

July 1952

house+home

edition

CHAS. W. CONNELLY
ARCHITECT & ENGINEER
CHARLOTTE, N. C.

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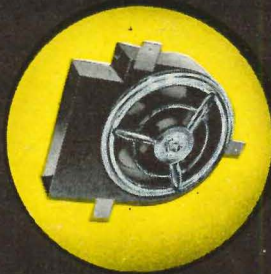
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Cover: House by Hugo Neuhaus, architect; photo by Ulric Meisel

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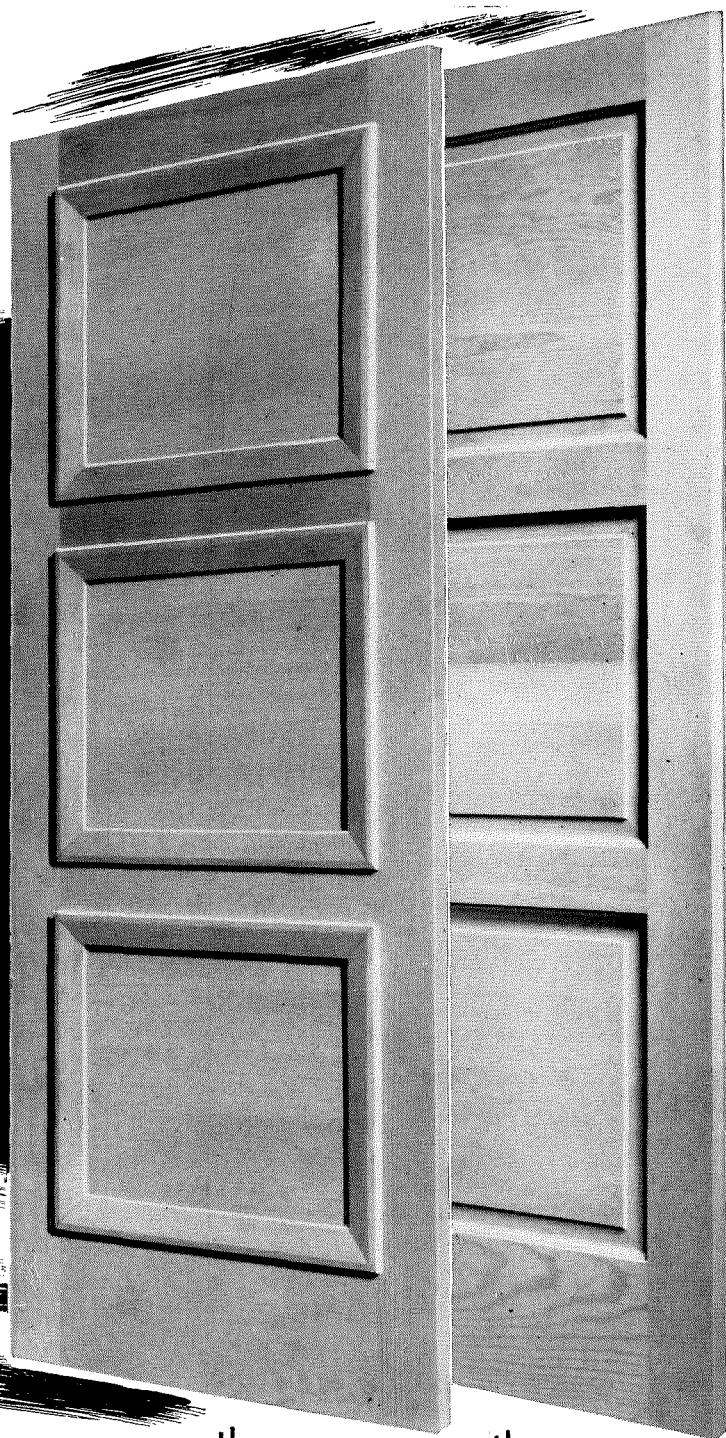


BILT WELL WOOD WORK

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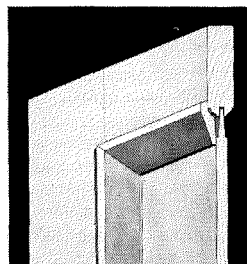
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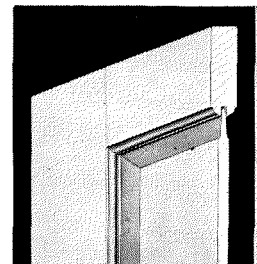


the Hacienda

the Rancho



Mitered and packaged moulding is available to convert the "Rancho" door to the "Hacienda" door. The moulding is simple to apply around the panels—either on one or both sides of the door.



A close-up view of the new "Rancho" door (showing top rail and stile, beveled and raised). Heavy (3/8" thick) solid panels cast a shadow and accentuate the beautiful contour of the door.

35% rise in building seen by 1975; US report flays waste by industry

The year's most comprehensive mouthful about the US building industry and its future was said last month by the President's Materials Policy Commission in its monumental, 813-page report on the nation's resources outlook for the next quarter century. The commission forecast:

▶ By the 1970's, the annual physical volume of construction may well soar 39% above the 1950 level to reach a whopping \$34½ billion (*see graphs*). Reason: US population will probably rise 25% and the national output of goods and services, advancing its historic rate of 3% a year, should double.

▶ The job ahead from now until 1975 calls for "large increases over the rate of construction from 1926-50" for every category of the industry. *Homebuilding would have to maintain an average rate of 1,400,000 units a year!* The industry would be called upon to produce 35 million homes, 7.4 billion sq. ft. of factory space, 4.2 billion sq. ft. of commercial warehouse, office and store floor space, schools with 20 million desks and hospitals with 1.4 million beds.

▶ This zooming national appetite for building will mean that construction—already the "largest user of materials in the US economy"—will gobble up one-third more materials in 1975 than in 1950. Therefore, unless the industry mends its wasteful ways, turns from relatively "scarce" materials like copper, lead, zinc and lumber to more plentiful substitutes like aluminum, plastics, glass, asphalt, gypsum and concrete, it will add importantly and needlessly to US raw materials problems. The commission noted that US industry outgrew its resources base during World War II, thus pushing the nation over the divide to a net importer of raw materials.

FHA as antiwaste club? To batter down roadblocks to waste-and-cost-cutting economy of raw materials, the commission made these specific recommendations—most of them controversial enough to promise loud debate in the construction industry for months or years to come. The recommendations:

▶ The Department of Justice and Federal Trade Commission should step up efforts to enforce antitrust laws against building and building materials industries. (A quarter of the nation's antitrust suits so far, the materials commission noted, have involved the building industry.)

▶ A single federal building code should be created based on performance standards. It should be mandatory for all federal construction, including public housing built with federal aid.

▶ FHA and VA should adopt these "national construction standards" as their minimum requirements, and "should not grant mortgage insurance for housing constructed in areas which have building codes and zoning laws which do not permit use of alternative materials permitted by the national standards."

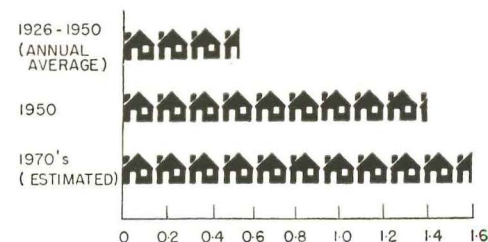
▶ Congress should give HHFA more money for housing research (the noncontroversial recommendation). HHFA should apply the lessons learned in public housing and slum clearance programs. A nongovernmental agency like BRAB should coordinate and give wide distribution to research findings.

In an election year, immediate adoption of the recommendations was unthinkable, but some of them might show up in political party platforms. In that case, they *might* be translated into action next year. At the least, the presidential report would form the backdrop for government-industry disputes or agreements for years to come. Its overall implications carried a clear warning to construction men: either weed your own garden of costly and wasteful featherbedding, trade restraints, archaic codes and uncoordinated research or the people will demand that the government do it for you by force.

For details of the commission's findings, turn the page.

THE NEXT 25 YEARS: HOMEBUILDING RATE SHOULD RISE

IN MILLIONS OF HOUSING UNITS



Source: President's Materials Policy Commission

Although the housing industry has come to regard 1950's record production of 1.4 million homes as a high-water mark, presidential commission estimated housing would be going up at a 1.6 million a year clip by the 1970's. It also expected a big rise in commercial and industrial building.

TOTAL PRODUCTION SHOULD DOUBLE

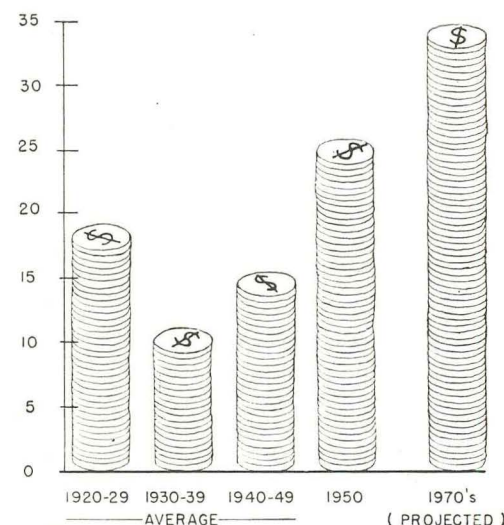


Source: President's Materials Policy Commission

Demand for homes may well require the US housing industry to more than double its performance of the last 25 years during the coming quarter century, the commission predicted. It also foresaw larger homes "if real incomes rise," suggested that by the 1970's the average value of new houses may jump from \$8,500 to \$9,500 in terms of today's dollars.

BUILDING VOLUME GAINS DUE

IN BILLIONS OF DOLLARS



Source: President's Materials Policy Commission

On its assumption that the overall US economy will continue to grow, presidential commission projected \$34.5 billion construction volume for 1970's (excluding engineering structures as roads, dams, docks).

Gov't urged to lead in cutting building waste; FHA asked to stop 'fortifying' waste in codes

Bulk of the Materials Policy Commission's chapter on construction dwelt on its fabulous waste of materials, echoed much of the results of THE MAGAZINE OF BUILDING'S round tables on waste in construction (Sept. '50 and March '51 issues). "Nowhere," mourned the commission, "are technological opportunities and barriers to their attainment better illustrated than in the building industry. . . . Many innovations have been thoroughly tested. They work; yet have been put to relatively little use."

How to save. Specifically, the commission declared that "economically feasible" changes already in sight could by 1975 cut construction's demand for copper and lumber in half, cut its use of lead by a fourth, use of zinc by a fifth. Said the report: "Iron and steel (for example) may replace lumber for some uses (house frames) and may in turn be replaced by plastics in other instances (bathtubs, sinks). Or an unnecessary use of a scarce material may be eliminated altogether through changes in design: for example, wider eaves remove the need for gutters and downspouts, often made of scarce copper. . . . Where brick and lumber walls are now common we can expect greater expanses of glass, aluminum and gypsum products by 1975.

"Plumbing, heating and air conditioning in 1975 would take vast quantities of scarce metals if 1950 patterns of use are continued. But . . . plastic pipes . . . are already becoming competitive with copper, lead, brass, iron and steel pipe. More efficient designs and less stringent codes would reduce cast-iron pipe requirements by another 20%,

and allow replacing cast-iron in bathtubs, sinks and toilets with plastic. . . .

"In electrical systems aluminum can substantially replace copper wire by 1975 if habit and unnecessary local code restrictions are overcome. Codes and custom often require needlessly heavy galvanized steel conduits for wiring. Hundreds of thousands of tons of steel and zinc could be saved through use of lighter conduits or plastics and with no sacrifice of safety standards. . . . Titanium oxide can, even more than in the past, replace lead and zinc in paint."

Trade restraints. Technology has so far outstripped acceptance of new waste-cutting building techniques that the commission declared the "great challenge to public and private policy" lies in demolishing the "man-made obstacles to changing use of materials." The commission blamed the building industry itself for perpetuating many of the roadblocks for selfish ends. The commission commented on these:

Nature of the Building Industry—The "small, inefficient builder," craft union labor and the "burden of financial control and supervision" borne by construction are the three biggest obstacles to cheap, efficient building. The "large proportion of small, inefficient builders"—especially in homebuilding—are helpless victims of "violent fluctuations of demand, restrictions imposed by lenders, and a notoriously costly distribution system" in which "distributors often attempt to protect their market by combinations to boycott producers who attempt to circumvent the distributors and deal directly with the builder." Thus they

cannot afford to introduce new ideas and methods. Fortunately, the number of larger building firms is growing. But the industry needs more mergers.

Craft union organization of building labor has caused jurisdictional strikes, featherbedding and "keep out" policies for prospective craftsmen. On lenders: "No other important group in our economy bears the burden of financial control and supervision that is imposed on the building industry. Housing must meet the mortgagee's standards, usually requiring conservatism in design and materials."

Restraints of Trade—Despite the fact that a quarter of the government's antitrust suits have been aimed at the building industry, "restraints of trade . . . continue. Combinations of distributors bar the use of competitive materials. Agreements among subcontractors in bidding reduce competition. Patent and license agreements are used to control prices and prevent competition. All these practices are vastly expensive to the public. Moreover, they often take place with the concurrence of labor and are abetted by local codes and licensing provisions which [stifle] competition."

Building Codes—Under the guise of protecting health, welfare and safety, local building codes "have often become devices for protecting select groups in and out of the building industry at the expense of the general public." The wide variety of standards in the nation's 2,200 local codes wrecks chances for manufacturing economies and inhibits research because the very diversity of standards creates a legal barrier to the market. The solution: uniform codes based on performance standards instead of rigid specifications of materials. But the "discretion necessary for enlightened administration of performance-type codes also permits serious abuse."

Inadequacy of Research—"The disorganization, low capitalization, localism and conservatism which plague the building industry have discouraged research" by private groups. In agriculture, organized much like construction, federal and state governments have taken over research. For building, little government-financed research is under way and HHFA, in charge of housing research, has suffered serious budget cuts.

Federal leadership. As the largest single customer of the building industry, the Federal government could lead the way to cut costs and waste of materials, said the commission. "Federal building [is] not legally bound by local regulations. Yet in practice most government agencies conform with local construction codes even though this may lead to waste." It was for

LIFE—George Skadding



COMMISSION MEMBERS were (l to r) Eric Hodgins, member of the board of editors of FORTUNE; President Arthur Bunker of Climax Molybdenum Co.; Chairman William S. Paley, board chairman of Columbia Broadcasting System; Engineer George R. Brown, chairman of Texas Eastern Transmission Corp.; Edward S. Mason, dean of Harvard's Graduate School of Public Administration. They were aided by a staff of 120 who worked 1½ years, spent \$950,000 assembling data.

this reason that the commission recommended that "an agency" of the government "formulate and keep up to date national standards of building construction with participation of . . . an advisory board of interested Federal agencies and nongovernment technical groups."

Needle for FHA. Behind the commission's recommendation to ban FHA insurance in cities with codes that require waste of materials, lay a pointed reference to the irony of the government making its "major effort" in housing that of easing the financial burden of home ownership through VA and FHA, yet permitting construction practices that cost buyers almost as much. In a thinly veiled slap at FHA's Balkan empire

of semiautonomous district offices, the commission declared: "The great possibilities of using Federal mortgage insurance . . . as a device for conserving materials have not been exploited. Thus far, although the FHA has formulated "Minimum Construction Requirements" (*sic*) for the guidance of its 72 local offices, it has permitted these offices to establish their own minimum standards consistent with local codes which almost invariably call for greater use of scarce and costly materials. In practice, the Federal program has tended to fortify the rigidities and wastefulness of local codes instead of creating inducements for reform by offering financing for homes constructed on more economical standards."

Builders charge 'double cross' as Congress delays Reg. X relaxation at least 4 months

Two days before the Defense Production Act was due to expire, Congress ground out a 35-amendment extension so involved that some controls affecting building were continued three months, some ten and some a full year. The Senate passed the bill by a voice vote. The House adopted it 194-142. President Truman signed it reluctantly (*see below*) although some of his aides, including Price Boss Ellis Arnall, declared "it could have been much worse."

Double cross? Unhappiest of all were homebuilders. NAHB President Alan Brockbank charged "home buyers have been double crossed." What rankled was what happened to Regulation X in a midnight conference session on Capitol Hill.

The Senate had continued credit controls in full force. The house had voted to abolish both Regulation W (already suspended) and Regulation X (eased slightly June 9). In the early morning hours of Saturday, June 28, House-Senate conferees hammered out the deal (written with the aid of HHFA lawyers and Staff Director Joseph McMurray of the Senate Banking Committee) that earned NAHB's wrath. Chief backers of the final version were Senators Sparkman and Robertson.

At a 2 A.M. press conference as groggy conferees adjourned, newsmen were told the committee agreed on language that would remove credit curbs on housing July 1, give the administration power to reimpose them if starts jumped above an annual rate of 1.2 million. Headlines across the country promptly raised false hopes. Next day, as both houses accepted the conference measure with almost no debate, HHFA divulged the real story.

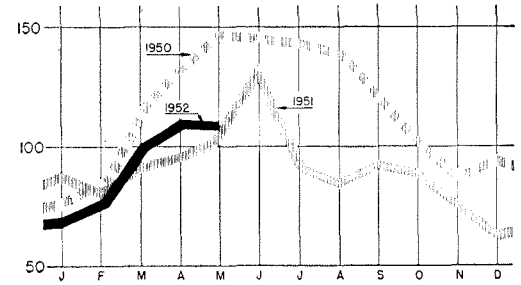
Three month wait. The law provides that the government cannot require down pay-

ments on homes in excess of 5% if, for a three month period, housing starts dip below an annual rate of 1.2 million. But HHFA lawyers ruled the three month counting period would have to begin after the law took effect. Since President Truman signed it June 30, under the complex language of the act, down payments could not be relaxed before Oct. 1 at the earliest. Left unchanged were the government's power to compel 20-year amortization and credit controls over commercial construction (50% down payment). The full text of the complicated verbiage:

"Notwithstanding the provisions of 602 and 605 of this title, the authority of the President, which is derived from said section to impose credit regulations relative to residential property, shall not be exercised with respect to extensions of credit made during any 'period of residential credit control relaxation,' as that term is herein defined, in such manner as to impose any down payment requirement in excess of five per centum of the transaction price.

HOUSING STARTS

(IN THOUSANDS OF UNITS)



Source: Bureau of Labor Statistics

CONTINUING HIGH volume of housing starts in May put the total for the first five months of 1952 at 455,600, only 1,900 units below the January-May '51 mark. Most statisticians thought the trend indicated homebuilding was headed for a 1952 volume close to or just under 1.1 million.

"The President shall cause to be made estimates of the number of permanent, nonarm dwelling units, the construction of which has been started during each calendar month and, on the basis of such estimates, he shall cause to be made estimates of the annual rate of construction starts during each such month, after making allowance for seasonal variations in the rate of construction.

"If for any three consecutive months the annual rate of construction starts so found for each of the three months falls to a level below an annual rate of 1.2 million starts per year, the President shall cause to be published in the *Federal Register* an announcement of the beginning of a 'period of residential credit control relaxation,' which period shall begin not later than the first day of the second calendar month following such three consecutive months. Each such relaxation period may be terminated by the President at any time after the annual rate of construction starts thereafter estimated for each of any three consecutive months exceeds the level referred to in the preceding sentence."

Relaxation guaranteed? By holding out the prospect of easier purchase terms in mid-fall, the law thus promised to depress the housing sales market for the rest of the summer. If that happens, builders would almost certainly cut back production, thus

HOW EXTENDED CONTROLS ACT AFFECTS BUILDING

It took 35 amendments and arguments far into the small hours of Saturday morning, June 28 before a House and Senate conference committee could agree on renewing the Defense Production Act. Chief features:

Down payments. When housing starts for a three-month period drop below an annual rate of 1.2 million the FHA and Federal Reserve Board must reduce down payments to a maximum of 5%.

Rent. Unless nondefense communities take affirmative action to the contrary, rent control ends September 30. Rent ceilings in 116 critical areas (with 1,150,000 housing units) will remain until April 30.

Wages. Controls extended to April 30. Increases up to \$1 an hour no longer need be cleared with WSB. Professional engineers and architects are exempted from wage and salary control.

Wage Stabilization Board. The board is banned from having jurisdiction in any labor dispute and so cannot repeat its steel industry intervention.

Critical areas. A new defense area advisory committee is established to decide which community's housing needs can be called critical.

Allocation. Authority for allocations and priorities is extended to June 30 '53.

Prices. Controllable until April 30.

Idea-filled kitchens help sell houses

OFFER a kitchen like this that's full of attractive, practical ideas and you're well on the way to winning approval of the woman prospect, a vital link in home sales.


The step stool under the sink, the shelf of glass containers below the window for storing dry groceries, and the double-duty work and dining counters are moderate cost kitchen extras that help set your house above the average.

Installing a floor and counter tops of Armstrong's Spatter Linoleum is another way of making a hit with the feminine buyer. Spatter, the most popular new linoleum styling in 20 years, comes in eleven colorings. It makes a handsome floor whether laid just as it comes from the roll or in custom effects.

Ease of cleaning is also a convincing selling point when your home has floors of Armstrong's Linoleum. Women know that its smooth, practically seamless surface requires very little care. Armstrong's Spatter is highly practical, because the spatterdash effect tends to conceal footprints and tracked-in dirt until they can be wiped up. Greaseproof, long wearing, quiet and comfortable underfoot, Armstrong's Linoleum is the logical choice for kitchens, where traffic is concentrated and occasional spilled things are unavoidable.

Whether you're building one house or a multiple-unit project, you can profit by adding the extra sales appeal of Armstrong's Linoleum.

SEND FOR FREE ROOM PLAN

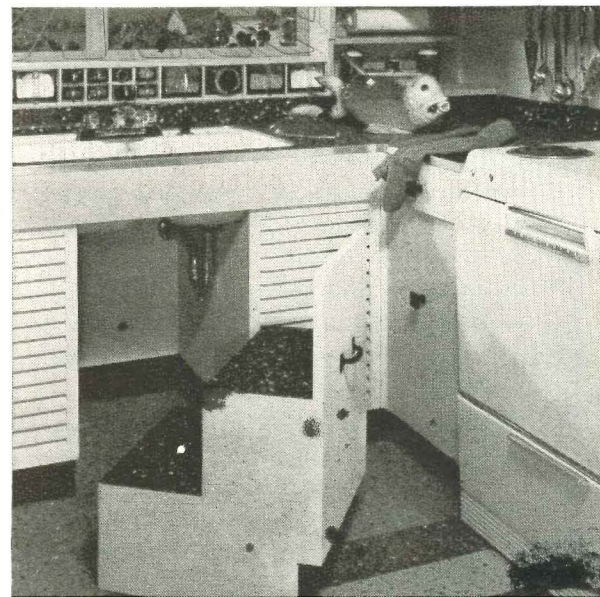
For a floor plan of this kitchen, with a description of the color scheme, layout of the fixtures, and a complete list of furnishings, write Armstrong Cork Company, Floor Division, 1407 State Street, Lancaster, Pennsylvania. 

ARMSTRONG'S LINOLEUM



Work counters convert quickly to lunch bars. When not in use for dining, they provide useful storage space for small appliances. Armstrong's Linoleum on the counter surfaces is both decorative and easy to clean.

The roll-away step stool fits neatly into the space under the sink. Special casters keep it firmly in place when in use. Note that the steps are covered with Armstrong's Spatter. The glass container unit is a purchasable item.



making a period of credit relaxation inevitable. Truman, too, figured housing credit was doomed, but for less sophisticated reasons. The President said the 1.2 million rate "has been exceeded only once in our history (1950). . . . This probably means that the power to control real-estate credit will . . . be eliminated." Some skeptics noted that HHFA could now manipulate housing starts to suit its own purposes. Thus, if officials wanted to push starts over a 1.2 million rate to balk easing of credit curbs, they could rush construction of public housing during a single critical month.

Rents. The amended Defense Production Act practically killed rent control. Ceilings in nondefense areas end Sept. 30 unless local governments vote to stay under the federal program. (One joker is that action is required by *incorporated* towns; county governments have no power to act.) After signing the bill, President Truman took the occasion to jab at his favorite target again. Said Truman: "This opens the way for increases in rents for some 6 million families if the real-estate lobbies are able to forestall positive action by local bodies." Rent controls remain until April 30 in critical areas. A new defense-area advisory committee was created, giving Housing Expediter Tighe Woods a seat which he previously lacked.

No steel repetition. "The (Wage Stabilization) Board shall have no jurisdiction in any labor dispute," the act reads and, although retaining the WSB's labor-industry-public composition, it now requires board nominations to be approved by the Senate.

The steel strike which began June 2 had curtailed production of 400,000 tons of structurals by the end of the month, closed 50% of the nation's fabricators and, overall, cost the nation about half of a normal quarter's ingot production. Government officials predicted the pinch would hit the housing industry by mid-summer. DPA Boss Henry Fowler said the strike means there is now no chance of decontrolling steel before June '53.

President to restore BLS funds cut out by Congress

Ironically, the amended Defense Production Act will lean heavily on the Bureau of Labor Statistics' monthly report of housing starts just as Congress has sliced BLS' construction statistics budget from \$625,000 to \$300,000 a year. BLS officials said that was too little to keep their housing starts estimate as accurate as it should be as the thermostat governing credit controls.

The Bureau of the Budget came to the rescue. It was reported ready to give BLS a

transfusion (probably \$150,000 or \$200,000) from presidential emergency funds. BLS expected to use the money to step up its surveys of lag and lapse in building permits, and to increase its check from quarterly to monthly on housing in 96 US counties where no permits are issued. From

Public housing cut permanently to 35,000 starts; Congress acts on Los Angeles project

Last year, when Congress reduced public-housing starts to 50,000 a year it was only a token defeat for public housers. With their unwieldy program, that was about all the housing they could begin physically. But now, the program has picked up steam. Without restrictions, it could reach 75,000 to 100,000 units in fiscal 1952-3.

So when Congress this month clamped a 35,000 starts ceiling on public housing for the next fiscal year, it was a major setback for public housers. Moreover, the ceiling barred the Public Housing Administration from laying plans to build more than 35,000 units of public housing in any future fiscal year—a prohibition neatly designed to make a permanent cripple of the controversial federal program.

Toothless red rider. Public housers managed to avert another threatening wound. Conferees modified a House proposal to bar federal funds from "public housing inhabited by Communists or members of organizations on the attorney general's subversive list. (This would have undermined the soundness of tax-free bonds that finance public housing.) What remained was a prohibition against reds, but with the proviso that local housing authorities may still collect loans and grants from the US treasury whether they harbor subversives or not.

Los Angeles ruckus. The Los Angeles' rhubarb over whether to proceed with a 10,000-unit public-housing program despite an overwhelming popular vote against it also landed in Congress' lap. In the wake of

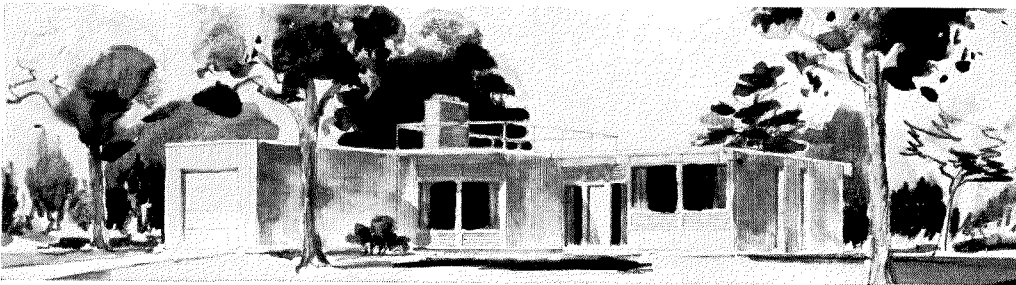
the 96 counties are projected some 22% of US housing production.

Other final action by Congress on appropriations: for HHFA office of the administrator, \$4.6 million instead of the \$6.25 million sought; for FHA, \$4.88 million instead of the \$5.63 million sought.

the balloting (H&H, June '52), California's Supreme Court reaffirmed its order to the city to carry out the \$110 million program. This posed a threat of contempt citations for city councilmen if they followed the will of their constituents.

Into a supplemental appropriation bill which President Truman could hardly veto, Rep. Gordon L. McDonough (R, Calif.) slipped a retroactive amendment. It forbade PHA to pay any salaries as long as the agency proceeds with a public housing project rejected by local voters. But a conference committee added a proviso that public housers claimed negated the ban: communities would first have to "tender" the federal government "full reimbursement" for any funds advanced (in Los Angeles, \$13 million). From debate in the House and Senate, it was unclear whether this meant Los Angeles would actually have to repay the \$13 million or just agree to do so before PHA would be forced to call a halt. A court test seemed likely.

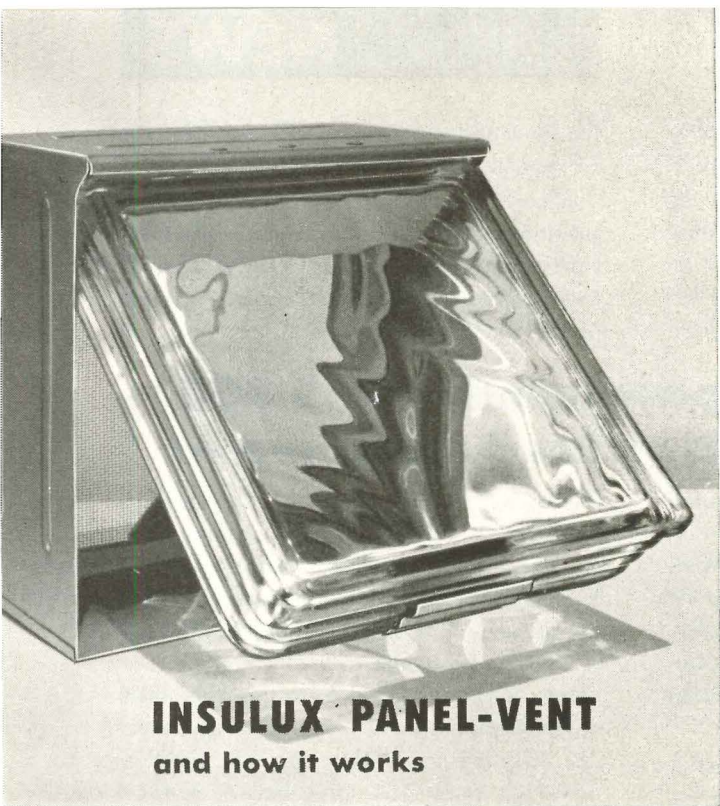
AIA endorsement. The American Institute of Architects, convening in Manhattan, reaffirmed its position as the only major building industry group fully supporting public housing. A resolution reversing that stand, offered by the Utah AIA chapter, died in committee for lack of support. The architects, however, lamented the "unfortunate number of stereotyped and barracks-like structures" going up under federal public housing auspices, called for a "re-examination" of federal subsidies to "reduce the accumulating load that has been transferred to taxpayers."



Chicago speculative tract will have solar heating

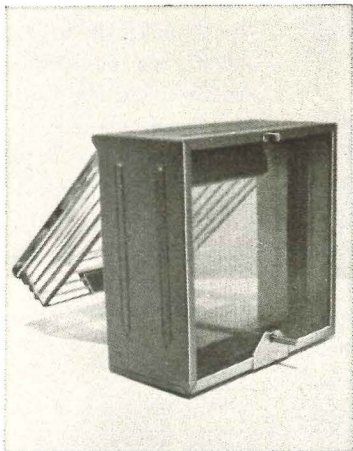
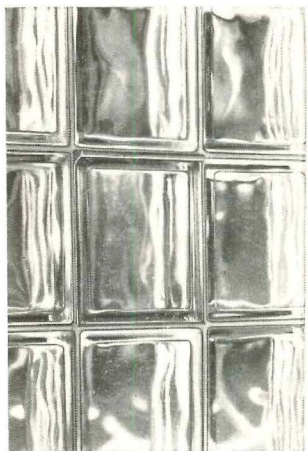
Chicago architects Fred and William Keck have designed a 24-unit solar home development, the first such use of sunpower, they say, in the \$28,000-\$29,500 range. The houses will be in three basic units—living, sleeping and garage-storage

—all sufficiently flexible to be pivoted around in the 66' x 170' site for southern exposure. Double insulated glass areas will absorb solar heat with radiant tubing imbedded in concrete a cold-day standby. Louvers will provide ventilation.



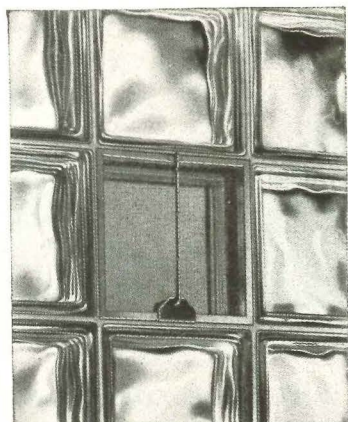
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Dirksen introduces test bill against public housing

In the closing days of Congress, Sen. Everett Dirksen (R, Ill.) introduced a new public-housing bill obviously designed as a trial balloon to test whether public sentiment was shifting away from public housing as many a recent local election has indicated. Dirksen would:

- ▶ Require localities to shoulder one-third of construction costs of all public housing, contribute one-third of the annual subsidies.
- ▶ Bar families with incomes of more than \$2,000 from admission, except in cities under 100,000 population, where the limit would be \$1,500.
- ▶ Make public housing subject to the same taxation as private housing.
- ▶ Forbid construction of any project until local voters had approved both the project and issuance of bonds to cover the cost.

Congress did not act on the measure. Public housers indicated they were glad to have the issue so clearly joined during an election campaign.

Korea GI bill becomes law without warranty clause

Homebuilders persuaded the Senate to eliminate the builders' warranty from the billion-dollar-a-year GI Bill of Rights for Korea veterans. So Congress settled for a more promising system for preventing shoddy construction: the Veterans Administration got power to blacklist builders, lenders and appraisers with bad records. As President Truman signed the bill into law, it appeared a mandatory warranty for GI homes was dead for the rest of the year.

The new law—good for ten years—would open up an increasingly important market for builders. The armed forces were discharging veterans at a 65,000 a month clip. Moreover, the World War II GI bill runs until July 25, 1957.

VA bans new appraisals on homes too close to airports

Last month's Veterans Administration decision to review its policy on insuring homes near airports spread alarm. When VA directed regional offices to pass on to Washington all loan appraisals for homes within four miles of an airport, builders got out compasses and started drawing radii all over the map.

Cried Raymond E. Hanly, president of the New Jersey Homebuilders' Assn.: "If this directive is to include all airfields, 4,000 of New Jersey's 7,000 sq. mi. area—57%—will be affected. It will seriously hit thousands of unfinished homes where title to the veteran has not been closed." Echoed NAHB president Alan E. Brockbank: "Effect of the new VA policy will be construc-

tion delays while buyers sit and wait for action in Washington." But at the end of the month, the anticipated calamity turned out to be not so serious after all.

New rules. The VA sent out a directive telling its 67 field offices to resume appraising but to keep a careful eye out for any depreciation caused by proximity to airports. Prohibition zones (so far as VA evaluations are concerned) for 4,000' runways will be a half-mile from either end and 500' from either side. For shorter runways, the zones will be half the runway length on either end and 500' from either side. Existing construction can still be considered for VA appraisals, but at reduced valuation.

Air Force ready to spend \$100 million to underwrite private family housing overseas

In April, after four months in his new part-time job as director of the armed forces housing agency, builder Thomas P. Coogan described himself as "amazed, astonished and pretty near overwhelmed with the requirements that must be fulfilled."

Last month, rotund Tom Coogan flew off to Europe for a three-week survey of another amazing housing requirement of the cold war—one that apparently would be fulfilled with the aid of a \$100 million appropriation by Congress.

Little FHA. Afoot was a plan for the Air Force to start what in effect was a miniature FHA program for overseas troops of all services. A lot of hard military thinking lay behind the scheme. As Coogan explains it, in World War II the Pentagon made it a policy to "abruptly separate men from their families." This cut down the need for family housing. But today, "housing the family man becomes of paramount importance because we have to maintain the man if we want him to stay in the service."

Coogan likes to point out that it costs the air force, for instance, about \$18,000 to train a mechanic to service an airplane. "If he does not re-enlist, most of the \$18,000 is wasted. And whether he can find an adequate place for himself and his wife makes a great deal of difference whether he will." Overseas, Coogan adds, the soldier separated from his wife often gets into trouble—"and then he's in trouble at home, too." In the long run, says Coogan, "the cost of foreign housing is less than the cost of moving those men back and forth across the ocean." Moreover, the presence of American soldier families boosts the morale of NATO pact nations, too. They reason if the Yanks bring their wives, they must be overseas to stay.

Defense housing act gives Fanny May \$900 million

Passing Congress in the pre-convention rush, the Defense Housing Act of 1952:

- ▶ Gave Federal National Mortgage Association \$900 more advance commitment authority for defense and disaster areas; let FNMA use the balance of its funds (about \$360 million) for over-the-counter purchase of FHA and VA loans written after Feb. 29, 1952.
- ▶ Authorized \$40 million for defense public housing (but HHFA Administrator Foley decided not to ask for the appropriation until next year).
- ▶ Authorized \$40 million in grants and loans for community facilities in defense areas.
- ▶ Authorized \$400 million for the FHA.
- ▶ Rescinded the ban on federal savings and loan associations buying FHA mortgages on homes over 50 miles from their place of business.

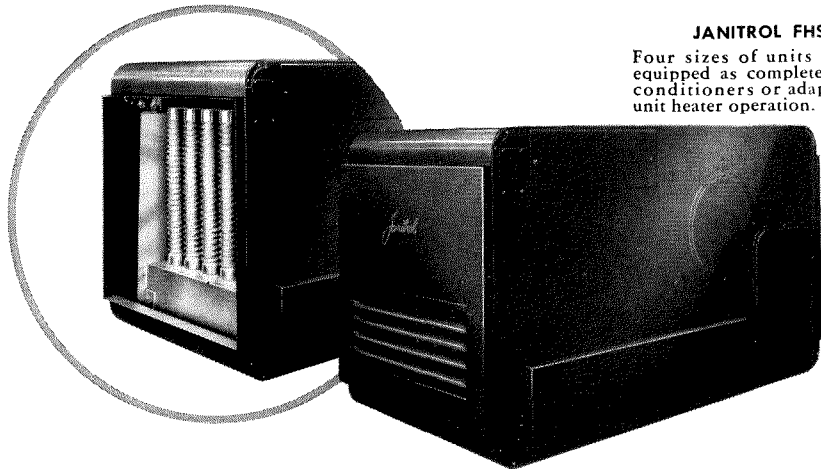
Slow progress. A few family housing ventures were sprouting already. At Chateau Roux in France, an agency of the municipality was building a 500 family project. A group of American importers was drawing plans for another in Casablanca. But Coogan conceded that among men who need family quarters, "there are a lot of troops badly housed."

Builders in countries like France said they were willing to put up more family quarters. But tight rent control would make such construction unprofitable if Americans left and the housing had to be rented to Frenchmen. Would Americans pay higher rents than the French? After deliberation, the Pentagon's housing experts agreed they could. Thus a plan took shape: if the US could provide a guarantee that our forces would not pull out before construction costs were amortized at least to where lower rents from the local market would support the housing, then foreign builders might be induced to build homes for married American noncoms and junior officers.

Quiet legislation. The Pentagon's solution was tucked away obscurely in the big (\$2.1 billion) new military construction bill approved in the final legislative rush early this month. A never debated housing clause earmarked \$100 million for the air force to underwrite the initial risk of attracting private capital into suitable rental housing developments for its own and men of the other services stationed abroad. (Presumably, this would be by guaranteeing occupancy for 10 or more years.) Where private capital still shied away, the air force would be empowered to build family housing directly—after getting approval from proper congressional committees for each site.

