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January 1952

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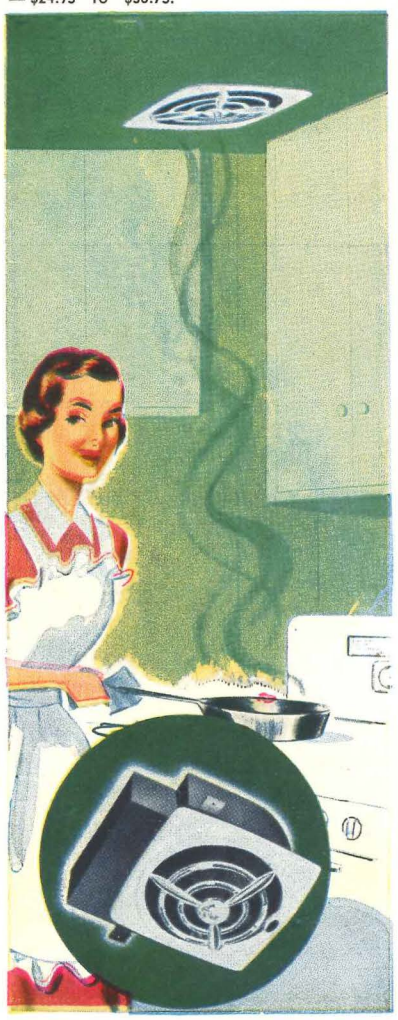

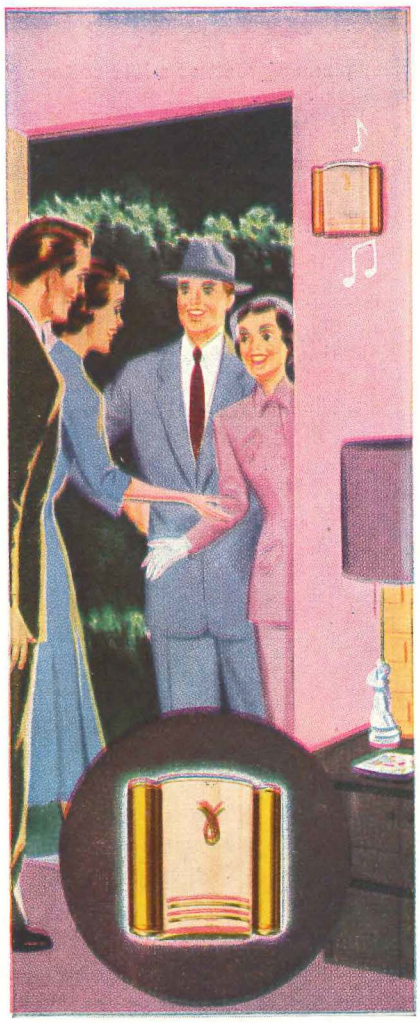

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Cover: Landis Gores house (p. 108) Robert M. Damora photo

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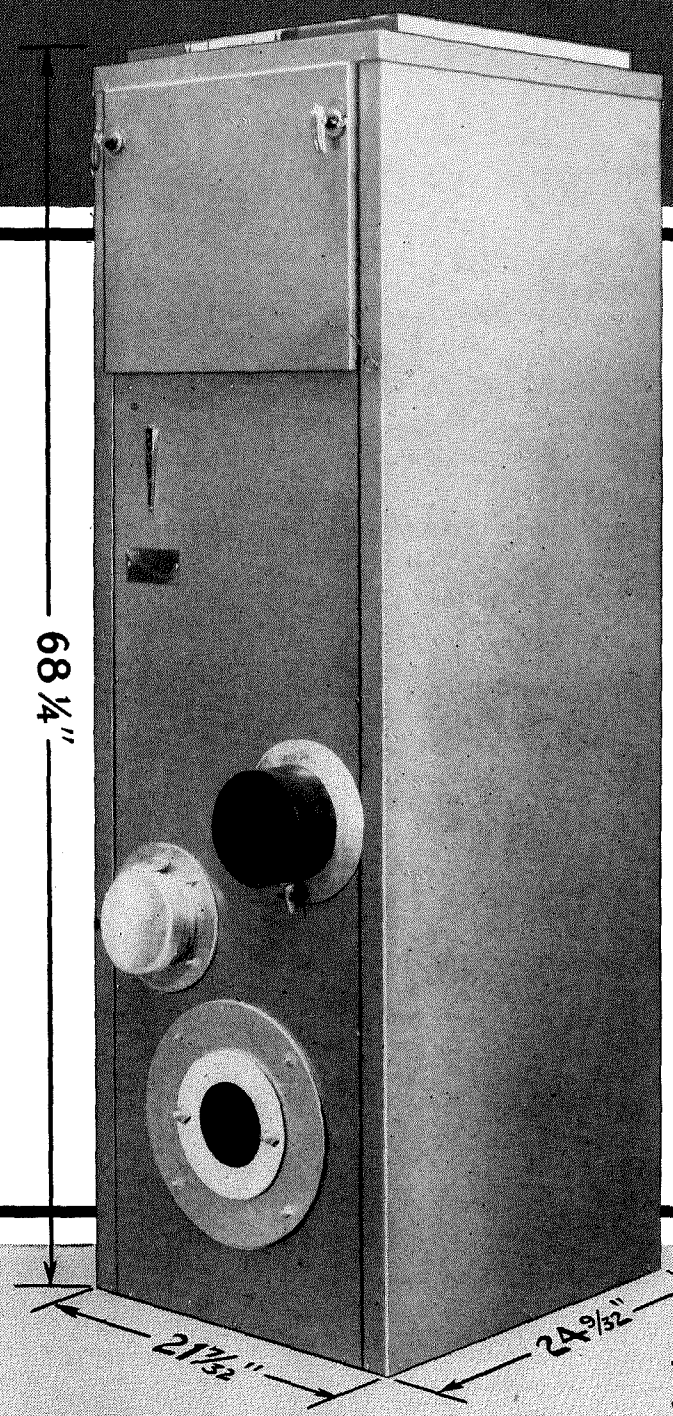

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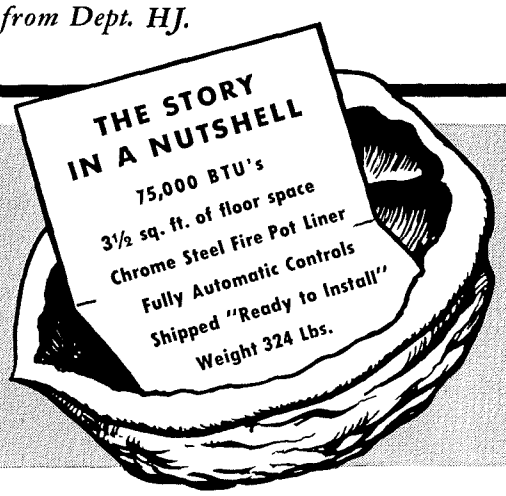

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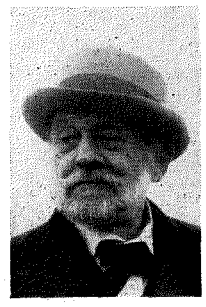
B-21

France's Perret to Get AIA Gold Medal

The Gold Medal, the AIA's highest award, will be given French Architect **Auguste Perret** in late June during the AIA's annual convention at New York's Waldorf-Astoria Hotel. Perret, 77, is a pioneer in reinforced concrete construction and perhaps the greatest single influence on Le Corbusier. Perret's works in France have long demonstrated both the versatility of his medium and its drama and delicacy. His Rue Franklin (1903) showed the possibilities of the concrete slab; his Ecole Normale de Musique in Paris was so acoustically perfect musicians dubbed it a "Stradivarius"; his docks at Casablanca introduced the thin concrete slab for roof construction; his Notre Dame Church at Raincy displayed dignity in decoration as well as construction. Currently, Perret heads some of France's prime reconstruction projects, among them the rebuilding of the port and city of Le Havre, leveled by the war. Perret's first visit to the U. S. two years ago was a triumphal tour sponsored by the French government. The University of Illinois held a photographic exhibit of his classicism in concrete.



PERRET

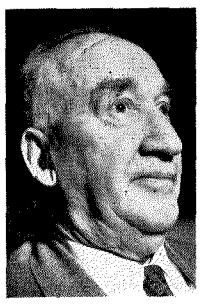
Melvin H. Baker, 66, founder and sparkplug of Buffalo's National Gypsum Co., moved up from the presidency to chairman of the board, his company's first. He will continue as National Gypsum's chief executive officer. Executive V. P. Lewis R. Sanderson was promoted to president. Tennessee-born Baker started National Gypsum 26 years ago when two colleagues who used to sell "beaverboard" with him had options on rich Buffalo gypsum ores. Even during the depression, Baker boosted sales. This year he expects National Gypsum's sales to reach $90 million, nearly half of Sewell Avery's giant U. S. Gypsum.

BAKER

William Zeckendorf, New York real estate giant, let it be known he is extending his holdings in southern California. Since 1948, Zeckendorf and Robert L. Smith, *Los Angeles Daily News* president, have been quietly buying up 11,600 acres within the Los Angeles city limits. The raw land covers canyons and flats from the Pacific Ocean to ritzy Bel-Air, from Sunset Blvd. to the Santa Monica Mts. The partners, who have spent $2,400,000 so far buying bonds on the property, would just as soon have kept mum until everything was sealed tight. But the news tumbled out in a hurry when newspaperman Smith learned *The New Yorker* was about to scoop him in its two-part profile on Zeckendorf. Architects Pereira and Luckman are drawing preliminary site plans. Zeckendorf hopes to build an integrated community, similar to Bel-Air, with homes priced from $15,000 to $40,000.

William L. ("Big Bill") Hutcheson, king-emperor of U. S. carpenters, decided 77 years was a ripe enough age to step down.

LIFE: *Steinheimer*



W. L. HUTCHESON

On January 1 he passed on the sceptre to his son **Maurice,** 53. Big Bill has ruled the AFL's United Brotherhood of Carpenters and Joiners since 1915. He has watched its membership grow to 803,000 in 2,800 locals. Only Dan Tobin's Brotherhood of Teamsters is bigger in AFL circles. Son Maurice has long been the union's first vice president, his father's confidant ("If he can't run the brotherhood, I don't know who can"). Maurice's reign is good until the next brotherhood convention in 1954. Meanwhile Big Bill has become president emeritus, will probably take the sun at the brotherhood's lavish national home at Lakeland, Fla., putt around on the golf course named for him.

Frank Lloyd Wright, in a press conference opening his San Francisco branch office,* said he plans to have $5,000 and $6,000 homes available to all comers within a year. FLLW has his mind on a house made of concrete blocks and steel. The buyer will also be the homebuilder, getting his materials through lumberyards. He will do his own stacking in toy-block fashion, run steel rods through designated holes, pour "a few teakettles of grout" over all and move in. Bathroom and kitchen will come packaged. FLLW said prefabrication and absence of union labor will halve present day costs. "Union labor has killed off any legitimate apprentice system—a practice of maintaining a scarce market that they learned from their employers—and kept the cost of labor too high." The owner-built house, sometimes called the "Usonia Automatic," was promised several years ago for initiation at the FLLW-sponsored Usonia co-operative in New York's Westchester Co. Usonia began in the fall of 1948 as a 50-house development. So far 25 are up and three abuilding, all in the $20,000 plus category. So whenever FLLW's blocks are ready, Usonia will be ready to start piling.

* At 319 Grant Ave., formerly occupied by Taliesin alumnus Fred Langhorst. Aaron Green is architect in residence.

Ralph Kaul, who quit last October as chairman of DPA's critical areas committee in despair over the committee's lack of authority to accomplish what it was supposed to, popped up again in a new government housing job. Kaul became an assistant to Neal Hardy, assistant HHFA administrator in charge of plans and programs. Kaul's assignment: to plan temporary defense housing.

Died: **George A. Nichol, Jr.,** 68, former vice president and director of the Johns-Manville Co. and an authority on beach erosion, Dec. 16 in Palm Beach, Fla.; **John Phillips Cosgrove,** 54, of Locust, N. J., executive vice president of the American Radiator & Standard Sanitary Corp., Dec. 13 in New York's Presbyterian Medical Center; **Paul Gerhardt, Sr.,** 88, Cook County, Ill.'s architect from 1909-1912, Dec. 3 in Chicago.

Leonard G. Haeger, NAHB materials expediter, will move up to the combined post of technical and research director Feb. 1 when Carl Lans leaves to join Builder Earl Smith of Berkeley, Calif. **Christian O. Christenson** will resign as FHA property requirements chief to become Haeger's assistant.

Named: **John B. Veach,** head of Asheville, N. C., Hardwood Corp. of America, as 1952 president of the National Lumber Manufacturers Association, succeeding Corydon Wagner, of Tacoma. Veach, 52, is head of the OPS's Appalachian hardwood advisory committee and a lumber advisor to the National Security Resources Board; **Ralph E. DeSimone,** 59, as president of Merritt-Chapman & Scott Corp., one of the U. S.'s largest engineering construction firms, succeeding Raymond F. Kopp, who resigned; **James F. Lincoln,** president of Cleveland's Lincoln Electric Co., as president of the National Electrical Manufacturer's Association.

Geo. Lohr

VEACH

THE MAGAZINE OF BUILDING house & home

Cornerstone for a New Magazine

This is Volume 1, Number 1 *of a new venture in journalism, a magazine whose clear and single purpose is to help Americans find a better way of living by giving them better homes at prices they can pay.*

This magazine is conceived, written, and edited for professionals—for those whose calling and life work it is to design, finance, build, or supply materials for houses. Let there be no confusion here. If others find it useful to read over the professional's shoulder they are welcome, but this is no primer for laymen.

Even professionals must reach at times to grasp the new developments we shall report outside their special fields—for this magazine must help architects find a new understanding of the builder's role, help builders learn a new understanding of design, help every professional to a new feeling for housing economics and finance, help architects, builders, and suppliers alike to a new concept of industrialized construction based on presizing a great variety of parts to standard dimensions for production-line assembly.

We hope to make this magazine practical and immediately useful. We will use all our journalistic resources to find and let you see in fine photographs, plans and scale drawings the new homes it is important for you to know—homes with fresh design, fresh constructions, fresh ideas—single-family homes and homes in small apartments—new houses and old houses made new with new ideas—custom-built houses which may perhaps be ten years ahead of our time and volume-built houses in which good new ideas are put within the reach of every man. We will reinforce these case studies with special articles on significant new trends and new departures—new materials, new constructions, new opportunities.

But beyond all these reportorial undertakings we recognize a deeper responsibility —for those who profess to serve building as journalists must share in full measure building's responsibility to the American people.

