House & Home

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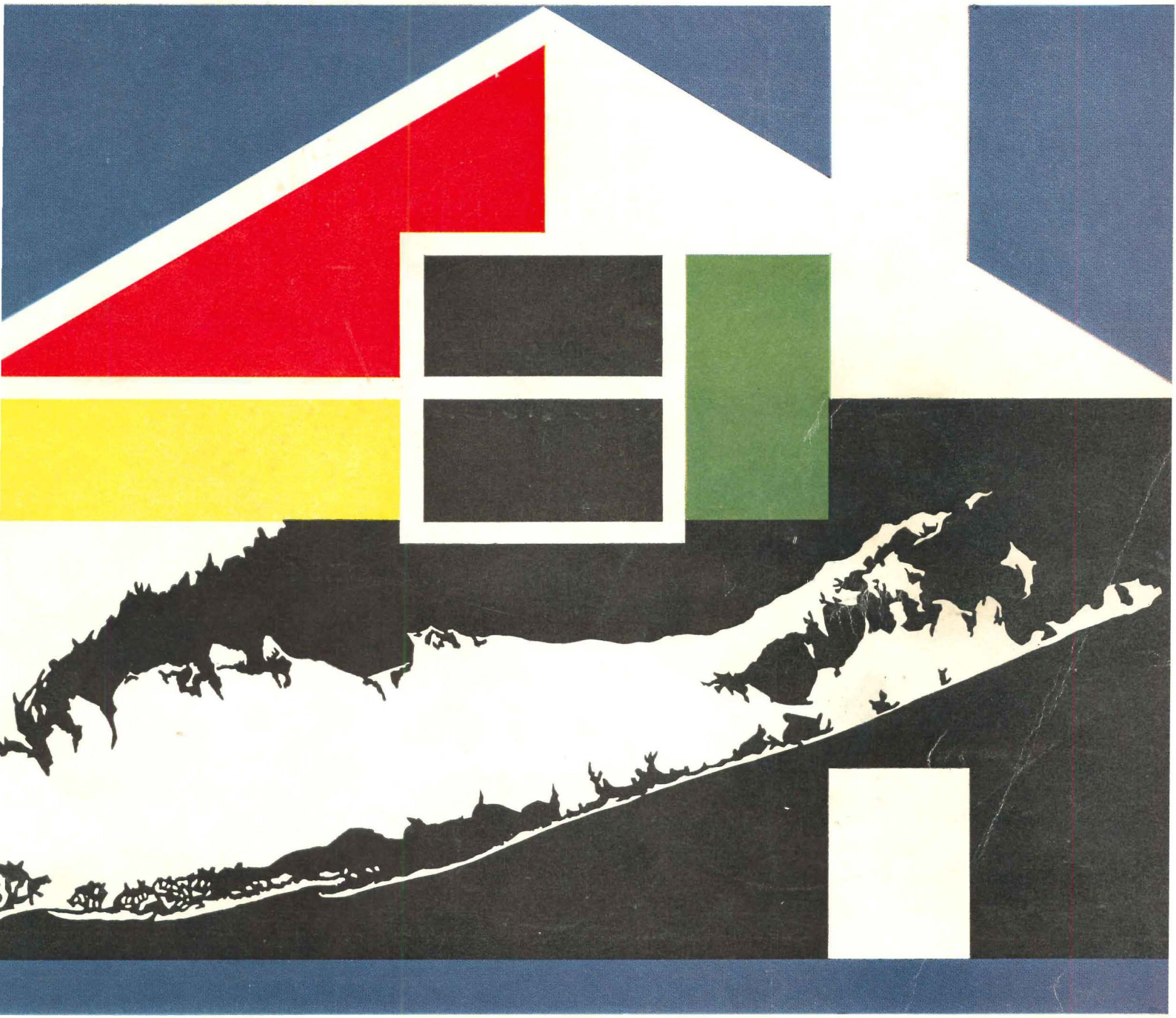

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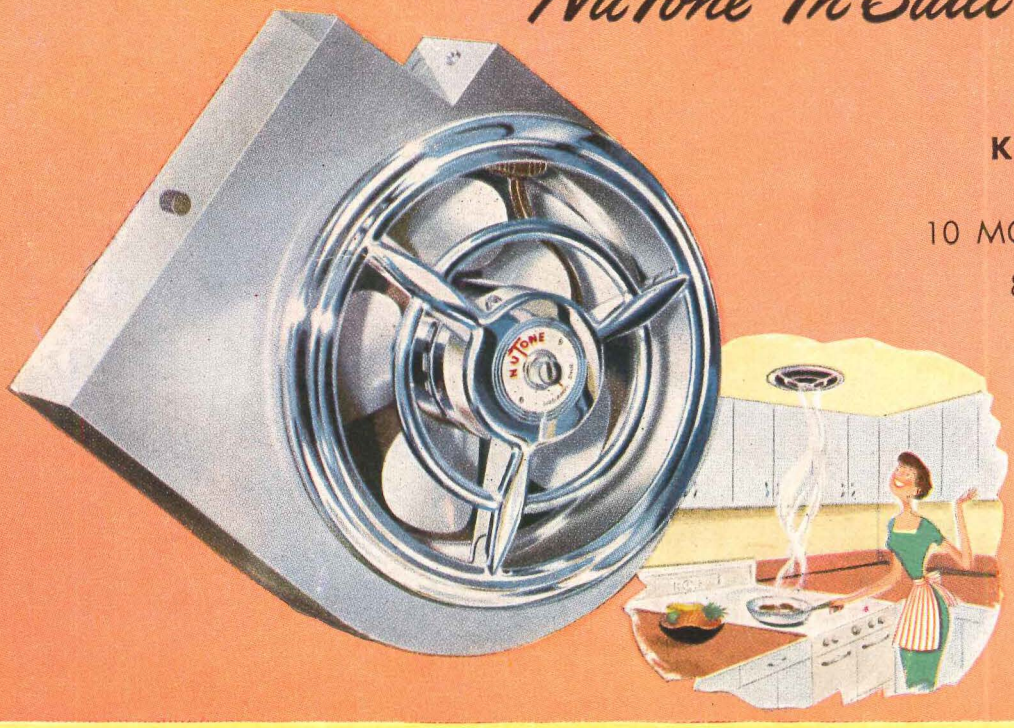

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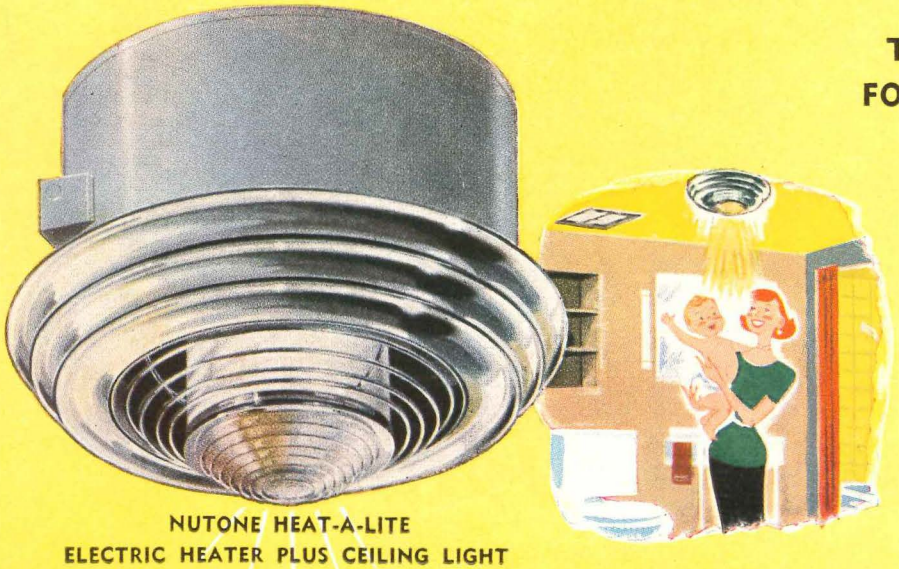

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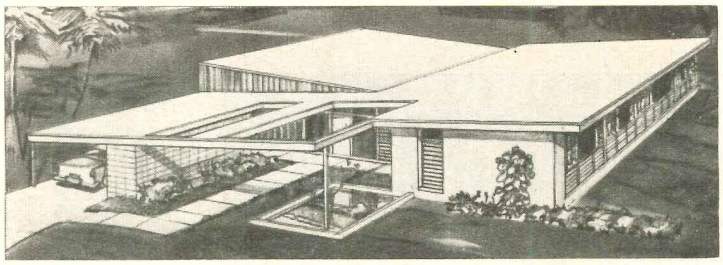
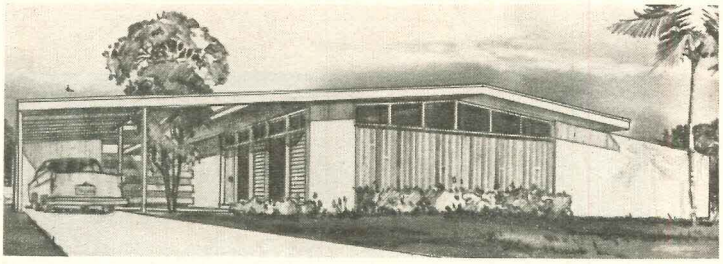
continued from p. 78



Homestead Air Force Base south of Miami will get this four-bedroom model for colonels designed by Architect Norman M. Giller. Giller designed homes for a previously-announced 84-unit direct appropriation project, added more models when Title VIII came through.



Captains, lieutenants and warrant officers will live in these three-bedroom homes designed by Giller. All houses will have carports and terraces. This model includes space for a garden. The living-dining area is about 315 sq. ft. Carport has 50 sq. ft. storage space.

MILITARY HOUSING

Builders fear new program will swamp market; critics say interest is too high

The revised Title VIII program for gearing private building and financing to military housing through FHA is becoming controversial on two fronts.

Controversy No. 1: is the Pentagon programming so many houses in some areas that they will swamp the normal market for private new housing? NAHB has officially expressed fears that it may.

Controversy No. 2: is the 4% interest rate too high for a military mortgage? The argument is that in its new form, FHA Title VIII paper has security close to that of a government bond. Some experts thought the new mortgages sounded so airtight that they would probably command a premium in a market where much other FHA paper was selling at two to three points discount.

NAHB for more controls

Builders' worries over what used to be known as Wherry Act but now is called Capehart Act housing led NAHB directors to adopt this resolution as part of the association's policy statement:

"The military housing program now getting under way lacks controls to prevent excessive programming. This may ruin the housing economy in some localities near military installations. The act should be amended to require prior specific approval of each project by a Congressional committee."

Builders' big concern is that the Pentagon will ride roughshod over market estimates of FHA, as the law empowers it to do. This is caution born of painful experience with Wherry Act and defense housing projects which went sour when personnel levels at some bases did not live up to Pentagon promises.

It is no comfort, either, that about 30% of the projects discussed locally so far by FHA district offices and base commanders have been referred to FHA in Washington for mediation on how many units are justified. Bruce C. Kixmiller, FHA special assistant for armed services housing, told HOUSE & HOME that so far the Defense Dept. has *not* overruled FHA *headquarters* on the number of units for any base. But FHA has agreed to raise its field men's estimate in some cases. In others, it has cut what Defense wanted and the Pentagon has agreed. At Sandia Air Force Base near Albuquerque, for instance, the military's original demand for 1,200 units was sliced to 318.

Capehart Act military housing is a big program. By June 30, the Pentagon estimates, it will have earmarked all 100,000 of the units now authorized. So far, 59 projects involving 37,000 units have been approved. Of these, 42 are Air Force projects, 13 Army and four Navy. All are for officers or high-rank enlisted men.

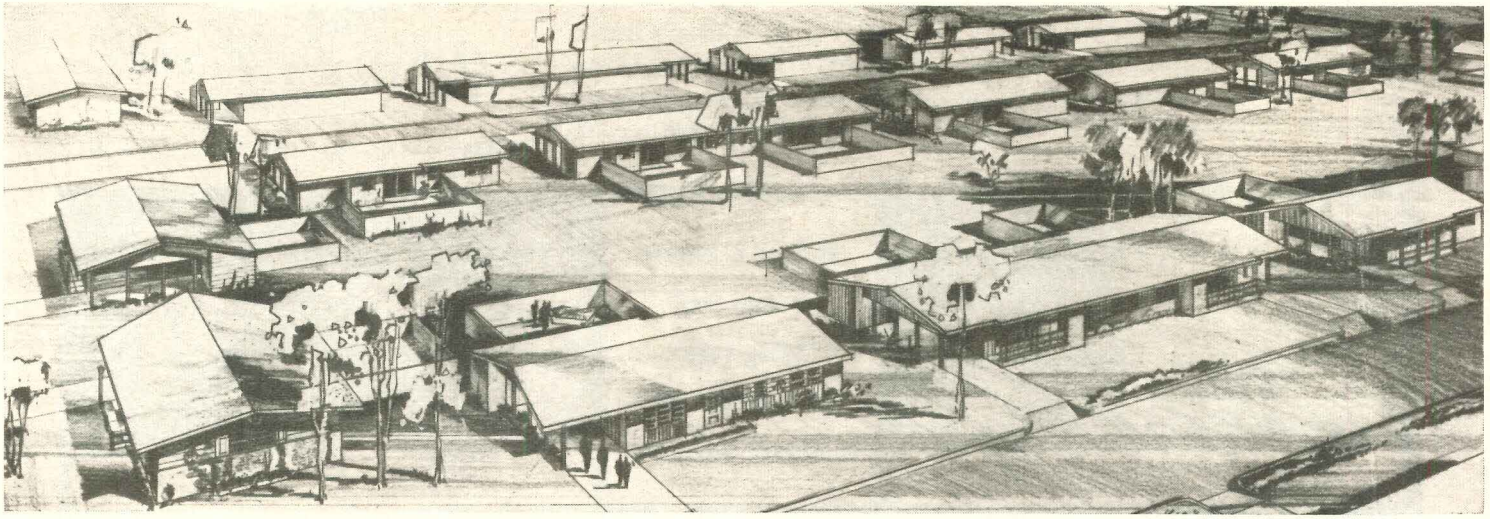
New kind of hybrid

Capehart housing is also profoundly different from its predecessor Wherry housing—or anything else FHA has ever insured. For one thing, the program has been widely attacked as a subterfuge to avoid raising the national debt. Said one mortgage banker: "This is government running in a circle, guaranteeing, insuring and lending to itself."

It is the differences that lead some experts to question whether the 4% interest rate is too high. They argue this way: the mortgage lender takes little of his ordinary risk since the Defense Dept. assures payments and even guarantees that the delay and expense of foreclosure to get FHA to pay off in debentures will be avoided. Moreover, since the military will operate and maintain the project (with appropriated funds) and supervise construction there is little management expense for the lender.

Military men expect to pay off the mortgages in 18 years rather than 25. To do so, they will collect $90 in withheld quarters allowances for every $80 due on the mortgage. The money will go into a pool, giving the Pentagon a cushion if a few projects get big vacancies because military plans change. So the argument is that Capehart housing is much like a 20-year government bond. Twenty year bonds pay about 2.86%.

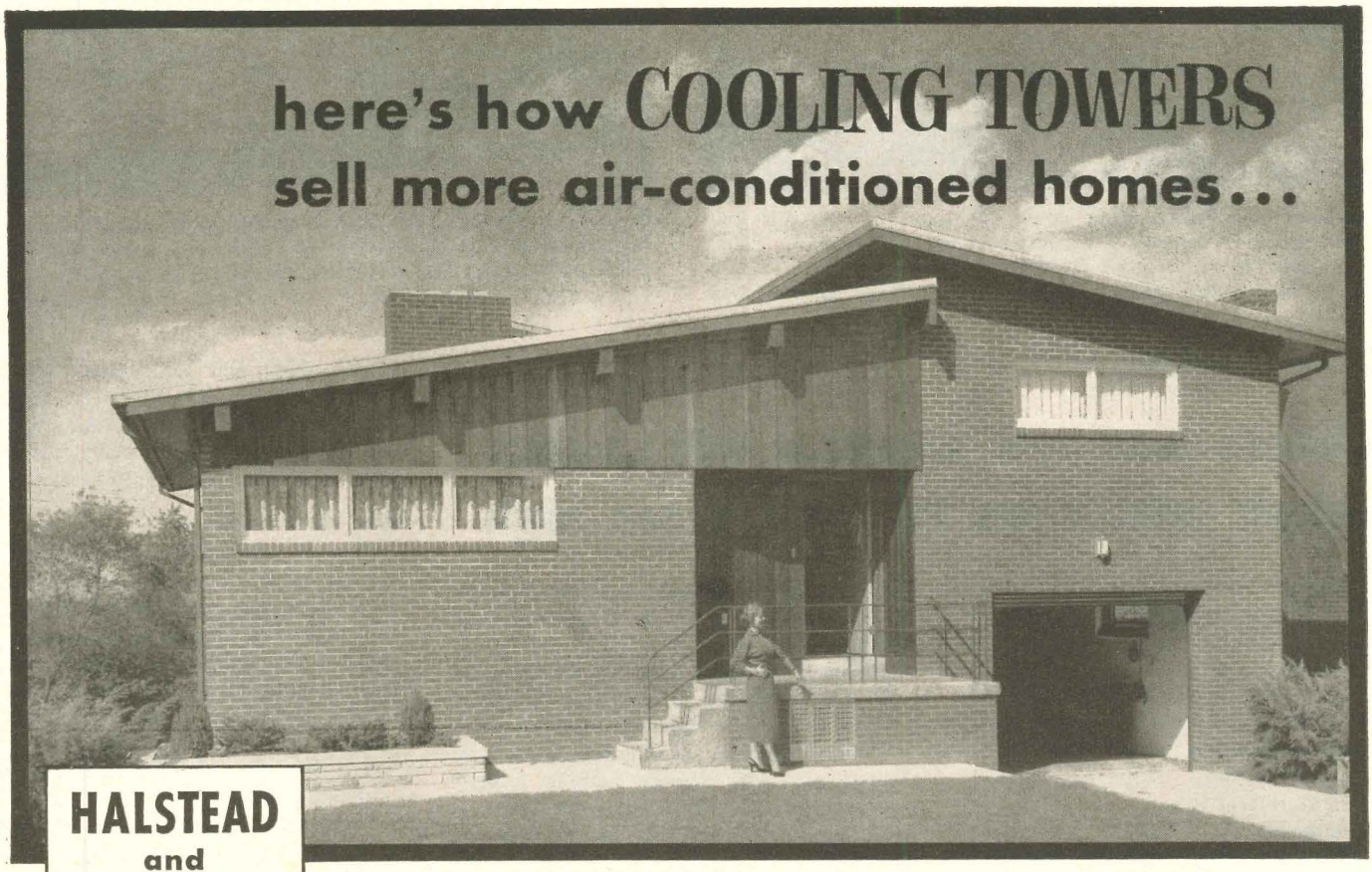
continued on p. 86



First contract to build Capehart Act military housing was let at Abilene (Tex.) Air Force Base. Low bidder for the 944 units was a combine: C. H. Leavell Construction Co. and Don Ponder, both of

land)—a little under the legal ceiling of $13,500.

The houses were designed by Associated Architects & Engineers of Abilene, composed of F. C. Olds Co. and David S. Castle Co. of



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Halstead and Mitchell Residential Cooling Towers, the first cooling towers designed and priced for the home market, actually slash air-conditioning water bills by over 95%! They accomplish this major saving by recirculating precious cooling water—at the same time maintaining the full air-conditioning efficiency possible only with water-cooled systems.

Because these are induced draft units, they may be placed out of sight. They will in no way interfere with building landscaping. Halstead and Mitchell Residential Cooling Towers are built in a complete range of sizes from 2 through 7½ tons. In any size, their low-cost maintenance and operation provide a considerable sales incentive for home and small building air-conditioning.

20-Year Guarantee! on the wetted deck surface

There's nothing experimental about these units. Quality features of famous Halstead and Mitchell Industrial Cooling Towers have been incorporated, making possible an exclusive 20-year guarantee on the wetted deck surface against attack by rotting or by fungus. The cabinets have multi-protective coatings, the fans are of stainless steel; all of which adds up to many years of trouble free life.

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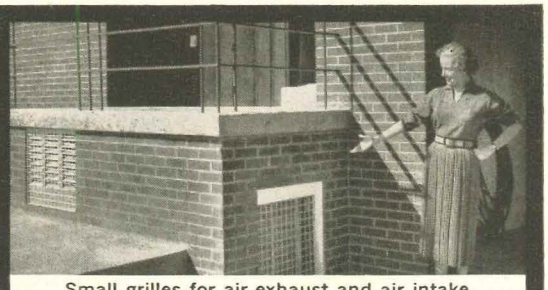
Here H&M Residential Unit is installed in small chamber under front steps of home.

Halstead & Mitchell Induced Draft Cooling Towers can be tucked away to enhance landscaping



Small grilles for air exhaust and air intake are only external evidence of cooling tower!

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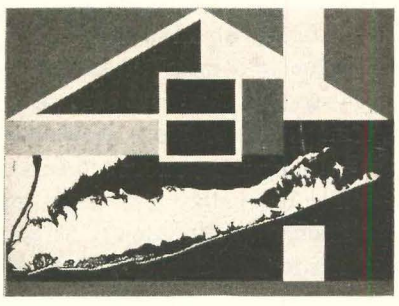
Volume IX, No. 3



Cover . by Walter Allner

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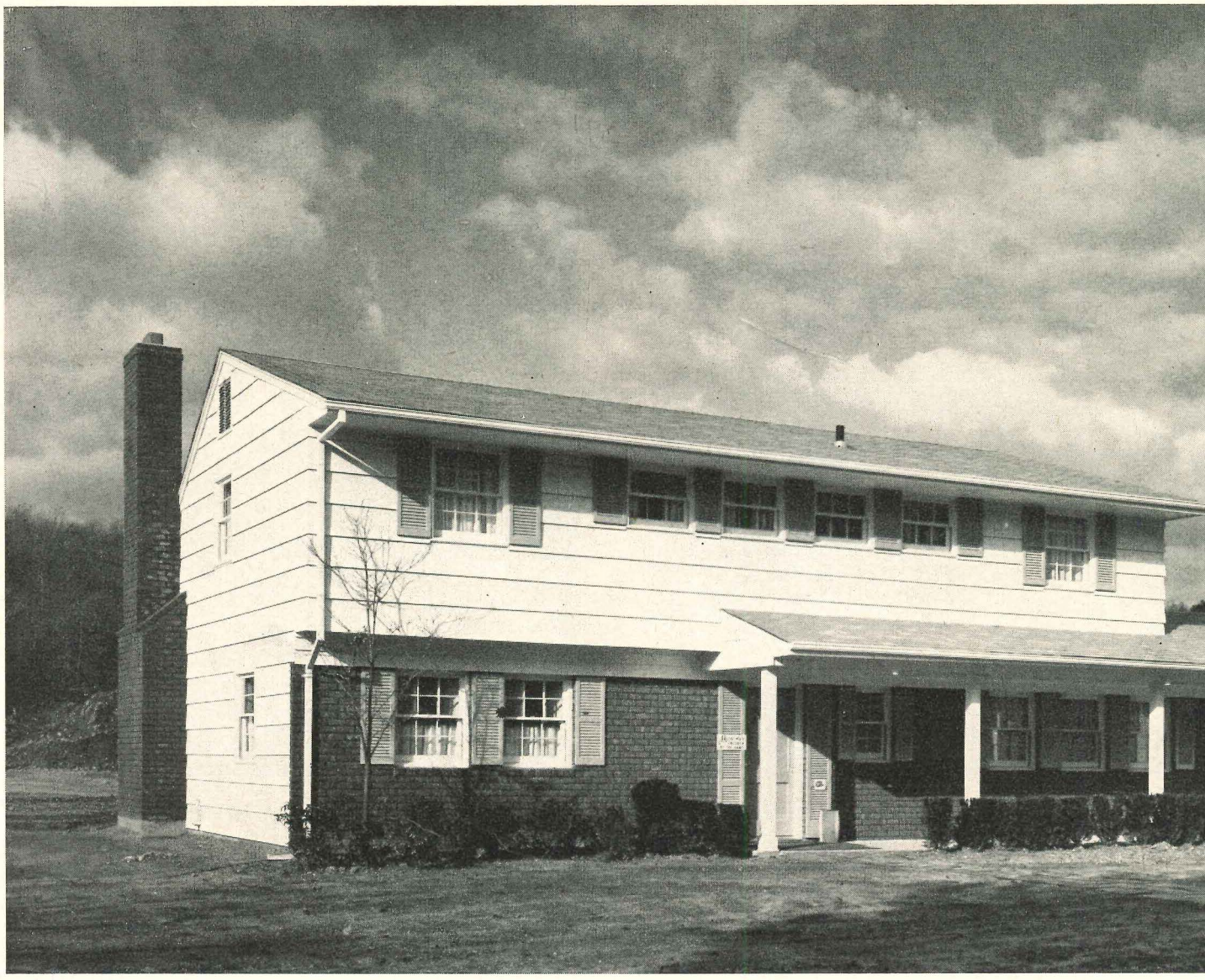
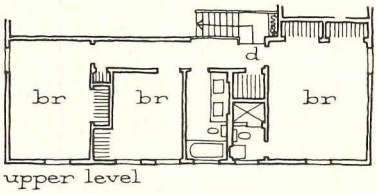
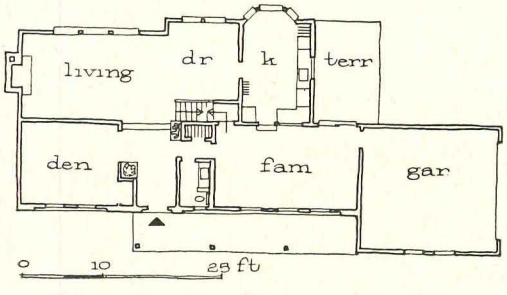


$30,500 *buys this two-story-look split at Gay Lore, Dix Hills Colony in Huntington. Builder is Nicholas Piccione; Kern Realty, sales a*



upper level



Here is Long Island's big news

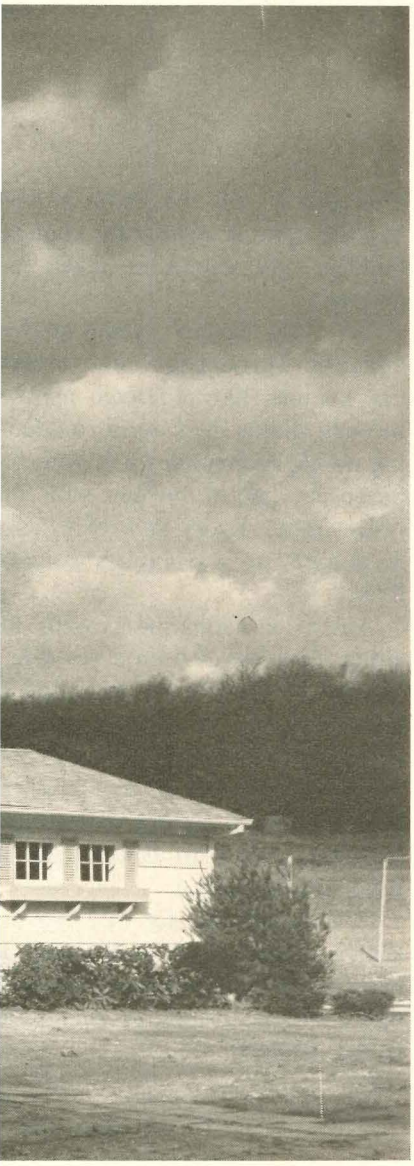
On Long Island, selling seldom stands still. Most st
sales factor, up to now, has been the split-level ho
sure-fire and dependable seller.

But even in this constant, there is the inconstant of
changes. From the side-to-side split was developed
front-to-back, then the back-to-front. And now, the b
to-front is changing to become a split that looks like a
story house.

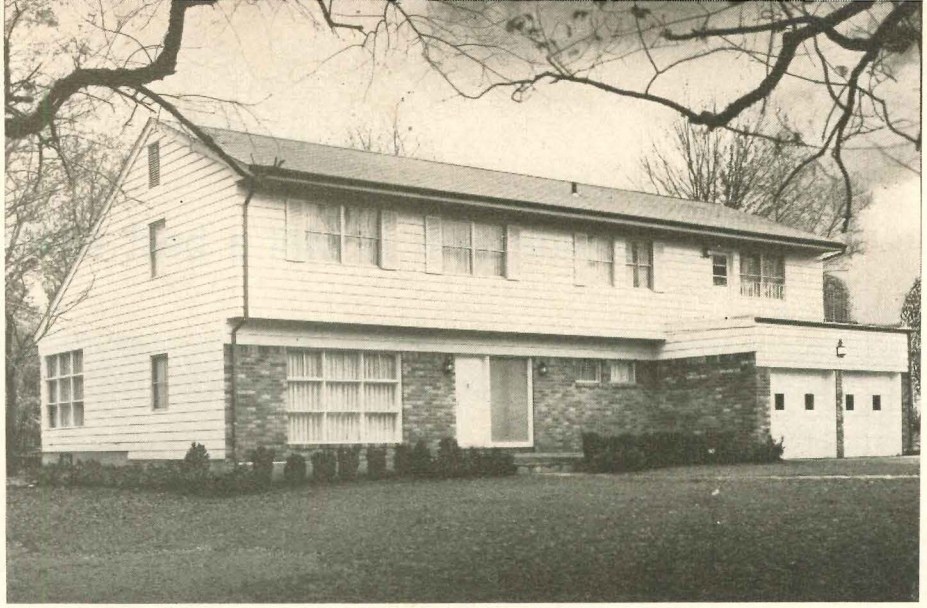
This house sells, and sells well, in every price r
because it's a "natural." It has two-story prestige
"big" house Long Island customers crave) and the tal
point of split design (look, Ma, less stairs to climb!)
like all splits, it fits more space under less roof.

Does it represent a trend toward the two-story ho
Probably not, because it's still hard to sell full flight
stairs on Long Island. But for all practical purposes, t
houses look like two-story houses.

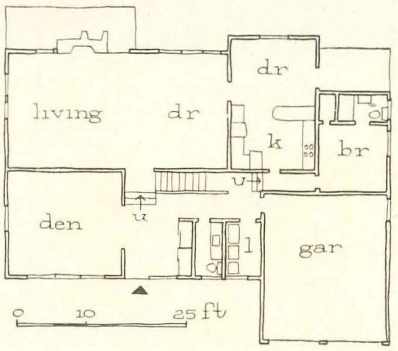
J. Alex Langley

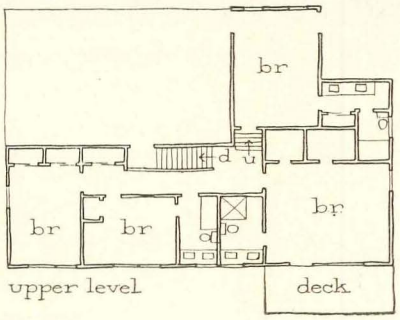


ect; Herman York, architect



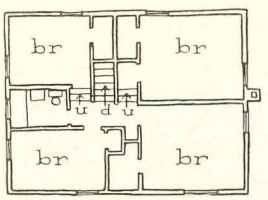
$59,990 *model at Meadow Woods in Great Neck. Completely air conditioned, five bedrooms, four and one-half baths, two patios. Sam Guterman, builder; Sol Berman, sales agent; Egir P. Hermanovski, architect.*

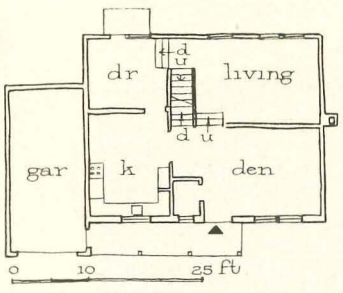




split gets a two-story look

Photos (top r. & below), Richard Averill Smith

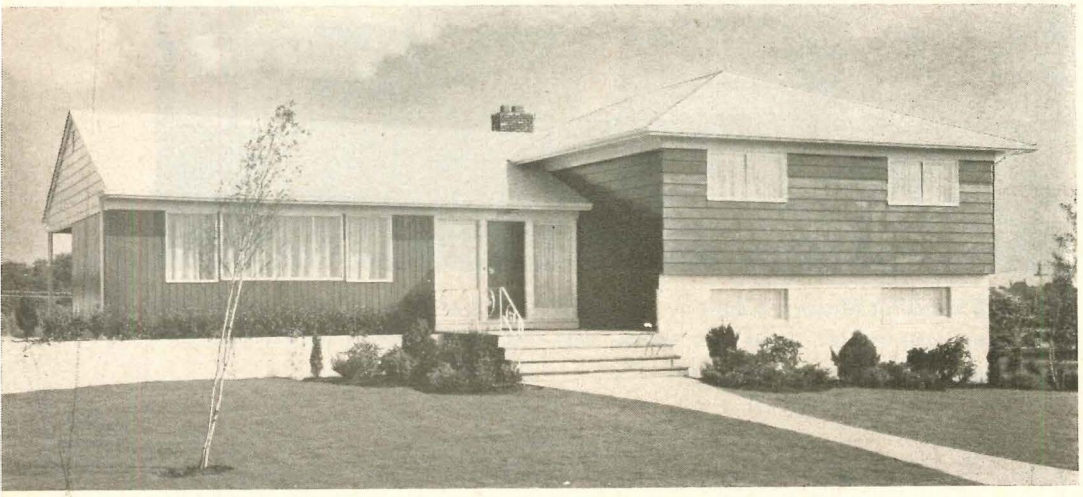




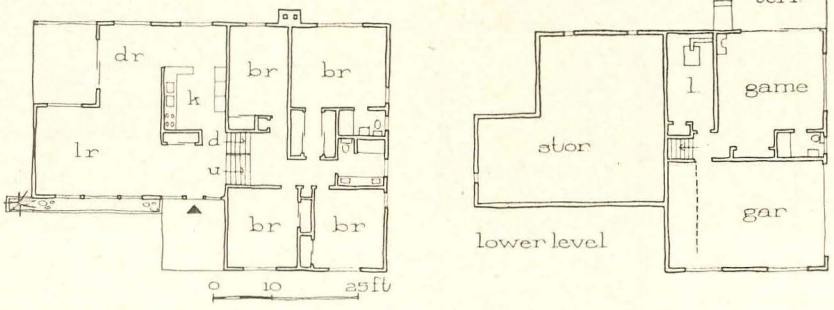
$13,490 *house at Briar Point, Brentwood has four bedrooms, two dining areas and a recreation room, extras that help sell it. Builder, Larry Elkind; Klein & Parker, sales agent.*

Side-to-side split is still a best seller

Photos: Richard Averill Smith



"Sea Breeze", *most expensive house at Harbour Green, sells best*

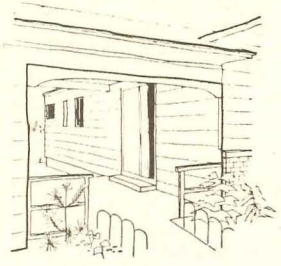


The split is still the builders' favo
but the split is constantly changing
builders add extras to make it
different.

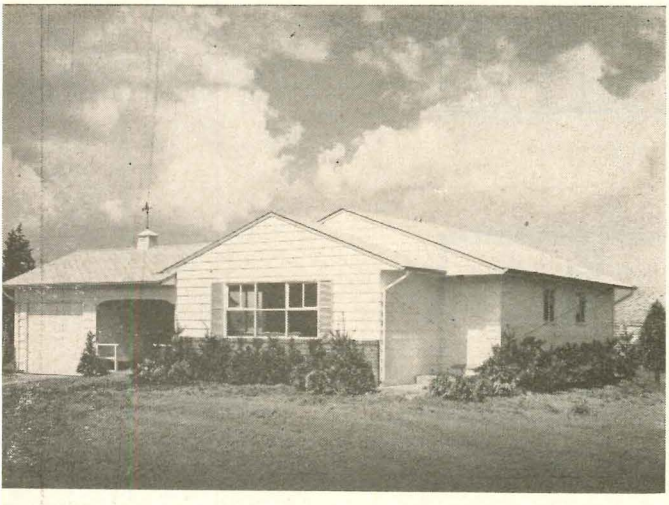
This "Sea Breeze" model at Harb
Green in Massapequa incorporates
ury features like a terrace approac
through sliding glass doors; outdoor
ing porch; recreation room with bui
barbecue; and a kitchen with bui
range units. Every inch of extra s
is utilized to give buyers comfort
living.

And as an added inducement, bu
Allan Rose has chosen a sea-side c
munity, so he has the extra of w
sports to sell. (Here's an exampl
marginal land being turned into an
by a builder willing to work "h
land, and smart enough to build a
expensive house to balance the a
development costs.)

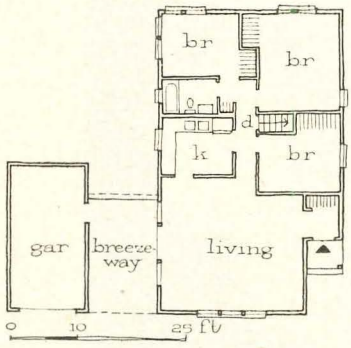
This model sells for $27,990, is
selling another model at $21,900. P
larity of the higher-priced house is c
mon on Long Island, as it is elsew
in the country.