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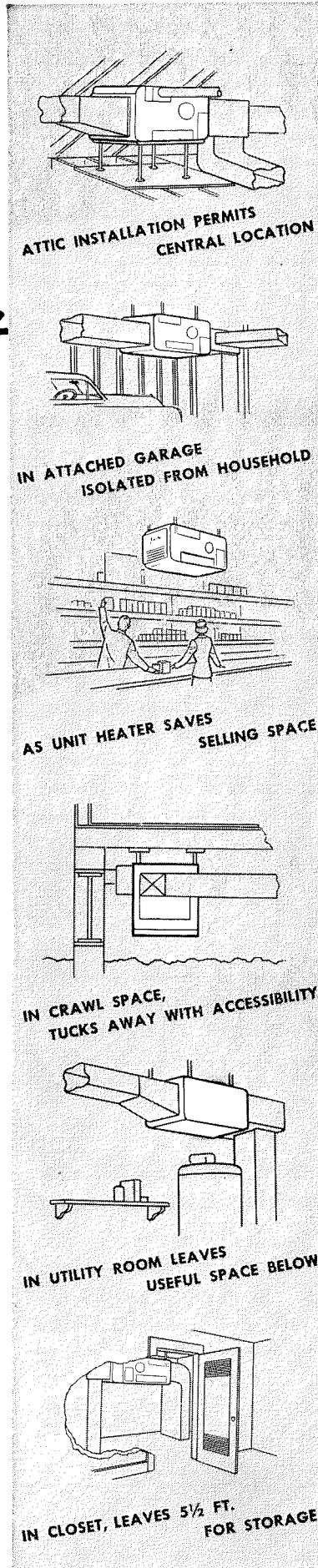
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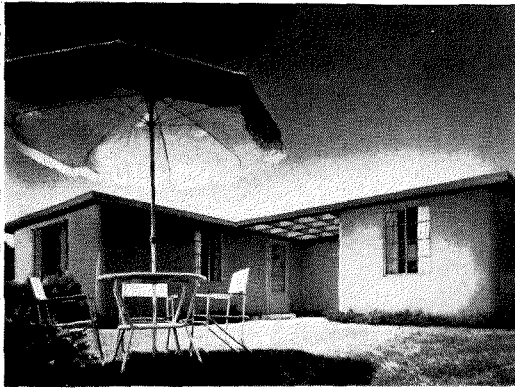
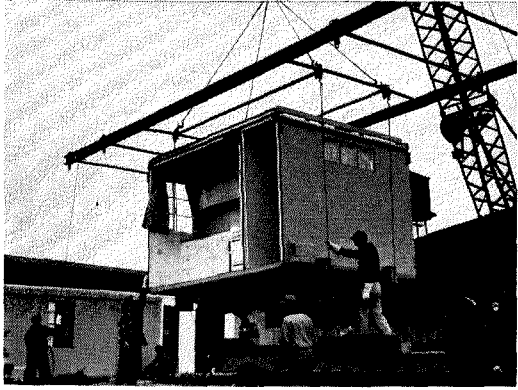
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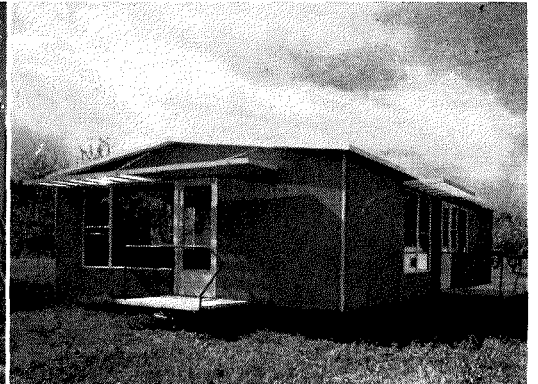
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Photos: top left, Dan Weiner; top right, Hedrich-Blessing; center row, Fred Stone; bottom, Royal Camera Shop



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HHFA tests show demountable defense homes match fixed-site housing on cost, amenities

For six months, HHFA has been testing what it thinks is the happy medium between trailer camps and permanent housing for defense-area living: houses that are sturdy enough to be called permanent, yet so designed that they can be moved with a minimum of cost, time and wasted materials. The results, announced this month, provided important encouragement to people who wish the government would stop erecting eyesore "temporary" homes in areas where private defense housing cannot be built because the duration of need is too indefinite. Reported Special HHFA adviser Ralph R. Kaul*, after watching nine permanent but relocatable homes dis-

assembled, moved, and reassembled in tests by eight private firms from Massachusetts to California:

▶ "Relocatable housing is competitive in quality, liveability and cost with fixed-to-site housing of conventional construction" (see table).

▶ Relocatable housing can rent as reasonably as fixed-to-site defense housing on a private financing basis, such as FHA. (Kaul would like to see FHA embrace the demountable housing program, but writing mortgage insurance on a house that might be moved to another lot could require new legislation.) The average relocatable house of 852 sq. ft., costing \$7,747, should rent for \$73.37 a month on a \$1,000 lot. This would permit a project of 100 homes to be amortized in 29 1/3 years under FHA formulae, with 4 3/4% interest, relocation of a quarter of the homes as much as 100 miles away, and a 75% write off for vacated land.

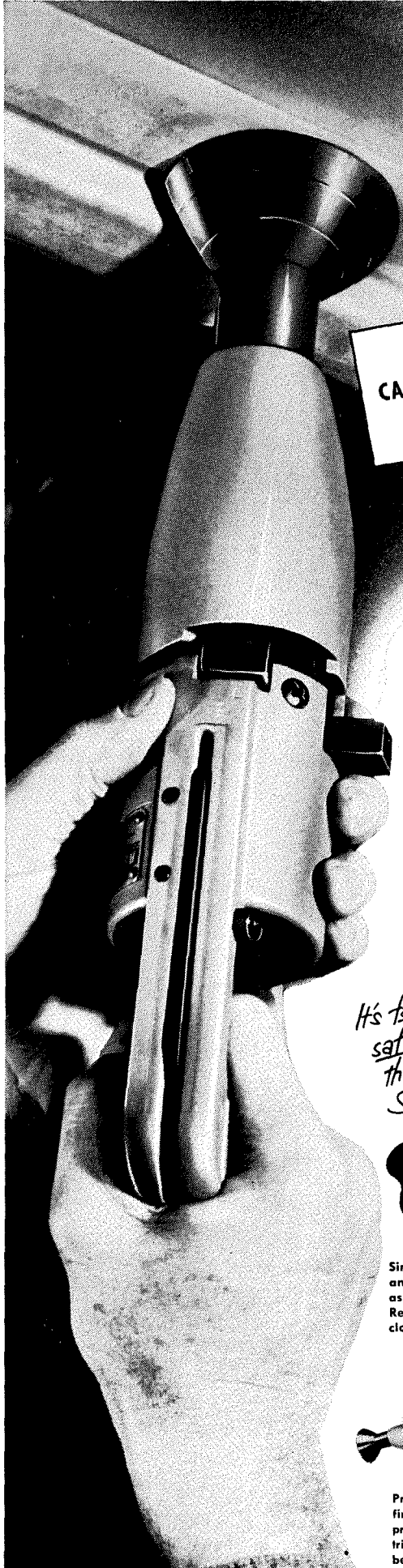
▶ If the same project were government-financed and built, the government's access to a cheaper (2 3/4%) interest rate would permit it to amortize

43% of its investment in only ten years. If the project then were sold to a private owner, the defense emergency having passed, he could amortize the remaining investment in 12 1/2 years if he relocated a quarter of the homes. *Even if he had to move every single one of the houses*, the amortization period would be stretched only to 26 1/2 years—with rents remaining at \$73.37 a month. ▶ By figuring the total amortization span at 29 1/3 years, the government could afford to cut rents to \$58.37 a month during its ten years of operation.

Comparative costs of the tested houses:

Company	Floor Area	FIRST LOCATION Dollars		RELOCATION Dollars		
		Per Unit	Per Sq. Ft.	Per Unit	Per Sq. Ft.	Man hrs.
Acorn Houses, Inc.	804	\$7,950	\$9.89	\$629	\$0.78	159
Gresham-Construction Co.	798	8,450	10.59	836	1.08	204
Home Building Corp.	855	8,000	9.36	956	1.12	240
Mobilhome Corp.	1,045	8,250	7.89	678	0.65	154
Mobilhome Corp. split house	931	7,000	7.52	758	0.81	169
Nicoll Lumber Co.	858	7,000	8.16	864	1.01	197
Pressed Steel Car Co.	788	7,700	9.77	624	0.79	122
South Bend Fabricating Co.	768	8,570	11.16	997	1.30	247
Transa-Housing	821	6,800	8.28	521	0.63	120
AVERAGES	852	\$7,747	\$9.18	\$766	\$0.91	180

* In "Relocatable Defense Housing," available from Supt. of Documents, Wash., D. C. for 25¢.



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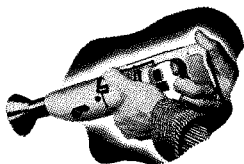
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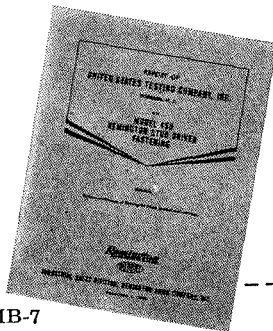
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Housing sales hold up surprisingly despite some price cuts; Reg. X 'easing' no help

How were home sales across the nation? For a month, while the HHFA, VA and Federal Reserve wrangled over details, prospective buyers had hung on to their cash, awaiting relaxation of Regulation X. But the new rules (H&H, June '52) turned out to be so little different from the old credit curbs that builders cried they had been hoodwinked. Yet if sales were stymied by big down-payments how explain the paradox of housing starts marching along at a 1,100,000 a year clip?

Not bad, not good. Taking a closeup look at the housing market, HOUSE & HOME reporters talked to a cross-section of home-builders in 15 major cities last month. On balance, they found sales sluggish, compared to last year and booming 1950. But it was the fringe area builder, the speculator with the outmoded model, the inefficient operator with the inflated price who were feeling the pinch worst. Savvy builders were not in trouble, though most had trimmed their production from last year to keep from getting ahead of their market.

Talk of a 250,000 overhang of unsold homes did not seem borne out by facts. In Pittsburgh, Executive Director William Hanna of the Allegheny County Home Builders Assn. admitted: "The NAHB figure of 2,000 homes unsold here is a little embarrassing. It was part of pressure to get rid of Regulation X. I'd say 1,000 is closer to correct."

Said big Los Angeles housing merchant Spyros Ponty: "Sales are good for the right type of house in the right location." In Cleveland, President Peter J. Negrelli of De Carlo Mason & Building Co. observed: "We used to sell them when they were just foundations. Now we don't sell them until they're plastered." In defense-booming Midwest City, Okla., W. P. "Bill" Atkinson, last year's NAHB president, said "sales have been good, except on houses over \$10,000. I think the outlook is good, in spite of Regulation X."

Did easing help? Builders divided over whether the niggling changes made June 9 in Regulation X (for homes selling between \$10,000 and \$15,000) were stimulating sales. Most of them agreed with executive vice-president Otto Hartwig of the Long Island Homebuilders Assn. who said: "Sales are slowed because of Reg. X and the last change was almost of no value." But builder Manny Spiegel of New Brunswick, N. J. reported, "Our sales are improving since relaxation of Reg X."

It was possible that the scattered sales pickup was because the public was gradually realizing that the steel strike settlement plus local building trade wage increases spelled higher prices—probably within a few months. Said builder Andy Place of South Bend, Ind.: "I have bet that after Sept. 10 materials will be harder to get than today and costs will go up."

Price cutting. It was clear the relaxation was more help to higher priced homes than cheap ones. Before it came, the position of housing sales in most cities was typified by Bridgeport, Conn., where Vice-President Gordon Christie of the Peoples Savings Bank observed: "For houses in the \$12,000 range there's a fairly good market. In the \$15,000 bracket it's sticky. In \$17,000 and over it's definitely a buyer's market with buyers getting all kinds of reductions and extras." In Atlanta, builder B. A. Martin cut price tags on two homes in the \$25,000 class by \$1,500. Builder R. W. Johnson Jr., with a \$23,750 house on his hands for three months, cut the price 7%. Roy D. Warren Co. reported it had slashed prices up to \$2,000 on some of its \$17,000 homes.

Production cutbacks. Price cutting was not so widespread as two other important trends caused by the straitjacket of Regulation X: 1) over 50% of the builders interviewed by HOUSE & HOME said they were curtailing production; 2) more and more builders were planning to build cheaper and cheaper houses to get back to the realm of low down payments. Samples:

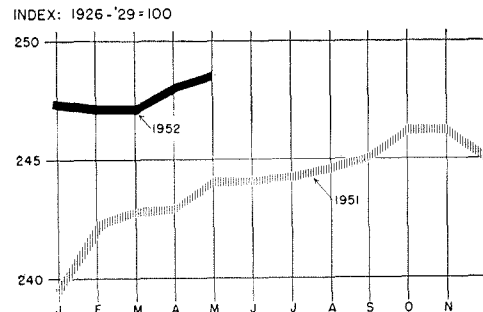
► Builder Spiegel, who built 200 homes in 1951, plans only 150 this year. He shelved plans for a tract priced from \$17,500 to \$20,000.

► In Pittsburgh, builder Harold Sampson built 600 homes in 1951 but plans only 300 this year. Said he: "We can build 14 houses a week but we've cut down to six. At that rate we've been able to sell them."

► Builder Joseph Kramer of Cleveland, who put up 14 homes in the \$20,000 bracket last year, said he would complete only 12 in 1952. "I am figuring on going down to a lower bracket," he said. "The cheaper the homes, the faster they go."

For builders facing hard selling, little improvement was in sight. The strange formula for possible future relaxation of credit controls written into the Defense Production Act extension (see p. 35) promised to make wavering buyers waver still longer. It looked like a summer when builders would build warily.

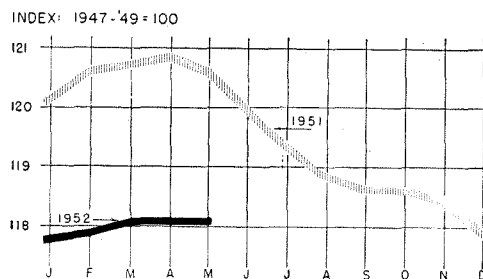
BUILDING COSTS RISE



Source: E. H. Boeckh & Associates

BIG WAGE INCREASES won by building labor in spring bargaining (see table below) were beginning to make overall building cost indexes shoot up again last month. Boeckh's residential index, for instance, climbed from 248.1 in April to 248.7 in May (above). The steel strike settlement was considered sure to bring a price increase in steel that will be multiplied manifold as its effects filter through the building materials industry.

MATERIALS PRICES STEADY



Source: Bureau of Labor Statistics

WHOLESALE PRICE INDEX of all building materials compiled by BLS has not fluctuated more than 0.4 points all year. In May, it stood at 118.1—some 2% below the 120.7 mark in May '51.

Lumber and plywood markets remained uncertain. Green douglas fir dimension No. 2 was off \$4 on transit cars and some lower grades dropped up to \$10.

RECENT WAGE SETTLEMENTS

City	Trade	Wage Increases		Welfare Raise
		Raise	New Scale	
New York	17 bldg. trades	15¢ to \$2.05-\$3.40		
	carpenters, hoisting engineers	25¢ to \$2.95		5¢
Chicago	brickmakers	9¢ to \$1.65-\$1.88		
	carpenters	25¢ to \$2.95		
	laborers	15¢ to \$2.14		
	hoisting engineers	15¢ to \$2.80		
	pipe fitters, plumbers	25¢ to \$3.00		
Detroit	painters	15¢ to \$2.62½		
	plumbers, pipe fitters	12½¢ to \$2.82½		
	asbestos workers	13¼¢ to \$3.02		
	marble masons	15¢ to \$3.05		
Milwaukee	sheetmetal workers	15¢ to \$2.78½		
	iron workers	10¢ to \$3.00		
	plasterers, lathers	15¢ to \$2.90		
	plasterers' laborers	13¢ to \$2.33		
Newark	plumbers' laborers	7¢ to \$2.38		
	sheetmetal workers	10¢ to \$2.63		
	bricklayers	40¢ to \$3.65		
San Francisco	hodcarriers	15¢ to \$2.35		
	carpenters	35¢ to \$3.20		
Los Angeles	carpenters	15½¢ to \$2.60½		7½¢
	carpenters, cement masons, teamsters, laborers	22¢ to \$2.57		
Philadelphia	plumbers	19¢ to \$1.94-\$2.94		
New Orleans	plumbers	42½¢ to \$3.17½		
Cleveland	carpenters	26¢ to \$3.06		
	excavators, bldg. supply drivers	7½¢ to \$3.00		7½¢



Sight-seeing architects see the New York skyline . . .

AIA conventioners

The unofficial, after-hours curriculum of the American Institute of Architects' 34th annual convention last month was devoted mainly to a rediscovery of the city where the Institute had been born almost a century before. It had been 25 years since the architects had last met in New York, and both parties made a big thing of it. New Yorkers called it "Architects' Week." And the visiting architects pushed happily out of the air-cooled Waldorf-Astoria into the hottest June weather the city had seen in years, to do the town and view the sights (see pictures, left).

Back inside the Waldorf, after the sight-seeing trips were over, the delegates settled down to a convention that ran smoothly and without controversy. Only one serious wrangle had been expected; Harvard's Walter Gropius intended to propose that the Institute's by-laws (which now prohibit the member architect from engaging in construction work) be amended in order to permit the architect to become a "master builder." (For detailed view of Gropius' stand on this matter, see June '52 AF.) But through parliamentary tactics the convention leadership managed to table this resolution, and it never got to the floor for discussion.

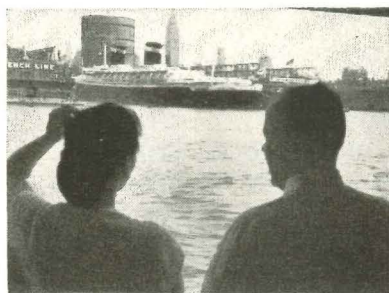
The convention's official agenda was dedicated primarily to heavy architecture, in keeping with the convention's twin themes: the reunion of architecture and engineering, and the design changes that have become necessary with the growth of the automobile



. . . the Cloisters



. . . the United Nations Building



. . . the SS United States

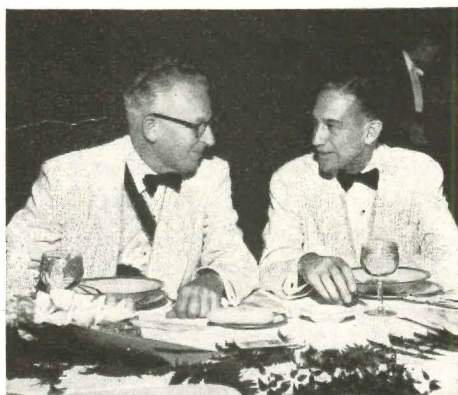


. . . the Brooklyn Navy Yards.



Photos: Roy Stevens

Above: President Glenn Stanton, flanked by the Board of Directors, opens the convention's first business session.



Left: President Stanton with Deane W. Malott, president of Cornell University, speaker at annual banquet.

spend hot but tranquil week in New York: Gropius' 'Master Builder' plan is sidetracked;

public-housing endorsement is reaffirmed; cooperation with homebuilders is restated

age. This latter theme inspired mostly discussion of off-street parking and loading, but it did touch house design in one direct way. Pike Johnson, president of the Automotive Safety Foundation, passed on to the delegates this opinion from four top automobile men*: with the recent increase in multiple car ownership (12% of the car-owning families—twice as many as in 1949—today own two or more automobiles), more houses will have to be designed for multiple car garages.

In other ways the delegates turned their attention to housing matters: they reaffirmed the Institute's endorsement of public housing (see p. 37). And they listened to a solemn warning reminder from their Board of Directors that the small, merchant-built house still suffers from "lack of (architectural) participation." The Board reminded its members that there still exists the cooperative committee which AIA formed with the National Association of Home Builders two years ago in an effort to

* Harold Vance, president, Studebaker Corp.; Henry Ford II, president, Ford Motor Co.; George Mason, president, Nash Kelvinator Corp.; L. L. Colbert, president, Chrysler Corp.

bring architectural services into the small house field. But, noted the Board sadly, that joint effort "at times appears to have received the more enthusiastic support of the operative builders than of ourselves."

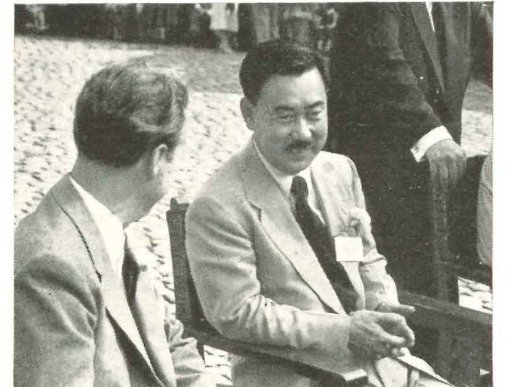
In business sessions, the convention:

▶ Upped maximum annual membership dues from \$40 to \$50 to set up a three-year, \$36,000-a-year public-relations program. Francis J. McCarthy, retiring president of the northern California AIA chapter and member of the committee which recommended the PR program, explained why it was necessary: "The architect is an unknown man, even in his own local community. He is seldom in the ranks of community leadership. He is battered by adverse legislation and criticism. He faces encroachment on architecture from consultants, industrial designers, contractors . . . who are taking away from the architect designs that should be his." Seconded Harold Sleeper, former president of the New York AIA chapter: "We don't have 50% of the work we could have. But people don't know there are things we can do better than anyone else."

▶ Authorized AIA to provide a reference file to help architects write specifications.

▶ Heard Dr. Edwin S. Burdell, president of Cooper Union and chairman of the AIA Commission on the Survey of Education and Registration, warn that "the lay public will sooner or later be unable to distinguish between the claims of a truly professionally trained man and a product of . . . vocational schools" which "offer technical courses in design, to say nothing of drafting, specification writing, etc." The answers to this problem, Burdell said, lay in inducing more students into architectural schools and in perfecting architectural education. One recommendation Burdell had for the AIA: promote postgraduate architectural education; "there is no agency now . . . exploring the need for such education, yet 92% of the profession has expressed the desire for it."

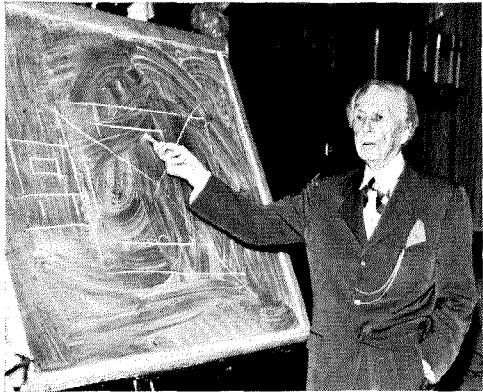
▶ Re-elected its same slate of officers: Glenn Stanton, Portland, Ore., president; Kenneth E. Wischmeyer, St. Louis, and Norman J. Schlossman, Chicago, vice-presidents; Maurice Sullivan, Houston, treasurer; and Clair W. Ditchy, Detroit, secretary.



Craftsmanship Medal was awarded for first time to a furniture designer and maker: George Nakashima (right), of New Hope, Pa. (See H&H, Mar. '52.) Judges found that Nakashima, second generation Japanese American, had blended "the handcrafts of Japan and the traditional forms of western furniture" with "the anti-industrial moral ideas of the English rebel William Morris."

Next to Nakashima: Marshall Fredericks, Detroit sculptor, who was awarded AIA's Fine Arts Medal for his special interest "in the development of sculpture in relation to architecture and in effective collaboration between the arts."

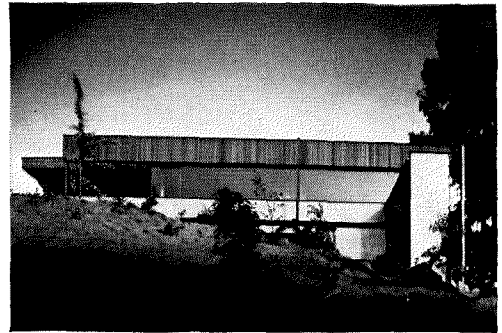
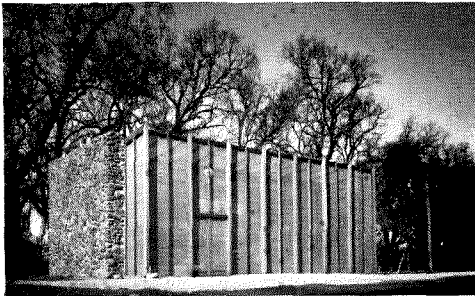
← **Candle-lit tables** gave convention lunch session festive glow. Speaker Ernest T. Weir, chairman of National Steel Corp., blamed government intervention for steel strike.



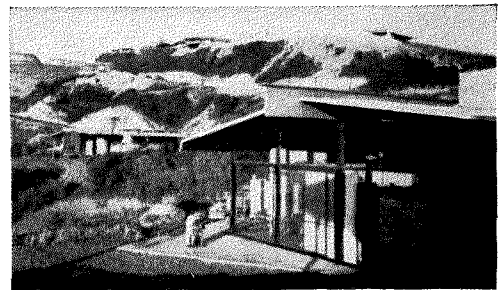
Frank Lloyd Wright outlined for an alternately cheering, rapt audience of students the long war he has conducted on "the box" as an architectural form: "It is a fascist symbol, a symbol of containment, not fit for democracy. . . . Now comes an ideal of freedom, the worth of the individual. How to express that in architecture? I found a key to liberation from the box (in organic architecture). . . . But modern architecture seems to be committed to bringing back the box. Why? Why did the box have to come back and be put on shining legs? Why, when democracy is the great contribution America has made to the modern world?"

Awards of Merit were given a Los Angeles house designed by Richard J. Neutra (upper right), a 500-home community in Brentwood, Calif., planned by Whitney R. Smith, A. Quincy Jones and Edgardo Contini (lower right), and a northern California house designed by Mario Corbett Associates (below). Jury was divided on the latter award; some found it hard to "reconcile the two massive masonry end walls with the lightness and openness of the living quarters jammed between them." (See p. 74.)

Stone & Steccati



Julius Shulman



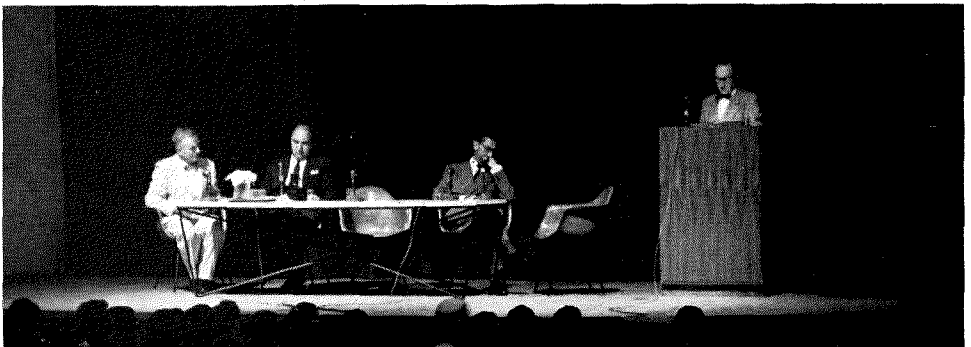
'SCRAP THE ARCHITECTS': Levitt stirs heat with claim that builders can do the job alone

The liveliest debate of the convention was touched off by a speech of mass-designer Al Levitt's, in a symposium in the Museum of Modern Art. Excerpts from Levitt's remarks, and some of the comments that followed, are given here.

Levitt: The noncompromising attitude of high skill in detail that 99% of architects insist on is unrealistic. Take, for example, the first problem that practical housing people must face. . . . Mass housing means that you must have mass labor. There aren't many skilled men in the US, so that our plan is predicated on the thought that the fabricators are going to be (unskilled.) This at once throws out all the high skill . . . all the delicacy of Mr. Mies van der Rohe's highly polished steel, all Mr. Frank Lloyd Wright's beautiful execution of brickwork in which every brick that is chipped or has any imperfection is cast away.

The second conception is that no businessman who makes and sells a product long stays in business unless the public buys his product. How far to go in pleasing them is a very delicate matter. Without even a trial balloon you guess in advance just how far you can push and persuade them to take either open planning or living in a fish bowl until the landscaping grows to give them privacy on the comparatively small lots on which we must build.

Probably the trouble with the architects is their gross impatience; they would like to see their dreams come true, but don't know how to attain them. Our best hope is to scrap the architects and get the live, alert, successful small and large builders and give them training, not more than a year. More could be done to the face of America by a few hundred builders who have a few simple explanations than can be done by all the thousands of architects because the architects are not in touch; they have no control over the millions who are buying and building.



Roy Stevens

Speakers at symposium were realtor William Zeckendorf (seated, center), builder Al Levitt (seated, right) and architect Kenneth Welch (at podium). Moderator was Douglas Haskell, THE MAGAZINE OF BUILDING (seated, left).

Voice from Audience (O'Neil Ford): I resent very much Mr. Levitt's very careless and slighting way of talking about (Frank Lloyd Wright). When Mr. Wright is dead 100 years from now he will still be thought of as having contributed something quite great to this world, and Mr. Levitt will be just a dead millionaire.

Levitt: Can you imagine that if Mr. Wright had never thought of being another Leonardo but had thought of being a speculative housebuilder—and had he devoted the talent that that man has to the problems that I devote myself to—can you imagine where small houses might be today?

Voice: To whom are the builders going to school? Where are they going to get training?

Levitt: To the inspirational architects that started work in 1900. (And) you have it all in the textbooks.

Voice (Walter Gropius): Why shouldn't it be the other way around, that the architect learn a little bit more about building? Wouldn't that work?

Levitt: I'm afraid it wouldn't. [Here Levitt described the executive talent necessary to mass-produce houses.] That talent displays itself in all those phases that architects are not trained in and weren't given an inheritance in—such as money.

Moderator Douglas Haskell summed up the issue that had emerged from the debate: "The creation of exceptions, everlasting exceptions, and thereby the broadening of human experience, is the preeminent job in society of the great architect—that constant exploration. Now, then, how to bring that into play alongside of the practical knowledge and skill of men who are taking over because they are out-competing other people in our competitive society? It is not something to dismiss with just heat. These two factors have to work together.

. . . What is it that people want? What is it that people need? I don't know that anybody has a tremendous right to say that he knows. So I think if we can get more people searching together, it will be an advantage.

PEOPLE: Gropius resigns from Harvard; Greene named new FHA chief; Kamrath scores FHA design appraisals

Architects had no sooner put their convention bags down in Manhattan than they learned **Walter A. Gropius** was resigning his job as chairman of Harvard's school of architecture. In Gropius' 14-year reign, Harvard has become one of the nation's finest architectural schools. And the former impresario of Europe's famed Bauhaus was not due to retire until next year. Explained Gropius: Last year Harvard cut his staff from 13 to 10 by making no replacements; last month, the university lopped off another three aides, ordered a fourth transferred from assisting Gropius with his "master course," and discontinued Design I, Gropius' pet first-year course on materials, color, descriptive geometry. At 69, Gropius felt the resulting personal work load would be too much.

Behind the staff cuts lay a June 13 order from President Conant requiring a drastic reduction in the school's budget. Inflation had cut its income in half and Harvard policy is that each school must be self-sustaining. Since **Joseph Hudnut**, dean of Harvard's faculty of design (who was to have resigned this year), will remain another year as dean, it was a safe bet there would be a shift in emphasis at Harvard architectural school. Gropius believes in anticipating the architectural needs of an industrial civilization by making the architect the leader of a team embracing engineers, manufacturers, contractors. Hudnut, critic and historian and once a strong champion of modern architecture, recently grown increasingly squeamish about industrialism as such, pictures modern architects as mere technocrats, idealizes the individual architect as an individual artist, speaks with fond rotundity of his favorite Georgian age & architecture. Gropius, retiring with full pension, will devote full time to his private practice, The Architects Collaborative. Among his chief Harvard associates, **Richard Filipowski**, instructor in design, goes to MIT as an assistant professor, and **Norman C. Fletcher**, assistant in architecture, will return to The Architects Collaborative.

Addressing his local real-estate board, Houston architect **Karl Kamrath** acknowledged the FHA "has improved slowly in its architectural outlook but still has a long way to go." Commented Kamrath: the FHA "is a little tardy and inclined to hold back on appraisals on contemporary home designs because they are not the standard six or seven of all other homes in a subdivision.

The FHA is not always giving the appraisal an even break and year after year has a tendency to knock it down." The result, said Kamrath, is that builders by-pass originality in favor of tried-and-true design.

Almost within days after FHA Commissioner **Franklin D. Richards** announced he was leaving government to open his own Washington D.C. mortgage firm, President Truman nominated a successor: **Walter L. Greene**, 61, deputy commissioner for the last five years. As a man who already has 19 lines in *Who's Who* and who told a breakfast companion two years ago, "If everything works out the way I expect it to, I'll be commissioner in two years," Greene took the promotion in his stride.



RICHARDS

The FHA's new boss is a native of Owingsville, Ky., worked in Florida from 1915 to 1928 as bank cashier, auditor and executive secretary of the Miami Realty Board. He joined FHA at its birth in 1934, worked up from the Birmingham office to western zone commissioner (1937-'46), to deputy commissioner.

Gray haired, bespectacled, immaculately groomed, Greene could be taken for a deacon. His Florida friends remember him for personally pushing through a 15-story, \$650,000 Miami office building and for insisting the Miami Real Estate Board spend \$50,000 on an advertising campaign to counteract the approaching Florida land boom—thereby displaying one of the few level heads in that disastrous sea of enthusiasm. Reserved and abstemious ("I've seen him nurse one highball all evening," one Florida realtor recalled), Greene was known as an extremely hard worker in Miami. Time away from the office was devoted to raising flowers and fruit trees. While homebuilders welcomed Greene's appointment as commissioner, a few detractors said the uncertainty of who is to become the next White House tenant has made the FHA job unattractive to outside talent.



GREENE

To a Manhattan symposium, Realtor **William Zeckendorf** disclosed that he no longer plans to build his revolutionary circular helix apartment (Jan. issue '50) atop San Francisco's Nob Hill. Instead, he plans to spot one helix atop each peak on an 11,600-acre tract he owns in the Santa Monica mountains at Los Angeles, leaving the surrounding rugged hillsides and canyons as a rustic park. "Because you can put 135 families on a mountain top," explained Zeckendorf, "you can afford to carry the road and the utilities that go with it and yet . . . the [residents] can have a life that is quite different and apart from the conventional southern California existence."

Morton Bodfish, US Savings & Loan League's executive committee chairman, suffered seven broken ribs and head cuts when his horse bucked him off and down a 50' embankment on Rancheros Vistadores at Santa Barbara, Calif. He spent seven days in a nearby hospital before returning to his Chicago office.

At their annual meeting on St. Simons Island, Ga., the Southern Plywood Manufacturers Assn. elected **V. L. Toussaint**, head of Perry County Plywood Corp., Hattiesburg, Miss., as president. SPMA's Washington counsel, **Robert N. Hawes**, urged restoration of the 1950 plywood tariff cut as a means of fighting the increased importation of hardwood plywood.

Growing with prosperity, the NAHB added three officials to its Washington staff: **Jerry Madigan**, 38, former executive director of the Home Builders Assn. of Greater Cleveland, to be field service director; **Joseph B. McGrath**, 30, former Justice Dept. attorney, to be assistant legislative director; and **Everett E. Revercomb**, 38, formerly with the National Assn. of Radio and Television Broadcasters, to be comptroller.

DIED: **Vernon M. Hawkins**, 67, former vice-president of the National Retail Lumber Dealers' Assn., June 13 in Boston; **John H. Rankin**, 83, whose 54 years of practice earned him the title of dean of Philadelphia architects, June 19 in Philadelphia; **R. E. Lee Taylor**, 70, former president of the Baltimore AIA.

NAMED: **Frederick P. Clark**, of Rye, N. Y., as president of the American Institute of Planners; **Edward H. Shirley**, of North Carolina State College, as recipient of the 1952 Lloyd Warren architectural scholarship to Paris; **Carl D. Franks**, veteran executive of the Portland Cement Assn., as the PCA's executive vice-president.



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Cheaper houses or better values?

The automotive industry stopped making a cheap car 25 years ago— stopped so long ago that very few even remember a 1925 Ford cost only \$260. (Today's is \$1,562.) Yet far more low-income families have cars today than ever before*, and apparently low-income people are happier riding around in a \$2,000 car bought second or third hand for \$500 than in the kind of car Detroit could turn out for \$500 new.

How different this is from the folkways of homeownership!

And the interesting point is this: the public seems perfectly satisfied with the automotive industry's roundabout way of providing low-priced cars. No politician seems even to have noticed that cheap cars are no longer made; none has suggested any such nonsense as a billion-dollar-a-year federal fund to give a new Buick to anyone who cannot afford a new Chevrolet (a rough approximation of public housing's program for making the taxpayers put up an average of \$10,675 plus a unit to house anyone who cannot afford a \$7,000 home on his own).

Perhaps homebuilders can profit by this example:

Alan Brockbank and Fritz Burns are 100% right, we believe, when they say the one best way to provide better housing for the poor is to take the profit out of slum ownership and force the owners of substandard housing to fix them up at their own expense. That is the basis on which Charlotte, N. C. has almost wiped out all its slums. It is the basis of the famed Baltimore plan, which is proving profitable for tenants and owners alike. It is the basis for the new private-enterprise slum rehabilitation programs in Pasadena, Cleveland, Paterson, Corpus Christi, and many other cities.

In new communities where old housing is scarce the only answer may be the development of some sort of minimum house to meet the immediate need (*see p. 82*).

But there comes a point where a builder has to start taking value out of his house faster than he can take dollars out of his price. Even in Phoenix, most competitive of homebuilding markets and one of the few places where you can buy a good three-bedroom house for \$7,000, a better value could be offered for a few hundred dollars more. As long as so many wastes** are forced upon homebuilding there are many cities where the kind of house homebuilders can provide for under \$6,000 may not always be worth building. Too often the builder of a really low cost house gets no better thanks than to be told he is erecting "the slum of tomorrow."

Like the auto makers, homebuilders might often be wiser to leave the minimum price market to the reconditioned old house and concentrate on the job they can do best — giving better value in the \$10,000-\$13,000 bracket. This means getting good architects to streamline their designs and improve their site plans, making their rooms a little larger and their plans more livable, sparing some shade trees and giving a little bigger lot, making housework easier by filling the kitchen with labor-saving machinery under the package mortgage, even adding air conditioning.

Whenever a better house is built and sold as many as 13 families on down the economic scale play musical chairs and move to a little nicer home. Every new house built and sold, regardless of price, helps ease the housing market, makes old houses just that much easier and cheaper to buy.

And so in most communities every good new \$12,000 house means a low income family can move to a better home too.

* In fact, a free garage for every tenant's private auto is required even for many public housing projects.

** As long as foolish and divergent codes block the economics of standardization—as long as feather-bedding runs up the bill for labor—as long as closing costs can be racketed above \$500.



Glass doors lead from entrance court into foyer

Roman house

Its patios, pool and succession of formal spaces make this a modern variation on an ancient prototype

This costly house has very little to suggest about economy—for strict economy was never an object; very little about climate control—for a three-zone cooling system gives the house its own climate without benefit of sun shades or any other compromises with pure design; and very little even about structure and its expression—except, perhaps, that walls are only walls, important only to create spaces, to close or open vistas.

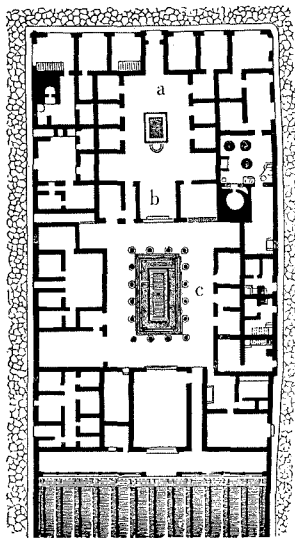
But this house does have something worth saying about how to create privacy even on a corner lot, create it so subtly that few would notice that practically no windows face the street and that the house is thus a polite wall which welcomes guests but bars Peeping Toms. It has a good deal to say about the interplay of closed and open spaces, brick walls and glass screens, cool colors and warm sunlight, formal structure and informal planting. In brief, it has much to say about architecture as an art—things that should delight designers and builders even of houses far too small to utilize directly the ideas developed here.

Location: Houston, Tex.

Cowell & Neuhaus: architects

C. C. Fleming: landscape architect

Kaser-Oakes Const. Co.: general contractor



Plan of typical Roman House a atrium
b tablinum
c peristyle

Above all, this is a large and luxurious house; but unlike many large and luxurious houses in oil-rich Houston, this one has a measure of simplicity, orderliness and serenity that would set it apart anywhere.