HOUSE & HOME takes its name from the belief that our industry owes the American family far more than shelter. If the good life is to be the heritage of every American we must build into our houses, from early design to closing finance, all the satisfactions that make a house a home. We must build in more space, more convenience in living, more enjoyment of the land, more security of tenure, more neighborhood advantages. We must so use design as to make the home whole and add pleasure to utility. These are the deep-seated, age-old, never-satisfied desires that make families want houses of their own.

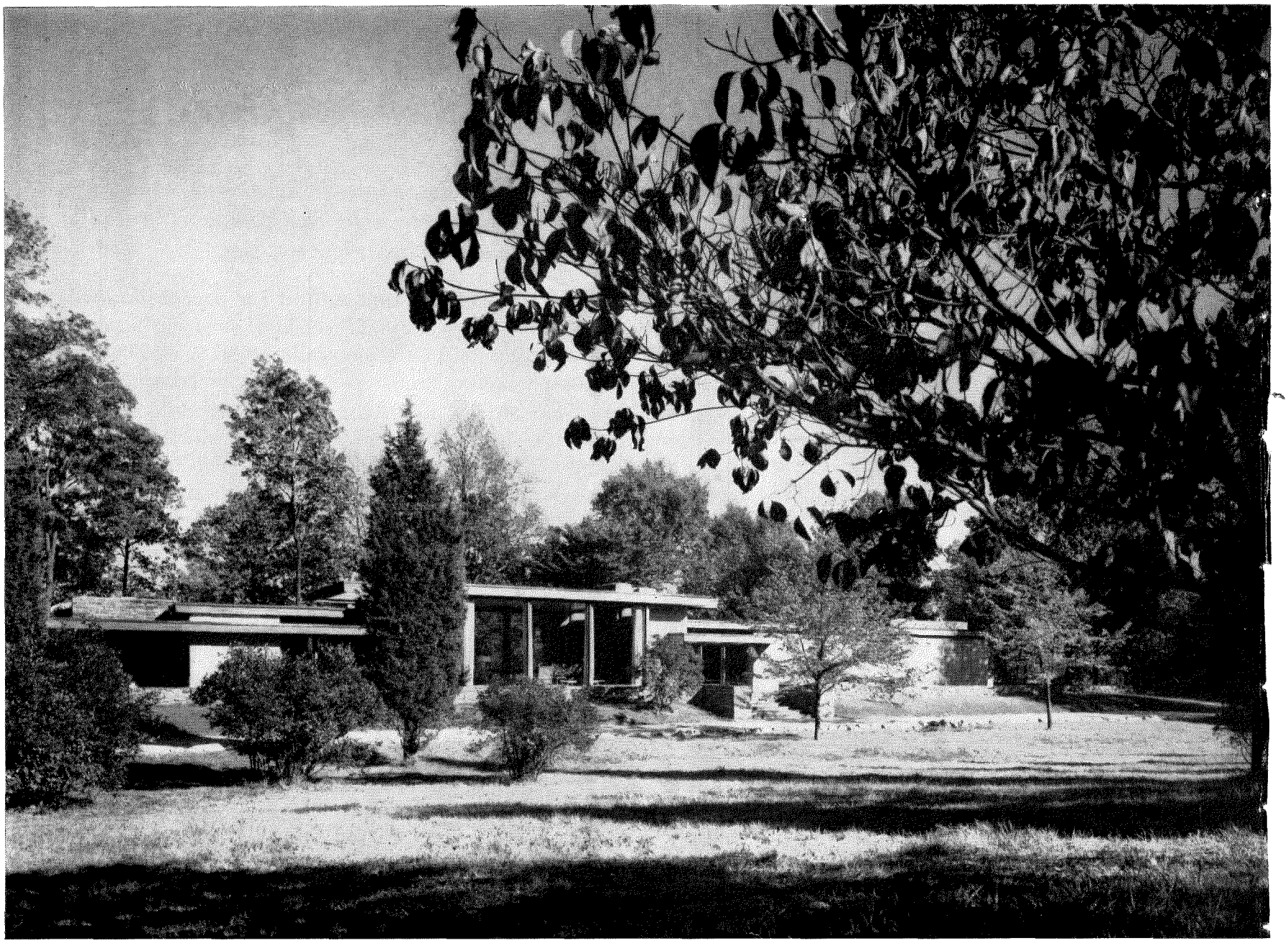
Only professionals can make such homes attainable. Only professionals can combine design, materials, methods and finance to change the hard arithmetic of shelter and create for every man a home for the good life.

You have great assets with which to work. You have all the resources of architecture, and they have never been greater. You have better, more varied, more specialized materials. You have liberal financing never before possible, and far more know-how than the master builders of the past. You are heirs to the wealth of new technology pouring from the laboratory. Above all, your industry stands at long last on the threshold of its industrial revolution—the industrial revolution to which, in other fields, we owe every advance in living standards since colonial times.

Given these assets, given the vision to see your goal and the faith to continue your endeavor, we believe you will succeed faster than even you would dare to think.

In the remaining pages of this issue and in all the issues to come, HOUSE & HOME *purposes to serve those who live in America's homes by giving you who must create those homes a magazine worthy of your opportunity and your responsibility.*

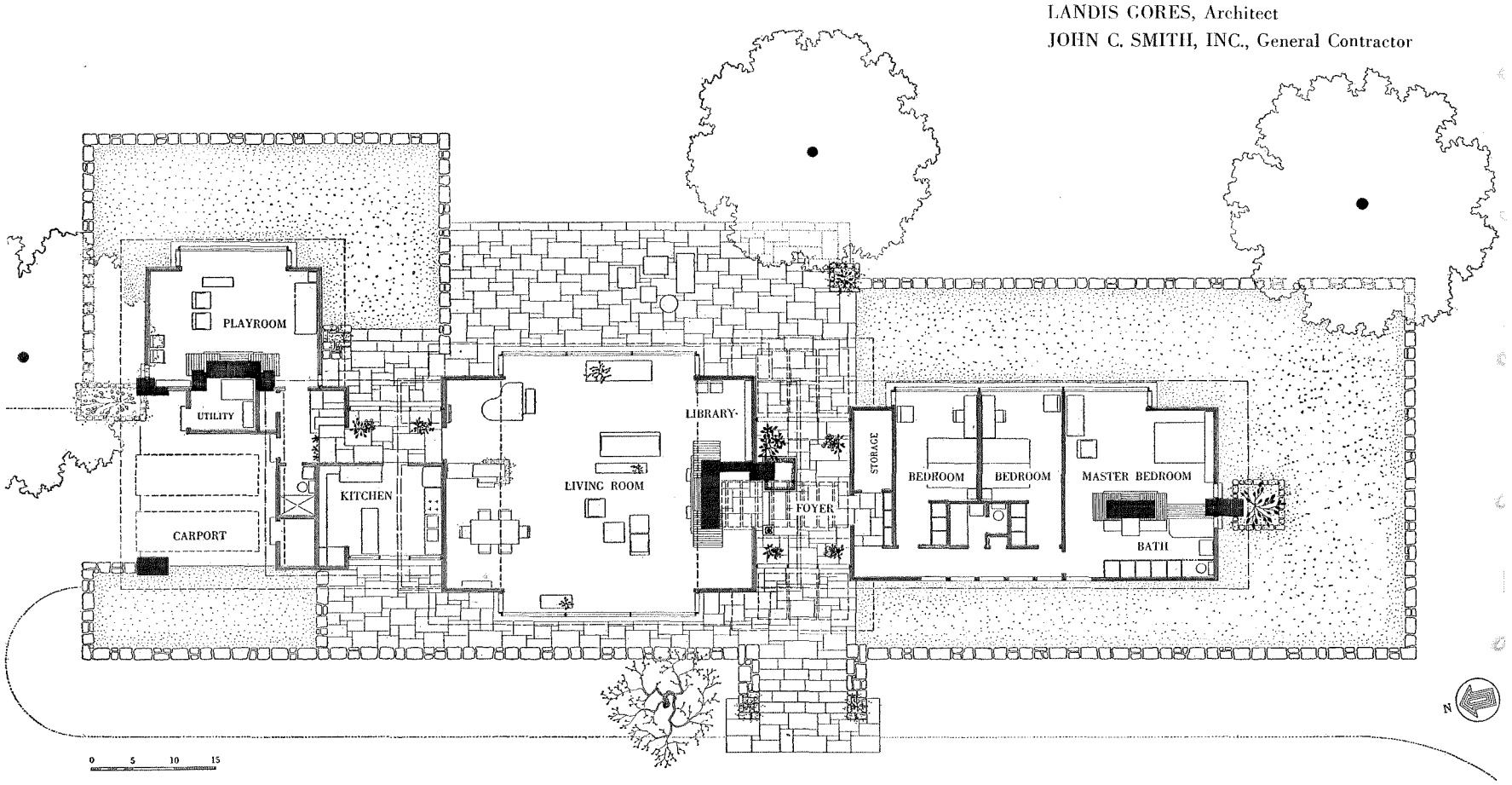
—The Editors



Photos: Damora

View from the road shows 130′ long facade

LOCATION: New Canaan, Conn.
LANDIS GORES, Architect
JOHN C. SMITH, INC., General Contractor



A TRADITIONAL HOUSE IN THE MODERN IDIOM

Some say this is a traditional house executed in the modern manner. Others that it is a contemporary house permeated with tradition. New Canaan conservatives, still baffled by such avant-garde work as the Marcel Breuer, Philip Johnson and John Johansen houses, use a more colloquial phrase. They call it "a modern house that really looks like a house."

It is modern because its plan is open and its spaces dynamic and bold; because its details are clean and simple; because it is intimately related to the landscape surrounding it; and because its many flat roofs and its large sheets of glass are of the technology of our time.

It is traditional because it was consciously designed in the living tradition of American domestic architecture, picking up this tradition at about the point of Frank Lloyd Wright's 1912 Coonley Playhouse; because its composition is almost symmetrical, both in the whole and in many of its parts; because its scale is monumental and its composition is three-dimensional; and because it is a deliberate attempt to emphasize the permanence of "home" rather than the temporariness of "industrialized shelter."

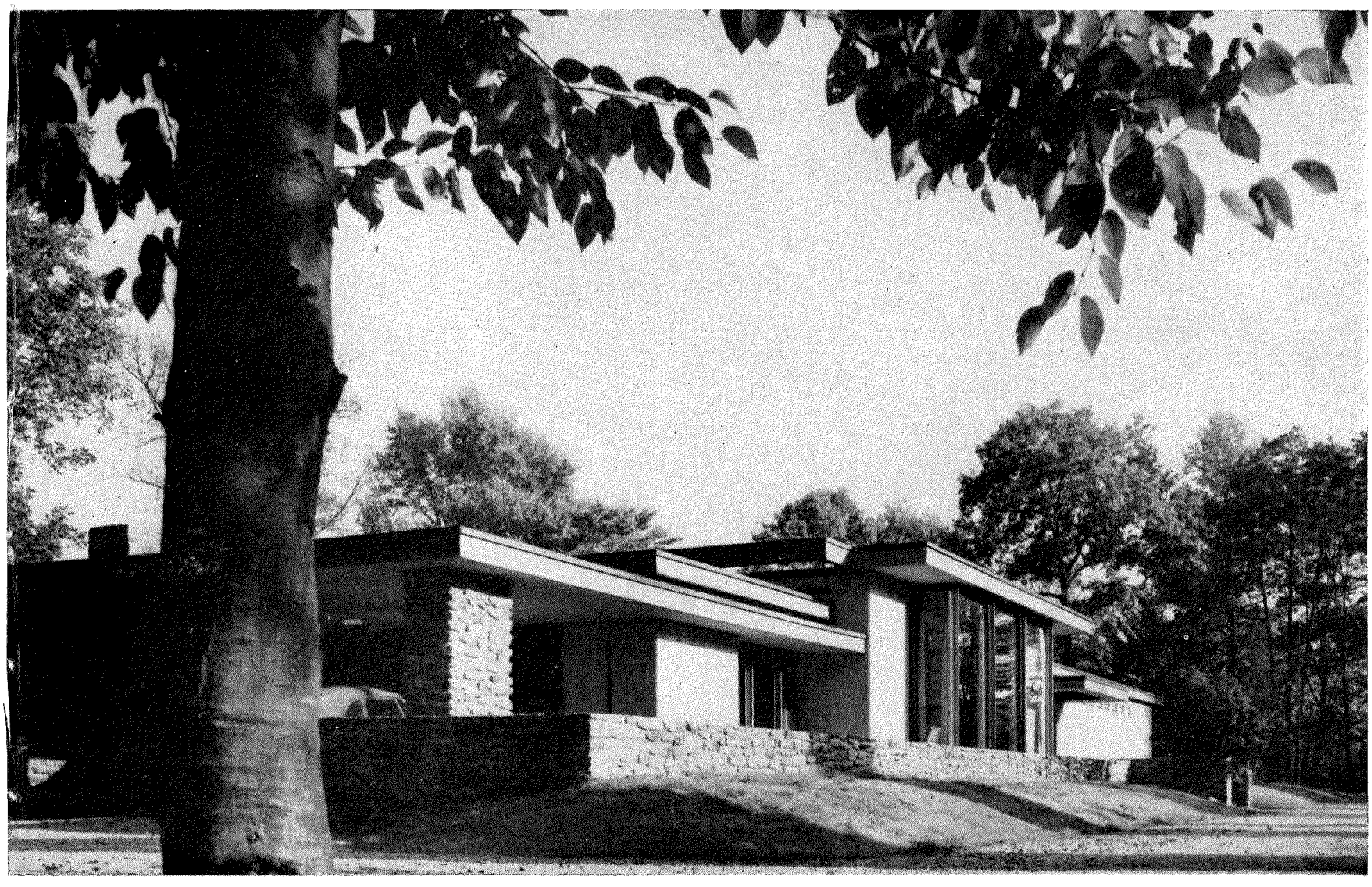
The house is the first major job by a young architect who steeped himself in the classics at Princeton before going on to Harvard to study architecture under Gropius and Breuer. In designing this house for himself, Landis Gores drew upon both classical discipline and modern, technological freedom for inspiration.

