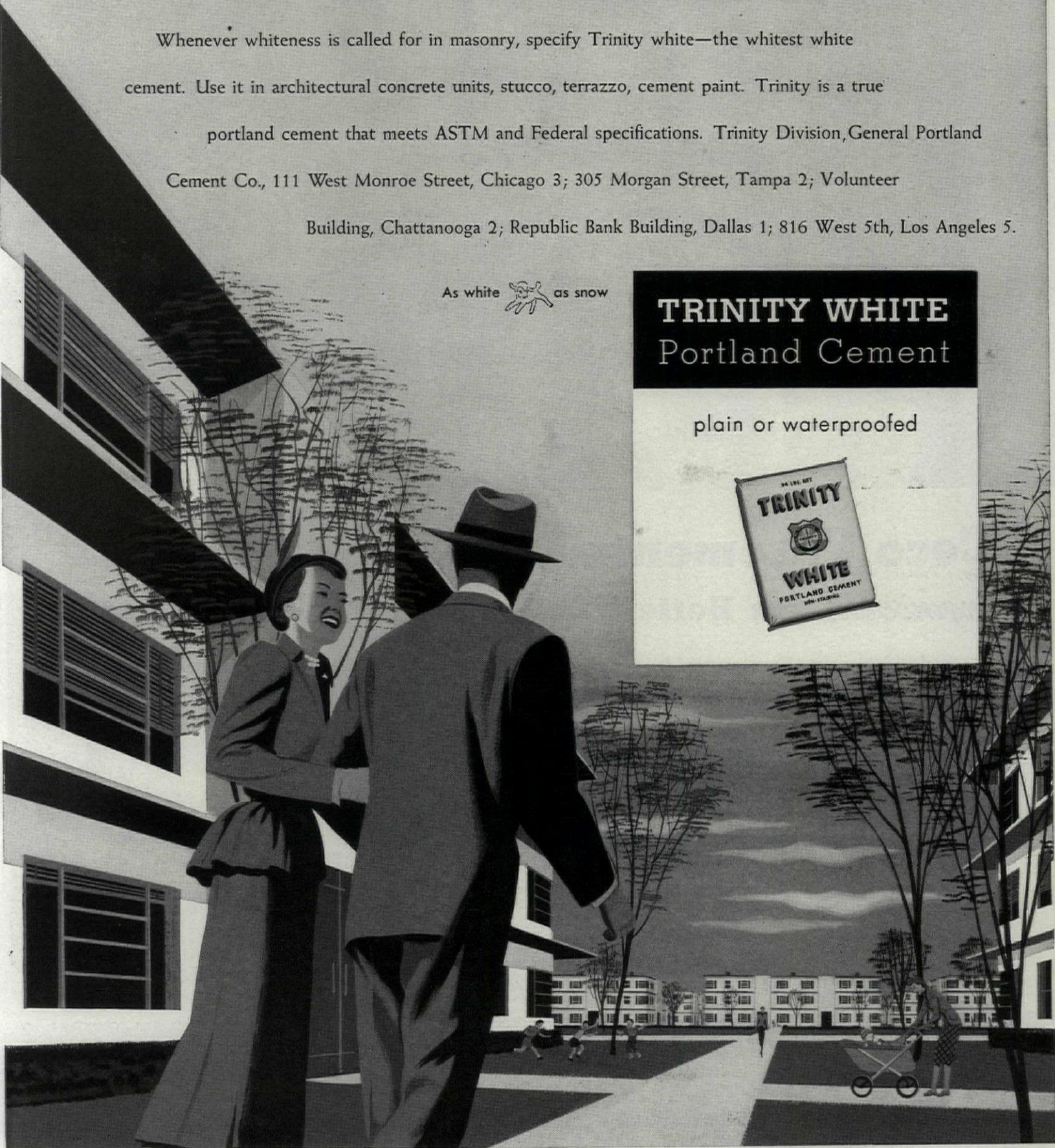
**use Trinity White Cement**

Whenever whiteness is called for in masonry, specify Trinity white—the whitest white cement. Use it in architectural concrete units, stucco, terrazzo, cement paint. Trinity is a true portland cement that meets ASTM and Federal specifications. Trinity Division, General Portland Cement Co., 111 West Monroe Street, Chicago 3; 305 Morgan Street, Tampa 2; Volunteer Building, Chattanooga 2; Republic Bank Building, Dallas 1; 816 West 5th, Los Angeles 5.

As white  as snow

**TRINITY WHITE**  
Portland Cement

plain or waterproofed







**Ceco Casements...**

*Designed for the Modern Home*



## **Ceco Casements...** *Engineered for Better Living*

Anyone looking out of a Ceco casement for the first time experiences something in better living. The eye crosses easily to the beauty of the outdoors—space seems limitless. Viewed another way, distant scenes become murals to revel in and contemplate. And to live with Ceco casements for even a short time is to appreciate truly sound value. For here, beauty and utility indeed are effectively combined. We believe all this can be attributed to engineering excellence... from design through manufacturing. When you specify Ceco casements, you know you've chosen the very best... you're sure of economy too—you're modern as tomorrow.

### **Advantages of Ceco Steel Casements**



**Controlled Ventilation**



**Easy to Open and Close**



**Easy to Wash**



**Easy to Screen**

### **CECO STEEL PRODUCTS CORPORATION**

General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

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STEEL**®

*In construction products* **CECO ENGINEERING** *makes the big difference*





# NEW Double-Duty INSULITE\*

## Interior Finish Products

**Ideal for finishing attics, amusement rooms... public and commercial interiors.**

Forget your old conception of interior boards! Here is a fresh new line with imaginative improvements—designed to do a better job—faster—easier—and with flattering results.

**NEW COLORS**—Chosen by Faber Birren, nationally known consultant, based upon research to measure the preference of today's buying public. These colors are accurately keyed to buying opinion.

**AMAZING NEW SURFACE RESISTANCE TO WEAR!** Test it yourself. Durolite plank, for example. Rub it, scrub it *hard* with brush, soap and water. You've never seen anything like it. That surface is there to give years of service—and still look fresh and attractive.

**FAST AND EASY TO APPLY**—Just use nails or staples direct to framework. No skill required—anyone can do it. Saves time, cuts application costs, and the finished result is beautiful and attention-getting.

**NEW INSULITE FLANGED T & G JOINT** assures firm, uniformly level application that stays securely in position. Concealed fastening. Application is fast and easy with nails or staples.

**SIZES:** Tile, 12" x 12", 16" x 16", 16" x 32". Interior Board: 4' width by 6', 7', 8', 9', 10' and 12' lengths. Plank: 8", 10", 12" and 16" widths by 8', 10' and 12' lengths.

From any point of view—Architect, Dealer, Builder—THESE ARE THE IDEAL MATERIALS for finishing attics, amusement rooms... public and commercial interiors. And remember: Not only will these new products finish and beautify, but they also *insulate*.

### LUSTERLITE TileBoard and Interior Board

Colors: White, Ivory White. Texture: Smooth... high light reflecting. Joint: TileBoard employs new Insulite flanged T & G joint. Interior Board has square edged joint.

### DUROLITE Plank and Interior Board

Colors: Ivory, Pale Green, Woodtone Light, Woodtone Dark. (The two woodtones in the Plank are cartoned, half light and half dark, to provide variegated effect in application.) Texture: Rough... highly durable. Joint: Plank employs new Insulite joint. Interior Board has square edged joint.

### WEVELITE Interior Board

Color: Ivory White. Texture: Rough surface. Joint: Square edged.

### SMOOTHLITE Interior Board

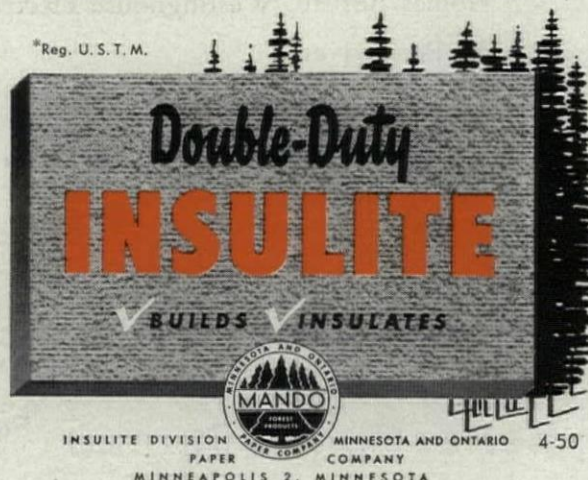
(Formerly SMOOTHCOTE.) Color: Natural. Texture: Smooth. Joint: Square edged.

### ACOUSTILITE 3/4" and FIBERLITE 1/2"

Colors: White. Texture: Porous, giving a travertine stone effect. Joint: Butt joint edges beveled and kerfed. Applied With: Cement.

Refer to Sweet's File, Architectural Section 10a/8

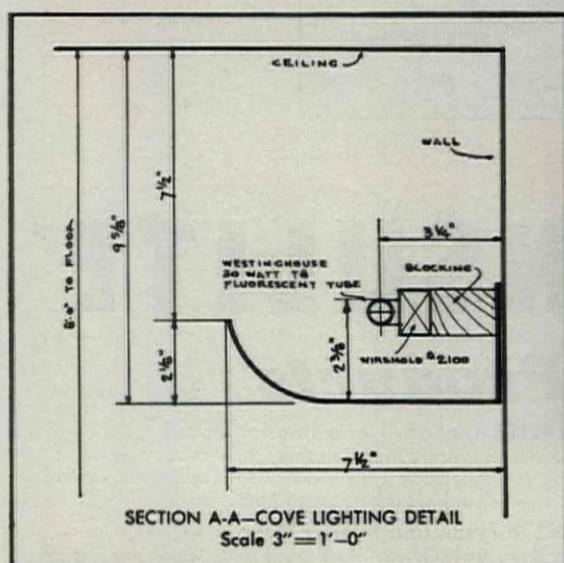
\*Reg. U. S. T. M.



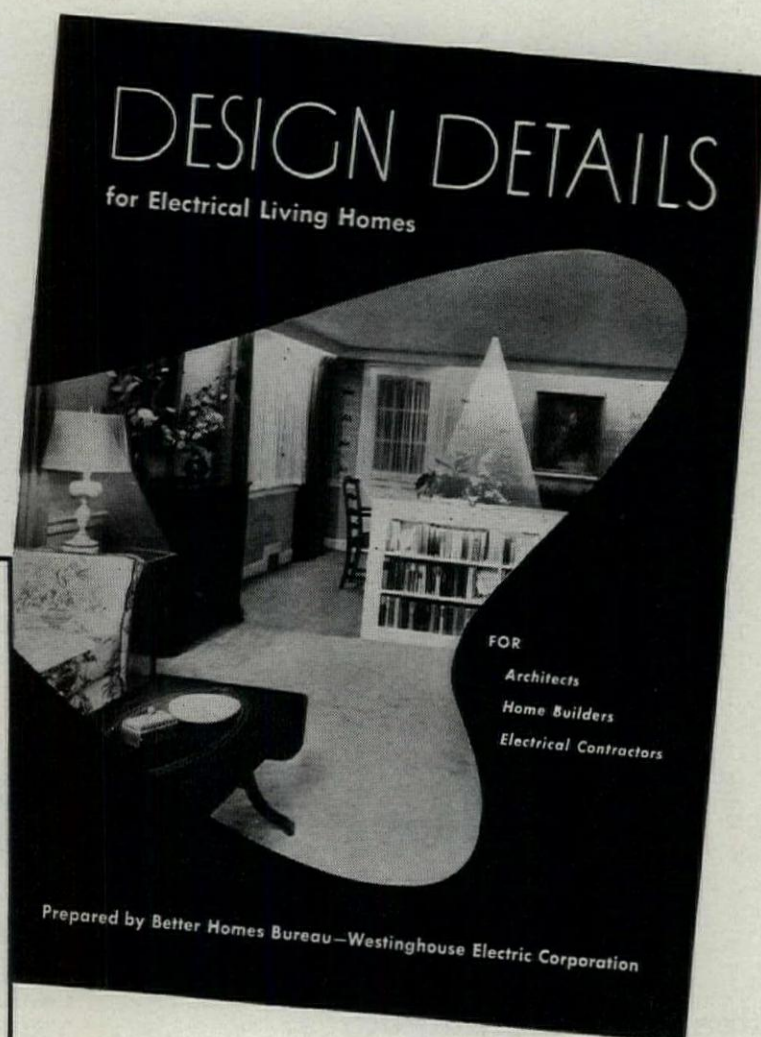


# A New Book

## FOR ARCHITECTS



Typical detail from book



Fills a real need for construction details on valance, cornice, cove, soffit, pin-hole spot, under-cabinet and other unusual lighting effects. Kitchen and laundry plans are also shown, as well as essentials of modern wiring. Photographs of actual installations show the application of these details.

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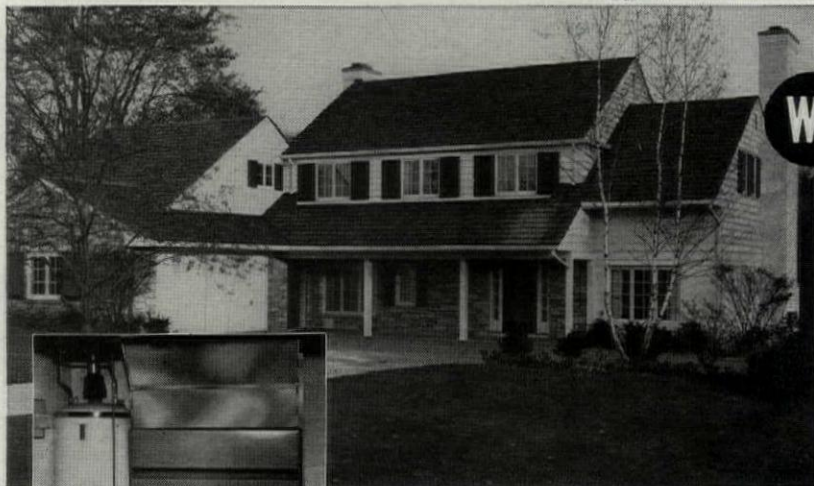
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# RADIANT *heating*

**AT ITS PRACTICAL BEST!**



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The system of using warm air for radiant heating offers many advantages... it's simple... it's practical... Janitrol can point to hundreds of installations of proven performance and home owner satisfaction. Floors or ceilings can be used for radiating surfaces, depending on the type of house to be heated.

Janitrol warm air radiant panel installations are not expensive, they are practically engineered for homes in \$10,000 bracket as well as for more expensive custom built homes. Write for complete data.

Attractive home from plans of George H. Burrows Associates and built by Maynard R. Sheldon for J. E. Carson, Belvoir Blvd., Cleveland, Ohio, utilizes ceilings for warm air radiant heating. Janitrol gas unit is located in hallway closet on first floor. Installation by Home and Industrial Heating Co., Cleveland.



## HOT WATER RADIANT PANEL

In small basementless houses up to luxurious 14 room country homes, Janitrol W. A. S. Hot Water Systems are proving their many advantages as the heat generating unit for both floor and ceiling radiant panel heating. These Janitrols also provide in a single compact unit, an abundance of hot water for all domestic uses. You can feature Janitrol's proven performance for hot water radiant heating either as oil or gas (including L.P.) fired equipment. Write today for complete specifications.

This ranch style home of Mr. Dale Hanshaw, North 9th St., Noblesville, Ind., features a Janitrol W.A.S. Hot Water System providing hot water for all household requirements as well as circulated hot water for the radiant panel heating. Builder, Perry Pitts, Sheridan; Janitrol installation by H. C. Gammon Co., Inc., Indianapolis, Ind.

WRITE — As an architect you should have a complete file on Janitrol equipment for radiant heating. Write for your manuals today.

# Janitrol

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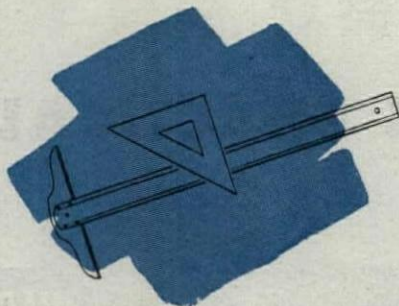
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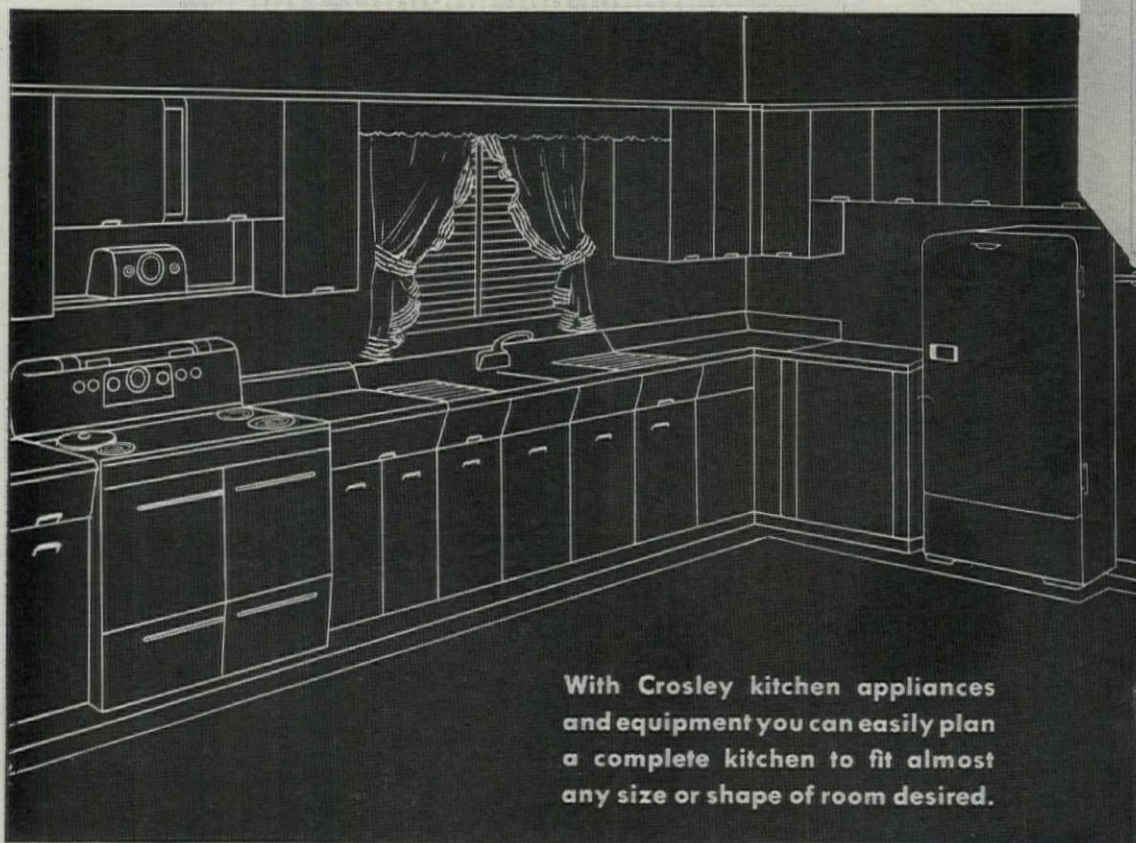
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10 BEAUTIFUL SHELVDOR\* REFRIGERATORS—all with recessed shelves in the door that double "front-row" space.



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FREEZERS



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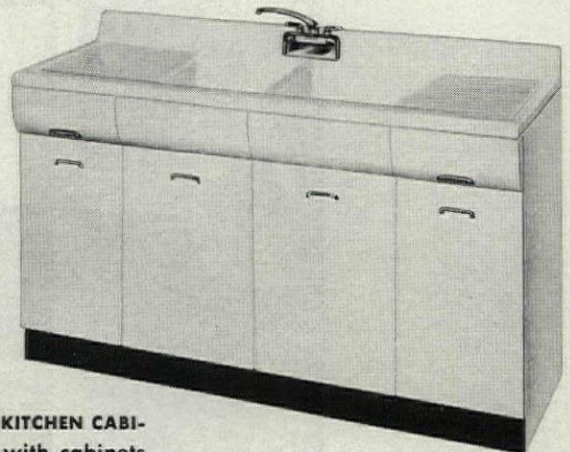


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## BUILD WITH CROSLEY TODAY!

Whether you plan single- or multiple-unit dwellings, whether you want a single appliance, combination of appliances, or complete kitchen, you can do a better job with Crosley... Crosley kitchen products are versatile, modern, and beautiful—providing many *exclusive features* that help you develop your business reputation.

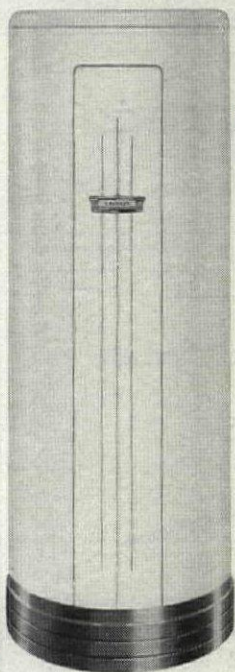
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**7 MODERN KITCHEN CABINET SINKS** with cabinets of all-steel welded construction and one-piece heavy-duty steel tops.



**THE CROSLEY ELECTRIC GARBAGE DISPOSER**—can't jam or clog! Designed to fit all standard cabinet sinks.



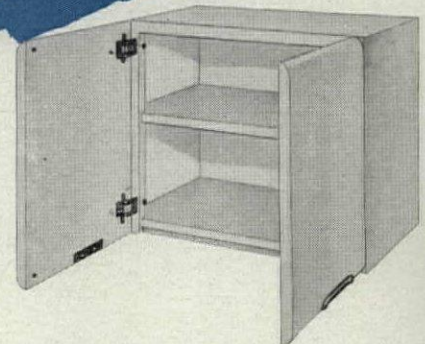
**26 ROUND ELECTRIC WATER HEATERS** in Custom and De Luxe Models ranging from 12 to 82 gallons in capacity.



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**ATTRACTIVE KITCHEN BASE CABINETS** at convenient working height, with heavy-duty linoleum tops and continuous backsplash guards.



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STEEL KITCHEN CABINETS



ELECTRIC WATER HEATERS



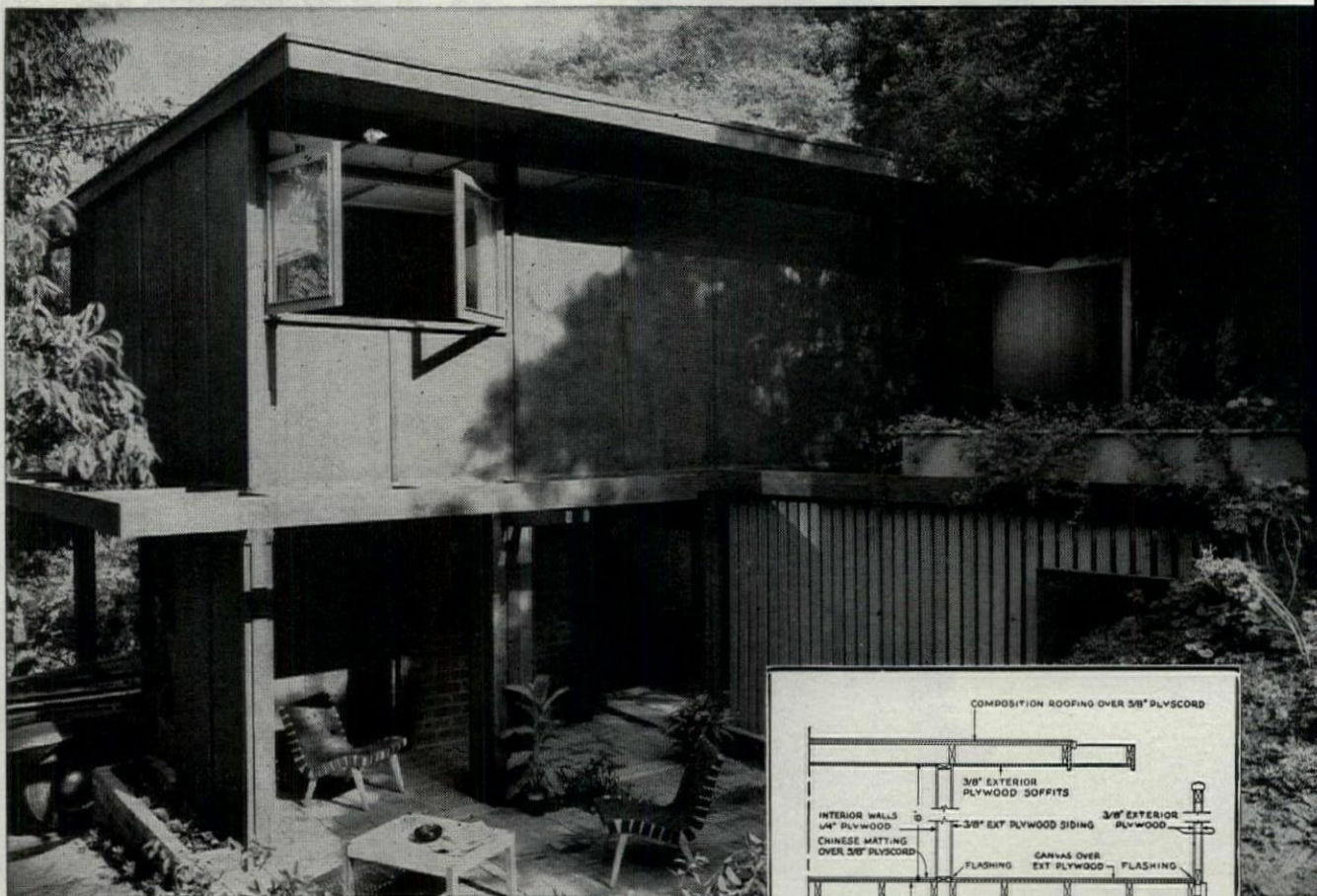
RADIOS



TELEVISION

\* (1)





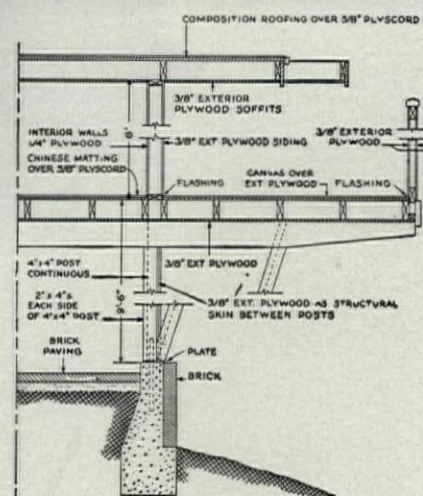
## "With Plywood, Design and Structure Can Be Treated as a Single, Integrated Unit,"

*Says Architect Gordon Drake*

AN excellent example of the contemporary search for more livable, more economical design is this award-winning Los Angeles home by Architect Gordon Drake of Carmel and San Francisco.

In its conception, design becomes structure . . . structure becomes design—a simplification of approach made possible by the unique properties of Douglas fir plywood.

Mr. Drake says: "Because plywood is at once a structural and a finish material, offering both strength and beauty, many construction economies were effected in this home. Plywood makes possible new architectural conceptions, enabling the designer to concentrate on essentials without sacrifice of beauty, charm or utility."

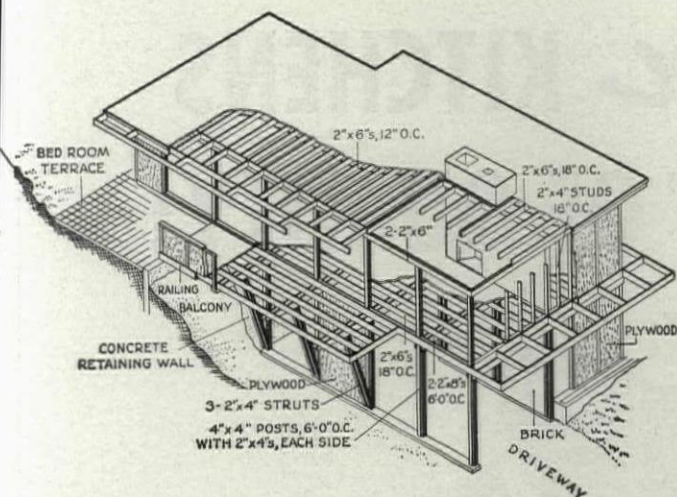


Typical section shows Exterior-type plywood employed as structural skin between 4" x 4" posts, 6' o.c. Interior walls, 1/4" plywood, were resin-sealed, given coat of grey paint, wiped to desired grain show-through, and waxed. Interior and exterior joints covered with narrow battens.

# *Douglas Fir* Plywood

AMERICA'S





Progressive Architecture said this about the house: "Seldom does one see work in which structure, site and clients' needs merge so completely. Conditioned by the particular circumstances, the construction system here is also the esthetic concept." Isometric shows elements of the wood post-and-girder construction, employing plywood as a structural diaphragm for floor and roof and as a structural skin for walls.

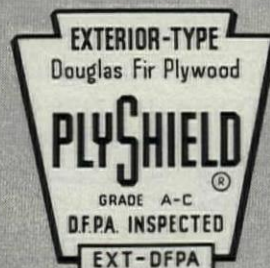
Plywood exterior treatment is both simple and dramatic. Contemporary design is a "natural" for this modern panel material.

Charming simplicity keynotes the interior treatment, blending glass and plywood walls to achieve warmth and spaciousness.

## Large, Light, Strong Real Wood Panels

DOUGLAS FIR PLYWOOD ASSOCIATION:  
Tacoma Building, Tacoma 2, Washington;  
848 Daily News Bldg., Chicago 6, Illinois;  
1232 Shoreham Bldg., Washington 5, D.C.;  
500 Fifth Avenue, New York City, 18.

## These Grades of Plywood Will Prove Most Useful in Home Construction



PlyShield is the siding grade of Exterior-type plywood. Fits any architectural style; can be utilized for flush surface, lap siding, wide siding, board and batten.



PlyScord is the unsanded construction grade—for strong, rigid wall and roof sheathing and subflooring. Use it for basement and foundation forms, too; can be stripped and re-used for sheathing on the same job.



PlyPanel is the "one-side" grade of Interior-type plywood—for real wood paneling, cabinets, built-ins. Provides a smooth, firm underlayment for wall-to-wall floor coverings, too.



For complete data on Douglas Fir Plywood, including information on other grades, see Sweet's File, Architectural, or write for basic catalog—sent free to any part of the United States. Just write any of the offices listed at the left.



# MAKE *American* KITCHENS YOUR "TRADE MARK" OF QUALITY!



## *American* Kitchens Actually Help Cut Costs —and Save You Tedious Extra Planning Time!

Yes, American Kitchens actually often help architects cut costs! Time after time it has been proved that installing famous American Kitchens costs *less* per running foot than wood cabinets! In fact, American Kitchens' new line of Economy Sinks, sink fronts and flat-rim bowls brings these famous all-steel kitchens within the budgets of even your low-priced homes.

And just think of the time you can save when you specify American Kitchens! The wide range of cabi-

net and sink sizes makes American Kitchens so flexible you can determine what units you need for any size or shape kitchen in just a few minutes instead of working hours over detailed planning.

Just mail the coupon below and we'll send you full details on famous American Kitchens by return mail so that you can see for yourself why literally millions of homeowners now prefer them to any other type of kitchen—why it will pay you to specify American Kitchens from now on!



Special Low-Cost Sinks, sink fronts and flat-rim bowls now available—at the country's lowest prices for this top quality.

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Please send me your new folder which completely describes the American Kitchens line and the outstanding aids available to me.

I design homes priced from \$\_\_\_\_\_ to \$\_\_\_\_\_

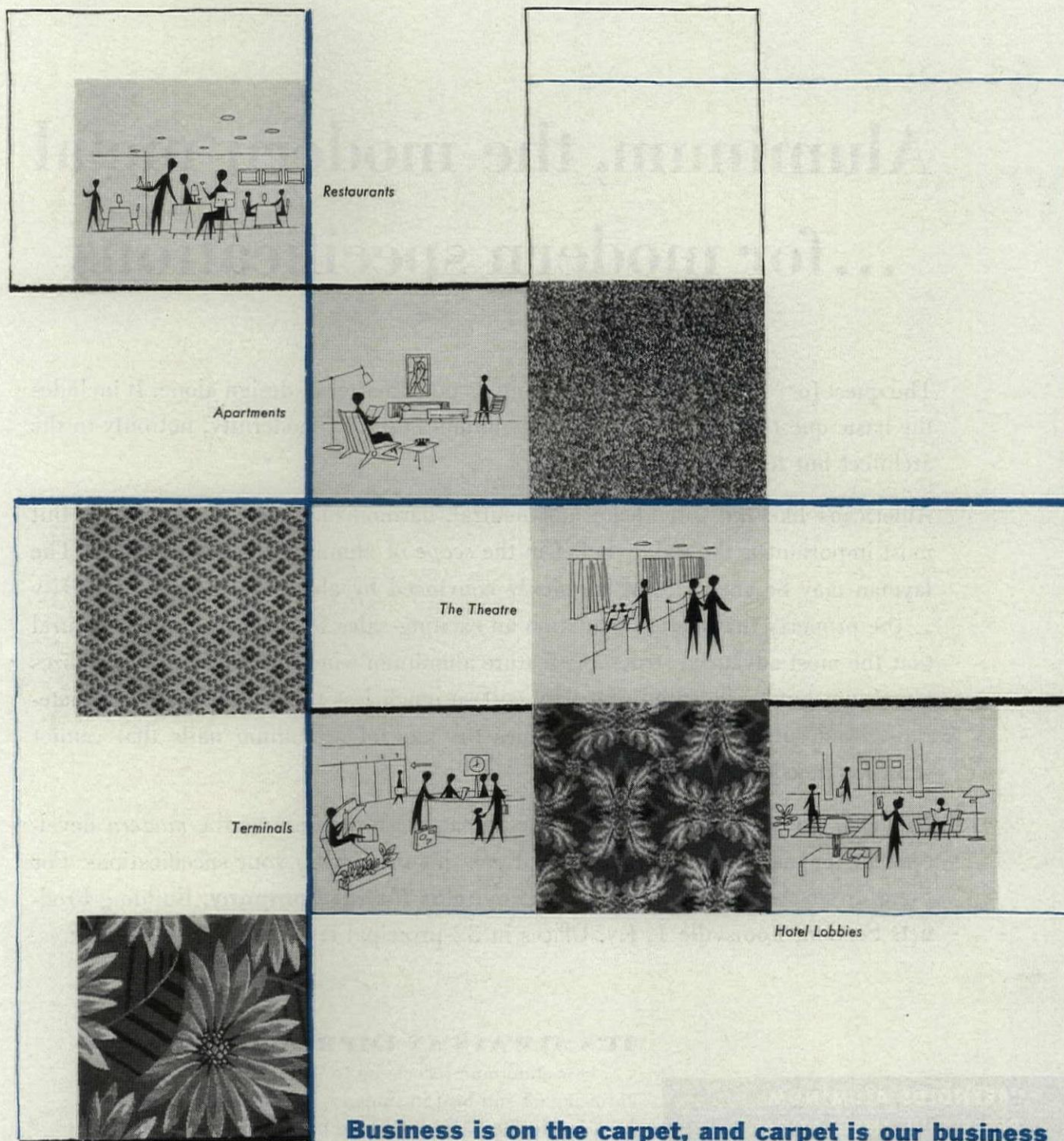
I expect to handle \_\_\_\_\_ units in 1950.

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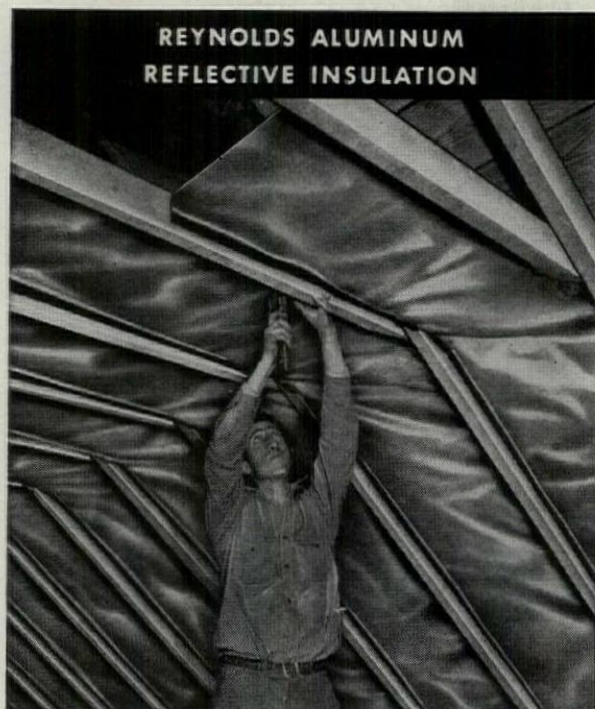


# Aluminum, the modern metal ...for modern specifications

The quest for "the modern," in building, is not a matter of design alone. It includes the basic question of *material*. And aluminum bespeaks modernity, not only to the architect but to the client.

Americans like the soft gleam and neutral, harmonizing color of aluminum. But most important is the public belief in the *scope* of aluminum...its versatility. The layman may be amazed, but is quickly convinced by aluminum's heat reflectivity...the property that makes insulation an exciting sales feature. He finds it natural that the most advanced structures feature aluminum windows. He readily visualizes aluminum gutters, pleased that they cost so much less than other rustproof materials. And any homebuilder welcomes the idea of aluminum nails that cannot stain his newly painted siding.

In short, the public is pre-conditioned to accept aluminum as the *modern* development for many building purposes. Keep this in mind in your specifications. For literature in A.I.A. file form, write to **Reynolds Metals Company**, Building Products Section, Louisville 1, Ky. Offices in 32 principal cities.



## IT'S ALWAYS AN IMPRESSIVE STORY

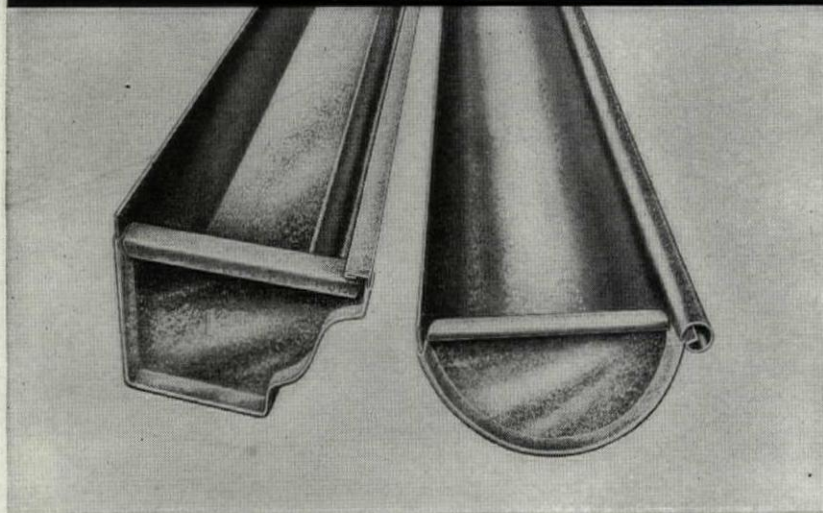
... how aluminum reflects up to 95% of radiant heat, throwing off sun heat in summer, bouncing winter heat back inside. Reynolds Reflective Insulation is aluminum foil bonded, with new pressure-embossing, to tough kraft paper—one side (Type C) or both sides (Type B). It is the *most* insulation efficiency in the *smallest* package, combined with *maximum* vapor-barrier protection. Half the cost of typical bulk insulations. In rolls of 250 square feet, 25", 33" and 36" wide.

**YOU PROVE YOUR ATTENTION TO ESSENTIAL DETAILS...** when you specify Reynolds *Lifetime* Aluminum Nails for all exposed use. Never a stain on painted siding. No deep setting or puttying!

# REYNOLDS



**REYNOLDS *Lifetime* ALUMINUM  
GUTTERS AND DOWNSPOUTS**



**IT'S A FEATHER IN YOUR CAP**

to recommend or feature rustproof gutters and downspouts that cost half as much as other rustproof materials. Reynolds two designs, Ogee and Half-Round, are beautiful in themselves, and their neutral aluminum color harmonizes with any concept. Simply applied with slip joints—no soldering. Non-staining. Your choice of stipple-embossed or smooth finish.

**YOU'RE IN THE BEST MODERN TRADITION**

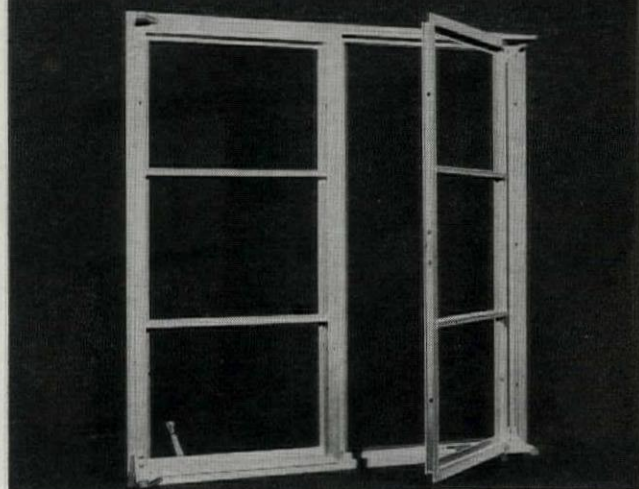
when you specify or feature aluminum windows—best for rustproof permanence, for modern design with more light, for enduring strength, for complete absence of maintenance, for smooth performance and labor-saving installation. And you'll find Reynolds Aluminum Windows superbly engineered, with flash-welded corners for maximum rigidity and weathertightness.

**YOU CAN SHOW YOUR ORIGINALITY**

with *interior* as well as exterior uses of Reynolds *Lifetime* Aluminum Corrugated, 5-V Crimp and Weatherboard. Stipple-embossed or smooth finish. Versatile in playroom adaptations. Beautiful for back-wall effects and counter-surrounds. Excellent fireproofing and insulation in basement ceilings. For many other purposes, keep abreast of *Reynolds Lifetime Aluminum Architectural Shapes*.

For further details on all these products—  
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**REYNOLDS ALUMINUM WINDOWS  
(Residential Casement, Fixed and Picture Windows)**



**Special uses of  
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ROOFING AND SIDING**



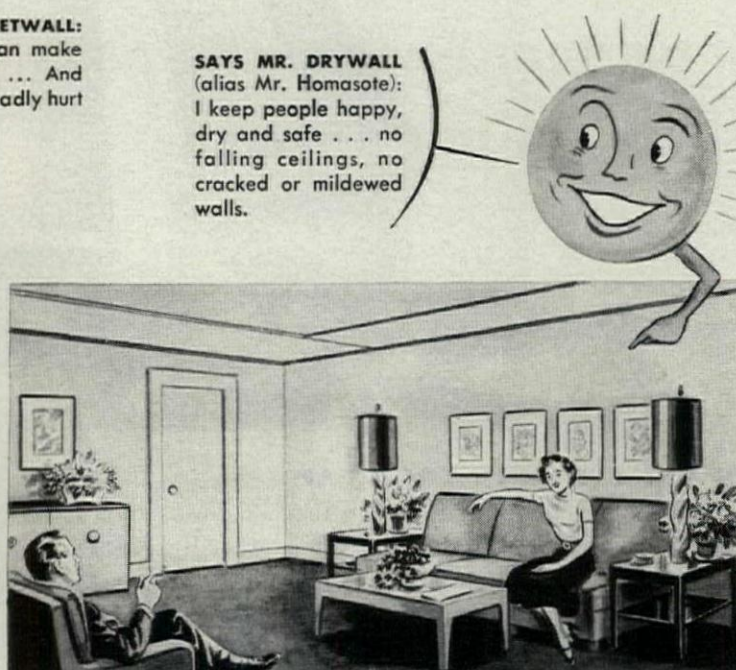
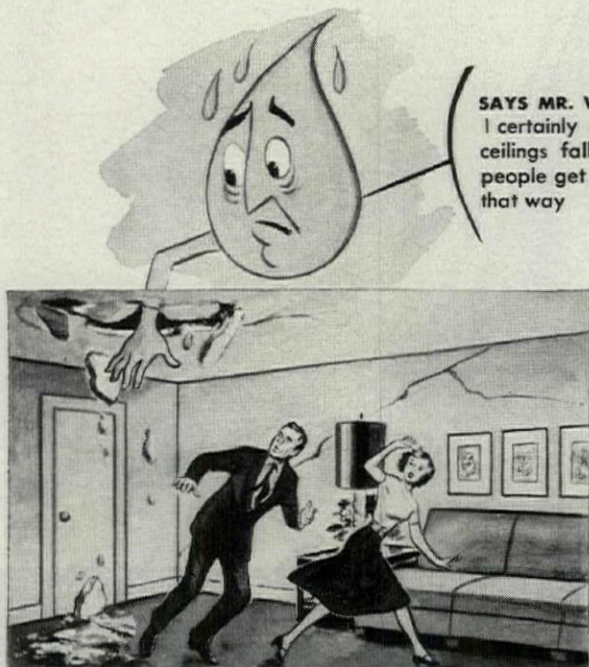
# ALUMINUM

IF YOU SEE RUST  
YOU KNOW IT'S NOT  
ALUMINUM



**REYNOLDS  
*Lifetime* ALUMINUM  
BUILDING PRODUCTS**





## why build **WET** .... when **DRY** WALL CONSTRUCTION is safer, faster, less expensive?

• If you have experienced the roar of a falling ceiling—if you have ever seen the terrific damage done—there is little we need tell you about Dry Wall Construction. You know—as we do—that Dry Wall Construction is the greatest advance in 300 years of building.

A recent survey—by a prominent builder—indicated that 54% of the home owners in his territory now prefer Dry Wall Construction for their next homes.

Mr. Carl G. Lans, Director of the Technical Service Department of the NAHB says, "Before the war, everything was lath and plaster; now it is a rare thing in residential construction. Dry wall has proved satisfactory, not only because it is much more economical, but also because it produces a true, straight wall . . . and eliminates the introduction of many gallons of moisture into the house. In addition, it is a time saver."

For 32 years Homasote has been used for Dry Wall Construction—in millions of dollars of private homes. Since 1936 its use has been supported by intensive research costing more than \$500,000.

### If Rameses had had Homasote . . .

instead of plaster, dry walls and ceilings would now have been the *accepted method*. It would have been impossible to gain acceptance for a material that creates the annoyances, expense and perils of cracked walls and falling ceilings.



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Dry Wall Construction—with Homasote Big Sheets — means walls that are permanently crackproof, ideal for paper or paint, lending themselves to modern decorating effects, modern mouldings and trim.

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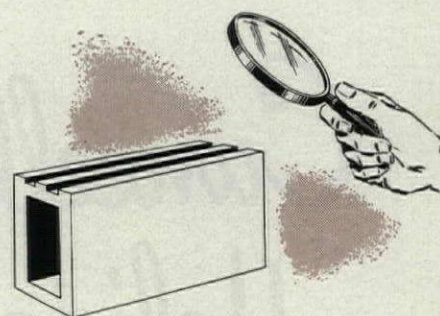
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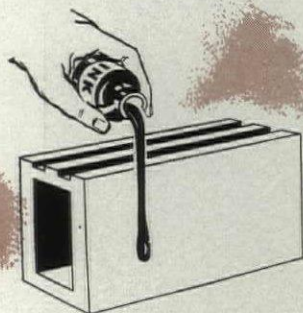
City & Zone \_\_\_\_\_ State \_\_\_\_\_



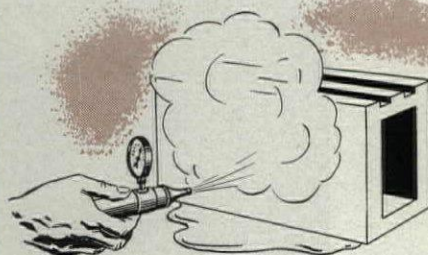
**You know it's good  
when your Facing Tile passes  
these Institute tests!**



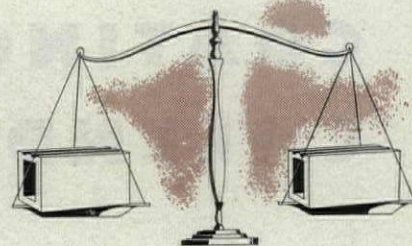
**inspection**



**imperviousness**



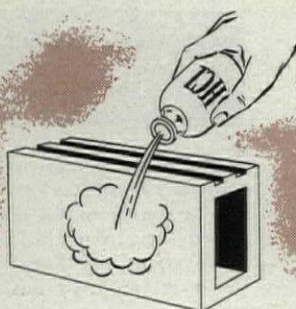
**crazing**



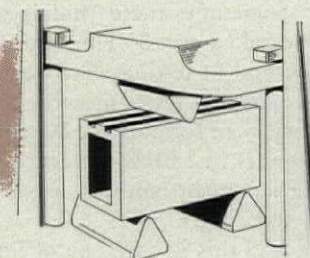
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**opacity**



**chemical resistance**



**compression**

Quality is a fine, high-sounding word.

Like almost all manufacturers we occasionally like to talk about the quality of our product—Structural Clay Facing Tile. But, when we do, we want it to *mean something*, tangible and specific, to you.

That's why Facing Tile, produced by members of the Facing Tile Institute, must meet *strict* quality standards and pass a series of rigid tests applicable to each type of finish. You *know* your Facing Tile is good when it passes these Institute tests, because quality becomes a tested, measured, guaranteed part of the product!

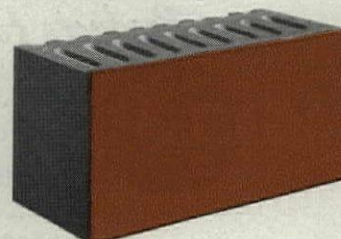
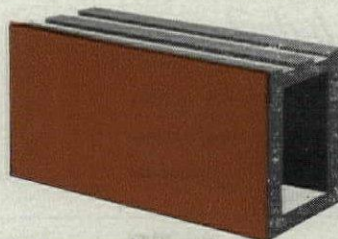
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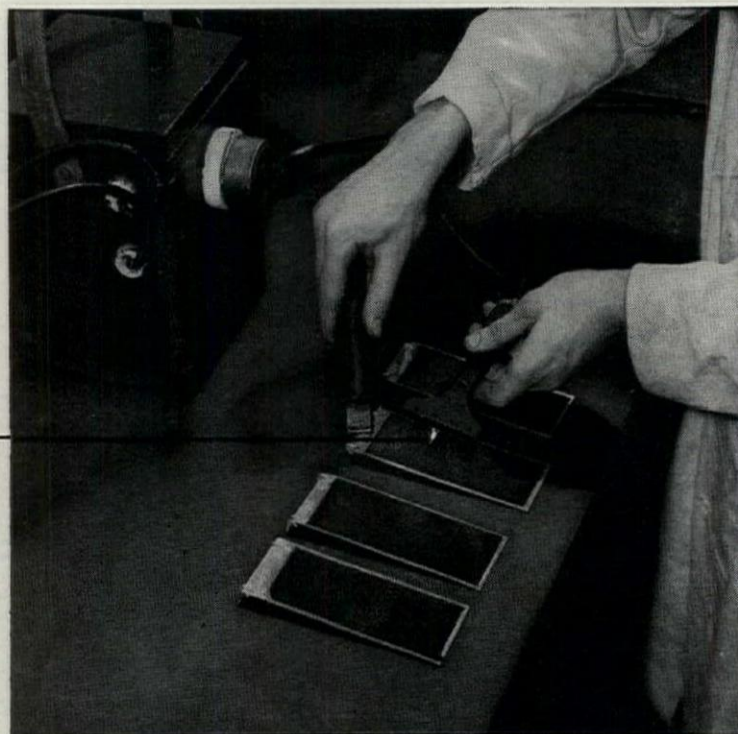
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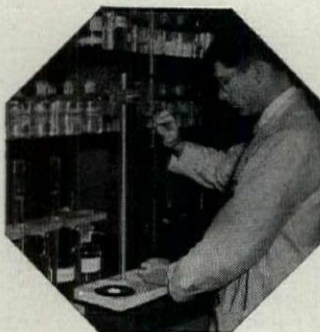
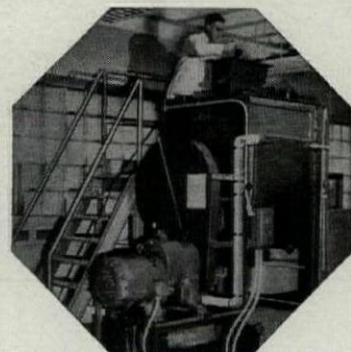
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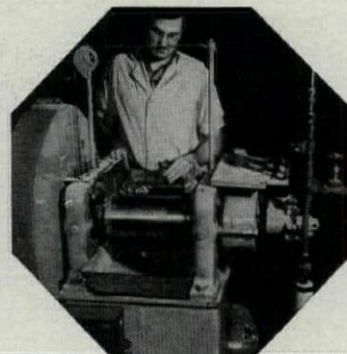
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This issue of the FORUM is dedicated to a better understanding between

## ARCHITECT and BUILDER

**M**ERCHANT BUILDERS erected perhaps five out of every six single family homes last year—a staggering total of nearly 700,000. Architects, unfortunately for themselves, for the builders and for the home-buying public are playing no such part. Of homes costing \$12,000 or less, perhaps one in three had the direct benefit of an architect's skill, imagination and training. The others "just grewed."

The big news in home building this year is the unanimity with which the home builders at their annual convention (and again in FORUM's Builder Survey—page 86) recognized the importance of better planning and better design; i.e., the importance of the tangibles and intangibles the architect can and should contribute to better homes. Heretofore, it has been half the fault of the builders if the design of their homes was no better than it was. It costs no more to erect a well designed house than a poor one, but too many builders have kidded themselves they could save money by dispensing with an architect. In the past two years more and more of them have realized that this penny wisdom is pound foolish.

Says big Builder Frank Sharp of Houston: "The dollars I pay my architect add more to the value of my homes and the total of my profits than any other dollars I spend." The most cursory comparison of the builders' houses in this issue with the best builders' houses the FORUM could find for its small house issue a year ago shows how fast the builders are moving towards better design and better use of the architect's services. But too many still think they can economize by budgeting as little as \$10 for the plans for an \$8,000 house.

But not more than half the blame can be charged to the merchant builders for the small part the architects have played in American housing. The attitude of too many architects has been both Pharisaical and Levitical. Like the Pharisee, they have thanked God publicly that their own houses were not like the builders'. Like the Levite, they have been content to pass on the other side without lifting a hand to help the great mass of home buyers. What would we say if the medical profession, regardless of the reason, had done as little for the health of two-thirds of the tax-paying public as the architectural profession has contributed to their housing?

Granted that merchant builders have been slow to recognize the primary importance of the better design and better planning, the merchant builders can take very real pride in their achievement since FHA financing first made it possible for them to attempt assembly-line methods to transform home building from a wasteful trade into an increasingly efficient industry. On a free enterprise basis they have created the great paradox of American housing, confounding politicians and social planners alike, by providing good homes for taxpayers at less cost than the public housing these taxpayers are being taxed to provide for people too poor to buy or rent the cheaper houses the taxpayers are proud to occupy.

Now the home builders are recognizing their need of an architect's help, and the necessity of offering a more adequate reward for that help. We hope the architects in turn will meet the builders half way and be proud, for a reasonable reward, to play an increasing



part in raising the standards of American housing and American living, not alone by devising new plans for the well-to-do which can perhaps later be adapted to mass housing, but by direct participation with the builder in designing better homes for the average family. It would be a very fine thing if the heads of the A.I.A. would get together with the heads of the National Association Home Builders this spring, abandon the fiction that it is unethical for an architect to help a home builder for less than full commission, and work out a new fee basis for designing builders houses that would at one stroke raise the standard of American housing and open a whole new market to the architect.

This issue shows builders some of the best design ideas the best

architects are now contributing to low cost housing, both custom and builder built. It also shows architects some of the difficulties the builders face and some of the excellent practical ideas the builders are working out. We hope it will give both architects and builders a better understanding each of the other's problems and services, and that from that better understanding will come a quicker and fuller partnership in meeting the great responsibility they must share—the responsibility for showing that free competitive enterprise can and will provide far better homes for the American family, and FORUM is more than pleased that NAHB's President Coogan and A.I.A.'s President Walker agree with this suggestion as shown by their letters below.

## The builder needs the architect and is ready to meet him half way

—a statement by Thomas P. Coogan, President National Association of Home Builders

One of the most fertile fields for the development of intra-industry relationship lies between the merchant builder and the architect.

This is certainly a "no-man's land" at the present time, with only a few of our larger builders making effective use of good architectural service and all the remaining architects sneering at the result.

One thing is certain, the field of small homes needs the best architectural services it can secure, and at the present time it is not available. The fault lies on both sides. The builders complain that architects do not know or make any effort to understand their problem. The architects as a group have not made any effort to study the builders' problems.

It is easy to understand these difficulties when the past history of each group is studied. The architect has been accustomed to specialized design for the individual family and has taken great pride in fitting the design to the specific needs of the family and the building site. Most of the architectural effort and research have been expended in the large homes where the fee justifies adequate study and results in good design. This has left the small house design in an undeveloped stage.

The merchant builder has been faced with fixed problems. He must build a house that will meet mortgage loan requirements; it must be economical to construct; its design and construction must be such that FHA or VA gives full value; it must fit his 50 or 60 ft. lots; its appearance must be such that it will appeal to the buying public of his area; the down payment and monthly payment must be within buying public's ability to pay; the design must lend itself to variation at reasonable additional cost.

The builder has been accustomed to using stock plans, or buying stock type plans at from \$10 to \$20 a house. He has been criticized for the lack of good design and realizes that improvement must be made. The builders' approach to good architects has been generally

discouraged by lack of understanding on both sides. The standard architectural fee, from which many architects refuse to budge, does not fit the case of the merchant builder.

As a first step the A.I.A. should set up a set of fees applicable to group housing. These fees should be the result of study and experience and should be within the ability of the builder to pay in a competitive market. Secondly, the A.I.A. should work with the builders preferably through the National Association of Home Builders, so that a better mutual understanding could be developed.

These studies should cover the development of good designs that 1) conform to standards set by various mortgage requirements, 2) achieve at low cost, 3) recognize the limitations of the average city lot, 4) permit reasonable variation at moderate cost, and 5) appeal to the average house buyer. These studies should also cover the development of a reasonable set of fees for architectural services to merchant builders.

The builder on his part must realize that good design is the one thing every home buyer wants, whether he realizes it or not. In dealing with architects he must remember that he is buying skill and knowledge and they are intangibles that cannot be checked like lumber and cement. He must also remember that few architects have had experience with low cost housing, that the cost element has been missing in their calculations, except as a general consideration. He must also expect to pay the architect a reasonable fee so that sufficient time and study may be devoted to builders' problems.

In addition we must jointly find or provide a source of funds that will permit extensive research in design of small homes. No one owner or builder can afford to foot the bill for the vast volume of work that must be done. The present impasse must be broken. The builders need the designs; the architects need the experience and the buying public needs the joint result.

—THOMAS P. COOGAN

## The architect recognizes the problem, agrees to study it

—a statement by Ralph Walker, President of the American Institute of Architects

I am sure that the best architects of America are tremendously interested in the output of the merchant builders, and it is by no means the intention of leaders in architecture to stand by and watch 75 to 80 per cent of the home building in America go without architectural attention by mere default. It is true that a great deal of exploring must be done to convert architectural services, which have traditionally been done on a custom basis, to the mass market. I shall be very happy to appoint a committee of the best minds of the A.I.A. forthwith to meet with representatives designated by Mr. Coogan and to arrive at methods of work and methods of professional remuneration that will fit the needs of builders while they give architects the

opportunity of an adequate livelihood.

One area which is far from having been explored is the question of site planning. It seems to me that if builders were to pay an adequate fee to qualified architects for better site plans, the savings might be so great and the enhancement of attractiveness might be so conducive to a better market that builders would derive the greatest benefit and architects could afford to take a relatively small fee for the design of the individual buildings.

However, this is merely a suggestion to be studied when representatives of both parties meet. We strongly appreciate the enlightened approach which Mr. Coogan has made.

—RALPH WALKER



# THE HOUSE MARKET: Is a housebuilding bust inevitable? The best answer to this question is the wealth of new facts available on some others

*"Material need for homes . . . will sustain a brisk demand for housing for at least the next two or three years. Pressure from this tremendous demand will be the chief cause of over-building and 'breaking the bubble.' This event is inevitable and is merely a question of time. At some time, there will be too many houses for too few buyers, and such a situation will mark the curtain of the building boom."*

This view of the future of the housebuilding market was published a few months ago in the *Appraisal Journal*. It is the opinion of Albert Lockyer of White Plains, N. Y., a man who has appraised residential property in rich Westchester County for the last 25 years. Mr. Lockyer's forecast is interesting, not only because his claim to sagacity is a good one, but also because it expresses in a very positive way an attitude that lies at the back of the mind of almost everybody connected with the housebuilding business today. Building professionals may talk sonorously in public about the excellent prospects for "sustained high-level housebuilding," but as they lie awake at night they are likely to ask themselves, with Mr. Lockyer, "Just when will the bubble break?"

Now perhaps the chief complaint that can be made about the "inevitable" school of market forecasting is its effect upon the forecasters. A man who feels that doom is inevitable is in no frame of mind for thinking up ways to save himself. If he can think of anything at all, it is a dim prospect of rescue by some off-stage angel. In the housebuilding industry, this is a role that the federal government is obviously determined to enact. The present Administration is, of course, dedicated to the proposition that depression is considerably less inevitable than taxes. But even the economists responsible for documenting this point of view give indirect testimony of their belief in an inevitable bust in housebuilding. They simply say there will be a bust unless the government keeps busy forestalling it.

The Administration's program for saving the housebuilding industry from itself can, despite the complexities it assumes in operation, be summed up very simply. It is to progressively widen the number of families who can afford to buy new houses at going prices by softening these prices with federal credit (see page 10). The possibility that this policy is a self-defeating one—that easy terms have simply pushed both house prices and builders' margins higher than shortage demand alone would have pushed them—is so dismal that almost everybody concerned with the current housebuilding situation tends to ignore it.

The "inevitable" view of the housebuilding market holds, in simplest terms, that what has always happened before is

**Who is the customer?**

**What price does he want to pay?**

**How many bedrooms does he want?**

**Is there a housing shortage?**

**How has rent control increased demand for space?**

**What's wrong with the "economy" house?**

**How soon will the industry run out of customers?**

bound to happen again. As one distinguished economist puts it: "The housebuilding industry adjusts itself to a volume which will take care of a shortage plus normal growth. It keeps on building at this rate after the shortage disappears. It finds a surplus on its hands. It shuts down until the next shortage develops."

## **Houses are no longer like cows**

This statement of what happens assumes that the housebuilding industry is afflicted with an almost unparalleled facility for misjudging its market—both in volume and price range. In the past, this has indeed seemed to be the case. Real estate analyst Roy Wenzlick once explained it by pointing out that houses, like cows, are born singly. For both commodities, he said, it takes a long time for supply to meet a sudden increase in demand. By the time production has built up enough to supply the market, it will find itself over-expanded and an over-supply will result. Wenzlick, of course, was talking about prewar house production. One of the new facts in the housing market is that houses are no longer born singly—but at least in litters.

The operative housebuilder is, of course, the new force which made it possible for the housebuilding industry to expand with unprecedented speed in meeting the sudden postwar demand. It seems reasonable to suppose that this kind of housebuilder will be much more alert in detecting market shifts and much more sensitive in reacting to them. But there are a few die-hards who predict that the size of the collapse ahead can be estimated simply by using the postwar expansion rate as a multiple.

## **Meet the customer**

Another new force is our new knowledge of the housebuilding market. Since the last housebuilding boom and bust, an immense amount of information has been collected about the house market and about the way the market is being supplied.

The theory of an inevitable housebuilding bust is based on the premise that the number of families who can afford to buy houses at going (profitable) prices will sooner or later be exhausted. (If prices rise no faster than incomes, the ex-



haustion point will be later rather than sooner.) This premise needs to be examined against the new market data available, which shows more about its probability than we have ever been able to find out before. In the first place, the data\* gives us a profile of what might be called the prime housebuilding customer of the Fifties.

Our prime customer is about 35 years old, married, with at least one child. If he doesn't already have a second child, he expects to have one and maybe two. He earns from \$4,000 to \$10,000 a year. He has about \$600 in the bank or in bonds. Right now he is living in rented housing, but a surprising number of him (one-third, according to the Federal Reserve Board check of '48 buyers) already owns a house. He can afford to buy a house costing from \$10,000 to \$25,000. But he is not doubled-up and he is now paying somewhat less than he can afford to pay for housing—thanks to rent control or prewar purchase. Thus, although he has been wanting for a long time to move into more comfortable living space, he will not buy a house unless it can offer him a lot more than his present dwelling.

### Twice as many customers

At his purchase price, he expects to get three bedrooms and a good many other amenities. Housebuilders will, as always, have to compete with used houses for his favorable attention. Two of him will buy a used house, for every one who buys a new house. This last is a compromise with his own hopes; more of him hopes to buy a new house than the industry supplies. But perhaps the most important thing about the prime customer of the Fifties, is that there is a lot more of him than there has ever been before. Right now he makes up 37 per cent of all urban families—7.6 million families have incomes of \$4,000-\$10,000. Allowing for price differences, only 4.3 million urban families had this much spending power in 1939.

Just behind this prime customer in importance is the man who makes \$3,000-\$3,999 a year. His interest is focused squarely on the \$8,000 house. He makes up an additional 22 per cent of all urban families—some 5.2 million.

There are, of course, some blurred spots in our statistical profile of the Prime Housebuilding Customer of the Fifties. Perhaps the biggest of these is that the national data from which he is constructed does not tell us how many of him are found in, say, New Orleans where he pays half as much rent as he pays in Washington, D. C. This simply means that the average amount of rent paid by families in the same income group varies widely from city to city. So, as everybody knows, does the cost of building and the price of housing. In fact, a recent BLS study showed that difference in the cost of housing is the main reason why cost-of-living varies from city to city. The housebuilding market is, first of all a *local* market, and the fact that surplus houses cannot be picked up and moved around to another market makes it especially important to remember that national trends hit local markets at different times and with different degrees of intensity. The Prime Housebuilding Customer presented here is, therefore, simply a national pattern which anybody interested would have to adapt to his own locality. But our Customer is not very far from the facts-of-life in any of the top dozen big metropolitan housing markets.

The next most cheerful item that can be deducted from existing data about the house market is that there are less houses available in the price class (\$7,500-\$20,000) that fits our prime customer than the number of these customers warrants (see table). This may sound surprising to an industry which has heard since the war that its problem is to bring prices below \$8,000. Current income levels suggest that this theory has been somewhat overworked. It seems more likely that the problem facing housebuilding today is not to bring house

prices down, but to bring house quality up. It seems equally probable that since the war there has been too much concentration on the "Economy House" and not enough on the "Quality House."

Another new fact about the house market is that our Prime Customer wants a big house—three, maybe four bedrooms.\*\* This is

### VALUE OF EXISTING HOUSES COMPARED TO FAMILY INCOMES

	All houses <sup>1</sup>	Bought in 1946-49 <sup>2</sup>	Income equivalent <sup>3</sup>	% Distribution total families <sup>3</sup>
Under \$5,000 .....	23%	27%	\$1,999	20%
\$5,000 to \$7,499.....	19	17	2-2,999	20.5
\$7,500 to \$9,999....	16	20	3-3,999	22
\$10,000 to \$12,499...	17	15	4-5,999	14.5
\$12,500 to \$19,999..	13	14	6-9,999	20
\$20,000 and up.....	6	6	10,000+	3
Unknown .....	6	3		

MARKET TARGET for new building is probably 1) the \$12,500 to \$19,999 house and 2) the \$7,500 to \$9,999 house. The table above suggests that there are now many more families in the income groups which can afford to buy such houses, and that the supply of existing houses in these price classes is lower in relation to demand than in any other price group.

1. Source: 1949 Survey of Consumer Finances, Federal Reserve Board.
2. Estimated from FHA records.
3. Estimated from Census Series P-60, No. 6, 1950.

because he seems to be raising a big family. The sustained high birth rate means that more families are having a second and a third child, according to Bureau of Labor Statistics Commissioner Ewan Clague. The upwards of 2 million a year rate at which the U. S. is continuing to produce babies means that housebuilders will have to reverse the recent emphasis on small "efficiency" units and give its customers a family-size house.

### How cheap is a cheap house?

Our argument with the "economy" house certainly should not be taken to mean that there is no room at all for low cost houses in the housebuilding market. It is simply based on the assumption that we have already built too many "economy" houses since the war (see price classification tables p. 212)—houses which many experienced real estate men and appraisers call the slums of tomorrow. Many of them—largely the 4-room singles which have swept the country under GI financing—already present a tremendous re-sale problem. There will always be some young families in the market for new houses which sacrifice a lot in size and quality to earn the uncertain adjective "economy." But it is important to realize that the unusually large number of families who have appeared in this part of the house market during the last three years have been, in large part, the victims of the questionable space allocations set up by rent control. Partly as compensation for this, they have also been made the beneficiaries of the maximum in federal credit largess—that is, they have been able to acquire their houses without any down payment.

In many respects, these economy houses are like rental housing and many buyers seem to think of them as such. But there are two important ways in which they are different. One of these ways bears directly on a generally neglected question—"How cheap is a cheap house?" If these economy houses turn out to require, over the life of the mortgage, an expenditure for repairs almost equal to their purchase price, the money will, of course, come out of the owner's

(Continued on page 192)

\* The 1940 Census (first to collect information about the condition of U. S. houses and how many persons were living in them), the 1947 sample Census, the Federal Reserve Board studies of consumer expenditures, Federal Housing Agency and Congressional Committee studies, university research, the valuable local market analysis being done by the Los Angeles Residential Research Committee, the new Bureau of Labor Statistics analysis of houses being supplied in a dozen metropolitan areas by price and by quality, the Federal Reserve study of used house prices in Seattle.

\*\* Housebuilders should properly discount recent Census releases on declining family size. The Census Bureau found that average household size was 3.4 persons in 1949 as compared to 4 persons in 1930, also pointed out that 35 per cent of all households consist of two persons or less. This does not mean that the demand for small units will be felt sharply in the new house market. Two-person families are mainly old people, newly married people, and broken families, predominate in low income groups.



# QUALITY HOUSES THROUGH CONTEMPORARY DESIGN

Better houses mean a bigger market, and better design is fundamental to both—an elementary discussion of the principles of modern residential architecture for the benefit of architecture

No longer can the building industry count on the automatic market for houses which for the last few years has maintained production at the one million mark. Without some other stimulus generated within the industry itself, the volume of housebuilding will probably drop 25 to 50 per cent in the next few years.

One means of upholding the present rate of building is through the replacement of old houses. Each year some 100,000 houses become 75 years of age; and 1½ million are already that old. Their replacement alone would mean 250,000 houses a year for the next decade!

To activate this huge replacement market and sustain the current home building boom, the industry must make the owners of existing houses dissatisfied. New houses must be obviously better than houses produced during the last decade—indeed, they must be better than last year's houses. And, the improvements cannot be limited to mechanical equipment in kitchen, laundry, bath and utility room. Design of the house itself—every phase of it—must be improved. This is particularly urgent in the small house field—the bailiwick of the merchant builder—where rising costs have squeezed house dimensions to an almost irreducible minimum.

The utmost in design improvement cannot be accomplished by following traditional patterns—it can only come if builders heed the professional advice of contemporary architects whose thinking is fresh and uninhibited. These architects have made considerable progress in the design of larger tailor-made houses and the results of their work are reflected in various parts of the small houses produced by merchant builders. Unfortunately, however, these contemporary details are frequently misunderstood and mishandled by builders in whose hands they often become mere clichés.

Where builders have actually teamed up with contemporary architects, there has usually been notable design improvement. It has repaid the builder in faster sales if not lower construction costs and given the public more attractive, more livable houses—as witness the builder houses shown elsewhere in this issue. But the industry as a whole has just begun to learn what good contemporary design is and how it can boost the fundamental quality of the small house.

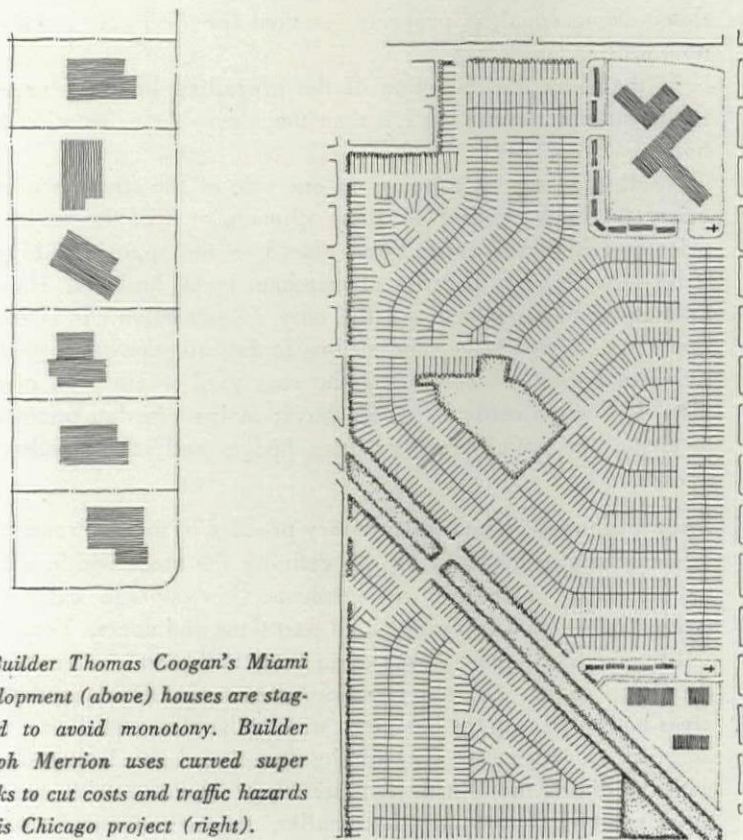
The purpose of this article is to further this learning by describing in elementary fashion the meaning of contemporary design and to show how it can better the small house for the benefit of builder and buyer alike.

## SITE PLANNING

If common sense and imagination are worked into a subdivision's site plan, even the most uninteresting piece of treeless land can be converted into an attractive setting for houses. Unlike the common gridiron pattern, a good site plan is closely related to the shape of the tract and its topography. Even if there are no contours to affect the layout, streets are curved to avoid the forbidding monotony of long straight rows of similar houses. Loops and cul-de-sacs are used to gain access to the center of unusually deep or irregular blocks. Like the curved street pattern, they give the subdivision an informal character which helps attract buyers and protects long-term values. To discourage traffic, the street pattern is considered primarily as a means of service access to the abutting lots. To reduce dangerous and expensive cross streets to a minimum, blocks are longer than today's 600 to 800 ft. average—some land planning experts recommend that they be 1,500 to 2,000 ft. long.

Contrary to the opinion of those who have not tried it, modern site planning costs no more than the unimaginative gridiron technique. Indeed, experience has proved that modern methods usually result in economies.

Site planning is further improved if the houses are staggered on their lots rather than lined up on a uniform set back. Again, a pleasant note of informality is added to the street appearance and the cost is only that of a few extra feet of sewer and water pipe. Another little exploited improvement is the angling of houses to the

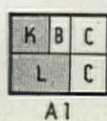


In Builder Thomas Coogan's Miami development (above) houses are staggered to avoid monotony. Builder Joseph Merrion uses curved super blocks to cut costs and traffic hazards in his Chicago project (right).

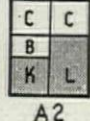




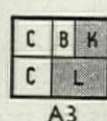
BASIC PLAN



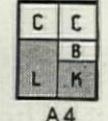
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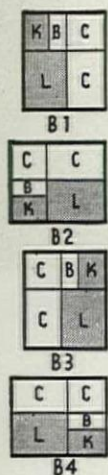
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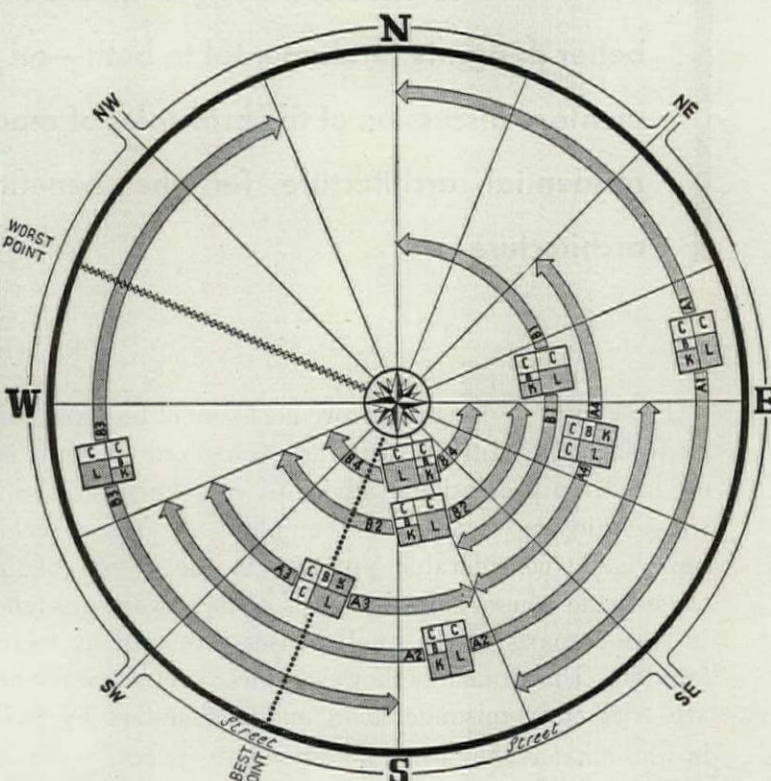
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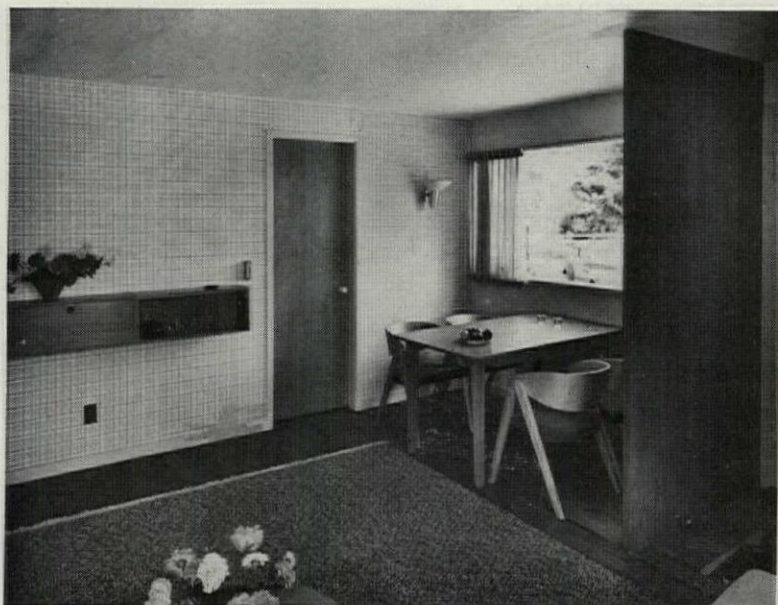


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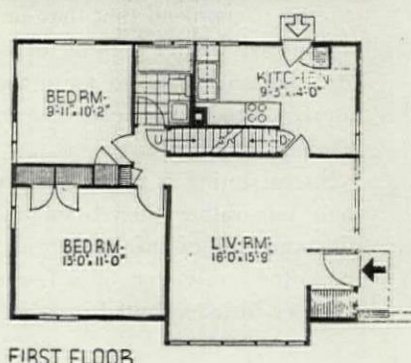


Proper orientation is demonstrated in this diagram prepared by Architects Skidmore, Owings & Merrill in collaboration with the FORUM. Floor plans at top and side are variations of the builder's typical two-bedroom plan at the corner. These eight plan variations are placed around the compass on a hypothetical street represented by the circle's circumference.

Each is in its best possible location with respect to winter sun and summer breeze. Arrows indicate the range of compass directions each plan may face without violating any primary orientation principle. The diagram is applicable to most parts of the U. S. but should be adjusted for local wind conditions and, in the extreme south, for sun conditions.



Open plan by Architect Samuel Glaser uses a single wood panel to create an entry hall, living room and dining alcove in this 24 x 30 ft. house.



FIRST FLOOR

street. Although frowned upon by many of FHA's tradition-bound land planners, a house angled 20-45° to the street has the advantage of a relatively long view up and down the street. Moreover, its side windows instead of facing the flanking houses overlook the front yard of one neighbor and the rear yard of the other.

To accommodate today's typical one-story house (about twice as wide as the two-story house of the Twenties) without cutting down privacy and view beyond the public's accepted minimum, the modern subdivision has raised its minimum lot size from 50 x 150 ft. to 60 x 100 ft. (The 50 ft. sacrificed at the rear is not missed, for it makes maintenance of the yard just that much easier.)

## FLOOR PLANNING

Although most small house designs have obviously started off with a preconceived idea as to how the exterior should look, the proper starting point is the floor plan—the allocation of space to the various phases of family living and the relationship between these areas. In the planning process, the contemporary designer strives for the ultimate in 1) orientation of the house to the view, sun, breeze and other climatic conditions, 2) openness of areas, 3) convenience of household operation, 4) flexibility of space use, 5) expandability, 6) integration of indoors and outdoors, 7) adequacy of the storage space for household effects. Obviously, with so many factors to contend with, some of these requirements must be compromised short of perfection—particularly if the additional requirement of economy is given proper attention.

**Orientation.** Although the small lot sizes of typical subdivisions make it difficult to orient each house ideally, the location of the various rooms is affected by the designer's knowledge of local sun and wind conditions. In most parts of the U. S. northern exposure is least desirable because of its complete absence of direct sunlight. Rooms facing that direction are those which are only infrequently occupied, such as the utility room, store room, laundry, bathroom. For the same reason, north windows are normally small.

Since the low afternoon sun is hot, a west exposure, unless shaded by trees, is also less desirable than east or south for living, dining and sleeping rooms, and the size of the windows on the west side of the house will be governed accordingly. Southeast to southwest is the most desirable exposure in most parts of the U. S., and, other things being equal, is properly reserved for the living room's window wall.

In the south, the direction of the prevailing breeze is usually a more important consideration than the sun in the orientation of the house.

Needless to say, if a house on one side of the street is properly orientated with respect to local climate, it will be improperly orientated if turned around and placed on the opposite side of the street—the common practice of merchant house builders. However, orientation to climate is not the only consideration. It is equally important in small lot subdivisions to lay out the house with the living and dining areas facing the rear yard where, if a pleasant vista does not already exist, the buyer at least has an opportunity to create one with fences, gardens, hedges and other landscaping devices.

**Open planning** is the contemporary practice of making rooms seem larger than they actually are by defining the areas within a house by suggestive furniture arrangements, low storage cabinets or screens rather than by ceiling-high partitions and doors. Yesterday's cell-like vestibule today becomes an entry hall merely screened from the living room. The old fashioned notion that living and dining areas had to be isolated has given way to the elongated living room, one end of which serves as dining space, and the L-shaped room with the dining table in the smaller wing. Thanks to this openness, today's dining space may be smaller, more economical than the



isolated dining room. Already well accepted, this trend has recently gone on to knock down the partition and door between kitchen and dining space. In its place is a serving counter with perhaps a Venetian blind above, or a dwarf partition screening the kitchen activities from the living area. (The kitchen exhaust fan has long since banished the problem of cooking odors roaming through the house, and acoustic treatment of the kitchen ceiling will lick the noise problem.)

Openness is often extended vertically by replacing the customary horizontal ceiling with one which slopes upward with the roof plane to the ridge or—in the case of a shed-type roof—to the window head and the sky beyond.

In bedrooms, open planning is limited. However, closets which are topped off short of the ceiling exaggerate the dimensions of the room, for the space seems to flow over and beyond the closet boundary. And, occasionally, the master bedroom is combined with the living area during the day by means of a folding wall—to increase the feeling of spaciousness in the living room.

Open planning got its start in more expensive contract-built houses but fortunately is finding its way into the merchant builders' small houses where its benefits are more urgently needed. The typical 24 x 32 ft. house is improved each time a door and a foot of partition is eliminated.

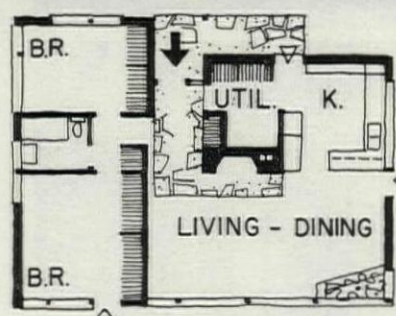
**Convenience** is the keynote of contemporary house planning. This does not necessarily mean that the architect strives for the split-second efficiency of the time study expert, but rather a logical arrangement of areas within the house to foster comfortable living and easy housekeeping. Sleeping areas are isolated by closet partitions from the noisy working and living areas. The kitchen becomes the control center from which children's activities may be supervised. Circulation from one area to another is studied to reduce steps and avoid the creation of traffic aisles across the living room. The guest's coat closet is close by the entry. The basement stairs are adjacent to the kitchen and the rear door.

**Flexibility** of space goes hand in hand with convenient open planning. To obtain the maximum use of the limited space in today's small house the contemporary architect makes the same square footage serve numerous purposes. Thus, between meals the dining area may be added to the living area or double as an entry hall or the children's play space. With proper floor planning, a study or library may be converted on short notice into a guest room; a utility room may serve as a hobby shop; a kitchen, as a breakfast and lunch room; or a multi purpose room may be so incorporated in the plan that it can accommodate any one of these functions plus that of being a second living room for the adolescent children. (For a detailed study of flexibility in small house planning see page 127).

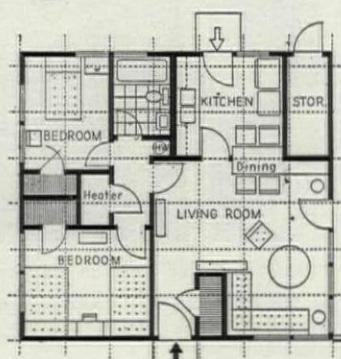
**Expandibility.** Provision for expansion is another form of flexibility which improves the planning of small two-bedroom houses. Although the expansion attic is the cheapest and customary solution to this problem, it requires a top-heavy roof which, unless very carefully handled, is out of proportion with the house itself. While many floor plans are so designed that another bedroom may be added at the side or rear of the house, few families ever take advantage of this possibility due to the expense of building a complete addition. A more practical variation of the horizontal expansion plan is the provision of an attached garage which may easily be converted into an extra room—in which case a new attached garage is built at the rear of the lot.



Eva Stoller: Pictor



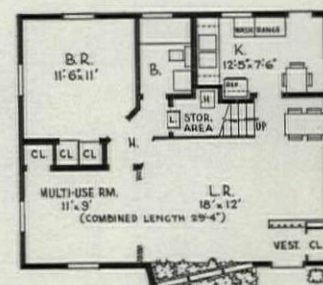
View through rear picture window shows spacious open plan by Architect Karl Koch in which the fireplace is used to separate the entry hall, living room and kitchen.



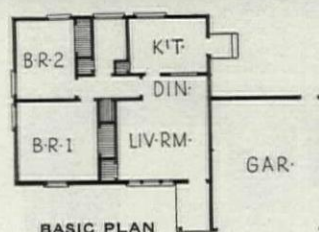
In this open plan for Builder Del E. Webb, Architects A. Quincy Jones & Paul Williams use a coat closet to create a vestibule and a built-in dining table to separate kitchen and living room.



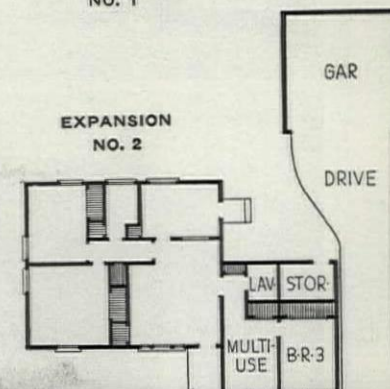
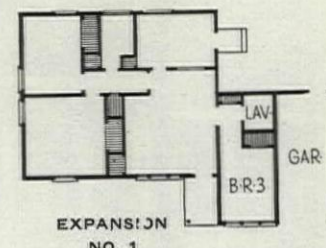
Richard A. Smith



Flexible wall in house for Builder N. K. Winston by Architects Mattern & York combines space of master bedroom and living room during the day.



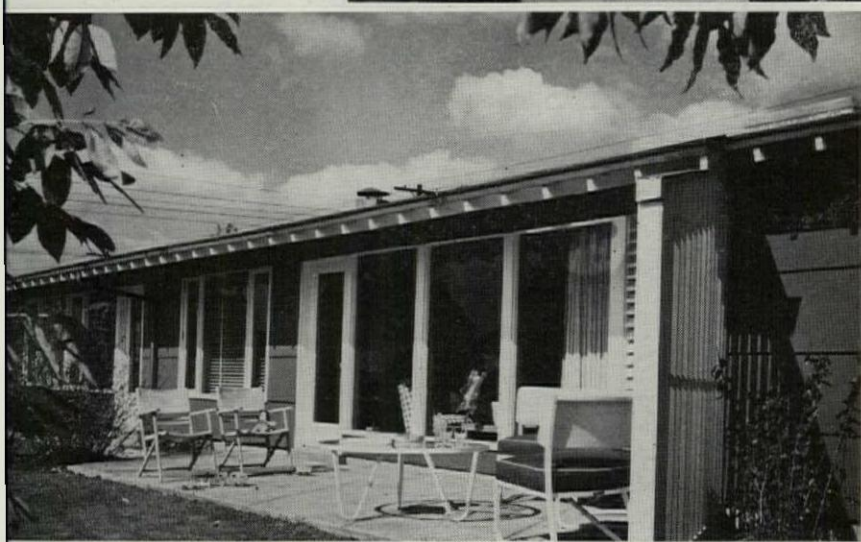
Expansion of Builder Fritz Burns' house is accommodated by the two-car garage. When garage is occupied, a new one is built at the rear of the lot. Architects: Wurdeman & Becket.





To tie indoors and outdoors together, landscaping is brought into a corner of the living room by Architect Hervey Parke Clarke.

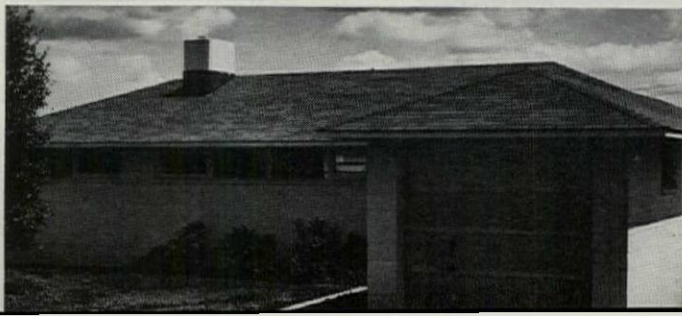
Photos: Esther Born, Hedrich Blessing, P. A. Dearborn, Lionel Freedman.



Paved terrace becomes an extension of the living room, thanks to large floor-to-ceiling window. Builder: Maurice J. Fishman; Architect: L. Morgan Yost.



Plate glass windows in house by Architect Malcolm Graeme Duncan (left) are flanked by ventilating louvers. Similar louvers are placed beneath the windows by Architect Paul Schweikher (below).



**Indoor-outdoor integration** is another technique which the contemporary architect uses to enhance the livability and apparent size of the small house. Aimed at making the house and its surroundings work together and for each other, it is accomplished mainly through the provision of large glass areas. Big windows bring the daylight, the garden and the more distant view into the house and relieve the rooms of their cell-like boxiness. Terraces, whether open, screened or covered, add the pleasure of outdoor living and dining and serve as an intermediate transition between house and yard. Frequently, this transition is abetted by a terrace garden—part of which is extended through the window into the living-dining room or by the extension of a wall or partition through a window out into the yard in the form of a garden wall or fence. It is axiomatic that this effort to bring the outdoors indoors requires more thoughtful and extensive landscaping than the small subdivision lot is accustomed to receive.

## FENESTRATION

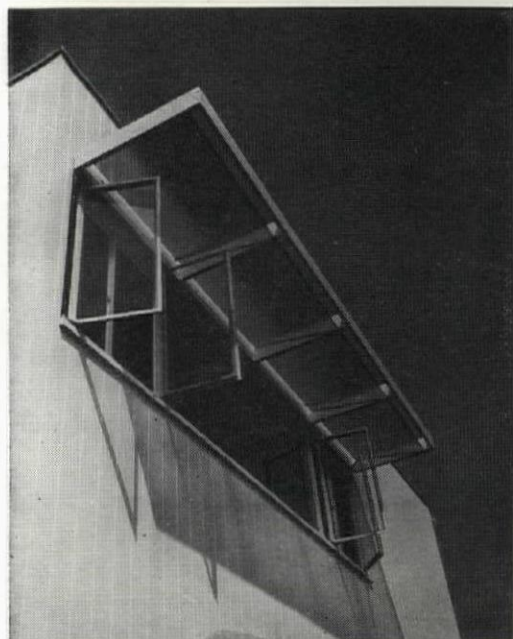
The so-called "picture window" is an every day adaptation of the contemporary indoor-outdoor design principle to traditional houses. Unfortunately, however, like the corner-window cliché of yesterday, it is improperly adapted more often than it is used with reason. Too many picture windows frame a picture no more exciting or restful than a busy front street—they are picture windows without pictures. A big window in a development house would make considerably more sense if it were at the rear of the house where the owners would at least have an opportunity to create a picture if one did not already exist—a flower garden or evergreen hedge, for instance. This presupposes that the living and dining areas of the house are at the rear—a reversal of the usual practice which got its start in the horse-and-buggy days when the quiet front street was something to look at. Since the primary purpose of the popular picture window is observation, it is best executed in a fixed sheet of clear glass rather than in numerous small panes separated by traditional mullions and muntins. (Ventilation can be had via smaller auxiliary windows and louvered ventilating panels such as those shown at the left).

Although the contemporary architect may be best known for his use of *large* glass areas, he is also an exponent of *small* windows wherever they make sense. He uses them to admit light and air wherever privacy is more important than view. Thus, in small closely spaced houses he would normally place strips of two or three of them high up on the side walls. In this position they screen out the view of neighbors and passers-by and at the same time make



Small high windows create privacy on street front of Designer-BUILDER Cy Williams' house (left). Designer Robert Chapin opens the living room to the view with glass walls (above).





*Eye-brow of heat-absorbing glass acts as sunshield for strip windows in Builder Gordon B. Roth's house by Architects Vemeny & Geller.*

*Projecting eave controls sun entering living room of house by Architect Philip A. Moore; it also shelters the terrace.*

increased interior wall space available for furniture. Except in the bathroom and kitchen, such windows are supplemented by larger ones to avoid a prison-like atmosphere. (A bedroom equipped only with small, high windows may cause a sick patient, playing child or working mother to suffer from claustrophobia.)

**Sun Control** becomes mandatory with the modern trend toward increased glass areas. Without it, a big south window will literally bake the summer occupants of a living room or blind them with sky glare. Protection against both is properly provided by an extension of the roof or the addition of a solid or louvered shield over the window. In either case the "eyebrow's" design should be carefully calculated to intercept all the sun on hot summer days when it is high overhead but to let in some of the more nearly horizontal rays of the welcome winter sun. (An auxiliary benefit of the "eyebrow" is the resulting deep shadow line on the exterior which dramatizes the horizontality of the house.)

## STORAGE FACILITIES

With the trend toward basementless, atticless small houses, the storage of bulky, household effects and garden tools presents a real problem. To solve it, the contemporary designer earmarks space inside his house for the dead storage of such little used items as trunks, suitcases, sleds, skis, Christmas tree ornaments, the broken chair which some day will be repaired and the unfinished book shelf which junior started three months ago. This storage space is reserved in either a utility-heater room or in a special dead storage closet.

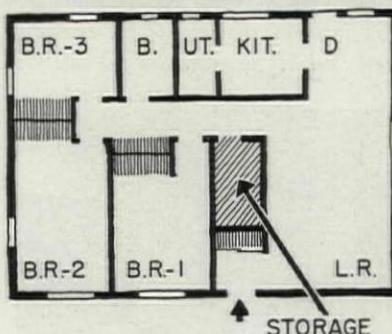
Outdoor equipment, such as garden tools and children's vehicles, is accommodated either in the garage or in a special "out building" attached to the garage, carport or the house itself. An outdoor storage closet is less expensive to build than an inside closet, because it requires no flooring, insulation nor interior finish. Moreover, properly handled, it will enhance rather than hurt the appearance of the house.

## BUILT-IN FACILITIES

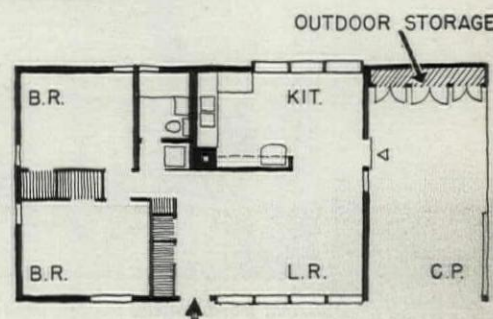
Furniture built into rooms makes even more sense in the builder's small house than in the deluxe tailor-made house where the movement started. The small rooms in the builder's house can accommodate only a bare minimum of conventional department store furniture. Moreover, ordinary furniture is generally out of scale with the dimensions of the house. Small rooms look and work much better if furniture is designed to scale and recessed into or



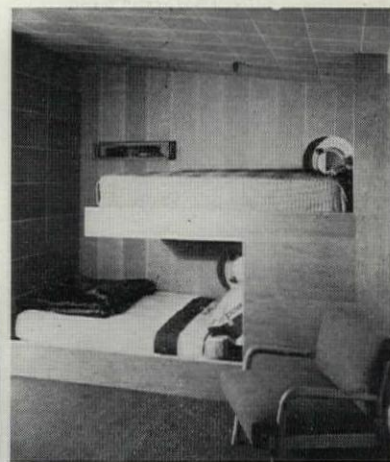
*Photos: Ezra Stoller: Pictor, P. A. Dearborn, Frank Randt, Henc Griffith, Rodney McCoy Morgan*



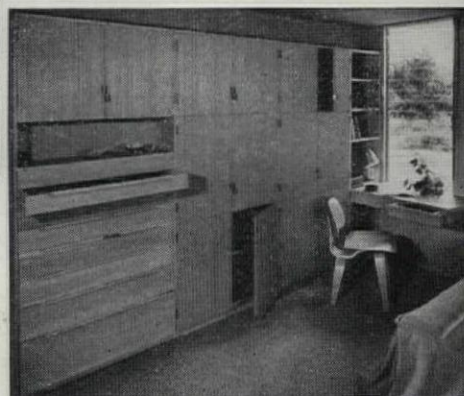
*Storage space is provided inside the house by the Byrne Organization (left) and, more economically, outside the house by Architect John Ridley for Builder Albert Balch (below).*



*Built-in bunks by Architect Edward D. Stone make the most of a minimum-size bedroom (right) as does the built-in chest of drawers in Builder Frank Sharp's house by Architects Mackie & Kamrath (below).*



*Storage wall of shelves, cabinets and drawers adds to the appearance and utility of this bedroom for Lamolithic Industries, Builders, by Architects Twitchell & Rudolph, as does the built-in desk and bed table.*





Geoffrey Baker



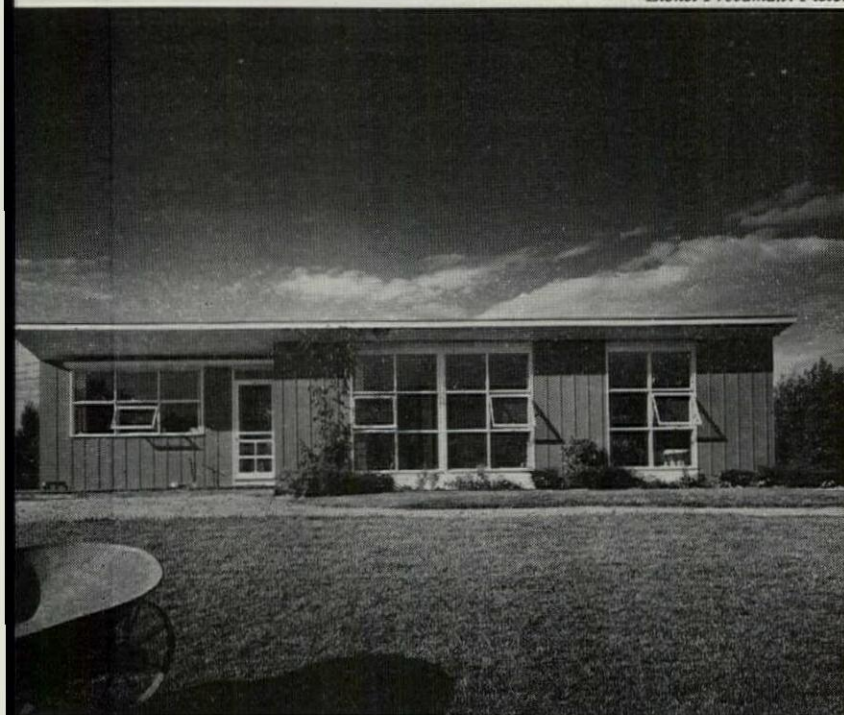
Wide variety of materials used in their natural state by Architect Louis Gelders includes concrete block, second-hand clay brick, concrete "brick," flagstone and lumber.

Hedrich-Blessing



Brick, wood panels, plaster, asphalt tile and carpet add life to Builder Maurice J. Fishman's model house by Architect L. Morgan Yost.

Lionel Freedman: Pictor



Trim appearance of Designer Robert Chapin's house results from the careful handling of such details as the light roof slab, the thin window mullions and the neat board and batten siding.

permanently attached to the walls. Thus a small bedroom is made larger if a chest of drawers or dressing table is set into the closet partition (the bedroom can serve a dual purpose if it is equipped with a built-in disappearing bed); a small dining area becomes more workable if the tables and seats are built-in; a living room becomes more livable with built-in shelves, cabinets, desk and perhaps a niche for the television receiver.

As in the case of kitchen and laundry equipment, provision of these built-ins saves the house buyer money as well as space. Their cost may be financed at a 4-5 per cent interest rate and spread out over the 20-25 year term of the package mortgage. Otherwise, the buyer must pay the higher down payments, higher interest rates and higher monthly installments which go with short-term commercial credit.

## MATERIALS

The contemporary architect is not ashamed of the materials he uses. He seldom paints brickwork white to resemble wood siding (and incidentally increase the maintenance problem), nor does he always camouflage wood with paint. Instead he selects materials for their natural beauty and finishes them in their natural state. They become decorative functional elements in the design as does the rough-hewn plank-and-beam ceiling in authentic colonial houses. A panel or wall of stone, brick, tile, plywood, most any kind of boarding or even the lowly concrete block adds a decorative natural color to the room—an informal, warm color—and a welcome change in texture when contrasted with smooth-finished plaster. However, too many variations in materials, like too many colors, may be worse than none—particularly if selected by some one without a trained eye.

## EXTERIOR DESIGN

Just as the contemporary architect avoids the disguise of materials, he also lets the exterior of his house frankly express its interior planning. He holds no brief for the useless dormers, gables, columns, shutters and other items of applied ornamentation which are hung on traditional houses. Instead, a handsome exterior is achieved by studied relationship of the house's masses, planes and materials, complemented by thoughtful landscaping.

Contrary to public opinion the flat roof is not necessarily the earmark of a contemporary house. It is merely the extreme version of the contemporary principle that, if the attic space is not intended for anything but dead storage, a steeply pitched roof makes no sense. Some of the best contemporary houses are topped with low pitched gable roofs, hipped roofs and roofs with a one-way slope. The main exterior distinction of a contemporary house is its straightforward, honest design and neat, crisp detailing.

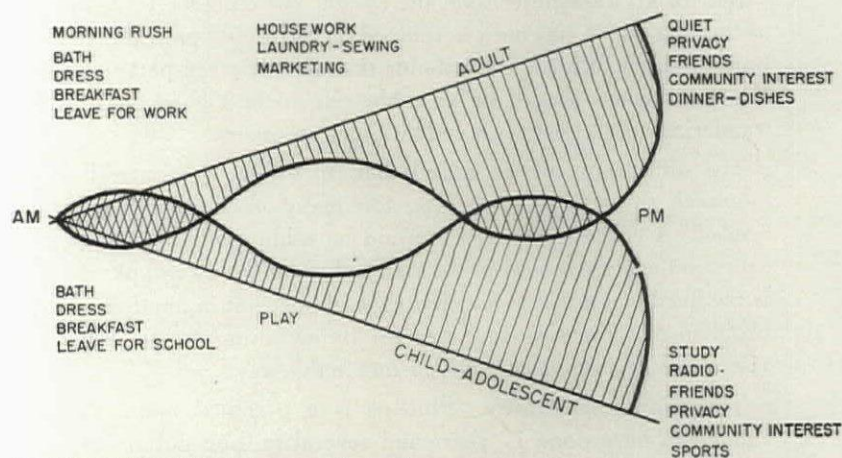
Fortunately or unfortunately—depending upon the reader's viewpoint—good contemporary design is not easily copied. A heavy-handed imitation is usually less pleasing to the eye and less comfortable to live in than today's typical replica of the Cape Cod Cottage. That is understandable, for the house of contemporary design has but little in common with the traditional Cape Codder which designers and house builders have been working on for centuries.

Production of good contemporary houses, particularly small ones, requires the careful design talents of imaginative professional architects who have long since freed themselves from the fetters of traditional architecture plus the enterprise and craftsmanship of understanding builders who are willing to learn and are unafraid of progress. Only through a combination of such talents will the public get houses which are fundamentally better than those of yesterday—houses which will meet the public's new demand for top quality and will help sustain the industry's present production level.

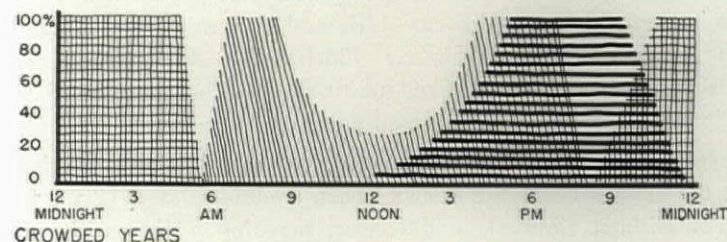


# PLANNING FOR COMPLETE FLEXIBILITY

A new concept of multi-use space to meet the problems of family expansion and the changing needs of growing children

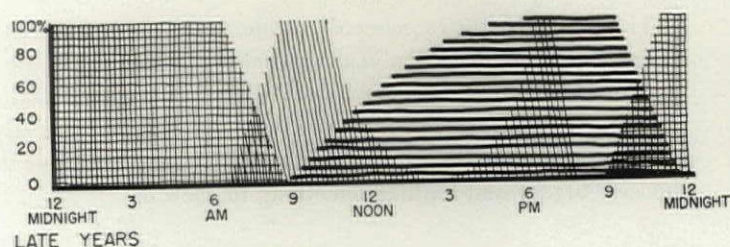


**LIVING ACTIVITIES:** During the peak years parents' and children's activities are identical and overlap at the beginning of the day. Around noon they are quite different, temporarily simplifying the space problem; but beginning at midafternoon they again become similar and infringe on each others space requirements. Such analytical studies by Architect-Builder Haydn Phillips form the basis for his flexible house plans shown on page 129.