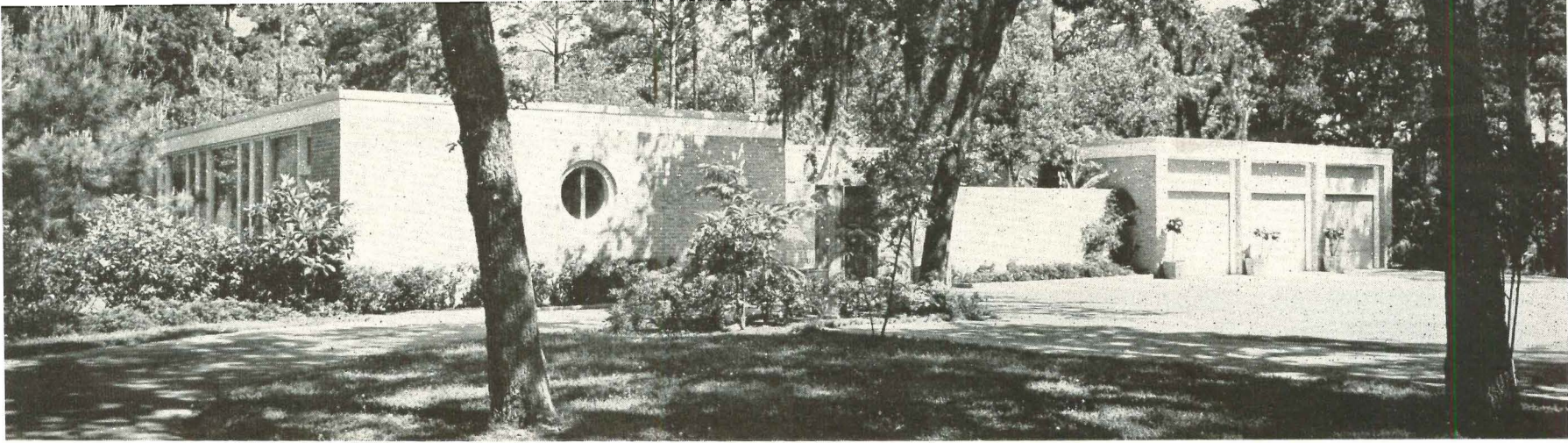
One reason architect Hugo Neuhaus was able to produce such clarity and simplicity within a highly complex set of requirements is, of course, that he invested his own house with a great deal of simple, good taste—a quality as hard to explain as it is easy to recognize. A second reason—and one that *can* be explored in some detail—is that he followed the principles of architectural organization first laid down by the Greeks and Romans more than 2,000 years ago: Like the early prototypes of those periods, his house is really a small town—a series of walled-in subhouses (each with a different function) grouped around a number of patios (or living areas that are open to the sky).

The Greeks and Romans used this system of grouping in order to produce a succession of exciting spatial experiences as you walked through narrow gates into a wide patio—and then through another narrow passage into another, even wider patio. Each patio had its own special character: The first, the *atrium*, might be a semipublic court which you entered from the wide-open street; the next, the *peristyle*, with a pool in the center, might be a more private, outdoor living room; and, finally, after passing through yet another narrow space, there might be a calm, walled-in garden, separated entirely from the outside world.

Architect Neuhaus has followed this system in principle; but because his materials are entirely modern (and permit him to open up walls and spaces to an extent unknown to Romans), he was able to dramatize the movement of flowing space even more strikingly than most Roman architects could do it with the materials *they* had.

Thus he connected his walled-in subhouses with wide and glassy volumes and through them the flow of space has become more effortless, smoother and more exciting. There are exciting changes of light, of atmosphere and of vista as you progress through the house. Every sudden view across the pool, across a patio and toward a plain brick wall is carefully studied; every relationship of formal building to informal planting is designed as meticulously as a Japanese flower arrangement. This house does not ramble, for Neuhaus felt that *large*, rambling plans could easily dissipate themselves in formless confusion. His house is a succession of space-experiences that build up, in an orderly way, to the climax of the central patio.

There is another aspect that makes this house seem as classical in spirit as it is modern in structure and equipment: this is the massive weightiness of its brick



View from the street approach shows house removed from its corner property lines. Zoning restrictions dictated the location

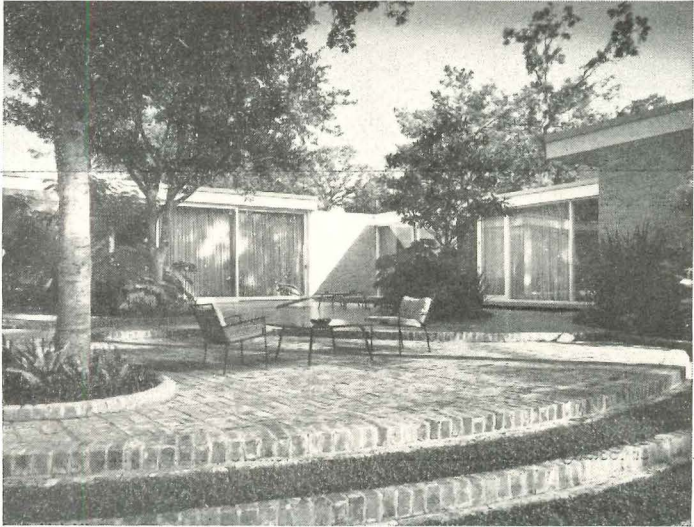
Photos: Ulric Meisel—Dallas

View of foyer looking out to entrance court. Brick is textured, salmon pink



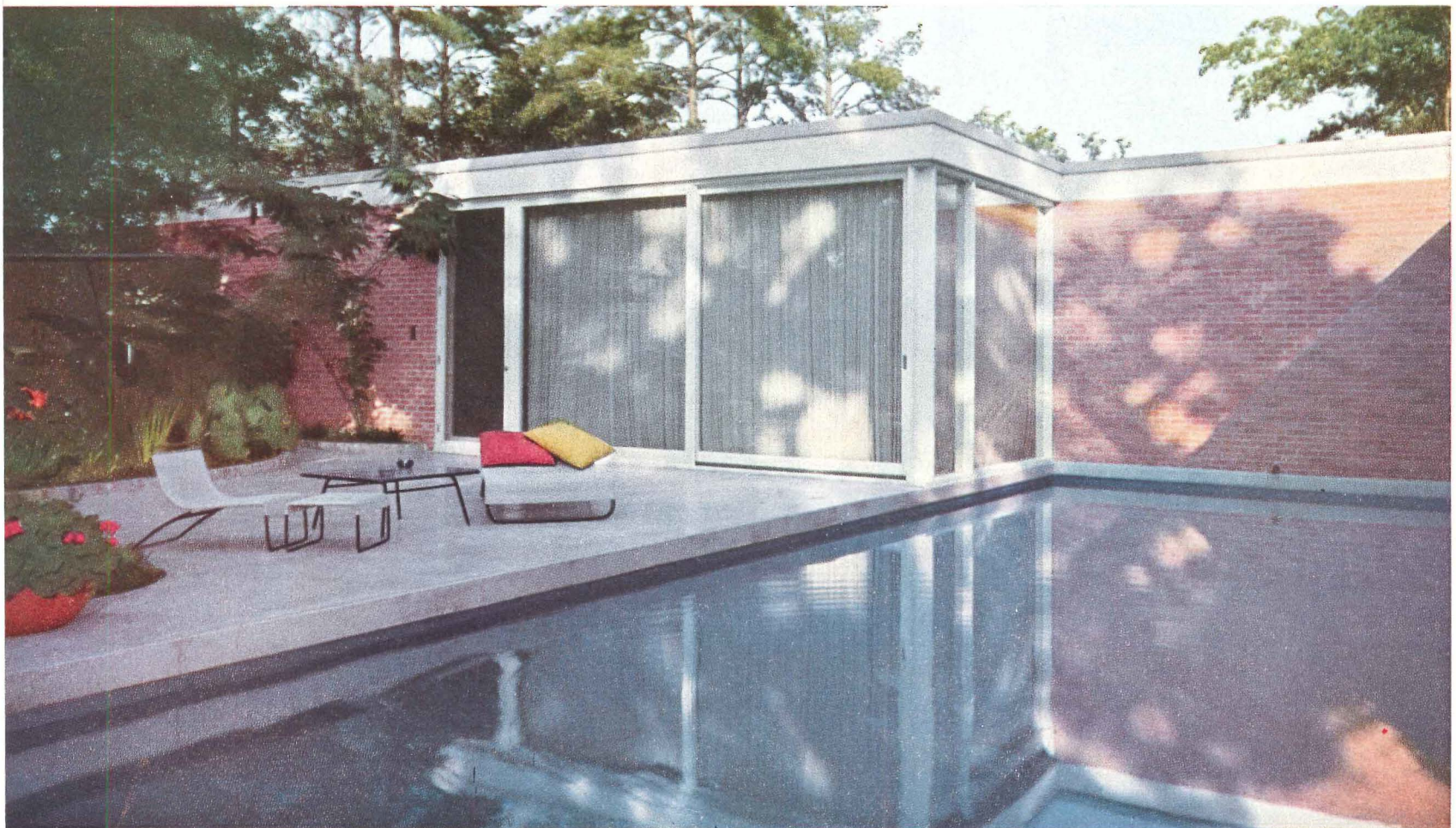
subhouses. It is as hard to imagine this house with deep roof overhangs (in place of its tight band of fascia) as it would be to imagine some Roman basilica topped off with low-slung, overlapping roof planes. The reason is, of course, that an almost monumental formality seems to call for a vertical geometry, and that buildings around patios that are open to the sky should *appear* to be reaching for the sky—and not for a distant prairie horizon. In Neuhaus' esthetic there is an intimate relationship between the concept of the patio house open to the sky and walled in on three sides, and the concept of a facade that carries the eye upward toward the sky also. It goes without saying that these concepts are as romantic as any evolved by the close-to-the-soil school of thought.

In only one respect has Neuhaus modified this severe formality: he felt that there was a need for a definite break between the angular geometry of his interiors and the planting and terrace patterns in his central patio. The patio is very large—at least 60' in any direction—and it required an informal subdivision into sunbathing, dancing, outdoor dining and lounging areas so as not to dwarf small gatherings (actually, it can take 75 guests without the slightest trouble). So the planting and paving areas are free-shaped and the vegetation is tropically lush and even wild. Only in the 15' x 45' pool (whose inside surfaces are painted a cool blue) is there some reflection of the rectangular geometry of the architecture.



Central patio. Curved steps lead down to lawn and wooded ravine

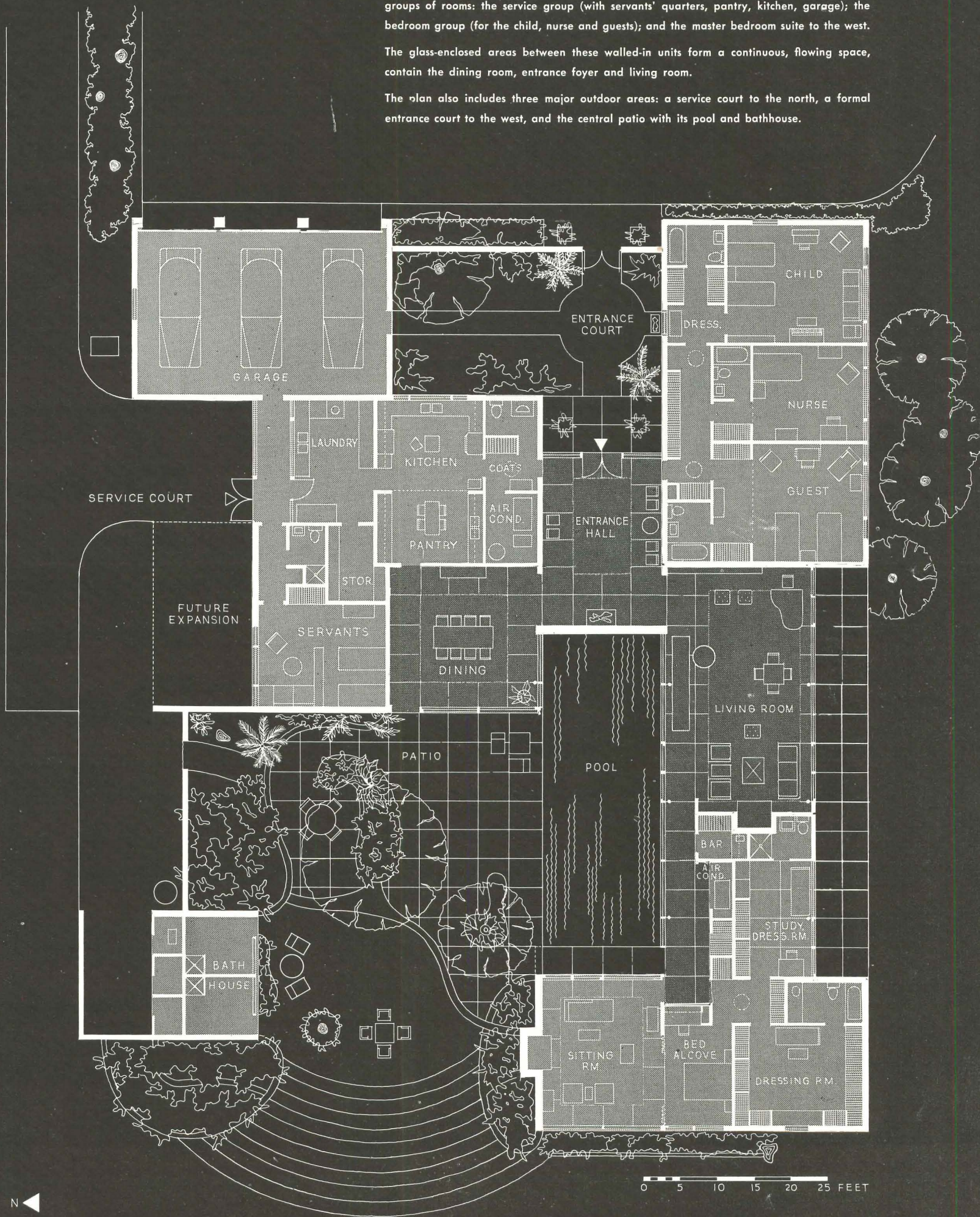
Swimming pool is central feature of patio. Banana trees, paper plants and loquats produce a tropical setting



To simplify his complex program, architect Neuhaus decided to zone his plan and group rooms with related functions together. These groups of rooms are treated almost like brick-walled houses that are then linked by glass-enclosed living spaces. There are three distinct groups of rooms: the service group (with servants' quarters, pantry, kitchen, garage); the bedroom group (for the child, nurse and guests); and the master bedroom suite to the west.

The glass-enclosed areas between these walled-in units form a continuous, flowing space, contain the dining room, entrance foyer and living room.

The plan also includes three major outdoor areas: a service court to the north, a formal entrance court to the west, and the central patio with its pool and bathhouse.





Dining room opens upon central patio also. Ramp for food cart slopes down to outdoor dining area

Cool house in a hot climate

For Houston's hot and humid climate, Neuhaus devised a year-round air-conditioning system decentralized to correspond to the major areas of his house. Parts of this system can be cut off without affecting the rest, and relatively short duct-runs from the system's three units reduce furring under the 10' ceilings to a minimum. Strict economy here—as elsewhere in the house—was no object.

Neuhaus also cooled his house by using cool and restful colors. The dominant background color is a light, bluish gray, where there are plaster surfaces, and a dusty, salmon pink where he has exposed his brick. Against this background are played shades of blue in upholstery fabrics, together with darker shades of gray here and there.

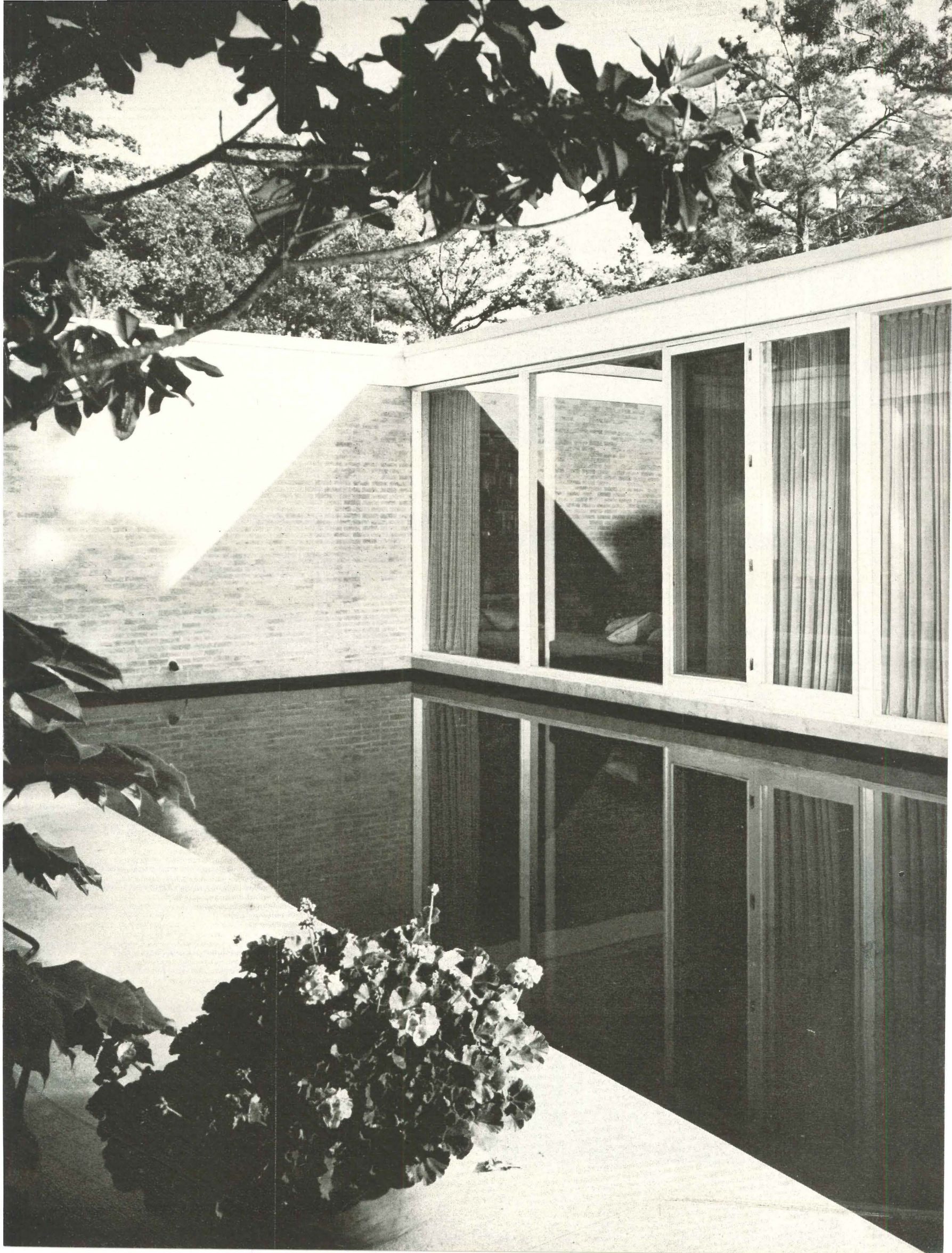
At night, the house is dramatically lighted to stress the elegant transparency of its structure: recessed ceiling fixtures throw an even wash of light over entire wall surfaces and give a pleasant reflected light to the rooms. They also permit the paintings to be moved around at will. In the patio, the banana trees, paper plants, loquats and elephant's ears are brilliantly lit from mercury vapor floodlights sunk in copper cylinders into the ground.

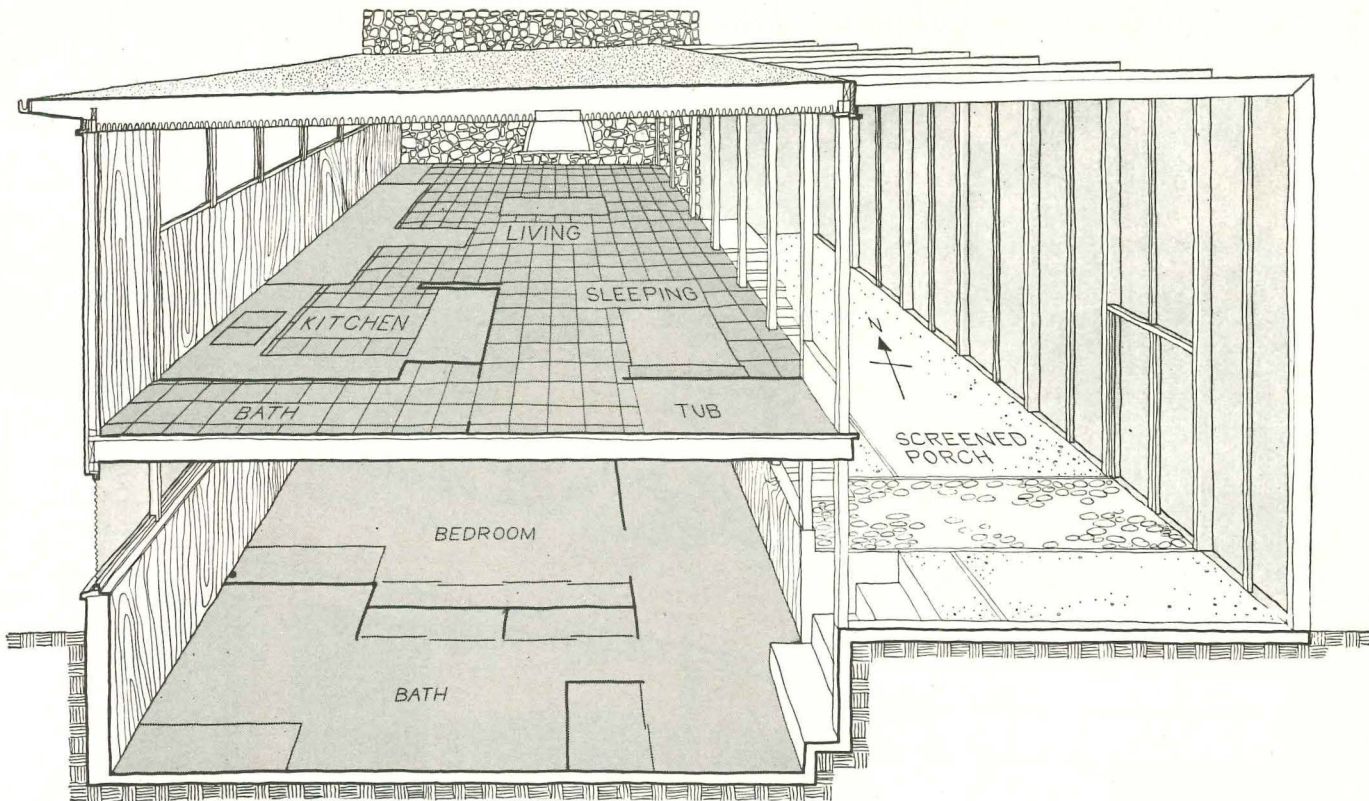
While the special needs and problems of this plan called for a very special solution, architect Neuhaus has demonstrated one way of merging the entirely modern esthetic developed by men like Mies van der Rohe, with the classical formality that gave the Roman house its characteristic elegance. This successful blend of modernity with tradition gives his house a sense of style that has been sadly lacking in much modern work in the past.



Living room colors are cool grays and blues. Large glass walls along two sides of room make it sunny and bright.

View of pool and living room beyond (opposite). Broad roof fascias help give coherence to a complex building.





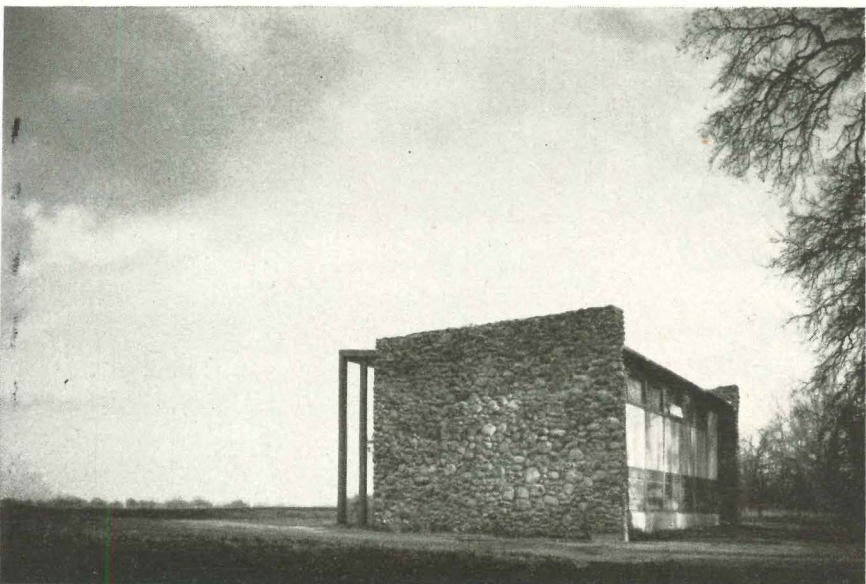
3 levels and a view

An object lesson in how space flows,
 how views change and
 how 12,000 cu. ft. can be made to look
 like a great deal of house

LOCATION: Cowpie Ranch, Vina, Calif.

MARIO CORBETT, architect

Site is flat, 300-acre tract at edge of Sierras



Photos: Dean Stone & Hugo Steccati

Two factors make this small house a very unusual piece of residential architecture. They are:

1—a split-level plan that has a good deal to say about the flow of space, about privacy as well as openness, and about the imaginative use of limited cubage;

2—an arrangement of “viewing platforms” from which one and the same flat field is made to appear excitingly different as your eye level changes, and which endows the surrounding site with a curious life of its own.

In addition, architect Mario Corbett’s small house in Vina, Calif., to which the national AIA gave a certificate of merit, is one of the handsomest structures built on the West Coast in some time. Its framing discipline, its colorful use of natural stone, mosaics, indoor planting and paving make this an impressive contribution to the modern movement.

Space flows up and down. For years architects have been intrigued by the concept of split-level spaces. There are numerous reasons for this—

First, it is exciting to pass through rooms of different ceiling heights, and to go up or down a few steps from one room to the next;

Second, it is exciting to stand a half-level above a tall room and look across it at a distant view;

Third, it is exciting to create a sensation of *visual* privacy by placing different-use areas on different levels, without separating them by ordinary partitions;

Fourth, it then becomes very exciting also to enjoy a view of *all* of the interior space *all* of the time, from any part of the house—without being seen yourself;

And, *finally*, it is exciting to experience all these sensations and then to realize that they all add up to something every good architect strives to achieve: a three-dimensional flow of space that operates not only horizontally, from room to room, but up and down and across as well.

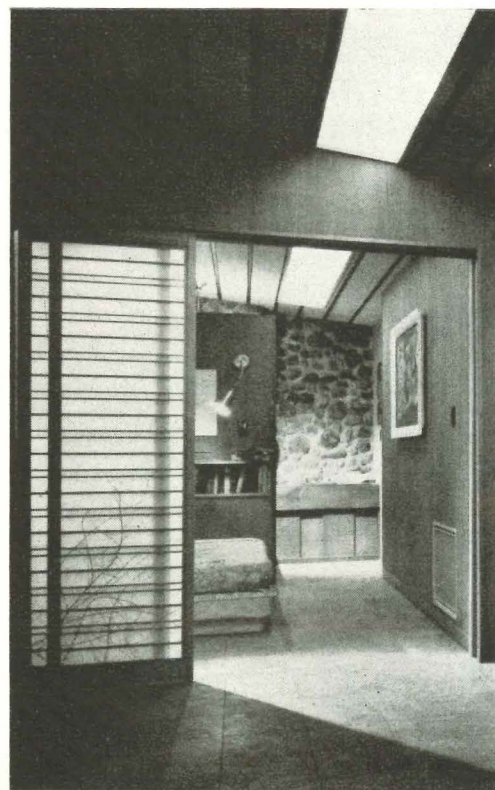


Screened porch is 1½ stories high, links two levels of house



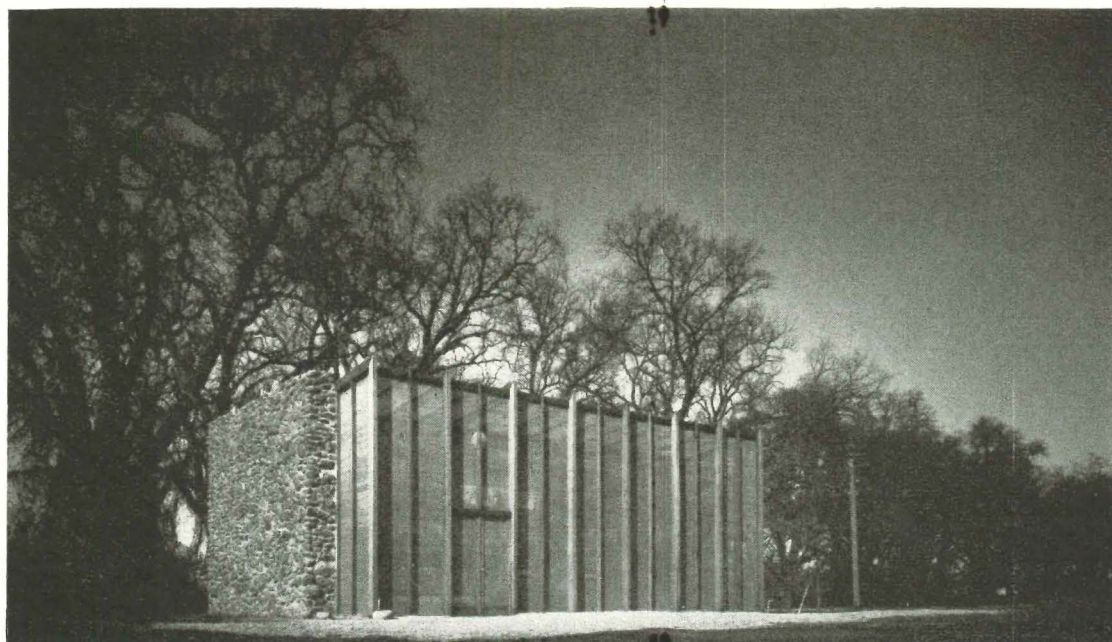


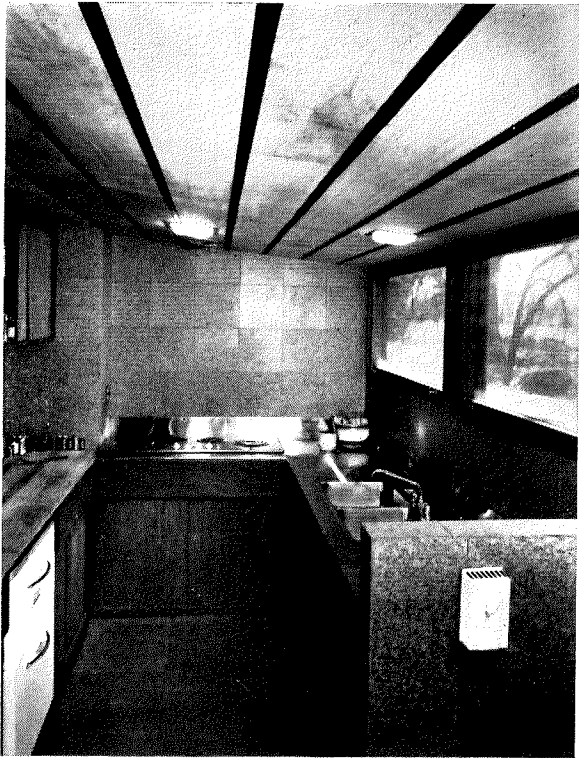
View of screened porch showing mosaic tub by George Harris at far end of upper shelf



Sliding shoji screens sleeping area on upper shelf

Porch-house seen from the east





Kitchen is connected to lower level by dumb-waiter



Upper level is wide open, overlooks porch at right

Shelves and a screened porch. This house has three-dimensional space. Basically, it consists of two, rectangular shelves, one above the other, each 42' long and 16' wide, each about 9' high. They are held between massive stone walls that run along their short edges. The top shelf is held about 5' above grade; the lower shelf has been sunk about 4' into the ground.

Along one long side of this set of shelves, architect Corbett built on grade a 15' tall, 10' wide screened porch with a plastic screened roof similar to Polevitzky's famous bird-cage house (May issue '50), to which it bears a rough-hewn resemblance. Seen from the front it is almost all screen. Behind the screen is a combination entrance porch, indoor garden and indoor-outdoor living space for the entire house. From it you step down a short flight to the lower shelf (which is planned to contain guest and children's bedrooms, dressing room and bath), or up a somewhat longer flight to the upper shelf (which holds the kitchen, bath, utility, sleeping, eating and living areas).

Both shelves are virtually open to the screened porch—sliding glass panels are the only division, and these can be opened to the cool breezes for most of the year, so that the tall, 1½-story porch then becomes the principal living area of the house. Since the windows on the west side can also be opened up all the way, the house can be turned into a breezeway during the hot summer months.

The actual enclosed cubage is less than 12,000 cu. ft.; but the 6,000 cu. ft. of the screened porch can be thrown in with this volume to give an illusion of much greater spaciousness. Thus anyone resting in the upper-shelf bedroom has an uninterrupted view of 30' of house in most directions; another, sitting in the screened porch, finds himself in a 15' high space with indoor views that might extend for as much as 40'; yet neither person need be aware of the other's presence, for their different eye levels provide privacy for each.

Both, moreover, will be aware of the curious excitement that comes from a three-dimensional space flow. In architect Hugo Neuhaus' esthetic (*p. 68*) the flow of space is channeled between two fixed horizontal planes—a uniform floor plane and a uniform roof plane—and modulated by free-standing brick walls. Mario Corbett's space has no such directional quality; it is allowed to move around with as little impediment as possible, within the limitations of the over-all volume of the structure.

While this is a decided asset in a small house—for most people make a small house appear even smaller by chopping it up into tiny cubicles—Corbett's concept has certain limitations. Since he enters through the 1½-story porch, the whole concept of the house is apparent to the visitor the moment he comes in the front door, although some of the nuances of the space arrangement will not become clear until he has stepped up (or down) to one of the two shelves.

Some split-level designers have tried to overcome this absence of surprise in one-room houses by entering by way of one of the lower shelves, then creating a succession of "growing-space" sensations as you proceed from a low-ceiling into a high-ceiling area. The special problems of this site, however, made such a solution difficult.

3 LEVELS AND A VIEW



View from living area across screened porch

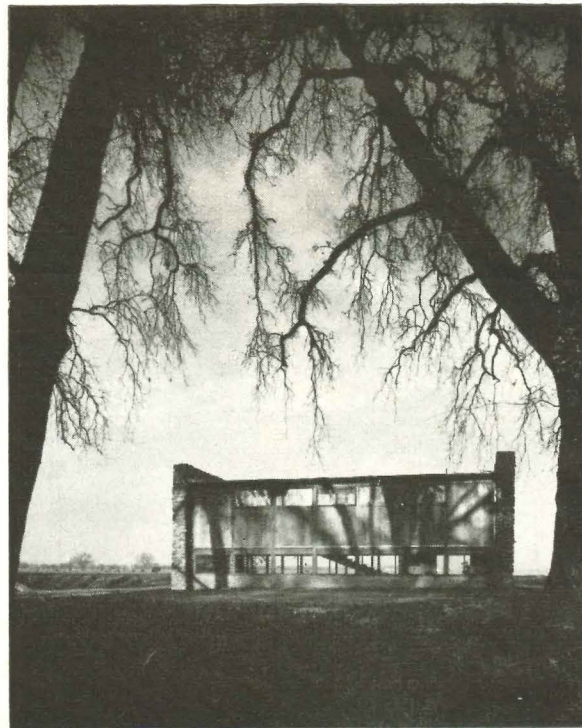
A site comes to life. This site is very flat and extends for a long distance without relief. Far beyond the edge of the 300-acre tract there are the Sierras. At normal eye-level, this is a view that holds little sustained excitement.

Corbett realized, however, that it might be possible to make this view come alive if it were to be seen at constantly changing eye levels—much as even a dull landscape comes alive to the pilot as his plane rises slowly into the sky. By going up a mere 5', Corbett found that the furrows of the plowed soil and the patterns of planted crops suddenly took on the kind of foreground interest that was needed to set off the distant views. Moreover, these patterns created a depth of perspective to the whole view that increased its drama considerably.

For this reason Corbett started by raising his principal living-shelf off the ground. Sinking a second shelf into the ground beneath seemed natural since (a) it would create a cool retreat in the hot season, and (b) it would utilize necessary foundation walls—obviously a less costly procedure than putting both shelves above ground. The screened porch became the natural, intermediate level between the two shelves. A dumb-waiter from the upstairs kitchen serves the lower shelf, reduces stair traffic to a minimum.

While Corbett thus got the most out of a dull site and a difficult view, he felt that additional indoor views would help further to divert the eye. Some of these views have been discussed on p. 77. Others include areas of small-scale interest handled with unusual sensitivity and art. For example, the stonework inside this house has some of the quality found in Japan. It ranges all the way from the crude, rounded stone (from a dry river bed nearby) used in the walls, through the heavy cobblestones used in one part of the screened porch, down to the fine scale of the gravel used elsewhere. Another example of sensitive and colorful detail is the mosaic tub designed by George Harris and placed, as an integral work of art, at one end of the upper shelf. Here, as in other recent attempts to joint modern architecture with the other arts, a "fine" artist has made an entirely functional, as well as beautiful contribution.

Structurally, this house is simple enough: 4" x 6" redwood posts, 5'-4½" on centers, line the structure in its long direction, support 2" x 12" roof joists and 2" x 10" floor joists. The posts are exposed on the exterior. Between them are 12" wide, resawn redwood boards used as vertical siding. Ceilings are finished with similar boards, with alternate boards dipped in creosote or lime, to produce an alternating dark and light finish. What partitions the house has are finished in plywood, and floors are covered with cork tile.



House seen from the west shows two levels, main stair

Living area on upper shelf is open to screened porch →



This is the first installment of a regular new feature in HOUSE & HOME—a monthly report on important developments in the modernization of mortgage credit, with particular emphasis on the expanding potential of the package mortgage, the open-end mortgage, and the expandable mortgage. Until now architects, builders, realtors, lenders, and building supply dealers have had no place to turn for up-to-date information on better ways to finance the modernization of old homes or the more complete equipment of better new homes. From now on they will find that information reported regularly in a special department in the front of HOUSE & HOME. Next month's story will tell of an important new development in the expandable mortgage.

Crack in high cost of title insurance points to fuller use of the open-end mortgage

Would you—or would one of your clients or customers—like to borrow some money *on your present mortgage* to pay for air conditioning or a new garage, or a new bedroom, or a window wall, or a labor-saving kitchen—for major repairs or a face-lifting modernization?

Almost any savings and loan association will be glad to accommodate you, and so would many savings banks, and so would many of the big insurance companies in the mortgage field, notably the Prudential Insurance Co., Mutual Benefit of N. J., and the National Life of Vermont. Up to the original value of your mortgage—and sometimes even higher—they would just add to your unpaid balance the cash you need for improvements. Then you would pay it off through accelerated monthly payments—or perhaps your mortgagee would extend the term and let you keep up your present payments for a few more years. This is known as the “open-end” or “additional advance” mortgage procedure. It was first sponsored by this magazine to make it a lot cheaper and a lot easier for homeowners to borrow money to improve their property. (The best alternative is a Title I loan at 9.6% with only three years to pay.)

Simple, isn't it?

Well, not quite so simple, and not quite so easy—*until now*.

The hitch has been that lenders cannot let you have the added money unless it will have the same first mortgage status as the original loan. They need to satisfy their lawyers and bank examiners that you have not put any subsequent lien on your property that might come between their first mortgage and the loan for your modernization or repairs.

In other words, they need title insurance, and until now the cost of title search and title insurance has often been prohibitive.

In northern New Jersey, for example, title insurance for a \$1,000 advance might cost as much as \$110—or about three years' interest. And even at this price it might involve long delays while the title was being searched all over again.

Now all that top-heavy cost and all this delay is unnecessary. For New York's City Title Insurance Co., pioneer in many other moves to cut the cost of title

guarantees, announces through HOUSE & HOME that for only \$5 per \$1,000 (minimum fee \$10) it will insure the title on any additional advance within the original total of any first mortgage in any state.

The procedure City Title will follow is simple enough to be spectacular: without waiting for a title search, it will simply accept the homeowner's affidavit that no liens have been placed on his property since the original mortgage. Lending institutions already doing business with City Title can get automatic insurance coverage simply by sending to City Title: (1) a notification of the amount of the advance made, and (2) the affidavit, which City Title will prepare, signed by the owner. Other lenders can get the same added insurance at the same low rates but they may have to wait a few days to get their policies. For old and new customers alike, this procedure will eliminate the delay usually involved in searching title.

City Title plans a few other innovations—for instance, it will present to the lender simply the policy of title insurance instead of the long (8 or 9 page) certificate usually furnished, thereby cutting down on time and cost. But primarily its novelty is a business assumption that the man who owns his own home is a sound risk and that his word is good. Says City Title Insurance Co. President Saul Fromkes: "We have faith in the honesty and integrity of the small homeowner, and we are willing to take a simple business risk." Some time after the insurance has been granted, the company will spot check the titles for complete protection, but it expects to find few cases of false affidavits.

City Title (whose Board Chairman is Senator Irving Ives (R, N. Y.)) has been something of a pioneer in title searching and insurance. When big-builder Bill Levitt began erecting his mammoth development out of Long Island's potato farms after the war, the company struck what was then a unique bargain with him: instead of trying to get thousands of fat fees for searching the title on each of Levitt's 60' x 120' lots, it made *one* search—on the original land Levitt bought—and then insured the titles of all the lots carved out of it. This reduced the title fees on Levitt's houses from \$64 to \$15, which Levitt absorbs in his selling price.