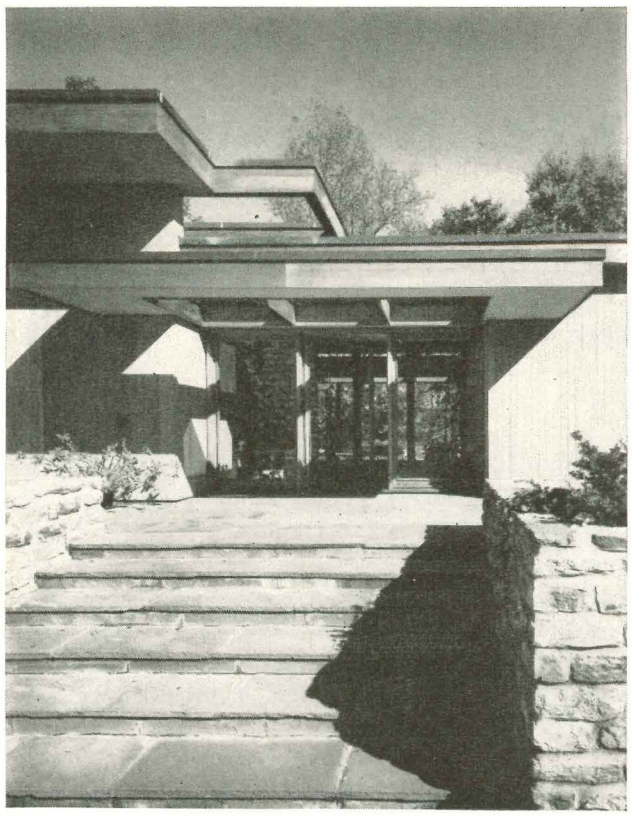
Some critics will dismiss the house as a compromise. Others may consider it a harbinger of how such diverse influences as Gropius and Breuer and Mies van der Rohe and Frank Lloyd Wright may eventually be reconciled in the main stream of architecture's advance.

In-line plan

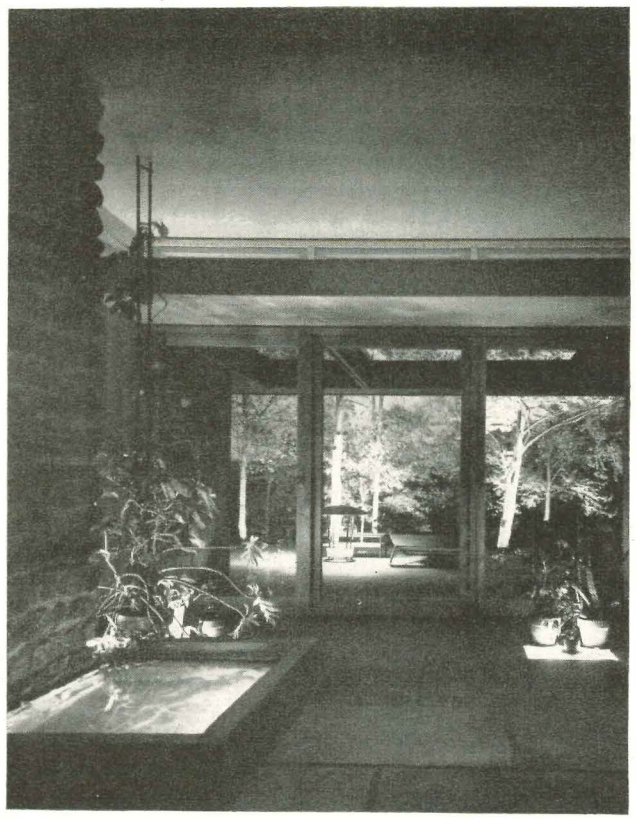
Near-symmetry is this building's most traditional touch. Strongly influenced by Wright's near-symmetrical Prairie Houses, Gores went to great lengths to make his tall (11′ high) living room the center of the composition and let the low-slung roof planes over the extended wings on either side pyramid up to the climax of this living room.

Carport is in foreground, tall living room in the center with entrance canopy beyond. Exterior is of vertical cypress siding stained gray. All facias and trim were treated with dark linseed oil finish.





Main entrance is under low (6'8") canopy



Night view of entrance foyer shows illuminated goldfish pool, plate glass covered floor lights. Gores placed plants on top of these, illuminated the undersides of leaves and branches. Same principle was used in exterior lighting of woods.

Entrance foyer with goldfish pool and skylight trellis. Living room is beyond stone mass at right.

The price paid for this monumental effect is that the living room becomes a busy traffic center, lying between the kitchen and front door, between the sleeping quarters and the children's playroom. Gores recognized this problem but found it insoluble in his site without sacrificing either the monumental symmetry or the dramatic impact of the 130′ long front, or the excitement of glass walls and a view on both sides of the living room.

The plan, in fact, is well suited to the site, for the house is located on a long, narrow and rocky spine that runs north-south. To its east there is a steep drop—a wooded valley and a view of hills beyond. To the south is the bed of a small stream. And to the west, between the rocky spine and the road, there is a shallow and occasionally marshy depression. To keep his house on the dry rock, Gores developed his 130′ long, in-line plan, let his house ride the ridge.

To the south of the living room is a magnificent entrance and, beyond it, a string of bedrooms. To the north are the kitchen, carport and a spacious children's playroom. All along the east side, overlooking the valley, are broad terraces retained by almost medieval stone ramparts, some of them 9′ high.

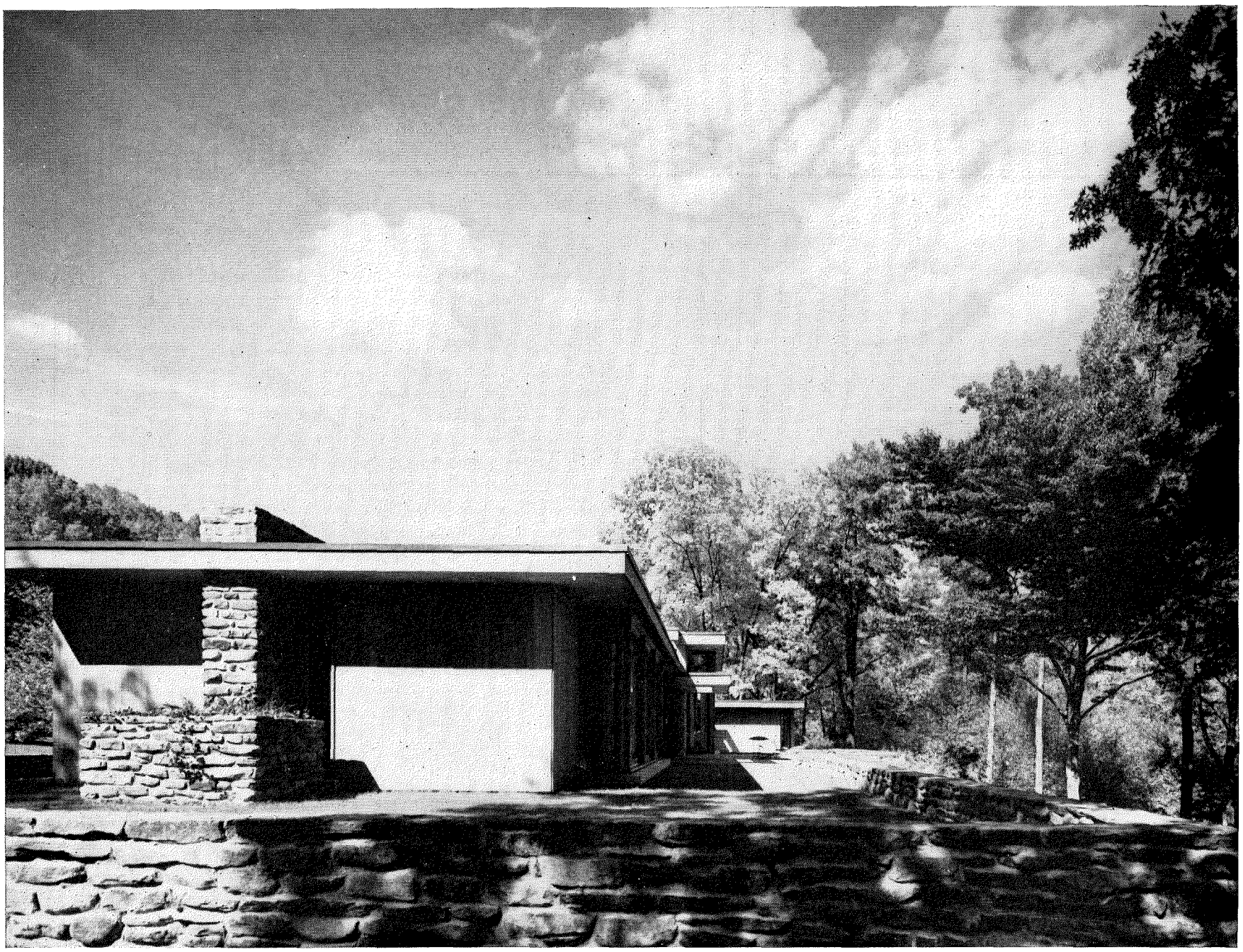
The separation of parents' and children's quarters that results from the central location of the living room gives each a high degree of privacy; it also creates (for future use) a separate apartment for the children at the north end of the house, complete with its own entrance, large fireplace, and with direct access to the kitchen. This plan-division is probably the only "Breuer touch" in the house.

Plastic space

To the right of the living room, as you approach the house, is the very formal entrance; under its low (6′8″) canopy (which looks very much like the roof over Wright's Coonley Playhouse) you walk through a wide glass door in a glass wall into a tall and lavish foyer running clear through the house. Directly ahead, and visible through another wall of glass, are the terrace and the trees; above is an exciting play of light and shade through clerestories and through trellises. Sunk into the flagstone-paved floor are a goldfish pool and a series of lights covered with sheets of ½″ thick, rough plate glass.

To the left is the heavy stonework that conceals the living room. As you walk up one step and around this mass you suddenly face the 32′ x 37′ living room—two of its sides all glass, the other two sides lit through clerestories just under the 11′ high ceiling plane. This elaborate build-up toward a climactic effect is again in the best Wright tradition—as are the changes in ceiling height, the changes in floor level, the long clerestory strips just under the ceiling.

Living room has one of three massive fireplaces in the house. Chimney breast is 13′ wide, embraces furniture group



View of east side of house shows high stone ramparts: retaining walls for terraces

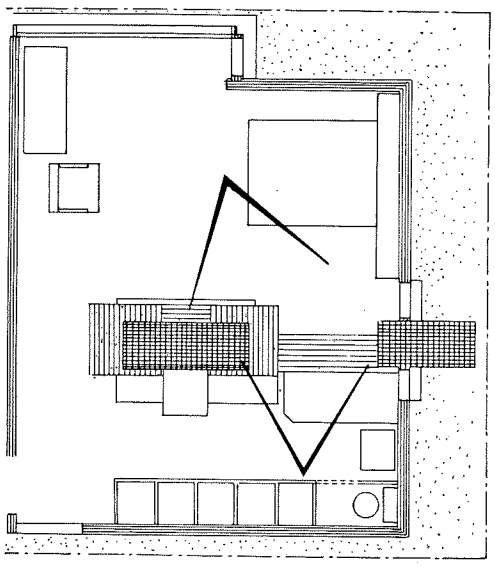
The mass of stone now reveals a huge fireplace on its living room side. The breast is 13′ wide—a monumental base, wide enough to receive a spaciously arranged furniture group around the fire. "If I had made the chimney breast any narrower," says Gores, "the couch and the chairs would have seemed to slide past the fireplace."

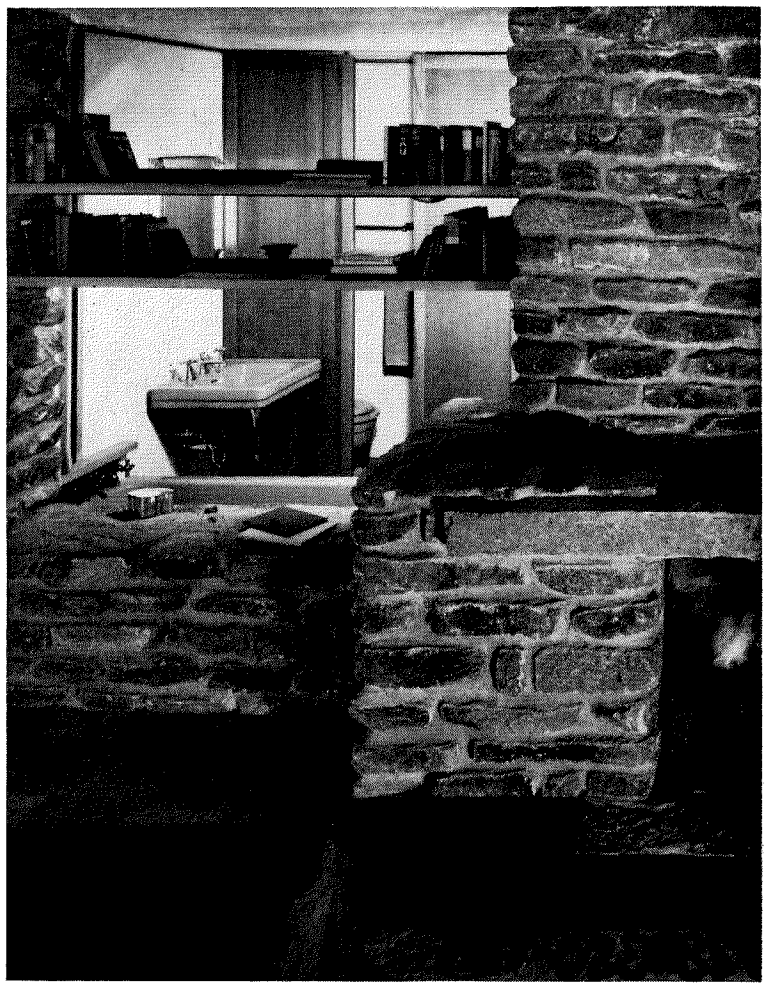
Precise detail

But while the lighting, the change of ceiling and floor levels and the continuity of space through a series of twists and turns are in the Wright tradition, the detailing is very much in the manner of Mies van der Rohe. (Until recently, Gores was associated with Mies-disciple Philip Johnson, with whom he worked on Johnson's famed Glass House. Gores, characteristically, is a perfectionist draftsman.) In the living room, the mullion details with their cabinetwork precision are most clearly Miesian in feeling. Elsewhere in the house, Gores has framed each plaster wall panel with neat metal plaster-stops, has left a recessed ¾″ cypress strip, ½″ deep, between all plaster panels and floors, ceilings and door frames. The door frames, too, are outlined with unusual precision: a narrow, projecting strip of wood forms jambs and head.

Although Gores deliberately stayed away from a consistent structural rhythm—he feels that this would have become a strait jacket—his consistent use of these precise details around doors, plaster panels and window openings gives the architecture a coherence that is astonishing in such a complex house. For complex it is; Gores realized the dangers inherent in a 130′ long, evenly modulated facade, decided to break it up with projecting and receding roof planes, with projecting bay windows (whose narrow sides are full-height glass doors, screened and used for ventilation) and with wrap-around retaining walls. As a result, the house is full of variety and surprises, appears in retrospect (because of its many vistas) almost twice its actual size.