**SPACE USE:** During the crowded years when the family consists of four (above), the work load peaks between 7 and 9 a.m., again between 4 and 7 p.m. This evening period is a particular problem because space is simultaneously needed to handle the day's peak living requirement (dark area). In later years after the children are married (below), the morning work load comes later (9:30-10:30 a.m.) and the afternoon peak is shorter (6-7 p.m.), minimizing the conflict with living activities. Note the decrease in the work hours, offset by increases in the living and sleeping hours.

WORK AREA  
LIVING AREA  
SLEEP AREA



The U. S. builder is a practical man. If he weren't, he wouldn't be building some 800,000 one-family houses per year, at an average cost of \$7,000 to \$10,000 per house.

But, judging from the plans of most of his houses, he seems to be paying too little attention to one very practical fact about his market. Families have a disconcerting habit of expanding and contracting. The builder finishes a new house designed to accommodate a couple in comfort. He turns to look the other way and the couple becomes three or four. And as surely as couples do have children, the children will one day fly the coop and reduce the family to a couple again.

The time-honored way to solve this problem is for families to move from smaller houses to larger ones and back again to smaller ones. This is the easy way out for the planner of houses but it isn't necessarily satisfactory from the family's point of view. It has become less so as fewer and fewer apartment units appear on the rent-controlled market and the outstretched hand of FHA and VA beckon the way to buying a house. Home ownership which claimed only 37 per cent of U. S. families in 1900 and 41 per cent in 1940, now stands at 51 per cent.

For the house designer and builder, this trend is both an opportunity and a great challenge. In the planning of the great majority of houses, the blind are being led in some traditional pattern, by some blind predecessor. If thoughtless planning of living space does not create social ills, it certainly aggravates or alleviates them.

The small house is not only a high challenge, it is an extremely difficult one. The house is the shell for a complicated organism which is not content with expanding and contracting. It is made up of evolving individuals who have different housing needs at different periods of growth. Into the living space provided by the builder, these growth patterns must channel themselves.

The infant's needs are the simplest. Whether in carriage or crib, the infant sleeps away his first year in any convenient corner. Older children are more demanding—they need play space within sight of parents for reasons of safety and psychological security. At the same time they greatly increase the washing and ironing and cooking time needed by the mother. Translated into practical terms, this means play space within the orbit of the kitchen.

Even supposing one is to neglect the precepts and warnings of sociologists and psychologists who believe that separate



rooms are almost necessary for the best development of children, the wishes of the market in this respect deserve mention. The Pierce Foundation Survey, done in 1943, discovered that "both parents and children (of the then \$2,000 to \$3,000 income group) strongly express a desire for each child having its own room as the ideal sleeping arrangement." Indeed, of the 207 children surveyed, only one child (age 4½) wanted a roommate.

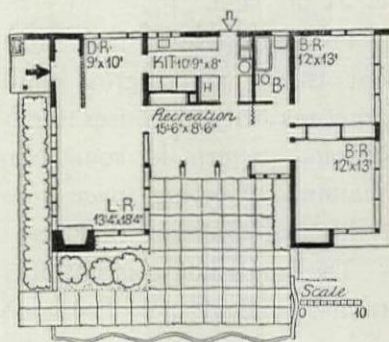
Actually, the only planning that would make such a standard possible in the general run of existing houses is planned parenthood. The effects of such a combination on the U. S. birth rate would disrupt the whole economy. To provide a separate bedroom for each child and still offer space for communal living in the \$7,000 to \$10,000 house sounds unrealistic.

But this is not yet the heaviest load the family shell must carry. As children grow into adolescents, their hours of leisure tend to coincide with their parents' and there is competition for use of the living room. The tired father returning from work will become an immovable object in the living room absorbing peace and quiet before the next day's demands have to be met. At the same time his adolescent children will blow into the same living room like some irresistible force—full of noisy physical exuberance to offset the confining routine of a school day.

This particular example of irresistible force and immovable object is a just cause for either adolescents or adults to leave home. If you put it in terms of juvenile delinquency, the incidence of crime among 21, 22, 23, 24 and 20 year-olds (in that order) is higher than for any other age group. If you put it in terms of adult delinquency, there are 500,000 divorces in the U. S. per year.

Of course, where family income is sufficient to live in a house with a rumpus room in the basement, there is no conflict. But space costs money and the mass market must somehow be served in 800 to 900 sq. ft. of floor area. Obviously, this is no rumpus room bracket.

"What," asks the builder, "can I do about all this?" Certainly the rubber house is not a practical solution. The World's Fair House of Architects Landefeld & Hatch (1,100 sq. ft. at a 1939 cost of \$6,000) began to meet the problem with a 8½ x 15½ ft. recreation room off the kitchen. Incidentally the public voted it the most popu-

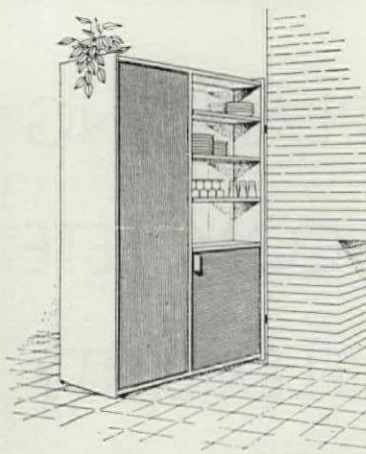


World's Fair house by Architects Landefeld & Hatch provided an extra room for recreation.

lar of 15 World's Fair demonstration houses. But in spending \$1,300 (at current prices) for a recreation room, the architects had to be content with two bedrooms—a planned parenthood solution!

A different kind of approach altogether is presented in the plans which appear on the facing page. These plans are still in a two dimensional form but illustrate a whole new concept of multi-use of space. Working from this concept, they show the possibility of maintaining a shell of exterior walls during a whole generation of family life and adapting the interior to satisfy the crescendo of children's needs within that shell.

The plans are radical. They may even be a little shocking to those practical men who design and build houses. However, a small seed of this kind of thinking appeared in the Levitt's 1949 house (see page 134). In that house, a swinging wall added 33 ft. of supervised play space to the kitchen in the daytime, turned it into a vestibule at night shielding kitchen operations from an incoming guest at the same



time it accommodates his coat in its closet. This year (as discussed on page 136) the Levitt's are omitting the swinging wall (cost \$60), adding television and a carport. But even if they hadn't, the swinging wall was only half useful. Thirty-three sq. ft. are enough to hold a playpen but not enough to substitute for a bedroom nursery (in this case well out of sight of the mother's work center).

Even in terms of a playpen, the objection will be offered that this space was directly adjacent to the front door—the draftiest place in the house.

But for all these objections, the Levitts' swinging wall was the seed of the idea which has been developed on the facing page by Architect Builder Haydn Phillips who holds that almost every partition in the minimum house should be movable. He spent a good deal of time wandering about Levittown and talking to residents.

The objection will be raised that, in order to execute Phillips' approach to flexible space use, too many mechanical devices are needed. A collapsible partition and movable modular closets make execution expensive and present an unknown factor in upkeep. This is the hurdle and this is the challenge. Looked at in another way, the problem of increasing facilities for living while maintaining a cost (i.e. area) limitation, can *only* be met in this way.

This is no brainstorm. Phillips is a practical man. Practical enough to have done 17 years and several million dollars of building in Hawaii before he came to the U. S. and Carnegie Tech to get an architectural degree. If Phillips has built a hospital, a school, two churches, and scores of houses, not to mention highways, he is not likely of unsound mind when he drafts up a set of stimulating small house plans.

The basis of these plans is the outside shell of the house. Within that shell are certain fixtures—elements that are difficult or costly to move. These include sink and stove, hot water heater and bathroom. (As detailed opposite, his new concept of the three-passenger bathroom is a sensible one which can easily and economically be adapted to the conventional small house.) Phillips has also conceded the inclusion of a few feet of fixed partition. But he considers fixed interior walls an evil—probably an unnecessary one.

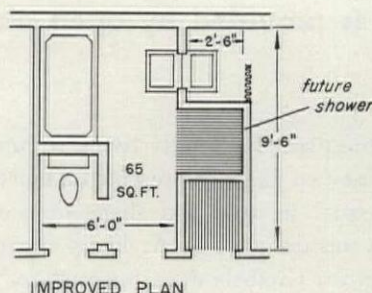
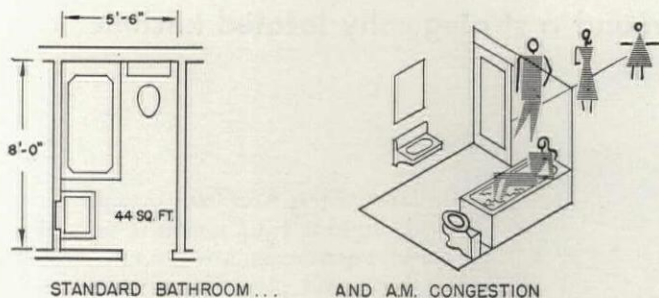
Beyond these minimum fixtures, space flows freely within the shell until the buyer's needs are known. Then modular closets (2 x 2 ft., with or without shelves), and folding partition walls can be arranged to fit the needs of the owner *at the moment* of buying. If, a year hence, his family expands, these same closets and folding walls can be rearranged within a matter of hours.

Phillips sees these mechanical contrivances as merely a means to an end. He never thinks of space in terms of exclusive uses or permanently fixed boundaries. When the adolescent needs to study, he can get privacy by pulling out the walls of his little cubicle to make a study. A few hours later, if he and his brothers want to have a party, he will shove the partitions back to throw the children's bedrooms together into a large adolescent living area. At night the partitions will be pulled out again to create dressing and sleeping rooms.

In the early years, the children's nursery can literally be merged with the kitchen to allow big play areas within sight and call of the housewife. At night the partition will be pulled out to separate the noise of dinner dishwashing from the sleeping young.

The dining-living room's collapsible wall is a more common feature but it is the extension of this principle progressively through the rooms of the house which makes Phillips' concept of flexible floor planning a generous and functional implementation of family living. And all within an 850 sq. ft. shell. As such it should give the small house designer and builder something to chew on.

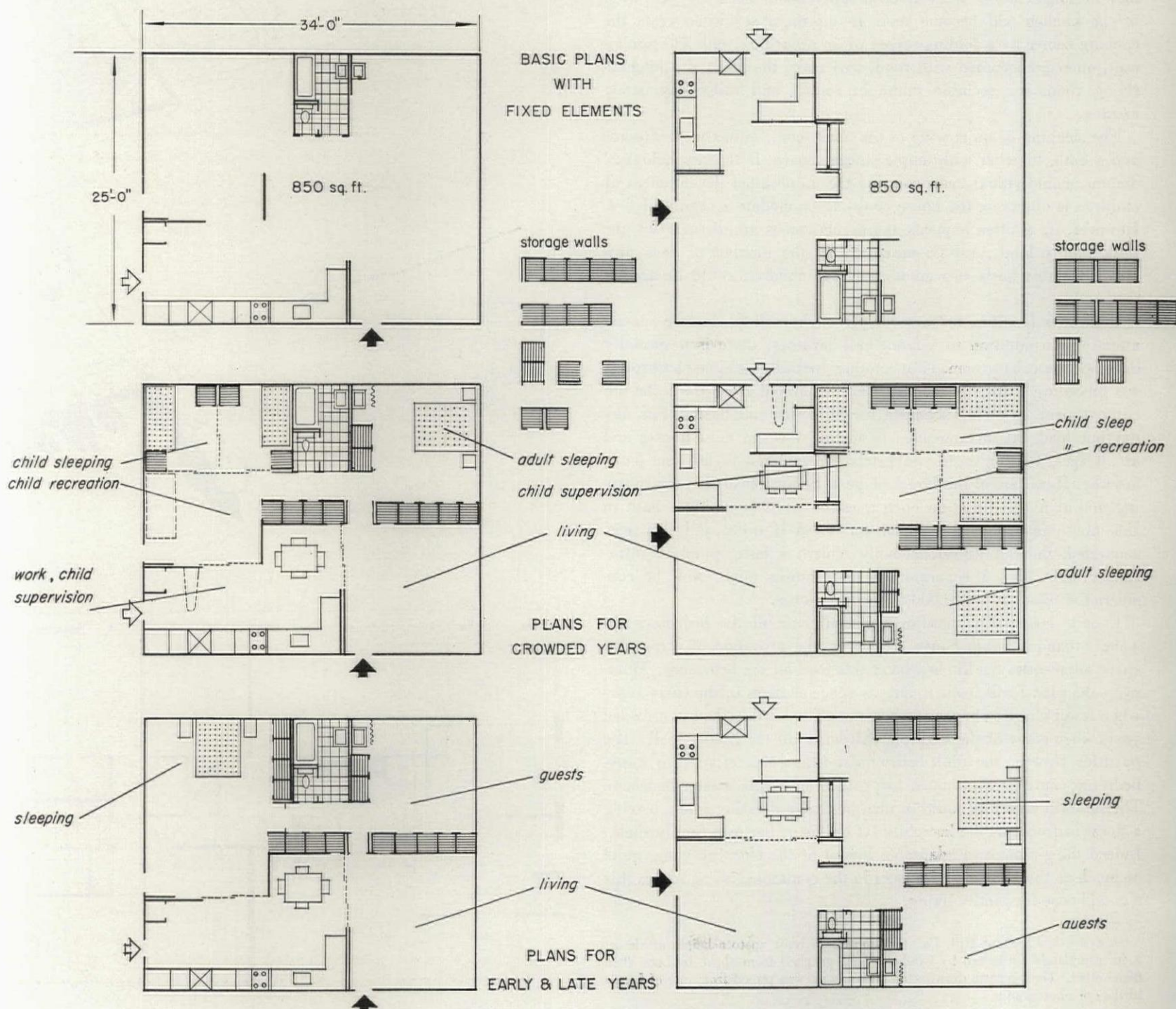




**BATHROOM:** To relieve the small house of the bottleneck congestion caused by the typical bathroom, Phillips proposes an economical three-passenger arrangement which features a second lavatory occupying a screened recess in the master bedroom and a mechanically ventilated toilet compartment with dual access.

Basic ingredients of Phillips' 850 sq. ft. flexible floor plans (two series of which are illustrated below) are three fixed elements—bathroom facilities, kitchen equipment and two short partitions—plus a series of movable storage units and partition panels (top plans). These may be arranged to meet the requirements of the family's peak years when children require that space be put to dual use (center plans) as well as its uncrowded earlier and later years (lower plans).

A variation of the same theme, the series of plans below illustrates flexible planning around a corner kitchen. Without pretense of finality or complete detail, Architect-Builder Phillips' thesis is a thought-provoking attempt to plan a house which will meet the varying space requirements of a typical family as it progresses from the newly-wed stage through years crowded by children to the period of leisurely old age. Note flexible space use in center plan.





## Flexibility in a big house is provided by open planning around a strategically located kitchen

The preceding story discussed flexible plans for family living within a minimum 850 sq. ft. shell. On these two pages is presented a more ample (17,000 sq. ft.) solution, equal in area and shape to two minimum houses set side by side. It was designed by Architect Oscar Stonorov as a demonstration project for Gimbels department store.\*

Like the traditional "mulberry bush" of the nursery rhyme, a heating and storage core is the pivot around which all family living revolves. Laundry and kitchen work spaces open out into a large (9 x 14 ft.) supervisable play area for little children. Clockwise, the kitchen flows over a counter into the dining space which in turn runs into the ample (13 x 20 ft.) living area. Thus, the kitchen—the housewife's headquarters—is ideally located for easy supervision of the living-dining-play half of the house.

Stonorov uses a draw curtain to separate dining and living spaces. For the prospective home owner who does not always want the kitchen to flow into the dining room, another curtain could be installed, leaving him the option of separating the two. As children grow up they no longer either want or need supervision. Then the play wing of the kitchen will become their living room separated from the cooking center by a folding screen or an accordion wall. The adolescent, often preoccupied with food, will make the most of a kitchen-living room for sociable midnight snacks and rainy day candy making.

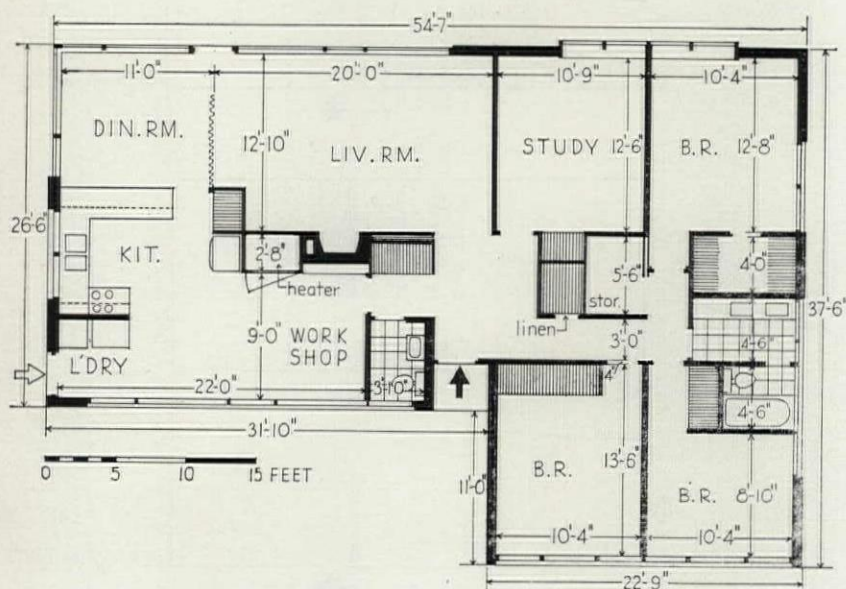
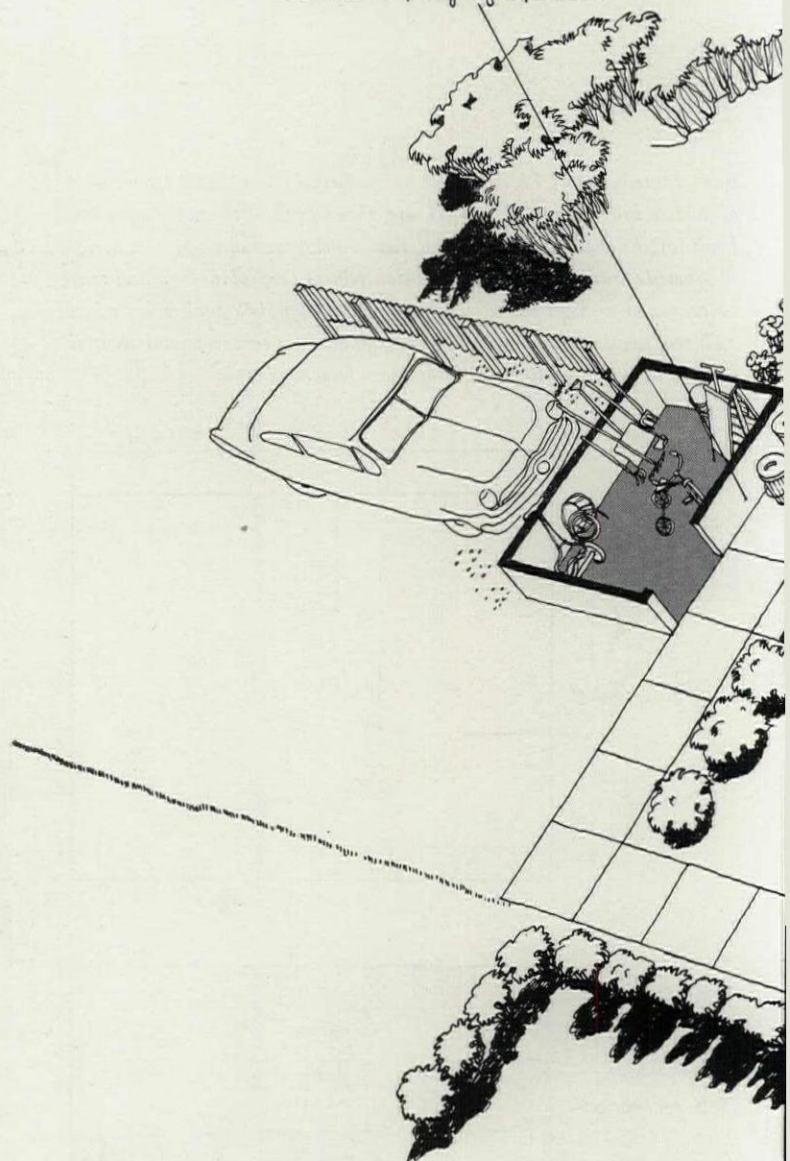
The sleeping or quiet wing of the house consists of four bedrooms and a bath, together with ample storage space. If the psychologists' dictum on individual bedrooms for the uninhibited development of children is observed, the house could accommodate a family of five. However, if, as often happens, the psychologists are disregarded, the peak family load must be measured by the number of beds provided. On this basis two adults and five children could be accommodated.

Bathroom facilities for a seven-person household deserve special attention. In addition to a front hall lavatory, there is a specially designed main bathroom. (For another specially designed bathroom, see preceding story.) Two basins are separated from the toilet-tub compartment, allowing separate use of toilet and basins. For any daytime load, this arrangement is ample, since, in most houses and at all ages, two or more youngsters are inclined to use one basin anyway. However, in the hours of peak bathing load, (in the morning and at night), it is an open question whether taking a bath in this house is not an anti-social act. Even if toilet and tub were separated, the tub would probably remain a fester point of intra-family relations. A separate tub and shower might well be considered minimal in a \$20,000 to \$25,000 house.

Experts might also question the small size of the bedrooms for a more-than-minimum house. However, the provision of extra play space adjacent to the kitchen takes this load off the bedrooms. Moreover, the plan lends itself to simple space changes in the early years when fewer children have to be accommodated and in the less crowded years when some of the children will have left the family shell. The partition between the adult bedroom and the adjacent guest or study-bedroom could be eliminated to provide an ample master bedroom. The smallest bedroom could in turn become a dressing room, leaving a guest bedroom as the last child set up his or her own family shell. Indeed the simple and adaptable layout of the sleeping wing, quite as much as the free flow of spaces in the communal wing, makes this a good house for family living.

\* On a site in Chestnut Hill, Pa., this house was built up to a height of almost 3 ft., completely furnished by Gimbels, photographed from above by LIFE, then dismantled. The isometric drawing on these pages was traced from one of LIFE's bird's-eye photographs.

Everything has been thought out down to a tidy garbage can alcove and a generous store room for outdoor work and play equipment





Kitchen work center commands a view of small children's play space at one end, serves dining room at the other.

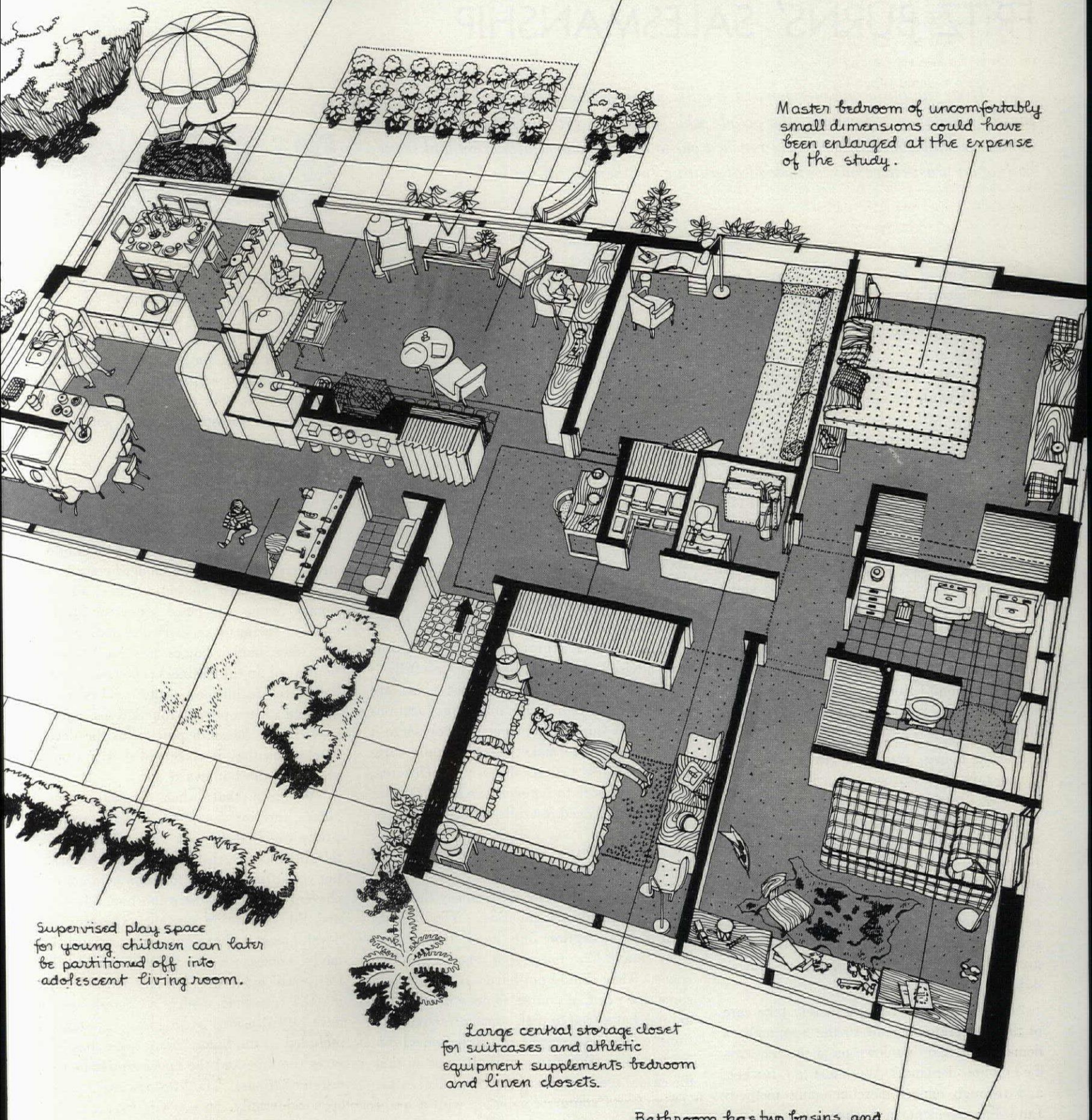
Dining-living room has an effective length of 31 ft. Door to terrace serves both areas. Curtain offers optional separation.

Master bedroom of uncomfortably small dimensions could have been enlarged at the expense of the study.

Supervised play space for young children can later be partitioned off into adolescent living room.

Large central storage closet for suitcases and athletic equipment supplements bedroom and linen closets.

Bathroom has two basins and toilet-tub compartment, permitting use by two or three people at the same time.





# FRITZ BURNS' SALESMANSHIP

*"If we can build and merchandise a million homes in one year by merely satisfying the spontaneous demand—the people who 'come and get it'—think of how many homes we could build if we really reached out to the vast potential market and started calling on prospective buyers instead of waiting for them to call on us."*

As president of Los Angeles' Kaiser Community Homes, Fritz B. Burns is one of the nation's foremost house builders and house salesmen. As chairman of the NAHB's Educational and Public Relations Committee he is currently stumping the country selling local builders on the need of a \$250,000 fund to help them sell the house building industry to the public. One of Salesman Burns' most effective campaign speeches is based on the many and varied merchandising methods used by his organization. (Excerpts from this talk are presented below.)

The entire repertoire was put to work last Spring when sales were more difficult than they are now and when Burns' 3,000-house Panorama City project was being launched. At that time 1,100 of these homes were completed or under construction. Of these, 800 were unsold—150 were fully completed and additional completions and starts were scheduled at the rate of 30 each per week. Burns was worried.

But the houses were sold. In selling them, Burns says, "we learned again how to create business, how to generate new customers. We believe it will enable us to continue at a large volume for a long period of time. We have found assurance in knowing that our potential market can always be expanded after the spontaneous demand has subsided. We have found new courage in going ahead, knowing that we are able to meet the competition of others who are also seeking their share of the consumer's dollar.

"It is not enough that we merely take care of the 'desperate demand' or the 'spontaneous demand' or the 'no-down-payment—so-why-the-hell-not demand.' We must go further, and through expert merchandising methods (and improvement in architectural design) create a new and even greater demand—a 'cultivated or generated demand' which will tap entire new sectors of buyers hitherto untouched by ordinary approaches."

In his cultivation of this market during last Spring's buyers' strike Fritz Burns used the

following sales and public relations boosters which are described in his own words:

## Signs

"First we got some signs—big enough to command attention. Not little chintzy signs that said 'Water? Yes. Sewer? Yes. Gas? Yes.' But big signs, if only one or two. One of them was 70 ft. long and 40 ft. high.

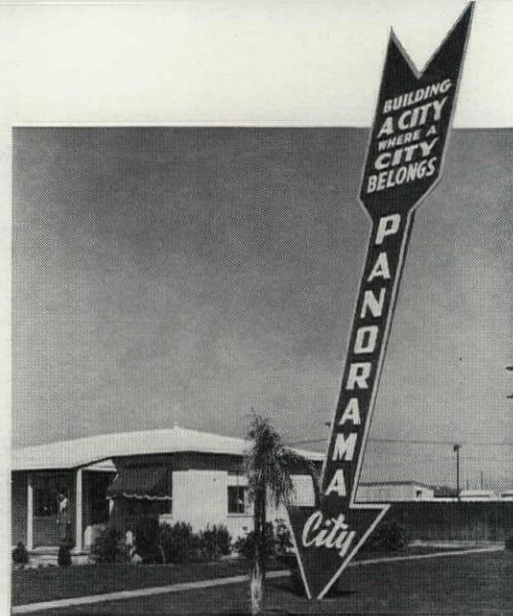
"We also put up another kind of a sign, a spectacular sign, to attract the traffic from the main boulevard to our model homes. It was an extra long telephone pole made to appear as though it was a huge arrow with its head partially imbedded in the ground and its simulated tail feathers sticking skyward and visible for several block.

"Another sign that we have found very valuable, shows a group of happy children and advises motorists to 'Drive carefully—1,371 children live here.' These signs are 3 x 5 ft. and are placed in numerous locations throughout our developments. They serve a triple purpose: to make motorists more careful; to impress visitors that we like children, and furthermore to let everyone know that we have a full-fledged, established community of no mean size.

## Advertisements

"Ads should have several primary elements. They should attract attention. You do that with a good caption line, good illustrations. They should have the proper amount of white space. They should not have too much copy; some fine print, of course, to get your message across; but added to that, some attractive captions to these paragraphs, or maybe some leads to the paragraphs—words in caps so that the casual reader going through the real estate section—and you are competing with a lot of other fellows—first may merely glance at your ad, then he picks up a caption that's of interest and finally he is reading the fine print, and then you're getting across the message that you want to get across.

"There are so many ideas and so many things to be said about houses that almost



*"A spectacular sign"*

every ad should be different. Fresh copy costs no more to run than old copy. Of course, I know that old wheeze about repetition making advertising effective. But don't use that as an excuse for being stagnant. Depend upon the style of the ad, a consistent border for instance that identifies your ad, or a distinctive signature cut, or something of that sort for your repetitive value.

## Model houses

"Now that we have the people headed in our direction by our ads, and we have the signs on the boulevard, to draw them into our property, we need some model homes to show them. We used an entire street of model homes, some furnished, some unfurnished, some in various stages of construction.

"Other model homes are located on the boulevard, in the business center, or what will be the future business center. They are constructed on temporary foundations, and later moved into the main portion of the development when they have served their purpose in attracting the boulevard traffic.

"We find that when furnishing model homes, interior decorators like to have things pretty much their own way. That's an admirable characteristic for interior decorators, but very often causes confusion with your purchasers as to just where the house leaves off and the decoration begins. Therefore in a development where we feature furnished model homes, we also have what we call 'As Delivered' models. They are located adjoining the furnished models so people will not have any illusions as to just what items are included in the house they are buying. This saves the time and the uncertainties of verbal differentiations. The sale process is speeded up considerably.

"In the same vein, let people see what goes into your house. We used a model under construction. It is a house on which we stopped construction in the framing stage. People can come in and see just exactly how the house is built. There will be no question in their mind about what they are getting.





*"Big enough to command attention"*



*"With a triple purpose"*



*"An entire street of model homes"*

### Model hostesses

"Having built all these model houses with all of this paraphernalia and having attracted all of these people, we now must start servicing them. We must have hostesses in order to take care of the people going through those houses.

"These girls, incidentally, are selected not only for their faces but also for their feet. We like girls who can stay on their feet. We had good luck with WACs, for instance, or girls who had been accustomed to work in a department store, who can answer the same questions over and over and with a smile; girls who can stand on their feet without tiring.

"The model homes are cleaned thoroughly by janitors every night but in addition the hostesses must keep these houses as neat as a pin. You can't have empty coca cola bottles in the refrigerator, . . . powder puffs or bobby pins in the medicine cabinets, . . . or newspapers, crossword puzzles, decks of cards or knitting or bogged-down cushions where somebody sat and sat during a slow hour. The house must be sparkling, neat as a pin, and polished like an apple.

### Source-of-sales map and circulars

"In addition to the newspaper ads, we distributed circulars door-to-door in those portions of the city where we were getting most of our business. We kept a big map of the entire county area, and every time we would sell a house to somebody we put a tack in that map at the address where the purchaser was living as of the time he bought our house. Those tacks soon formed a pattern whereby we could determine in which areas we were getting the most business.

### Direct mail

"We also distributed a double faced folding post card, which included a self-addressed return post card with postage prepaid. We told them we had a handsomely illustrated four-color booklet entitled *One Hundred Helpful Hints for Hopeful Home Owners*, and if they would like that book telling them all about

how to select a house, what it means to be qualified by FHA from a credit standpoint, what they are entitled to as a veteran, and so forth, all they had to do was to put their name and address on that card and drop it in the mail. They don't get this booklet by mail. One of our ambitious salesmen delivers it.

### Putting buyers to work

"As a slight inducement, to encourage buyers to give us the names and addresses of their friends, we have what is called a Nursery Certificate. If they will give us the names of five or ten people whom we can call on as 'leads', irrespective of whether or not we sell houses to those people, the person who furnishes us with those names will receive a certificate which entitles him to a selection of nursery stock from what we call our Nursery Corral. This is a fenced-in area which we have on the property where we bring in truck loads of nursery stock purchased at wholesale.

"In addition to nursery stock we have also used stationery as a premium. A few names of prospective customers, and you get a box of stationery with 'Panorama City' embossed on top—and you can get that in pink, light blue or beige, which ever you desire.

"We want our customers not only to give us names, but we want them to actually help us complete a sale. The customer who has brought us a prospect receives a merchandise certificate. One merchandise certificate entitles him to a gas stove; two certificates, a refrigerator; and for three certificates he gets a washing machine. We found that program very, very successful.

### The "convincer"

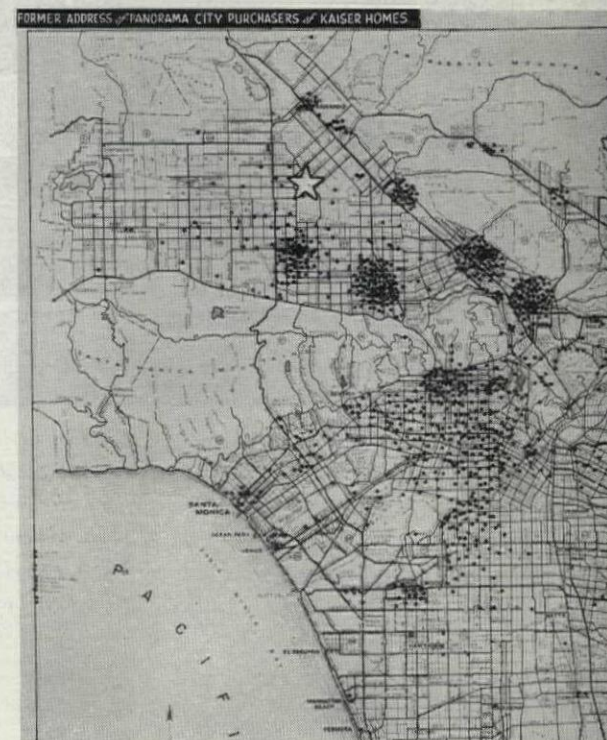
"We have developed what the salesmen now call the 'convincer'—a 'Valuable Document File,' the kind you can buy in any stationery store plus some specially printed captions. It consists of a dozen heavy manila envelopes bound in a leather cover. We have one of these Valuable Document Files ready for immediate presentation (with a great deal of

*(Continued on page 214)*

*"Selected for their faces and feet"*



*"Tacks where buyers used to live"*



*"A file of valuable documents"*



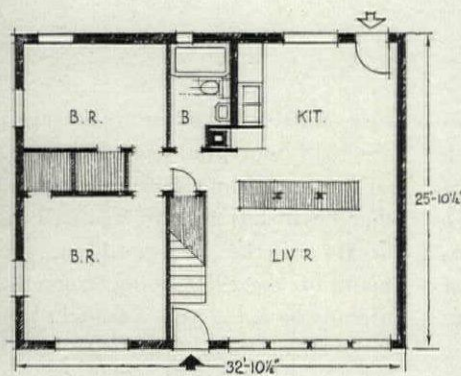








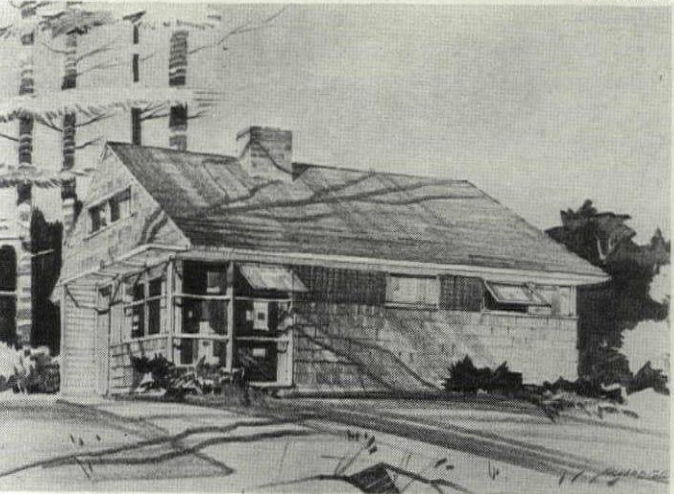
Pierce Studios



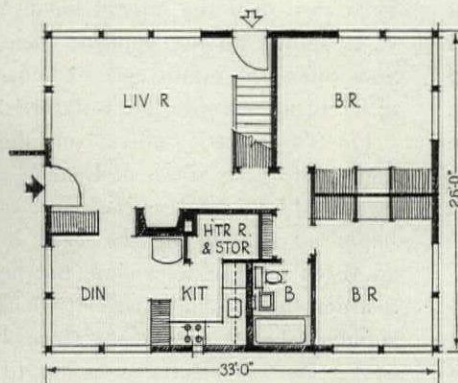
### 176 in Phoenixville, Pa., at \$8,460

Builder Frank Collins built his first Levitt Type model house (picture, left) with the living room window wall to the rear, as in the original Levitt house. His customers wanted the house turned the other way, however, so he built his first group of 176 Levitt Types at Phoenixville, Pa. with the living room in front. Most interesting variation in Collins' plan is the elimination of the fireplace and its replacement with a plywood storage wall, with bookshelves, knotty-pine paneling on the living room side, linen drawers, refrigerator-and-washer alcove on the kitchen side. Collins' sales price (\$8,460) includes a complete kitchen package.

Del Ankers



Reni Photos

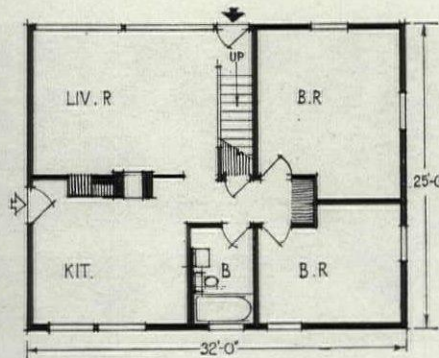


### 100 in Washington, D. C., at \$10,200

One of the most refreshing variations on Levitt's original plan is the layout of this house being built this Spring by Carl Freeman of Washington, D. C. at his Hampshire Hills subdivision. Noteworthy is the small utility room, also the liberal use of glass areas in both the living room and kitchen. Builder Freeman is using hot-air radiant heat, with hollow tile runs under the slab floor and supplementary registers in each of the four rooms. Freeman has scheduled 100 of these houses this year, in addition to his higher priced units (see p. 154). Sales price of the house: \$10,200, including a complete kitchen package, built-in dressers in each bedroom.



Jay Studios

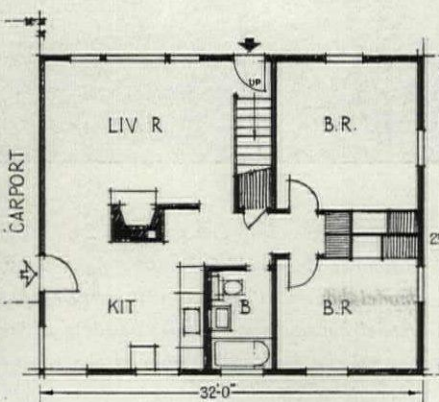


### 600 in Rockville, Md., at \$9,650

A side entrance, placed at the fireplace division between the living room and dining room, is the main modification that Builder Joseph Geeraert of Rockville, Md. has made in this Levitt Type. In addition to making both rooms immediately available from the front door, Geeraert points out, the side-door arrangement provides a much larger dining area in the kitchen than is available in the standard Levitt model. Geeraert is building 600 Levitt Types. Included in his \$9,650 price: a full kitchen package with washing machine, oak floors, double-glazing in the living room window wall.



### 59 in New Providence, N. J., at \$10,300



Among the score of New Jersey builders who have adopted the Levitt plan to their operation is Architect-Builder Hyman Roche. (Another is Builder Benjamin whose glorified Levitt Type house is shown on page 156.) He has put up 59 Levitt Types on his Hillview subdivision in New Providence. The entrance to the house is from the side, with a carport serving as the porch shelter. Roche's price is \$10,300. In comparing this price with Levitt's \$7,990, he claims that his land development costs were about \$1,200 more than Levitt's and that the carport adds \$500.



# LEVITT'S 1950 HOUSE features television inside, a carport outside, the same \$7,990 sales price, but a new sales technique

If there is anything in the notion—"As Levitt goes, so goes the nation"—then we have, on these pages, the operative builder's house of 1950. The history of this house represents the market guess of one of the shrewdest guessers in the business. When the famed Levitts of Long Island sat down last fall to talk out their 1950 house, their first plan was to bring out a \$5,990 miracle. This plan they abandoned—not because they thought they couldn't do it—but because they decided the market wanted a better, not a cheaper house. Since it seemed fairly hard to improve the basic plan of their 1949 "ranch model—the result of some \$100,000 of research" (FORUM, April '49)—they decided to build it over again, and to improve it in equipment and quality. Accordingly, for the same \$7,990 purchase price of last year's model, they are this year adding 1) built-in television; 2) carport with 3 x 3 ft. of outside storage space; 3) more space in the unfinished attic; 4) sliding aluminum windows; 5) tiled bathroom walls—porcelain on steel; 6) flush doors; 7) sandstone-colored bathroom fixtures instead of standard white and 8) a bookcase built into the brick fireplace wall. The only 1949 fea-

ture omitted is a swinging storage partition—see 1949 floor plan page 134.

These additions look so good to the market that Levitt has actually realized that old day-dream of the housebuilding industry—demand for the 1950 model from customers who already have last year's model. Levitt reminds all such customers that they still have three-quarters of their VA guarantee available and that they can buy the new model at no down payment if they can sell or rent their present house. Several such deals have already been made, and one 1949 owner reports an offer of \$600 cash over the unpaid balance.

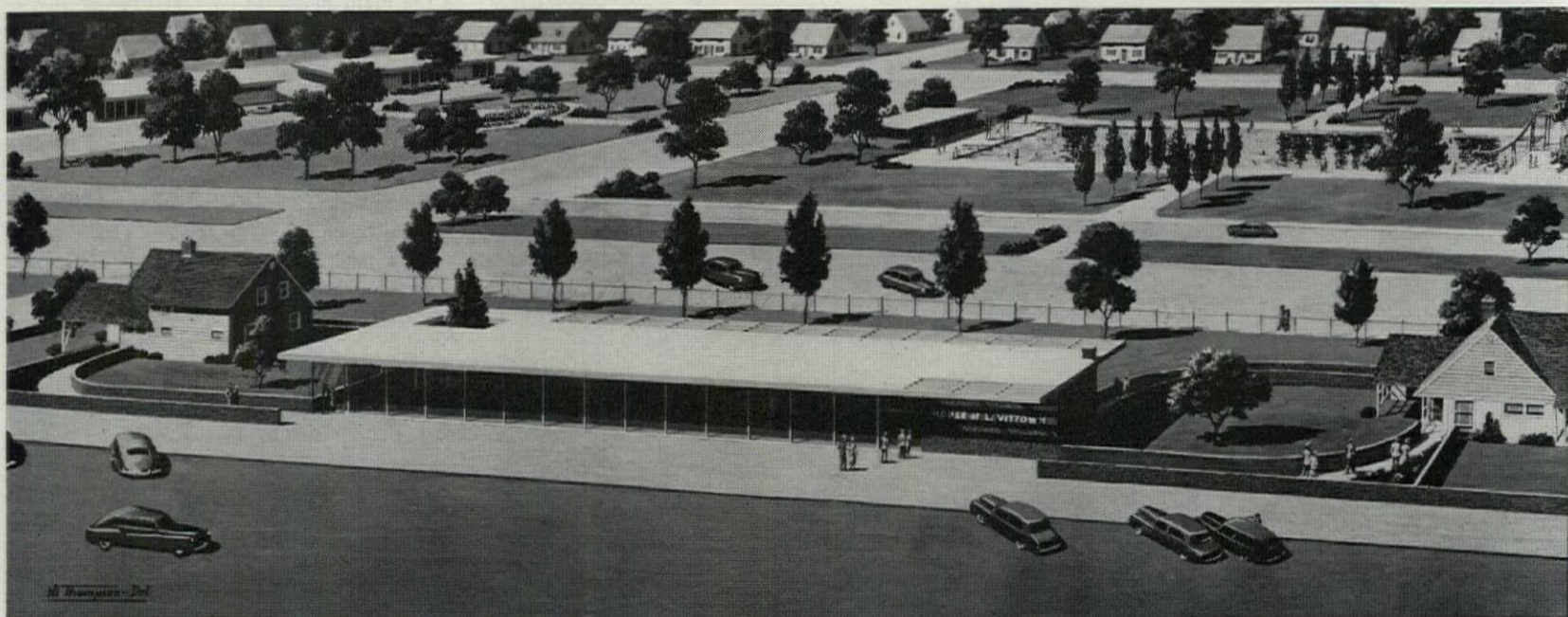
As shown on the opposite page, Levitt & Sons offers the public several houses of quite different appearance, but only one floor plan.

Levitt's electric effect on the nervous housebuilding business of Long Island can be measured by a small mistake in the first newspaper ad announcing the 1950 house. The ad listed built-in television, but neglected to mention the automatic washer which has been standard Levitt equipment since 1946. The area's leading electrical contractor immediately got 20 telephone calls from other housebuilders who wanted to yank out washers and

put in television. This mistake was hastily smoothed out in the next Levitt ad, and so far as can be determined, on the rest of the island. (Things have not, however, as yet been smoothed out with some 40 Long Island dealers for Admiral Corp., which sold 4,000 television receivers direct to Levitt). There has as yet been no report of a Levitt customer who balked at taking built-in television.

True to form, Levitt has simply ignored the whole question of whether built-in television can be covered by the mortgage. "As for FHA, at the time of the appraisal, they didn't even know we were installing television," Bill Levitt says. "Our house appraises 100 per cent without any of the new additions." Levitt builds the television receiver into the closet under the stairs to the unfinished attic (thus providing easy service access) and claims he can beat anybody on the cost of this extra because he is doing his own installation.

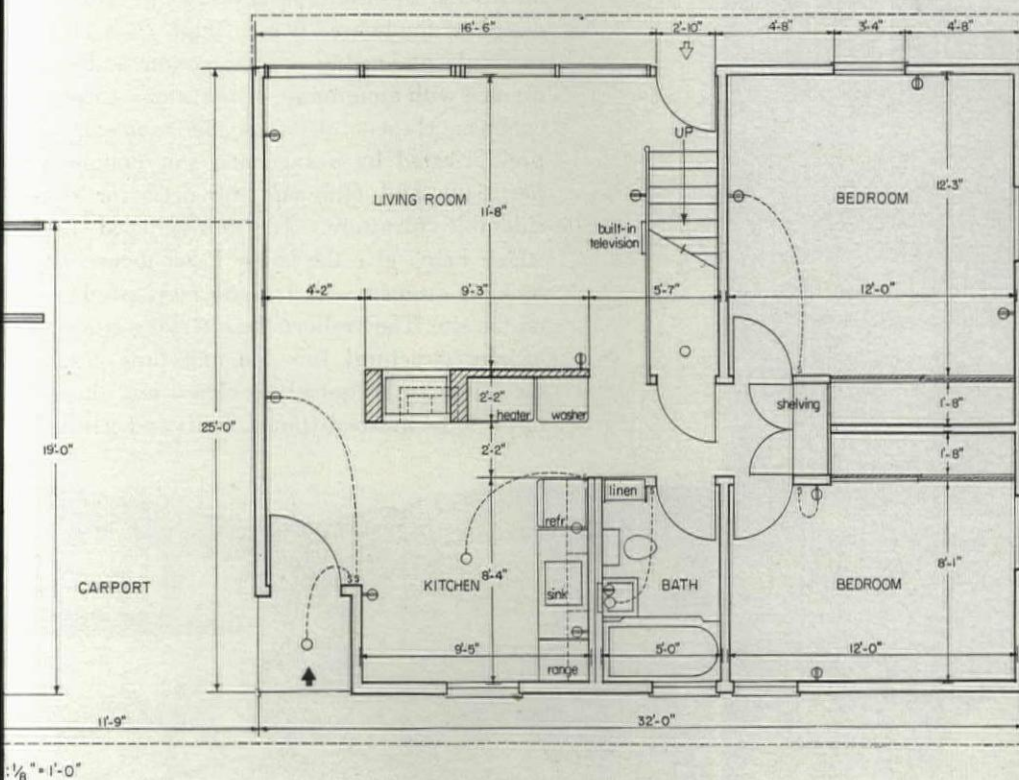
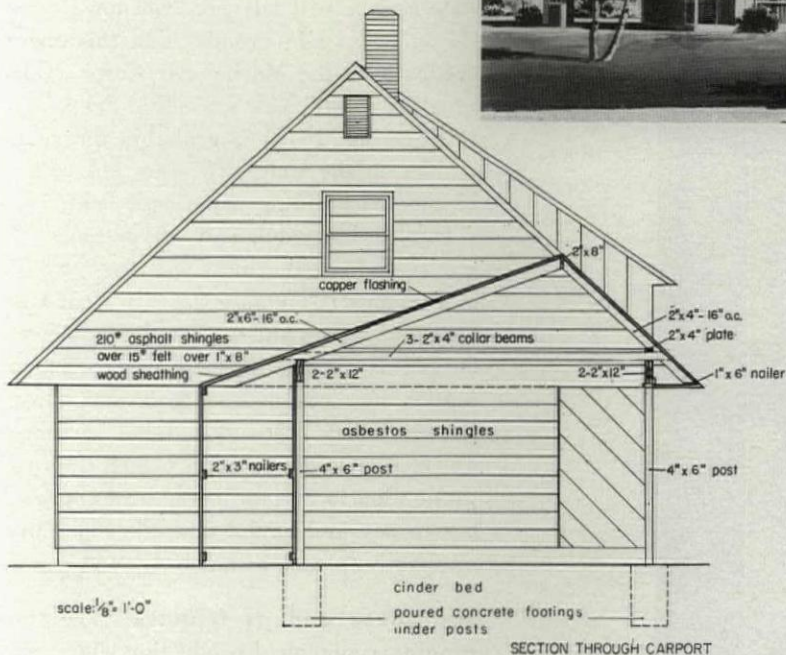
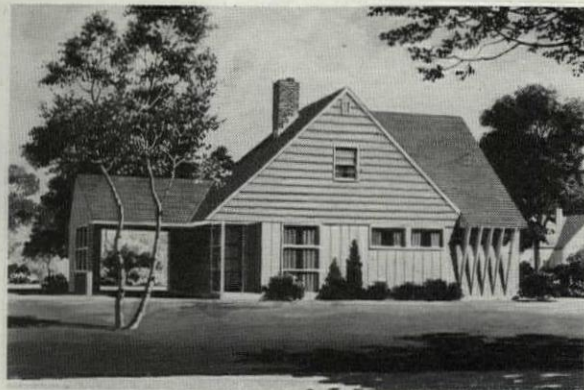
Levitt is now talking about leaving Levittown in 1952. This means another 8,000 houses over the next two years, bringing the town's total up to 20,000, with a population crowding 80,000. After that? "There's plenty of ground on Long Island."



Levitt's new sales room will be a 25 x 130 ft. air conditioned, glass-walled building flanked by furnished model houses. Prospects will go through one of the model houses into the sales building where they will see all the component parts of the house—some of them in mechanical testing devices which will dem-

onstrate their worth. Then they may step up to a 50 ft. desk where four uniformed attendants will literally sell them a house "over the counter." Strategically located on a main thoroughfare, the 22-acre exhibit-sales project overlooks one of the six Levittown swimming pools.



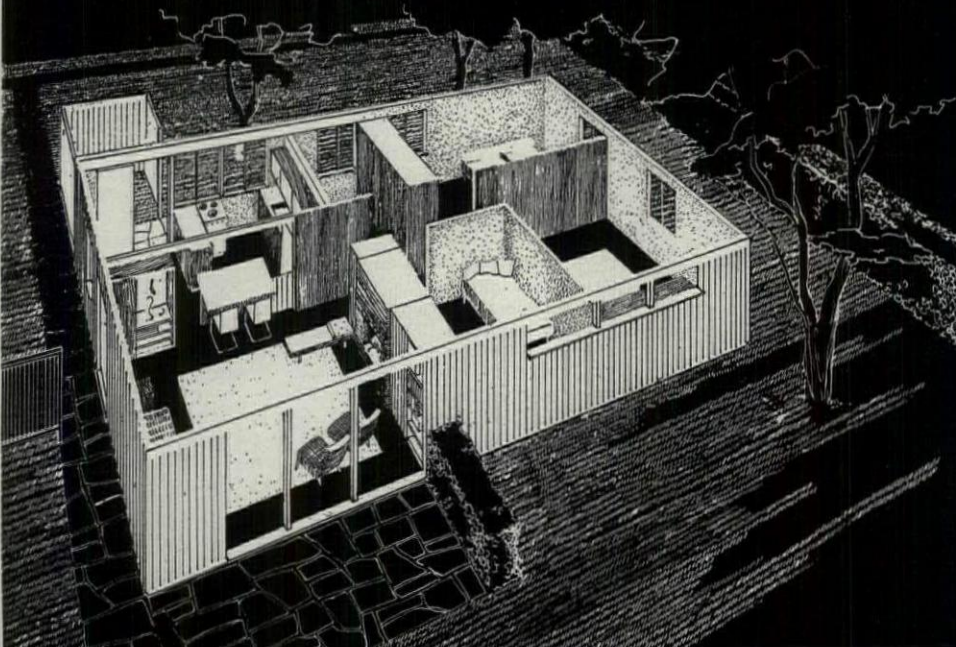
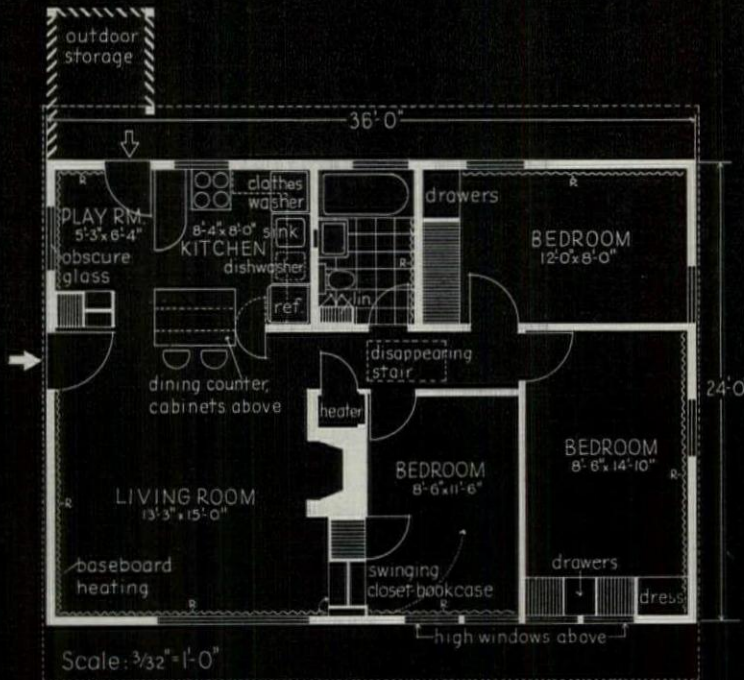


Four different exteriors, built on Levitt's single floor plan, are produced by variations in the roof and fenestration. Despite minor change in floor plan from the 1949 model (page 134), the 1950 model has the same gross floor area: 800 sq. ft., excluding the carport.

**CONSTRUCTION OUTLINE:** Exterior walls—asbestos shingles, Johns-Manville Corp., sheathing, U. S. Gypsum Co., insulation, Gilman Bros.; inside—Sheetrock, U. S. Gypsum Co. Steel cross bridging—Met-Cro Specialties Co., Inc. **ROOFING**—asphalt shingles. **FIREPLACE:** Damper—Bennett-Ireland, Inc. **WINDOWS:** Sash—aluminum, General Bronze Co. Weatherstripping—A. B. Brown, Inc. Glass—Thermopane, Libbey-Owens-Ford Glass Co. Venetian blinds—aluminum, Acme Venetian Blind Corp. **FINISH FLOORING**—Matico, Mastic Tile Corp. **WALL COVERINGS:** Bathrooms—porcelainized steel, Clyde Porcelain Enamel Corp. **PAINTS**—Pittsburgh Plate Glass Corp. **HARDWARE**—Sargent & Co. **ELECTRICAL FIXTURES**—Lightolier Co. **KITCHEN EQUIPMENT:** Range and refrigerator—General Electric Co. Sink and cabinets—Tracy Mfg. Co. Fan—Fasco Industries, Inc. Washing machine—Bendix Home Appliances, Inc. **BATHROOM EQUIPMENT**—Briggs Mfg. Co. Toilet seats—Olsonite-Plastics Div., Swedish Crucible Steel Co. Cabinets—Tracy Mfg. Co. and Ketchum Mfg. Co. **HEATING**—hot water, radiant panel system. Boiler and burner—York-Shipley. Thermostat and stack switch—Perfex Corp. Aqua-stat—White Rogers Electric Co. **TELEVISION**—Admiral Corp.



# INCENTIVE BONUS



LOCATION: Raritan, N. J.

GORDON BRONSON CONSTRUCTION CO.,

Designer and Builder

LOUIS F. MAMMIER & MARY E. LINBERGER,

Design Consultants

BARBARA BERNIE, Color Consultant

Ask any housebuilder in central New Jersey who is doing the most enterprising job in the state and he will tell you "Gordon Bronson." He will also add proudly that this energetic graduate of the Marine Air Corps (Guadalcanal, etc.) and Yale's Sheffield School (Civil Engineering, 1947) is probably the youngest builder in the state—26 years old with only 11 months building experience behind him.

Despite his youth and inexperience, Bronson is, indeed, the most enterprising builder in the state. Not only are his \$9,350 three-bedroom houses among New Jersey's best, but he builds them with new cost-cutting techniques, new cost-cutting tools and, most important, a new cost-cutting labor agreement—an incentive bonus plan which boosts his production to extraordinary levels, saves him big money and at the same time permits his mechanics to earn as much as \$184 per week.

**The house and its features.** The smooth running, economical production which characterizes the Bronson operation begins with the design of the house. It is a simple 24 x 36 ft. rectangle planned on a 4 ft. module and subdivided with a minimum of partitions. Closets, cabinets, chests-of-drawers and counters, all prefabricated by a subcontractor, double as partitions and eliminate the need for considerable furniture. The low pitched roof which helps give the house its contemporary look, is framed with trusses, mass produced on the site. They relieve the interior partitions of any structural function and thus permit the house to be quickly enclosed and the interior to be finished (floors, walls and ceiling)



Living room features big window, vertical cypress boarding over brick fireplace and bookcase which, as redesigned, will swing into bedroom to enlarge the living area (see plan).



# PRODUCTION cuts labor cost 15 per cent in the 61-house project of an enterprising builder.

## New design, new tools, new ideas and a houseful of built-in equipment speed construction and sales

as one big room before obstructing partitions are set in place.

Exterior design of house wastes no money on applied ornamentation. On the contrary, its simple detailing and use of wide exterior boarding in its natural state, which along with well organized fenestration give the house its fresh well-scaled appearance, are actually contributions toward its economy.

Unusual in the merchant builder field, the clean contemporary design of the house pays off in other ways. It so impressed the public that the entire subdivision of 61 houses, called "Ranchero Villa," was sold out from two model houses in less than three weeks—materially reducing sales and advertising costs and eliminating practically all speculation from the venture. A big help in this direction was the house's long list of built-in equipment economically included under the package mortgage: dressing table, mirrors, chests-of-drawers, metal bathroom linen cabinets, snack bar, dishwasher, clothes washer, range, refrigerator, disappearing attic stairs, kitchen exhaust fan. Like the interior and exterior styling of the house, all these "extras" spell quality to the public and account for the fact that Bronson's houses sold out quickly.

The sales appeal of the house was strong enough to offset the unsightly appearance of a huge gas plant and storage tank close by the subdivision. Says Bronson: "we had to produce an attractive package which would sell the gas plant as well as the house." Actually, the gas plant's proximity contributed to the low sales price of the houses; the 20-acre tract was considered undesirable by most builders and was therefore offered by the Raritan Township for a song. Due to the low land cost, each 60 x 100 ft. lot will be developed for only about \$850—compared with the \$1,000 local average—including the cost of grading, sewers, city water, 6 in. penetration

streets with stone and oil top, macadam driveways, and landscaping (two small trees per lot, the customary foundation planting and a row of 150 oaks to screen the gas tank).

**Tools and tooling-up.** Carpentry labor on a typical house this size runs about \$900 in its locality. Bronson cut this figure to about \$575 by "tooling up" for his rapid-fire production system. This involved an initial investment of close to \$10,000: five big power saws, roller conveyors, other mechanical labor-saving tools (see list, page 220), jigs, shanties, and two week's paper and brain work on the part of the engineering and construction staff. This tooling-up expense is prorated to the cost of each house, but Bronson figures that he recoups this initial expenditure by the time he has produced the 22nd house, that it will produce substantial savings on subsequent houses.

No hand saws are used on the job site; every stick of lumber is precut in an adjacent yard where roof trusses are also assembled in jigs, where stud locations are marked on shoes and plates with the aid of templates, where the framing for two partitions are pre-assembled and where the plumbing is subassembled.

**Labor and production.** The most important factor behind the speed and economy of this house building operation, however, is the incentive bonus plan which Bronson has devised for the mutual benefit of his labor and himself. In general, it provides bonus payments for each workman for each unit of production beyond a predetermined quantity.

Details of the bonus plan, which covers about 75 per cent of the labor in the house, may best be explained in reference to a single operation: the fabrication of roof trusses. Once the truss jig had been set up and the crew of four mechanics and two common laborers had become familiar with the opera-

tion, Bronson called the men into his office, asked them how many trusses a day they could produce. They agreed that current production of about 80 trusses could be boosted to 90 with experience, perhaps to 95 under pressure. Bronson said he thought they could do much better and offered to pay the crew a bonus of \$1.20 per truss (25 cents per mechanic, 10 cents per laborer) for every truss over 110 produced each day.

The workmen agreed to try the plan, and have since produced an average of 183 trusses a day, hitting a high of 230 toward the end of the operation! This reduced the cost of the trusses from an initial \$1.18 each to 86 cents at the 110 bonus point. From that point on they cost 99 cents each. (Bronson purposely set his bonus rate high to dramatize its benefits to the skeptical workmen. On every other operation the bonus was set so that production beyond the bonus point cut unit costs still further.) They soon lost their skepticism—every one on the site wanted to work on the truss jig. Like the other carpenters on the open-shop project, the truss carpenters had been earning \$2 an hour or \$16 a day before the bonus plan was launched—50 cents an hour less than the union scale. (Common labor was paid \$1.25 an hour, or \$10 a day). Thanks to the bonus plan the truss carpenter's daily pay soared to an average of \$34.25 and hit a peak of \$46 the day 230 trusses were produced. (Common laborers on the truss jig have earned an average daily bonus of \$7.30, a peak bonus of \$11).

Because of its benefits to both Bronson and his workmen, the incentive bonus plan was quickly incorporated in every other phase of the operation which lent itself to such an arrangement. (See table, page 141). The only major jobs not covered by the bonus plan are masonry work (slab, fireplace and chimney) which cost about \$625 per house, wiring

*Kitchen is packed with sales-sealing equipment: range, refrigerator, dishwasher-sink, clothes washer, metal cabinets and plastic-topped counters.*

*Breakfast bar and Venetian blind separate kitchen and living rooms.*



*Bedroom features prefabricated wardrobe containing chest of drawers, flanking closets and mirrored vanity.*



*Bathroom boasts plastic tiling from floor to ceiling and a metal linen cabinet. All floors are asphalt tiled.*





which is subcontracted at about \$150 per house, painting which is done with spray guns at about \$210 per house including materials, asphalt floor tiling which is subcontracted at \$160 per house, plastic tiling of the bathroom which costs about \$130 a house.

Mindful that quality frequently suffers with top speed production, Bronson has incorporated several quality control measures in his incentive bonus plan. In the first place substandard work must be corrected by the responsible workman, thus reducing his production and, in turn, his bonus. Secondly, close supervision of the carpentry work is maintained by ten working foremen, each of whom has only two or three men under him (the total carpentry staff numbers only 34, including the working-foremen) and by two general foremen who receive bonuses equivalent to 10 per cent of the bonus payments received by the crews they supervise.

The workmen's selfish interest in the quality and quantity of their production pays extra dividends, some of which were not anticipated when the plan was devised. The men work with the enthusiastic spirit which characterized wartime construction jobs overseas. If a workman is slow, sloppy or uncooperative, he is recommended for firing by his fellow workers whose production he jeopardizes. Consequently, after firing some 125 misfits over a period of three months, Bronson's present labor force of 71 is a hardworking team.

Typical of the production spirit engendered by the incentive bonus plan are these occurrences observed on the Bronson site: 1) when the weather bureau reported that a cold wave was anticipated, the masons volunteered to work at the regular rate continuously for 36 hours pouring slabs (with the aid of lights at night) so as not to hold up the framing crews; 2) when rainy weather turned the site into a sea of mud and the drivers of the heavy transit-mix concrete trucks were afraid of getting stuck, Bronson's men dropped their tools, got the trucks to the house sites (with the aid of a bulldozer and considerable man power)

so that production would not stop; 3) many workmen voluntarily work Saturdays and Sundays at regular rates; 4) on days when the weather is bad, near-by builders whose workers stay at home, come to watch Bronson's beehive of activity. (On such days, when bad weather limits production, Bronson lowers the various bonus points.)

Thanks mainly to the incentive bonus plan, Bronson's 61 houses have been built quickly and inexpensively. The first slab was poured February 5th; the last house will be completed May 1st. Thus, the production rate will have averaged five houses per week. This is a minor miracle in view of Bronson's small payroll: 1 construction engineer, 1 civil engineer, 1 superintendent, 2 general foremen, 34 carpenters, 13 masons, 3 plumbers, 14 laborers, 1 secretary and 1 night watchman. Total: 71.

**Sales and finance.** Because his production and overhead costs are low and his profit is a modest 10 per cent, his sales price, in relation to the size, quality and contents of his house, is well below the local average. (Bronson is one of the very few New Jersey builders who is selling his house at the FHA valuation.) Sales therefore have been easy. With the aid of a furnished model house, newspaper ads and brief radio commercials, 81 purchasers for the 61 houses were lined up on two weekends in mid-January. (The last 20 purchasers will get a house only if some of the earlier buyers change their minds and forfeit their \$90 good faith payments.) Most of the purchasers are veterans who need make no cash down payment and whose monthly carrying charges will be \$57.37 under a VA-guaranteed 4 per cent mortgage or \$61.63 under a combination VA-FHA insured mortgage (both including \$6.25 for taxes and \$1.76 for fire insurance).

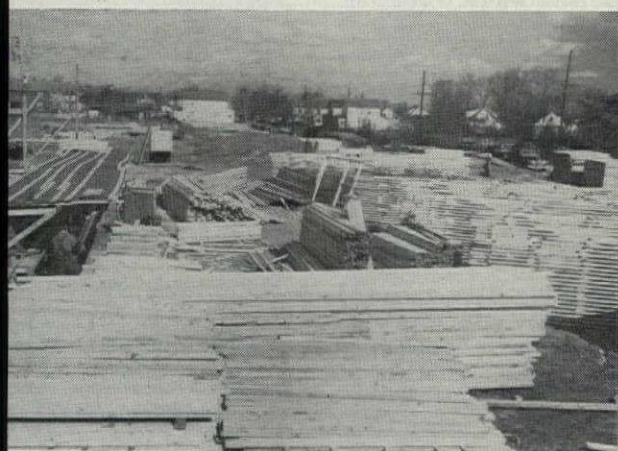
All financing is handled by Jersey Mortgage Co. which provides Bronson with 5 per cent construction money as needed (rather than on a predetermined schedule) as well as permanent mortgage money. Although the builder

has to pay a 2 point premium on the 4 per cent VA-guaranteed mortgages, his only complaint on the subject of finance is the "fantastic" delay by VA in its credit approvals—"two months is par for the course."

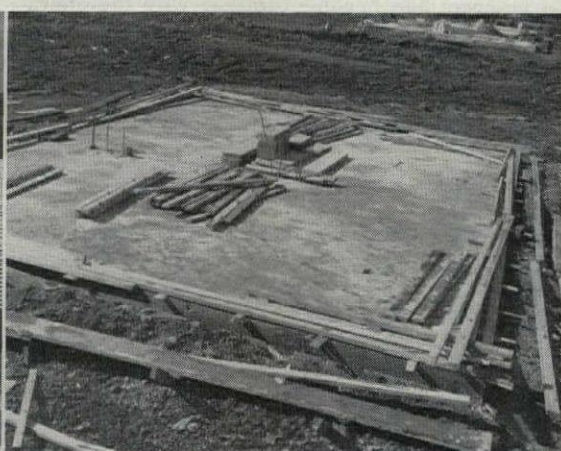
**Bronson and the future.** By mid-March, with all his 61 houses framed, sheathed and roofed, Bronson was already planning his next project: a 400 house operation about ten miles away. Here he will not be hampered in his site planning by previously dedicated streets and he hopes that FHA will permit more imaginative siting of the houses on the lots. Despite the new project's greater size, he plans to use about the same size labor force. Probably the same well-trained, hard-working men will comprise this force, for they know a good thing when they see it. No where else can they find a builder who pays as well. Bronson also knows a good thing when he sees it—he knows his present labor force is an efficient team which makes his incentive bonus plan pay off and he knows that he will do well to keep this team together. Last month he therefore inaugurated another new development in the field of building labor-management relations—free hospitalization for his 40 key employees and their families. Bronson will pay all premiums on this insurance (about \$150 per month) but the workmen will make small monthly contributions into a reserve fund which will be used to pay premiums during periods between projects when the men will be laid off.

Despite his 26 years of age and his one year of experience in the house building business, Gordon Bronson's accomplishments are many and impressive. If he represents the new generation of housebuilders, the industry and the public can look forward with renewed hope to real progress in house design, cost reduction and labor relations.

*For a description of Bronson's plumbing and heating operation, see page 216; for a summary of additional cost cutting techniques, see page 220.*



Central yard precuts all lumber, notches studs, assembles trusses, gable-ends, bathroom partition frames, slab forms and fabricates plumbing subassemblies.



Slab is prepared in one day, including trenching, pouring of footings, forming up, placement of stone and rough plumbing and pouring and mechanical finishing of slab. Total cost: \$430.



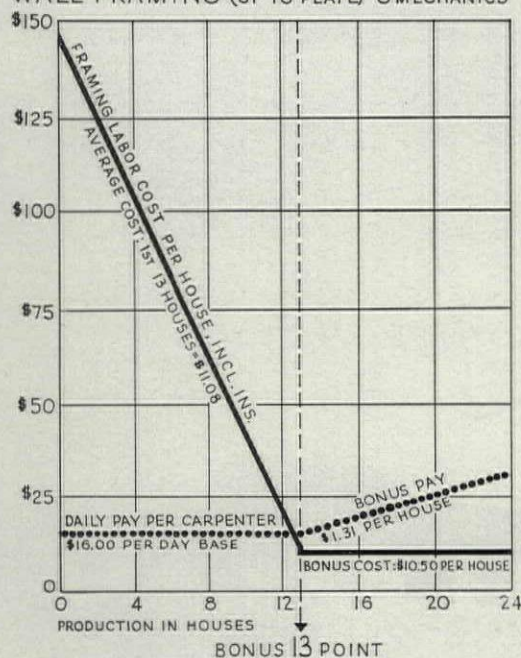
Supplies are delivered in required quantity directly to house site by suppliers and, from cutting yard, by Bronson's own trucks. (108 fireplace bricks are dumped at each house).



## COST BREAKDOWN

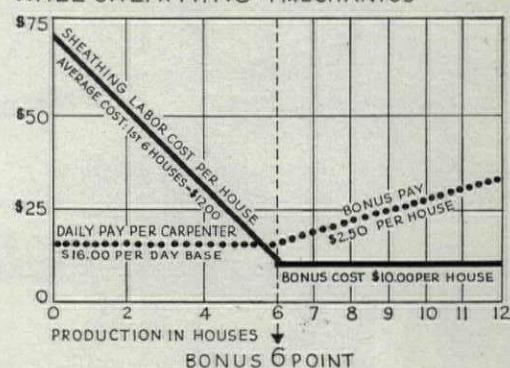
Land & site improvements .....	\$700
Excavation, incl. sewer laterals .....	250
Masonry, labor & materials .....	625
Lumber & allied materials .....	1,800
Carpentry labor .....	600
Wood cabinets & chests .....	320
Counter top & kitchen cabinets .....	199
Bathroom wall tiling .....	130
Asphalt floor tiling .....	160
Hardware & light fixtures .....	85
Plumbing .....	400
Heating .....	625
Electrical .....	150
Painting .....	330
Appliances .....	603
General (Credit report, FHA fees, permits, taxes, supervision, office overhead, interest, designer's and engineer's fees, etc.) .....	690
Miscellaneous costs & contingencies .....	590
Sales commission .....	250
<b>TOTAL .....</b>	<b>\$8,507</b>

## WALL FRAMING (UP TO PLATE) 8 MECHANICS



**INCENTIVE BONUS RESULTS,** charted for framing and sheathing, are tabulated below for all operations. Framing chart (left) shows that unit cost drops from \$147 for first house to \$11.08 at 13th house per day, then steadies at \$10.50 per house during additional daily production. Daily wage of carpenter is \$16 up to bonus point, increases \$1.31 per house thereafter. Most significant figures in the tabulation below are the high unit costs without the bonus plan (third from last column) compared with the low unit costs at average production with the bonus plan (last column).

## WALL SHEATHING 4 MECHANICS



**CONSTRUCTION OUTLINE:** Foundation—poured concrete footings, 6 in. washed stone, concrete slab reinforced with steel mesh, U. S. Steel Corp.; Celotex Corp. insulation. Waterproofing—Anti-hydro Waterproofing Co. Exterior walls—studs, 2 in. Fiberglas, Owens-Corning Fiberglas Corp., gyplap sheathing, U. S. Gypsum Corp., vertical cypress or cedar board siding, finished inside with 1/2 in. Sheetrock, U. S. Gypsum Co. ROOFING—Flintkote Co. INSULATION—Owens-Corning Fiberglas Corp. SHEET METAL WORK—copper, Revere Copper & Brass Co. WINDOWS: Glass—Libbey-Owens-Ford Glass Co. FINISH FLOORING—Kentile, David E. Kennedy, Inc. WALL COVERINGS: Sheetrock and Weltex, U. S. Plywood Corp. Bathrooms—Stylon plastic tile, Stylon Corp. PAINTS—Sherwin-Williams Co. HARDWARE—National Mfg. Co. ELECTRICAL INSTALLATION: Wiring—BX cable. Fixtures—Globe Lighting Co. KITCHEN EQUIPMENT: Range, refrigerator and dishwasher—General Electric Co. Fan—Victor Electric Products Co. Counter tops—The Formica Co. LAUNDRY EQUIPMENT: Washing machine—Westinghouse Electric Corp. BATHROOM EQUIPMENT—Richmond Radiator Co. PLUMBING: Pipes—copper, Revere Copper & Brass Co. HEATING—base board hot water system, Warren Webster Co. Regulators—Minneapolis-Honeywell Regulator Co. SPECIAL EQUIPMENT and TOOLS: Attic louvers—U. S. Gypsum Co. Venetian blinds—Flexalum, Hunter Douglas Corp. Fuse box—General Switch Corp. Disappearing stairs—Newark Ladder Co. Lumber to concrete fastening tool—Ramset, Stemco Corp. Plasterboard joint taper—Superior Wall Applicator Co. Power saws—Dewalt Products Co.

## INCENTIVE BONUS DETAILS

Job	Size of crew		Production in units per day		Bonus <sup>2</sup>		Unit labor costs <sup>3</sup>		
	Mechanics	Laborers	Average without bonus plan	Bonus point <sup>1</sup>	Average with bonus plan	Per unit bonus per crew	Without bonus plan	At bonus point	At average production
Framing (up to plate) ..	8	—	10 houses	13	18	\$10.50	\$14.40	\$11.08	\$11.00
Ribbons & truing frame	5	—	6 houses	8	13 1/2	10.00	15.00	11.25	10.74
Trusses: fabrication ...	4	2	80 trusses	110	183	1.20 <sup>4</sup>	1.18	.86	.99 <sup>4</sup>
erection .....	3	3	3 houses	5	7	13.00	29.20	17.52	16.23
Gable ends: fabrication.	3	2	15 gable ends	25	32	2.50	5.10	3.06	2.93
erection ...	3	2	8 houses	12	15	6.00	9.55	6.37	6.30
Sheathing: wall .....	4	—	4 houses	6	8	10.00	18.00	12.00	11.50
roof .....	2	1	3 houses	4	5	10.50	15.73	11.80	11.54
Roofing .....	2	—	1 house	1	1 1/2	30.00	36.00	36.00	34.00
Insulation .....	1	—	3/4 house	1	1 1/2	15.00	24.00	18.00	17.00
Siding .....	2	—	3/4 house	1	1 1/2	30.00	48.00	36.00	34.00
Plasterboard .....	2	—	300 sq. ft.	1,200	1,600	1/2 saving	.04	.03	.0225
Closets & cabinets ....	2	—	1 house	1	1 1/2	35.00	36.00	36.00	33.44
Doors .....	1	—	8 houses	12	16	1.25	2.25	1.50	1.44

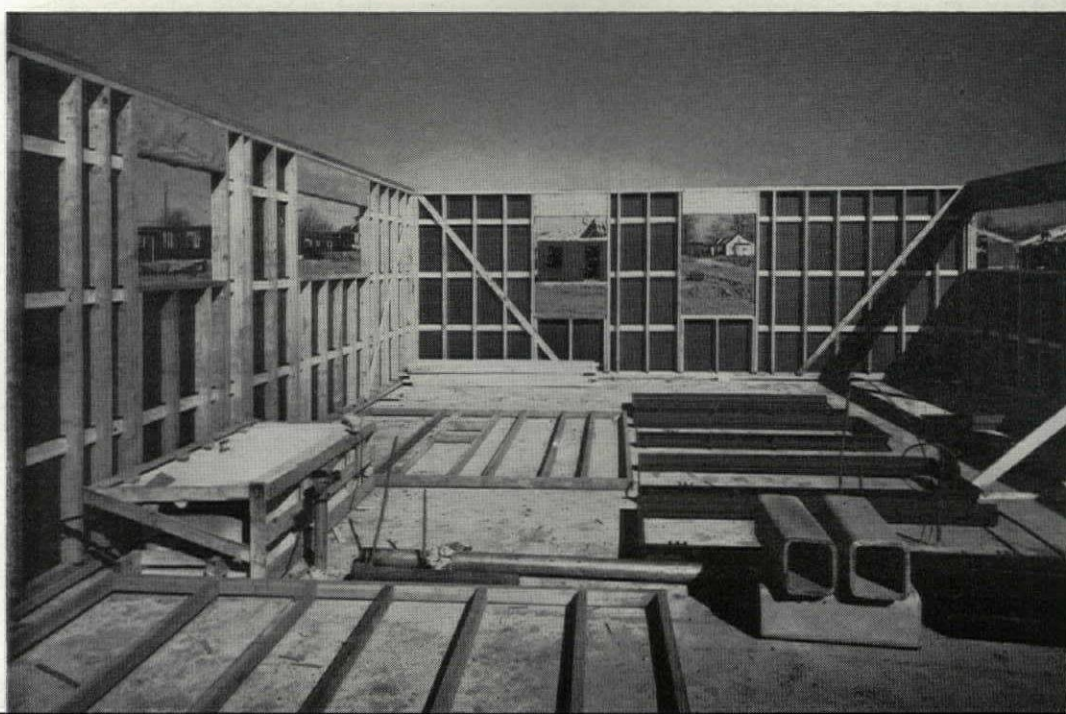
<sup>1</sup> Production beyond this point is rewarded with bonus payments.

<sup>2</sup> Bonus is paid to crew and split 70-30 per cent between mechanics and laborers, respectively.

<sup>3</sup> Unit costs are based on hourly wage rates averaging \$2.25 for

mechanics and \$1.40 for laborers, including insurance, etc.

<sup>4</sup> Bonus payments for truss fabrication (the first operation to go under the incentive bonus plan) were set high to demonstrate to the workmen how the plan would work.

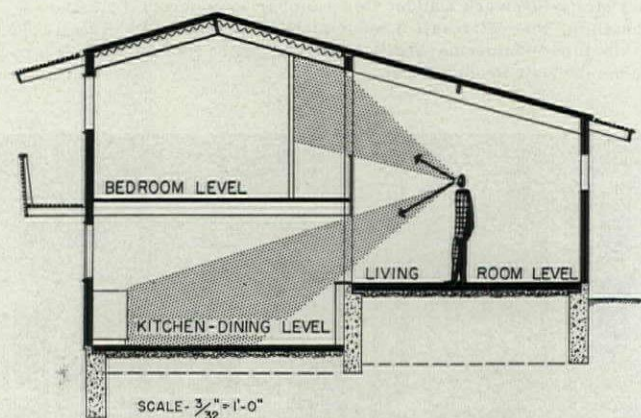
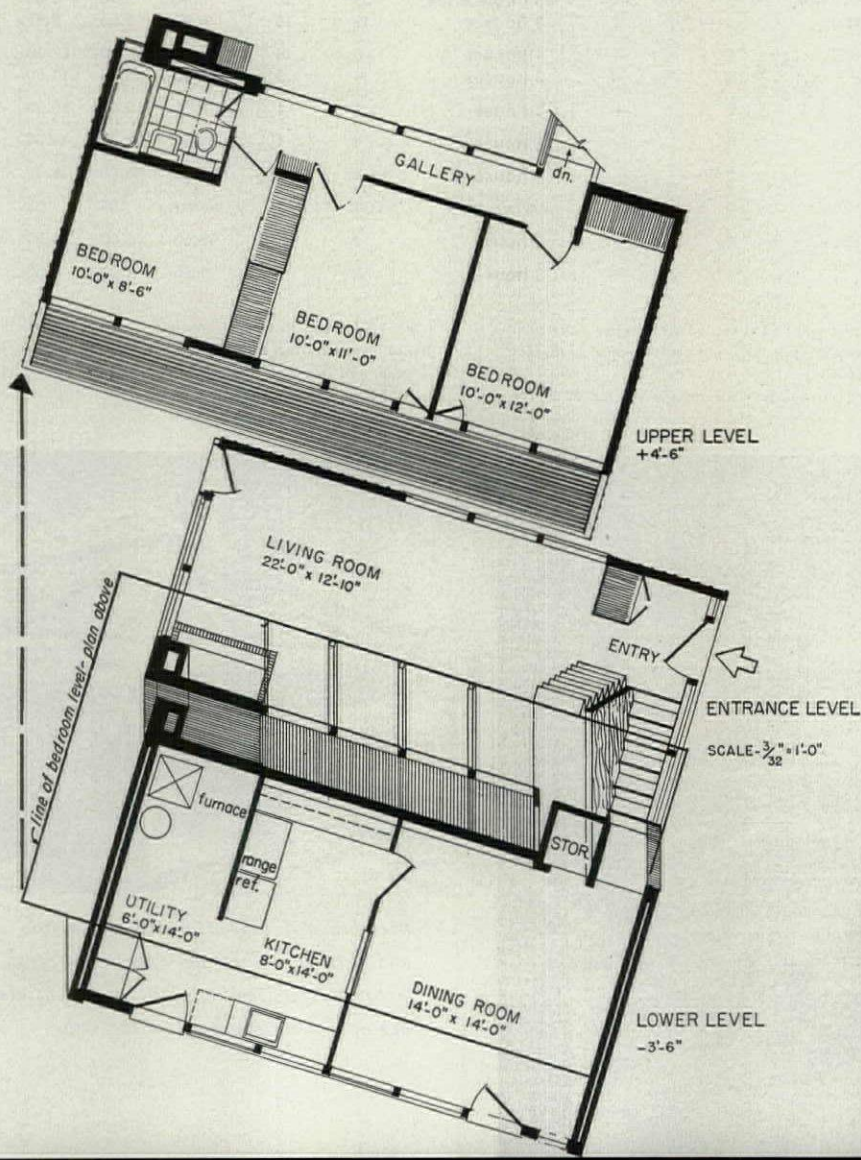


Prefabricated trusses are tilted up into position and secured on 16 in. centers by crew of six. Note unusual framing of house (left); also, storage of interior materials on the slab.





Snugged against a gentle rise in the ground, the house is entered at intermediate level from the garage. The living room is full height to the sloping roof. A short flight of stairs, close to the entrance, leads down to the ground floor dining room, kitchen, utility room. A short flight up leads to bedrooms and balcony. Since the first nine houses, at \$15,100 with lot, sold like hot cakes against the predictions of the wisecracks, Builder Drummond will venture the variation of a butterfly roof on some of the next 20 houses.

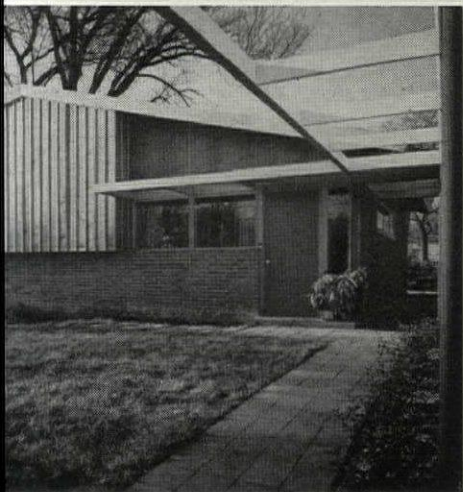




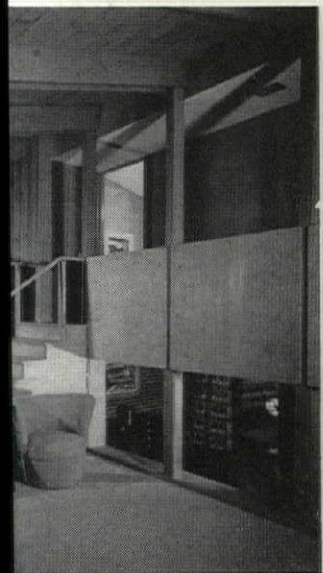
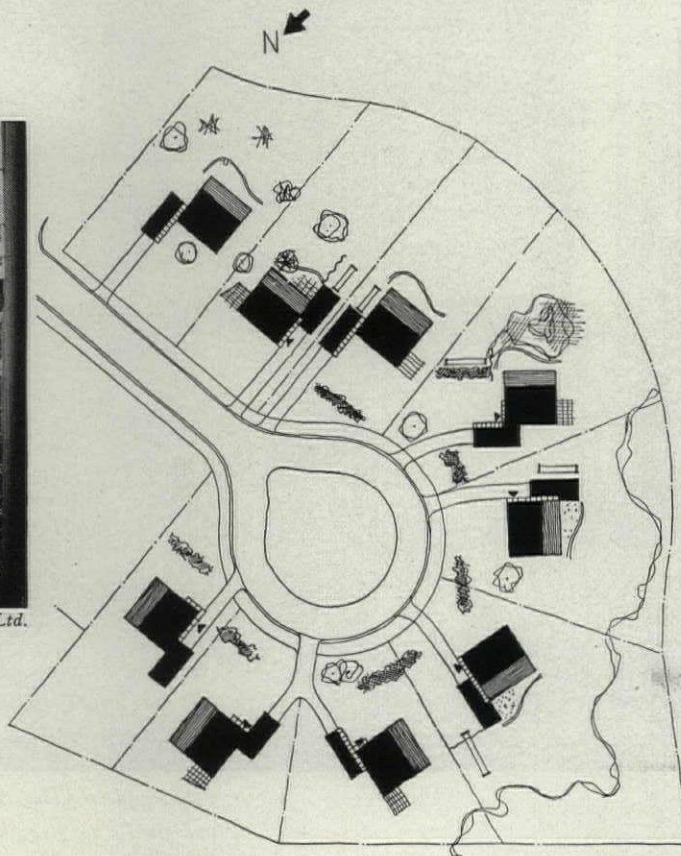
# TRI-LEVEL HOUSE uses basement and roof to escape the "minimum" feeling

LOCATION: Prairie Village, Mo.  
DAVID B. RUNNELLS, Architect  
DONALD H. DRUMMOND, Builder

The instant success of this easy-living family house, set in the midst of the stiff-collared, colonial virtue of famed J. C. Nichols' Prairie Village development in Kansas City, was a big surprise to the FHA. It was a big surprise to the insurance inspector and other experts. It was no surprise to Builder Drummond, his partner-wife who had listened to thousands of Sunday afternoon house shoppers, and knew that the virtues of their new houses were actually conventional and even old-fashioned. A two-story dwelling in three split levels (see section, opp. page), it settles against the ground like a New England farm house, benefits from the equable temperatures and the foundation savings of an old-fashioned "basement." The large bottom floor dining room, requested by great numbers of prospects, is actually a multi-purpose room, play room, and escape hatch for the family from formal visitors, like the dining rooms under the stoops of old Dutch houses. The kitchen overlooks this play space; though tight it is close to the laundry too. The 13 x 22 ft. living room is stately, with its 13 ft. ceiling and gallery (a miniature of those in Long Island mansions). Bedrooms are private and, though small, have a balcony. The Drummonds plead that FHA recognizes the value of full architectural services, just as it recognizes the record of good builders in its appraisals. The \$2,000 fee to architect Runnells, spread over these nine house (priced at \$15 100 with lot) made them the quickest moving in the area, the best bet on permanent owner satisfaction. The house is endorsed as a Revere Quality House, and 20 additional lots have been bought by the builder for more like it.



Photos: Hedrich Blessing, Ltd.



LIVING ↑→



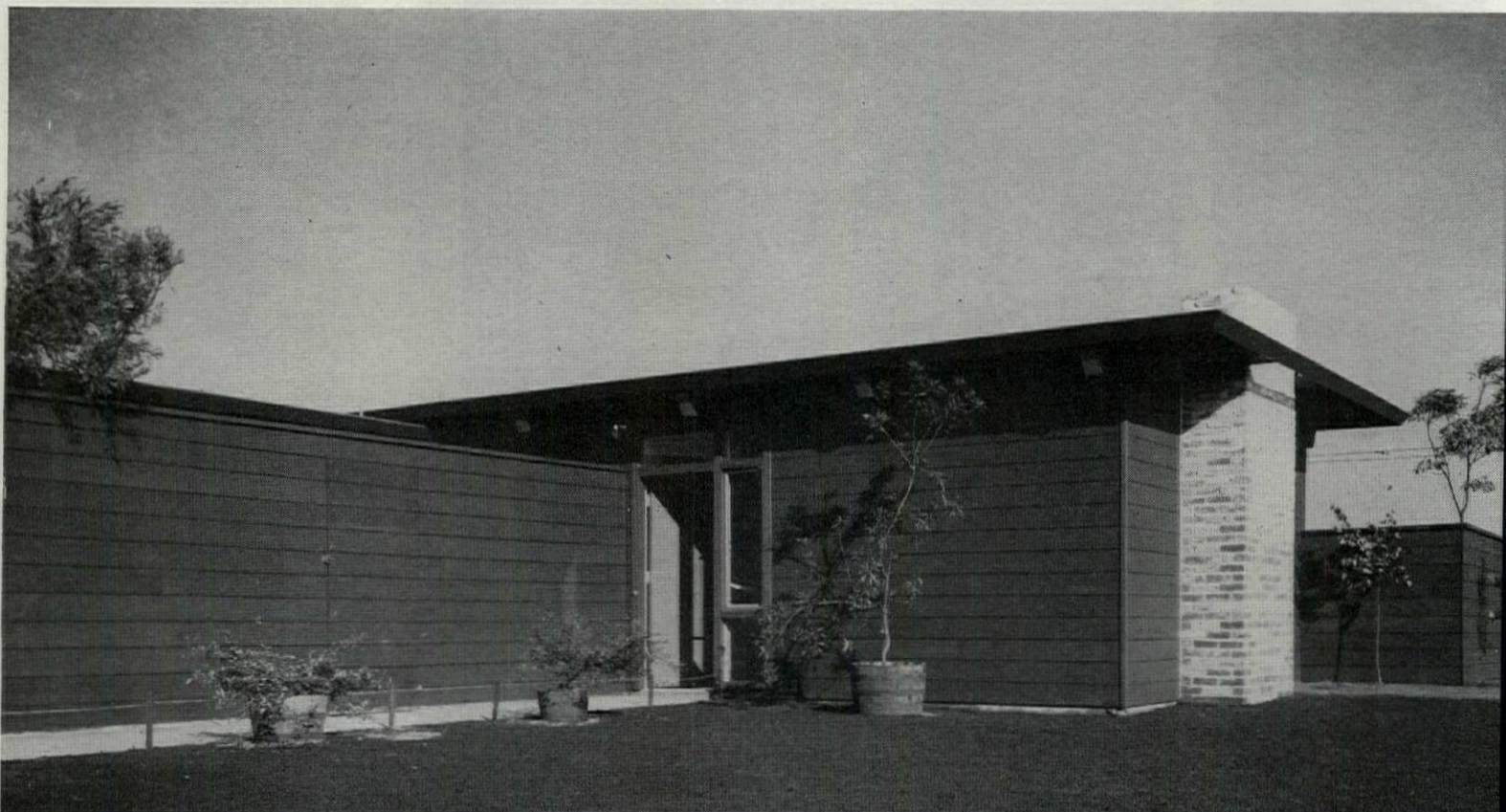
## COST BREAKDOWN

Excavation .....	\$350
Foundation & fireplace .....	1,397
Concrete .....	650
Lumber .....	2,400
Carpenter labor .....	1,800
Heating .....	468
Electrical .....	230
Plumbing .....	884
Hardware .....	140
Painting .....	650
Millwork .....	820
Glass .....	120
Tile ceramic .....	135
Tile asphalt .....	197
Sheet metal .....	195
Linoleum .....	50
Overhead .....	300
Architect .....	200
Landscaping .....	300
Screens .....	60
Lot .....	1,700
<b>Total .....</b>	<b>\$13,046</b>





*Bold simple shelving combines with exposed redwood beams and panels to give the interior of this builder's house a "contract" look. The almost windowless exterior shown below is set toward the street and is only broken by the narrow panes set around the front door. The door from the service yard is almost indistinguishable from the redwood fence.*





# GAMBLE IN MODERN

pays off in better living for buyer, quicker sales for builder

LOCATION: Sunnyvale, Calif.

JOSEPH L. EICHLER, Builder

ANSHEN & ALLEN, Architects

This 51-house development represents a builder's "gamble" that hit the jackpot. Joseph Eichler, who has built approximately 300 houses since 1945, liked the work of Anshen & Allen a young team of architects who designed his own \$50,000 house last year. He asked them to try their hands at small subdivisions. Although horrified, at first, by their requested \$5,000 a year retainer plus a royalty of \$100 per house, he gave them a go-ahead signal.

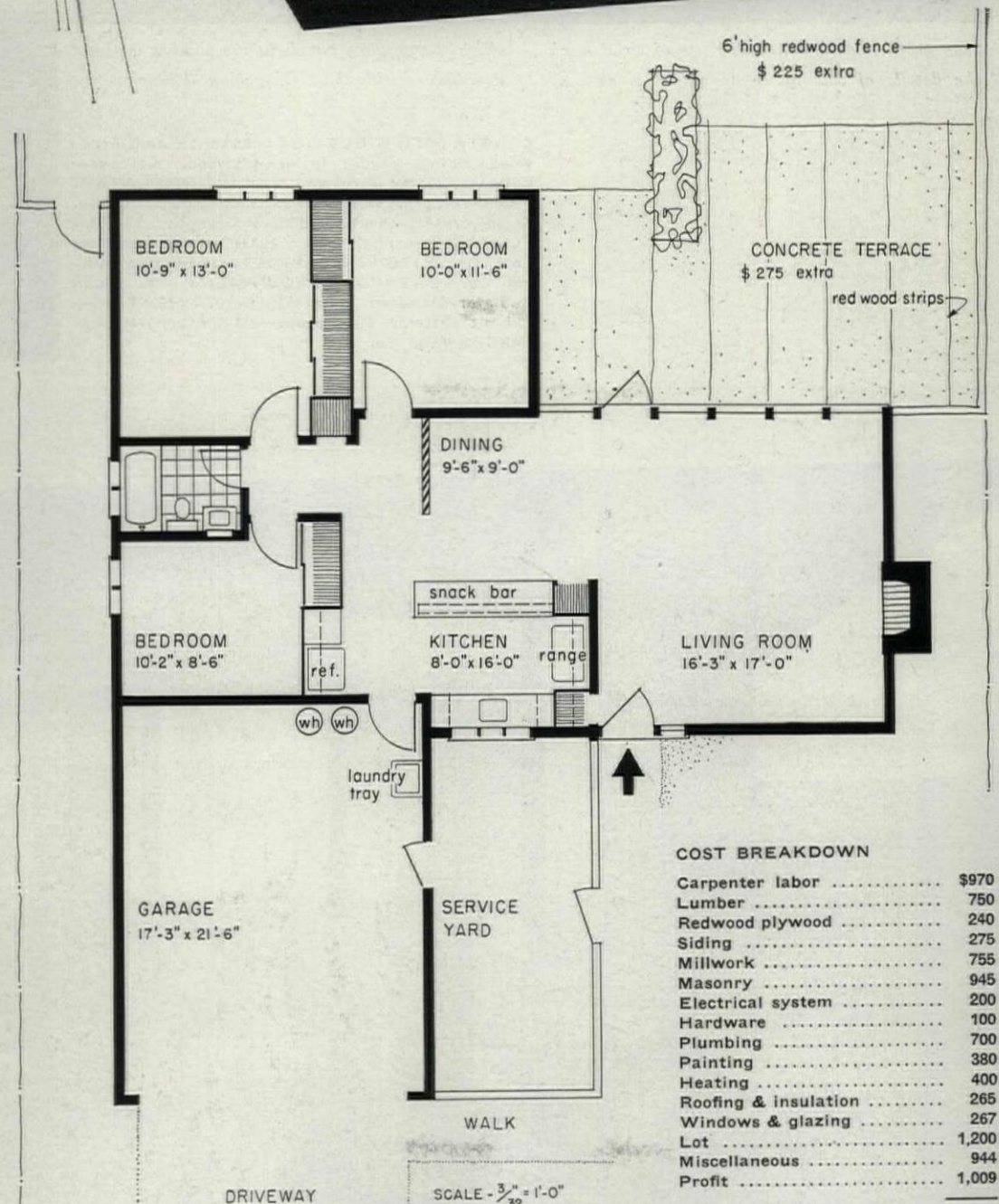
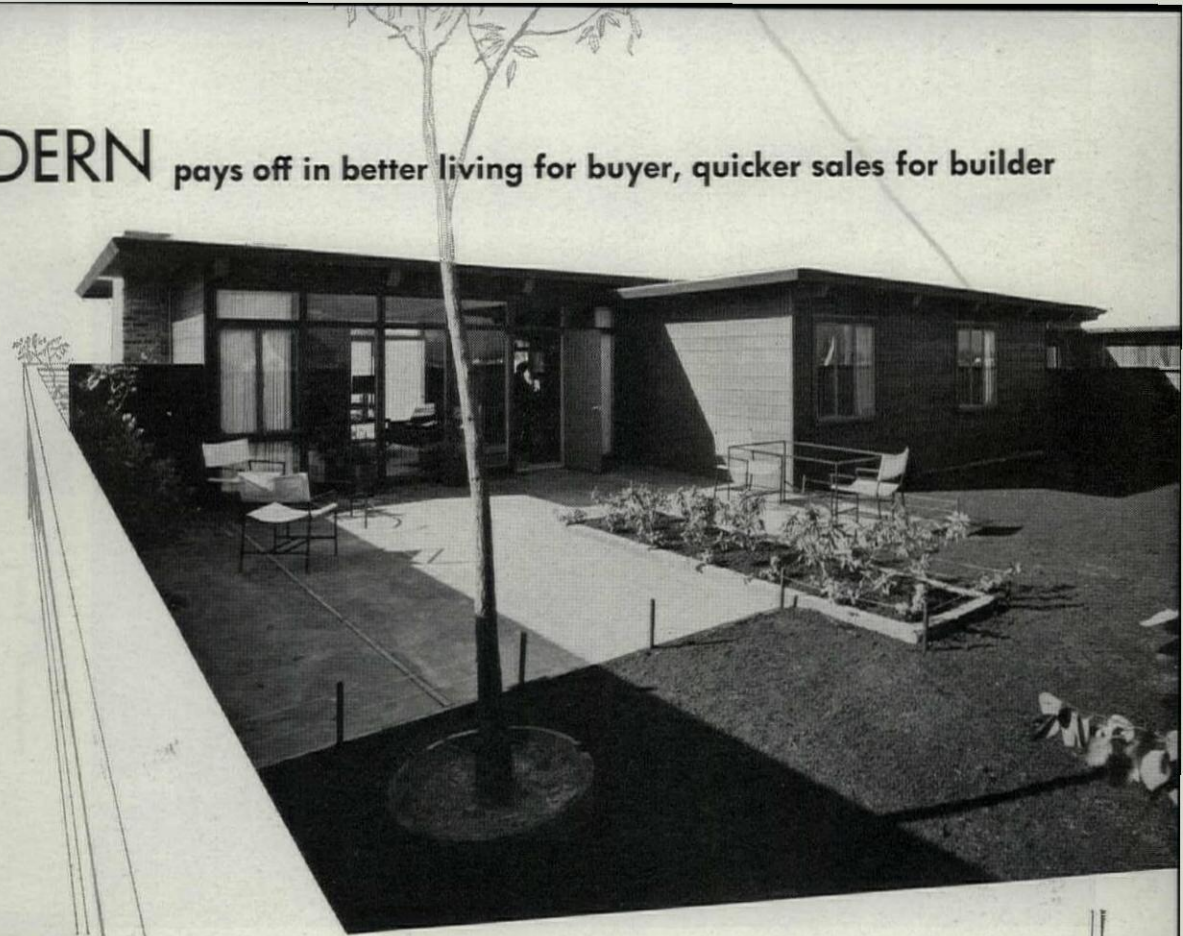
The differences between A & A's meticulous blueprints and the plans formerly whipped up by Eichler's struggling staff were evident from the start. "Before this," said Eichler, "we were always running into bugs . . . we'd have to revise as we went along. It wasted time for everybody, especially the carpenters." Now money was saved on accurate material orders, by smooth scheduling of the job. The final proof of the planning came, as usual, in the selling—all 51 houses were snapped up within two weeks of the model house opening.

Sunnyvale's package offers bonanza value with no design compromises. Its \$9,400 cost include a 54 x 96 ft. lot; three fair-sized bedrooms; a 16 x 17 ft. living room with large brick fireplace and floor-to-ceiling glass wall; an additional 9 ft. square dining area; a service yard completely screened by a redwood fence; a two-car garage with room at the back for a workshop or generous storage space—a total of 1,044 sq. ft. in the house; 400 in the garage.

The most popular single feature of the house (which had to be coaxed past FHA) is the free-standing breakfast bar overhung by an open dish shelf. The service yard, which adds to frontal privacy, provides a protected play space for small children—in full view of kitchen windows.

Simple construction methods, as well as skilled planning, have made this building bargain possible. They have also allowed the use of redwood tongue-and-groove siding for the whole exterior, redwood plywood throughout the interior. Ceiling beams (6 x 10 in. members set on 7 ft. centers) are left uncovered and are backed up by 2 in. redwood sheathing and 1/2 in. insulation. The asphalt-tiled concrete floor holds radiant heating coils.

Very satisfactory postscript to the story is the fact that Anshen & Allen are already designing three more subdivisions for Eichler—who adds in true happy-ending style: "They'll do all my plans from now on."