Briar Point's breezeway is a popular featu



Breezeway, *lots of space help this ranch sell well, despite two competing splits.*

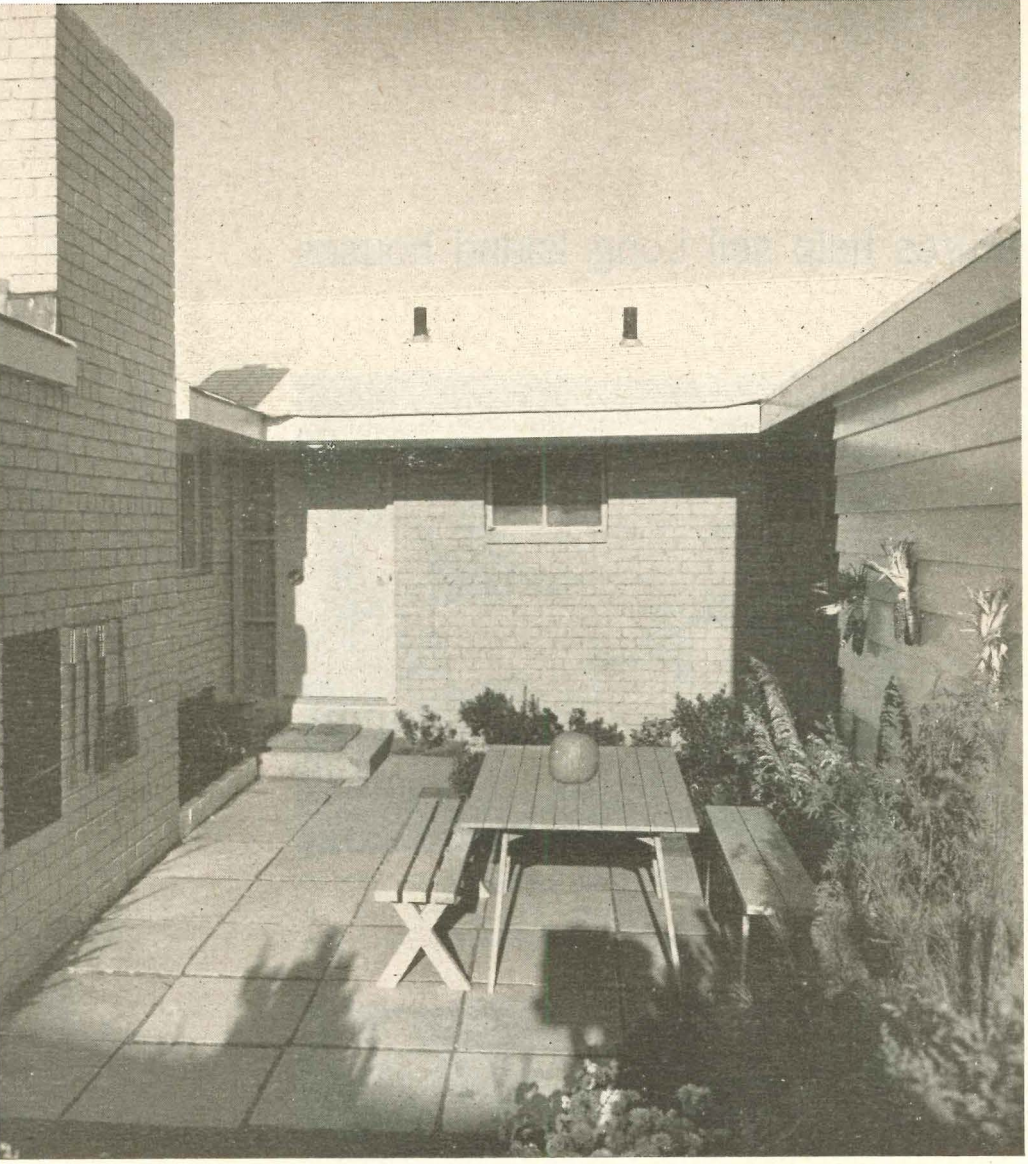


The plan of this house started out
a two-car garage. But when the bui
Larry Elkind, found that 2-car gar
were not selling another builder's m
he changed his plan.

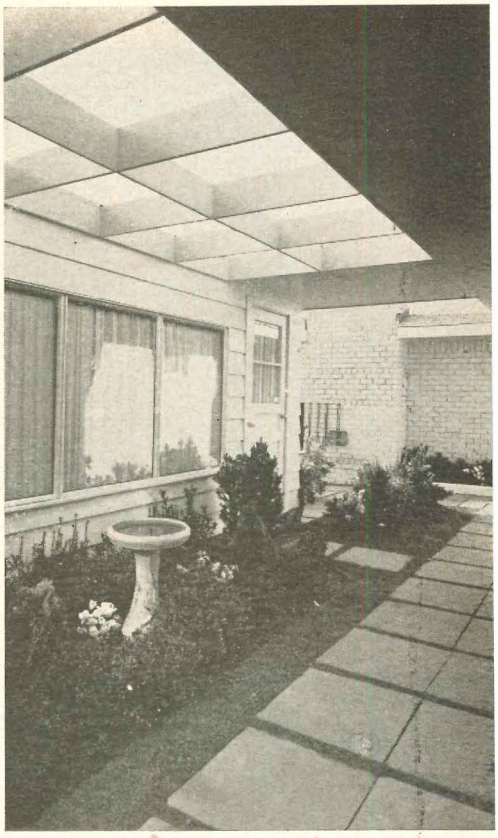
He put a breezeway between
house and a single garage, and a sli
glass door in the living room, lea
to the breezeway.

This ranch is selling well in co
tition with splits, and one of the rea
may be the increasing interest in
door features.

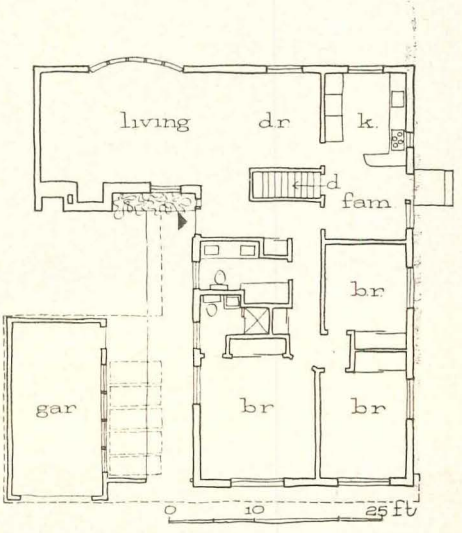
The model sells for $13,190,
three bedrooms, a separate dining r



Photos: J. Alex Langley



Patio *with barbecue enlarges living space, is approached by passageway (right)*



This patio sold houses—even in a snowstorm

In most parts of the country, a patio or "lanai" like this is not an innovation. But in cold-winter Long Island, houses once sold quickly without any outdoor-living features at all. But as builders look for new selling points to perk up sales, they may well turn to solutions like this which have worked so well with prospective homebuyers elsewhere.

This "Lanai" model at Morton Village in Plainview is one of Long Island's rare cases of a ranch that outsells a split. The house sells for $21,990, has a General Electric kitchen and laundry, three bedrooms, two baths.

The architect, Rudolph A. Matern, feels that higher land prices will make for smaller lots (for low-cost houses, and where zoning regulations permit). Therefore, he believes, more imaginative lot treatment by architect and builder alike will be needed to make the houses sell.

Perhaps, at long last, Long Island builders will fence lots and provide terraces with lower-priced houses. If so, the land problem will have a silver lining for house buyers.

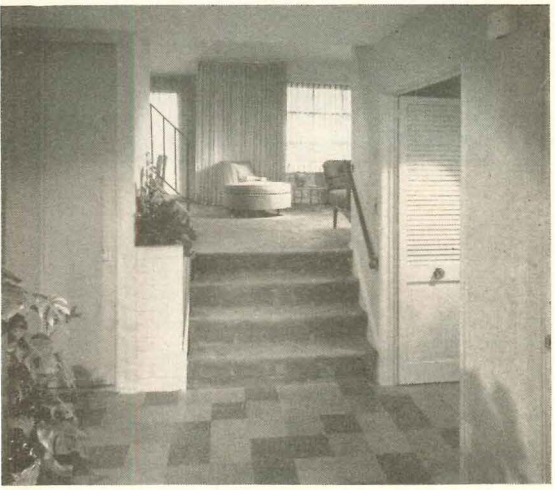
And, if sales of this house are an indication, for builders as well.

From street, *patio is not visible, unusual privacy for Long Island.*

These features help sell Long Island houses

Fully furnished models *are a must. At Country Estates in Roslyn, decorator Richard Mauro used Frank Lloyd Wright fabrics.*

Wrought iron railing *makes entrance "hall" for living room. Dining area, left, family room, rear. Fountainvale, Huntington.*



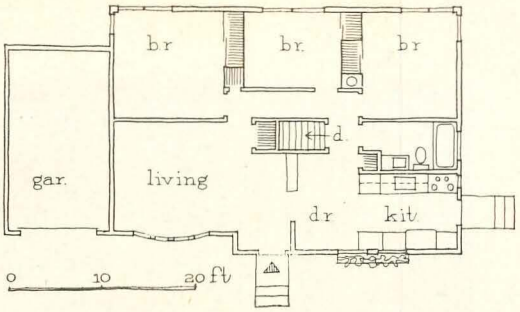
Large entrance halls *impress Long Island buyers, are featured whenever possible. Foyer at Morton Village, Plainview.*

Sliding glass walls, *with a terrace beyond are new for Long Island. This family room is at Harbour Green, in Massapequa.*

Built-in oven and range *are typical of almost every kitchen. At Harbour Green in Massapequa, dishwasher is included, too.*

Open kitchen *at Eastwood Village in Centereach was closed off after buyers objected to open plan. Now, it sells well.*

Photos:
W. Conrad Kimball;
Richard A. Smith;
J. Alex Langley



This ranch house . . . *and this kitchen . . . a sales-winning package*

Still selling: the bargain house

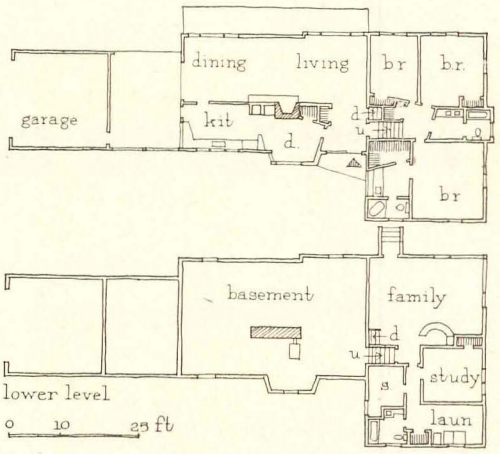
For $11,990, this house at Chapel Hill in North Brentwood offers six Hotpoint appliances: refrigerator, dishwasher, washer, dryer, wall oven and surface cooking unit. Built by Paulsen Brothers, it is called the Hotpoint House of 1956.

This kind of packaged, big-value house is especially popular with Long Island industrial workers.

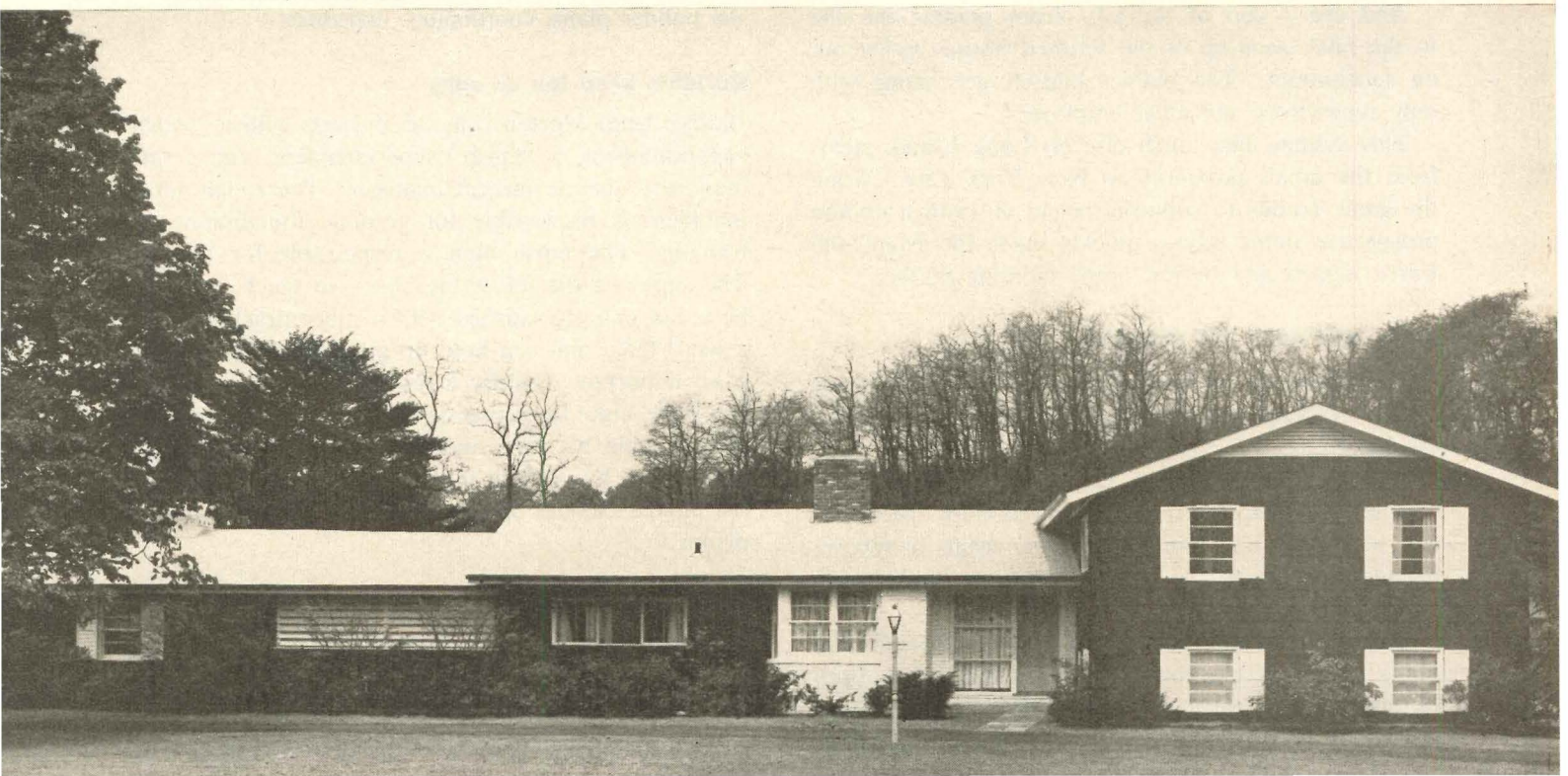
Selling more and more: the big house

More and more houses like this one by Newell & Daniel will be built as builders move to meet changing buyer requirements and different zoning regulations. At Brookville, where this house was built, prices start at $45,900, lots are two acres of wooded ground.

The rambling design, typical of the North Shore, may become even more popular as builders put up bigger, more expensive houses on large lots.



Photos: County Photo Service



Richard Averill Smith

Split levels *at Larry Elkind's Briar Point Park go up in progression as one trade follows another in tight order. Prices: $10,990 to $11,490*

HOW LONG ISLAND BUILDS THE SPLIT

One of the country's best buys, its economy is due more to good management and stiff competition than to better building techniques

Long Island's typical split level house goes up on a schedule that is as tightly controlled as a factory assembly line.

And every step of the job—from grading the site to the final clean-up of the finished house—is let out on subcontract. The builder himself gets along with only supervisory and office employees.

This system, like much else on Long Island, stems from the area's proximity to New York City. When the great exodus to suburbia began in 1946 a million prospective home buyers quickly made the Island the East's biggest and busiest home building market.

Labor and subs are plentiful

The opportunity on Long Island attracted thousands of new workers and multiplied the subcontractors into the hundreds.

And the industry's own expansion sharpened subcontractors' competition and narrowed labor specialization to a point that today the system seems to revolve around a complex of close estimators and highly specialized artisans.

But when all the bids are in and 40-odd subs are ready to start work, you need to put the builder back in the picture. He sets the timetable and he keeps everybody on time and out of each other's way. Four months from foundation to completion means, for instance, Sheetrock crews will be working three weeks after framing starts. Step by step, house by house, the builder plans, coordinates, expedites.

Builders keep tab on subs

Builder Emil Morton runs his projects with a "rough" superintendent, a "finish" superintendent, and a third man who acts as project manager. The rough superintendent is responsible for grading, foundations and framing. The finish man is responsible for the rest. The super on the job is the boss—so much so that, if he is not entirely satisfied with a subcontractor's work, a word from him can hold up payment. The schedule is so important, Builder Larry Elkind points out, that if a sub's crew loses two days on the job he knows he must double his men until he makes up for the lost time. Only by meeting scheduled completion dates can the builder depend on drawing his construction loan as planned.

Trades don't crisscross each other

Managing the individual worker is the sub's job and no small assignment when specialization is carried to the point that one man performs a limited repetitive process like installing door knobs and locks or hooking

up wash basins. But it is up to the builder to plan for whole trades. For example, he lays out his wiring on a schedule that permits the electrical crews to be in the house only once. (Even under FHA requirements that wiring must be inspected twice, an entire crew of electricians will not work a house twice, nor be there at the same time as the finish carpenters.) On a Long Island schedule, a good team of tradesmen can literally "run" through a project, one crew finishing its job as another walks in the door.

Builders grow big, subs prosper

Long Island's system has helped many a builder grow big. It is a commonplace there today for the builder to number his annual starts in three figures. As you'd expect, the Island's subs have prospered too. Some are known for taking an industrial rather than a craft approach. Jack Segal, a professional engineer and heating contractor, is a case in point. Segal performs a lot of his work in his shop (see photo, lower left), has designed special machinery to fabricate duct work

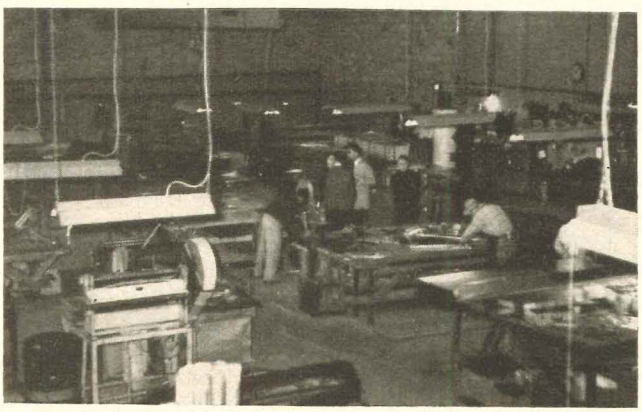
Despite the fact that union scales are high, and that the builder and all his subs must take a profit out of the sales price, the Long Island system gives the home buyer a lot of house for his money. If not the country's best architectural design, the typical Long Island split is, dollar for dollar, certainly one of its outstanding housing buys.

Based on FHA's most recent study of comparative housing costs, Long Island (specifically, Jamaica) costs are well below those of cold-winter centers like Boston and Albany and dramatically lower than found in any large Midwestern city. But nearby Newark and Philadelphia are even lower, enough so to make Long Island's FHA cost records "good" rather than "best." (For details of the FHA study see p. 45, H&H, Sep. '55.)

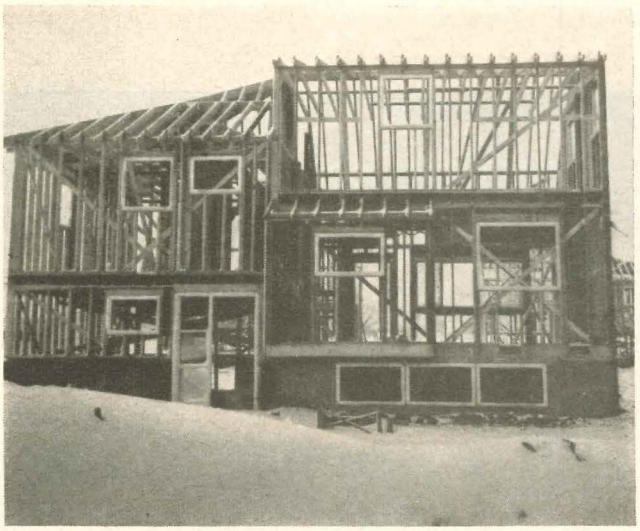
Radical changes are avoided

The old saw that "the good is the enemy of the best" often applies to Long Island's construction methods. For all of the Island's good results are obtained with scrupulous avoidance of radically advanced technology. Builders never sponsor methods that would require them to impose sweeping changes in the way their houses are built.

There are many reasons for the builders' attitude, none of them foolish, but all of them motivated by the short rather than the long view. And most of the builders' reasons go back to the sub who, after all, can hardly be expected to see the problem whole. That is why a sub will often bid lower to do a job the way he knows rather than spend time learning a better way.



Fabricating ducts *at Jack Segal's plant is an engineered operation for both air conditioning and hot air installations.*



Framing *for a split level looks like a maze of 2x4's*

Subs call many turns

Some critics have called the Long Island builder "the prisoner of his subs." This may be too strong a statement, but certainly most Long Island builders are content to specify "what" and "when," leaving it up to the sub to say "how."

Explains big Builder Leon Miller: "We don't care how the subs do the job as long as they give us the best price and use good materials and good workmanship."

So Long Island's building techniques have changed relatively little from those in vogue before World War II. The subs' cutthroat piecework system is such that the builder just goes along with old methods. "It costs money to use a new method, to teach it to the men, and no one wants to pioneer," says Builder Ned Epstein. Other builders agree: "They bury pioneers."

Delays must be avoided

With their four months' production schedule on the split level house, builders want to avoid delay more than anything else. They want the sub to do the job in the sub's fastest way, and when it is necessary, a builder will purchase more expensive material just to get the job finished.

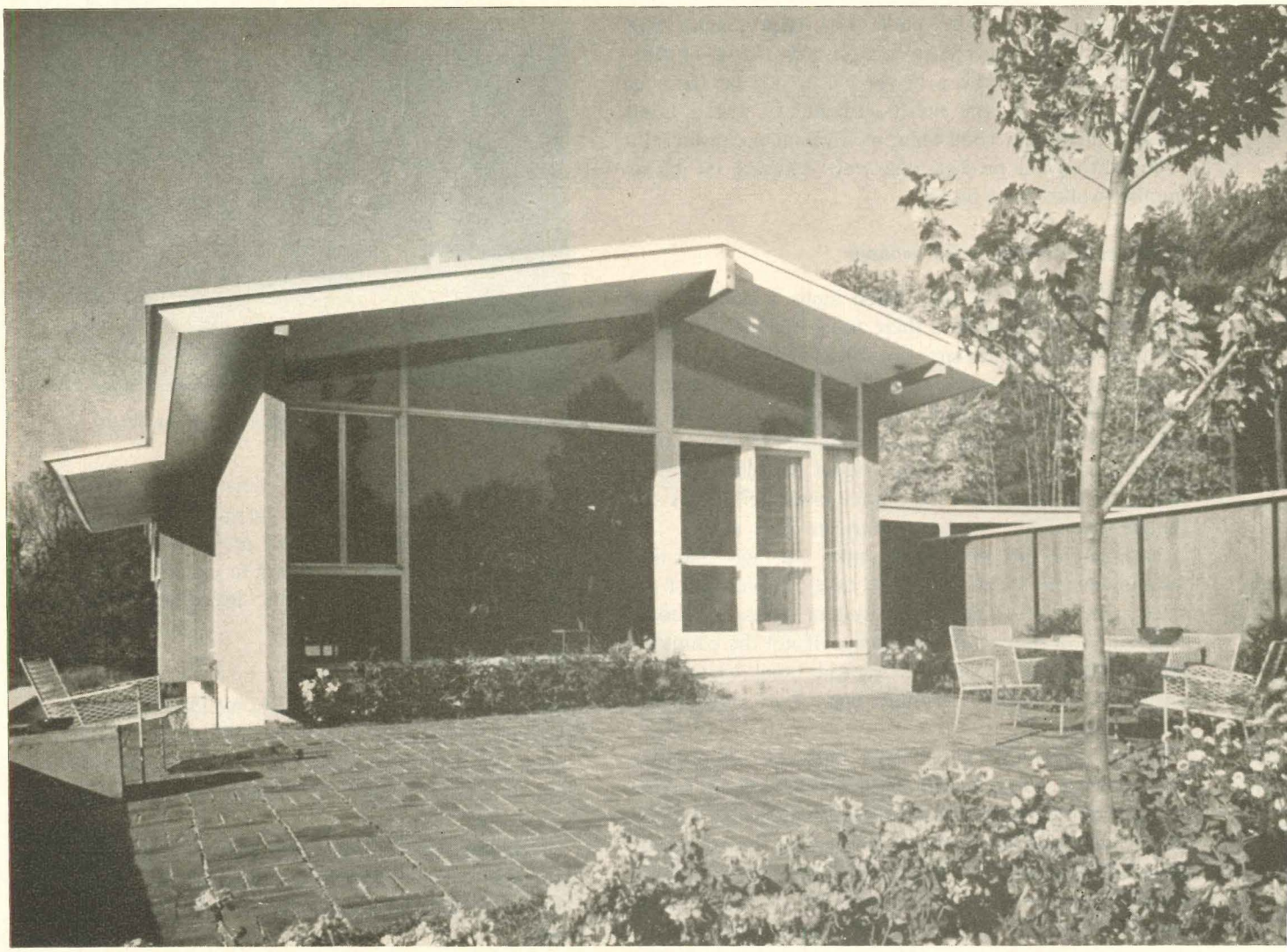
"The Long Island builder wants to build houses he is sure will sell. . . . I believe in applying new methods and techniques but how can I argue with a builder if his present houses are selling," asks Builder-Banker Emil Keen, ex-head of the Long Island Home Builders.

What do Long Island builders miss by sticking to the older techniques? Hardly a house is built on Long Island with trusses. Yet studies have shown over and over again that trusses save time and money.

Says Builder Alfred Kessler: "This is a new idea and when you talk a roof truss to a sub he's scared and

continued on p. 192

Photos: Garrison, Nyholm



Clean-lined contemporary house *will help shape the building wishes of many prospective home buyers*

Better Homes & Gardens promises its 4,050,000 readers

THIS HOUSE WILL MAKE YOU WANT A NEW HOUSE

Familiarity is the first step toward buyer acceptance. That's why the publication of contemporary style houses like this in leading consumer magazines is important to the home building industry.

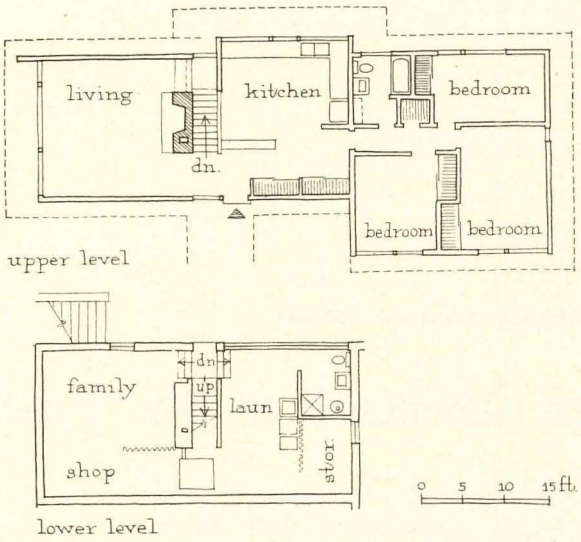
For with pictures of the house you see on this page, the March issue of *Better Homes & Gardens* offers its readers convincing evidence that today's new houses have something extra that will add greater satisfaction to everyday living.

Architect Hugh Stubbins has put maximum living into minimum area. The real size of the house is 1,313 sq. ft.; 722 sq. ft. in the lower level. But the *apparent* size of the house is much greater.

How was this visual and functional enlargement achieved? Stubbins made resourceful use of: (1) glass; (2) color; (3) partial walls; (4) outdoor living areas; (5) modern materials; (6) dual-use areas; (7) skillful furniture arrangements. It's a safe bet that *Better Homes & Gardens* readers will use these house-stretching features as a yardstick when they judge your model house.

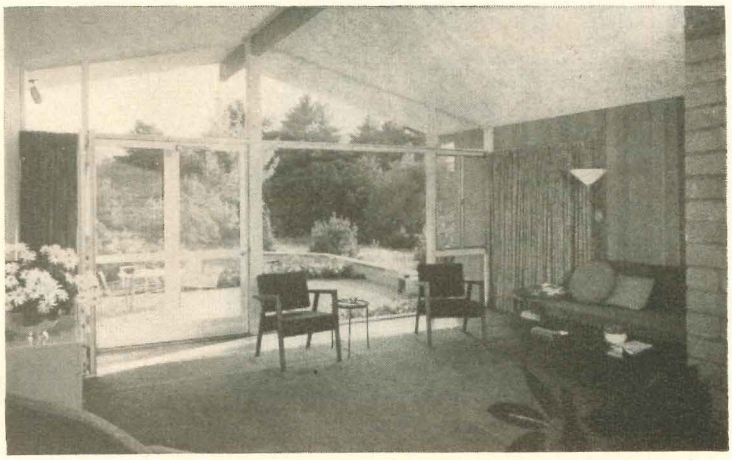
So this house is worth studying—first, on its own merits—and second because of its influence on thousands of prospective home buyers.

Architect: Hugh Stubbins Associates, Cambridge, Mass. Builder: George Fichera, Andover, Mass. Owners: Mr. & Mrs. Jules Cesarini, Andover, Mass.



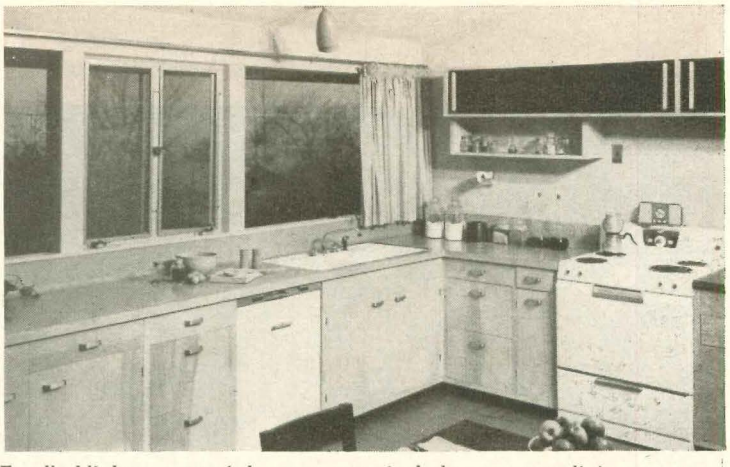
Consumer Magazine Review:

news from the March 1956 issues

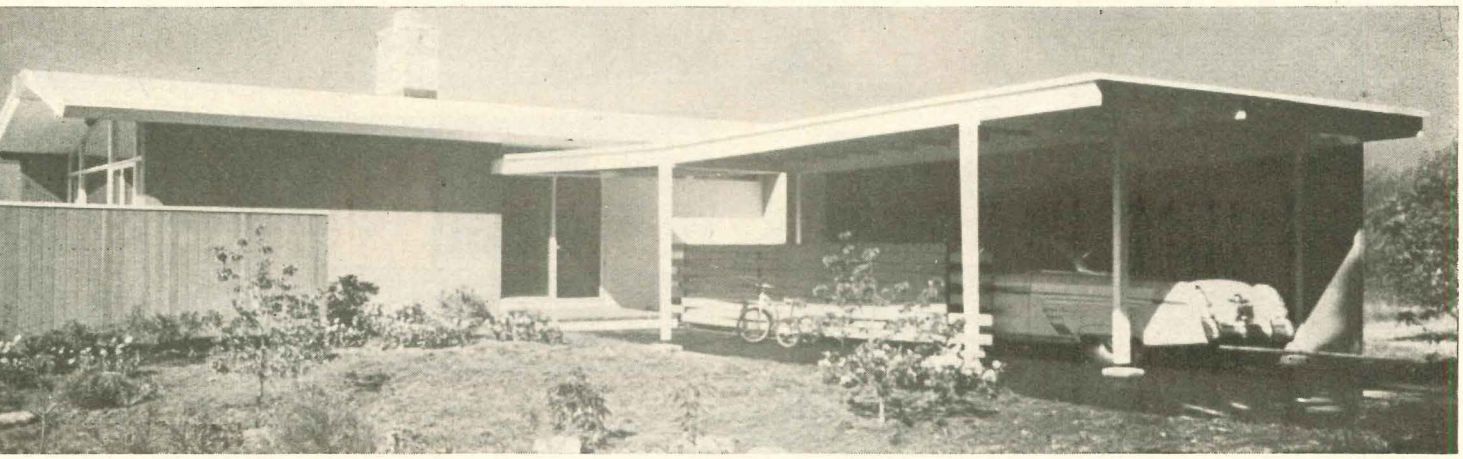


Living room walls *seem to stretch out through glass to terrace beyond*

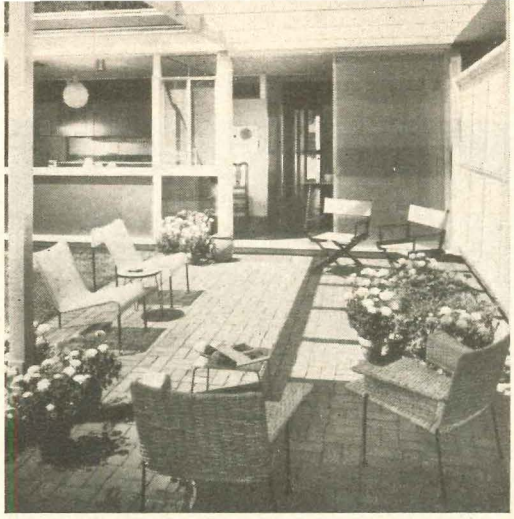
Dramatic entrance hall *"sells" a house to guests (or prospective buyers)*



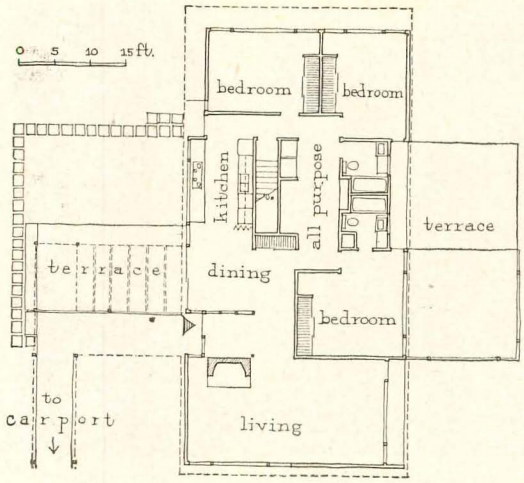
Family kitchen, *part of the open area, includes generous dining space*



xterior *shields house from street, gives privacy to outside living areas. Covered passage from garage adds importance to entrance*



Outdoor areas *are integral part of house design*



Good Housekeeping shows its readers

"The nice new house on the corner"

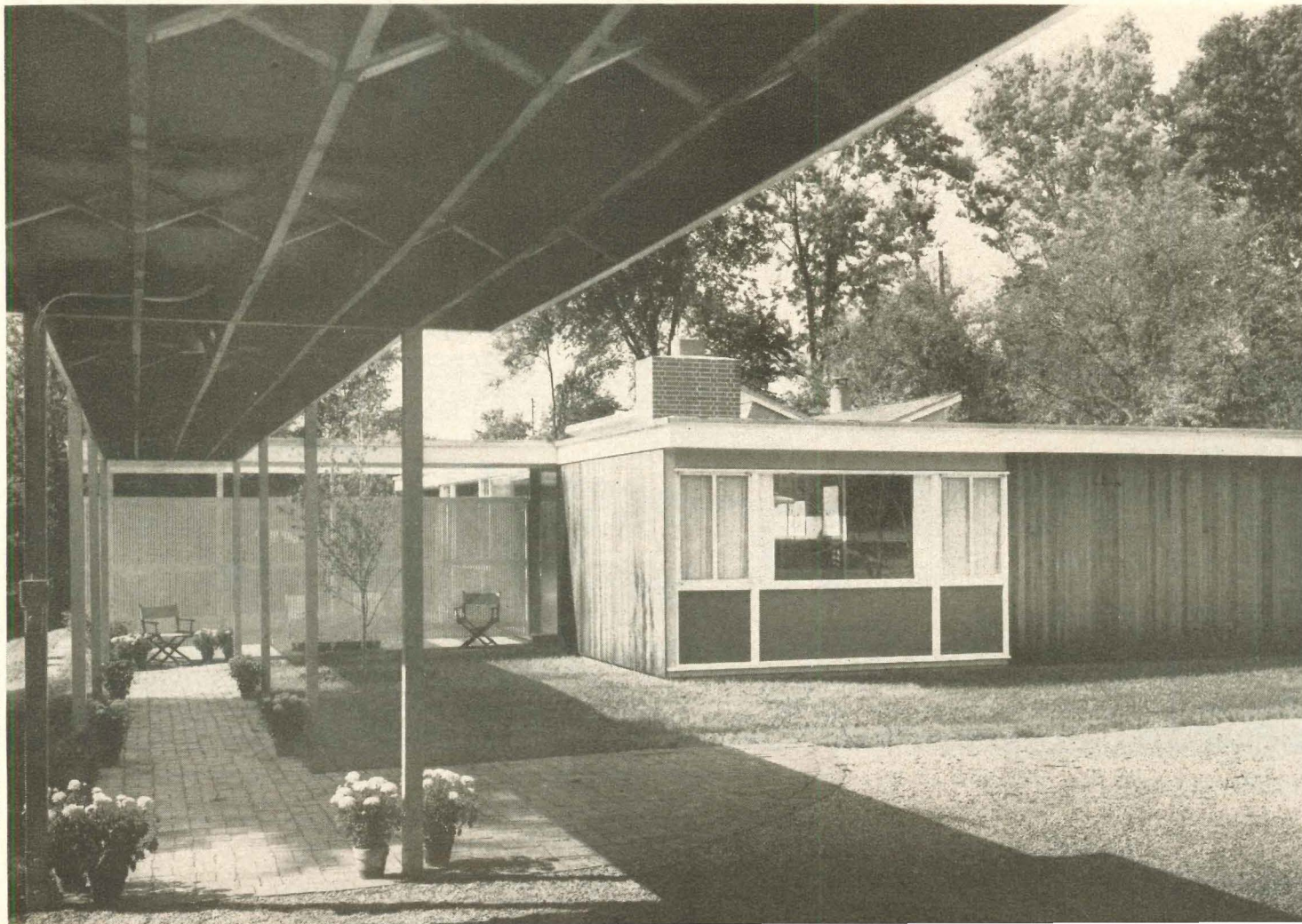
The growing acceptance of contemporary design as part of every-day life is evidenced in the neighborly title that introduces this house to 3,300,000 readers of *Good Housekeeping*'s March issue.

The emphasis on living space, utility and outdoor living areas, and the recognition of the home owner's need for privacy are evidence that the way a house *works* is as important to *Good Housekeeping*'s readers as the way it looks.

The style of this house is not half so important as the fact that it has a good measure of the "livability" that the magazine feels is the basis for enthusiastic reader acceptance.

Architect: Tweddell & Wheeler; Landscape architect: Hans. J. Wachtel. Builder: Jacob Boettcher. Owners: Dr. and Mrs. Howard F. Pfister.

Panels *of deep, bright blue help make the exterior visually exciting; terrace, with sun and shade spots, will be used for outdoor living*



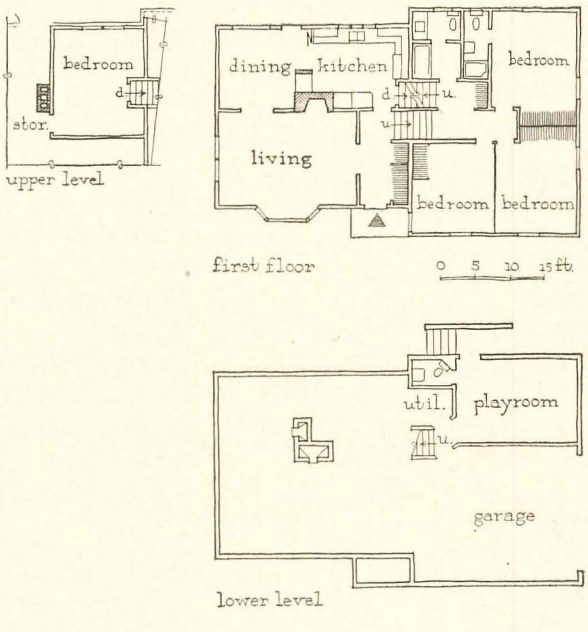
Photos: Rodney McCay Morgan

Reynolds: Photography, Inc.