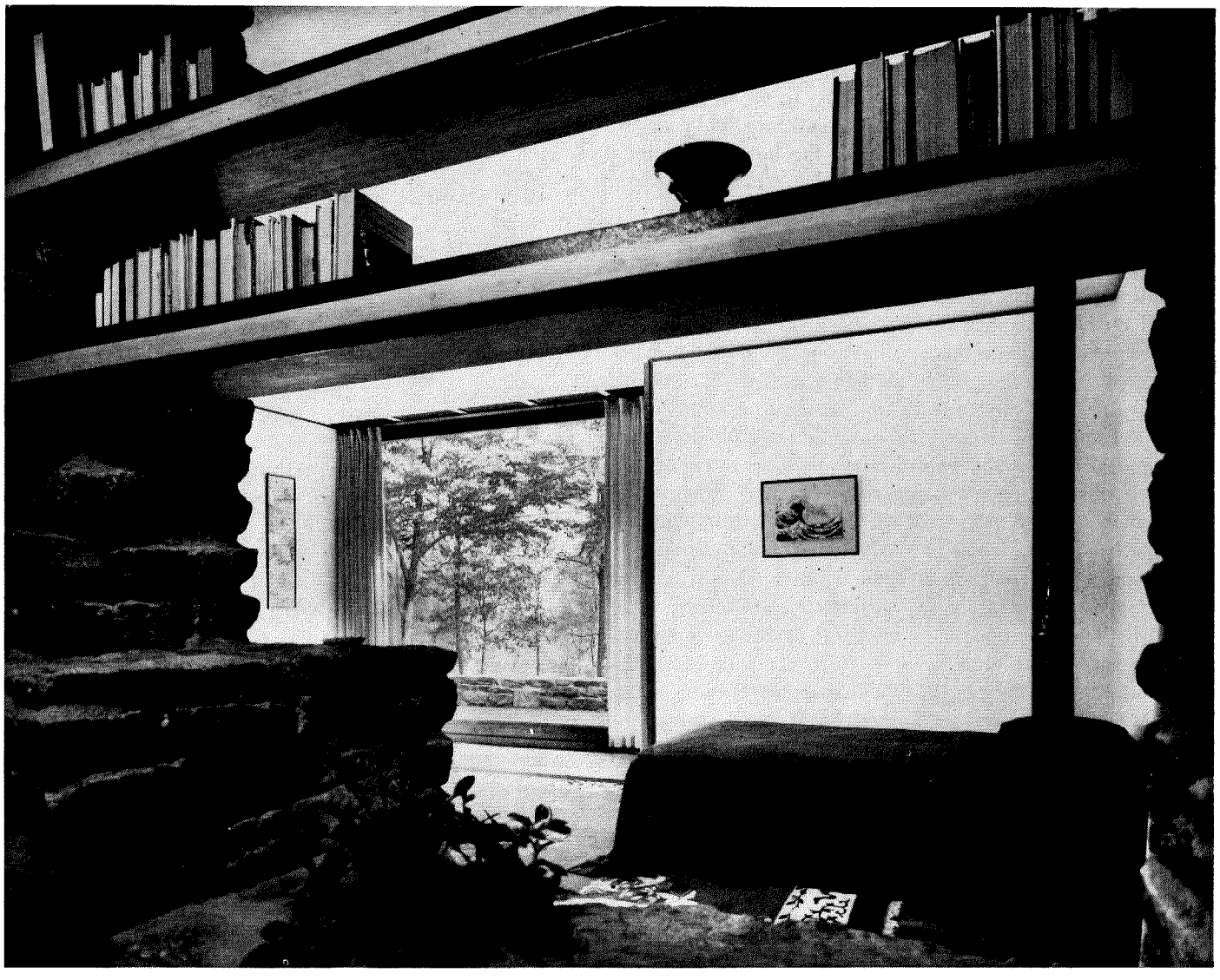
Economy was not the watchword in the design of this $53,500 (excl. of fees and landscaping), 3,250 sq. ft. residence, but Gores did occasionally discover inexpensive solutions to his luxurious details. His door openings, for example, go all the way up to the ceiling to avoid looking like punched-out holes in the plaster partitions. The doors are 8′ high, were specially made up for him out of 8′ plywood sheets at a cost of only about $22 per door—very reasonable indeed considering that he thus avoided the framing and plastering needed above standard doors. The 8′ door height, plus 2¼″ for the head, gave him an 8′ 2¾″ ceiling height throughout his bedroom wings.





Master bedroom has open bath directly behind low stone shelf

View from open bathroom toward sleeping area with terrace beyond



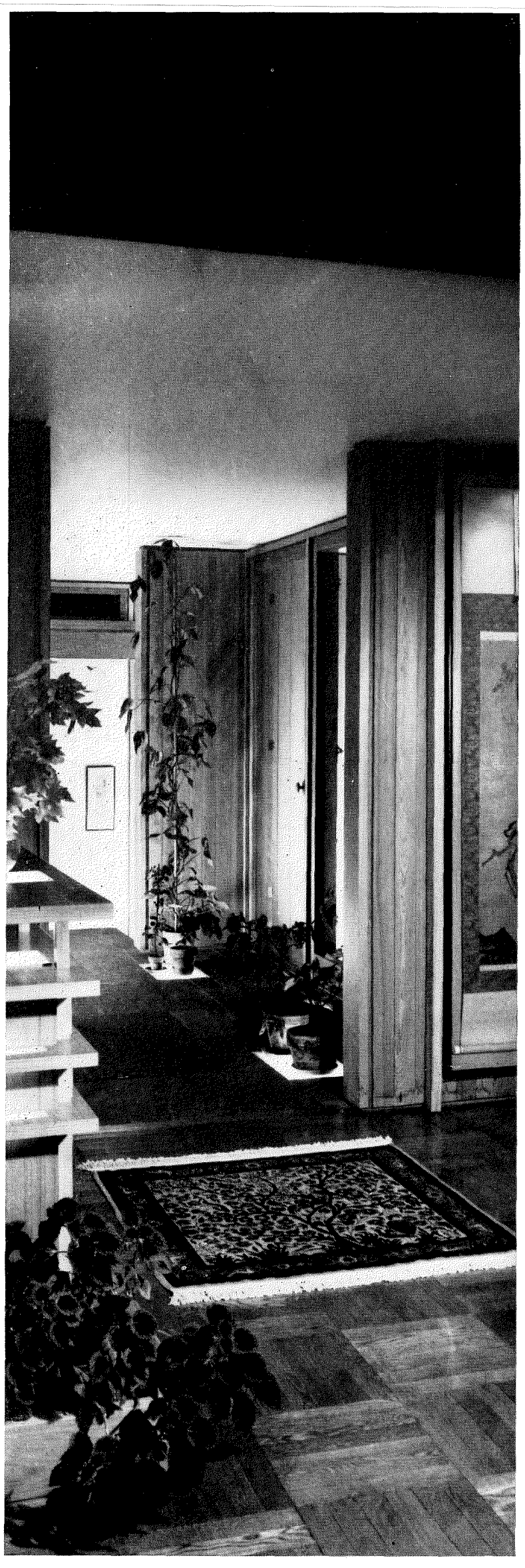
A clear saving resulted from his laying out the flagstone patterns for his paved floors. By planning to use only standard bluestone sizes—multiples of 6″ in each direction—Gores enabled his contractor to order the stones in exact sizes and quantities, avoided waste due to cutting on the job, and speeded up the masons' job immeasurably. The saving was more than 25% of the original bid.

Monumental scale

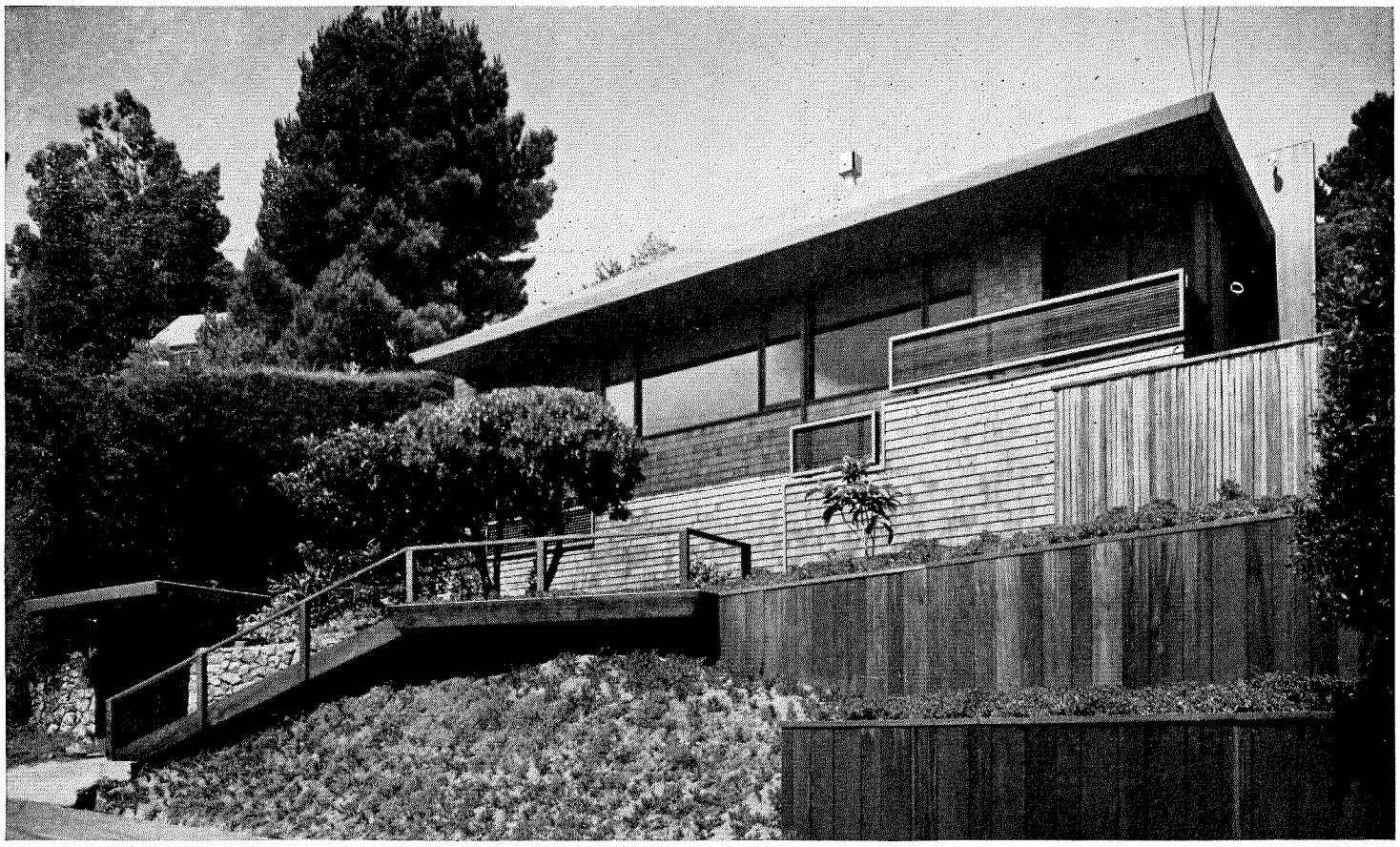
Not only the tall living room, the entrance lobby and the stone ramparts on the valley side of the house proclaim its almost aristocratic scale; there is an almost aristocratic grace about the way of life which the house implies. Landis Gores is a creative young conservative among his avant-garde contemporaries. There are many like him in modern American literature, poetry and philosophy, but in architecture his work is still an isolated phenomenon.

Because Gores thinks that good architecture does not depend upon good functioning alone, the house deliberately sacrifices certain practical conveniences in order to achieve certain architectural effects. It is, for example, most impressive to drive past the entire 130′ entrance facade to get to the carport; but this robs the glazed living room of some privacy from delivery trucks and unexpected visitors. It is equally impressive to pass through the house in a series of winding passages and up and down a series of steps; but the men who do the time-space studies would probably consider this inefficient.

Yet Landis Gores has many beautiful details to compensate for the functional insufficiencies. A spectacular example is the master bedroom—an 18′ x 23′ living space with still another stone fireplace and *with a bathtub as part of the setting!* The scale is aristocratic, the style Pompeian. In an age regretfully committed to minimum cubage and the lowest common denominator, a house like this one—in the grand manner—is a powerful shot in the arm, a thing to lift your spirit.



Night view from living room into kitchen-playroom wing shows recessed floor lights used again.



Handsome street side has new steps, handrails and planting to unite house and site in horizontal planes

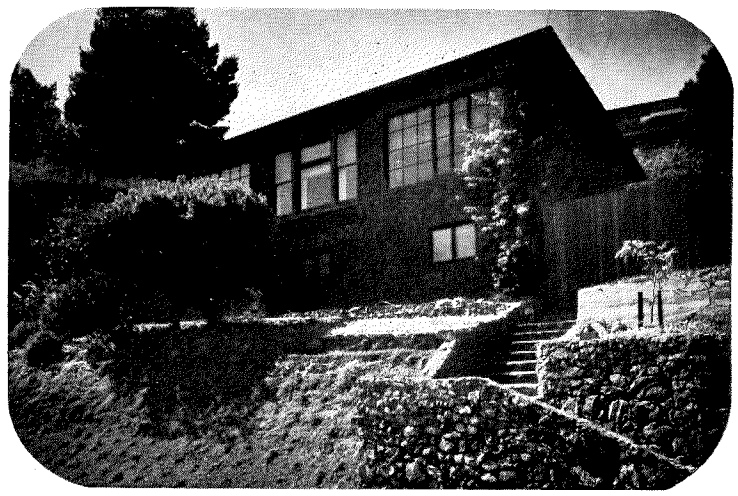
Photos: Roger Sturtevant

REMODELED 1910 COTTAGE OVERLOOKS SAN FRANCISCO BAY

"A good house always offers a good solution to living problems—whether you are starting from scratch or remodeling. In this case we had to start with a conventional cottage, vintage 1910, perfectly well suited to the owners of that day but entirely unsuited to the present owners and their way of life. . . . I think we have proved that it is possible to open up an old house to today's ideas of space, view, convenience—without destroying the feeling of the original."

That's how designer John Campbell sums up this very handsome job; more detailed study shows that perhaps he was minimizing both the problems and the results of a remodeling which also required skillful relandscaping to unite garage, house and entry on a steep and hilly site.