## COST BREAKDOWN

Carpenter labor	\$970
Lumber	750
Redwood plywood	240
Siding	275
Millwork	755
Masonry	945
Electrical system	200
Hardware	100
Plumbing	700
Painting	380
Heating	400
Roofing & insulation	265
Windows & glazing	267
Lot	1,200
Miscellaneous	944
Profit	1,009

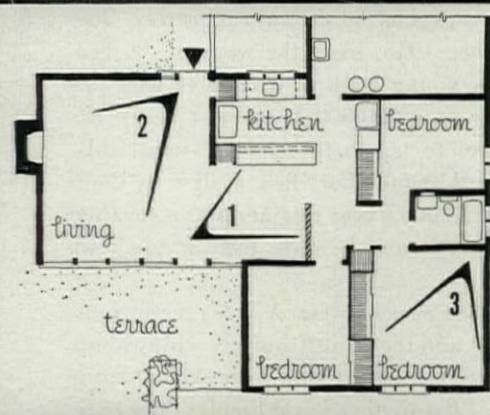
TOTAL ..... \$9,400



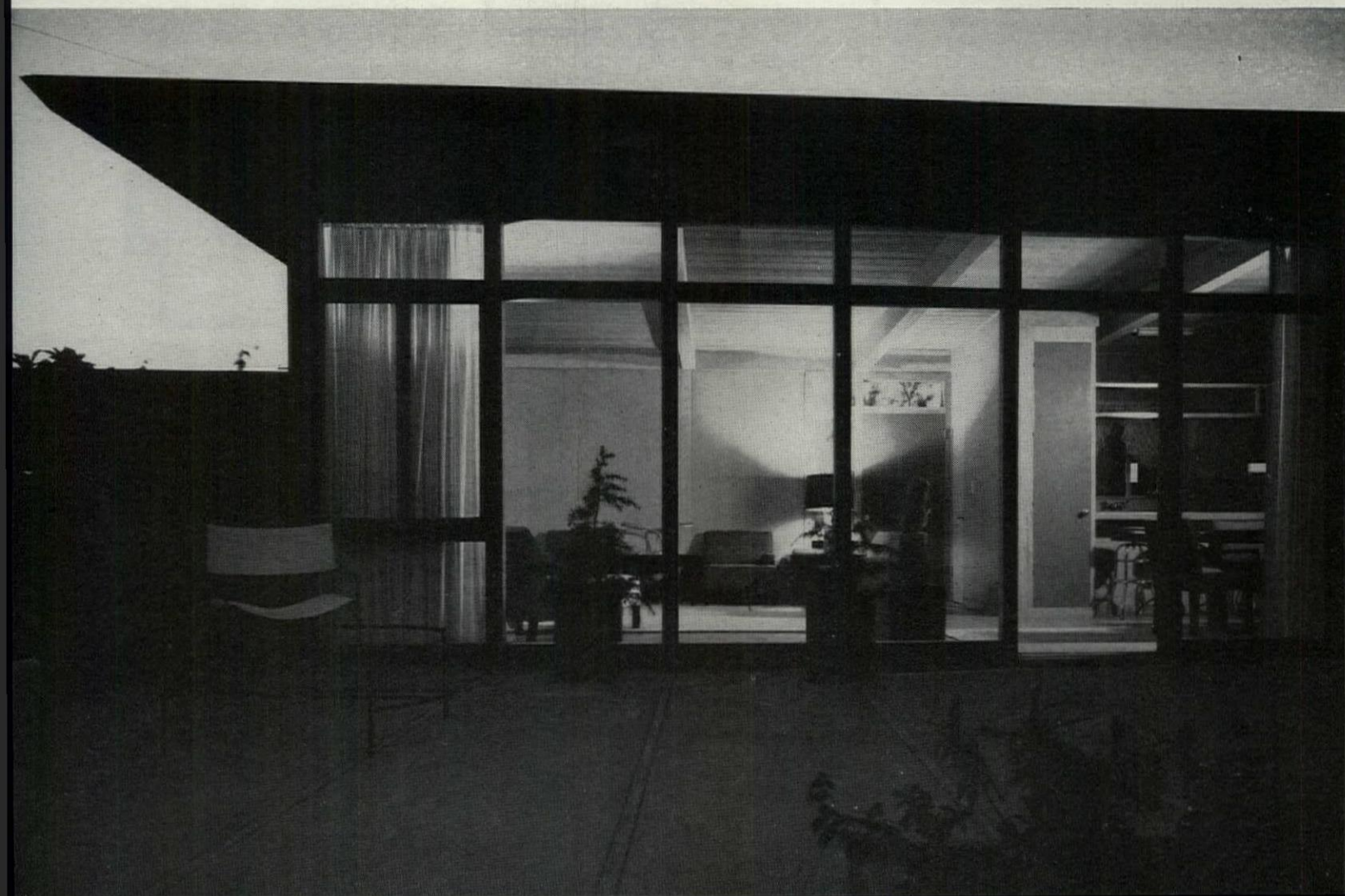


*Fine proportions and knowing use of wood mark the details of this house design by Anshen &*

*Allen. Large glass panels in the window wall are coordinated with the 7 ft. spacing of beams.*



CONSTRUCTION OUTLINE: Exterior walls—red-wood siding, studs; inside—plywood. Ceilings—Celotex, Celotex Corp. and plywood. INSULATION—Celotex Corp. WINDOWS: Sash—Soule Steel Co. Glass—crystal sheet or double strength. FINISH FLOORING—asphalt tile. HARDWARE—Schlage Lock Co. KITCHEN CABINETS—Peninsula Milling Co. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. HEATING—radiant system. Regulators—Minneapolis-Honeywell Regulator Co.





# BUILDER COOGAN AND HIS ARCHITECT:

Their teamwork combines low costs with better quality, better design and a lot more amenities

LOCATION: Miami, Fla.

THOMAS P. COOGAN CO., Builder

ALFRED BROWNING PARKER, Architect

*The Home Builders' new president, Tom Coogan of Miami, believes enthusiastically that almost every homebuilder can offer better value to his customers and increase his own profits by letting a first class architect help him plan his houses (see his letter, page 118).*

*This is the story of what happened when Tom Coogan himself called in one of the best young architects in Florida—the story of what Tom Coogan learned from the architect and what the architect learned from Tom Coogan; the story of the many changes they agreed to make in the Coogan houses, and the story of the changes they did not make.*

*The story has a happy ending, for the new Coogan houses are selling fast in the \$8,000 to \$9,000 price range, and their buyers are more than pleased. The first 34 houses, which Coogan started on a semi-experimental basis to make sure the public would like the new design, were all sold from one newspaper advertisement before the 17th could be finished. Commitments for another 70 have now been obtained from FHA, and he expects to run the total up to 250 before the year is out.*



*Design of Coogan's 1948 model (left) was dated back to the Twenties by its traditional small windows, shutters, window boxes, fence and general boxy appearance. Thanks to Architect Parker, his 1950 model (below) looks better on the outside and works better on the inside.*



**Before Coogan called in Architect Parker, he made eight basic decisions:**

1. "I made up my mind that this year we ought to put back into our houses as many as possible of the amenities we had to take out when costs were so high and all the pressure was to hold the price down.

2. "I decided we had all gone too far in cutting down floor space and it was high time to start making the house bigger again. So I planned to add 100 sq. ft. into my two-bedroom houses and 150 sq. ft. into my three-bedroom houses.

3. "I decided the public was at last ready to accept a considerable change in the direction of truly contemporary design—and I mean really contemporary and not just some *moderne* trimmings like a flat roof, glass brick, or corner windows.

4. "I recognized that the seller's market is over and that we must all build better design, better quality and more sales appeal into our houses, since we must make most of our sales to people who already have reasonably adequate housing.

5. "I decided to switch from frame construction to masonry, partly because masonry has a good acceptance in Florida, partly in the hope of reducing maintenance costs.

6. "I decided the most effective places to add sales appeal were the kitchen and the bath. That meant, among other things, putting colored tile back in the bathroom and adding an automatic laundry in the kitchen. And the next best place to add sales appeal is the living room.

7. "I wanted to include better finishes and other little things that would contribute to pride in home ownership, like colored tile in the bath, striated plywood in the living room, tile window sills (which are much easier to keep clean), and better hardware.

8. "I decided that, with the tremendous increase in the national income, people could afford to pay a little more if I could offer them a whole lot more. There is a point below which you take value out of a house faster than you can take dollars out of the price, and I decided we had been getting down too near that point."

On the basis of these eight decisions, Builder Coogan asked Architect Parker to design the best three-bedroom house that could be erected for a direct cost of \$5,500. He was delighted with the result and is more than enthusiastic over his architect's "willingness



to sit down and work things out." For his services Parker will receive a fee of \$500 for the two-bedroom house and a second fee of \$500 for the three-bedroom house, plus a royalty of \$25 a house. This means that for the 100 houses already in the works he will receive \$3,500 and when the 250 houses are completed he will have received \$7,250.

Both Parker and Coogan seem to consider this basis of compensation somewhat experimental. Says the builder: "I believe it takes a better architect and a lot more work to design a good looking, livable, small house where you have to make full use of every square foot and where you have to make every construction penny count than it does to design a good large house where you don't have to be so careful about space and dollars."

The house which Parker designed for Coogan represents a great change from the houses Coogan sold last year, and a very long step in the direction of good contemporary design.

#### Among the changes which Parker proposed and Coogan accepted are these:

1. The houses are turned at varying angles to the street, sometimes to give them more privacy, sometimes to give them better orienta-

tion, but more often just to give the impression that there are many different houses whereas, in fact, there are only two—a two-bedroom and a three-bedroom model—to which either a carport or a porch is added in varying locations. (The carport is larger than the porch and Coogan suspects that most people will screen the carport for a porch anyhow.)

2. The glass area in the three-bedroom house has been increased from 138 sq. ft. to 190 sq. ft., or 19 per cent of the 988 sq. ft. floor area. In the two-bedroom house, the increase was from 108 sq. ft. to 163 sq. ft., or 21 per cent of the 792 sq. ft. floor area. Larger panes have been used and all small muntin bars omitted.

3. The kitchen has been opened up to the living-dining area, from which it is separated only by a breakfast bar with a sheet of obscure glass and a shelf above the opening.

4. The roof has been given a 3 ft. 2 in. overhang on all four sides. This is very important in Miami, partly because of the summer sun but, more importantly, because of the very heavy summer rains (once as much as 14 in. in 12 hours). Yet until this year no builders' house in Miami has had an overhang.

5. The roof has been pitched so low (1 in 6) that it can do double duty as a beamed ceiling.

6. The roof has been brought down as low as the code will permit. At the wall line its timbers above the rafters are only 8 ft. 3 in. above the floor. This allows 6 ft. 8 in. for the doors, 12 in. for the tie beam, 1 5/8 in. for the plate, and 5 1/2 in. for the rafters. With the floor slab lowered to 1 ft. above the ground and the roof overhang slanting down another 7 in., this brings the roof line down to 8 ft. 9 in., makes the house look longer and larger.

7. To add apparent size to the bedrooms, door height closets have been used instead of carrying the closet walls up to the ceiling. And to give an illusion of greater size in the living room, the bedroom hall in the larger house has been left frankly open to it.

8. Built-in furniture has been included—dining room table, china closets, book shelves, planting bins and more kitchen cabinets.

9. The glass in the end window in the living room has been carried down behind the bushes outside to give the illusion of inside planting.

#### Not all the architect's suggestions were adopted by the builder

For example: he wanted to turn one whole end of the living room into glass. Says Builder Coogan: "I told him that might be wonderful for people who had a lot of ground, but our lots are 60 by 110 ft., and what privacy could

people have in their living rooms if they had no place to sit where the neighbors could not look in and watch them."

Parker also suggested unsuccessfully that the gable end of the house toward the street should be all glass, with a high strip window under it instead of a conventional double casement. That would actually have given the living room more privacy, but Coogan hesitated to make the front of the house so different from anything that has won general acceptance in Miami.

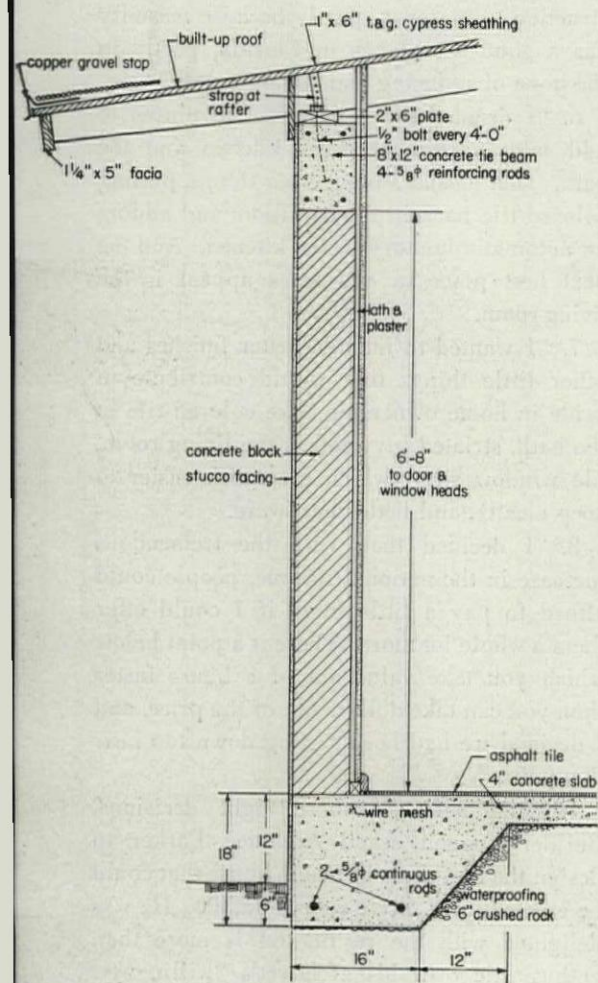
Another idea rejected as too radical was leaving an open space between the top of the partitions and the roof-ceiling, except around the master bedroom, in order to provide better air circulation and at the same time give more feeling of space. "Children don't need complete sound insulation," says Parker who has four of his own. "And they'll sleep through almost anything."

Parker was also disappointed that casements were used instead of awning-type windows which can be left open in the rain. He still hopes to convince the builder that the cost of installing the awning type, which can just be built into the wall without framing, is enough less than the cost of installing the casements to overcome most of the \$150 difference in material cost.

Builder Coogan and Architect Parker both feel they have learned much of value from working together. Says Parker: "You certainly do begin to see things differently when you have to figure the cost of every nail." He found it particularly helpful to be able to experiment with the cost of varying details. For example, he tried five different ridge construction details on the first five houses before he found the one which required the least carpenter hours to erect. And he found that his original attempt to cut costs by putting the kitchen, the bathroom, the hot water heater and the laundry on a single stack actually increased costs by not giving the plumber enough space in which to work.

The two-bedroom houses are priced at \$7,800 with an FHA mortgage of \$6,600; the three-bedroom houses at \$8,800 with an FHA mortgage of \$7,600. Veterans pay \$50 down; non veterans, \$1,200.

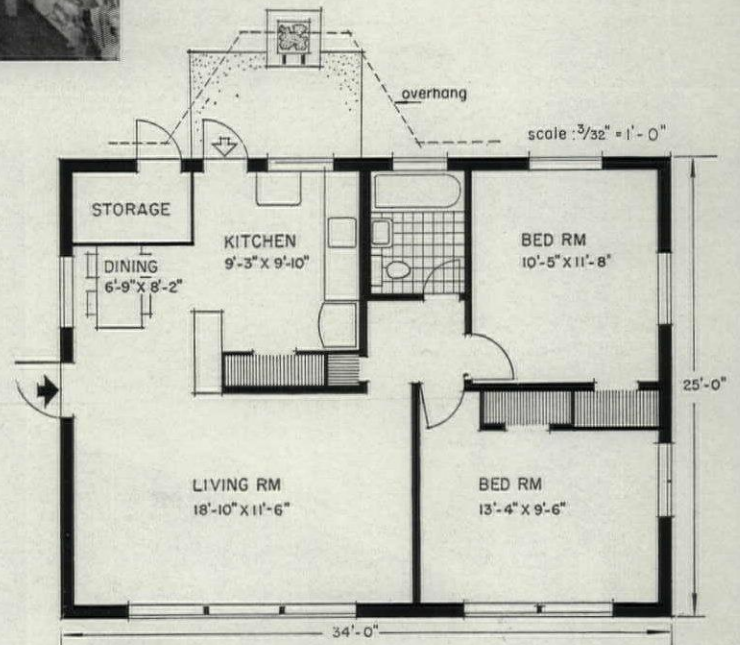
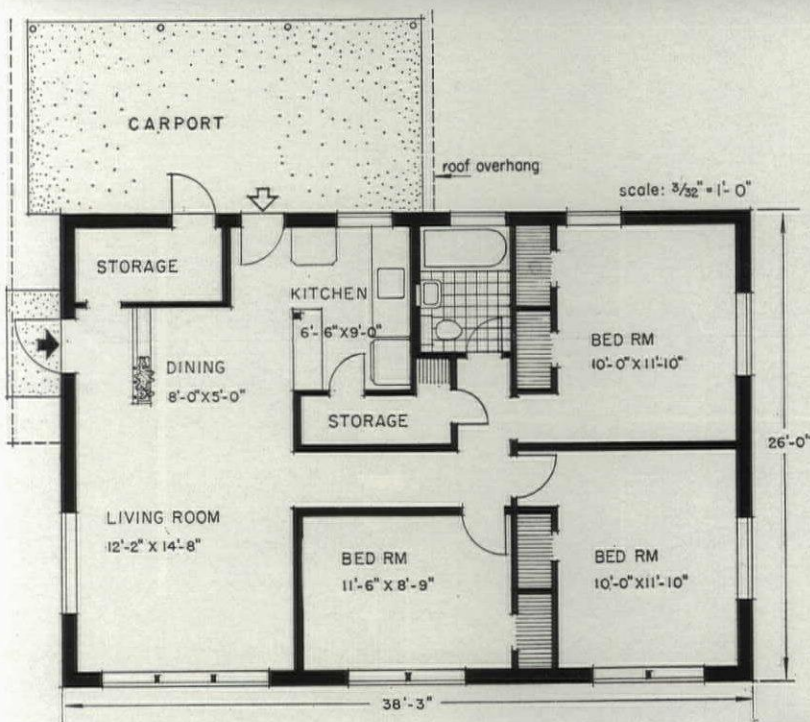
Coogan is so pleased with his houses that he is beginning to worry about what they will look like after they are sold and furnished. Consequently, he is planning to invite the best interior decorator in Miami to work out three different plans for furnishing the houses and he hopes to work out a deal with a Miami furniture store to sell the decorator's selections as a complete package at a special price.



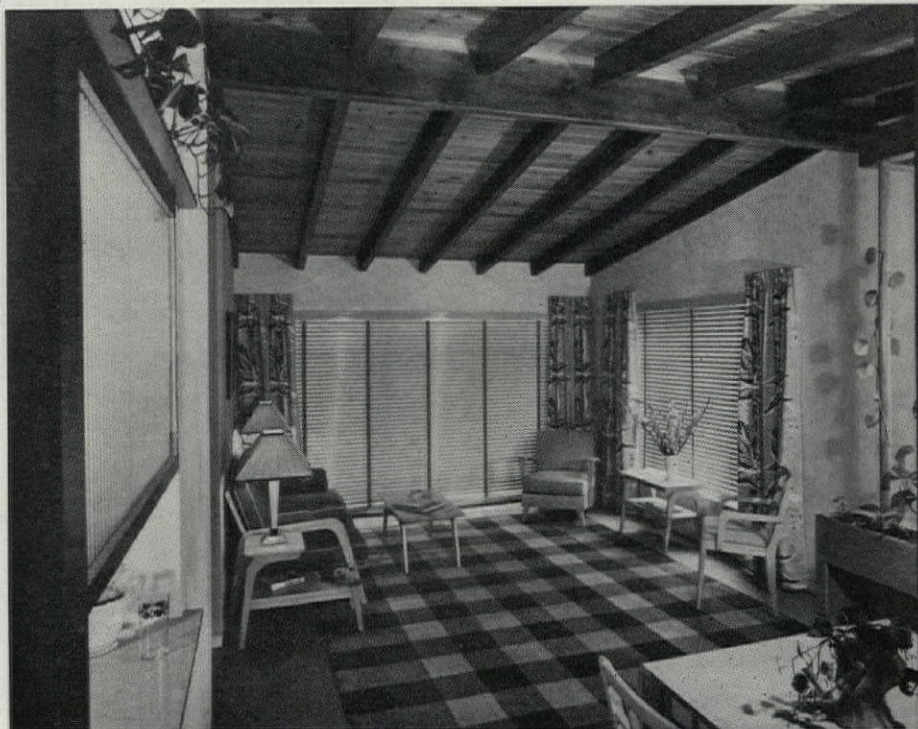
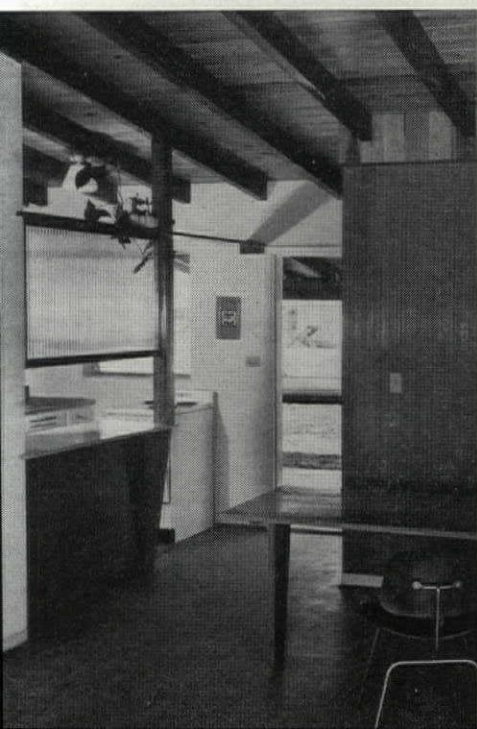




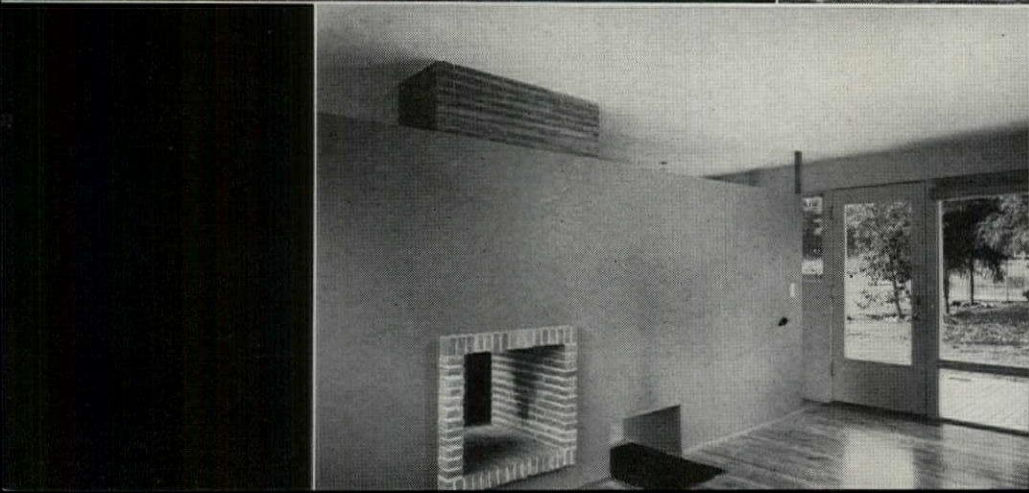
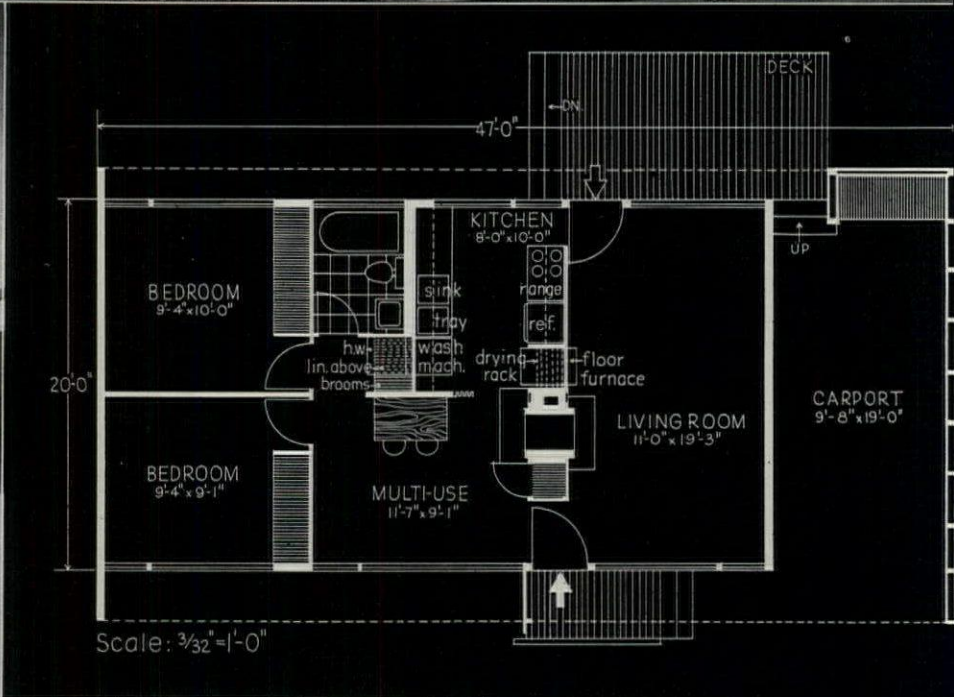
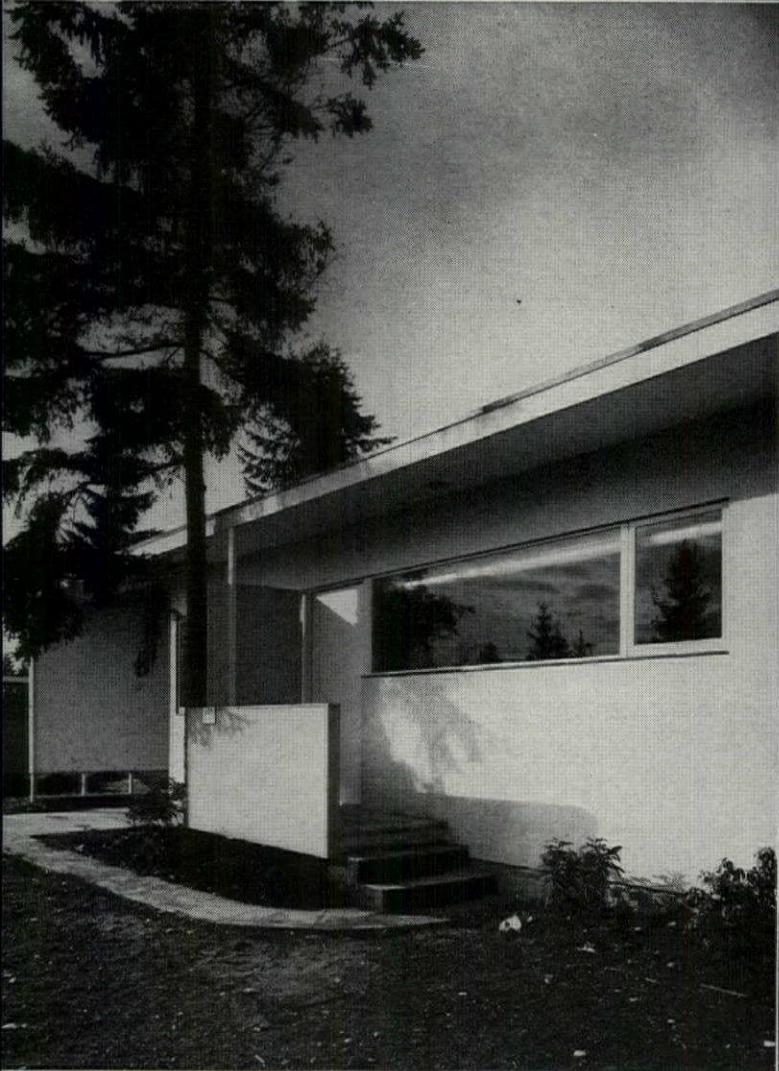
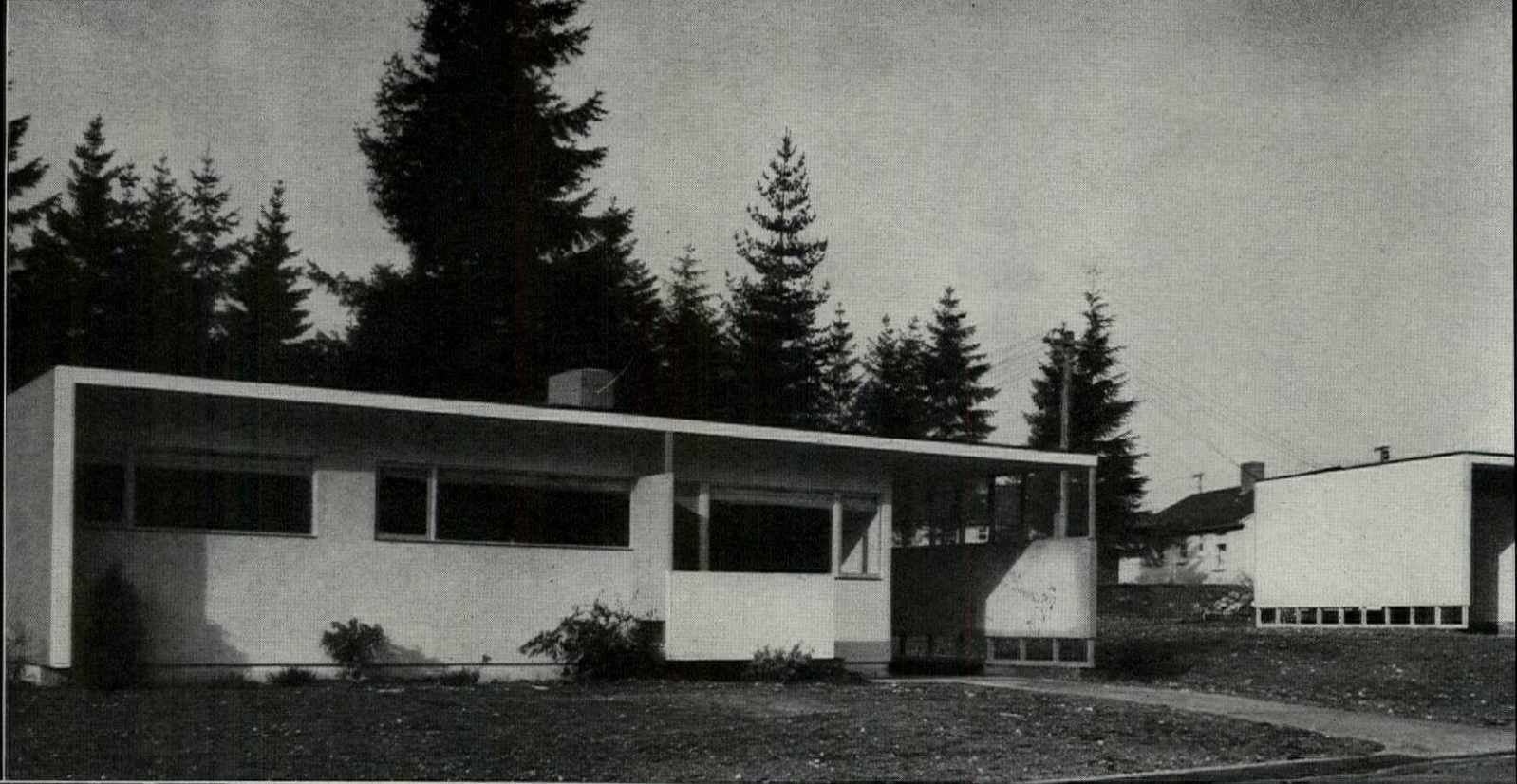
**CONSTRUCTION OUTLINE:** Exterior walls—stucco, 8 in. concrete blocks, furring, lath and plaster. Floors—concrete slab. **ROOF**—covered with T. & G. V-joint cypress. **SHEET METAL WORK**—galvanized. **WINDOWS:** Sash—steel casement. Glass—double strength, quality B. The Tile-Tex Div., Flintkote Co. **WALL COVERINGS:** Living room—Weldtex and plaster, U. S. Plywood Corp. Remainder—plaster. **HARDWARE**—Stanley Works. **ELECTRICAL INSTALLATION**—General Electric Co. **KITCHEN EQUIPMENT:** Range and refrigerator—General Electric Co. **LAUNDRY EQUIPMENT:** Washing machine—Bendix Home Appliances, Inc. **BATHROOM EQUIPMENT**—Briggs Mfg. Co.



*Better finishes, built-in equipment and a kitchen open to the living-dining area.*









# MODERN MODELS attract customers for lower priced, more conservative houses. A builder tests design preference

LOCATION: Seattle, Wash.

ALBERT BALCH COMMUNITY BUILDERS, INC., Builders

CHIARELLI & KIRK and JOHN RIDLEY, Architects

Pictured here is the notably flexible response of Seattle's veteran merchant builder Albert Balch to the building industry's campaign for better design and construction in the low cost field. As the solid core of his 400-unit program for 1950, Balch has built 100 modestly contemporary houses, designed by architect John Ridley and priced from \$6,650 to \$7,850. But to capture public interest and test the demand for a small house of advanced design, Balch has also put up the two clean-lined models shown on the opposite page.

Designed by architects Chiarelli & Kirk, and endorsed by the Southwest Research Institute's Revere Quality House Program and the Northwest Plastering Bureau, these pilot models on 90 x 190 ft. demonstration plots are priced at \$9,850 and \$9,950. Balch estimates that a building program for 100 such houses would reduce costs 15 per cent and land prices by \$600 per site. Construction features include a free-standing "utility wall" between kitchen and living areas, interior partitions of space-saving (2 in.) solid plaster, stucco exteriors, and low-pitched butterfly roof.

Despite the practicality of the plan and the presence of such custom items as oak floors and all-copper sheet metal work, FHA has

refused to grant more than an \$8,000 mortgage on the grounds that the house "was not Western." At mid-March, two weeks after the houses' opening, Balch reported "considerable interest—mostly inquisitive but not the buying kind."

Less flexible than the Chiarelli-Kirk house in arrangement of living areas, the Ridley-designed unit offers attic storage space, larger optional storage at the end of the carport and bigger bedrooms with cross-ventilation. Its open plan makes possible various orientations and permits placement of the carport either at the side or end of the house according to site requirements. In both houses large glass areas give a sense of spaciousness to the interiors; outside, integral carports help to achieve a big house look.

Balch lists three key requirements for boosting economy house sales: 1) high standards of design and construction 2) aggressive, imaginative selling techniques 3) a fairly flexible price range. An old hand at circus selling, Balch insists that there is no substitute for quality—particularly in the present market. "Today," he says, "people look inside the house before buying, and the more they look, the better we like it."

Photos (L.): Dearborn-Massar

Street-side windows of the Chiarelli-Kirk houses are placed high for privacy and shielded by a generous overhang which unifies and lengthens the facade. The window wall of the living area opens on a raised deck overlooking the evergreen grove at the rear of the house.

Staggered in easy curves along the ground contours, the Ridley houses gain added variety through different orientations of the plan and changes in carport treatment. Large glass areas facing the street are to be screened by serpentine cedar fences.

Chiarelli & Kirk's utility wall is pierced by a two-way fireplace and an opening to circulate heat from the floor furnace. Floodlights recessed in the top of this wall provide indirect light for the whole living area. Dark finishes are used on easily soiled kitchen cabinet fronts.

Kenneth S. Brown





## BALCH'S CONSERVATIVE HOUSES

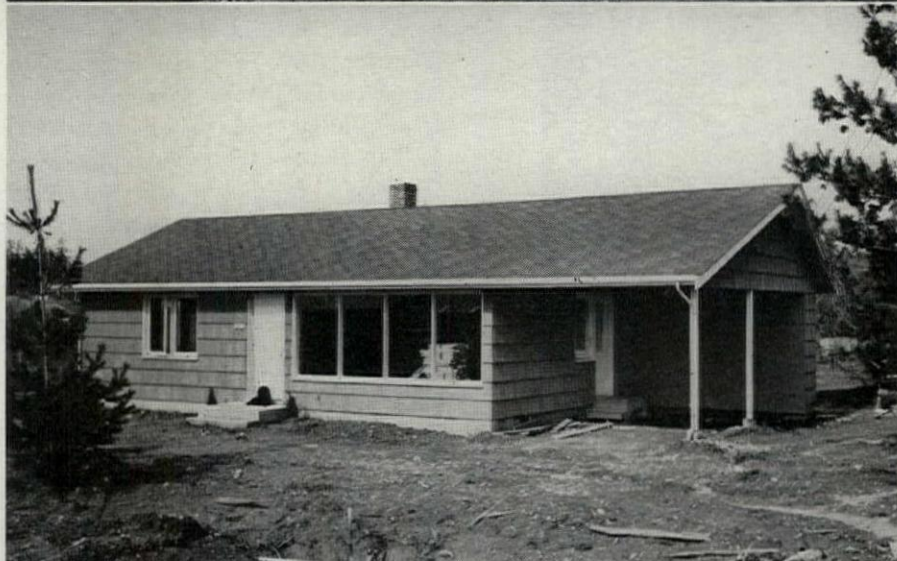
The various adaptations of the Ridley house shown here satisfy Balch's requirement for flexible pricing. From a single basic plan, he can offer several alternatives ranging from a 704 sq. ft. house for \$6,650 to a completely equipped 773 sq. ft. model at \$7,850. Balch has learned that though buyers may eventually take a fully packaged house, more customers are attracted by some leeway in size and appliances than by a single, take-it-or-leave-it offering.

**CONSTRUCTION OUTLINE:** Waterproofing—Philip Carey Co. Exterior walls—plasterboard, U. S. Gypsum Co., studs, sheathing, Sisalkraft Co. paper, wood siding. Ceilings—plasterboard, U. S. Gypsum Co. **ROOFING**—Flintkote Co. **INSULATION**—Johns-Manville Corp. **SHEET METAL WORK**—Revere Copper & Brass Co. **WINDOWS:** Sash—wood. Glass—Libbey-Owens-Ford Glass Co. **FINISH FLOORINGS:** Main rooms—hardwood, E. L. Bruce Co. Kitchen and bathrooms—linoleum, Armstrong Cork Co. **WALL COVERINGS:** Main rooms—wallpaper, Imperial Wallpaper Co. **DOORS:** Flush slab—Wheeler-Osgood Corp. Garage door—Wilfam Co. **HARDWARE**—Schlage Lock Co. **ELECTRICAL INSTALLATION:** Wiring—Appleton Electric Co. Switches—Bryant Electric Co. Fixtures—Lightolier Co. **KITCHEN EQUIPMENT:** Range and refrigerator—Westinghouse Electric Corp. Fan—West Wind Co. **LAUNDRY EQUIPMENT:** Washing machine—Westinghouse Electric Corp. **BATHROOM EQUIPMENT**—Kohler Co. **PLUMBING:** Mixing valves—Ravenna Metal Products Corp. **HEATING**—gravity circulating oil heater, Duo-Therm Motor Wheel Corp. Water heater—Abco Co.

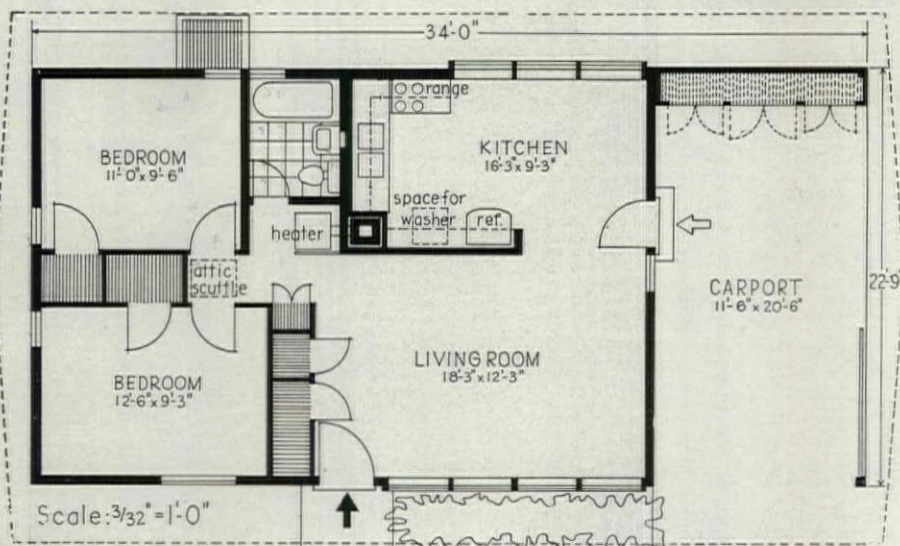
### COST BREAKDOWN

Land .....	\$1,300
Excavation, grading & planting .....	146
Concrete work .....	171
Chimneys, fireplace, etc. ....	213
Side sewer & plumbing .....	762
Lumber & hardware .....	1,204
Carpenter labor .....	918
Lath & plaster .....	392
Millwork .....	538
Wiring & fixtures .....	246
Heating .....	147
Painting & decorating .....	374
Hardwood flooring .....	307
Kitchen & bathroom linoleum .....	81
Paving .....	165
Engineering & archt. fees .....	98
Misc. ....	388
Profit .....	400

\$7,950



Kenneth S. Brown





# DUPLEX DESIGN

saves \$350 on land,  
\$200 on construction

LOCATION: Chicago, Ill.

J. E. MERRION & CO., Builders

EMIL J. MINX, Architect

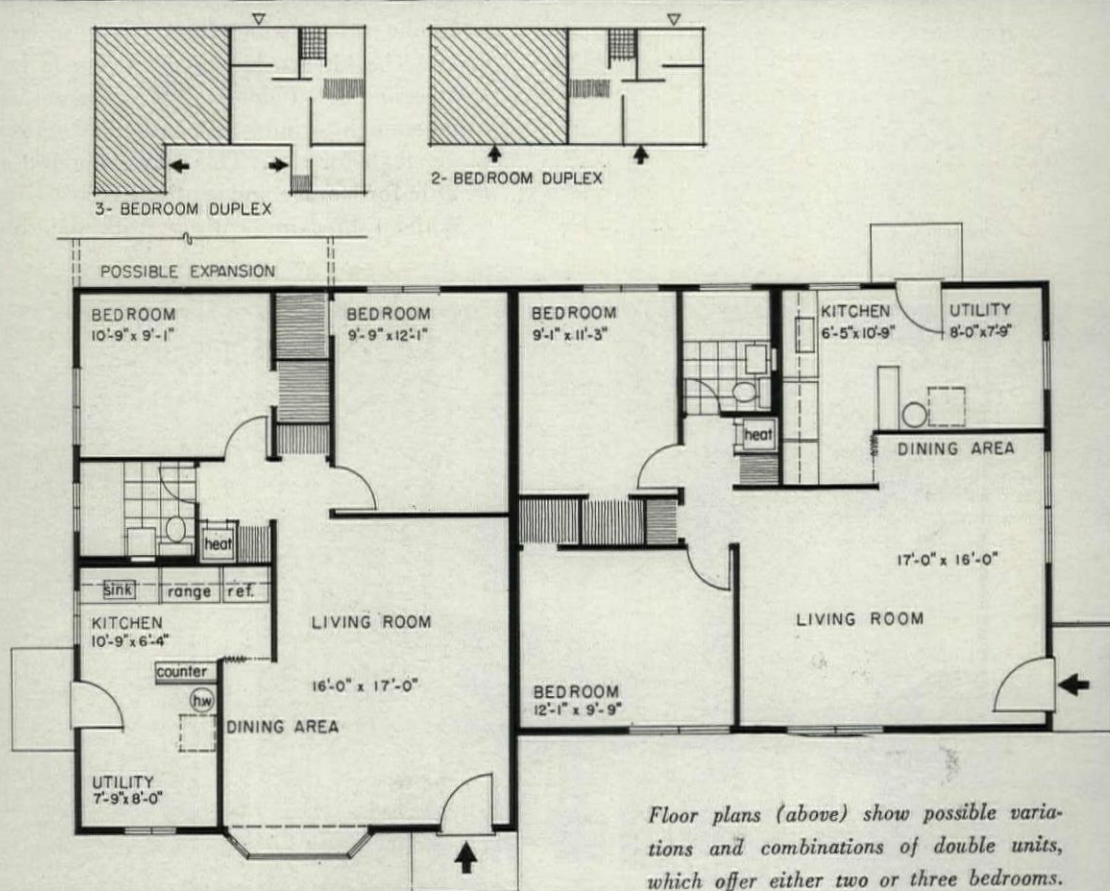
As the conservative member of the design panel at NAHB's recent Chicago convention; Builder Merrion is no man to fool around with modern for modern's sake. He has nevertheless put his money on "modified contemporary" for the 1,510 units now abuilding within Chicago city limits at Hometown, Ill.

Most striking feature of the new development is its neat doubling-up of units to form 755 "duplex" houses—shrewdly getting the most out of the minimal 40 x 100 ft. lots. Such space-saving was made necessary by the high cost of city land (\$1,200 for each plot) and the desire to leave enough space for later addition of a garage to each unit. An added for detached houses and garages.

The duplex arrangement means savings not only on land cost but construction. Substitution of the single 8 in. masonry wall between the units instead of a separate fourth wall for each one saves more than \$200 per unit. Further economy is effected by use of preassembled trusses which save \$175 per dwelling. This "engineered lumber," says Merrion, gives strength to lighter members and permits use of less expensive wood. Other items which save on usual building methods: completely prefabricated window sash and frame (saving per unit: \$36); prefab vitreous chimney (\$20); prefab plumbing (\$100). Such cost-savers allow Merrion to price his 750 sq. ft. units at a modest \$8,500 (\$200 down, \$58.68 a month)—a figure low enough to appeal to small apartment dwellers who have a yen for fresh air and a back yard.

The interior layout shows—more than many a sharper design—just which way the building wind is blowing. Gone is the series of boxed-in rooms, each with its own door, once the standby of the conventional builder house. A free-standing wall at one side of the living-room creates a dining alcove, preserves free-flow passage between living, dining and kitchen areas. Kitchen space is amplified by an adjacent utility room, marked off only by a work-snack counter. The heated floor slab eliminates need for a basement—further reduces cost. A modicum of storage space is built into bedrooms; 90 cu. ft. are provided by the attic.

In addition, Merrion has achieved what may be the lowest-priced contribution to indoor-outdoor living: for \$28 he supplies tenants with enough concrete slabs to create a "patio" around the back door.



Floor plans (above) show possible variations and combinations of double units, which offer either two or three bedrooms.



Typical duplex house has an open interior plan and a long, low-slung exterior which makes for a more agreeable street front than the usual string of small single boxes. Note absence of doors in photo, below.

COST BREAKDOWN	
Permit .....	\$46
Survey .....	28
Grading, etc. ....	86
Foundation, fill, slab, etc. ....	633
Walks .....	50
Masonry: Party wall .....	135
Chimney .....	65
Carpentry (labor, lumber, hardware, millwork, dry wall material, steel casements, kitchen cabinets) ...	2,628
Insulation .....	70
Roof .....	140
Plumbing and shower .....	915
Heating .....	550
Electrical .....	255
Bathroom tile .....	90
Asphalt tile .....	100
Painting & decorating .....	338
Glass and glazing .....	90
Screens & doors .....	60
Weatherstripping and caulking .....	36
Land & landscaping .....	1,295
Super., overhead & profit ....	800
<b>TOTAL .....</b>	<b>\$8,500</b>

Photos: Hedrich Blessing Studio





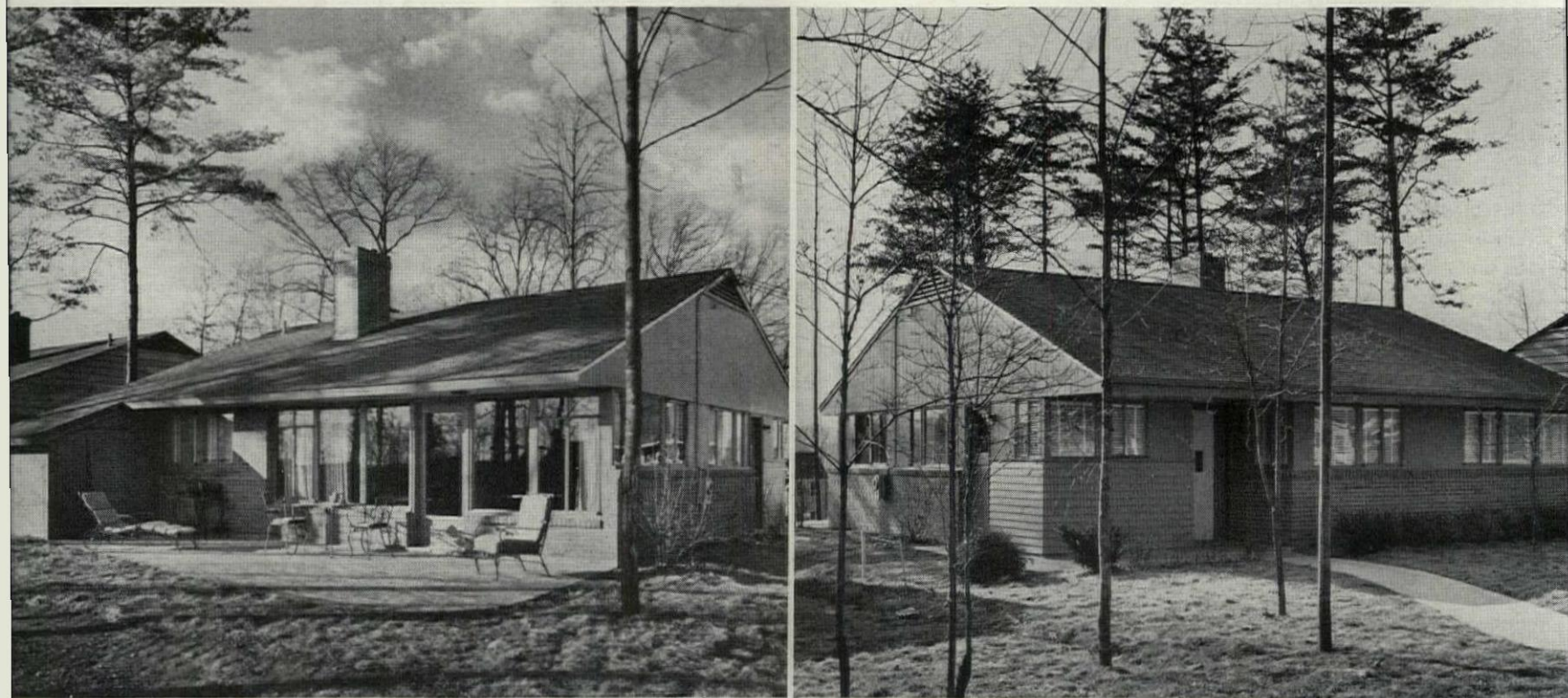
# DISTINGUISHED PLAN gives privacy and convenience to a builder's small house

LOCATION: Washington, D. C.  
 CARL M. FREEMAN, Builder  
 SWEENEY, HEAP & GAUGER, Architects

Hard to beat for both privacy and spaciousness, distinguished floor planning within a 1,168 sq. ft. area characterizes the new houses in Builder Freeman's 65-unit Alta Vista development. Houses are set well forward and to one side of the long narrow lots (55 x 130 ft.). The dining as well as living area looks over and opens on a rear terrace. All three bedrooms are separated from the rest of the house by a hall which also serves as front entry. The kitchen has direct access to both service and front doors. All bedrooms are large enough to hold twin beds, have closets big enough for two. This leaves the 408 sq. ft. attic for storage and ventilation.

Without breaking entirely with the four-

square small house look, the almost continuous band of windows allows generous light into three sides of the house (250 sq. ft. of glazing). The absence of both a basement and a garage indicated a need for extra storage space for garden tools and outdoor furniture. The architect's solution is a storage "cabana" set just west of the terrace where it not only adds to privacy but serves as a windbreak. The deluxe brick version shown in the photo at left below continues the roof line, costs \$200 over the basic price of \$14,750. Set on a radiant-heated floor slab, the Alta Vista house has been approved by the Revere Quality House Division of the Southwest Research Institute.



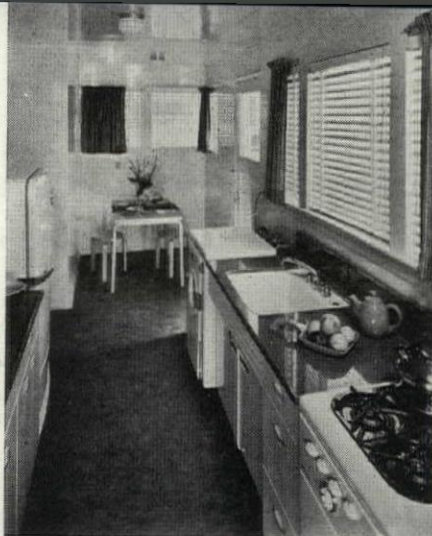
Photos: Richard Averill Smith

## COST BREAKDOWN

Land .....	\$1,850
Site work & landscaping .....	260
Masonry .....	1,425
Carpentry .....	1,125
Lumber .....	930
Common labor .....	430
Millwork .....	410
Plastering .....	665
Painting .....	400
Heating .....	900
Plumbing .....	1,000
Kitchen equipment & cabinets .....	675
Roofing .....	210
Electrical wiring & fixtures .....	190
Steel sash & door bucks .....	355
Financing, overhead, permits, etc. ....	1,010
Architect's fee .....	30
Miscellaneous .....	1,745
Sales commission .....	525
Profit .....	1,215
<b>Total .....</b>	<b>\$14,950</b>

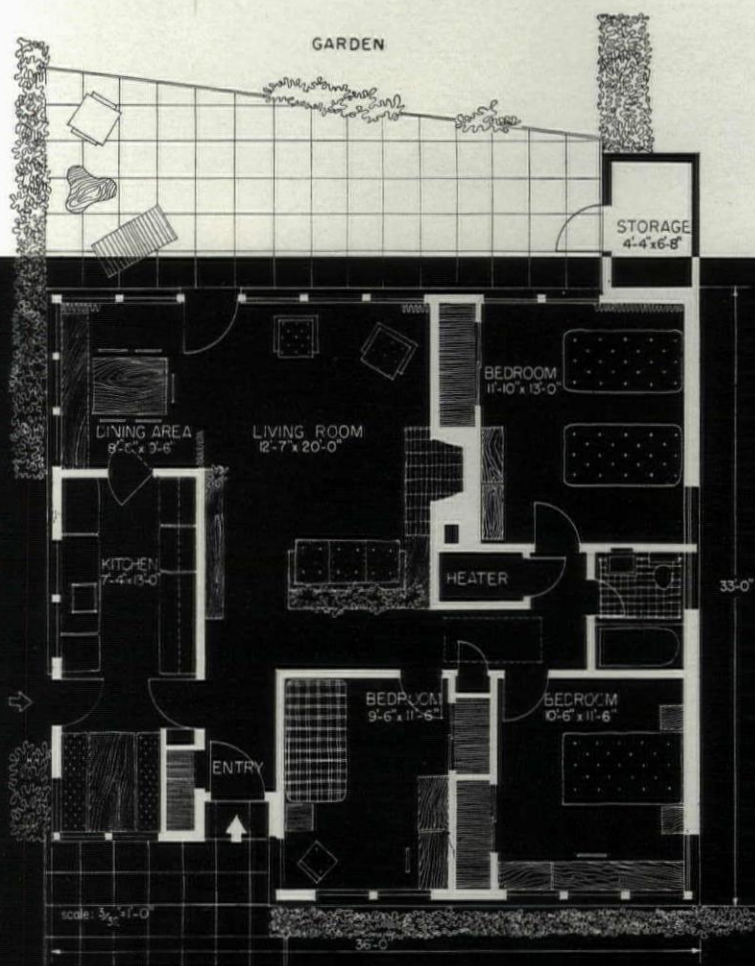
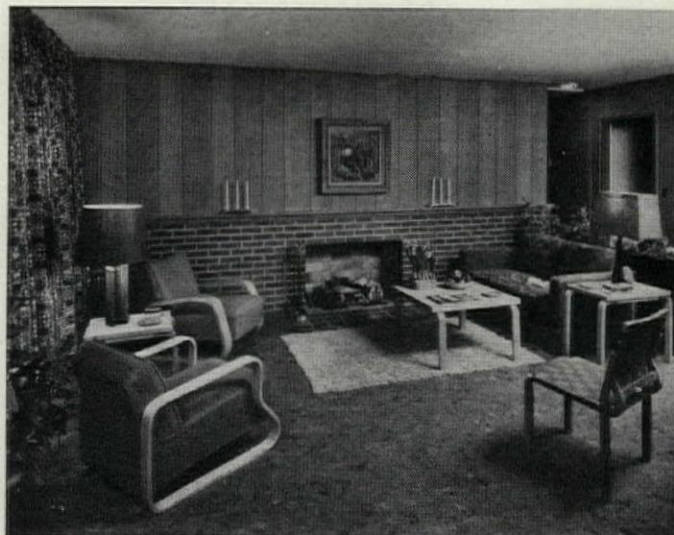
CONSTRUCTION OUTLINE: Exterior walls—4 in. brick, 2 in. air space, 4 in. cinder block. FLOORS—  
 asphalt tile over concrete slab. ROOFING—  
 shingles, The Philip Carey Mfg. Co. INSULATION  
 —Owens-Corning Fiberglas Corp. SHEET METAL  
 WORK: Flashing—copper, Revere Copper & Brass  
 Co. WINDOWS: Sash—Fenestra steel, Detroit  
 Steel Products Co. FLOOR COVERINGS—asphalt  
 tile, Armstrong Cork Co. PAINTS—Monroe Lederer  
 & Taussig. KITCHEN EQUIPMENT: Range—Wel-  
 bilt Stove Co. Refrigerator—Frigidaire Div., Gen-  
 eral Motors Corp. Sink—American Central Corp.;  
 top—Formica, The Formica Co. LAUNDRY EQUIP-  
 MENT: Washing machine—Bendix Home Appli-  
 ances, Inc. BATHROOM EQUIPMENT—American  
 Radiator-Standard Sanitary Corp. HEATING—hot  
 water radiant floor system.





The kitchen (left) lies in a straight line between dining area and breakfast corner. The latter, a tight-fitting space set towards the north, might well have adopted double insulating glass for its wide window spaces.

The living area (below) has a whole wall paneled in brick and wood. Privacy and a more even temperature have been gained by having the front door open into a hall instead of directly into the room itself.



Large window panels overlook the back terrace. A glass door set near the dining area makes terrace dining convenient in summer. Half the Alta Vista houses—those on the north side of the street—will give a chance to test an unorthodox orientation for this window wall.



Typical bedroom (at left) has wide closets and high strip windows. Instead of an "expansion" attic, Freeman's house provides a third bedroom on ground level. The attic, reserved for storage, has louvers in the gable ends for needed ventilation during hot Washington summers. A disappearing stair over the hall, marked in dotted lines on the floor plan, leads up to it.



# COMPLETE DOUBLE GLAZING and ingenious storage fittings put every inch of this builder's house to use

LOCATION: Tenafly, N. J.  
 RUSSELL H. BENJAMIN, Builder  
 HERMAN H. YORK, Architect  
 MICHAEL LORENZI, Interiors

The glamor house of the "Levitt-Type group, this example shows in full force the space-stretching benefits of double insulating glass. Its 28 window panes—100 per cent double glazed—allow valuable interior space to be used comfortably right up to the window line, even near large glass areas in the living room and kitchen. (The \$350 cost of this glass is \$255 more than that for single sheets.)

The compact plan boasts careful details and finishes as well as generous equipment—maintaining the prestige of this 36-house development in a well-established community just upriver from New York City. Lots are generous—at least 75 x 125 ft. The basic house (pictured here) sells for \$13,990. Other models, having a full-length dormer with two extra bedrooms and bath, range up to \$17,990.

Every room offers generous and ingenious storage space: extra counters, cabinets and a planning corner in the kitchen; built-in dressers and shoe drawers in the bedrooms; coat closets at both front and back doors; a living room with built-in book-shelves and piano (or radio-television) alcove. The attic, with windows at both ends—also double-glazed—is already fitted with rough flooring. Plasterboard walls are carefully joined with metal corner beads—successfully rivaling lath and plaster smoothness. Purchase price covers full electrical equipment (refrigerator, range, washing machine and electric clock).

In placing picture windows, strict neutrality was shown—half are set to the back, half to the front (for well-intentioned exhibitionists). Of the 18 houses sold to date, buyers have maintained just this proportion. Lots are spacious enough, however, to give a measure of privacy even to large windows in front.

CONSTRUCTION OUTLINE: Exterior walls—Sheetrock, U. S. Gypsum Co., studs, Alfol insulation, Reflectal Corp., sheathing, red cedar shingle siding. ROOFING—Barret Co. INSULATION—Reflectal Corp., Celotex Corp. and Gilman Bros. FIREPLACE: Damper—H. W. Covert Co. Screen—Bennett-Ireland Co. WINDOWS: Sash—aluminum. Weatherstripping—Cosmopolitan Weatherstrip Co. Glass—Thermopane, Libbey-Owens-Ford Glass Co. FINISH FLOORING—Kentile, David E. Kennedy, Inc. HARDWARE—Schlage Lock Co. and Yale & Towne Mfg. Co. KITCHEN EQUIPMENT: Range and refrigerator—Admiral Corp. Sink—Tracy Mfg. Co. Fan—Victor Mfg. Co. BATHROOM EQUIPMENT—Briggs Mfg. Co. Cabinets—Ketcham Mfg. Co. HEATING—hot water radiant system, Climaco Corp. Boiler, regulator and water heater—General Electric Co. SPECIAL EQUIPMENT: Clock—Warren Telechron. Garbage receptacle—Donley Bros.



Photos: Ben Schnall

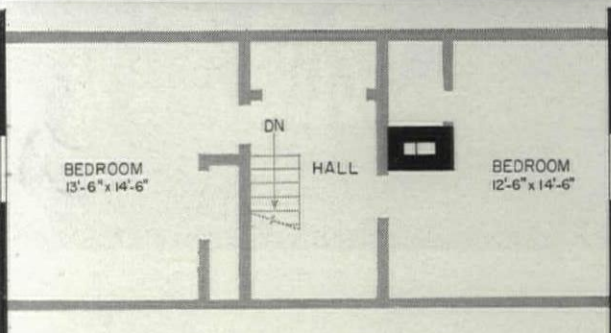
## COST BREAKDOWN

LAND .....	\$764	Plumbing .....	635
Site work .....	405	Heating .....	901
Curbs, pavements & sidewalks .....	422	Electric wiring & fixtures .....	290
Sanitary & storm sewer .....	419	Kitchen equipment .....	433
Landscaping .....	375	Kitchen cabinets .....	214
Masonry .....	1,375	Painting .....	300
Carpentry .....	750	Shingle siding .....	328
Framing lumber .....	850	Roofing .....	191
Millwork .....	860	Garage door .....	84
Plasterboard .....	407	Misc. ....	240
Asphalt tile floors .....	175	Overhead, taxes, insurance, permits, etc. ....	657
Ceramic tile bath .....	149	Architect's fee .....	30
Bathroom cabinets .....	116	Engineer's fee .....	30
Insulation & weatherstripping .....	145	Brokerage fee .....	655
Glazing .....	360	Profit .....	1,281
Aluminum swing sash & screens .....	149		
		Total .....	\$13,990

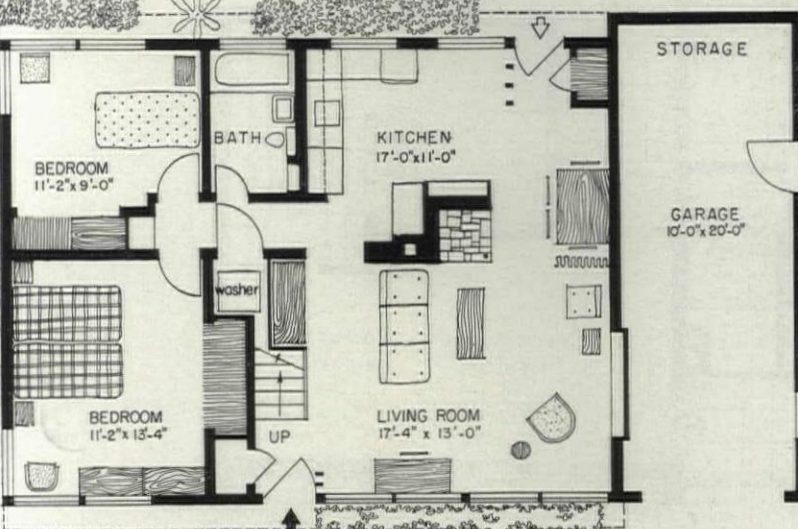




*Under-stairs space (above) provides living area with alcove for piano or radio-television set; also a cabinet for storing wood.*



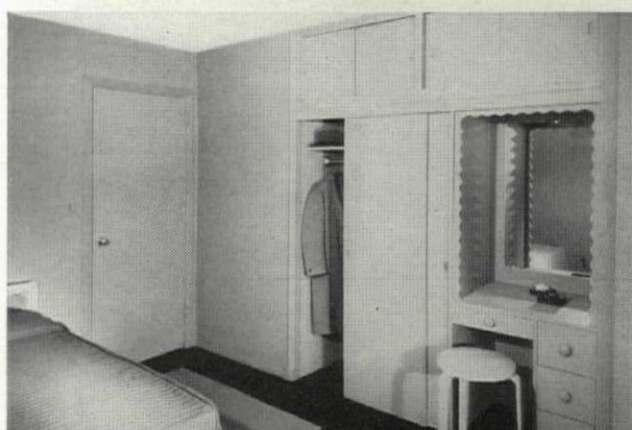
SECOND FLOOR



scale:  $\frac{3}{32}$ " = 1'-0"

FIRST FLOOR

*Builder finishes two extra bedrooms in attic of \$13,990 basic house (above) for \$1,000 each, raising price to \$15,990. Each first floor bedroom (see below) has built-in dresser and drawer as well as a standard closet with upper storage shelves.*



*View from front door (above) shows the large brick chimney which separates living area from the kitchen.*

*Generously equipped kitchen (below) has planning corner set alongside window strip at extreme right. Extra cabinets and work space are provided at each side of the sink. A long eating counter flanks the kitchen side of the chimney.*





# TWO-STORY DESIGN avoids usual boxy look by careful detailing. Builder cuts

LOCATION: Crescent Township, Pa.

HEROLD BRADLEY, Architect and Builder

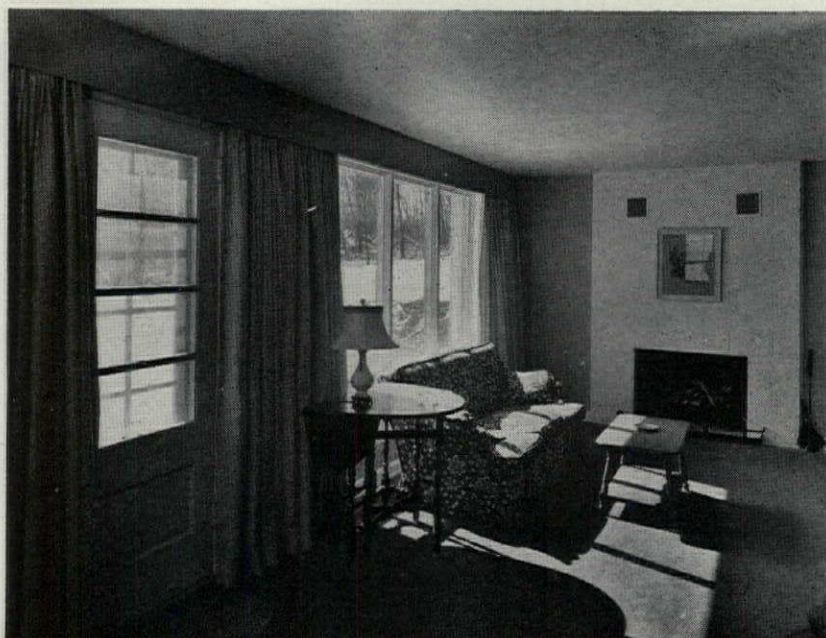
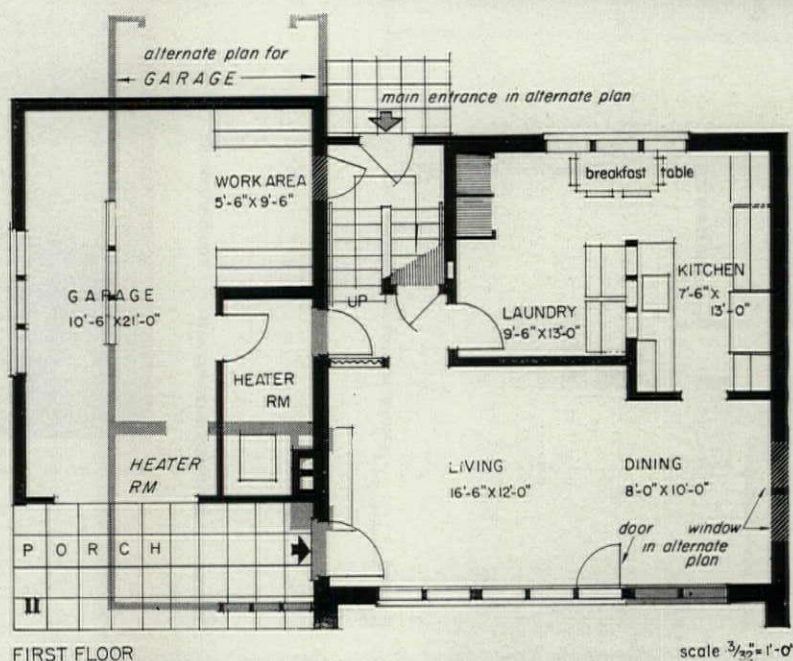
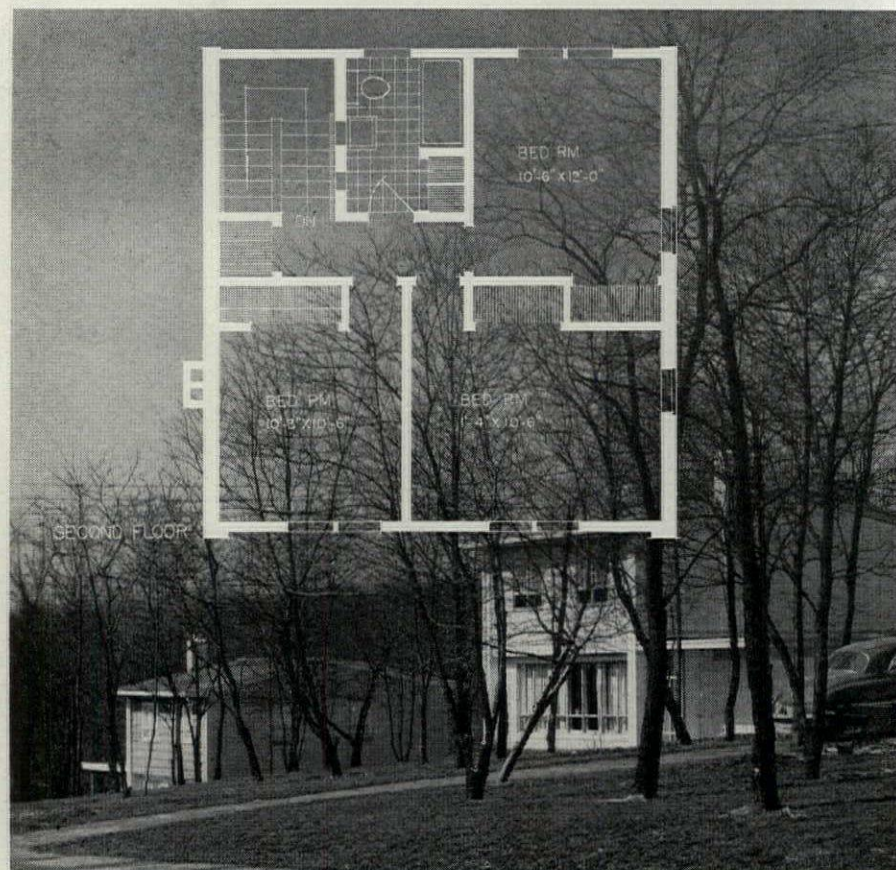
This group of houses combines good design with the construction economies of two-story construction. They are part of the 60-house Harper Village in the suburbs of Pittsburgh.

In addition to the savings he made by going to a two-level plan in his 1,300 sq. ft. three bedroom house, Architect Bradley clipped costs further by using masonry-block construction on a slab. Cost considerations dictated a boxy structure. Despite this, Bradley has managed to include an uncommon amount of design interest in his houses. Particularly good is the forward extension of the side walls as pilasters in the front, giving a neat framed effect to the street elevation. It also permitted him to extend the second-floor level 18 in., providing a strong shadow line which adds further interest to the facade. The floor plan, which is standard for all the two-story units in the development, features a split-level arrangement. Says Bradley: "I definitely feel that a break in the stairs is a necessity in a two-story house." In most of houses, the living room faces the street. In a few, however, he has flipped the plan over so that the front entrance is at the split level instead of directly into the living area. The result is an unusually good traffic arrangement for a two-story house. Sleeping, living and kitchen areas are each immediately and separately available from the front entrance. No area is a pass-through to another.

The Harper Village houses were built for \$10 a sq. ft.—about \$2 less than current Pittsburgh prices for comparable fireproof buildings. Sales price for house and garage is \$13,850. A group of one-story houses, with basement, shown on the opposite page, is also being built on the site and sold for \$12,500.

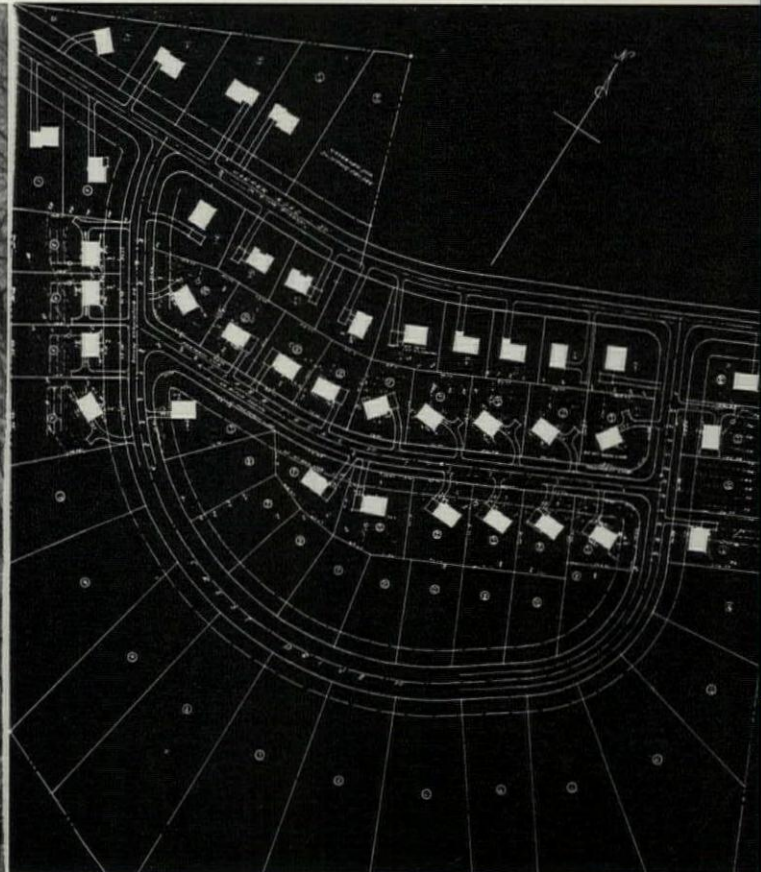
## COST BREAKDOWN

Land .....	\$1,500
Excavation, backfill & grading .....	149
Footing .....	109
Masonry .....	1,436
Steel framing & forms .....	510
Concrete floors .....	530
Framing lumber & millwork .....	1,800
Carpentry .....	1,400
Interior walls (dry walls) .....	507
Electrical & fixtures .....	340
Plumbing & septic tank .....	1,342
Heating—radiant .....	1,211
Painting .....	572
Insulation .....	110
Kitchen cabinets .....	297
Walk, drives & porches .....	280
Roofing & sheet metal work .....	427
	<hr/>
	\$12,520
Overhead, taxes, profit .....	1,330
	<hr/>
	\$13,850

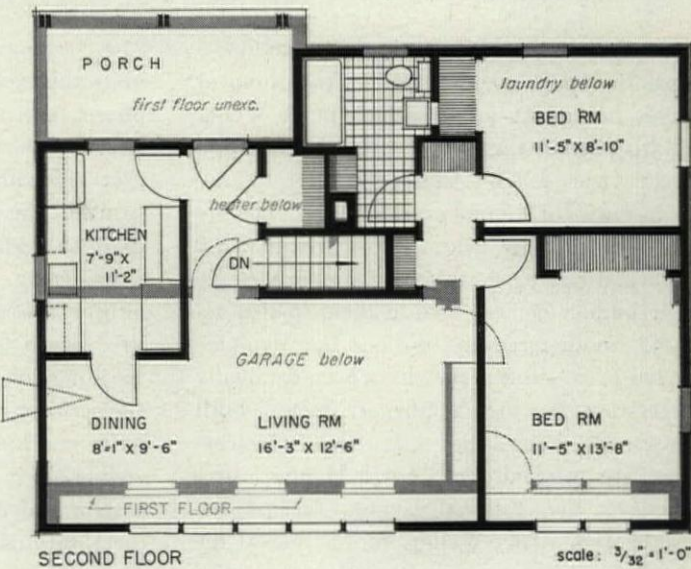
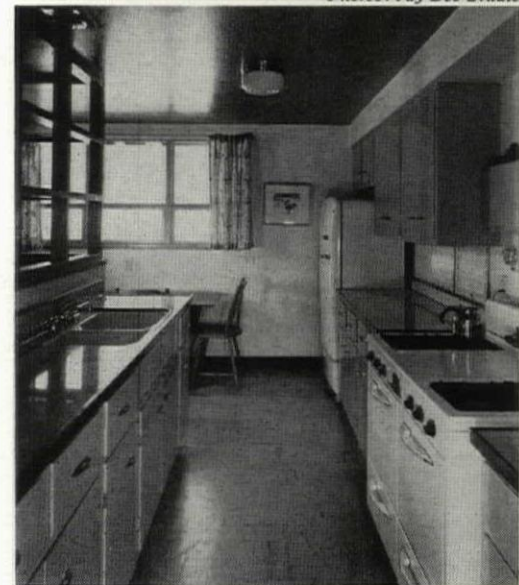




construction costs to \$10 a sq. ft. with concrete block construction



Photos: Jay-Bee Studio



One-story house takes advantage of sloping site to include garage and utility-room space underneath (shaded plan). Lightweight 8 ft. 16 in. concrete panels, formed on site and erected at a cost of \$10 a panel, are used as exterior siding on house.



**CONSTRUCTION OUTLINE:** Exterior walls—concrete block. Floors—concrete; Jones & Laughlin Steel Corp. beams. Ceilings—plaster, U. S. Gypsum Co. ROOFING—The Philip Carey Mfg. Co. INSULATION—Celotex Corp. and U. S. Gypsum Co. FIREPLACE: Damper—Heatlitor, Inc. SHEET METAL WORK: Flashing—copper, Chase Brass & Copper Co. Leaders—Armco Steel Corp. WINDOWS: Glass—Pittsburgh Plate Glass Co. FLOOR FINISHES—rubber base paint, Truscon Laboratories; tile—Armstrong Cork Co. PAINTS—U. S. Gypsum Co., Pittsburgh Plate Glass Co. and Vose Process Corp. GARAGE DOORS—Frantz Mfg. Co. LAUNDRY DRIERS—Westinghouse Electric Corp. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. Cabinets—The Philip Carey Mfg. Co. HEATING—hot water radiant system. Pipes—Jones & Laughlin Steel Corp. Boiler—American Radiator-Standard Sanitary Corp. Regulator—Minneapolis - Honeywell Regulator Corp. Water heater—Lawson Corp. Pulverator—Waste-King, Given Mfg. Co.



# THE BUILDER AND PREFABRICATION

*Never in the history of house prefabrication have the prospects seemed so confused as they are this Spring. Prefabrication's postwar promise of revolutionizing the housebuilding industry has been discredited. Lustron, the government's great noble experiment, has stopped production to fight a losing battle against RFC bankruptcy claims. Scores of other prefabbers have already worn a path to the bankruptcy courts. There seemed to be good reason for writing off the prefab experiments as well-intentioned and inconclusive.*

*This would be a mistake. Although prefabbing did not deliver the ready-made revolution promised by its enthusiasts, it had in four postwar years of trial-and-error established itself as a force to be reckoned with in U. S. Building. Last year, 35,000 prefabs—about 5 per cent of all single-family unit production—were turned out; this year the figure should easily hit 50,000. The reason was obvious: after years of slam-bang existence, the few surviving prefabbers were becoming efficient enough to challenge directly the established ways of building. Their production methods are better; their financing arrangements and dealer outlets are more stable.*

*FORUM in the past 15 years has examined all the important prefab schemes from the viewpoint of the manufacturer. On these pages, however, FORUM turns its attention to the builder who is using prefabs in his subdivision. Two such builder operations are examined—one employing a \$6,000 house, another a \$17,000 house. The fact that both operations are successful this country.*

## Two Illinois builders cash in on National Homes' \$6,300 prefab through quick construction and easy finance

The big building story in Champaign-Urbana, Ill. (pop. 50,000) is the new group of houses being put up by young Scott Weller and his partner Cecil Ozier over on Randolph Street. Ozier and Weller are the biggest builders in town for a number of reasons. The obvious one is their price—\$6,300 with \$200 down and \$43 a month carrying charges. No other builder comes close to them in that respect. Another reason—the one that explains the low price—is that they have been eminently successful in merchandising factory-built houses. The houses they sell, with a few exceptions, are two-bedroom "Thrift Homes," produced by the National Homes, Inc. of Lafayette, Ind. Ozier-Weller, Inc. is one of the 212 National dealers in mid-Western cities who last year collectively sold 4,500 National prefabs and who this year expect to sell over 10,000. By all standards, this makes National the country's biggest and most successful operation. The reason for this, according to National's President Jim Price, is a strong dealer organization. After ten years of prefab producing, Prefabber Price is firmly convinced that anybody can make a house in a factory but it takes a good man to sell them properly.

By National's standards, its Urbana dealers are good—that is to say, successful—men. Before they took over the territory for National last April, Scott Weller and his partner were conventional 30-house-a-year builders. In eight months last year they built

210 National houses, are sold ahead on 400 units this year. They made more money per house, built them quicker, financed them with less trouble and sold them easier than they ever did with their conventional houses. The firm has the same \$30,000 capitalization now as it had when it was started back in 1947. Considering that it will gross about \$4.3 million this year (and net about 5 per cent), this record is somewhat startling even in the building business where the relationship between front-money and business-transacted is notoriously strange. Yet Ozier and Weller are selling their houses on such an oil-smooth system that their \$30,000 should easily carry them through this 575-house year without a hitch. They will turn their houses over so fast that they will be able to finance all their operations (including land and land improvement) out of current pocket. The reason for this pleasant and profitable arrangement is simple, according to Scott Weller: "All we do is follow Jim Price's rules."

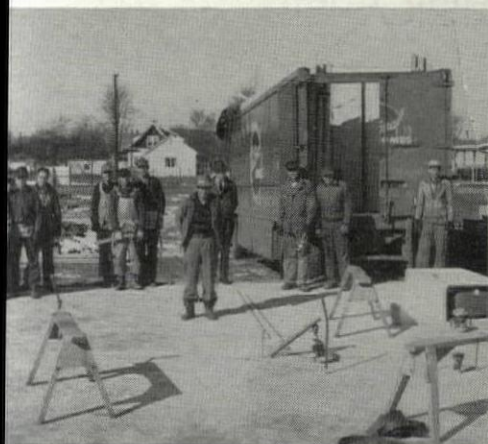
Jim Price's rules are, indeed, the key to the National operation. Since the operation is based on precise timing and careful attention to small details, the regulations covering dealer operations are minutely detailed. In view of the fact that almost all National dealers—Scott Weller included—are living high on the hog by following the rules, there are few complaints about Jim Price's constant sermonizing on the importance of his rules.

The most important of Jim Price's rules is

that a National house must be sold beforehand. Under normal circumstances, a National dealer is expected to sell his houses only twice a year—in the spring and in the fall—through a model house. Ozier-Weller has deviated slightly from the rules in this respect, for the firm has been able so far to sell out its subdivision without a model house or even a nickel's worth of advertising. But National stresses the model-house technique and Scott Weller expects to have one in the fall if only for public relations purposes. By selling twice yearly, both Weller in Urbana and Jim Price in Lafayette have the crucial advantage of knowing just what their production schedule will be. The result is that they can synchronize their factory-subdivision relationship with complete efficiency.

The biggest advantage of National's pre-selling policy, however, is that it solves the thorny question of financing their houses. Since financing is the banana peel that has skidded many another prefabber into bankruptcy, a close look at Ozier-Weller's mortgage arrangements is in order. (Needless to say, they follow Jim Price's book of rules to the letter.) The basic problem for Builders Ozier and Weller in financing their prefabs is time. Since they have to get their houses up and occupied within a month, the financing has to be paced so they do not have the house carried on their books while FHA or a bank is making up its mind about the mortgage. National's solution to this is simple: all





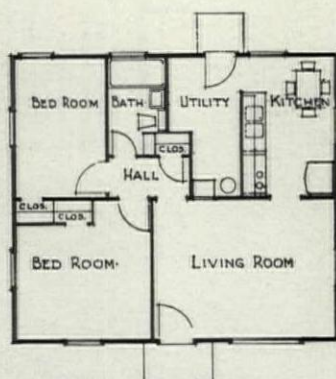
the mechanics of financing are completed before the house is assembled in the factory. When Ozier-Weller signs up a housebuyer, the buyer also signs an application for a 95 per cent FHA mortgage. Weller sends this off to National Acceptance Corp., a subsidiary of the prefab firm in Lafayette which is also a qualified FHA lending institution. Acceptance then get a commitment from FHA for the house. Back in Urbana, the house buyer has authorized Acceptance to disburse the mortgage proceeds to National for the house shell and to the dealer for construction costs. A note and mortgage are drawn up, signed by the client and then recorded. These papers, plus a preliminary title policy and insurance policies are mailed into Acceptance at least two weeks before the house is delivered. Thus all the legal and financial red tape is neatly wound up ahead of time. For good measure, the mortgage is usually optioned off before the house is made to one of Acceptance's secondary market principles (Fannie May or an insurance company).

The loan already consigned safely to a permanent investor, the pay-out process is as safe as telephone company stock. (Safer, in fact, Telephone stock doesn't have a 95 per cent government guarantee). The first pay-out (45 per cent) is made by Acceptance on the day the house is shipped. National is paid in full for the house and the dealer gets what is left at FHA's second inspection. The last payment is made when the final FHA compliance report is received and lien waivers submitted.

All of Ozier-Weller's prefab operations are carried out on subdivisions—another one of Jim Price's rules for promoting efficiency. As subdivision prefab erectors, they have two initial cost advantages: then buys the paneled frames of their houses at low costs (\$2,124 for a two-bedroom Thrift house) and are able to erect these frames quickly and cheaply. Most of the house frames are closed in within five hours, completely finished in two weeks. Total man hours per house: 300. Aside from these initial prefab advantages, their costs are much the same as those of others builders. How-

ever, they have been beating down their contractor's prices steadily because of the standardized product, big volume and also because production is steady throughout the year. The National home office polices Ozier-Weller on site costs, lets them know periodically how far their prices are out-of-line in terms of the factory's estimates on what they should be. (Since Jim Price and his brother George have themselves erected over 600 National houses in Lafayette, in the past ten years, they have a pretty good idea of site costs.) National also requires Weller and his partner to send in a financial statement every six months. The reason is simple: the factory wants to know if its Urbana dealers are liquid enough to put up the houses they have ordered in the coming six-months period.

This month, Ozier-Weller is taking a house a day from the factory at Lafayette for two Urbana subdivisions and for two new ones in the nearby towns of Rantoul and Danville. More important, the firm is selling these houses to a group of people who had never been considered in the market before. There is convincing proof of this in a housing survey



1950 Thrift House shows some design changes-for-the-better, but still looks very much like good old Cape Cod. House comes in two or three-bedroom models, has eight elevations. Exterior siding is varied; note plain and striated plywood facing shown here. Floor plan, above, has good-sized utility room for house this size.

Building crew (photo, left above) for a Thrift house on one of Ozier-Weller's subdivisions numbers fourteen. Reading from left to right, they are: six erectors, three carpenters, electrician, plumber & helper, painter. In front is the construction superintendent. In back is the truck from the National factory with a house ready for unloading. Trucks arrive at site by 8:00 a.m., are immediately unloaded so that house can be closed in by lunchtime.



1949 Thrift House, the first built by National to meet the price and technical specifications of the FHA's 95 per cent mortgage economy house program, had complete lack of design character. Relatively few were sold before design was changed (see below).



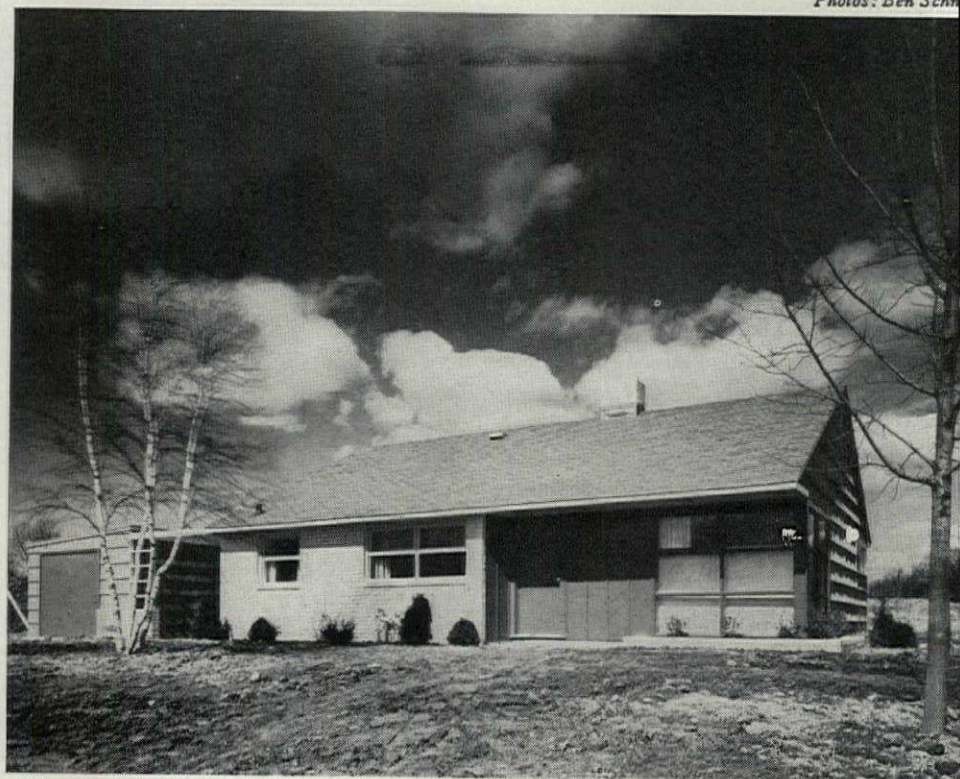


made of the Urbana area two years ago by a Chicago real-estate analyst. After studying the area, the analyst concluded that only 27 per cent of the labor force made enough money (\$3,000 a year and more) to buy a house and, as a result, there was a market for only 300 new houses during 1949 and 1950 in the area. Ozier-Weller's production for this year is 575—not counting last year's 210 or the production of other builders in the town. Obviously, the analyst had not counted on a \$6,300 prefab operation which would completely change Urbana's housebuying potential. Yet this is exactly what has happened and the explanation, according to Weller, is very simple: "We are merchandising a price—\$42.50 a month—in competition with automobiles, refrigerators and everything else that people buy on easy credit. Secondly, we are merchandising an easy way of buying. The price is standard and so is the product. A buyer comes to us, orders what he wants and puts down a deposit. A few weeks later his house, shows up and he moves in. That is how the average guy in Urbana has been buying things on credit all his life. We think it makes good sense to sell him a house this way."

## THE BUILDER AND PREFABRICATION

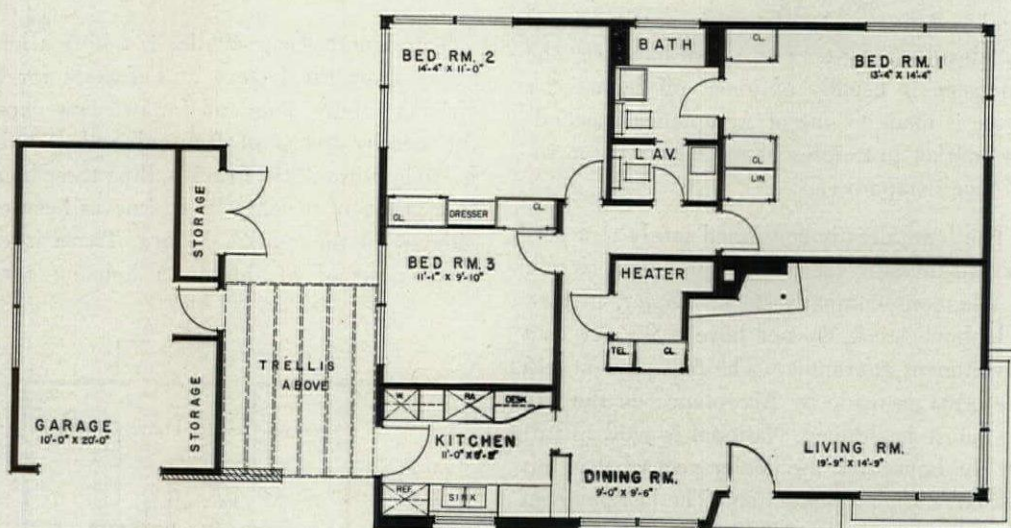
New York builder cuts production costs, increases sales with  
Cy Williams' \$16,500 prefab

Photos: Ben Schmitt

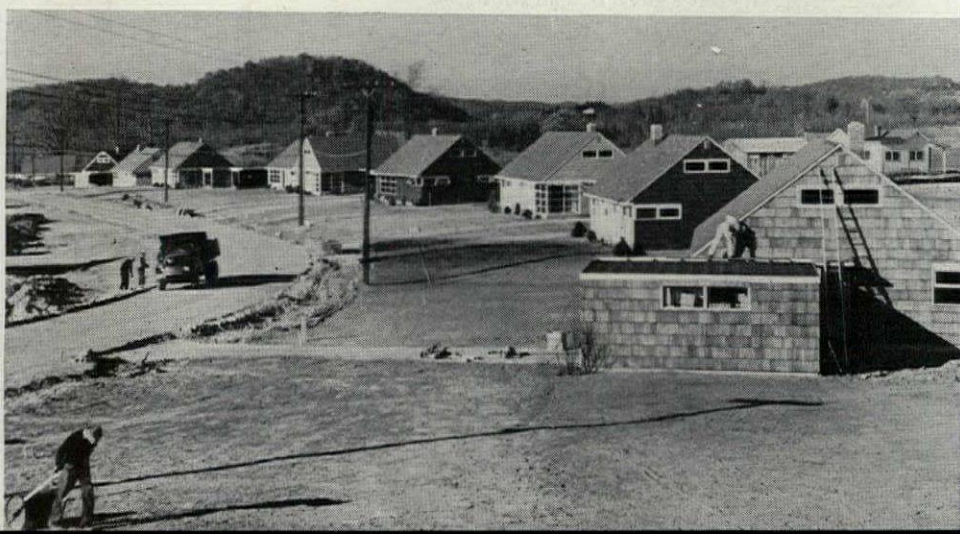


### COST BREAKDOWN

House .....	\$2,124
Transportation .....	55
Preparing site .....	40
Trenching & footing .....	42
Slab .....	667
Erection .....	115
Roof shingling .....	47
Setting interior partitions .....	23
Interior trim .....	70
Chimney .....	60
Installing furnace .....	36
Concrete walks & stoops .....	53
Asphalt tile installation .....	120
Furnace installation .....	25
Electrical .....	150
Plumbing .....	750
Painting .....	80
Driveway .....	25
Clean-up .....	87
Permits & surveys .....	20
Insurance & taxes .....	65
Call backs .....	70
Overhead, selling costs .....	155
Utility charges .....	125
<b>Total house cost .....</b>	<b>\$4,979</b>
Lot .....	800
Profit .....	521
	<b>\$6,300</b>



**CONSTRUCTION OUTLINE:** Waterproofing—Son-nenborn & Son. Exterior walls—plywood, shingles of beveled siding, studs, Gilman Bros. Co. or Lockport Cotton Batting Co. insulation; inside—Upson board, Upson Co. Floors—oak finish. Ceiling—Sheetrock, U. S. Gypsum Co. **ROOFING**—asphalt shingles. **INSULATION**—Gilman Bros Co., Lockport Cotton Batting Co. and Owen-Corning Fiberglas Corp. **WINDOWS:** Sash—fir. Glass—Libbey-Owens-Ford Glass Co. Screens—Anderson Woodworking Co. **DOORS**—Wheeler Osgood Co. **HARDWARE**—National Brass Co. **KITCHEN CABINETS**—Youngstown Div., Mullins Mfg. Corp. **HEATING**—forced warm air or gravity systems.





Because factory-built housing is usually associated with low cost housing efforts, most builders and laymen think of prefabs as cheese-boxy little houses suitable only for the economy price bracket. Builder Stephen Mapes Ruden of Mt. Kisco, N. Y., however, will argue that this just isn't so. And Builder Ruden should know. He has made a successful business of erecting well-designed prefabs in the price brackets ranging from \$11,500 to \$30,000 for the past three years.

Steve Ruden is a dealer-erector of the "Sun Ranch" prefab produced by Cy Williams Fabricators, Inc. of Huntington Station, Long Island. His territory is the northern half of Westchester County, New York's plush commuter suburb. Since he began distributing the Williams' prefab in 1947, he has finished and sold about 100 units, most of them on a 25 acre subdivision near Pleasantville, N. Y. where he featured the 1949 two-bedroom model (FORUM, May 1949) at \$11,000. This year, he expects to build 20 of the 1950 model (shown on these pages) at a new subdivision in Mt. Kisco. The new Sun Ranch will be 1,215 sq. ft., with three bedrooms and a \$16,500 sales price.

Although he is a small-volume builder of higher-priced houses, Ruden finds that a fac-

tory-built house-shell has definite advantages in his operation. The most important of these, of course, is cost economy. He buys the 1950 house shell from Cy Williams Fabricators for \$3,360. This price, he estimates, is 30 per cent less than he could site-produce the same material. In addition to this initial cost saving, the prefab shell permits quick erection, a shorter construction cycle for his subdivision operation. Ruden has most of his houses ready for occupancy within three weeks after the panels arrive on the site. Another prefabricating advantage which the builder rates high is the excellent design of his houses. Says he: "Cy Williams spent about \$10,000 on the design and engineering of his 1950 house. I get the advantages of this by paying about \$25 a house as the prorated cost of this design in the 400 houses that the Williams organization will fabricate this year. On any other basis, I couldn't afford to pay for the design that goes into these houses, even though the design of these houses is my biggest selling point."

Also helpful to Builder Ruden is the advertising and promotion program which Prefabber Williams carries on in the New York area to back up his eight dealers. The Sun Ranch house is featured regularly in display ads in

local newspapers, with the names of each of his dealers tied in. The house also has the advantage of being sponsored by the Southwest Research Institute's Revere Quality House Division.

Builder Ruden gets both his construction money and his permanent financing from the Dime Savings Bank in Brooklyn. The Dime has worked closely with Cy Williams Fabricators in dealer financing since the prefab firm started operations in 1947. The result is a financing arrangement which has been tailored to the special needs of small volume prefab erectors. For instance, Builder Ruden's financing becomes particularly acute when the house shell is delivered from the factory, for Cy Williams' terms are payment on delivery. The Dime provides Ruden with a 45 per cent payout on rough enclosure which, in his case, is accomplished the same day the house is delivered. The remaining payments are made in the orthodox stage-construction manner. Ruden pays 4 per cent for his construction money, gets two points from the Dime for his FHA 4½ per cent mortgage.

In addition to his subdivision operation this year, Builder Ruden is planning to custom-build several of the 1950 Sun Ranch models on individual sites around Westchester. Al-



1950 Sun Ranch house features three bedrooms, two-passenger bathroom, hot-air radiant heat, built-in furniture and plenty of outdoor storage space. (See plan, left.) House can be finished off in variety of exterior trims. Picture on immediate left shows part of Builder Steve Ruden's subdivision of the smaller 1949 Sun Ranch houses.



though his price tag for these jobs will be about \$2,000 higher than his \$16,500 subdivision, he thinks that it will be better-than-competitive with the prices charged by orthodox custom builders in the area. Typical of The flexibility of Cy Williams Fabricators' middle-sized factory operation is the fact that it will be able to supply Builder Ruden with design and layout variations on its stock models for use in these custom operations.

**COST BREAKDOWN**

Preparation of site .....	125
Excavation, foundation & slab .....	1,150
Basic prefabricated parts .....	3,360
Extension shingle, material & labor .....	400
Carpentry labor (basic parts only) .....	875
Plasterboard & joint system .....	475
Roofing .....	300
Asphalt tile .....	140
Brick work .....	520
Electrical work .....	340
plumbing & heating .....	1,750
Painting & decorating .....	475
Weather stripping & caulking .....	30
Tile .....	220
Appliances .....	440
Landscape & grade .....	350
Walks & drives .....	90
Utility connections & sewage disposal .....	340
Surveys .....	65
Permits .....	35
Misc., cleaning, contingencies .....	100

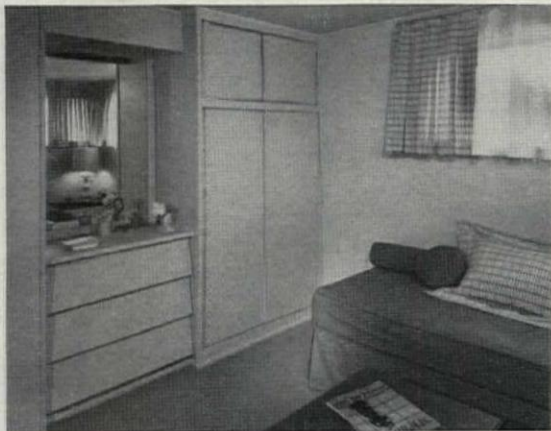
Net construction cost .....	\$11,580
Indirect costs .....	380
General overhead .....	350
Improved land .....	2,200
Selling expense .....	450
Mortgage costs .....	190
Profit .....	1,350

Selling Price ..... \$16,500

**CONSTRUCTION OUTLINE:** Exterior walls—Sheetrock, U. S. Gypsum Co., studs, Metallation, Reynolds Metals Co., plywood sheathing, U. S. Plywood Corp., cedar shingles, Weyerhouser Lumber Co. INSULATION—Reynolds Metals Co. and Gilman Corp. GLASS—Pittsburgh Plate Glass Co. FINISH FLOORING—tile, Mastic Tile Co. and Cambridge Tile Co. HARDWARE—Schlage Lock Co. ELECTRICAL FIXTURES—Lightolier Co. KITCHEN EQUIPMENT: Range—Kelvinator Corp. Washing machine—Bendix Home Appliances, Inc. BATHROOM FIXTURES—American Radiator-Standard Sanitary Corp. Cabinets—G. M. Ketcham. HEATING—hot water radiant system.



*Living room has floor-to-ceiling windows in one corner, a fireplace in the opposite corner. Partition extending from fireplace wall encloses heater room and coat closet.*

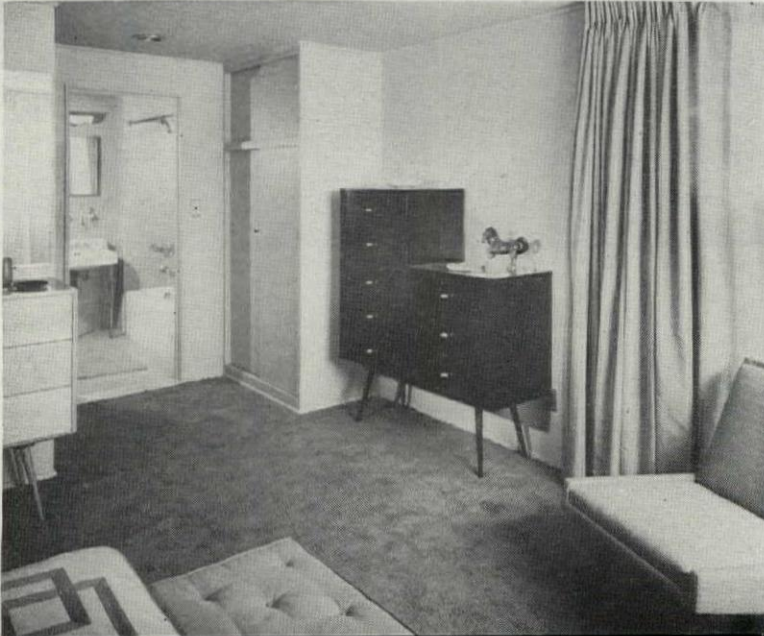
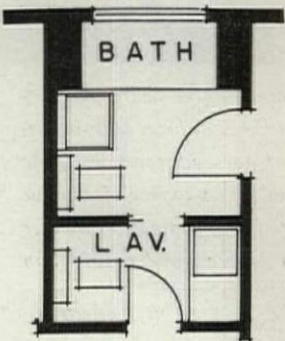


*Built-in dressers, which are unusually well-designed, are included in two of the three bedrooms. All closets in the house have sliding doors, with separate overhead space for out-of-season storage.*

Photos: Ben Schnall



*Two-passenger bath is compact solution to the twice-daily rush on the room's facilities. Lavatory has a large mirror with overhead light, enhancing its use as a guest powder room.*





# BUILDER ROUND-UP

*How are the country's big merchant builders meeting the changed conditions of the 1950 market? To find out, FORUM queried leading builders in a dozen of the most active housebuilding markets across the nation—Los Angeles, San Francisco, Seattle, Denver, Houston, Dallas, Oklahoma City, Chicago, Detroit, Atlanta, Washington and New York*

## LOS ANGELES

Building starts in Los Angeles during January were an eye-opening 6,500. If construction continued at this rate, it would be the biggest year L. A. builders ever had. Most builders agreed that the market was there but that it was going to be tougher to sell. Said Fritz Burns, head of the pace-setting Kaiser-Burns organization: "We're going to have to exercise our almost forgotten merchandising techniques. For the first time in years we're in



Earl Smith

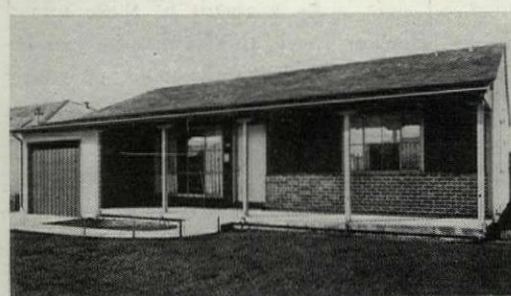
direct competition with the consumer's dollar." Kaiser-Burns' answer to this challenge was an \$8,450 "California Rancho" house (FORUM, Nov. '49). Careful attention to buyer appeal in designing the house has paid off handsomely for Builder Burns. House sales are well ahead of the construction schedule this Spring. (At one time last Spring, he had 800 scheduled units unsold.) Among the new house's merchandisable features: an attached two-car garage that can be converted to extra living space, a gimmicked-up kitchen (but no appliances), a natural wood beam-and-rafter ceiling. Burns backs up his model-house selling with a big promotion budget that includes regular newspaper display ads, klieg-lighted nighttime sales and assorted hoopla. With this brand of aggressive selling, Burns hopes to hit 2,500 units this year—600 more than last year.