City Title expects other title insurers eventually to follow its lead in granting inexpensive title insurance for open-end advances based on the homeowner's affidavit. Says Fromkes: "They usually do follow us, but it takes three or four years." Meanwhile, his company is casting about for other new procedures it can impose on what Fromkes calls the "antiquated title insurance industry." Its next program will be title insurance for new mortgages for owners who have already paid off their original mortgage. These titles it will insure for \$10 a \$1,000 (minimum fee, \$20), on the same basis that it will insure mortgaged titles: the homeowner's word that his property is free of debt.

What this means to the building industry

City Title's action is an important step forward in the campaign to modernize mortgage credit, and make first mortgages the basic instrument of low-interest consumer credit.

Why should families who can offer the basic security of a substantial equity in their own homes have to borrow on the same high-interest, short-term basis as families who can offer lenders no such security?

What is the open-end mortgage? and what are its advantages?

The advantage of this new type of credit for homeowners shows up most prominently in a review of the disadvantages of the short-term loans which are the borrower's only alternatives: (1) overextension of short-term credit has sunk many a small homeowner into foreclosure, and (2) fear of precisely that kind of sinking has kept many more prudent potential buyers from purchasing the new kitchen, the carpeting; or the repairs they want and need. But—and here lies the challenge that produced the open-end mortgage—the fear of heavy debt and foreclosure has also deterred many who could safely handle a loan on an open-end basis. A low-income homeowner, for instance, might wisely decide that his budget could not stand the \$63.80 monthly payments required for a \$2,000 FHA Title I loan for a new heating plant; but he might very well see his way clear to pay back the loan at \$21.22 a month, as he could if his mortgage had at least ten years left to run and were "opened up" to provide for the additional cash.

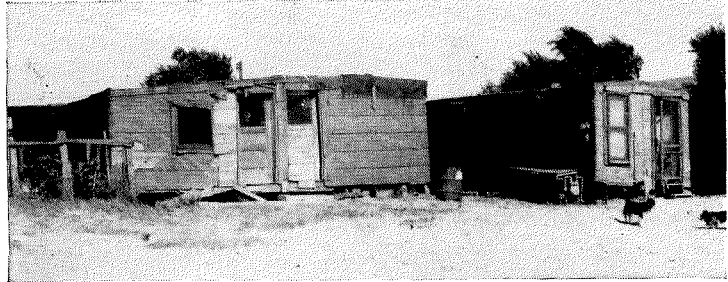
The open-end mortgage permits the owner to buy *better* equipment than he could under high-cost, short-term financing arrangements. Short-term credit prompts many a customer to choose an inferior product even though he knows he will pay more for it later in higher maintenance.

What kind of market would the open-end mortgage open up?

Some economists, noting the \$3 billion that now goes annually into home modernization and repair, believe that full use of open-end mortgage credit could double that figure, for the 9 million US families who own mortgaged homes have equities in those homes totaling \$48.6 billion.

If this great credit tool exists, why isn't it being used? It is being used!

Last year, about \$400 million was loaned in additional advances under open-end mortgage agreements. But the open-end mortgage still is not used as widely as it could be. This is partly because too few homeowners know about it—and too few architects, builders, lenders, and dealers tell them about it. But partly also it is because the high cost of title searching in major metropolitan areas has made the use of the open-end mortgage impracticable. This is the obstacle City Title's lead promises to eliminate.



A builder's one-man slum clearance project

**Dick Hughes has transformed a squalid shantytown
into a decent, self-respecting community**

Slum clearance is almost like the weather: everyone talks about it, no one does much about it.

But here is a merchant builder who has put across a unique slum-clearance project so successfully that it may encourage other builders to follow his example. Without a penny of government help and in the face of many difficulties, NAHB Treasurer R. G. (Dick) Hughes has wiped out a shameful shantytown and rehoused nearly 2,000 families.

Hughes makes his headquarters in Pampa, Texas, where the population of 30,000 is too small to support a large building operation. In looking around for other places to build he became convinced that if ever a small town needed new houses it was Borger, 28 miles away in the heart of an oil field and carbon-black manufacturing area.

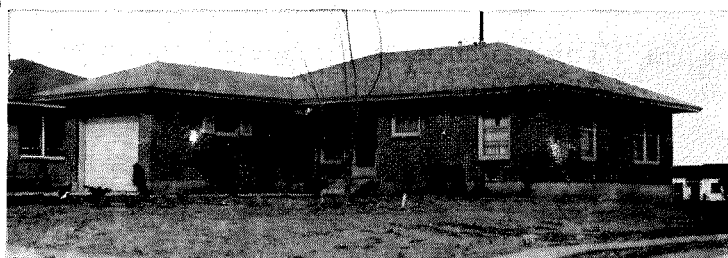
During the war hundreds of defense workers' families had surged into the tiny village. At least 3,000 families built shacks as a desperate substitute for houses they couldn't find. The people of Borger never use the term "multipurpose room"—but everyone in shacktown had one. It was living room, dining room, kitchen and often a bedroom. There were no bathrooms, no running water, no sewers. Toilets were in even smaller shacks in the back yard.

Many families were earning sufficient money to buy a small house, but there were no houses to buy. Nor could they buy land on which to build. The land was owned by ranchers who wanted to keep the oil rights. Even if owners had been willing to sell small lots here and there, neither FHA nor mortgage bankers would look twice at this harum-scarum "no man's land."

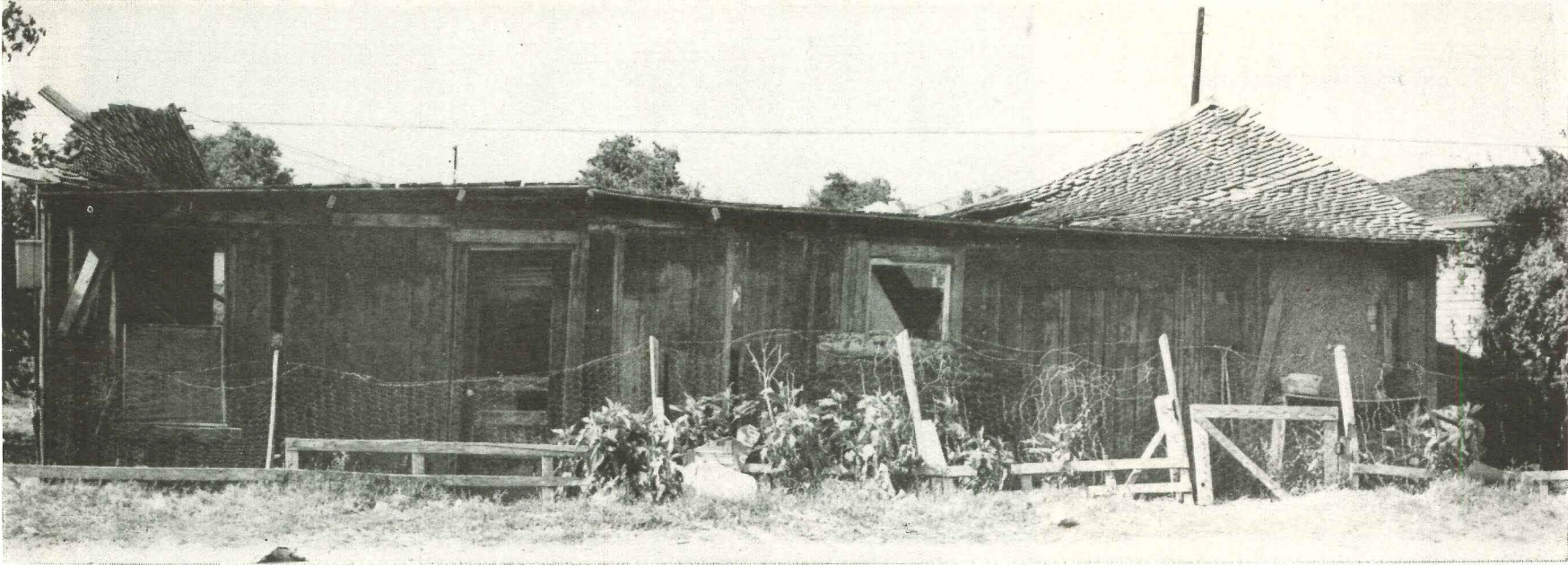
To make things more difficult for a prospective builder, the land was crisscrossed with oil pipe lines and gutted with ravines. The village government was bankrupt. But Hughes could see this was where people had to live. Their jobs and friends were here. *The photographs above show typical shacks.*

In setting out to transform this bleak, miserable shantytown into a community of new houses, Dick Hughes could never be accused of doing things the easy way. He finally persuaded ranch owners to sell by showing them they could retain drilling rights through a series of small parks. He then got FHA to go along, which was the first time it had ever approved such property. Getting mortgage commitments was the toughest job of all. He had to go to 57 banks and insurance companies before Arthur Blumeyer of the Bank of St. Louis agreed to buy the mortgages.

Hughes paid nothing for the shacks (in contrast with one Texas slum-clearance project where similar shacks cost up to \$7,000 in addition to land costs), but he had to persuade families to move. He got 1,200 families to vacate by offering to truck their shanties to lots with sewer and water he owned nearby which he



Shacks at top of page were replaced by houses like these at Borger, Texas as Hughes transformed 700 acres of "no man's land" into respectable residential neighborhoods. House above cost \$3,950. Brick house at right sold for \$10,500. Those at far right sold for \$6,000-\$7,500.



sold for \$350. He trucked over 300 shacks to other property. Other shacks were abandoned, although some people are still living in shanties today on land Hughes has not yet developed. Of the 2,000 families now living in Hughes' houses, probably 65% once lived in shanties on the same property.

Houses that replaced the shacks sold for as little as \$3,950 and as much as \$10,500. For his 700 acres Hughes paid from \$600 to \$1,800 an acre. He paid \$50,000 for moving pipe lines and also moved mountains of earth. Those costs, plus his utilities, brought the actual cost of lots to an average of \$1,250.

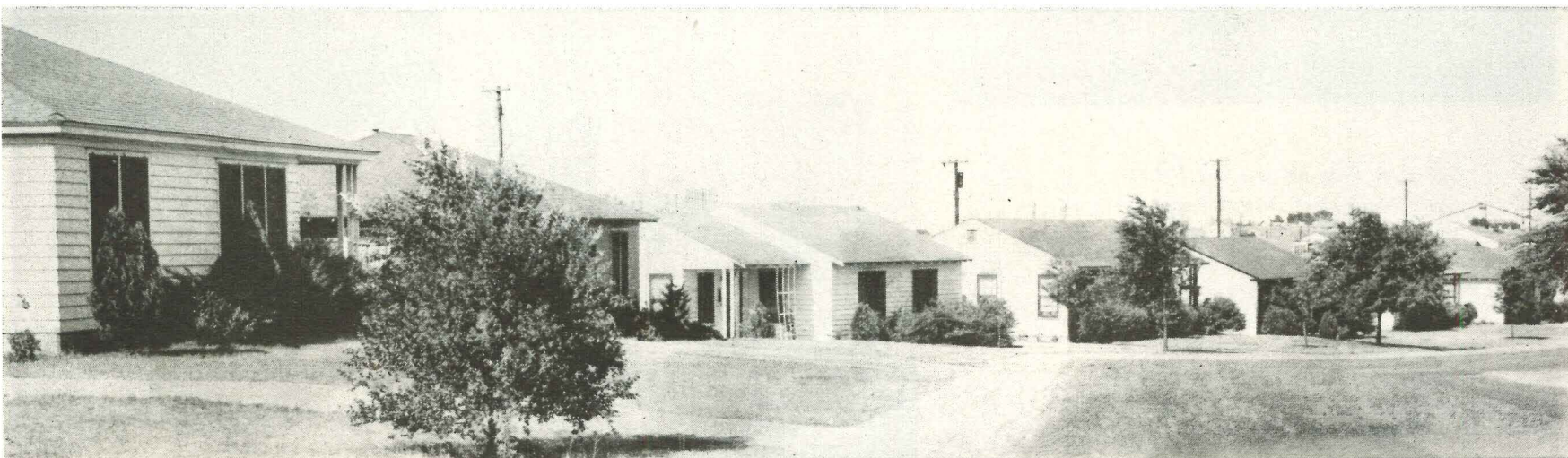
In Borger, as in the four other towns in which he builds, Hughes tries to offer house buyers a variety of models and a range of prices. He will build a total of 1,000 houses this year: 300 in Borger, 350 in Wichita Falls, 250 in Pampa, 50 in Panhandle and his son Lynn, age 20, is building 50 in White Deer.

Of these, 600 will be defense houses selling at \$6,750 to \$8,450 or renting for \$49 to \$77 per month. "You can't solve the housing problem in a town by building only one house," Hughes says. His Title I at \$5,500 (see next page for photos) is his least expensive house. His highest priced model is a 3-bedroom, \$13,000 fully air-conditioned house described here last month.

Since 1940 Hughes has built thousands of houses, put up the air-conditioned Hughes building in Pampa, won high NAHB honors and fought successfully for improved building regulations. He is proudest, however, of his slum clearance in Borger.

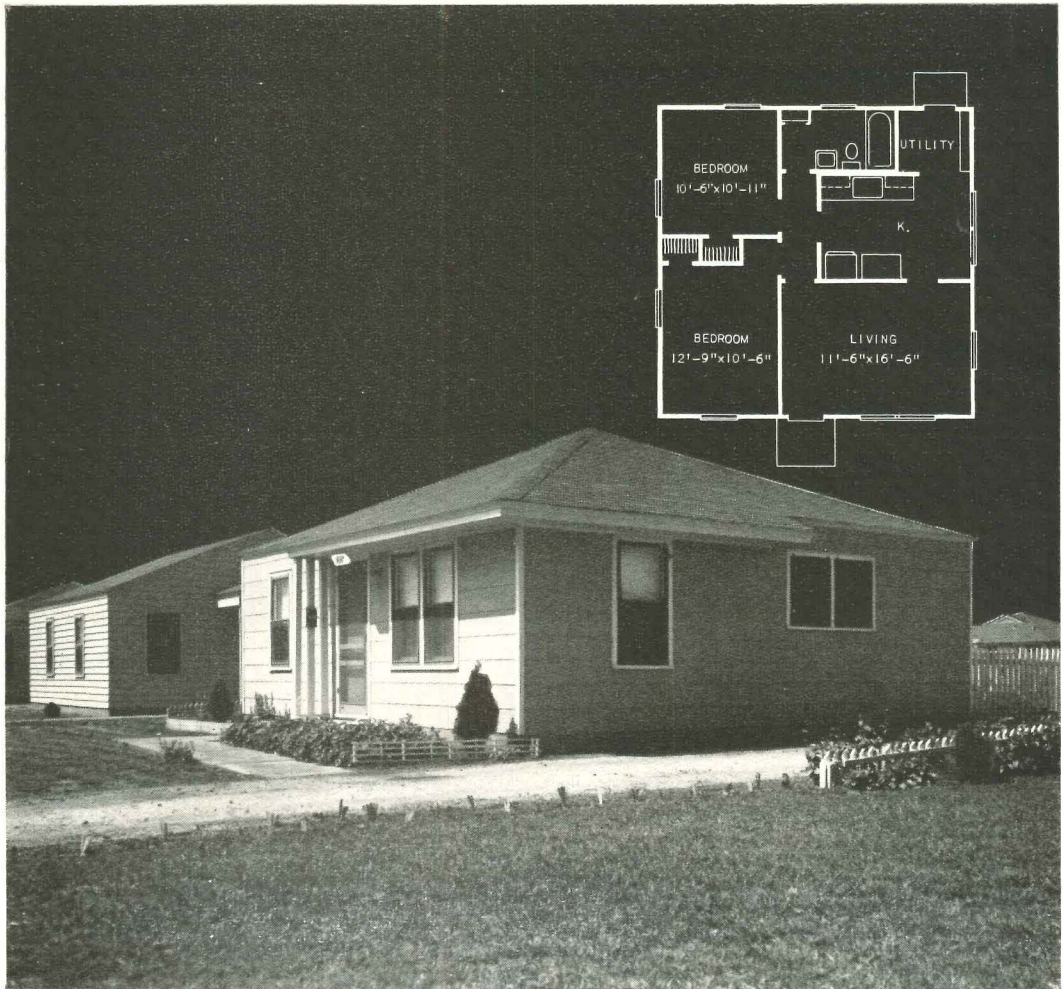
Hughes' 10-point system

1. Build primarily for the low-income family. There are more of them and they need housing more urgently than middle- and upper-class families.
2. Offer a wide variety of designs at prices from \$5,500 to \$13,000.
3. Maintain high production by building in five or six towns where housing is needed. Cut travel time for key personnel by owning an airplane.
4. Do all your own work; use no subcontractors.
5. Pay a liberal bonus to mechanics and foremen for meeting production schedules.
6. Keep an accounting system that will tell you the cost of each type of work on each project.
7. If production warrants it, own your own lumber yard, building supply business, title, insurance firm and other subsidiaries.
8. Never overbuild enough to let a local market get soft. Keep just behind the demand.
9. When you move into a new community, buy an interest in a local radio station house for advertising and public relations purposes.
10. Surround yourself with the best staff you can hire.

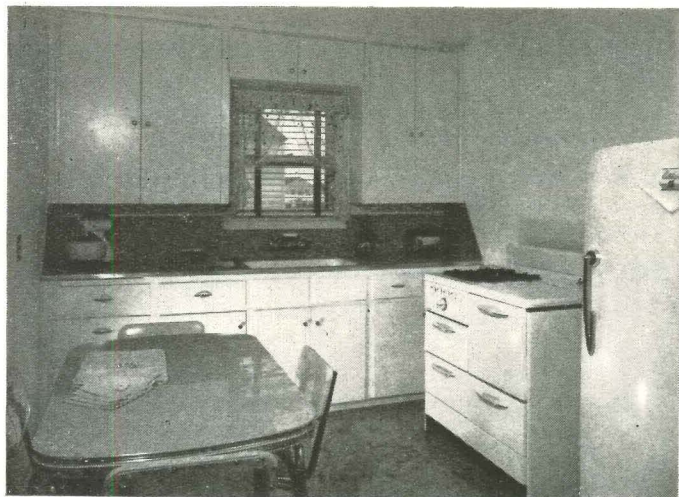


ONE-MAN SLUM CLEARANCE

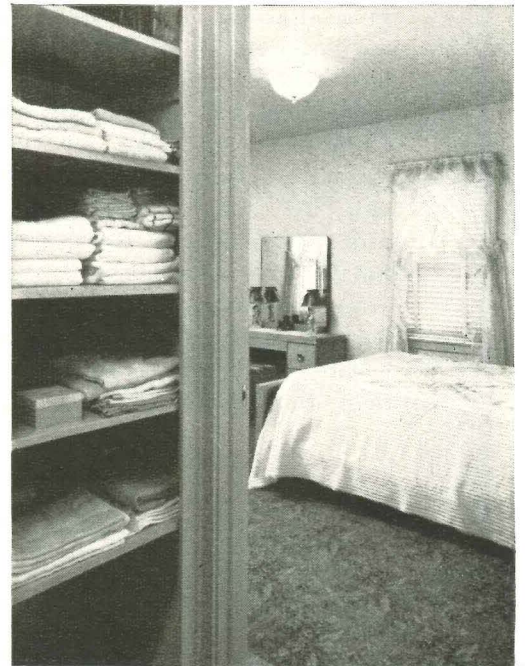
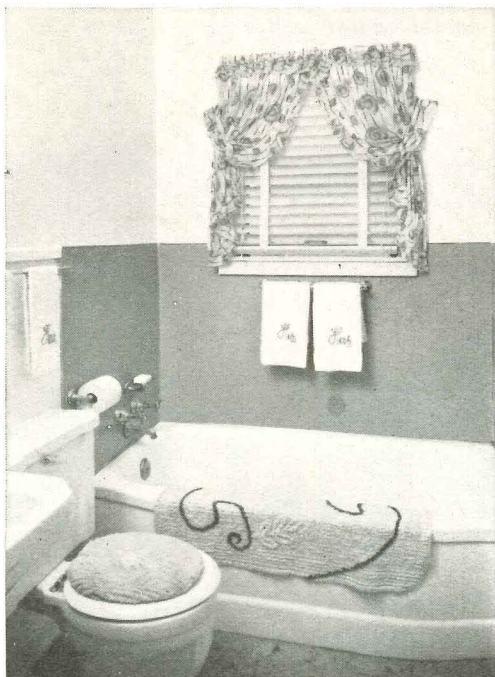
Two of Hughes' Title I houses in Wichita Falls selling for \$5,500. With 702 sq. ft., this house costs less than \$8 per sq. ft., including a 50' x 125' lot. It is on a reinforced slab. Vent pipes are asbestos cement, interiors are spray painted. Costs of numerous items are given on following pages in discussion of Hughes' cost system. Total man-hours for this house are only 624. Hughes reports he has never built a house which is so popular with his mechanics. "Our men like to build these," said general superintendent Ned Brooks. "When you get that kind of enthusiasm you can really turn 'em out." These houses can be rented for \$49.50 without heaters or \$52 with wall furnaces. Buyers have been paying \$750 down and \$34 a month, which many families agree is a much better bargain than renting.

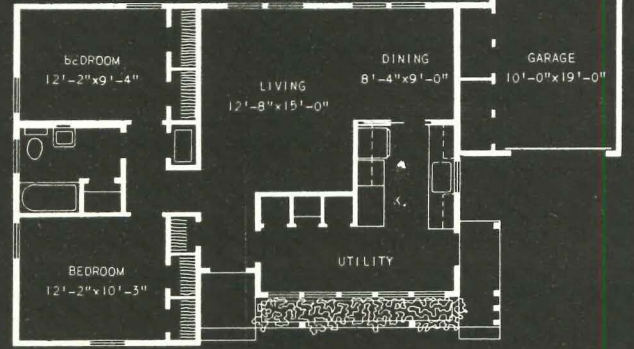


Photos: Ulric Meisel



Views of bathroom and one bedroom show how Hughes' Title I houses are finished. All interiors are painted or papered. Kitchen and bath have asphalt tile. Linen closet and other closets do not have doors but buyers can add them if they wish. These houses can be afforded by families earning as little as \$2,200 per year.

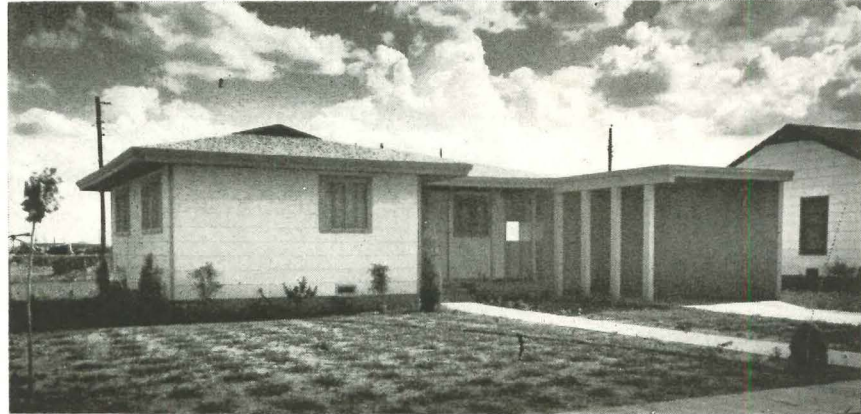




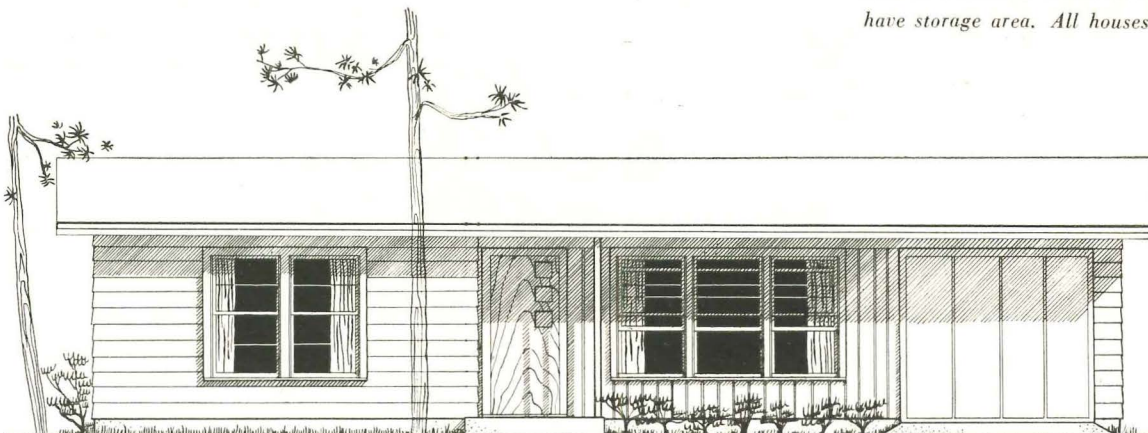
On these two pages are several of Hughes' best sellers. Opposite is the 702 sq. ft. house he offers for \$5,500 under FHA Title I. It gives a good idea of just what a big builder can do for that price, and what he has to eliminate. On 40% with wood siding, he eliminates sheathing. He reduced number of electric outlets, amount of storage space; he cut out closet doors, omitted insulation, provided no heating. He piped gas to each room so buyers could install heaters. He provided no garage or carport, but ran two paved strips to rear of house for parking. There is a domestic sidewalk. Streets have gutters, curbs, are paved. In contrast with some other Title I houses in the same area, Hughes gives 75 sq. ft. more, uses heavier ceiling joists, builds a stronger house as the competition has asbestos shingles and 1" x 4" strips nailed 10" on centers for sheathing. At that, Hughes is from \$150 to \$200 cheaper.

The three Title II houses above were designed by architect B. R. Cantrell and are an attempt by Hughes to lead his buyers to better design. Floor plan is more open, kitchen is in front, living room at rear and windows represent a forward step. Hughes finds he has to introduce new ideas in a few houses one year, and then push them the following year.

Drawing below shows a facade of one of his defense houses which sell at \$6,750 to \$8,450 or rent for \$49 to \$77 per month. Largest houses have three bedrooms and a garage. They have a better floor plan, better fenestration than older houses.



This drawing shows elevation of one of 650 defense houses Hughes is building this year in Borger, Pampa, Wichita Falls and White Deer.



Three houses built by Hughes under Title II, which sell at from \$9,400 to \$9,750. They have from 910 to 955 sq. ft. Some have rear living rooms with window walls. All have wall heaters with ducts carrying heat to all rooms. Lots are 60' x 125' or larger. Carports or garages have storage area. All houses are expandable.

ONE-MAN SLUM CLEARANCE

Dick Hughes, speaking at the first "Operation Trade Secrets" meeting last fall, has obviously been exercising his west Texas sense of humor. Man convulsed is Al LaPierre.



A. Y. Owen

**LABOR COSTS JOB #21
WEEK ENDING: 8-25-51**

Form Setting
Concrete Placement
Framing, Shtg. & Decki
Services
Cornice
Roofing
Siding
Plumbing
Headro
Yard'
Unloading
Office & Supervision
Total Units

Dick Hughes' "how goes it?" cost system

Flight engineers on the big, trans-Atlantic airplanes keep a graphic chart they call the "How Goes It?" curve. At any minute the captain can tell precisely how the flight is going.

Dick Hughes has an accounting system that does the same thing for him. Because he builds in five or six towns (and especially because he is absent from his business a great deal on NAHB business) he might get into trouble five or six times faster than a builder with one project. But wherever he is, he gets an airmail report on each project each week. A few key figures tell him the status of 23 items for each project.

"A one-man business has some disadvantages," Hughes says. "When the key man falls, the whole organization falls unless the cost system is right. We now have an accounting system which is really sensitive. It lets me sleep at night. I know where I am even if the figures show that things are bad.

"We have cut our costs several hundred dollars per house since we put in our system. It has done a great deal towards making all our people more efficient."

How the system is used

The form illustrated above itemizes the labor costs on 100 houses that sold for \$5,500 in Wichita Falls last summer. It is one of the two standard forms Hughes uses. The other deals with materials costs. This form lists 23 items down the left side,

plus totals, with 17 columns for each item. Three columns are filled out in advance and remain unchanged: col. 1 is the budgeted per cent of total labor cost for each item; col. 9 is the estimated dollar cost of each item per house; and col. 13 is the estimated number of hours required per house for each item. These are the standards against which the work of each crew is measured each week. All other figures change weekly.

Each Friday Hughes and all his supervisory force get reports for the preceding week. Hughes immediately looks at the total of col. 6 and compares it with col. 9 to see how his costs are running. On the week illustrated, labor cost per house was \$1,080 which was \$32 less than the estimated \$1,112. By glancing up these two columns he could see which items were costing more for labor than had been anticipated. He could see, for example, that while cornice labor should have cost \$49 per house, it cost \$66 last week, although the average to date with \$47. Roofing crews were slower than anticipated, costing \$41 last week, and an average of \$45, instead of the estimated \$31.

Facts like these are immediately apparent to job superintendents and to foremen, who have a meeting each Friday night or Saturday afternoon. They are interested in the figures because their bonus depends on meeting estimates. Each mechanic and each foreman gets a bonus if he meets his particular estimate. They get a second bonus if the total cost per house

PERCENTAGES			COMPLETED		UNIT COSTS				UNIT MAN HOURS				TOTALS		
OF JOB	THIS WEEK	TO DATE	THIS WEEK	TO DATE	THIS WEEK	PREV.	TO DATE	ESTI-MATE	THIS WEEK	PRE.	TO DATE	EST	THIS WEEK	PREVIOUS	TO DATE
													HRS	AMOUNT	
6.41		6.02		94		75	75	64		45	45	40			7045
2.56		2.21		86½		22	22	28		12	12	16			1909
2.32	.64	12.34	5	96½	144	151	151	145	80	83	83	80	402	720	13779
2.08	.27	.69	12 3/4	33	19	17	18	20	12	11	11	13	153	243	339
4.49	.22	4.11	4 3/4	91½	66	45	47	49	37	26	27	28	176½	314	3946
2.72	.11	2.31	4	85	41	45	45	31	26	27	27	17	103	160	3661
4.81	.28	3.65	6	76	55	67	66	55	29	37	36	30	174	327	4704
7.37	.29	5.95	4	80 3/4	90	86	86	88	44	42	43	46	176	360	6580
.96	.07	.87	8	91	12	10	10	11	6	5	5	6	48	93	12
3.53	.17	.26	5	67		48	48	42	26	25	25		130	251	328
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4.49	.23	5.05			23	20	20	37	18	16	16	28	94	122	1281
3.21	.17	2.18			47	44	44	39	25	23	23	20	133	252	2760
100.	5.29	68.03			1080	1118	1115	1112	595	626	623	624	3149	5710	70162

Column:

- 1** Per cent of total labor cost of the house.
Example: 6.41% of all labor cost is for form setting
- 2** Percentage of 1 house completed this week.
Total figure on bottom row of this column shows equivalent of 5 houses were completed
- 3** Percentages of houses of whole project completed.
Comparison of cols. 1 and 3 shows how much of that item is completed
- 4** Number of houses completed by each crew this week
- 5** Total houses finished to date by each crew

- 6** through col. **9** shows dollar costs per house for each item for this week, previous week, total to date, and these can be compared with estimated costs

- 10** through **13** shows number of man-hours per house for each item
- 14** Total man-hours worked this week
- 15** Total payroll this week for each item
- 16** Total dollars paid up to this week on entire project
- 17** Grand total paid to date

meets the estimate. This latter gives each foreman a practical interest in helping other foremen to meet schedules.

Another key figure that Hughes watches is the total of col. 10 compared with col. 13. For the week illustrated it showed that only 595 man-hours were used per house against an estimated total of 624. This was a clear indication that the job was moving well, despite the fact that a few crews were over their estimates for that week.

Total cost predictions

Another great advantage of this system is that Hughes can predict quite accurately what he will have to spend to finish a project. Every month his accountants study col. 5 to learn how many houses are still unfinished by each crew. That number is multiplied by the average cost for that item. That week, for example, the form setting crews (top row) had finished 94 houses, had six to go at a cost of \$75 each. (Actual average costs are used, not estimates.) So the additional cost of form setting is \$450. This is done for each of 23 items.

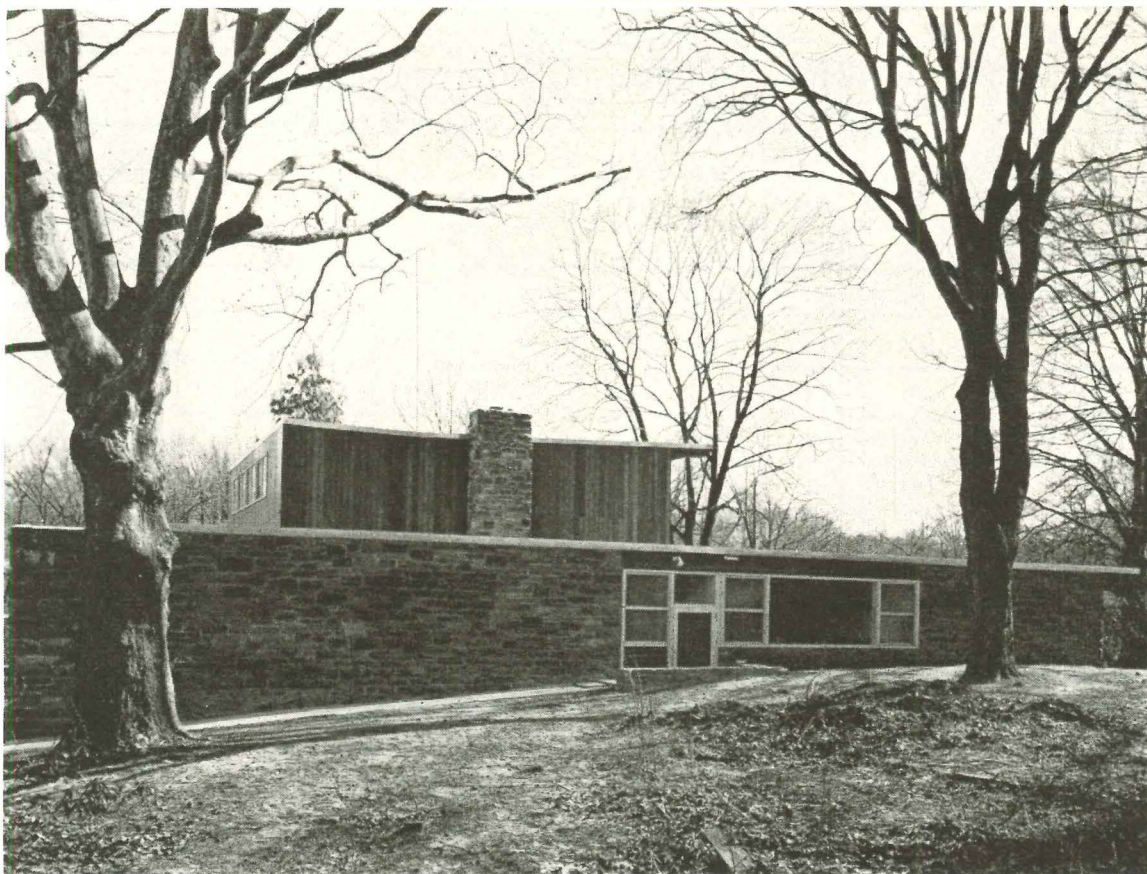
On August 25 his projected labor cost figure had come out to \$111,518. The actual cost when the job was finished proved to be \$117,153. Hughes believes an error of only \$6,635 on labor for 100 houses is a small one. The difference was due to the driveways he added. A flood also raised painting costs.

Greatest practical benefit has been that the system helped to cut costs by disclosing weak spots in construction methods. Before Hughes started one group of more expensive houses, his foremen estimated that all the form setting could be done in 160 man-hours. But the first houses took over 300. Here was clearly a trouble spot. Hughes personally spent over a month on this problem. By working with his superintendents and foremen the man-hours were cut to 175 and after three months to 160. Hughes credits his accounting system with alerting him to the trouble, and with keeping him informed as to weekly progress.

Another great benefit is in improved relationship with the mechanics. Every man, and especially every foreman, feels he is part of the organization. The men believe that they are being let in on management. They know what labor costs are per house. They share in profits when things go well. Here is an incentive system that works.

How much does the system cost?

This accounting system (of which only the labor costs have been illustrated, the materials cost form is very similar) costs Hughes about \$20 per house. One man and two clerks spend a portion of their time in keeping it up. Some builders who do not keep such elaborate records believe they are not worth their cost but Hughes gets his money's worth.



The two units of the house, left, strike a contrast in form, structure and materials. The long, low service wing supports its roof on parallel stone walls salvaged from an earlier structure. A heavy timber frame carries the wood panels of the main unit.

BARN-FRAMED HOUSE shows the plan freedom, structural clarity

and fast erection possible with wide-bay heavy timbers

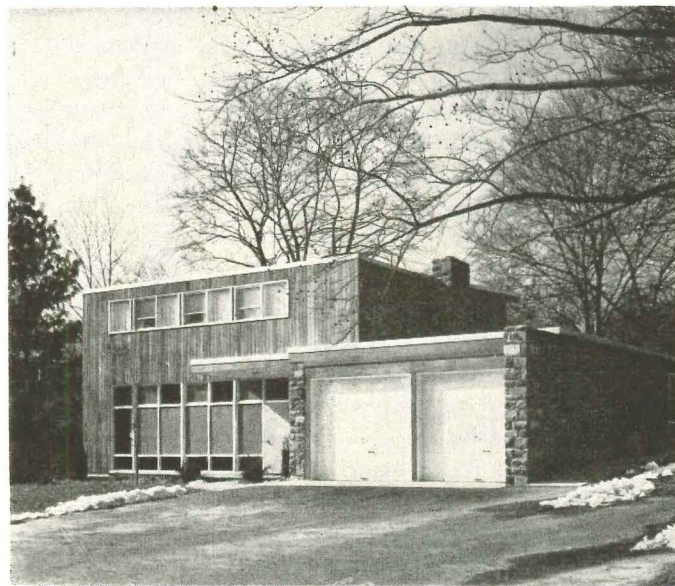
With steel for house building in short supply, wide-bay timber framing is getting more attention. This house at Bryn Mawr shows some of its interesting potentialities for architects and builders. (It is the winner of both New Jersey and Middle-Atlantic States AIA awards.) In its own way, the heavy wood of the skeleton offers many of the advantages of steel:

- ▶ The wide spans and openness of plan which it makes possible.
- ▶ The coherence of a system that is as simple as it looks.
- ▶ The dignity of large-scale window divisions.
- ▶ The speedy erection (framing for this house went up in 2½ days with never more than three carpenters on the job).

In this house, architect Vincent G. Kling has expanded the more familiar single-story post-and-beam frame to double-story height, somewhat in the manner of a heavy timber barn (*see drawing p. 90*). The 8" x 10" and 12" beams frame into 4" x 12" posts at 6'-6" intervals along the open window walls, running 10' and 21' to a transverse steel beam. On the west (where Kling recessed the living-room window screen) the posts rise clear to the roof; on the east (where the ribs of the house are partly concealed) he broke the posts with the second-story floor platform for the sake of economy. The two side walls are stud curtains with the steel beam independently supported on pipe columns. Carpenters like the system because it gets them under roof in a hurry. There are some drawbacks. Kling estimates that framing costs run about 10% higher than for a conventional job. The exposed plank-and-beam ceiling left no space to hide pipes and conduits beneath it and the space above was given over to a 2" concrete heating slab poured on the planks. Kling finally hung a plaster ceiling over the entrance and dining areas, used the cavity for recessed lighting and utility crossover. As a design tool, however, the system is hard to equal. No conventional wood frame yields the same unifying structural cage, the same freedom in shaping space.