Warm familiarity *of the exterior design appeals to magazine readers who represent a large factor in the home buying market*

American Home features nostalgic appeal with

"A home built to look like a barn"



Perhaps *American Home* has had some fun with a tongue-in-cheek title. But they chose this house to present to their 3,000,000 readers this month for serious reasons.

A house that looks familiar has dollars and cents appeal to a large part of the home building market. Barn-red and white, and a rurally-rounded roof are, of course, style for sentiment's sake. But sentiment makes sales for home builders as well as for greeting card vendors.

There's nothing nostalgic about the four-level split floor plan. This house may wrap its utility in hearts and shutters—but the utility is there.

Architect: William B. Fullerton, Jr. Builder: Harry Wells and Son, Inc. Owner: John E. Honsinger, Kansas City, Missouri.

Joseph B. Haverstick of Dayton, Ohio

MEET NAHB'S NEW PRESIDENT HAVERSTICK

by Carl Norcross

Of all NAHB's 14 presidents, Joe Haverstick probably comes closest to being a typical US builder.

In size of building operation he is the smallest NAHB president.

He and his brother Bob built 45 houses last year, averaged about 70 per year before that, once got up to 125.

"I'm one of those guys who believes you don't have to build 1,000 houses a year to make money," he says and this philosophy has helped account for his rise in NAHB where he campaigned as the "little builders' friend."

"Joe is a small builder who knows the problems of the average builder," said a Dayton colleague recently, and that sums up most builders' attitude toward the new president.

Relaxed and friendly

At 44, Joseph Burkholder Haverstick is a craggy, relaxed man of 6′ 3½″. He is friendly, cheerful, has a good sense of humor, and thoroughly enjoys his family life in Dayton. The family—his wife Helen, their three boys, and an airdale named Suzy—lives in a big, comfortable house.

The scene bespeaks the successful business leader: the colonial house ("You can't beat a center hall house," says Joe), the do-it-yourself workshop in the basement, a TV on each floor ("whoever gets to bed first gets the upstairs TV," says Helen), two cars in the garage. Like every Dayton family that can afford it, they have a summer cottage on a lake in northern Michigan. Joe is an enthusiastic outdoor man and sports follower. Both he and his wife like to watch the horses.

"Helen and I go to Lexington, Ky. for three days of the Spring meeting and three days more in the fall. It's some of the best racing in the country. Ten days before the Derby we see all the Derby runners. We're $2 bettors."

Golf and fishing are his hobbies

With the rest of the family Joe likes to watch sports on TV, follows University of Dayton teams closely, sees the games when he can. "I really love to watch football and basketball," he says.

But he is more than a spectator. He likes golf, wishes he could play more, says: "I'm going to take my clubs with me when I travel this year. I play in the low 90's, occasionally get into the 80's. Most builders are in the 100's."

Fishing and power boats are his other enthusiasms. Their summer cottage is on Elk Lake near Travers City, Mich. Joe tries to spend ten days there early in the season and another ten just before school opens.

Helen Haverstick, *who claims she doesn't know a 2 x 4 from a 10-penny nail, has missed only two of many NAHB conventions.*

"I like to get up early and go fishing. It's the best time of day. It's quiet and you hear the birds and other early morning sounds."

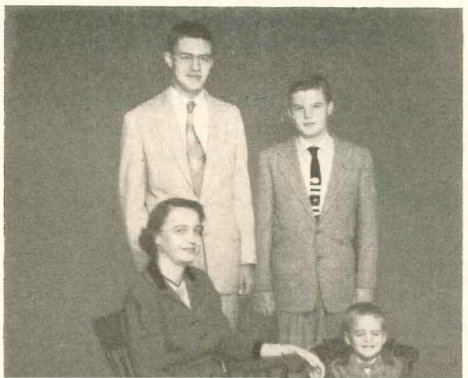
Elk Lake connects with four other lakes which have 175 miles of shore line, so there is plenty of room for exploring in the power boat. Joe has a good camera, likes to take pictures (he took many of those shown here).

When he can't get out to play golf or fish he finds relaxation in his basement wood working shop. He is probably the most active do-it-your-selfer that NAHB has elevated to its top job. His shop is equipped with a power saw, jig saw, lathe, sander, drill press and other machinery—all of professional caliber. He scorns amateur tools, "They won't cut out six of anything the same size and shape," he says. His handiwork is all over the house: a fine mahogany coffee table in the living room, bookcases, a hi-fi enclosure—all with a professional look. "There isn't anything around the house I can't fix," he laughs. "My dad taught me how to use tools."

He's a second generation builder

Joe Haverstick was born on Dec. 17, 1911 in Michigan City, Ind., where his father was a railroader. The family moved to Chicago when young Joe was three or four and he attended kindergarten and the first grade there. When Joe was in the second grade the family moved to Dayton, where he has lived ever since.

Joe's father became a builder, put up between 15 and 35 houses a year. They were modest, low cost houses, usually built on contract. It was during the housing boom of the 20's that Joe got his start in home building by working with his father summers while he at-



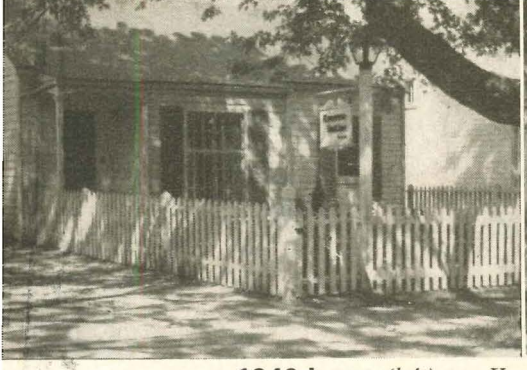
Family group *shows Helen Haverstick with Jay, 15, Ned (center), 13, and Kim who was five last month. Says Joe: "You know why they have such short names?*

At Elk Lake, *Mich., Joe enjoys relaxing on his boat, fishing with his boys and getting away from city life.*

Present home *was built in 1948. It has three bedrooms, two and one-half baths, big garage at rear.*

Summer cottage *in Michigan has lots of wood paneling, was designed by Architect Roland Rosser.*

Basement shop *is Joe's favorite indoor retreat. He uses professional tools, makes some fine furniture.*



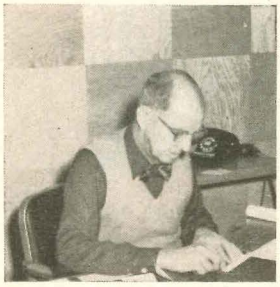
1940 house *(left) was Haverstick home, first sales office. It and center houses sold for $3,600-$4,000. Right: 1953 house*

Haverstick builds, remodels, prefabs, has motel

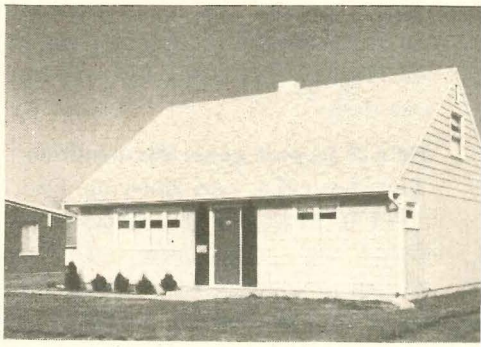
Commonwealth Photos,

Bob Haverstick *heads up purchasing, construction, got building experience as army QM officer.*

1951 house *built by Haversticks sold for $11,500. Firm built about 70 houses that year.*

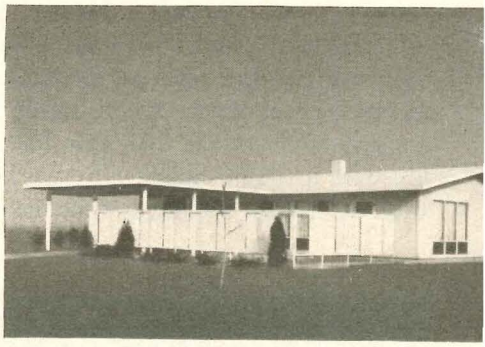


George Jaeger, *Joe's father-in-law, runs remodeling end of business, is expediter and a vice president.*

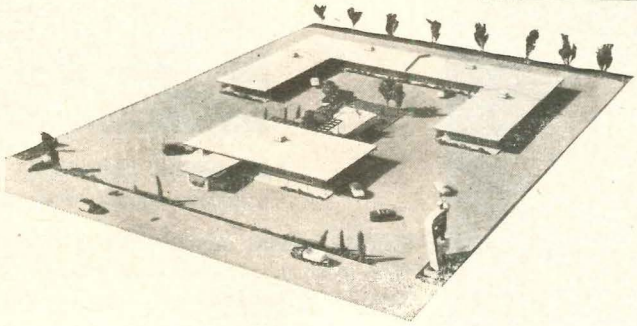


Variety *is a Haverstick trademark. Firm avoids "look-alike" houses side by side, builds pleasant neighborhoods.*

Old house *(left above) was remodeled for offices (left) in 1951 by Haverstick firm, then rebuilt into handsome offices below. Ground floor and basement are rented. So Joe enjoys his second-floor almost rent free.*



National Homes' *Ranger models added variety in price and design to well laid-out Haverstick subdivision.*



Haverstick Holiday Inn, *near Toledo, will open in May.*

tended Steele High School. His first job was as a truck driver's helper, for which he got 25¢ an hour. "That was really money." He graduated from high school in June, 1930 and went to work full time for his father. But the depression soon closed them down.

He studied civil engineering

"I had a good friend in the man who taught me Sunday school in the Methodist church while I was in high school. He lent me some money to go to college." (The Sunday school teacher, Don Batelle, is now the Haverstick accountant.) So Joe entered the University of Dayton in Sept. 1931.

"I remember I went to see the registrar," Haverstick recalls, "and when he saw my high school grades he shook his head and said, 'It's silly to spend the money to go to college.' That made me mad. I decided to show him."

Joe worked hard at his civil engineering course and got grades averaging 89 for his first year. But in the middle of his second year "things got so desperate" at home that Joe, as the oldest of five children, felt he had to quit college and find a job.

He first worked at Delco where he ran a "giant machine that did five operations. It was a tough job and it took real physical effort. But it took no brains—all you had to do was get into the rhythm. That's when," Joe says, "I decided that I was going to do something besides work for some one else."

His next job was with the Department of the Interior's geologic survey, mapping part of Maumee Bay in Lucas County for dredging. For six or eight months he was a rodman—a job his partial education in civil engineering helped him to get and a job which he says has provided him with experience that has been most useful to him in land development and building.

He's been building since '36

"In the fall of 1934, Dad rounded up some remodeling jobs and I came back to Dayton." During part of 1935 and 1936 he sold Buicks and he and his brother leased a gasoline station. But in mid-1936 Joe went back to work again with his father and has been a builder ever since.

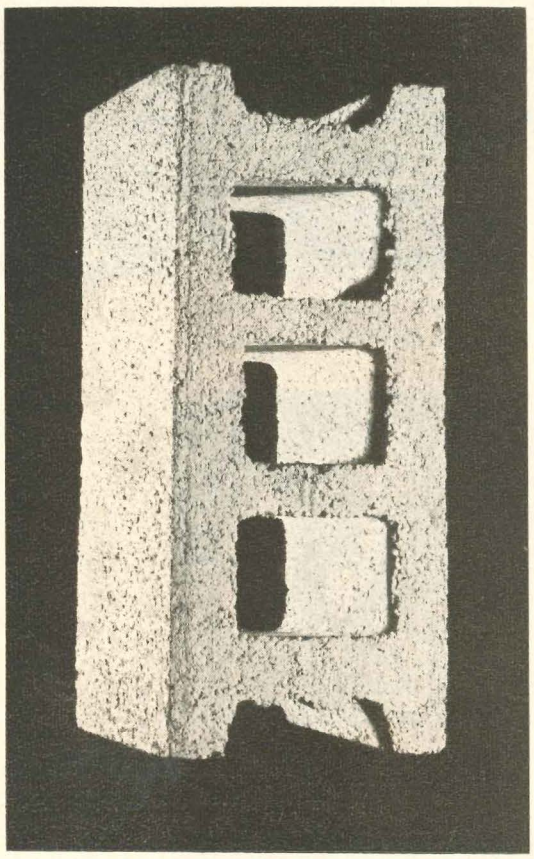
"I am going to advocate one thing," promises the new NAHB president. "It is that a builder should take an interest in his community life. If a builder will serve in any capacity he will sell his problems to the community. You get nothing out of life unless you

continued on page 196

As NAHB official, *Haverstick has discussed housing with prominent men, here with late Senator Robert Taft.*

Convention chairman *three years, Haverstick talks with Van Auken, Brockbank, the late Henry Fett.*

As first vice president in '55, *Joe traveled widely, here gives plaque to Chester Fitch, Rochester. Left, F. Tufaro. Below: with Gen. Van Fleet, Bill Zeckendorf, Haverstick helped launch Homes for Korea drive.*



BEHOLD THE LOWLY CONCRETE BLOCK

It wasn't so long ago that a concrete block would not dare to show its face in polite society.

Block was used in foundation walls, as a backup for brick or stucco—or on the side of the house or garage where it was least conspicuous. It was supposed to be a "cheap" material in more ways than one.

Then along came a few imaginative architects and turned the concrete block into one of the most glamorous and flexible building materials at our command. For the evidence, see opposite—and the following ten pages.

But first, here are some assorted facts to keep in mind when discussing concrete block:

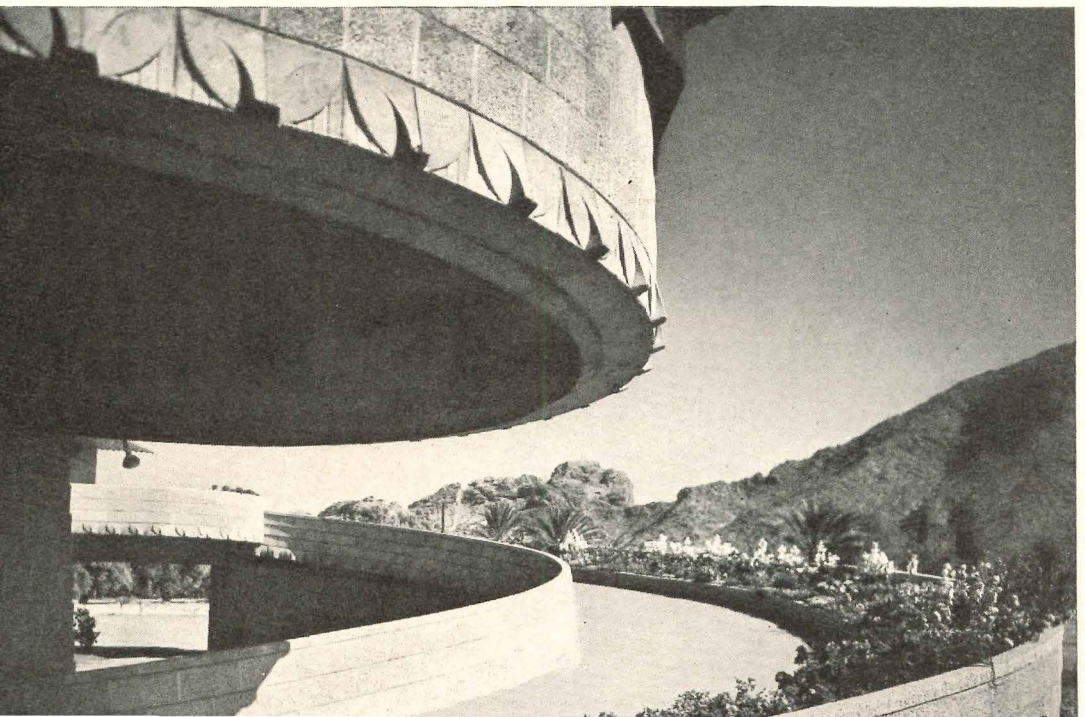
1. "Concrete block" is a collective term. It includes every type of building block that is *part* cement. The other parts may be any aggregate from sand to volcanic rock. Each of these aggregates does a specific job: some are light, others are very strong, still others have a special surface. That's the great asset of the material: it is tremendously versatile.

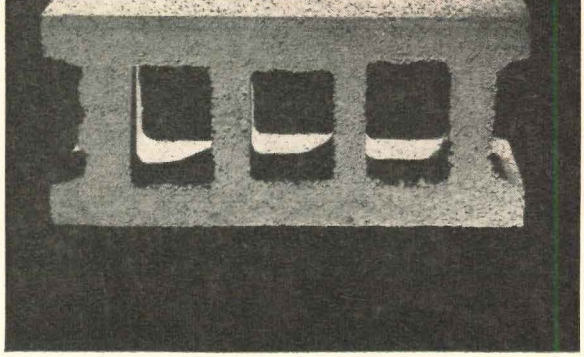
2. Concrete block is not without problems. It is almost trouble-free in moderate climates; it will resist termites and hurricanes. But in the North it requires added inside insulation to meet proposed FHA U-factor requirements. And almost everywhere it needs some exterior finish to make it more weather resistant. Some concrete block problems (and ways to solve them) are discussed on pp. 154-155.

3. Concrete block has a bright future. The reasons are simple and obvious—and dramatized in the two pictures of Frank Lloyd Wright houses opposite: today's concrete block has almost unlimited decorative possibilities, as well as rubber-hose flexibility. Only obstacle to the expanded use of block: the current cement shortage. As soon as that is alleviated, concrete block should become one of the most popular materials in US home building.

Photo: courtesy of House Beautiful

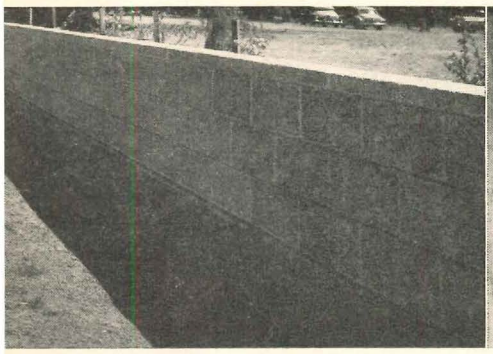
. . . IT ISN'T LOWLY ANY MORE



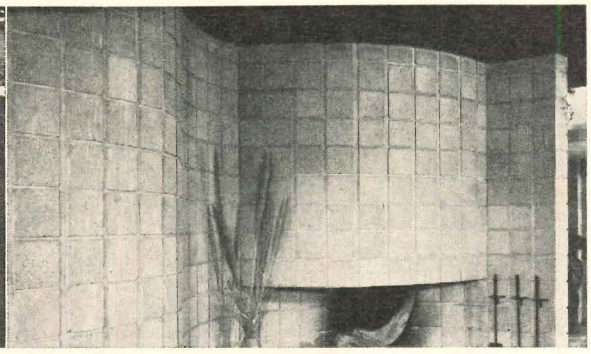


You can get almost any effect with standard concrete blocks . . .

You can get straight lines . . .

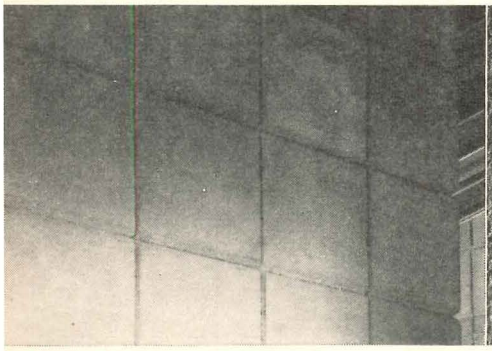


. . . or curves . . .

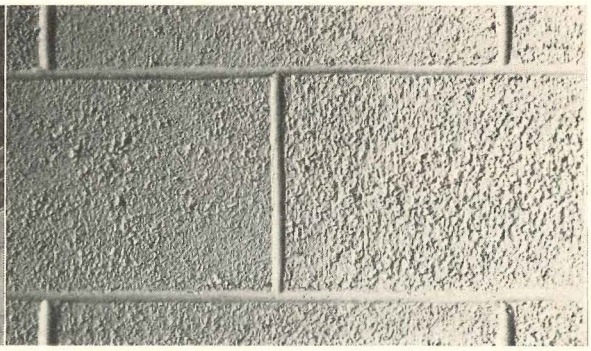


By using 8" wide blocks with pie-shaped joints, any mason can build curving walls without trouble. Similar effects with wood framing require complicated carpentry.

. . . smooth surfaces . . .

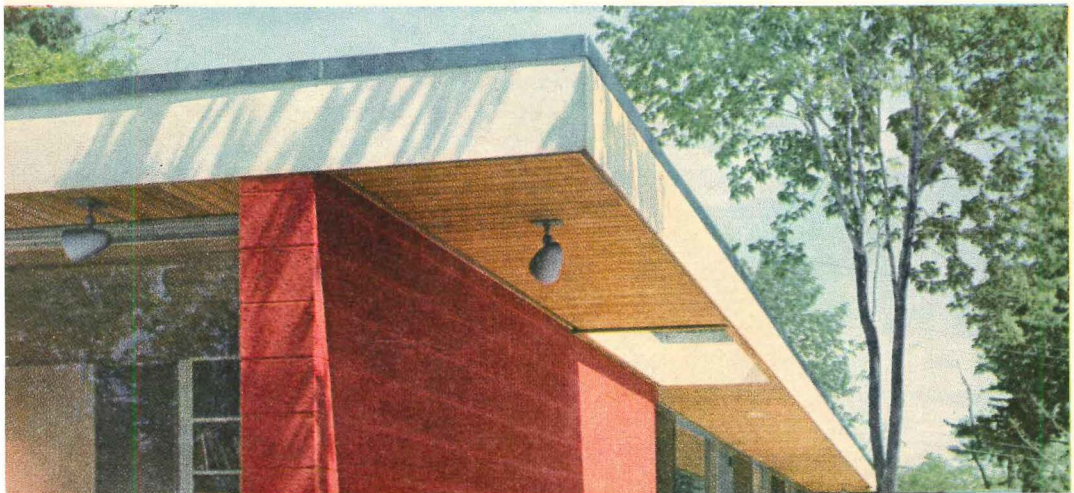


. . . rough textures . . .



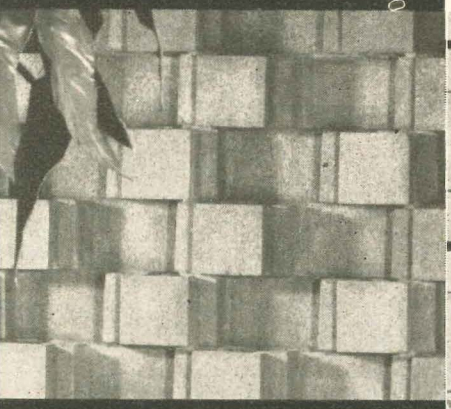
Standard blocks are made with a great variety of surface finishes and textures, including facings of ceramics, marble chips, etc. Different aggregates in the block itself produce still further variations in color and in surface "grain."

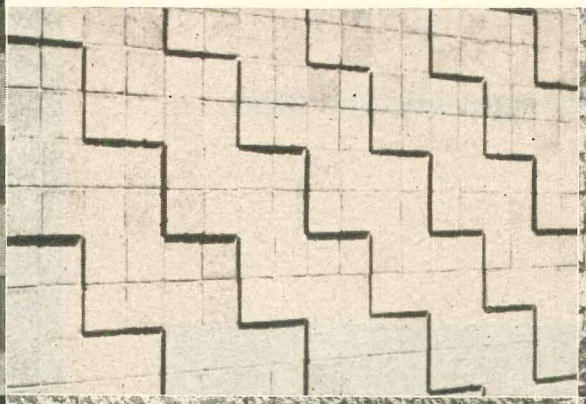
. . . or bright colors . . .

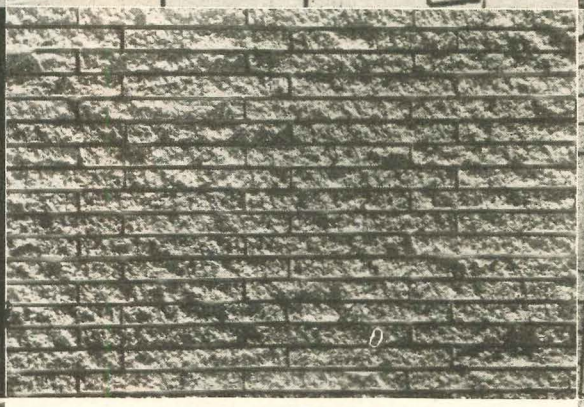


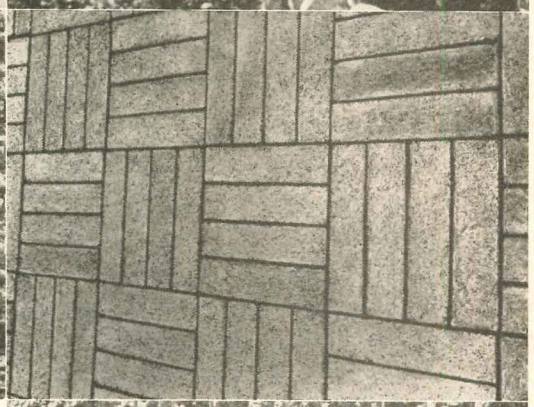
. . . and you can get

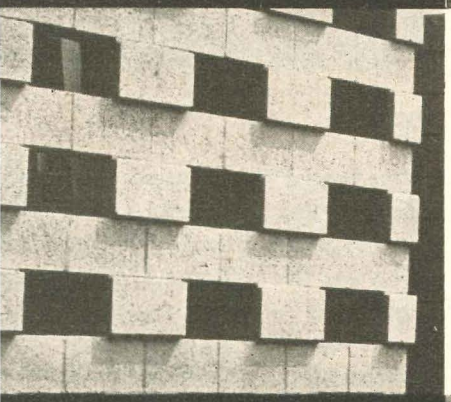
Oil and rubber base masonry paints are now available in handsome, bright colors. Traditional water and cement paints, which produce an excellent watertight surface, generally come only in light pastel shades. The new paints have expanded the color range for blocks. Brightly colored blocks are also available.



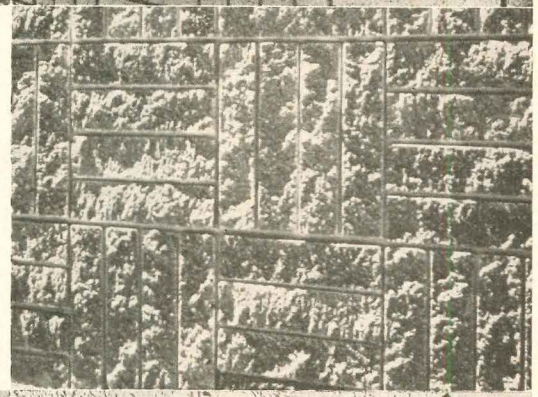




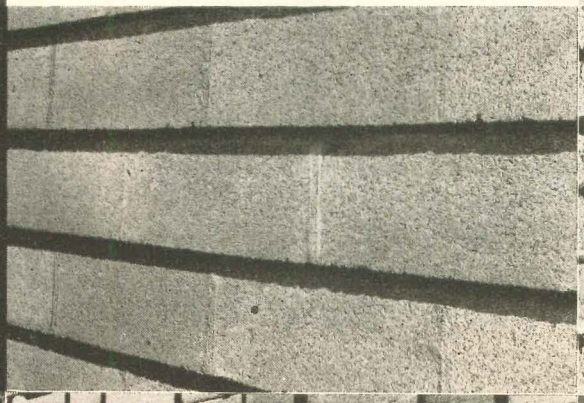


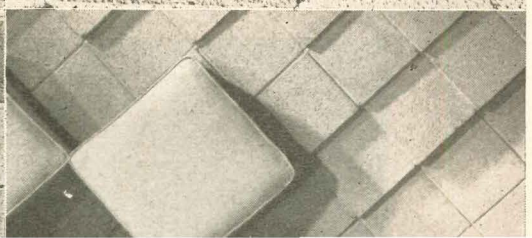


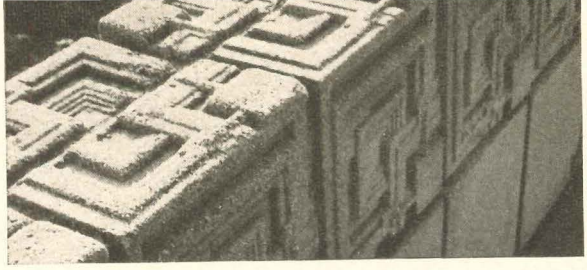
Here are some of the innumerable patterns you can obtain with standard blocks. Apart from being decorative, these patterns help to conceal surface imperfections and small cracks, will relieve the monotony of big blank walls. For details showing some simple bonds and the resulting patterns, see Concrete Masonry Handbook, *Portland Cement Assn., AIA File 10-C.*



about any pattern under the sun

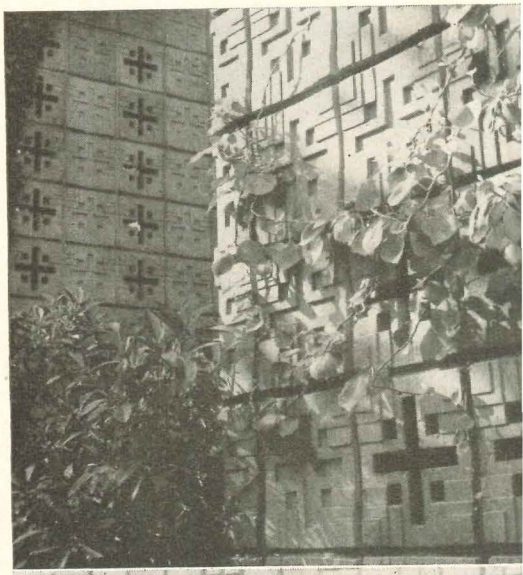




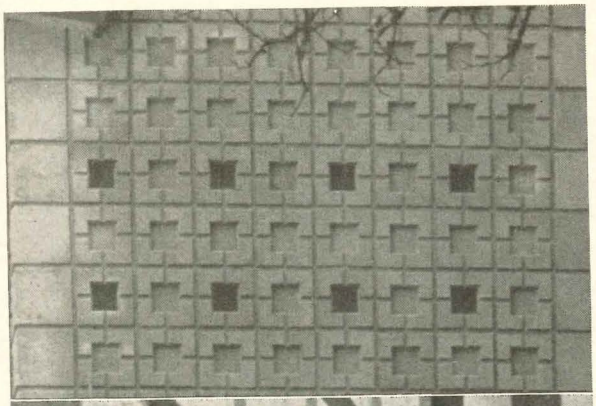


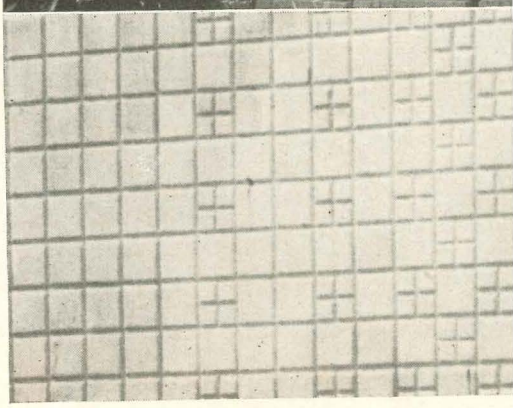
. . . as a surface design

. . . with perforations



Or you can cast the pattern right into the block . . .



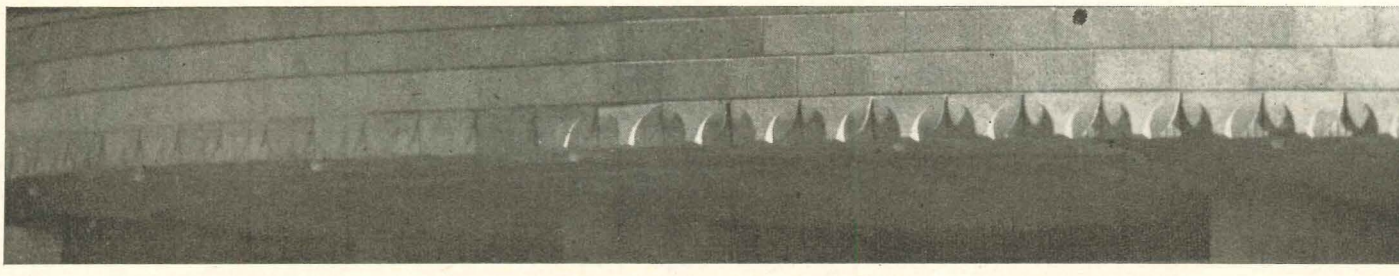


. . . or v-joints

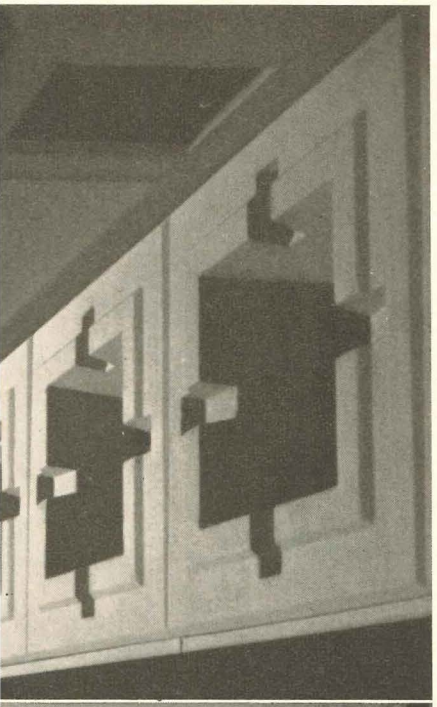
Most of the special block patterns shown her made one at a time, in special molds. This course, an expensive process but fortunatel not the only one that will produce a patterned

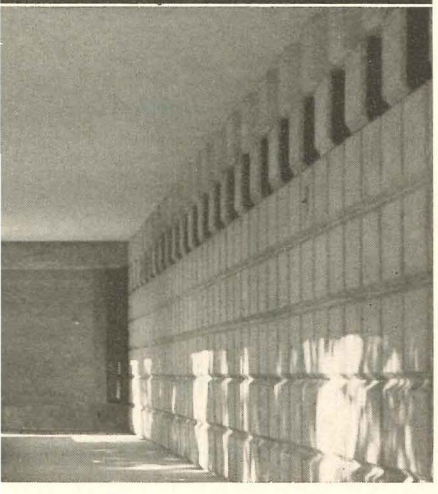
This spring, the National Concrete Masonry (NCMA) will introduce a new patented devic which to mass-produce blocks with a handsor face pattern. For the first published pictures new NCMA blocks, see p. 154.

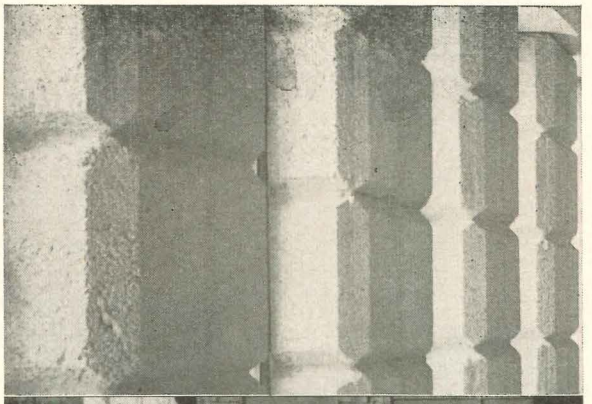
The device is a patterned divider-plate t into the standard block-making machine. It ciple of operation is very simple: the patterne permits the molds and the blocks *to disenga tically* during manufacture. Almost any plate signed can be inserted into the block-maki chine. Result: architects and builders ca plates made up to mass-produce their own

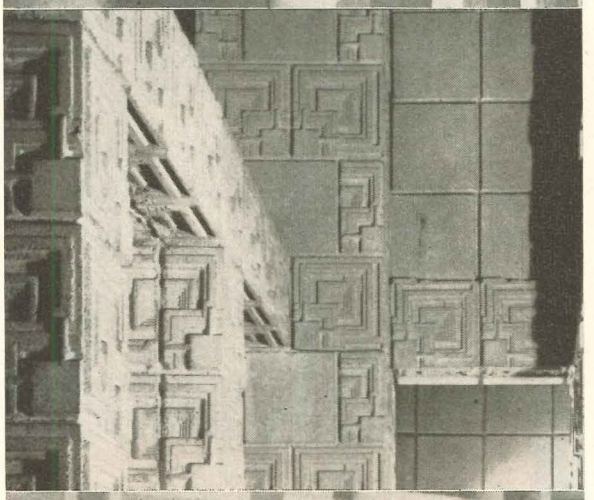


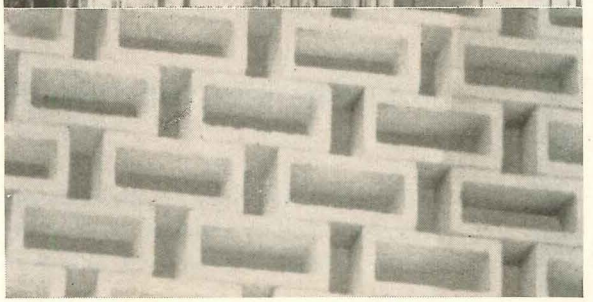
u can even make a window frame . . .