## SAN FRANCISCO

Bay Area Builder Earl Smith of Berkeley put up 40 houses in 1947, plans to build 1,000 this year. The change in his operating pace is due largely to the success Smith has had in merchandising a flat-roofed house he developed to meet the economy-house market two years ago. Last year he built 200 of his small (860 sq. ft.) houses to sell for \$7,300. This Spring, with the economies from volume production, he is clipping \$150 from his price. Also scheduled

for this year is an 800 sq. ft. house to sell for \$6,350. Smith says that his biggest economies come from his flat-topped roof which consists of 2 in. tongue-and-groove plank ceiling, set on 6 x 8 in. beams and topped off with insulation and a 4-ply roof.

Big Builder David Bohannon will double his house production this year but the emphasis will be on a lower priced, higher value house than he has built since the end of the war. Last year, Bohannon built 500 houses, 700 rental units; this year he plans 1,000 houses, no apartments. Biggest share of production on his San Mateo subdivision will be devoted to a new \$8,950, 1,080 sq. ft. unit. For a higher-income market, he is planning to build 300 houses in the \$11,500-\$14,000 class. Says Bohannon: "Good design is the main feature in both houses. We're paying more attention this year to open planning, better furniture placement and color control than ever before. Exterior variations—both in siting and in the use of different materials—is another thing we're stressing." To test his house, Bohannon built one, tucked a small classified ad in local papers. The result: a crowd of traffic-jam proportions, also 134 sales contracts within a week. . . . In near-by Daly City, the Sterling Construction Co. has set a 500 unit construction schedule this year—280 more than last year. The 1950 price tag on its three-bedroom



Dave Bohannon

house will match last year's \$8,500 but this year's buyers will get a bonus of 50 sq. ft. extra over last year's 1,000 sq. ft. house. Better construction efficiency, especially in the pouring of slab floor and the erection of dry-walls, helped make the bonus possible.

## SEATTLE

The recent announcement by the Veterans Administration that only 45,000 of Washington State's 250,000 veterans had used their loan guaranty privilege was convincing proof to most Seattle builders that their market

potential was still high. Most newsworthy subdivision in the Seattle area is Carroll, Hedlund & Associate's Mountlake Terrace with its \$4,990 masonry-block house. (FORUM, Mar. '50.) Carroll, Hedlund plan to build 300 units at Mountlake this year, compared to last year's 200. As a sales booster, they are adding a dishwasher-sink combination to their house with no write-up on the price tag. . . . Builder Albert Balch plans to build about the same number of houses as he did last year (400 units), with more emphasis on the under-\$9,000 market than heretofore. He has two new models (see p. 150) which he will offer at a variety of prices, depending upon what



Carroll, Hedlund & Associates

equipment and facilities the housebuyer wants to include in his mortgage. Builder Balch emphasizes this variety in his house-selling, pitching his whole merchandising theme to a house to fit every taste and pocketbook. He also emphasizes that, although his house prices may vary from \$6,350 to \$9,000, the quality of the basic material in *all* his houses is the same: copper tubing, solid brass hardware, No. 1 or better oak flooring. Says he: "This emphasis on quality construction is paying off for us this year more than ever, because buyers are asking questions about the houses for the first time instead of just grabbing them because they want a place to live, which has been the situation up to now. I tell my salesmen that we have everything to gain from this kind of inquisitiveness."

## DENVER

A hillbilly disc jockey and bigger values in his small houses, will help make this a big production year for Builder Frank Burns of the old-line Burns Realty Co. Last year, Burns sold 350 houses in the \$7,000-\$10,000 class; this year he will raise production to 600 by aiming at the under-\$8,000 market. Biggest



demand, he thinks, will be for his 600 sq. ft. house which he sold last year for \$7,000. This year he plans to add a garage, keep the price the same. Part of the extra cost will be made up by switching from floor joist to slab construction, also by pitching his roofs lower. Currently his most effective advertising medium is a Saturday night hillbilly disc jockey program. "All that we have to do is mention that we are opening up a new group of houses the next day and we get a crowd," Burns points out. "But we still maintain a complete sales organization, and do plenty of newspaper advertising to take care of the long-range job of contacting new customers." Another part of Burns merchandising program which he

*Mile High Photo*



Frank Burns

will continue is his Construction Warranty Certificate, guaranteeing each of his housebuyers a year's service. Burns has two full-time men fulfilling justified (and some unjustified) complaints under the warranty program, considers this program his best customer-relations tool. Burns also plans to increase his firm's business this year by offering his housebuyers a chance to have their expansion attics finished off by his construction crews at less-than-retail rates.

## HOUSTON

This Spring the Houston housebuilding market was back to normal (i.e. competitive) after five booming years. At the big River Oaks subdivision, where the building operation is carried on by eight contractors on improved land sold by Frank Sharp, the 1950 building program was being concentrated on the \$8,000 market. Last year's experience (a group of \$12,000-\$14,000 houses went unsold for weeks at River Oaks) had left its mark; production will run about 600 units in 1950 as against last year's 800. The houses themselves



Frank Sharp

*Bob Bailey*

will be the same (FORUM, Sept. '49) and prices will be steady despite a 4 per cent local increase in materials prices since December 1. . . . Builder William Farrington, who concentrated on a 300-unit 608 project last year, recently went back to subdivision operations with spectacular results. His 600-lot development, known as Tanglewood, will be exclusively for \$25,000-and-over houses. Minimum lot size on the 270-acre tract: 90 x 145 ft. Farrington announced the operation a few days before Christmas, sold out \$500,000 of improved land within a month. His firm will only improve the land, leave the building to individual contractors. Strict architectural and zoning control will be maintained. (Typical rule: no garage can open on the street.) Construction will start this Spring with 75 individually designed units scheduled before the end of the year. . . . A syndicate of 13 Houston builders and businessmen, headed by Builder Preston Plumb is talking up a private-enterprise answer to local low-cost housing needs this summer. They have projected a 10,000-unit subdivision of houses to be constructed over a 3-year period. Probable sales price for the houses: \$5,000.

## DALLAS

The continuing demand for small houses will sustain Dallas housebuilding activity this year. In an effort to provide better-than-minimum houses in the lower-priced brackets, Builder H. D. Lewis has abandoned the stripped down, 790 sq. ft. house he sold last year for \$6,825. This year he has upped his price to \$7,250, added 40 extra square feet and an attached garage. Other extras: more glass area, better insulation and a bigger kitchen package (dishwasher and garbage disposal unit). As a result of these added values, Builder Lewis thinks that he can increase his sales by 100 units over last year's 175. . . . Another builder who is taking steps to anticipate more discriminating buyer demand is H. Leslie Hill. He expects to increase production at least 200 above last year's 110 units with a new \$7,320, 820 sq. ft. house. Although his price is \$400 more than he charged for his 785 sq. ft. model last year, Hill points out that he is providing more value-per-dollar by adding a garage and a complete kitchen package.

## OKLAHOMA CITY

The best index of housebuilding activity in Oklahoma City is the rate of construction at the sprawling Midwest City subdivision on the outskirts of town. The Spring index was high—and going higher. House production at the big development is scheduled to hit 1,000 units this year. Ten local builders will carry out the program on improved land sold to them by W. P. "Bill" Atkinson who in less than four years transformed a wheat field

into the Southwest's fastest-growing subdivision. Atkinson also sells his builders prefabricated house panels (for 101 different

*Meyers Photo Shop*

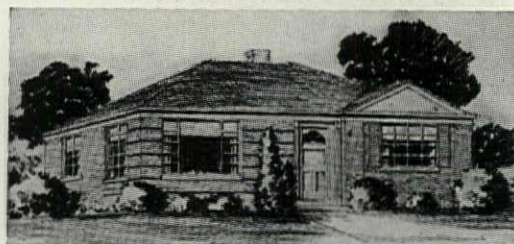


Bill Atkinson

elevations and 56 floor plans) from his on-site lumber yard. Prices at Midwest City will remain firm this year (\$7,500-8,500) despite increased lumber costs and the addition of two features to the 1950 line: colored tile baths, metal chain-link fences.

## CHICAGO

Although Chicago is third only to New York and Los Angeles in its housebuilding potential, the market has lagged because of an archaic building code, tight labor market and a shortage of cheap raw land. This year, however, builders report that they are breaking through the small house blockade on a large scale for the first time. The Manilow Construction Co., a pace-setter in the local house-



Nat Manilow

building market, plans 600 units this year—an increase of 350 over last year. Says President Nat Manilow: "We're sold out right through May and I think we'll be able to sell anything we can possibly build right throughout the year." Manilow has a new one-floor "ranch" house with big windows, a low-pitched roof and other features which are an old story in other building areas but which are a new experience for Chicago housebuyers. (The two-story brick boxes which have monopolized new housing around Chicago for many years are one of the dark chapters in U. S. Building.) One of the most significant developments in Chicago's small-house revolution is the trend toward the elimination of basements. Eighty per cent of Nat Manilow's 1950 production will be on a slab; two years ago, the ratio was just the opposite. In the \$11,000 price for his 850

*(Continued on page 224)*



# TAILOR-MADE HOUSES

The biggest problem in the small house is that it is small. The average buyer of a small house is anxious to show as much "house" as possible, puffing it out like a bullfrog and hanging it full of features to simulate a big house. Those small-house clients who have been sophisticated enough to turn to top-notch architects have been taught the value of the opposite principle. By showing *as little "house"* as possible they escape the comparison and also get more actual value. This begins with the creation of what Louis Kahn calls "green rooms"—screened outdoor areas that surround or flank the builder's rooms. A "green room" may be carved out of a hillside (page 177) or made with a tree-shaded terrace (pages 178, 179) or even of a bamboo screen (below). Between these outdoor "rooms" and the indoor ones the sense of barriers is diminished by maximum use of glass. In good weather the outdoor room is an actual extension of the house; in bad weather it is still a visual extension, making the indoor rooms *seem* bigger. The success of the enterprise depends on careful design, the sheltering of glass areas against wind and excessive sun, the use of radiant heat to offset losses through the glass, and provisions of solid partitions for those rooms that must be private. Privacy from without is guaranteed.





# A skeleton frame and cut-in patio make a little house seem big

LOCATION: Sarasota, Fla.

TWITCHELL & RUDOLPH, Architects

ASSOCIATED BUILDERS, INC., Builder

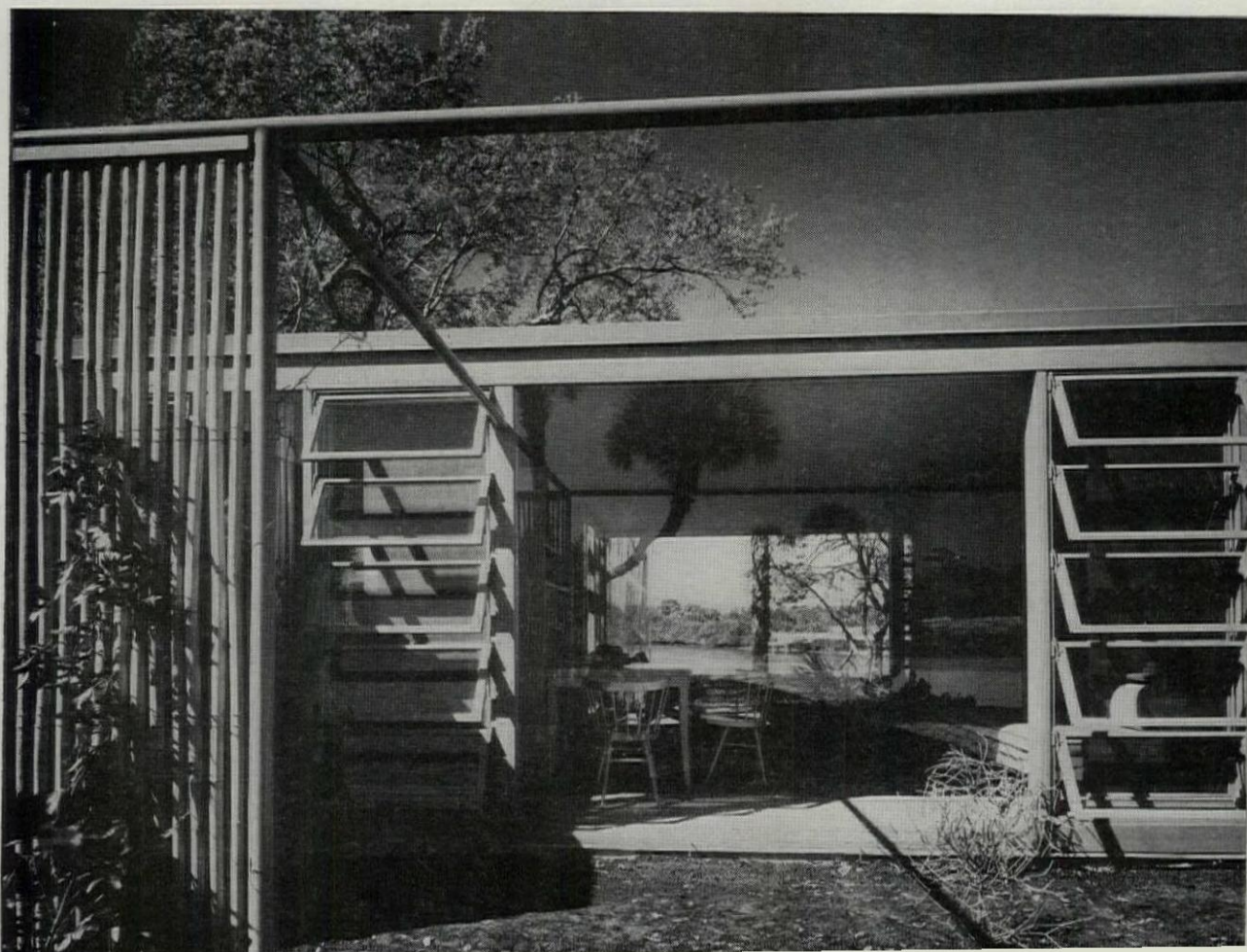
With an intelligent family as their client, the architects were free to produce the first economy model of their special "skeleton" or "sky-scraper frame" type of mansion that they have been producing for some time for Florida millionaires. And so outstanding has been their success in achieving a mansion-like sense of space and amenity in only 1,210 sq. ft. of actual space (not counting the carport), at only \$10 per sq. ft., or a total of \$11,814, that this is a most promising prototype for quantity production. Its chief virtues are quite independent of the Florida tropical climate.

The clients' part was their readiness to surrender ostentation for roominess. Relieved of any demand for a showy roof or other tacked-on "features," the architects were able to concentrate on the flexibilities and economies intrinsic to their system. As seen in the perspective, three long rows of 4 x 6 wooden posts, two in the outer walls and a third in the middle of the house, permit the entire roof to be spanned with just two rows of standard rafters, one 10 ft. long, the other 12. In each of the rows the posts are again spaced 12 ft. apart. Since the walls of the house are relieved of any structural duty except wind-bracing, they can be placed anywhere, and between any two posts there can be a full 12 ft. opening. The design consequences are startling. By the use of full-height glass, the living areas and master bedrooms are allowed to borrow all out-of-doors as part of the apparent house space, making the little home seem three times as big as it is. By mere omission of a bay and a half of roof, a screened patio, cut into the plan, is visually made an inexpensive part of the dwelling space. By a paradox that should appeal mightily to builders, the less house Twitchell & Rudolph built, the more they had.

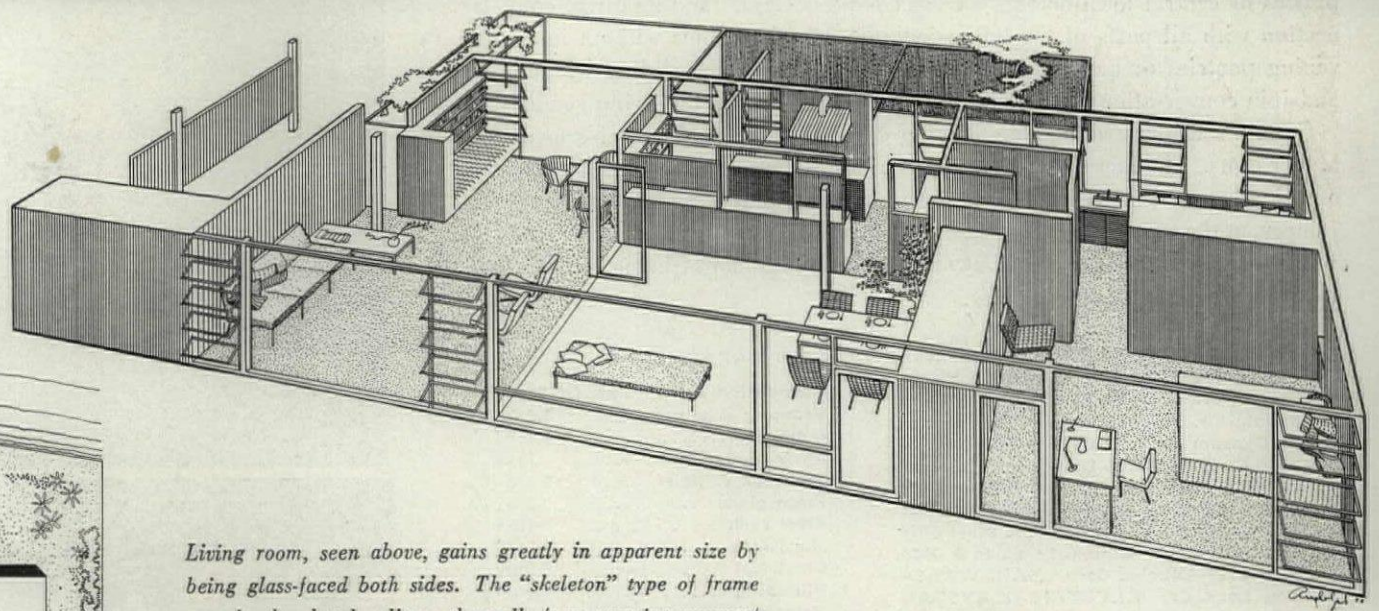
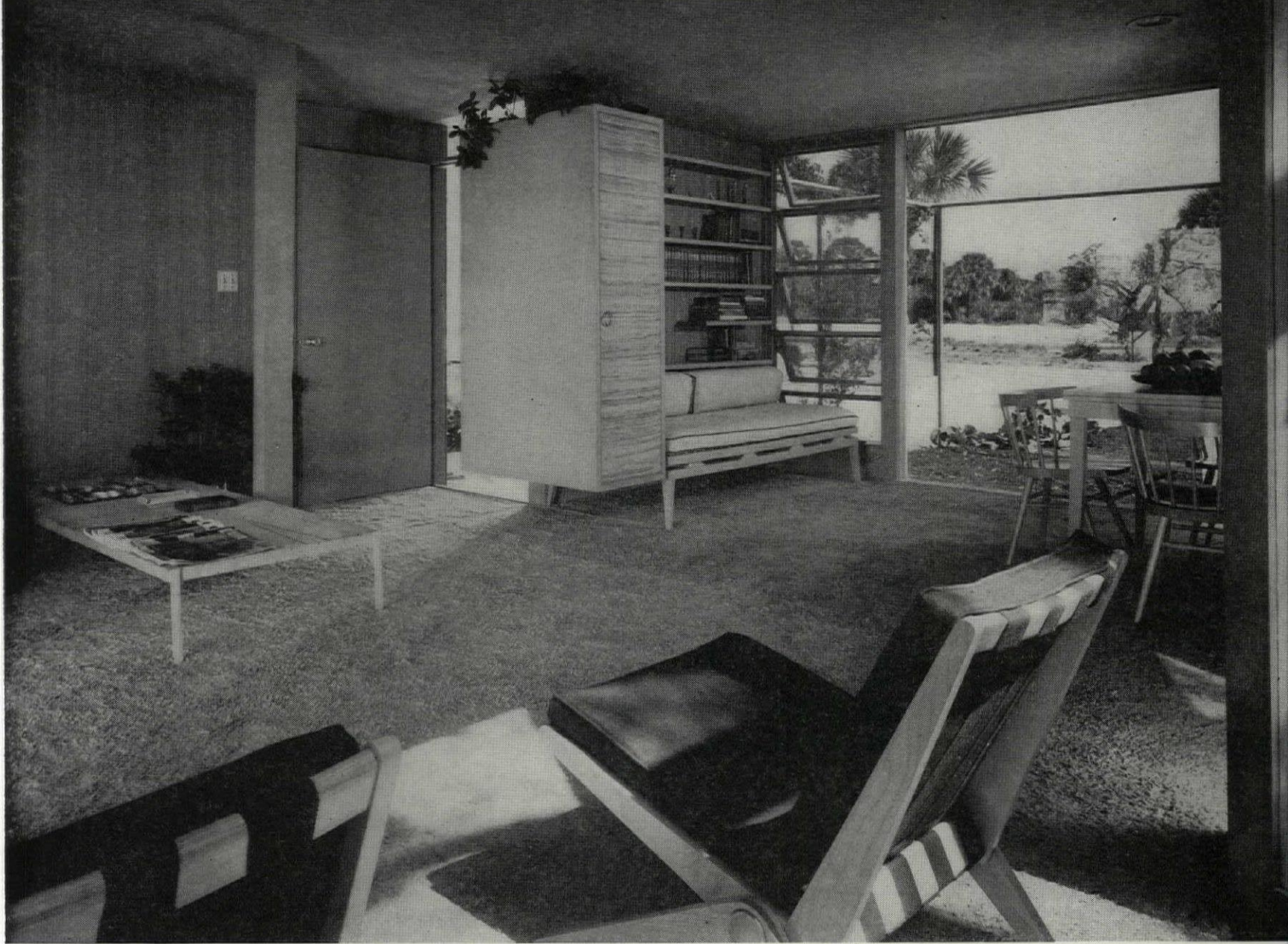
Eara Stoller: Pictor



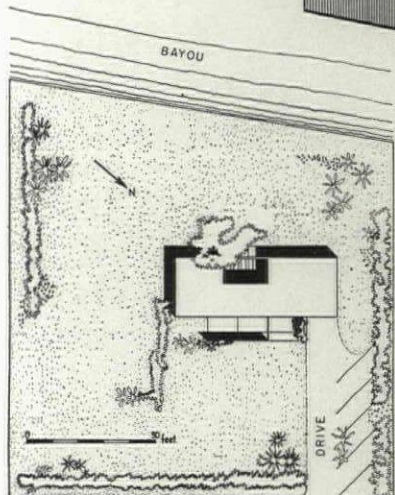
*Unlike many owners, the Deeds family wanted its house to be inconspicuous. Its simple rectangular mass is topped by a low flat roof. A bamboo screen on the street side (photo below and on page 167) and the live oak trees seen above shade the house against the slanting sun.*



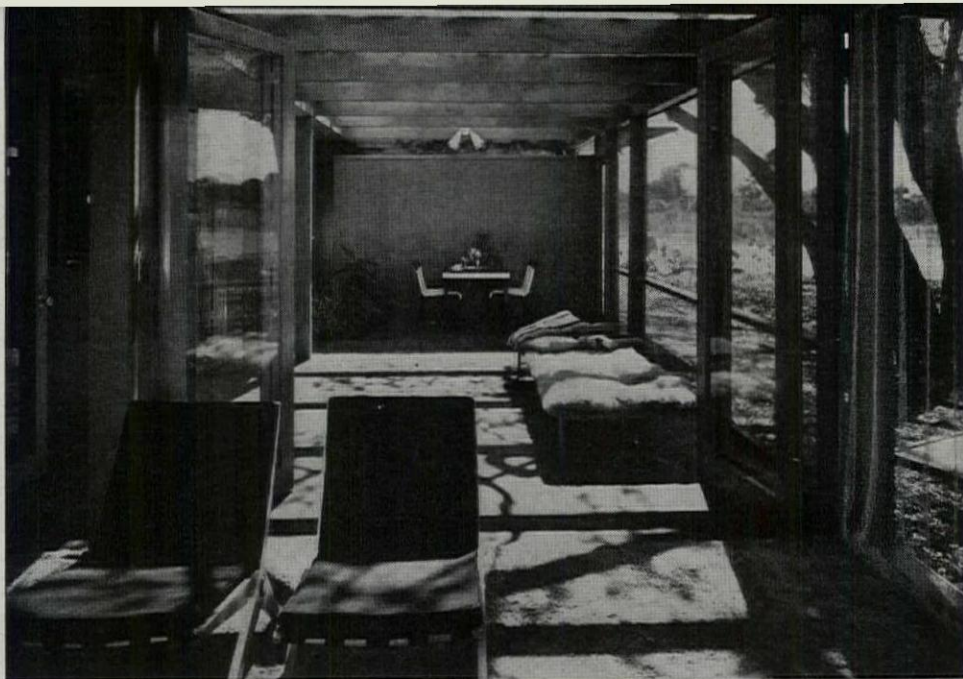




*Living room, seen above, gains greatly in apparent size by being glass-faced both sides. The "skeleton" type of frame seen in the sketch relieves the walls from carrying any roof load, makes it possible to open up the rooms with 12 ft. spans of glass. (Solid wall areas are faced with striated waterproof plywood.)*

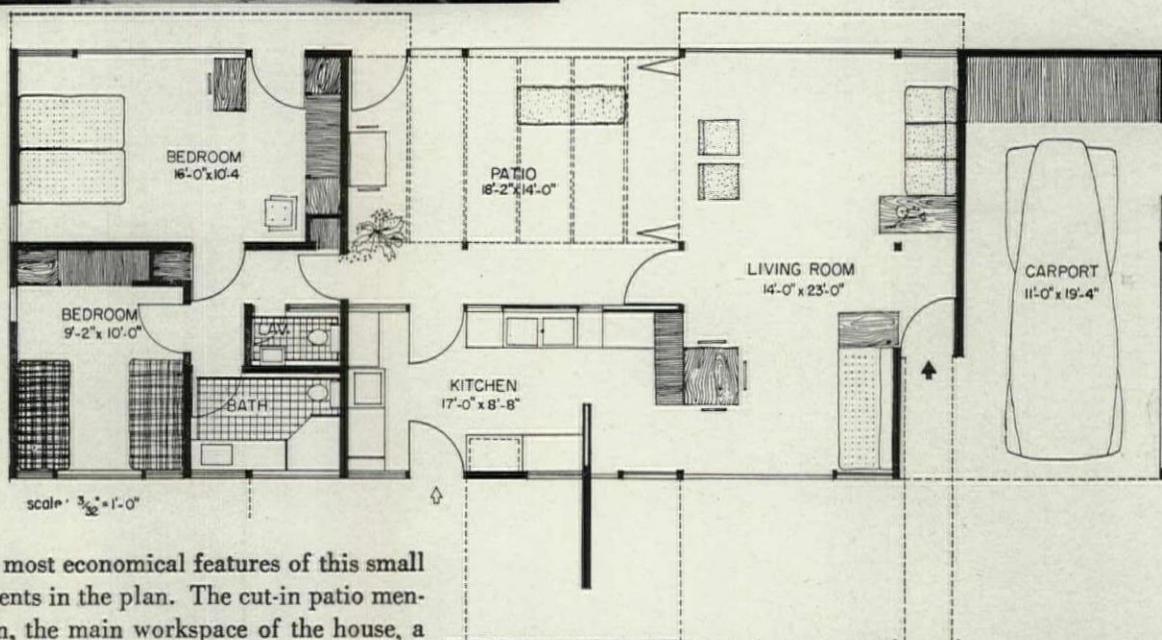






The screened patio (photos, left and across-page) takes the place of a fireplace as the "focus" of the living area and as an outdoor dining space. In the balmy climate it also creates a pleasant open passage to bedrooms.

Photos below show the indoor dining area and the master bedroom. And the plan shows the central kitchen and combined utility stack that combine economy with convenience.



Some of the most pleasing as well as most economical features of this small house arise out of cunning arrangements in the plan. The cut-in patio mentioned on page 168 gives the kitchen, the main workspace of the house, a direct view out-of-doors on *both* sides, to the patio and to the street, and cheerful light *both* morning and afternoon. (Mornings it is screened by the bamboo exterior shade, afternoons by the clump of trees.) Mrs. Deeds praises its central location for "saving countless steps," and its direct connection with all parts of the house including the bedrooms without intervening pantries or halls. And, says she, "I can open the sliding window and join conversations going on either on the patio or in the living room."

Certain sacrifices were made to bring down Twitchell & Rudolph's usual higher costs. The fact that the ceiling framing is covered by plaster instead of being exposed made it possible to use cheaper lumber and less exacting joinery, at the sacrifice of the elegance in repeated exposed big beams. And ventilation is through stacks of awning-type sash instead of being achieved by rolling back big sheets of glass.

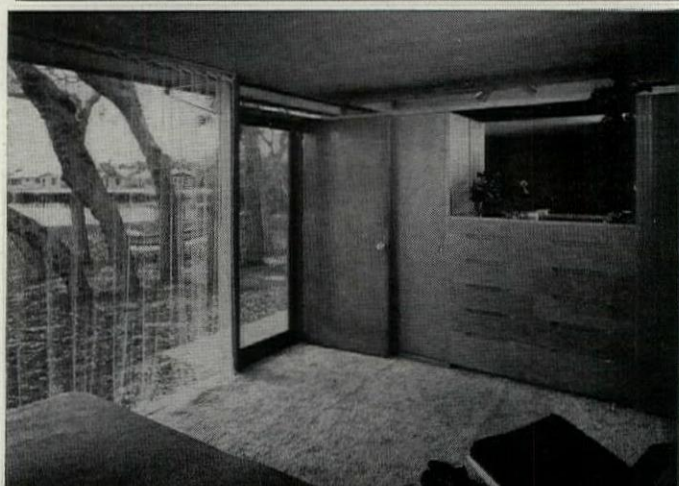
**CONSTRUCTION OUTLINE:** Exterior walls—waterproofed striated plywood, Mengel Co., Sisalkraft Co. paper, framing and plywood interior. Ceiling—Red Top plaster, U. S. Gypsum Co. **ROOFING**—Barrett Co. Div., Allied Chemical & Dye Corp. **INSULATION**—Sisalkraft Co., Infra Insulation, Inc. and Johns-Manville Corp. **SHEET METAL WORK**—galvanized iron, Republic Steel Corp. **WINDOWS:** Sash—Gate City Sash & Door Co. **PAINTS**—O'Brien Corp. **HARDWARE**—Schlage Lock Co. **ELECTRICAL INSTALLATION:** Wiring—National Electric Products Co. Switches—Arrow-Hart & Hegeman Co. Fixtures Gotham Lighting and General Lighting Co. **KITCHEN EQUIPMENT:** Sink-disposal-dishwasher unit and range and refrigerator—General Electric Co. **HEATING**—warm air Thermador heaters, Thermador Electrical Mfg. Co. Water heater—General Electric Co.

#### COST BREAKDOWN\*

Foundation & floor slab ..	\$830
Framing & sheathing ..	1,090
Roofing ..	450
Floor surfacing ..	741
Millwork & finish ..	3,942
Plate glass ..	373
Steel sash ..	445
Hardware ..	243
Electrical ..	820
Plumbing ..	940
Painting ..	870
Cement asbestos shade ..	208
Bamboo screen trellis ..	442
Grading & cleaning ....	420
	<b>\$11,814</b>

\*This breakdown does not include built-in furniture nor kitchen equipment.

Esra Stoller: Pictor









# Kitchen control room overlooks living-dining area and nursery

It is an old American custom to let the guests pitch in and help with the work; witness Huck Finn and his fence, our early quilting-bees, corn-huskings, barn- and roof-raising, and more recently the practice of letting the guests mix the drinks and help wash up the dinner dishes. So if the sociologists want to go looking for a reason behind our present living habits and our ways of building for the little man and his family, they might well turn up with a good precedent for the open kitchen-living-dining room. Furthermore, the economists too can provide a good reason for such open planning: it costs less.

When Architect Stein built this \$12,500 home (for himself, his baby girl, and his wife without a maid), he wasn't thinking of sociology—but he followed the open kitchen living pattern. "Of course," he says, "you have to keep the kitchen clean and not let things pile up." He also followed another trend in design for family living: the pattern of planning so that children should play within the mother's view, having the run of the house. He even carried this idea to such a point that "there is fixed glass next the kitchen for keeping an eye on the nursery. But that is pure theory. Actually, it's the baby that looks at us most of the time. It's disconcerting."

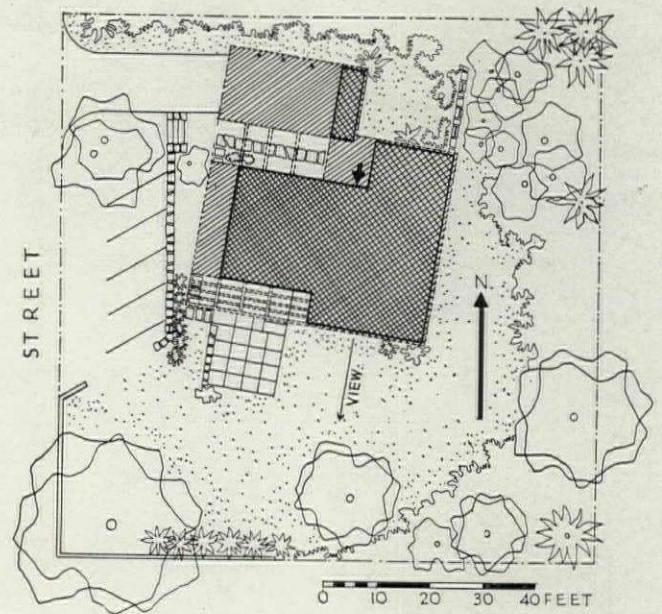
Costs were cut by providing a single entrance for living-room and kitchen; by eliminating over-tight detailing; letting the living-room ceiling follow the roof; finishing the bathroom in cement plaster instead of tile; installing a metal shower; facing the living-room to view a city-maintained park and nursery garden.

LOCATION: Waterbury, Conn.

JOSEPH STEIN, Architect

ALFRED JABS, General Contractor

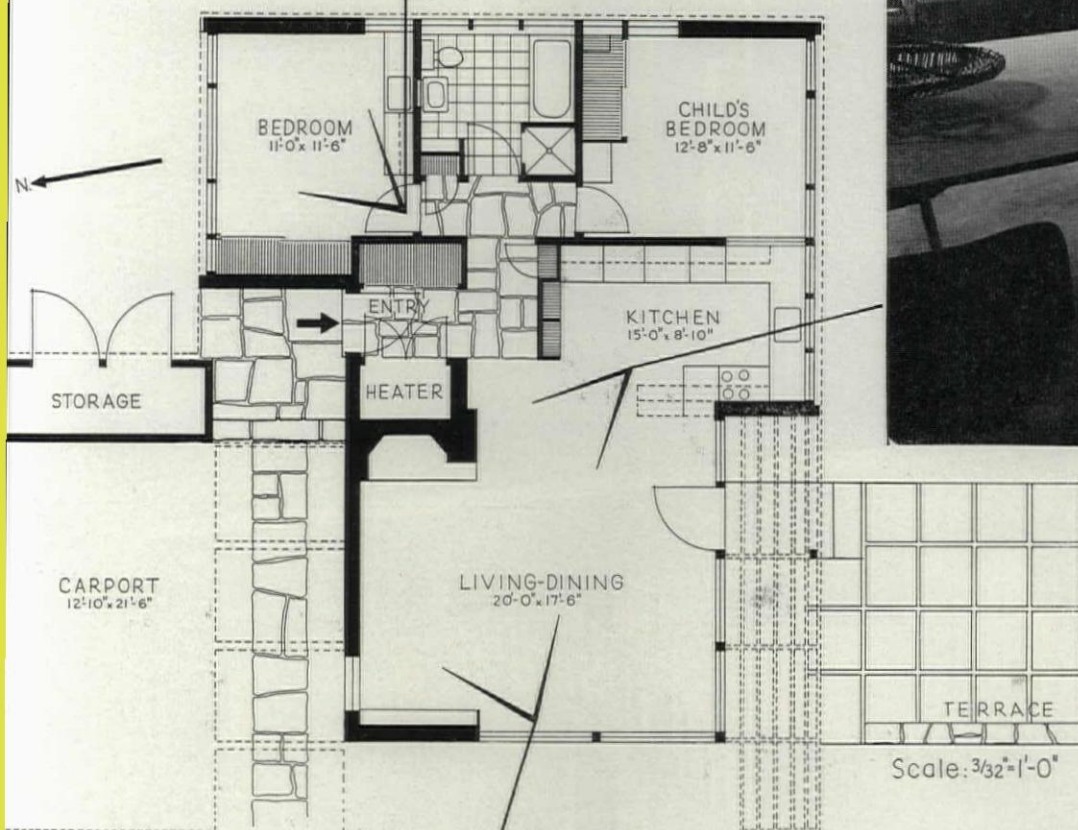
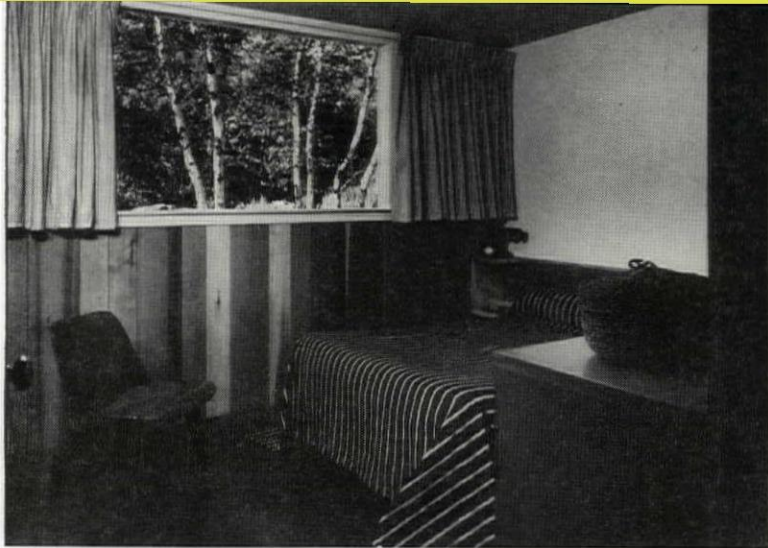
HARSTON NORTHROP, Heating Engineer-Contractor



Photos: Hans Van Nes





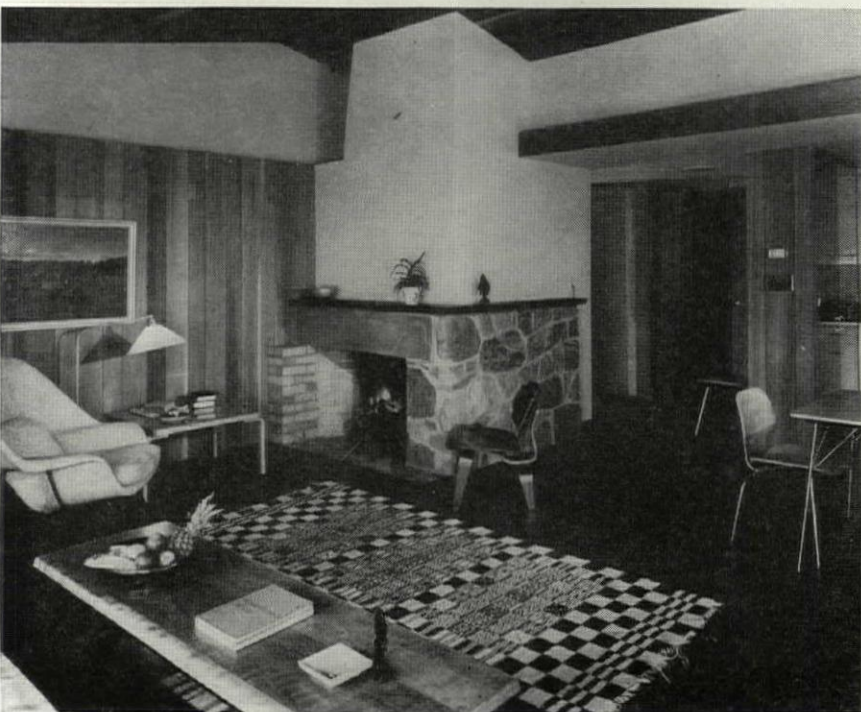


One can work in the kitchen and look right into the living-room (above). "It is open for social purposes," says the architect-owner. "Most people who stay for a meal and for the evening like it—and share in the work. If I am in the living-room and my wife is in the kitchen, we can talk to each other. I like the smell of cooking. We don't go for formality."

#### COSTS

Fireplace & chimney .....	\$800
Electrical installation (excluding fixtures) ..	550
Roofing .....	400
Glazing .....	450
Painting .....	700
Plumbing & heating (including fixtures & shower stall) .....	2,800
Terrace, retaining wall, wood fence, top soil, seeding .....	950
Floor surfacing (cork) .....	.80 a ft.

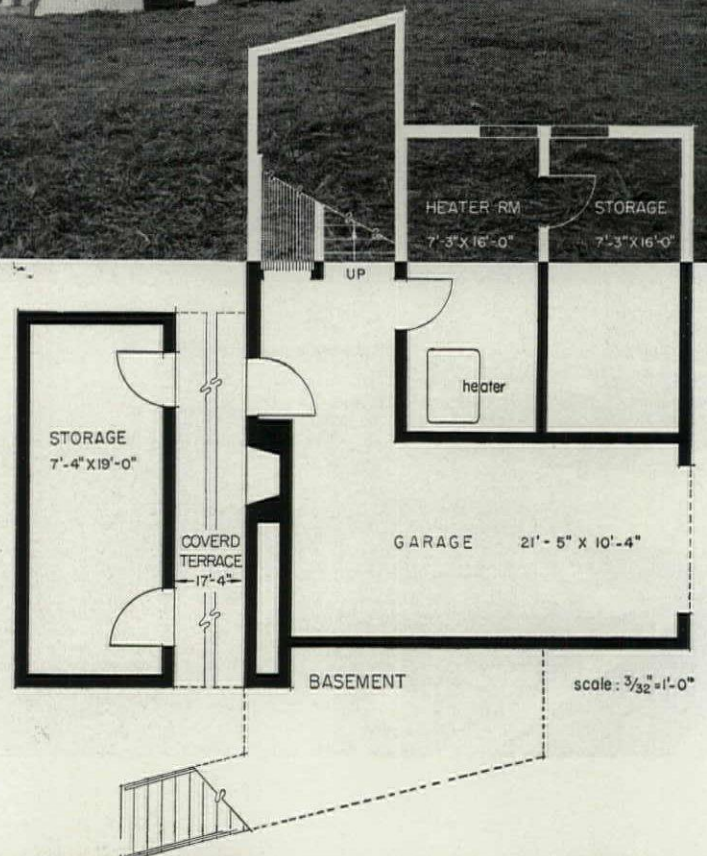
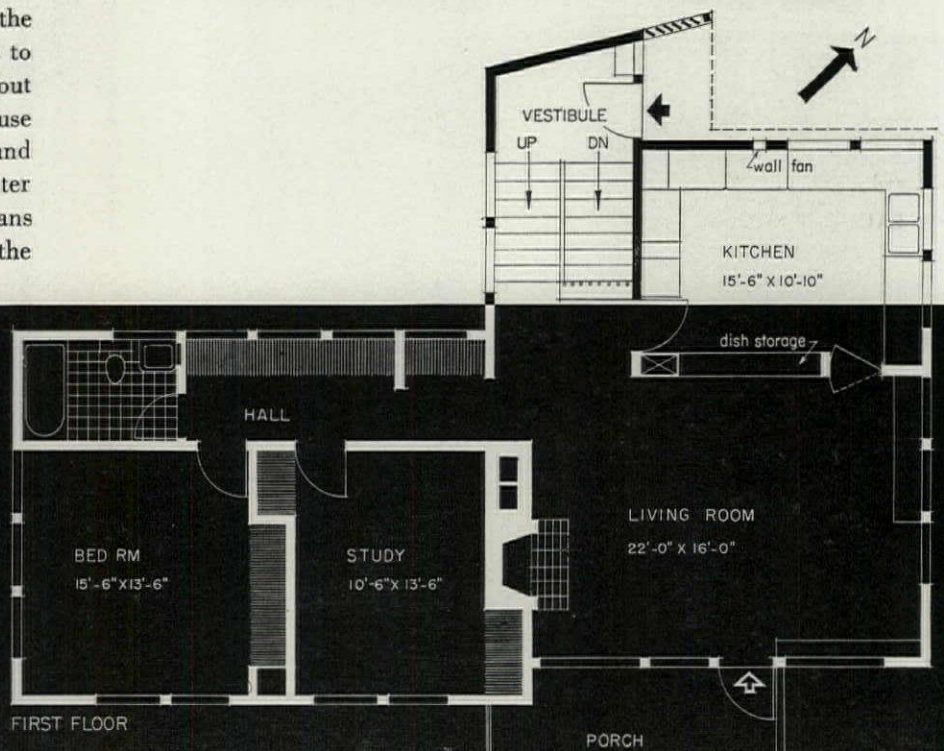
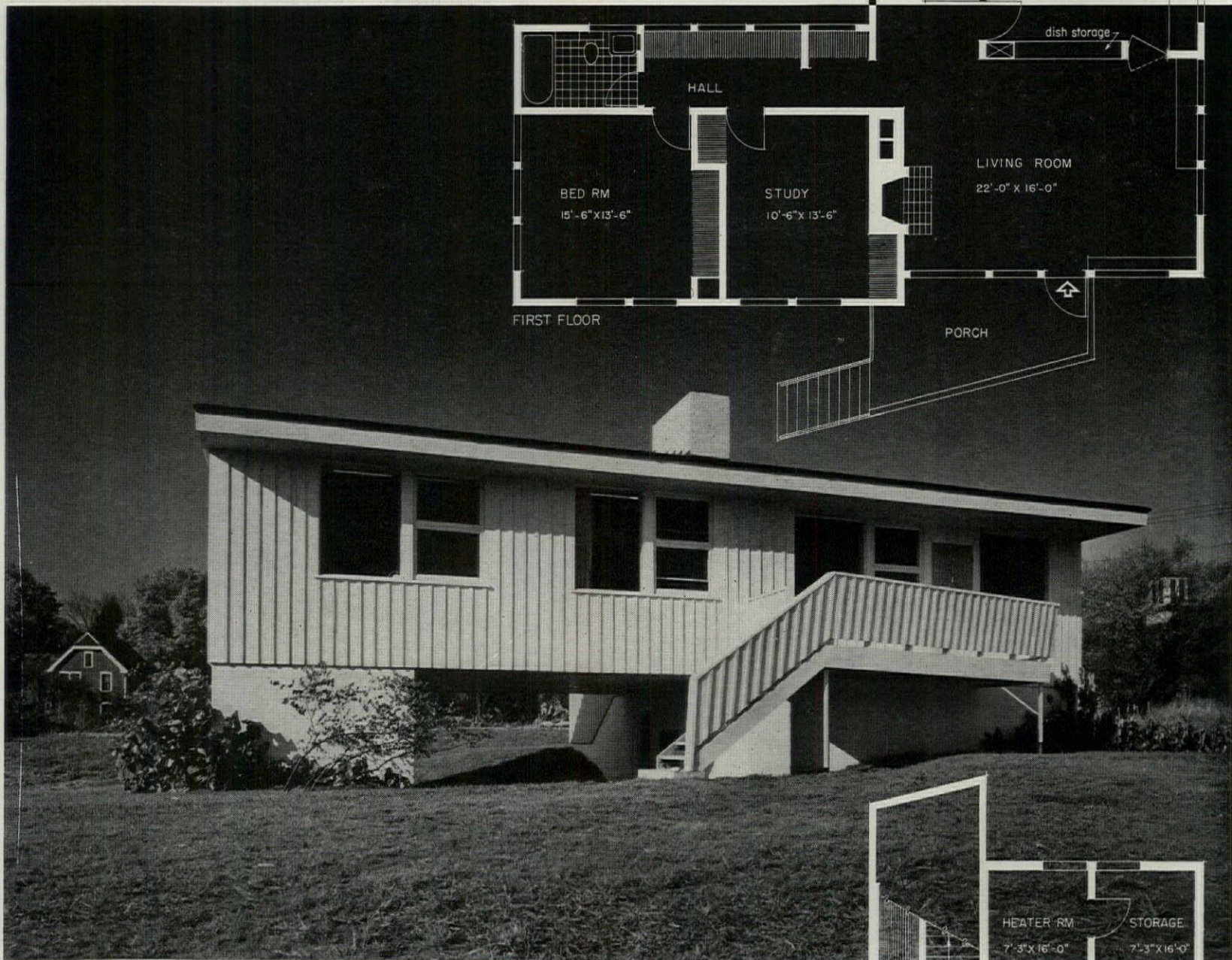
**CONSTRUCTION OUTLINE:** Exterior walls—cinder block, furring strips, studs, sheathing and cedar boarding; inside—plaster. **ROOFING**—Rubberoid Co. **INSULATION**—Reflectal Corp. **FIRE-PLACE**: Damper—H. W. Covert Co. **GLASS**—Libbey-Owens-Ford Glass Co. **FINISH FLOORING**—Kencork, David E. Kennedy, Inc. **PAINTS**—Pratt & Lambert and Reardon Co. **CABINETS**—Berger Mfg. Co. **DOORS**—Mengel Co. **HARDWARE**—Schlage Lock Co. **ELECTRICAL FIXTURES**—Kurt Versen and Gotham Lighting Co. **KITCHEN EQUIPMENT**: Range—George D. Roper Corp. Refrigerator—General Electric Co. Fan—Ilg Electric Co. Washing machine—General Electric Co. **BATHROOM EQUIPMENT**—American Radiator-Standard Sanitary Corp. Shower—Fiat Metal Mfg. Corp. **HEATING**—hot water radiant system. Regulator—Minneapolis-Honeywell Regulator Co.





# Raised up for a distant view, New England house spans a barbecue

When a fine distant view is on the same side of the house as the street, but the house stands on a slight rise, it is possible to arrange things so the family can look out on the view without letting bystanders look in on them by elevating the entire house over a ½-story basement containing the garage, utilities, and recreation area. In this New England example a large center section of the raised basement is left open, and the house spans it, creating a sheltered picnic and barbecue area open to the



prevailing summer breeze from the northwest. The visual result is to make the concrete basement wall less formidable. Access to the main living space upstairs is on the side away from the street, leaving the street side, which is also the view side, clear for a continuous window wall in the living room, under a wide shading overhang. Obligated to use the traditional sloped roof of the locality in place of a more economical flat-top, the architects have let the plastered ceiling follow the slope and have worked out a roof section (see opposite page) that includes a clerestory in the bedroom wing. Though this renders the living room more spacious and imposing, and the house is nicely cool in summer, the owner thinks the warm air rises too far above the floor in winter. The house was built for 89 cents per cu. ft., or \$9.32 per sq. ft.

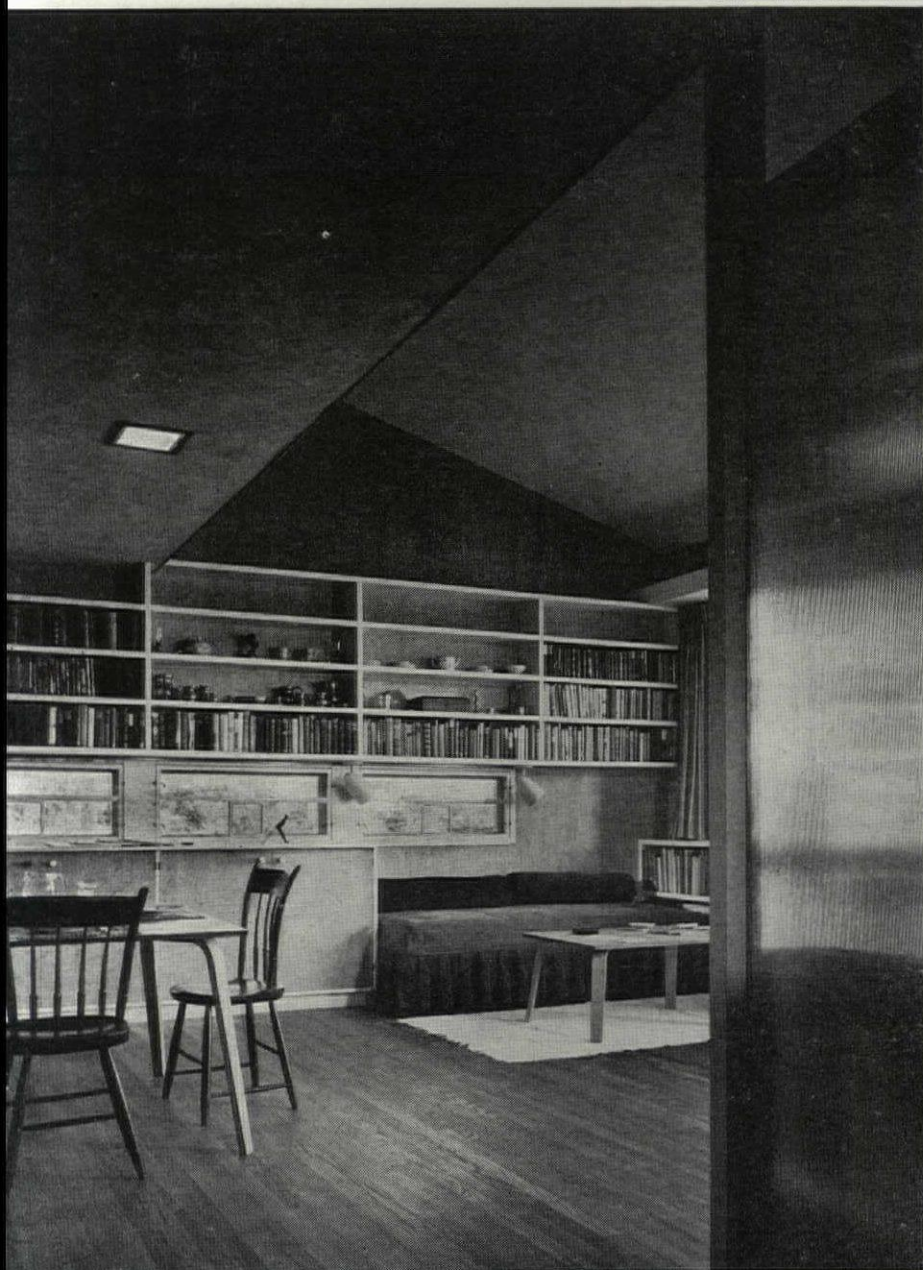


LOCATION: Hanover, New Hampshire  
 E. H. and M. K. HUNTER, Architects  
 A. A. LAUZIÈRE, General Contractor

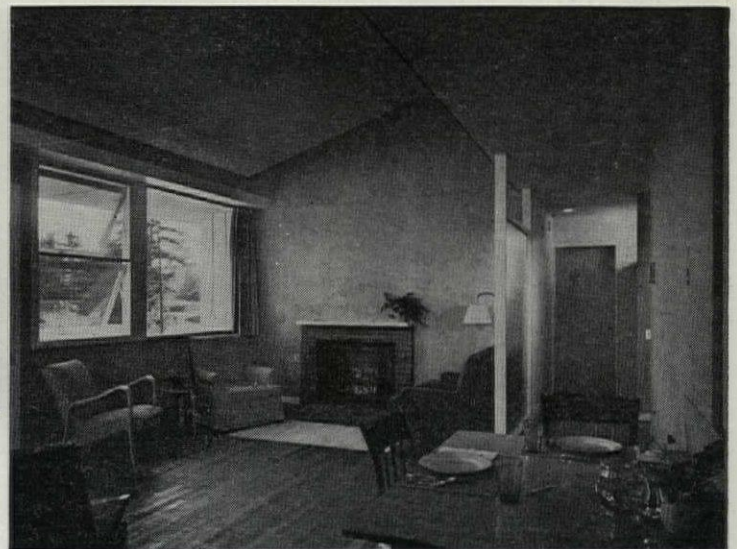
Photos: Richard Garrison



*View side of living room is entirely filled with a picture-window wall. The ventilating sash, made to the architect's design, are an awning type that look like double-hung windows.*



*Made chiefly of drywall construction, the house has plywood covered partitions excepting in kitchen and bathrooms. Reading nook (left) has extra lights and windows.*



**CONSTRUCTION OUTLINE:** Waterproofing—L. Sonneborn Sons Co. Exterior walls—pine boards, studs, Vaporseal sheathing, Celotex Corp., rock-wool, Eagle Picher Co., plaster, U. S. Gypsum Co. ROOFING—5-ply, Barrett Co. Glass—Pittsburgh Plate Glass Co. FINISH FLOORING: Kitchen and bathrooms—asphalt tile, Tiletex Co. WALL COVERINGS: Living room—plywood, U. S. Plywood Corp. PAINTS—Pittsburgh Plate Glass Co. and The Reardon Co. DOORS—Roddis Lumber Co., Ltd. HARDWARE—W. C. Vaughn Co. KITCHEN EQUIPMENT: Range—Hotpoint, Inc. Refrigerator—Frigiraire Corp. Cabinets—Kitchen Maid Corp. Fan—Pyrne & Co. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. Cabinets—Charles Parker Co. and G. M. Ketcham Mfg. Corp. Accessories—Hall Mack Co. HEATING—warm air system, American Radiator-Standard Sanitary Corp. Regulator—Minneapolis-Honeywell Regulator Co. Water heater—Ruud Mfg. Co.



*An ample New England kitchen includes a deep-freeze unit and ample storage. Here, too, there are extra strip windows,*





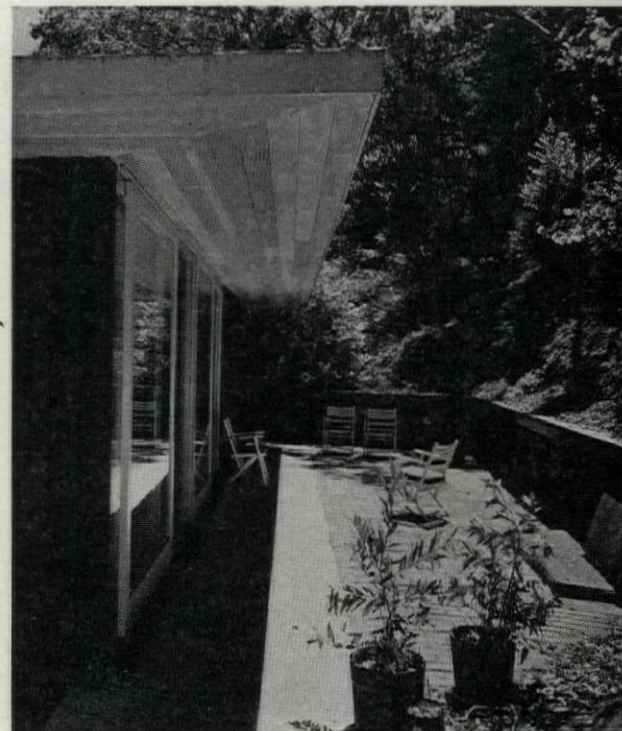
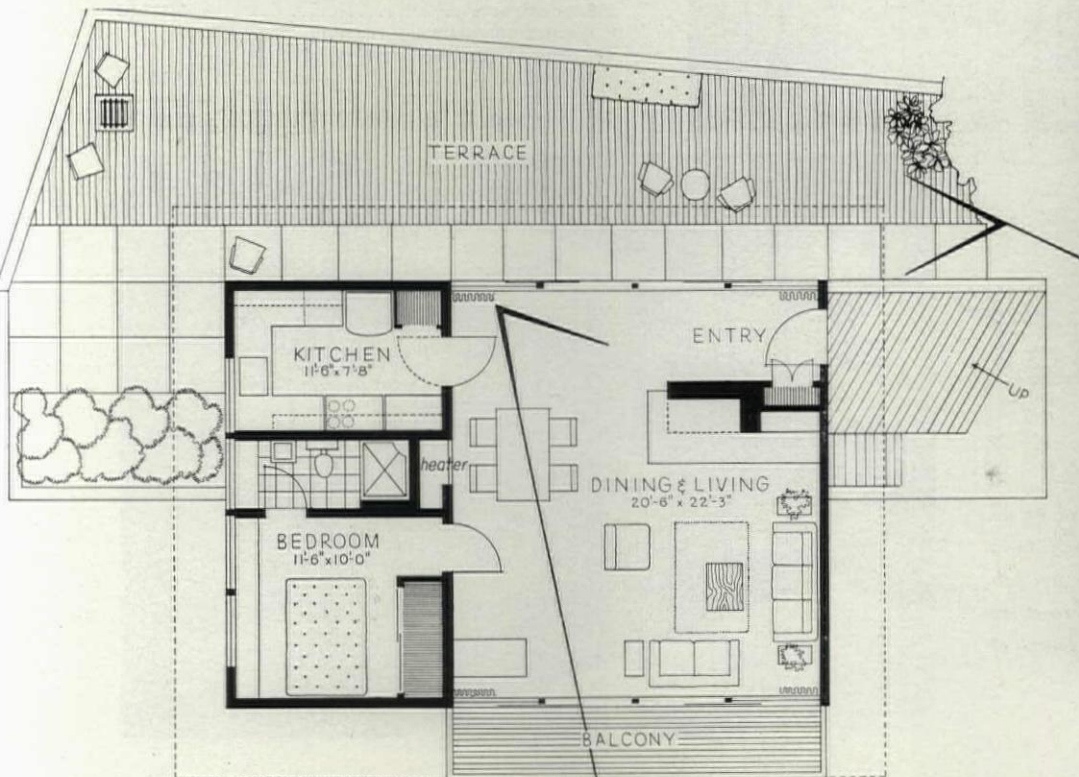
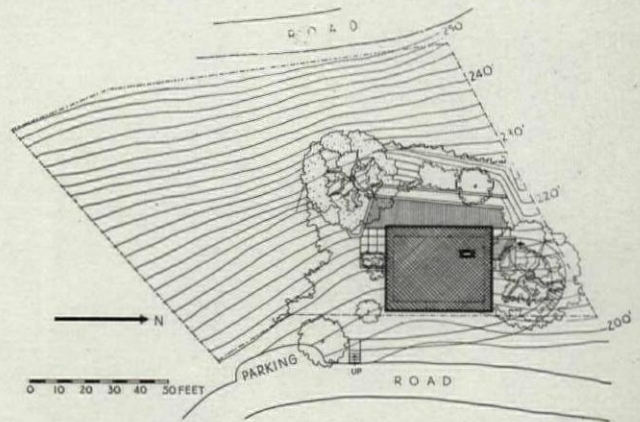


# Compact but open plan makes the most of a hillside lot with a view

When a budget of about \$8,000 permits a house of only some 726 sq. ft., it is wise to get every possible extension of space, real and imaginary, "for free." In doing so, Architect Funk used special cunning showing how to exploit a hillside site. On the principle that a bulldozer is as legitimate a building tool as a mason is, he carved the rear terrace, as an extra "outdoor room," out of the hill (photo right). The hillside, acting as backdrop, makes this private outdoor area an adjunct of the indoor living room, to which it is united by an all-glass wall with glass doors. And since the opposite side of the living room is raised by the hillside slope well above the road, it too could safely be all glass, looking out on a terrace and a distant view, producing the extraordinary result of a living room that is fully transparent on both sides, and correspondingly large in effect, and yet gives no chance to the stray outsider to look in. The nearly square room, 21 x 22 ft., is further kept "large" by freedom from any intrusions except the entry vestibule. At a tiny cost in space, this keeps guests and breeze from blowing suddenly into the middle of the home.

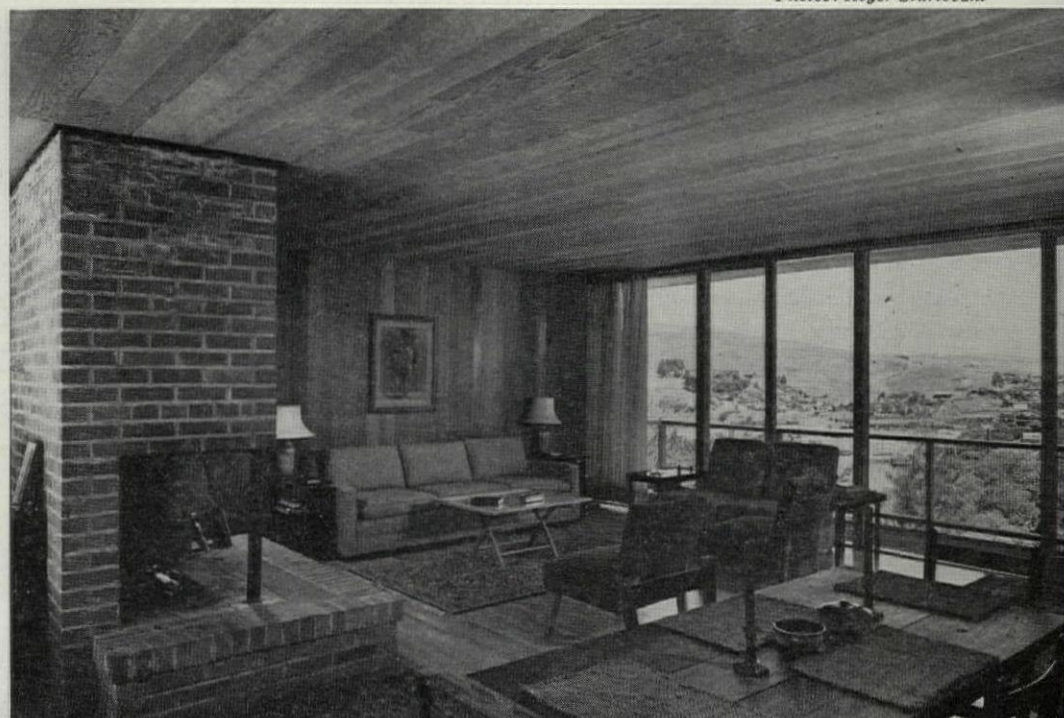
LOCATION: Belvedere, Calif.

JOHN FUNK, Architect



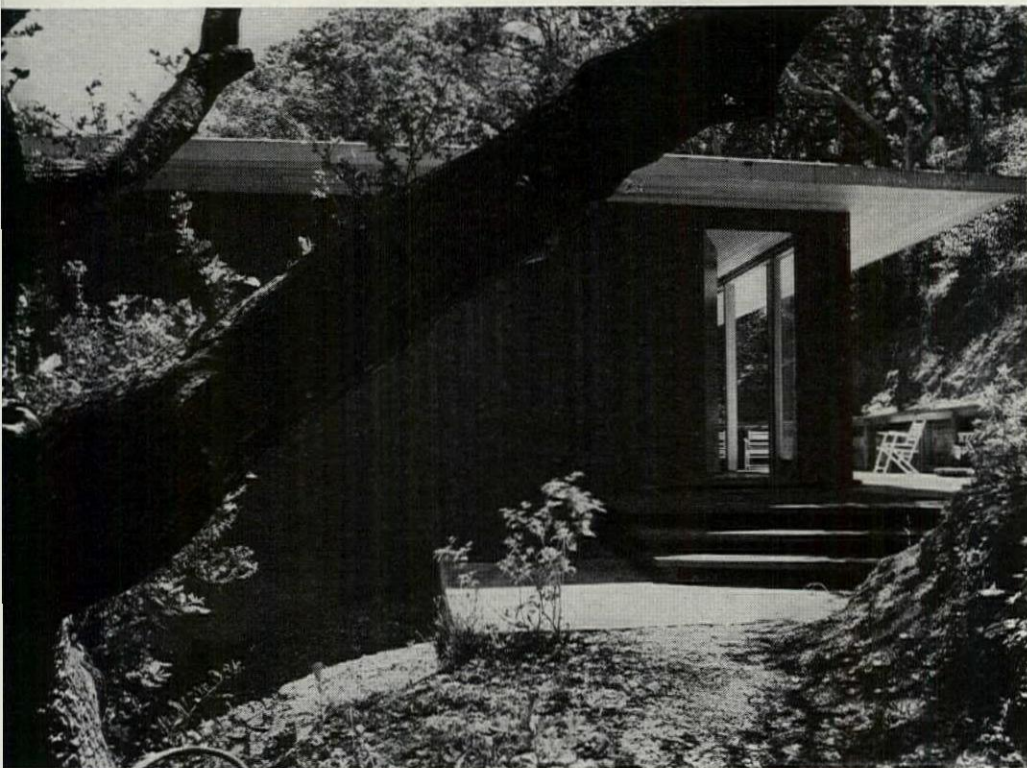
Photos: Roger Sturtevant

A flat-topped house is at its best when given a wide overhang and placed against a hillside (opposite page). The view from underneath gives a third-dimensional value to the roof extension. In the mild climate the architect has been able to lighten the effect of the house by leaving the underfloor area open. All sorts of refinements keep the handling big and broad. In the living room, the window-head framing has been pushed up into the rafter space, so as to interpose a minimum obstacle to the effect of free-flowing space from indoors to outdoors; but at the bedroom end the windows are smaller and regularly framed.





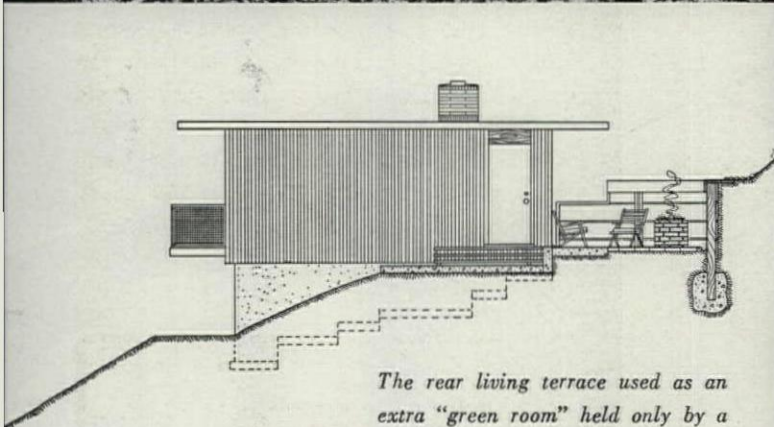
## HOUSE ON BELVEDERE ISLAND, CALIF.



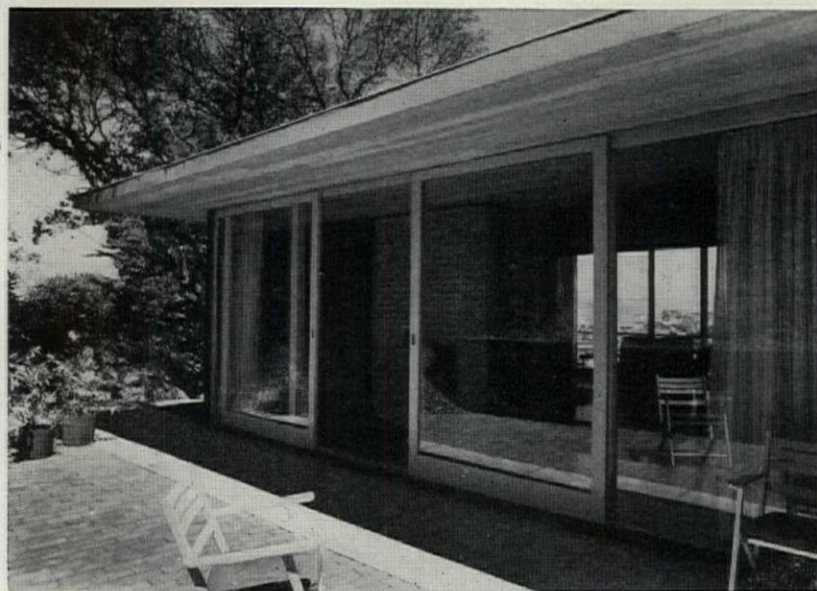
**CONSTRUCTION OUTLINE:** Exterior walls—redwood boards, studs, Sisakraft Co. paper; inside—redwood. Ceiling—Douglas fir. **ROOFING**—built-up, Paraffine Co.'s. **INSULATION**—Johns-Manville Corp. **FIREPLACE:** Damper—Miller Co. **SHEET METAL WORK:** Flashing—Armco Co. **WINDOWS:** Sash—wood. Glass—Libbey-Owens-Ford Glass Co. **FINISH FLOORING:** Kitchen and bathrooms—linoleum, Armstrong Cork Co. **PAINTS**—W. P. Fuller Co. and Samuel Cabot & Co. **HARDWARE**—Yale & Towne Mfg. Co. **ELECTRICAL INSTALLATION:** Switches—Arrow-Hart & Hegeman Electric Co. **LAUNDRY EQUIPMENT:** Washing machine—Bendix Home Appliances, Inc. **BATHROOM EQUIPMENT:** Lavatory—American Radiator-Standard Sanitary Corp. Tub—Crane Co. Seat—C. F. Church Mfg. Co. **HEATING**—warm air system, Royal Heaters, Inc. Water heater—Westinghouse Electric Corp.

### COST BREAKDOWN (by owner acting as builder)

Lumber, concrete, millwork, insulation	
Building materials .....	\$3,162.29
hardware, etc.	
Subcontracts .....	2,337.99
Bulldozing, masonry, roofing, flooring, heating, plumbing, paint	
Wages .....	3,094.30
<b>Total .....</b>	<b>\$8,594.98</b>



*The rear living terrace used as an extra "green room" held only by a retaining wall made it safe and private to open up the living room on both sides with walls (or doors) of glass.*



The cost of the house was somewhat under the average run in its class, but any detailed comparisons were made difficult by the fact that the clients acted as their own builders. They themselves concluded that a contractor-built house would have cost no more, counting in the delays and other results of inexperience. An estimated \$250 was saved by the foundation design, which eliminated a good many of the customary footings. The house was anchored to the hillside by footings at the rear and centerline; the open front was carried only on pipe columns resting on concrete piers. Other economies were implicit in the simple framing, detailing, and natural finishes. Such "minor" strokes as carrying the fir walls and ceiling through into the kitchen helped make the house dignified as well as homelike; and the clients had the fun of finding the weathered teakwood for their countertop.





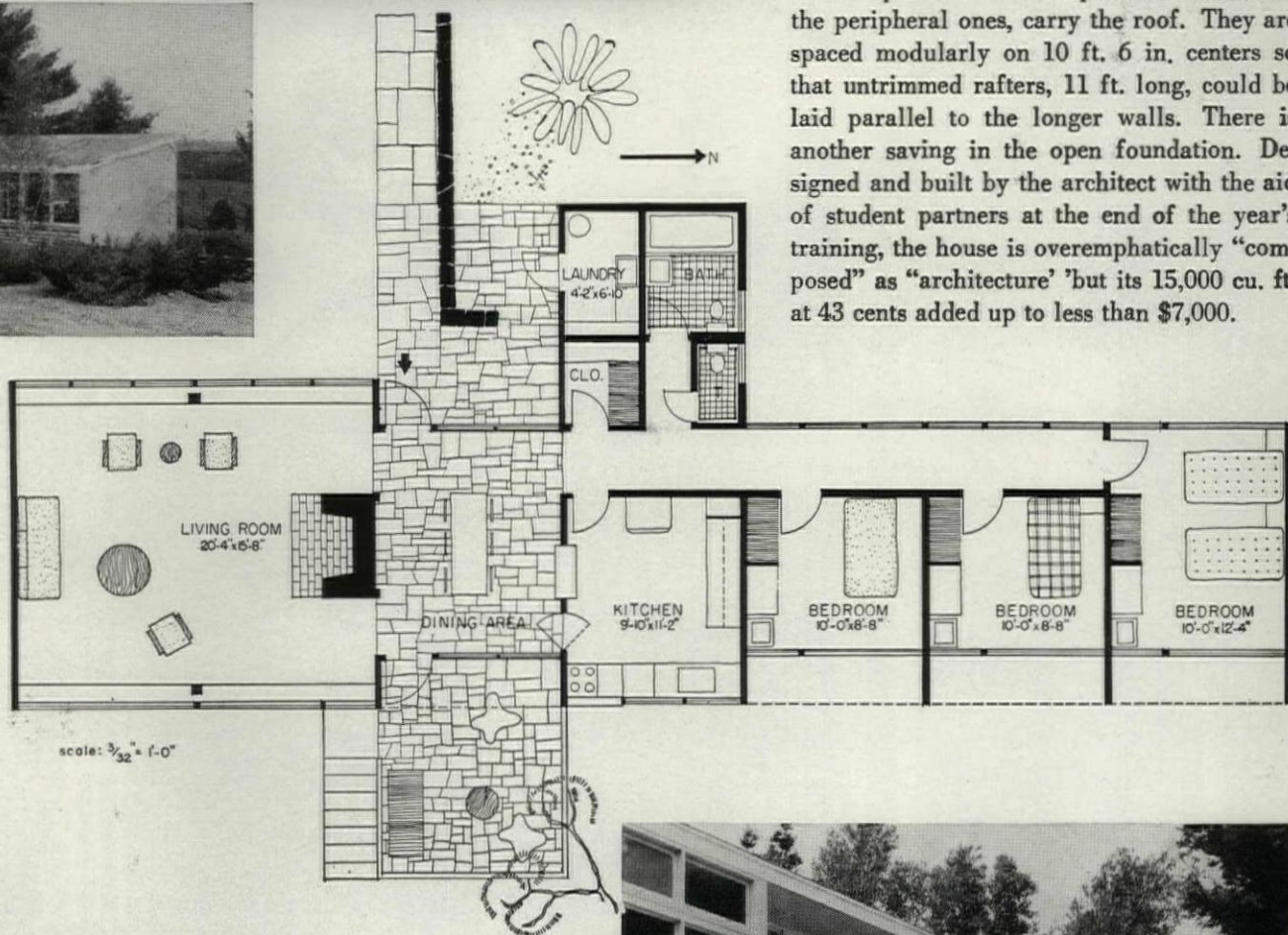
# A cross-passage and cross-framing open up this summer house



LOCATION: Plainfield, Mass.  
THOMAS WRIGHT, Designer

This house gives unusually clear expression to a new plan twist which seems to be coming up in New England. An in-line arrangement of rooms is cut in two by a cross-passage between the living room and the bedroom wing (see also Stubbins house, FORUM, Nov. '49). Used for dining, this area acts as a buffer zone when activities are going forward in the living room at the same time that bedrooms are in use for quiet rest. It also opens a cross-movement of space. And although this particular home is used by an older couple for summer entertaining, the "dining area" could in fact be nicely adapted to play by children within view from the kitchen. The open porch is partly shaded by the large pine tree seen in the photographs.

A surprise is that the partition walls, not the peripheral ones, carry the roof. They are spaced modularly on 10 ft. 6 in. centers so that untrimmed rafters, 11 ft. long, could be laid parallel to the longer walls. There is another saving in the open foundation. Designed and built by the architect with the aid of student partners at the end of the year's training, the house is overemphatically "composed" as "architecture" but its 15,000 cu. ft. at 43 cents added up to less than \$7,000.



**CONSTRUCTION OUTLINE:** Foundation—poured concrete and field stone. Exterior walls—yellow pine boards, building paper, batten insulation, studs and asbestos Flexboard prefinished with baked enamel, Johns-Manville Corp. Ceilings—tile, Johns-Manville Corp. ROOFING—Bird & Son. INSULATION—Johns-Manville Corp. FIREPLACE: Damper—Heatilator Corp. WINDOWS: Sash—wood. Glass—Pittsburgh Plate Glass Co. PAINTS—E. I. DuPont de Nemours Corp. KITCHEN EQUIPMENT: Range and refrigerator—Westinghouse Electric Corp. Washing machine—Bendix Home Appliances, Inc. BATHROOM EQUIPMENT—Crane Co. HEATING—electric heaters.





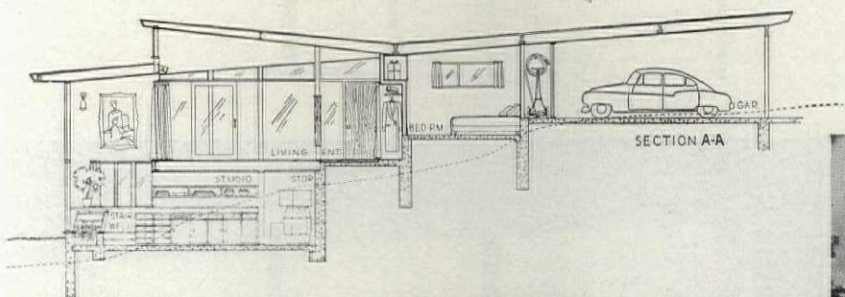
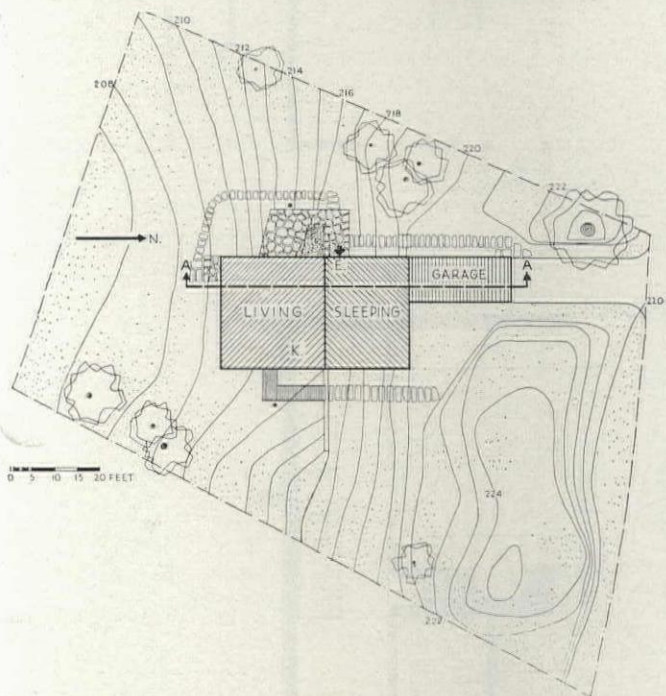
A multi-level house blend





# progressive design with well-bred serenity

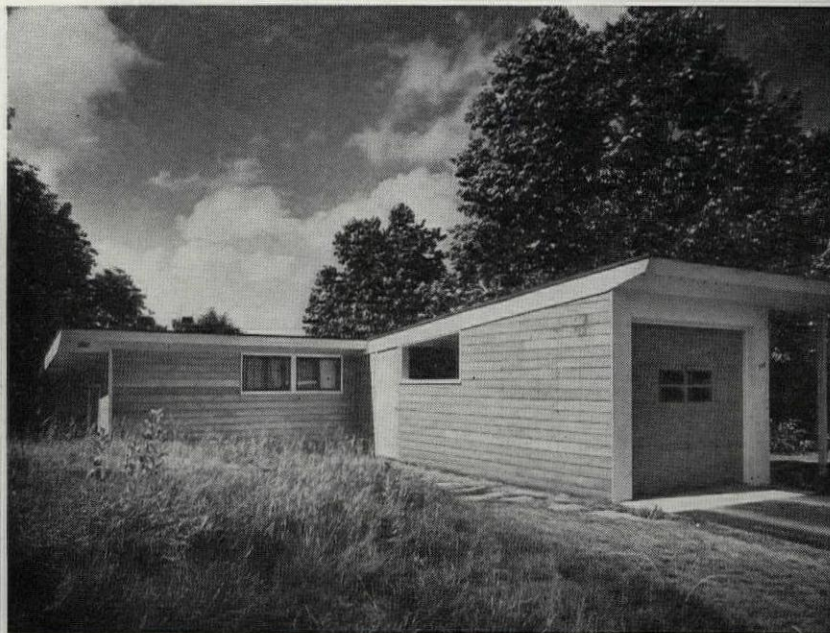
LOCATION: Belmont, Mass.  
CARL KOCH ARCHITECT & ASSOCIATES, Architects  
LEON LIPSHUTZ, Associate  
HANS TOBIASON, Contractor



Two opposite qualities are reconciled in this house. Its design freedom is contemporary, its mature serenity is traditional. In negotiating a steep hill with his house plan, the architect has employed all the contemporary acrobatics: the studio (opposite page) is 1 ft. 3 in. below the grade of the south garden; directly above it is the living room, on a level with the entrance; 2 ft. 4 in. higher are the bedrooms, and 1 ft. 8 in. above these is the garage on grade with the street (photo below). Yet a single bold sweep of raking roof economically covers all four changes of level, quieting them all down in the tradition of a well-bred home. And there is a subtlety in it: the "kickup" above the living room (see vertical section, left), which is used to flood this room with light, serves also as a visual brace preventing an appearance of "sliding down hill." This skillful whipsawing of roof and ceiling planes is matched by other subtleties. Against the flat walls and the simple trim of the large openings, such a feature as the porch railing has all the decorative value of traditional dormers or shutters. And the effect of the large handling is to make a small house look big.

"It is really snug," says the owner, "but the expanse of glass gives an illusion of space by day as do the reflections in the windows when uncurtained at night. Hugging the slope, the layout gives needed privacy. The excitement of living in a house like this continually renews itself . . . Lightness and gaiety, combined with the *unity of feeling* peculiar to this house, are both restful and stimulating."

Photos: Ezra Stoller



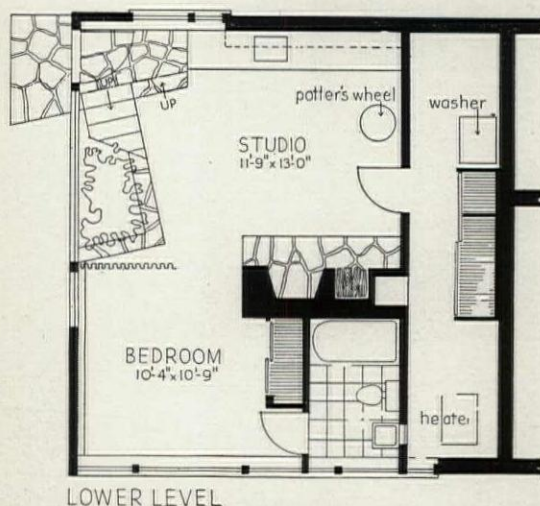
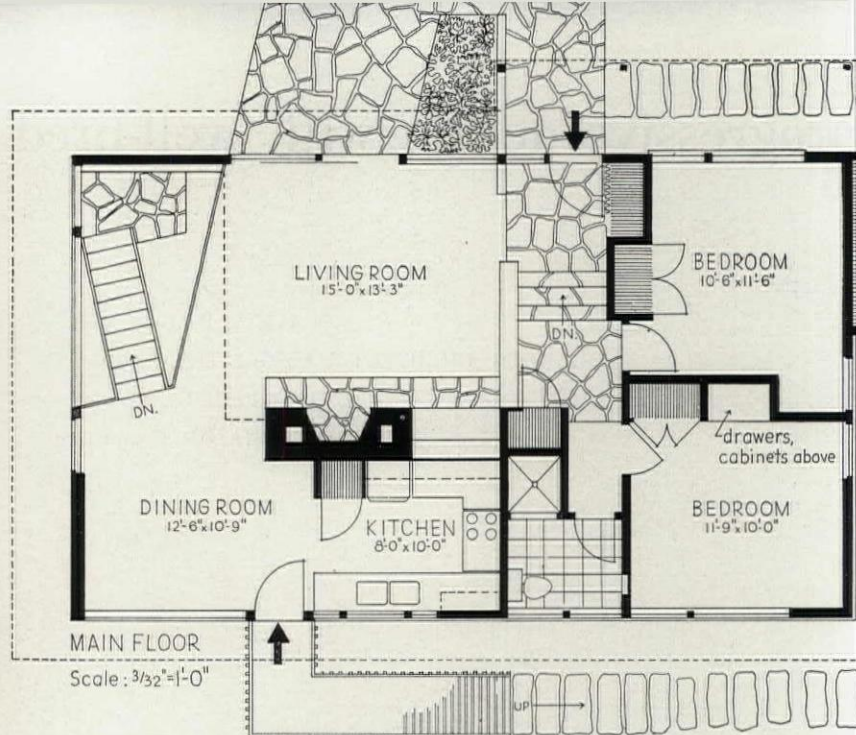
"I am pleased rather than otherwise," says the owner, "that little more than the garage can be seen easily from the street." Section shows how the house follows its hill under a raking roof.



In plan the house provides the owner with a bedroom for herself, a guest room, another bedroom that can possibly be rented, and a studio for her hobby of pottery making. Her own description begins, however, with enthusiasm for the more generalized effects of space: "My friends are delighted when moon or clouds may be seen overhead through the clerestory windows, and I love not being shut off in spirit from the out-of-doors. Everyone said that a modern house must have modern furniture but my family pieces look well here and are becoming to the house. This is not a house for children but they invariably like it at once, and older people do too. Only those who try to reason why less conventional patterns have been chosen are troubled.

"From a practical standpoint I am delighted. It is pleasant to work anywhere in my home. There is no waste space, the house is easy to care for, it heats well, the mixture of fluorescent and ordinary lighting is pleasing, and the seasonal exposure to full sunlight is nicely controlled by the overhang of the roof. The one criticism I might have concerns storage space, for I am put to it to find a place for garden tools or occasional furniture. . . ."

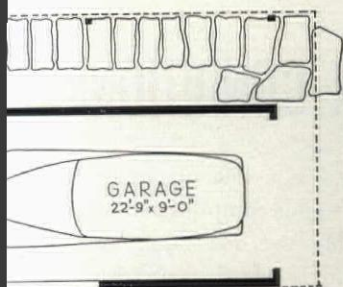
Due to the intrinsic difficulties of the fine site, this is not what the architect considers a low cost house, although built economically. It came in at a price of \$24,280.



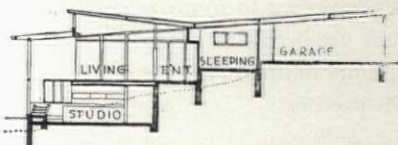
*The principle of making a small room look large by borrowing the price-free space of the out-of-doors is superbly illustrated by this living room, with its extension downward through the open window-stair to the studio, outward through the tree-shaded terrace porch, skyward through the clerestory.*







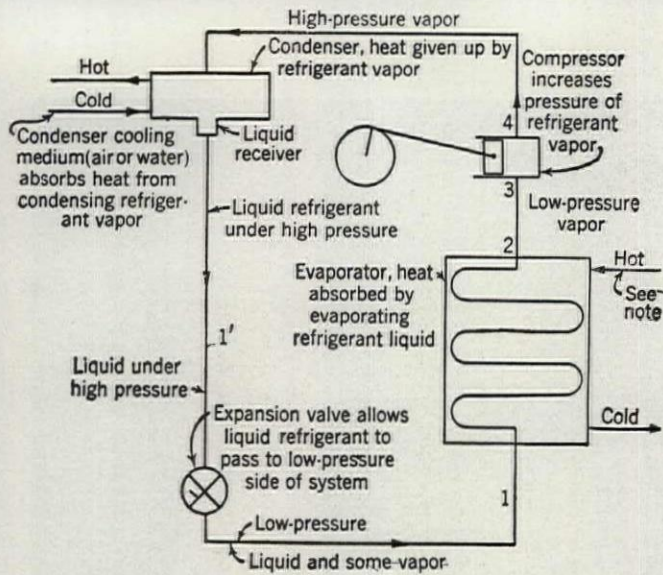
*"My family pieces look well here," says the owner. The fact that so open a room is reported "easy to heat" may be due partly to wind protection by trees, and panel heating.*



**CONSTRUCTION OUTLINE:** Waterproofing—Flintkote Co. Exterior walls—t.&g. siding, sheathing, studs, Rocklath, U. S. Gypsum Co. and plaster. Floors—oak or concrete. ROOFING—Flintkote Co. INSULATION—Johns-Manville Corp. and California Stucco Co. FIREPLACE: Damper—Donley Bros. WINDOWS: Sash—steel, Hope's Windows, Inc. Glass—Libbey-Owens-Ford Glass Co. FINISH FLOORING: Bedrooms and bathrooms—tile, Hood Rubber Co. Kitchen—linoleum, Armstrong Cork Co. PAINTS—Reardon Co. HARDWARE—Schlage Lock Co. ELECTRICAL FIXTURES—Swivalier Corp. KITCHEN EQUIPMENT: Range and refrigerator—General Electric Co. LAUNDRY EQUIPMENT: Washing machine—Bendix Home Appliances, Inc. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. Cabinets—Miami Cabinet Div., Philip Carey Co. HEATING—hot water radiant system. Valves—Bell & Gossett Co. Regulator—Minneapolis-Honeywell Regulator Co.

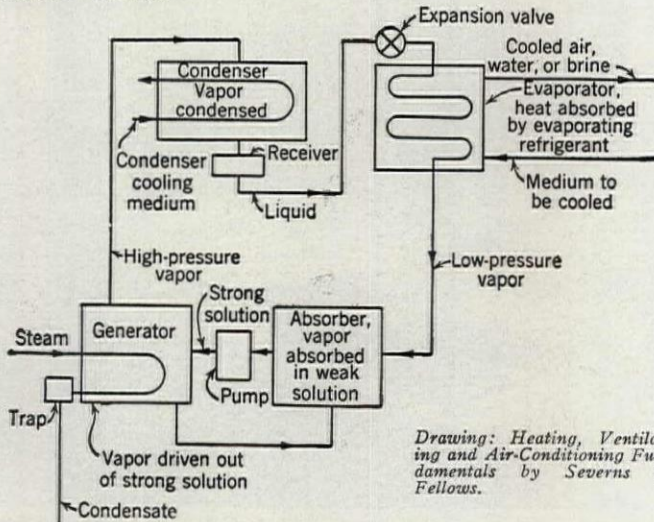


# In the wind for developers: AIR CONDITIONING



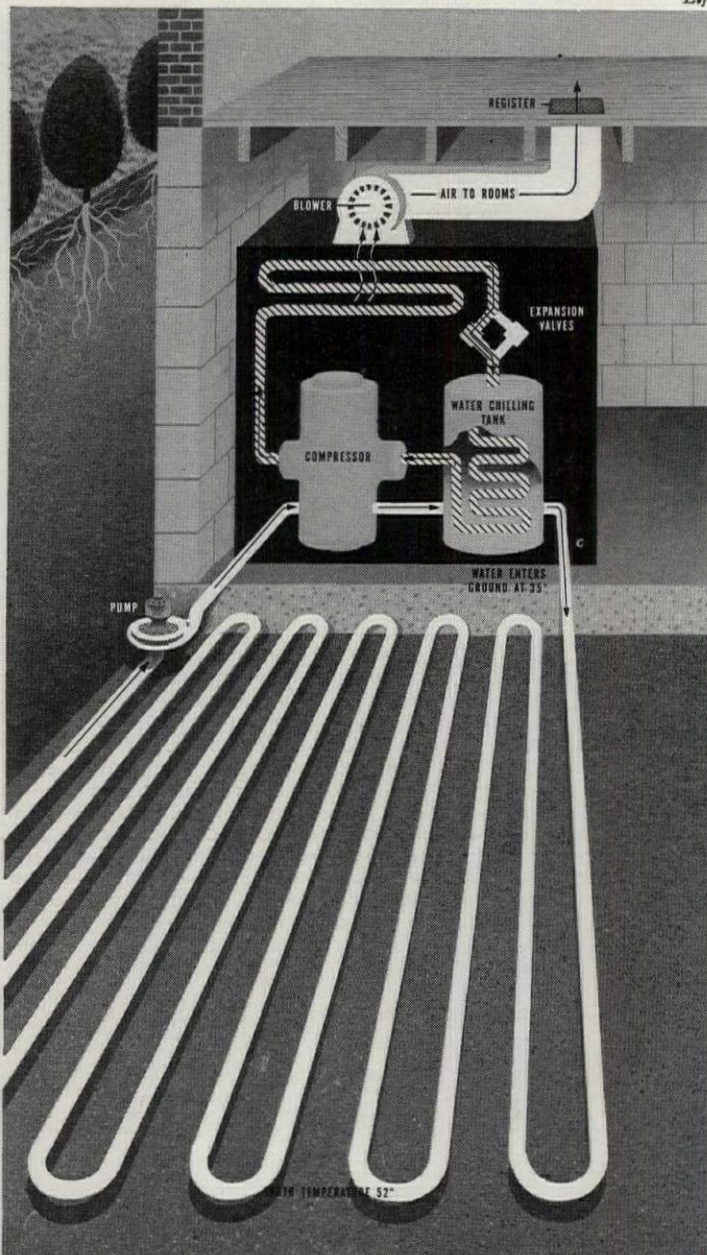
COMPRESSION COOLING UNIT is illustrated diagrammatically left. Below is ABSORPTION UNIT, with compressor replaced by absorber, solution pump, and generator.

HEAT PUMP diagrammed below is compression unit for cooling and heating. Stable ground water is used both seasons.



Drawing: Heating, Ventilating and Air-Conditioning Fundamentals by Severns & Fellows.

Life



The prospect of air conditioning is a difficult and arduous one for housebuilders to face. It adds complication to design and construction when probably the one thing merchant builders are most eager to avoid is added complication.

But it is not only the equipment manufacturers who think that the use of air conditioning will be a factor in the future of many merchant builders, or may even be their future. Some merchant builders as well foresee a time when their market has hardened and the one big lever which they will have to pry families out of their old houses and into new ones is the assurance of summer comfort. The most obvious trouble with most houses today is that they are not pleasant in the summer. Lick that condition and you have an attractive house. The obvious method most builders are going to use is mechanical air conditioning.

The biggest drawback to air conditioning, particularly in small homes, is its high cost. But it is cheaper to put air conditioning in a new house than in an old house—and that is the housebuilders' edge. And when air-conditioned houses begin to appear on the market for \$15,500 (see facing page) the time has come when air conditioning is about to explode into the small house picture in the same way it did into post-war office building. No important new office building lacks air conditioning, and the people who work in the cool offices will be expecting cool houses too, soon.

Every big air conditioning equipment company has become conscious of this approaching demand (some of them suddenly; most of them, secretly) and research and product development laboratories are racing to improve small house equipment. There have not yet been any major or startling developments. The heat pump, bottom left, is promising, but has not yet fulfilled all its promise.

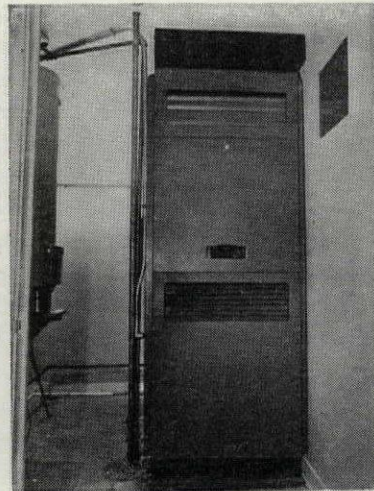
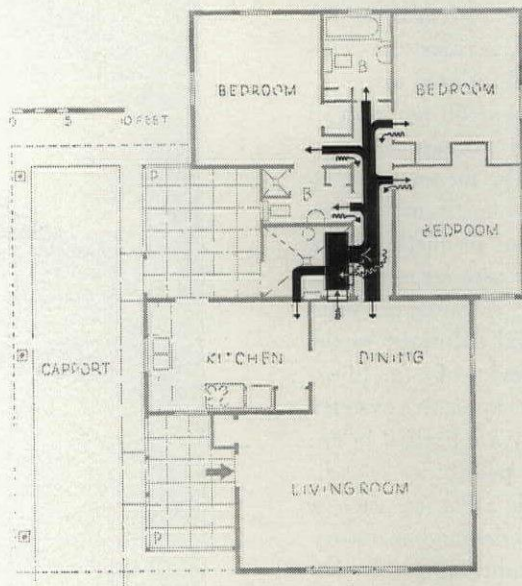
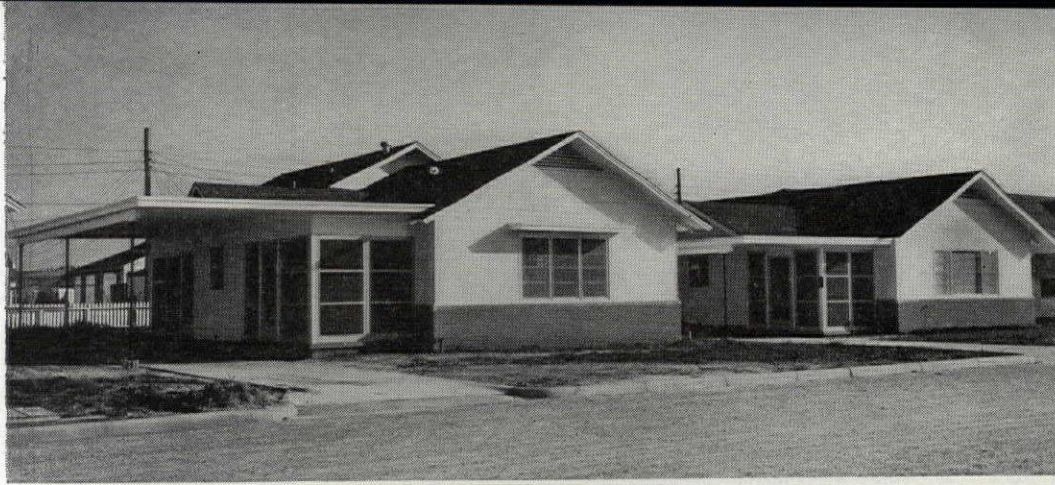
## Basic methods to remove heat

Two basic methods for mechanical cooling are illustrated diagrammatically upper left: the *compression* refrigeration plant, and the *absorption* refrigeration plant. These X-ray sketches show the two most common machines in use today for taking heat away from the air circulated in air conditioned houses. Roughly, the objective of each machine is to utilize a change in pressure of the refrigerant circulating through the cycle in order to evaporate it at the proper point in the evaporative process so that it will absorb its latent heat of vaporization, eating heat from that substance—usually air—which in turn is circulated through the house for cooling.

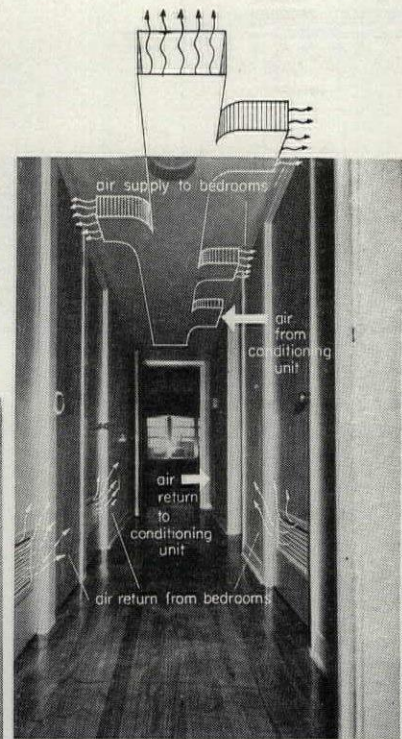
In the *compression* refrigeration plant the vaporized refrigerant is put in shape to go through the cycle again by putting it through a compressor, which increases the pressure of the vapor, then through a condenser, which pulls heat back out of the refrigerant and makes it liquid again, and finally through an expansion valve to lower its pressure and renew its virtue for the whole cycle again. The heat pump is an example of a compression system, which uses cold ground water to condense the refrigerant in that phase of the cycle. The heat has to go somewhere, and here it goes back into the ground.

In the *absorption* refrigeration plant the process of putting the refrigerant in shape for another cycle is a little different, a little more complicated, and usually cheaper if low cost fuel is available for heating. There is no compressor; instead, the refrigerant vapor is absorbed by a weak solution of the refrigerant in water (which thus becomes a strong solu-

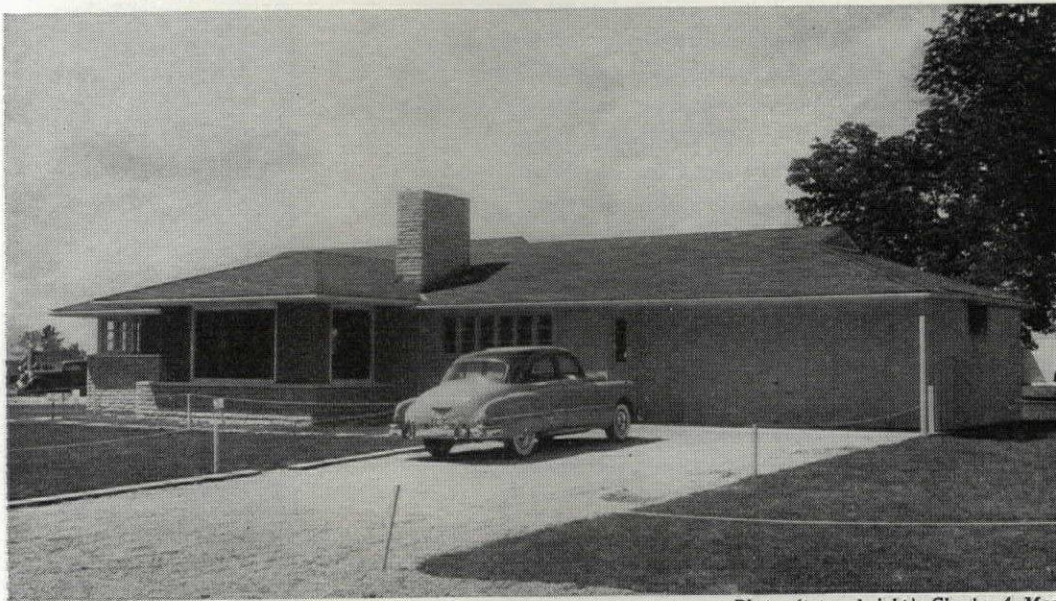




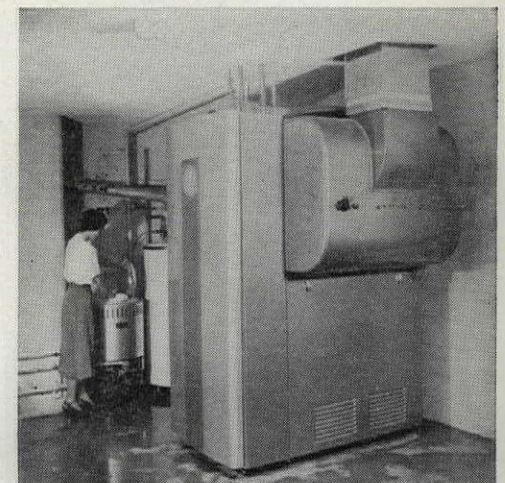
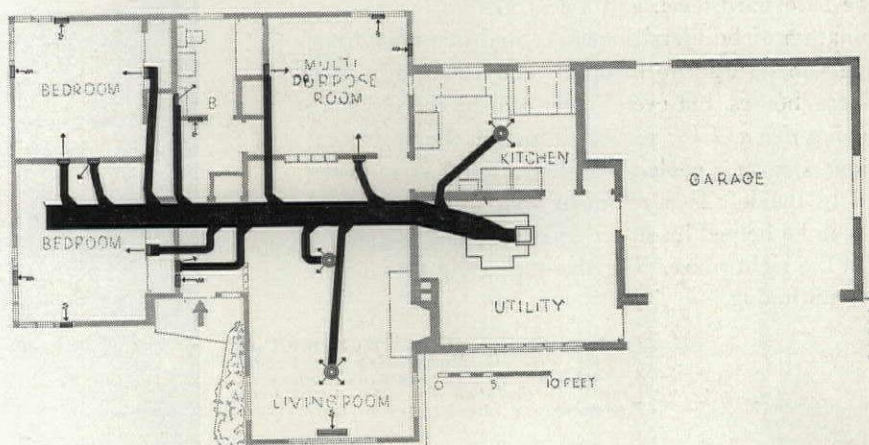
Photos (above): Edward A. Bourdon



**AIR-CONDITIONED DEVELOPER'S HOUSE FOR \$15,500** uses compression unit and minimum of duct work. Ducts are in space above hung ceiling in hall. Returns are through grilles in doors, see above, except in kitchen and bathrooms where there is no return of air. Builder: C. Samuel Johnson; Location: Houston, Texas; Unit: General Electric Co.; approximate cost of air conditioning, \$1,800.