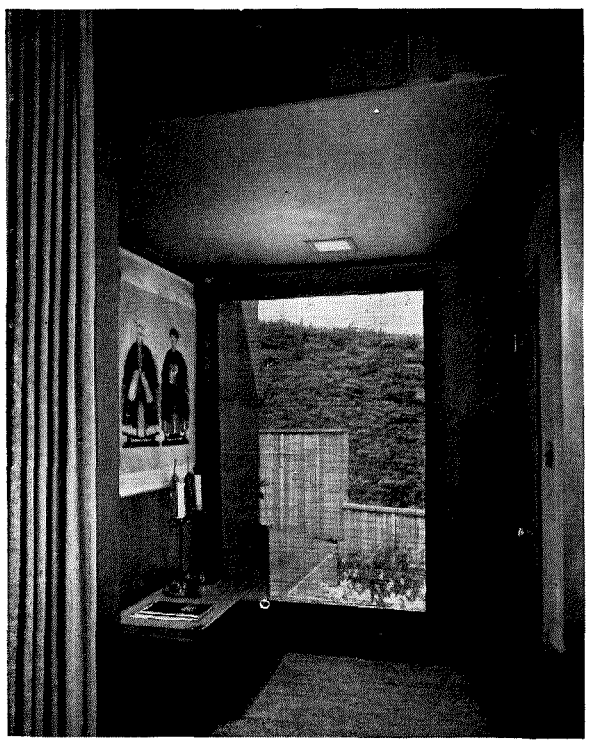
What the present owners really wanted was the view. The cottage itself was typical of its era: a floor plan bound to make today's way of living difficult, no indoor-outdoor integration, no means of getting from garage to house except by walking along the street and on up a devious flight of steps on the far side of the lot. It had small rooms. It was boxy. It was cut up.



Old cottage had cut up windows, no roof overhang, vertical lines, devious steps coming from street at wrong side of lot. There was no relationship between house and site.

LOCATION: Marin County, Calif.
CAMPBELL & WONG, Architects
ECKBO, ROYSTON & WILLIAMS, Landscape Architects
RALPH MURPHY & SONS, Builders

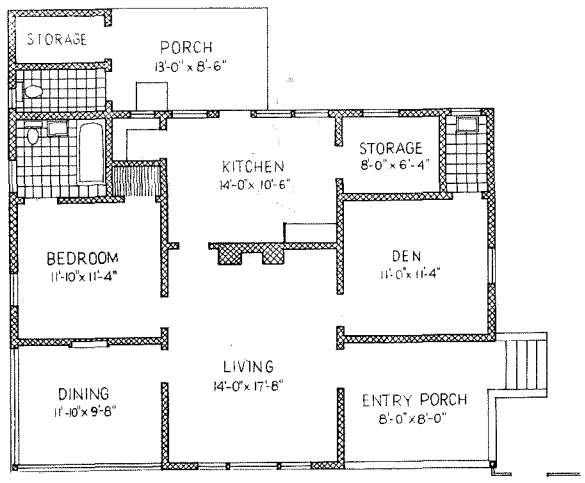
Big, expansive new living room combines space of former living room, den and entry porch. It is opened up to a panoramic view of San Francisco and the Bay; 5′ roof overhang, its soffit painted green, cuts glare. Below, entrance foyer looking toward new fence and old cypress hedge.



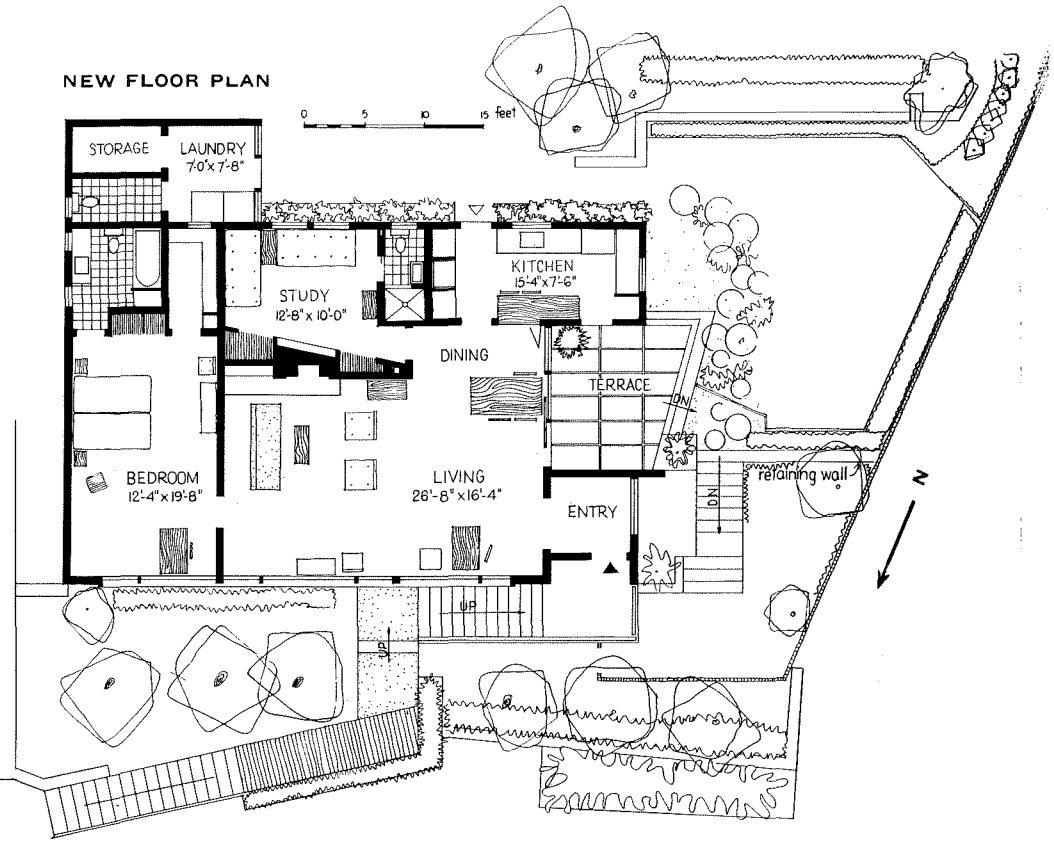
Now the floor plan is flexible and modern. It provides a big, dramatic living-dining room across the front, open to both kitchen and outdoor dining terrace, and exactly right for a woman who cooks convivially and who entertains casually and frequently—as many as 150 for tea! The old bedroom and dining room porch (which was a good 20-foot walk through the living room from the kitchen) have been combined into a 12′ 4″ x 19′ 8″ master bed-sitting room with a view of the bay. The old kitchen became the present study-guest room, with an extra bath added; the old side storage room was converted into a compact, efficiently equipped kitchen; part of the back porch was enclosed and turned into a laundry.

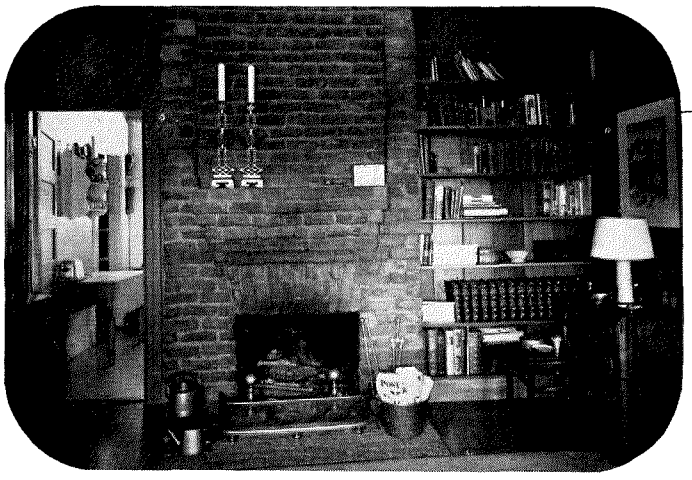
In redesigning the living room, the architects worked around the existing fireplace and installed bookshelves where there had been a door to the old kitchen, thus achieving a quiet sociable area free of traffic. The fireplace wall and the one adjacent to it they paneled in redwood (some from the original house); the other two became window walls. On the terrace side, windows are floor-to-ceiling; the 33′ expanse of windows across the front start at sill height, to assure privacy from the street below. An example of careful attention to detail is the cove lighting above front windows, so the night view of San Francisco may be enjoyed without seeing the reflection of lamps on the window glass. (*Continued on page 118*)

OLD FLOOR PLAN



NEW FLOOR PLAN



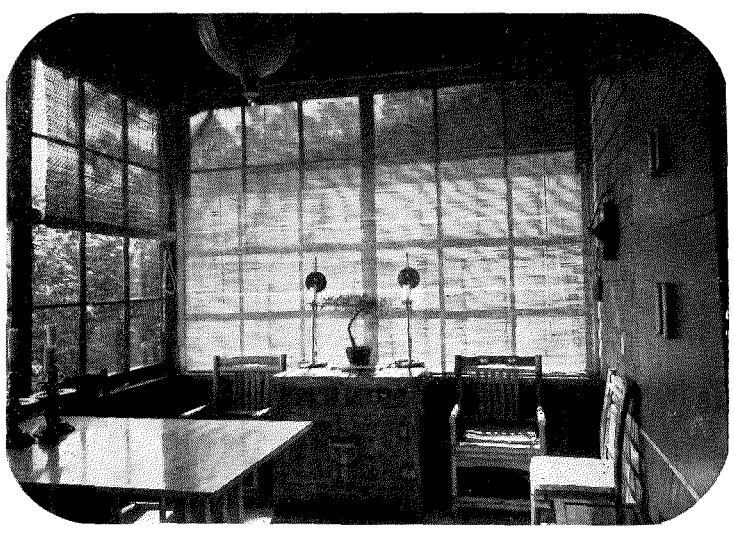


New floor plan unites living, dining, kitchen and terrace areas for a couple who like to entertain. Landscaping makes full use of hilly site; garden is on sunny side, off terrace.

New living room, below, with original high (10'6") ceiling makes a fitting background for modern and old Chinese furniture, water colors, art objects. Old door to kitchen, **photo left,** *was filled with bookshelves, walls paneled in redwood.*

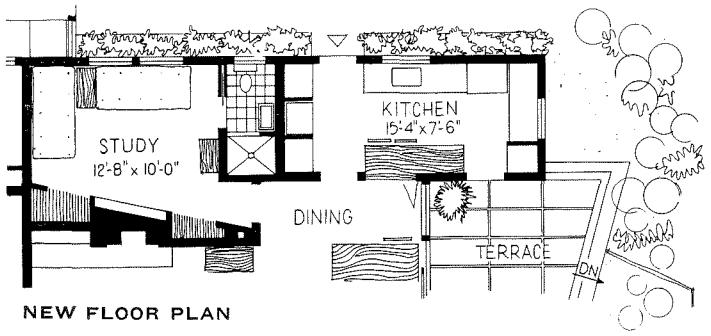
REMODELED 1910 COTTAGE

New dining area, above, opens to both terrace and kitchen, made to order for a woman who cooks convivially, gives large parties. The old dining porch, below, was completely isolated from both kitchen and garden.

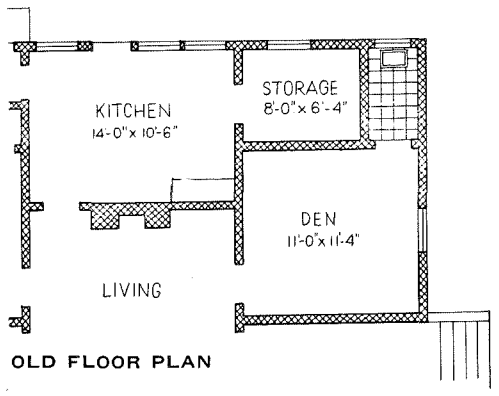


Structurally, the main problem was not the removal of exterior walls (*see plans*), but finding a new support for ceiling joists where interior walls and beams were removed in the course of enlarging the living room. The architects ended by using trusses. They even ran a long (27′) truss across the new living area about 12′ from its south wall and in line with the spur dividing entry from terrace. The truss was as deep as could be squeezed in under the rafters of the hip roof.

The handsome exterior retains its original character, has the same cedar shingle walls; what changes there are came about as a natural outgrowth of the interior planning. In the front, the sweeping window wall is protected from glare by a 5′ roof overhang. On the east (entry) side there is another window wall and a charming paved dining terrace protected on three sides by the house. It overlooks a small grass plot and flower bed, with privacy from the street provided by a split grape stake fence, and on the back and side property lines by the old 20′ high cypress hedge.