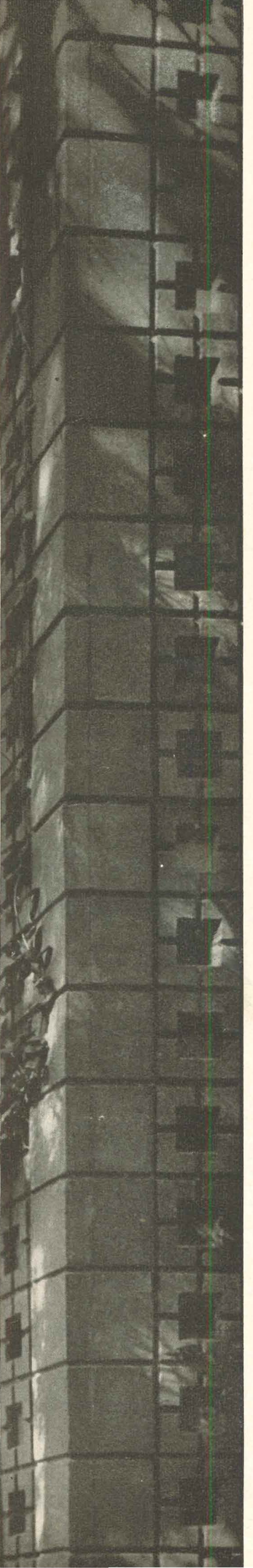


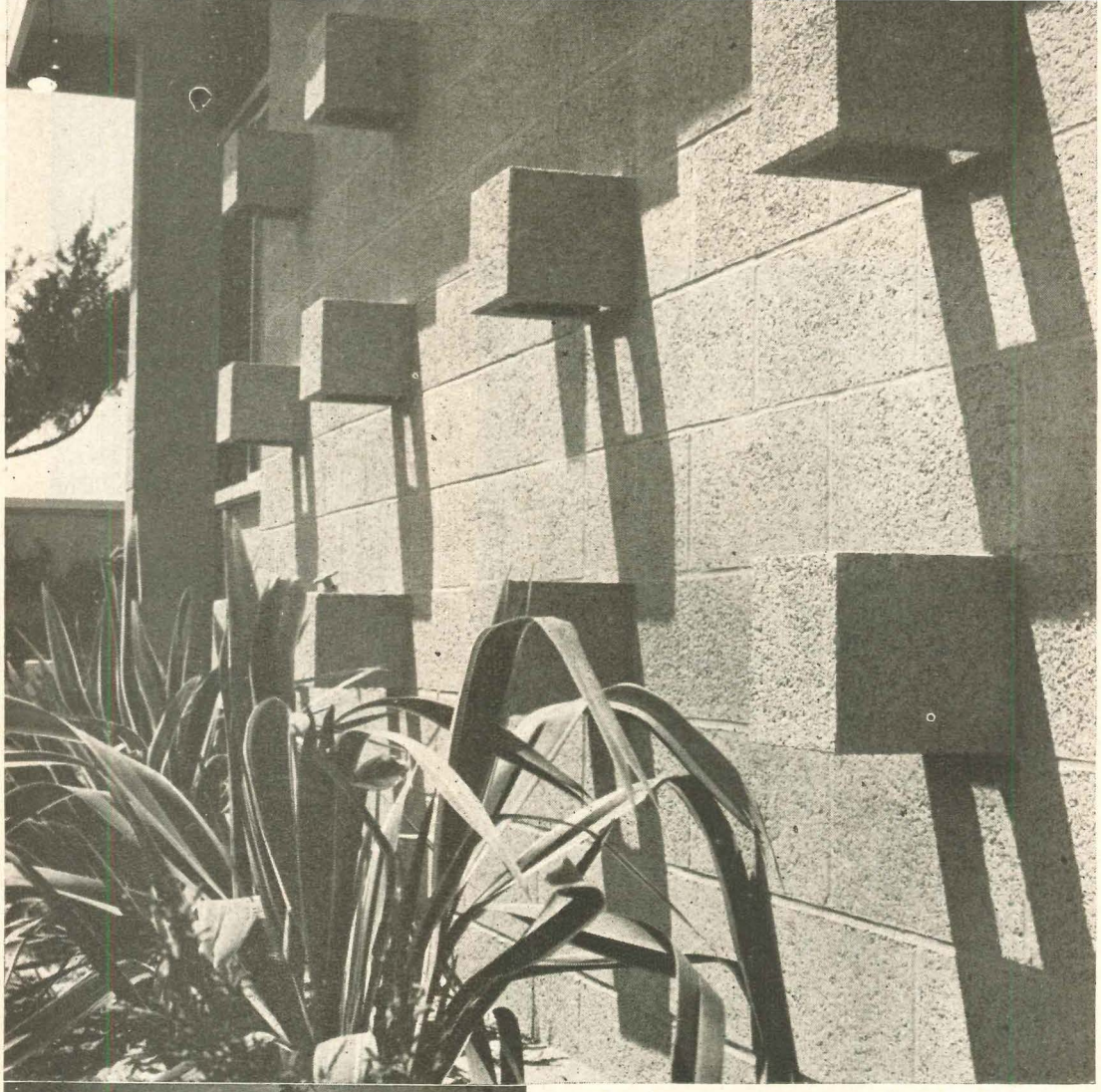


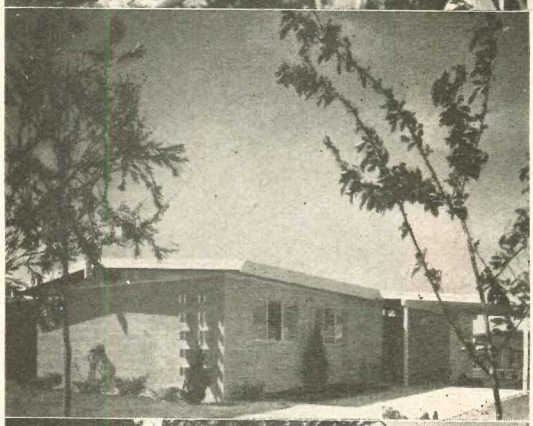


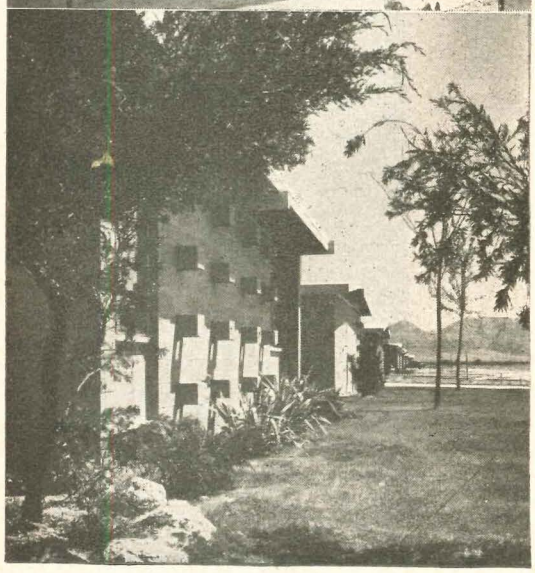
. . . a grille

. . . or a frieze







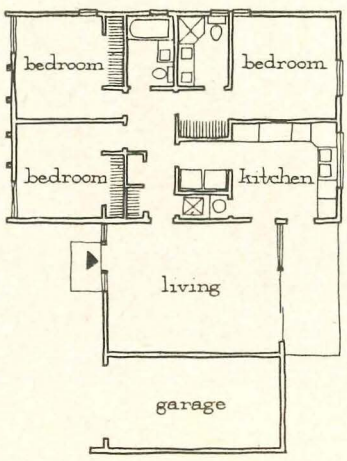


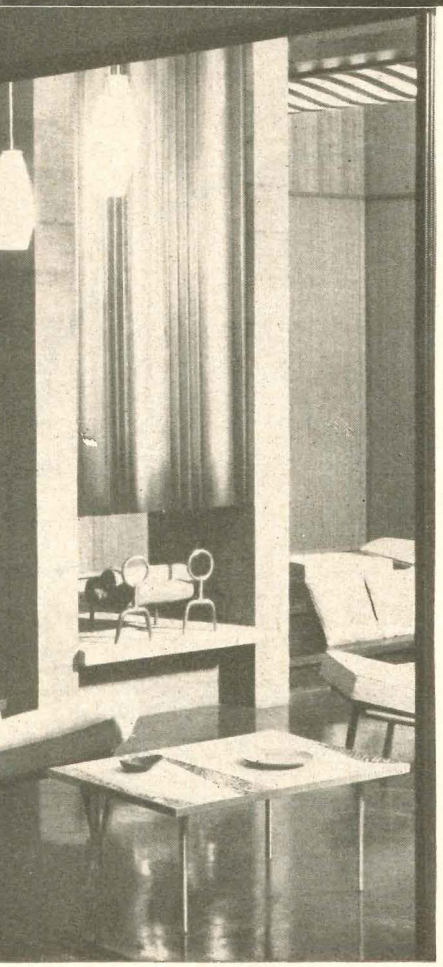
In a builder house **concrete block for glamour**

When one of the country's most consistently successful builder-architect teams turns to concrete block for glamour this is news indeed.

For three consecutive years—1953, '54 and '55—Builders Pardee-Phillips and their architects, Jones & Emmons, have won top NAHB awards for residential planning and design. And they have won the awards with houses like these—houses built of patterned concrete block walls.

This particular community is located in north Las Vegas, Nev. The houses sell for around $12,000 to $15,000—i.e. they are not low cost. Yet "common" concrete block was used in all of them, and used well. In an area of almost permanent sunshine, the architects believed that the patterns in light and shade created by standard, projecting blocks would look highly decorative. Three hundred and forty home buyers agreed, decided that this type of concrete block treatment was for them, too.



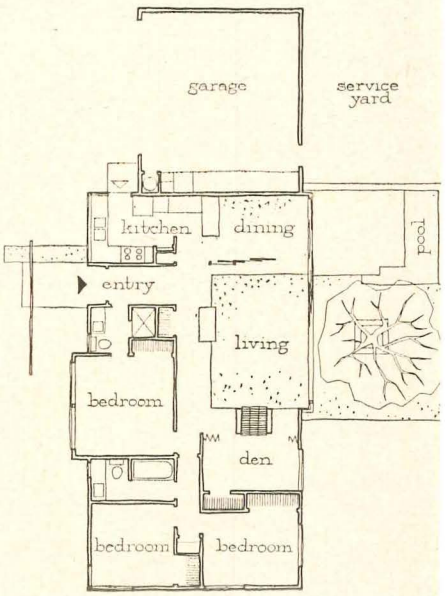


In an exhibition house **concrete block for decoration**

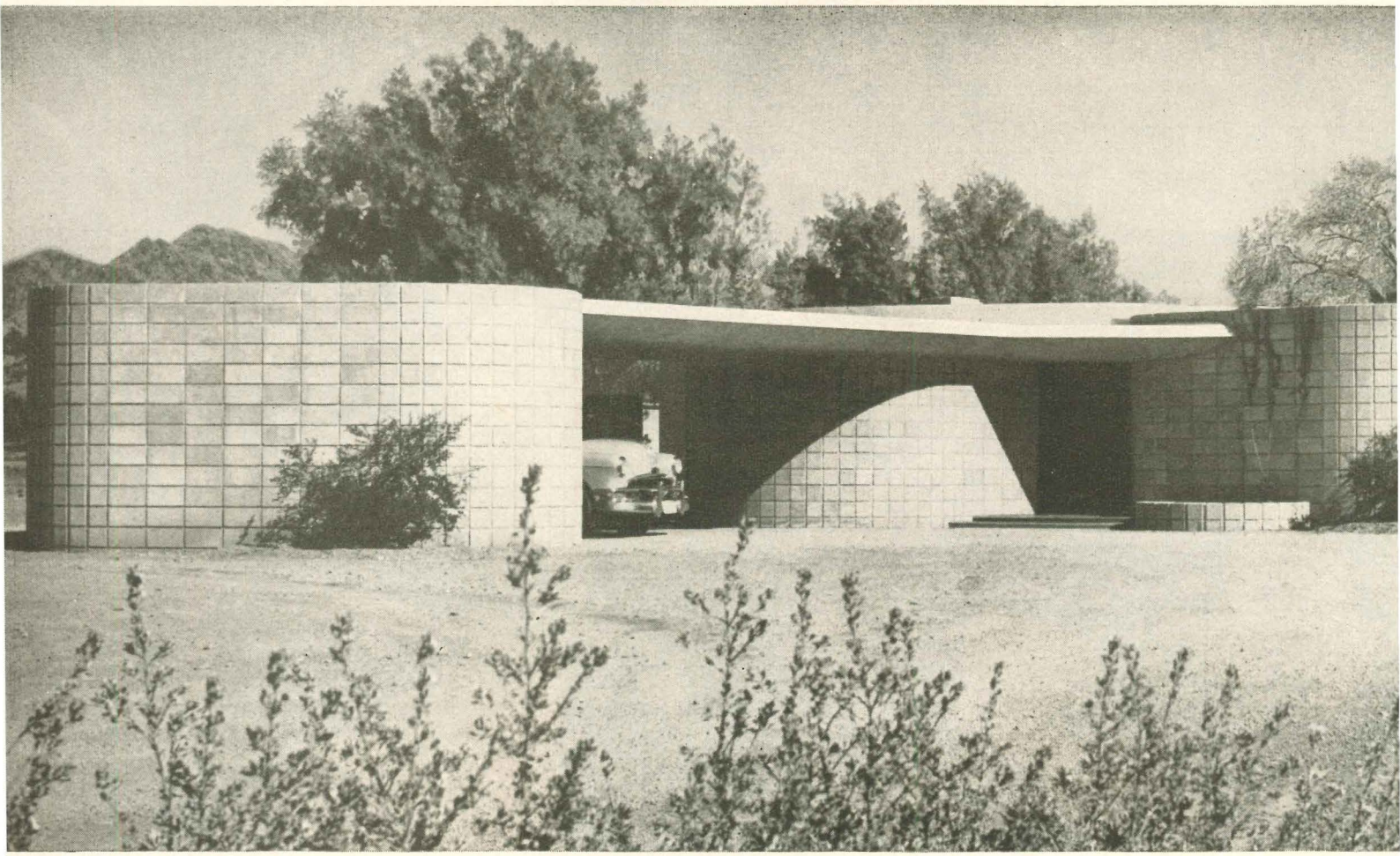
"We haven't even started to explore all the ways of using standard concrete blocks," say Architects Smith & Williams, who designed this exhibition house for the 1955 Los Angeles County Fair.*

Here is concrete block used as a perforated grille to give privacy and shade to a terrace without cutting off the breezes. Next to it is another block wall, this one as deeply textured as an Irish tweed. Its components: standard Rocklite units staggered to create a rich, three-dimensional pattern. Finally, as a foil to the patterns, there is a plain fireplace—two slab-like sides of block with a metal hood between them (left).

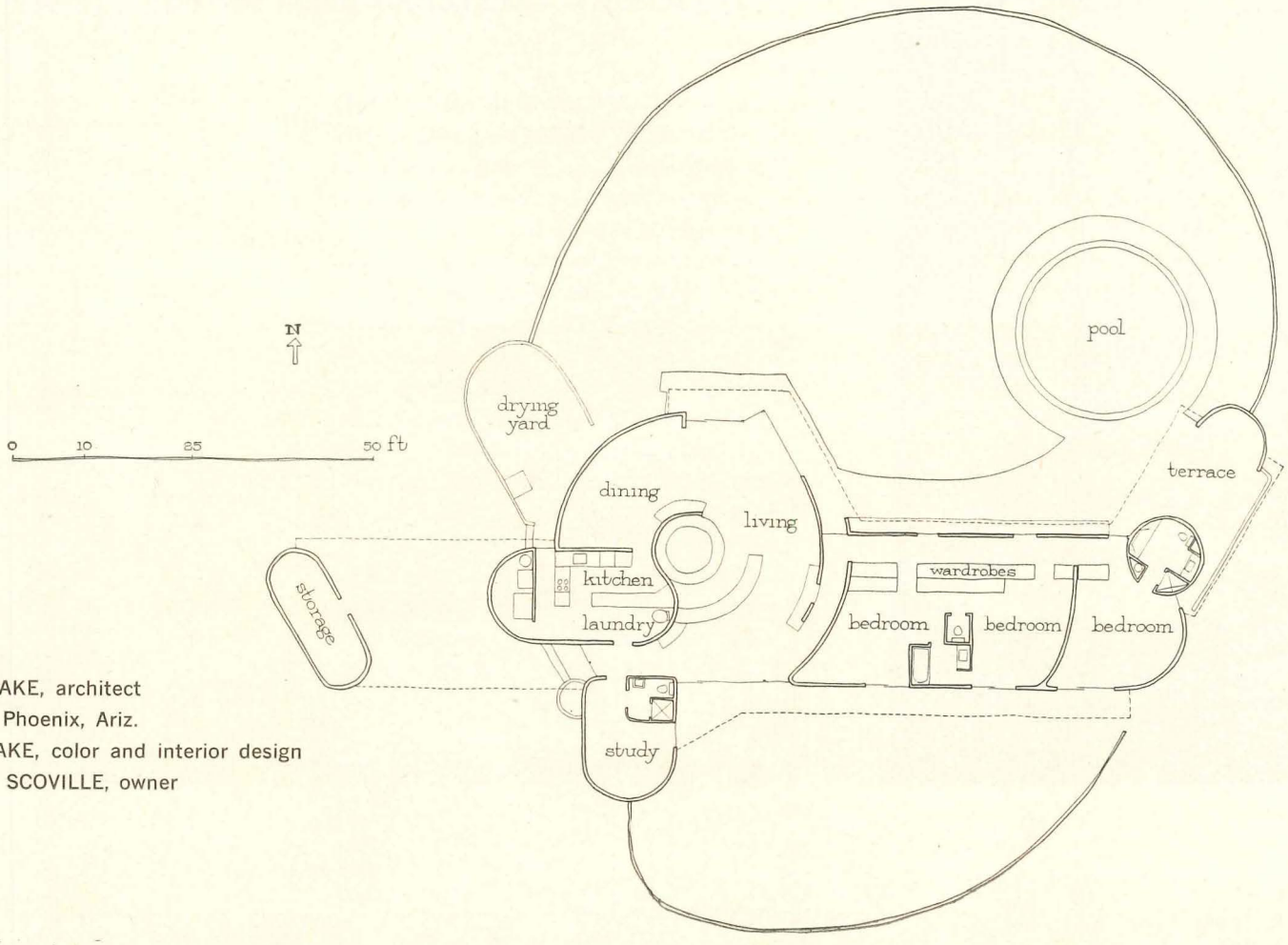
The exhibit was intended to show (as the architects put it) that "the California tract house need not be an ugly box, but can be a tasteful background for graceful living."



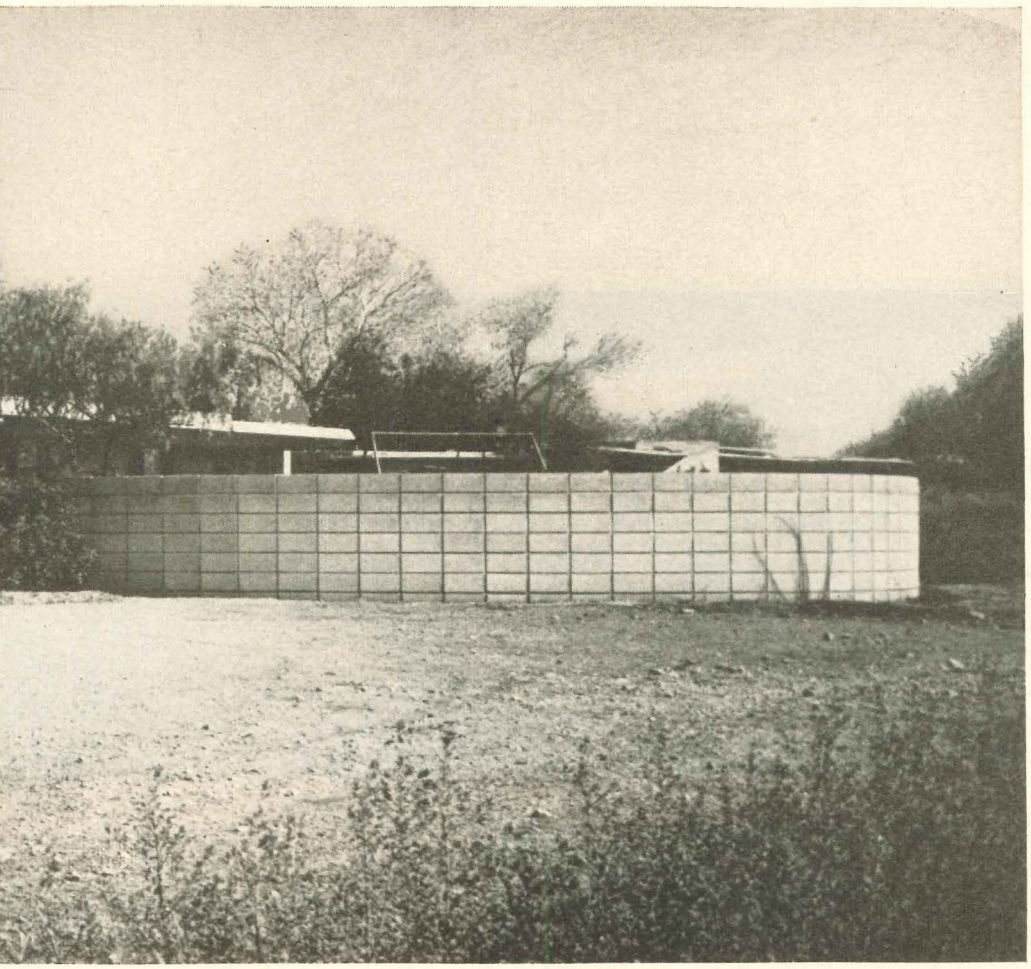
* For more news about Smith & Williams' recent work, see pp. 180-185.



In a custom house Concrete block for curves



BLAINE DRAKE, architect
LOCATION: Phoenix, Ariz.
HULDA DRAKE, color and interior design
HAROLD R. SCOVILLE, owner

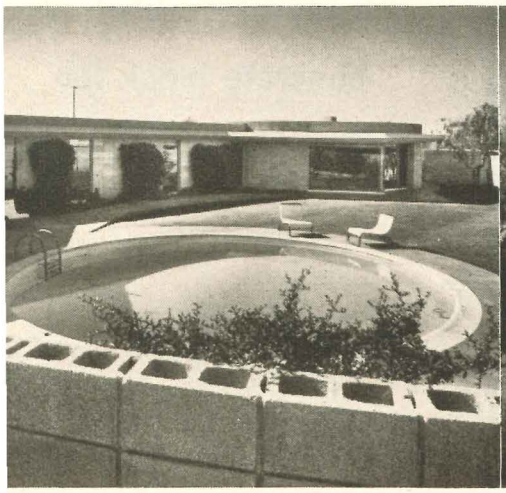


Approach side *of house has carport at left, smaller patio behind low wall at right. Larger walled-in garden is on the far side of the house.*

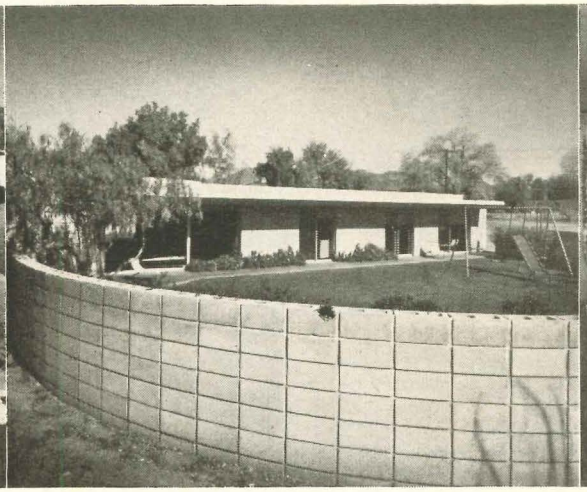
Rarely has there been more dramatic proof of the complete flexibility of concrete block than you see in this house.

Architect Blaine Drake used curved walls to emphasize a sense of shelter and security—notions traditionally associated with curved enclosures, and especially valid in the open Arizona desert country where this house was built.

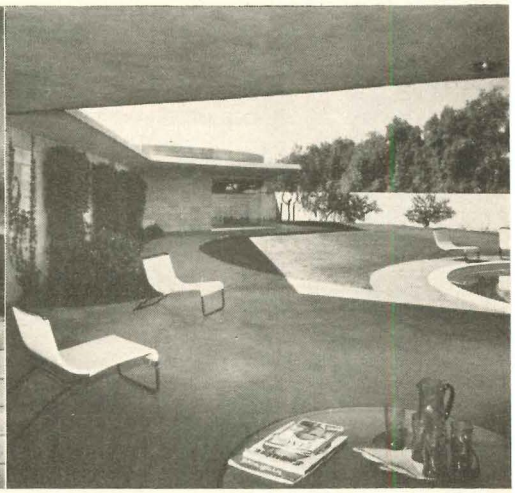
But even in a more conventional plan the idea of a curved wall frequently makes sense, and is discarded only because a curved wall would be too expensive to build in wood. Drake found he could build some very tight curves with 8″ x 8″ x 8″ blocks and pie-shaped mortar joints, using a stacked bond (continuous vertical joints). This bond, according to Drake, has another interesting feature: it will rarely crack so long as it has been horizontally reinforced. In the desert, where great temperature changes may occur every few hours, cracking is a serious problem, and Drake has found that cracks usually appear unless expansion joints have been provided. With this bond he has had no such difficulties—partly because of less movement in curved walls.



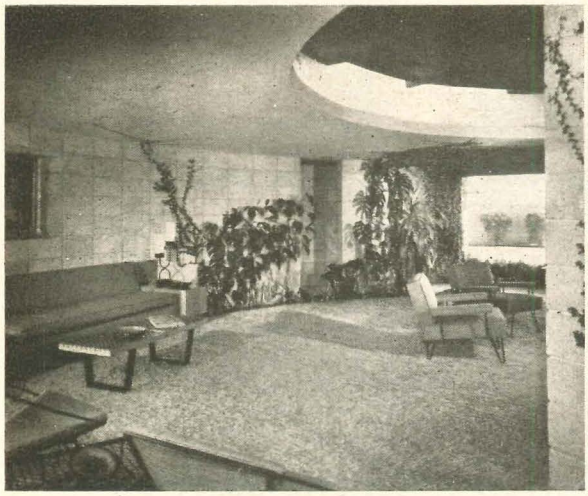
Circular pool is part of walled-in garden

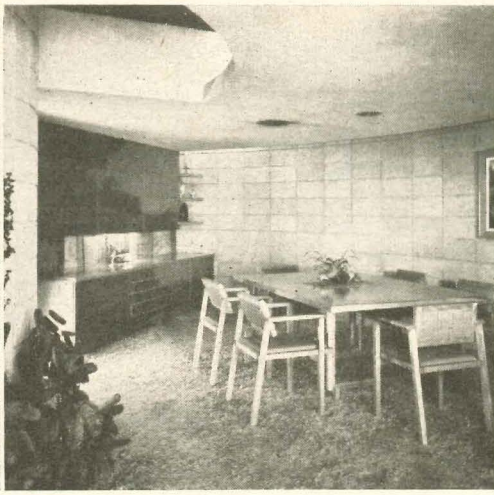


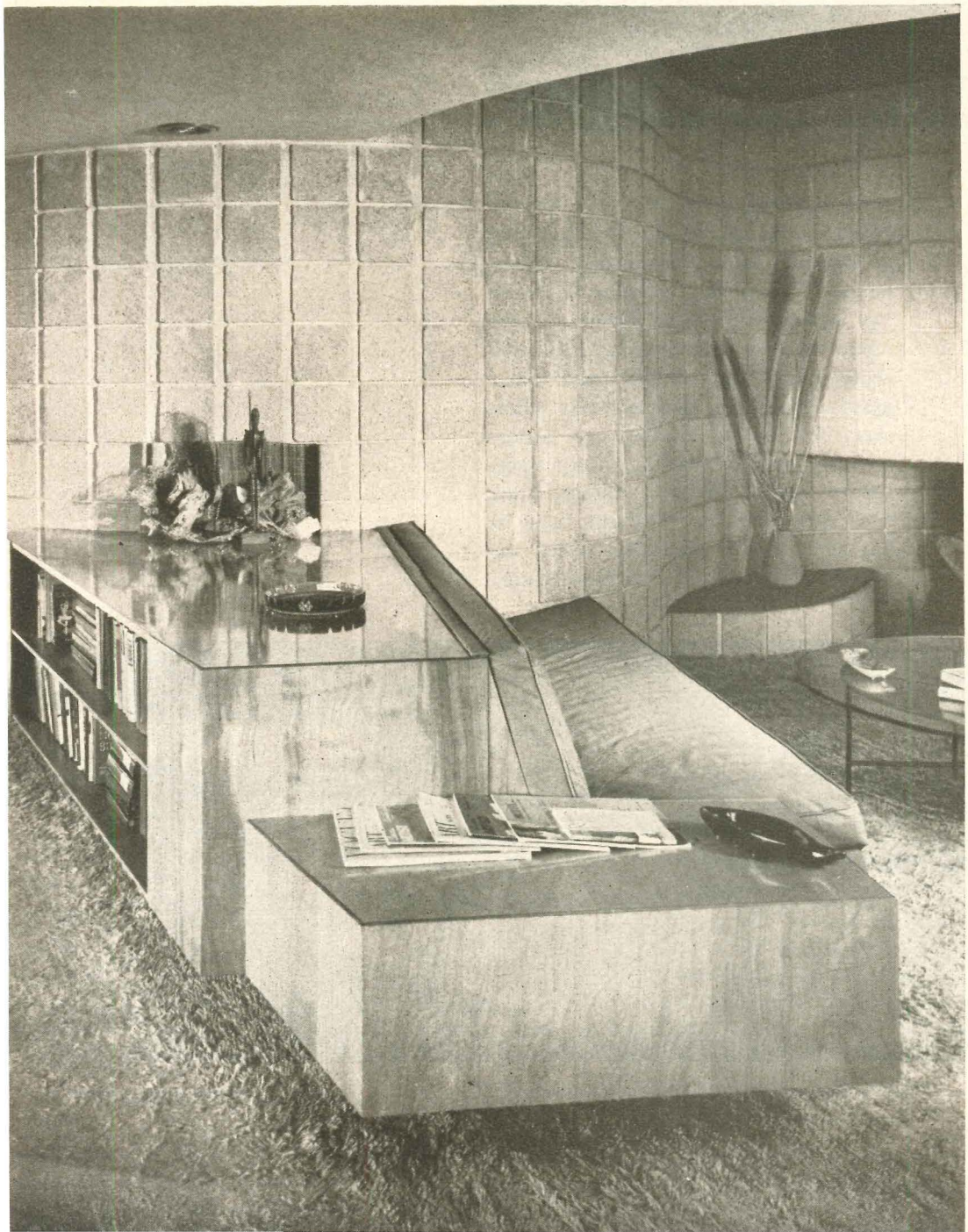
Stacked bond is carried through patio walls as well



Sheltered terrace overlooks pool







Interiors on these pages show how easily Drake built sharp curves by using 8″ x 8″ x 8″ pumice blocks, and how gracefully the furniture can be adjusted to such curves. Even built-ins present few problems.

In this custom house

concrete block for

elegant interio

CREDITS

p. 142—photo: Walter Daran; p. 143—(top) architect: Frank Lloyd Wright, photo: Ezra Stoller, courtesy "House Beautiful" (bottom) architect: Frank Lloyd Wright, photo: P. E. Guerrero; p. 144—(top) photo: (first row) architect: Frank Lloyd Wright, photo: P. E. Guerrero; architect: Blaine Drake, photo: Frank Gaynor; (second row) architect: Frank Lloyd Wright, photo: Ezra Stoller; architect: Jones & Emmons, photo: Dale Healy; (bottom) architect: Marcel Breuer, photo: Ben Schnall

p. 145—(first row) architect: Smith & Williams, Frashers Fotos; courtesy National Concrete Masonry Assn.; courtesy Portland Cement (second row) courtesy NCMA (third row) courtesy Portland Cement (fourth row) courtesy NCMA (fifth row) courtesy NCMA; courtesy NCMA; architect: John Hill, photo: Maynard Parker, courtesy NCMA

p. 146—(left, top to bottom) architect: Frank Lloyd Wright, photo: Ezra Stoller; architects: Wisneiwski, Patrick, Cappuccilli & O'Hare, photo: Morley Baer; architect: Alden Dow, photo: Elmer Astleford (right top to bottom) architect: Frank Lloyd Wright, photo: Ezra Stoller; architect: Alden Dow, photo: Elmer Astleford (frieze, bottom) architect: Frank Lloyd Wright, photo: P. E. Guerrero

p. 147—(left, top to bottom) architect: Frank Lloyd Wright, photo: Ezra Stoller; architect: Alden Dow, photo: Elmer Astleford (right, top to bottom) architect: Alden Dow, photo: Elmer Astleford; architect: Frank Lloyd Wright, photo: Ezra Stoller; courtesy National Concrete Masonry Assn. (extreme right) architects: Wisneiwski, Patrick, Cappuccilli & O'Hare, photo: Morley Baer

p. 148—architects: Jones & Emmons, photo: Dale Healy, builder: Pardee-Phillips

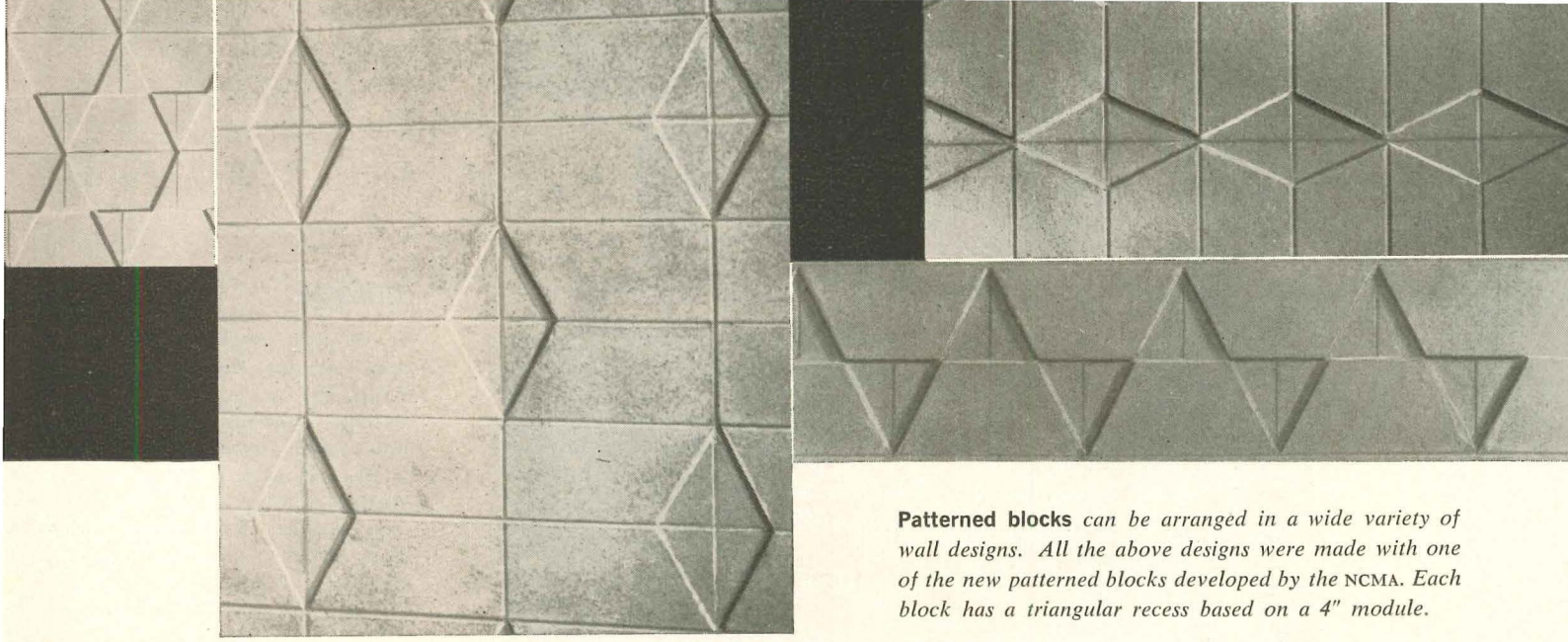
p. 149—architects: Smith & Williams, Frashers Fotos

p. 150-3—architect: Blaine Drake, photo: Frank L. Gaynor

Architect Drake used a pumice block to build this house, believes it is a fine material for his part of the country. Says he: "It has long life in sun and heat. It has good reflective qualities and rather good insulation value. On the west walls I generally use a loose filler insulation in the hollow cores of the block."

Drake's chief problems in working with block have been due to the uneven quality sometimes found in the finished product. He believes excellent textures can be obtained by controlling the mix carefully but pumice block manufacturers will sometimes reduce the proportion of the pumice aggregate to save money. If the proportion of sand and gravel is thus increased the resulting block will be denser and have less insulating value.

In finishing his block walls, Drake likes to use clear silicone waterproofing because it lets the block retain its natural light gray color. Occasionally he will add a little color to the silicone to give the block a color stain. For more ways to waterproof block walls, see p. 154./END.



Patterned blocks *can be arranged in a wide variety of wall designs. All the above designs were made with one of the new patterned blocks developed by the* NCMA. *Each block has a triangular recess based on a 4" module.*

THESE PRODUCTS IMPROVE CONCRETE MASONRY

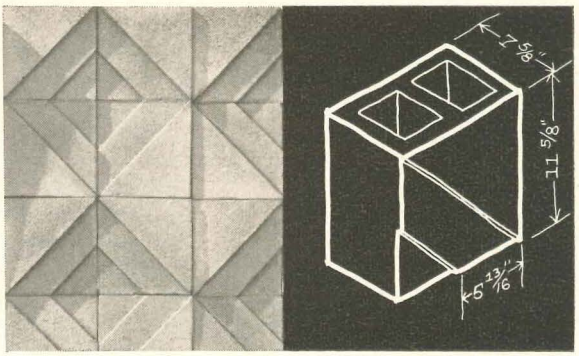


Diagram *shows how a modular pattern is molded into the face of a standard-size block. Identical blocks can be combined to give a double-diamond effect, as in photo. Units are made by North Hollywood Concrete Tile Co.*

Union Carbide

Silicones *do not change the appearance of masonry. Photograph shows how a silicone water repellent is applied to a block wall with a low-pressure spray. Within two to 12 hours the solvent evaporated, leaving a smooth, protective film over the exterior surface.*

Until recently, the concrete block industry was plagued by such major problems as how to make block walls look less monotonous, how to waterproof them, how to reinforce them and how to give them more color. Now there are solutions to all these problems—new devices that produce patterned blocks, new sprays that waterproof the wall without changing its texture and color, new reinforcing systems that reduce cracking, and new ways to give the block a brightly colored face.

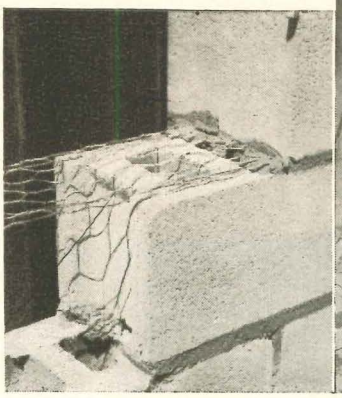
Patterned blocks will be mass-produced

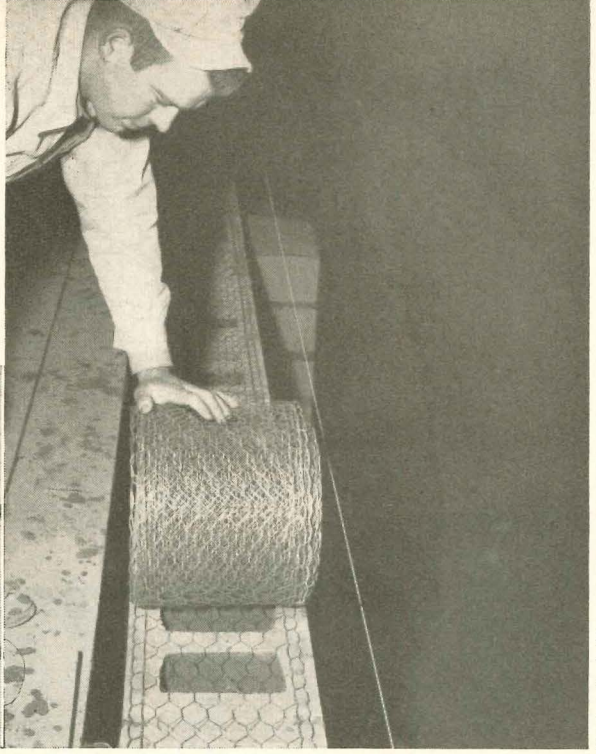
Now, for the first time, *standard* blocks with patterned surfaces will be available to builders and architects throughout the country. Such decorative blocks could formerly be found only in areas like Southern California where the handsome specimens shown opposite are being manufactured.