LOCATION: Bryn Mawr, Pa.
VINCENT G. KLING, architect

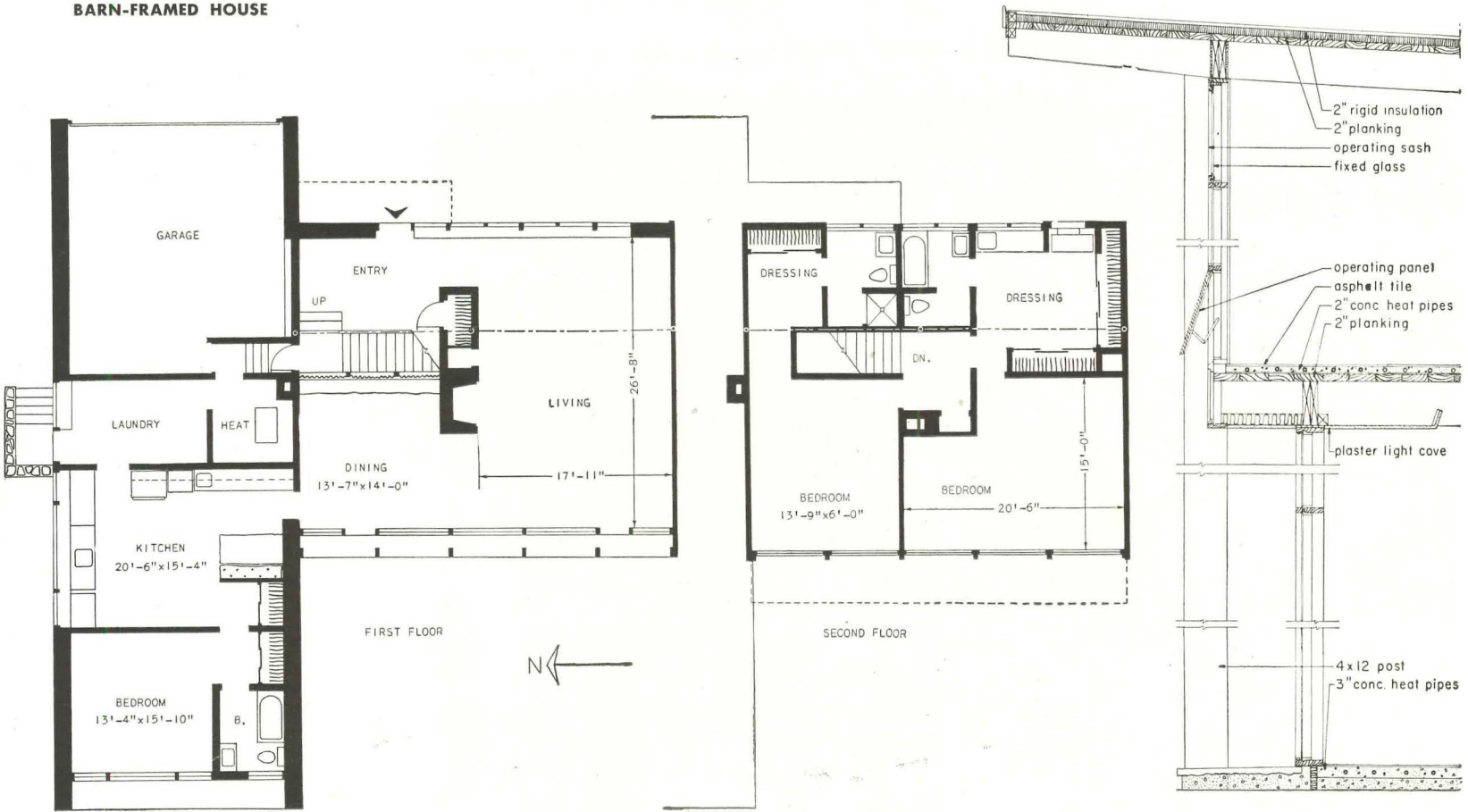
Photos: Lawrence S. Williams



On the entrance side, above, stock projecting sash repeat the 3'-3" module of the door. Toward the terrace, opposite, glass extends from post to post across the full 6'-6" span. Solid panels are plywood painted cobalt blue. Siding is mahogany (secured at a discount).

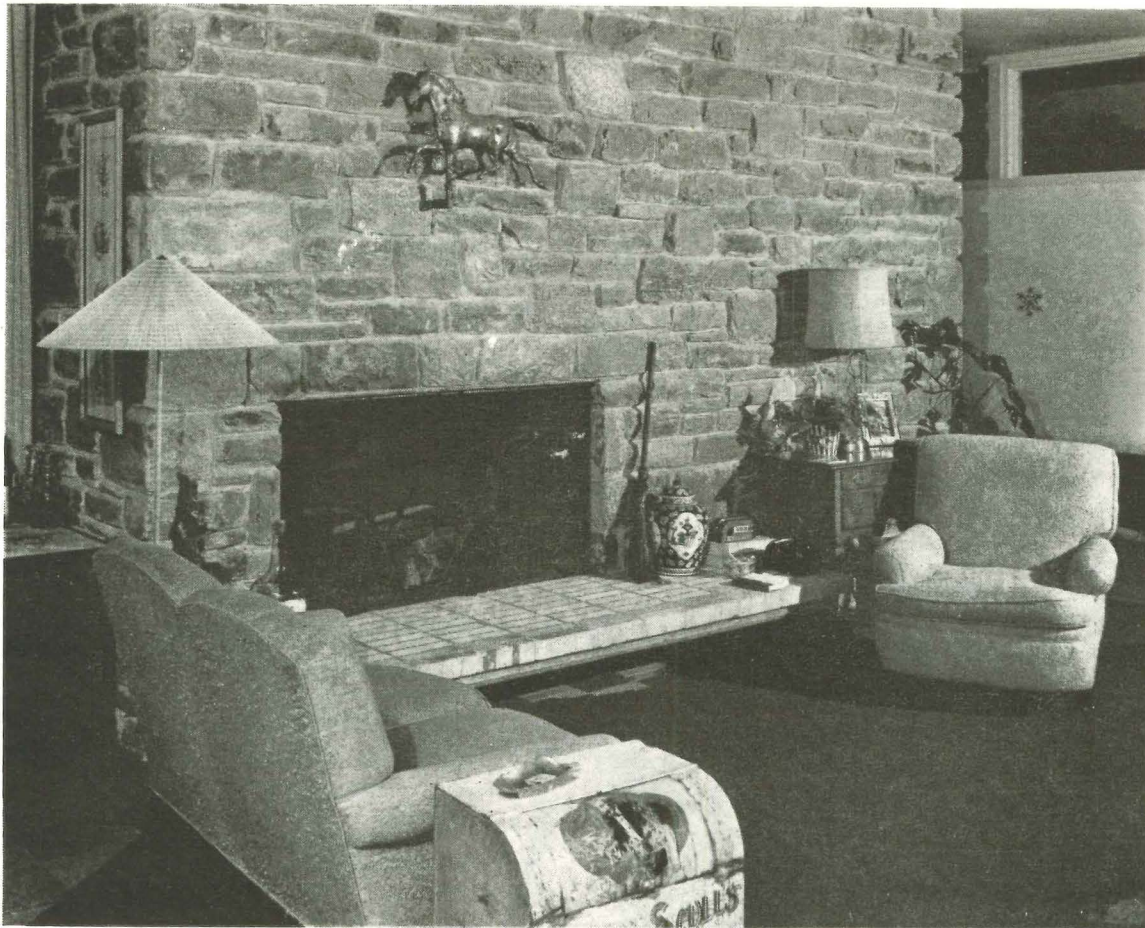


BARN-FRAMED HOUSE



Plan of lower floor shows openness possible with wide-bay wood frame. Plywood panels under alternate bedroom windows swing open for ventilation (see below and above right).





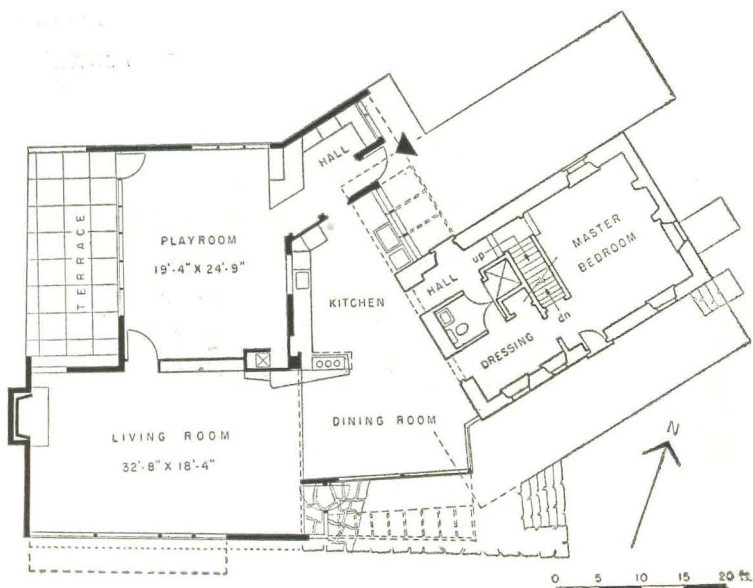
Fireplace wall indicates division between entrance, living and dining areas. It also supports staircase (below right) and is sole prop for the ceiling aside from perimeter walls.

In the two-story unit, the east and west walls are, in effect, a ready-made framework in which to hang windows. Kling capitalized on this fact by confining all fenestration to these two sides and spacing the posts to take stock sash. The side walls are solid, which keeps the framing simple and presents the neighbors with an expanse of handsome mahogany siding (but it also blocks cross-ventilation). In the window walls he mixes plywood and glass panels, both fixed and operating, in a way that is effective as well as original. Awning windows, top and bottom, give him the workings of double-hung sash plus the neater look of casements. But his system is better than either for the vents are close to floor and ceiling (to catch cool ground currents and exhaust rising warm air) and the fixed sections in between are large enough to discourage paper-riffling drafts. At the entrance, the fixed panels—they are plywood—also keep out curious glances. The terrace windows face toward a beautiful copper beech and into the western sun. Here Kling has set back the living-room windows to secure an overhang which also serves to emphasize the curiously classic stateliness inherent in the heavy-timber skeleton.

The plan is trim and logical in spite of strict limitations imposed by reusing the foundations of an old carriage house (even the ground-floor heating pipes were laid out on the old cement slab). The main unit of the house is where the carriage rooms once were; the service wing stands between the stone walls of the horse stalls. The court has become the terrace. The fabulous old timbers (some were as much as 20" deep) are what suggested the barn-type frame.



The stairs rise alongside a translucent glass screen and over the chimney wall to the floor above. Oak treads rest on triangular metal brackets screwed to 4" x 6" stringers. Oak parquet squares set in mastic make a "floating floor" over the radiant-heated ground slab.



New glass-walled living and dining rooms, angled out from original farmhouse, face south for a view of apple orchard and valley below. Plan, left, places kitchen at focal point of new open layout, with control over playroom, living and dining, ready access to bath, halls, bedrooms.

LOCATION: Phoenixville, Pa.
 OSCAR STONOROV, architect
 MAHLON ROSSITER, contractor

NEW LIVING SPACE adds light, view and open planning to an old farmhouse

Photos: Cortlandt V. D. Hubbard



For anyone concerned with building a new house or remodeling an old one, this contemporary addition to an old Pennsylvania farmhouse has a handful of ideas to offer. Behind its novel details lie two main concepts:

▶ *To gain satisfactory space for big, livable interiors, it is often far better to add a new wing than subtract old partitions—to do the remodeling outside the old house, where you can have a freer hand.*

▶ *Old and new design and material can be brought together without conflict or schizophrenic effects, and without “fudging” the new to look like the old.*

The original house, typical of the homes local farmers built themselves in the mid-19th Century, is a solid, straightforward structure of native fieldstone, with windows punched through in the regular spacing necessary to masonry wall construction.

Just as the old served its builder's way of life, the new wing is a frank answer to the present owner's requirements, honestly translated into materials and methods available today (e. g. cheap, mass-produced concrete block, steel lintels and plate glass that permit longer ceiling spans and larger windows).

Once the flexible, informal character of the new space had been decided upon, the architect was free to provide a solution tailored to the dimensions of his clients' lives. It was possible to swing the plan around to take advantage of prevailing summer breezes, winter sun and a long valley view to the south and southeast. This meant facing living and dining areas 30° away from the line of the old house, which had been built when orientation to a view counted somewhat less than it does today.

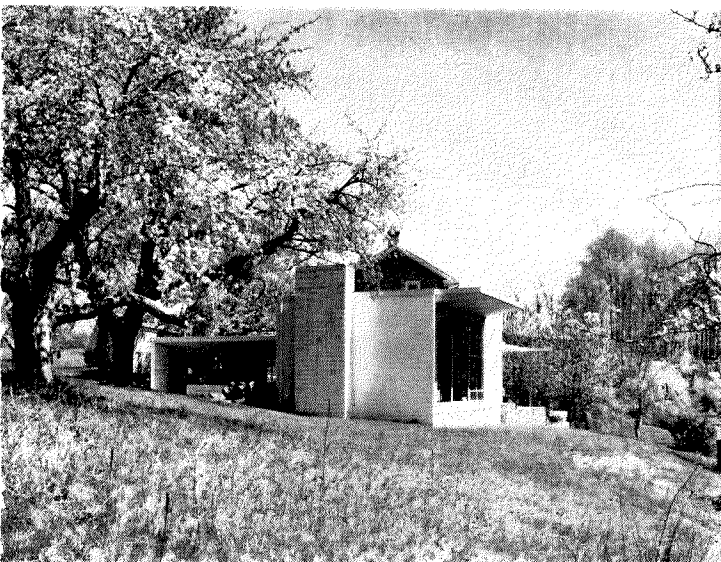
Pivot-point kitchen

Besides a closer contact with the outdoors, the young painter and his wife who bought the house wanted a new living room high enough for a sense of spaciousness and comfort and “a kitchen nice enough to eat in.” As can be seen in the floor plan at left, the new kitchen was designed to be the hub of family and social activity, opening from the geographical center of the plan in all directions: north to the front hall, south to dining and living areas, east to bath and master bedroom, west to the playroom through an “observation window.” Conversely, four exterior doors lead in from the perimeter of the layout for easy circulation.

Thus the kitchen becomes an open control point, merged with dining-living space for everyday use and large informal parties. The stove's top burners are installed in a free-standing counter, which helps the lady of the house join family or party while cooking, and incidentally acts as a sideboard hot plate from which guests can help themselves. (Drawbacks: a noisy exhaust fan in the hood above, some cooking odor through the living areas.)

Separated visually from kitchen-dining only by a change of ceiling height—and a sliding open-weave linen curtain when necessary—is a formal living room with high 12' ceiling. Here a dark walnut floor and a big pink-tan marble fireplace wall create a nice contrast of mood with the rough fieldstone wall and the quarry tile floor of the more intimate, low-ceilinged dining area.

Below, high living room rises above lower playroom and terrace, left





Polished formality is the mood in the big living room: dark walnut floor, walls of plate glass, pink-tan marble and white plaster. Large opening at right, with pipe column, is filled with bookshelves and door to playroom. Heating combines radiant baseboard pipes and warm air registers.

While in the planning stage, the decision was made to use the old house exclusively for bedrooms. Like most 19th Century homes, its interior was broken up by a central stair into small rooms that would have required extensive removal of partitions and rearranging of stairs to adapt to modern requirements of uninterrupted living space. So the old sitting and living rooms on the ground floor were transformed into master bedroom, dressing room and bath, the second and third floors left intact as sleeping quarters for the four children, aged 1½ to 11, and one servant. The structure made an ideal "dormitory," leaving the owners to plan their communal living areas outside the walls of the old house.

Construction of the addition was kept simple to reduce costs: concrete block foundations and exterior walls, whitewashed; wood joists and crawl space where the land slopes off under the living room; a double floor slab on grade under the playroom side. In the playroom, the concrete block interiors were simply whitewashed; rubber floor tile was added later when the exposed slab proved too cold for comfort. Big sliding glass panels on the south living room wall were eliminated from the original design in favor of less expensive awning-type vents. Cost of the new 1,900 sq. ft. wing was kept under \$10 per sq. ft.

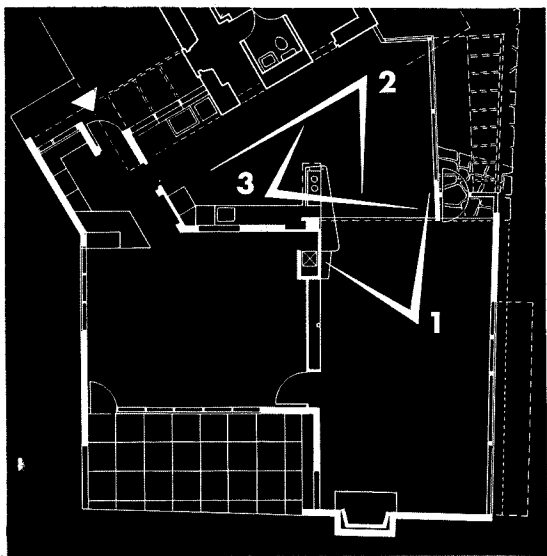


View 1—Warm informality of dining area contrasts with living room opposite. Ceiling drops to a more intimate height, floor changes to red quarry tile and furniture to dowel-back chairs. Rough fieldstone exterior left exposed inside helps tie the old farmhouse to the new wing.

View 2—All-wood surfaces eliminate gleaming white “kitchen look”



View 3—Dining area has its own generous view to south, sliding glass wall to bring in breeze. Heavy plank table on pipe legs is lighted by two spots in ceiling. Free-standing stove's top burners, foreground (with corner of its hood projecting at top) separate the kitchen from dining space.



What's wrong with plumbing?

by Irwin Jalonack

**Plenty, says Levitt's chief engineer,
who claims we could reduce metal by 70%
and labor by 30%
if plumbing codes were really modernized**

Don't look now, but your plumbing is stagnating. It has been for a good many years, because in the hands of plumbers and municipal officials plumbing has been shrouded in mystery.

Theoretically, plumbers should know about plumbing, and so should local building officials—but they don't. Here's why:

A plumber is a person who has learned to apply the tools of his trade (wrenches, calking irons, etc.) and has learned about the operation of faucets, ballcocks and gauges. But his understanding of pipe sizes, venting and basic design has been picked up from existing practice. His qualification for a license—if he has one—is generally a working knowledge of a code which in itself may be based on past practice.

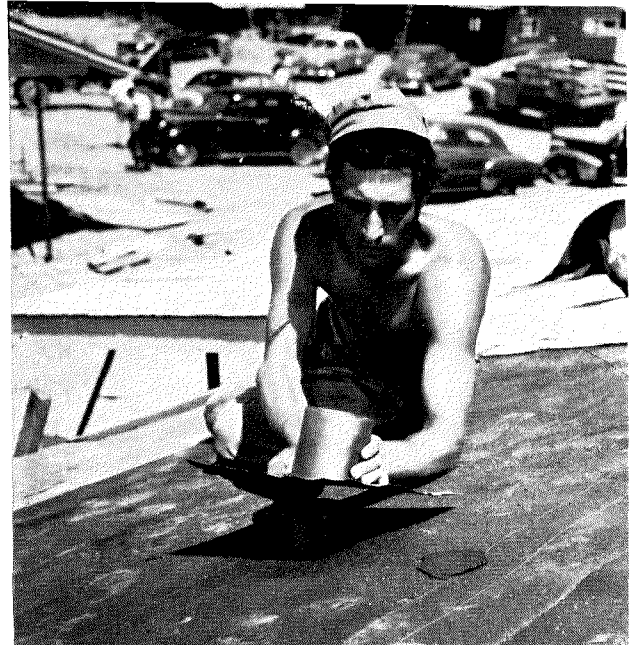
The plumbing inspector, or board of examiners on plumbing, is again a plumber or group of plumbers. Here and there a few enlightened souls have had some academic training in hydraulics and are also involved somehow in plumbing design. But theirs are voices in the wilderness: there are perhaps 100 rule-of-thumb plumbers for every one with some basic knowledge.

Result of this general lack of fundamental understanding is that plumbing today is practically as it was 50 years ago. I don't mean that there haven't been a few changes in fixtures (more color, mixing faucets). But by and large, there is no progress in the basic design and layout of plumbing systems.

Among those who do not understand its basic hydraulics, the standard argument against modernizing plumbing practice is that it has served our fathers well so why take a chance on anything different? This attitude cannot be condoned when metals and manpower are short. We must not accept the waste of the very things that give us our power and scale of living. It is high time that plumbing in this country be based on present-day technology and that people with know-how be given a free hand to make a plumbing code which could be useful nationally. Instead, their knowledge is so weakened by compromise with existing practice that even the proposed National Plumbing Code falls short of the maximum possible improvement.

In the one-family house of modest proportions:

1. The house trap is an extraneous hunk of metal. Most plumbing codes call for a house trap and fresh-air inlet. The function of a trap is to prevent obnoxious gases from entering habitable areas. These gases may form in any of the waste lines in the plumbing system within the house, in the street sewer or individual sewage disposal unit and be carried to the house by the building sewer.



A mechanic at new Levittown project fits a lead flashing collar over short vent, permitted by new National Code.

The house trap is imposed as a second trap on the entire system to give double protection. This it does not. If the house trap is working and one of the individual fixture traps fails, an unpleasant smell will be immediately noticeable because of the putrefying material found in the waste pipes between the individual traps and the house traps. On the other hand, if the house trap fails and all the individual fixture traps are working, objectionable gases cannot escape into any of the rooms of the house. Thus, these hunks of metal serve no useful purpose.* The fresh-air inlet provides a release from the blocking action of the trap seal for the air being pushed down the system by flowing sewage and it too may be eliminated when the house trap goes. These traps slow down the flow of sewage and are actually detrimental to the plumbing system.

The proposed National Plumbing Code does not require the installation of a house trap or inlet. This statement is qualified, however, by adding that the trap may be omitted in new community homes but should be installed in those cities requiring a trap when new buildings are being constructed among old buildings so equipped. Some towns that have adopted the National Code have revised it to call for house traps and fresh-air inlets in all cases.

2. Pipes are bigger than necessary. There is a common superstition that the bigger the sewer pipe, the better. 'Taint necessarily so. Take the lowly sink waste, usually a minimum of 2" in diameter. The pipe from the sink to the sink trap is generally 1½" in diameter. Aside from the fact that at best it is a little difficult to fill a 2" pipe from a 1½" pipe, the fact remains that the extra velocity usually achieved with the smaller pipe results in a scouring action. In my own experience as a plumber (over a period of 25 years) and in my father's time before me (back to the 1880's) there have been far fewer stoppages in 1½" pipe than in 2" pipe.

On the matter of the size of the house sewer from a house with not more than two bathrooms, a 3" pipe actually serves better than a 4" pipe. Yet we have such inanities as ordinances being changed from a 4" requirement to a 5" requirement. How stupid can we get?

* The problem of the house trap, some experts contend, is not gas leaking in from the sewer but the possibility of a real back blast from the sewer. If only one house on a street had no house trap, that house would get the whole blast. Where sewers are overloaded, as in Detroit, the house trap does make sense.—Ed.

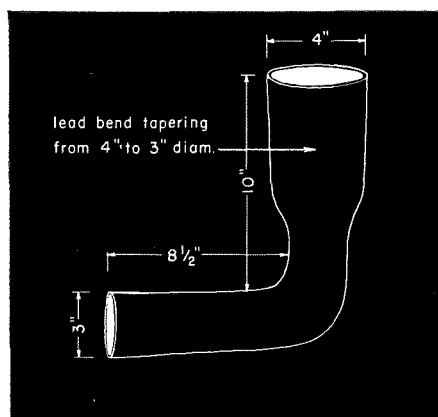
Medium weight cast-iron soil pipe costs 60¢ per ft. for the 3" size, 90¢ for 4" size and \$1.25 for 5". The change from 3" to 4" costs 50% more, which is significant in a large project. Cost of fittings would increase proportionately; lead for joints would also increase. Labor is about the same for all sizes.

Most ordinances require cast-iron soil pipe. Shouldn't materials such as asbestos cement piping—which is used for mains carrying water under *high* pressure—and bituminized pipe also be suitable for transmitting sewage at *no* pressure? These could be used both indoors and out for straight runs at a saving of about 50% over cast-iron. Strength is more than adequate and longer lengths and ease of cutting provide many advantages.

We took advantage of the code. The plumbing code that governed the construction of Levittown, N. Y. was a typically antiquated code, unchanged in a quarter of a century. It called for a 4" building sewer for a one-family house, a 4" house trap with a 4" vent, and other nonsensical waste. Fortunately, the chief plumbing inspector was an exceptionally able individual. Although we had to use a 4" building sewer, he let us use a 3" stack vent. This permitted us to use the standard 2" x 4" partition. We were also allowed to use stack venting—economical, since it let us group fixtures close to the main waste.

Actually, the code provided for stack venting: connecting each fixture directly to a single vertical waste pipe. Because of a peculiar interpretation, however, each fixture had been vented separately. After we led the way, other builders followed the lead. If we had built under the proposed National Plumbing Code we could have saved even more. For instance, the house sewer would have been a self-scouring 3" instead of 4". The portion of the stack which serves only as a vent could have been reduced to 2", except for a short stub projecting through the roof, which in cold climates must be at least 3" in diameter.

Improved techniques helped too. Where a 4" water-closet waste outlet connects to a 3" waste line, it has been customary to use a 4" lead bend and taper it down to 3" where the two connect. Fortunately, we were able to get Robert Glaser of Glaser Lead Co., to create a 3" lead bend that was opened up to 4" at the water-closet connection, at a saving of about a dollar for each hookup. Not much in itself but it adds up in a large development. We also developed an almost foolproof lead roof flashing (*opposite*). Under the proposed National Plumbing Code, the vent terminal extension through the roof can be reduced



Tapering lead bend below each toilet saves 4 lbs. of lead per fixture. At right, Levitt plumbing tree. In foreground, kitchen drain to sewer. Vent rises in center, with toilet connections right and left, bathtub at rear.

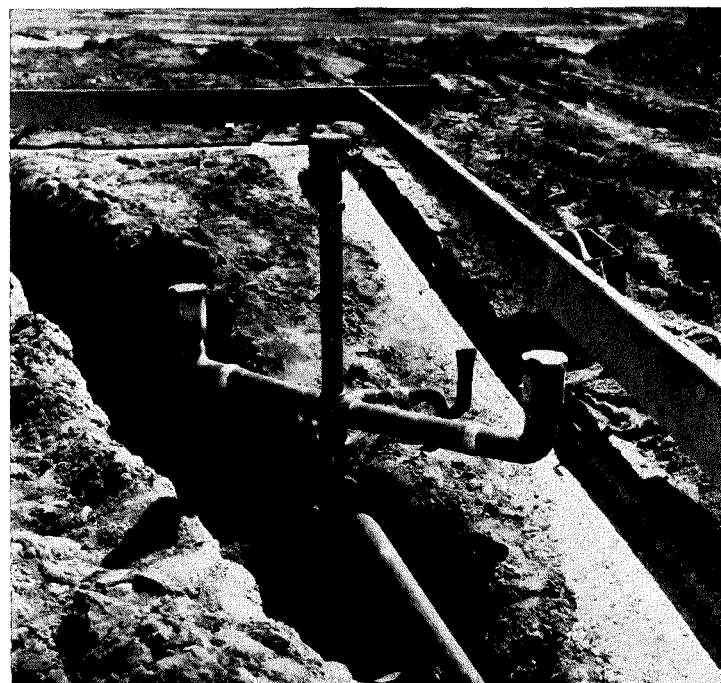
from the usual 12" to 6" and, as I understand it, the code will be revised further to reduce this extension to 3" or 4" since there is less danger of frost closure in cold climates with this shorter projection.

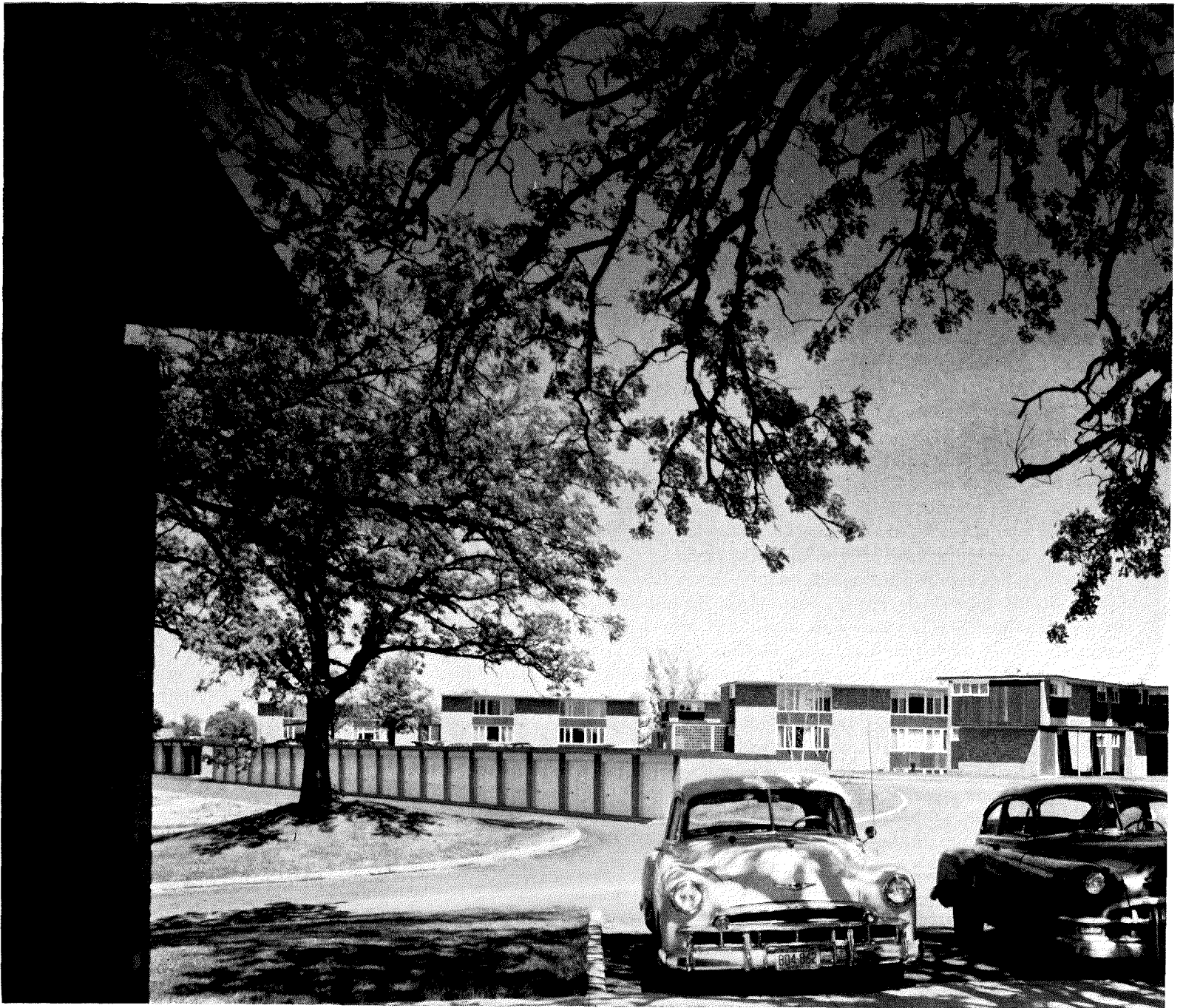
As long as we have been able to come up with a few new ideas, isn't it reasonable to expect manufacturers to do the same? There has been practically no change in the "guts" of a toilet tank in 40 years. It is still noisy and requires considerable service. The tank still sadly lacks esthetic appeal. A wall-hung closet, designed for economical installation, would be a step forward because the entire area under the toilet bowl could be cleared and the bowl set in a lower, a more healthful position.

There is still gold in them there hills. For the plumbing system as a whole, I believe it is possible to save another 30% on material and labor. Included would be a reduction of the size of the house vent to 1½" pipe, using a steel tube or acceptable substitute and protecting it with one of several available finishes other than the zinc coating now required. This vent resists a negligible pressure so its wall thickness would be dictated only by corrosion and rigidity requirements. Savings could be made too in the water-supply piping. In general, it could be reduced one size depending on the available water pressure. This would reduce the time it takes for hot water to reach the tap and would also lessen the amount of hot water in the pipe between draws. This last point would account for a savings in the hot water wasted by cooling in the pipe. None of this streamlining hinders or in any way harms the proper operation of a plumbing system. In many instances it improves operation and reduces maintenance.

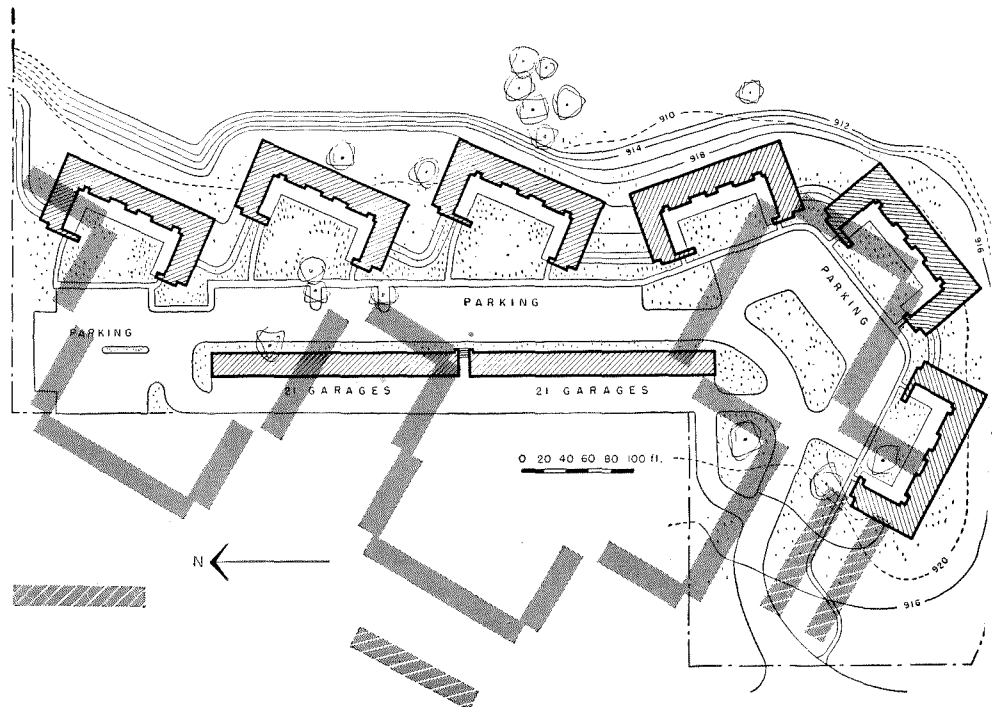
Future improvements will come as a result of increased study of the practical hydraulics of the plumbing system. It has been said many times that old-time practices persist to give mechanics as well as contractors a large amount of labor, but I believe that more often ignorance and lack of understanding are principally to blame for maintaining the status quo.

"The National Plumbing Code Illustrated," 188-page booklet by Vincent T. Manas, executive secretary of the National Plumbing Code Committee, has just been published. It has 184 illustrations, 18 tables on piping plus other material to simplify and interpret the new code. Builders and architects will find it helpful. Manas Publications, 4513 Potomac Ave. N. W., Washington 7, D. C. Price \$3

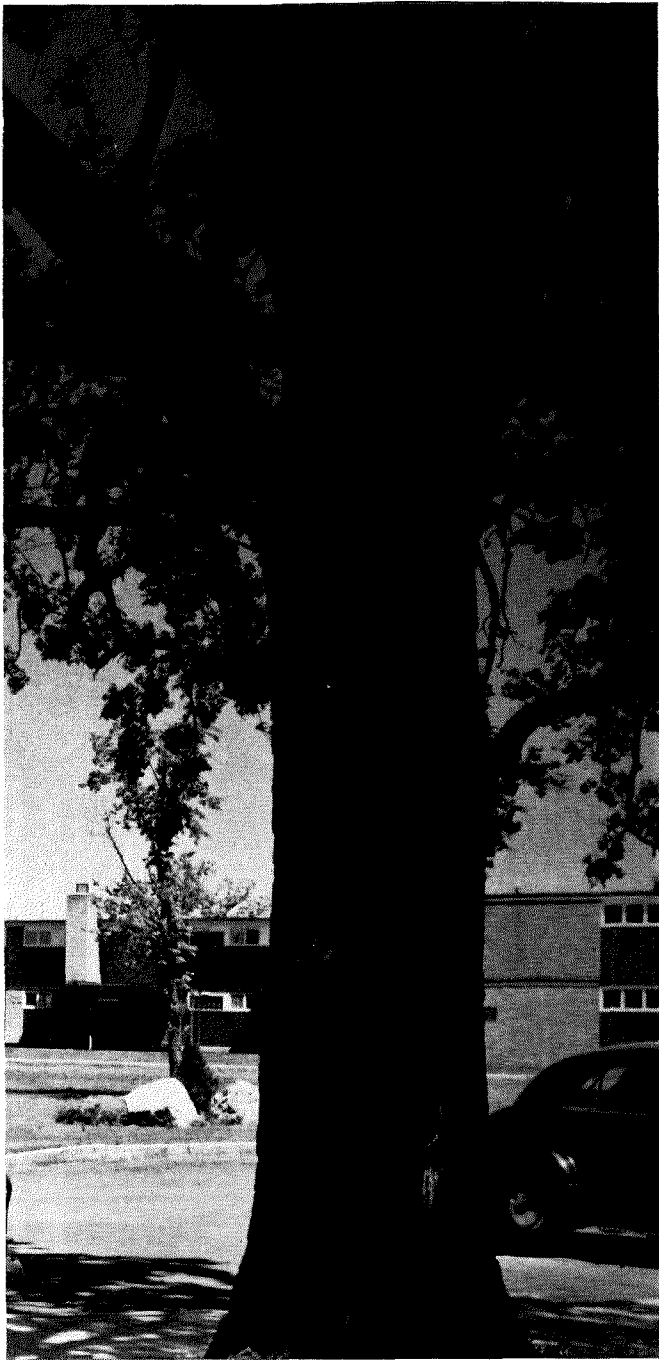




LOCATION: Minneapolis, Minn.
 GERHARD W. BRANDHORST, architect
 SEBCO, INC., and ENACO, INC., contractors
 A. D. GODWARD, sanitation engineer

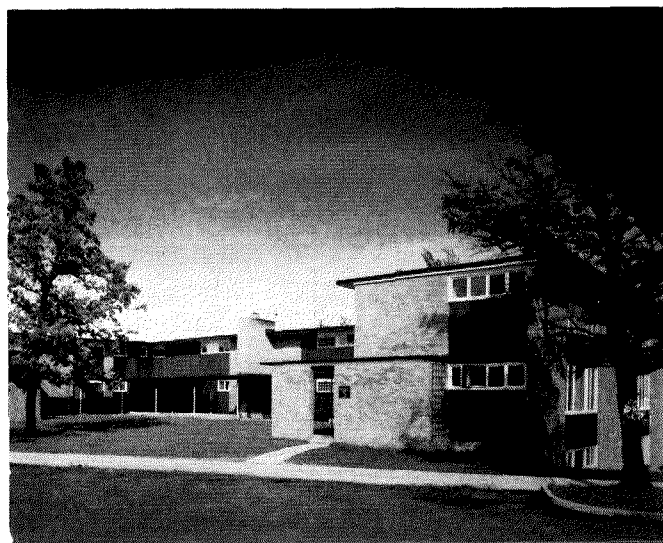


Valley Village site plan and what regional FHA office suggested instead (surprinted). In FHA plan you drive along rim of ridge, houses are set back, most windows face away from view. It calls for 12' cuts and much expensive fill. Garages (gray hatching) require additional access drive.



Trees and staggered siting lend pleasant informality to drive

Entrance court hardly hints at three stories and view at the rear



VALLEY VILLAGE

Middle-income garden apartments demonstrate how far you can go on sound design

Of the thousands of garden apartments launched by FHA's now-defunct 608, architect Gerhard W. Brandhorst's Valley Village belongs to the few worth a close look. Among its assets:

- A site plan that pays attention to trees, slopes, and vistas
- Rooms that are more than minimal
- Buildings that don't look like barracks or catalogue colonial
- Structures as simple as conventional building can make them
- A low-maintenance plan that makes it possible for one man to take care of the day-to-day upkeep on a 108 unit project.

When the FHA meets a hill

One of the project's best features, an excellent site, was almost squandered by FHA standardization. Located in suburban Golden Valley, the tract is a mile and a half from the Minneapolis city limits. There are main roads along two sides, and when the owners' ultimate plans for the property are completed, there will be a shopping center next door. The land spreads over the top and east slope of a wooded ridge and faces the city skyline on the downhill side. There are natural barriers on all four sides: highways to south and west, a creek at the foot of the hill to the east and on the north a single-track railroad (which hauls grain in harvesttime).

For these nearly perfect conditions Brandhorst devised a plan (*opposite*) in which buildings are strung out like beads on the crest of the ridge with entrances on the west and windows focused firmly on the easterly panorama. The access drive enters on a clover leaf off the crossroads. Garages are on the return loop of the drive, tucked unobtrusively into the downgrade where the ridge begins its westward descent. The plan calls for very little grading except around the buildings, and by straddling the hillcrest Brandhorst's apartment houses gain an extra half-story of apartments on the downhill side. The plan has its flaws. Two of the buildings are too close together, and the narrow ridge has room for only 42 garages (this is offset by ample parking space).

The FHA's regional office in Chicago could see little merit to the plan. Their counterproposals are surprinted on the plan, *left*. Comparing the two one might assume they were based on different surveys. However, at least the general character of the land was known, for their representatives had visited the site. To achieve the specified flatness would have meant slicing as much as 12' of earth off the ridge and pushing it around for fill. The trees would have had a rough time too. The rest of the score card stacks up:

	FHA plan	Brandhorst plan
Apartments	94	108
Garages	48	42
Parking	63	108
Feet of drive	2,700	1,935

Fortunately, local FHA officials backed Brandhorst's plan and with their help it was finally passed.