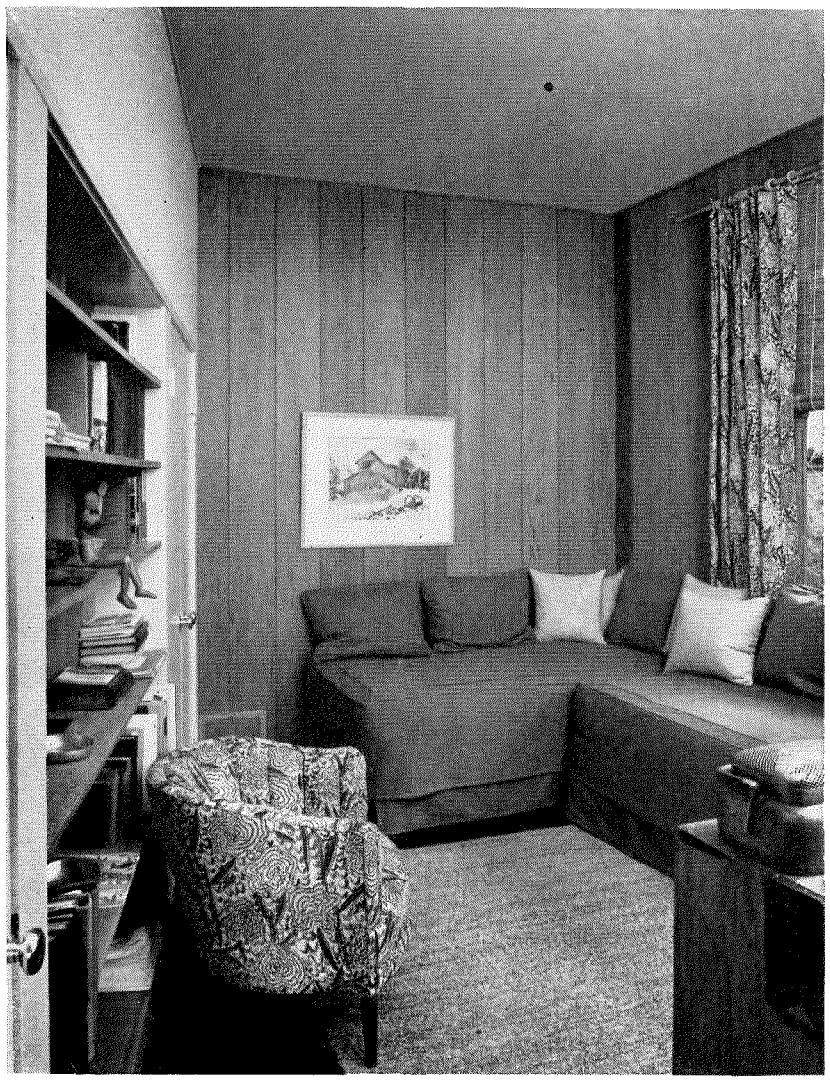


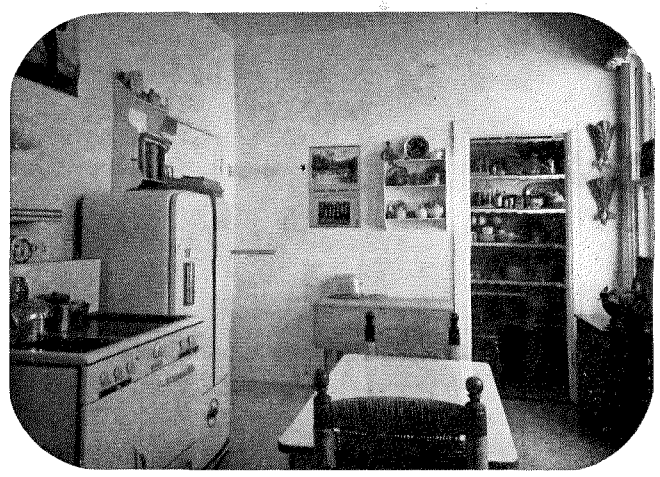
NEW FLOOR PLAN



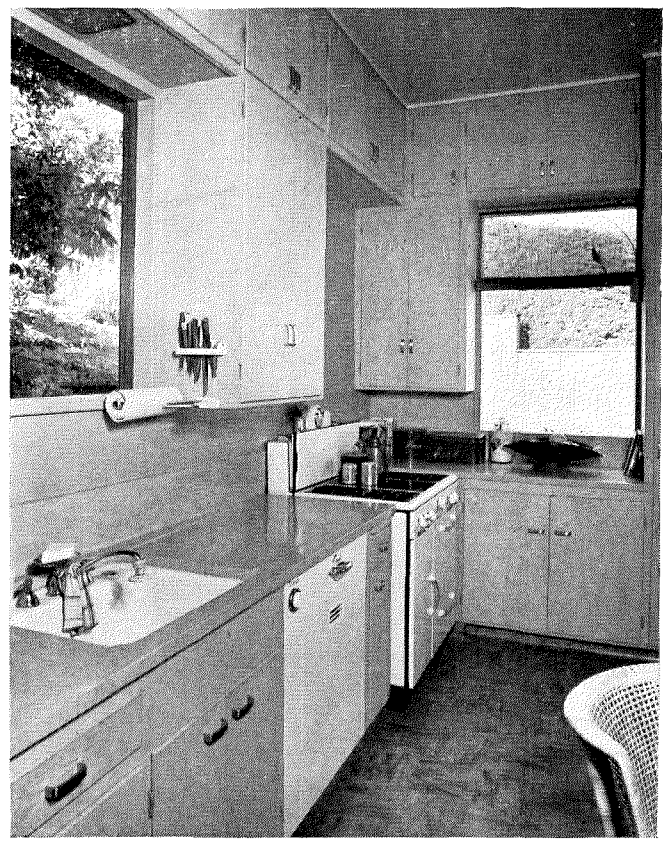
OLD FLOOR PLAN

New study-guest room, left, is where the old kitchen (below) used to be, has its own private bath. Closet- and bookshelf-wall, built out at an angle behind the living room fireplace wall, adds to its comfort and visual interest. Two walls are paneled in redwood, chief color is muted olive green, furniture modern.



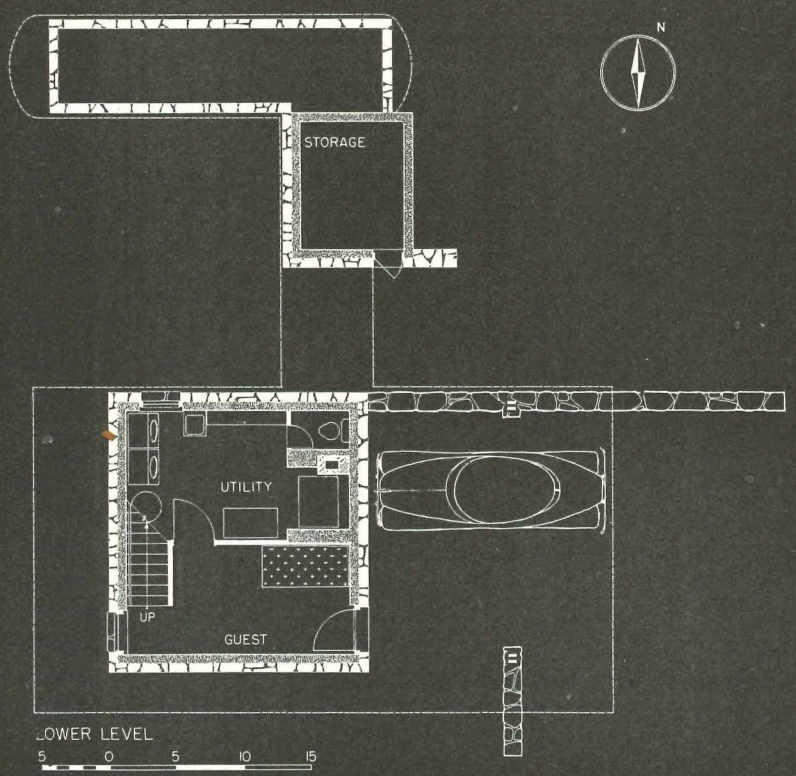


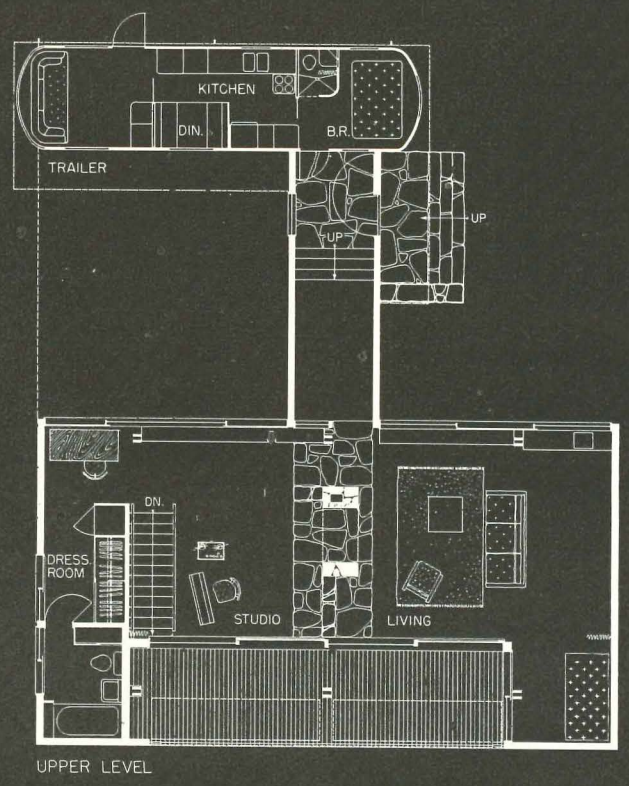
New kitchen, below, has a neat and efficient line-up of modern equipment. plenty of storage cupboards. There is a pass-through at right used on kitchen side as a meal-planning desk and breakfast bar. (For dining side of pass-through, see picture opposite, top.)



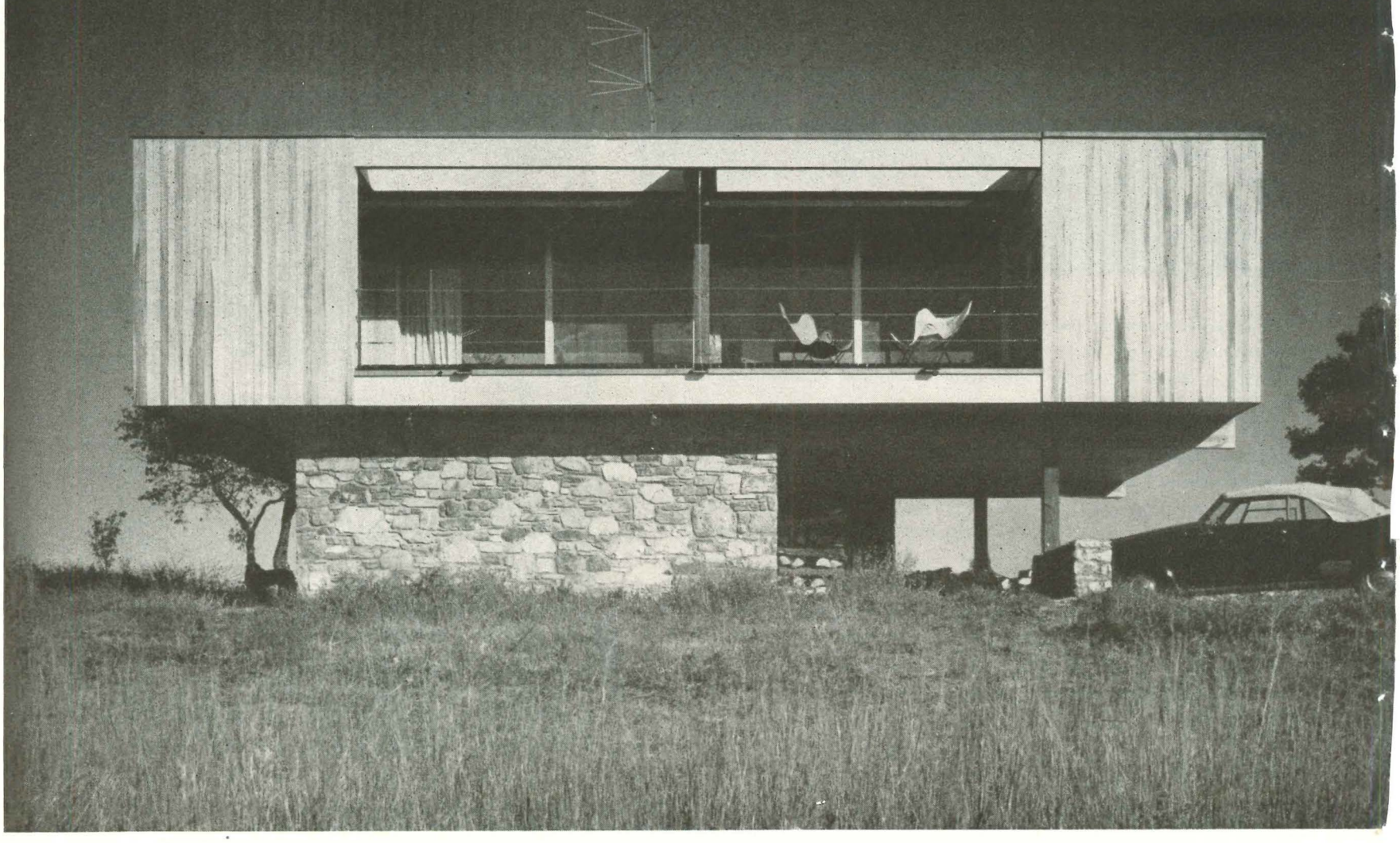
Landscaping was an integal part of the job. The landscape architects were faced with the tough problem of the entrance from the street, which was about two stories below living level. The solution was first to build a redwood wall over the old stone side walls of the original steps, which were then filled in and planted over. New redwood steps were built up from the garage side to the lowest level of the house, there to connect with the steps going on up to the entrance. (Steps and deck on which they land are supported by large redwood beams cantilevered out from concrete anchors.) The steps going across the front of the property, their handsome handrail, and the planting all help to unify the house with its difficult, hilly site.

The success of this job depended largely on the close co-operation of owner, architect, landscape architect and builder, and, says the designer, is "an excellent example of the good results to be had when the clients have sure and developed tastes, and know well how they like to live."





LOCATION: Pleasant Plains, N.Y.
MARCEL BREUER, Architect
SIDNEY WOLFSON, Owner & General Contractor
Theodore J. Watson & Frank Williams, Carpentry



Upper floor is divided into living area and studio by free-standing, two-way fireplace. Note double posts on both sides of structure. They hold bolted steel girders between them. Clerestories are at left.

SYMMETRICAL CANTILEVERS ON ASYMMETRICAL BASE

Exciting hilltop lookout adds 16,000 cu. ft. of living space to artist-owner's compact trailer home

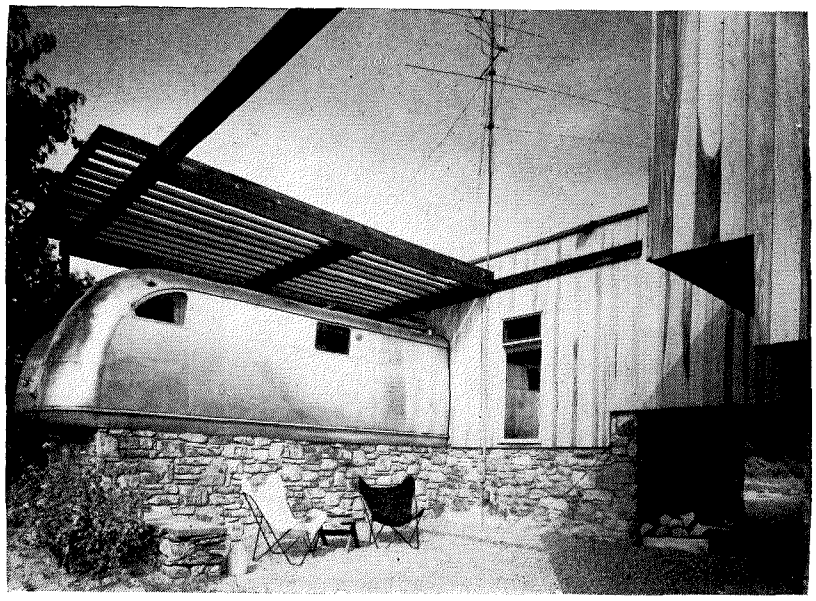
As one of the creative architects who are revitalizing domestic architecture — to rescue the American home from the antiquarian, and embody in it today's materials, today's construction methods and today's way of living —Marcel Breuer has often been ahead of the average man's appreciation.*

Here, however, is a Breuer house whose visual excitements are as obvious as its construction is logical; a Breuer house in which anyone can see the practical reasons for the dramatic design. Here, too, is a Breuer house where the architect reveals himself in a more playful mood than in some of his more recondite work. For this house, of all things, is built around the automobile trailer in which the owner lived for three years after getting out of the Army and in which he still likes to sleep and cook and eat!