Shipping costs naturally limit the distribution of such special blocks. Now, however, the NCMA has developed a standard method that will permit any local producer to mass-produce patterned blocks. A special plate attachment is fitted onto regular block-making machines. The plates vary in design according to the pattern desired. One example is the triangular face design shown above.

Silicones repel water on smooth blocks

Silicone sprays penetrate into the surface of the block and line the pores with a water-repellent film. Because the film should not be broken, silicones work better on smooth block with small pores than on rough-textured block with big pores. The chief advantage of silicones is that they give a clear and colorless finish, thus preserving the natural color and texture of a block wall. Silicones should not be used below grade since they do not resist hydrostatic pressure encountered there.





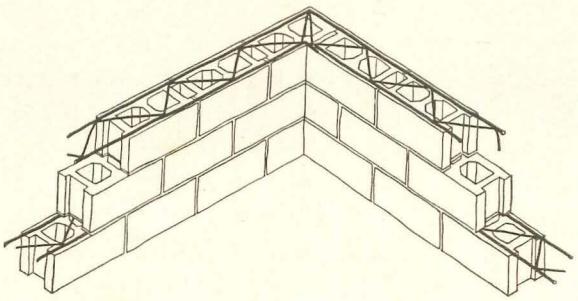
Photos: E. J. Kirwan

Much technical information is available on concrete masonry. For a listing of important recent publication, see p. 296

Wire mesh *reinforcing is easily rolled down the entire length of a wall, speedily applied between the block courses. It is cut and lapped at corners without increasing thickness of mortar joints. The type above is called "Keywall." Made by Keystone Steel & Wire Co., Peoria.*

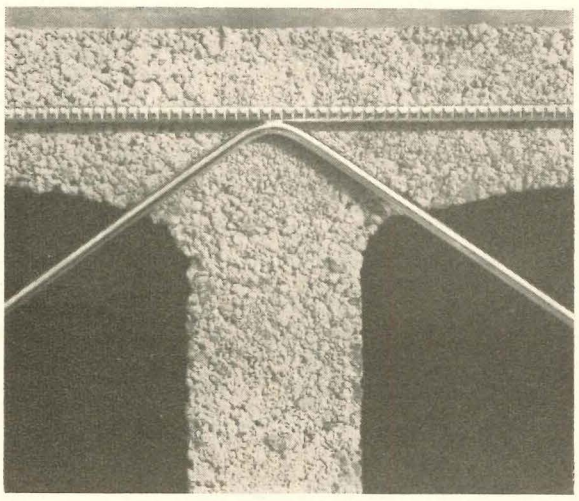
Horizontal reinforcing reduces cracks

All house walls will settle or expand and contract with climate changes. When such movement occurs in concrete block walls, big and small cracks develop. So far there is no guarantee against small cracks, but you can keep cracks from spreading. One good solution is the use of horizontal reinforcing with rods or wire laid over every second or third course as shown here. The metal interlacing serves to distribute the shock of strong internal stresses.



Cement-base paint waterproofs wall

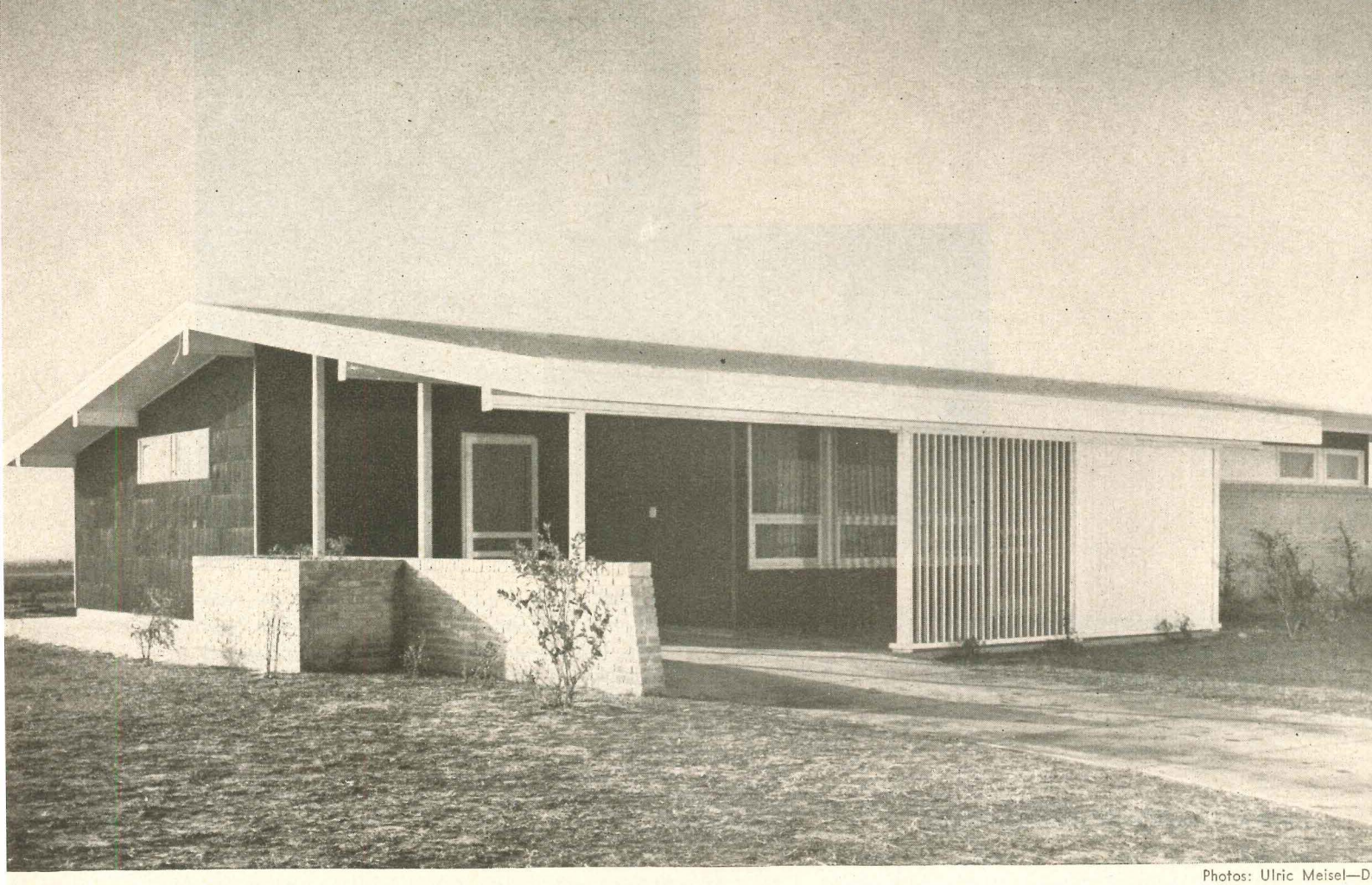
In waterproofing a concrete block wall, it is important to remember that the wall should be allowed to breathe, i.e., the paint used should not form a *vapor seal* on the exterior surface because this would trap moisture inside the walls. The NCMA therefore recommends that masonry walls be waterproofed with two brushed-on coats of cement-base paint, which permits vapor to escape from the inside but keeps out rain. Other paints, such as some with an oil or resin-emulsion base tend to form a vapor seal and should therefore be used only on interior surfaces or on block partitions.



Bright finishes add interest, color

There are now at least three ways of adding glamour and color to block walls: First, there are the oil, rubber and resin-emulsion paints which come in bright colors. Next, there are blocks available with integral color, made by mixing a coloring agent into the cement. (The lighter colors have been more successful than the brighter colors which tend to fade with use.) Finally, there are numerous blocks on the market today with ceramic, marble-chip or similar hard faces. These blocks are handsome and weatherproof as well.

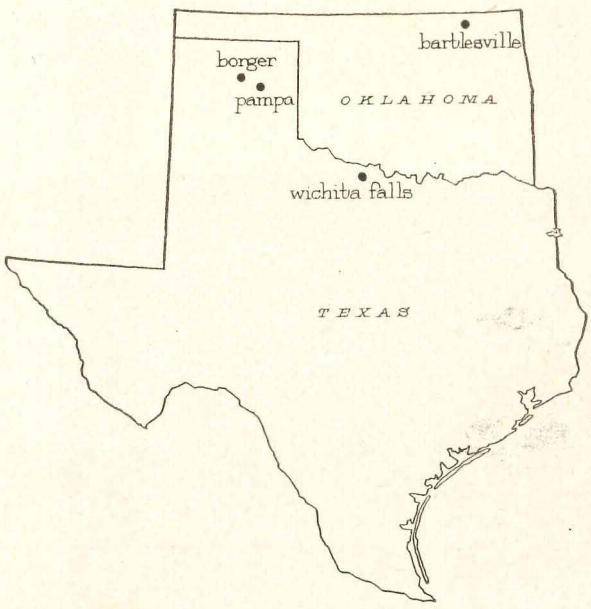
Steel rod *reinforcing is generally recommended in every second course of block and, like other reinforcing, above and below window and door openings. Rods vary in size according to type of wall. Product is called "Dur-O-Wall." From Cedar Rapids Block Co., Cedar Rapids.*



Photos: Ulric Meisel—D

Summit model, Hughes calls "the best one I've built"

DICK HUGHES SHOWS HIS 1956 MODEL



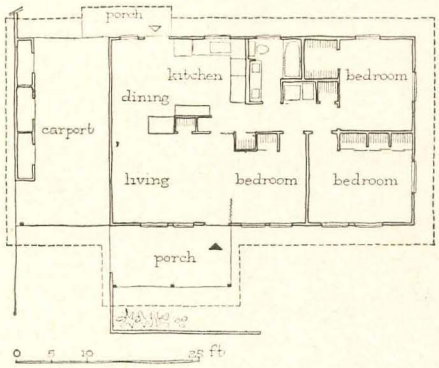
Hughes territory centers on Texas Panhandle. This year he expects to build 250 houses in Bartlesville, Okla.; 250 in Wichita Falls, 100 each in Borger and his home town Pampa, plus about 50 in smaller Texas cities.

Much-copied Dick Hughes doesn't let a year go by without bringing out an improved house. This year the former NAHB president has introduced his new model earlier than usual.

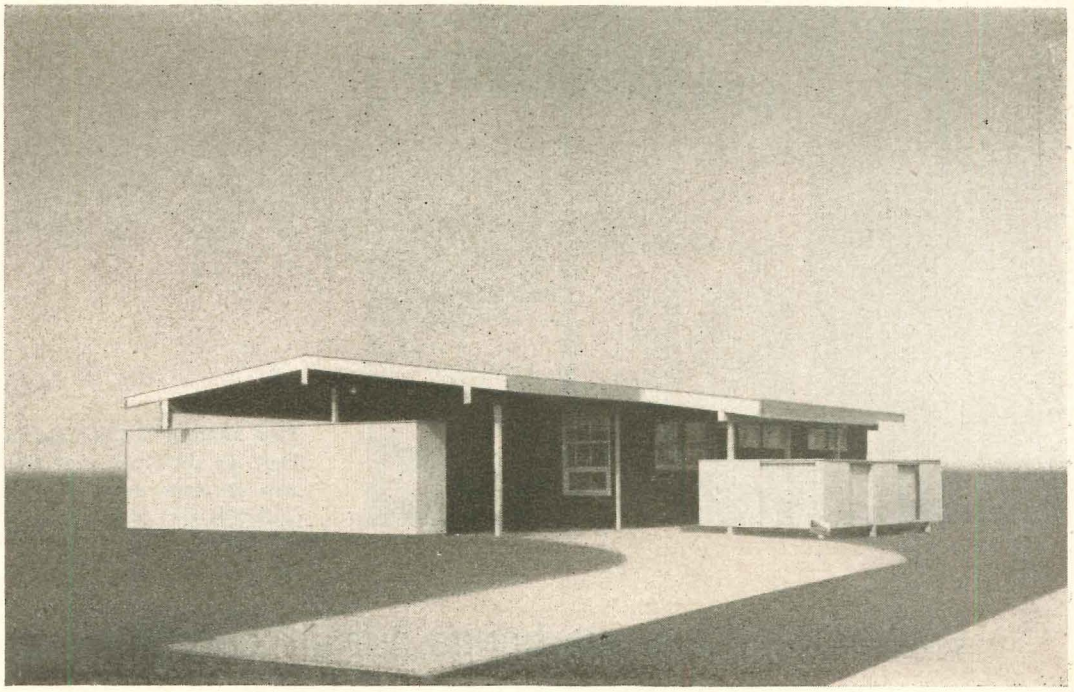
The Summit (shown above) is several ways better than any previous house built by Hughes. With 1,200 sq. ft. of floor space, it includes all the attributes of earlier models—open planning, low-pitched roofs and sloped ceilings, air conditioning and large glass areas. And it has some important improvements home owners will like (and other builders may adapt).

Hughes has 20 other new houses, all of which follow the Summit's basic floor plan. They range in size from 1,000 to 1,608 sq. ft. and in price from $10,200 to $17,500.

"If mortgage money is no tighter this year and prices don't rise too much, we'll have little trouble selling about 750 in Oklahoma and west Texas," Hughes says.



Basic plan is for 1,000 sq. ft.



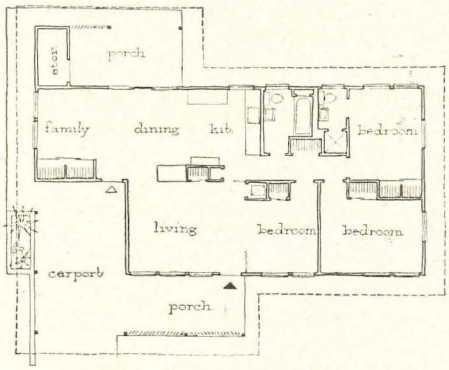
Here are three variations of the basic floor plan

Hughes' basic house (above) has minimum 1,000 sq. ft. floor plan, is an air-conditioned model, sells for $10,200 in Wichita Falls. It can be added to in 20 different ways.

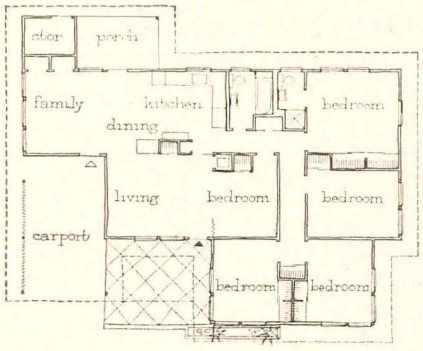
"Exact repetition of this 1,000 sq. ft. area in other models cuts labor and materials costs," says Hughes. "We can buy all items in larger quantities. All the houses are plumbed and wired alike."

Summit plan (left, and photo, opposite page) adds a 12′ x 12′ family room to the basic plan. The house sells for $15,900 on a $2,000 lot, includes air-conditioning and a completely equipped kitchen.

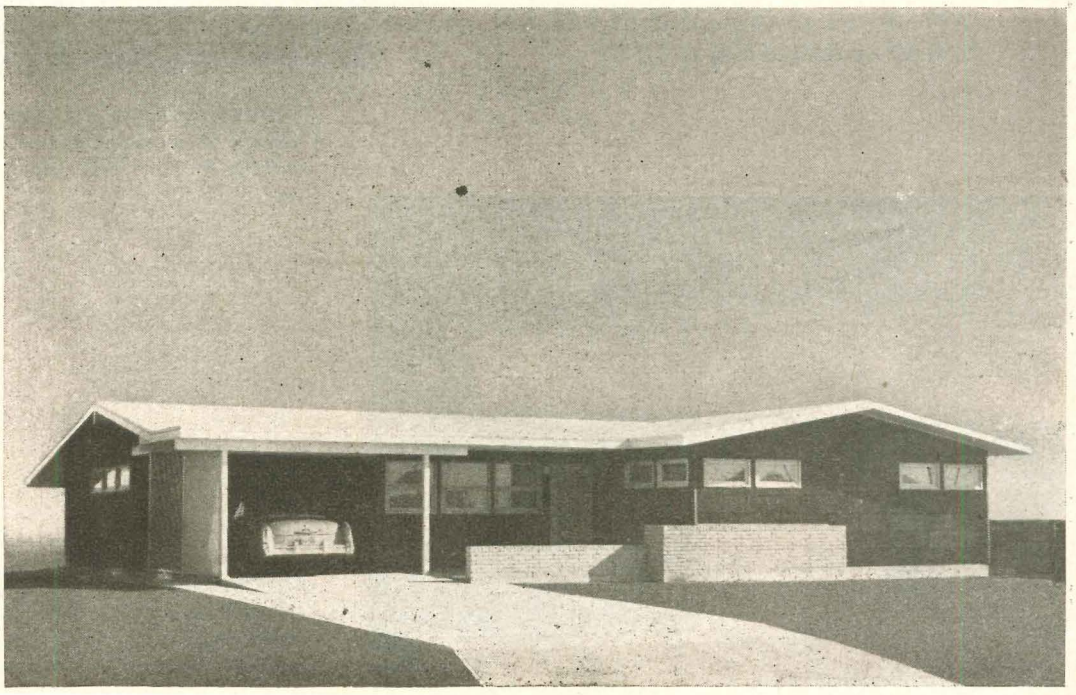
Largest model (photo and plan below) is 4′ wider and varies from basic plan by adding a wing with two bedrooms on the front of the house. Price: $17,500.

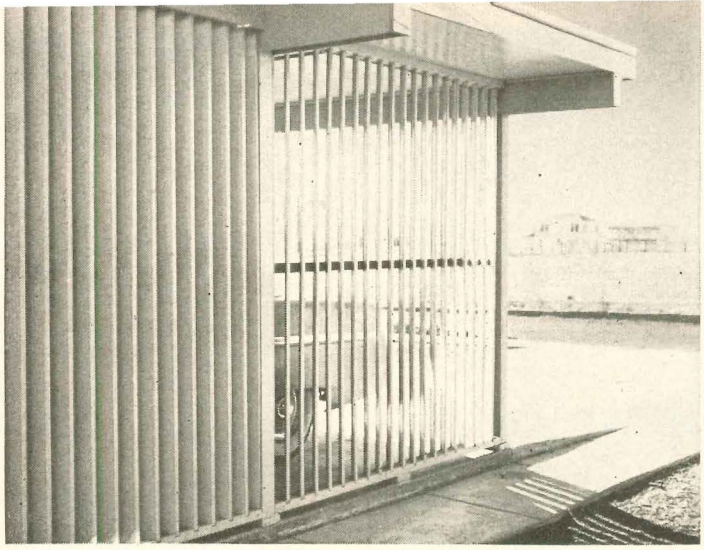


Summit model has 1,200 sq. ft.



Largest house totals 1,608 sq. ft.





Two sets of louvers face house at 45° angle. They do not block view from house, but stop view in from street. Vertical sun-and-shadow pattern is part of house design.

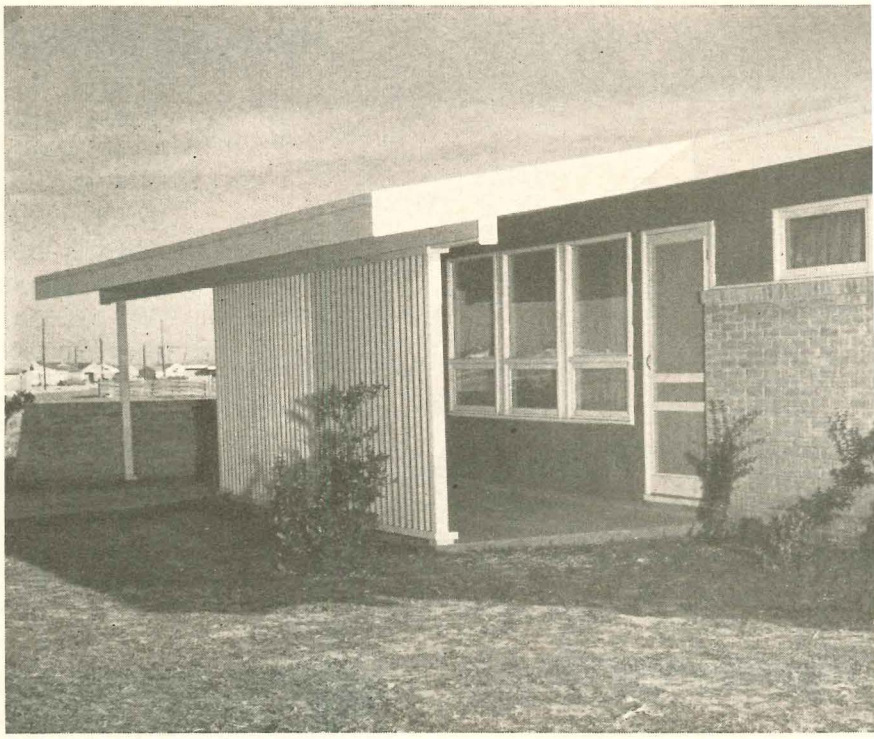
Louvers and big overhangs cut air conditioning costs

"We have the answer to the problem of window walls and air conditioning for the family with a tight budget," Dick Hughes says.

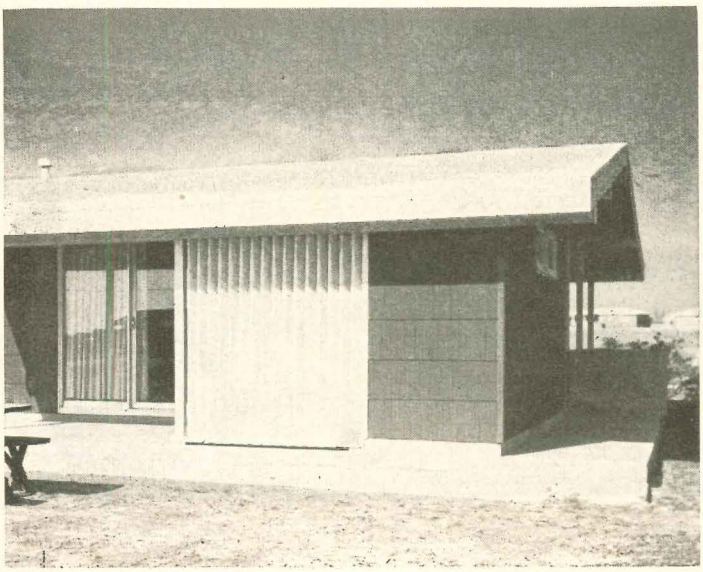
"I started an intensive campaign in 1951 for air conditioning in low cost houses. In 1952 I came up with a design that suited me in every way except that it provided almost no glass area, thus no indoor-outdoor living. Some say people don't want patios in our hot climate but I believe our buyers like and want patios if they can have them at the right price.

"The Summit is the answer. With louvers and 10½′ overhangs front and back, 2-ton air conditioners will do a perfect job despite the large glass areas. The sun never strikes the glass."

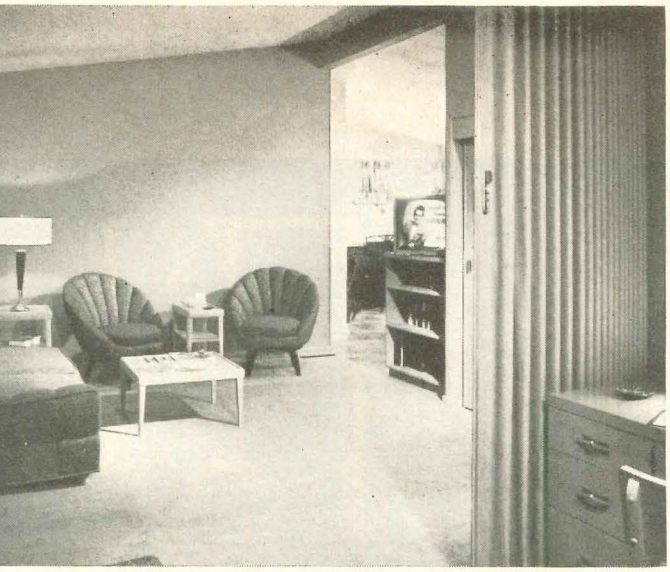
Cost of the louvers installed is about $76.80, cost of extra concrete and roof $38.50—a total of only $115.30.



Louvers and wide overhang have added advantage of providing extra living area, creating a sheltered front terrace that can be used good part of year.



Large glass area is shielded by louvers from sun heat and glare. This lessens strain on air conditioning unit during hottest weather and adds to the house's livability all year long.



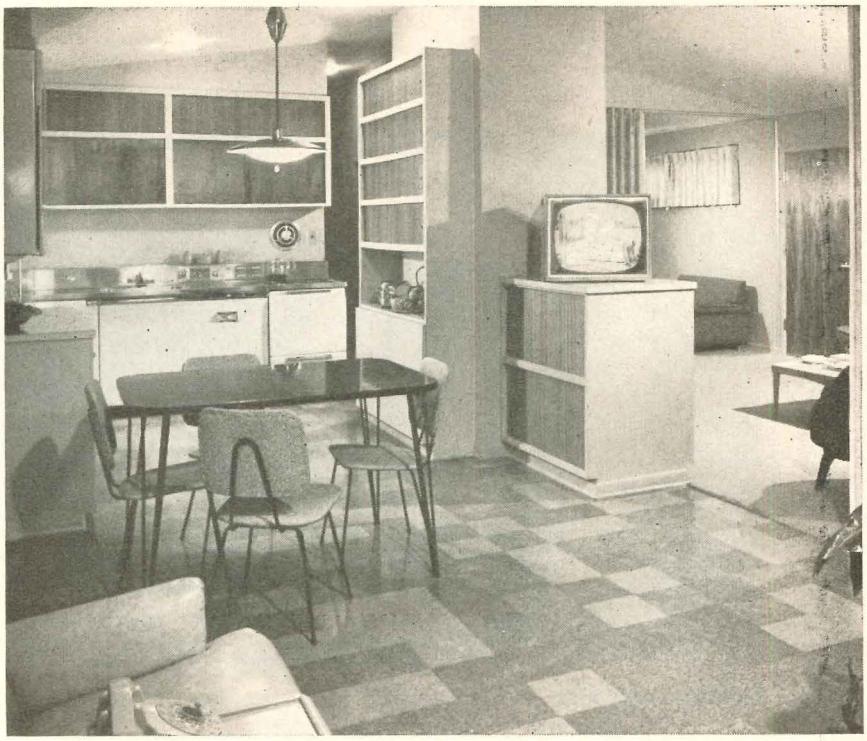
Open area flows from guest-study through living room toward family room, is good for entertaining. Folding doors separate study area when it is used as bedroom.

Nearly all buyers want the family room and air conditioning

A family room is easy to add to the basic house, makes the Summit and other expanded versions even more open in planning. And, Hughes finds, openness inside the house is what most of his buyers want today.

With 21 big and little models to choose from, buyers can take almost any size house with or without air conditioning or family room. About 90% want the family room, 80% the air conditioning.

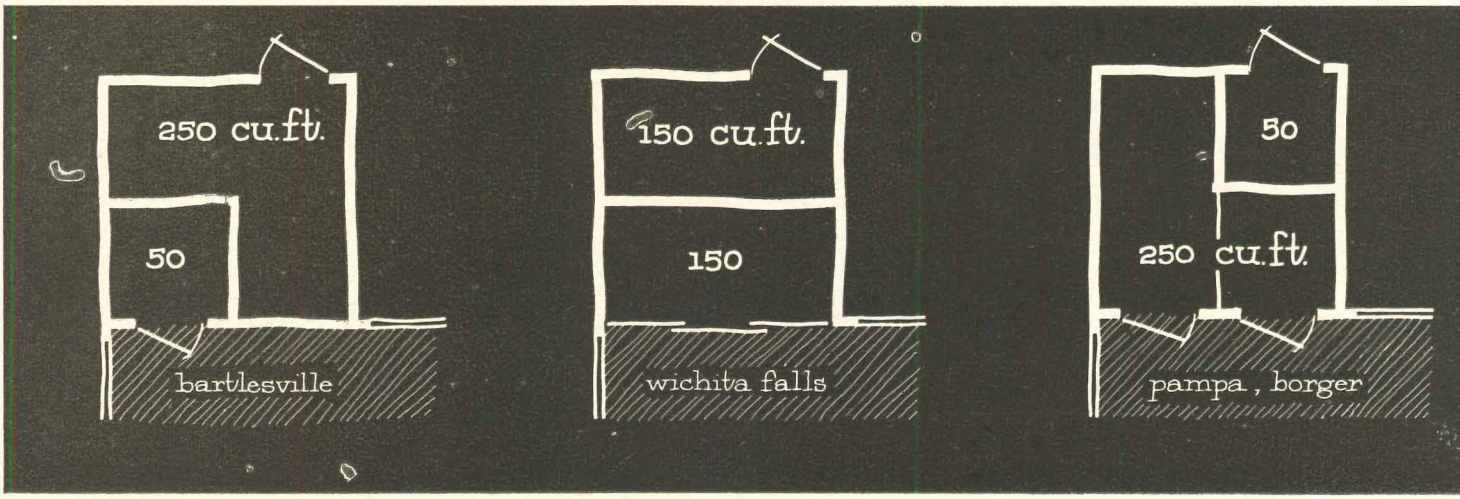
"Some buyers cannot afford models with both," says Hughes. "The family room adds $1,000 to their cost, air conditioning $800. When they can afford only one, most elect to take the added space (especially when they buy during the winter). However, 80% of our buyers take air conditioning, even though it is harder for them to qualify for loans because FHA requires $100 more income per month."



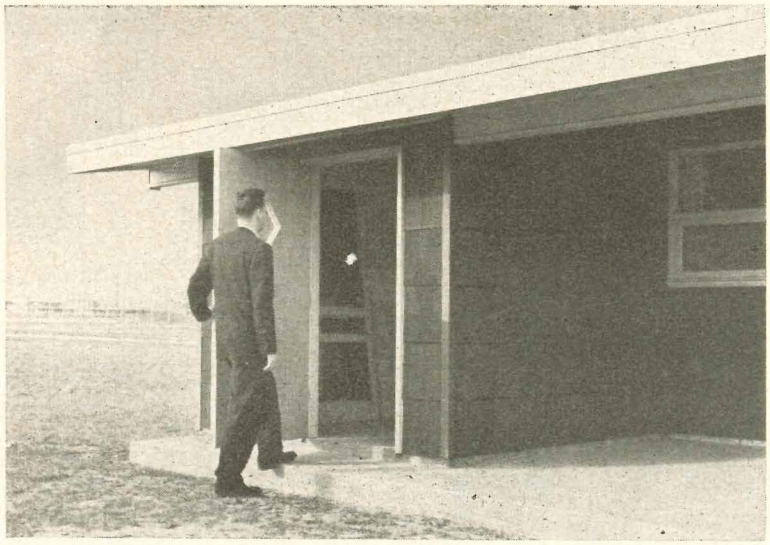
Built-in room divider separates family room from living area and holds TV set which can be viewed from both these rooms and from the kitchen as well.

Sliding glass doors open from dining room onto terrace created by louvers (see opposite page) make outdoor dining easy to manage. They are included in all models.

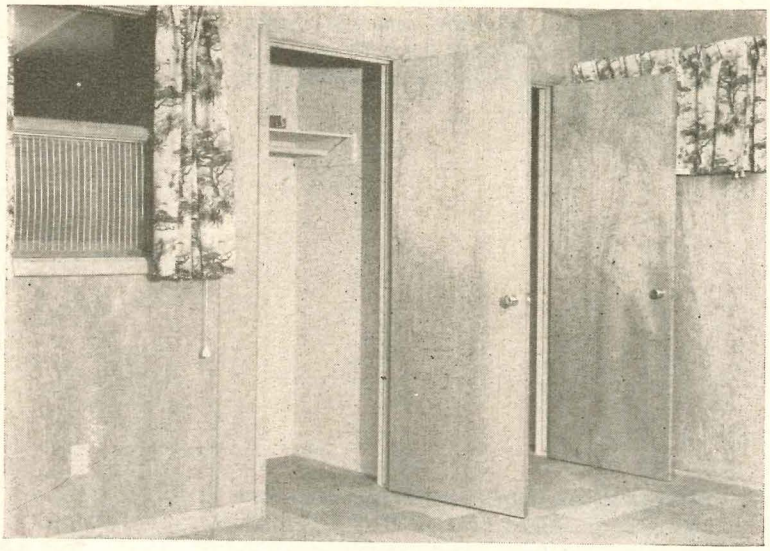
This is Hughes' ingenious solution to . . .



. . . the riddle of FHA's varying storage rules



Outside entrance to storage wing opens to area that varies in size according to local FHA requirements.



Adjacent closets in family room utilize balance of storage wing not required for outside storage space.

As almost any builder knows, local FHA offices sometimes contradict each other with conflicting rules.

Because Hughes builds in several different cities, he often finds it difficult to satisfy all requirements without modification of floor plans or changes in specifications.

For instance, nationally, FHA requires 300 cu. ft. of storage area, leaves up to the district offices how much must be outside and how much inside. In Bartlesville, Okla., FHA requires at least 250 cu. ft. that can be entered from the outside; in Wichita Falls, 150 cu. ft. must be outside storage and 150 inside; in Pampa and Borger, at least 250 cu. ft. must be inside storage space.

For a mobile builder who wants to build the same house in all three districts, this presents a problem. Hughes solved it this way:

In most models, he adds a small storage wing under the wide overhang at rear of house. It has about 300 cu. ft. of storage. All he has to do to meet the local ruling is adjust the partition inside the wing to suit the minima, fit the outside and inside doors accordingly.

"But VA is a bigger problem than FHA," Hughes says. "We want to get VA to recognize our costs for the wider overhangs and louvers. VA gives us no more for these houses than for houses without all the things we put in to make them better air-conditioned houses. We could build the same floor area for $1,500 less than this house costs."

Ulric Meisel-Dallas

Preassembled panels are delivered to building site as soon as foundations are set, so no time is lost in erection.

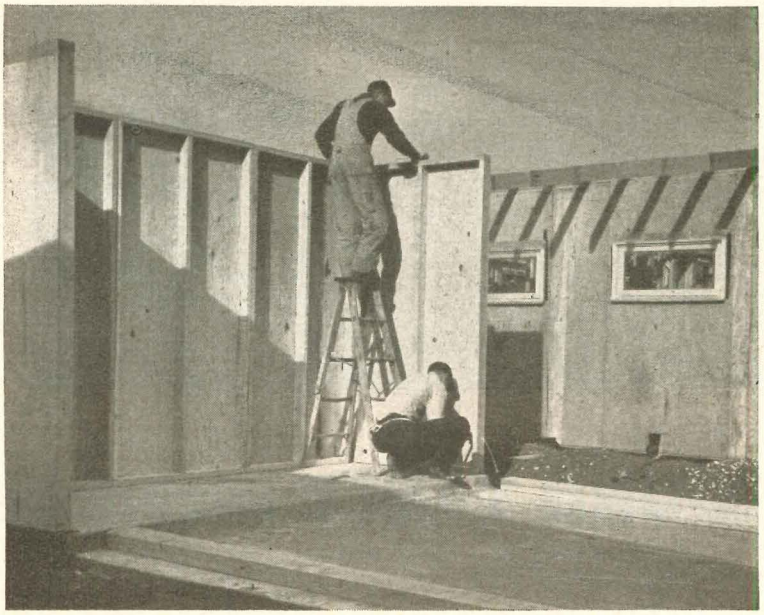
Hughes says:

"Panelized houses are more economical"

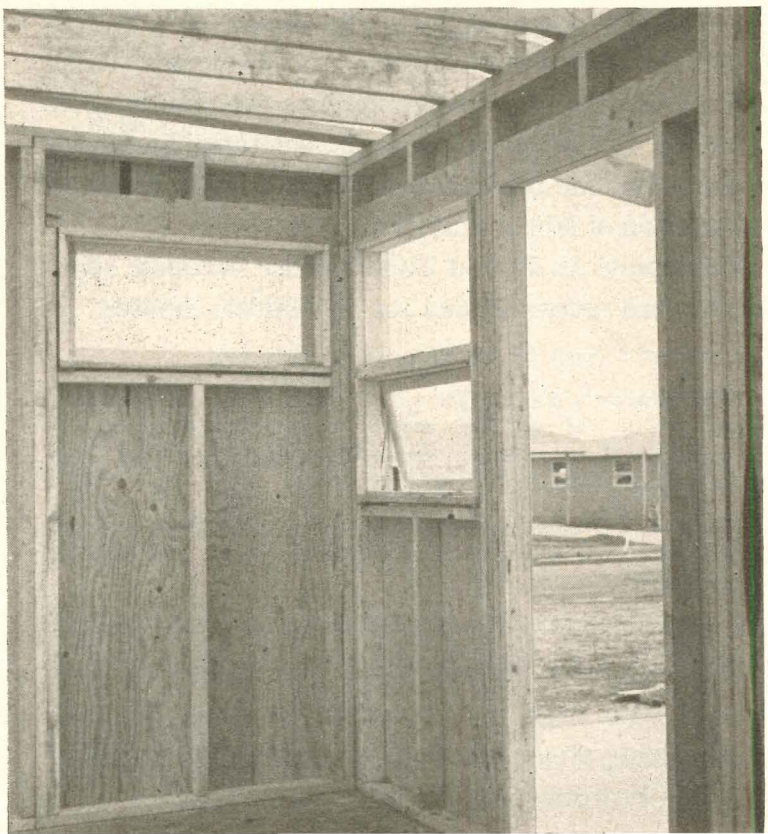
Hughes is convinced that the panel method of building exterior walls saves labor and materials. Hughes is also sold on panels because: "With the 4′ module method of increasing the size and number of bedrooms in our new model, we can meet almost any need of larger families in the medium-income bracket."

All panels in all houses are 4′ wide, with one exception: two 6′ panels are used along kitchen-bathroom wall to accommodate 6½′ wall-hung refrigerator.

Hughes is still experimenting with panels. In Bartlesville he uses US Steel Homes panels (a stress-skin insulated panel with a 2 x 3 framework with plywood glued and nailed). Hughes is testing the cost of these panels against the cost of his own, which have a 2 x 4 framework.



Five panels shown above were erected in a matter of minutes. All exterior panels are raised in one morning; roof is completed in one afternoon, so house is enclosed in one day.