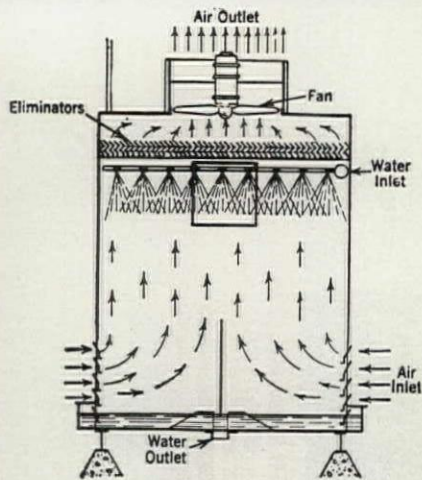


Photos (top and right): Charles A. Moor

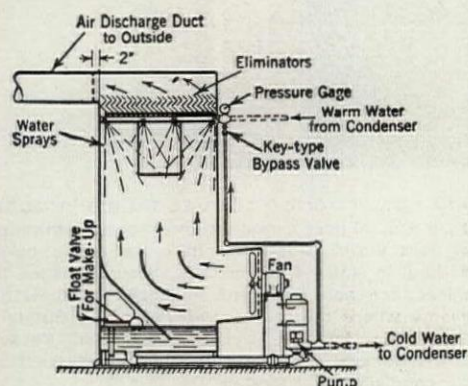


**AIR-CONDITIONED DEVELOPER'S HOUSE FOR \$22,500**, has more carefully engineered system operating from heating-cooling absorption unit. Powered by gas, the unit has better duct work to distribute air more precisely, with more distributors in rooms, and return grilles. Architects: Pettit, Oman, Meinhardt & Cleland; Builder: Indian Spring Village Inc.; Location: Columbus, Ohio; Unit: Servel, Inc.; approximate cost of air conditioning, \$3,000.

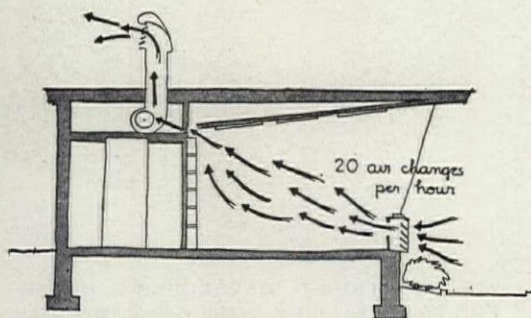




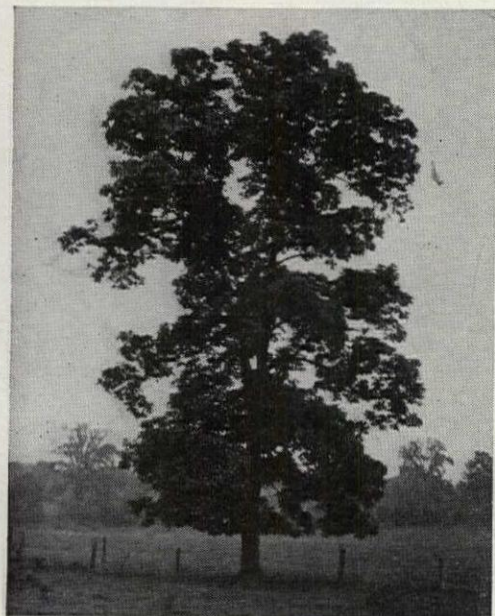
**COOLING TOWERS** (outdoor above, indoor below) are used to reduced amount of water consumed in condensers of air conditioning plants. Water loses heat by evaporation in cooling tower, then can be used again in condenser.



Above: Binks Mfg. Co.



**AIR MOVEMENT** is utilized in unique house of Kenneth Welch, Grand Rapids architect, to perform partial air conditioning. Air enters under windows, is pulled through fan in roof.



Rutherford Platt

tion), then is cooked. This drives the refrigerant vapor out of the solution under pressure to be condensed, and then to be started through again. Power costs for the *absorption* system are lower than the *compression* system, but low cost fuel for heating is necessary.

These methods are the basic ones for taking heat out of houses, but there is a lot more to air conditioning. Summer air conditioning should also include dehumidification, air cleansing, and controlled air movement. Since it is economical to use the same mechanical layout for winter heating as summer cooling, the air conditioning system should probably also include a heat generator, and facilities for humidifying. So far it looks as if house-cooling will be a great thing for manufacturers of hot air heating systems, because the duct-work used in such layouts can also be used for cool air.

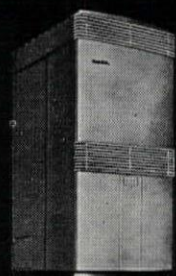
Hot-air heating manufacturers won about 60 per cent of the small house market last year, partly because some of their systems can circulate unheated air in the summer, to utilize that part of relief offered by simple air movement. Another example of this is in the house of Kenneth Welch, Grand Rapids architect. (See sketch.) He uses large centrifugal fans to pull air through his house in summer, from louvers under the windows. Other partial solutions to the cooling problem range from the ancient device of a fan blowing over a box of ice and sawdust, to the evaporative systems in use around Arizona (they unfortunately are limited in use to comparatively arid regions). Another possibility is radiant cooling—there is experimental work afoot on such a system for use in houses, but it too would demand accessory dehumidifying to do the complete air conditioning job. Ice manufacturers would do well to develop uses in more satisfactory domestic systems than the ice-cake-and-fan arrangement mentioned earlier. Every ice plant must dispose of a certain percentage of its substandard, unsaleable output because of air bubbles, discoloration, etc. According to experts in the field, it would be economically feasible for some ice men to contract for summer house-cooling by loading this ice into bunkers built below the frost line near the house, and piping to the house. Still another cooling method is utilization of well water in areas of the country which have high water tables and low well water temperatures.

Many builders probably will in time "air condition" their houses by installing one or two unit air conditioners in the windows of bedrooms or living rooms. These are efficient units as far as they go, but their use to cool a house completely is of doubtful eventual economy.

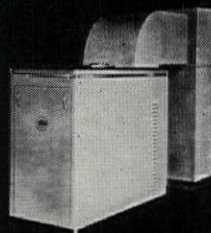
In central air conditioning systems duct costs are often considerable, especially in the southern part of the U. S., where little or none of the duct cost can be charged off to the heating system. To get around this duct expense, experimenters in Dallas are using the crawl space under single floor houses as a conveyor-space for cold air, with outlets into the room at the baseboard level, and a central return.

A combination of builders' ingenuity and manufacturers' cost shaving will do a lot to bring air conditioning to merchant builders' houses, but even bigger will be the influence of the growing demand for air conditioning. Some typical air conditioners and air coolers are shown in the strip to the right. And to the left is a reminder that this mechanical equipment can be helped by smart designing and by putting the house in the right place. The shade of a big tree is still good air conditioning.

1) Automatic Firing Corp. 2) Chrysler Corp., Airtemp Div. 3) Muncie Gear Works, Inc. 4) York Corp. 5) Yates-American Machine Co., General Refrigeration Div. 6) Affiliated Gas Equipment, Inc., Bryant Heater Div.



1



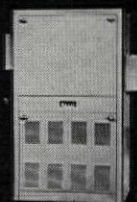
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3



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5



6



## They want TELEVISION

As the big spring building season began in 1950 most merchant builders still were wondering about the inclusion of television in their houses as a sales lure. And although it looked as if much of this speculation might be resolved for them fast by a few big operators who were already dangling that lure in the sales stream with great success, there still remained a further question: should the television set be built into the house or included as furniture?

The big builders answered *built-in*. Reasons: it's more convincing to a buyer to see the television set in the wall as a part of the house, than added as a piece of furniture—and it's easier to get it included in the package mortgage; television chassis can be bought cheaper without cabinets, so there may be immediate economy if smart construction details are worked out; by building in television now, developers might hasten the demise of the expensive fireplace as the living room focus, and ultimately replace it.

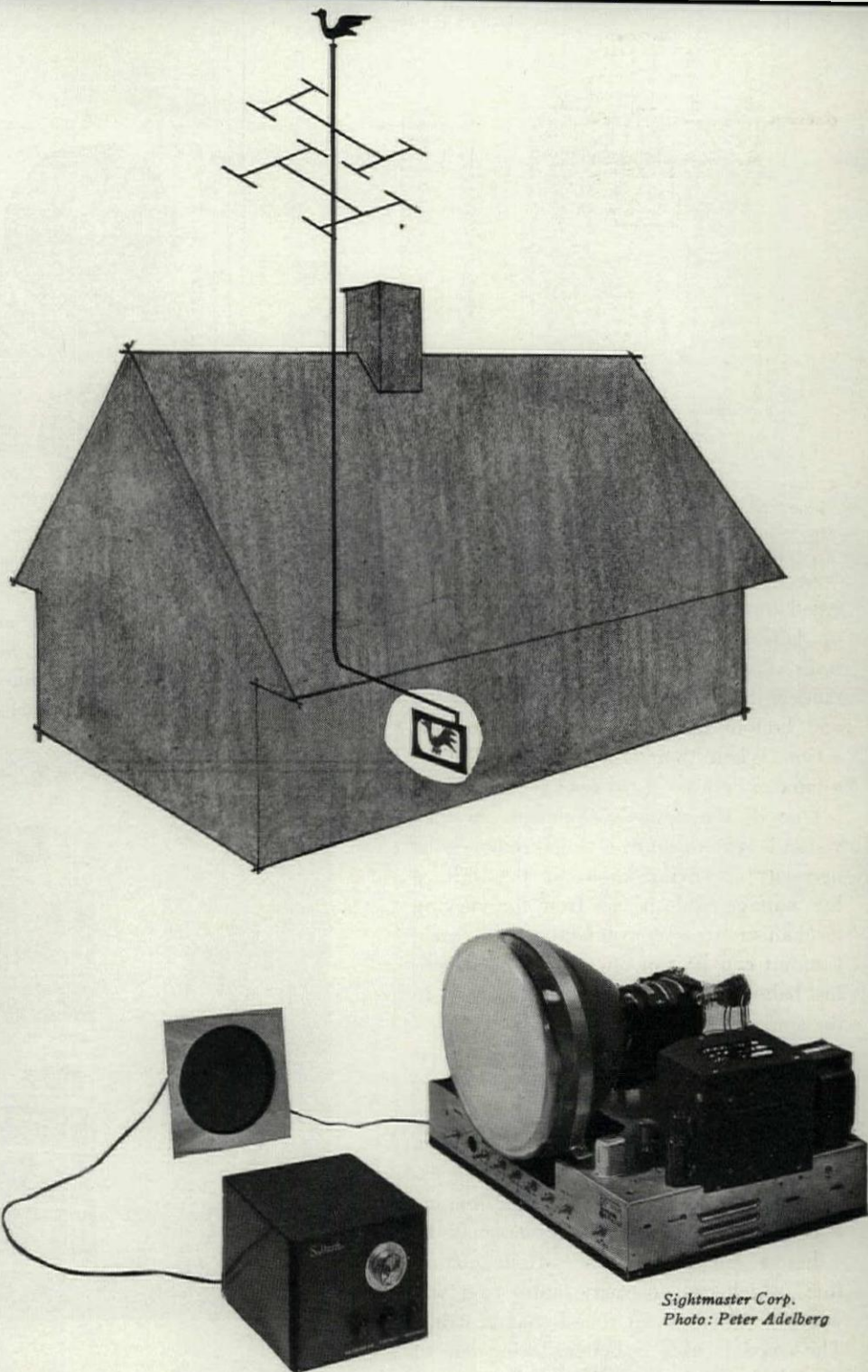
Some big television manufacturers said "no": most builders, they maintained, could do a better, cheaper job by giving the house buyer a cabinet model; the distribution mark-up is not big enough (not over 29 per cent, usually, said RCA) to make direct buying worthwhile to a builder, who had the trouble and expense of framing the sets correctly.

But if the builder does decide to make the television set part of the house—and many builders are—he has several problems to face.

First, one has to be able to get at the mechanics of the set. The usual solution to this is to have the set pull forward out of its frame for fixing. Wall depth required for most chassis is considerable, approximately 23 in. for a 16 in. direct view receiver chassis. Less depth is required for the projection type but more over-all volume.

(Industrial Television, Inc., Clifton, N. J., a firm with considerable experience in the near New York area in built-in installations, estimates cubage requirements for the most popular direct view tube sizes, complete with 12 in. speaker, to be 11 cu. ft. for the 19 in. screen, 7 cu. ft. for the 16 in. screen, and 5 cu. ft. for the 12½ in. screen.)

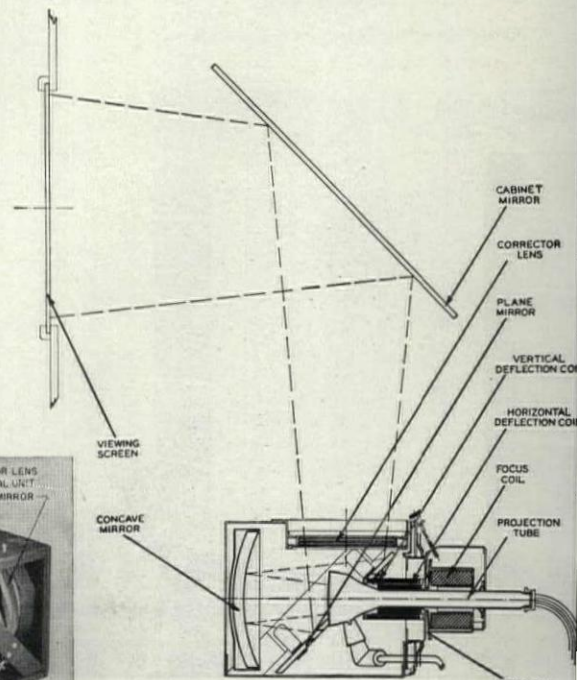
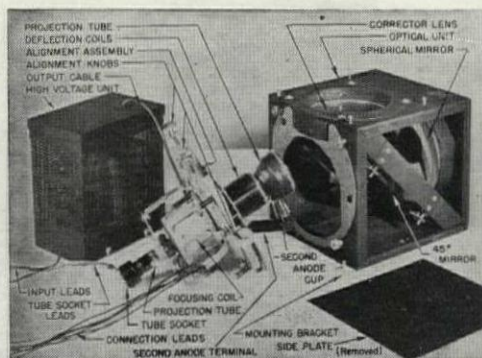
There must be ventilation. Considerable heat is generated in the chassis (200-350 watts) and unless louvers are pro-



Sightmaster Corp.  
Photo: Peter Adelberg

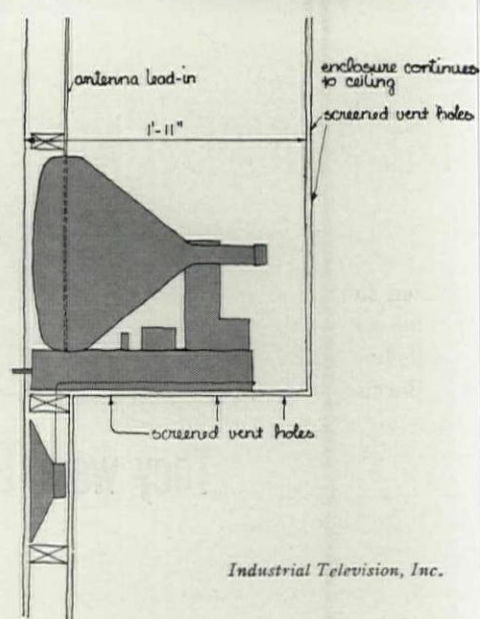
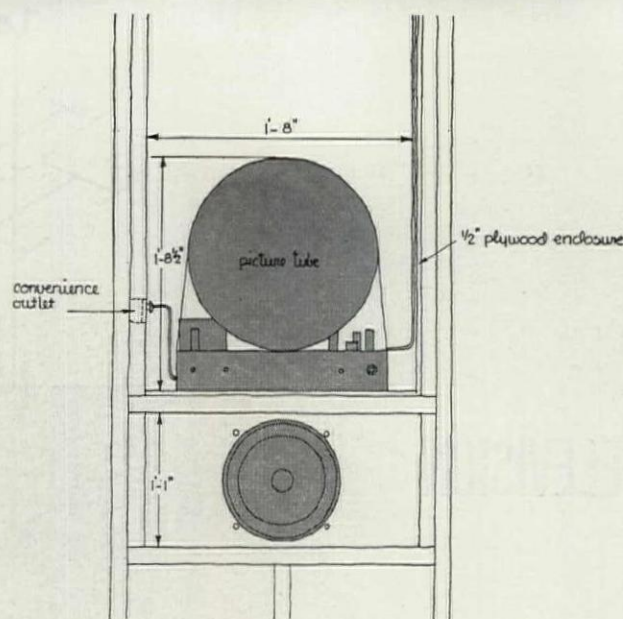
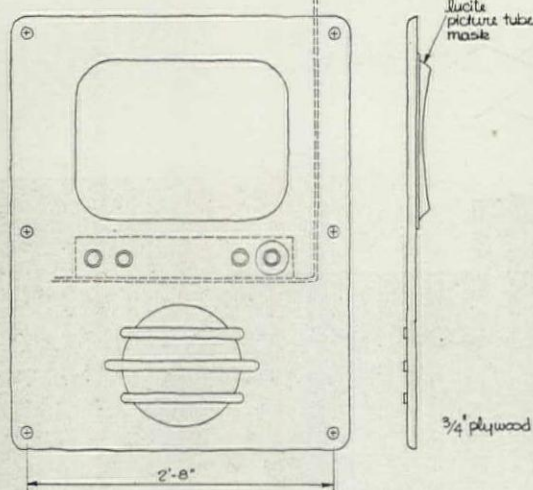
Direct view television set above shows image on face of cathode tube. This concealed set shows image through transparent mirror (see photo, next page) costs \$250 without remote control, \$350 with.

Projection television chassis first throws image on reflector, then enlarged image is screened. Principle of operation is shown in sketch to right. This type set can use smaller cathode tube but is more complicated.



Emerson Radio & Phonograph Corp.





Industrial Television, Inc.

vided top and bottom, the heat can build up dangerously. But some built-in installations are actually better than cabinet models in this respect because louvers top and bottom in built-in sets generate flue action. Where there is no other ventilation, a fan can be used at the rear of the chassis.

One of the new developments in television is remote control, which removes the necessity of having knobs on the wall; a low voltage cable is run from the viewing mechanism to a convenient control area. Conduit can be run on the basement ceiling below, or, if there is no cellar, cast in the slab.

Antennae are similar for built-in or standing sets, but may usually be better planned for built-in sets. The antenna can sometimes be in the attic, or, depending on receiving conditions, may have to be exposed on the roof or chimney. The line between the antenna and receiver may be either a flat ribbon-like "bright picture line" which can go easily under rugs and window sills, or a fat round coaxial cable. The coaxial cable is better, losing less of the television signal; bright picture line is 300 ohm; coaxial cable as used in television, 72 ohm.

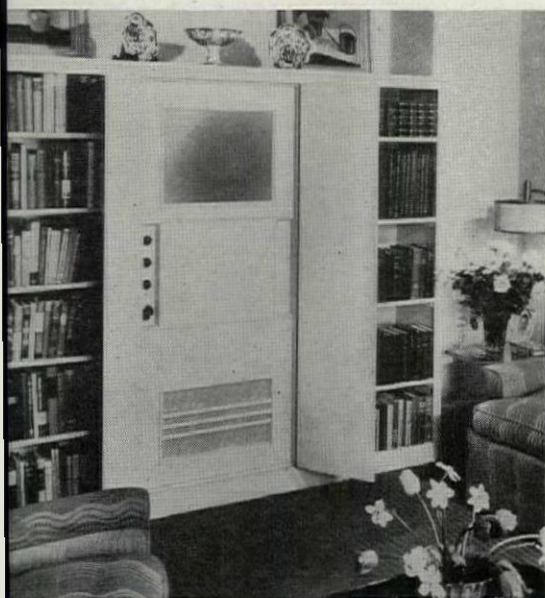
Typical installation in wall of developers' houses is shown above. Set projects through partition, in this case into the kitchen, where there is ample ventilation. This chassis would

cost builders about \$142 in quantity orders, with installation an extra \$15, including antenna. Remote control unit is \$190, installed.



Sightmaster Corp.

RCA Victor



Sets built into wall (above) into bookshelf (far left) and behind mirror (left) are three variations whose relative advantages are argued in the field. However they are built in, sets must have ventilation and be easily accessible for servicing.



# THE ALUMINUM NAIL . . . the housebuilder turns back to a stainproof war-born fastener

John Ebstel

When steel nails were in short supply after the war, and aluminum was more available, manufacture of aluminum nails boomed as a temporary expedient.

But their expediency has outlasted the emergency.

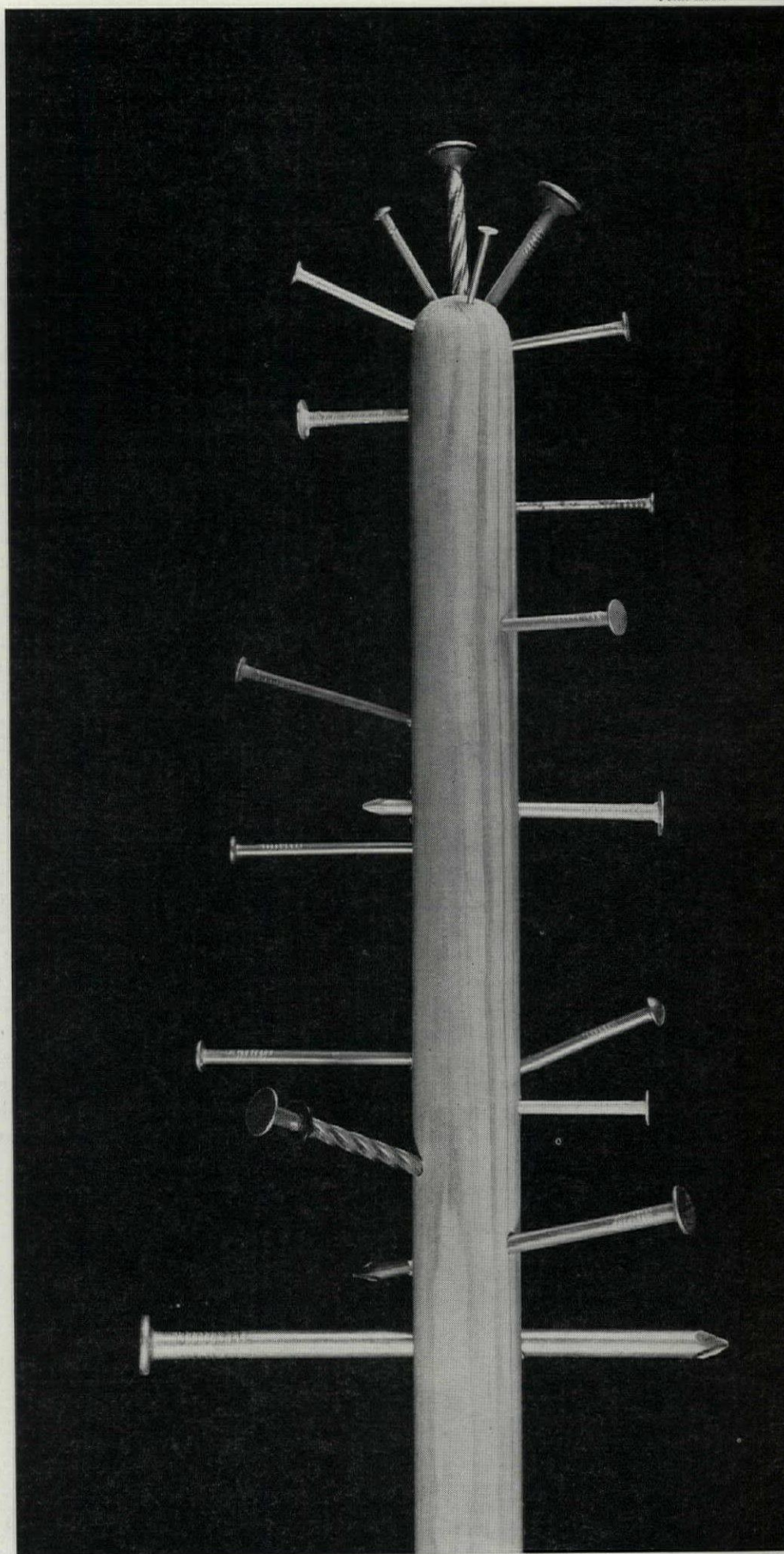
The expected drop in use of aluminum nails did come as soon as steel nails were back on the market. For some months aluminum nails did not move from building suppliers' shelves—even during the first big building months of last year's early spring. Manufacturers were beginning to believe pessimists' description of the new industry as the brief honeymoon to a war marriage, as sales continued to lag through the spring.

Then suddenly aluminum began to flow fast again. Last summer, sales of the nails doubled monthly four months in a row for one of the biggest manufacturers—an 800 per cent increase—and the sales curve has continued high. Manufacturers believe now that the remembered advantages of the war-born substitute turned builders back to use of the light nails; after the contractors used other nails exclusively for a while, say the aluminum people, they realized they should go back to aluminum for some uses.

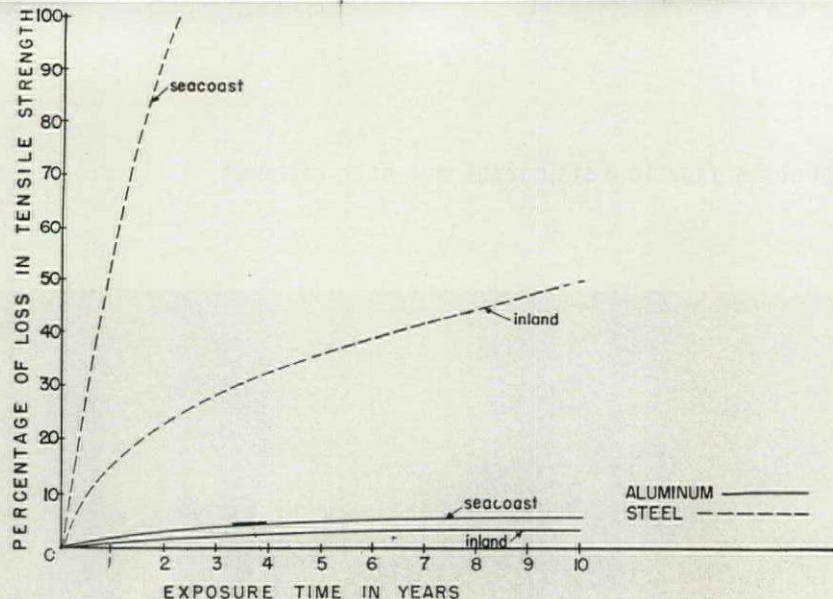
The aluminum nail industry is still miniscule compared with steel and other materials, and even its leaders do not expect to supplant the steel nail in most of its uses. The aluminum nail is more expensive, and probably will stay that way. But the aluminum people are hammering hard at certain applications where the advantages of their nails pay for their higher cost against cheap nails, and compete with other nonferrous metals on both performance and cost. Principal areas where aluminum is no longer being called a substitute but a staple are in wood siding, cedar shakes and shingles, asbestos siding and shingles, wood roofing, gypsum lath, insulated siding, and aluminum roofing. For this last use, several manufacturers of the aluminum alloy nails produce a special screw-cut roofing nail with a neoprene washer under the head. The screw-cut nail demands a slightly bigger bore in the roofing, but the washer is expanded by the jolt of the hammer when the nail head is over the bore, and plugs it effectively. (See sketch next page.)

Major advantage of aluminum nails is their freedom from staining and rusting. They are made to compete with copper nails in resistance to industrial or marine atmospheres, while costing less than copper, copper base alloy or stainless steel nails. The Nichols Wire & Aluminum Co., large producers of aluminum nails, quotes tests made on attaching the wood siding to standard five-room houses in Davenport, Iowa. Cost of the aluminum nails used for this job was \$2.50 more than for ordinary siding nails, but because there is no fear of running stains with the aluminum nails, no countersinking or puttying was done. The cost saving on that was estimated at \$40 to \$50.

One advantage to carpenters in the aluminum nails is their lightness. An apron of aluminum nails is about a third as heavy as steel nails. Another odd advantage to carpenters is the fact that many aluminum nails are sterilized. If there are any carpenters in the trade who worry about germs when carrying around a face full of nails, they need worry no longer. This quality of the nails is







actually a by-product of the finish etched on the nails to roughen them for added holding power. The etching solution also removes all grease and oil, and renders the nails as close to palatable as any available.

A big market the aluminum nail people are gunning for is the fastening of asbestos siding. Accelerated tests aimed at the asbestos siding manufacturers by the Aluminum Company of America show that corrosion resistance of aluminum nails in asbestos cement siding is good in both industrial and sea coast atmospheres, the toughest conditions. The dense nature and stability of asbestos cement actually resists the leaching of appreciable amounts of alkali from the siding. In addition, the nails—if properly specified—are resistant to any alkali which is leached from the siding because of a protective film which the metal develops.

This use of aluminum nails with asbestos products (competing with stainless steel and bronze) is a big potential market, by today's standards—as big as 1,500,000 lbs. of aluminum nails annually.

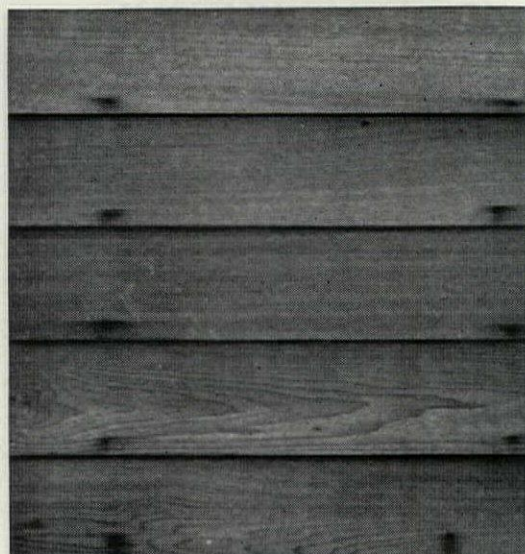
The same set of tests by Alcoa revealed that neither lime-base plaster nor gypsum-base plaster had any harmful effects on the aluminum alloy nails tested. Freshly prepared concrete caused some uniform mild surface attack of aluminum alloys but this corrosion did not seem to continue after the concrete had hardened and cured.

In atmospheric weathering the aluminum alloys tested were outstandingly superior to steel (see graph) and comparable to copper. The surface appearance of aluminum alloys varied with environment, generally weathering to a light gray.

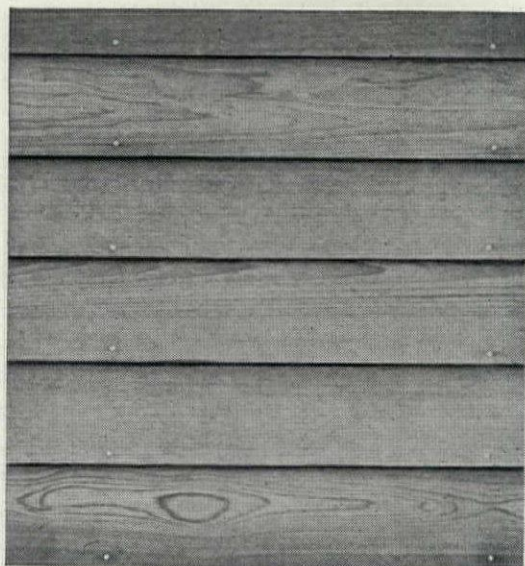
In industrial atmospheres the accumulation of industrial soil caused some darkening of the nail heads; this is true, however, not only of aluminum but of other commercial alloys too. Another boost to sales of aluminum nails is the increased use of natural wood siding, which presents a staining problem with use of regular nails.

The light weight of their nails caused the aluminum people a lot of trouble in their early merchandising efforts. Nails are traditionally bought by weight, and although a pound of aluminum nails may actually contain three times as many as an equal weight of competing nails, this was hard to bring home to buyers.

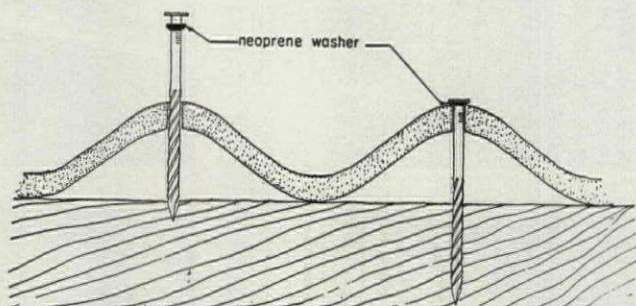
To combat this marketing problem, manufacturers like the Nichols Co. now package the nails for use, rather than selling exclusively by the barrel. The box is marked for number of nails, size of nails, and coverage; for, example: "6d Wood Siding, Sinker Hed. 575 nails, coverage 500 bd. ft., 1/2 x 8 in. bevel siding." Various colors are used on the packages to differentiate types and uses. The colors, like the manufacturers' market view, are bright.



Chart, above left, shows results of exposure on aluminum nails as compared to steel nails, from tests run by an aluminum manufacturer. Photograph above shows the staining effect of rusted nails in wood siding; aluminum nails below were put in at same time.



Since aluminum nails are much lighter than steel, manufacturers find they cannot be priced competitively if sold by weight. So some manufacturers package them and sell them by number, in specified job quantities.



Washer on aluminum nail designed for installing corrugated roofing expands to plug drill hole in roofing when head comes down on it. Nails are screw-cut for extra gripping power.

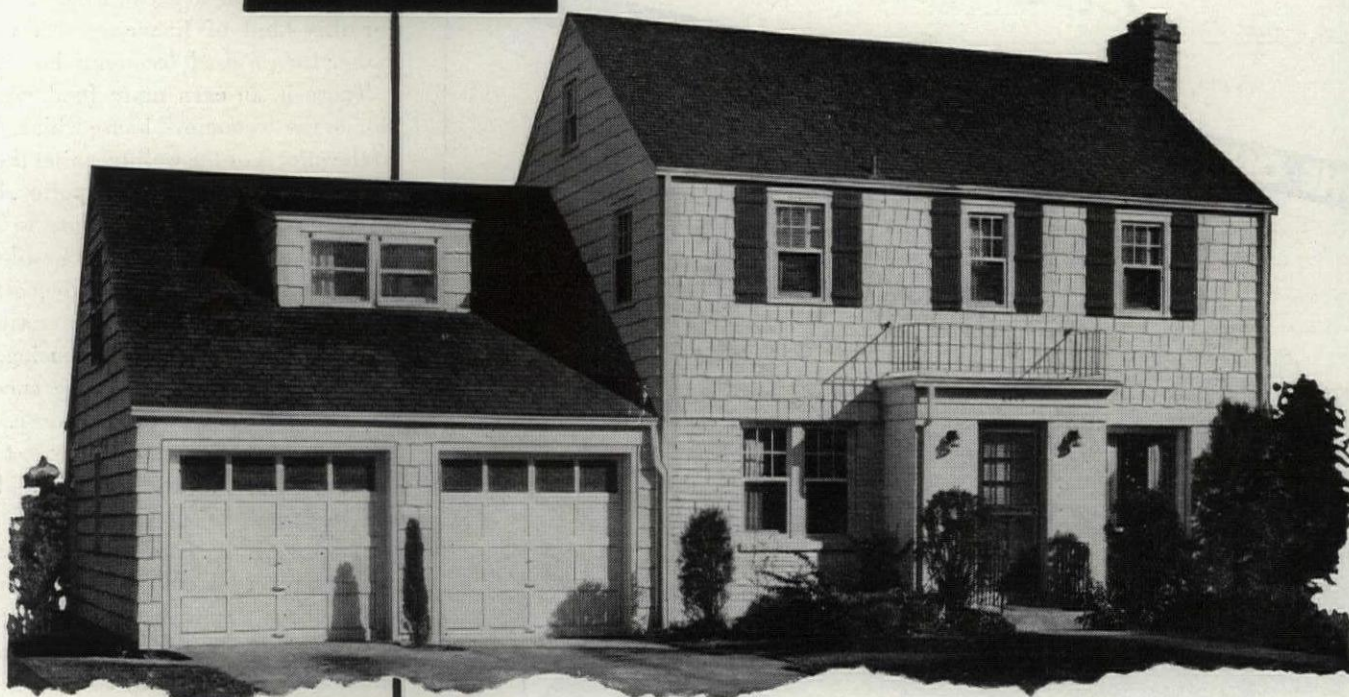


Photos: Link, R. K. Sunderbruch



# Built with the Care You Build a Fine Home

*...yet at no  
extra cost*



## Ro-Way

Ro-Way Overhead Type Doors keep their "good looks." They are designed and built to stand up in service that is rougher and tougher than any other part of the house.

First, Ro-Way Doors are Overhead Type. That means they won't freeze shut . . . snow drifts can't keep them from opening easily . . . frost-raised floors can't jam them . . . winds can't blow them off or bang them shut. They operate smoothly and easily, even if jambs become moisture-swollen. They roll up—in and overhead—out of the way.

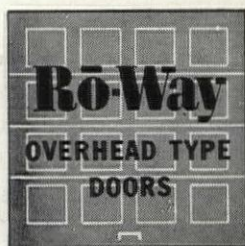
The inner surface is never exposed to weather. The outer surface is protected from rust streaks, because all Ro-Way hardware is Parkerized after fabrication. All panels are of fine quality three-ply Douglas Fir Plywood. All door sections are glued—then doweled with steel—not wood.

Ro-Way tracks are made in our own plant. So, too, are the Ro-Way ball bearing track rollers with "double-thick tread." Springs are made by Ro-Way, too—each one power-metered to the weight of the door it will operate.

That's how we build Ro-Way Doors with the care you build a fine home. That's why Ro-Way Overhead Type Doors look better longer—yet cost no more.

**For residential, commercial and industrial doors,  
specify Ro-Way Overhead Type Doors.**

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installation service. See your  
classified telephone direc-  
tory for names and addresses  
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*There's a Ro-Way  
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THE ONLY COMPLETE ALUMINUM WINDOW



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"What people are looking for," says Builder.



Val F. Herrmann  
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Gentlemen:

Enclosed is an order for Fleetlite windows for an additional group of homes which I am starting in the early spring.

After using your windows in all of my building during 1949, I can truthfully say that the fact that I was featuring your windows accounted for a ready market for my homes and advance orders extending into 1950.

It may interest you to know that recently I had one of these houses open for inspection for one day, and at that time, took orders for twelve additional homes, all to be equipped with your windows. As a result I am convinced that the new design features of Fleetlite Windows are what people are looking for even in low-cost homes, and I am therefore planning on using your products exclusively during the coming year.

Many thanks for your good cooperation and prompt service.

Write today for full details or see your distributor.

Made by  
FLEET OF AMERICA, INC.

Fleetlite  
AMERICA'S Finest WINDOW

116 PEARL STREET BUFFALO, N. Y.

## THE HOUSE MARKET

(Continued from page 120)

pocket. The other is the problem the owner faces if his family size expands. If he wants to move to a new house, he will have to sell his old one. His chance of finding another customer with access to VA no-down payment financing will probably be small—not only because many veterans will have used their guarantee, but also because a customer eligible for this kind of financing will want a new rather than a used "economy house."

There is an even more fundamental objection to the "economy" house which, due largely to the efforts of the well-meaning theorists who inspire government housing policy, has loomed so large in postwar attempts to define the housing market. That is, the liberal credit measures which bolster the low cost house are evidently based on the assumption that all families in the market for housing, no matter what their income, should be encouraged to expect a new, single-family house.

It may not be too late to suggest that this is an impossibly idealistic goal, and that considerable permanent damage to U. S. housing standards can be avoided if we abandon it. At present record income levels, 64 per cent of urban U. S. families make \$3,000 or more a year. It is a reasonable assumption that if in 1960 64 per cent of U. S. families still have this much money to spend and if the house-building industry is at that time supplying a quality house at \$8,000 and above—rather than an "economy" house at \$8,000 and below—there will be no housebuilding bust. The 36 per cent of urban U. S. families who now make less than \$3,000 a year constitute the market for new and used rental housing and for used houses—and the question of public housing.

### Houses are politics

The notion that an over-all housing shortage can only be relieved by a great drive to build new "economy" houses neglects a rather obvious fact: whenever new houses are added, even at the top of the price scale, other houses are vacated farther down. A more feasible housing goal might be to get these houses vacated at a time and in a condition which will be of some use to the families who should not be encouraged to buy a new house.

Now this is not a popular point of view—neither with the politicians responsible for our present national housing policy, nor with the housebuilders who have reaped the benefits of the various federal credit aids, nor with the 11 million tenant families who are currently enjoying the protection of federal rent control. This brings us to one of the biggest—and least analyzable—factors which affect the size and

(Continued on page 196)



*For Beauty,  
For Durability,  
More and More  
Buyers Insist On*

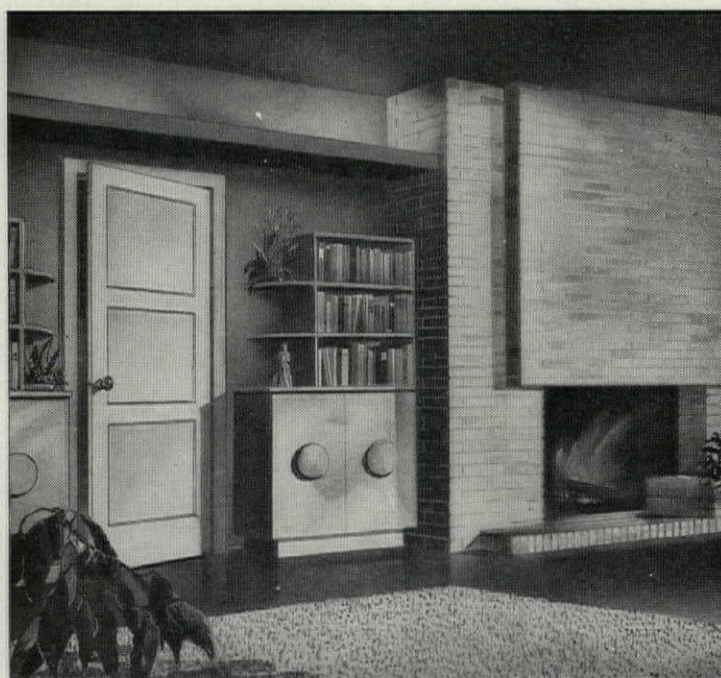
# Douglas Fir doors

**O**VER seven million Douglas fir doors were produced last year—enough for 600,000 new homes.

Six out of every ten doors sold last year were Douglas fir doors because:

1. Durable Douglas fir builds strong, serviceable doors; it takes fine finishes for doors of beauty, too!
2. Douglas fir doors are mass-produced for economy. They are manufactured in the Pacific Northwest and available everywhere in the United States.
3. Since 1947 the Fir Door Institute has inspected the quality of doors carrying the FDI registered grade marks. This year the Douglas fir door industry will again produce quality doors in quantity to meet the increased demand.

When stocking, specifying or using doors, be certain you ask for beautiful, durable, Douglas fir doors — grade-marked for your protection.



One of the most popular of all Douglas fir stock interior doors is this modern, three-panel, F3 design—here shown in a typical home installation.

**YOU HAVE QUALITY ASSURANCE  
WHEN YOU SPECIFY DOORS WITH  
THESE FDI GRADE MARKS**

Demand these FDI official stamps on every Douglas Fir door you buy. These FDI grade-marks certify that doors so marked meet *quality* Commercial Standards CS73-48—and have been officially inspected by the Fir Door Institute. At buyer's request, doors marked by FDI stamps will be covered by notarized Certificate of Inspection.

**FDI-A**

**FDI-B**

**FDI-BP**

**FDI-C**

**FDI-MR**

**Fir Door Institute**

Tacoma 2, Washington





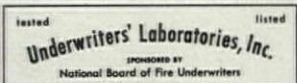
- Metropolitan
- New York Life
- Equitable
- New York City Housing Authority

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### FRESH MEADOWS, Flushing, N. Y.

New York Life's well-known 3000-apartment development, comprising two 13-story buildings and 137 garden-type apartment buildings on a 170-acre tract.

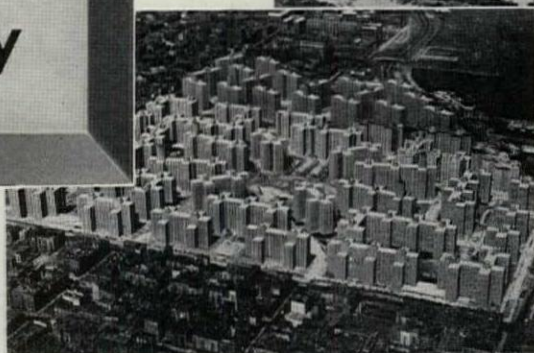
Architects: — Voorhees, Walker, Foley & Smith  
Builders: — George A. Fuller Co.



### STUYVESANT TOWN and PETER COOPER VILLAGE, New York City

Together, these adjacent developments owned by Metropolitan Life, house 11,250 families — cover 25 blocks — total 56 modern, fireproof buildings.

Architect: — Irwin Clavan  
Builders: — Starrett Bros. & Eken



### PARKCHESTER, Bronx, New York City

A city in itself, accommodating 12,272 families and providing recreational and shopping facilities. Metropolitan's original large scale project.

Architect: — R. H. Shreve, Chm.,  
Board of Design  
Builders: — Starrett Bros. & Eken



### FORDHAM HILL, Bronx, New York City

Now nearing completion for Equitable Life. Will accommodate 1,118 families. Designed to provide wide separation between the structures, and give a sweeping view from each living room.

Architects: — Leonard Schultze & Associates  
Builders: — Starrett Bros. & Eken



### SHEEPSHEAD BAY HOUSES, Brooklyn, N. Y.

Architect: — James C. Mackenzie  
Builders: — Wilaka Construction Co.

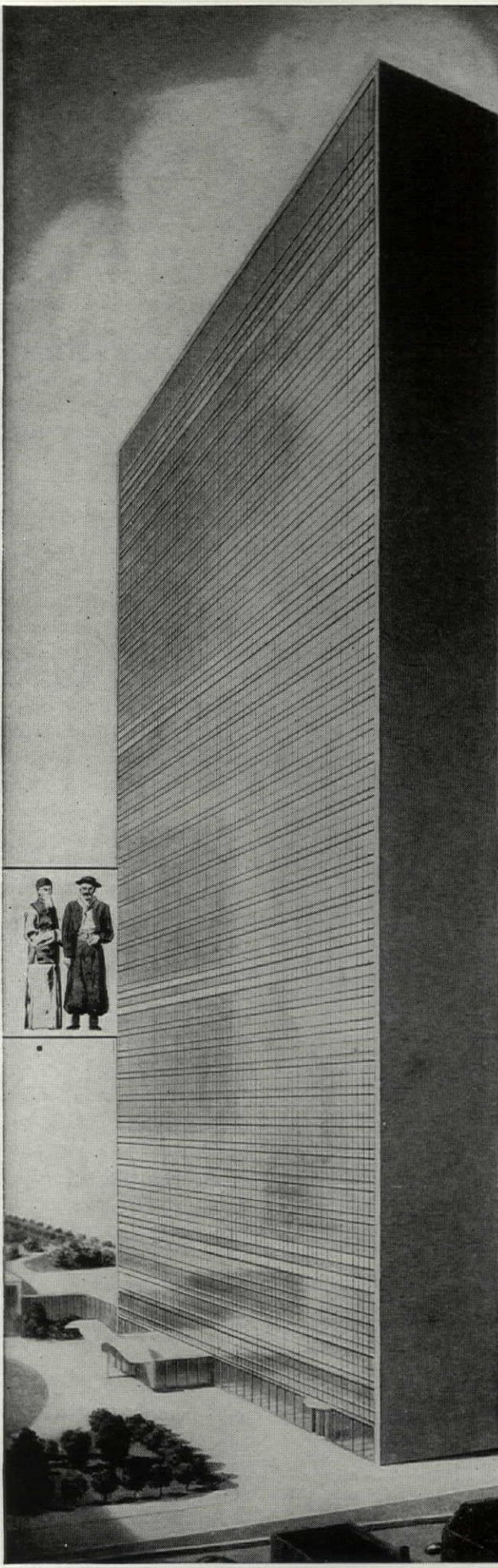
### TODT HILL HOUSES, Staten Island, N. Y.

Architect: — H. J. Feldman  
Builders: — William A. Berbusse, Jr., Inc.

These two developments are only small segments of the vast, long range New York City Housing Authority program which eventually will provide accommodations for over 500,000 families.

Photographs: FRESH MEADOWS, PARKCHESTER—Fairchild Aerial Surveys, Inc.; STUYVESANT TOWN, FORDHAM HILL—Thomas Airviews





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They will sit down under a Barrett\* roof. For the architects of the great new building now rising in New York for the United Nations Secretariat chose a Barrett Specification\* Roof for its protection.

It often seems as if there were no other roof in the world—at least, no other roof worthy of consideration in those cases where only the best will do! Wherever men build for permanence, wherever an important or monumental building is planned—whether it be a government or office building, a hotel or a huge factory—the architects and builders almost automatically select a Barrett Specification\* Roof.

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\*Reg. U. S. Pat. Off.



shape of the house market—the degree to which houses have become politics. Perhaps not even the housebuilding industry itself is fully aware of the extent to which this is true.

### Do houses support prosperity?

The President's Economic Report for 1949 showed the rather frightening extent to which the Administration is relying on its housing policies to support the whole economy. The Report found the total national product, \$259

billion, down 1 per cent (price adjusted) from 1948. It found 5 per cent of the labor force unemployed as compared to 3 per cent in 1948. It found industrial production down 9 per cent. In fact, the only element in the economy that registered decisively on the up trend was construction—showing a total 5 per cent increase in 1949 as a whole, and an even sharper rate of increase in last half of the year. Public building was up 25 per cent, while private building had dropped 4 per cent.

The only private building classification showing a gain over the year before was, of course, housebuilding. The Report attributed this not only to the estimated 15 per cent cost cut which the housebuilders succeeded in making early in the year, but also, and quite justifiably, to such credit instruments as FHA's 608 and the Federal National Mortgage Association's secondary mortgage market. To argue that such credit bolsters may not be in the long-term interest of either the housebuilding industry, the house customer or of a stable real estate price structure is to run headlong into the overwhelming political fact that the Administration is counting on them (and more of the same, if necessary) as one big way to maintain present income and production in all parts of the economy.

### Is there a housing shortage?

Another big reason why houses have become politics is, of course, the effect of postwar housing shortage on voters' attitudes. Now our Prime Housebuilding Customer is obviously not a man caught in the teeth of the housing shortage. What has happened to the Great Housing Shortage? Is there one, or isn't there one? This explosive political question has been further confused by a great barrage of contradictory "facts" over the last year. Recently the *Wall Street Journal* reported that "new housing is running ahead of population in some areas" and quoted a Detroit realtor who believes "Detroit may be overbuilt now." The *Journal* also said that the "greater New York area has an estimated 12,700,000 residents now, 8½ per cent more than a decade ago. Residential space expanded 14 per cent through new construction." The same week the *New York News* found the city's "housing headache throbbing worse than ever" and said that "the housing shortage will hound New Yorkers for an additional 10 to 15 years."

While both these statements have been used to prove various things about the New York housebuilding market, neither of them has much to do with the real facts which shape it. The *Journal's* report that we have been acquiring houses faster than we have been acquiring people is interesting, but since most of these new people are still under 10 years old, they could hardly be considered house customers. Net new family formation (marriage minus family dissolution by death or divorce) is, of course, the figure that must be used in attempting comparisons of this kind (number of U. S. households has increased 21 per cent since 1940 as compared to a population increase of 12 per cent.) As for the *News'* statement, it is obvious that shortage might conceivably persist in New York for the next

(Continued on page 202)



## PROTECTION FOR A PRECIOUS PACKAGE

What a reassuring feeling! Proud father experiences it when he views his helpless new offspring in the protective care of a well trained nurse. His friend, an architect, experiences it too, but for a different reason. For the community's new hospital he specified the "protection" of Fiberglas® Acoustical Tile ceilings. Combustible ceilings in hospitals can be tragic—as experience has shown.

Here's why he selected Fiberglas Acoustical Tile. The material is universally recognized by insurance interests as being non-combustible. This is based on Underwriters' Laboratories Incorporated's listing and as tested under Federal Specification SS-A-118a. Underwriters' Laboratories Incorporated's listing also shows smoke developed is negligible... no panic hazard, no toxic fumes.

Your own comparison will prove that Fiberglas Acoustical Tile, either Textured or Perforated, offers many other extra values, such as, dimensional stability and high sound absorbing efficiency in a material that is inherently sanitary and moisture resistant. Write us today for our A.I.A. File No. 39-B, "Fiberglas Acoustical Materials", or refer to Sweet's Architectural Files. Owens-Corning Fiberglas Corporation, Department 67-D, Toledo 1, Ohio.

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Because Hauserman products are made of steel, they won't chip, crack, warp or scale. And the bright cheerful colors and authentic wood grain finishes are baked-on to last a lifetime. In impartial tests at an independent laboratory, Hauserman's special finishes withstood 400,000 brush strokes while immersed in a 5% solution of trisodium phosphate . . . a popular interior cleaning agent. At the end of these tests there was no softening and only a slight abrading of the paint film.

There are many reasons why Hauserman Movable Steel

Note: Name of laboratory on request.

Interiors are used in the smaller as well as the larger buildings in America. Among these advantages are: 60 Beautiful Colors and Authentic Wood Grain Reproductions—Rigid Construction—Earlier Occupancy—Incombustible Materials—Ease of Adding Wires and Outlets—Ease of Servicing Utilities—Excellent Sound Control—Rock-bottom Maintenance Costs—Easy to Move.

A Hauserman representative will be glad to discuss these and all the other advantages of Hauserman Movable Steel Interiors with you, your architect and your builder. Or, if you prefer, send for a copy of our fully illustrated 60-page catalog. Just write or call the Hauserman office or representative nearby, or contact *The E. F. Hauserman Co., 6761 Grant Avenue, Cleveland 5, Ohio.*




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# ALUMINUM



Equitable Savings and Loan Building, Portland, Oregon. Pietro Belluschi, Architect. Ross B. Hammond, General Contractor. Alcoa Aluminum is used for exterior walls, window sash, flashing and ducts.

Photo: Roger Sturtevant



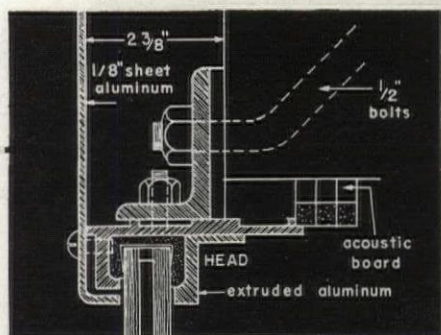
# BRIGHTENS THE BUILDING PICTURE

Across America the story of contemporary building is punctuated with such bright spots as Portland's Equitable Savings and Loan Building. Sheathed in Alcoa Aluminum, this building reflects the advanced thinking that is in every part of its design and construction.

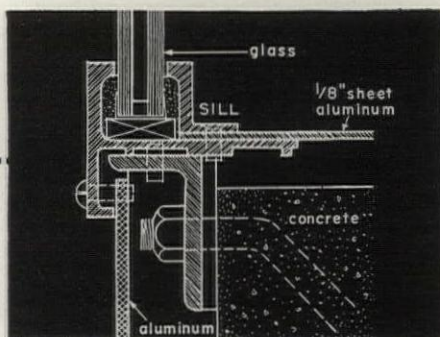
The lightness and structural honesty of contemporary architecture are well expressed in aluminum—the modern metal. This expression springs from the inherent qualities of the metal itself. For no other building material so well combines workability, strength, weather resistance, good appearance, lightness, economy, long life and ease of installation.

The host of new buildings that make extensive use of aluminum's unique qualities stand as proof that aluminum has come of age as a building material. Consider it not only for the visible applications . . . walls, windows and trim . . . but for the hidden places . . . ducts, wiring, insulation, flashing and vapor barriers . . . where economy, conductivity, reflectivity or freedom from corrosion and decay make Alcoa Aluminum the logical material.

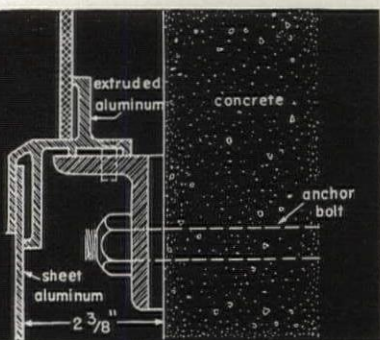
To architects designing in aluminum, Alcoa offers engineering assistance and a fund of aluminum knowledge gained through sixty-two years of research and development. For a forward look at aluminum's place in the building world, ask to see the film or book, "The Davenport Story". Call or write your nearby Alcoa Sales Office or ALUMINUM COMPANY OF AMERICA, 1887D Gulf Building, Pittsburgh 19, Pennsylvania.



Extruded aluminum channels, bolted to the concrete frame, hold the surface system consisting of glass, aluminum sheet and sheet aluminum spandrels. Light weight of units facilitated handling and installation.



Surface material was moved up on building's own elevators and assembled in place. Portability and precise dimensions permitted use of hand tools and standard handling and fastening methods.



All exterior surface units were installed from portable painters' rigging instead of conventional and costly scaffolding. Erected nearly two years ago, building's performance has exceeded expectations.

Plates courtesy Architectural Forum

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**COLOR**, used for decorative purposes in public and private office buildings, has taken on new significance in recent years because of its psychological and physical effect upon human beings.

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● **With this painting system** you choose *with scientific accuracy* the

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● **You lessen eye-strain**, stimulate concentration, promote comfort and cheerfulness among those who work in these offices. Housekeeping problems are simplified.

● **COLOR DYNAMICS** makes office quarters look different and more attractive. It makes them seem longer or wider, higher or lower. You paint sunlight into dark and dismal halls and stairways. Lobbies and reception rooms reflect the spirit and character of their tenants.

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● For a complete explanation of what COLOR DYNAMICS is and how you can put it to work for you, send for our profusely illustrated booklet which contains numerous examples of its use in the painting of office buildings. It's FREE!

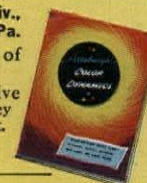
Better still, let us submit a color engineering study of your building, free and without obligation.

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### THE F. C. RUSSELL COMPANY

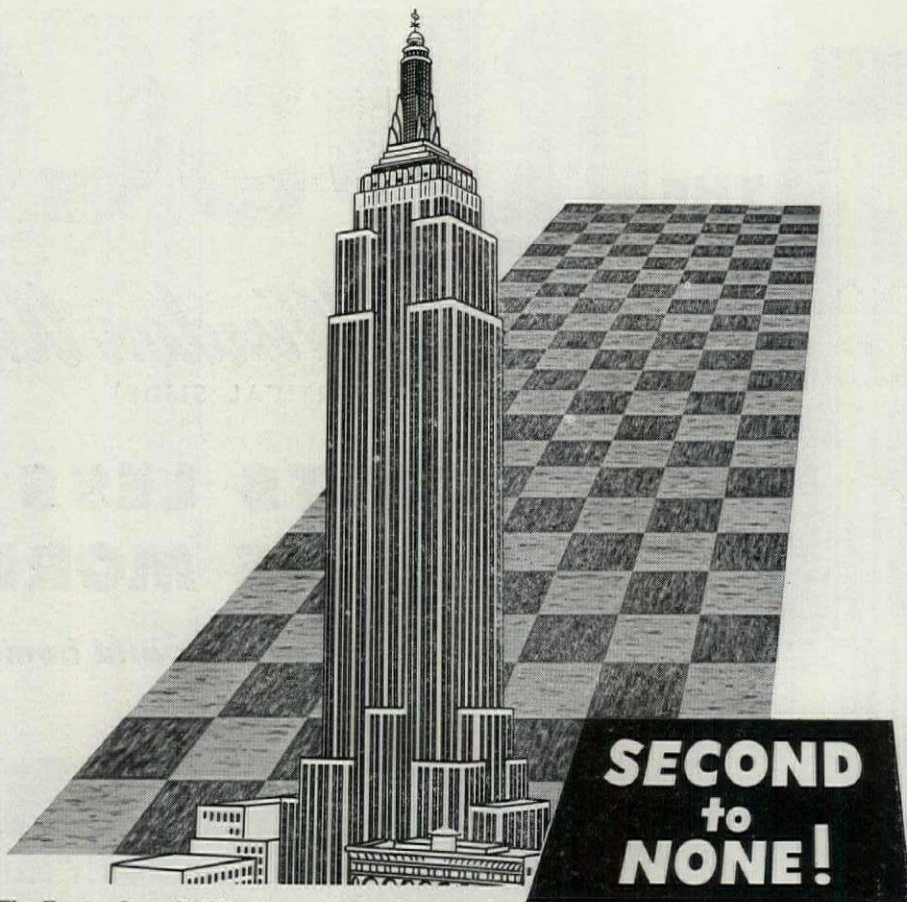
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\*OPTIONAL





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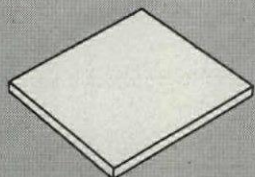
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And this reputation is well-earned. A glance below will show you the variety of products Hood offers... products that provide the answer for every flooring problem. When you

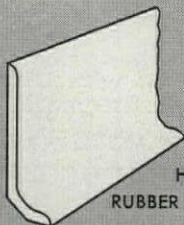
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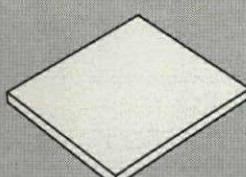
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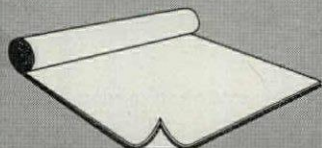
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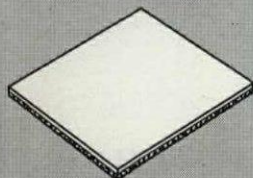
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**TWO GREAT NAMES**



**TWO GREAT TILES**

## THE HOUSE MARKET

decade without affecting the housebuilding market if it were limited to income levels which cannot afford to pay the prices and rents of new construction.

In 1948, for the first time since the Twenties, new house starts (913,000) ran ahead of nonfarm family formation (estimated at 834,000). For the ten years, 1940-49, as a whole, the supply of new dwellings (not counting the highly controversial matter of the number and quality of units added by conversion) has not quite kept pace with new family formation. During this decade, the number of nonfarm households increased by 7.2 million, and some 5.8 million new nonfarm dwellings were supplied. This amount of new family formation is about three times our previous rate of growth. It occurred for these main reasons:

- 1) There were more people of marriageable age than ever before (the World War I crop of babies had grown up).
- 2) More people got married (the marriage rate jumped 50 per cent).
- 3) More people moved from the farm to the city than ever before.

By the Spring of 1948, according to the Housing and Home Finance Agency, some 7.1 per cent of all married couples were doubled up. Now this can probably be considered close to the peak of the postwar housing shortage, and it is interesting to note that this percentage was only slightly higher than the 6.8 per cent of married couples who were doubled-up in 1940—when we heard very little about a housing shortage.

The big difference, of course, is that most of the 1948 couples who were living with their in-laws, etc. had the money to pay for separate housing. In fact, everybody in the postwar housing market had more money to spend for housing than they had ever had before. And one of the astonishing facts is that about half of them were, on the average, spending less. Rents paid in 1948 averaged 12 per cent of tenants' income as compared with the Bureau of Labor Statistics' estimate of 17 per cent in 1940.

### Effect of rent control

The 169 per cent rise in personal income which took place between 1940 and 1949 enormously increased both quantity and quality demand for housing. At the same time, rent control suspended the normal action of this demand on almost half our total housing supply. Sherman Maisel has made an interesting estimate of how much increased income affected the demand for housing in various

(Continued on page 206)



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(WITHOUT MUNTINS)

To meet the growing use of *Thermopane*\* insulating glass in windows throughout the house, several steel casement manufacturers are now producing standard units with sections of proper width and depth to assure a good installation.

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The diagrams below show standard casement windows in wood and steel designed specifically for *Thermopane* glazing. The *Thermopane* units can be obtained in  $\frac{1}{8}$ " Polished Plate Glass or DSA Window Glass, with  $\frac{1}{4}$ " air space. For full information, see your Libbey-Owens-Ford Glass Distributor, or write us.

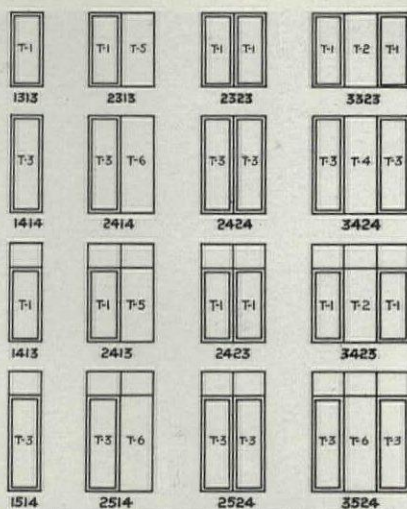
\*®



### Residential Steel Casements for *Thermopane* Glazing

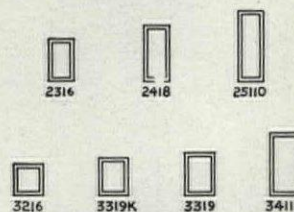
#### Thermopane Standard Sizes for Steel Casements

T-1  $15\frac{15}{16} \times 35\frac{5}{16}$   
 T-2  $15\frac{15}{16} \times 36\frac{11}{16}$   
 T-3  $15\frac{15}{16} \times 47\frac{11}{16}$   
 T-4  $15\frac{15}{16} \times 49\frac{7}{16}$   
 T-5  $17\frac{3}{16} \times 36\frac{11}{16}$   
 T-6  $17\frac{3}{16} \times 49\frac{7}{16}$



### Pella Standard Wood Casements for *Thermopane* Glazing

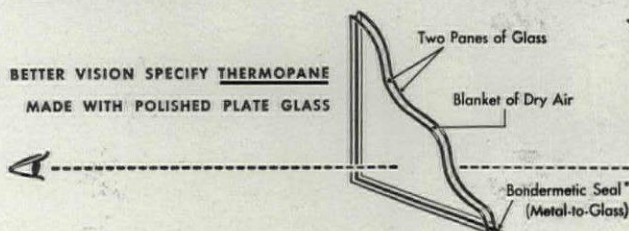
#### Thermopane Standard Sizes for Pella Casements



These sash units may be used in multiples and as flanking casements.

20" x 36"  
 20" x 48"  
 20" x 60"  
 24" x 24"  
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 24" x 36"  
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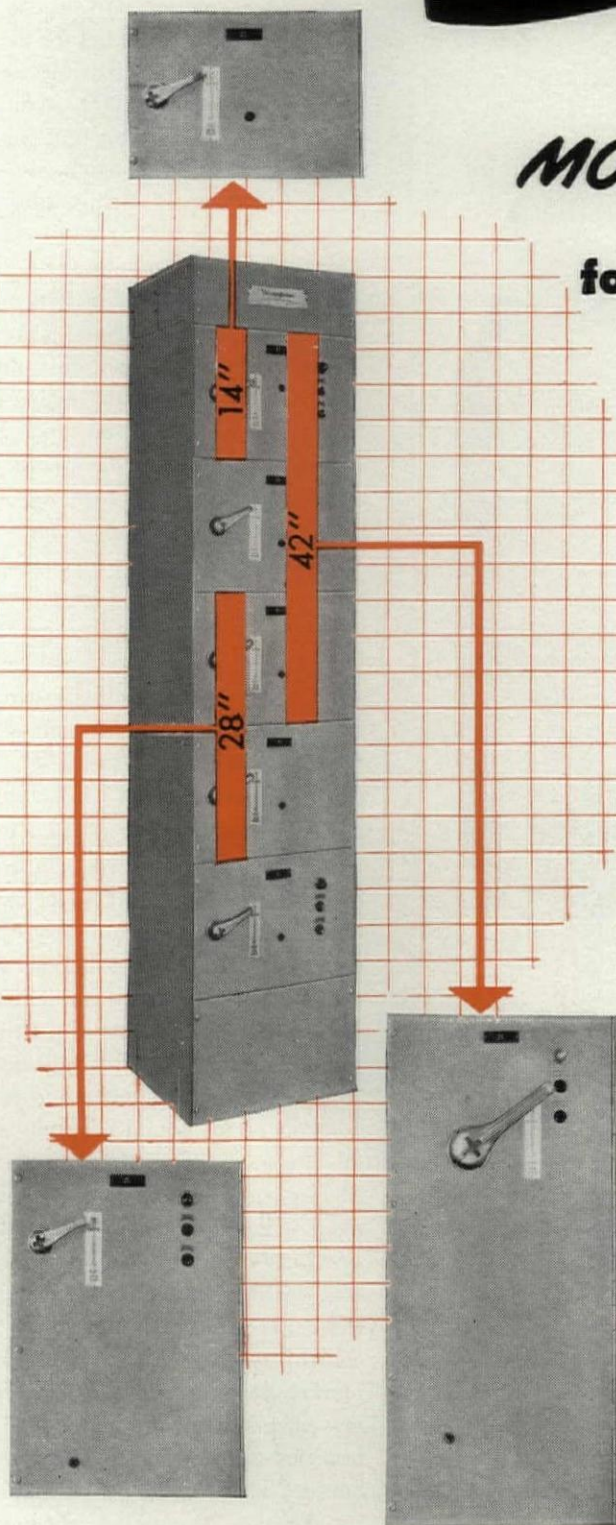
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**CONTROL  
CENTERS**





HOUSING DEMAND & SUPPLY BY MONTHLY RENT GROUPS

Rent groups		Estimated 1947		
		demand in	1946 supply in million units	
\$	%	million units	at 1940 prices	at 1940 prices + 50%
Under \$10 .....	8.5	2.9	5.1	3.4
10-19 .....	12.2	4.2	7.5	4.2
20-29 .....	15.8	5.5	7.2	5.0
30-39 .....	16.3	5.6	5.5	4.8
40-49 .....	13.4	4.6	3.1	4.3
50-74 .....	19.8	6.8	2.8	6.7
75 and over .....	14.0	4.8	1.2	4.0
Total .....	100.0	34.4	32.4	32.4

price classes (see table). According to Maisel's table\*, demand was sharpest for housing that cost \$50 or more a month. The table also shows that even if rents had risen 50 per cent over 1940 (assuming no rent control) demand would still have sharply exceeded 1940 supply in this higher price category.

Any close scrutiny of the relation of rents to income will suggest the unpleasant possibility that many families have become used to earmarking a smaller part of their budget for housing than they did before the war. A 1948 housing survey in Seattle showed 5,200 families in the \$4,000-5,999 income group who were paying \$39 or less rent per month (these families might be considered \$8,000-\$12,000 house customers). An additional 2,050 families earning \$6,000 or more were paying \$49 or less rent per month. Opponents of rent control will point out that such discrepancies between rent and income have simply been subsidizing the automobile industry, the textile industry, etc., at the expense of the landlord. This argument, however, holds no solution for what would face some 36,750 other Seattle families who earn less than \$3,000 a year—about half of all tenants—if rent control were lifted. The income-rent table provided by the Seattle survey suggests that the majority of these families are already paying every penny they can afford to pay for rent. This is the dilemma which, plus rent control's great popularity with tenant voters of all income classes, has kept this last vestige of war controls on the books for so long.

Federal economists are now worrying more about what the end of rent control might mean to such economic soft spots as textiles than about what it might do to housebuilding costs and prices, which they believe have achieved relative stability. Some influential Federal Reserve Board economists argue that it is better to take the inevitable readjustment now rather than later. Even a shift from federal to state controls seems bound to produce considerable movement in the real estate market, but few economists agree as to just what this movement will be. Some predict that rent rises in previously controlled units will be offset by rent declines in uncontrolled units (mostly in FHA 608 projects). How many families rent control repeal will put into the new house market depends not only on how these rent movements turn out but also on what these families can get for their money in the new house. That is, if our Prime Customer is faced with a 20 per cent rent increase, he may decide to increase his monthly housing ex-

\* Unpublished thesis for the Ph.D. degree, Harvard. Mr. Maisel is a professor of business, Univ. of California.

(Continued on page 208)



Shafts of refracted light attained by the use of Structural Corrugated Glass dramatize the entrance to Beloit College Field House, Beloit, Wisconsin.\* Note how the bright, vertical lines accent height, lend stature and dignity, increase the apparent size of the structure. Transmitted light gives the modern architect another dimension... broader scope for his talents. For exteriors of weather-defying beauty and interiors high in interest, specify Structural Corrugated Glass by Mississippi.

Obscure glass by Mississippi is available in a wide variety of patterns and light transmission characteristics to meet architectural or structural requirements in any location or exposure.

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\*W. Fred Dalke, Architect;  
Maurice Webster, Associate Architect;  
Cunningham Bros., General Contractor.

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The substantial quality of the Thoro System products has been established by years of trials and weathering.

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*Standard Dry Wall Products*  
BOX X, NEW EAGLE, PENNSYLVANIA



penditure even more than this if he can get what he wants in livability in a new house.

#### Rate of family formation

For the last 50 years, the U. S. has been building houses at the average rate of 500,000 per year. Net family formation has averaged about 400,000. Thus the margin over new demand has been only about 100,000 new houses a year. (At this rate, it would take 400 years to replace all existing U. S. houses.) It is

often pointed out how closely the sharp fluctuations in housebuilding correspond to the fluctuations in new family formation, and it is usually concluded that the latter is directly responsible for the former. The more basic cause of both fluctuations is a rise in income. The majority of newly formed families do not appear immediately in the new house market. Some of them stay on with parents (the 1940 census showed that 20 percent of couples marrying do not establish separate living

quarters until more than a year after marriage), more of them move into rental space. The Federal Reserve Board survey showed that of all those who bought houses during the years 1946-48, less than 10 per cent seemed to be newly formed families.

The fact that the high postwar birthrate, has as yet shown no marked drop is of more immediate interest in the new house market. When the first child is born, families with enough spending power become interested in the suburban location offered by new houses. If a second child is born, this interest often becomes an imperative demand. For what it is worth in the way of prediction, the post-World War I birth rate reached a peak in 1921 and did not drop much for seven years afterwards. The post-World War II birth rate peak was in 1947, suggesting that the house building industry may look forward to six more years of a sustained high birth rate.

#### Key to the replacement market

Now the forecasts which hold that the new house market will contract sharply within the next two or three years assume that the postwar housebuilding boom has been in response to temporary factors which will disappear by that time. These factors, as discussed above, are 1) the high marriage rate; 2) the high rate of undoubling; 3) the high birth rate; 4) high family income. Of these, only the first two are currently turning downward. Contrary to many expectations, the high birth rate and the high national rate of employment and income have dropped only slightly. These last cannot, therefore, at the present time be decisively classed as "temporary" factors in housebuilding expansion. Moreover, as suggested above, high birth rate and high income may be much more decisive in demand for *new* houses than either the marriage rate or the rate of undoubling — which sharply affect overall housing demand but not to the same degree the demand for new houses.

The sustained strength of the birth rate and income factors in the new house market give reality to what has been until now a rather visionary goal—the replacement market. This simply means that the large number of growing families with adequate incomes who are housed in older dwelling units have both the drive and the resources to improve their living conditions. Whether they will do so (assuming continued high incomes) depends to an important degree on how much the housebuilder can offer them in genuinely improved livability.

To replace all the U. S. houses that are now 75 years and older within the next decade would mean building 250,000 to 300,000 units

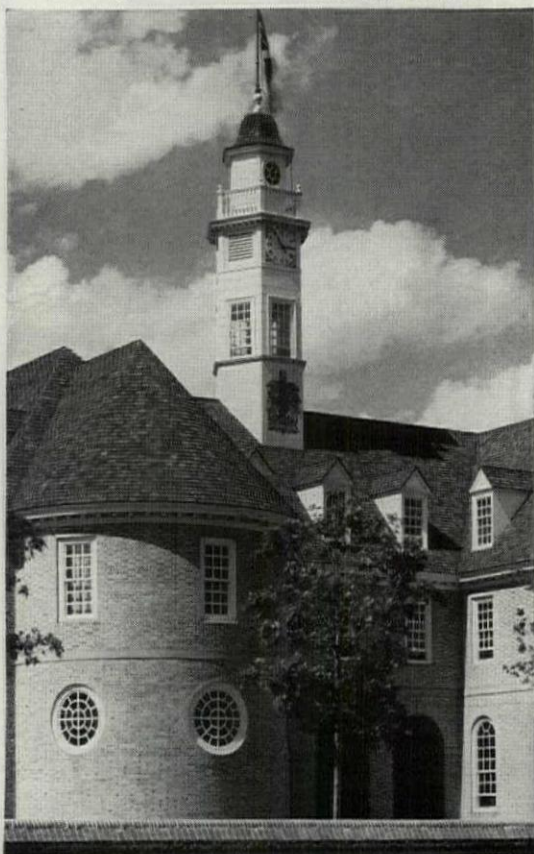
(Continued on page 212)

## The Roofs of Williamsburg...

Authenticated by...

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Roof of the reconstructed Colonial Capitol of Williamsburg  
Architects: Perry, Shaw and Hepburn • Photographer: F. S. Lincoln



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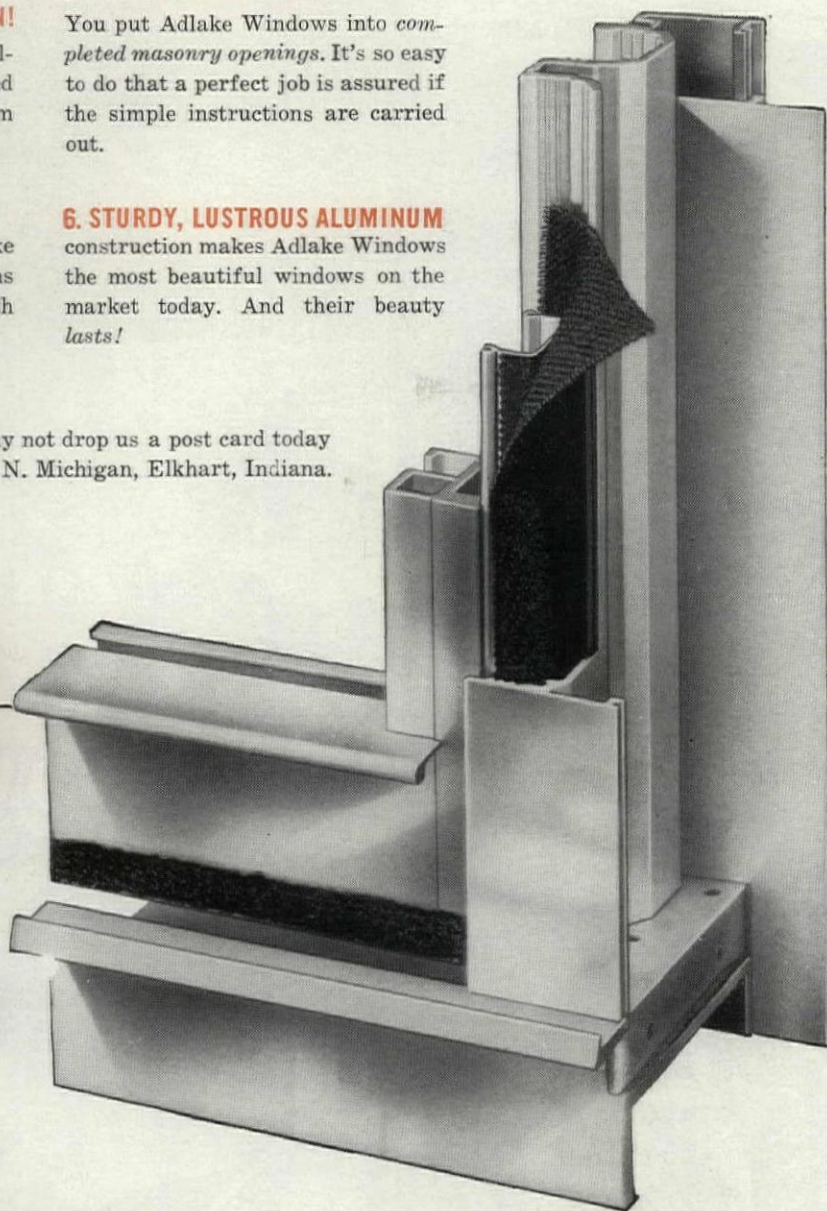
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## VA-GUARANTEED NEW HOUSES

Purchase price	1948*		1949	
	Number	%	Number	%
Under \$5,000	3,870	5.3	4,750	2.9
5,000-6,000	2,920	4.0	5,248	3.2
6,000-7,000	5,914	8.1	17,748	10.9
7,000-8,000	10,295	14.1	26,808	16.4
8,000-9,000	13,142	18.0	32,126	19.7
9,000-10,000	12,120	16.6	28,509	17.4
10,000-12,000	14,310	19.6	29,901	18.3
12,000-15,000	7,228	9.9	12,519	7.7
15,000-20,000	2,555	3.5	4,572	2.8
20,000 and over	657	0.9	1,295	0.8

\* Last six months.

## NEW FHA INSURED ONE-FAMILY HOUSES

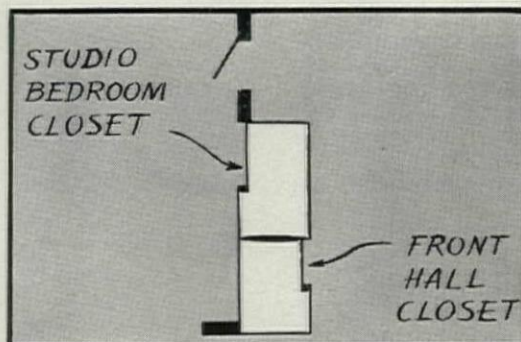
Appraisal value	1946-1948	
	Number	%
Less than \$5,000	5,772	2
5,000-5,999	13,487	5
6,000-6,999	36,015	11.4
7,000-7,999	62,270	21
8,000-8,999	78,683	26
9,000-9,999	58,450	19.4
10,000-10,999	32,563	11
11,000-11,999	6,902	2
12,000 and over	7,390	2.2
	301,532	

BIGGEST VOLUME OF FHA-insured new house-building has been in the \$8,000-8,999 price class since the war. Next biggest volume has been in the \$7,000-7,999 price class. VA figures show a similar concentration around the \$8,000 house, but a heavier concentration in the \$10,000-12,000 class.

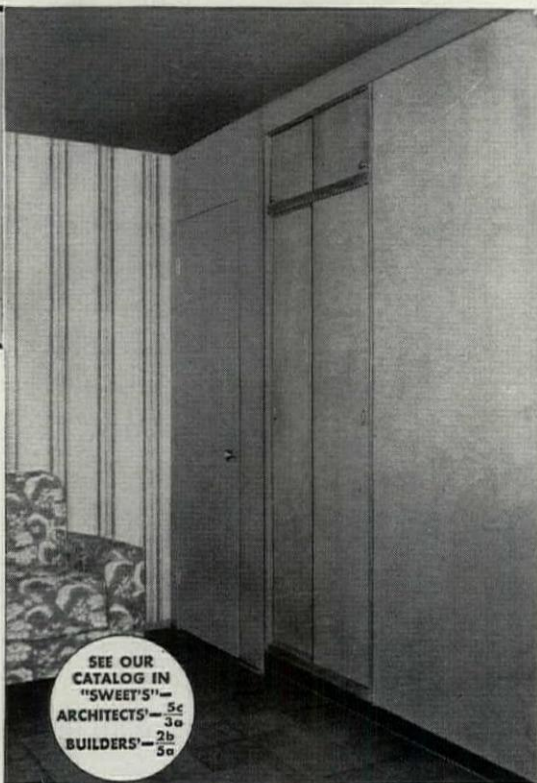
a year. As additional houses reach the 75-year-age, this replacement rate would climb as high as 500,000 a year. This fairly conservative program of replacement, added to the annual demand based on the normal rate of new family formation, could maintain approximately the present rate of housebuilding for the next decade.

There are many factors involved in translating the replacement market from wishful thinking to effective reality. Some of these are obviously outside the control of the individual housebuilder—to mention only a few: the relation of rents to the monthly cost of new housing; the relation of the price of old houses to the price of new ones; the effect of federal credit policies. But there is at least one major factor in energizing the replacement market clearly within the individual housebuilder's control—that is, the amount of added livability he can offer the already-housed customer at a competitive price.

Because of increased construction costs, the new house cannot compete very sharply with the old house in terms of space alone. But it can compete decisively with the old house in terms of how space is handled to yield increased livability. That operative housebuilders are aware of how much skilled modern architects can help them in bolstering their market is plain in the rest of this issue. The question of the Quality House is really a question of how far the operative housebuilder is able to extend the planning luxuries hitherto confined to custom building within his mass production formula. To the degree that he is able to do this, so he will be able to move out of the shortage—or desperation market—and into the replacement market. If the operative housebuilder can consciously and fully exploit the advances of modern design to make already-housed families dissatisfied with the whole way of life dictated by their present obsolete housing, he may not have to worry about a housebuilding bust.



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ARCHITECTS—5c  
BUILDERS—25c

MENGEL Wall Closets are one of the outstanding "extras" that Paul E. Schleicher & Sons incorporated into their recent ninety-home project in Gary, Indiana. By using Mengel Wall Closets, they offered prospective buyers a larger amount of living space . . . handsome Birch-panelled walls . . . and six distinctive, efficient and beautifully modern closets. *Yet these homes sell at just slightly over \$9000!*

Two of the six closets are shown above—one serving the studio-bedroom and the other, the hall. The net effect is of an attractive Birch-panelled wall in both bedroom and hall. Yet these two spacious and usable closets, with their efficient sliding doors, represent the most advanced storage concept. They are

equipped with adjustable shelves and adjustable clothes rods so that the housewife can rearrange the interiors, from season to season, to provide the right proportion of "hanging space" and "shelf space." They are scientifically designed so that every cubic inch of interior space provides usable storage.

And very important to any builder, Mengel prefabricated wood Wall Closets are shipped K.D. with front frames and doors assembled, all parts completely fabricated and hardware included. *They can be assembled and installed in a half hour or less!*

Don't Mengel Wall Closets suggest some ideas to you, too? We'd be happy to give you all the facts.

Cabinet Division—Dept. AF-3

THE MENGEL COMPANY

1122 Dumesnil St., Louisville 1, Ky.

Gentlemen: Please send me complete information about Mengel Wall Closets and Closet Fronts.

Name \_\_\_\_\_

Firm \_\_\_\_\_

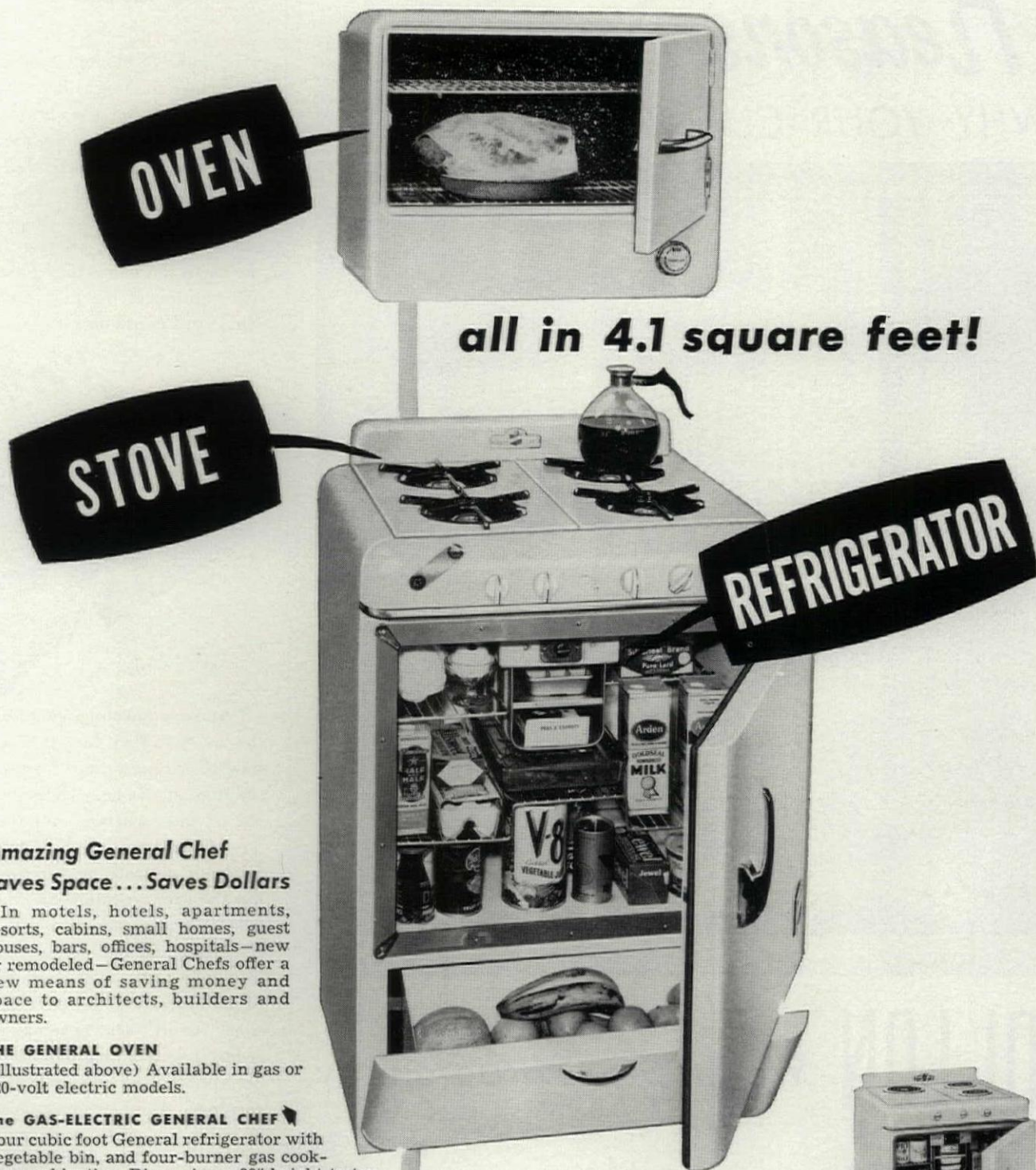
Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



TRADE MARK REG. U. S. PAT. OFF.





### Amazing General Chef Saves Space... Saves Dollars

In motels, hotels, apartments, resorts, cabins, small homes, guest houses, bars, offices, hospitals—new or remodeled—General Chefs offer a new means of saving money and space to architects, builders and owners.

#### THE GENERAL OVEN

(Illustrated above) Available in gas or 220-volt electric models.

#### The GAS-ELECTRIC GENERAL CHEF

Four cubic foot General refrigerator with vegetable bin, and four-burner gas cooking combination. Dimensions: 39" height to top of grates; 27½" width; 23" depth over handle.

Also available... four cubic foot General refrigerator with Formica table top, or without table top for built-in installations.

#### The ALL-ELECTRIC GENERAL CHEF

Four cubic foot General refrigerator with vegetable bin and three-burner electric cooking combination. This is the 220-volt model, with one 2150-watt and two 1000-watt burners. Also available in 115-volt model, with two 850-watt burners, to plug into any household line. Dimensions: same as gas model.



COMPLETE INFORMATION AVAILABLE IMMEDIATELY  
SEND FOR DATA FILE TODAY



# GENERAL

air conditioning corporation

4542 East Dunham Street, Los Angeles 23, Calif.

Builders of America's Finest Budget-Priced Refrigerators

**nationwide sales and service**

**GENERAL AIR CONDITIONING CORPORATION**  
**4542 East Dunham Street • Los Angeles 23, Calif.**

Please send me your data file on General Chef cooking-refrigeration combinations. Include specification data on the complete line of General refrigerators.

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# 3 Reasons

WHY YOUR CLIENTS WILL LIKE . . .



## DI-LON Wallpaper Extraordinary

### 1. Satisfying Beauty

### 2. Authentic Reproductions

### 3. Unusual Decorative Effects

DI-LON Wallpaper harmonizes so completely with the architecture. Whether the motif be modern or formal there are DI-LON patterns that will fit into the decorative effect and round-out a home beautiful. Equally effective for offices, institutions and industrial plants. Couple these with the fact that DI-LON is washable and sunfast and you have a real economy factor. Authentic reproductions of marbles, wood grains, leathers and other unusual subjects.

*Ask us for samples and name of nearest supplier.*



**THE DI-NOC COMPANY**  
1700 LONDON ROAD • CLEVELAND 12, OHIO

## FRITZ BURNS' SALESMANSHIP

*(Continued from page 133)*

ceremony) to our new purchasers at the time they make the initial deposit.

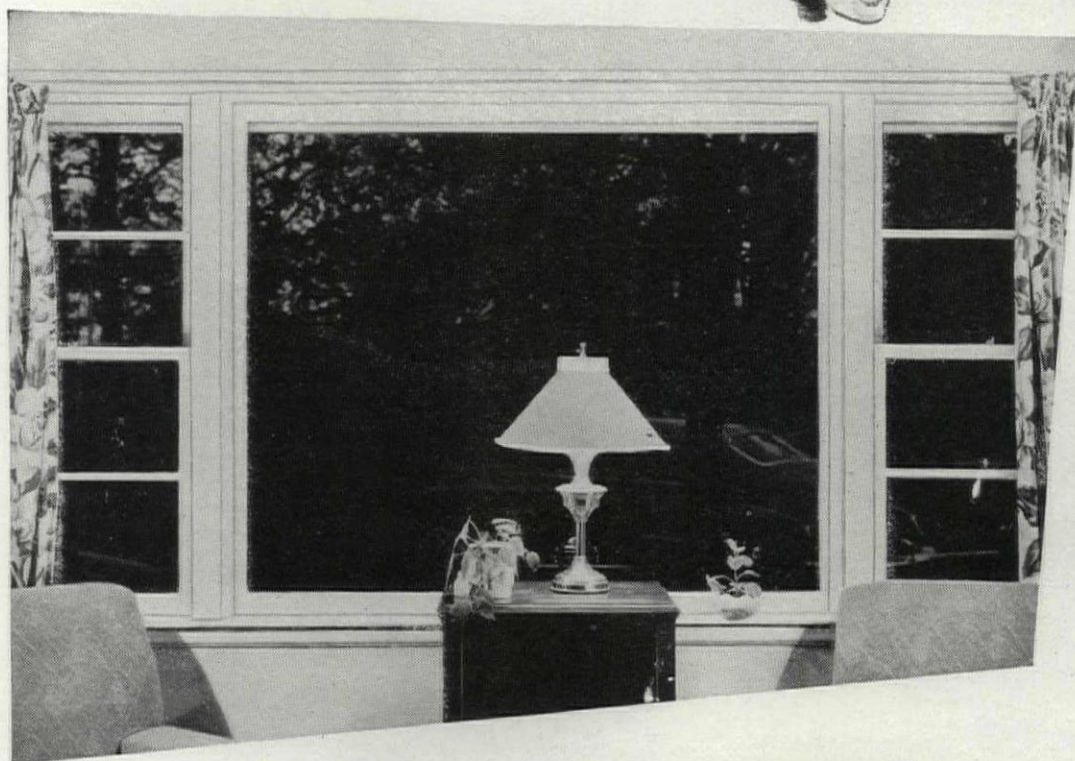
"Envelope No. 1 is entitled 'Picture of your home.' In this envelope are a dozen picture post cards of the particular model that they have just purchased. The minute they get home that night they can start writing post cards to everybody all over the country, showing them the house they have just purchased. The caption of the post card says 'Our New Home in Panorama City.'



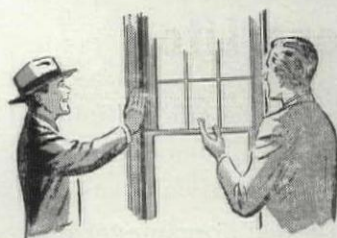
"Another envelope contains a floor plan of the house so they can sit down and figure out how to arrange their furniture and how big the rugs should be. They can even start working on those curtains, for they have the window dimensions. A third envelope contains a big map of metropolitan Los Angeles showing the exact location of Panorama City and a large scale tract map with their particular lot marked in red. In another envelope there is a copy of the tract restrictions and a copy of the locally required real estate commission's report. One envelope explains the procedure for obtaining the military property tax exemption to which all California veterans are entitled. Another envelope tells them where to go to sign up for their water, gas and electricity; also the regulations regarding fences and how to find the exact corners of their lot. The next envelope is for the safe keeping of their insurance policy, and the final envelope is marked 'Deed to your Home.' They don't get that deed immediately, but at least they know it's coming.

"Finally there is a booklet entitled *Keeping up with the Joneses!* We see on the cover a dowager-type of lady peeping through a knot-hole at the Jones house, evidently next door. Similar good humored caricatures and copy tell the new purchasers how to take care of their home, how to take care of a blown out fuse, how to adjust the hot water heater and furnace, and so forth, how to repair broken windows, how to fix a 'singing toilet' or a leaking faucet. In other words an instruction book just like you get with your automobile."



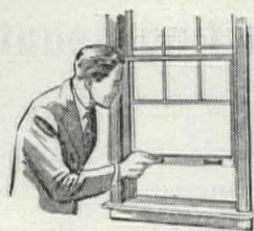


## Why Silentite Windows ...make happy home owners!



### WEATHER STAYS OUTSIDE

Patented "floating" weather-strips—exclusive Curtis-designed weather-stripping at head, meeting rail, and sill—*plus* the insulating value of a wood window. That's why Silentite windows are weather-tight—dust-tight. Wind infiltration is reduced to a minimum—comfort stays *in* while the weather stays *out*.



### EASY YEAR-ROUND OPERATION

No tugging, no straining, to open a Silentite window. Silentite spring suspension keeps these windows operating easily through constant use. No rattling or banging either—and, of course, no weights, cords or pulleys. Curtis also makes Silentite in casement units.



### MODERN BEAUTY IN 12 STYLES

Slender mullions—wide glass areas—beautiful Miterite trim—these qualities put Silentite windows at the head of the beauty parade. Silentite windows are available in 12 sash styles—all economical because they are quickly installed. Silentite is a popular choice with women.

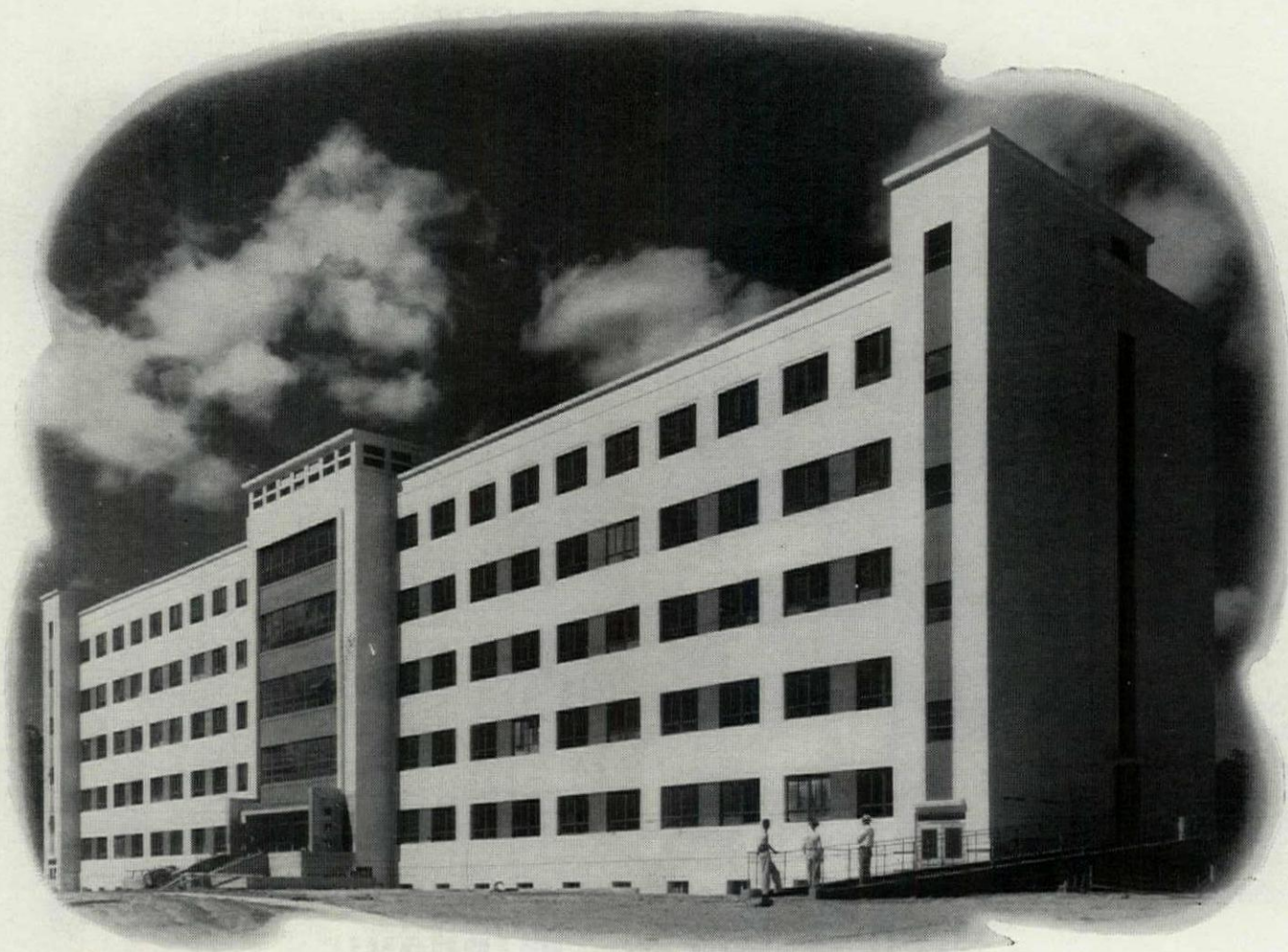
Curtis makes a complete line of architectural woodwork for the modern home. Make your next house "all Curtis."



Curtis Companies Service Bureau  
AF-4S Curtis Building  
Clinton, Iowa  
Please send me book on Silentite windows, including casements.  
I am ☐ architect ☐ contractor ☐ prospective home builder ☐ student.  
(Please check above)

Name.....  
Address.....  
City..... State.....





## Choose *Architectural* Concrete for Individuality, Lasting Beauty and Long Life

**M**UNICIPAL HOSPITAL in Tallahassee, Fla., illustrated above, is an excellent example of the modern structural beauty that can be achieved by designing in architectural concrete. Structures like this are distinctive in appearance yet their imposing character and individuality is only the outward mark of the many other desirable qualities of architectural concrete.

Architectural concrete structures are firesafe. Being moderate in first cost and requiring little maintenance over a long life, they render true **low-annual-cost** service.

Besides being ideal for clean, sanitary and easy-to-care-for hospitals, architectural concrete is equally adaptable for apartments, schools, public buildings, theaters, factories, stores and commer-

cial structures. It has great strength and unusual durability, yet can be molded economically into either bold or delicate ornamentation of any style.

By applying the time-tested principles of quality concrete construction architects can design long-lasting architectural concrete buildings with every assurance of lasting satisfaction to client, investor, taxpayer and designer alike.

For helpful information in obtaining quality concrete structures write for free, 70-page booklet, "*Design and Control of Concrete Mixtures*." Distributed only in the United States and Canada.

•

Municipal Hospital, Tallahassee, Fla., is a five-story, 150-bed structure, 48 x 284 ft. in size. Yonge & Hart, architects and engineers; Southern Builders, Inc., contractor.

**P O R T L A N D   C E M E N T   A S S O C I A T I O N**  
D E P T. 4 - 7, 33 W E S T G R A N D A V E N U E, C H I C A G O 10, I L L I N O I S

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

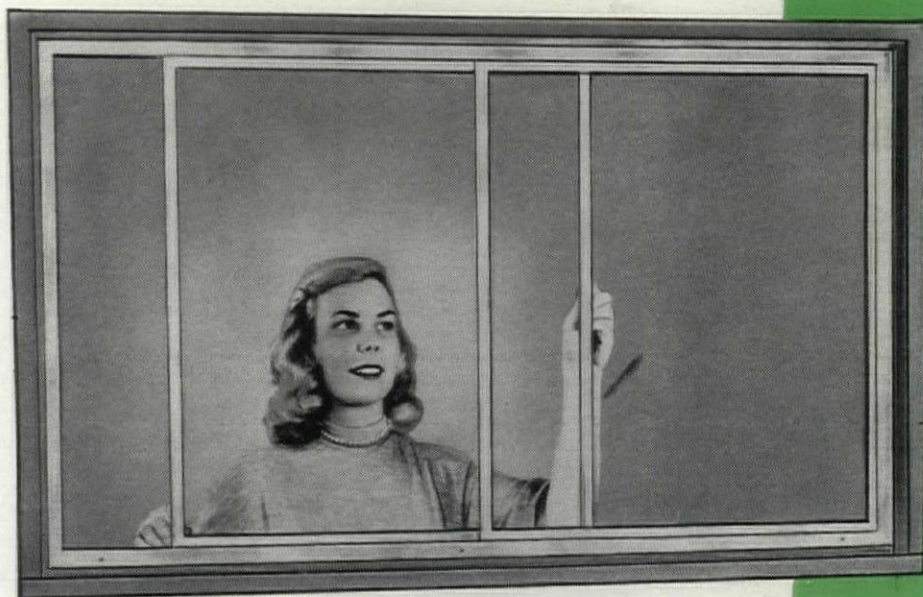


# ***NEW***

# **ALWINTITE**

## **ALUMINUM**

# **SLIDING WINDOW**

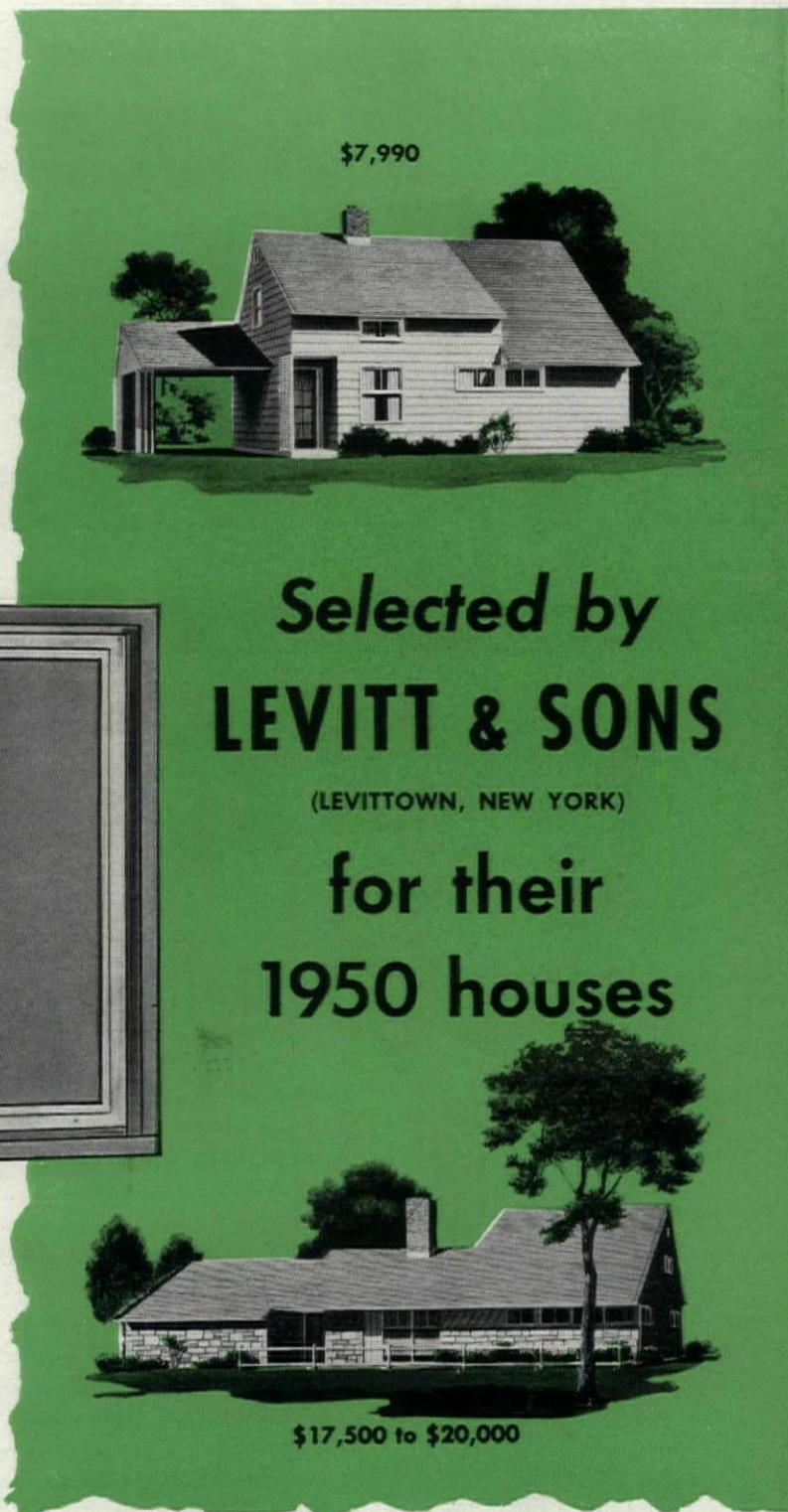


ALWINTITE introduces a new stainless-steel, weather-stripped, aluminum sliding window...and what happens?