When tenants have a choice

During the year since its completion, Valley Village has set an enviable record with its tenants—the lowest rate of turnover of any 608 in Minnesota. This means more when you consider that Minneapolis no longer has a housing shortage in this price range—\$86.50 to \$96.50 a month depending on orientation and location. This is what the customers get for their money:

- ▶ A bedroom, living room, dining area, fully equipped kitchen, bathroom and three or four closets. The dining and bedrooms are 20% larger than FHA minimum requirements
- ▶ Big windows facing a view that is worth looking at
- ▶ Baseboard radiant heating
- ▶ Sound-stopping walls between apartments
- ▶ Play and drying yards, basement laundry and storage lockers
- ▶ The privacy of separate outdoor entrances.

Designs on a view

By linking the apartments in a U (the unit plan allows for a number of combinations) Brandhorst was able to make the court inside the U an entrance area for the entire building. It is not the usual court, however, for none of the major windows face into it or share a dreary prospect of more walls and windows. Once inside

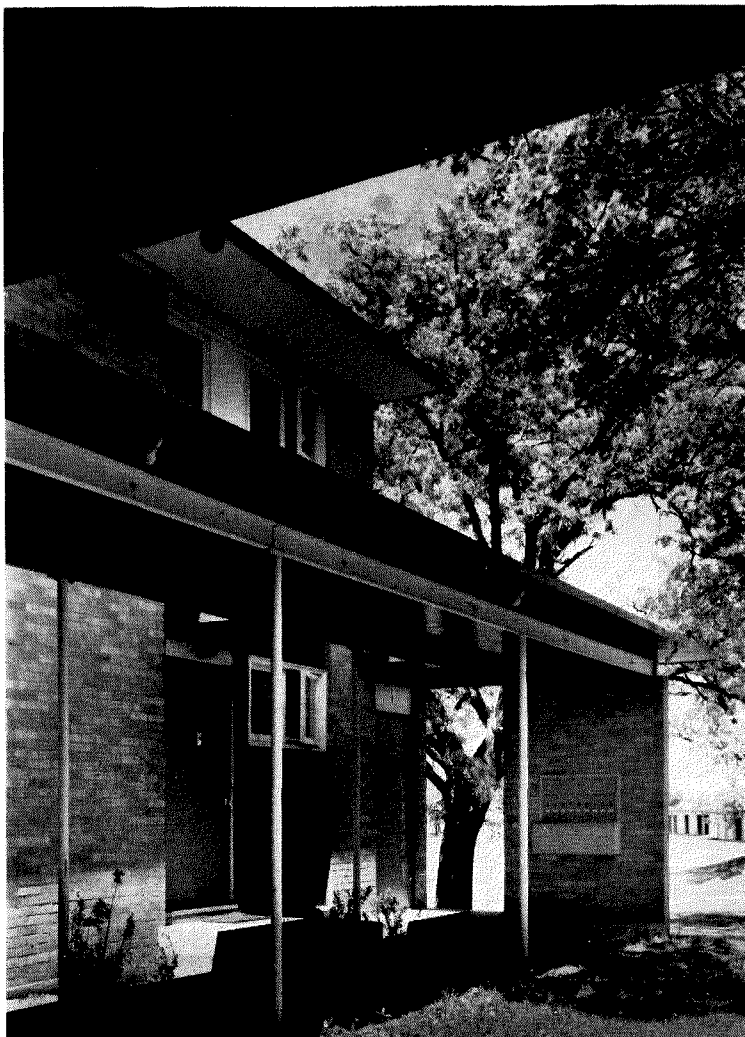
the apartments you are virtually alone with the view. The bottom apartments have the added advantage that from them you can walk outdoors and make the lawn a summer living room.

A minimum of maintenance

The private entrances are part of a program to minimize upkeep costs and aside from major repairs and snow removal, Brandhorst has succeeded in trimming the job to a size one man can handle. There are no public halls or stairs leading to the apartments. Windows have built-in screens and stormsash to eliminate the seasonal shift. Originally even heating was to have been supplied by individual gas units, but the local gas company refused to service "commercial" buildings.

Structurally Brandhorst has not ventured into new paths, but treads the old ones with uncommon directness. The unit plans are designed to use stock-size materials throughout, even framing is of stock lumber lengths: 20' joists, 16' studs. To save time, construction went ahead to the point of sheetrock on ceilings and outside walls before partitions were installed. On the exterior, window walls alternating with broad brick panels also had a salutary effect on costs. With no openings to interrupt the clear masonry expanse, masons just filled in between brick molds.

Covered walk replaces interior halls to cut upkeep. Tenants assume maintenance for their own private entrances and stairways. Note the outdoor letter boxes.



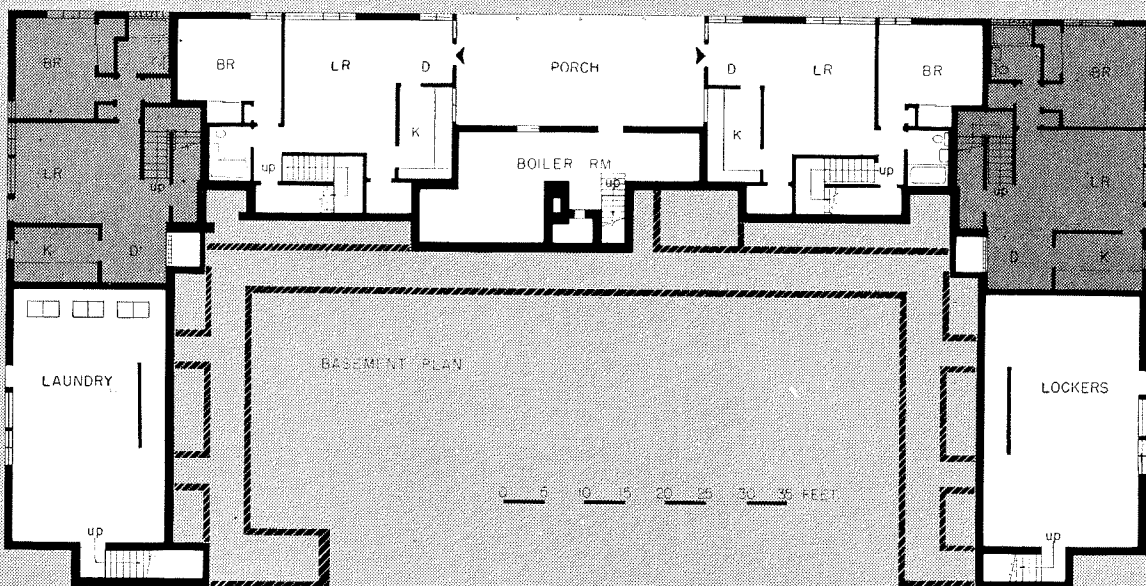
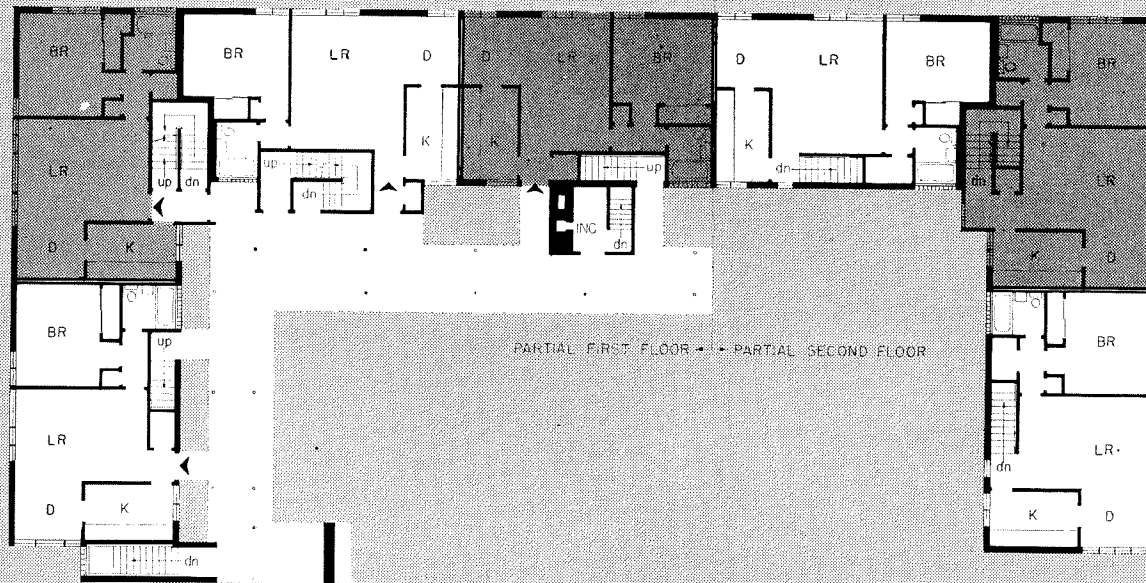
Apartments have better-than-average room sizes, open planning and a treetop view to the Minneapolis skyline.

COST BREAKDOWN

Excavation, grading, etc. . .	\$16,000	Refrigerators	\$11,418
Concrete walls & footings. . .	59,847	Kitchen ranges	19,278
Masonry & structural steel. . .	34,572	Kitchen cabinets	6,200
Damproofing	1,332	Plumbing	75,000
Concrete floors & cement. . . .	10,638	Heating	49,500
Rough carpentry	138,882	Electric wiring & fixtures. . .	34,876
Misc. millwork & carpentry . . .	15,480	Shades	1,500
Windows, glazing	37,020	Garage doors	2,723
Doors, frames	44,280	Building permit	800
Stairs	7,800	Well, tank, pump (2 sets)	9,686
Misc. iron	2,766	Curbs, walks, sewage.	26,600
Sheetrock	38,730		
Insulation	13,200	Structures	\$780,000
Roofing	20,826	Land & improvements.	98,608
Sheetmetal	50,196	Carrying charges, fees,	
Painting & taping	4,866	legal, organization	148,993
Finish hardware	16,200		
Tile & bath accessories.	12,795	TOTAL COST	\$1,027,601
Linoleum, asphalt tile	2,475	Mortgage	893,900
Weatherstripping, caulking. . .	14,514		



Brick veneer panels emphasize orderly window groupings. Spandrels are redwood siding. Slope beyond the lawn was left in a natural state.



ADVICE TO THE APPRAISER

In April we reminded appraisers that FHA's rule book suggests a low rating for houses that suffer from the "banana split"—which it defines as "the so-called shirt front or one sided treatment . . . use of false effects, or the unusual combination of materials."

But that is no reason why builders and their architects should feel some compulsion to use only one facade material. Every builder knows that a little variety helps make sales. And the right use of different materials can actually improve the design instead of cheapening it.

To state it rather simply: If a facade is sliced *vertically* (or, worse than that, quartered or broken up like a sampler), the house will look short and squat; it will also look as if it had been designed by half a dozen different people who were not on speaking terms with one another.



But if a facade is sliced *horizontally* (and if this is done well) it should look long, low-slung and sleek. It should also look expensive and big. And, finally, it might also fit better into the streetscape, especially if its neighbors have that horizontal look also. An appraiser, of course, should be concerned with such matters as the neighborliness of a house since this affects its value. This message to the FHA appraiser, then, deals with



Barrios

Blessed with a dozen different materials, window and door openings, this suburban idyll is floodlit by night



the horizontal look

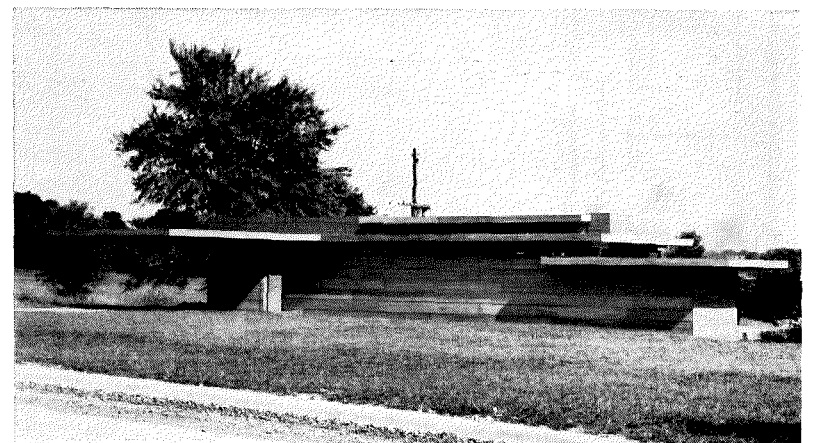
or another way of slicing the banana

When you look at a house facade you should be able to answer several questions without trouble. They are:

- Where is the floor line?
- Where is the sill line—and is there one dominant sill line?
- Where are the window and door heads—and do they line up?
- And where is the roof line?

You would expect the answers to be fairly simple. Yet a glance at almost any development will indicate that it is anything but that: many facades look as if they were fronting for the most intricate, split-level maze ever conceived by the human mind. Appraisers can be pretty sure that a *simple-looking* facade indicates that a lot of designwork has gone into it—that a *complicated* facade has had practically no benefit of designer.

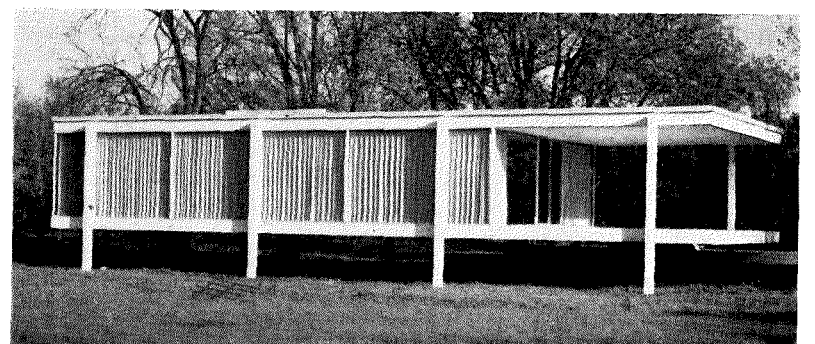
There is, for example, the apparently effortless house (right) of master architect Frank Lloyd Wright and the deceptively simple-looking glass and steel house of Mies van der Rohe (Oct. '51 issue). It is not suggested that builders ought to copy this house; neither should they spend five years on every design. But on the next few pages H&H hopes to show that competent architect-design pays off in terms of cleaner facades and more coherent streets—which means, of course, that it should also pay off in terms of higher FHA evaluation.



G. E. Kidder Smith

Rosenbaum House in Alabama. Frank Lloyd Wright, architect

Farnsworth House, Fox River, Ill. Mies van der Rohe, architect



George H. Steyer

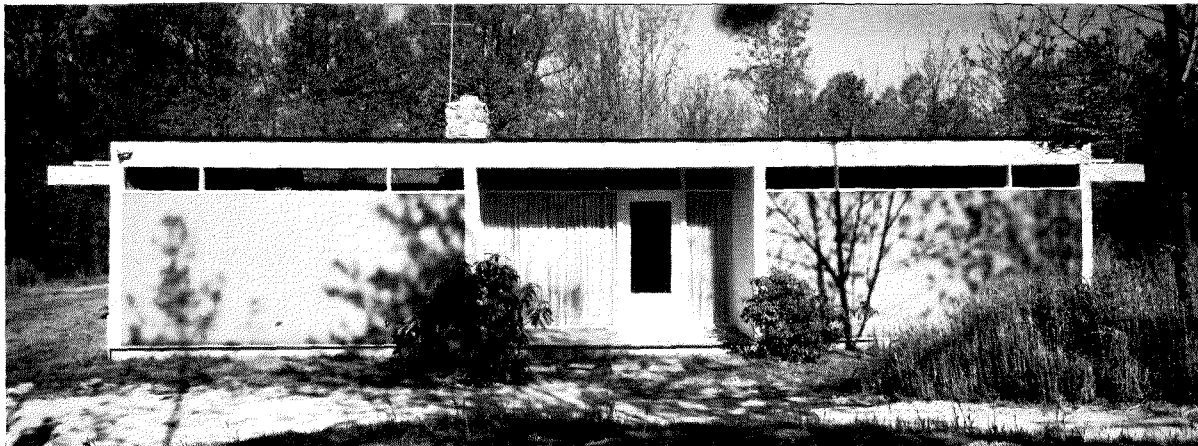
First, take a look at the floor line

Every sculptor knows that he has to put a figure on some kind of pedestal to make it count. The platform on which most builder houses are constructed is so clearly defined that it is actually a lot of trouble to conceal it: after all, most builder houses have a continuous footing all the way around, beneath the exterior wall. The footing may be of block or concrete; in any event, it has a sharp and clean sill line on top. Below that line is wet construction (including a slab, in most cases); above it is a wood-framed house.

Supposing the continuous footing were allowed to show on the exterior, with the frame wall projecting beyond it by a minimum of about 1½" (thickness of sheathing plus siding); there would then be a neat and crisp shadow line all the way around the base of the house—instead of the kind of ragged edge that is likely to result from having the exterior finishes come down to the grade. Architect Johansen's small house shows how effective a shadow line can be.

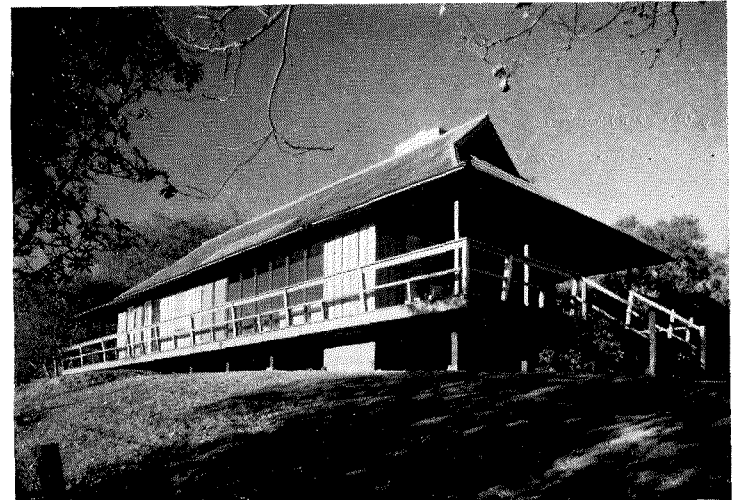


Ben Schnall



New Canaan, Conn., House. John Johansen, architect

Some other architects (such as Gardner Dailey and Chiarelli & Kirk) have demonstrated how a builder could make a very strong feature of that shadow line, at least on the two long sides of his house. The way he could do this is to recess his footings and cantilever his floor joists (if he is using floor joists) a foot or so outward. That kind of feature is especially helpful in a flat-top, where *parallel* base and fascia lines on all facades are a must to keep the house from looking lopsided.



Imandt

Seattle, Wash., House. Chiarelli & Kirk, architects



Dearborn-Massar

Dick House, Geyserville, Calif. Gardner Dailey, architect

Second, check whether his sills line up

Most builders are faced with the problem of putting at least four very different types of openings into one facade:

- a high-sill bedroom window (bedrooms being so small that wall space under the windows is needed for furniture);
- a medium-sill bathroom and kitchen window (these two sill heights generally can be lined up without trouble);
- a low-sill living-room window (or glass wall); and
- a door (or a series of doors, including one for the garage).

There are at least two ways of bringing some order into this chaos. The first way is to slice your facade into three horizontal bands; the second is to divide it into two such bands.

1. A facade divided into three bands would give

- a. a low sill line along the floor for the living-room window wall;
- b. a 32" high, medium sill line for kitchen windows (as well as *some* bedroom, bathroom and dining-room windows);
- c. an 80" high, high sill line for strip windows in the bathroom and in some bedroom areas. And
- d. a head just under the lintels, which would produce a continuous transom above all windows and doors.

Assuming the ceiling height is what it ought to be—8'03/8", as urged by both the AIA and the NAHB—the transom height would come out to something around 12". Architects Ain and Johansen (*see cuts*) have tried this with great success.

2. A facade divided into two bands would give

- a. a low sill line along the floor of the living-room window wall;
- b. a 42" high, medium sill line for kitchen, bathroom and bedroom windows. This would conceal bathroom and kitchen equipment (including backsplash for sinks); would be fine for bathroom windows above the tub, if the glass were obscure; and work equally well in a bedroom, where it would conceal almost any furniture produced today. And you will also get
- c. a head line that could be determined either by the door height (80"), or else by the AIA-NAHB ceiling height (8'03/8"). If you take the head up to the ceiling plate, you might use extra-high exterior doors.

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Sills and heads that don't line up make for incoherent facades



Julius Shulman

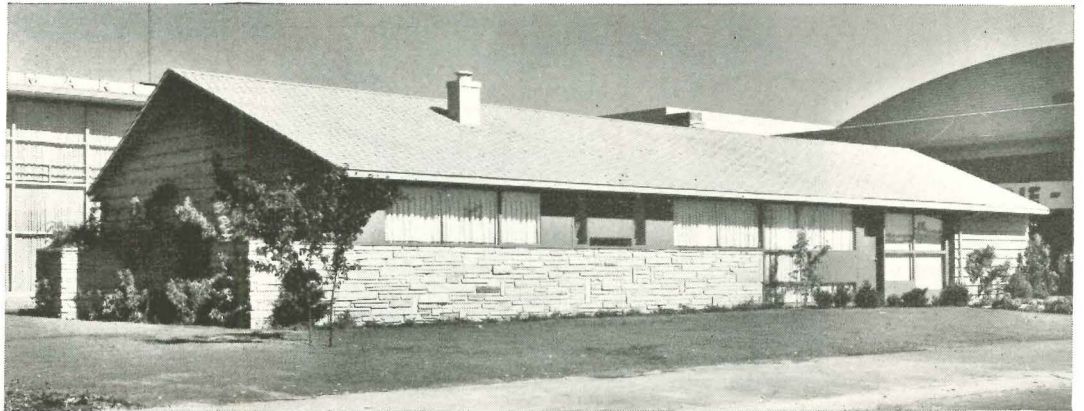


Mar Vista, Calif., Houses.
Gregory Ain, architect

If a builder accepts one of these methods of slicing his facade, the 32" or the 42" high sill line can become a kind of waistline for the house. An appraiser looking for coherent facade design should check how well the builder has watched this line. . . .

Check his waistline

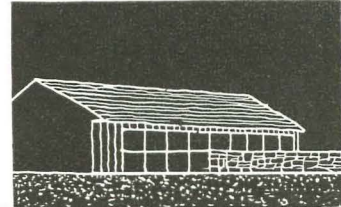
Here are some ways used by architects and builders to accent the all-important waist of their houses:



Seattle, Wash., Houses by builder Albert La Pierre were designed by W. A. Wollander

1. Some have built a kind of "skirt" to reach from grade level up to the waistline (and have forgotten about the floor line altogether). To give the house a sense of being anchored to the ground this skirt is often made out of brick or stone. To give the house more horizontality—greater apparent length, in other words—the skirt can be extended beyond the end of one facade and turned into a low screening-retaining wall; and

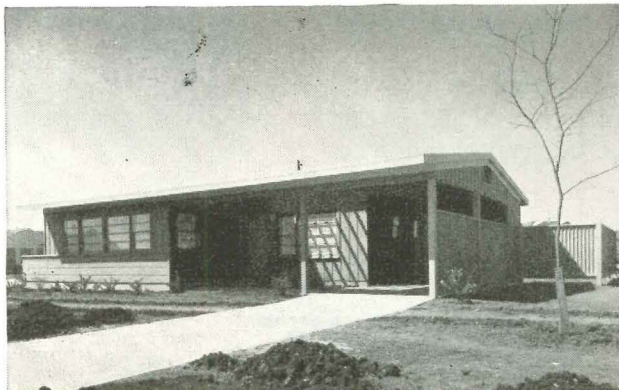
Freeport, L. I., Houses. Huson Jackson, architect



Ben Schnall

2. The waistline can be continued in a horizontal muntin bar (or rail) in any floor-to-ceiling glass walls used in the living area. Some designers have even repeated this horizontal stripe on the doors—although this is very hard to achieve successfully.

Night view of the La Pierre House

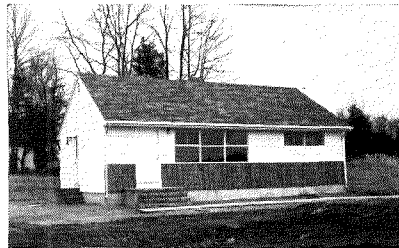


Ulric Meisel

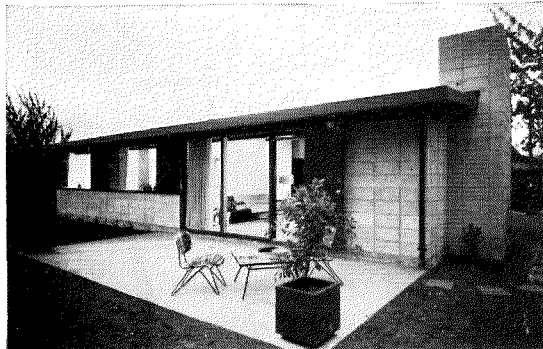
Dallas, Tex., Houses by builders Lewis & Lamberth and Laughlin & Silver were designed by architects Marble & Barnum

Builder La Pierre's house shown on the previous page is a fine example of this approach. Architect Huson Jackson's very different facade shows the use of a strong horizontal—the brick screen wall—to make his house seem larger. The line of that wall is repeated in the muntin bar of an adjoining glass wall.

Target Photos



Rondal Partridge



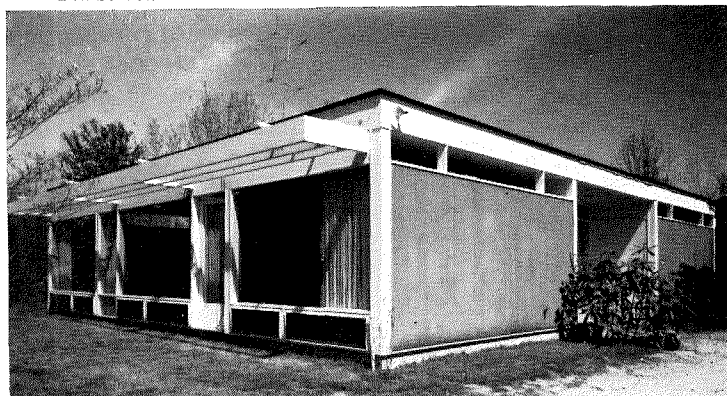
This New Jersey house shows an attempt in the right direction: a strong waistline, muntin rails and heads that line up

San Francisco Houses by Builder Eichler were designed by architects Anshen & Allen. An excellent example of a strong waistline, uniform sills and heads

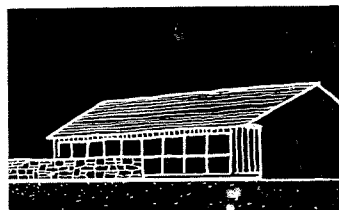
And check his head

Most builders understand the structural advantages of having all window and door heads (and thus all lintels) continuous and on the same level. The illustrations used here indicate that the advantage to the facade in terms of looks is at least as great. There is no real excuse to have a door that is shorter by a mere 6" next to a floor-to-ceiling glass panel. Architect Landis Gores (Jan. issue, '52) used 8' high doors throughout his house, found that, even with luxurious detailing and finishes, they cost only \$22 apiece in the small quantities he required. On the other hand, his savings from avoiding the complicated framing and plastering needed around a 6'8" door in an 8' wall were hard to calculate, but probably made up more than the difference in cost of doors. As for looks, the pictures tell their own story.

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Uniform lintels give Johansen's house an orderly look

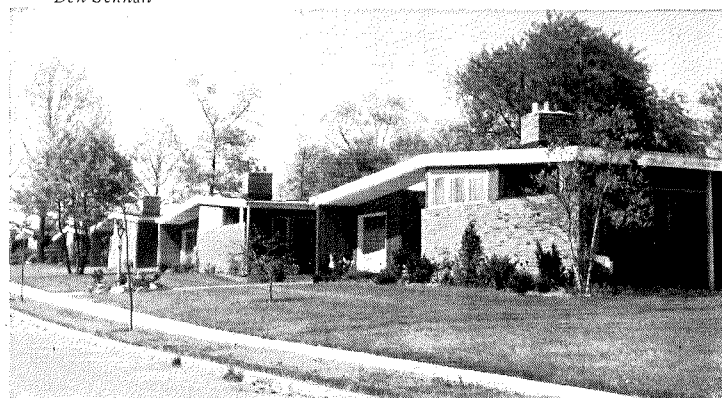


Finally, check his roof line

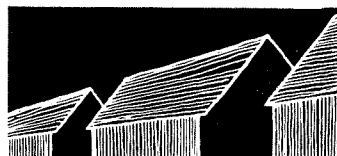
In a future article we plan to discuss in some detail the importance of the roof line as a stabilizing element in any house or street facade. For the moment we will simply mention half a dozen points to watch in evaluating the design of a roof, for the way the roof looks has a lot to do with the apparent length of any house facade.

By its very nature, the roof is a horizontal element. To exploit that horizontality to the fullest should be the aim of any designer of builder houses. Here are various ways the designers have tried:

Ben Schnall

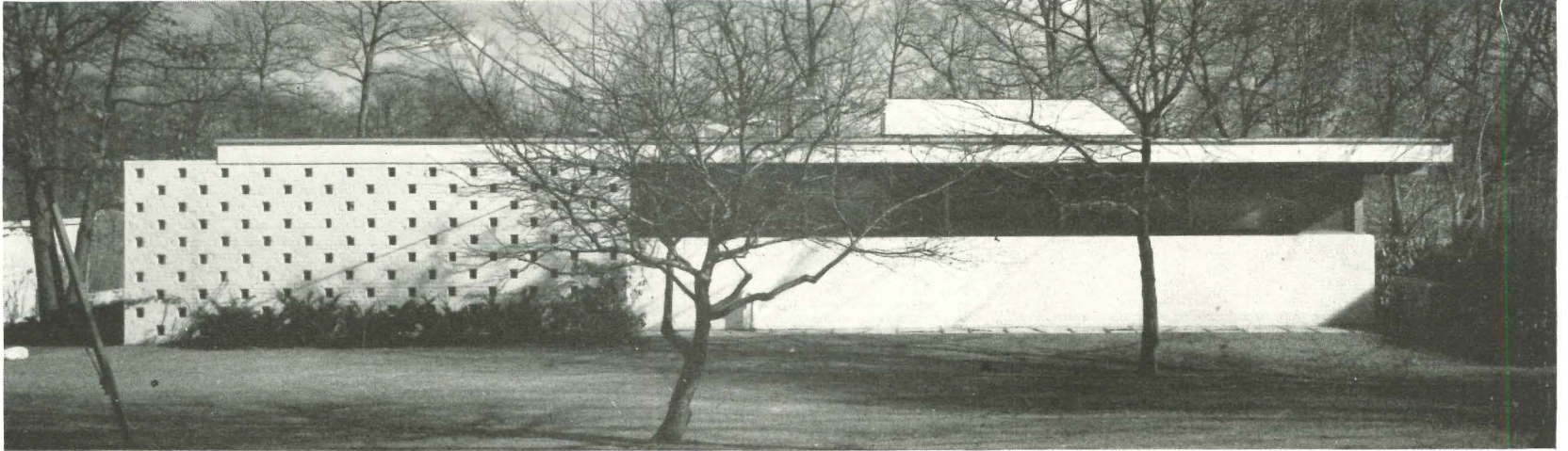


Broad fascias of architect Jackson's houses create street continuity



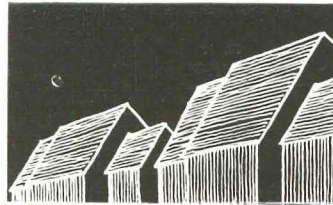
▶ In a flat roof, they will sometimes make the fascia as broad as possible, paint it a distinctive color (generally white) to contrast with the blue or gray of the sky (against which it will be seen) and with the wall materials below. Good designers also make the gravel stop and flashing as sharp and crisp as possible—a ragged silhouette seen against the sky can make the whole house look shoddy.

Ben Schnall



*Pack House, Scarsdale, N. Y. Marcel Breuer, architect.
Horizontality achieved with strong fascia, even sill line*

▶ In flat or pitched roofs a deep overhang is often used to create a strong horizontal shadow line, helping further to accentuate the length of the facade. In a pitched roof, such overhangs may be stopped by broad fascias, but quite frequently razor-edge roof will be more effective, especially when seen from the side. (Note: Appraisers should look twice at overhangs of different depths along one facade; unless designed by a master, they are likely to chop up the facade as badly as any combination of different veneers.)



Even small jogs in a roof will decimate a facade



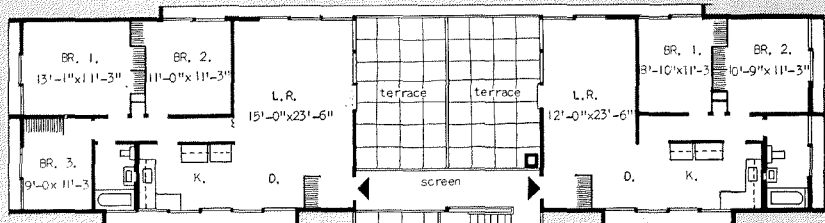
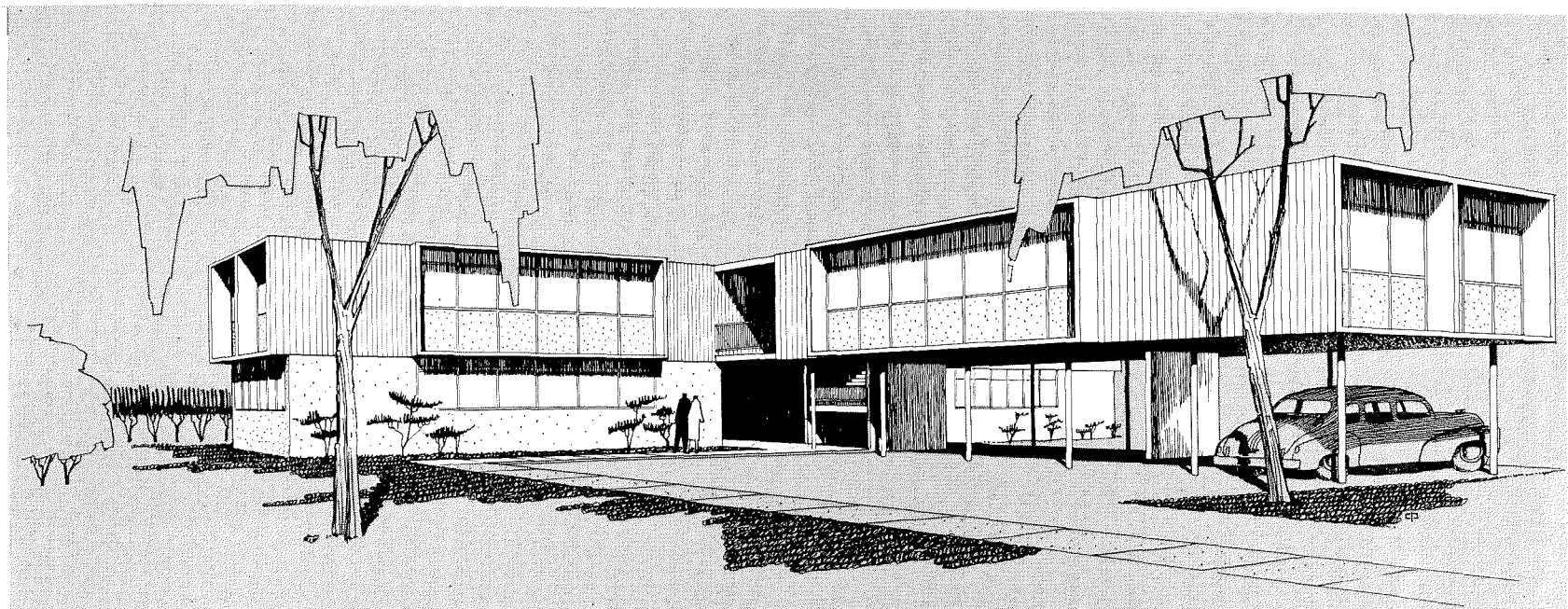
Barrios

▶ In pitched roofs over small houses, most good designers will keep the ridge even. If they don't, the silhouette of the street is likely to look like a rollercoaster, and each individual house will have as many humps as a camel.

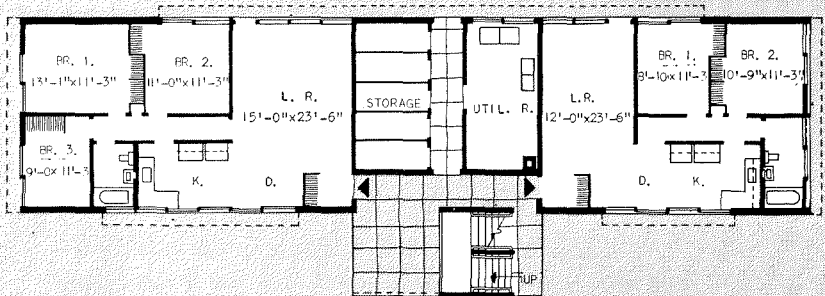
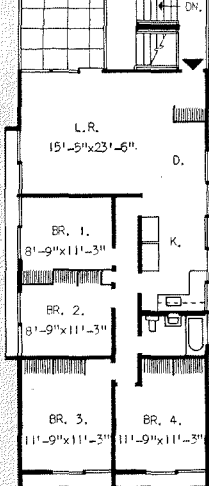
▶ Finally, in a pitched roof a dark color may help to "hold down" the house and tie it to the ground, which is another way of making it look more horizontal. The pictures on these pages illustrate the effectiveness of broad fascias and simple roof lines.

Naturally, all these devices alone will not produce a better-looking facade or a better-looking street. But the devices listed here are sufficiently flexible (and suggest enough variations on the same basic house) that they can be used, incidentally, to overcome the monotony of identical houses set in rows, and without producing the kind of hodgepodge we were talking about in our April issue.

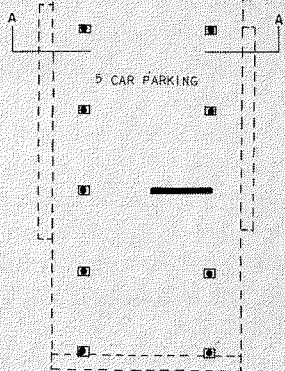
But, while the appraiser needs to know about these devices in order to understand and evaluate a facade, few nonarchitects are likely to be equipped to make use of these devices in *designing* a facade. These are not esthetic cure-alls; they are merely some of the tools an architect may (or may not) use to produce a good facade. It will also help if the architect happens to be a good designer.



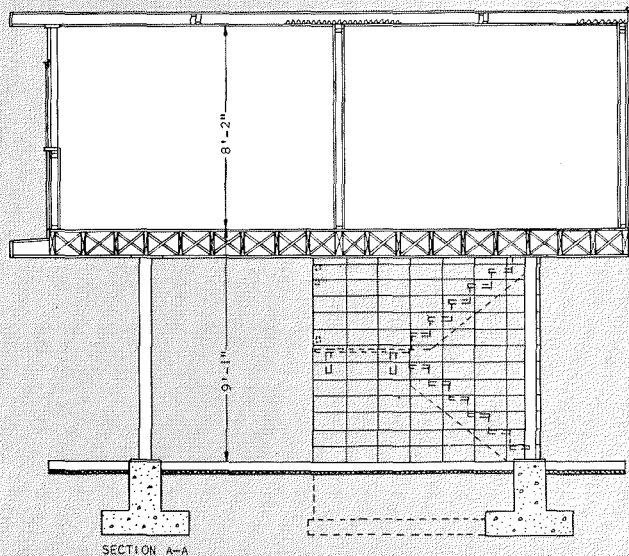
SECOND FLOOR



FIRST FLOOR



A radical departure from the usual traditional design in Wherry Act apartments, this contemporary five family unit contains two-, three-, and four-bedroom apartments. Plans will be altered to provide an extra bath for the largest apartment if the tenant will agree in advance to pay extra rental charges. All terraces have steel mesh fences.



SECTION A-A

Last minute change of plans reduced units 2' in each direction. Apartments are now 22' wide. Second floor apartment is supported by 5" steel pipe on 16" x 10" concrete plinths. "Wet wall" from this apartment is of load-bearing concrete block. Each tenant gets private storage room, but laundry and drying machines are communal.

Privacy at close quarters

T-shaped plan eliminates common walls between apartments

LOCATION: Richland, Wash.

JAMES C. GARDINER, architect and land planner

BAUER CONSTRUCTION CO., contractors

In addition to the Army, Navy and Air Force, the Atomic Energy Commission has been eligible for Title VIII (Wherry Act) housing and its first project is just going into construction at Richland, Wash., the completely government-owned city that serves AEC's Hanford works. Meant to be a magnet for the trained technicians and scientists needed in the atomic energy program, the housing for Richland was deliberately designed to avoid the row house or barracks appearance, and to furnish rental housing for both apartment lovers and those who demand single homes with their own yards.