The fact that this owner preferred to keep on sleeping and cooking in a trailer is not the main point of the story, though it might suggest trailer-adjuncts to other owners as an emergency measure. Much more important is the way in which Breuer added 16,000 cu. ft. of living and working space to make his client's life less cramped and his client's site more dramatic. The way

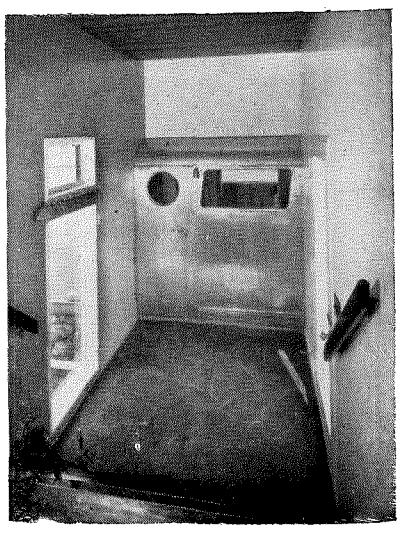
* H & H plans to publish a portfolio of his best recent houses this spring.

Photos: Ben Schnall

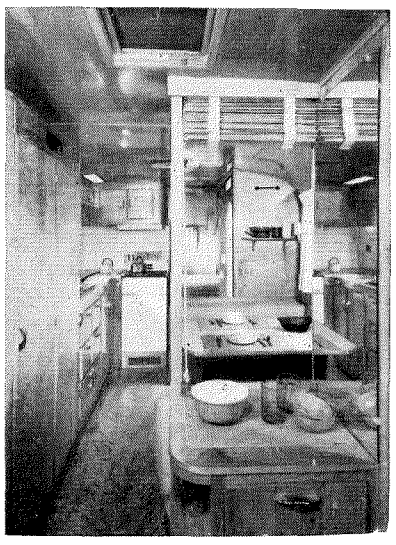


Some years ago, Buckminster Fuller suggested a separate, mechanical core that could be wheeled up to any old farm structure. Stressed-skin, aluminum trailer wing of this house conveys some of that notion. Breuer built wood "parasol" to protect trailer against heat of sun, used area between trailer wing and living-working space for handsome garden court.

View from trailer toward living room shows interior of bridge connection.



Opposite view shows aluminum door of trailer. Entrance to house is in link.



Interior of trailer with dinette and kitchen area beyond.

he did it was to perch a 43′ wide wood-and-glass box on top of a 19′ wide stone pedestal—a device which gave his client an improved view of Mt. Beacon to the south, a sheltered carport under one end of the cantilevered box and a shaded terrace under the other. Moreover, the device of perching a wide, symmetrical box on a narrow, asymmetrically placed stone pedestal produced a very handsome south elevation, and an expressive and elegant structural composition.

Trailer wing

When artist Sidney Wolfson got out of the Army, he bought a $4,200 trailer, put it up on concrete blocks and lived in it for the next three years. He liked it. In a pinch, it could sleep six. But it was cramped; and its aluminum body was hot in summer.

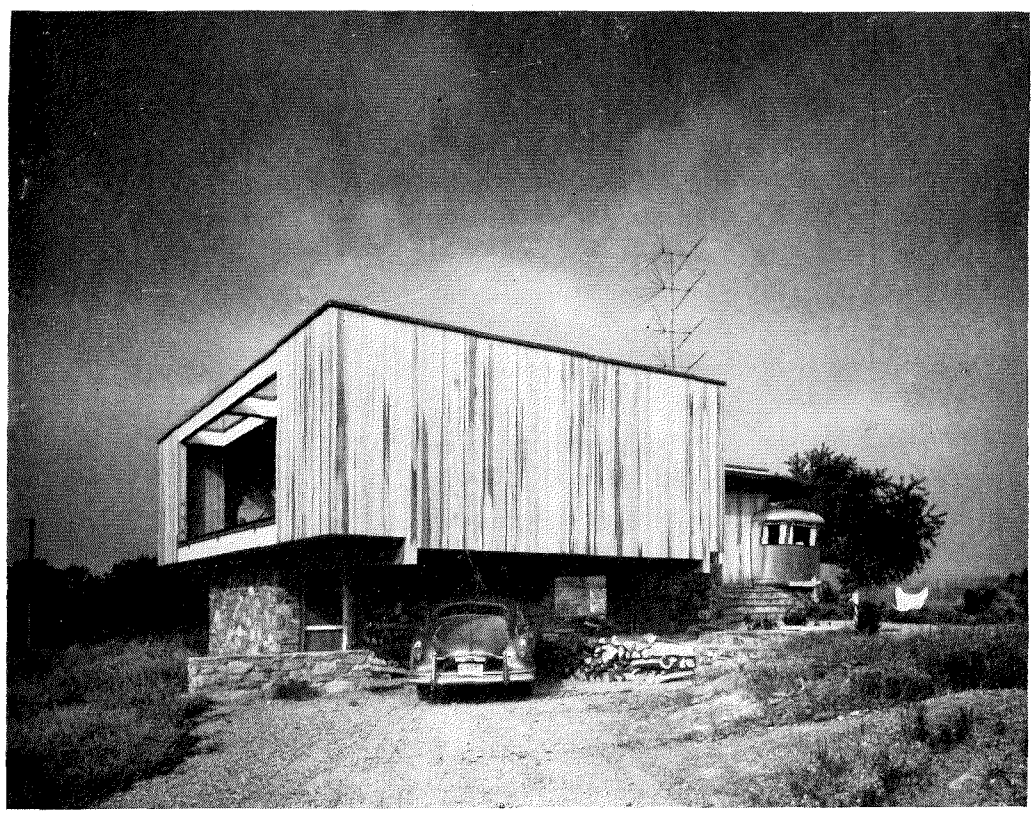
Breuer remedied both drawbacks. For about $20,000, he built 16,000 cu. ft. of living, working and sleeping space, linked this to the trailer with an enclosed bridge, attached the bridge to the trailer's stressed aluminum skin with a gasket of marine rubber fill. To keep the trailer cool, he put up a "parasol" of horizontal *brises de soleil* above the trailer's roof.

Breuer wing

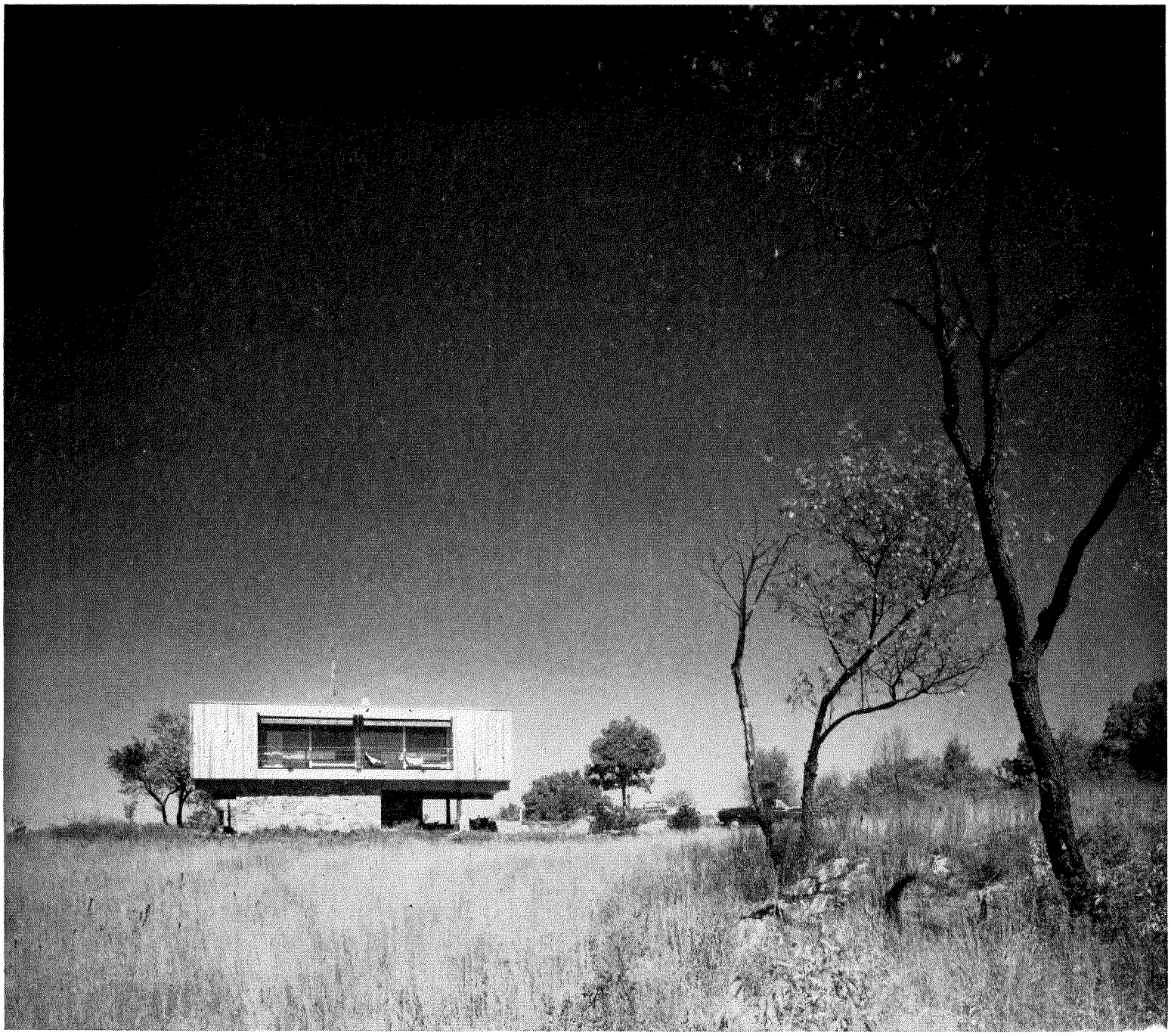
The 43′ x 24′ box that contains most of the new living space could hardly be more successful. What could be more felicitous than the proportion of wood and glass in the upper floor, or the contrast between symmetry above and the slightly off-center, stone base below?

Although the box appears to be cantilevered out from its stone pedestal, it actually rests on two steel girders supported both on the stone and on two doubled-up wooden posts. In characteristic fashion, Breuer left girders, posts and stone supports clearly exposed and so added interest to an otherwise plain side-elevation, which reveals the girders dropped below the soffit of the cantilever.

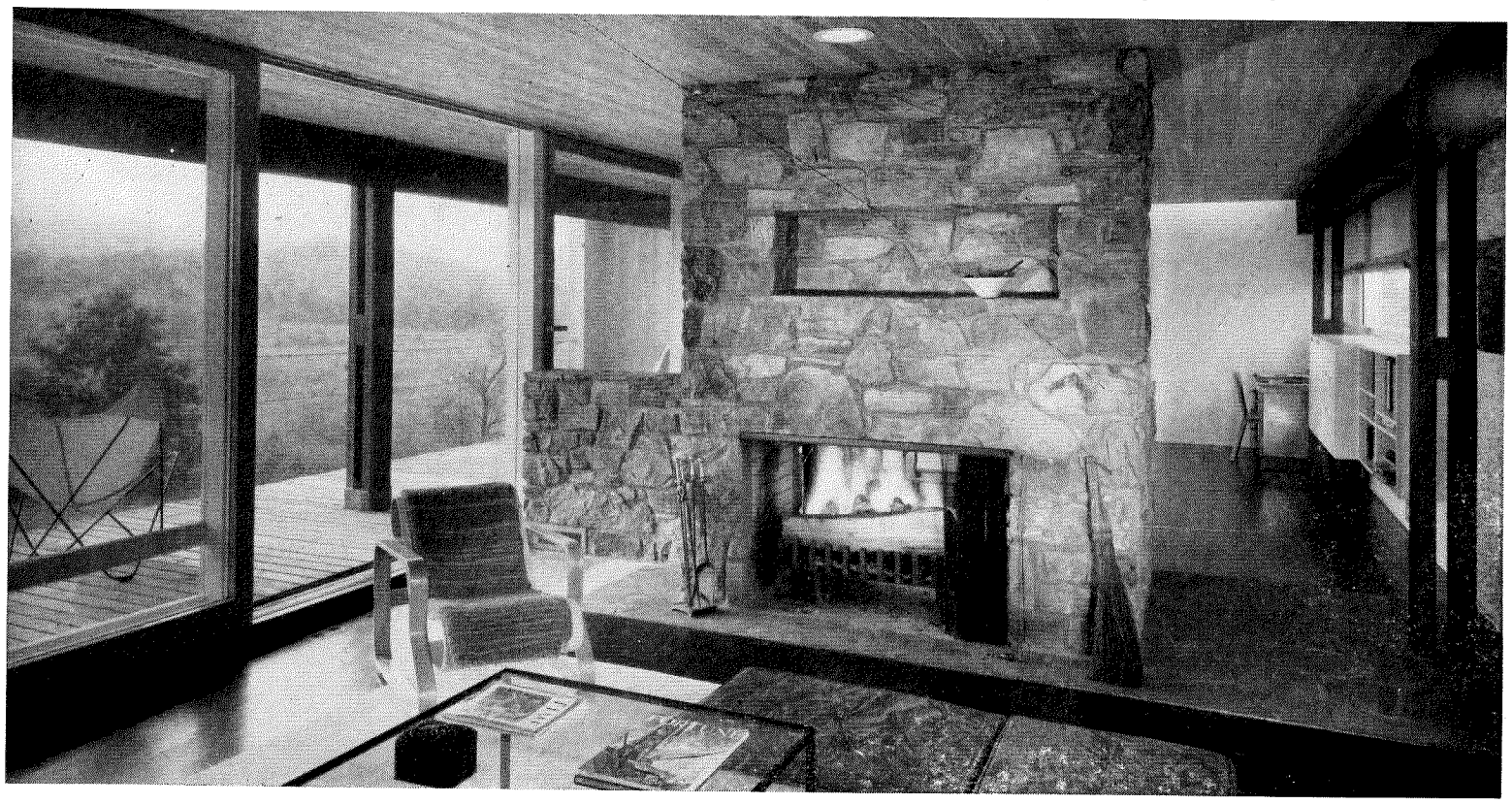
Artist Wolfson, who acted as his own contractor, is delighted with the little house. His favorite details: The suntrap balcony toward the south where, sheltered from the wind, temperatures climb to 80° or higher in midwinter; and the small court formed by the wings of the T-shaped addition and the trailer. There has been no upkeep expense whatsoever. "The only painting that needs to be done once in a while is around the trim and facias," says Wolfson, "and I can do that myself."