America's largest residential builder features these new ALWINTITE sliding windows in *all* his 1950 houses—both in the \$7990 houses as well as the \$20,000 homes.

Out of some 16 different windows that were submitted Levitt & Sons selected the ALWINTITE sliding window because of its quality in design, material and manufacture, its smart styling, its functional efficiency, its permanence, its ease of installation and its final low "installed cost." Once you've seen these new windows for yourself, you'll see why.

Home buyers will find these windows wonderfully easy to operate and maintain. Both sash are readily removable for full ventilation and easy cleaning. They never need



\$7,990

*Selected by*  
**LEVITT & SONS**

(LEVITTOWN, NEW YORK)

*for their*  
**1950 houses**

\$17,500 to \$20,000

painting or routine upkeep. They fit beautifully into any modern or ranch-type house and can be used singly or in any number of interesting combinations, with or without fixed lights. Screens and stormsash are also available.

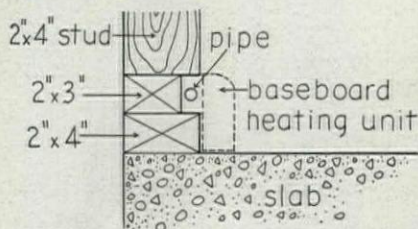
You can benefit from all of these advantages in your houses—whether your plans call for ten units or ten thousand. Investigate today. We'll send you complete details and prices. Just write or wire. Dept. F-4.

ALUMINUM WINDOW CORPORATION—A subsidiary of  
**GENERAL BRONZE CORPORATION**  
STEWART AVENUE • GARDEN CITY, N.Y.



## INCENTIVE BONUS PRODUCTION

(Continued from page 141)



**PLUMBING COST SAVERS:** The upper member of the wall's double shoe is a 2 x 3 creating a 1 in. recess into which is fitted the supply or return pipe in the baseboard heating system. Right, a jig on which five copper pipe assemblies are produced each day.



Ben Schnall

### Plumbing and heating

Like the other phases of Gordon Bronson's construction system, the house's plumbing and heating operation is fast moving and cost cutting. If subcontracted, the plumbing for such a house would normally cost \$650, including the subcontractor's \$100 profit. Bronson has budgeted his cost at \$400 for labor and materials and, as an extension of his incentive bonus plan, has agreed to split any additional cost saving 50-50 with his plumber. (On the basis of production to date, Bronson hopes to cut this plumbing cost to \$325 per house, including about \$205 for materials and a \$40 bonus for the plumber.)

Thanks to the shop fabrication of sub-assemblies, the plumbing crew (a master plumber at \$180 per week, his two plumber sons at \$120 per week and a common laborer) was able to turn out the rough plumbing for 12 houses a day. (They fabricated and installed the rough plumbing for the 61 houses in 17 working days.)

Two men are able to turn out copper water pipe subassemblies for ten houses a day. This speed was achieved with the aid of two home-made jigs and a simple device for cleaning pipes and fittings prior to soldering. On either end of the shaft of an old washing machine motor the plumbers affixed a small wire brush—one for cleaning the inside of fittings, the other for cleaning the outside of the ends of pipe. This gadget reduced each cleaning operation from 15 seconds (by hand) to 3 seconds. Its importance can be appreciated when the number of sweated pipe joints per house is counted. The total is 60 which means that this mechanical cleaner saves 12 hours on the 61 houses. More important, its development is typical of the enterprise that has been fostered by Bronson's bonus plan.

The heating system is installed by the same three plumbers. It is an oil-fired hot water baseboard system which Bronson has budgeted at \$625 per house but hopes to trim to \$510 through easy, quick installation. (The boiler costs only \$212 including controls but excluding the circulator.) The manufacturer will furnish baseboard heating units in specified lengths to fit room dimensions. (For the location of baseboard heating units, see plan, page 138).

Bronson's first project was radiant heated (copper coils in a concrete slab), but he found that his New Jersey buyers were not familiar with this type of concealed heating and that the radiant floors were therefore difficult to sell. He switched to baseboard heating in the present project to overcome this sales resistance—despite the fact that the present system costs about \$70 more per house.

(Continued on page 220)

### Follansbee Seamless Terne Metal Roofing

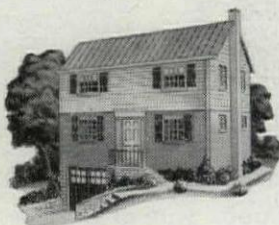


~for  
harmony  
in modern design



- In modern housing the versatility of Follansbee Seamless Terne Metal Roofing permits harmonious design detail to conform to architectural styling. That's one of the advantages of Follansbee Terne Metal Roofing—it belongs in any period and any specialized roof construction.

- Color harmony is another important feature of a Follansbee Terne Metal Roof. Your client can select any trim color and the roof can be finished in contrasting shade, or in the same shade. This permits change of color scheme, anytime—just the sort of flexibility you like to suggest to a client.



- Then, when you point out that terne metal roofs are lifetime roofs, in addition to being harmonious in color and design, you can specify Follansbee Terne Metal Roofing with assurance of satisfaction.

- If you haven't received your file of architectural details be sure to write Terne Metal Dept. A., Follansbee Steel Corporation.

### FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES, PITTSBURGH 30, PA.

COLD ROLLED STRIP • ELECTRICAL SHEETS • POLISHED BLUE SHEETS • SEAMLESS TERNE ROLL ROOFING

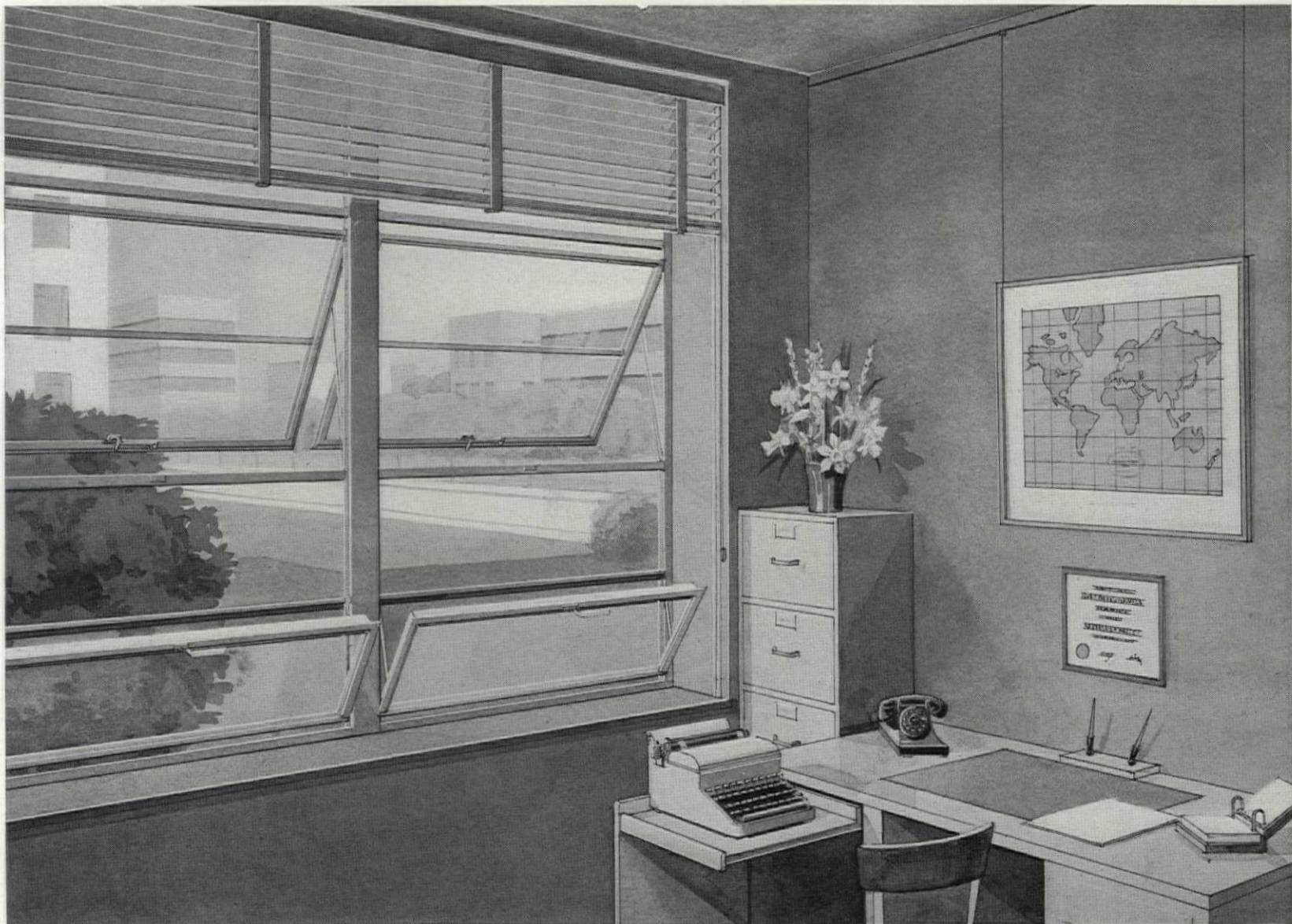
Sales Offices—New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee, Sales Agents—Chicago, Indianapolis, St. Louis, Kansas City, Nashville, Houston, Los Angeles, San Francisco, Seattle, Toronto and Montreal, Canada. Plants—Follansbee, W. Va.

### FOLLANSBEE METAL WAREHOUSES

Pittsburgh, Pa. • Rochester, N.Y. • Fairfield, Conn.







# NEW LUPTON "MASTER" ALUMINUM WINDOW

Check These  
4 Advantages Of  
The New Lupton  
"Master"

Aluminum Window

1. NEW DEEP SECTIONS—  
Both frames and ventilators  
1 7/8 inches—sturdier without  
sacrificing lightness. Added  
strength.
2. PRECISION WEATHER-  
ING—Ventilators fit snug  
and tight—naturally—with-  
out forcing. Full 5/16 inch  
overlapping contact.
3. SPECIAL HEAT TREATED  
ALUMINUM ALLOY used  
in this new Lupton Window  
eliminates painting and  
costly repair and maintenance.
4. STURDY CONSTRUCTION  
Welded ventilator corners  
—strength where strength is  
needed.

Here is the newest member of a great family of metal windows — the new Lupton "Master" Aluminum Window — especially designed for hospitals, schools and office buildings. Here are new opportunities in window planning . . . new standards of high durability and low maintenance costs.

Lupton Metal Windows are the result of more than forty years of constant development of new designs, new materials and new production techniques. Include the strength and beauty of this newest Lupton Window — the new Lupton "Master" Aluminum Window — in your 1950 plans for hospitals, schools and office buildings. Write for Data Sheets today.

MICHAEL FLYNN MANUFACTURING COMPANY  
700 East Godfrey Avenue, Philadelphia 24, Penna.  
*Member of the Metal Window Institute*

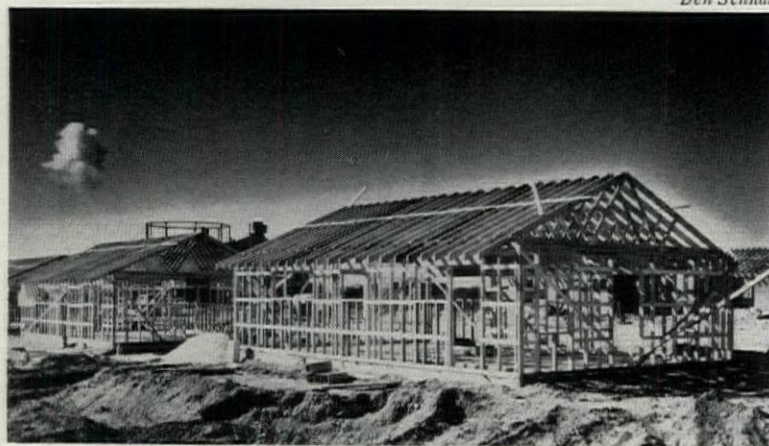
# LUPTON METAL WINDOWS



### Cost-cutting details

In addition to those discussed in detail on pages 138-141 and 218, the following devices and techniques help Builder Gordon Bronson hold down his costs:

- Use of roller conveyors for lumber handling reduces cutting yard labor by 50 per cent.
- Power saws permit one man to cut 2,300 studs per day—two cuts per stud.
- A power dado cutter permits one man to cut three notches in each of 1,440 studs per day.



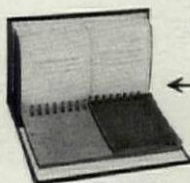
Northern Indiana Children's Hospital, South Bend, Ind. Pohlmeier & Pohlmeier, Architects; Skidmore, Owings & Merrill, Associates.

**AMERICA'S  
MOST WASHABLE FLAT  
WALL FINISH**



*It's easy to maintain original  
beauty with washable LIQUID VELVET walls!*

Rigid washability tests prove O'Brien's Liquid Velvet superior to other leading flats. Liquid Velvet retains its rich velvet-like finish, even after repeated scrubblings. Made with patented Pre-Shrunk Oils. With Liquid Velvet you can be sure of practical as well as beautiful walls for any interior. The O'Brien Corporation, South Bend 21, Indiana; Baltimore 13, Maryland.



← **NEW 1950 O'BRIEN ARCHITECT'S COLOR MANUAL**  
Full page 6" x 3" swatches show over 100 selected, up-to-the-minute colors—in tune with latest decorating trends. Manual, divided for easy comparison, includes standard colors and many easy-to-make mixtures with exact mixing specifications.

The O'Brien Corporation, Dept. A-4, South Bend 21, Indiana.  
Rush my copy of new 1950 O'Brien Architect's Color Manual. My check for \$1.50 is enclosed.

Name \_\_\_\_\_  
Address \_\_\_\_\_



- Nailing of 2 x 4 in. shoes to the concrete slab is accomplished by gun-like, cartridge-activated device which shoots a case hardened nail halfway through the 2 x 4 and into the concrete. It eliminates setting bolts in the concrete and boring shoes to fit, saves trouble and 2½ man hours per house.
- Trusses and gable ends are site prefabricated to eliminate the need for scaffolding—Bronson estimates that efficiency drops 50 per cent when men work in the air.
- Walls are framed horizontally on the slab, then raised in place.
- To promote efficiency, the same men handle the same work on each house. Thus, in the wall framing operation each man of the eight-man crew always works on the same 15 ft. of the 120 ft. perimeter wall.
- Window frames are site-fabricated of 2 x 6's instead of usual 5/4 in. material, thus eliminating 24 window liner studs per house at a saving of \$8.40.
- Window headers of double 2 x 12's are more easily installed than the five pieces of 2 x 4 usually used.
- Three horizontal bands of 1 x 3 in. lumber are mortised into studs (eliminating 2 x 4 in. cats) to provide a firm nailing base for horizontal sheets of sheathing board and vertical exterior siding.
- Exterior boarding is applied vertically to permit precutting—14 ft. lengths are cut in half.
- Plaster board is applied horizontally in 4 x 12 ft. sheets to reduce expensive joint work (and bring joints below eye level). A material waste of 15 per cent caused by the use of the bigger sheets is offset by the labor they save.
- Steel door bucks simplify the trimming and door hanging operations.
- The metal linen closet at \$21 costs less than conventional closet.
- Spray guns reduce painting costs by 60 per cent to about \$210 per house.



## Koroseal<sup>†</sup> Tile

The finest resilient flooring available, for residential, office and shop installations requiring distinctive beauty and durability. It resists wear, fading, indentation, grease and alkalis . . . Easy to install on any properly prepared sub-floor . . . Gives a lifetime of service and luxury.

Available in 1/8" gauge, 9" x 9" squares and other sizes, in 18 clear, permanent colors and Marblitone<sup>\*</sup> and Crystalltone<sup>\*</sup> patterns.

<sup>†</sup>Koroseal is a registered trade-mark of the B. F. Goodrich Company

## Linoleum Tile

A colorful resilient flooring that is the economical answer to residential, commercial and institutional installations where traffic is relatively light. It is a durable light-weight floor covering in a wide range of colors . . . is easy to maintain. Its Marblitone pattern makes possible many varied and unique designs and effects.

Available in 3/32" gauge, 9" x 9" squares, in 9 brilliant colors and an over all Marblitone pattern.

## Texfloor<sup>\*</sup> Tile

A new tile developed by Sloane-Blabon for use in residential, office and shop installations. It's an entirely new idea—has a luxurious soft-woven look never before achieved in a smooth floor covering. This tile has excellent wearability . . . can be used on any suspended sub-floor . . . is a colorful medium for creating striking interiors.

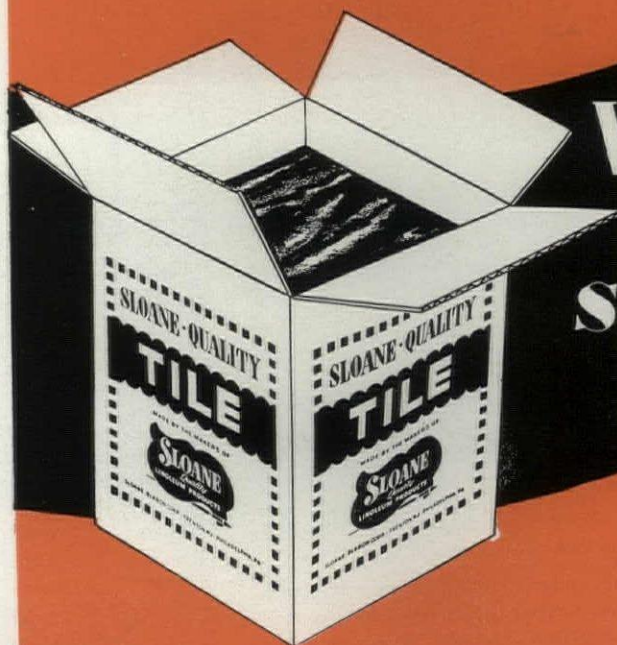
Available in 3/32" gauge, 9" x 9" squares, in 5 blendable colors and the distinctive softly woven jaspé pattern.

<sup>\*</sup>Trade-mark

## Rubber Tile

Tough, wear-resistant, yet quiet and comfortable underfoot, this rubber tile—a new addition to the Sloane-Blabon line—ideal for heavy traffic areas such as homes, schools, hospitals, and public buildings. It's a floor covering that can be installed on any suspended sub-floor but should not be installed on sub-floors on or below grade.

Available in 1/8" gauge, 9" x 9" squares, in 19 colors with a Marblitone pattern.



**WHERE and WHY  
to specify  
Sloane Quality Tile!**

## Asphalt Tile

An economical material for use in stores, office buildings, lobbies, and residential installations. It's an extremely durable floor covering that can be used on any sub-floor. It can even be used on concrete floors in contact with the ground, on or below grade (except where such sub-floors are subject to hydrostatic pressure).

Available in 1/8" and 3/16" gauge, 9" x 9" and 18" x 24" sizes in 18 colors with a Marblitone pattern.



Write today for your free file folder containing samples and information on all Sloane Quality Linoleum Products. Dept. AF-2.

## Enduro Tile

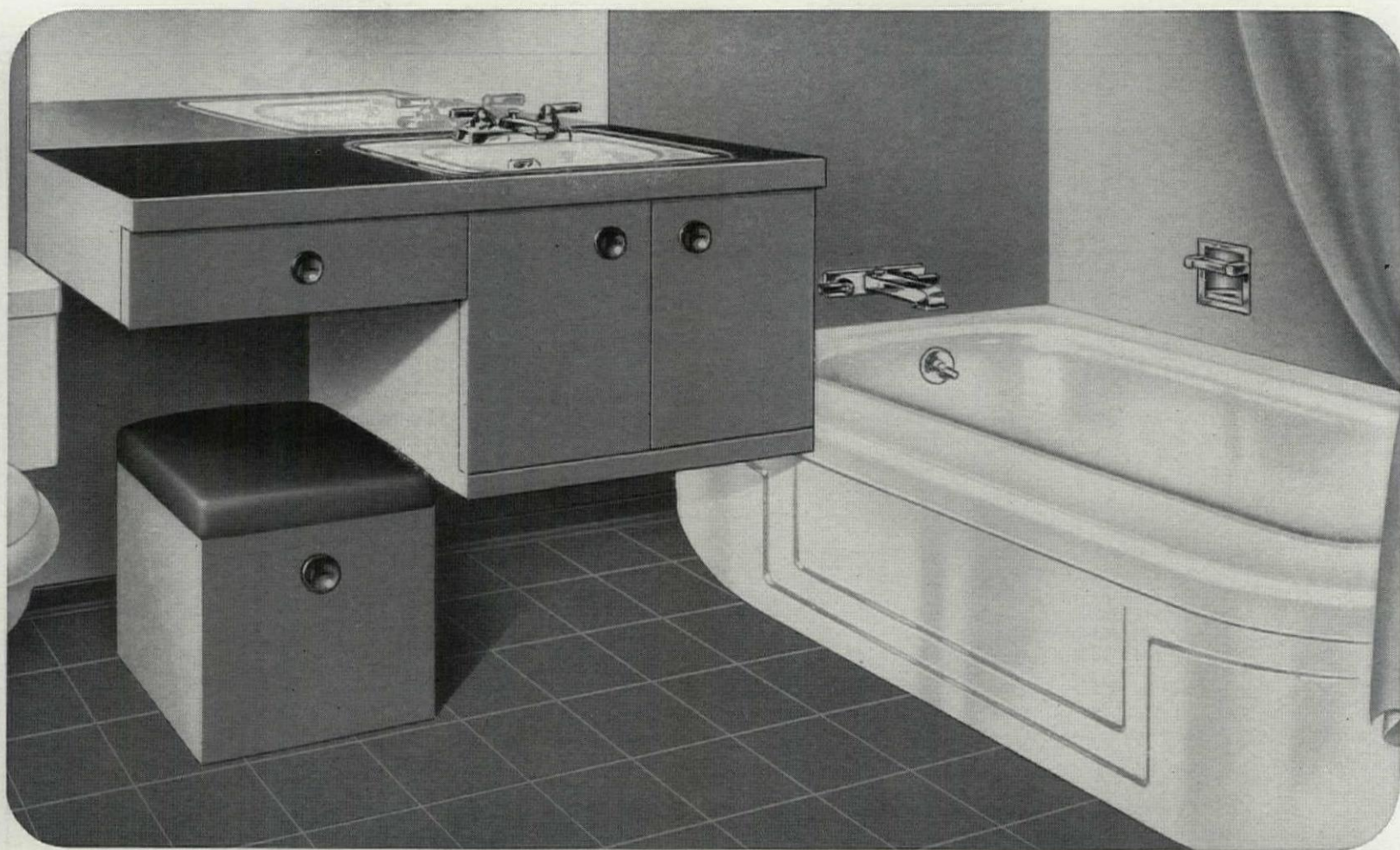
A new and extremely durable industrial flooring for use in machine shops, factories, shipping rooms, locker rooms and other areas subjected to abnormally heavy wear. The main features of this new flooring are its heavy-duty durability, non-skid safety and economy. It's an all-purpose flooring that is sturdy and easy to maintain.

Available in 1/4" gauge, in 12" x 12", 18" x 18", 18" x 24", 24" x 48" and 36" x 36" sizes and three unpatterned colors; black, brown and green.



**SLOANE-BLABON CORPORATION**  
295 FIFTH AVENUE, NEW YORK 16, N. Y.





# AllianceWare Provides Attractive Fixtures for the 5x7 Bathroom

The AllianceWare vanity lavatory and the AllianceWare 5-foot tub illustrated here offer unusual possibilities in homes, apartments and hotels—wherever bathroom space is limited—yet where beauty and complete utility are essential.

These vanity lavatories and tubs may be installed in bathrooms as small as 5 x 7 feet, when door and window are properly located. Vanity top may be linoleum or any of the much desired, plastic-covered sheet materials that present limitless color combinations.

All AllianceWare fixtures are enameled by the wet-process, providing a dense, lustrous surface which is stainproof and which offers maximum resistance to chipping.

Because of formed metal construction, over-all dimensions do not vary more than  $\frac{1}{8}$  inch. The rim of the lavatory illustrated is perfectly flat with true edges of

unvarying thickness, assuring easier, closer, faster installation of counter surface.

AllianceWare tubs are readily installed by merely nailing two vertical supports to the studs with a horizontal member spiked between the verticals. According to F.H.A. requirements, this is the method of installation which eliminates the effect of shrinkage in lumber. Other important features of AllianceWare tubs detailed at the right explain why AllianceWare is preferred by many architects and builders. Most AllianceWare fixtures are available in white and several beautiful colors. Specifications and dimensions sheets on AllianceWare are yours for the asking.

**AllianceWare, Inc.** • Alliance, Ohio  
Bathtubs • Lavatories • Sinks

**AllianceWare**  
PORCELAIN ON STEEL



Reinforced construction assures maximum strength.



AllianceWare distinctive modern design complements any bathroom styling.



Gleaming, stainproof porcelain enamel surface cleans easily.

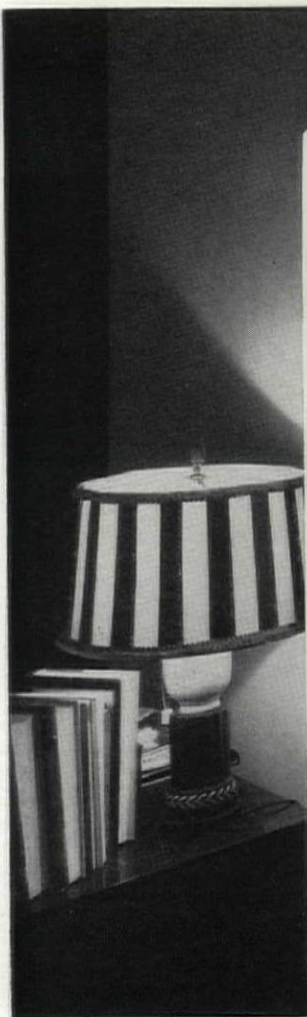


An integral wall guard prevents water seepage.

Heavy gauge sheet steel used in AllianceWare formed metal tubs. ↓

↑ Sheet steel usually used in formed metal tubs in accordance with Federal specifications.





## Murphy-Cabranette Kitchens have been purchased by

Abbott Academy  
Allegheny College  
Amherst College  
Antioch College  
Beloit College  
Boston University  
Bowdoin College  
Bryn Mawr College  
Carlsbad Municipal School  
Colorado (U of)  
Connecticut College for Women  
Connecticut Wesleyan  
Dartmouth  
Denison University  
Emory University  
Florida State for Women  
Goshen College  
Halcyon School  
Hanover College  
Indiana (U of)  
Jericho (N.Y.) Grade School  
Louisiana Poly  
Louisiana State Normal  
Mass. Inst. of Technology  
Michigan State  
Middlebury College  
Milbrook School  
Missouri State Training School for Boys  
Monmouth Junior High  
New York City Teachers  
Northern State Teachers (S. Dak.)  
Northwestern University  
Norwich Free Academy  
Oberlin College  
Ohio (U of)  
Oklahoma A & M  
Paterson (N. J.) Vocational  
Penn State  
Pennsylvania (U of)  
Plainfield Industrial School for Boys  
Princeton  
Purdue  
Rhode Island State  
St. Andrews (Del.)



Northwestern University  
Apartments  
Evanston, Illinois  
Architect: Holabird & Root  
Contractor: R. C. Wieboldt  
Interior of kitchen-dinette  
shown above

St. Frances High (Kan.)  
St. Olaf College  
St. Patrick School (N. Y. C.)  
South Dakota State  
Stansstead College (Quebec)  
Swarthmore  
Tenafly (N. J.) Elementary  
Tennessee Wesleyan  
Texas Tech  
Texas (U of)  
Tilton School (N. H.)  
Union Theological (N. Y. C.)  
Union Theological (Okla.)  
Valparaiso University  
Virginia (U of)  
Washington & Jefferson  
Wheaton College (Mass.)  
Williams  
Woodberry Forest



## MURPHY - CABRANETTE KITCHENS go to COLLEGE!

Space is precious in the halls of learning too. Schools, colleges, universities are using Murphy-Cabranette Kitchens in growing number.

Where and how? On each floor of a dormitory for social snacks under the approving eyes of the house mother . . . in the diet kitchens of infirmaries . . . in apartments for faculty members.

Institutions of learning have cost problems too. They need to save space, to utilize equipment that gives trouble-free service . . . with minimum maintenance costs.

Murphy-Cabranette Kitchens provide modern range (gas or electric) with oven and broiler, capacious electric refrigerator with push-button door and stainless steel frozen food locker, seamless one-piece sink-and-range top, cupboard space . . . practical working kitchens in single compact units from 48 to 69 inches wide. Fronts of genuine vitreous porcelain never require repainting . . . soap and water keep them gleaming white forever.

Write for illustrated bulletins.



Manufactured by **DWYER PRODUCTS CORPORATION**, Michigan City, Ind.



## BUILDER ROUND-UP

(Continued from page 166)

### CHICAGO (continued)

sq. ft. house, Manilow is including hot water radiant heat, also built-in television wiring (but no television). . . . Another builder who is cutting construction costs by switching to slab construction is Joseph E. Merrion. Merrion got into the under-\$9,000 price range (which is very low for Chicago) last Fall

when he started operations on his new Hometown subdivision. This year he expects to build 800 units at Hometown. His price tag: \$8,500. The Hometown houses are duplexes with a low-pitched roof, ground-hugging lines and a minimum of traditional gee-gaws on the exterior. (See page 153). Each duplex unit is as big as the row house he sold last year for \$10,500. Merrion is able to keep his price down by right production control,

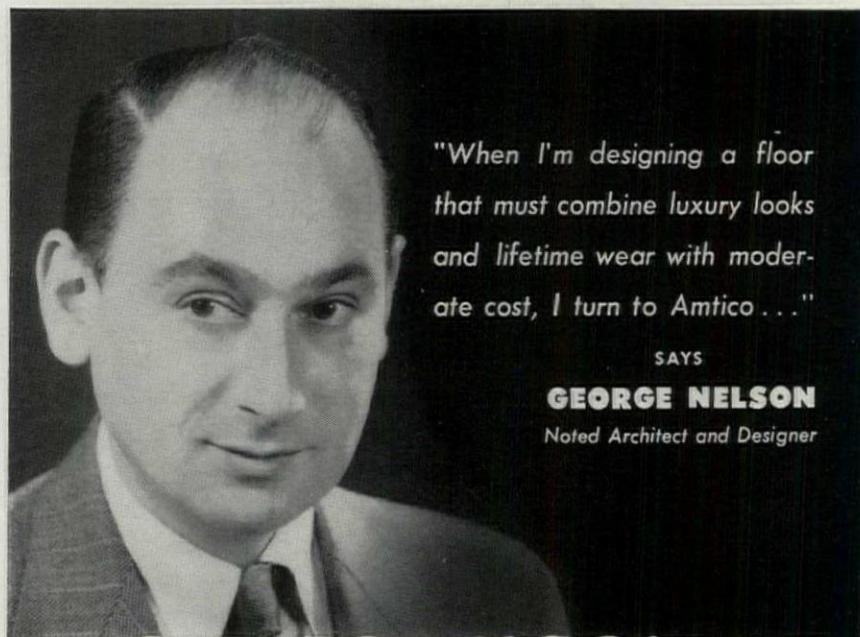
simplying his roof construction with trusses and by-passing fancy exterior veneers.

In the \$25,000-\$35,000 bracket, Builders William Joern & Sons report that nine out of ten of their potential buyers are specifying contemporary "ranch" styles with one-floor living and more flexible room arrangements. Most of the firm's production this year (20 units) will be in this category. Their merchandising plans call for the inclusion of wall-to-wall carpeting in their house package—another new trend for the Chicago market.

### DETROIT

One result of the return to a buyer's market in Detroit is a demand for three bedroom houses. Typical is the report of Builder Irving Rose: "We're getting requests for three bedrooms and I think that I can provide them at no additional cost by lowering my roof line and making the rooms slightly smaller all around." Rose plans to concentrate more than ever on three bedroom units for his 300-house building schedule this year in the \$11,000 price class. This year's house will be larger than last year's in line with Rose's belief that the most important bonus a builder can give a client is not extra equipment but more space. Another big Detroit builder reporting increased demand for three bedroom units is Jim Babcock of the C. W. Babcock organization. Two-bedroom houses are becoming harder to sell unless there is some provision for adding an extra bedroom, he points out. Babcock will build 300 units this year—200 more than last year—in the \$11,000 price bracket. Like many another Detroit builder, he is running into higher land costs because of the shortage of good raw land for subdividing in the Detroit area. As a result, about half of the firm's 1950 program will be custom building on improved city lots. Although most Detroit builders report that basements are still a merchandising "must," Builder Rodney Lockwood, NAHB's 1949 president, has just completed an experiment on his subdivision which proves otherwise. He built 15 per cent of a recent group of houses with basements (price: \$8,450) and the rest without (\$7,500). All the slab-type houses were sold out quickly but sales on the other houses lagged. Price, not the alleged conveniences of the traditional cellar, is the key to the basement-vs-no-basement controversy, Lockwood declares. Slab construction saved him \$760 on each of his houses. As a result of this realistic market test, all of Lockwood's 1950 program will be of slab construction.

(Continued on page 228)



*"When I'm designing a floor that must combine luxury looks and lifetime wear with moderate cost, I turn to Amtico . . ."*

SAYS

**GEORGE NELSON**

*Noted Architect and Designer*

Comparing favorably with other resilient floorings in cost, any slight added investment in AMTICO is soon absorbed by the way it cuts maintenance costs, and its unmatched durability. Unusual design flexibility with 22 stock colors, real rubber comfort, fire-resistance and sound-deadening qualities are other good reasons for AMTICO's popularity with some of America's foremost architects and designers.

#### SAMPLES ON REQUEST

A free box of 4" x 4" samples of Amtico in standard 1/8" gauge and all 22 colors sent, with illustrated literature, on request. Write Dept. AF-2.



**Amtico**  
**RUBBER FLOORING**

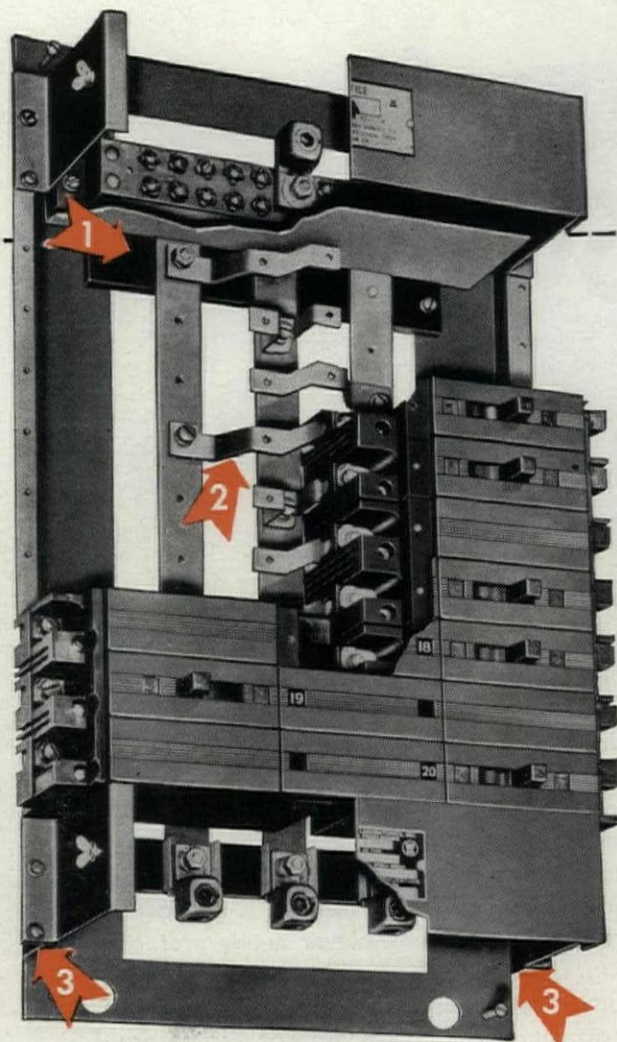
AMERICAN TILE & RUBBER COMPANY, TRENTON 2, N. J.

In Canada—American Tile & Rubber Co., Ltd., Sherbrooke, Quebec



YOU CAN BE **SURE**.. IF IT'S  
**Westinghouse**

You've got to  
**LOOK  
INSIDE**



## to spot **TOUGHNESS** in panelboards

Take a long look *inside*—behind the breakers—before you specify panelboards. Check means of reinforcing and bus assembly. Check and compare them with these Westinghouse Panelboard strong points.

**1. Bus bar supports**—all buses are securely fastened to insulating bases and are not dependent on branch circuit breakers for support.

**2. "Die-dentical" parts**—parts that are tool-made to assure accurate fits, proper clearance . . . adequate mechanical and electrical strength.

**3. A reinforced back pan** provides a rigid foundation for bus and breaker mounting . . . protects against distortion, shock or vibration.

These hidden construction values—which lend important rigidity to panelboards—are further evidence of the way Westinghouse designs and

builds to the highest quality level. And remember, too, that *Westinghouse Panelboards are Westinghouse throughout!* You get the well-known, reliable Nofuze "De-ion" breakers in a panelboard designed specifically to assure their finest performance.

Descriptive Bulletin 30-930 contains complete information plus typical specifications. For your copy write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna. J-40383

**Westinghouse**  
**PANELBOARDS**







## The house that's equipped with **LUMITE** screens!

In today's highly competitive and speculative home building market, it's the house with the "extras" that sells. A set of long-lasting, carefree Lumite screens is an easy way to increase buyer appeal and satisfaction. For Lumite woven saran screening is ideal for every exterior use . . . is guaranteed rustproof and stainproof. Never needs protective painting. Can't stain sills or sidewalls. It's a nationally advertised quality screening with wide consumer acceptance that gives years of weatherproof protection at a big saving.

*Sold through hardware, lumber, building supply dealers and screen manufacturers.*

### FACTS FOR ARCHITECTS AND BUILDERS

**EFFECTS OF ACIDS, ALKALIES AND SOLVENTS**—Essentially none.

**NON-INFLAMMABLE**—But softens at about 240°F.

**TENSILE STRENGTH, ULTIMATE** (of filament)—Up to 40,000 lbs. per square inch.

**IMPACT STRENGTH**—Greater than conventional screening, when adequately framed.

**INSTALLATION**—Cut with ordinary scissors. Fold cut edges under 1/2". Tack or staple the screening smoothly and evenly every 1 1/2". Because of inherent characteristics, LUMITE will gradually draw itself into a snug, firm fit.

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# LUMITE

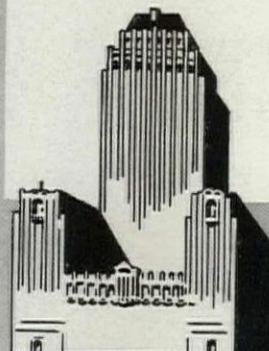
SARAN SCREEN CLOTH

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LUMITE DIVISION, CHICOPEE MFG. CORP. OF GEORGIA  
40 WORTH STREET, NEW YORK 13, N. Y.

# Chrysler Airtemp AIR CONDITIONING

...ideal for every type  
of building



OFFICE BUILDINGS



HOTELS



APARTMENTS

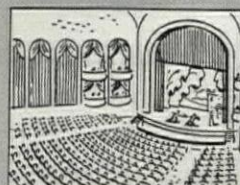
THE ROLL CALL of Chrysler Airtemp installations is indeed impressive. Modern buildings ranging from swank Florida resort hotels to dignified Midwestern banks—from brisk Manhattan office buildings to luxurious Capitol City apartment houses—all have endorsed Chrysler Airtemp air conditioning by their use of it.

Architects, builders, contractors and owners of all types of buildings have turned to Chrysler Airtemp for cooling and heating equipment—because Chrysler Airtemp—with *three* basic systems—can fill any building requirement. And Chrysler Airtemp—through its regional offices, dealers and contractors in principal cities—offers highly trained field engineers to assist you in selecting the *best* system for your particular job.

Another important point—Airtemp Construction Corporation, wholly owned subsidiary of Chrysler Corporation, will—when desired—assume responsibility for all or any part of your air conditioning installation—from making the original specification through to completion of the project.

We'll be glad to send you more complete information on Chrysler Airtemp products and service. Write to Airtemp Division of Chrysler Corporation, Dayton 1, Ohio.

### 3 BASIC SYSTEMS TO FIT EVERY AIR CONDITIONING NEED



CENTRAL SYSTEMS



"UNITEMP"



INDIVIDUAL ROOM UNIT

# Chrysler Airtemp

AIR CONDITIONING • HEATING • COMMERCIAL REFRIGERATION  
AIRTEMP DIVISION OF CHRYSLER CORPORATION  
DAYTON 1, OHIO



# Overwhelming Choice



No. 9500  
CHURCH MOLTEX Seat

**Church Seats**

"THE BEST SEAT IN THE HOUSE"

C. F. CHURCH MFG. CO., HOLYOKE, MASS.  
Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

THERE are good sound reasons why architects have made Church the overwhelming choice in toilet seats, whether for home, factory, school or institution.

Their styling and design is a compliment to the buyer's taste . . . their unmistakable quality a mark of good judgment—and the name "CHURCH" stamps them as *the best*.

Where hard use—even abuse—is anticipated, Church MOLTEX® Seats offer the architect the assurance of *lasting* quality, lowest cost *per year of service*.

With MOLTEX, first cost is last cost. They never need replacing.

*Serving home and industry*

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON



# ATLANTA

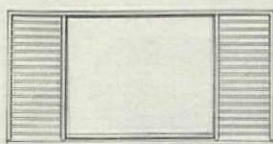
Last year 10,200 houses were built in metropolitan Atlanta and the consensus among local builders is that this figure will be topped in 1950. Builder Robert Hallman has scheduled 60 houses for the current building season—eight more than last year. Average price of his 900 sq. ft. houses: \$9,300. The trend towards one-story, slab foundation houses is

set now, Hallman points out: "We've built exactly one two-story house among our last 500." . . . Builder Roy Warren will oversee the construction of 500 houses this year—100 more than last year. Biggest difficulty in maintaining his prices (average: \$8,000 for a two-bedroom unit) is in obtaining cheap land. A shortage of lots, not a shortage of buyers, is the biggest problem facing Atlanta builders in the near future, he declares.

# WASHINGTON, D. C.

One of the stock jokes among Washington builders is that they can never build too much because the city's biggest industry—the Federal government—is always getting bigger. However, this Spring found a more selective house-buying public than the builders had met in many a year. Clarke, Daniel, head of Standard Properties Inc., still thinks he can double his production this year with a house that is "bigger in value-per-dollar than anything we've done since the war." Last year, his firm built 100 houses in the \$10,000-and-up class; this year's 200-house schedule will be concentrated on a "baby Rambler" selling at \$8,000. Daniel has reduced costs over last year by tighter specifications (three interior doors instead of nine, seven windows instead of 13) and better production control on the site. Although Daniel feels that he cannot, at the price he is selling, provide his buyers with interior color choices, he

**NEW, REVOLUTIONARY..  
VERSATILE**



**SOLAR AIR-FLO®**  
ENGINEERED ALL-WEATHER Windows

**FOR DRAFTLESS VENTILATION**

Louvered sections are placed at top, bottom or sides of stationary window pane, according to design requirements. Units may be used singly or in groupings.

## STOCK SIZES FOR A WIDE VARIETY OF DESIGN

Adjustable baffle doors regulate circulation of fresh air, winter and summer. Screens concealed in air-flo section, may be removed from inside for cleaning. Solar Air-Flo units fit into all kinds of walls, masonry or wood . . . permit originality of design for all types of homes and buildings . . . provide weathertight insulation.

Solar Air-Flo windows allow the use of narrow mullions, come assembled with all exterior trim. Sill height and number of louvers may be varied to meet ventilation requirements. No precision work or special tools are needed for installation. Frames and sectional parts are made of either treated wood or extruded aluminum, as desired.

Beautiful Solar Air-Flo windows are in keeping with the modern trend . . . give individuality and distinction to exteriors, lend charm and an air of spaciousness to interiors. WRITE NOW for free descriptive literature and specification data, without obligation.

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ELKHART, INDIANA

MAIL COUPON NOW!

**SOLAR AIR-FLO, INC.**  
DEPARTMENT 403, ELKHART, INDIANA

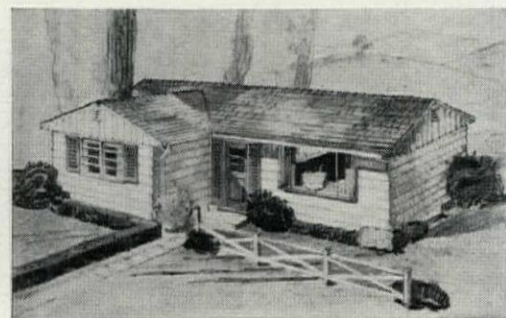
Send free literature on Solar Air-Flo windows.  
I am ☐ Architect ☐ Dealer ☐ Contractor.

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Address \_\_\_\_\_ Zone \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



Clarke Daniel

gets around this by allowing them to pick a wallpaper pattern for one of their living-room walls. The extra cost (\$40), he points out, is justified in personalizing the houses for prospective buyers. . . . More living space at a lower price is Builder Merwin Mace's prescription for the selective 1950 market. Last year the Mace organization sold a three-bedroom, 910 sq. ft. house for \$9,990. The 1950 house will be bigger by a thumping 242 sq. ft. but the price will be lower—only \$9,500. Much of the extra space will be put into a separate dining room—a new buyer demand in the Washington area, according to Mace.

## NEW YORK CITY

The New York area is probably the most competitive single market in U. S. housebuilding. This year, with prospects for a full-fledged buyer's market, the competition was going to be sharper than ever. Levitt & Sons started the ball rolling with an announcement that not only were they going to maintain last year's price (\$7,990) and production (over

(Continued on page 230)



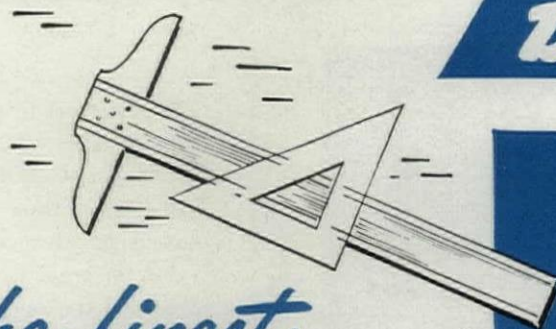
GREAT NEWS FOR ARCHITECTS AND BUILDERS:

**READY SEPTEMBER 1st**



*Youngstown Kitchens*

**DISHWASHERS**



*the finest*  
**ELECTRIC DISHWASHERS**  
*ever made!*

**Avoid early obsolescence in the houses you build.**

The time is coming (sooner than you may think) when the automatic dishwasher and food waste disposer will be standard equipment for *all* modern homes.

Here's your opportunity to have, not only the best dishwasher ever made, but also association with the world's best-known name in kitchens. (In a recent survey, public recognition of Youngstown Kitchens was found to lead the second best-known name by a margin of 5 to 1.)

Include these revolutionary new Youngstown Kitchens products in your plans for houses scheduled to be completed after September 1. They will be the architects' and builders' best buys in a truly modern kitchen.

**Youngstown Kitchens Electric Dishwasher** in 27-inch width.

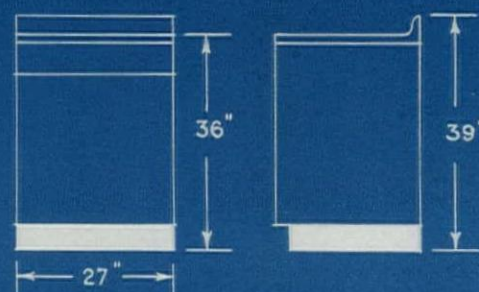
**Youngstown Kitchens Electric Sink** in 48-inch width. One-piece, acid-resisting porcelain-enamel top, like the famous tops on all Youngstown Kitchens Cabinet Sinks. Full-sized bowl.

Both the Youngstown Dishwasher and Electric Sink match other Youngstown Kitchens units perfectly. On each, the top is 36" high (same height as tops on Youngstown Base Cabinets). Handsome, practical back-splashes complete the match. Cabinet finish is gleaming Hi-Bake enamel.

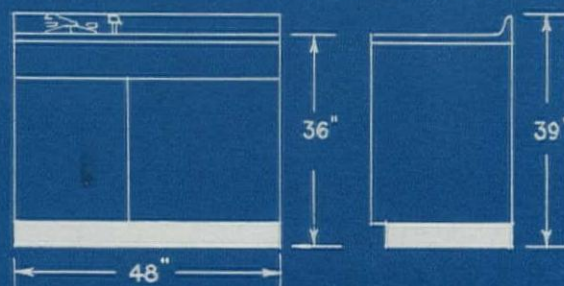
We believe these will be the finest automatic dishwashing units available for installation in homes you build. For additional information, see your Youngstown distributor, or write to Builder Sales Division, Mullins Manufacturing Corporation, Warren, Ohio.

Since the introduction of this dishwasher to the public promises to be one of the most spectacular ever staged, and will include a big "mystery" build-up, no details are being released prior to the public announcement.

THESE WILL BE THE DIMENSIONS



YOUNGSTOWN KITCHENS ELECTRIC DISHWASHER



YOUNGSTOWN KITCHENS ELECTRIC SINK

Design details subject to change without notice



**Youngstown Kitchens Food Waste Disposer**

This is the appliance that will soon be as necessary in modern homes as indoor plumbing . . . the Youngstown Kitchens Food Waste Disposer.

Adds very little to the cost of a home; but adds much to the value and sales appeal.

Be sure every home you build includes a food waste disposer—and make sure your unit has the superior advantages of a Youngstown Disposer! It's the most service-free disposer now available. Gives your prospects added incentive to buy. The Youngstown Disposer may be fed continuously (most other disposers have load limits, with starting and stopping between loads), is self-cleaning and has an automatic self-reversing motor that lengthens service life. Fits the Youngstown Electric Sink, all Youngstown Cabinet Sink models, as well as most other modern sinks. See your Youngstown distributor, or write direct.

**MULLINS MANUFACTURING CORPORATION**  
WARREN, OHIO

**World's Largest Makers of Steel Kitchens**

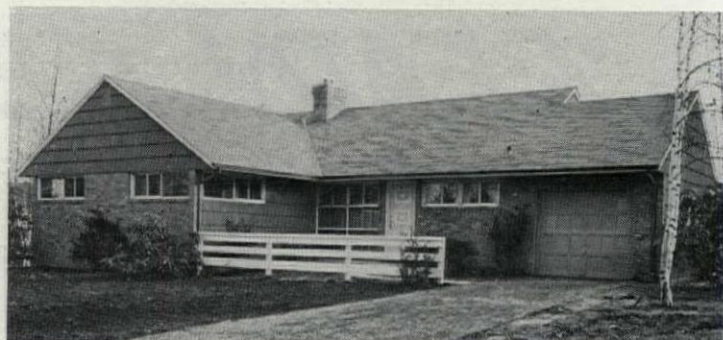


*Youngstown Kitchens*

© 1950 Mullins Manufacturing Corporation



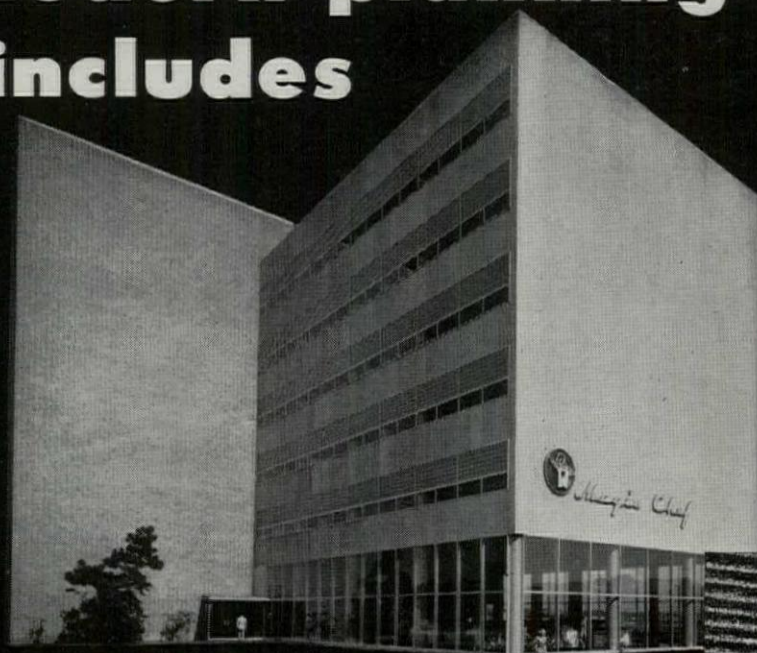
4,000 units) but they were adding a carport and built-in television to their package (see p. 136). Other builders, on a more modest scale, were attempting to out-Levitt Levitt in value. Most interesting project was the 1,000-unit Forest City subdivision started last month by Builders Bernard Krinsky and Ernest Beck near Hempstead. Following the Levitt trend of providing community facilities, Krinsky and Beck have turned over 40 acres of their



Stackler & Frank

Ray Jacobs Studio

## modern planning includes



Administration Building  
American Stove Company  
St. Louis, Missouri  
Architect:  
Harris Armstrong  
Kirkwood, Missouri

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COPPER-FABRIC FLASHING

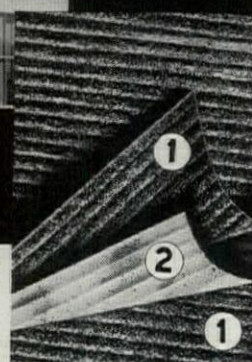
WASCO is the *modern* way to install effective protection against water and moisture for the life of the building.

WASCO Copper-Fabric Flashing is pure electro-sheet copper with asphalt-impregnated fabric bonded on both sides. This means that WASCO provides the bonding qualities of the rough-textured fabric and the protection of heavy sheet copper at far less cost.

That's why WASCO Copper-Fabric Flashing is specified for today's fine buildings, like this new administration building in St. Louis, Missouri, designed by Architect Harris Armstrong for the American Stove Company.

*Streamline your flashing program the WASCO way and be assured of quality flashings that save both time and money.*

*There's a WASCO flashing for every type of building and to meet every condition. SEE SWEET'S 8d7 . . . WRITE FOR FILE FOLDER.*



### 7 IMPORTANT ADVANTAGES of WASCO COPPER-FABRIC FLASHING

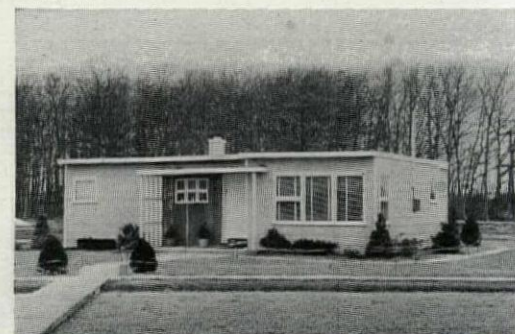
1. Permanent barrier against water and moisture.
2. Rough-textured surface forms tight bond with mortar.
3. Fabric protects copper from electrolysis.
4. Flexible . . . easily formed by hand.
5. Arrives at job cut to exact sizes . . . saves cutting costs and waste.
6. Saves dollars in initial expense.
7. Saves many dollars in speed of application.

**WASCO FLASHING COMPANY - CAMBRIDGE, MASSACHUSETTS**

250 acre tract to parks, playgrounds and two private lakes. The price tag at Forest City: \$8,990 for the 801 sq. ft. two-bedroom model, \$10,490 for three bedrooms and 1,104 sq. ft. Extensive advance publicity and advertising (with the emphasis on "Country Club living") preceded the opening of the development in February. This campaign paid off in a Sunday sell-out of the first 163 house section. Builders Krinsky and Beck, whose 1949 production was 388, plan 500 units at Forest City this year. In a higher-priced bracket, Builders Leonard Frank and Walter Stackler are emphasizing quality construction and a house full of amenities in a new \$24,000 model which they are building this Spring on the former Percy Pyne estate near Roslyn. The builders, who last year produced 200 units in the \$9,000 bracket, report good sales for their 1950 houses, hope to build 50 this year.

Further out on Long Island, in Amityville, Builder Thomas Romano broke ground last month on the first small-house development in the New York area with a non-racial-discrimination policy. This, plus an attractive price (\$6,990) for his 851 sq. ft. house, resulted in a quick sell-out of his 300-unit Spring program. Most of the sales were made to house-hungry Negro veterans. Included in his price: washing machine, refrigerator, wallpapering. Romano who built only 80 houses last year, plans 1,000 units this year at Ronek Park—a significant attempt to meet the housing needs (and ability to buy) of Negro families in the New York area.

Tom Romano







PRISM A 55

SOFT-LITE\* PRISM B 55

SOFT-LITE\* ESSEX B 55

BRISTOL 55

SOFT-LITE\* BRISTOL 55 LX

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## THE NEW "55" LINE OF PC FUNCTIONAL GLASS BLOCKS

... featuring 9 distinctive improvements in glass block design

1. Better, more comfortable, softer, "eye-ease" panel appearance.
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6. Wider horizontal light distribution by optically designed face corrugations.
7. Better maintenance factor — for good performance today and tomorrow.
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HERE are some of the most important improvements in glass blocks since this modern building material was first introduced.

The functional features of these new glass blocks include light-directing prisms on the interior faces of certain patterns, a fibrous glass insert to diffuse further the light transmitted by the block itself, and the exclusive PC Soft-Lite\* Edge Treatment. These features are combined in the various glass blocks, according to the functional use for which the specific pattern is designated.

Moreover, the new "55" line also embodies all the advantages afforded by other PC Glass Block patterns, such as excellent insulating properties; little or no expense in repairs or replacements; no painting or puttying; quick and easy cleaning. And the full line of decorative PC Glass Blocks will continue to be available for their specific purposes.

Why not get further details on the new "55" PC Functional Glass Blocks? Just fill in and return the coupon below.

### LIGHT-DIRECTING PC GLASS BLOCKS

Specify for above  
eye level with high  
reflectance ceilings.



### LIGHT-DIFFUSING PC GLASS BLOCKS

Specify for at and  
below eye level,  
and where ceilings  
are cluttered or dirty.



\*T. M. Reg. applied for.  
Soft-Lite Edge Treatment (opal glass fused into the block juncture during manufacture) permits just enough diffused light transmission around block perimeter to create "eye-ease" panel appearance.



## GLASS BLOCKS

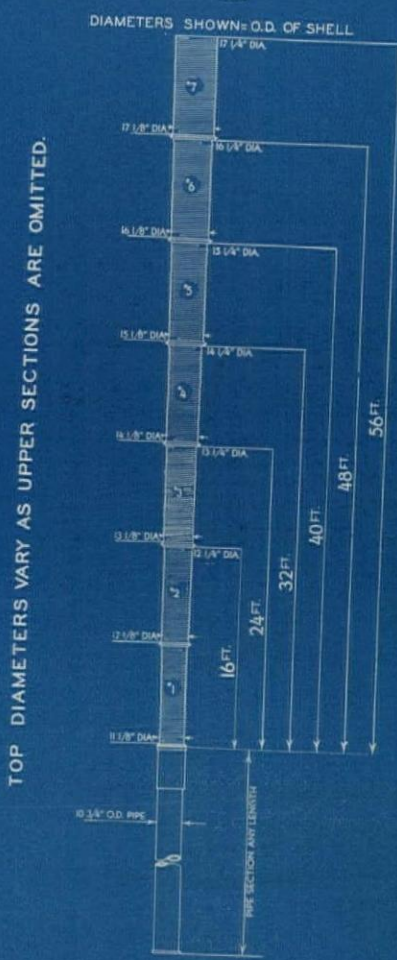
*The mark of a modern building*

Pittsburgh Corning Corporation  
Dept. B-40, 307 Fourth Avenue  
Pittsburgh 22, Pa.  
Without obligation on my part, please  
send me further information on the new  
"55" line of PC Functional Glass Blocks.  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

Distributed by Pittsburgh Plate Glass Company; by W. P. Fuller & Co. on the Pacific Coast, and by Hobbs Glass Ltd. in Canada.



DIMENSIONS FOR RAYMOND  
PIPE STEP-TAPER PILES



# Raymond

**MAKES 5 TYPES  
OF  
CONCRETE PILES**

1. STANDARD . . . 2. STEP-TAPER . . . 3. PIPE STEP-TAPER  
4. COMPOSITE . . . 5. GOW CAISSONS

Raymond installs every type of pile: cast-in-place concrete, pre-cast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, also cement mortar lining of pipes by the Centrline Corporation, a Raymond Subsidiary.

### 3. PIPE STEP-TAPER PILES

*Deep and Dependable*

*At the right, the pipe step-taper pile is being driven with the rigid steel mandrel. In the center the shell and pipe are being filled with concrete after having been driven to satisfactory resistance and inspected. At the left is a completed pipe step-taper pile.*

Raymond Pipe Step-Taper Piles are composed of an upper section of Step-Taper Shell Pile and a lower section of closed-end steel pipe pile. These piles are generally used to penetrate thick beds of soft soil to reach hard bottom at depths as great as 150 feet or more. The pipe step-taper pile is a most dependable pile available for reaching hard ground at great depths.

Raymond's methods result in efficiencies and substantial savings that are well worth investigating. Consult our engineers for more detailed information.

RAYMOND PILES MAINTAIN DRIVING RESISTANCE

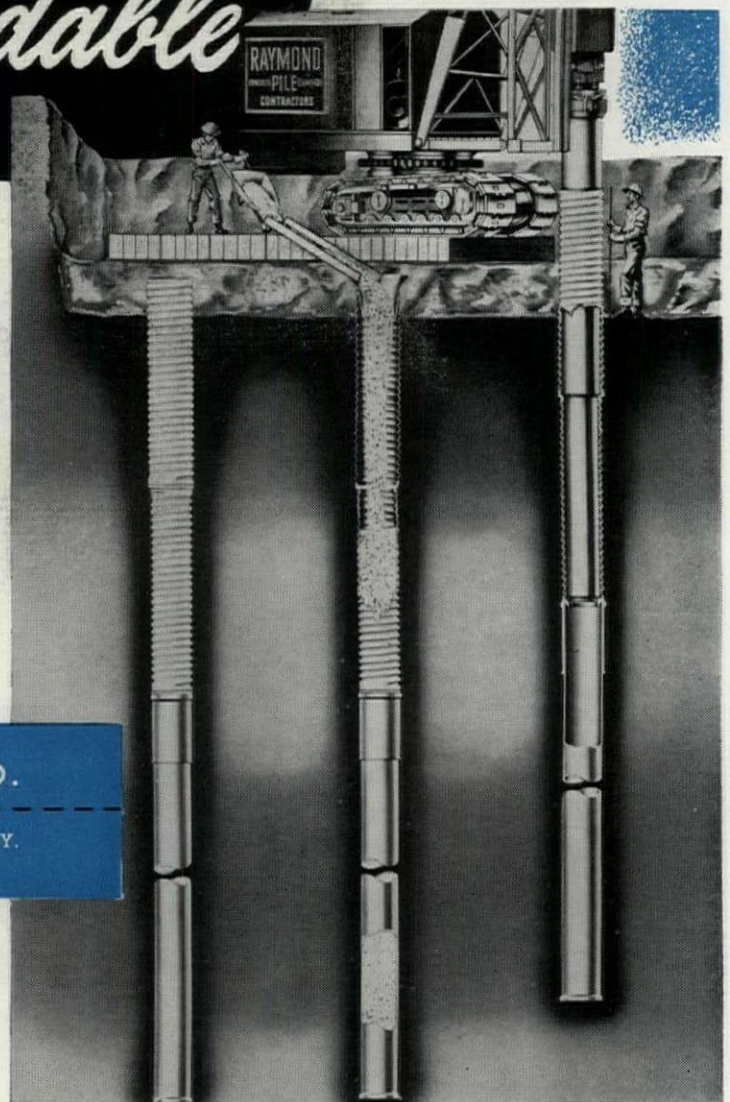


## Raymond

CONCRETE PILE CO.

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# Perfect

... for all  
on-grade

HOME  
CONSTRUCTION



Residence of Philip Simonds, Pittsburgh, Pa  
Sterling & Wolfe, R. A.  
L. C. Wolfe, Designer



Stafco ON-GRADE Sealer has been used successfully on hundreds of jobs such as the one pictured above. In this installation, Rubber Tile and Parquet flooring have been laid on concrete . . . after the application of Stafco ON-GRADE Sealer. The concrete is in direct contact with the ground, yet the flooring job is giving a perfect performance.

This revolutionary slab treatment is quickly and easily applied. It seals out all moisture and alkali which may come through the slab. Finished floors WILL NOT come loose or buckle when you use Stafco ON-GRADE Sealer.

Be assured of a perfect flooring installation—specify Stafco ON-GRADE Sealer when you plan to use rubber, cork, linoleum tile or rubber-back carpet on *on-grade* concrete.

## STANDARD FLOOR COMPANY

141 GULF BUILDING, PITTSBURGH 19, PA.

Manufacturers of STAFCO ON-GRADE Sealer

### STANDARD FLOOR CO.

141 Gulf Building, Pittsburgh 19, Pa.

Gentlemen:

Please send me full information regarding Stafco On-Grade Sealer.

Name \_\_\_\_\_

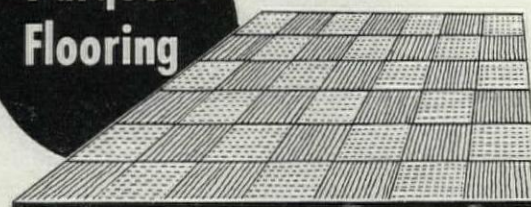
Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Resilient  
Tile



Parquet  
Flooring



Carpet





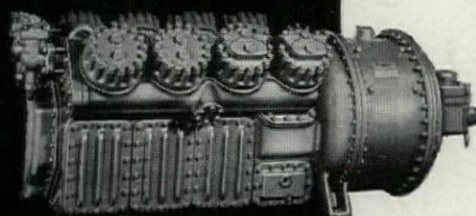
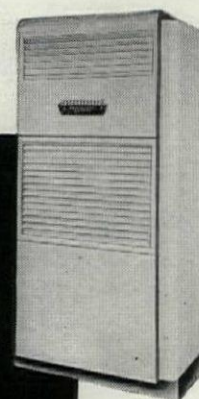
**IN AIR CONDITIONING**  
*it's the*  
**COMPRESSOR THAT COUNTS**

**UNIT AIR CONDITIONERS**

**...OR COMPRESSORS**

**TO 100 hp.**

**ONLY WESTINGHOUSE**  
**CAN GIVE YOU THIS RANGE**  
**-HERMETICALLY-SEALED**



Since 1933, Westinghouse has pioneered the hermetically-sealed compressor design in air conditioning. Today *only* Westinghouse can offer you this successful principle in *all* of its models, backed by 17 years of successful installations.

The Westinghouse Hermetically-Sealed Compressor is your guarantee of years of economical, trouble-free service. There are no belts to break or pulleys to adjust, no shaft seal refrigerant leaks. Reduced size and modern design lessen vibration and noise. Entirely

enclosed in a steel shell, its refrigerant-cooled motor requires no ventilation and is protected from dirt, dust and moisture.

Whether you are considering a self-contained unit or a complete system, the compressor will make the difference. By choosing Westinghouse, you are assured of the benefits of hermetic sealing in *every* size. Sturtevant Division, Hyde Park, Boston 36, Mass.

**YOU CAN BE SURE...IF IT'S**  
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J-80179

**FIRST** to introduce  
**HERMETICALLY-SEALED**  
**COMPRESSORS IN**  
**AIR CONDITIONING**



# sensational news!

# Copco

## steel casing\*

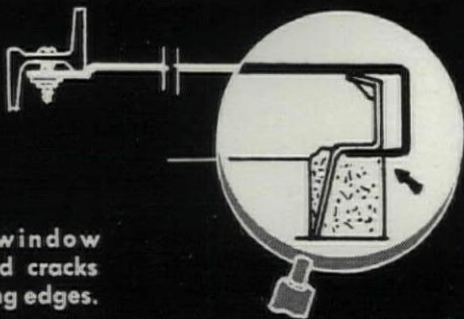
## HIDES PLASTER CRACKS

Now for the first time in the history of the industry, Copco brilliantly engineers a steel window casing that completely conceals unavoidable casing edge plaster cracks. Nothing else like it ever before! The only steel casing that assures a completely beautiful finished job . . . always. No extra charge. No special installation required . . . this extra feature saves you the headache of complaints and repairs. Get full details of this exciting Copco first. Write for free literature.

\* Pat. Pending

### ORDINARY STEEL CASINGS

Ordinary steel window casings leave naked cracks around outside casing edges.



### new Copco STEEL CASING

Revolutionary new Copco casing brings plaster edge underneath casing trim—out-of-sight!



# Copco

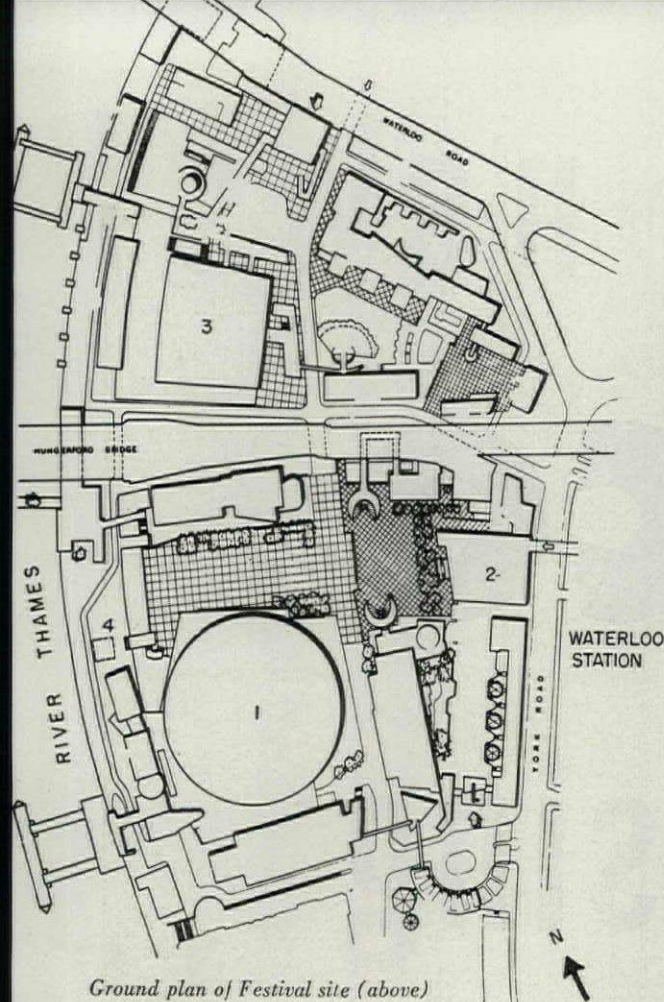
THE COMPLETE LINE OF STEEL BUILDING PRODUCTS

## STEEL and ENGINEERING CO.

14035 GRAND RIVER AVE., DETROIT 27, MICHIGAN

Newark, N. J. • Miami, Fla.

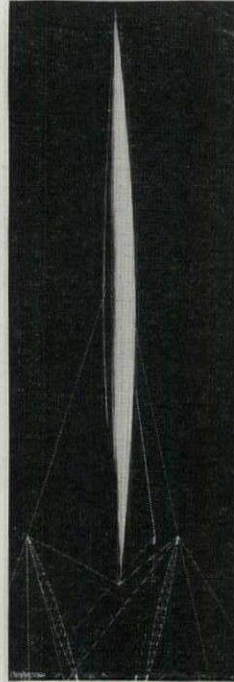




## KEY TO CHART

1. Dome of Discovery
2. Waterloo Entrance
3. Concert Hall
4. Vertical Feature

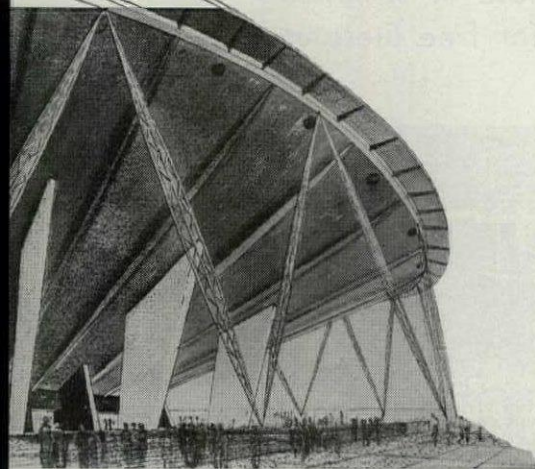
Aluminum lozenge 250 ft. high (right) is the Fair's landmark—it is suspended 40 ft. above ground by steel cables.



Ground plan of Festival site (above)

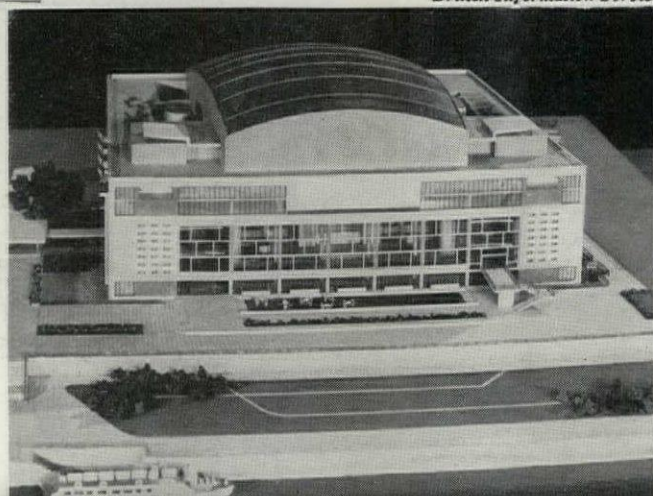


Waterloo Station entrance (above) is the gayest and largest of five entrances leading to the fairgrounds. Gordon Tait, its designer, used reinforced concrete for the main levels, spanned these with laminated wood arches rising 60 ft.



Dome of Discovery by Ralph Tubbs (above) is of aluminum and steel.

The great block of the Concert Hall (at right) directly overlooks the Thames. It will remain as a permanent music center for London.



## BRITAIN GETS READY FOR A 1951 FAIR

The Festival of Britain, 1951, promises to be a fresh and exhilarating showcase for British life and achievements. Its 30 acres of fairground in the heart of London, on the South Bank of the Thames, will dramatize exhibits of the "Land and People of Britain." Pavilions will show products, natural resources, industry, shipping and discoveries. (No individual firms will be presented—"this is not a trade fair.") Everyday life and interests will also be on view—homes, gardens, schools, health, welfare, craftsmanship and sports. All of these "make clear," the catalogue says candidly, "how the initiative . . . remains with the British." From advance sketches, no single building seems as breath-taking as the Crystal Palace of a 100 years ago, but a great number of the designs show great interest and variety. (Thank heavens, the stodgy Commemorative Palace, publicized and protested a year or two ago, has been quietly buried!)

Dominating the spectacle will be a "vertical element," corresponding to New York's sphere and pylon. This central figure, an aluminum lozenge, 250 ft. high, 14 ft. wide at the center and suspended 40 ft. above the fairground by steel cables and braces, was designed by architects Powell & Moya, winners of a nation-wide contest. It will shine airily above the festival in the daytime and at night will be lit from within by tungsten filaments running its whole length. The other Festival competition, for a restaurant, was won by a design of Leonard Manasseh—which in gala style has a gallery cantilevered over the river and a glass dance floor!

Outstanding among the 30 buildings on the site is a large concert hall (the only permanent structure in the group) designed by Robert Matthew. This will be the center of a nation-wide music festival which will hold performances not only in London, but in cities throughout England, Scotland, Wales and Northern Ireland.

The "Dome of Discovery" is a gigantic tent-like structure, 365 ft. in diameter, warranted to be "the largest dome in the world." Its roof, of aluminum sheathing braced by steel struts, will rise from 45 ft. at the eaves to 93 ft. at the apex. Within this hemisphere the exploits of British explorers both geographic and scientific—from Cook and Livingston to Newton and Darwin—will be chronicled.

Perhaps the most interesting exhibit of the British festival, for visiting architects and planners at least, will not be seen on the South Bank fairgrounds at all. It may well be the London County Council construction of a complete city neighborhood. Houses, flats, schools, stores, church, a pub or two and some light industry will give visitors a first hand view of the London of the future as it gets under way. Buildings will show all latest techniques and materials. After the fair's closing (in September) this part of it will be handed over to the even more enthusiastic scrutiny of London occupants.—S.K.

(Continued on page 240)





NEW SPECIALTY SHOP, BONWIT TELLER, INC., CHICAGO  
 SHAW, METZ & DOLIO, Architects, Chicago • GEORGE A. FULLER COMPANY,  
 General Contractor • NATIONAL DECORATING SERVICE, (HART BROTHERS  
 SYSTEM, INC.), Painting Contractor • WILLIAM PAHLMANN ASSOCIATES, Interior  
 Decoration • BERNARD GREENE, Lighting • HOWARD PEDERSEN, Murals

*Photographs, Hedrich-Blessing Studio*

**A**RCHITECTURE and interior design of Bonwit Teller's new \$2,000,000 women's specialty shop, 830 North Michigan Avenue, Chicago, are based on a new principle in retailing—"drawing-room selling"—successfully followed in the corporation's Boston and New York stores.

This new shop is divided into salons so that each department becomes a separate room. This provides patrons with a custom background and service. Decor was especially planned to approximate the surrounding in which the apparel shown will be worn. Lighting throughout is a scientific combination of daylight and

artificial light to achieve accurate and shadowless illumination. Much of the charm of the interior is due to appropriate decoration with Pratt & Lambert Paint and Varnish, including Lyt-all Flowing Flat, Lyt-all Spectrum Colors, "61" Enamel and "38" Pale Trim Varnish.

Distinctive color planning and practical painting specifications are available to architects from the nearest Pratt & Lambert Architectural Service Department. An opportunity to serve you will be welcomed.

PRATT & LAMBERT-INC., Paint & Varnish Makers  
 NEW YORK • BUFFALO • CHICAGO • FORT ERIE, ONT.

*Save the surface and you save all!*

**PRATT & LAMBERT PAINT AND VARNISH**



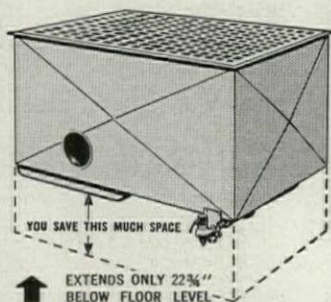




Automatic low-cost  
heat that helps sell  
low-cost homes

## Coleman Floor Furnace

Here's the way to keep construction costs low and yet be sure of the best in heating equipment. The Coleman Floor Furnace is the modern heating unit designed especially for low-cost homes. It needs no basement, no air ducts, no expensive plumbing. Installation is quick, simple and low-cost. Coleman engineering reputation backs these heaters, insures user satisfaction. . . . The Coleman Company, Inc., Wichita 1, Kansas.

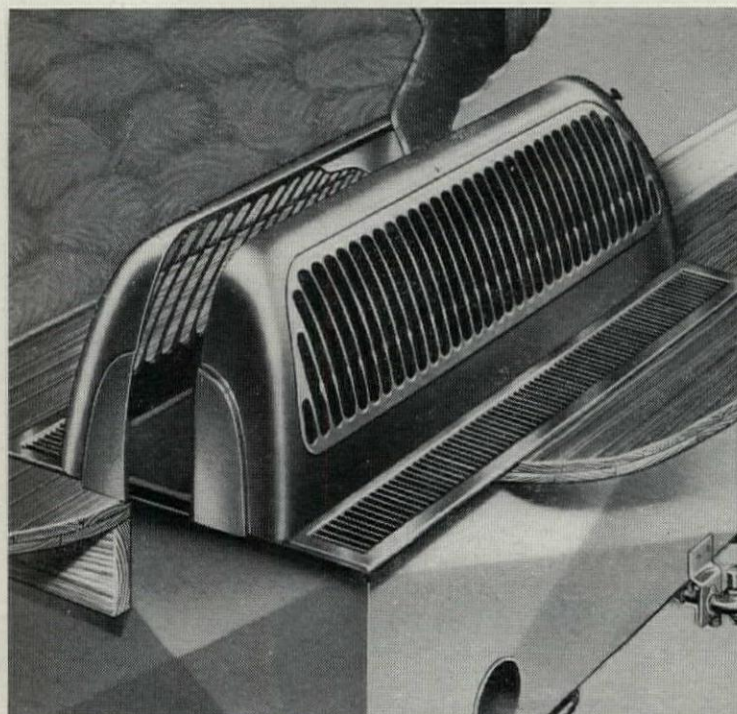
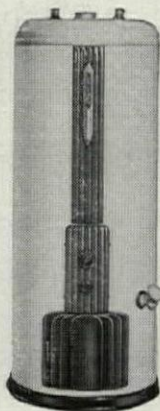


### Coleman's Space-saving Shalloflow for Gas and LP-gas

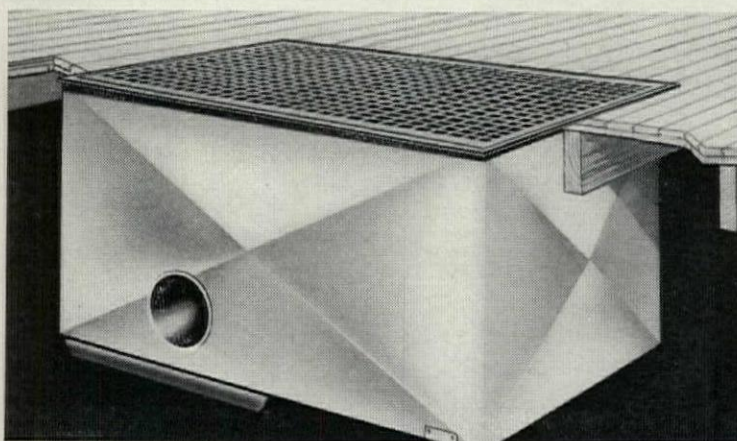
Fits in floor, extends only 22 3/4" below and is floodproof to 19" below. It's a small-size furnace with big-furnace heat production.

### Coleman's High-performance Water Heaters

Fully automatic. Gas, Oil and LP-gas models. Fully insulated and rust-resisting. 20- to 45-gallon capacities with fast recovery rate. Beautifully finished, incorporating the latest Coleman advancements for fast, low-cost hot-water service.



**DUAL WALL** model sets beneath wall to heat two rooms, uses no living space.



**FLAT REGISTER** model makes and moves heat through three to five rooms.

**Available for Gas, Oil, LP-gas.** Coleman Floor Furnaces are made for all these fuels. Not an adaptation but a complete engineering job throughout for each. Coleman Floor Furnaces meet building code requirements and FHA specifications. Finest automatic heating. In sizes from 25,000 to 70,000 per hour BTU. Models for flat register and dual wall installations. The Coleman name helps sell Coleman equipped houses. Use coupon to request catalog of all models with specifications.

Comfort costs so  
little with a

**Coleman**

World's largest  
manufacturer of home  
heating equipment

The Coleman Company, Inc., Dept. AF-050, Wichita 1, Kansas

Please send information on:

- ☐ Coleman Floor Furnaces  
☐ Coleman Water Heaters

State whether

- ☐ Gas ☐ Oil ☐ LP-gas

Name \_\_\_\_\_

Street \_\_\_\_\_

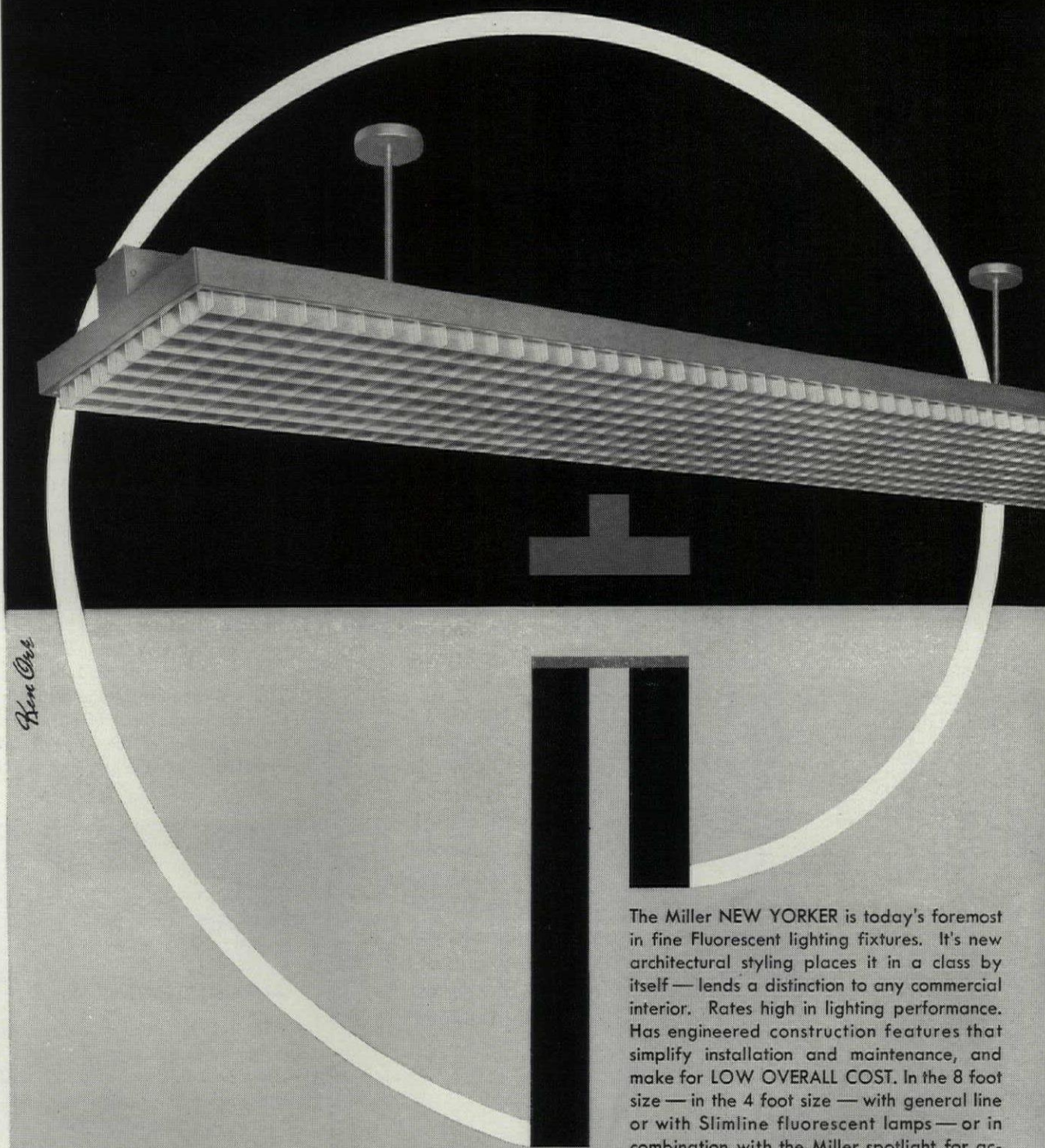
City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_



# Announcing the Miller NEW YORKER



*Ken Cox*

"Painting Toward Architecture"  
—a book about The Miller  
Company's collection of abstract  
paintings related to architecture.  
Leading book stores have it.



The Miller NEW YORKER is today's foremost in fine Fluorescent lighting fixtures. It's new architectural styling places it in a class by itself — lends a distinction to any commercial interior. Rates high in lighting performance. Has engineered construction features that simplify installation and maintenance, and make for LOW OVERALL COST. In the 8 foot size — in the 4 foot size — with general line or with Slimline fluorescent lamps — or in combination with the Miller spotlight for accent lighting, it is unquestionably today's finest in fluorescent lighting. Write for the NEW YORKER catalog. Miller engineers and distributors are conveniently located to serve you.

**THE miller company**  
SINCE 1844

ILLUMINATING DIVISION, MERIDEN, CONNECTICUT

ILLUMINATING DIVISION: Fluorescent, Incandescent, Mercury Lighting Equipment; HEATING PRODUCTS DIVISION: Domestic Oil Burners and Liquid Fuel Devices; ROLLING MILL DIVISION: Phosphor Bronze and Brass in Sheets, Strips and Rolls



## REVIEWS

### A WORTHY MEMORIAL IS PROPOSED FOR JEWISH WAR DEAD



Photos: Lionel Freedman-Pictor

## NEW WOOD PANELING THAT IS DIFFERENT!

**ETCH** *Wood*

suggests treating one or more walls with wood paneling.

And once you've seen this amazing plywood, with its hard satiny-smooth surfaces, its highlights and shadows, you'll agree that it will change a room into a thing of exciting beauty, and at a fraction of the cost you would expect.

DOZENS  
OF OTHER  
USES

Easy to finish—easy to install—Easy to care for—but hard to scratch or mar. Use it for paneling in dens, play rooms, offices or anywhere beauty in wood is desired.

STANDARD 4 FT. X 8 FT. PANELS

SOLD NATIONALLY THRU LEADING PLYWOOD WHOLESALERS

**ETCH** *Wood*

For your sample and descriptive folder, write to manufacturer, Davidson Plywood and Lumber Co., 3136 E. Washington Boulevard, Los Angeles 23, California

A noble exception to the recent failures in memorial-monument design is revealed by the model and photomontages shown during February at New York's Museum of Modern Art. They illustrate Percival Goodman's suggested monument to commemorate the six million Jews killed in Europe (1939-1945). The site for such a monument has already been set aside by New York City's Park Department along Hudson River Drive in Manhattan.

The Goodman proposal shows a rare comprehension of the demands of both site and subject. Balanced as it is on a slope between Riverside Drive apartment houses and the Hudson basin, it still maintains its individuality with a seemingly effortless asymmetry. The plain wall slab, which is its central feature, not only has traditional significance but serves to shut off from the esplanade (below) the 100,000 cars that pass the site daily. It also serves as backdrop for memorial services that may be held at the monument. At one side of this wall is the age-old seven-branched candlestick (the Menorah)—not only a reminder of the light of an ancient faith but a Jewish symbol of the Tree of Life. During a memorial service the branches would hold flaming torches.



The text inscribed on the monument has been chosen from the prophet Ezekiel—"Oh ye dry bones, hear the word of the Lord, Behold I will cause breath to enter into you, and ye shall live." On one side (see upper photo) a hand symbolically raises the prone figures. Both the wall and the base of the candlestick are of the same granite that is used for walks throughout the park, a fact which serves to integrate them well with the surrounding landscape. Minimum changes would be required in path layout—none at all in existing retaining walls.

Goodman's design has received such wide critical acclaim that it is discouraging to note that its ratification is already feeling the slow-up pinch of committee hesitation and suggested bureaucratic "improvement." It is to be hoped that the first truly hopeful memorial seen since the war will eventually fulfill the promise of its fine model.—S.K.

(Continued on page 244)



# We want to cook with gas!

IT'S QUICKEST    IT'S CHEAPEST  
IT'S SAFEST

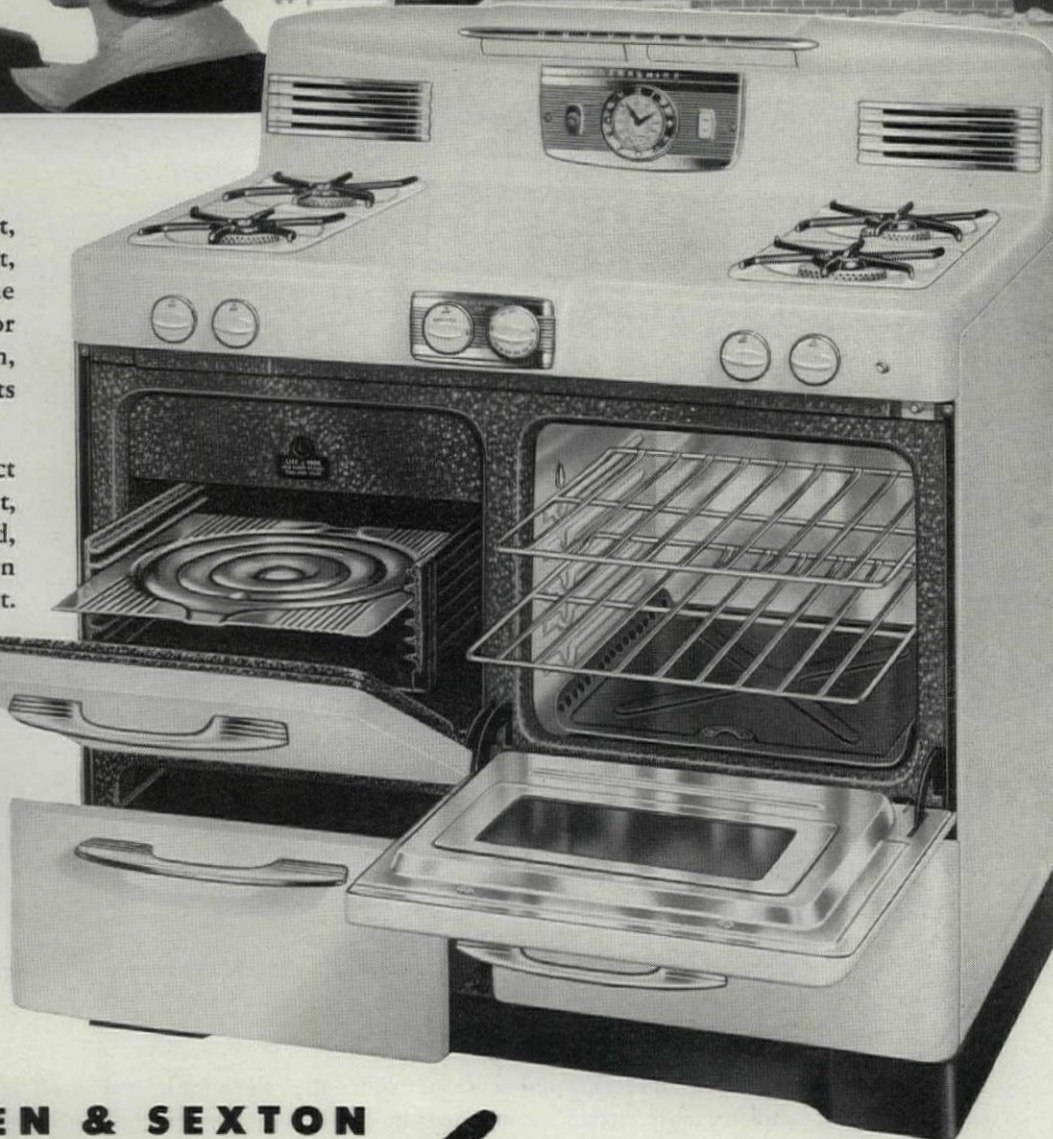


**What are you going to say, Mr. Architect,** when the young couple asks, "Gas is safest, isn't it?" Better just refer them to the Underwriters' report on fire causes for any year: Gas way down at the bottom, all other cooking and heating agents way up high.

**What are you going to say, Mr. Project Promoter,** when they ask, "Gas is cheapest, isn't it?" Better get that main extended, because *that* couple has probably seen the comparative - cost - per - BTU chart.

**What are you going to say, Mr. Contractor,** when they say, "Gas is quickest, isn't it?" Make up your mind, Sir, once and for all. Put a vessel of water on a Universal Gas Range top burner, and an identical vessel on a range top using any other means of heat. Time them. Then you can answer with assurance:

*"Nothing Cooks Like Gas —  
And Universal Proves It!"*



CRIBBEN & SEXTON  
*Universal*  
GAS RANGE

MASTER BERKSHIRE  
MODEL



CRIBBEN & SEXTON CO., 700 NORTH SACRAMENTO BOULEVARD, CHICAGO 12, ILLINOIS



# What a job **GOOD CARPET** can do!



*Model house in the Expandable Homes, Inc., development in Milwaukee, Wisconsin. Houses are offered for \$9,600 including carpet!*



*Living room illustrates "finished" look which wall-to-wall carpet provides. Builder expects to use Gulistan Carpet in all future homes.*

Progressive builders, architects and finance men have found that nothing makes a home "package" more complete, more attractive, than *carpet*. That's why Home Designers & Builders, Inc., builders of the 1500-unit Expandable Homes, Inc., development in Milwaukee, offered houses complete with carpet. And because they knew the carpet must not only look good and feel good but must *perform* well, they chose an attractive, *durable* twist carpet by Gulistan.

Gulistan makes carpets to suit all building needs—including yours! For information, please write New Building Department, A. & M. Karagheusian, Inc., 295 Fifth Avenue, New York, N. Y.





*Bedroom in model home shows the "complete" luxurious feeling obtained only with carpet. Carpet is laid wall-to-wall over radiant-heated floor slab.*

For HOMES  
APARTMENTS  
STORES  
CHURCHES  
THEATRES  
HOTELS  
OFFICES  
CLUBS  
RESTAURANTS  
SHOWROOMS  
AUDITORIUMS

## READ what this builder writes!

"THESE PHOTOS WERE TAKEN AFTER SOME 98,000 PEOPLE HAD INSPECTED OUR MODEL HOME. IT IS AMAZING TO SEE THAT THE GULISTAN CARPET AFTER ALL THIS TRAFFIC SHOWS NO SIGNS OF WEAR. IN FACT, IT REQUIRED NO CLEANING OUTSIDE OF THE USUAL CARPET SWEEPING.

"THE WRITER WANTS YOU TO KNOW THAT IN EVERY HOME TO BE BUILT BY OUR FIRM, LOCALLY OR NATIONALLY, GULISTAN CARPET WILL BE INSTALLED.

"WITH KINDEST PERSONAL REGARDS,

Home Designers & Builders, Inc.  
R. M. Smith, Sr."

# GULISTAN

REG. U.S. PAT. OFF.

## CARPETS

*Carpets Woven on Power Looms in U. S. A.  
A. & M. Karagheusian, Inc., 295 Fifth Avenue, New York 16, N. Y.*



## REVIEWS

**THE BUSINESS OF HOME BUILDING**—A Manual for Contractors. Edited by B. Kenneth Johnstone and Charles E. Joern. McGraw-Hill Book Co. 289 pp. 6 x 8 in. \$4.

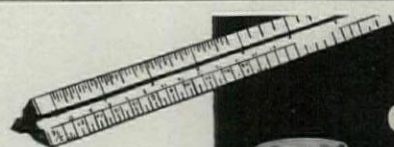
As the title implies, this book is not for the experienced merchant builder but rather for the contractor or craftsman who wishes to become a builder. To be sure, it contains some information which may be new or helpful to experienced builders, but most of it is quite elementary.

Each chapter treats a different phase of build-

ing and is written by a different author. Editor Edward G. Gavin of *American Builder* leads off with a string of statistics highlighting the housing market and trends in production, employment, costs, etc. Community Planner H. Evert Kincaid discusses the value of land and the factors which affect it. Builder A. W. Rhamstine of Chicago's Joern & Sons describes the various ways of purchasing land. Seward H. Mott and Max S. Wehrly of the Urban Land Institute then tackle the subject of land development and incidentally

prove that a curvilinear street pattern costs less than an unimaginative gridiron plan. The subject of "Working Capital" is covered by W. A. King in primer-like fashion; to wit, "The ideal way to sell is for cash, but selling for cash would restrict the market for houses almost to the vanishing point. Very few people can pay all cash, as the purchase price involves what to most of them is a large sum of money." One of the book's most comprehensive chapters, "Financing" is the work of James W. Rouse, President of Baltimore's Moss-Rouse Co., and includes an ABC explanation of the details of the FHA and VA varieties of mortgage lending.

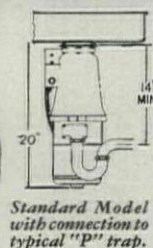
Of primary interest to experienced builders will be the chapter on "Job Organization" by California's big builder, David D. Bohannon. Discussing the relative costs of small and large operations, he concludes: "For an economical volume-production project, between 100 and 150 houses is considered the minimum number to justify adequate purchasing, job organization, architectural and planning services, cutting yard, and proper erection crews. In a project of this size we may expect a labor saving of about 30 per cent in the operation before the building frame is completed [and] general administration and overhead will approximate 33 per cent of the direct charges for labor. When it is feasible to enlarge a project from 150 to 500 or 1,000 units, substantial savings can be effected in the direct charges. This is because . . . very little extra overhead will result from planning and engineering a large project. There may be no extra charge for architects' services. The same clerical and field supervisory staff can carry on the larger project. The same cutting, warehousing, and job facilities will adequately serve a project of two to four times the 100- or 150-unit project. This assumes, of course, that the project will be built over a longer period of time at the same unit rate of production. Otherwise, additional yard, job and warehouse facilities will be required." Then, as a guide, he notes that for a 150-unit project the average percentage cost of



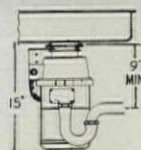
### How to "measure" a GARBAGE DISPOSER

#### 1 PLANNING

*National Disposers* fit into design easily. *National* anticipates varying job conditions and installation problems (such as high waste lines) with two models—the *Standard*, Model 35-C and the "Shorty", Model 35-CS—shown at right.



Standard Model with connection to typical "P" trap.

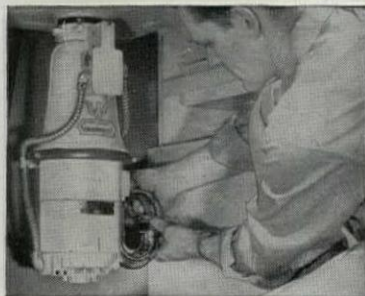


"Shorty" Model, note 9" minimum between bottom of sink and waste line.



**2 INSTALLATION**—The contractor has no problems where installation of *National Disposers* is concerned. Nationals are designed for quick, easy installation. It's a matter of record that *National Disposers* were installed in one apartment house job in an average time of less than 1/2 hour each!

Both *Standard* and "Shorty" Models are easily, quickly installed—good design is simple design!



**3 PERFORMANCE**—*National Disposer* performance is absolutely tops—compare it with any other brand! Both models have the same powerful 1/3 h.p. motor, same simple one-piece drain cover control, same one-piece jam-free impeller. Both models handle any legitimate garbage and are not harmed by metal, glass and other objects which may accidentally be dropped into a disposer!

#### 4 SERVICE POLICY

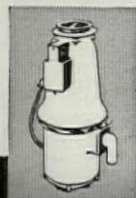
*National Disposers* are built to strictest quality standards—but if service is required, the work is simply a power unit replacement . . . so simple it is unique in the entire disposer industry! The user is not deprived of his appliance; there is no involved repair operation in his kitchen.

Service is simple: Plumber merely replaces entire power unit as a package—a simple 10-minute job requiring only a screwdriver and an ordinary end-wrench.



**YOU CAN'T DO BETTER THAN TO SPECIFY NATIONAL DISPOSERS**—Nationals meet every requirement from the first planning stage on . . . every requirement of the architect, contractor, apartment and home owner.

It will pay you to get complete details now . . . write for "Architect's File" including National Disposer specification sheets and installation data. Address: Dept.-3, Plumbing Equipment Div., The National Rubber Machinery Co., Akron 8, Ohio.



The NATIONAL Disposer

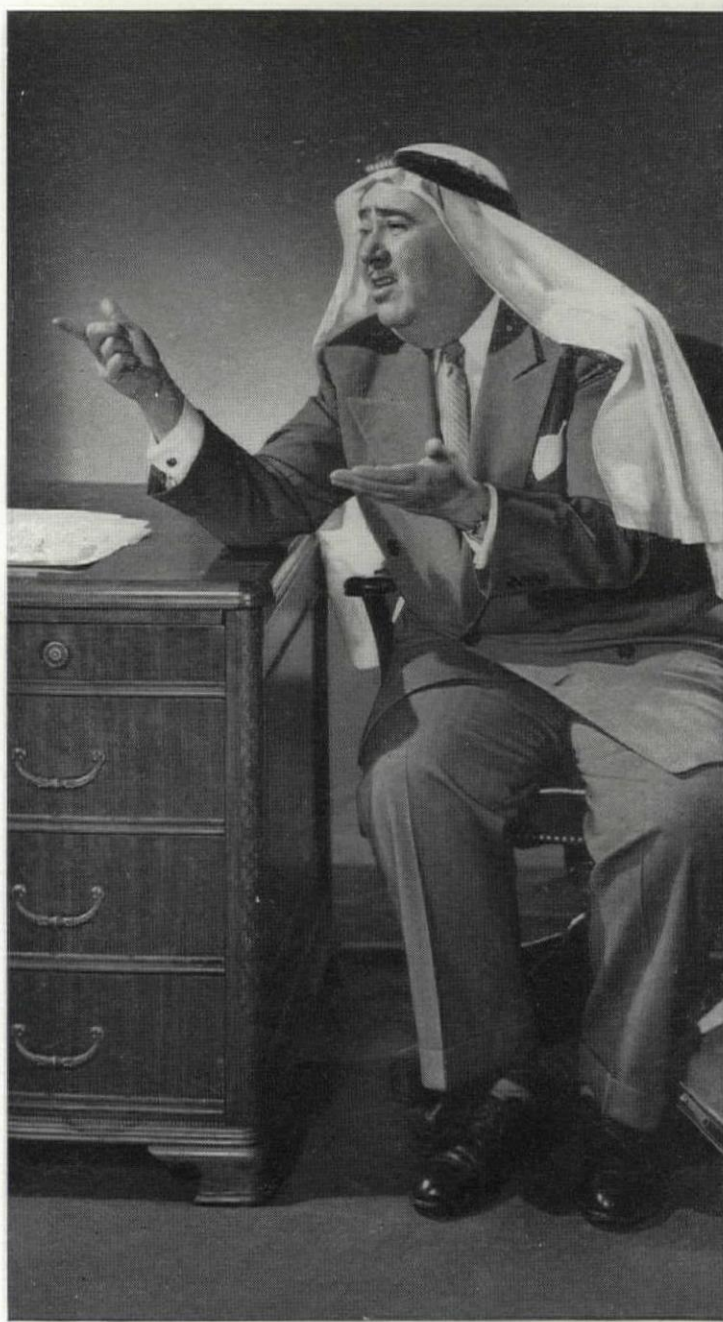
Made by National Rubber Machinery Company for over 40 years designers and builders of precision processing machinery.