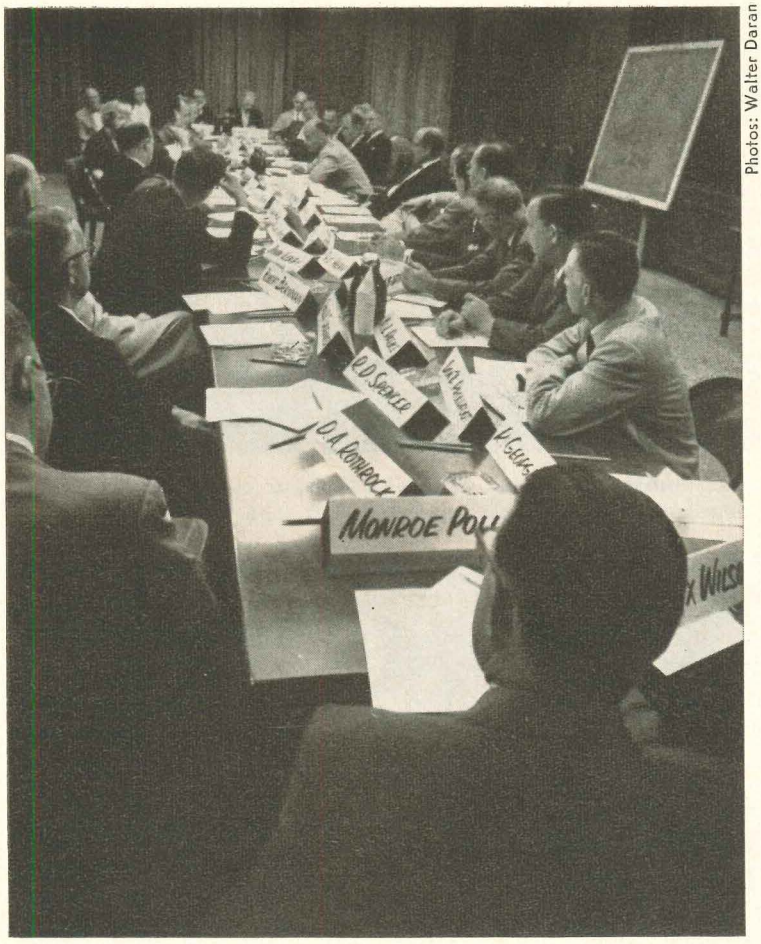


Other features Hughes offers in his models include:

Adequate wiring: 3-wire 100 amp. entry boxes, 220-v. service.

Insulation: 2″ thick in walls and 4″ in ceiling. This is better-than-average for northwest Texas.

Built-ins: Fold-down table in kitchens (cost to builder: $73.64), divider cabinet that serves as bookcase on one side, china cabinet on the other and TV set table on top ($43.30), double lavatory vanity in one bathroom ($56.80), single vanity in other ($23.60)./END



Photos: Walter Daran

ROUND TABLE recommends a module for bedrooms, living areas, built-ins

On the next seven pages is the report of a Round Table on standard dimensions for bedrooms, living areas, and built-ins. The conference was jointly sponsored by HOUSE & HOME, the American Standards Association, and the Research Institute of the National Association of Home Builders.

Four previous Round Tables under the same sponsorship had recommended for all builders' houses:

1. A standard 8′ height for flat ceilings (H&H, April 55).

2. Three standard window heights—3′, 4′, and 6′—six standard window widths—24″, 32″, 48″, 64″, 80″, and 96″; two standard door heights—6′8″ and 7′—and three standard door widths—24″, 32″, and 36″, with all doors framed ceiling high (H&H, June '55) .

3. A standard 32″ bathroom module with a 16″ half module, to permit floor-to-ceiling wall panels, wall-to-wall ceiling panels, and standard plumbing templets (H&H, Aug. 55).

4. A standard 2′ module for built-in kitchen planning (H&H, Sept. '55).

Now this fifth Round Table has agreed on a 4′ module with even foot fractional modules for bedrooms, living areas, and built-ins, and a standard 3′4″ width for bedroom halls.

The panel

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Building Research Advisory Board
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Small Homes Council, University of Illinois
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Lumber Dealers' Research Council
RAYMON H. HARRELL, *research director*
Lumber Dealers' Research Council

Our basic recommendation for bedroom and living room dimensions:

Standardize and coodinate on a 4′ module and its even-foot fractions

Round table report:

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HOUSE & HOME

Most rooms in most builders' houses are the wrong size.

They are the wrong size if the builder wants to build economically without wasting costly material and high priced labor to cut, fit, and piece everything together at the site.

They are the wrong size for two reasons:

1. Few builders have ever given much thought to what room dimensions will cost least.

2. Even those few usually stop their thinking with the joist length. They size their rooms to make full use of the 2″x10″'s in the ceiling. That makes it almost sure they will waste money on almost everything else that goes into the room, for the lumber mills still dimension our lumber to lengths that will not work economically with any other components.

Two earlier Round Tables have recommended that bathroom dimensions should be standardized on a 32″ module and kitchen dimensions on a 24″ module.

Now we have satisfied ourselves that for sleeping and living rooms a 4′ module requires the least change in standard dimensions of any home building component except framing lumber *(see p. 165).*

We have satisfied ourselves that it will work well with any of the four overall widths on which the builder's house seems to be standardizing rapidly (24′, 26′, 28′, and 32′ inside measurement) *(see p. 166).*

We have also satisfied ourselves that it will work not only with today's house but also with many of the new requirements of tomorrow's house, such as more provision for storage *(see p. 168),* much more use of built-ins *(see p. 169),* and much more acoustical treatment *(see p. 169).*

But changing room sizes to the 4′ module* is not the only change we must make to realize the economy of using parts instead of pieces and the space-economy of using built-ins.

We must also change our age-old attitude toward dimensional sloppiness *(see p. 164)*

We must learn to concentrate our slippage in one place, and the logical place to concentrate it is the bedroom hall.

Foot for foot this hallway is the most expensive space in the house to build because of its many doors.

It is high time to develop bedroom hall packages which would incorporate most of the doors into prefabricated door-and-wall combinations *(see p. 167).*

**We recognize 4″ as the necessary starting point for all modular coordination, but it should be easy to see that a larger module is needed for larger components. For example: 11′8″ is on the 4″ module, but it is more wasteful of 12′ carpeting, 6′ linoleum, or 4″ dry wall than 11′9″.*

Leary: We know how important standardization is.

Shoemaker: Builders and architects could design to 16′ panels.

Cole: We make 53 components. Only five are other than 4′.

Frost: The America Standards Associatio offers its facilities.

We need new and changed thinking to get economy of using parts instead of pieces

We must learn to think in terms of a components industry to make the parts and an assembly line industry to put those parts together. That means:

Manufacturers must stop thinking of themselves as suppliers of materials to be cut to size at the site

They must learn to think of themselves as makers of components intelligently predimensioned to look right together and go together with a minimum of cutting and piecing on the builder's assembly line.

The prefabricators, who have the most experience with coordinated components, could tap a second and perhaps bigger market if they would sell some of the components they make separately. The customers among us are unanimous in wishing more prefabricators would decide to do so.

Builders assembling predimensioned components must learn to work to much closer tolerances

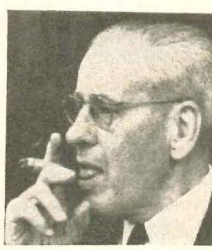
We realize that home building can never be a precision industry like watches or cars; we realize that many of our materials shrink and swell.

But the less parts we have to assemble the less inaccuracy we need allow for. The more accurately we build, the better use we can make of predimensioned parts. If the prefabricators can work to ¼″ tolerance in 40′, conventional builders cannot afford to go on accepting the 1″ in 25′ error we have so long taken for granted.

Smith: Let's see if we can't exhibit collectively the intelligence we have individually.

Slipher: The question is, which came first—the hen or the egg?

Claxton: Manufacturers here can meet any of these proposed modules.



Morgan: Standardiza tion permits large runs and smaller in ventories.

Lumber is the only important material that must be redimensioned to fit our room modules

that end we urge an early meet- with the lumber producers at ch architects, lumber dealers, and ne builders can explain why today's ıensions no longer fit today's needs. Five years have passed since HOUSE HOME's first Round Table on Waste Building first called attention to waste enforced upon our industry wrong lumber sizes. Five years ve passed since AIA and NAHB, ough their collaborative committees, t called upon the lumber industry help us end this waste.

In these six years more and more uses have standardized on dimen- ns for which present standard lum- r lengths are wrong and wasteful.

hat we need from the lumber dustry is:

A stud length that will work with- t waste with the 8′ flat ceiling height hich is rapidly becoming standard for builders' houses from coast to coast. his stud length should be not more an 7′8″. It will be 7′4″ when, as d if the double 2″ x 6″ header is nerally adopted, as we believe it ould be. (The double 2″ x 6″ header rmits uniform framing over most openings, whereas the double 2′ x 4′ header must be reinforced at every window and door.)

2. A joist length standard 8″ longer than the room size module; i.e., a 12′ room such as we recommend calls for a 12′8″ joist. Today the average builder gets his 12′8″ joist for a 12′ room by cutting 16″ off a 14′ length.

3. Perhaps a new stud 3¼″ deep instead of 3⅝″ deep to put partition thickness (with ⅜″ wall board on either side) on the 4″ module.

Two big developments are lessening our industry's dependence on lumber as a basic structural material:

1. The trend to open planning and bigger glass areas, both of which tend to concentrate loads and so lessen the economy of stud framing (i.e., the economy of framing with many small pieces instead of fewer larger pieces).

2. Dimensional standardization, which makes it much less important to use a framing material that can be cut to fit at the site.

The metal manufacturers among us are all well aware that concentrated loads and coordinated dimensional standardization offer them a far better chance to increase their sales in the home building market. The lumber mills can no longer afford to weaken their competitive position by forcing upon our industry dimensional standards that add millions of needless dollars to our lumber freight bill and give us the choice of wasting millions of dollars worth of lumber or millions of dollars worth of other materials.

Hard surface flooring is made on machines 6′ wide, so we can see no manufacturing reason for the present 9″ x 9″ size of most floor tile or the present 18″ repeat found in so much of today's designs. No machinery change would be required by the even foot module we recommend, which would call for design on a 12″ or 24″ repeat and tile cut 12″ x 12″.

These bigger tiles would involve bigger waste if they had to be re-cut to fit an odd-sized room, but this will no longer be a problem if room and tile are both dimensioned to the even foot; and the bigger tile should be easier and therefore cheaper to lay. Above 12″ x 12″ we would run into a breakage problem on asphalt tile.

Module will work with acoustical ceilings

coustical ceilings should be dimen- oned to work with the module that recommend.

The manufacturers are working to velop squares larger than 24″ x 24″ at would be dimensionally stable, but we question our need of bigger pieces, for the bigger the piece the more difficult the visual problem of the joint.

With 8′ ceilings it is imperative to use a random pattern.

Appliances, radio, television, and children are making today's house so noisy that most rooms need better acoustical treatment both to reduce sound transmission and improve sound absorption.

l: Somebody will cover some paper some inexpensive er to protect floors.

Herr: A chance to get together and start something that is very much overdue.

Harrell: We have had exceptionally good luck with the open room technique.

Proudfoot: What can be done to convince FHA that sound-conditioning adds value?

Bedroom hall can be the modular cushion

Some rooms have to fall off the 4′ module and even off the 1′ fractional module, because we must always allow for partitions and we need more partitions in some parts of the house than we need in others.

That makes it fortunate that the bedroom hall can best be an intermediate width:

> A hall 3′ wide is a little too narrow; 4′ is wider than we need; but 3′4″ is a good bedroom hall width.
>
> **A hall 3′4″ wide** will just about incorporate the partition on either side within a 4′ module.

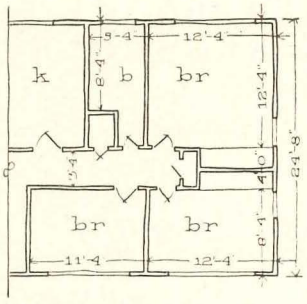
So in a 24′ house you get one room 12′ deep and one room 8′ deep on either side of a 3′4″ hall. In a 28′ house you get two rooms 12′ deep on either side or on one side you can have an inside and an outside bath 5′ wide with an 8″ wet wall between and a 16″ linen closet off the hall. In a 32′ home you could add a 2′ closet depth on either side, (two 2′ closets give a lot more usable storage than one 4′ closet).

Beyond the ends of the bedroom hall the room on one side of the house or the other will probably have an across-the-house dimension off the even-foot module. If conventional closets are used this can be avoided only by making the closet deeper than usual (i.e., 3′ including the partitions). If storage walls are used it can be avoided only by making the storage wall shallower than usual (i.e., 2′ at the floor line, with toe space under the greater depth needed above).

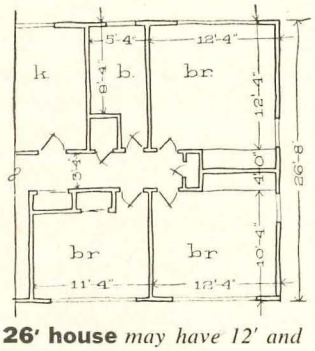
Hold to module

Much of the saving of modular planning can be retained if one room dimension is kept on the module, preferably the full 4′ module. For example, a room 12′ x 10′4″ can use the full manufacturing width of either carpet or hard surface floor covering, just cutting off a shorter length.

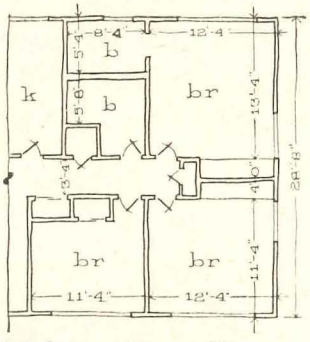
It was easy to agree on 4′ as the basic room module. It was not so easy to agree that the fractional increment should be in even feet instead of conforming to the 16″ increment of most stud spacing—an increment accepted



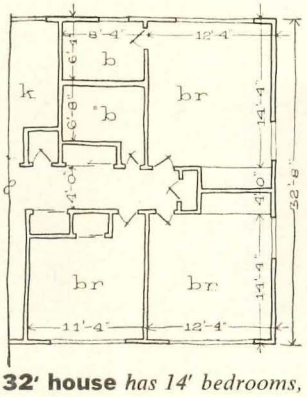
24′ house *has a 12′ and an 8′ bedroom on each side a 3′4″ hall*



26′ house *may have 12′ and 10′ wide bedrooms and deeper bathroom*



28′ house *has two 12′ rooms or 13′ and 11′ rooms, second bath*



32′ house *has 14′ bedrooms, larger baths, wider hall and closets*

by two earlier Round Tables as t
modular basis for standardizing wi
dow widths and bathroom dimensio

**Our reasons for deciding to recor
mend even-foot fractions were:**

1. The even-foot fractions work be
with the more expensive materials us
in a room. It costs a lot less to waste
stud than to waste a 4″ strip of carpe

2. The framing of outside wall is a
most completely independent of tl
room sizes. It is affected only where a
interior partition abuts, which is on
at six points in the average builder
house. By placing the extra stud r
quired as a nailer at these six poin
either 4″ to the right or 4″ to the lef
the even-foot fractional module ca
usually be made to work just as ec
nomically with the exterior wall fram
ing as a 16″ fractional module woul
work (i.e., it would require an extr
stud at 10′ and 14′, but not at 7′, 8′, 9
11′, 12′, 13′, 15′, 16′, or 17′ roo
width).

3. Stud spacing on interior partitio
is apt to be thrown off the 16″ rhythm
by nonconforming door openings. An
interior stud spacing will grow less im
portant as more storage units are use
to do double duty as partitions and a
the increasing efficiency and econom
of roof trusses makes load bearing pa
titions obsolete.

**The easy way to lower our sq. f
costs** is to make our rooms bigge
for a bigger room needs no more co
ners and openings than a small on
and those are the expensive items.

**The cheapest way to make you
rooms bigger** is to enlarge them
the module, for that saves you the ma
terial that gets cut away and waste
for an off-module dimension and
saves you the labor cost of that nee
less cutting and fitting.

A room 8 x 12 is 10% bigger tha
a room 7′8″ x 11′8″, but it should co
less because it wastes less. FHA
raising its minimum room sizes, so th
is a good time to think about ho
to make them bigger for less.

Why is the bedroom hall so expensive?

New York Times

sson: Taking a door el and making the a transom has n used in schools.

The bedroom hall is much more expensive to build than most people realize, for it averages five to seven doors of varying widths, from 24″ to 32″ wide. None of these doors fits any other module. All these doors now require special framing.

It is high time to do something about this cost. To that end we suggest:

1. Door assemblies should be built 8′—ceiling high, instead of stopping at 6′8″ or 7″ and leaving the space above to be filled in by the on-site carpenter. With flush doors one good way to do this is to buy an 8′ door which could either 1) open ceiling high for better circulation or 2) be cut off at the top to make a stationary transom.

Where the hall ceiling is dropped for air conditioning such a transom could include a grille.

2. The walls of the bedroom hall should be framed with a double 2′ x 6′ header, so no special framing will be needed over any opening.

3. Some smart door manufacturer could get a lot more sales by incorporating two, three or four doors in a single floor-to-ceiling assembly.

Study will show that three or four such combinations designed for a for a 3′4″ hall and double 2′x6′ framing under an 8′ ceiling would meet all the needs of most builders' houses, most of which concentrate several 30″ bedroom doors, a 24″ bathroom door, and a 24″ linen closet door right together at the far end of the hall. (See plans alongside for possible combination.) Some of the doors incorporated in these combination units could be sliding or folding doors, which offer the very real advantage of needing no floor space to open in.

Two door widths are ample for all our needs—a 24″ door for bathrooms and other tight spaces, a 32″ door for all other uses.

rick: A 12″ x 12″ halt tile would not a major problem.

What do you do with the joints?

ox: Compensation error depends on number of units t must be assembled.

Building with parts instead of pieces is bound to make more serious the problem of what to do about the joints. Here are four suggestions from the architects among us:

1. Contemporary design shows a strong trend towards making panelization a design plus (instead of something to hide).

2. Joints are not disturbing if they are close enough together so that the eye sees two or more at the same time. For example, plywoods grooved to simulate joints every 8″ or 12″ are very popular.

3. The joint problem is most serious in the ceiling, where the light and the large plane surfaces commonly used will show up even the best taped joint.

4. The joint problem is magnified by smooth surfaces, minimized by speckled finishes, travertine patterns, random patterns, or striations, all of which divert the eye.

lock: You're wrong you think you will 50″ plywood at a ' price.

Lendrum: Joints close enough so you can see two at a time are all right.

Koch: Prefabrication is an advantage, not something to conceal.

Young: FHA bedroom size minima are being raised.

Johnson: People have been sold so many goods that they can't afford to buy the space to store them!

Demarest: One problem is making up inaccuracies in construction, another is making up leftovers in planning.

Highland: Your deeper house is predicated on using the interior laundry, second bath, storage, McGee closet.

Pollman: The FHA 30″ linen closet is a mean one to work with.

Parke: In a 10′ bedroom there should be 10′ of closet space. There are only two purposes for a house. One, to protect people from the elements and the other, to take care of their belongings.

Weist: You couldn't tell the difference in labor cost between a house 28′ x 32′ and a house 28′ x 36′.

Wilson: On that one modular job the contractor made 28% net profit.

More storage space is the No. 1 need of today's small house

A home is not just a place to shelter people. It is also a place where people can keep and enjoy their belongings.

Americans are becoming a nation of captive consumers, taught by advertisers to use their rising incomes to buy more and more things they have no place to put.

Yesterday's house offered ample if inconvenient storage in cellar and attic. Tomorrow's house must provide ground floor storage for far more purchases than people could ever before afford. FHA storage minima are now obsolete, and there is real danger that houses built to those minima will become obsolete too.

Only part of the need for more storage can be met by more use of built-ins with their fuller use of space. Most of the need must be met by leaving aside more room for storage

That is one big reason for building houses 32′ deep instead of 28′, for this is the cheapest way to make a house bigger, and every foot of the added interior space is needed for storage.

If people keep on buying at the present rate we shall soon need to set aside 9% of our floor area for planned interior storage, with another 9% outside. People buy so many changes of clothes that 10 lin.ft. of closet is none too much for a bedroom. Children get so many toys and games that nursery shelf space, preferably shallow and running to the floor, would have quick sales appeal. And every house needs one big McGee closet to store all the new odds and ends that have no other place.

The dimensions we recommend offer a module to which more built-ins can be planned

Almost everybody has learned to want built-ins in the kitchen. These could be an equally popular selling tool for other rooms as well, *for they offer many advantages:*

1. Built-ins can be planned to make full use of every inch from wall to wall and floor to ceiling. Free-standing furniture wastes space below, above, and on either side.

2. Built-ins make housework easier. There is no need to sweep and dust underneath or between them.

3. Built-ins waste no wall and flooring materials behind and below. A built-in bedroom needs only about half as much finished flooring and floor covering as the same room with movable furniture.

4. Built-ins can be covered by a package mortgage at low interest and 25 years to pay, whereas free-standing furniture must be sold on short term credit at 9.6% interest. FHA, VA, and all mortgage lenders should recognize in their minimum income requirements that young couples whose furniture is sold as part of the house can afford a much bigger loan than they could afford if they had to pay as much each month on their furniture installment as they pay on the mortgage.

5. Built-ins make it easy to plan much better storage. For example, space now wasted under beds can be used for drawers big enough to hold all the winter blankets or all the summer clothes. Storage walls can be planned with (a) drawers at eye level, (b) hanging space below, only 36″ high for coats and jackets, only 48″ high for trousers or skirts, (c) dead storage all the way to the ceiling.

The average family moves every five years, often to distant states. The less furniture it has to move the better.

Many of us believe storage walls need more than 24″ inside depth. Store display cabinets are 28″ deep to avoid wear on sleeves, and some of us would recommend 28″ for home use too. This will usually allow some hook space in the rear for miscellaneous items that do not go on hangers.

Where the storage wall does double duty as the partition along the bedroom hall (and this is the best place for storage, since it uses no perimeter), its modular depth would be 28″ (i.e., 24″ plus 4″ for the partition replaced).

But the depth of the storage wall usually affects the module only at the floor, so we recommend that at the floor storage walls should be alternatively 24″ or 28″ deep, with toe space under any greater depth above.

We believe the time will come when built-in bureaus, dressing tables and perhaps beds will be as much a matter of course as built-in bookcases

Not so long ago people used to move their clothes closets (then called wardrobes) from house to house with them, and that quaint custom still prevails in Europe.

Built-ins will catch on first with young couples who have not yet bought a lot of free-standing furniture. With second time buyers they will catch on first in the family room whose furniture is not yet conventionalized.

We hope the furniture manufacturers will decide that built-ins are not a threat to their future, but a fine new opportunity to sell furniture by the houseful on 25-year credit; i.e., to sell better furniture than people can afford on short-term credit.

Brannan: Built-in drawers save a lot of floor space.

Bartling: In a 1,200 sq. ft. house, all but four of five components would be 48″.

Sheick: These Round Tables are doing a remarkable thing for home building.

McConville: If it is cheaper why don't more builders cut closets ceiling high?

Center chimney *is characteristic touch of this Cape Code designed by Architect Royal Barry Wills, famed for authentic colonial designs*

HOW A 12-HOUSE BUILDER USES AN ARCHITECT

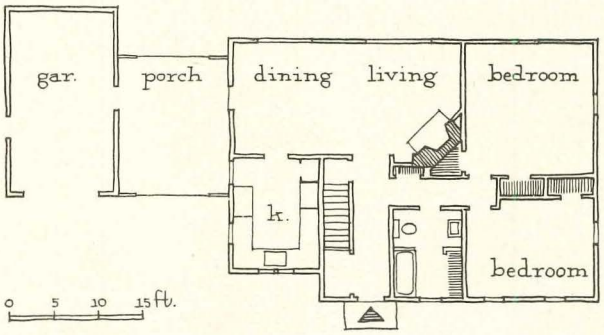
"It pays to have a top-flight architect design your houses even if you build only a dozen a year and all are so-called 'safe' colonial designs."

That is the experience of Builder Alan Balfour of Portland, Me. He finds that "Colonials need an expert's touch, as much as other houses do—and that touch will result in better FHA appraisals and faster sales."

Balfour's houses are designed by Royal Barry Wills, and associates Merton S. Barrow and Robert E. Minot. For an hourly fee, Wills first makes a rough front elevation and floor plan from the buyer's sketch, later sends finished plan and elevations to the builder.

"Any small builder can find an architect who will work with him on a reasonable cost basis," Balfour insists. "The builder who says he can't do this probably has not had the courage to talk to local architects and work out something that is practical."

Builder Balfour last year built 12 houses in his wooded subdivision in Cape Elizabeth, Me., just outside Portland. They sold for $18,000 to $25,000 on half-acre lots. Balfour, who has other business interests, expects to break through the 12-house-a-year barrier soon when he adds a top assistant. Currently, three out of four of his new houses are two-story.

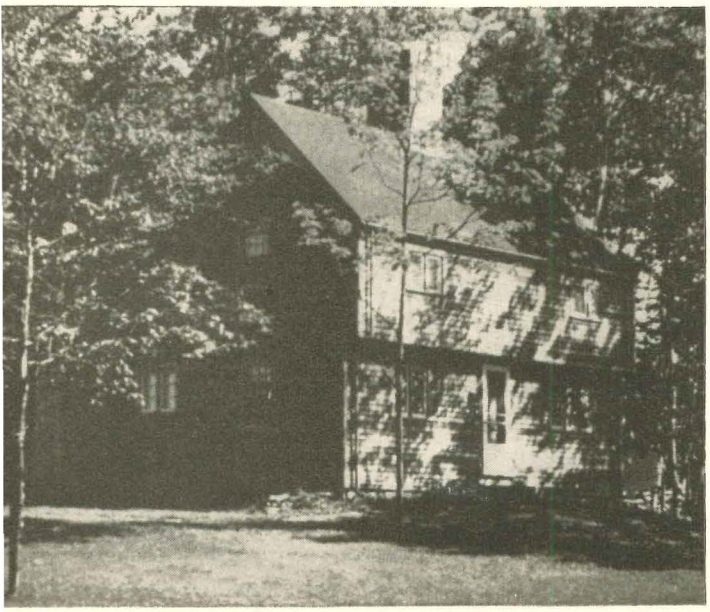


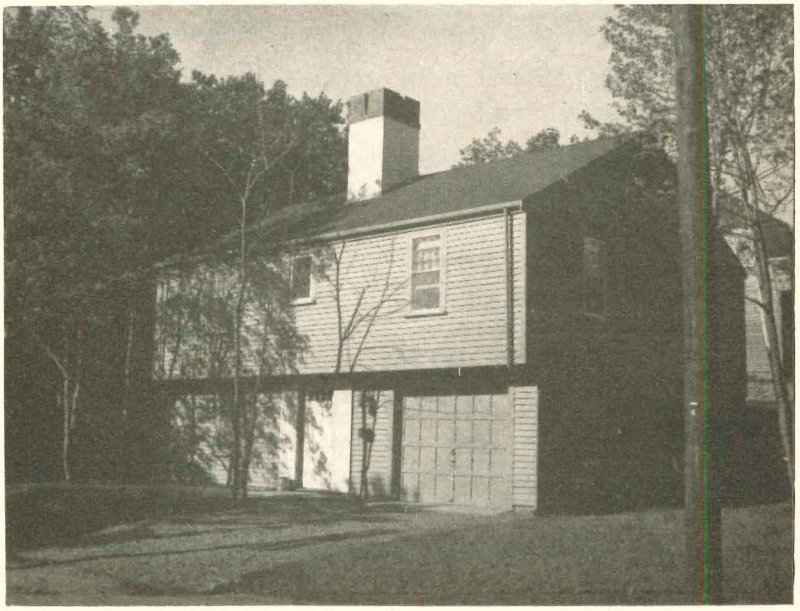
One-story houses *built last year include a Cape Cod (opposite page and floor plan above) and one with lower roof pitch (right above). Each reflects Architect Wills' close adherence to basic principles of colonial style.*

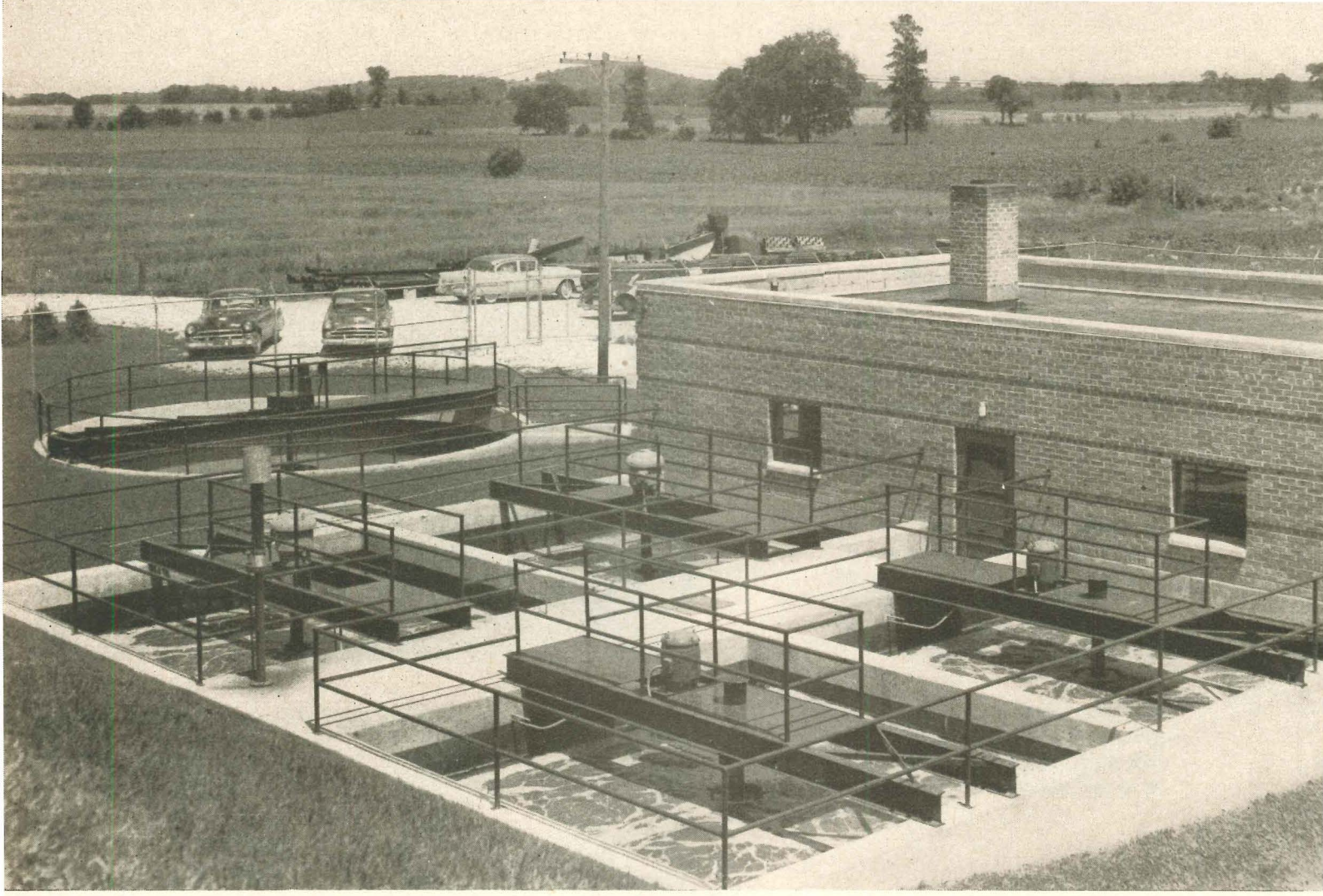
Two-story house *(right center) has its front entrance midway between the two levels, the first of which nestles 4' in the ground.*

Salt box house *(below left) is strictly traditional with its natural wood siding.*

Hillside house *(below right) has main living area on the top floor and a patio, not shown, off living room.*







This large sewage plant *serving 10,000 people in New Holstein, Wis. was built for $126,000, or $50 a family. It works on same principle as used in small plant diagrammed on opposite page.*

WHY NOT USE SEWAGE TREATMENT PLANTS?

New evidence shows they are feasible even for smaller builders

Before you pass up buying that land where septic tanks won't work and sewer lines are not available, before you go ahead with plans to put septic tanks on land you own or plan to buy, think hard about these facts:

- Sewage treatment plants are sometimes cheaper than septic tanks, even for fewer than 50 houses.
- Hundreds of developers who have built sewage treatment plants in recent years have found many new ways of getting their money back. Sometimes they recover their investment as soon as the plants are built.
- FHA last December made it easier for builders to get their sewage systems approved and get their money back once the plants are built.
- FHA will soon come out with much more stringent requirements for septic tanks, and state and local governments are making it tougher and tougher to put in septic tanks in almost every part of the country.
- New sewage treatment systems have been developed that greatly cut costs, meet a wider variety of needs.

In nearly every large market in the US, the movement to the suburbs has by-passed acreage suitable for home building in all respects save that of sewage disposal. Sometimes the ground has not been suitable for septic tanks; sometimes existing city sewers have been too far away, too overloaded or unavailable for various other reasons. In many such cases, these tracts can be purchased and a community treatment plant built to serve a few dozen or a few hundred houses at an entirely feasible cost.

Complete sewage treatment plants and collection lines can often be built for as little as $250 a house although they may in some cases run as high as $900. The cost depends largely on the kind of plant designed, the number of houses connected, the terrain and widths of lots, and the degree of purification required.

What the approximate cost will be for a given situation is not so hard to find out as builders and land developers might suppose. True, there is no price list or set formula a builder can look at to find the costs of the plant, the central mains, the manholes and the

laterals to each house. But any builder smart enough to solve his other complex home building problems can determine the costs of a sewage system relatively quickly—and right within his own locality. To figure your costs—and the chances of putting in a sewage plant—here are some initial steps to take:

1. Get advice from the state board of health

Nearly all state boards of health are staffed with competent personnel who can explain requirements for sewerage systems. They can tell you which engineers have had the most experience designing the systems.

2. Consult a sanitary engineer

Always do this. For a small fee of perhaps $200 a local sanitary engineer will find out the size of plant you need and get your tentative plans approved by the state board of health. Even if you expect to buy a "packaged" plant from one manufacturer, your state board of health will require approval of the design by an engineer licensed in your state.

3. Get advice from the FHA

FHA now has 19 sanitary engineers in the field, "enough to pretty well serve subdividers adequately." Make sure you understand FHA's policy on safeguards assuring continuity of operations, and whether or not the agency will reflect some of your sewerage costs in commitments on your houses. James R. Simpson, FHA's chief of sanitation, points out that "the only formula FHA can have in this matter, as in others affecting appraisals, is how much more the local market will pay for sewerage. In some areas where there has been little publicity of septic tank troubles, sewerage may be worth no more; in others it will be worth several hundred dollars more."

FHA will not approve a second-rate sewage system to avoid septic tanks. Nor will it approve any sewage plant unless assured that the plant will be operated by a proper trustee if anything goes wrong. Yet the agency recently took steps (in Letter 1574, issued Dec. 14, 1955) to permit builders to get back their investment in sewage treatment plants through trust arrangements. Under these, which may now be approved locally, the builder may collect his money for the plant through periodic charges to homeowners.

4. Buy all your machinery from one manufacturer

Most sewage treatment plants can be built with equipment provided by a single manufacturer. This is preferable because it gives you one source of responsibility in case the system breaks down. (Some sanitary engineers tend to specify equipment from several companies in order to avoid the charge of playing favorites.)

5. Make sure you have a stream nearby in which to discharge effluent from the sewage plant

Even a dry stream bed will suffice in most states, but this may not be available. Your state board of health comes into the picture whenever the effluent flows into the general water shed. It is not often possible to pond the effluent on acreage you own. Nor is this advisable: not only does it take up costly land but you will find it hard to convince the public that the treated effluent is almost as pure as any other water.

6. Be prepared for a long wait

A large sewage plant can be built in three or four months, but often it takes six months or a year to obtain local, state and federal FHA and VA approval.

As a rule of thumb, the treatment plant alone will cost a little less than half the total cost of the complete sewage system. Mains, manholes, laterals and engineering fees probably will cost more than the plant. These latter costs may be written off as part of other land development expenses if, as is usually the case, they are reflected in higher land values and higher house appraisals.

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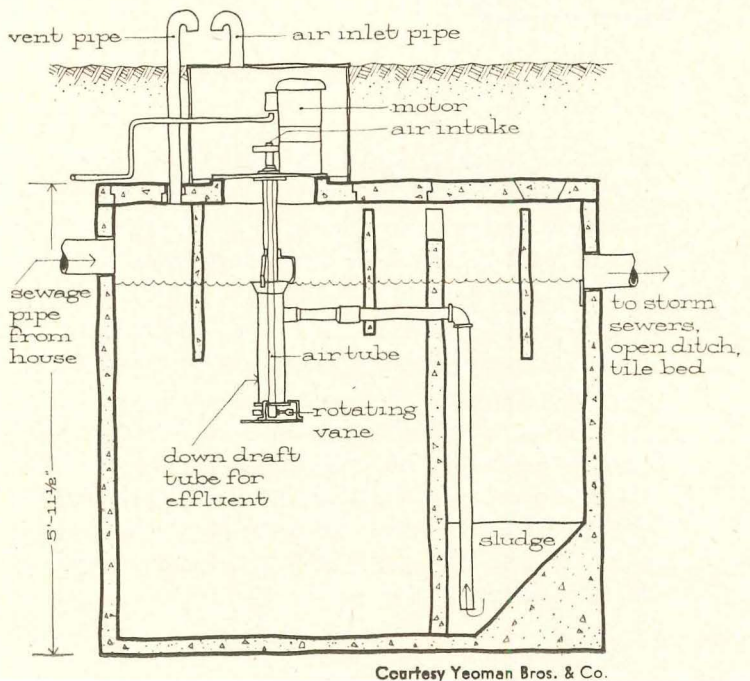


Courtesy Yeoman Bros. & Co.

Here's a one-house sewage plant

Complete sewage treatment is provided in this new design for a single house. It is based on the same principal used in the large New Holstein, Wis. plant shown on the opposite page. Widely tested in recent months, this plant is expected to be in heavy demand first as a replacement for septic tanks that have failed. It will be put on the market this spring. No larger than a septic tank, it is expected to range in price from about $400 to $1,000, depending on the plan required. Soil that will not absorb a septic tank's odorous effluent will not absorb the effluent from this device, either, but the effluent from the latter will be pure and no more of a nuisance than rain water. It should also prove useful to home builders who build on single lots.

Costs vary from $50 to $500 per house

The plant cost may range from less than $125 a house to $500 or more per house. Generally, the more houses served, the lower the cost. The builder is wise who does not try to cut costs by underestimating the total number of houses his plant will serve. (He may be able to cut his own costs if other builders on adjacent tracts can be hooked onto the system.) But plants differ greatly in costs by the nature of the process and construction costs can also vary widely. One builder may pay twice as much as another for the same size plant providing the same treatment.

Costs are relative, of course. If septic tanks work in a given tract and cost only $300, a sewage plant system that costs twice as much per house will be worth the extra amount only if it increases the value of the houses that much. (It often does.)