The contract for the first private rental housing development on land leased from AEC went to Portland, Ore.'s Bauer Construction Co., which had teamed up with architect James C. Gardiner to win the assignment over 15 other competing builder-architect teams.

For two sites on opposite sides of the city of Richland, architect Gardiner gave the construction company two distinctly different housing units:

1. T-shaped five-family apartments, with no common walls and soundproofed floors for greatest privacy and quiet.
2. Low-slung, two-bedroom single houses on slab floors, with perimeter heat and attached garages.

Space acts as soundproofing

One of the biggest objections to apartment living is the sacrifice of privacy. Too often, thin walls serve merely as sounding boards for irritating noises (and half-heard conversations). Through his ingenious T, Gardiner has eliminated all common walls from his apartments and has made them open on all four sides. Terraces and laundry and storage rooms in the head of the T serve as effectual dividers of apartments on the same level.

Floors and ceilings (the only places the apartments touch each other) are acoustically treated to keep the sound transmission level low. Half-inch fiber insulation board and loose 2" x 3" sleepers are laid beneath subfloors, and on the underside of the 2" x 8" joists, ceiling rocklath is suspended by metal spring clips to thwart vibration.

Out of the weather

The ground-floor shank of the T functions as a garage for five cars, with the entrance to the five apartments completely under cover. Laundry and storage facilities are also contained at ground level beneath the second-floor terraces. These terraces, partially open to the sky through pergolas, are separated by T & G board fences which could be removed to create a 31' x 21' common balcony. Entrance to the terraces is from the living rooms, rather than from the entryway.

"Shadow boxes" extended 18" from second-floor walls serve both as a weather protection and as a dramatic framing of the glassed areas and terraces of the upper apartments.

Four bedrooms for \$100

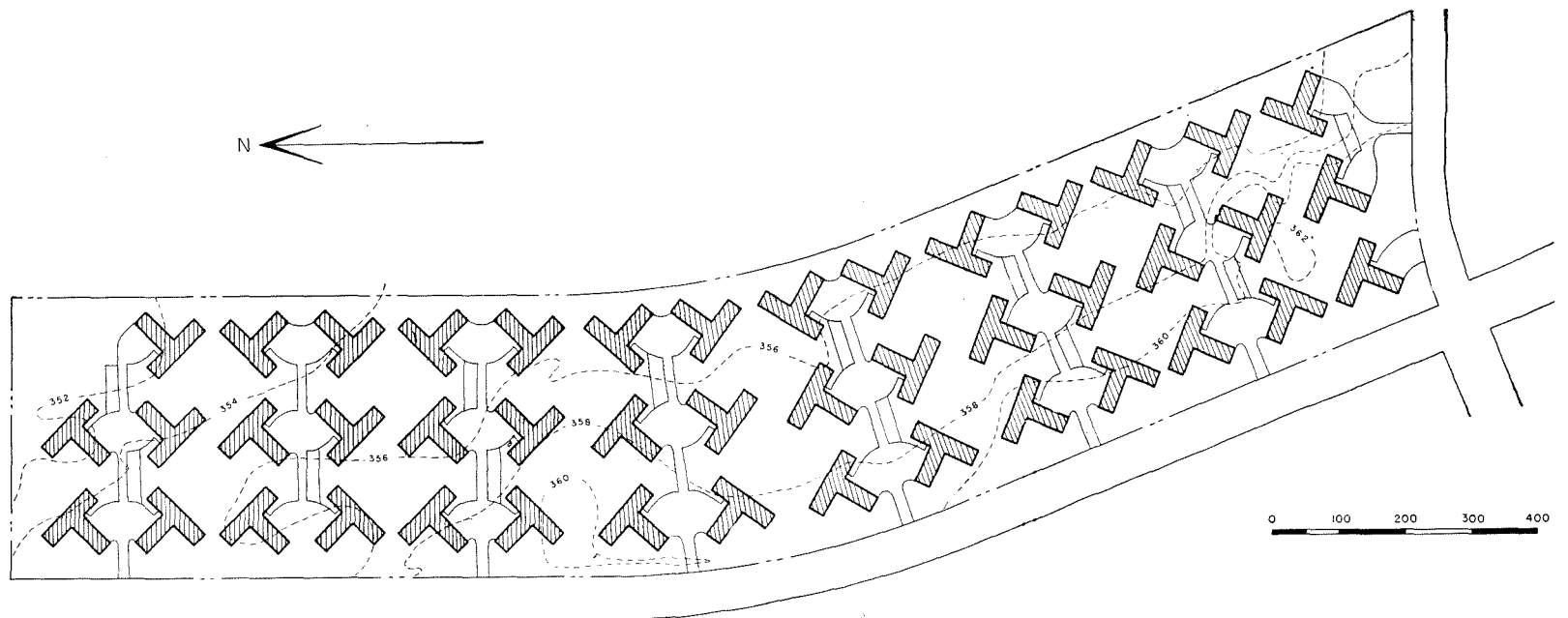
Monthly rental schedules have not been set yet but tentatively are expected to be:

Two-bedroom unit	710 sq. ft.	\$76
Three-bedroom unit	886 sq. ft.	\$87
Four-bedroom unit	1,003 sq. ft.	\$100

Figures include stoves and refrigerators in each apartment and community washers and dryers.

A perimeter warm-air heating system is installed in the apartments, with fiber ducts embedded in the ground-floor slab, and an overhead system in the second-floor apartments, each unit having its own heating plant.

PRIVACY AT CLOSE QUARTERS



Interior "commons" are furnished by calculated siting of apartments. Disadvantages of long, narrow site were offset by convenience of nearby shopping center and bus depot furnishing direct transportation to Hanford plant.

Uncommon commons

The site leased by Bauer-Day, Inc. (the operating company for Bauer Construction Co.) is a long, narrow, boomerang-shaped 24 acres near the city's major shopping area. With 44 buildings—220 apartments—on 24 acres, architect Gardiner wanted to avoid row regularity which would have given the site a cramped, crowded look. He evolved a complicated angling of the buildings which gives optimum solar orientation and also furnishes a maximum number of semienclosed commons which are expected to develop into protected play areas for children and community recreation space for all tenants.

Garages win over basements

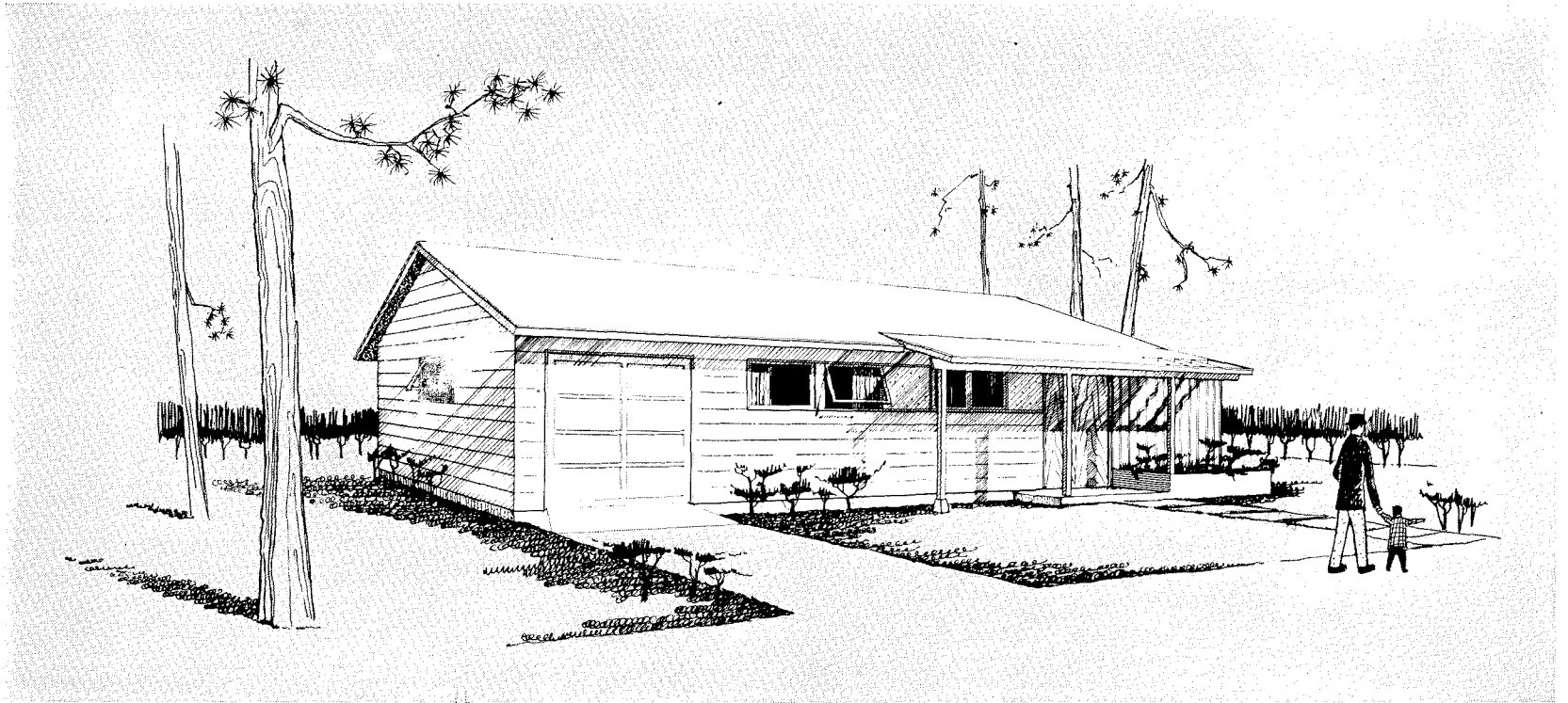
The 280 single houses will be built on a 42-acre tract overlooking the Yakima River, 2½ miles from the apartment project (both sites were obtained on 75-year leases). All houses will be 303 sq. ft., two-bedroom units, with attached garages, on lots at least 62' wide, and will rent for \$82. Original plans called for both slab and basement houses but unexpectedly high costs forced the dropping of basements and slight modifications of sizes. Freight charges in Richland are as much as 30% higher than in other West Coast areas, and subcontractors make extra allowances for "labor pirating," common in the Hanford working area. Impetus for substituting garages for basements was given by a survey of government-built housing that indicated that many Richland renters preferred the garage. Some had even put up garages at their own expense to protect their cars, even though they were living in rental units.

Government-owned city

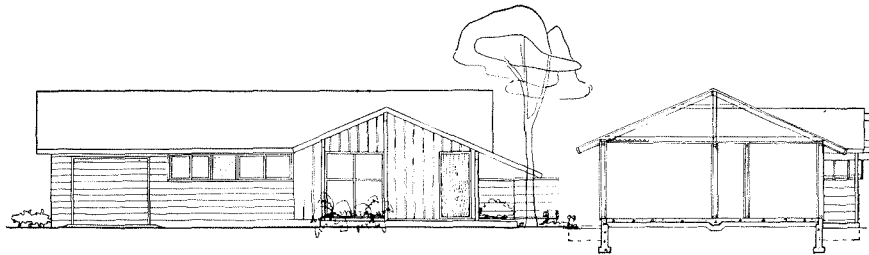
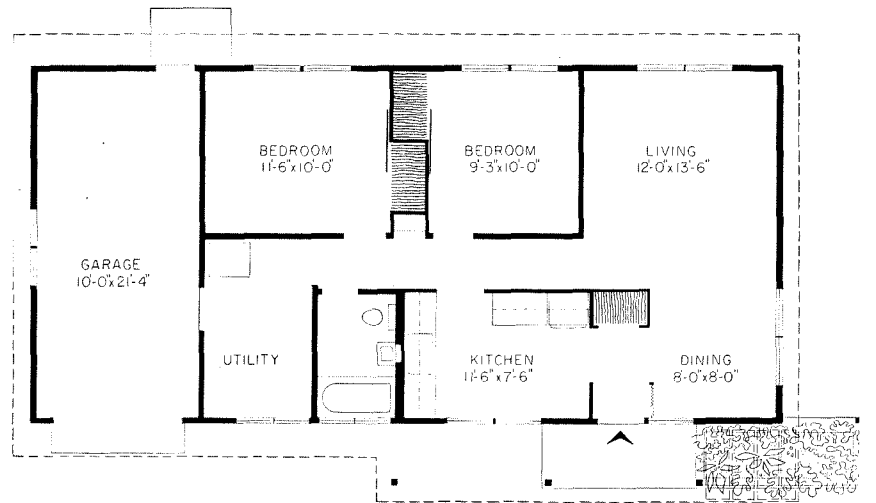
The Bauer-Day project marks the first time that any nongovernment housing has been permitted on a commission installation (though some land was leased to private capital for commercial development). Wherry Act housing is attractive to AEC on two counts: good housing serves to attract needed technical personnel (who put housing high on their list of "musts") and the entry of private capital helps take AEC out of the real-estate business. Builder and architect have shown that this housing can be both good looking and efficient



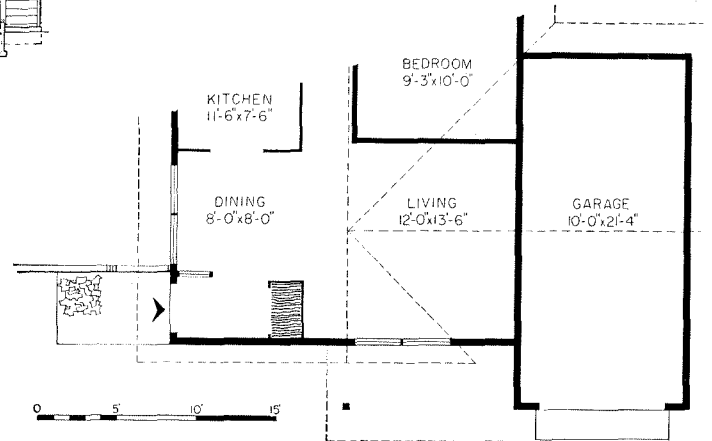
Lots for AEC's single houses average 62'-65' wide, would leave little space between 47' wide houses. Turning plan endwise makes house 14' narrower and alternating plans gives extra space between houses.



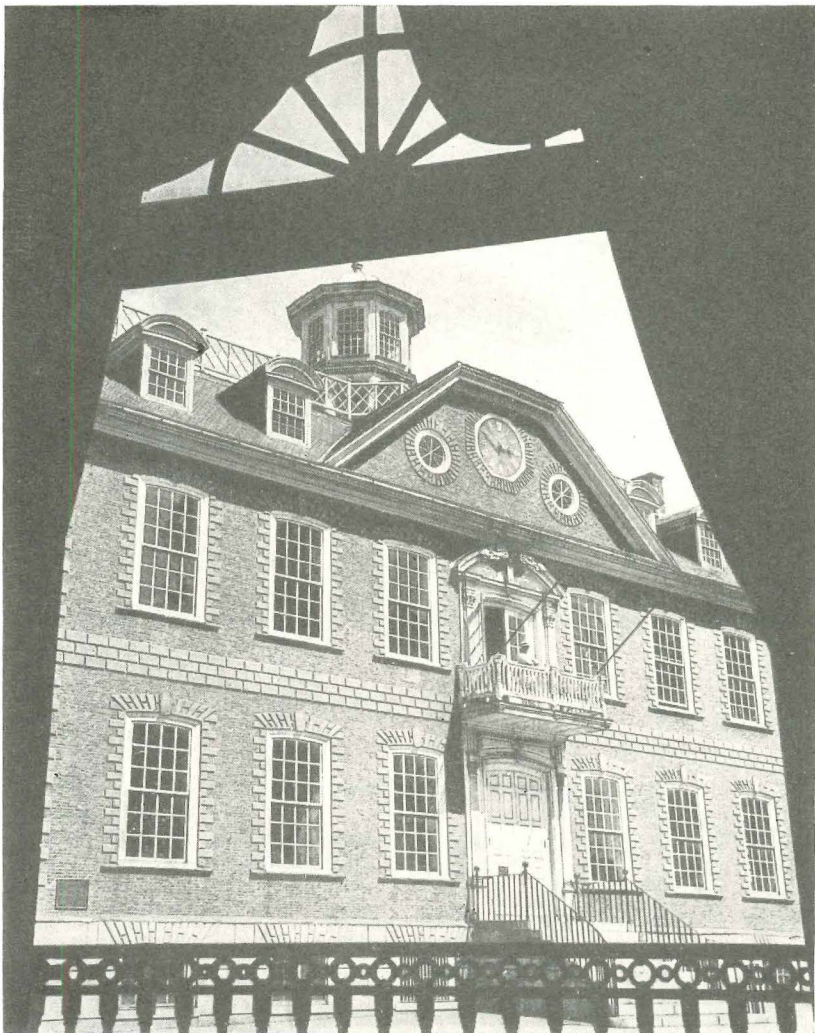
Gardiner's houses suffered a size cut when building costs proved unexpectedly high. First scheduling had an almost equal number of basement and slab floor jobs, but former were dropped to cut costs.



Frame houses will have elevation changes and variation in garage location to give variety (see plan, right). As in apartments, houses will have fiber ducts cast in slab for hot-air perimeter heat. All the 280 houses are two-bedroom units.



Lust and lustiness in architecture: the restoration of a lost art



The Colony house, Richard Munday, 1739

Meservey



A review by ROBERT WOODS KENNEDY

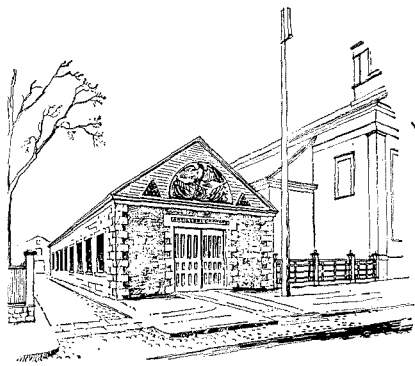
Newport, R. I. is an American town in need of a miracle: to preserve Newport, which is a miracle town in itself. Let there be no mistake, every lover of architecture, of the sea, boats or bathing, or driving or looking, is in need of Newport. The miracle, the sweeping gesture needed, is to bring Newport's heritage and the American public together. Unlike Williamsburg's this is a tradition that never died, and its restoration would be stimulating, not merely archaeological. There is a lust and lustiness about Newport that supersedes innocence, an architecture of fun, a life of exuberance badly needed today in our stainless-steel moment of cliché design and blinking neon life. No "redevelopment" could be more rewarding.

A group of summer and year-round citizens banded together as the Preservation Society of the County of Newport is attempting such a gesture; and the book on *The Architectural Heritage of Newport Rhode Island** is in essence a survey of the city's capital in trade—which is history as its buildings have proclaimed and enacted it.

For Newport is, both architecturally and socially, one of the most fascinating cities in these United States. In one aspect, it is an 18th-Century seaport that has managed to retain nine early public buildings of great distinction, let alone a flock of houses. This part of town is small-scaled, crowded, poor, old, a little dank and more than a little quaint. In another aspect, Newport is Bellevue Ave., a row of fabulous 19th-Century palaces, the summer colony of New York's Four Hundred. Here the scale is big, though the palaces are almost cheek by jowl, and the atmosphere is exclusive, ostentatious and glamorous. In still another guise, the city is a great naval base, home of the War College, subject to inundations of ratings off the ships, and to the doings of men on leave from boot camp. Here is its third scale, the scale of the battleship, of the ammunition dump, of the 20th Century.

Such a city necessarily offers staggering social contrasts. It also seems like a sieve. People pour through it. The original owners of Bellevue Ave. are drifting away. Many of their palaces are vacant, or derelict, or are now owned by the Catholic Church. Henry James's "little old gray ladies"; the houses of the 18th Cen-

* *The Architectural Heritage of Newport Rhode Island 1640-1915*. By Antoinette F. Downing and Vincent J. Scully, Jr. The Harvard University Press, Cambridge, Mass., 1952. 241 pp., 230 plates. \$18.50.



Newport Artillery



Ezra Stiles' house



Zion Episcopal Church



Second Congregational Church

ture, are in a state of advanced decrepitude, having seen the passage, perhaps, of too many navy wives. Admirals and captains appear and recede, as waves on a beach, following the mutating laws of naval cosmology. And the grocers, gardeners, and upstairs maids, grown rich in Bellevue Ave.'s servants' halls, send their sons to college and thence to teach philosophy or physics, or to do business, anywhere but in the city of their birth. Newport is the kind of a town, rare in the US, where the middle class does not prosper.

Newport's heyday as a working city, with diversified commercial interests, was prior to the Revolutionary War. The British took it in December 1776, and kept it for two years and eleven months. During that time it lost over half of its population, and nearly five hundred buildings. Then came the French occupation, then the War of 1812, then the hurricane of 1815; finally New York, Providence and Boston took over its commercial functions. The city recovered from these blows, but only in the sense that a permanent invalid recovers from the crisis stage of a disease. It became a one-industry town, dependent for its existence, from 1810 to 1940, on the summer colony, and on the navy for the next few years. Now in the 1950's it is suffering yet other blows. The navy is receding, and the naval torpedo station was moved out. New York's Four Hundred are poorer and fewer. There remain a few feasible summer cottages, and the possibility of a war or of a destroyer repair facility—hardly a reassuring basis for the city's economic future. But there is also its superb summer climate, its natural beauty, and this fabulous architectural heritage—building after building to make one cry out with wonder.

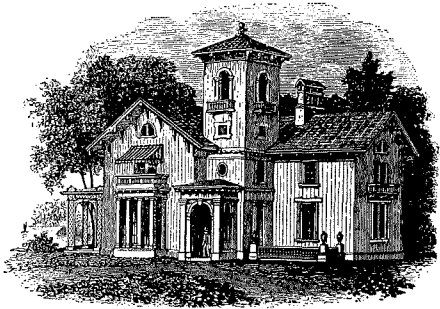
Mrs. Downing, who is chairman of the *Survey of Newport Architecture*, is responsible for most of *The Architectural Heritage of Newport's* contents. In digging up not only the old buildings themselves, but information about them which might aid in their preservation and restoration, and which might interest and stimulate the visitor to Newport, Mrs. Downing has performed magnificently. The job is sincere, scholarly and thorough. One feels that no old deed, bill, diary, or Bible fly leaf that might possibly contribute has failed to be examined and recorded.

But, as interpretation and explanation of facts, the text leaves something to be desired. Events and people and buildings remain apart, as parallel stories, somewhat disconnected. How did people actually use their houses? What were they trying to *prove* with them? Names, dates, bills of materials, and street numbers cannot carry one far toward that urgent question: *Why* did Newporters do what they did? The groundwork has been laid for an evaluation of 18th-Century architecture as an answer to social, technical and economic pressures, but that question has not been answered.

This 17th- and early 18th-Century architecture of which Mrs. Downing writes is profoundly moving. Though most cities now contain precious few examples, still, this is the architecture against which we measure our current work. It is our past, our history, our conscience. Its scale, its size relationship to the human body is magnificently flattering. But the qualities that give it the power to move us are its restraint, its refinement and its discipline. It is a virginal style. Its surfaces are uninterrupted. No breaks or features mar its purity. It gains brilliance through its cornice and the myriad shadow lines of closely spaced clapboards. Up to the War of 1812 it was an architecture of natural wood. But at this point the craze for white paint hit Newport. The ostensible reason was, perhaps, to be more "Greek." But for such an architecture white, the purest of all colors, is perfectly appropriate. However, this accent on purity is, in another aspect, somewhat grim. Virginitiy too long continued becomes inhibition. Imitators of colonial tend to sex it up, to add frills, breaks, gables and the like, never seen in the originals. The attempt to be more humanly frail than the Puritans and early Quakers, yet to use their vocabulary, is foredoomed to failure. Architecture can no more combine virginitiy and a full life than can people.

Newport architecture of the period 1840-1915 became, by slow degrees, entirely promiscuous. The story of this period is told by Mr. Scully. His analysis of the 19th Century is more professionally concerned with style and its evolution than is Mrs. Downing's. It is less rich in the history of the place and of the people. Given these limitations, it is a splendid job. Mr. Scully comes to the point, and for this he deserves cascades of praise:

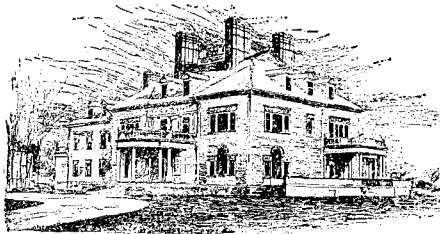
This period in American architecture, examined through the microcosm of Newport, may serve to clear away certain critical misconceptions concerning the architecture of the middle and later nineteenth century and help us to arrive at a more meaningful evaluation. Two generations of unfavorable academic criticism, based upon an academic point of view, have seen this period as "The Era of Bad Taste," as "The Battle of Styles," or as "A Confusion of Tongues." We shall see that these judgments are far from the truth and that the domestic architecture of these years was not only inventive, original, and full of life, but, through all its rich diversity, followed a course of development which was coherent and unified. In the larger historical sense this period brought to an end the long Renaissance complex of architectural development and laid the formal and philosophical foundation for the new architecture of the twentieth century.



The Stick Style

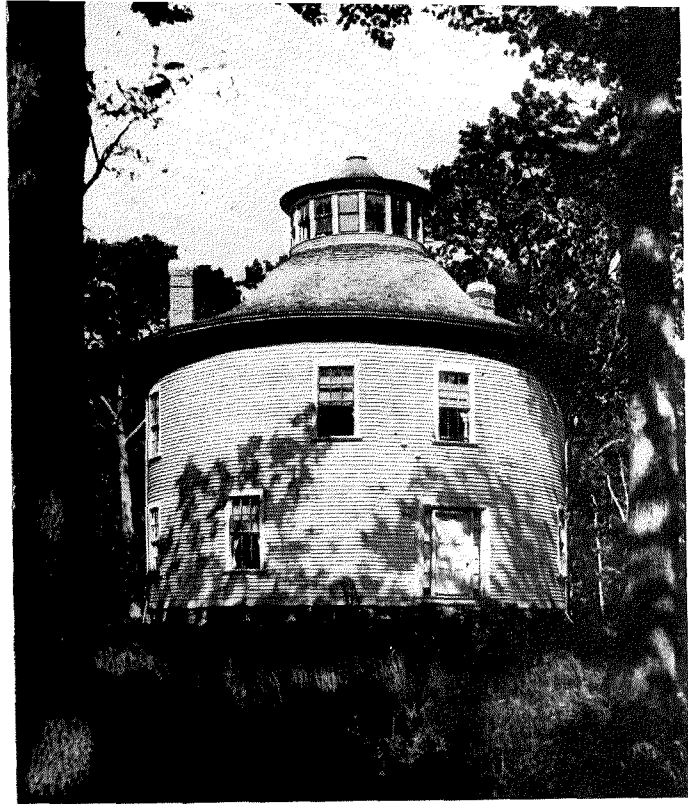
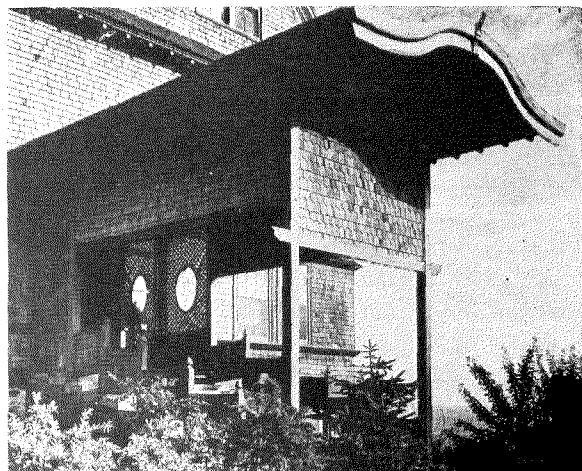


*Photos: (above & below) Meservey
George Champlin Mason's house. 1873-1874*

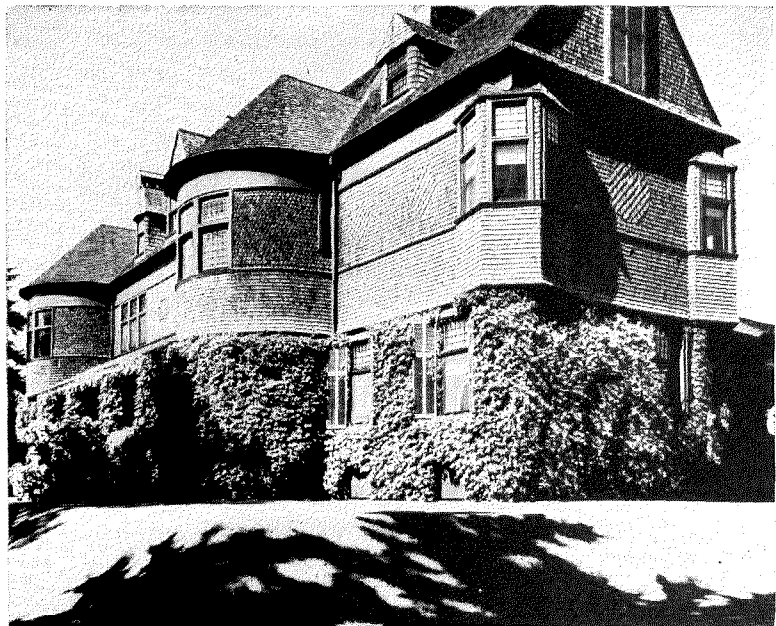
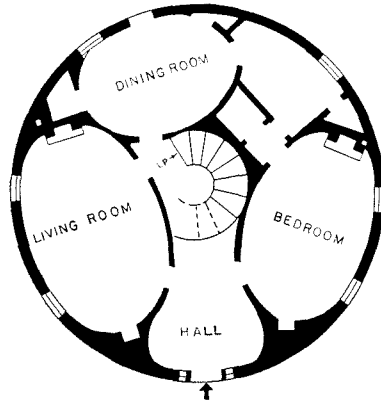


The Shingle Style

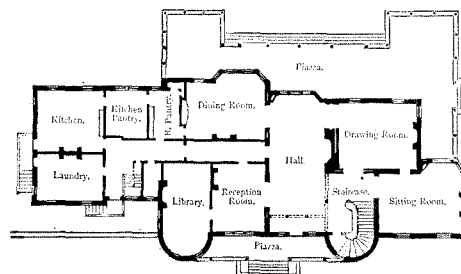
Bancroft house. 1893

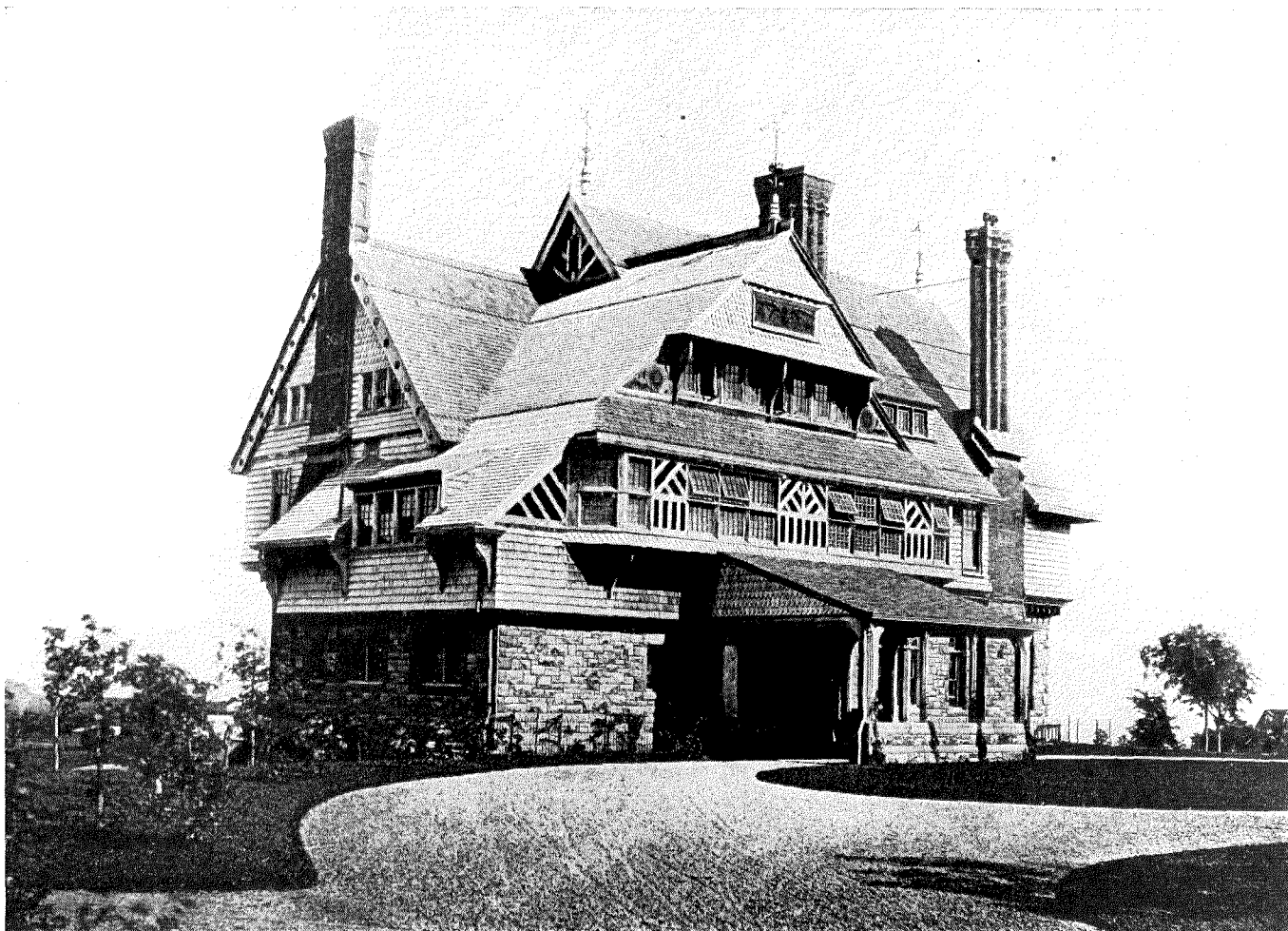


*Photo: Covell; plan (below) drawn by Warren Oakley
Round house. Southwicks Grove, Middletown.
Built by Joseph Southwick, ship carpenter. About 1840*



Southside. Wayne Andrews





Watts Sherman House. H. H. Richardson and Stanford White. 1874

Mr. Scully calls the two major creative modes of the time the *Stick Style* and the *Shingle Style*. These epithets excellently describe those two Romantic moods which are, each in its way, both so American and so charming. The Stick and Shingle Styles retained, from the 18th Century, that shallowness of surface treatment typical of wooden buildings. But here all resemblance stops. The 18th-Century house was uneasily asymmetrical, and brooked no penetrations into its solid volume. The 19th-Century house reaches out in the form of piazzas, cornices and overhangs, accepts deep and dark reveals into its outer envelope, is purposefully asymmetrical, and glories in an open plan. Its atmosphere smacks of the East; of seraglios, Saracens and servants. With this went a magnificent inventiveness and a charming playfulness. The wooden towers, dormers, cornices, and porches, particularly of Newport's stables, are a never ending source of pleasure and amazement. Here is an architecture of fun without dogmatism or rigidity. Our current attitudes toward such elements as structure, plan and volume relationships stem directly from this period. But what has happened to our grandfather's exuberance and gaiety, to his ability to do without a book? Every modern architect should examine these Stick and Shingle houses, stables and pavilions, and compare them with his own current work. Has a fear of poor taste led to dogmatic insistence on rules? Has a fear of gaiety led to aridity? Has a fear of rugged individualism led to a vocabulary of clichés? It seems to me that the architecture of 19th-Century Newport, in contrast with our own, is almost stunningly alive, creative and exuberant. What has happened to our creative juices? Mr. Scully is not of much help with these questions.

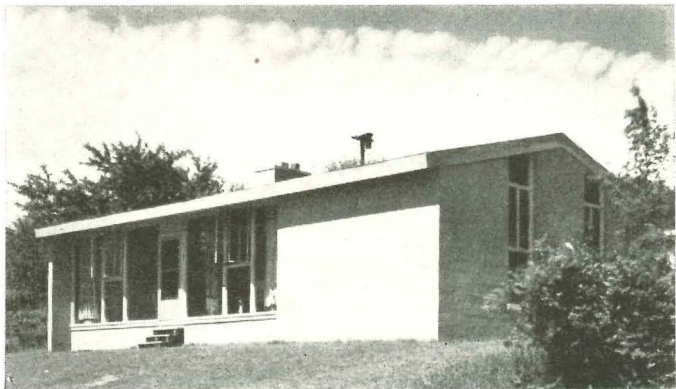
And language does much to mar the points at issue. We learn that: "The Watts Sherman house, therefore, is an architectural monument of great quality but also a stylistic one." But one entirely misses that sense of houses and horses and women and champagne used as pawns in a game of economic chess, so typical of Newport, and so important to the size, decoration, planning, and use of its 19th-Century architecture.

The limitations of the book, then, are twofold. First, the Survey is a tool, and is therefore not readily consumable by the average person. Second, the way in which it has been interpreted does not, somehow, put one in touch with the lively complex of incompatible miscellany that makes architecture. The book's virtues, on the other hand, are manifold. As a necessary step in the preservation of the art and economy of a city, it is fascinating. As an approach to the subject of restoration, it is infinitely superior to, for example, Colonial Williamsburg. As a repository of information, including some very evocative letters and diaries, it is altogether superior. As an interpretation of Romanticism, it is kind and just and appreciative. It is absolutely essential to every architect, engineer, builder, decorator, planner and landscaper who, from now on, touches a hair of Newport's gray head. Most of all it should be examined by the solons of the state, the fathers of the city, the operators of real estate and by the makers of loans—that is, by all of those who have a financial stake within the city or on the Island of Newport. By extension, this Survey will be of interest to people with stakes in any city with a similar heritage and present. And, finally, the thoughtful architect will enjoy both it and the city whose praises it sings.



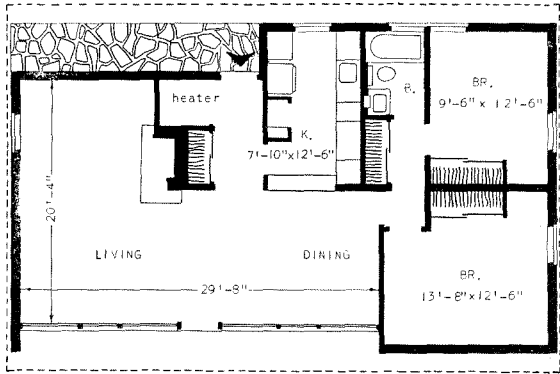
Patry Carr Studios

Flat-roofed plan (above) which offers a carport in rear at no extra cost was unanimous choice over gable roof (below) which has no car storage. Customers especially liked the floor-to-ceiling windows.

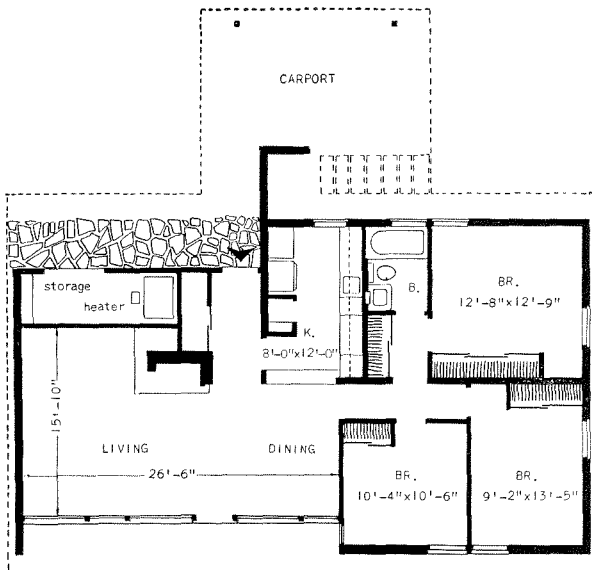


Flat-tops in an orchard

LOCATION: Branford, Conn.
 PETER POWERS HALE, architect
 THE BUILDERS GROUP, contractors
 TECHNICAL PLANNING ASSOCIATES, land planning



Outside bulk storage and carport have been added to two-bedroom house. Concrete block dimensions were used as module by architect Hale.



Thick clay subsoil which lay just a few feet under surface made burying oil tank so expensive that it is now placed above grade in carport.

Most architects would prefer not to have to turn builder, salesman and land developer to promote a belief in modern design for houses, but Peter Powers Hale took that step. To prove his conviction that the public would like, and buy, good contemporary houses, he organized a building syndicate in New Haven, Conn.

On a small scale, he found out in just over one year that:

1. Modern houses appeal to various kinds of people

(His buyers include Yale professors and machinists, a retired elderly school teacher and a young couple with four children.)