Cost items	Per cent of total cost
Overhead and administration	3.0
Land and improvements	20.0
Rough materials cost	11.0
Rough and finish hardware	3.0
Millwork and exterior finish	17.0
Sheet metal	0.6
Plumbing	11.0
Electrical	3.0
Heating	1.0
Painting and plaster board taping	8.0
Linoleum and asphalt tile	3.0
Grading and cleanup	0.7
Shades	0.3
Building cleanup	0.2
Brickwork	3.0
Concrete and flat work	8.0
Earthwork and layout	0.9
Ceramic tile and counter tops	1.3
Shingling and roofing	2.0
Plastering	3.0

Total cost 100.0

(Continued on page 248)





## THE WALLS THAT HAVE NO EARS

Builders of Washington's new Maiatico Building,\* occupied almost entirely by the Marshall Plan's ECA headquarters, found it important to install a no-duct air conditioning system.

Reasons? Complete privacy is essential in these government offices and sound *will* carry through ordinary ductwork. Additionally, the architect was concerned with cost, ease of installation, flexibility and operating economy. So he brought Trane equipment into the picture.

Some 500 UniTrane under-window air conditioners were installed throughout the building. Occupying little more space than an old-fashioned radiator, these new units heat, cool, remove excess moisture and circulate the 100% filtered air. They provide individual room control. All without ducts.

Thus another problem was solved by equipment from the House of Weather Magic—builders of devices to make air more comfortable, more useable, more effective, in offices, plants, stores, and homes everywhere.

Keeping secrets from leaking through walls may be no concern of yours. But whatever air-conditioning problem you have, remember that TRANE KNOWS AIR: how to warm it, cool it, dry it, humidify it, clean it, or move it. Your local Trane office will be glad to work with you on any of your projects.

### HEAT FOR BIG BUILDINGS OR MODERN HOMES.

There's a better way to heat any size structure—with Trane Convectors. Quick-heating, space-saving convectors team up with any steam or hot water system, to provide better heat distribution and more comfort at low cost. Write for complete information.

*\*Architect: Harvey Warwick, Washington. Heating and Air Conditioning Contractor: W. G. Cornell Company, Washington.*



THE TRANE COMPANY, LA CROSSE, WISCONSIN  
EASTERN MFG. DIVISION • SCRANTON, PA.  
TRANE COMPANY OF CANADA, LTD., TORONTO



*Can we get an acoustical ceiling  
that's fireproof and demountable?*

*Yes! I'm specifying  
Johns-Manville  
**SANACOUSTIC**\**



That's the best answer to that problem.

J-M Sanacoustic Panels are ideal for suspended ceiling construction... permit easy access to services, provide attractive appearance



J-M  
SANACOUSTIC  
is

- FIREPROOF
- DEMOUNTABLE
- EASY-TO-CLEAN

— • —  
All-metal-and-mineral construction provides numerous advantages.

THERE IS NO NEED to do without a single feature that you consider desirable in an acoustical ceiling, because J-M Sanacoustic Panels combine the advantages of fire-safety, good appearance, removability, high light-reflection, ease of maintenance, and extremely high sound-absorption qualities.

As a result, *millions* of square feet of Sanacoustic have been installed in institutions, offices, hospitals, schools and places of public assembly.

Consisting of *perforated metal panels* backed up with a fireproof sound-absorbing element, Sanacoustic Ceilings will not burn, rot, or disintegrate. They may be applied over new or existing construction. The method of installation assures perfect alignment of units, allows easy removal without damage.

An exclusive J-M patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical ceiling units. Write for our brochure, "Sound Control." Johns-Manville, Box 290, New York 16, N. Y.

\*Reg. U. S. Pat. Off.



**Johns-Manville**

J-M Acoustical Materials include Sanacoustic Panels, Asbestos Transite\*, and drilled Fibretone\*





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INCORPORATED



Year after year ...again in 1950...LEVITT homes offer  
**TRACY Stainless Steel Kitchens** *exclusively*

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The basic Levitt policy of providing only the finest in design, materials, construction and equipment has produced the world's No. 1 values in homes — year after year. Through full capacity concentration on the best values, Levitt has made tens of thousands of fortunate families the happy occupants of their own homes, unsurpassed anywhere for lifetime qualities for good living.

We of Tracy are proud to share in this triumphal march. Like our great customer, Levitt & Sons, Inc., we devote the full productive capacity of Tracy to "Sky High Quality — Down-to-Earth Prices."

Tracy kitchens are also the choice of prominent architects and builders across the country, who know that a Tracy kitchen bespeaks a top-quality home, for joyful living.



TRACY STAINLESS STEEL KITCHENS represent the ideal of countless women. They appreciate the lifetime beauty of the gleaming stainless steel sinks and work surfaces; they appreciate the easy cleaning in this servantless age. Stainless steel cannot stain — blemish — mar — chip — or crack. Continued use only mellows the original bright surface to a satin-like sheen, even more beautiful than when first installed.

Sinks are sound-deadened to reduce kitchen clatter. Corners and edges are smooth, rounded — drawers glide quietly, smoothly. Cabinets are extra-heavy steel, strong and rigid; doors close quietly, firmly on concealed hinges. Stainless steel handles and pulls.

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# More Living Comfort PER SQUARE FOOT



*Self-contained, leakproof shower baths which harmonize in quality and appearance with the finest of modern plumbing fixtures, Weisways help you put more livability into every house you plan, even where floor area is limited.*

## Weisway CABINET SHOWERS

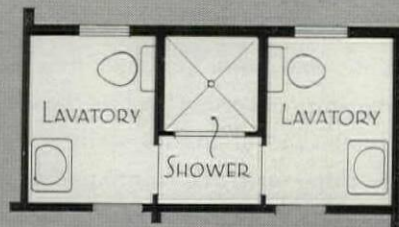
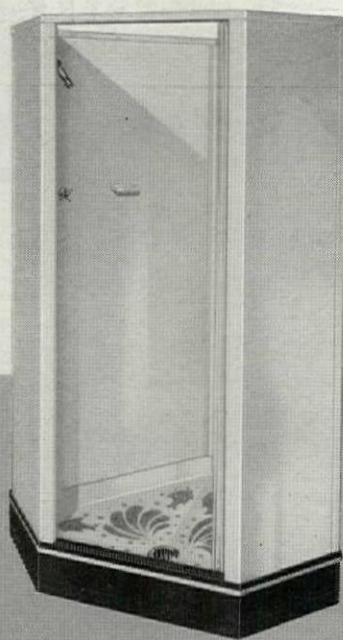
Floor plans shown below reveal how Weisway Cabinet Showers combine with other fixtures to provide more bath facilities in limited floor area. These plans will suggest to you many other ways in which these leakproof modern bath units can provide extra facilities in small homes as well as large.

The Weisway line includes models suitable for every class of construction, from most luxurious to most economical. Every model embodies the basic Weisway quality construction and service-proved materials.

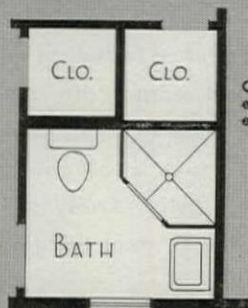
Outstanding quality feature of Weisways is the receptor, formed in one piece of heavy enameling iron, without seam or crack, with stainless vitreous porcelain enamel finish and exclusive foot-grip, no-slip floor.

Weisway's dependable, leakproof performance through the years protects your reputation, Mr. Architect. Specify Weisway and be safe! Write now for catalog and detailed information.

**HENRY WEIS MFG. CO., INC.**  
402 Weisway Bldg., Elkhart, Indiana

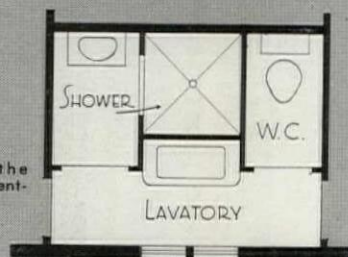


One Weisway gives the practical effect of two bathrooms in this arrangement.



Corner entrance models save floor area for extra closets here.

Weisways fit the trend to compartmentized bathrooms.



## REVIEWS

each item of operation will be approximately that listed in the accompanying cost breakdown (for a \$6,686 basementless house constructed on the West Coast).

The chapter on operating costs is written by Builder-Realtor Ben C. Wileman of Oklahoma City. A brief chapter on cost control by CPA Bert V. Tornborgh tells the neophyte builder how to set up his books for accurate accounting.

On the subject of "Sales" Realtor Benjamin F. Bills of Chicago advises against furnishing the model home—"most people come to see the furniture or are merely trying to get ideas." He advises that one of the best sales tools is a news-making house, but warns that "a new house alone, except in abnormal times, is not in itself news. However, to the degree that there are new and fascinating features incorporated in the building of the home, to that degree, news is provided."

After Attorney Samuel I. Sacks of Philadelphia covers the legal aspects of house building, the book closes with a surprise chapter by Robert T. Markley of the Equitable Life Assurance Society, who tries to sell the reader "financial security" through life insurance.—J.H.

**PRODUCTION OF NEW HOUSING.** A research monograph on efficiency in production. By Leo Grebblor, published by the Social Science Research Council, New York, N. Y. 186 pp. 5 x 8 in. \$1.75.

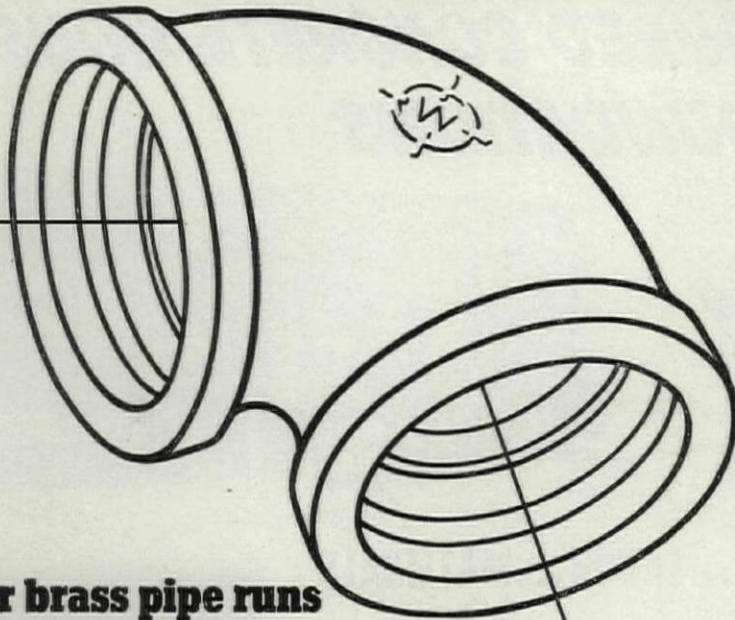
One of the by-products of the housing shortage was a bumper crop of "experts," each of whom had a ready-made solution to the nation's housing needs. Leo Grebblor, happily, is not a member of this group. In his monograph on new-house production, he sidesteps gimcrack solutions in favor of a sober-sided analysis of the important problem of efficiency in housebuilding.

It was perhaps inevitable that discussions of housebuilding efficiency in this country should be confused with the type of assembly-line efficiency which has been achieved in our production of automobiles, cornflakes and refrigerators. There are too many variables in house production, however, to make these comparisons valid. The great bulk and weight of houses, plus the factors of localism, seasonal variation and unsteady pricing procedures, all result in variations which should modify our normal concepts of efficiency. But the mere fact that houses cannot be produced like automobiles should not preclude the development of efficiency standards which will allow for these variations. The bulk of Leo Grebblor's book is devoted to an analysis of just this problem. As the author points out, the building industry has taken a number of significant steps itself towards raising the level of efficiency. One of these is the development of standardized and multi-purpose materials and equipment. Closely connected with this is the emergence of a new type of builder—the big scale operative builder—who is able to exploit the advantages of repetitive operations and mechanized production. Grebblor notes, with academic precision, that the relation-

(Continued on page 252)



*The sure way to cut the cost of pipe maintenance*



**on all copper tube or brass pipe runs**

# **...SPECIFY THREADLESS**

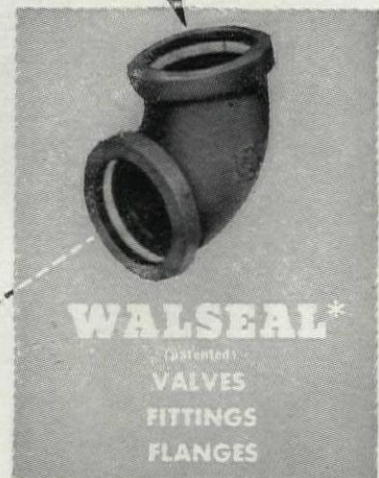
Whenever your plans call for copper tube (iron pipe size) or brass pipe — especially in public, industrial or commercial buildings — specify patented threadless Silbraz joints made with Walseal valves, fittings and flanges. Silbraz joints effectively produce strong, lasting pipe runs.

These modern joints provide positive protection against leaks by actually becoming a part of the pipe itself. They make a "one-piece" pipe line that will not creep or pull apart under any pressure, shock or vibration that the pipe itself can withstand.

Easily installed by oxyacetylene torch brazing, Silbraz joints are the sure answer to low-cost assemblies that will require neither maintenance nor repair in the years to come. Ask your nearest Walworth distributor, or write for copy of Circular 84 giving complete data on Walseal Silbraz joints.

\*Patented — Reg. U.S. Patent Office

**SILBRAZ\***  
**JOINTS**



**Make it a "one-piece pipe line" with WALSEAL**

## **WALWORTH**

**valves and fittings**

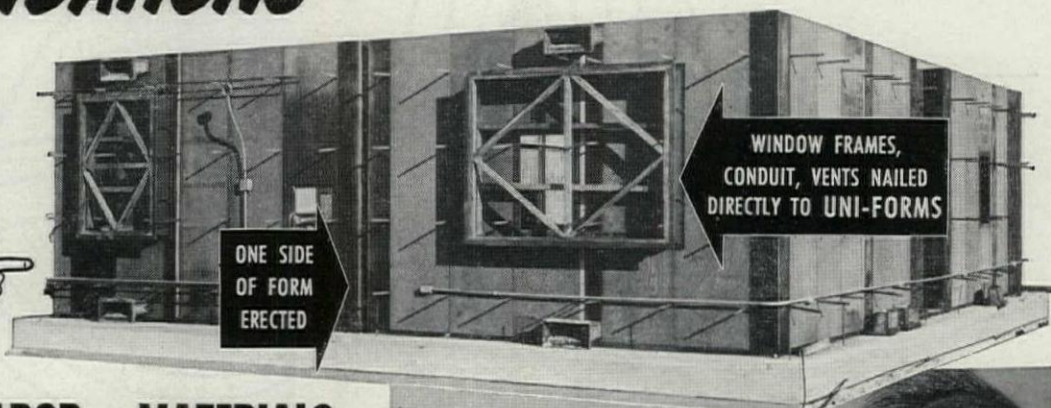
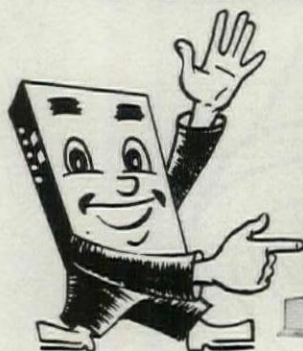
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OF FORM  
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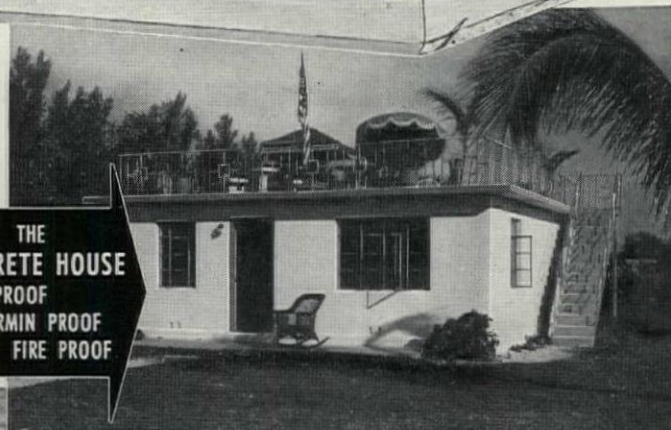
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ONE MAN EASILY  
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COMPLETE FOUNDATION  
IN 4 HOURS



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BREAK-BACK

POSITIVE WALL THICKNESS

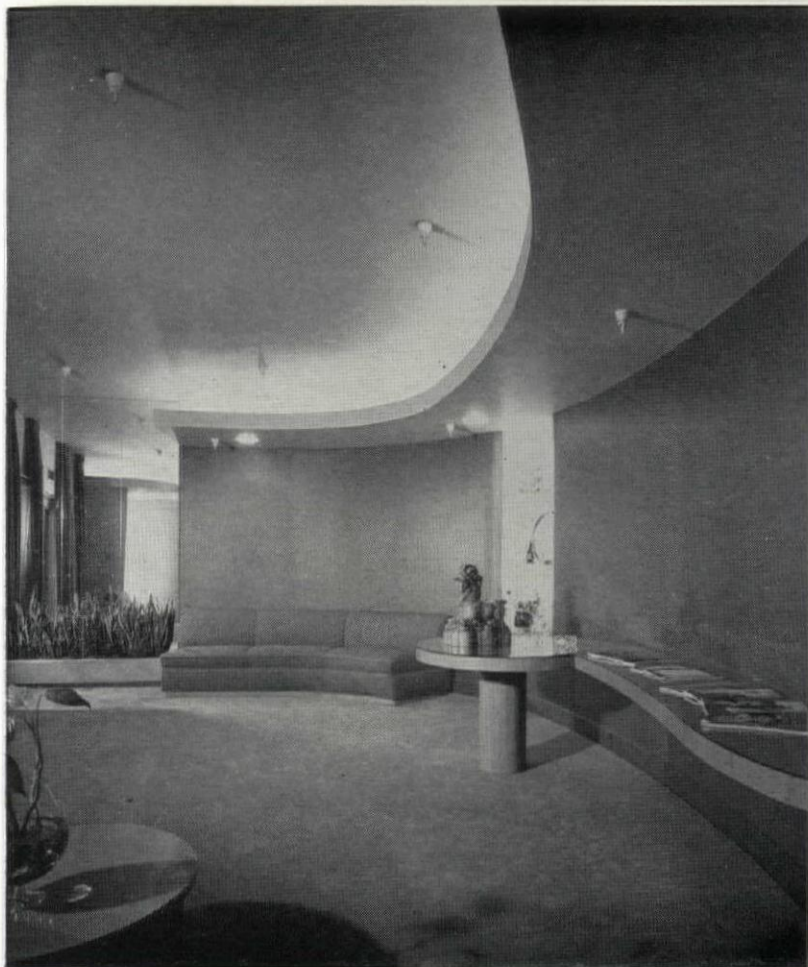
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*Form Clamp Company*

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**BEFORE:** An otherwise beautiful interior can be badly marred by the unsightly protrusions and distorting shadows of conventional sprinkler heads.



**AFTER:** Here is real beauty. There is no distraction from the fine lines of the architect's design when Viking Flush Type Sprinkler Heads are used.

# SEE *how much Beauty you Add* with **VIKING FLUSH TYPE SPRINKLER HEADS**

You don't need to be an architect to see the difference in the two photographs above. One has lost the streamlined beauty which the architect sought. The other is a masterpiece of good taste . . . a tribute to the architect's skill. Both have vitally important sprinkler protection.

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Flush Type Heads are so smoothly out of sight, they never interfere with your planning. Yet, they are always ready when trouble comes. There are no unsightly shadows and highlights such as you have with sprinkler heads that protrude far below the ceiling.

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*Representatives in Principal Cities*

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**THE VIKING**

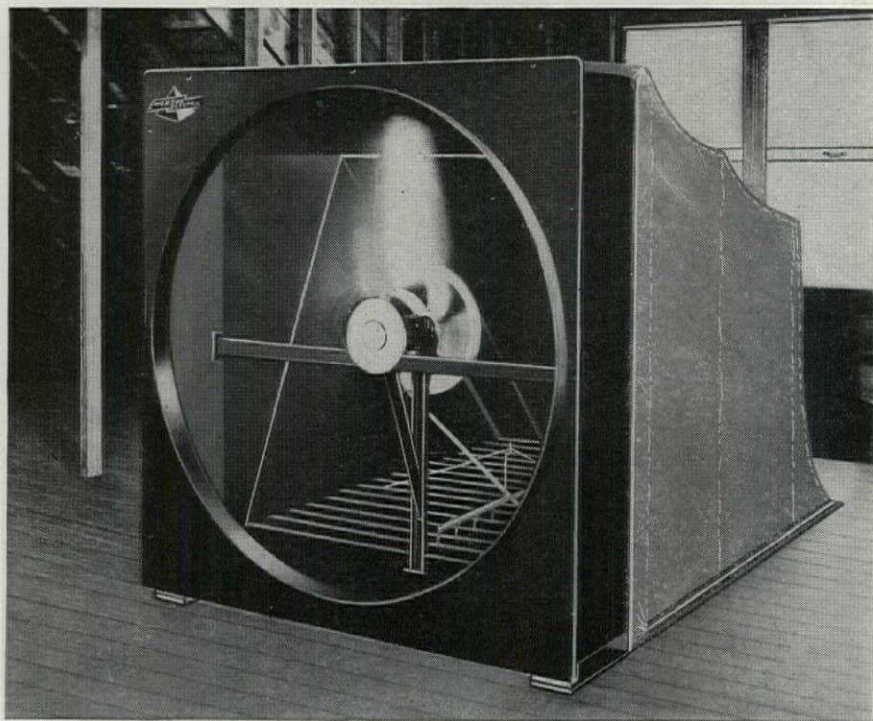
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MICHIGAN**



# LOWER PRICES

on Emerson-Electric  
**BALL-BEARING ATTIC FANS**  
for vertical or horizontal installation



Above, fan with Canvas Plenum Chamber and automatic ceiling shutter. May also be installed to discharge vertically, mounted over automatic ceiling shutter, without plenum chamber.



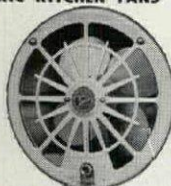
Substantial price reductions on Emerson-Electric's complete line of ball-bearing Attic Fans make a complete Home Cooler Fan installation a better-than-ever investment in summer comfort for your clients in 1950!

Equipped with ball-bearing motors and special ball-bearing pillow block shaft mountings, these powerful fans are designed for 5000 hours service without re-lubrication. They offer exceptionally long, quiet service, in addition to ease of installation. Built to run efficiently, when mounted vertically, horizontally or at any angle. In low attics, a space of 2½ feet above the joists is sufficient

for vertical discharge installations. Available in blade sizes 30", 36", 42" and 48", with capacities up to 19,350 cubic feet of air per minute. Save *half* the installation cost on this tested, economical home cooling system for your clients, *by installing it during original construction!* See your electrical contractor or write for Home Cooler Fan Bulletin No. 406.

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Please her with a Kitchen Ventilating Fan...to whisk away heat, smoke and cooking odors, prevent spread of greasy vapors to walls and drapes. Easy to install in any type of construction. Models for wall or ceiling installation.



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**EMERSON**  **ELECTRIC**  
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## REVIEWS

ship between bigness and overall efficiency in building operations has yet to be clearly proven despite the success of many large scale builders in clipping land development and construction costs. More important has been the trend towards off-site production of parts and assemblies by builders of all sizes. The culmination of this process, of course, is factory-built housing—the most controversial aspect of any discussion of house-building efficiency. Grebblor takes a moderate view of prefabrication's future. He falls back on the obvious statement that factory-built housing will have to achieve greater efficiency as a production battery if it is to compete. In general, he feels that the determining factor will be the development of better marketing techniques for pre-fabs—a position born out by the current Lustron difficulties.

The author has, wisely, not limited his study of housebuilding efficiency to construction problems alone. He points out that financing among other factors, has a direct bearing on overall housebuilding efficiency. A builder may finish his year's program on schedule, with careful attention to construction efficiency, only to have his gains nullified by delays in ironing out a kink in his mortgage arrangements. Modernization of financing arrangements must go hand-in-hand with the quicker pace of present-day construction.

Throughout his book, the author shows a refreshing tendency to admit that he does not have all the answers. Housing research, he points out, is in a pitiable state when one considers how important the whole subject is to our economy and social life. Up to now, most "research" has consisted of biased generalizations puffed up from a few incomplete (and often irrelevant) facts. To correct this, the author has interrupted his main text to suggest areas of fruitful research. Particularly important, he points out, are some long-range studies on the overall economic problems of housing so that the greatest inefficiency in the industry—its periodic boom-and-bust cycles—can be softened, if not eliminated.—W.D.

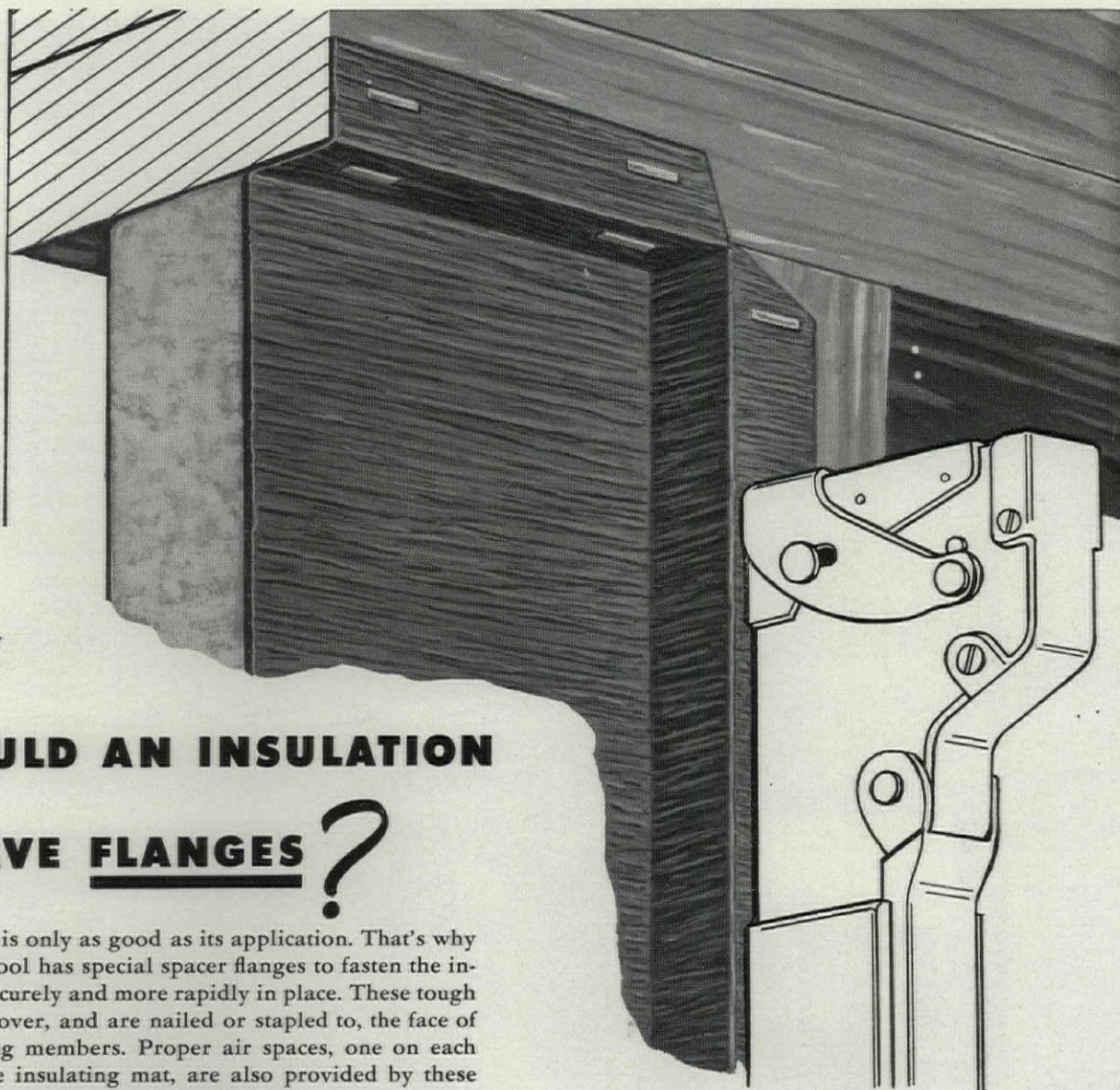
#### COMMUNITY ORGANIZATION AND PLANNING

by Arthur Hillman. Macmillan Co., 60 Fifth Ave., New York, N. Y. 378 pp. 5½ x 9. \$4.

This book is valuable in calling attention to the causes that underly a frequent planning disease—"fragmentation of efforts." Intended as a textbook "for community leaders and professional workers" its chapters stress the need for a broad viewpoint and the power of clear statement. It presents a cross-section of opinions in the field rather than original theories.

Marked for special note is planning's "twilight zone" that region where there is no clear line between private and community interests—this includes such vital functions as recreation, child welfare, property improvement, health, schools and labor. Here the planner's job is "not to set goals. Rather he discovers them and aids the community to define them."





**WHY**

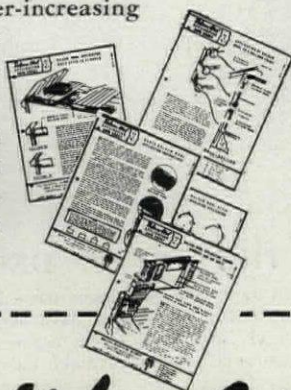
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Below and beyond this painting in the new home office building of the John Hancock Insurance Company, elevator lobby floors and all stairways have been made permanently non-slip and more wear-resistant by the addition of Norton Alundum aggregate to terrazzo surfaces. It is always a wise decision and a good "insurance" policy to make hallways safe by the use of Norton non-slip floor products.

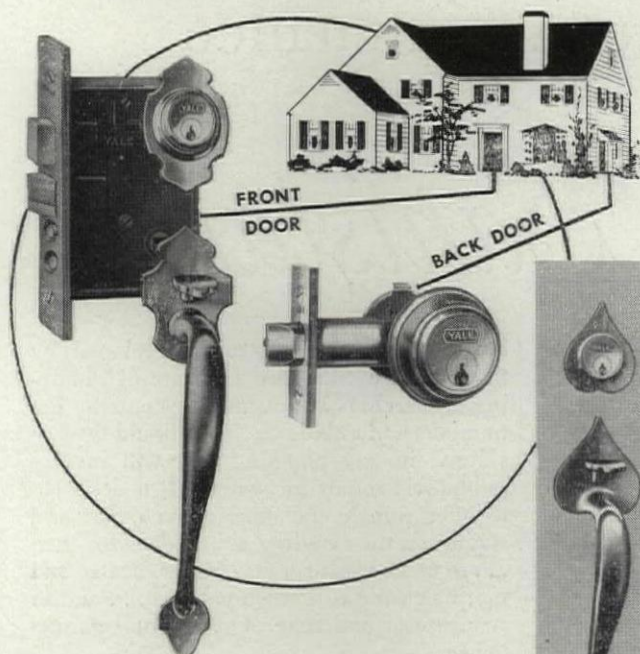
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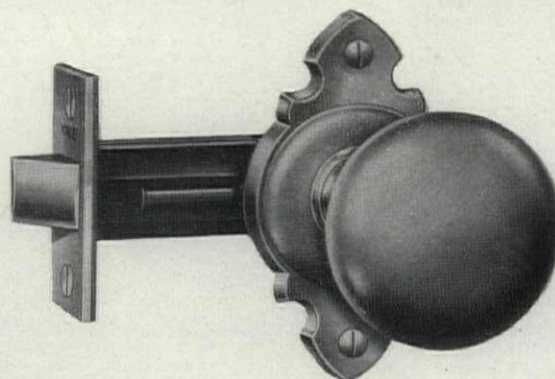
# Hardware that stands up to "hard wear."



## XP22 FRONT AND BACK DOOR SET

Consists of XP74281 Handle Set for front door . . . 170KA Tubular Deadlock for back door. Latter has chromium-plated inside trim to *match* modern kitchen fixtures. Front and back door keyed alike.

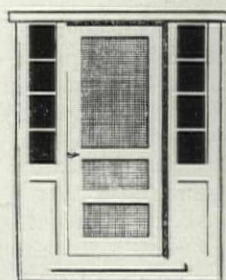
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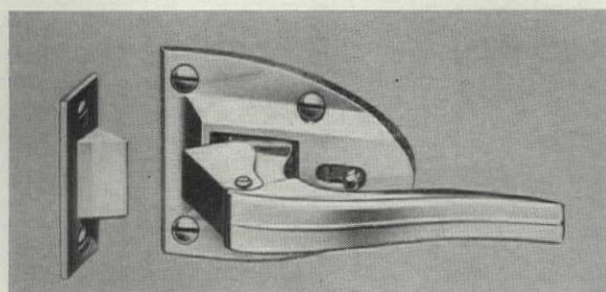
## CR231 KNOB SET

Offered in following styles—latch set, no locking on either side; bathroom set with push-button on rose, emergency key, chrome inside; bedroom set, push-button on rose, provision for emergency key. Automatic throw-off.

**X H DESIGN** Same combinations as XP22 Set.



First  
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doors!



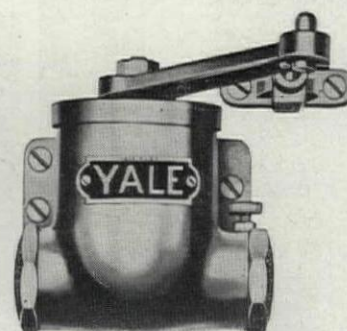
## 1011 PUSH-PULL SCREEN DOOR CATCH

Heavy-duty catch for screen and combination doors. Works easy . . . no knob to turn. Sure-holding, positive lock. Quick to install. Rustless metal, bright brass finish.



## 506 AIRLINER SCREEN DOOR CLOSER

Pneumatic-type. Adjustable spring is completely concealed against dirt and rust. Modern appearance, attractive finish. Easy to install on doors of either hand, inside or outside . . . requires only 2 in. between doors.



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Liquid-type. Quick, quiet, complete closing. Easy to install and adjust . . . no reversing . . . screw holes spotted by full-size marker.

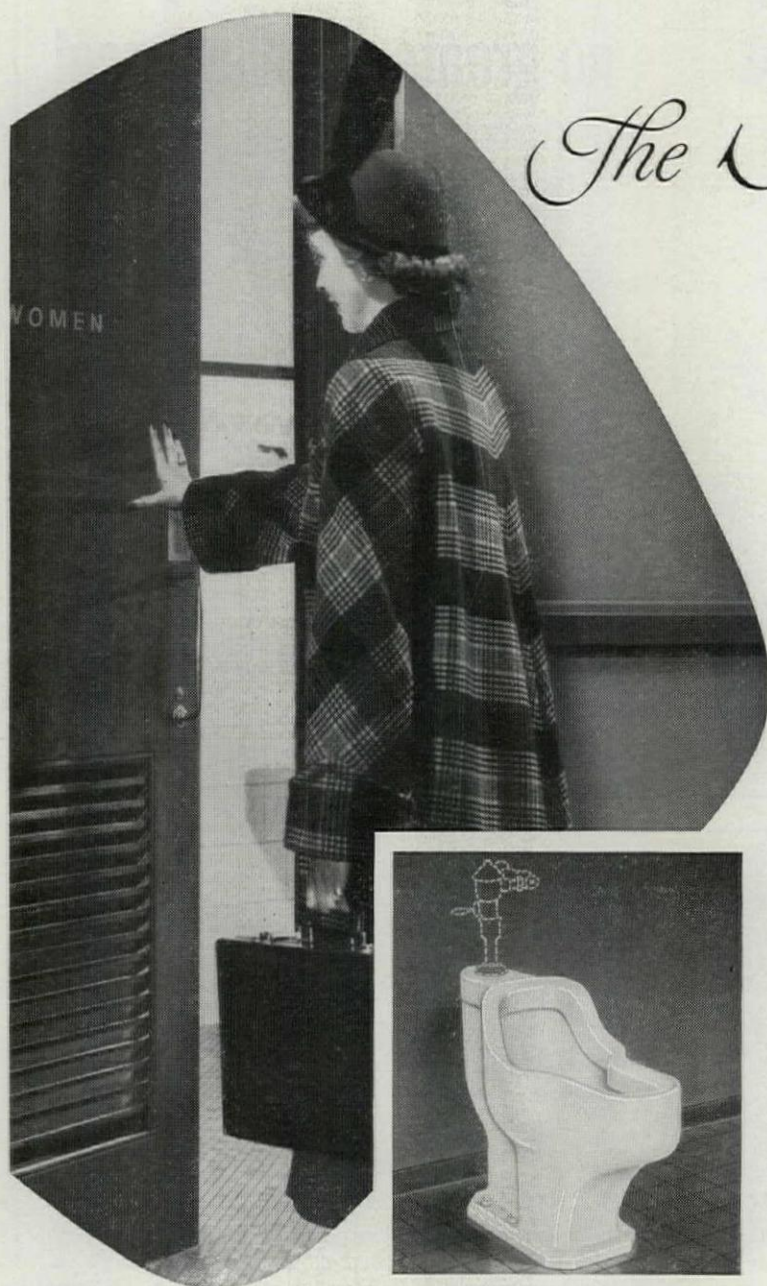


THE YALE & TOWNE MFG. CO.  
Stamford, Conn., U. S. A.



*NOW...* a new sanitary fixture  
for women's rest rooms to increase  
sanitation and cut maintenance

## *The Sanistand*



**THE SANISTAND FIXTURE**, developed by the American-Standard Institute of Plumbing Research, is an outstanding contribution to modern plumbing . . . and should be considered in any planning that will involve public rest rooms for women. It is designed to offer women the same convenience and sanitation the standing urinal does for men . . . to make wash rooms cleaner, neater and more pleasing to women patrons . . . and to reduce cost and time of rest room maintenance.

This new urinal is constructed throughout of easily-cleaned, non-absorbent, genuine vitreous china in a variety of attractive colors, and combines efficient flushing action with an extra large outlet to make it completely sanitary in operation and appearance. It is as easy to install as a water closet and can be placed in a regular wash room compartment. When used in modernization work, it usually can be installed where a water closet has been removed.

Test installations prove the Sanistand is popular with women. Out of 5,029 questionnaires filled in by users at department stores, bus terminals, railroad stations, hotels, restaurants, theatres and service stations, nearly 90% show prompt acceptance of this new fixture. Women praise Sanistand—say, "It's much more convenient and more sanitary."

For more complete details, see your Heating and Plumbing Contractor, or send in the convenient coupon below. **American Radiator & Standard Sanitary Corporation**, Dept. AF-4, Pittsburgh 30, Pa.

**AMERICAN-Standard**  
First in heating . . . first in plumbing



*Look for this*

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Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

American Radiator & Standard Sanitary Corporation  
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Please send me, without obligation, your new rest room folder, including complete information on the Sanistand.

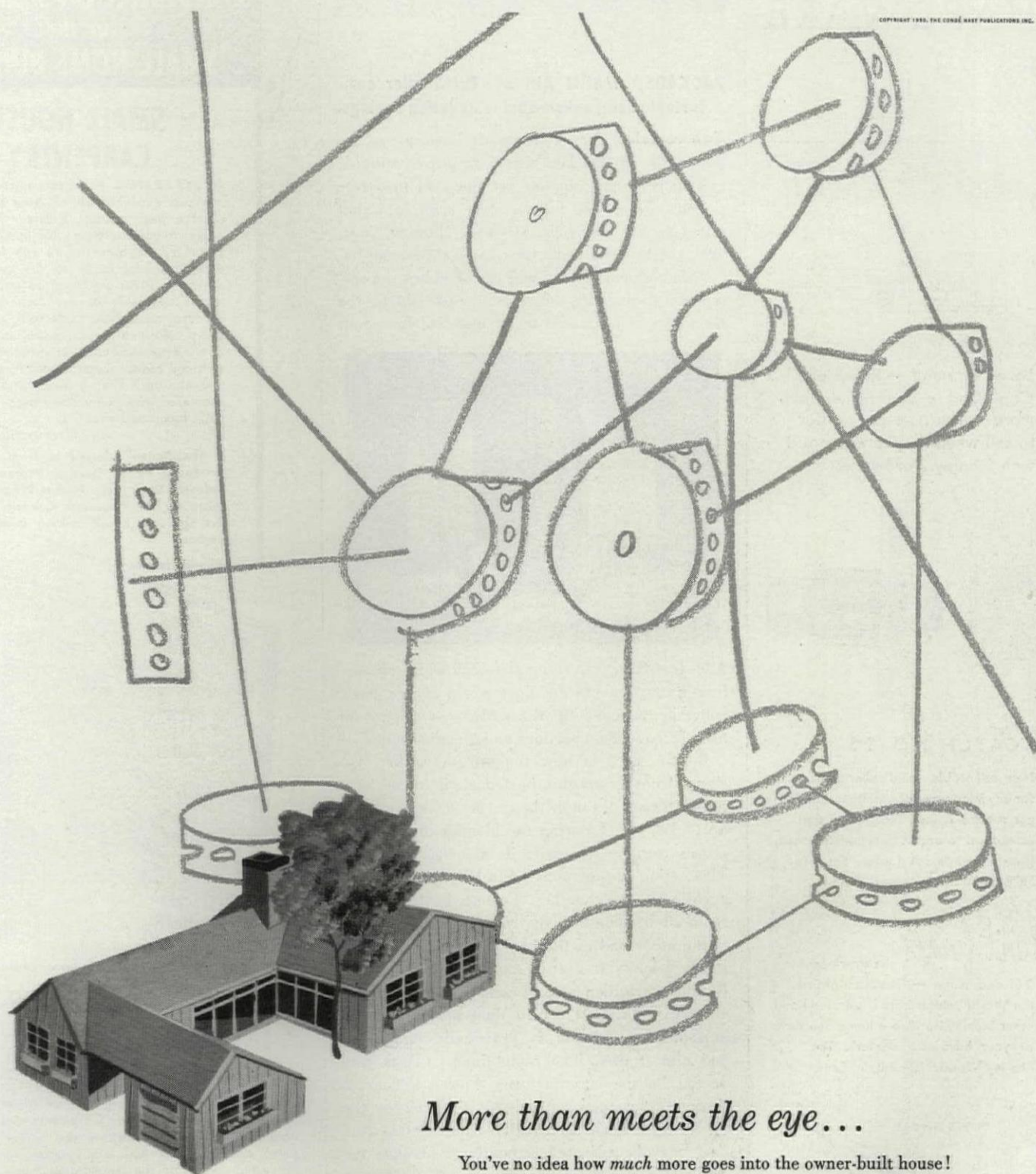
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A storage wall, the master stroke of a double-duty room used as a study-bedroom.

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Like clothes made-to-order, shoes custom-made...blueprints are tailored to include the important "extras" that mean more profits for you. Reach these people through House & Garden... their guide to better building, *your* guide to better business. Reach them because they know *specifically* what they want... *and have the power to specify your product.*

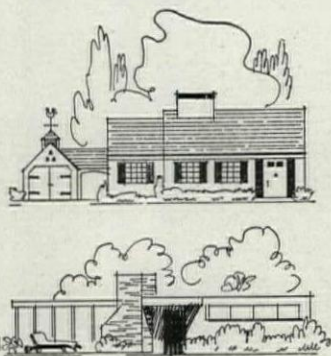
# House & Garden

*...for the owner-builder market*

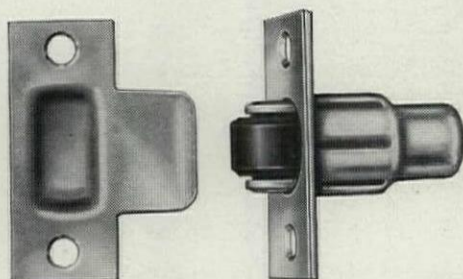


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Large or small — Ranch or Cape Cod — your homes have more value . . . are easier to sell when they're equipped with Stanley Hardware.

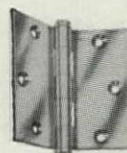


ROLLER CATCH NO. 23

New adjustable, quiet roller catch for any interior residential door that does not require a lock. Fast, easy, and economical to apply. Cuts building costs, gives complete satisfaction. Send for FREE SAMPLE using coupon below.

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the ever-popular 241 door hinge — "The Standard of the World", closet bars (illustrated) and other Stanley Hardware items. See them at your hardware dealer's. The Stanley Works, New Britain, Conn.



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CLOSET BAR No. 7020



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STEEL STRAPPING • STEEL

Just attach this coupon to your business letterhead and a sample of No. 23 Roller Catch will be sent to you.

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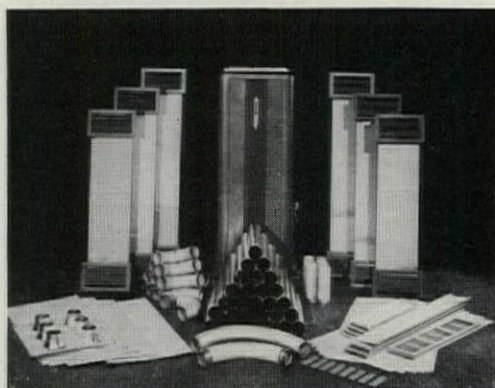
City.....State.....

## PRODUCT NEWS

### PACKAGED WARM AIR SYSTEMS offer comfortable heat, substantial installation savings.

Two complete forced warm air heating systems put on the market last year have proved suitable and increasingly popular for low and moderate priced homes. The first to make a formal debut was General Electric's Air-Wall (FORUM, Mar. '49). In July, Coleman introduced the Blend-Air.

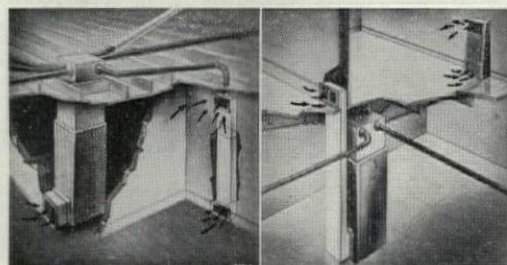
A factory-engineered and cartoned heating system employing 3½ in. stovepipe-like ducts, the Blend-Air is estimated to be installed for about



\$100 less than conventional forced warm air systems requiring custom duct work. Three basic components make up the system—a gas or oil fired furnace, duct sections and blending units.

Briefly, here is how the system works: On signal from thermostat, heated air is forced by a power blower through the ducts at temperatures up to 195° F. Entering the blender unit, the air passes through a nozzle, its velocity increased. This action causes room air to be pulled through a grille into the chamber. Furnace-heated air and room air become thoroughly mixed as they travel to the other end of the blender to be discharged at low velocity at a temperature of about 135° F. Because each blender unit constantly recirculates air, only one short return duct normally is required. Stratification is practically eliminated and almost even heat maintained. (Tests conducted by the manufacturer showed a floor to ceiling differential of only 3°.) Each of the blender units has a capacity up to 10,000 Btu. Each may be adjusted manually to regulate the amount of mixed air entering the room without disturbing the rest of the system operating on automatic controls.

The compact furnace takes only 4 sq. ft. of floor space, and so can be placed easily in a



closet, basement or utility room. Duct sections come in convenient lengths with simple clamps for fastening them together. Pre-engineered el-

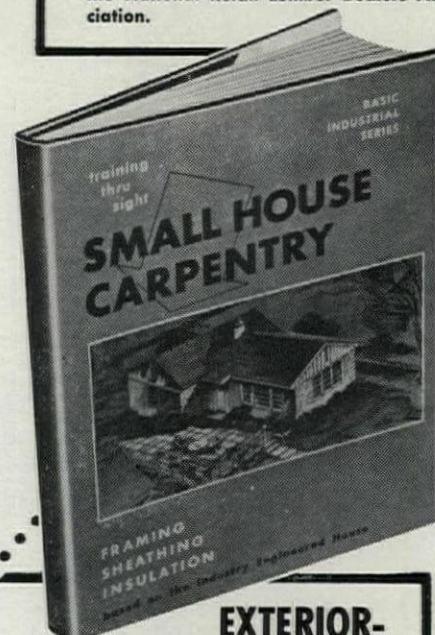
## CONSTRUCTION MANUALS for the SMALL HOME BUILDER

### SMALL HOUSE CARPENTRY

by LEE FRANKL • An easy-to-follow, step-by-step explanation of how to frame, sheathe and insulate a frame house. In order to demonstrate the application of industry engineering to any house, all directions here apply to the same frame structure. Plans are based on unit arrangements adaptable to any form of design, modern, ranch-type, Cape Cod, etc. . . . to comply with the needs, tastes, and budgets of the general public. Construction methods specified reduce material and labor costs to a minimum. "Text is simple and clear, coordinated with many illustrations in a carefully integrated work."

— Architectural Forum.

► The house selected is from a design produced by A. Gordon Lorimer for the Industry Engineered Homes Program sponsored by the Producers Council, Inc., and the National Retail Lumber Dealers Association.



### EXTERIOR- INTERIOR FINISH for the SMALL HOUSE

by LEE FRANKL • Having built the house described in *Small House Carpentry*, this book shows how to complete the interior and exterior finish and trim. Again, all directions apply to the same frame house, although much general information on materials and methods is included. There is a complete section on the selection and installation of finish hardware.

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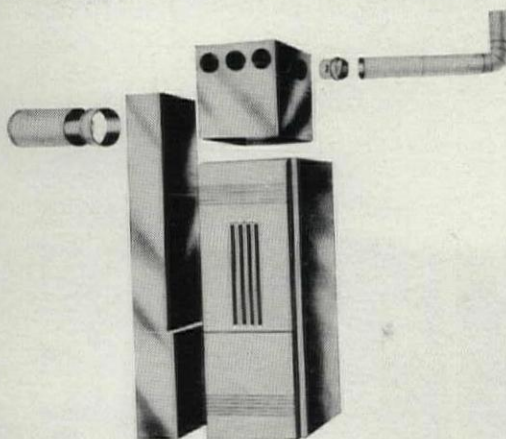
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## PRODUCT NEWS

bows, flexible fittings for quick rigging of turns and reverses, and glass fiber insulation for covering pipes in attics, unexcavated areas or in masonry are included in the package. Assemblies for the furnace plenum and return duct, shipped flat, are easily fitted together on the job. In fact, Coleman states that one experienced worker can install the entire system in an 8 hr. workday. Three types of blending units make the system adaptable to almost any kind of construction. A telescoping model, designed for new construction, fits between wall studs. Only the two grilles remain visible. Compressed, these blenders stand 4 ft. high but may be extended to 86 in. A second type, 28 in. high, may be recessed in the wall. The third blender, planned for existing construction, is embodied in a simple cabinet 32 in. high which sets against the wall.

GE's low cost package automatic heating system, Air-Wall, also uses either a gas or oil fired furnace. A heat chamber with damper thimbles, prefabricated return ducts, 4 in. round aluminum



or galvanized supply ducts, elbows adjustable to 90°, registers and grilles make up the rest of the elements in this system.

In Air-Wall, grilles are placed under windows on the interiors of cold outside walls to provide heat at the point of greatest heat loss. These small neat registers diffuse a blanket of very hot air in a fan-like pattern directly against the walls. Thus warmed, the walls give room occupants the sensation of radiant heat. No air movement can be detected several inches from the wall and so furniture may be placed anywhere in the room—even next to the grille—without personal discomfort or disruption of the air pattern. About 30 per cent less air is circulated in Air-Wall as compared to customary systems because the air supplied is somewhat hotter and mixed with room air as it leaves registers. Since air volume stored in the ducts is low, the system responds rapidly to thermostat.

Designed for use in small one and two story homes with basements, Air-Wall may also be adapted to basementless homes where the farthest supply or return duct is no more than 60 ft.

(Continued on page 262)

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• The Senate Wing  
• of the U. S. Capitol  
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• Copper Roof



COPPER MAKES COMMON SENSE

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Revere materials for building construction—including sheet copper, copper water tube and pipe, and red-brass pipe are available from leading distributors throughout the United States.

• General view of the new batten seam copper roof atop the Senate Wing of the U. S. Capitol. Constructed of cold rolled Revere Copper in weights of 20 oz. and heavier, it replaces a copper roof which, after 90-odd years of satisfactory service, was removed to permit structural work beneath the roof and elimination of skylights.  
• Architect of the Capitol: David Lynn;  
• Engineers: Marshall & Gongwer; General Contractor: Consolidated Engineering Company, Incorporated; Sheet Metal Contractor: Lloyd E. Mitchell, Inc.

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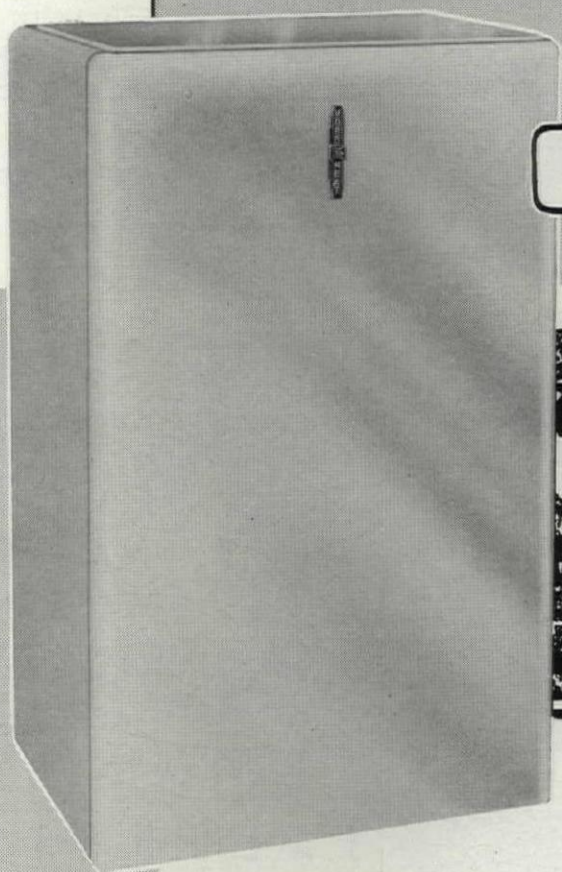
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Designed for the 1950 Levittown home, this gleaming, white, sound-insulated jacket encloses a complete radiant heating boiler, expansion tank, and tankless water heater and occupies only 736 sq. inches of floor space in the kitchen. Complete details of the heating system will be found in the editorial pages of this issue.

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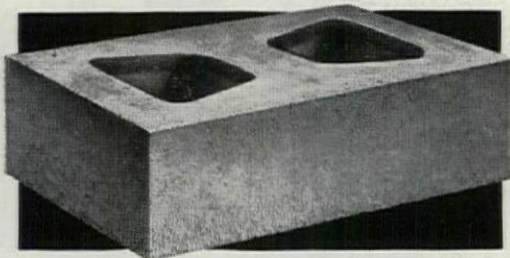
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Brikcrete has appeal to architects, builders and owners who are masonry minded but price conscious. For Brikcrete is the ultimate in masonry at a lower-than-lumber price.

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buys sufficient 8" Brikcrete for the walls of this 37 x 24' home (The "Brikadier"—plans available.) This is considered a fair national average, but may vary according to locality.

Brikcrete is low in price because it is manufactured in a chain of local plants, using local basic materials, and saving customary high costs of freight and distribution. Write for Brikcrete Book No. 1 and name of nearest local manufacturing plant.

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# BRIKCRETE

## PRODUCT NEWS

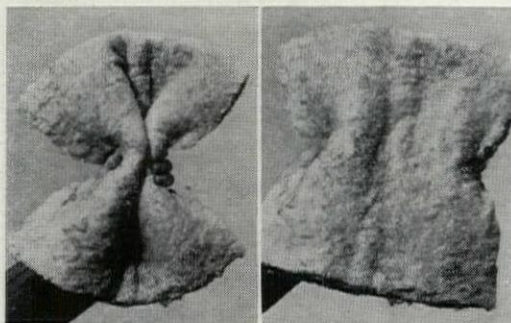
from the furnace. In installation, ducts fit together like stovepipe. Shipped in nests they are assembled by tapping their seams together with a hammer and suspended from joists with simple hangers. The gas fired furnaces come in five sizes, oil fired models in four. The largest takes little more floor space than an average refrigerator. All units not only circulate but filter and humidify the air.

Some common benefits of Air-Wall and Blend-Air are that transmission of furnace noise is cut by the small ducts which also work to increase air velocity. Ease of installation and economy are said to be no less attractions for the builder than the comfortable even heat and compact appearance are for the prospective home purchaser.

**Manufacturers:** Blend-Air—The Coleman Co., Inc., Wichita 1, Kans. Air-Wall—General Electric Co., Air Conditioning Dept., Bloomfield, N. J.

## RESILIENT COTTON INSULATION is lightweight, easy to handle.

Spunfirm is a cotton fiber batt processed to retain its fabricated form. This highly adaptable insulation material springs back into shape after squeezing or heavy pressure is exerted. Although very light in weight it will not sag or pack down, but will remain firm through the rigors of instal-



lation. The manufacturer states that in addition to its resiliency which prevents it from being permanently crushed, Spunfirm has greater tensile strength and elasticity and lower moisture absorption than other kinds of cotton batts. It is also verminproof and flame resistant. Blowtorch heat will not melt or burn it.

With a creped or perforated paper barrier, the new material doubles as a sound deadener. Used solely for acoustical purposes the batts may be staggered between the joists. No other sound control material is said to be necessary.

When applied as thermal protection the 2 or 3 in. thickness meets normal residential requirements. Spunfirm is made in multiples of 1 in. thickness up to 6 in. (for industrial uses), however. Price to the builder for 1,000 sq. ft. of the 2 in., having a K factor of .27, with a paper barrier is about \$45, and approximately \$47 with an aluminum foil vapor seal.

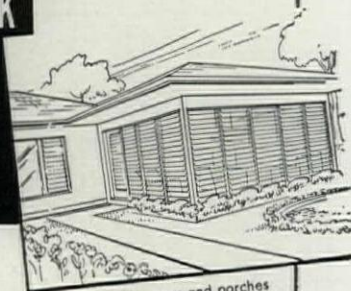
**Manufacturer:** Gilman Bros., Gilman, Conn.  
(Continued on page 266)

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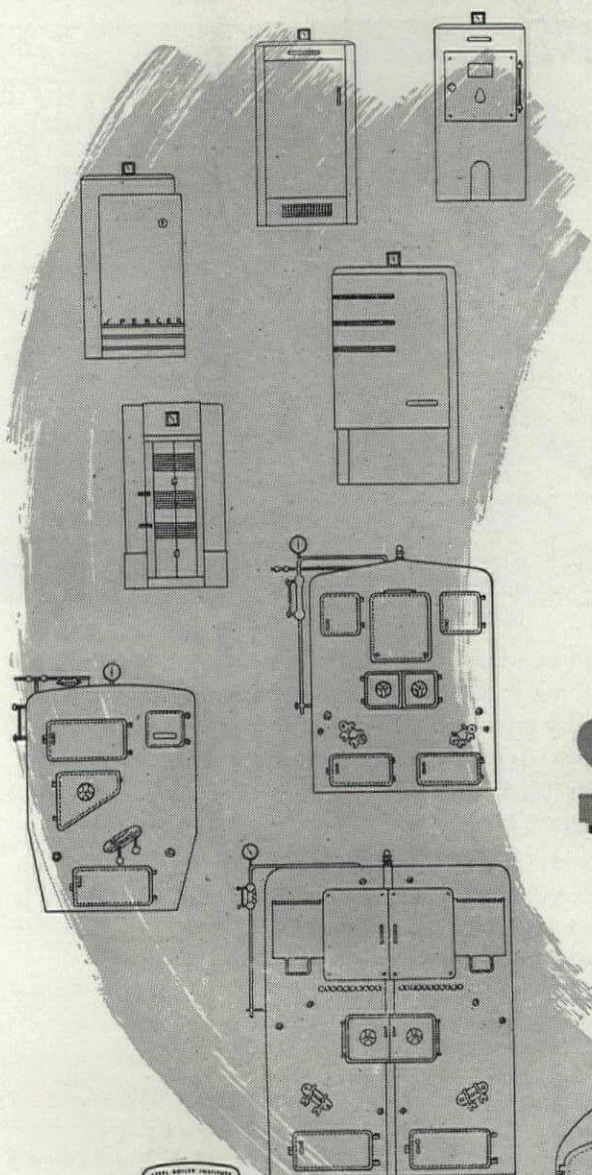
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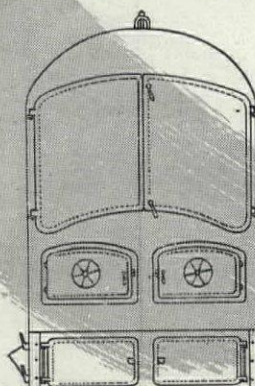
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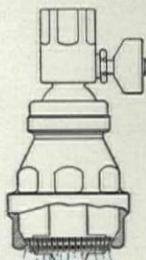
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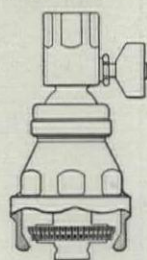
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## WARM AIR HEATER with built-in water heater performs dual task economically.

Completely housed in the Hi-Therm oil burner is an efficient warm air furnace and a water heater capable of supplying 3 gal. of domestic hot water per minute at a 100° rise. Yet the entire unit takes up a floor space of only 20 x 48 in., and stands a little over 5 ft. high. All heating components and controls are full size however—even larger than those in many single burners or boilers. What the manufacturer claims to have

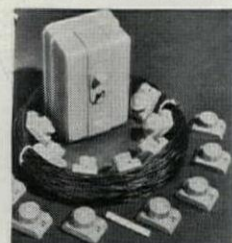
done is build all the heating efficiency of the usual convectors in a four to seven room house into a single, high performance, copper finned heat exchanger mounted directly to the boiler. Here, filtered air is forced through the steam-hot tubing. Thus warmed, it flows directly into ducts for delivery through registers.

During summer the Hi-Therm's two functions are divorced. While the water in the generator continues to be heated (transferring this heat to the domestic water coils but not to the exchanger) the air circulator may be operated manually to gently circulate filtered unheated air. In addition to its compactness and dual personality, features noted for the unit are: an efficient burner; a photo cell to spark the flame; a control panel fully protected by the welded steel jacket; combustion chamber of refractory ceramic; double incline fire pass; domestic water coil completely immersed in hot boiler water for quick heating; 720 sq. in. of filters; and a quiet motor. Price to heating contractors is less than \$500.

*Manufacturer:* Petroleum Heat & Power Co., Stamford, Conn.

## HOME FIRE ALARM SYSTEM is moderately priced, easily installed.

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indicate whether the system is working and a test button (which makes it possible to use the system as a burglar alarm). Installed cost for such an installation runs about \$160 to \$180, including servicing and maintenance. A seven room home could be protected for from \$185 to \$205. Two men can install the system in less than two days. Because the Morse Alarm can be run off the regular house wiring, it does not require services of a licensed electrician. Plastic insulated wires are dropped within the walls from attic to basement. Two holes are drilled beneath each small thermal unit, without disturbing interior decoration. In event of a within-walls fire, the plastic wire covering melts, creating a circuit to set off the alarm. Component parts bear Underwriters' approval and the system is available for FHA financing as home improvement.

*Manufacturer:* International Morse products, 5005 Euclid Ave., Cleveland, Ohio.

(Continued on page 270)



The United States Gold Bullion Depository at Fort Knox, Ky. Exterior walls, machine gun turrets and gatehouses are built of WHITE MOUNT AIRY GRANITE.

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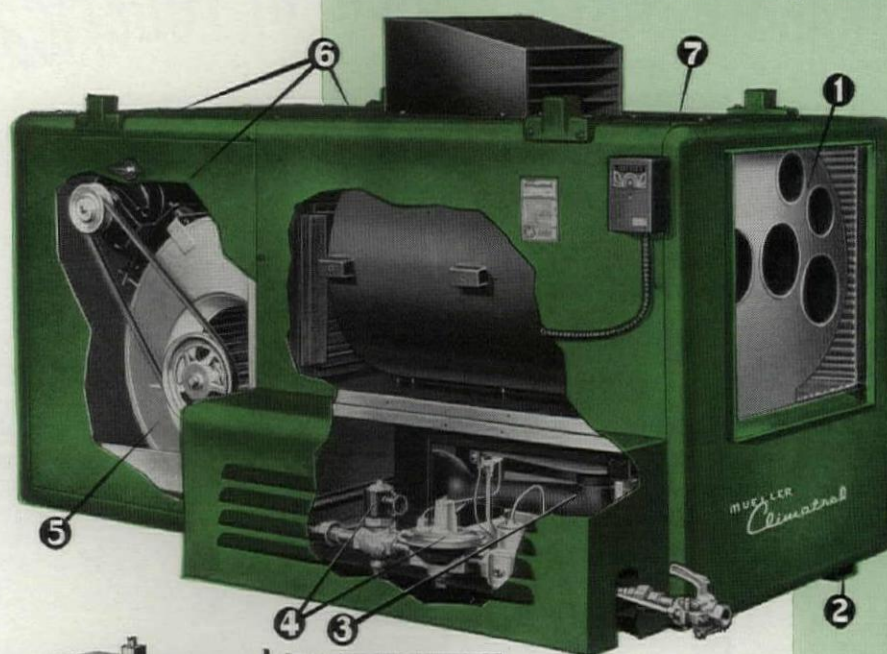
This is a biotite granite of medium grain — very light grey, *almost white*, in color — and always uniform regardless of the size of your job. Over the past 60 years, we have planned carefully so the mammoth deposit assures an almost unlimited supply of *matching* granite for additions which may be built in years to come.

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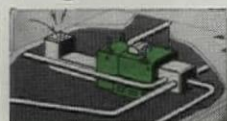
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- 3 Aerated flame burner — cast iron with drilled ports. Single opening shutter prevents clogging. Instant ignition, no cross-lighting problems.
- 4 Enclosed controls — at side in vestibule matching cabinet, may be mounted on either side of cabinet.
- 5 Quiet, high-delivery blower — centrifugal type, multi-blade, mounted on rubber. Motor is continuous duty, single speed, resilient mounted.
- 6 Flexible installation — cold-air return may be installed on either side, back, or bottom of cabinet.
- 7 Sized right — 60,000 and 90,000 Btu input capacities; AGA approved for natural, manufactured, butane-air, and LP-gas, and for high-altitude installation. Shipped completely assembled.

\*Also available as blower-unit heater — Type 151—in four sizes: 60,000, 90,000, 120,000 and 150,000 Btu input.

# Announcing the new Mueller Climatrol Type 155 Horizontal Winter Air-Conditioner

## Designed to meet your specific requirements for ranch-type, small and basementless homes

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Its space-saving dimensions and installation advantages offer many building economies. You can omit the utility room and expensive masonry chimney.

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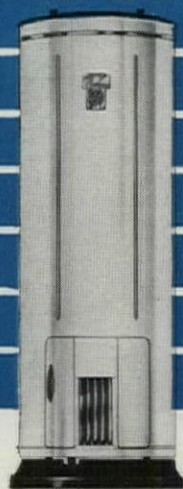




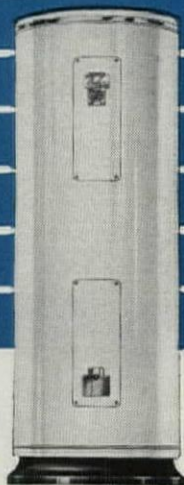
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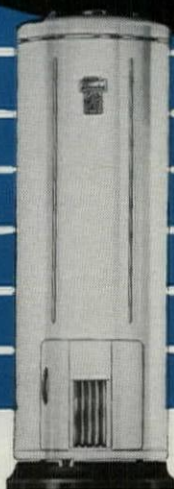
Automatic Water Heaters



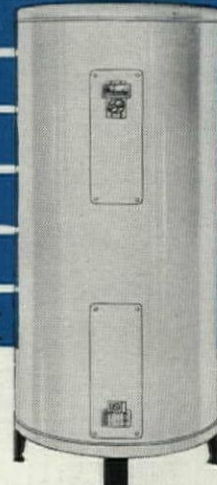
*Permaglas*



*Duraclad*



*Milwaukee*



### THREE OUTSTANDING LINES TO HELP YOU MEET EVERY HOME-BUILDING NEED

You can be sure of a completely satisfied client when you specify any one of the three makes of A. O. Smith Automatic Water Heaters . . .

- glass-surfaced or zinc-lined tanks
- upright-round or table-top styles
- electric or gas (all types, including LP)
- sizes and prices for all situations, all budgets

Every model, in each line, is backed by the 76-year-old name and reputation of the A. O. Smith Corporation.

Dramatic—and factual—advertising for A. O. Smith Automatic Water Heaters, in Life, Post, and the leading home-service magazines, is seen regularly by your clients and prospective clients.

Let us put into your hands all the facts they want to know on models, fuels, capacities, and styles. The coupon will bring them to you, at once, without obligation.

**A.O. Smith**



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A. O. Smith Corporation, Dept. AF-450  
Water Heater Division, Kankakee, Ill.

Send me complete information on A.O. Smith Automatic Water Heaters:

☐ Gas ☐ Electric ☐ Both

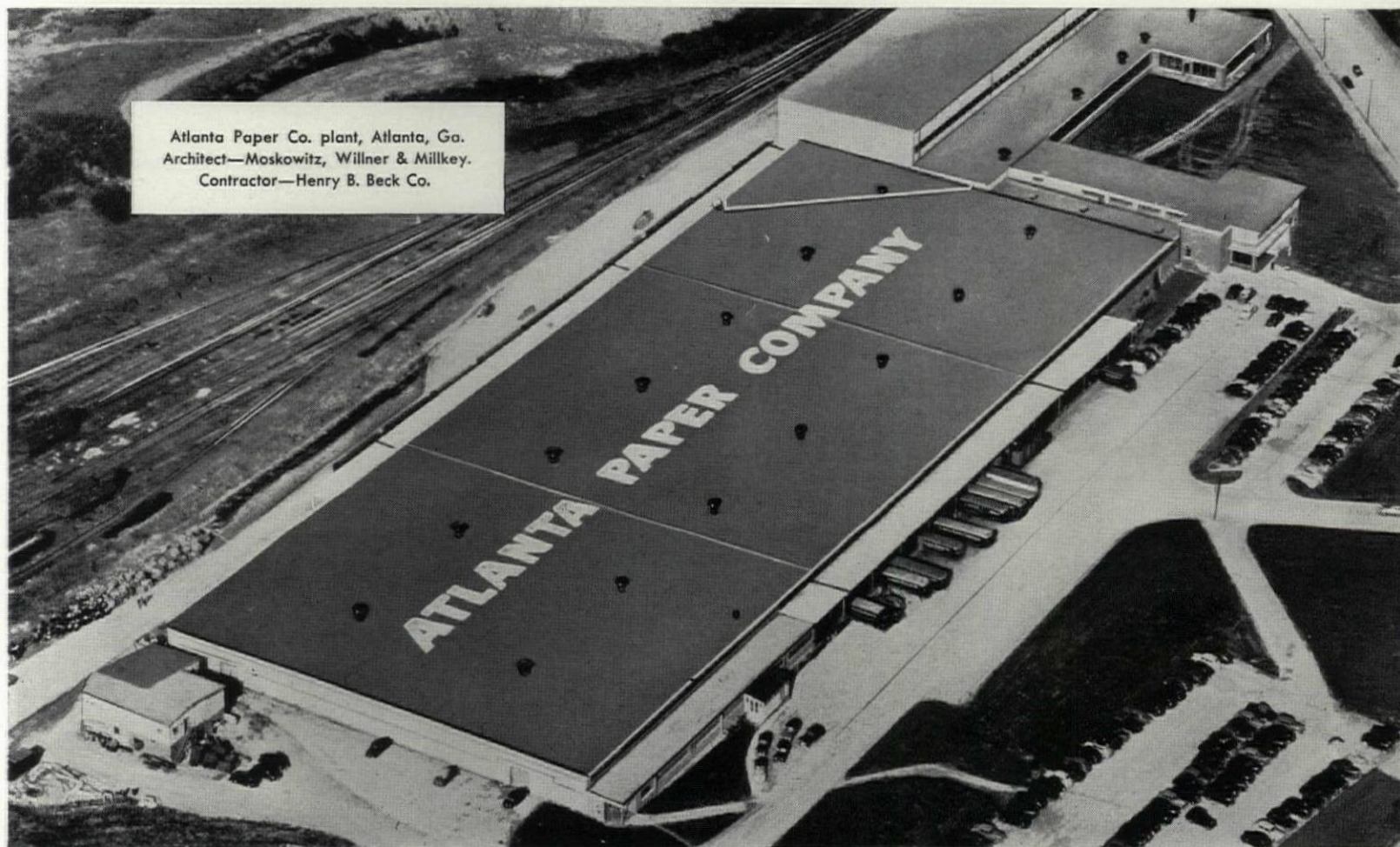
Name \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_





Atlanta Paper Co. plant, Atlanta, Ga.  
Architect—Moskowitz, Willner & Millkey.  
Contractor—Henry B. Beck Co.

*"We are 100% sold on all the advantages offered by Kaylo Roof Tile"*

—ATLANTA PAPER CO.

The Atlanta Paper Company specified Kaylo Insulating Roof Tile for the 214,000-sq. ft. roof area of its new manufacturing plant. President Arthur L. Harris tells why:

"Kaylo Tile gives us a roof which insulates, won't burn or rot, is lightweight, yet strong.

"Of primary importance to us is the fact that our Kaylo Roof Deck resists water and moisture damage under the high humidity conditions which accompany our manufacturing operations.

"We are 100% sold on all the advantages offered by Kaylo Roof Tile."

Many industrial and commercial firms have found the answer to their roofing needs in Kaylo Insulating Roof Tile—providing a combination of advantages offered by no other single roof-deck material.

#### WHAT IS KAYLO ROOF TILE?

Kaylo Insulating Roof Tile is made of a lightweight, inorganic material—reinforced with welded wire mesh to provide structural strength more than adequate for typical roof loads.

Each 23-lb. tile is a dimensionally uniform 18"x36"—can be sawed, cut and nailed with standard tools.

Kaylo Tile is easily laid on steel sub-purlins or nailed to wood joists—on either pitched or flat roofs.

The Kaylo deck may then be covered with any conventional roofing material.

Send Coupon for  
Kaylo Roof Tile Sample  
and Literature



**KAYLO**  
INSULATING ROOF TILE

OWENS-ILLINOIS GLASS COMPANY  
Kaylo Division • Toledo 1, Ohio

SALES OFFICES: Atlanta • Boston • Buffalo • Chicago • Cincinnati • Dallas • Minneapolis  
New York • Philadelphia • Pittsburgh • St. Louis • Toledo • Washington

OWENS-ILLINOIS GLASS COMPANY  
Kaylo Division, Dept. N-14, Toledo 1, Ohio

Gentlemen: Please send me a Kaylo Roof Tile sample and literature.

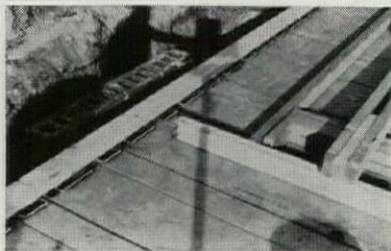
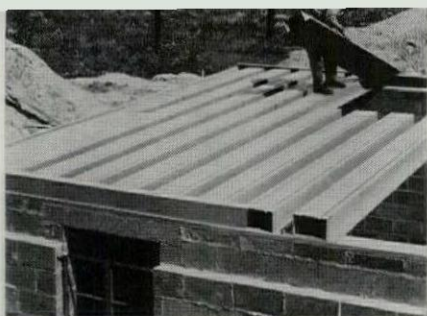
NAME.....

FIRM.....

ADDRESS.....

CITY.....STATE.....





Holes cut at floor panel ends near the building's perimeter allow hot air to enter at the baseboard. Only the middle beam on the underside breaks the continuous flat surface of the basement ceiling.

## PRODUCT NEWS

### STEEL CELLULAR PANELS utilized in radiant-convection heating system.

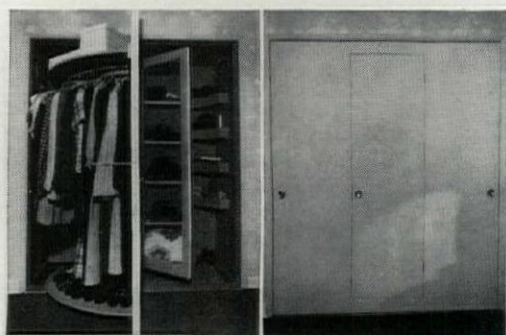
Widely used in industrial building, Fenestra steel floor panels revealed their adaptability to residential construction in a unique installation in the Detroit Builders' Show Ideal Home. AD type panels serve as a strong subfloor and as ductwork for a combination warm air heating system. Hot air flowing into openings cut in the underside of the cellular panels travels through the floor to openings placed at the baseboard. The radiant panel effect produced by the heated floor is supplemented by the warm air convected through registers.

These steel panels hold other advantages for this kind of installation. Laid from beam to beam and interlocked, they eliminate joists. Pipes and wires may be enclosed in the cells so that they present a continuous bottom surface. Painting finishes this flat underside as the basement ceiling. Cutting to fit panels around bays, stairwells, etc. is done on the job. Installed cost for the cellular steel panel varies from 60 cents to \$1 per sq. ft., depending upon gauge and type. Concrete, mastic and wood or asphalt tile may be placed over the panels for a finished floor.

Manufacturer: Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit 11, Mich.

### REVOLVING CLOSET doubles as dressing room, is easily installed in standard closet space.

A prefabricated wood and plywood wardrobe closet, the Revolvodor offers about three times more flat storage area than conventional closets with the same outer dimensions. Units installed flush with the wall may be papered or painted to match the room interior. A light push on either side of the panel operates the ball-bearing swivel device and reveals the closet contents for easy selection or airing. Half open, the unit's full length plate glass mirror and shelf section may be used as a dressing room. All hardware—semi-circular clothes and shoe rods, and hinges—are chromed steel. The slab panel door pictured



(Model 102) sells for about \$136. A three paneled door (Model 101) costs about \$100 in the Far West, \$115 elsewhere in the U. S. Revolvodor wardrobes are available partially assembled or completely set up, ready for installation. The firm also makes a revolving bar.

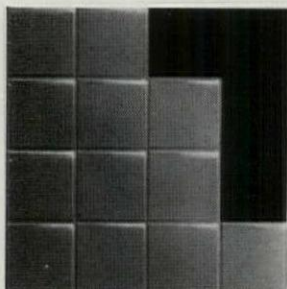
Manufacturer: Revolvodor Corp., 4629 Alger St., Los Angeles 39, Calif.

(Continued on page 274)

LOW IN COST • LIGHT IN WEIGHT

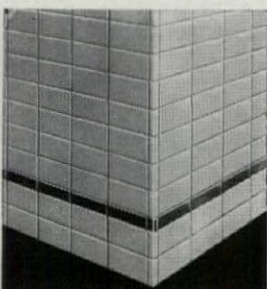
Enduring Beauty!

HASTINGS AIRCRAFT ALUMINUM alunitile



#### INSIDE FINISH

Attractive, smooth, lustrous enamel finish permanently bonded to sturdy aircraft aluminum... 14 vital colors... will not crack, peel or chip. Easy to clean.



#### OUTSIDE FINISH

A choice of 7 beautiful exterior colors in regular or embossed finish, applied by an exclusive process that insures a maximum of color control, density and uniformity.



#### SELF-DECORATING

A variety of sizes and colors permits modern decorative designs on interior or exterior walls... each job tailored to individual requirements for distinctive, lasting beauty.

#### FIREPROOF...

#### RUSTPROOF... WEATHERPROOF

HASTINGS alunitile is impervious to fire, rust and water, and cannot corrode. May be used anywhere indoors or outdoors with gratifying results. It has a gleaming bone-hard enamel finish... the lifetime colors are baked on. This amazing wall facing is enjoying ever increasing popularity in the construction of new buildings and the modernization of old. It strikes a modern tone which has brought enthusiastic endorsement from leading decorators, architects and contractors. Yet its cost is surprisingly low, its strength and adaptability almost unbelievable.

#### SCORES OF USES

The wide versatility of HASTINGS alunitile is expressed in its countless uses for homes, institutions, business buildings. It is ideally suited for bathrooms, kitchens, laundries, utility rooms; for dairies, bottling plants, breweries, bakeries, pharmacies, hotels, hospitals, dental offices; for store and theatre fronts, lobbies, service stations.

#### METAL TILE PRODUCTS, INC. HASTINGS, MICHIGAN

Makers of Hastings alunitile, alumi-SHIELD awnings, doorhoods, mouldings and flashings

AN UNUSUAL PROFIT OPPORTUNITY  
FOR LIVE DEALERS AND DISTRIBUTORS  
USE THIS COUPON



#### EASY TO APPLY— EASY TO SELL

Offers consistent quality, sanitary sealing, insulation value, handling flexibility, scope for design, uniformity of workmanship—all at a marked saving in labor hours.

#### STRENGTH WITHOUT BULK

Save on bulk; save on shipping and handling costs; save on storage space. Lightweight HASTINGS alunitile is packaged compactly for convenience and economy. Well adapted to large wall areas where weight and square-foot costs are important factors.

#### METAL TILE PRODUCTS, INC. DEPARTMENT 401, HASTINGS, MICHIGAN

I should like to know more about your products.

I am a ☐ Distributor ☐ Dealer ☐ Architect ☐ Contractor

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# Carey **FIRE-CHEX** Shingles give you **MORE** than roofing ever did before!

These amazing new asbestos-plastic shingles add more value to your building projects, win more satisfied clients than any other roofing material because...

## ONLY FIRE-CHEX HAVE THESE 3 BIG FEATURES

1. *Beautiful, copyrighted, shadow-blend roof designs and charming solid colors, too!*
2. *Up to 108 times more fire-protection from roof fires.*
3. *Years and years more life.*



Uncle Sam copyrighted these shadow-blends—available in green, red, gray and blue.



Underwriters' Laboratories, Inc. awarded Carey Fire-Chex their Class A\* label—no other roofing shingle has ever received it before.

\* Without asbestos underlayment

As you can plainly see, and as owners can see, too — Carey Fire-Chex Shingles give more value for the roofing dollar than has ever been offered before.

But you will want the full story. So see your Carey dealer today. Let him show you the copyrighted shadow-blends and beautiful solid colors in which Carey Fire-Chex Shingles are available.

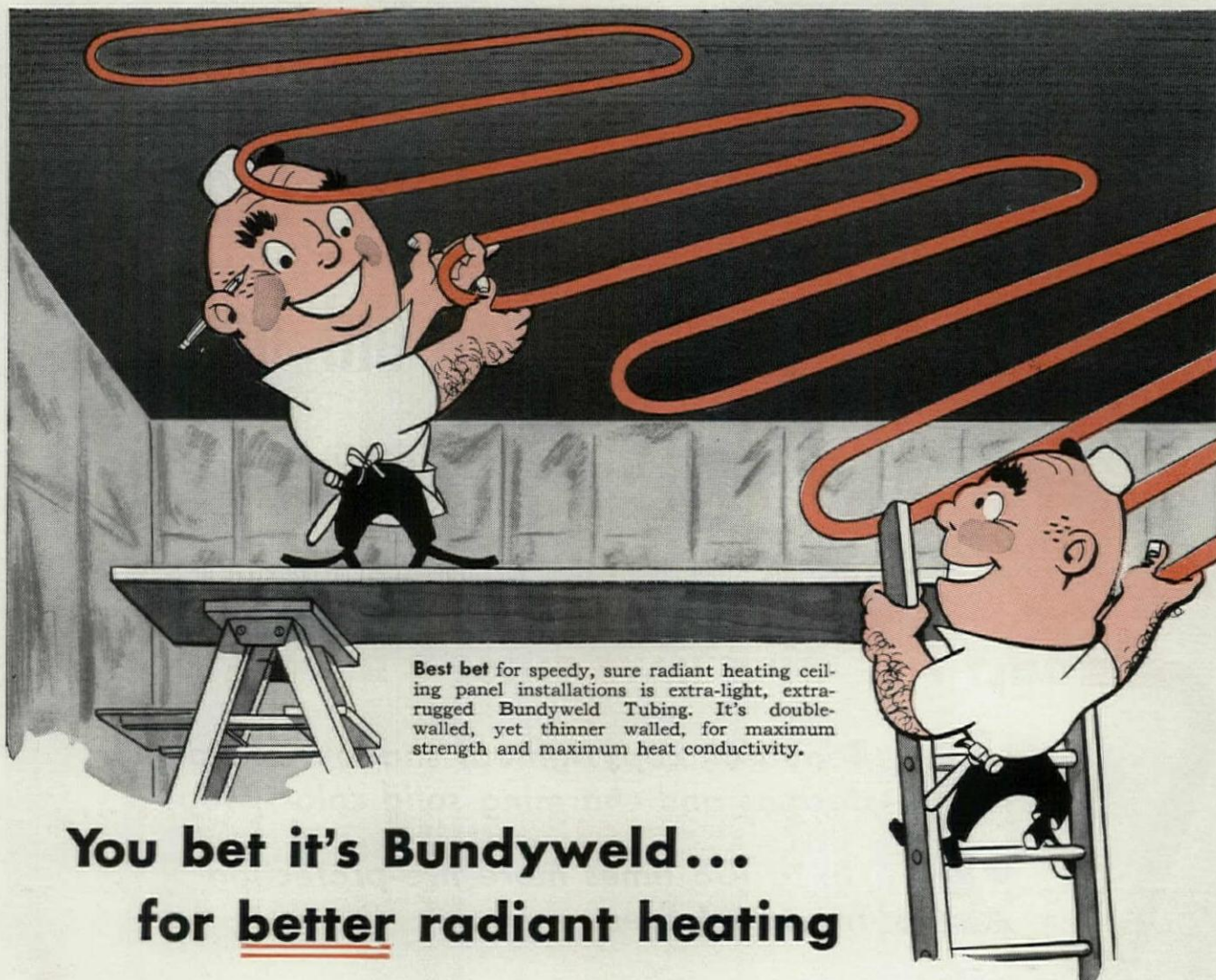
PRODUCTS OF THE HOUSE OF

# Carey

See Sweet's Architectural File for Further Information about Carey Fire-Chex Asbestos-Plastic Shingles.

Bathroom Cabinets and Accessories • Ceramo Asbestos Siding • Tri-Tone Asbestos Shingles • Rock Wool Batts • Other Famous Products for Home and Industry.





**Best bet** for speedy, sure radiant heating ceiling panel installations is extra-light, extra-rugged Bundyweld Tubing. It's double-walled, yet thinner walled, for maximum strength and maximum heat conductivity.

## You bet it's Bundyweld... for better radiant heating

**Your best bet** for better radiant heating panel installations is amazing Bundyweld Tubing.

And here's why—*no other tubing can match all the advantages Bundyweld offers, for no other tubing is made like Bundyweld!*

It's double-walled from a single strip, a patented construction that gives it the sturdiness to withstand the jars and jolts on the job. It's thinner walled, too, for maximum heat conductivity. It's lightweight, ductile, easy to shape and a cinch to solder or braze. Right from its arrival on the building site, you get major

savings in labor and costs all down the line with dependable Bundyweld.

### There's more, too

With a coefficient of thermal expansion very close to that of average plaster mix, Bundyweld can be installed without plaster worries. Painting offers no headaches, either, when normal precautions are exercised in installation.

Check on Bundyweld Tubing now... your best bet for better radiant heating installations. Write: **Bundy Tubing Company, Detroit 14, Michigan.**

# Bundyweld Tubing

DOUBLE-WALLED FROM A SINGLE STRIP



SIZES UP TO  $\frac{5}{8}$ " O.D.

### WHY BUNDYWELD IS BETTER TUBING



Bundyweld starts as a single strip of basic metal, coated with a bonding metal. Then it's...



continuously rolled twice around laterally into a tube of uniform thickness, and



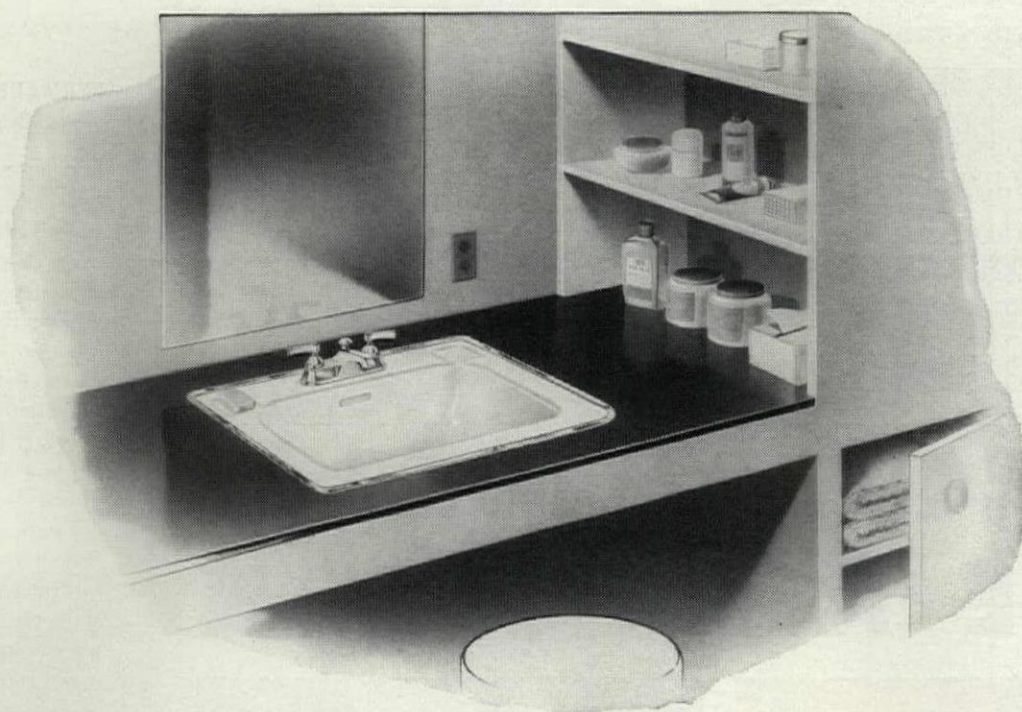
passed through a furnace. Bonding metal fuses with basic metal, presto—



Bundyweld... double-walled and brazed through 360° of wall contact.



Arrowhead K-1890-C, vitreous china lavatory built into a dressing table. Size: 20x18". Basin: 15x10 $\frac{3}{4}$ ". Centra fitting with Synchro drain.



*New!*

## KOHLER Vitreous China and Enameled Iron **BUILT-IN LAVATORIES** for Dressing Table and Cabinet Combinations



Arrowhead K-1892-F, vitreous china, 20x18". Combination fitting with Synchro drain.



Tahoe K-2818-C, enameled iron, 20x18". Centra fitting with Synchro drain. (This lavatory also available with combination fitting. Specify K-2819-F).

These new Kohler lavatories, with flat rim for building-in, open fresh opportunities for you among home-planners who wish to follow a new and increasingly popular trend in bathroom installations, or to modernize old bathrooms. They provide a basis for many attractive dressing table and lavatory combinations that join smartness with convenience. This makes them ideal, also, for any small space suitable for converting into a washroom—and many will welcome the idea of installing them in bedrooms or dressing rooms.

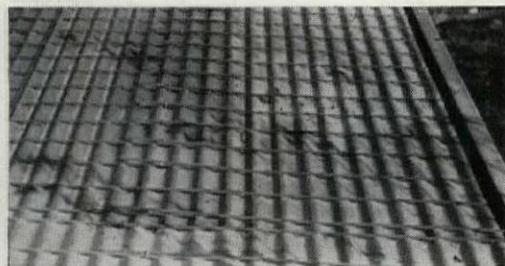
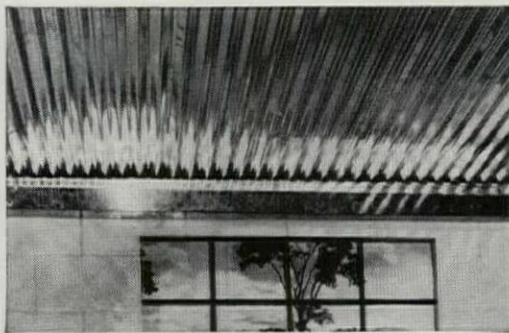
Like all Kohler lavatories, these combine beauty of design, fine materials and unexcelled workmanship. The vitreous china Arrowhead is made of carefully selected imported and domestic clays. The enameled iron Tahoe is protected against cracking and crazing because the Kohler enamel is fused to a base of non-flexing iron, cast for rigidity. The glass-hard surfaces of all Kohler lavatories are exceptionally easy to keep clean and lustrous. Chromium-plated brass fittings are engineered to Kohler high standards of efficiency and durability. Kohler Co., Dept. 11-P, Kohler, Wisconsin.

# KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS • AIR-COOLED ENGINES



## PRODUCT NEWS



This form-reinforcement for the concrete above is also a good looking ceiling on its under surface.

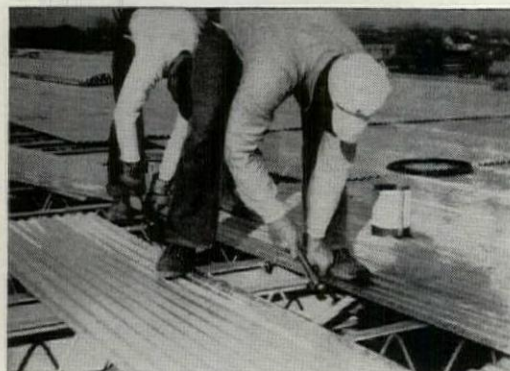
# ECONOMICAL SAFE AND CLEAN

## Specify Corruform

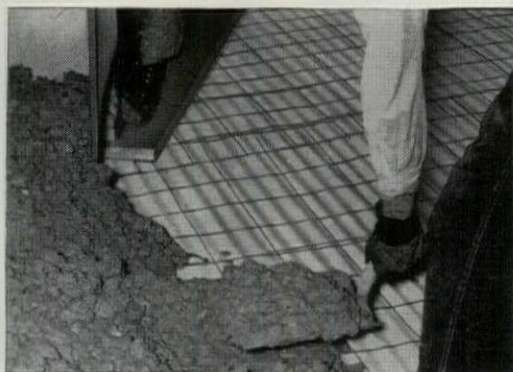
**Economical Strength  
100,000 psi**

One quality, uniform standard.

Patented CORRUFORM is your  
guarantee for safe construction.



1. **SAFE**—Light rigid sheets and attachments easily placed. A secure form for trades and concrete. No stretch or side pull on joists, beams or walls.



2. **ECONOMICAL**—Light high-strength—100,000 psi—steel to take construction abuse. No sag or material waste, concrete placed and finished by common practice on firm stable CORRUFORM.

**HIGHEST STANDARD—LOWEST COST**—Patented Tough-Temper Corruform for concrete in joist floors and roofs sets new standards of appearance and safety. Corruform permits material and labor savings sufficient to reach minimum-cost joist construction.



3. **CLEAN**—No cleanup on floors below, no unsightly leakage, true and level. Bright decorative corrugated pattern for exposed ceilings, vinylprimed for painting, or galvanized.

**CORRUFORM SPECIFICATION**—Standard-weight Corruform with 2-3/16 inch wide 1/2 inch deep corrugations weighs .72 lbs. per sq. foot, has a guaranteed average strength of 100,000 psi and single-test minimum strength of 95,000 psi.

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AIA FILE  
TODAY**



**GRANITE CITY STEEL COMPANY**

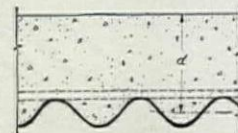
GRANITE CITY, ILLINOIS



### PERMANENT STEEL FORM with welded T-Wires is reinforcement for concrete.

Serving as a combination permanently placed form and reinforcement for concrete floors and roofs, Cofar may be utilized for spans up to 14 ft. It consists of deeply corrugated, galvanized 18 to 24 gauge steel sheets with top surfaces prepared for bonding to concrete. T-wires welded to the form tie the steel and concrete together for the life of the structure. Spacers, placing and tying are eliminated, as is the usual concrete cover beneath the reinforcement. Less dead weight permits a proportional saving in slab thickness.

The high strength steel used in Cofar has adequate safety margin for combined stresses as reinforcement and form. It provides positive reinforcement for the concrete between permanent supports in the completed structure. Additional reinforcing is necessary only where it is desirable to have conventional reinforcement bars for negative stresses in the top of the slab over permanent supports.

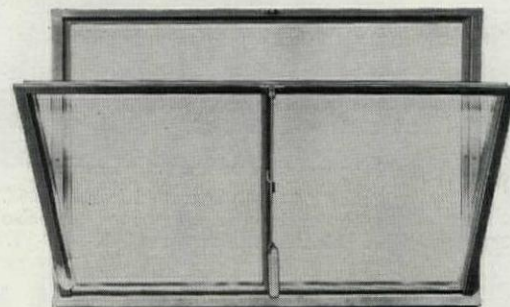


In a cost analysis conducted by a Detroit architectural firm, Cofar construction compared favorably with wood flooring. The material is available cut to any desired length. Cost of the 24 gauge runs from 25 to 30 cents per sq. ft.; 18 gauge, around 10 cents more. Ceiling attachments for metal lath are provided at an additional 1 cent per sq. ft. An incidental advantage of this type of construction, however, is the rather nice corrugated basement ceiling (good acoustically) on the underside.

Manufacturer: Granite City Steel Co., Granite City, Ill.

### METAL BASEMENT WINDOW comes cartoned with storm sash, screen and fasteners.

Fenestra has given this basement window "upper story quality" by using the same hot rolled steel sections in its manufacture as in their casement windows. Machined for screen and vertical mullion, the fully glazed window is packaged with storm sash insert, screen, and screws for installing. It is opened easily from the top, and its locking device is said to be positive and trouble



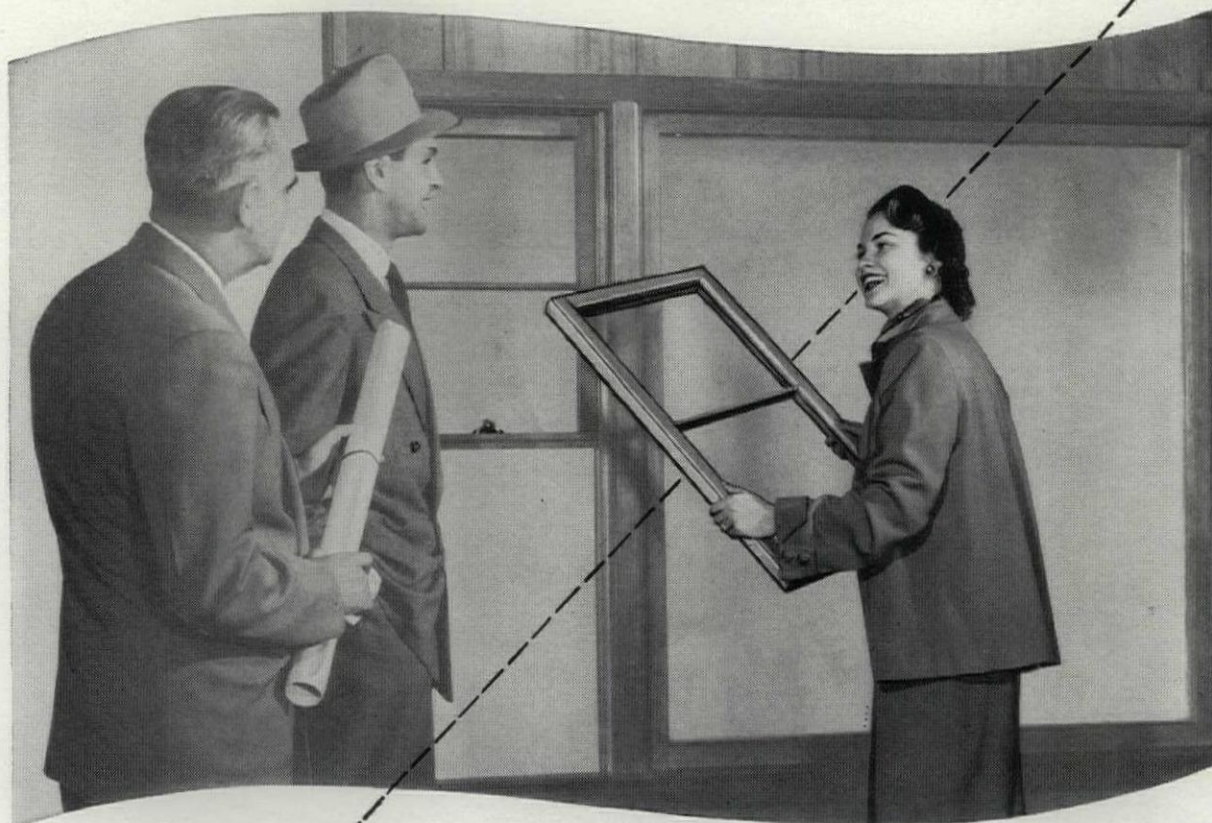
free. Factory list prices for the two light windows are: 15 x 12 in., \$9.50; 15 x 16 in., \$10.50; and 15 x 20 in., \$11.50.

Manufacturer: Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit 11, Mich.

(Continued on page 278)

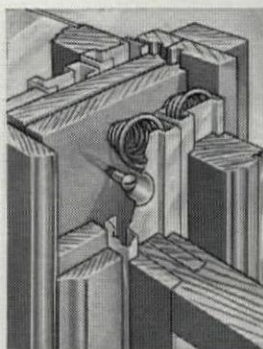


## She Is Holding the Answer to Your Home Sales



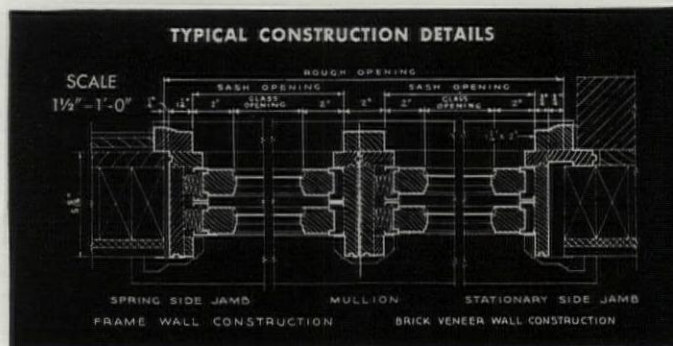
## R·O·W Removable Wood Windows

When the dramatic sales appeal of R·O·W REMOVABLE wood windows is demonstrated in your model home—things begin to happen. Women—and their husbands—are quick to see and WANT the advantages of a window that removes for washing, painting or access to storm windows and screens. R·O·W's exclusive spring cushion feature *automatically* adjusts for weather changes. Weatherstripping qualities far exceed government requirements. Yet—R·O·W Windows cost little or no more than ordinary wood windows. It is often *the feature that closed the sale.*



Women are reading the story of these wonderful windows in two-color advertisements in BETTER HOMES AND GARDENS, AMERICAN HOME, and SMALL HOMES GUIDE. Nearly a half-million R·O·W REMOVABLE Windows are now in use.

Dramatic merchandising helps are available to help you tell the story of this added sales feature. Fill out and mail the coupon TODAY.



### R·O·W SALES COMPANY

1322 ACADEMY • FERNDALE 20, MICHIGAN

PLEASE Send more information on R·O·W—the window with sales appeal.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
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I am  
☐ Architect  
☐ Builder  
☐ Dealer  
☐ Carpenter-Contractor

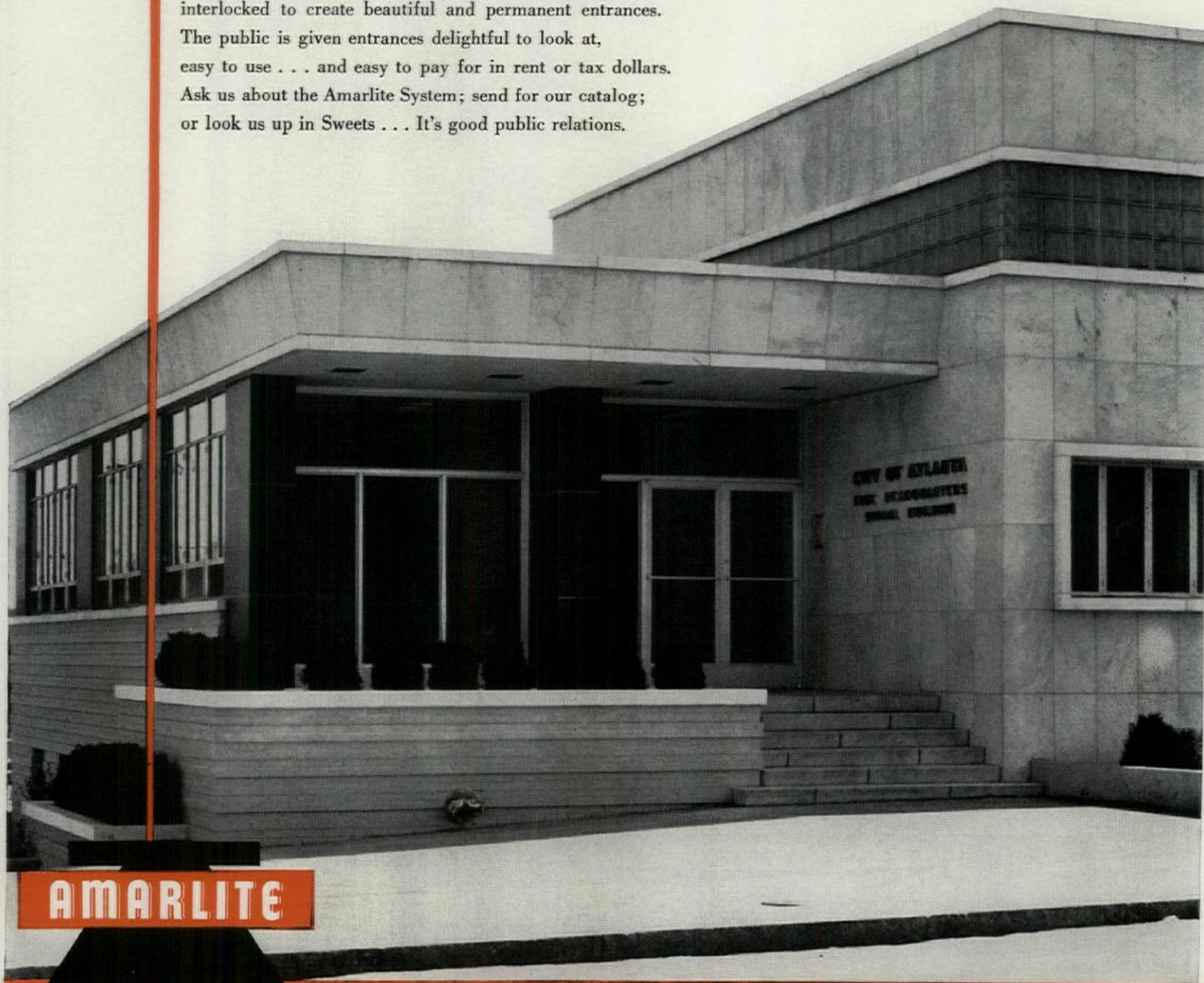




# "Public Relations" IN ARCHITECTURE

## **What Standard Aluminum Entrances mean to YOU, your CLIENT, and the PUBLIC**

To you they mean more design flexibility within the budget.  
Your client gains the economy of standard components,  
interlocked to create beautiful and permanent entrances.  
The public is given entrances delightful to look at,  
easy to use . . . and easy to pay for in rent or tax dollars.  
Ask us about the Amarlite System; send for our catalog;  
or look us up in Sweets . . . It's good public relations.