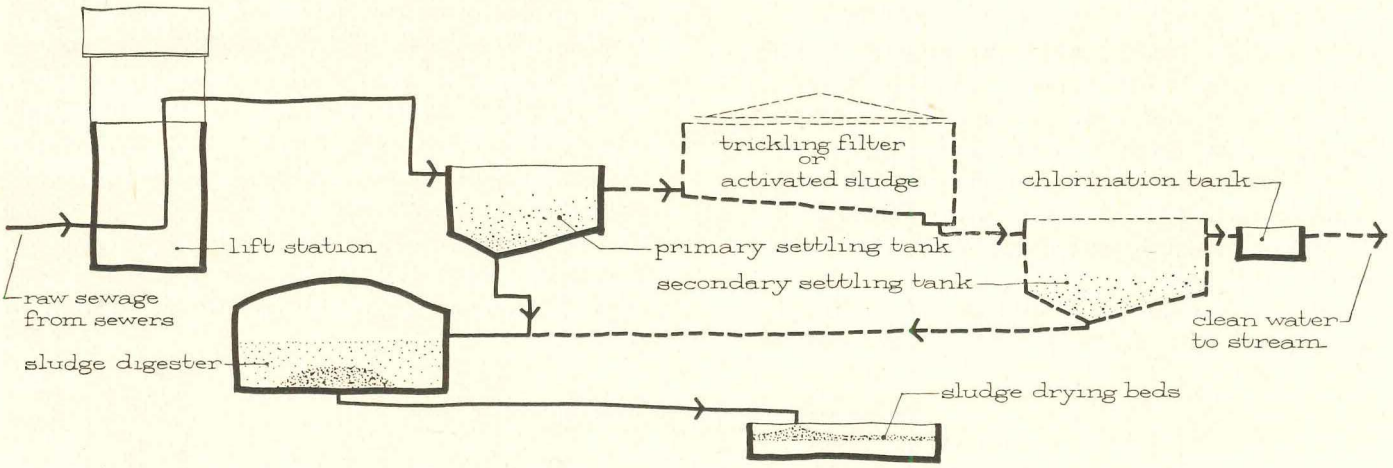
Builders justifiably complain that sewage plants require a large outlay of capital before they can sell their first houses. Banks are reluctant to lend money on utility plants at ordinary interest rates. Not even prime mortgagees seem willing to lend money on sewage (or water) plants before any houses have been built and sold.

Some builders have found the money

Nevertheless, some smart builders have found ways to raise the necessary capital more or less painlessly. A few have incorporated their own towns, which in turn have issued revenue bonds (permitted in some states) in order to pay back the builder in a short time. Others have presold and completed enough new houses to finance the plant out of profits on these first homes. In some states, builders have found the sewage system one of their most profitable investments: if the state does not control utility rates (and many do not), the builder may recoup more than his expenses over a period of years.

(For other data on sewerage, see H&H June '55.)

Flow diagram of typical sewage treatment plant



Most sewage treatment plants combine the various steps shown in this diagram, regardless of the size of the community served. Sometimes a new plant will include fewer components than shown, the others to be added as the population grows.

A lift station is not needed if the plant is lower than the collection lines. The primary settling tank removes up to one-third of the sewage parts, which by itself is adequate to meet health board requirements in some cases (as when the effluent flows into a large river).

Secondary treatment usually consists of a trickling filter or activated sludge (air diffusion) unit. In either case, sewage content is reduced by bacteria which consume the solids. These bacteria require oxygen to live. In a trickling filter tank they cling to a bed of rocks, broken bricks or wood blocks through which sewage trickles. In an activated sludge plant oxygen is usually forced into the effluent in large amounts. The final settling tanks filter out these aerobic bacteria.

In the sludge digester tank heavy solids are consumed by aerobic bacteria and the small amount finally remaining discharges into a drying bed.

Ordinary household sewage is rated at about "200 ppm BOD"—that is, 200 parts per million of bacterial oxygen demand. Secondary treatment plants can reduce effluent "strength" from 200 ppm to about 10 ppm or by 95% to 96%. Such effluent is about as pure as the streams it flows into.

Florida's 300 sewer treatment plants, including those shown here, have proved profitable land savers for 70 builders.

The No. 1 problem: financing

Most of those close to problems of sewage plant financing agree that FHA and VA should have the power to insure mortgages on sewage treatment plants.

This was recently recommended by John W. Wakefield, chief of the sewage section of Florida's State Board of Health. Florida has had more experience with privately sponsored sewage plant systems than any other state. Wakefield has records of more than 300 in the state, one fourth of which are privately operated, for the most part by home builders.

Speaking to the NAHB in Chicago last January, Wakefield said:

"The weakest link leading to a successful community sewerage system is the method of financing. Bond houses or mortgage agencies are understandably reluctant to invest in a long term program, for which repayment will depend on the collection of sewer service charges, when there is no assurance of the number of houses to be built and sold. On the other hand, even with stage-by-stage construction, the initial stage of the sewerage system must be complete within itself and the investment is relatively large.

Badly needed: a loan guarantee program

"It would appear that what is needed is a loan guaranteeing program similar to that now available for housing. If the Congress would pass legislation authorizing FHA and VA to guarantee mortgages for water and sewerage systems to serve the houses on which they guarantee mortgages, the package would be complete. These agencies would then be stimulating better sanitation instead of, in many cases, stimulating the creation of additional sanitary hazards.

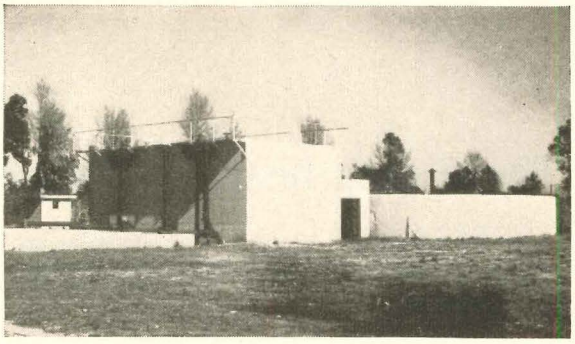
"The value of public sewerage to the home owner lies in better sanitation and convenience. The value to lending and mortgage guaranteeing agencies lies in better resale value. The value to the housing developer lies in increased valuations and better sales appeal."

Last year Congress set a precedent for FHA mortgage insurance on water and sewer plants when it gave FHA the right to insure mortgages on trailer camps. In effect, this was insurance on water and sewer systems.

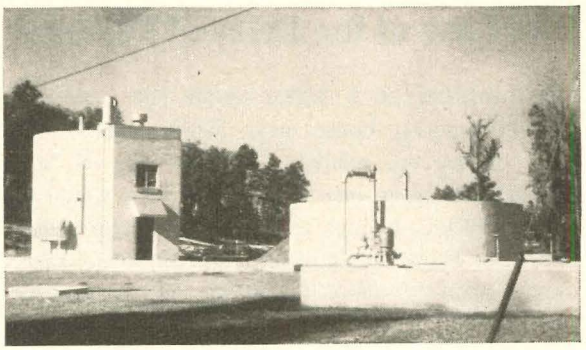
Sooner or later the home building industry must come to grips with this issue. The longer it waits, the longer developers must pass up valuable tracts, take chances on septic tanks, dip into building capital for sewage plants or sweat out other solutions.

Nevertheless, many builders cannot afford to wait for an over-all solution. Many own land today, unfit for septic tanks and beyond existing sewer lines, where sewage treatment plants would work and would be approved if the builders only knew how to finance them. For some ingenious solutions to this problem, turn the page . . .

Myrtle Grove plant for 35,000 people cost $93,350 initially for first 600 houses, $943,000 completed.

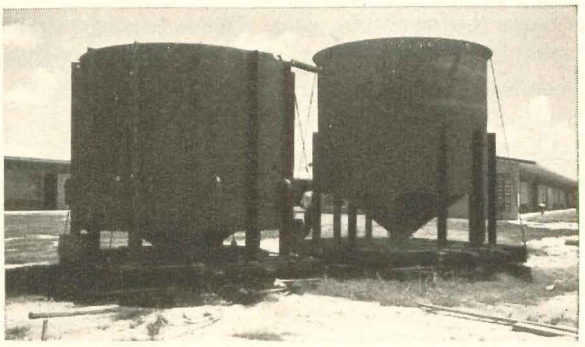


Magnolia Gardens plant for 1,800 people



Cedar Hills plant serves 2,450 people

Garden Manor plant has painted seascape



Portable trickling filter plant serves a temporary school in new Florida town.

These case histories show how you can pay for a sewage plant

The Case of the Delayed Payment

The problem: A. F. Johns bought 160 acres for a tract of contemporary houses near Tampa, Fla. For Florida, most of this was relatively high ground, yet "a low soil percolation test in one low area meant I would have lost up to 150 lots, enough to pay for a sewage plant," Johns explains. The state board of health approved the activated sludge plant he planned, and the builder was all set to build it and recover his costs through monthly collection charges to homeowners. (Like many states, Florida does not regulate sewage rates of private operators of the plants.) But Johns struck a snag when FHA refused to grant commitments on his houses unless he deeded the plant to a trust, he reports. "Under the trust agreement FHA proposed, the plant could have been taken away from me if anyone complained. I don't mind giving a plant away if I can get my money out of it."

The solution: "I simply by-passed FHA. I got VA approval and it raised my appraisals $200 a house, enough to cover my cost for the collection system. VA even gave me permission to put in temporary septic tanks for 55 houses for the four months while I was building the treatment plant. I built it big enough to handle 900 houses, although I plan to build only 550."

The costs: Johns' plant cost only $67,000, or about $120 a house for the 550 he plans. That is less than septic tanks would cost. As for his $35,000 for mains, manholes and laterals, "I just figure that in the price of the land." Johns cut his plant cost by building it with his own crews, using his own techniques. "Other builders might pay twice as much for a plant like this if they hired a so-called specialist contractor to do it. A builder who knows his business should be able to cut costs on a sewage system as well as on anything else." Although he will not recoup the $67,000 in plant costs for a number of years, he points out that "once you have a plant and a number of houses paying sewerage charges monthly, you can borrow from a bank on this income. Thus in effect you have little money tied up."

The Case of the Private Loan

Problem: Cooper Village and Whitney Homes are builders of similar size only two miles apart in Woodbury, N.J. Each bought large tracts several years ago at low prices, saw the land value rise when plans were announced for a new bridge across the Delaware River putting the area in close time proximity to Philadelphia. Each company suddenly discovered that state and county authorities had turned thumbs down on septic tanks. Says Justin Utal of Cooper Village, "In June 1954 we thought we were licked." Says Bertram Kapnek of Whitney Homes, "Actually, there wasn't any answer. Clay is almost to the surface in our area of south Jersey and drainage is poor."

Solution and costs: Each builder reached the same solution independently, about the same time. As Utal puts it: "A New Jersey engineer who has designed 20 sewage systems for home builders gave me figures indicating that a plant to serve my first section of 250 homes would cost little more than septic tanks, and this proved true." His plant cost $60,000, including the engineer's $4,500 fee. Kapnek's plant by the same engineer (licensee for a "packaged" plant maker) cost $78,000 for a similar number of homes (he had to have an $11,000 pumping station because his houses were lower than his plant). Each builder had to borrow privately to meet these plant costs, putting a heavy strain on their resources. They will get the money back through state-regulated rates over 16-year periods.

The Case of the Two Neighbors

Problem: Carl T. Mitnick, NAHB's new treasurer, and two partners bought 150 acres near Haddonfield, N.J. in 1953, paying $1,200 an acre. The site was bound to become valuable because a new Delaware River bridge was planned putting the site within a few minutes of downtown Philadelphia. But the township would not permit septic tanks for the 300 houses planned. New Jersey has the most stringent sewerage regulations of any state; the state board of health, public service commission and local township all must approve the plant and rates charged.

Solution and costs: A plant was designed for 700 homes because two builders on adjacent tracts wanted to (and had to) hook their 400 houses onto the Mitnick plant. The plant cost $235,000, or only $335 a house for the 700 served. Had it been built for only 300 houses, Mitnick would have paid $500 per house using this type of plant. He and his partners had to dig deep into their own pockets for the plant investment, but Mitnick points out, "It was worth it because this plant kept us in business. The land we paid $1,200 an acre for in 1953 is now worth $3,500."

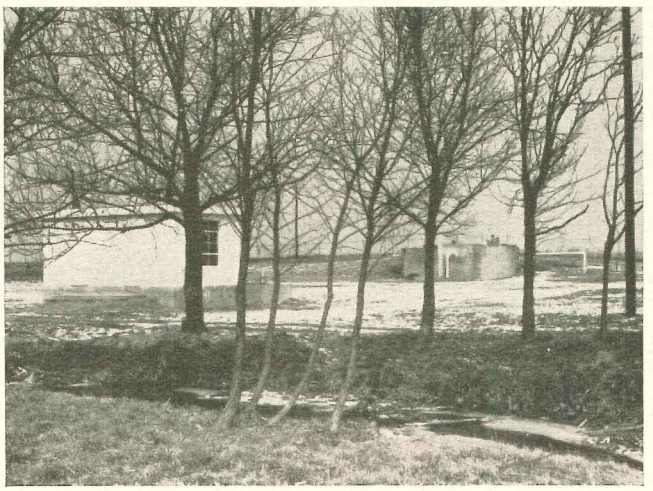
The Case of the Helpful County

The problem: Realtor Charles Estel of Columbus, O. bought 350 choice acres around a country club north of the city in 1953, paying $500 an acre. He planned to sell large lots to builders who would put up large houses which would have septic tanks. But state and county officials banned septic tanks, which have been failing in nearby developments, even on large lots. And Columbus refused to extend its sewers. "It looked as if we would have to cut up the acreage into hog lots," Estel says.

The solution: Estel camped on the county board's doorstep for months, trying to get favorable action on a sewage treatment plant of one kind or another. The commissioners knew it would be impractical to build a single large plant that would serve all the fringe area around Columbus. Finally Estel persuaded the board to build the small plant he needed, as a test case. This lucky solution meant that the county would issue bonds to pay the entire cost of the plant, limiting Estel's costs to the collection system.

The costs: The county issued bonds to pay for the $32,000 plant designed by engineers it selected. This plant is large enough to serve 125 houses at the start and can be expanded later at low cost. (It also is based on a new principle to end the chances of any odor in final sludge beds.) The first 77 homeowners in Estel's initial Brookside Estates section will pay the county $45 a year in taxes for ten years. This will permit the county to recover its $32,000. Estel's costs for each of his three-quarter-acre lots: $500 for land, $250 for collection lines and $800 for 50′-wide roads—a total of $1,550 for lots that are now worth about $3,000 each.

Byron C. Nash Studio



New Whiteland plant *serves up to 250 houses in this first stage, will next be expanded to handle 500 houses, finally 1,200 or more. Effluent flows into small stream in foreground. Of the same type as that shown on page 172, such plants reportedly cost as little as $12,500 for only 100 houses. (Figure does not include collection system costs.)*

The Case of the 48 Lots

Problem: Joseph Zilber of Towne Realty planned a small development of prefab houses south of Milwaukee. He had every expectation of using septic tanks for the 48-house tract, but local authorities refused to permit them following numerous failures in the clay soil of this area.

Solution and costs: Investigation proved that a small trickling filter sewage plant system, acceptable to health authorities, would cost only $800 per house for this small group of houses. That was only $200 more than septic tanks would have cost in the area if allowed. This was well worth the price, for it made the tract more valuable, and the plant was built. Actually, it might have cost less, as events have since proved. Towne Realty later bought adjacent land for 53 more houses. Since these are on lower ground, an expensive lift station had to be installed to pump the effluent from the newer houses to the treatment plant. Had both tracts been developed at the same time, the cost per house would have been only $600, the same as septic tanks cost in the area.

The Case of the Brand New Town

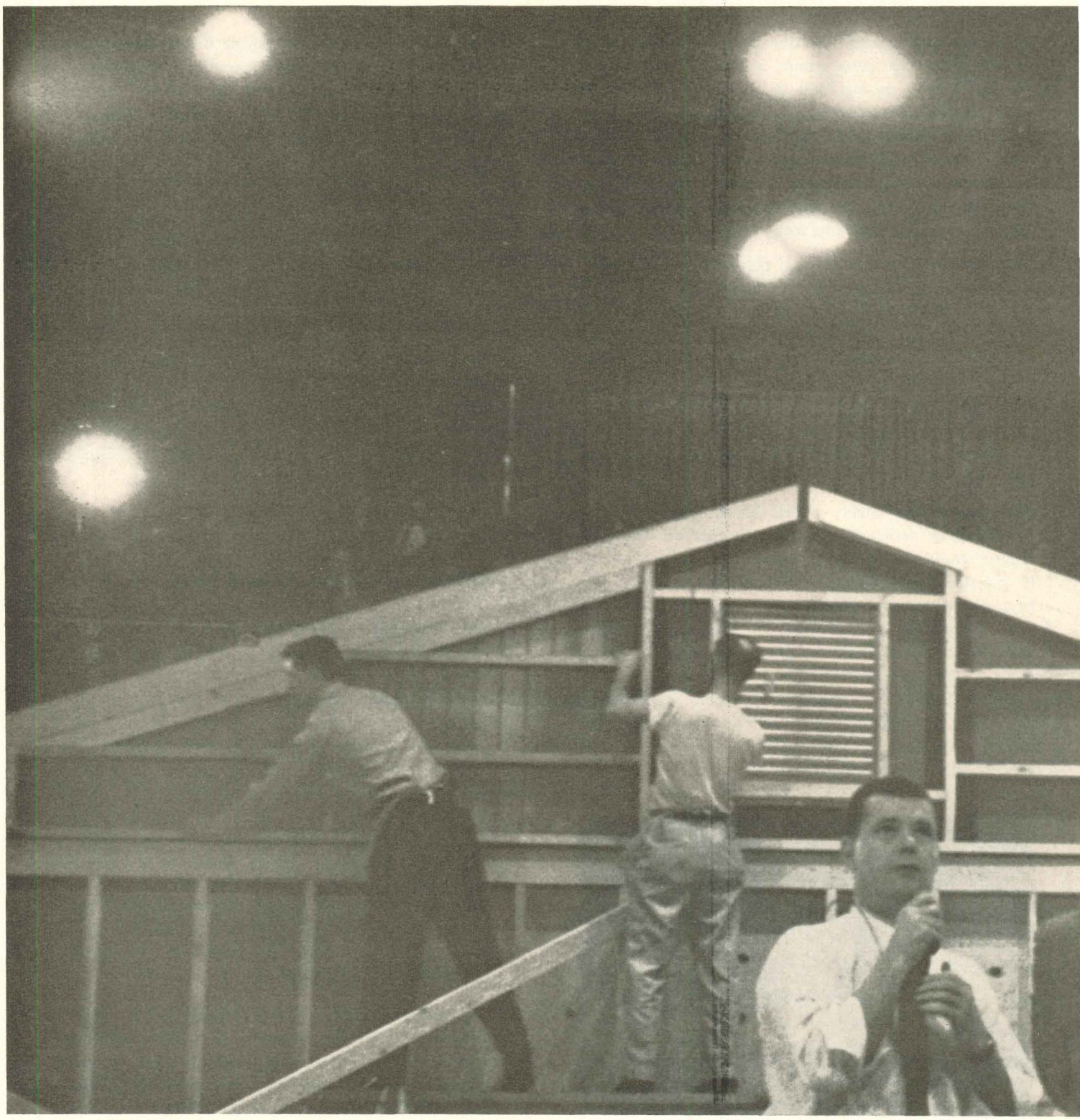
The problem: Community Homes bought a large tract of farmland 15½ miles south of Indianapolis in October, 1954. Soil tests ruled out septic tanks, as the builder expected. (Had they been suitable, they would have cost $600.) The tract was bought at low cost but was bound to prove valuable for home building because it would soon be close to the juncture of a new by-pass around Indianapolis and a throughway into the city. Indianapolis sewers were 11 miles away, thus too costly to reach. The builder expected easily to get county approval for utility plants. This, it turned out, was not in the cards. Nearby residents fought the development (1,200 homes are planned, all National Homes prefabs) because they feared their schools would be overcrowded and their taxes would go up. They prevailed on the county board not to approve utilities for the tract.

The solution: Partners Marley Williams and Robert Clark of Community Homes arranged to have their tract incorporated as a town. Under Indiana law, a town has the right to approve utilities and issue revenue bonds to pay for them. And only three residents are needed to incorporate the town. The only three families with homes on the tract a year ago agreed to do this. This solution not only met the problem of authority to operate utilities but held down the builder's costs. Although the builder had to supply $80,000 for interim financing of the sewage system, the new town of New Whiteland was soon able to issue revenue bonds (snapped up at once by investors) and pay back this $80,000.

Coliseum floor serves as nailing platform for 24′ gable end wall.

Up she goes! Crew tilts wall into place between waiting side walls.

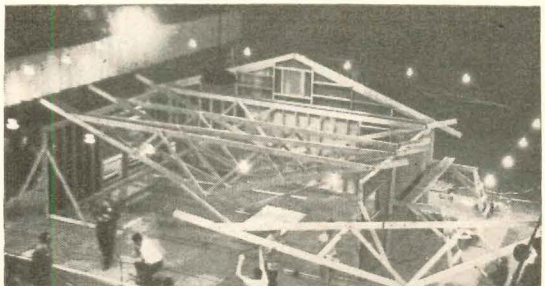
Window opening was only simu high or low windows could be



Upside down trusses are hung on framing, then tipped into place.

Agile workman spaces trusses, as others spike truss heels to plate.

Finished shell awaits mechanic tems, installed in afternoon.



NAHB puts up a house in 4½ hours with **6 BEST BUILDING IDEAS**

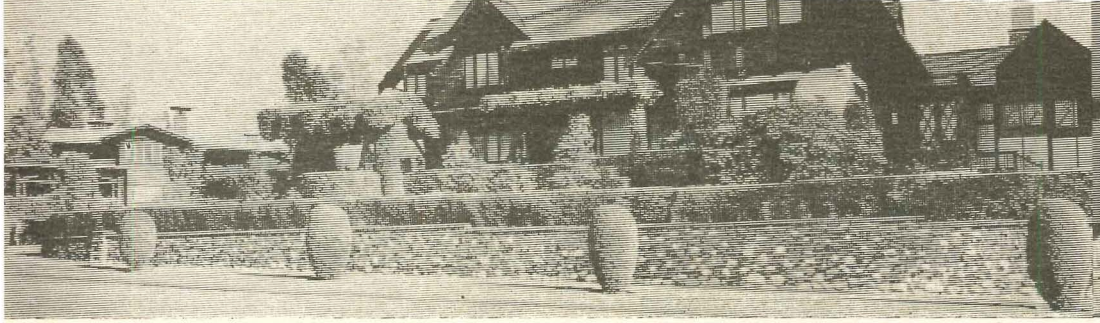
Master of Ceremonies Andy Place (at mike in big picture) keeps crowd informed on each step.

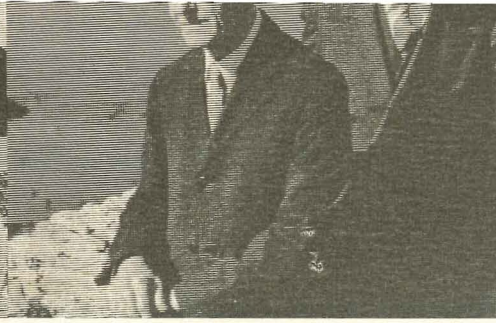
What building techniques should every builder know, and use? NAHB's Research Institute, a blue-ribbon group of some of the smartest technical men in the industry, picked six things to dramatize at their January Convention. The six:

Tilt-up construction
Trussed roofs
Large components
Preassembled plumbing walls
Packaged heating/cooling units
Ample electrical service

Under the direction of ringmaster Andy Place, a framing crew unlimbered their hammers at 9:30 a.m. before several thousand onlookers. Using precut lumber, continuous double 2″ x 6″ headers, and complete window and door sections, the men built the walls on the floor, sheathed them, then lifted them into place. Preassembled roof trusses were hung upside down, rotated into position, then fastened. (Bolted, split ring connected, and glued-nailed trusses were shown.) By noon, the house shell was complete, and the crowd could hardly believe their watches.

Promptly at 2 p.m., a preassembled plumbing tree, encased in a double wall, was carried in and rough-installed in only ten minutes. Next came a complete heating-cooling system, internally factory wired and plumbed. All ducts were cut on the job from prefabricated glass fiber tubes, with no metal used except for fittings. Simultaneously, electricians were installing the recommended 100 amp. service panel and all outlet boxes and rough wiring. At 4 p.m., Place declared the job done and invited the crowd to inspect the work. Total working time: 4½ hours.





Before *The James Culbertson House of 1897, and its Architects, Greene & Greene. House as built did not follow original plan in every de*

A FINE OLD HOUSE
. . . remodeled with respect

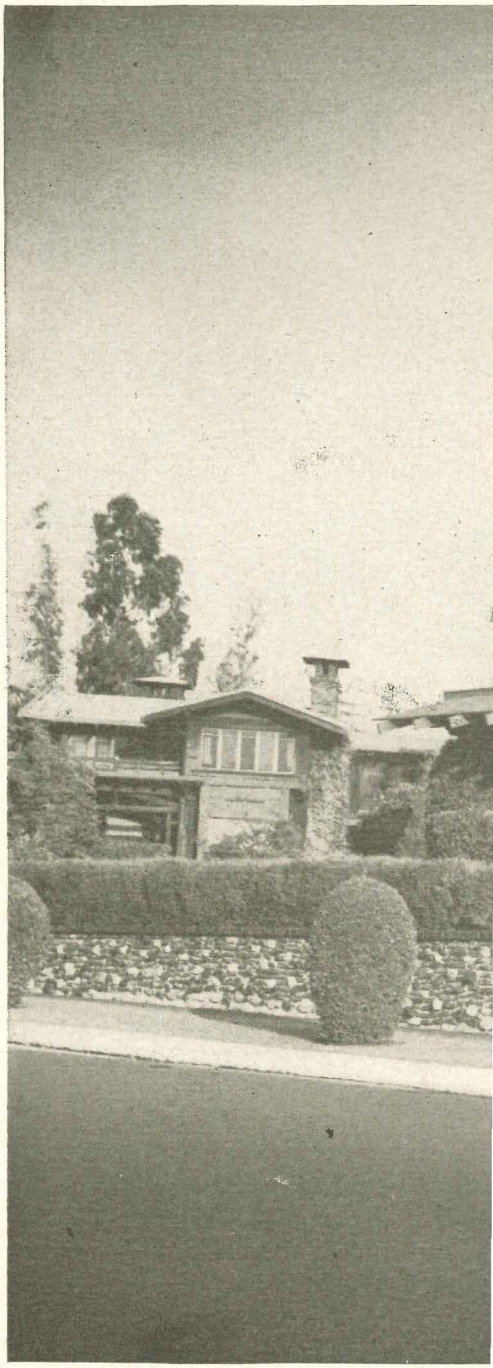
Once upon a time—in 1897, to be exact—two remarkable innovators, the architects Charles and Henry Greene, designed and built a house at 235 N. Grand Ave. in Pasadena, Calif.

More than 50 years later, two young California architects named Whitney Smith and Wayne Williams—admirers of the Greenes—were called in to remodel the old house.

This picture story shows how carefully and respectfully Smith & Williams went about their task, how well they preserved the spirit of the original house, how sensitively they treated its many beautiful details.

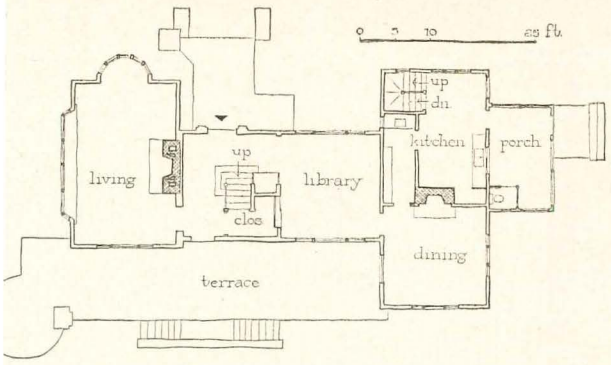
And the story shows something else, too: it shows the direction in which domestic architecture on the West Coast has been going since the Greenes, and one or two others gave it a big send-off. For the *differences* between the old house and the new revisions and additions are as interesting as the similarities: the change from a tall two-story structure of 1897 to a long, low-slung house today—a house designed to extend everywhere into its surrounding gardens; the change from leaded window panes to large, continuous walls of glass; and the change from elaborate, *art nouveau* decorations to plainer surfaces and simpler patterns.

Many of these changes were initiated by the Greenes themselves before they retired after 1914.* For this early house—a "summer cottage" originally built for an eastern industrialist, James Culbertson—still shows some traces of the eclecticism to which the Greenes have been exposed during their architectural training. Yet the wonderful structural detail, the beautiful landscaping, the elegant trellises—all the things for which the Greenes were to become famous in later years—appeared in this house and were preserved in the remodeling.

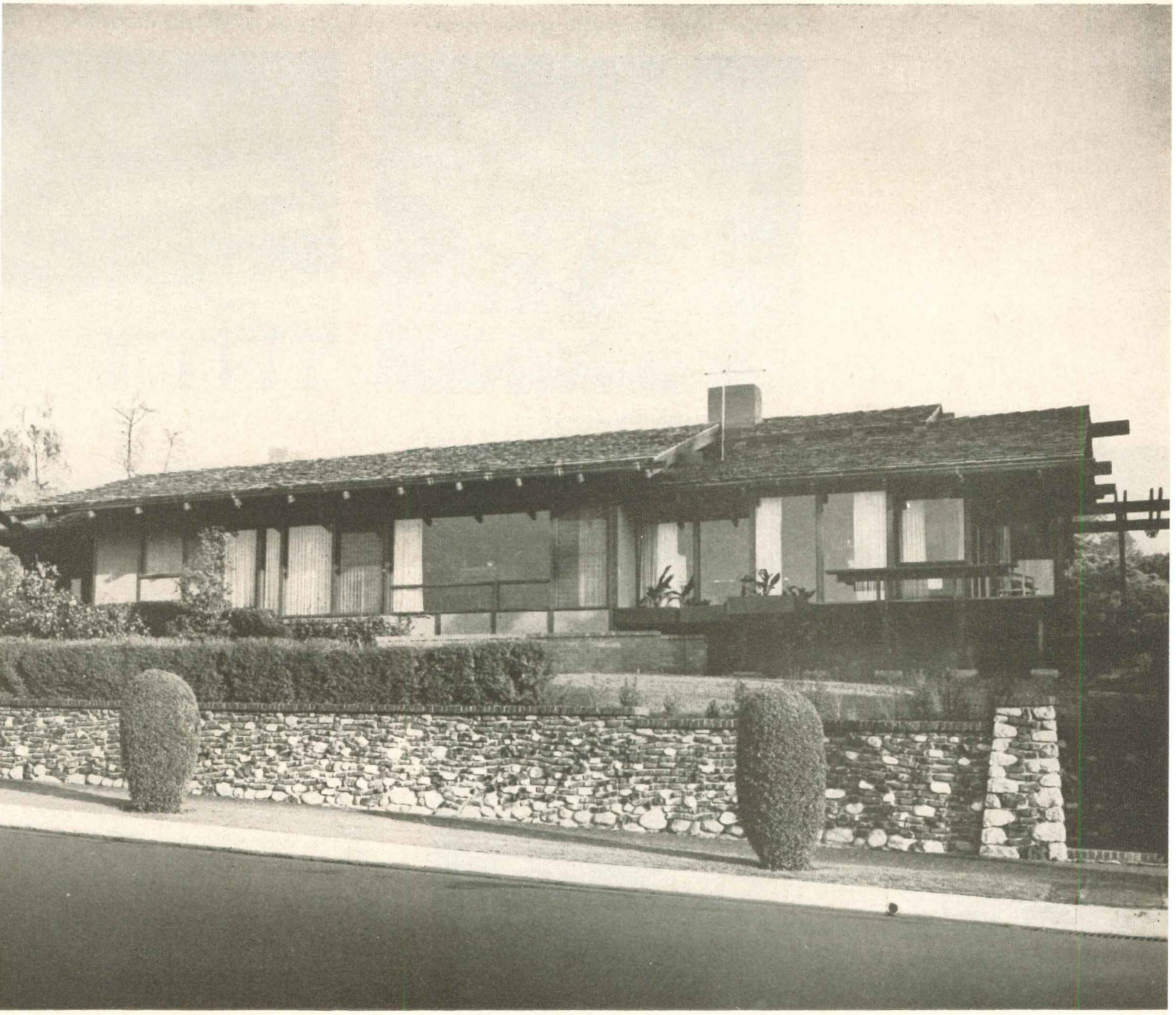


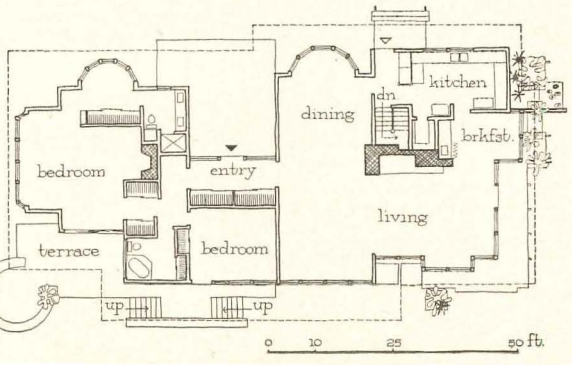
* *Only Charles Greene survives. He lives in retirement in Carmel, Calif.*

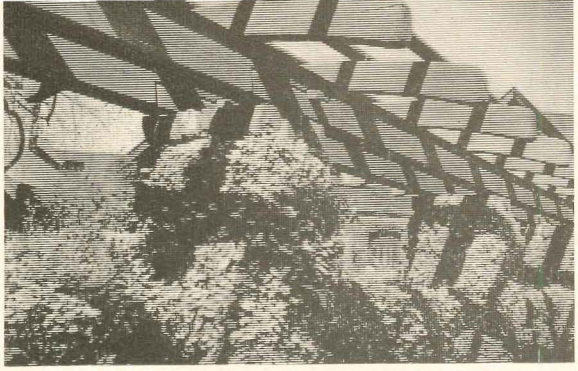
After *The Culbertson House today, and its remodelers, Smith & Willia*



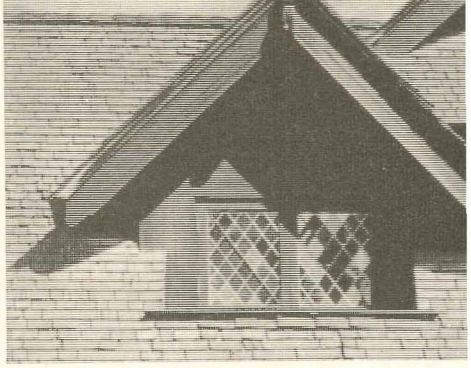
Photos: Julius Shulman



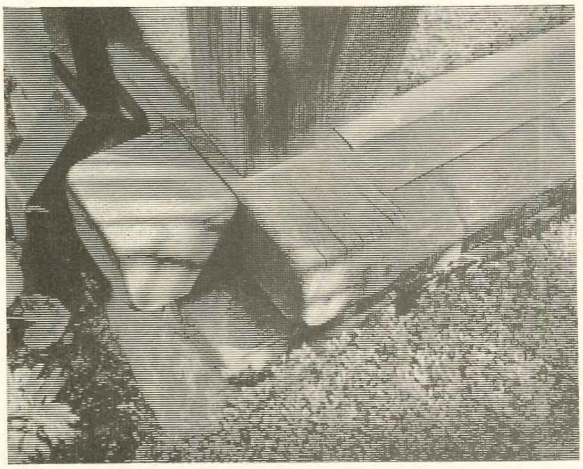




Old pergola shows characteristic, rounded timbers

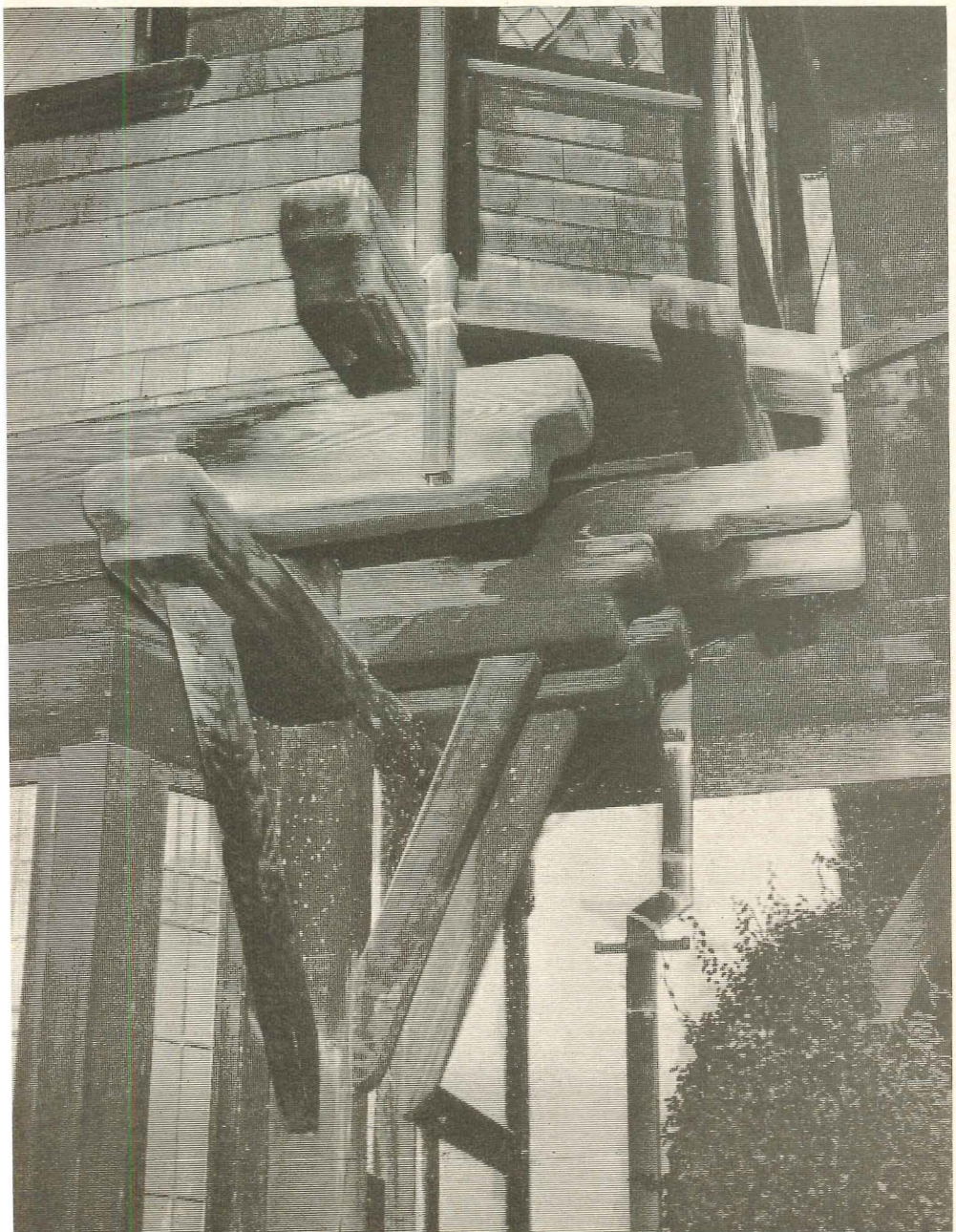


Old gable end with projecting rafters



Post and plates interlock at corners

Exposed beam ceiling with wood paneling abo



Greene & Greene's fascinating wood details

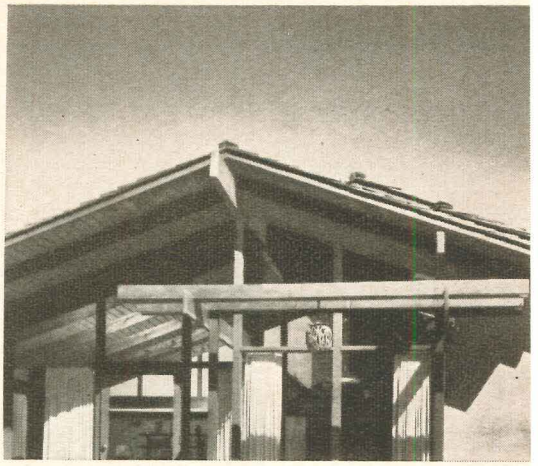
Part of the legacy left to our architecture by the Greenes is shown on this page: a fabulous vocabulary of wood details that has now become the regular idiom of house architects from the Bay Region to Southern California.