2. Modern houses can be sold

(The first six are occupied or under construction; seven more are sold from plans.)

3. Modern houses can be financed

(Though insurance companies ran from the houses as from a plague, a local savings and loan company likes the project and is now prepared to advance construction money to Hale's group for a program of five houses at a time.)

The way of the innovator is hard

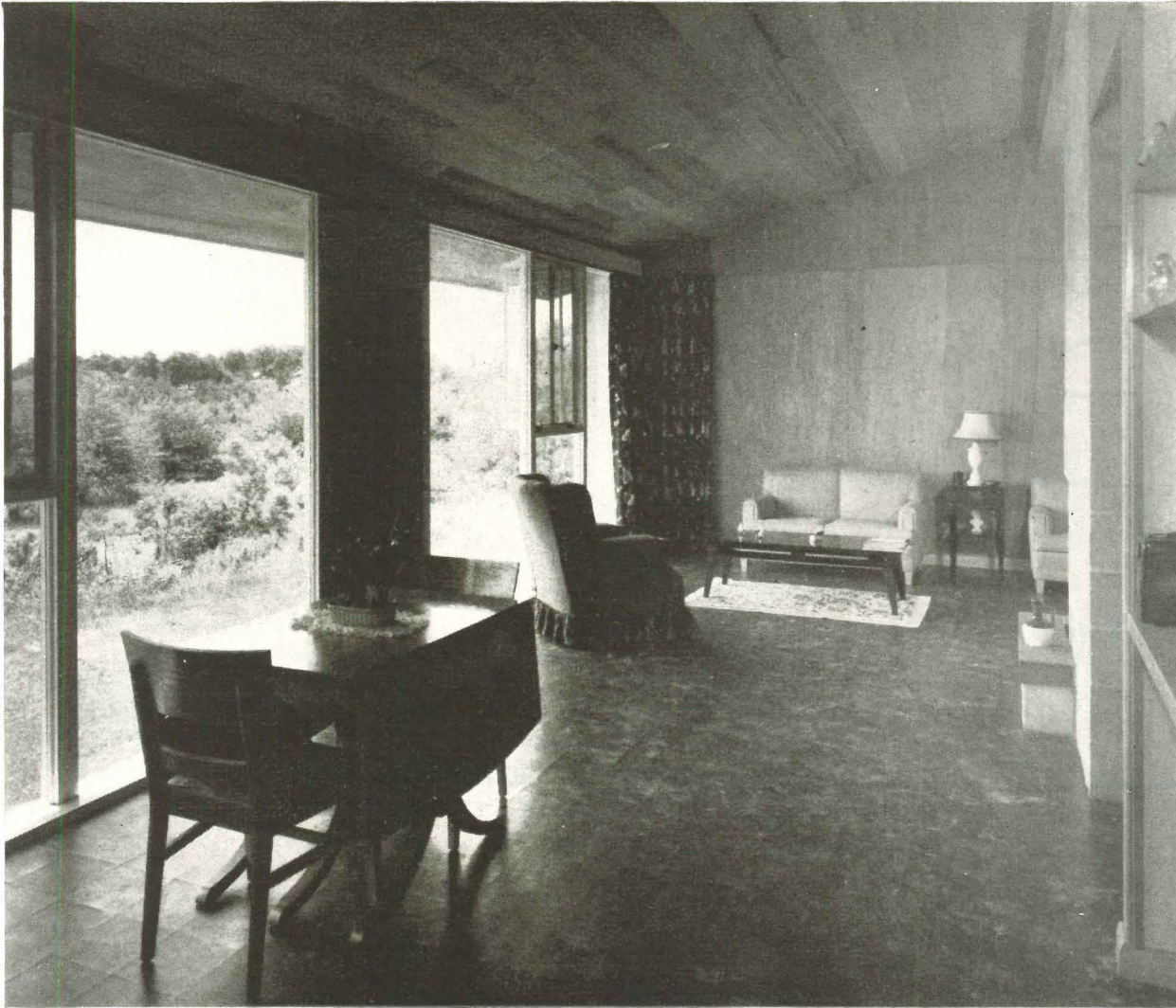
While Peter Hale is breathing easier today about his flat-topped houses in Orchard Hill, the past year was an uphill struggle. His partners in the Builders Group are his subcontractors, who had worked on his custom contemporary houses over the past few years and were familiar with his design demands. Their chief contribution has been their willingness to wait until "mortgage day" for their money, for no mortgage funds were available until the first houses were completed.

Instead of the flat, grid-patterned subdivision, Hale had Technical Planning Associates lay out a winding pattern through the former orchard that respected the contours of the hillside and saved every possible gnarled apple tree. The preserved trees both shield the large windows from the road and frame the view across the valley. Instead of the salt box or Cape Cod, Hale designed a flat-topped, window-walled cement block house on a concrete slab. An excellent way to win friends, but not to influence lenders.

Every source of mortgage money in New Haven was approached, but while the local correspondents for insurance funds were sometimes enthusiastic, the invariable answer from the "home office" was always "No." With the completion of the first three houses, a local bank agreed to take the mortgages for these, but wanted no more "until someone else takes some, too." What they wanted "someone else" to take was:

- ▶ A big (45' x 28') house on a big (100' x 150' minimum) lot.
- ▶ A well-designed open-plan house, with full-length windows in living and bedrooms, mahogany wall paneling, and rear carport.
- ▶ An inexpensive house, that offered 1,260 sq. ft. for less than \$10 a sq. ft. (\$11,900).
- ▶ A house whose design won a certificate of approval from the Southwest Research Institute.

FLAT-TOPS IN AN ORCHARD



In peak-roofed house, ceiling follows roof line right out to overhanging eaves, adding height and spacious feeling to living-dining area.

Financing comes through

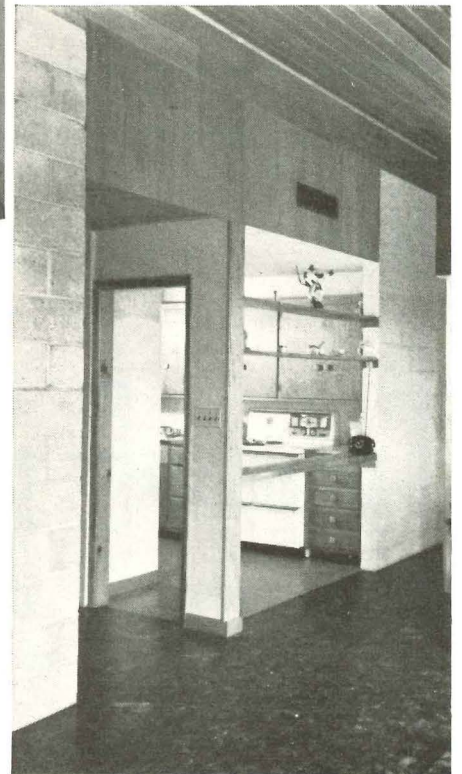
This spring, New Haven's First Federal Savings & Loan not only took the next three mortgages, but also agreed to advance construction money on five houses at a time, a quantity that would keep the small organization busy. The Builders' Group has deposits on seven more houses already, and has stopped taking orders until the next group is completed. These will be three-bedroom houses (\$12,900) to accommodate customers who need more space. And so that the one design doesn't get monotonous, Hale is getting ready to introduce an alternate model.

Some obvious difficulties have cropped up: First, Hale is an *architect* and the demands of construction and sales are seriously interfering with his practice. Second, limited capital and a small profit margin have made subdivision capital improvements slow and piecemeal. Finally, the few-at-a-time system will not permit production-line methods that could cut costs drastically.

Good land use

The apple orchard was replanned to permit the building of the maximum number of houses with the minimum amount of roads and improvements. Hale hopes to keep the entire development semirural in character. Starting about halfway up the slope, present plans call for proceeding along the crest of the rise. The low land at the foot of the hill will have to await municipal sewers before development.

Each house is oriented to the southeast, with a window wall that soaks up radiant sunheat in the winter to compensate for the large convective heat loss through the floor-to-ceiling glass.



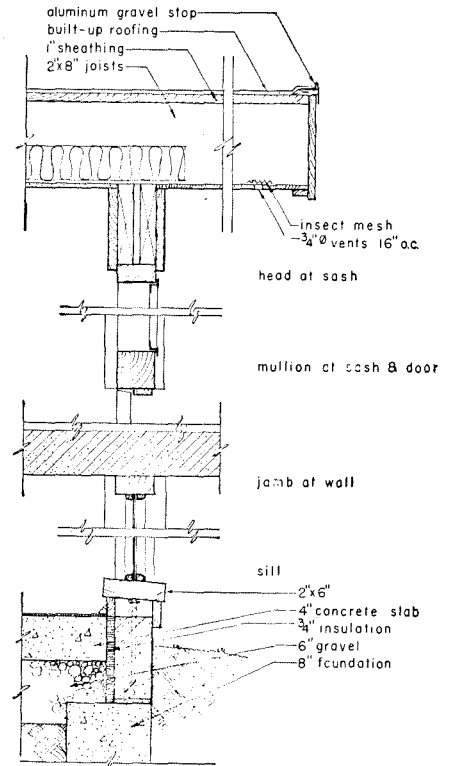
Opening in kitchen wall doubles as pass-through or snack bar. Overhead hot-air heat shown may be replaced by crawl space perimeter system.



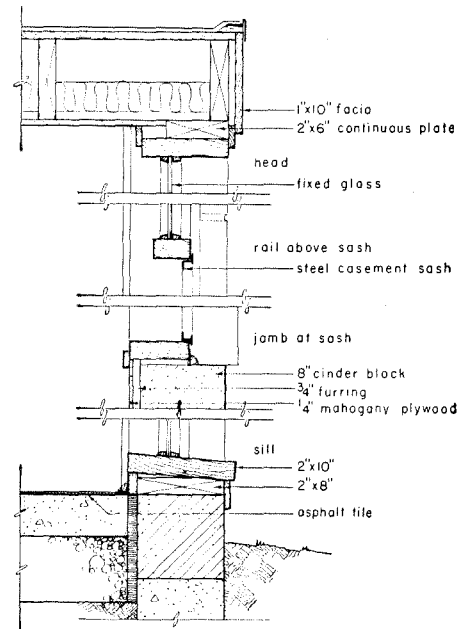
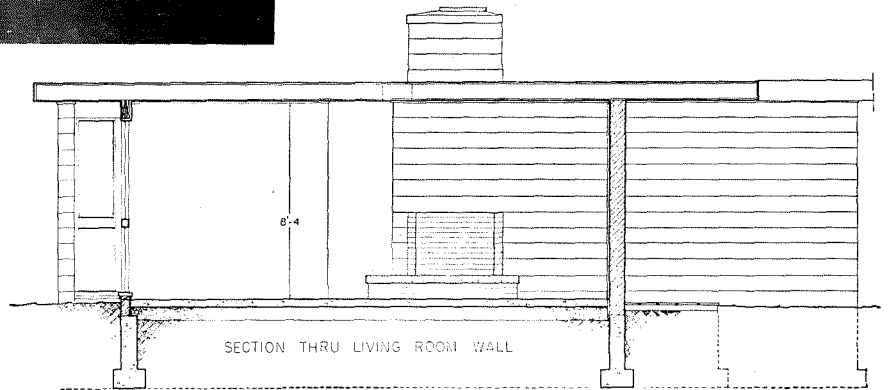
Corner fireplace ranked high in popularity with buyers. For family with small children, Hale extended window sills 4" into room to prevent accidental collisions with glass.

COST BREAKDOWN

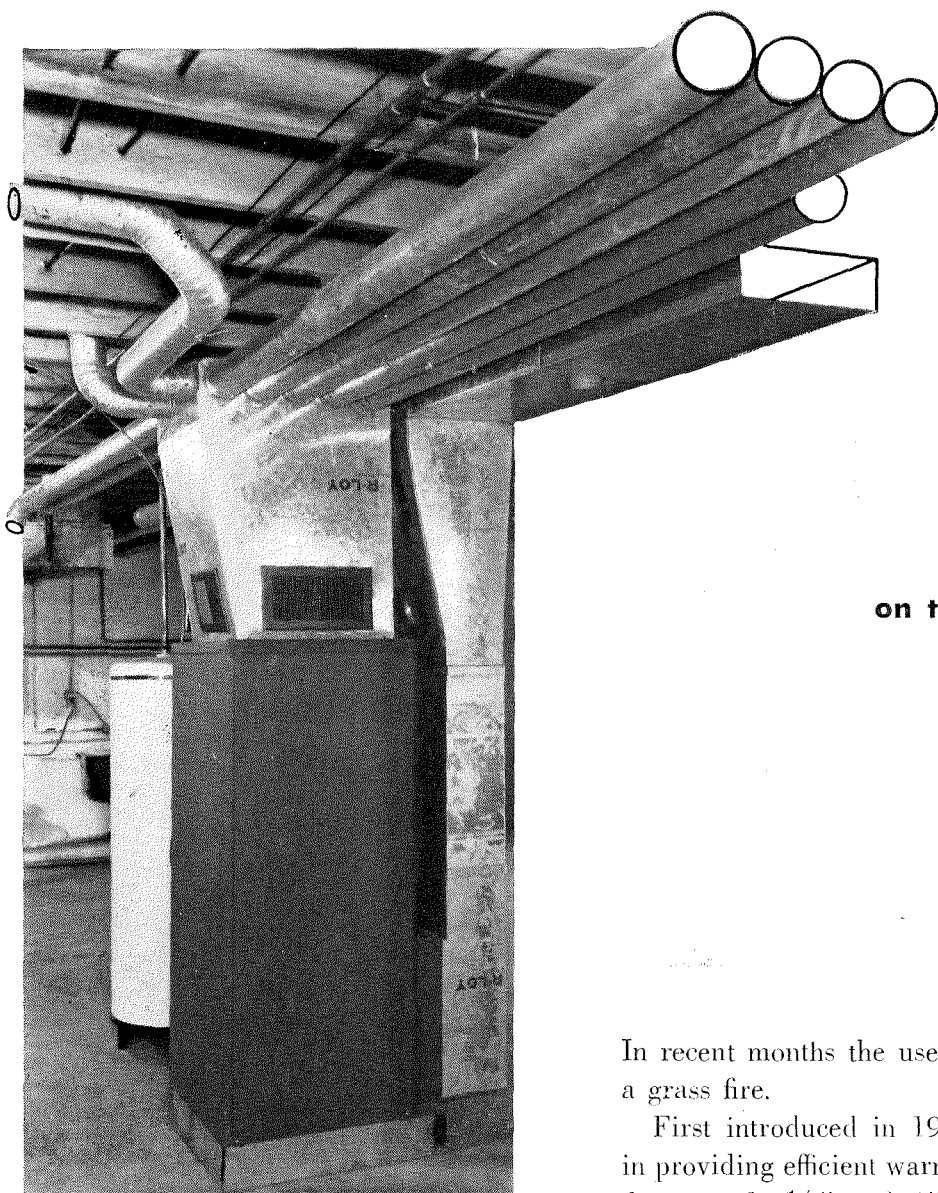
Raw land	\$200
Bonds	73
Survey	125
Utilities: water deposit	335
Roads, grading and landscaping.....	322
Septic tank and field	245
Asphalt tile and counter work	251
Carpenter labor and materials	2,721
Millwork	117
Electrical: labor and materials	345
Fixtures	91
Glass	232
Hardware	75
Heating	815
Masonry	2,300
Painting	365
Plumbing	1,180
Roofing	455
Sash	191
Office	25
Architectural fees and supervision	250
Financing (interest on notes)	16
Asphalt tile and counter work	251
	\$10,980
Sales and profit	920
TOTAL sales price	\$11,900



SECTION THRU LIVING ROOM GLASS WALL



SECTION THRU FULL-LENGTH WINDOWS



A new manual, "Small Pipe Warm Air Perimeter Heating" has just been issued by the National Warm Air Heating & Air Conditioning Association. It is based on extensive tests throughout the country over the past few years and marks the official acceptance of this new form of heating.

Just released is a significant manual
on the newest trend in warm air heating.

It heralds the rise in popularity of

Small pipe heating

In recent months the use of small pipe heating systems has spread like a grass fire.

First introduced in 1949 this new method offers obvious advantages in providing efficient warm air heating at lower cost. In the last six months the use of 3½" and 4" pipe systems has become so widespread that FHA and VA asked the warm air industry to standardize on a design and installation manual (just published, *see p. 124*) to serve as a guide to appraisers.

Manufacturers of small pipe systems are enthusiastic, expect small pipes to be the accepted standard within five years. They cite the following advantages to builders and architects:

- ▶ Less space is required. Small pipes fit inside a standard stud wall, wind around beams, leave plenty of headroom in basements.
- ▶ Design is simplified. Distribution systems can be laid out easier and faster. This lessens the chance of mistakes due to faulty calculations.
- ▶ Installation cost is lowered. Small prefabricated pipes can be made faster, require less metal. Builders report installation savings (labor and materials) up to 35% under comparable large duct systems.
- ▶ New registers combined with small pipes provide a highly efficient warm air blanket over windows and outside walls. Customer complaints due to poor heating are conspicuously less.
- ▶ Remodeling is made easy and inexpensive. Automatic heating with warm air can be installed in many old houses which have no space for large ducts.
- ▶ Summer air conditioning is easier to add to small pipe systems.

On the following pages is a detailed story on small pipe systems, together with reports from the first builders who have used them.

How do small pipe systems work?

Small pipe systems can be used in any type of house: slab, crawl space or basement. They work efficiently because engineers combine their use with three other important developments:

1. *Air is hotter.* One difference from a conventional warm air system: air is heated to a temperature of 175° to 195° rather than 150°. Since a smaller amount of air passes through the ducts, it must be hotter to do a proper heating job. Conventional furnaces are used to heat a smaller quantity of air to a higher temperature; there is no difference in size or cost of the furnace.

2. *Air circulation is more continuous.* Manufacturers have adopted the "continuous air circulation" principle which has been recommended for several years by research engineers for most warm air systems. The blower of the heating system is regulated so it will run most of the time in mild weather, practically all the time in cold weather. The average 1/4 to 1/3 hp blower runs approximately 2,500 hrs. in winter compared to 2,000 hrs. previously. Extra

cost to the homeowner is no more than 40¢ a month, about \$3 for an entire winter.

3. *New registers are used.* They are designed to mix the hot incoming air immediately with room air, so people in a room will not notice the supply air is warmer. Photographs of the various kinds of registers (blender, wall, and floor types) are shown on these pages. The higher air velocities used in most small duct systems also provide a more complete blanket of warm air over windows and exterior walls.

The success of the small pipe system depends both on the new registers and the continuous air circulation principle to overcome cold air rushing downward over big windows. In a sense cold drafts are stopped before they can form. (New type registers don't increase heating costs more than \$15 in a 1,000 sq. ft house. New registers cost about \$1.50 more than a conventional type.)

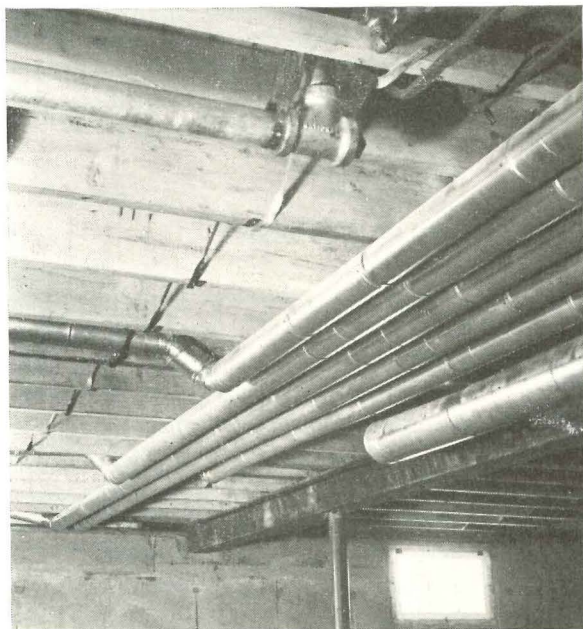
Higher velocities

There is not complete agreement in the industry on air velocities for small pipe

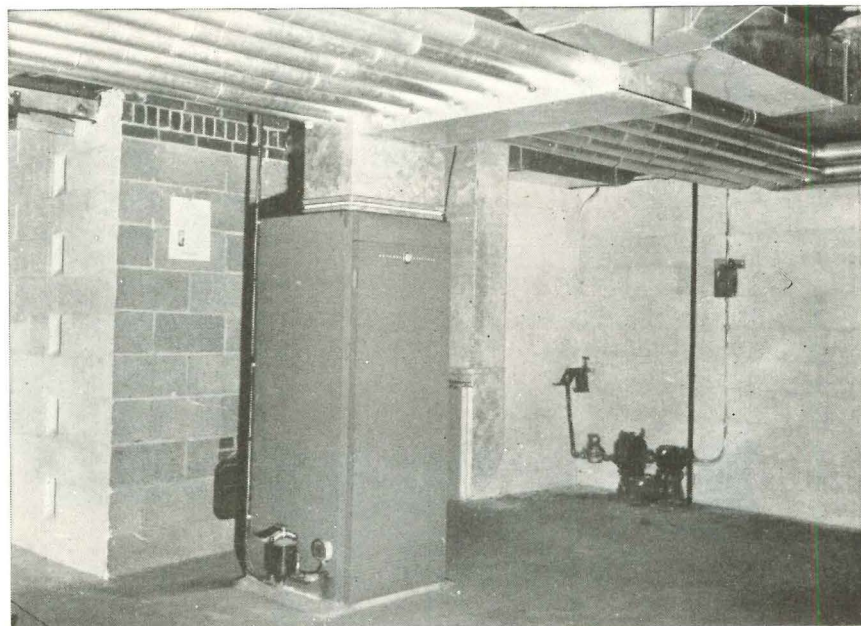
systems. The new small duct guide stresses the fact that all small duct systems need not use high velocity air flow. However, when conventional velocities are employed—600' per minute—more small pipes are needed to circulate a given quantity of air.

Most manufacturers of small pipe systems use air velocities up to 1,100 fpm. Speeds of 1,100 fpm are not considered high, as air conditioning engineers regularly call for velocities up to 2,000 fpm in standard cooling systems in commercial installations. The high velocity conduit systems in office buildings use air that zooms through the ducts at around 4,500 fpm.

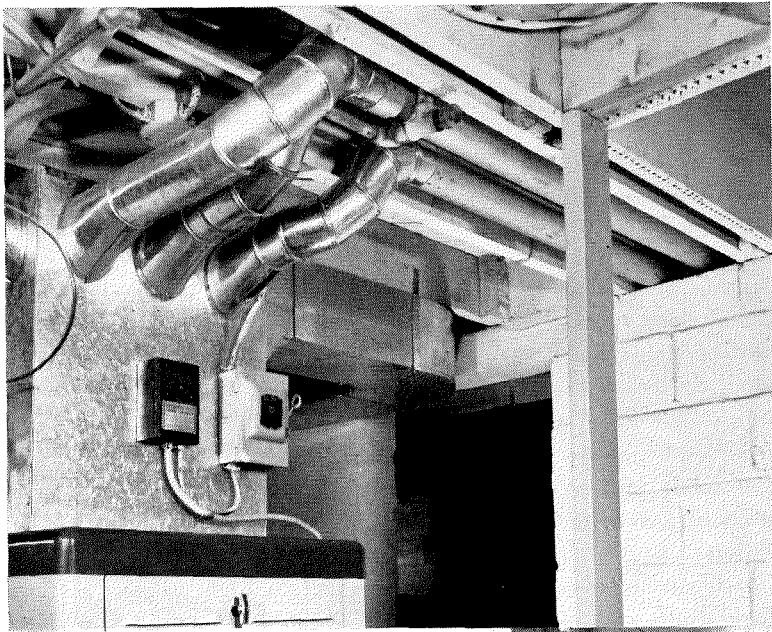
The patented "high velocity" systems currently available to builders require a stronger blower because air friction in small pipes is greater than the air friction in larger ducts. To overcome higher friction, engineers first standardized on prefabricated low resistance fittings. By eliminating sharp bends and turns they eliminated most of the source of high friction. In fact, some manufacturers found that the blowers in their conventional furnaces are strong enough to handle the increased friction of



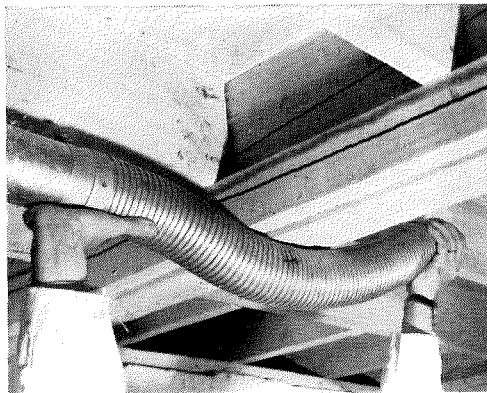
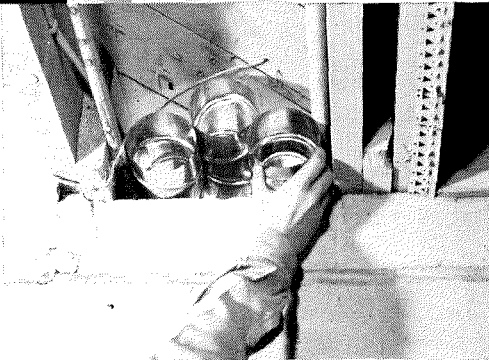
Small pipe heating in one of 39 houses (below) by Long Island builder Harvey Haines. Installed in 1949 this was one of first small pipe installations in the country. Individual pipes "peel-off" to under windows of all rooms.



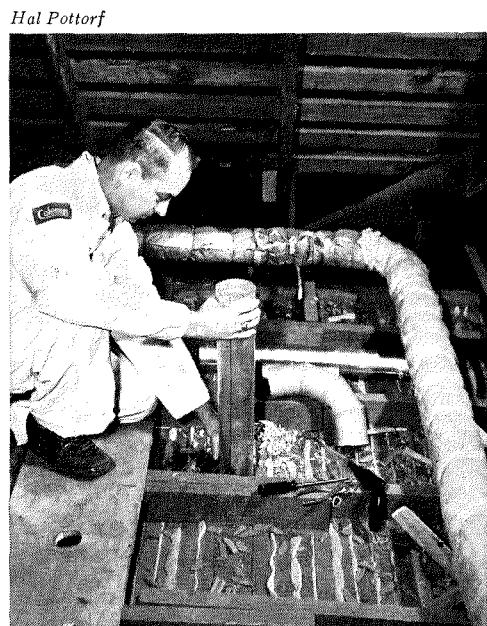
More headroom in basements is big feature of small pipe installations. Pipes can be neatly furred-in under the ceiling when recreation rooms are planned. Return air is brought back from the house through conventional rectangular duct at right of unit.



Plenum over furnace above feeds warm air to small pipes through prefabricated low-resistance fittings. Pipes (right) easily fit between joists, take up little usable space in houses. After the heating system is properly designed small pipes can be installed by workman familiar with ordinary tools.



Flexible fittings wind around beams, cut down the time required for installation. Sharp turns are avoided; consequently air friction is lower.



Hal Pottorf



Less cutting is required for the passage of small pipes through floors. Framing construction isn't materially weakened. Builders report large savings in time and labor required to cut holes.

In remodeling, small pipes can be easily inserted between standard stud walls from attic (left) or basement. Pipe insulation is recommended when warm air pipes travel through cold attics.

small pipe systems. Other manufacturers have had to increase their blower sizes from 1/6 to 1/4 hp or 1/4 to 1/3 hp depending on the size of furnace and quantity of air heated. The increased electrical power necessary is no more than that required for a 75 w. bulb.

Simplified design

After an accurate heat loss is computed for a house there is far less chance for a builder or architect to go wrong on heating with small pipes, because ducts do not have to be sized individually for all rooms. The heating contractor is not confronted with the problem of figuring rectangular sizes.

The average length small pipe—up to 25'—handles 10,000 Btu's, enough capacity for 90% of all rooms. (Longer runs deliver proportionately fewer Btu's.) When a room needs more heat an additional pipe is run to it; more than two pipes are seldom needed.

For a house with 70,000 Btu per hour heat loss, seven or eight small ducts are needed depending on room sizes and length of runs. Consequently design is so greatly simplified it's practically foolproof. A New Jersey heating contractor who pioneered the new systems has already installed about 1,000 jobs "with no complaints from owners!"

Type of installation

Despite the advantage of running 3 1/2" pipes between wall studs most manufacturers choose to produce the 4" size. They point out that 4" is a standard prefabricated pipe which can be obtained anywhere in the country. They point out too, that a 4" pipe can be easily "pinched" to permit installation in walls. Or builders are offered the alternative of using prefabricated 2" x 10" metal stacking between studs.

One type of system is the individual pipe method. Here a series of small pipes fans out from the furnace like spokes of a wheel (*see photo*). This method is applicable in houses up to approximately 1,500 sq. ft.

In larger houses the individual pipe method may be inefficient or uneconomical (warm air blown through excessively long runs of small pipes tends to lose its heat and velocity). In larger houses the builder can run a conventional rectangular duct down the length of the basement (or attic). The long duct is like the trunk of a tree; small pipes branch off from it to all rooms. This method of installation is called an extended plenum (*see photo*).

What builders report:

Says M. C. Bogue of Denver: This method of heating, "... eliminates cold draft areas, cold floors, and completely stops condensation on windows." His total heating bill for small pipe systems is \$550 in a 1,000 sq. ft. crawl space house.

In a survey of the first builders who have used small pipe systems H&H found two-thirds paid less and none paid more than their former price for a *comparable high-efficiency* large duct system.

Savings result from quicker and easier installation; all parts are prefabricated and there is a minimum of site labor. Also less cutting is required to permit passage of small ducts through floors and walls. (There is no difference, however, in furnace cost.)

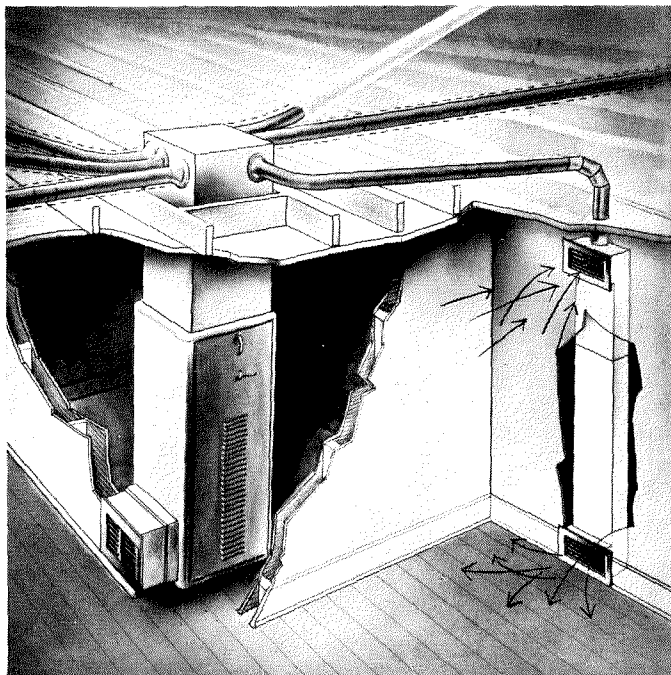
Savings over conventional systems vary because large duct prices are different throughout the country. Savings are less in cities such as Wichita where large duct costs are extremely low.

Note also that larger savings are possible when the furnace is centrally located

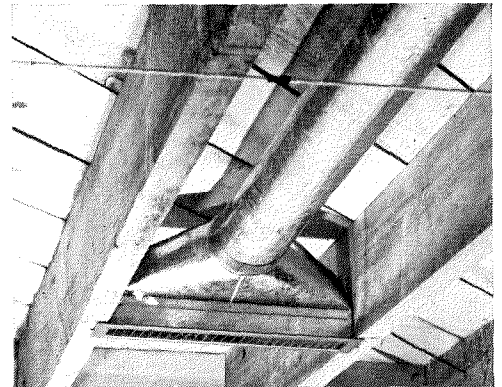
to avoid long runs. Then a minimum of small pipes is required.

Here's a sampling of typical prices:

- ▶ Fresno, Calif.: Builder Bruce A. Younger pays \$900 for 3½" pipe systems in 1,500 sq. ft. houses. His heating bill was formerly \$1,300 for a standard forced air system.
- ▶ Rochester, N. Y.: Bernard Entress saves approximately 10% on heating in 935 sq. ft. houses. He formerly paid \$625 to \$775.
- ▶ Long Island, N. Y.: Builder Hillard Man put small pipes in his \$8,750 houses for \$575, no saving over a conventional job. Previously he had an inexpensive but poor system. Now, for the same price he gets much better heating.
- ▶ Denver, Colo.: Heating contractor B. K. Sweeney says he saves five different builders about 10% of their total heating bills with small pipes.
- ▶ Pompton Lakes, N. J.: Janel Builders, Inc. pay \$675 for 4" systems in \$11,000 houses. They formerly paid \$775 for the heating systems in similar houses.



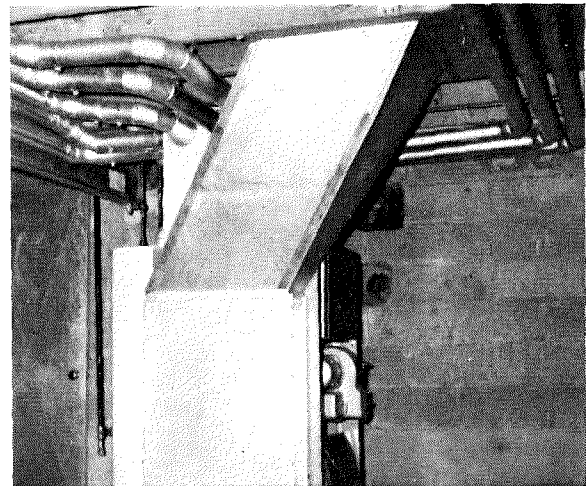
Blender type registers provide high efficiency air circulation in rooms. Warm air shooting into top of blender (above right) pulls in equal quantity of room air, by induction, through top register. The blended air is discharged through the lower register. Return air is pulled back to the furnace through a single grille (lower right).



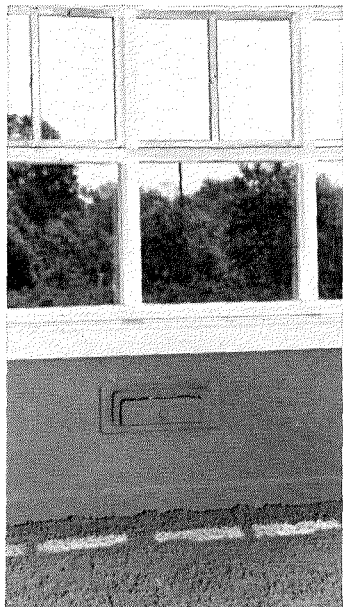
Standard fittings spread air evenly to new 2" x 14" registers. Here warm air is supplied to a basement. Fitting and register are turned upward to discharge air to floor above.



Builder Wallace Shilay first installed small pipe heating in his house (above). Now he puts small pipe systems in the rest of his new development in New Jersey. Shown below is a photograph of a typical installation in Shilay's new houses.

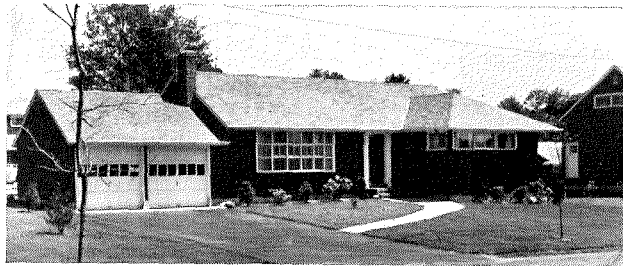
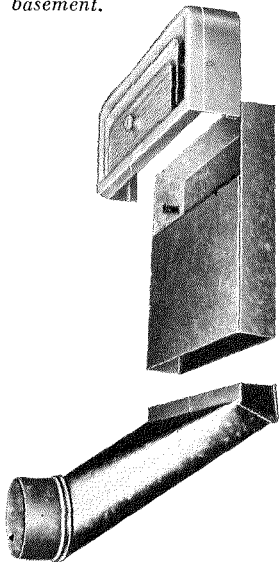


AIR CONDITIONING with small pipes



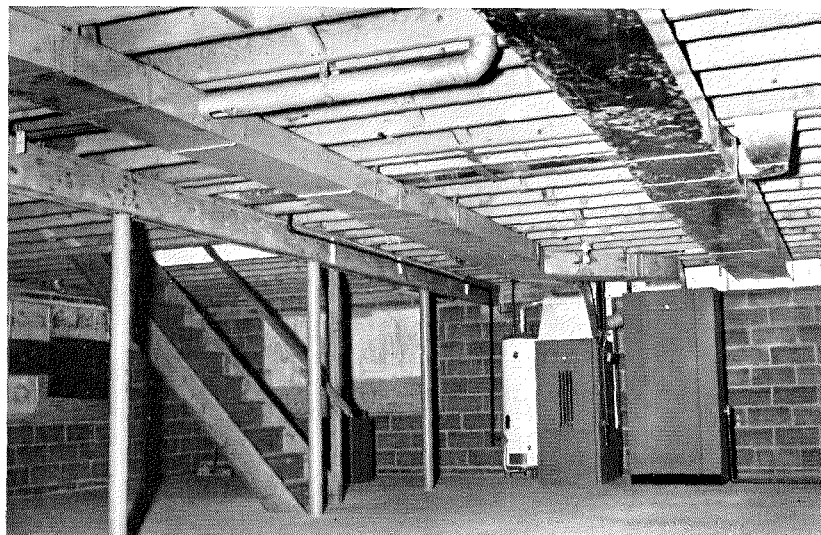
Edward A. Cattlo

Air leaving this special wall register immediately mixes with room air. The blended air is discharged vertically over the window. Prefabricated fittings, below, connect the register to small pipes in the basement.



This 1,600 sq. ft. house is typical of 65 houses in the first development in the country with small pipes for year-round air conditioning. Built by New Jersey builder James D'Agostino they sell for \$22,000 to \$28,000 depending on floor plan.

Extended plenum (below) from separate G.E. heating and cooling units runs length of basement. Small pipes branch off from it to all rooms. Rectangular duct (bottom right) is for return air.



Year round air conditioning with small pipes is not just a theory—it's here.

Test installations with 3½" pipes for residential heating and cooling were first tried out last summer in Texas and California; warm or cool air is supplied by the same distribution system. One manufacturer claims that small pipe systems circulate cool air better than conditioners with conventional ducts.

The new small duct manual* is confined strictly to heating. So far there is no official guide on residential air conditioning with small pipes. However, several manufacturers are currently pioneering such cooling systems.

Economy in adding cooling to existing heating systems is claimed because any added ductwork required would cost less.

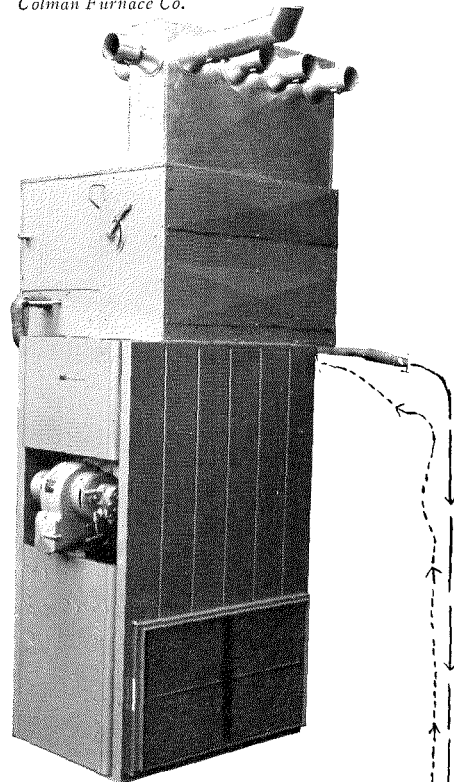
Recently announced is the first air con-

ditioned project in the country to use small pipes—a 65 house development by New Jersey builder James D'Agostino; houses sell for \$22,000 to \$28,000 depending on the floor plan.

D'Agostino's 1,600 sq. ft. houses include separate heating and cooling units. Eleven 4" pipes feed warm or cool air to all rooms from an extended plenum which runs the length of the basement. Total cost of D'Agostino's year round system is \$1,900 (a cooling tower isn't used). Heating alone with 4" pipes would cost \$825 in the same houses.

*The new small pipe manual can be obtained from the National Warm Air Heating & Air Conditioning Association, 145 Public Square, Cleveland 14, Ohio. The price is 75¢.

Colman Furnace Co.



New cooling unit is attached to the top of a standard small pipe furnace. The compressor can be located next to the furnace or in the garage. Refrigerant piping connects the compressor to the cooling unit.