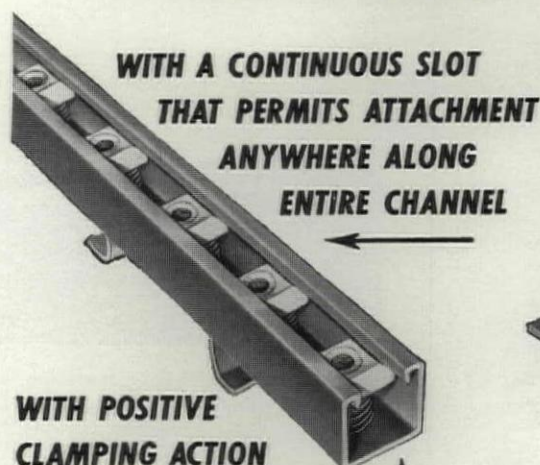
**AMARLITE**

**ALUMINUM ENTRANCES**

**AMERICAN ART METALS COMPANY - ATLANTA, GA.**



# Announcing an Entirely New, Improved, Lower Cost **UNISTRUT CONCRETE INSERT**



**WITH POSITIVE  
CLAMPING ACTION  
PROVIDED BY THE SLIDING  
EASILY-INSERTED UNISTRUT SPRING NUT**

**A CHALLENGE**—We believe this to be the greatest development in concrete insert design and manufacture since concrete inserts were first introduced . . . with advantages that are obtainable only and exclusively with Unistrut. Attachments are easily and quickly made by inserting Unistrut spring nut when and where you wish without disturbing other attachments. Bolting of fitting secures the nut tight to "double track" formed by turned edges of channel, provides positive clamping action, prevents slippage. Standard lengths up to 20 feet make these the longest concrete inserts ever offered!

**Write for your Free Sample of Unistrut and new Concrete Insert Bulletin today!**

## UNISTRUT PRODUCTS COMPANY

1013 W. Washington Blvd., Chicago 7, Ill., Dept. F-4

Please send free sample of Unistrut and Bulletin CI-2.

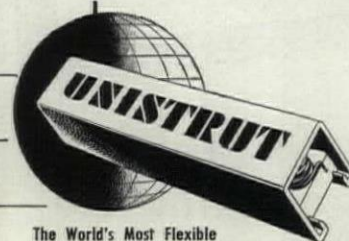
Bulletin CI-2 ☐ Unistrut Sample ☐

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

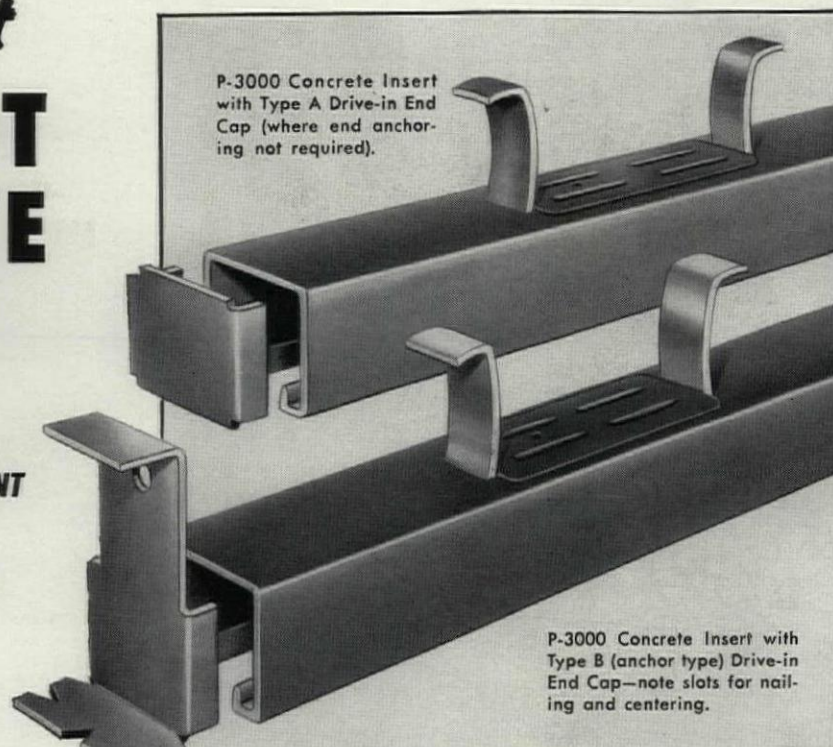


The World's Most Flexible  
All-Purpose Metal Framing

## U. S. Patent Numbers

2327587 2380379  
2363382 2345650  
2329815 2405631

Other patents pending



Unistrut Concrete Inserts in stock lengths from 3 inches to 20 feet. Channel is 1 3/8" wide by 1 3/8" high outside dimensions, of 12-gauge cold rolled steel. Load capacity 2000 lbs. per foot with a safety factor of 3.

## CONCRETE INSERTS PART OF UNISTRUT FRAMING SYSTEM

The concrete inserts shown in this folder are part of Unistrut—a completely adjustable metal framing system that provides a new and more flexible type of mechanical support for every kind of piping, conduit, cable, and for every conceivable kind of equipment used in industry today. Unistrut is metal channel with a continuous slot. You simply insert the Unistrut spring nut into the channel at approximate point where attachment of another framing member is desired, slide to exact location and bolt to Unistrut fitting. Unistrut includes concrete inserts, roller pipe supports, brackets, clamps, hangers and many other standard parts which in combination provide the world's most flexible system of support or suspension. Unistrut does the complete job—you need no other parts or materials. No drilling, no welding—100% adjustable and reusable.

## THE 3 QUICK UNISTRUT STEPS



1. Insert Nut into Channel

2. Locate Fitting and Nut

3. Tighten Bolt—it's done

*Prompt Delivery from Warehouse Stocks in Principal Cities, Consult your Telephone Directories*

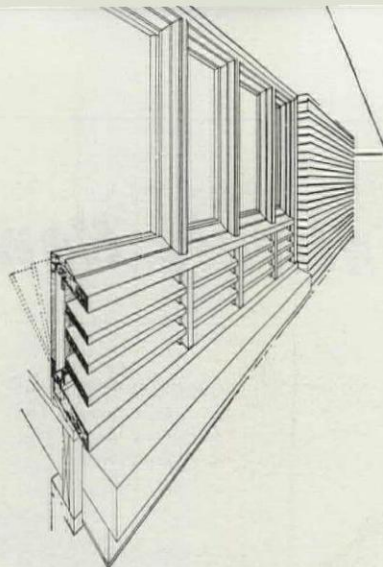
## UNISTRUT PRODUCTS COMPANY

1013 W. Washington Blvd. • Chicago 7, Illinois



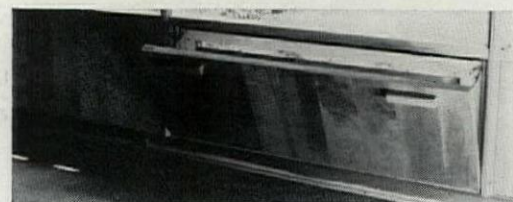
## PRODUCT NEWS

The builder can install a single, double or triple glazed permanent window in an Air-Flo. Louvers may be blocked by an inside panel or adjusted to provide the desired ventilation.



### MODULAR WINDOW UNIT combines area for stationary glazing with ventilating louvers.

All-weather packaged windows that have a custom built appearance, Solar Air-Flo units may be adapted to contemporary dwellings tastefully and economically. Provided with louvers at top, bottom or sides of a window (which may be single, double or triple glazed), the complete Air-Flo can be installed without special tools in frame or masonry walls. Units may be used singly or in banks. According to the manufacturer, all building ordinances for ventilation may be met by varying sill height and number of louver openings. The entire window is weather tight. When the insulated ventilating door is shut it is snug against the weather. Opened at the desired angle it acts as a baffle to direct the flow of fresh air

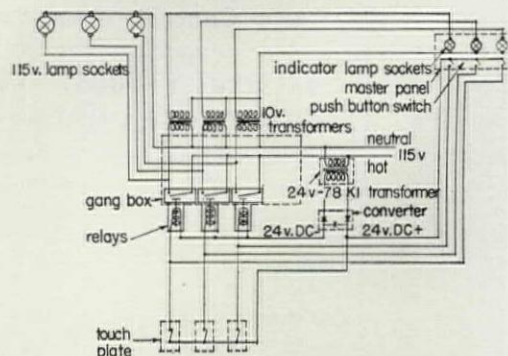


and provide draftfree circulation. Available in treated wood or extruded aluminum, Air-Flo units with bottom louvers are made in 160 stock sizes; 30 sizes with side openings; and 10 with top ventilation. Rustproof screens concealed in the ventilating sections are removable from the inside for cleaning. Price to builders of a unit 4 ft. wide by 6 ft. 8 in. high with five bottom louvers is about \$60. Total cost of doubleglazing this particular model would run about \$30.

Manufacturer: Solar Air-Flo, Inc., Dept. 10, Elkhart, Ind.

### LOW VOLTAGE WIRING SYSTEM provides adequate electrical facilities at moderate cost.

Touch Plate wiring system, like General Electric's Remote Control and Square D's Safflex (FORUM Products and Practice, December '48), offers builders the economy and homeowners the safety and convenience of partial low voltage wiring. Simplified installation makes practical not only



more numerous contact plates but also master control panels at remote locations.

In a home wired with a Touch Plate system, electric lights and appliances can be turned on by an elbow nudge against the momentary  
(Continued on page 282)

LET'S THROW AWAY  
ALL KEY AIR VALVES

They're as old fashioned as  
THIS HORSELESS CARRIAGE



install  
**TACO VENT**  
AUTOMATIC HOT WATER  
AIR VALVE

*AUTOMATICALLY VENTS*

RADIATORS, BASEBOARDS AND  
CONVECTORS ON HOT WATER  
HEATING SYSTEMS

*NO MORE OLD FASHIONED  
HAND VENTING*

The Taco-Vent, automatic hot water air valve, has made key air valves obsolete. They've swept the country by storm. From cottage to garden apartments, folks are finding out how much labor in call-backs Taco Vents save. May we tell you more?



**Better Heating . . .  
Better with Taco**

TACO HEATERS, Incorporated, 137 South St., Providence 3, R. I.



**DESIGNED FOR**

*Comfort?*



**Then remember  
the best design  
and all the heat  
in the world  
won't make a  
home comfortable  
unless it is  
properly controlled**

**CHRONOTHERM**

**ELECTRIC or ELECTRONIC CLOCK THERMOSTAT** — Automatically reduces to lower fuel-saving temperature at night and restores daytime comfort in the morning before you arise.



**TIME-O-STAT**

**CLOCK THERMOSTAT** — for semi-automatic day-night temperature control. Set it at bed time for lower fuel-saving temperature. Automatically starts your heating plant in the morning.



**ACRATHERM**

**PLAIN TYPE THERMOSTAT** — maintains uniform comfort temperature 24 hours a day. Finger-tip dial permits easy setting for lower night temperature. Combines low first cost with precision performance.



**YES**, control means everything when it comes to heating. And there is a Honeywell control or control system to meet the requirements of every home and every condition of climate. In larger homes, or homes of the ranch type, more than one thermostat may be required to maintain uniform temperature throughout.

Whether you specify the fully automatic Chronotherm, the semi-automatic Time-O-Stat or the plain type Acratherm—all operate on the special "Comfort" principle that maintains practically straight-line temperature under all weather conditions. So, to be sure of maximum comfort, convenience and economy, always specify Honeywell controls.

Use the coupon to get your free copy of the consumer booklet "How to Choose Your Thermostat," which is now being ordered by thousands of families through Home Owners' Catalogs and Honeywell's national advertising.



**MINNEAPOLIS**  
**Honeywell**  
**FIRST IN CONTROLS**

**MINNEAPOLIS-HONEYWELL REGULATOR COMPANY**  
2601 Fourth Avenue South Minneapolis 8, Minnesota  
Please send free copy of booklet "How to Choose Your Thermostat."

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

77 BRANCHES FROM COAST TO COAST WITH SUBSIDIARY COMPANIES IN: TORONTO • LONDON • STOCKHOLM • AMSTERDAM • BRUSSELS • ZURICH • MEXICO CITY





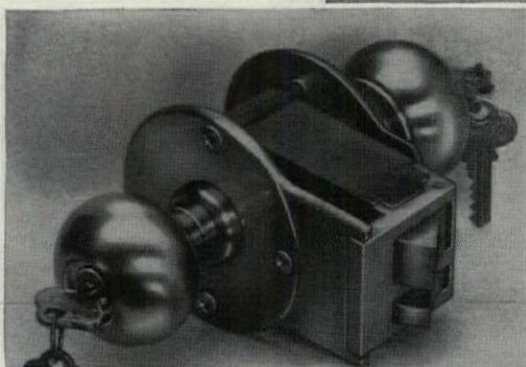
Five Functional Types Complete the Scope of Corbin Famed "900" Series Unit Locks and Latches

**900-710 — Interior Door Latchset.** Operates by knob from either side at all times.



**900-730 — Privacy Lockset for Bath or Bedroom Doors.** Operates by knob from either side except when locked by push-button in inside knob. Turn of inside knob releases locking mechanism.

**900-780 — For Residences, Apartments and Office Doors.** Operates by knob from either side and by key from outside when locked by turn piece in inside knob.



**900-735 — For Apartments, Public Buildings and Office Doors.** Similar to 900-780 except that key-operated cylinder in inside knob replaces turn piece. Tamper-proof locking security.

**900-740 — Designed for School, Classroom Doors.** Key operated locking mechanism in outside knob only. Normal turn of inside knob opens door at all times.



Practical and Stylish these Corbin Units in cast brass or bronze are factory assembled for ONE-PIECE, fast installation. There is no costly mortising required. Vault-like strength assures greater protection and longer trouble-free use. Every good building deserves Corbin "900" Series Unit.

**P. & F. Corbin**

DIVISION  
THE AMERICAN HARDWARE CORPORATION  
New Britain, Connecticut



**BANISH  
"Booby Trap Showers"**  
with the **DOUBLE** Safety of

**POWERS**

**THERMOSTATIC SHOWER MIXERS**



MAY WE SEND  
CIRCULAR H48?

One shower accident may cost many times more than Powers shower mixers. They are really safe and non scald. Temperature of Powers regulated showers remains constant wherever set regardless of pressure or temperature changes in water supply lines. Failure of cold water supply instantly and completely shuts off the delivery. Bathers can really relax and enjoy the best showers they ever had.

BT4

WRITE  
THE POWERS REGULATOR CO., 2720 Greenview Ave.  
CHICAGO 14, ILLINOIS • Offices in over 50 cities

**LEMCO**

**Steel AND Aluminum  
Casement Windows**

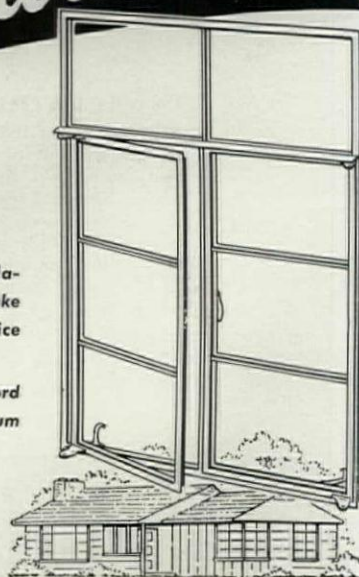
offer  
**PLUS VALUE**

IN SMALL HOUSE CONSTRUCTION

Low original cost plus economy of installation and continuing owner satisfaction make LEMCO Casement Windows the first choice of builders throughout the country.

LEMCO also proudly offers the last word in modern window treatment — Aluminum Awning Windows in two new types; LEMCO Panoramic and LEMCO Series 62 Monumental.

WRITE FOR DESCRIPTIVE FOLDERS



AMERICA'S OLDEST CASEMENT WINDOW MANUFACTURER  
**Croft STEEL PRODUCTS, INC.**  
16 MARKET STREET • JAMESTOWN, N.Y.



Design  
a

Graceful  
Welcome

into  
clients'  
homes



Every home owner wants his floors to provide the rare combination of tasteful, unusual beauty and serviceable, down-to-earth durability.

Next time that problem comes up, specify Flexachrome\*. You'll give your client everything he wants in a floor.

This modern, plastic-asbestos flooring material really provides what its name implies... *flexible color*. Its flexibility assures quick and permanent adhesion to all types of sub-floors. And you've never before seen such color in resilient flooring. 33 rich, vivid, *true* colors to lighten, brighten and beautify any room in the house.

Tile-at-a-time installation gives you wide latitude in design... stripes, plaids, basket-weave, or any other pattern your clients want.

Custom-cut inserts enable you to personalize Flexachrome floors.

Flexachrome's durability is exceptional, too. You can reassure your clients that, properly installed, his Flexachrome floors will last the life of his home. And, because it's greaseproof, Flexachrome is ideal for kitchens and dining areas... or any area where grease is a problem. Maintenance is easy, and those who prefer unwaxed floors will be delighted to discover that Flexachrome retains a soft, satiny beauty merely with dry buffing and an occasional steel wooling.

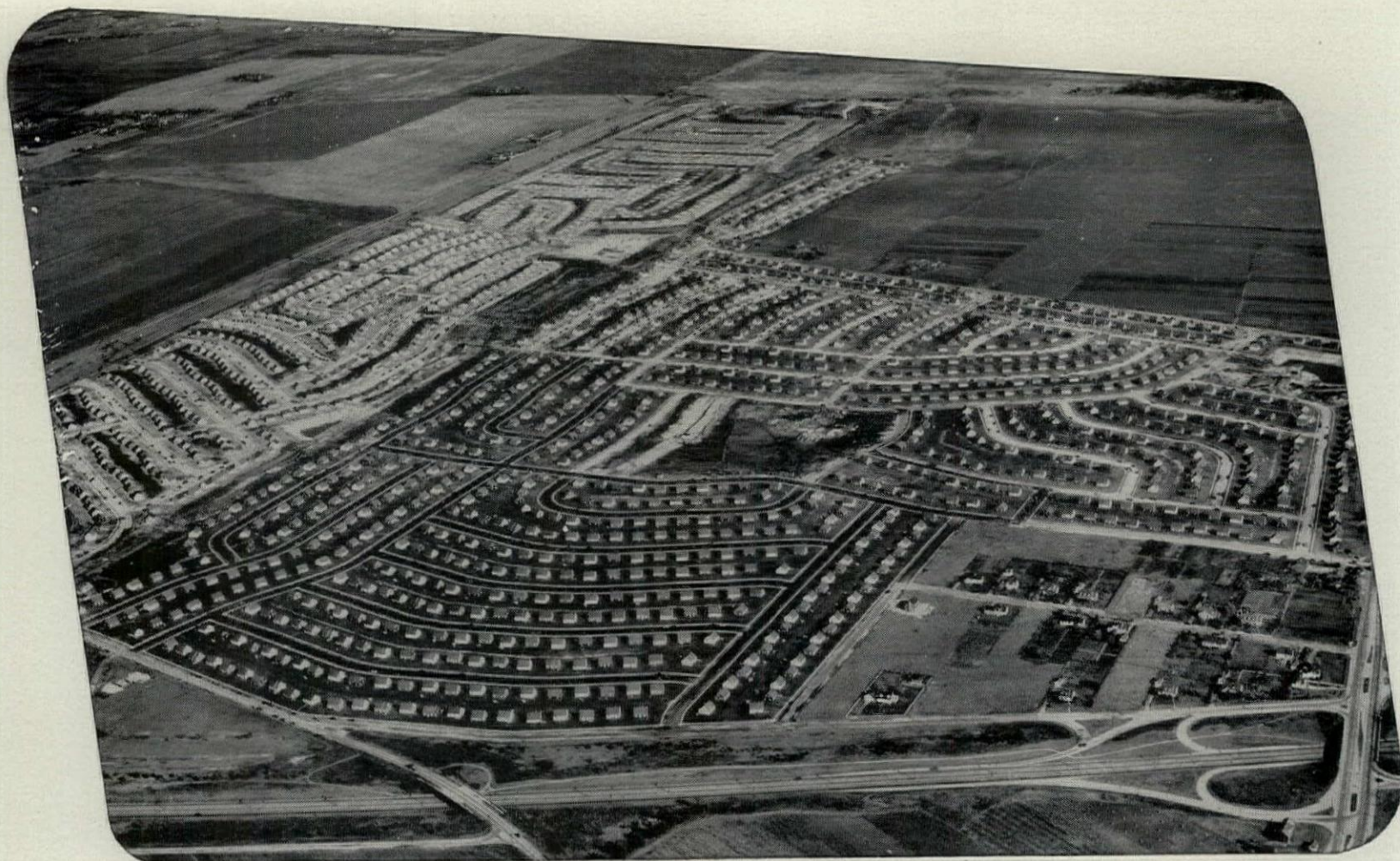
Tile-*Tex*  
PLASTIC-ASBESTOS

FLOORS AND WALLS

Let us send you complete details on Flexachrome and other Tile-Tex products. THE TILE-TEX DIVISION, The Flintkote Co., Dept. R, 1234 McKinley St., Chicago Heights, Ill.

\*REGISTERED TRADEMARK, THE FLINTKOTE COMPANY





## Why do these thousands of new Levitt homes all include New Bendix Washers?

**America's biggest home builders insure their leadership by giving extra value in every home!**

In the giant housing development at Levittown, Long Island, there are over 12,000 Levitt-built homes equipped with a Bendix and for a good reason. A Bendix-equipped home provides more efficient living, better living, easier living from the prospect's point of view. And, from the builder's viewpoint, Bendix equipment already installed in the home means easier selling or renting—today, tomorrow, and the day after tomorrow!

A Bendix installation is an even more potent selling point, when the

prospect discovers that it can be bought, along with the house, on a "package mortgage" plan!

These are a few of the reasons why so many "Look-Ahead Builders" like Levitt & Sons are including Bendix Home Laundry facilities right in their blueprints! These men set the trend toward giving more for the housing dollar. They realize how important it is to establish a reputation for giving greater value today in order to keep selling after the housing boom is over.



**BENDIX**  
automatic  
**Washer**



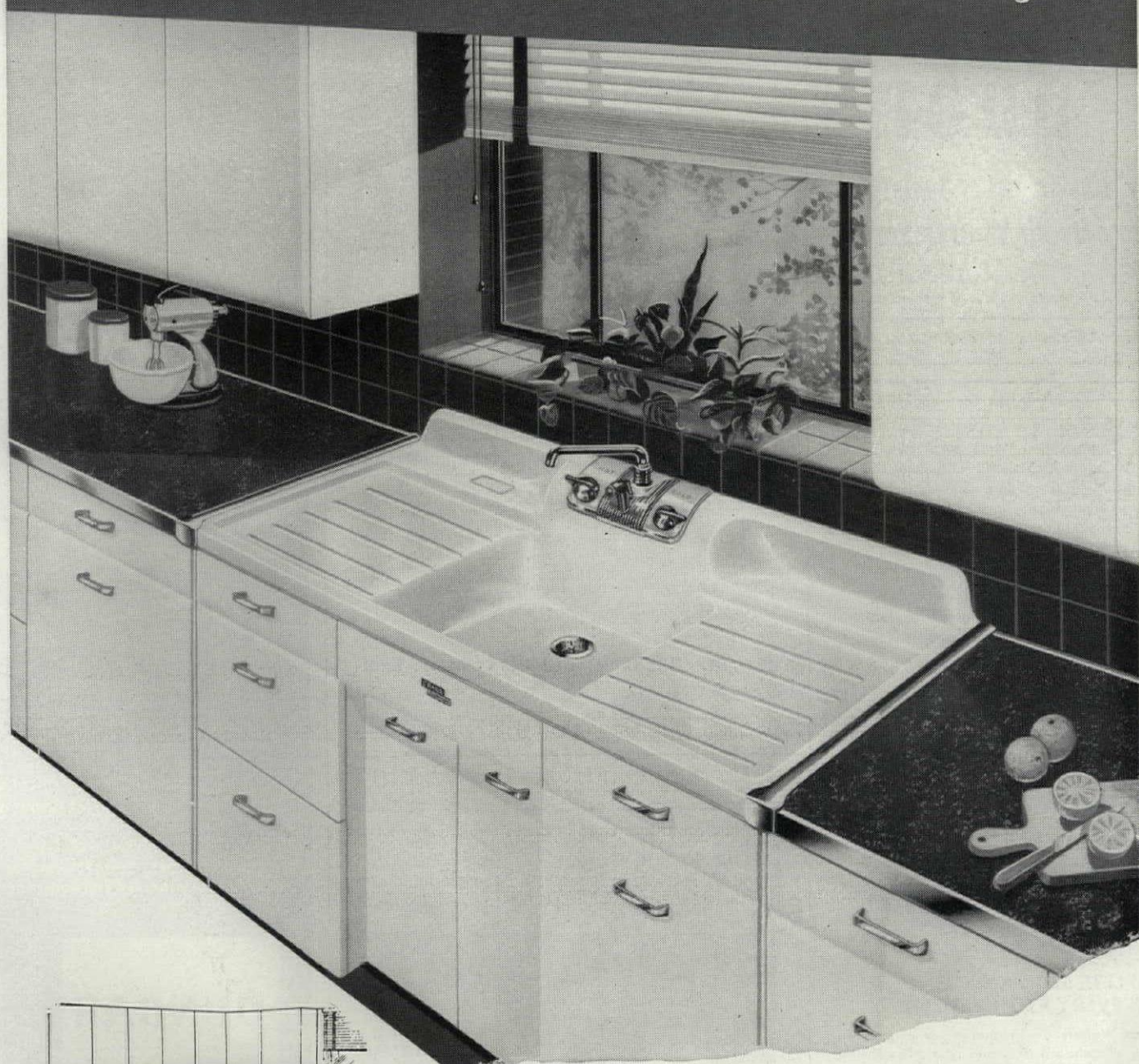
**DISPLAY THE SIGN OF A "LOOK-AHEAD BUILDER"! It means more profit...today and tomorrow!**

BENDIX HOME APPLIANCES, INC., SOUTH BEND, INDIANA. ALSO MAKERS OF THE NEW BENDIX DRYER AND BENDIX IRONER



# CRANE

*the preferred plumbing*



The Crane *Sunnyday* Sink . . . porcelain enameled cast iron . . . in white and eight Crane colors. Single basin, double drainboard. 54" or 60". Also available, a complete line ranging from 36" to 72", all with Crane *Dial-ese* controls. Complete selection of matching wall and base cabinets. Consult your Crane Branch or Crane Wholesaler.

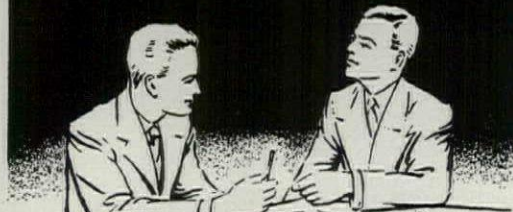
# CRANE

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

PLUMBING AND HEATING  
VALVES • FITTINGS • PIPE



# SPECIFY



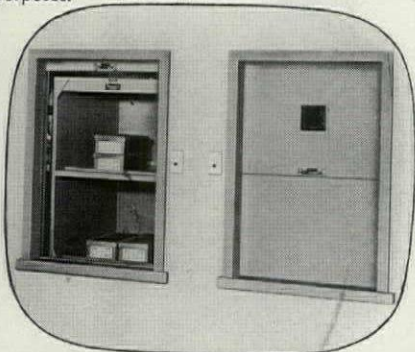
## Sedgwick DUMB WAITER DOORS

### — A Very Important "Assist" in Satisfactory Dumb Waiter Service

Dumb Waiter Doors are as important for efficient operation as is the selection of satisfactory dumb waiter units. Sedgwick Dumb Waiter Doors are of durable steel construction, have stainless steel sills and can be used with electric or hand power dumb waiters—or for protecting the landing openings of conveyors, laundry and package chutes and other types of floor-to-floor transportation equipment.

Available with approved Underwriters' Label where required, Sedgwick Dumb Waiter Doors are finished in appearance, easy of operation, sturdy and come in four general types, including bi-parting, slide-up, slide-down and hinged. Doors and frames are completely factory-assembled units, convenient for setting in place as hoistway walls are built.

Specify Sedgwick Dumb Waiter Doors for best performance and ultimate economy. They are backed by Sedgwick's 57-year-old experience in planning, engineering, manufacturing and installing of dumb waiters and elevators for all purposes.



### COMPLETE SEDGWICK LINE MEETS EVERY REQUIREMENT

Sedgwick Dumb Waiters are available for prompt delivery in a variety of standard sizes and types. The Electric Roto-Waiter and the Electric Traction Dumb Waiter, with capacities up to 500 lbs., are leaders in the power-controlled field. Hand operated units of unusual merit and ease of operation are designed for many uses where less expensive equipment is desired, or when frequency of use is less.

Write for Illustrated Booklet AF3

**Sedgwick MACHINE WORKS**  
88 Eighth Ave., New York 11, N. Y.

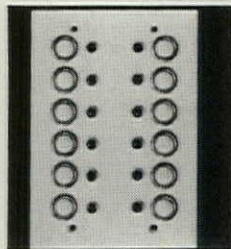
ELEVATORS • DUMB WAITERS • RESIDENCE ELEVATORS  
STAIR-TRAVELERS • ROTO-WAITERS • SIDEWALK ELEVATORS  
FREIGHT ELEVATORS • DUMB WAITER DOORS

THE MAXIMUM IN SAFETY...

THE ULTIMATE IN ECONOMY — SINCE 1893

## PRODUCT NEWS

contact plate. Fixtures anywhere in the house can be illuminated by a finger's touch to the Master Panel. One or two of these panels, available with six or 12 touch buttons and corresponding indicator pilot



lamps, are placed in the master bedroom, hall or garage. The apparent controlling devices in this remote switching system are the trim ivory and brown plastic bumper plates. Actually, magnetic relays activated by these contactplates are the switches. Single, two and three gang Touch Plates

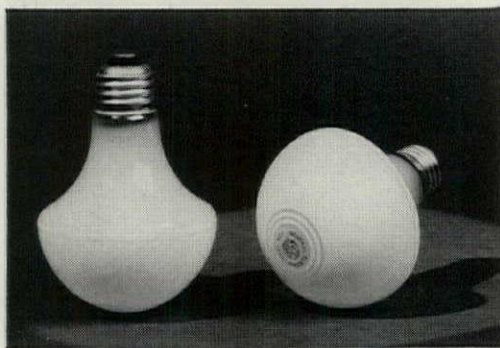


can be mounted on plaster rings and nailed directly to the studs. No outlet boxes are necessary because only ordinary 24 v. doorbell wire (instead of expensive conduit) runs behind the plates to the relays located in a gang box. Here—in the garage, utility room or wherever the gang box is installed—the lights are turned on and off as the regular 115 v. electrical circuit is closed and broken by cam-like impulses from the relays.

Manufacturer: Touch Plate Mfg. Corp., 1766 Seabright Ave., Long Beach 13, Calif.

### NEW INCANDESCENT BULB is complete lighting device.

Designed to eliminate the harsh bare bulb look and harsher empty sockets in ceiling pan fixtures, General Electric's new 50 watt bulb is a welcome development in incandescent lighting. Its mushroom-like shape causes two-thirds of the light to be directed back for reflection into the room. A soft cream enamel on the globular section mellows the remainder of light transmitted



downward. Shape, wattage and color were thoughtfully engineered for pleasant light. Scheduled for retail store counters in May, the bulb is priced at 40 cents.

Manufacturer: General Electric Co., Lamp Dept. Nela Park, Cleveland 12, Ohio.

(Continued on page 286)



This one adjusts to three positions...



this has an ottoman built-in...



and this is an Officer's Chair, at home anywhere.

MODERN INTERIORS—Send 25 cents for this profusely illustrated booklet packed with modern decorating ideas.

**DUNBAR**

for Modern

DUNBAR FURNITURE MANUFACTURING CO. • BERNE, INDIANA

CHICAGO: 1638 Merchandise Mart  
BOSTON: 203 Clarendon Street  
KANSAS CITY: 212 Merchandise Mart  
NEW YORK: 227 East 56 Street



## How to choose materials for hospital noise-quieting

**N**o two acoustical materials are exactly alike. They differ in noise-quieting efficiency, cost, appearance, insulation value, ease of maintenance, and resistance to fire and moisture. While it is possible to use one material throughout a hospital, there are some areas with special functions which call for different types of acoustical ceilings.

In corridors and nursing units, where most hospital noise is concentrated, low cost, high efficiency, and ease of maintenance are of primary importance. Armstrong's Cushiontone is recommended for these places because it is low in cost, can be installed economically, and has high acoustical efficiency. Cushiontone in the 1" thickness has a noise-reduction coefficient of .75. It is washable and can be repainted without loss of noise-quieting efficiency.

Decorative acoustical ceilings are often desired in areas such as the lobby, auditorium, and conference lounge. Armstrong's Travertone, a mineral wool tile

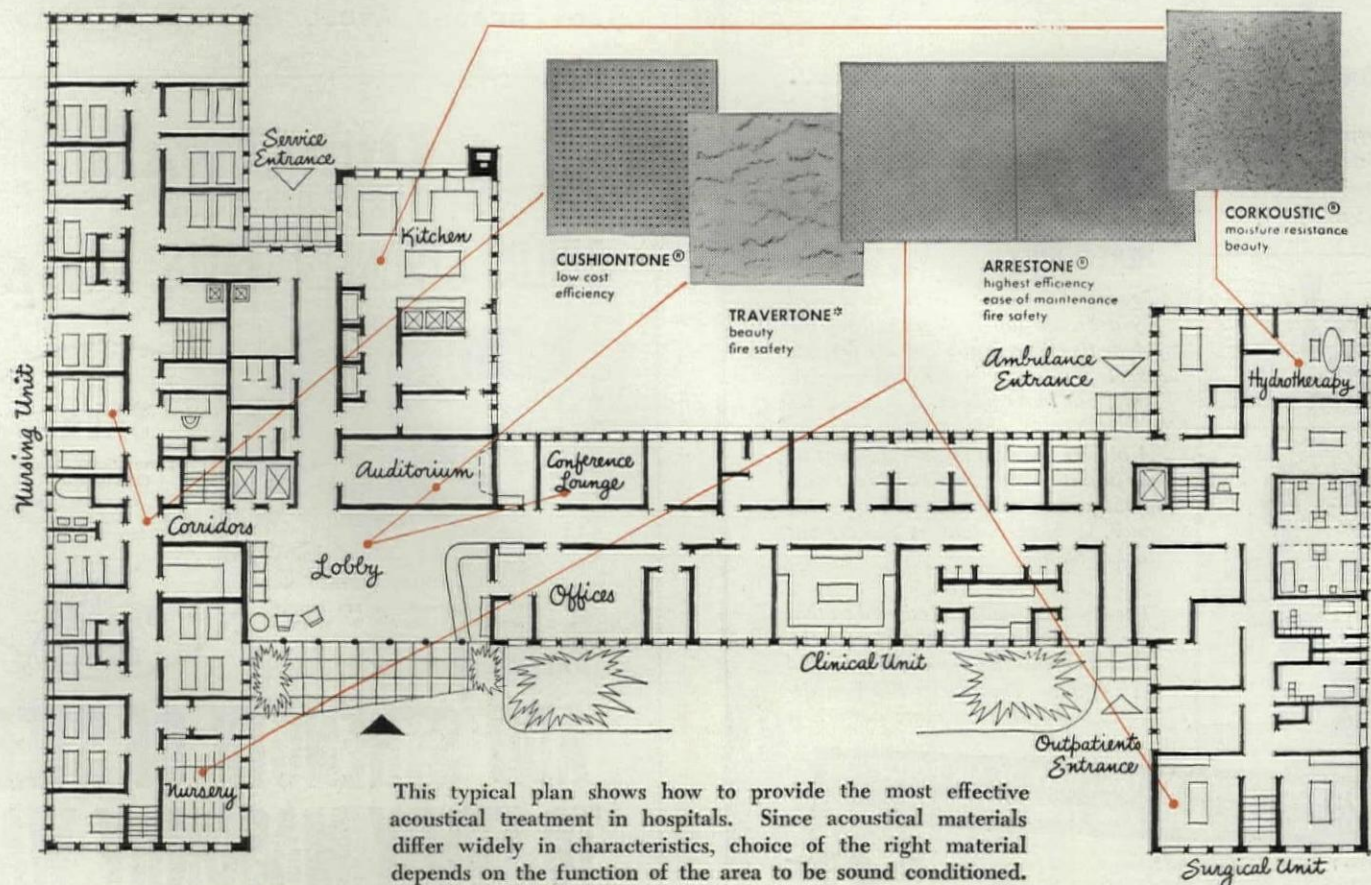
with an attractive white, fissured surface, is an excellent choice in such areas.

Special noise areas, such as nurseries or surgical units, call for a material which is high in efficiency and easy to maintain. Armstrong's Arrestone, a metal pan material containing a mineral wool sound-absorbing pad, is most efficient (.85) among the Armstrong materials. Its smooth, enameled surface is easy to keep clean. Arrestone is installed by mechanical suspension. Units can be removed easily to provide access to piping and ventilating ducts.

In kitchens and hydrotherapy rooms, acoustical ceilings should be highly moisture resistant. Because of its low-density cork structure, Armstrong's Corkoustic is ideal for these areas. Corkoustic also offers high thermal insulation—an important factor in top floors or in one-story buildings.

Building codes often require acoustical materials to be fire resistant. Both Arrestone and Travertone are incombustible, and Cushiontone is available with a special fire-resistant paint finish.

All of the Armstrong materials have attractive white painted finishes, are good reflectors of light, and are easy to maintain. For full details, get in touch with your Armstrong acoustical contractor or write to Armstrong Cork Company, 5404 Stevens Street, Lancaster, Pennsylvania.



\*TRADE-MARK APPLIED FOR

# ARMSTRONG'S ACOUSTICAL MATERIALS





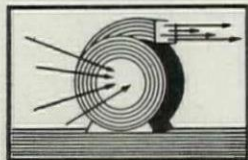
ONLY *Blo-Fan* HAS THIS PATENTED BLADE ...

...which combines both fan and blower principles. Its exclusive design gives Blo-Fan the volume of a fan plus the power of a blower in order to move more air—quickly, quietly with greater efficiency.

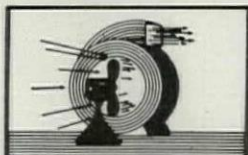


#### HERE'S WHY!

Seventy-five per cent of the air moved by a breeze fan is thrown from the blade tips. The center is weak when it meets resistance. A fan delivers volume, but lacks power.



A blower draws a smaller amount of air into the vortex, discharging it with great power, thus overcoming resistance. A blower delivers power, but lacks volume.



The Blo-Fan blade is designed so that the fan element feeds the blower element keeping the vanes fully loaded at all times. That's why Blo-Fan delivers more air with more power.

\*Trade Mark. Reg.

**SPOT VENTILATION AT THE POINT OF AIR POLLUTION**  
In kitchen, bath, game room and laundry

FACTORIES: Pomona, California; Newark, New Jersey  
WAREHOUSES: Los Angeles, San Francisco, Chicago  
Stocked by 500 wholesalers in more than 350 cities.

**PRYNE & CO., INC.**  
Box A-4, Pomona, California

A postcard will bring you complete Blo-Fan information and the name of your nearest distributor.  
See Sweet's File 29b-7.



Manufacturers of Pry-Lites... the modern recessed lighting fixtures with snap-on fronts.

## AN OPEN LETTER TO ARCHITECTS

Gentlemen:

Is your file on Styron Wall Tile up to date? As manufacturers of MIRAPLAS, we are its originators.

MIRAPLAS is popular for it's one of the few wall coverings not conceived as a substitute for clay tile.

(Advertising men say I shouldn't use that word. We'll pass up the double talk and speak plainly). MIRAPLAS makes a beautiful, durable wall. Our MASTER MASTIC has licked the adhesive problem.

It is easily installed. Apply it over any clean, smooth wall. Can be used where structural weaknesses make heavier materials questionable. Will take normal household use, and, with nominal care, look new for years.

Building settling will not crack MIRAPLAS; it is impervious to common household materials; extremes of temperature will not harm MIRAPLAS.

Field tests and laboratory reports prove all this. May I send them?

*Refreyoff*  
Gen. Mgr.

S & W Moulding Co.  
986 Parsons Ave., Columbus, Ohio

## DUR-O-WAL

Patented STEEL Reinforcing  
FOR MASONRY WALLS

**BUILDS STRONGER WALLS, *Faster!***



### SAVE

Construction Dollars  
the wise way  
Build dependable walls  
faster... Save Time  
and Money.



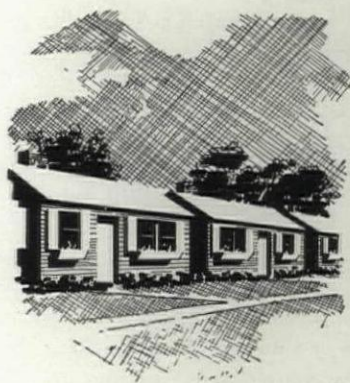
Reinforcing masonry walls is now faster, easier, fool-proof, thanks to unique, job-tested design of Dur-O-wal.

That's why builders now

**ADD STRENGTH OF STEEL  
TO EVERY MASONRY WALL**

More and More builders are testing Dur-O-wal on the job. When they learn how economical it is to add a backbone of steel, they are using Dur-O-wal in every masonry wall they build. Quickly and easily laid in the mortar joint, Dur-O-wal is available in sizes to fit any masonry wall. For specifications and descriptive folder, write, wire or phone Dur-O-wal Division, Cedar Rapids Block Co., 698 12th Ave. SW, Cedar Rapids, Ia.





## It's wanted, it's economical, it's **OAK**

With economy the uppermost thought in most home buyers' minds, it is easy to see why 85% of prospective buyers want oak flooring in their next home. They know, many of them from past experience, that only oak flooring will give them lifetime service of easy-to-maintain beauty. With oak they know that costly, periodic flooring replacement will be unnecessary.

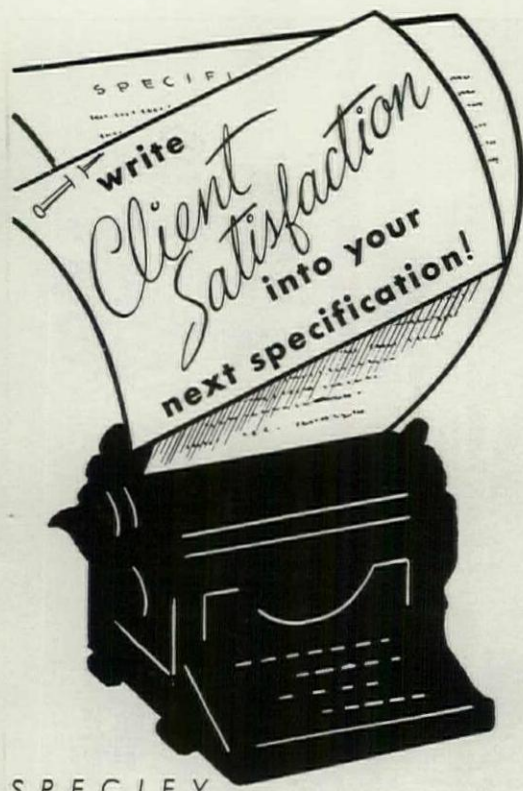
It makes no difference what style house you are designing or what it will cost because there is a grade and style of oak flooring to satisfy every home owner.

This overwhelming preference is guiding architects and builders to stay with oak flooring. *See our catalog in Sweets.*

**NATIONAL OAK FLOORING MANUFACTURERS' ASSOCIATION**  
DEPT. 7-4, 814 STERICK BUILDING • MEMPHIS 3, TENNESSEE

**OAK, THE FLOORING THAT HAS EVERYTHING EVERYONE WANTS**





SPECIFY

# Win-Dor®

**FOR YOUR OUT-SWUNG  
WOOD CASEMENT  
WINDOW INSTALLATIONS**

The three Win-Dor devices shown below are the elements that help assure client satisfaction with your out-swung wood casement window installations. Each one performs a specific important function — and does it better! Together, they furnish the most satisfactory control that quality manufacture and the engineering experience of almost half a century can provide.

See Sweet's file  $\frac{18b}{16}$  for details.

**Series 48 "Snugger" Closer:**  
Reaches out and pulls casement tight at top. Automatic closing and release. Furnished in steel or brass, with 6 or 8-lb. spring. Reversible.



"Snuggers" also available to provide automatic closing of all doors — especially cabinet and wardrobe doors where "whip" is encountered. Eliminates latching devices. No mortising.



**Series 75 Extension Hinges:**  
Provide 4" clearance between open sash and frame to permit cleaning outside of glass from within the room. Reinforce sash corners.

**Series 30 Wood Casement Operator (reversible):**  
Permits close housing for trim detailing, and when concealed under stool, eliminates all hardware obstruction above it. Over-size  $\frac{3}{4}$ " bronze worm, bronze bushing. Steel arm, channel, and integrated housing.



Ask Your Builders' Hardware Man

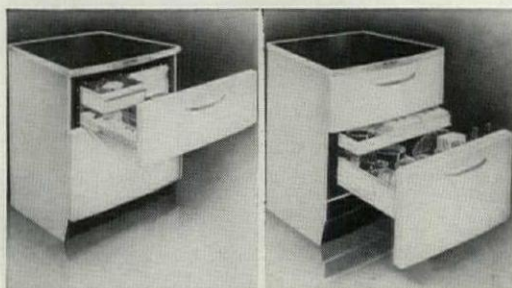
**The Casement Hardware Co.**

406 N. Wood St., Dept. E, Chicago 22, Illinois

## PRODUCT NEWS

**DRAWER TYPE REFRIGERATOR** with counter level worktop is completely accessible.

Although the Tru-Zone drawer type refrigerator is only waist high for convenient work table area, no stooping or squatting is necessary to reach food. Supplies stored within can be viewed and selected easily. Smoothly operating, self-locking drawers travel on nylon roller bearings and are

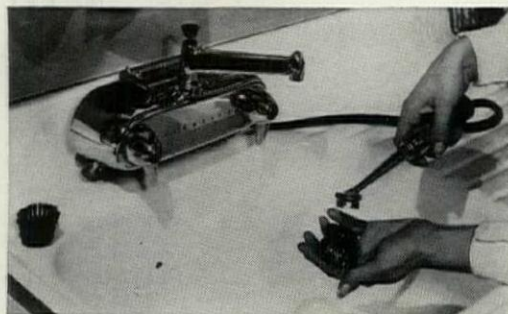


equipped with slides for balance while fully open. Even the meat freezing tray (used also for defrosting) slides out for ready access. The Tru-Zone's size belies its capacity since almost every bit of its 6 cu. ft. may be utilized—a practical storage space comparable to the average 8 cu. ft. shelf variety. Outer dimensions of the unit are 36 in. high x 27 in. wide x 24½ deep. This space-saving refrigerator is suitable for homes as well as apartments and hotel suites. Price to builders is about \$155.

Manufacturer: Acme National Refrigeration Co., Inc., 634 Dean St., Brooklyn, N. Y.

**COMBINATION DISHWASHING AID AND FAUCET** dispenses aerated detergent solution, rinsing water.

Retailing for less than \$40, the Dishmaster is a handy sink device that simplifies kitchen chores. It serves as a dishwashing aid and vegetable sprayer as well as regular swing spout mixing faucet. A small amount of granulated or liquid detergent is placed in the tank behind the swing spout. When a diverter valve is lifted, water flows through the hose and nylon brush attachment. (A wire brush for cleaning cooking ware is available at an additional \$1.) The button on the



gripping handle is pressed to discharge washing water and released to permit the flow of splashless clear water for rinsing.

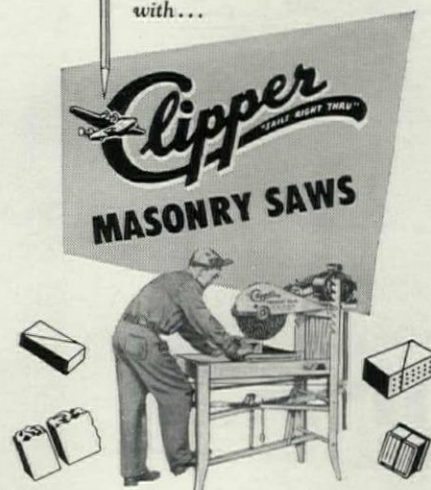
Distributor: Gerity-Michigan Corp., 10 S. Superior St., Toledo 4, Ohio.

(Technical Literature, page 290)

**CREATE  
NEW**

*architectural  
effects*  
**IN MASONRY**

with...



● New and unusual masonry effects are now simply and economically achieved. Glazed Tile, Glass Block, Marble, or Brick incorporated in your planning can be sliced at any angle in seconds. Make a note for your masonry specifications—add—"All Cutting Shall Be Tailor-Made with Clipper Masonry Saws." Portable Clippers for wet or dry cutting are used by the World's leading manufacturers of masonry material. Your contractor can try a Clipper on his job without obligation.



KIVETT and MYERS  
Building Architects  
GRUEN and KRUMMECK  
Tea Room Interior Architects

Creations in Roman Brick in the beautiful Garden Tea Room of Macy's, Kansas City store were made possible only by DUST-LESS cutting with the Model HD Clipper and Clipper Diamond Blades.

WRITE FOR  
ILLUSTRATED  
LITERATURE

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MASONRY SAWS

**MANUFACTURING COMPANY**

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# Are you a *Quiz Kid* on Fluorescent Lighting?



**try this quiz to test yourself**

**Q. Is the light output of a fluorescent tube affected by ballast operation?**

**A. Yes.** Some uncertified ballasts reduce light output by 20%! **CERTIFIED BALLASTS** assure rated light output.

**Q. Does the ballast affect lamp life?**

**A. Decidedly.** Improperly designed ballasts can lower lamp life by as much as 1,000 hours in a 40 watt lamp. **CERTIFIED BALLASTS** assure full lamp life.

**Q. How can one guard against overheated ballasts?**

**A. Use CERTIFIED BALLASTS** in well designed fixtures.

**Q. Do some ballasts last longer than others?**

**A. Yes.** A **CERTIFIED BALLAST** should outlast the life of the installation.

**Q. Can ballasts be a source of noise?**

**A. Audible "humming"** is often due to the ballast. **CERTIFIED BALLASTS** produce a minimum of noise.

**Q. What ballasts are made to exacting specifications, then tested and checked by Electrical Testing Laboratories, Inc., who certify that they conform to these specifications?**

**A. CERTIFIED BALLASTS!**

**Q. Who makes CERTIFIED BALLASTS?**

**A. Any manufacturer** who wishes to produce ballasts that meet the specifications may participate in the **CERTIFIED BALLAST MANUFACTURERS** program. Currently 10 leading ballast manufacturers are producing **CERTIFIED BALLASTS**.

**BE SURE... ALWAYS SPECIFY CERTIFIED BALLASTS!**



## **CERTIFIED BALLAST MANUFACTURERS**

*Makers of Certified Ballasts for Fluorescent Lighting*

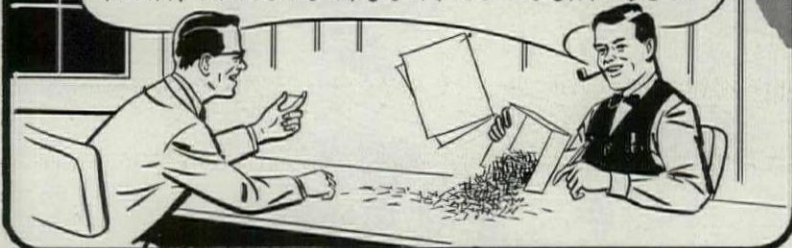
**2116 KEITH BLDG., CLEVELAND 15, OHIO**



# BUILD PRESTIGE . . . SATISFY CUSTOMERS

*This Easy, Economical Way*

BILL, YOU'LL BE GLAD I SPECIFIED NICHOLS NEVER-STAIN ALUMINUM NAILS FOR YOUR HOME. THEY WON'T RUST LIKE ORDINARY NAILS. THEY WON'T STREAK OR STAIN PAINTED SIDING OR CAUSE SIDING TO LOOSEN THROUGH NAIL RUST. YET THEY COST LESS THAN \$3.50 MORE THAN ORDINARY NAILS FOR YOUR FIVE-ROOM HOUSE



ONE YEAR  
LATER

MR. LEE, I WANT TO PERSONALLY THANK YOU FOR USING ALUMINUM NAILS ON MY HOME. ONE OF MY NEIGHBORS HAD TO REPAINT HIS HOME LAST WEEK BECAUSE OF RUSTED SIDING. COST HIM \$300. MY PLACE LOOKS GOOD AS NEW - THANKS TO YOU AND NEVER-STAIN ALUMINUM NAILS!



**Yes! THERE'S A BIG  
DIFFERENCE IN NAILS!**

Nichols Never-Stain Aluminum Nails are etched from head to tip for greater holding power . . . drive easy . . . lighter to carry . . . and cost less to apply because no countersinking or puttying is necessary! Billions have been used.

A WIDE VARIETY OF  
TYPES AND SIZES

NOW PACKAGED FOR THE JOB!

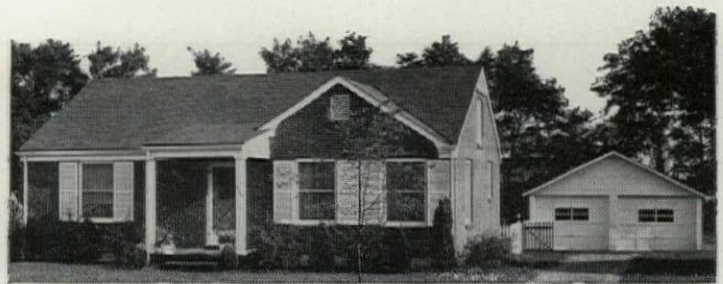
- Aluminum Roofing Nails • Wood Siding Nails — Casing or Sinker Head • Asbestos Siding Nails • Rock Lath Nails • Shingle Nails • Asbestos Shingle Nails • Cedar Shake Nails • Driwall-Board Nails • Roofing Nails with or without Gora-Lee neoprene washers



**NICHOLS WIRE & ALUMINUM CO.**

General Office and Plant — Davenport, Iowa  
Branches — Mason City, Iowa • Battle Creek, Mich.  
South Deerfield, Mass. • Oakland, Cal. • Seattle, Wash.

**ALUMINUM IS NOT A SUBSTITUTE!**



- ★ CUTS INSTALLATION COST
- ★ SAVES FLOOR SPACE

. . . For Nashville Home Project



4 Popular Sizes  
40,000 to 100,000  
BTU Handles natural, mixed manufactured  
and LP gas, 10 year Guarantee.

The versatile Norman Southerner horizontally designed central heating unit (1) fits in any small area—attic, under floor or basement, in utility room or closet; (2) requires less duct work; (3) requires no floor space; (4) takes less time and labor to install; (5) offers dependable heating comfort; (6) time-tested in thousands of installations in old and new homes. In this seven room home in the Nashville Dugger 44-Home Project pictured here, Norman Southerner FUB 80's were installed with seven baseboard warm air returns and two floor cold air returns.

Find out how the Norman Southerner helps architects and builders plan low cost heating installations in new single and multi-unit home construction. Send for new folder "This Compact Forced Air Central Heating System Saves Valuable, Costly, Floor Space."

"Over a period of years in the building business, as well as from personal experience, we have found that a good, forced warm air heating system is the best type of heating we can give our home buyers . . . The Norman Southerner enables us to do this and still avoid the high cost of a basement or utility room." J. T. Dugger & Son  
Nashville, Tenn.

**NORMAN SOUTHERNER**  
HORIZONTALLY DESIGNED GAS FURNACE

**NORMAN PRODUCTS COMPANY**

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Columbus 12, Ohio

Manufacturers of Gas and Gas-Oil Furnaces and Conversion Burners

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**HIGH DEPENDABILITY  
GREATER ECONOMY  
LESS MAINTENANCE**

Built up to a quality—not down to a price. SHEPARD Elevators offer you high dependable service at low maintenance costs. For that new elevator you're planning or the old one you're modernizing — consult SHEPARD Engineers. Write for 58 page Elevator Planning Book.

THE SHEPARD ELEVATOR CO.  
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Cincinnati 14, Ohio

# ELEVATORS





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is **ALLEGHENY METAL**

PROFIT BY THE BRIGHT LASTING  
BEAUTY OF STAINLESS STEEL

Write for your copy of  
"Allegheny Metal in the  
Food Processing Industry."

ADDRESS DEPT. AF-4



No other metal answers the demands of domestic or commercial kitchen service so perfectly as stainless steel.

That's because no other metal possesses stainless steel's combination of qualities to the same degree: its great strength, high resistance to heat, wear and corrosion, long-lasting beauty and easy sanitation. Modern kitchen ranges shine with Allegheny Metal—and everything else in the kitchen, too: work surfaces and cabinets, refrigerator trays and trim, sinks and utensils.

Both to the fabricator and user of kitchen equipment, the name "Allegheny Metal" means the pioneer stainless steel—backed by years of known quality and dependable uniformity. • Specify it for best results.

**ALLEGHENY**  
**ALUDLUM**  
STEEL CORPORATION  
Pittsburgh, Pa.

*Nation's Leading Producer  
of Stainless Steels  
in All Forms*



W&D 2727

ALLEGHENY METAL is stocked by all  
Joseph T. Ryerson & Son, Inc. warehouses





**AIR CONDITIONING.** Anemostat Draftless Aspiring Air Diffusers. Anemostat Corp. of America. 10 E. 39th St., New York 16, N. Y. 68 pp. 8½ x 11 in.

Good photographs and clear tables make this air diffuser selection manual a useful reference. Citing typical case examples, the book tells how to calculate required air volume and explains the technique of locating diffusers and determining number of units needed. A selection chart gives complete descriptive and recommended applica-

tion data for 13 Anemostat diffuser types, together with information on rate of air changes per hour. Details on the various diffusers such as capacity and neck velocities, radii of diffusion, static pressures and dimensions are covered in the manual as well as accessories, volume control, specifications and prices. Cutaway photos show how the diffusers are attached to ducts.

**AIR CONDITIONING.** GE Packaged Air Conditioners. General Electric Co., Air Conditioning Dept., Bloomfield, N. J. PM 79-0101, 4 pp.; PM 79-0201, 4 pp.; PM 79-0301, 4 pp.; PM 79-0401, 8 pp. 8½ x 11 in.

Factory-assembled air conditioners that are easily installed for a wide variety of uses are described in these four two-color bulletins. The first gives specifications, dimensions and ratings for a 2 HP conditioner, the FD-20D. This unit is said to operate economically in small applications (such as homes, offices and small stores) because the high volumetric efficiency of the condensing unit and high heat transfer rate of the cooling coil keep power and water costs down. Packaged at the plant complete with built-in thermostat, the FD-20D takes less than 4½ sq. ft. of floor space.

A 3 HP unit, the FD-30D, is described in the second bulletin. Styled for use in stores, restaurants, hotels, laboratories, etc., this model has simple unobtrusive lines. It can be adapted to provide winter air conditioning by the addition of a heating coil. The third brochure describes a 5 HP unit, Type FD-50D, designed for commercial applications requiring higher capacity.

Details on large capacity packaged conditioners, the 7½ HP Type FD-75D and the 10 HP Type FD-100D, are contained in the fourth booklet. Furnished with or without water cooled condensers these units have convenient connections for power, water and drain lines. They are designed for vertical air discharge but the fan section may be converted in the field for horizontal if desired. These, too, can be utilized for winter heating by addition of a steam or hot water coil.

**VENTILATION.** Emerson-Electric Fans for 1950 (X6549), Price Lists (X6443, X6446). The Emerson Electric Mfg. Co., St. Louis 21, Mo. 34 pp. 8½ x 11 in.

Published in observance of the firm's 60th anniversary, the catalogue gives design specifications and performance data on various types of desk and stand fans, air circulators, ceiling fans, kitchen ventilators, attic and window fans.

**SCREENING.** Kaiser Aluminum Shade Screening. Permanente Products Co., Aluminum Div. 1924 Broadway, Oakland 12, Calif. 16 pp. 8½ x 11 in.

The booklet utilizes charts to illustrate how this type of screening blocks solar radiation under maximum heat conditions by barring passage of the sun's rays at its higher altitudes. Also included are results computed from transmission tests comparing shade screening with regular insect screen.

(Continued on page 294)

## ROMANY TILES

ARE REAL TILES

### NOTHING BUT Real Clay Tile

No hospital, no school, no public institution of any kind, can afford to be without the sanitary advantages of ROMANY Real Clay Tile. Hard glazed for long life and easiest cleaning. Many attractive colors. Simple to install. There's an interesting set of miniature tile samples for your file if you will

Write for Sample Chart No. 6

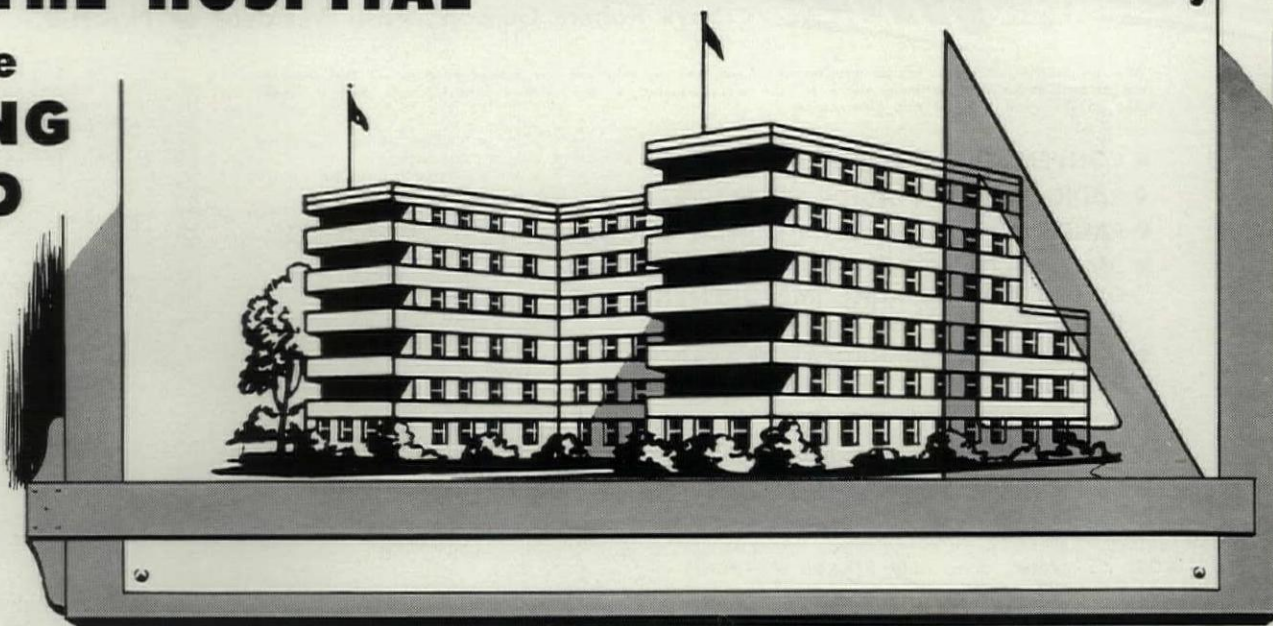
## UNITED STATES QUARRY TILE CO

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is on the  
**DRAWING  
BOARD**



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As in the case of other functional requirements, such as plumbing and wiring, provision can best be made in the early stages of design. Our engineers are freely available for consultation and to provide you with data based on prior hospital construction and operation experience. Such material is often valuable in implementing your own staff for preliminary discussions with hospital boards.



GROVER Transitubes are the perfect messenger for the modern hospital. Swift (40 feet a second) transmission in complete privacy is assured for case records, prescriptions, receipts,

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GROVER engineering counsel is at your service any time and literature covering hospital installations is yours for the asking. You will find GROVER equipment data equally valuable in your planning of industrial and commercial construction.

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## **THE GROVER COMPANY**

**Detroit 19, Michigan • Offices in Principal Cities**



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## Built In Radios Sell Homes

Says Robert Gerholz, Past President of N.A.H.B.

"We use built-in radios to please prospective clients and to help sell our houses because we feel that the conventional radio has no more place on the work benches of our ultra-modern kitchens than it would have on the front seat of our automobiles."

- CONVENIENT TO OPERATE.
- RADIO IS 5-TUBE AC-DC.
- PANELS TO MATCH COLOR SCHEME OF ROOM.
- WALL BECOMES PART OF SPEAKER-BAFFLE, GIVING CONSIDERABLE IMPROVEMENT IN TONE.
- FOR KITCHEN, BATHROOM, PLAYROOM, BEDROOM, ETC.
- FOR ARCHITECTS TO SPECIFY IN NEW HOMES.
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LOW COST . . . retail price only \$34.95 plus installation

Special Trade Net Prices on Request

Panels Extra: Plain Masonite \$2.45 . . . Plastic Colors \$4.45

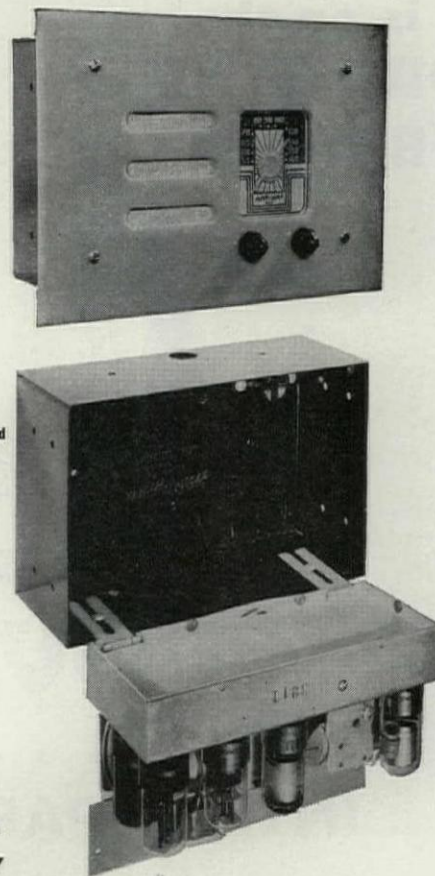
Your electrician will install FLUSH WALL for the same cost as a Regular Outlet!

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- Patented adjustable slotted hinges attached.
- Steel box with single receptacle 1/2" K.O. Furnished.
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- Licensed by R.C.A. & Hazeltine.
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Royal Blue Emerald Green  
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- Panel size 7-13/16" x 11-7/16".



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guarantee bonded by



**Crown**  
METAL WALL TILE



More and more architects and builders realize the inconsistency of using ordinary wall tile when Crown Steel Wall Tile serves the purpose more attractively, more durably, more economically.

Crown Tile's quality is evidenced by its exclusive bonded guarantee. It will not rust, chip, crack, craze, or peel. Its original cost is much less than that of any tile of comparable quality . . . its long-lasting attractiveness and durability mean further economies. Because of its light weight, Crown Tile does not require heavy, expensive substructures. Crown Tile's rainbow color range and stainless steel finishes are attractively adaptable to any commercial or residential application.

Investigate Crown Tile for yourself. You'll soon see why it is the successor to, not a substitute for, ordinary tile.

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# KENTILE



One of the 100 New Low-Cost homes with Kentile throughout. Built by Gordon Bronson, C. E. in New Brunswick, New Jersey. Kentile installed by Tucker Linoleum Co., Newark, N. J.

## Helped Cut Costs of Ranchero Villa!

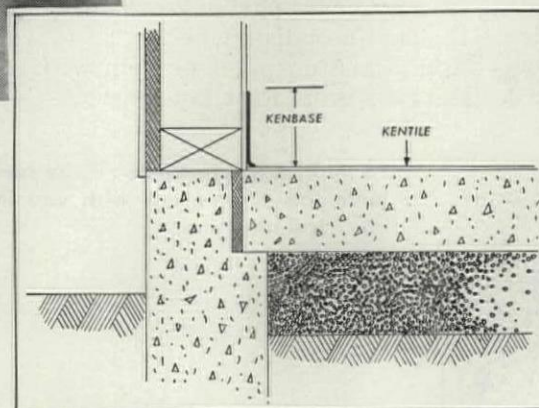


### *Beautiful low-cost flooring*

used throughout this model home is KENTILE. Chosen for its quality, durability and low cost—Kentile offers small-home builders unlimited design possibilities plus every advantage that helps make new homes more saleable on today's competitive market. Ideal for use in every room, from the living room to bath and kitchen... Kentile provides the perfect flooring for economy-minded architects, builders, and contractors.

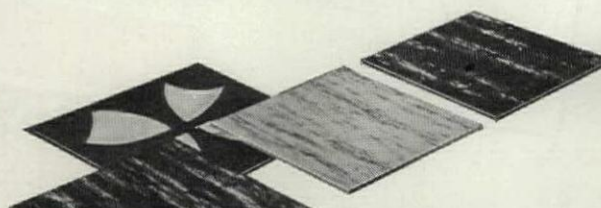
### Specify Kentile for "On Grade" Installations

As the diagram shows, Kentile can be installed on concrete in direct contact with the earth... another saving feature for builders of the popular non-basement homes. All fillers, binders and pigments used in Kentile have high resistance to alkali in concrete. And, Kentile's asbestos filler helps insulate against the cold and dampness of concrete floors. Kentile is highly recommended for radiant-heated floors, too. It can also be installed over double T&G wood floors, or over plywood.



### Specify Kentile for Quick, Cost-Cutting Installation...

Because Kentile is laid tile by tile, it can be installed faster and with less labor cost. Construction work is not held up as it can be walked on as soon as it is laid. Kentile "seats" well, will not curl from moisture or dampness.



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The Asphalt Tile of Enduring Beauty

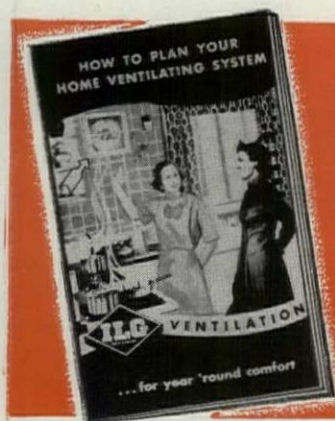


DAVID E. KENNEDY, INC., 58 Second Avenue, Brooklyn 15, N. Y.

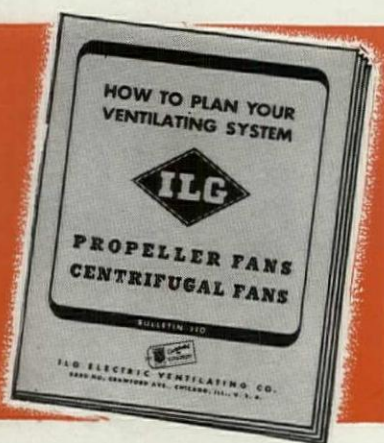
RESILIENT FLOORING FOR OVER FIFTY YEARS... KENTILE • RUBBER TILE • KENCORK



Any ventilating system is easier to plan with these . . .



**FREE**  
**Graybar**  
**HELPS**



#### FOR HOMES

This 16-page booklet will give you useful information about planning home ventilating systems.

Typical subjects covered are: How to select the correct type and size of electric ventilator . . . Specifications and dimensions of "built-in" ILG ventilators for pull chain or fully automatic operation . . . Ventilators available for window frame or thin wall installation . . . Suggestions on location.

#### FOR COMMERCIAL BUILDINGS

Here's another really helpful booklet on ventilation prepared by the ILG Company.

This booklet is crammed with ventilating information and diagrams. Described in detail are such subjects as: how to figure air change requirements for buildings; how to specify the correct-size fan; how proper ventilation can increase employee productivity; and hundreds of other important ventilating facts.

*Be sure to get your copies of these two helpful booklets—they're ready now. Just fill-in and mail the coupon. You'll get two valuable additions for your planning file.*

### Can this Graybar service be of help to you?

If you would like some help in determining the best ventilating system to meet particular conditions call our nearest office. Graybar Specialists will be glad to work with you in surveying an existing plant or help with suggestions for the design of a system for a new one.

**To make sure it's Right . . . be sure to have this team work with you in your electrical planning.**



Your Electrical  
Contractor and . . .



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## TECHNICAL LITERATURE

**WINDOWS.** Auto-Lok Awning Windows. Ludman Corp. 21 N. W. 21st St., Miami, Fla. 13 pp. 8½ x 11 in.

Several data sheets with detail drawings of Ludman's awning windows are contained in this file folder. A brochure, also enclosed, describes the automatic locking hardware and construction which seals the windows "like a refrigerator" against climatic conditions. These Auto-Lok windows are designed to allow some ventilation through the bottom opening during cold weather without the usual accompanying draft from the upper vents.

**PARTITIONS.** Movable Metal Walls, Catalogue No. 50. The Mills Co., 975 Wayside Rd., Cleveland 10, Ohio. 48 pp. 8½ x 11 in.

This is a practical reference for architects and contractors who deal with problems of flexible interior space in commercial and industrial buildings. As an introduction, general features of movable walls are discussed, such as structural stability, adaptability to changing space needs, and sound control. Particular advantages claimed for Mills partitions are: all welded panel construction; baked enamel finish treated to eliminate harsh light reflection; provision for easy lay-in wiring and construction details which facilitate erection, dismantling and moving. The catalogue also contains specifications and detail drawings. Various kinds of Mills movable walls and accessories are each treated in separate sections.

**ELEVATORS.** Freight Elevators. Elevator Div., Westinghouse Electric Corp., Jersey City, N. J. 44 pp. 8½ x 11 in.

Integrating freight elevators with the materials handling problem is one of the many phases of elevator selection treated in this buyer's guide. Ten sections, some of which are illustrated with case examples, explain basic considerations involved in choosing the proper freight elevators for the job. The publication covers types of control systems, budget price information, layouts; and tells how to determine required lifting capacity, size and method of door operation. Typical and special installations, application examples are also presented.

**ELECTRIC HEATERS.** Electromode Room Heaters. No. EC-63. Electromode Unit Heaters. No. EC-62. Electromode Corp., 45 Crouch St., Rochester 3, N. Y., 4 pp. 8 pp. 8½ x 11 in.

The first of these two catalogues contains descriptions, specifications, photographs and consumer prices of the manufacturer's domestic electric heaters—automatic and manually operated portable and wall models. The second offers details on units for commercial and industrial use. Both give helpful suggestions on heating by electricity and explain pictorially the simple steps for installing the built-in units and for mounting suspension models. Features of the Electromode heaters noted are their lifetime heating element, safe and economical operation and efficiency.

(Continued on page 298)





● These unusual apartments, built by the Chas. A. Eliot Const. Co., ranging in size from one to three bedrooms, have electrical conveniences as a uniform feature. An outdoor swimming pool on the upper terrace is another attraction. There are 25 units, in four separate buildings laid out in a U-shaped pattern.

● The kitchens are unusually large, and each has a modern, automatic Electric Range. This is in keeping with modern design and planning, which includes all equipment for better living and—OF COURSE . . . IT'S *ELECTRIC!*

# T R T tempts Reliable Tenants



"The **Electric Range** helps to attract reliable tenants—is good economy for owners and operators, too,"

says **Mr. E. L. Butcher of Los Angeles.**

Westwood Terrace in suburban Westwood, Cal., is outstanding in more than appearance alone. "We believe," says Mr. Butcher, "that healthy, happy people usually make good tenants, so we attract that kind of people by equipping our apartments with all possible electrical conveniences—including modern, automatic Electric Ranges."

This trend to electric cooking is nationwide—in apartments as well as in individual homes. It points the way to what you can do to make *your* apartment buildings rent faster and stay rented longer.

*EQUIP*  
YOUR HOUSES WITH  
**ELECTRIC**  
**RANGES**



#### ELECTRIC RANGE SECTION

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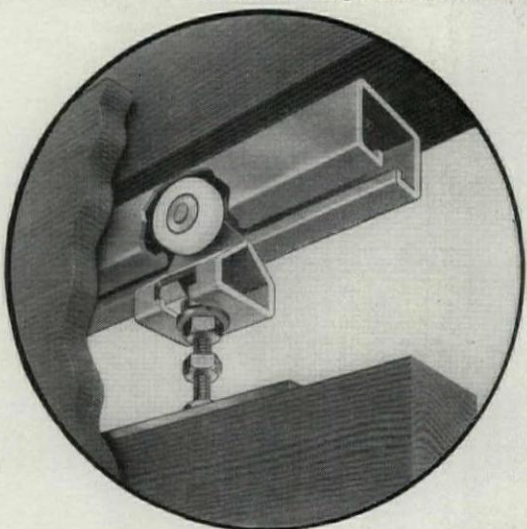
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AFTER YEARS OF RESEARCH . . .

# GRANT'S *Silent* SLIDING DOOR HARDWARE

We proudly announce the all-new GRANT No. 16 and GRANT No. 17 Sliding Door Hangers.

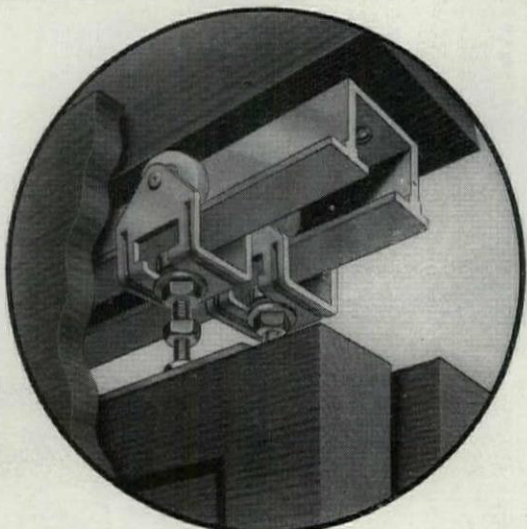
The intensive engineering program behind this development has been a long and arduous one directed at the elimination of known weaknesses of light-duty Sliding Door Hardware of the past, and the invention of several advancements in design and performance.



GRANT  
No. 16  
HANGER

After a 50,000 cycle test run, Ball Bearing Rollers with Nylon outer races were introduced for preventing metal to metal contact, hence the quiet and smooth operation of these new Grant Hangers . . .

"... most efficient light duty hangers we have ever constructed"



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HANGER

The new No. 1600 Sliding Door Hanger Series have incorporated the Silent Nylon Rollers (proven to be as long lasting as metal and just as dependable). Too, this Center-Hung type Hanger provides for vertical and horizontal adjustments of the door. The No. 16 and No. 17 Hangers cannot bind or 'jump' the track.

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Grant's all-new Sliding Door Hardware is a valuable contribution to the modern 'Home of Comfort', permitting the application of high quality Sliding Door Hardware in the low-cost housing field.

Send to Department F4 for complete information on these all-new 'Silent Sliding' Door Hangers.



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Woodside, N. Y.

Three adjustments • Tough under stress • For multiple doors • For all door sizes

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# JOHNSON *Oil* BURNER

Famous for  
high efficiency  
since 1903

FOR EVERY HEATING NEED!



PRIVATE  
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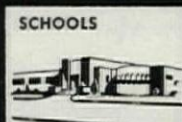
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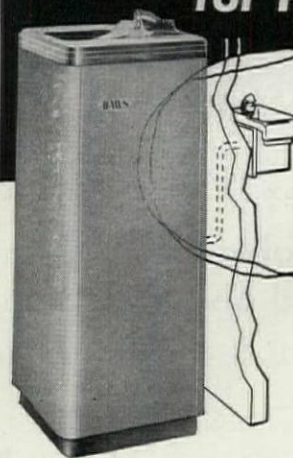
For Steam, Hot Water, Hot Air Systems. Engineered and built to produce a maximum of usable heat from minimum fuel consumption, Johnson Oil Burners are known and respected the world over. There's a Johnson Burner dealer near you.



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• A COMPLETE LINE of coolers, fountains, faucets, equipment, filters and accessories. • A reputation for reliability since 1909. • Check in Sweets, or write for complete HAWS catalog.

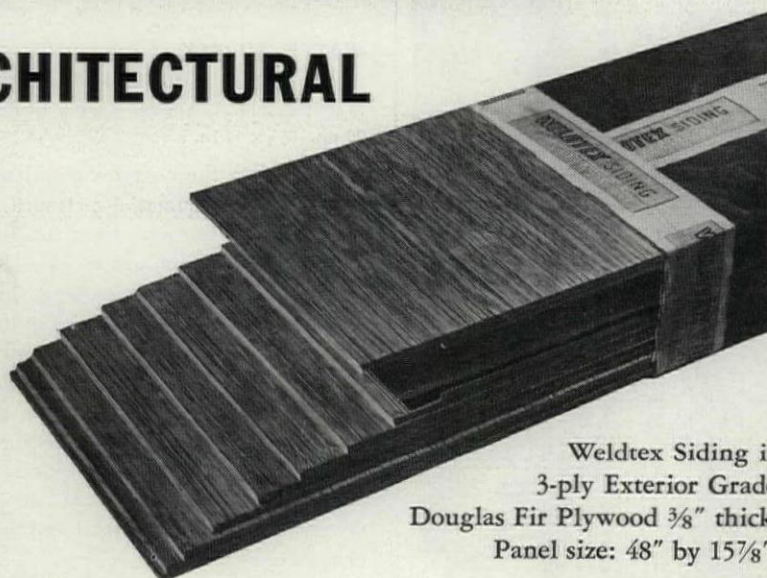
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# A DISTINCTIVE, NEW SIDING MATERIAL FOR LOW-COST ARCHITECTURAL EXPRESSION

## THIS NEW VERSION OF WELDTEX\* PLYWOOD IS FINDING FAVOR WITH ARCHITECTS



Weldtex Siding is  
3-ply Exterior Grade  
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Panel size: 48" by 15 $\frac{7}{8}$ ".

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The deep striations give you all the beauty of the finest cedar shakes...plus a smooth, trim, modern line that gives beauty to your designs. In *one* material, you combine all the good points of shingles and clapboard...and minimize the problems.

And look at the structural advantages.

Only 22 pieces cover a square. You get a 13 $\frac{7}{8}$ " exposure and only a 2" lap. You have a minimum of seams, and those easily backed up.

With a combination like that, you can see why architects who have used it are enthusiastic about Weldtex Siding.

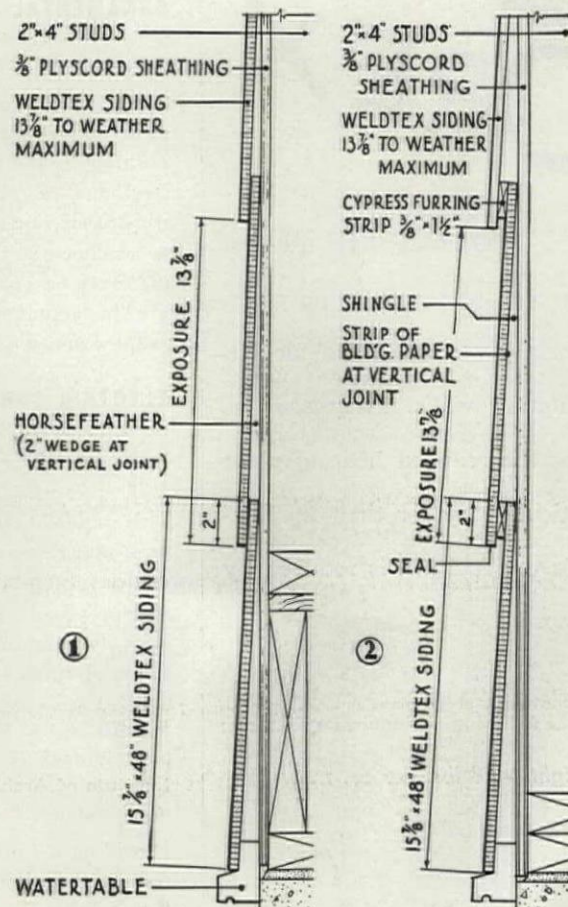
Fast application saves substantially in labor costs. Short laps and long exposure cut material requirements far below those of shingles. The easy, effective back-up for the few seams makes weather-proofing simple and certain.

Weldtex Siding is approved by F.H.A. on Federal Housing jobs.

Get complete information on this new siding material. It speeds, simplifies and improves construction... and adds beauty to any home. Write us today. We'll rush you full details.

\*U.S. PAT. NOS. 2,286,068, 2,363,927, 2,363,492. TRADE MARK REG.

*Detail 1 shows normal installation of Weldtex Siding. Detail 2 shows how simply and easily you can fair out the butt of the board to create a deeper shadow line, when desired.*



## WELDWOOD Plywood

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## TECHNICAL LITERATURE

**WATER SUPPLY.** Hydro-Pneumatic Pressure Systems. Bulletin B-579. Peerless Pump Div., Food Machinery & Chemical Corp., Los Angeles, Calif. 30 pp. 8 1/2 x 11 in.

As an aid to the complex problem of designing large hydro-pneumatic pressure systems, the manufacturer has correlated information on how to select proper equipment. The book is a thorough study of the interrelationships of components of such systems. Defined in the first chapter are design considerations and purposes of shallow well, deep well, booster, cushion tank and combination type systems. The second section deals with calculating water requirements, pump and tank capacities, and pressures. Various parts and auxiliary equipment of the water supply systems are discussed in detail in the last two chapters.

**ORNAMENTAL METAL WORK.** Catalogue No. 6. Julius Blum & Co., Inc. 532-540 W. 22d St., New York 11, N. Y. 112 pp. 8 1/2 x 11 in.

Spiral bound and divided into seven sections for easy reference, this new catalogue covers diverse building items fabricated in aluminum, bronze, steel and cast iron. Stock parts described and illustrated range from door knobs and treillage to ornamental rivets. Many detail drawings in the sections on moldings, tubing and hardware are in actual size. Other sections deal with saddles and nosings, moldings and railings.

**ELECTRIC CABLE.** Selection of Proper Cable Sizes (19-269). General Electric Co., Construction Materials Dept., Bridgeport, Conn. 9 pp. 8 1/2 x 11 in.

This publication deals with the method of determining sizes of asbestos-varnished cambric cables. Step-by-step instruction is given for figuring load current, voltage drop and cable sizes for lighting and motor loads. A set of tables simplifies these computations.

**FILING.** A.I.A. Standard Filing System and Alphabetical Index (Document No. 172). The American Institute of Architects, 1741 New York Ave., N.W., Washington 6, D. C. 63 pp. 8 1/2 x 11 in. \$2.

Providing a convenient logical method for architects and builders to file literature, the A.I.A. Filing System is becoming more valuable as an increasing number of producers and their advertising agencies pre-mark technical and promotional publications. Several notable additions to the breakdown of building materials and equipment in the 1950 edition are in themselves commentary on construction trends. *Lightweight Aggregate* now has a separate classification under "Masonry," as does *Lightweight Concrete Construction* under "Reinforced Concrete." Other interesting new listings are *Plastic Coatings*, *Glass Door Assemblies*, *Color Psychology* and the subdivisions under *Prefabricated Buildings and Materials Used in Combination*. The expanded index should be responsive to almost every current requirement for filing construction data.

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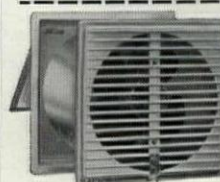
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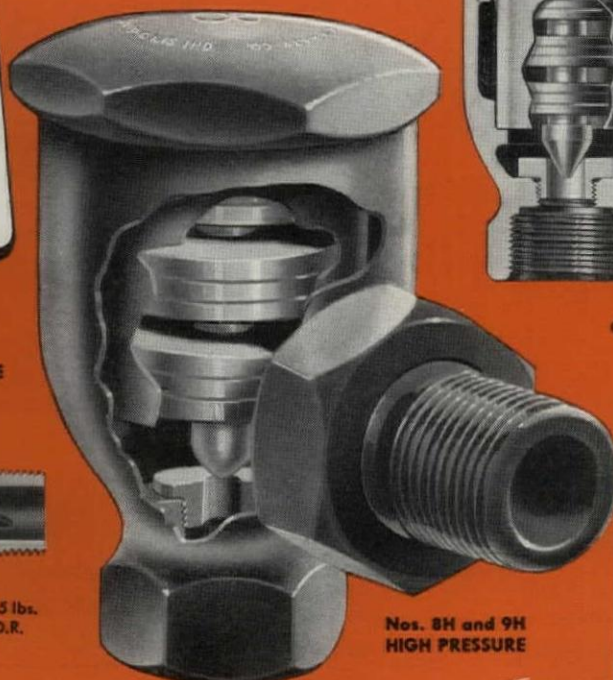
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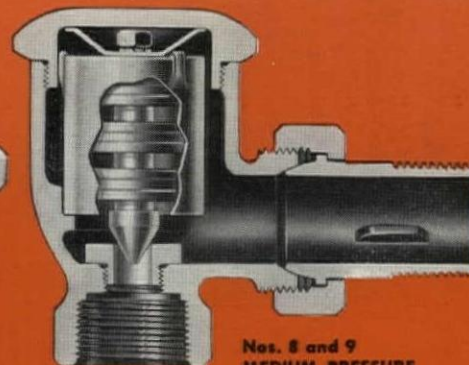
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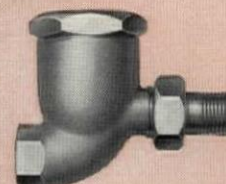
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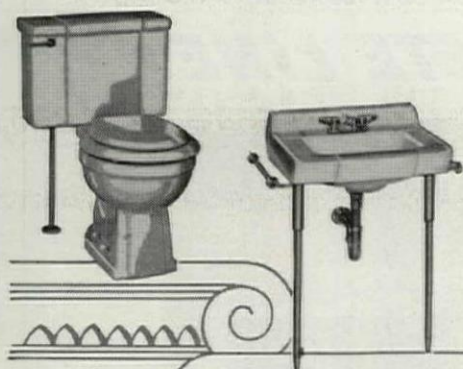
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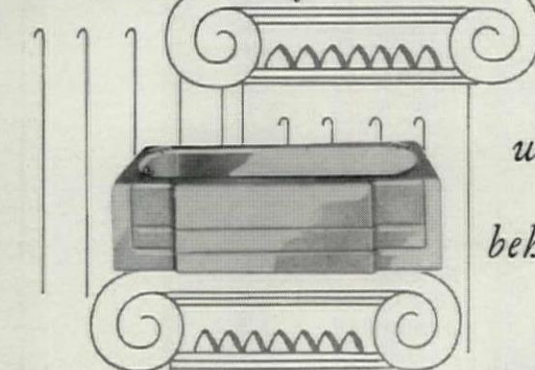
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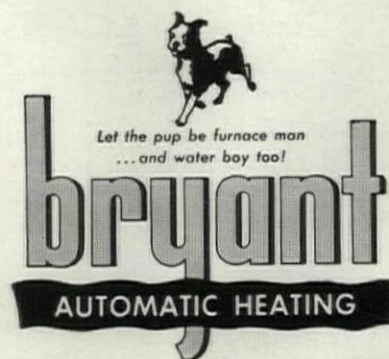
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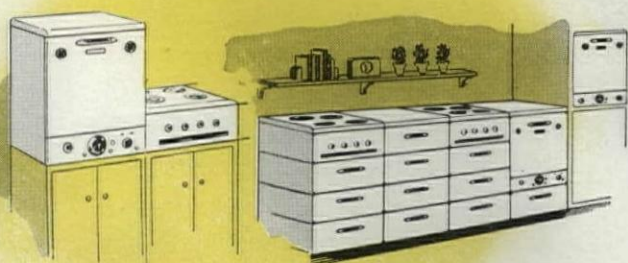
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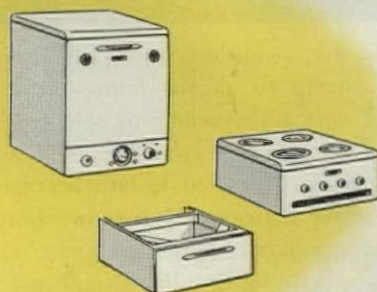
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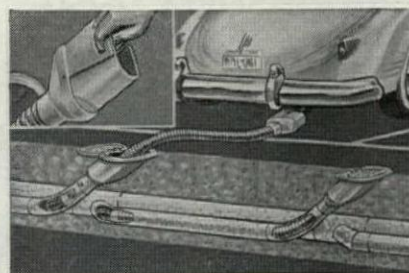
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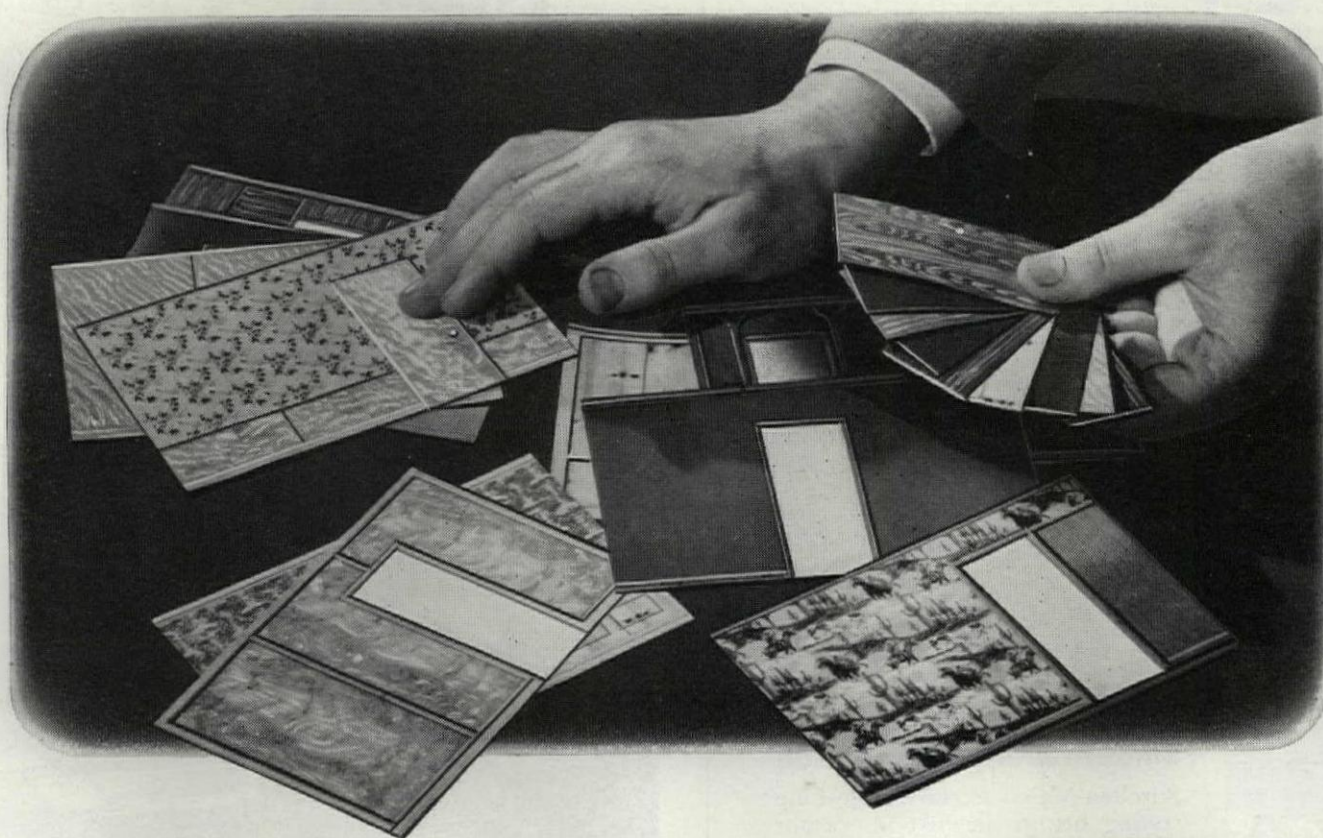
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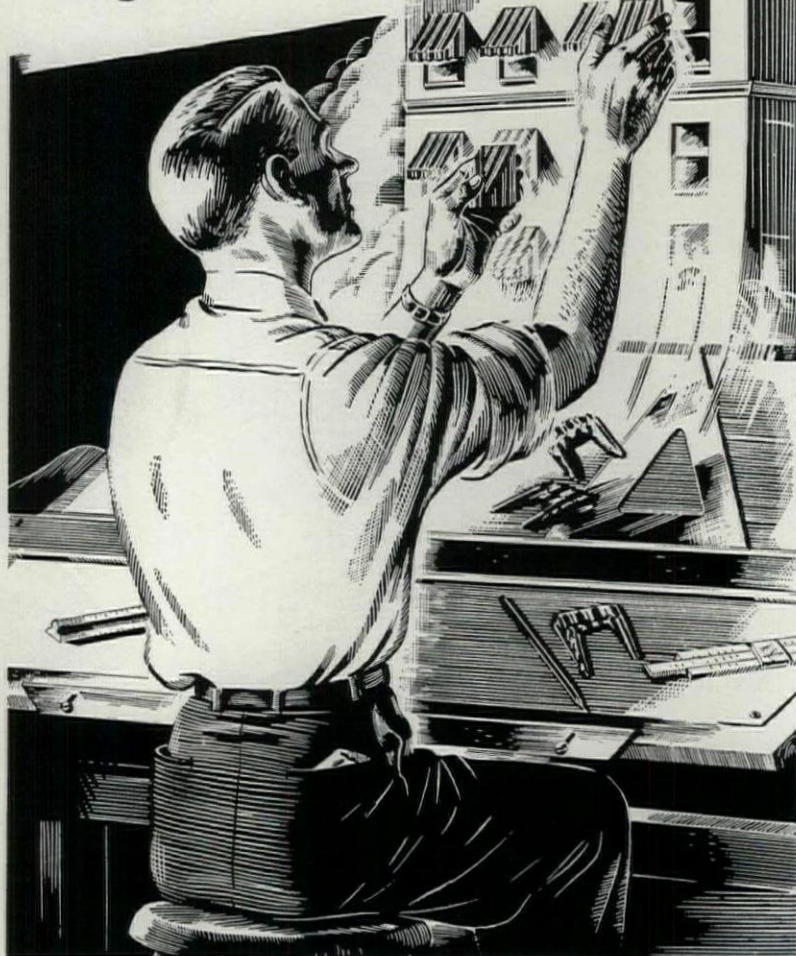
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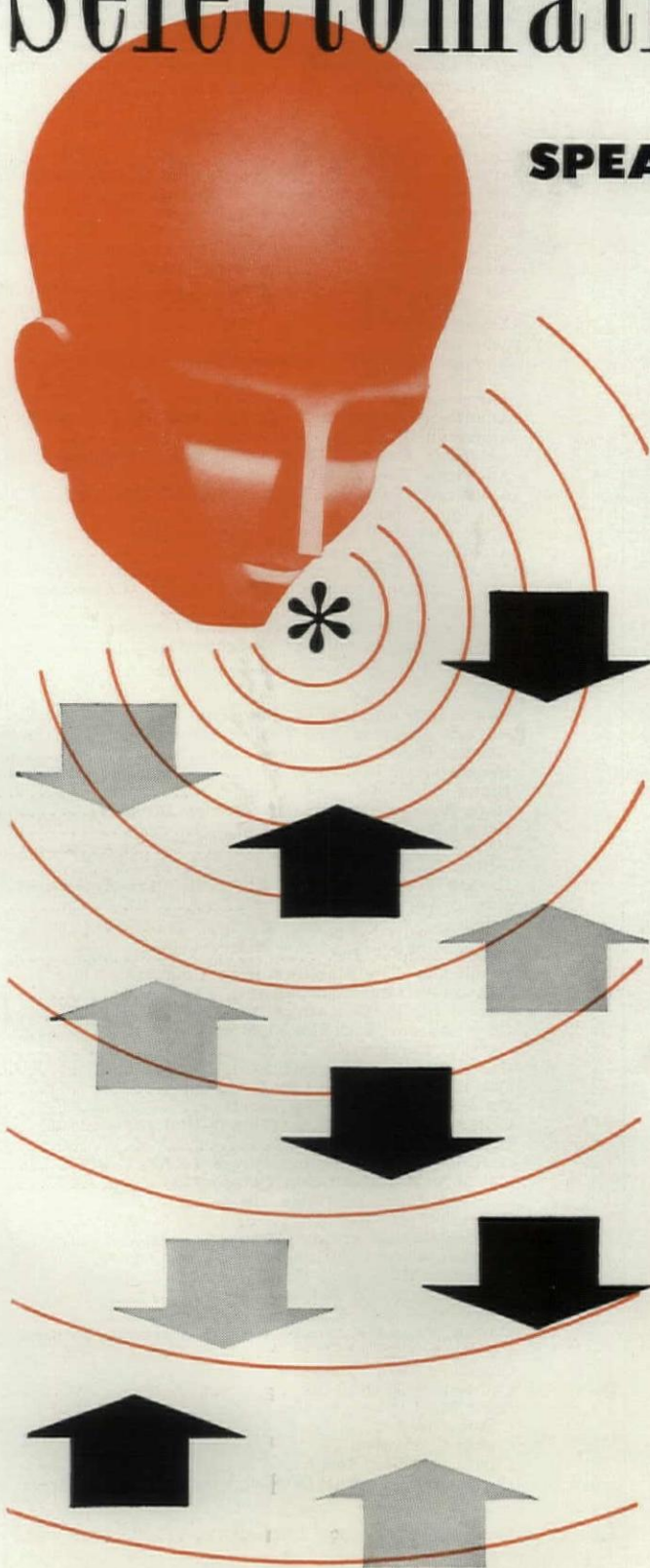
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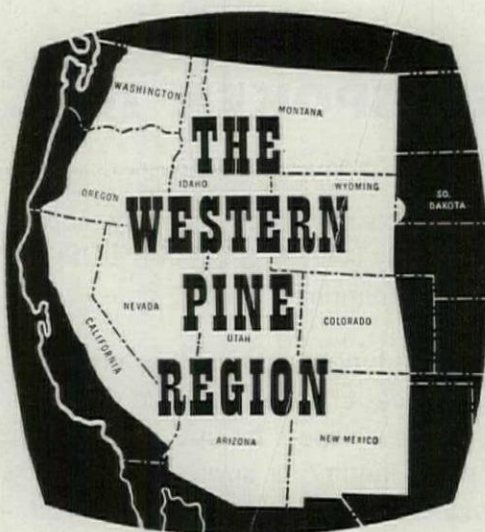
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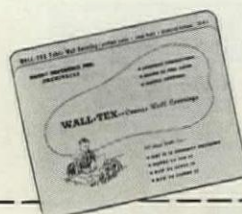
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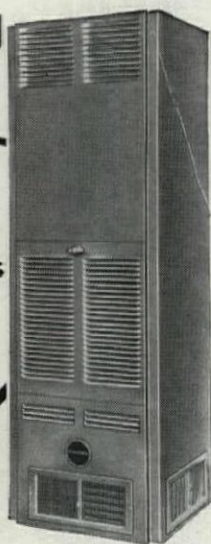


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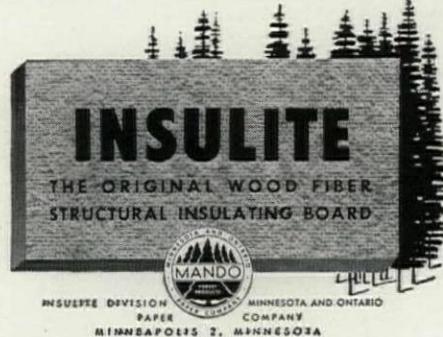


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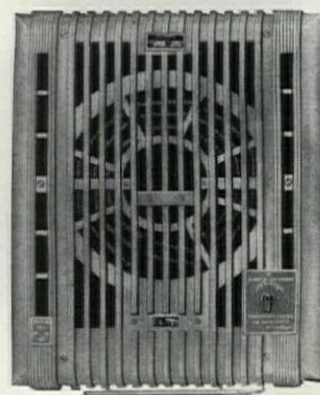
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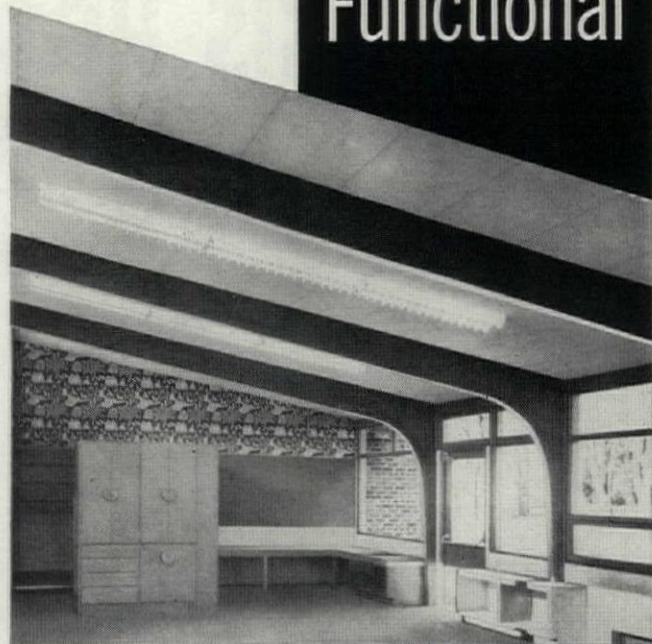
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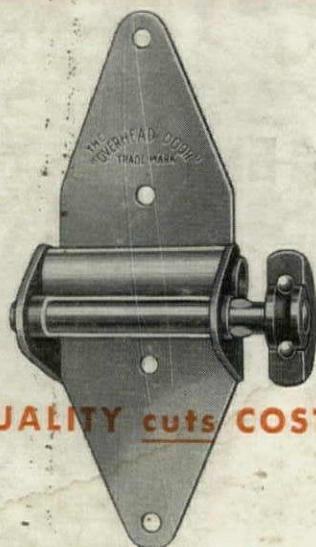
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