Here are the post and beam trellises, the gable ends with projecting rafters, the interlocking timbers, the plank ceilings—all thoroughly familiar today, all pioneered in the West by the Greenes and a few others.

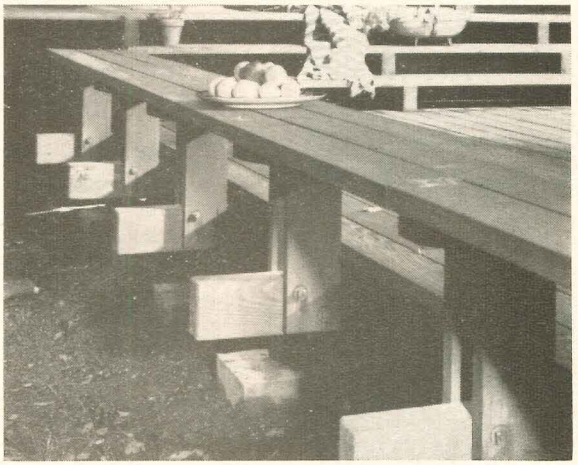
Historians will recognize the influence of the Oriental tradition here, as elsewhere at the turn of the century. Others will find traces of eclecticism—as in the "English" leaded windows. But none can deny the fresh spirit in design, or the simple logic in construction.

Intricate timber connections were trademark of Greenes' work, made logical sense to carpenters tired of fakery.

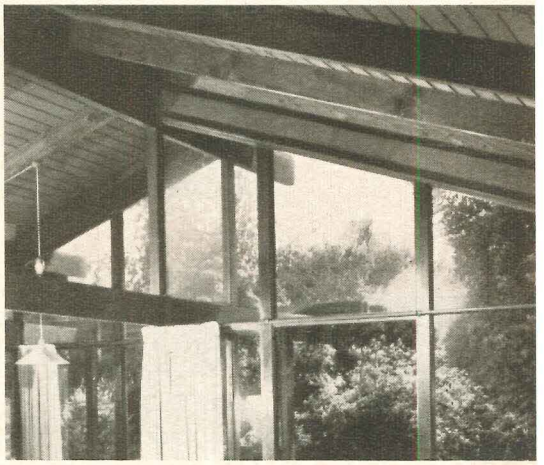
New pergola uses square-edged timbers



New gable end has projecting rafters also



Footings carry interlocking post and beam frames



Exposed beam ceiling with plank deck

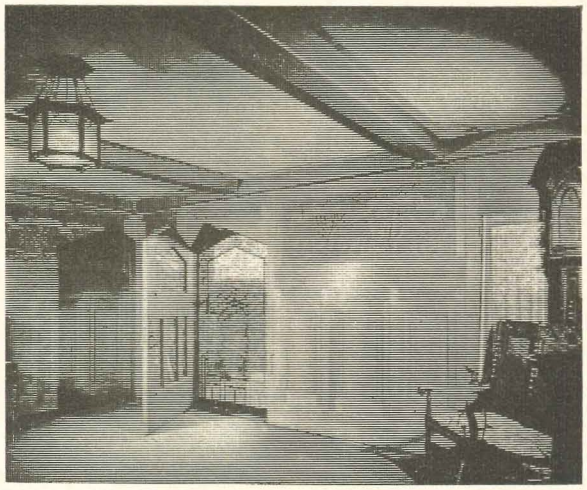
. . . were reinterpreted by Smith & Williams

Smith & Williams are prominent among those on the West Coast who owe much to the Greenes. Thus they were ideally qualified to remodel the old house.

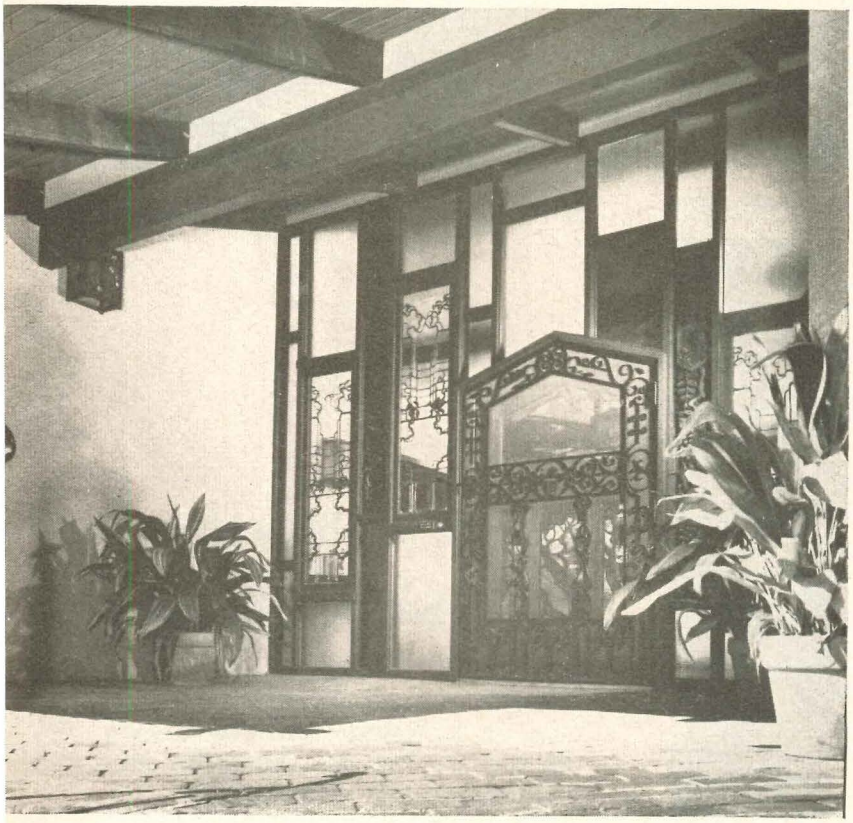
The present owners, Mr. & Mrs. William Dunn, were planning at first to tear down the old house and to build a new one in its place. Smith & Williams, and their associate, William Rudolph, persuaded them to preserve the best of the old and to add whatever modern conveniences were desired.

The pictures on this page show how closely Smith & Williams stuck to the spirit of the original—without, however, limiting themselves to archaeological restoration. For these details are entirely modern—a new interpretation of the past with today's building technology.

Modern timber connections were bolted, and otherwise similar to Greenes' details.



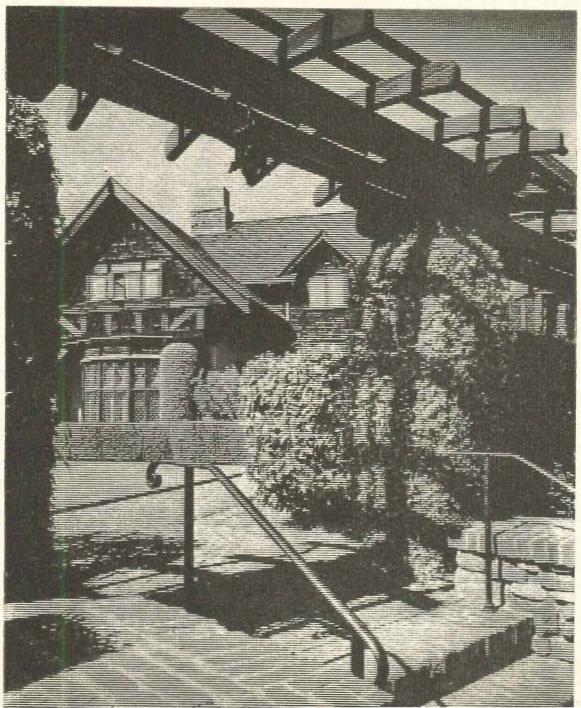
Old main entrance *was drastically remodeled, but important features were kept: e.g. the old wrought iron grille door (seen from the inside in the top picture) was retained, but its surrounding wall was replaced with a series of wood-and-glass panels reminiscent of a Japanese screen. Some of the old paneling and other original wrought iron grilles were re-used as elements of this screen (seen from the outside in the bottom picture).*

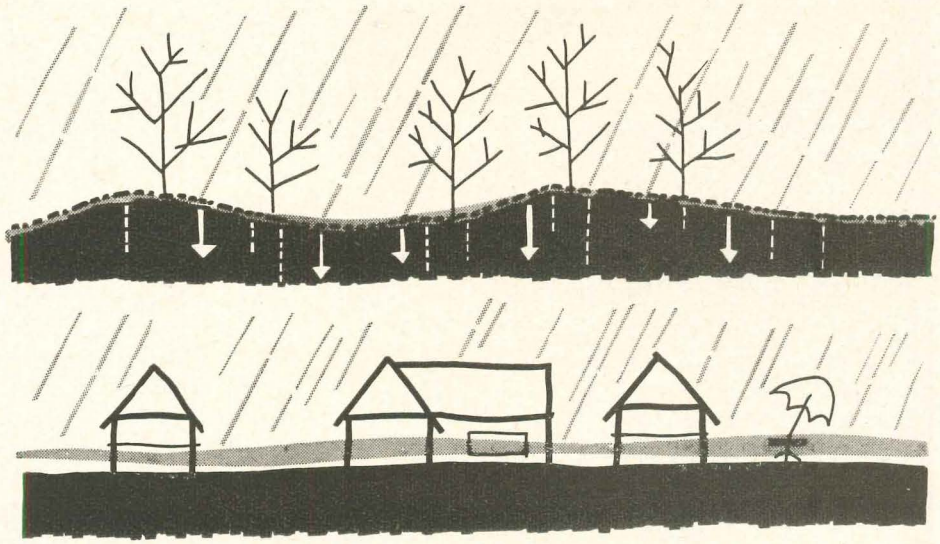


Most important change *was the removal of the top story (below) and the substitution of a low-pitched roof (opposite). Actually, this new roof is more "typical" of what the Greenes did in their later years than the original steep roof, so Smith & Williams may be said to have made the new house "more Greene & Greene" than it was to start with. Also retained: the lovely gardens designed by the Greenes in 1897, and now made even more accessible from the remodeled house.*

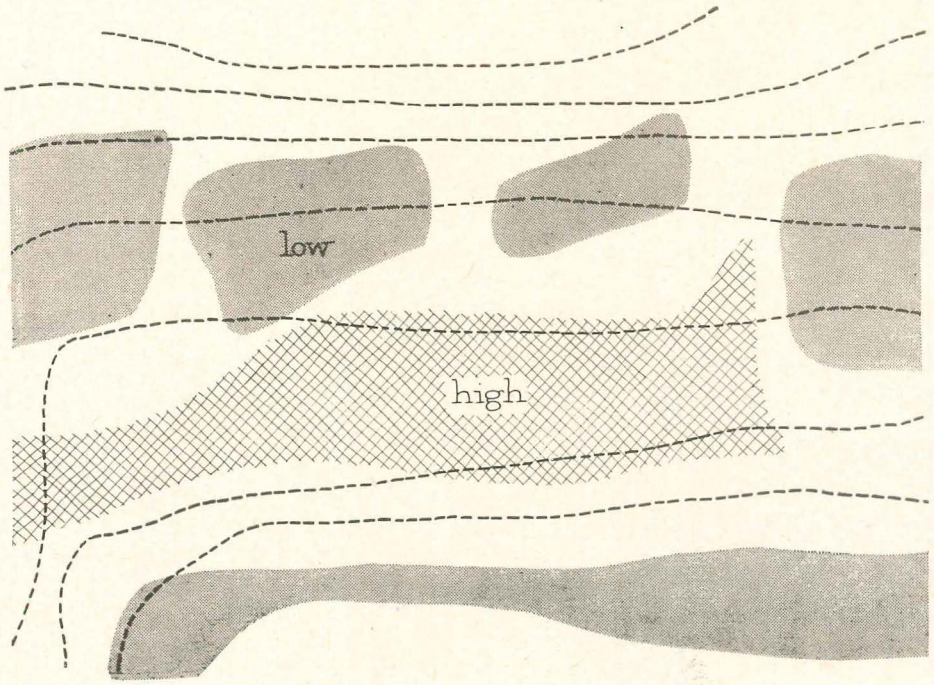
The best of the old retained,

the best of the new added





80% of storm water *may be absorbed on wooded, grassy land and there may be no drainage problem. When raw land is next to your tract, don't assume water will never drain on yours. After raw land is covered with houses, roads, driveways and patios only about 20% of rain water may be absorbed and the rest may drain on your land if it is lower. Only an engineer can tell if it is advisable to drain such run-off water in a by-pass around your property and whether you should use open channels or underground pipe. Every tract is an individual problem. Drawings (left) show how houses and paving change drainage.*



A cut-and-fill map *like this can save you money by speeding up earth moving. On topographical map showing 1' contours, every second contour is heavily outlined. After average grades are fixed, all higher grades which must be cut down are shown in one color (cross-hatched in this drawing) and low areas which must be filled are shown in second color (gray here). With a master map of whole property a land planner can draw in streets, work out grading for individual lots, then give map to earth mover who can see whole project at a glance. Drawing from map by City Planners Wheelright, Stevenson, Langran & Fanning of Philadelphia.*

EXPERTS SHOW YOU

"The greatest sin of land developers is bucking nature.

"They use bulldozers until each parcel of land looks exactly like all others. The results are erosion, dying trees or no trees at all. It costs more to buck nature than it does to adapt your houses to the site," Max Wehrly, executive director of the Urban Land Institute, told builders at the Chicago NAHB Convention in January.

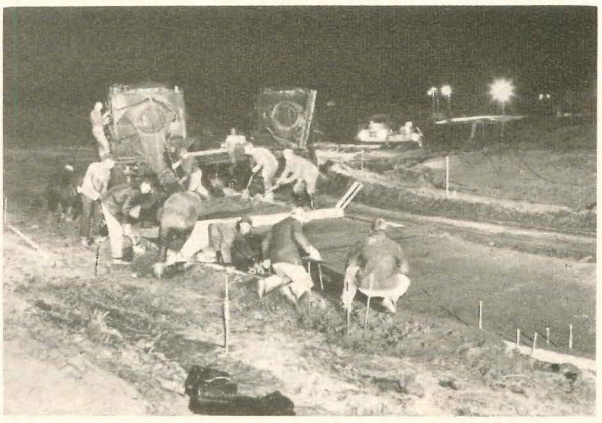
Study drainage before you buy land

"Drainage can be very expensive," said Charles Eveland, FHA's assistant chief land planner, "so before you buy land study adjacent sites and decide where surface water will come from. Employ an engineer to go over your site. Because there is no flooding now, it does not mean there will be none later. When you fill up land with houses, driveways, paved patios and streets you completely change its drainage characteristics."

Save money through better timing

"The greatest opportunity to save money in land development is in proper timing of street installations and other public improvements," advises Edw. S Holland, consulting engineer of Alexandria, Va. "Water, gas, sanitary an storm sewer lines should be put in be fore work starts on houses. Latera connections for houses should be carrie in, with trenches properly backfille and compacted. Catch basins, curbs an gutters should be installed, then the bas material put on the street. If street are in, trucks and other vehicles wi not be stuck. Savings in time will mor than compensate for the cost of occa sional damage to curbs.

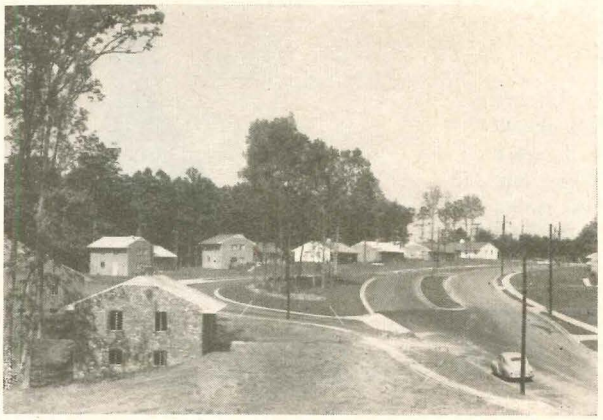
Ankers Photography



James R. Dunlap

Wrong way: *(left-hand photo) in California one builder let house construction get ahead of road construction. This caused confusion at site, slower deliveries, cars and trucks bogged down in rainy weather.*

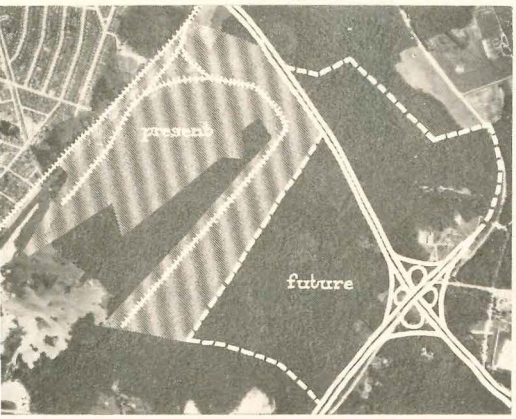
Right way: *(right-hand photo) streets should be put in before lots are graded or houses started. At Levittown, Pa., crews worked at night to build roads ahead of other construction. Heavy traffic was easily handled.*

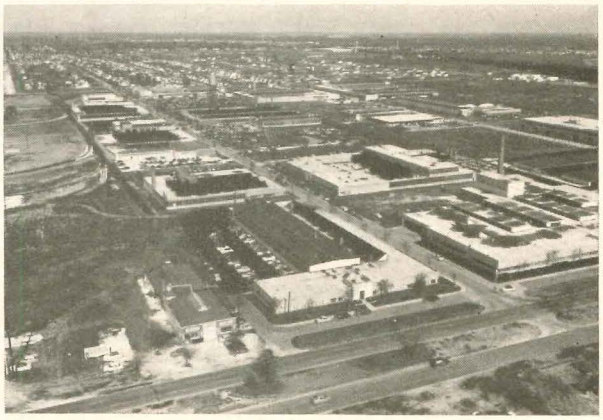


Chicago Aerial Survey Co.

Builder Eddie Carr *of Washington, D.C. shows a good example of land use (two photos of same site). He puts road foundations in early, avoids delays from trucks being stuck in mud holes, also makes good impression on public.*

Right-hand photo is of finished site, shows benefits of saving trees. Carr says he adds $200 to $300 value to each house by saving trees. Buyers pay more for lots with trees.





Industrial districts, *like two shown at left, help to reduce residential taxes, make communities more prosperous. Photo at far left is new Beltway Park near Washington, D.C. Its 400 acres are being developed by Morris Pollin and Sons and Eugene M. Howerdd, Jr. adjacent to their residential area. Left: Melrose Park, Chicago, where 26 major industries located on 133 acres between 1948 and 1954.*

BETTER WAYS TO USE LAND

"When local regulations on improvements raise costs unduly it is often the ck of team work by professionals," id Holland. "Builder, architect and ıgineer must function as a team in the rly innings. If you do not, the nateurs will force you to use stupid, ıstly regulations prevalent in many wns today.

"Greatest mistake," Holland claimed, s the theory that all roads should ıve the same base thickness. This relts in waste on short loop streets and ıl-de-sacs. Roads should be built for the traffic they will handle." He warned also against streets too wide. "Asphalt and bituminous street surfaces deteriorate rapidly when not used," he said.

Builder's success depends on type of community he creates

"Sheer number of houses sold per year may not be the answer to whether or not a builder is successful," said Land Planner Joe W. Langran of Philadelphia, "in the long run a builder's success depends upon the type of community he helps to create."

In developing land for good communities, he pointed out, neither the "scraped earth" policy nor the "save every tree" policy is correct. Some trees should be removed, such as tall and spindly trees that have grown close together (especially when close to paved streets), because they will die or be a hazard in high winds. But carefully saved trees will add value to property, as Builder Eddie Carr has demonstrated in his fine neighborhood development outside Washington, D.C. (see photos above, center section).

ADVICE FOR SMALLER BUILDERS

(A baker's dozen of practical ideas from the NAHB convention in Chicago)

Buy land on a piecemeal basis

Developing land is the small builder's biggest problem. We buy from farmers, and we talk to them about capital gains, showing how they keep more money if we spread our payments over two or three years. We plat one section at a time and have a release clearance so that we pay full price for each lot as we use it.

—JOHN WORTHMAN, *Fort Wayne, Ind.*

Trade with your old customers

Seven out of ten new houses I sell are trade-in deals, many of them with people I sold houses to five years before. I take a hammer with me and call on them, and I can always find a thing or two to fix up. Then I suggest a good trade. Since I built their house, I know what it's worth, what equity they have in it and what kind of people I'm dealing with. That makes the trade fairly safe and easy.

—CARL ANDERSON, *Virginia, Minn.*

Try glass walls in cold climates

California designs with their large glass areas aren't too far out of line even in the coldest northern states. Heat loss through the glass is not a major problem in a well-designed house. Insulated glass is usually important only where people will sit close to the windows.

—JAMES LENDRUM, *director*
Small Homes Council
University of Illinois

Make a try for capital gains

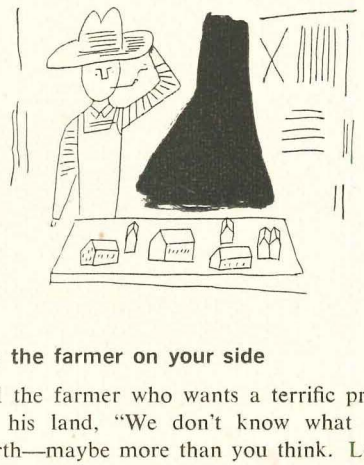
If a builder holds a new house six months for rental and then sells it, he pays only a capital gains tax because the tax is on a capital investment. If he does this too often, he will be considered a real estate dealer and pay income taxes instead. I'd be foolish to give you a number on how many times you can do this. However, if the builder moves into one of his new houses and then sells it, the profit is a capital gain. So far as I can see, he can move in and out of his new houses every week and gain this tax advantage. The only danger is that losses are not deductible.

—JEROME KESSELMAN
University of Denver

Learn to trade by trading

The only way to learn how to trade houses is by getting into it, picking the best possibility first and feeling your way to others. No two deals are alike. But there's money in it if you've got the guts to do it, get good appraisals, good advice and a good lawyer.

—WILLIAM J. COOLEY, *Portland, Ore.*



Get the farmer on your side

Tell the farmer who wants a terrific price for his land, "We don't know what it's worth—maybe more than you think. Let's make a joint appraisal." He may help pay for a topographical survey. I make a 4′ x 5′ plaster model, showing contours and drawing in roads with crayon. You'll find the farmer gets more and more fascinated with your model and your ideas for developing his land—and often he becomes more reasonable about his price.

—DAVE AUGUSTUS, *Indianapolis*

Save time with prenotched stud plates

We can buy prenotched stud plates cut ¼″ deep every 16″. They cost an extra $10 per 1,000 bd. ft. but we more than save that amount because we don't have to measure to put up our studs.

—ELWOOD TREADWELL, *Niagara Falls*

Sell 'em "at coffee"

In my town, people like to drink coffee. Every day I go to a different place to drink coffee. In another area it might be better to go to different restaurants or bars. In my case, I edge up to the next guy and talk about houses. You'd be surprised how many truck drivers and ordinary people have enough money to buy houses.

—CARL ANDERSON, *Virginia, Minn.*

Take advantage of FHA services

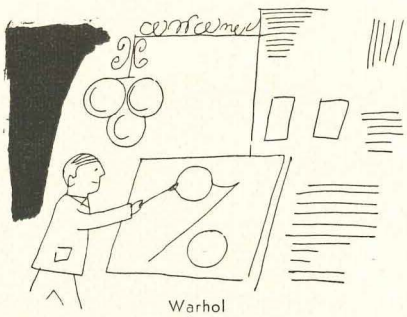
You can get a lot of free help from th FHA. It has helped many one- and tw house builders become big builders. FH can help with land planning, sanitary r quirements and other problems. Go FHA early, before you start constructio Get its commitments before you go ahea so the FHA appraiser can see your hous under construction and can allow fu credit for what he sees.

—JAMES J. FLANIGAN, *chief of operatio*
FHA, *Chicag*

Don't build all roads at once

Don't put all the roads in your new su division at once. Just cut them in, put gravel topping, and make them windi and pretty. Then sell more lots—peop like to get in early and they all like chance to get a bargain.

—DAVE AUGUSTUS, *Indianapo*



Keep after the lenders

Don't deal with just one lender. Ha several. What any one lender allows a mortgage at one time depends on h much money he has that month. C month he may give you a 65% mortga because he is short of mortgage mon Another month he may allow you 80

—STANLEY WRONSKI, *presid*
Beverly Savings & Loan Assn., Chica

Buy cooperatively from manufacturers

The smaller builders in Los Angeles buying appliances cooperatively now, F.O.B. open orders. We're saving 15% ranges, for example.

—ERNANI BERNARDO, *Van Nuys, Ca*

Solve problems through local HBA's

In some states there is $500 difference the builder between building an FHA an VA house. Around New Mexico the diff ence amounts to only $25 or $50, sim because the big and little builders b up a war fund and spent a lot on en neering data to back our proposals. put this ammunition in our pistol pock and took it to VA and FHA. The facts c vinced them.

—ED MANKIN, *Albuquerque, N.*

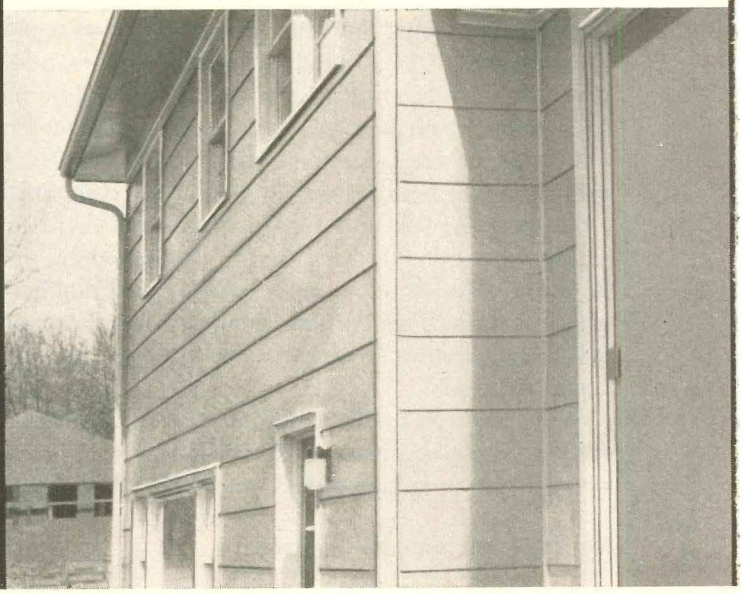
Upson ships ready-to-apply

SOFFITS, CARPORT AND PORCH CEILINGS DELIVERED CUT-TO-SIZE, PRIMED . . . READY TO APPLY!

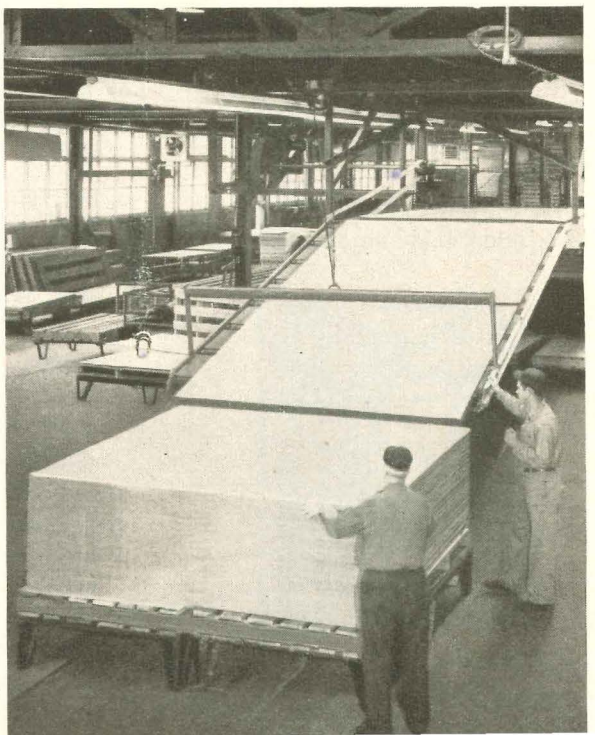
Think of it. You can get *primed* soffits —pre-cut to sizes you need—ready to apply. Vented, too. And you can get carport and porch ceilings in the same way. At site, just apply and paint. No waste. Check into the savings now.

FACTORY PRIMED SIDING, CUT TO UNIFORM LENGTH, READY TO FINISH.

Upson delivers siding pre-primed in uniform lengths. No prime paint to buy or apply! Paint and labor costs sink to new lows! Finished job durable and beautiful. Upson Primed Siding is now in wide use. Get facts now.



Upson machines save you money!



High speed machines in the big, modern Upson plant at Lockport, New York, produce Upson materials in quantity, on time to meet your needs.

(continued from page 153)

How Long Island builds the split

charges you through the nose for it." After he has convinced his sub, a builder who wants to try truss framing usually must get special exemption from local codes that require trusses to be spaced 16″ on centers. Even so, there is little or no saving unless the builder goes all the way and switches over from wall-bearing partitions to an open plan. His own design preferences and what he thinks are those of his customers generally prevent such a major change.

Are conservative buyers to blame?

Architect Stanley Shaftel comments: "Design, not construction is backward on Long Island. If people would accept better planning, better houses, more modern design, then we could investigate better construction."

2 x 4 thinking retards progress

In its native habitat the Long Island split level is made of thousands of small pieces, a regular mare's nest of 2 x 4's to 2 x 12's. With two roof levels and perhaps three different pitches, jogs and returns in the exterior walls and the crazy quilt of wall to ceiling angles, the split is not a natural for standardized components.

Framing the split is a fussy job although there is no reason why it should be so hard. Contemporary splits in many parts of the country, and a good number of splits on Long Island itself, demonstrate many things that could be done to simplify the work on the typical Long Island job.

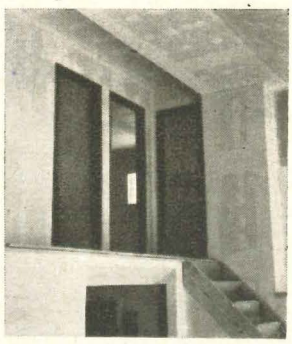
With "un-split" sides and roofs (see H&H, Feb. '56, p.136), a well-designed split could use roof trusses, symmetrical or asymmetrical, and wall panels, too.

No standard module is used

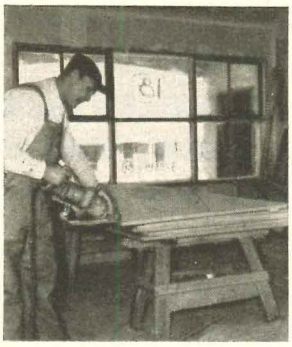
Builders admit that no real system of modular planning is used on the Island. Some cite beam lengths, others dry wall size and others 16″ stud centering as the module that comes closest. But Long Island floor plans and details don't really fit any module. Although some builders will admit that modular planning has shown its worth, almost none seem to have any idea of trying.

With its special situation making for lower costs and its standpat attitude towards fundamental change, Long Island is far from offering US home building an ideal master pattern. Yet Long Island builders and subs are often quick to adopt an improved technique to lower costs, provided it does not require a really radical departure from their basic way of building.

Prefabbed *windows are of structural millwork.*



Drywall *in splits must fit around many small surfaces.*



Portable power saw *is basic tool on L.I. projects.*

Small backhoe trencher *digs sewer lines on sites.*

Some new ideas used

For example, it is common practice on Long Island now to precut and sometimes prenail studs. Wall framing is tilted up into position, but without the sheathing nailed on. Wall panels are framed in big sizes so the addition of sheathing would make the panel too heavy for tilt-up.

Cantilevering floor beams out past foundation walls is another new development. Builders find they save on foundation costs while increasing the area of the floor plan. Two plumbing walls with 6″ or 8″ between are used to take pipe trees and stacks for baths back to back or single. A few builders have their plumbing subcontractor prefab pipe trees on the site and the subs take to the idea readily.

Dry wall is used almost exclusively, Taping machines for finishing the joints are just coming into use with a few builders. (Plaster walls have been rare on the Island since 1948.)

Transit-mix concrete is used for foundations. Even on the largest jobs, builders have not found that batch plants on the site pay off.

Hot air heating popular

Hot air heating is very popular compared to a year ago. It gives the buyer an option of air conditioning, and although few buyers are installing air conditioning now, hot air is used in almost 40% of the new houses.

Steel bucks are rapidly replacing mill work bucks. Builders find the total time required to install steel is less than half of the three hours it used to take for mill work. Steel bucks are easily handled and stored, need not be primed.

Prefabricated window units of structural mill work are being used in some higher priced split levels. The big window units are frequently placed in walls with twin 2 x 12's for a continuous header running the length of the wall. Windows are not run to the top of the wall because most splits have a roof overhang over the big windows./END

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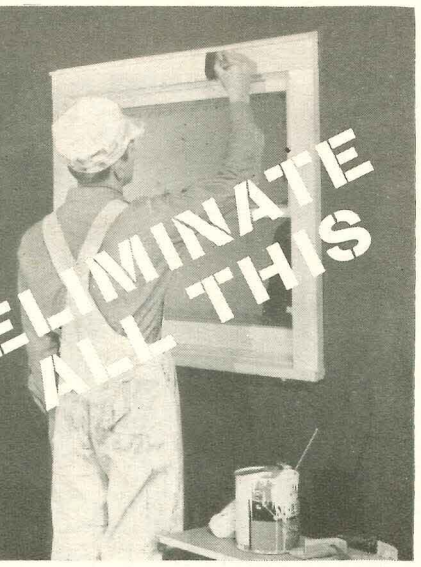

ook at the work you can eliminate! No to shim, square or glaze Best-Vent ows. No separate installation of sill, ap or side frame. No need to sand, paint or clean glass—and the inside trim simply snaps into place!

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Opens the way a window should!

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Ventilates the way a window should!

Hot, stale air "piling up" at ceiling level is automatically released; instantly replaced by cool invigorating air flowing into the room. It's a balanced air circulation cycle that's constant, gentle, draft-free; delivers the exact amount of air desired!

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Best-Vent is geared to modern methods of residential construction, designed to save time on installation, built to eliminate costly "call-backs." And Best-Vent's sensibly priced. The Good Housekeeping Seal of Approval assures customer acceptance at no cost to you!

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How to design for a by-passed lot

Architect exploits air conditioning to build a quiet house on busy city corner, slashes cooling costs with roof pond

Problem: How do you put a salable house on an odd lot where traffic noises and city dirt are major drawbacks?
Solution: Design a sealed house with its own automatic climate built in so noise and dirt can be shut out the year round.

A striking example is the long, low-slung 1,350 sq. ft. flat-top house (photograph below) that is causing a lot of comment in Hartford, Conn. This house not only shows how a poor lot was turned into a good site but it embodies excellent ideas for cutting home cooling costs.

The house was designed by Architect William H. Borthwick who put special emphasis on reducing the big sun load on the frying-pan roof. This is highly important because hot roofs account for as much as 40% of the total cost of cooling a house. Bothwick first insulated the roof and then added a 2″ deep roof pool to further reduce heat penetration into the house. Roof surface is white marble chips.

Pool was made this way: The roof is dead level and is ringed with a water curb. Water is supplied through a ½″ pipe to a copper pan. The water fills the pan, then overflows onto the roof. A chunk of rock salt placed in the pan mixes with the water and discourages mosquitoes. The pan also protects the marble chip roof surface from being worked away. Cost of the water distribution system was $125.

Pool cools house 10°

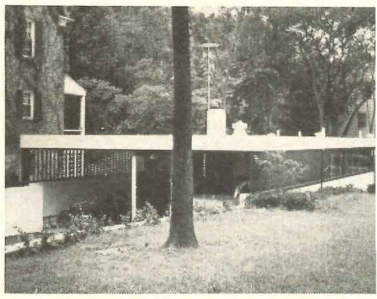
The pool is so successful that Borthwick says it alone "actually decreases inside temperature by about 10° when it is 95° outside." This is understandable because engineers figure that a 2″ pool can cut heat transmission by about 70%. Much of the cooling effect is due to water evaporation. Builders of pitched-roof houses can thus expect results as good or better with a roof spray system.

The water pond not only cuts the cooling requirement but also increases the life of the roof by protecting its surface from the punishing effects of constant sun.

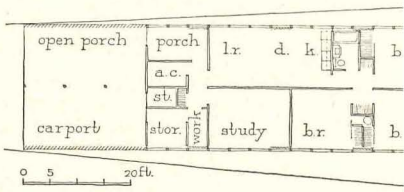
Other cooling features: Although Borthwick virtually ribboned the house with glass he used heat-absorbing sheet plate that turns back 50% of the sun's heat. The narrow west end of the house is a solid wall barrier to the summer's broiling afternoon sun. On the east the carport shields the occupants from the hot morning sun. Borthwick points out that air-conditioning makes cross-ventilation unnecessary so he could avoid costly set-

continued on p. 212

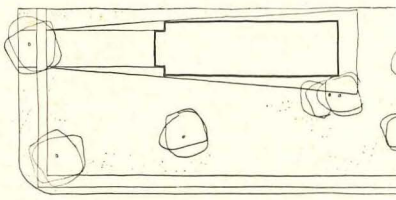
The Hartford



Entire roof *is treated as white plane ribbon of windows integrates house, sizes length. Carport above faces ea*



In-line plan *is oriented north and with front kitchen and rear living for Air is supplied through slab ducts.*



Site *is long, narrow corner lot appro 180′ x 80′ deep, enhances house wit of tree-sheltered ground.*

Long, low house stretches for 80′, fits neatly on left-over lot