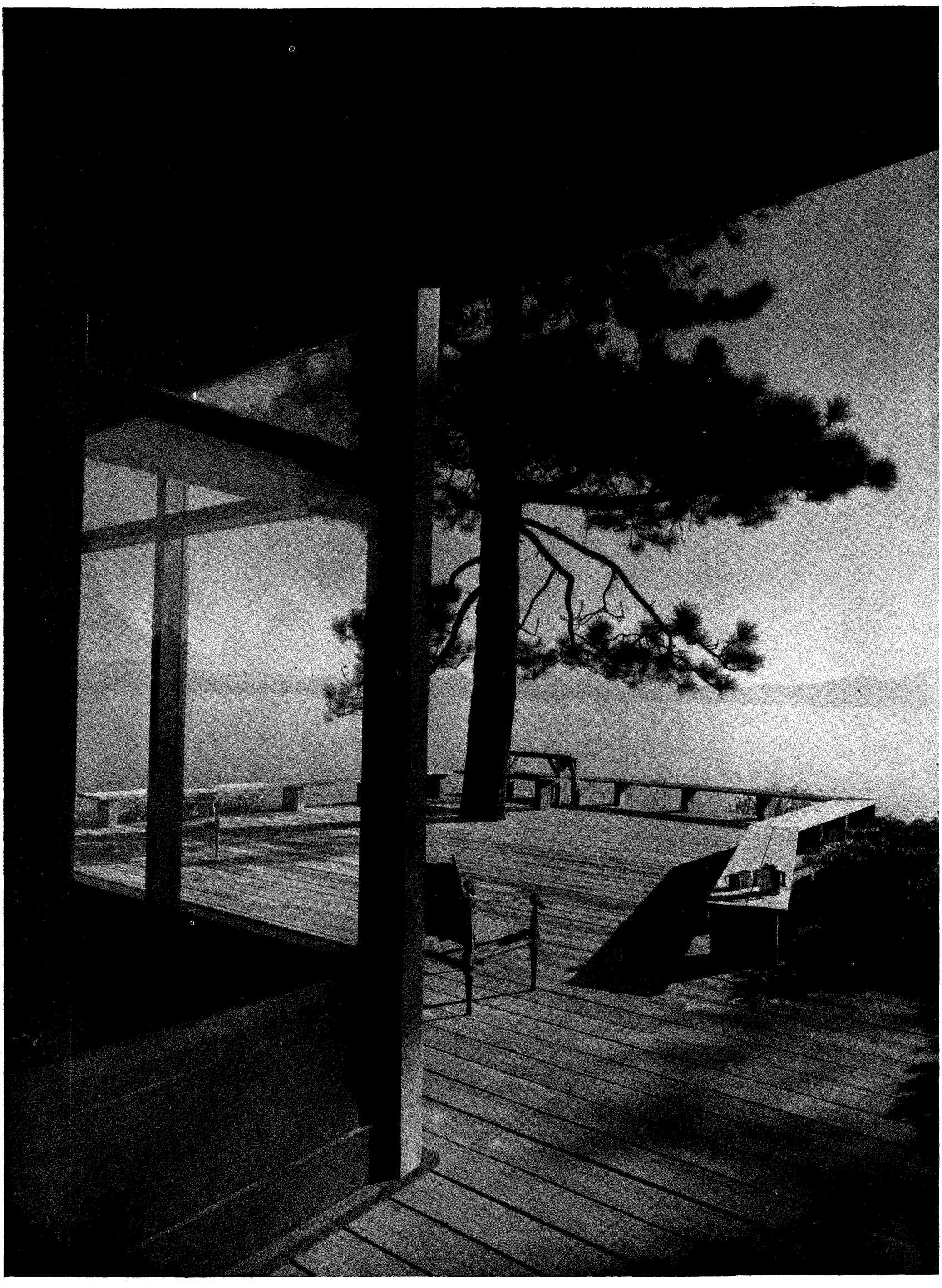


View of house from the east shows dropped girders under wooden box.



Seen from a distance the house seems to float above its hill-top site. Note symmetry of upper floor, asymmetrical base—and beautiful relationship between these two. Picture below was taken from living area looking toward artist's studio.





Gardner Dailey, the fine elder statesman of San Francisco architecture, has graduated from his office many a young architect. And in an area of "easy" houses designed primarily for comfortable living, Dailey has passed on to these young men his own meticulous attention to "composition," his grace and distinction. But young Joseph Esherick, whom Dailey considers a prize pupil, has added qualities of his own, which Dailey now says that *he* studies.

What Gardner Dailey sees in these houses is first of all the skill with which they express "the third dimension." This means that the houses have been developed *upward* with the same care and skill that most architects have employed on the *horizontal* planning of their houses. It means that tall rooms and low rooms, big and little, high levels and low levels, have been so interlocked that a tour through an Esherick house is a dramatic exploration. And life in such a house is correspondingly a rich and subtle experience.

Naturally, Joe Esherick as an able architect has been concerned with all the other aspects of the house. But since the principles of three-dimensional design (as contrasted with flat "paper architecture") have rarely been made so clear, the present story is concerned only with

JOSEPH ESHERICK and

his use of FORM

his use of SPACE

his use of SITE

There is an added reason. Like most architects in the San Francisco area, Joe Esherick has adhered to what is locally called "Western conservatism"—the idea that a house, however modern, should look like people's idea of a "house." This makes the idea easier to follow. But an understanding of the way form and space works in Esherick's houses will carry the attentive reader a long way toward the comprehension of modern houses of other kinds, where the design has been more geometric and the approach more abstract.

Joe Esherick was born and educated in Philadelphia, got his architectural degree at the (then) Beaux-Arts-oriented University of Pennsylvania. Upon leaving Penn, he went to work for his uncle, the sculptor and cabinetmaker Wharton Esherick, and, later, for sculptor Jim House. Both men worked largely in wood; this gave Esherick a sense of sculptural form that characterizes his detailing and composition to this day.

House also showed him something about anatomy. "I learned a great deal about structure and architecture that way," Esherick says. When he had learned that lesson he went off to Europe for six months, came back to Philadelphia to work for George Howe. By the spring of 1938 he had saved enough money ($55) for a coach ticket to San Francisco, has worked there ever since—since 1945 for himself.

Although Philadelphian Esherick is now a dyed-in-the-wool San Franciscan, his "three-dimensional" qualities would count anywhere. Its chief characteristics are

the use of powerful forms—both in his wood detailing, and in the composition of architectural elements (which he likes to draw together with sweeping diagonal lines);

the use of interlocking small and large spaces—with space flowing from one to the next, up and down and around. To understand how "space flows," it is well to imagine the house as a container filled with a flowing liquid instead of air, and to watch the liquid move about, from space to space, through large and small openings, up, down and sideways, and fill every nook and cranny;

and the use of architecture as a landscape-element. In a climate where outdoor living is vastly popular a house is very often seen from the outside. To make the house enhance the site (and the site the house) is one of Esherick's constant efforts. Moreover, he has realized that the space *around* a house behaves much like the space inside: it also tries to find ways of "penetrating" the structure, of flowing around it, of keeping itself from getting bottled up in patios and inside corners.

Half a dozen Esherick houses on the next ten pages will demonstrate these points . . .

← *Ernest Braun*

THE USE OF FORM

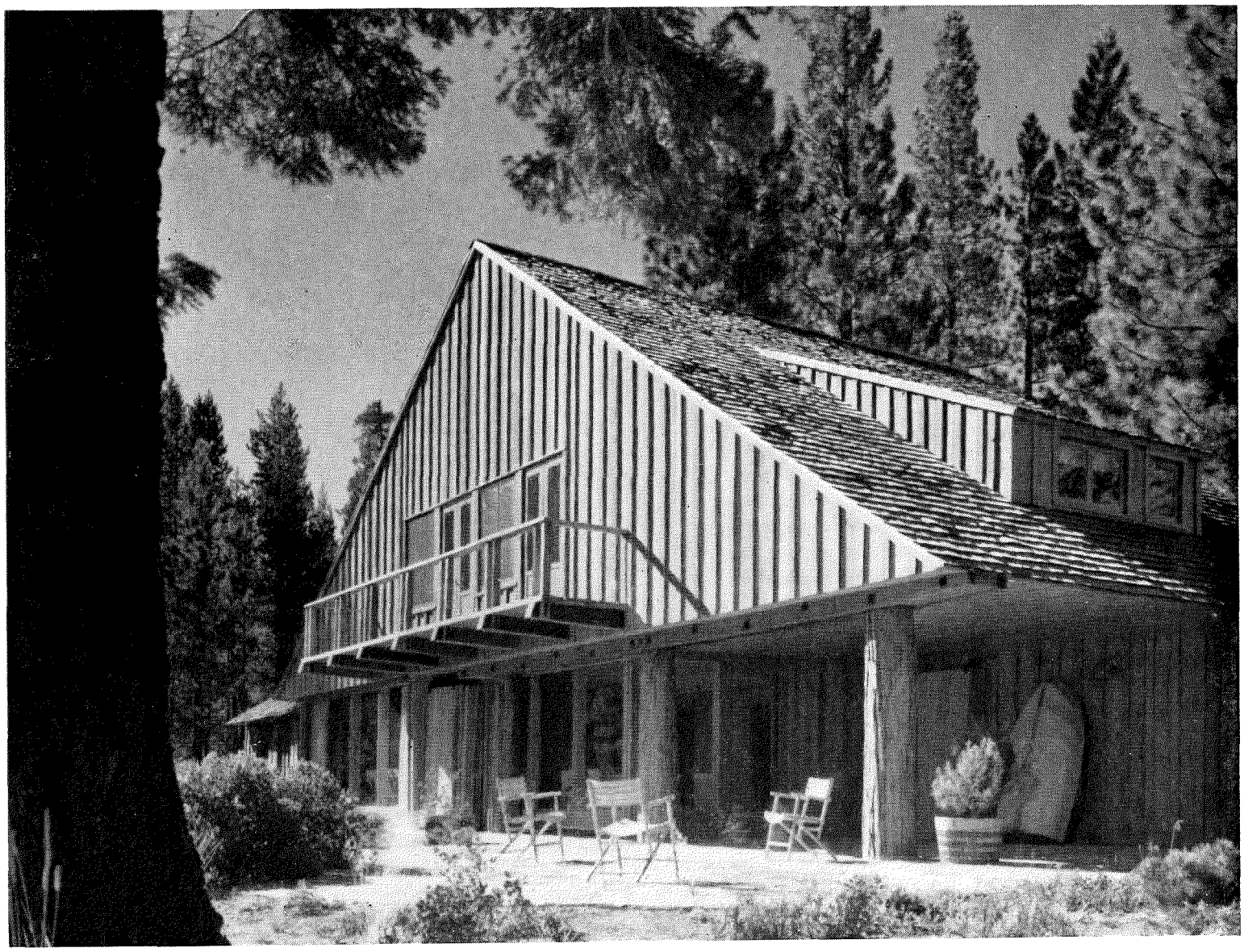
"We work mostly with wood out here," says Esherick, "and I have tried to get the most I could out of pretty conventional methods . . . I always use some module. I like the consistency this gives. I like the fact that, in passing from one room to another in a house . . . you somehow get in advance some vague idea of what the form and patterns will be. I don't like the structure to have surprises. . ."

The use of form Joe Esherick probably learned during his sculptor's apprenticeship more than anywhere else. Two ways of using wood forms are most clearly demonstrated in his work:

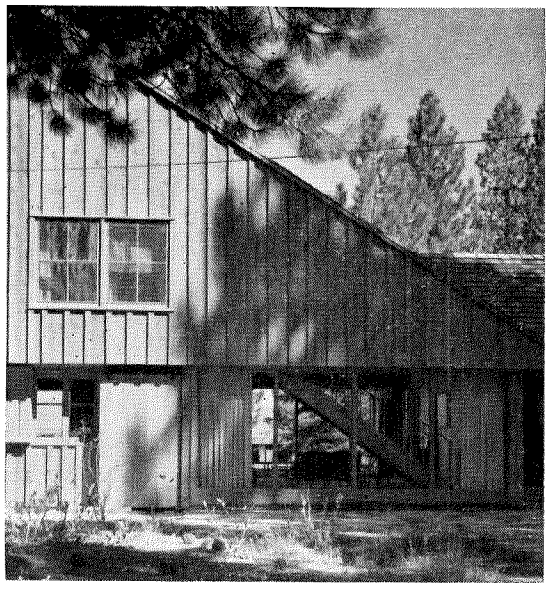
1. The use of sculpturally expressive wood details—e.g. massive post-and-lintel connections, roughly hewn beams, and expressive revelations of the stud-frame module in roof overhangs, trellises and elsewhere. And

2. the use of the diagonal, the triangular frame—the strongest shape in any structure. This, of course, is best shown in his use of the roof truss as a sculptural element. But triangulated wood panels appear in other parts of his houses also.

Photos: Ernest Braun

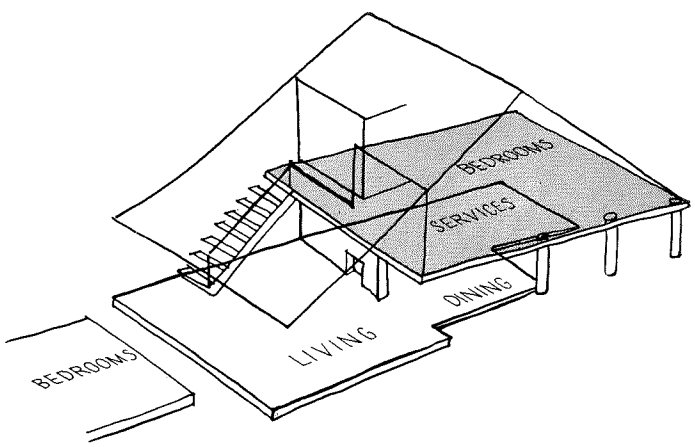


THE SECOND STORY of the big lodge at Lake Tahoe is supported on massive tree trunks, their bark left untouched. These trunks are topped with flat wood girders. The triangular roof structure sits directly on these girders. Note the razor edge of the triangle, in contrast to the rough-hewn look of its supporting structure.

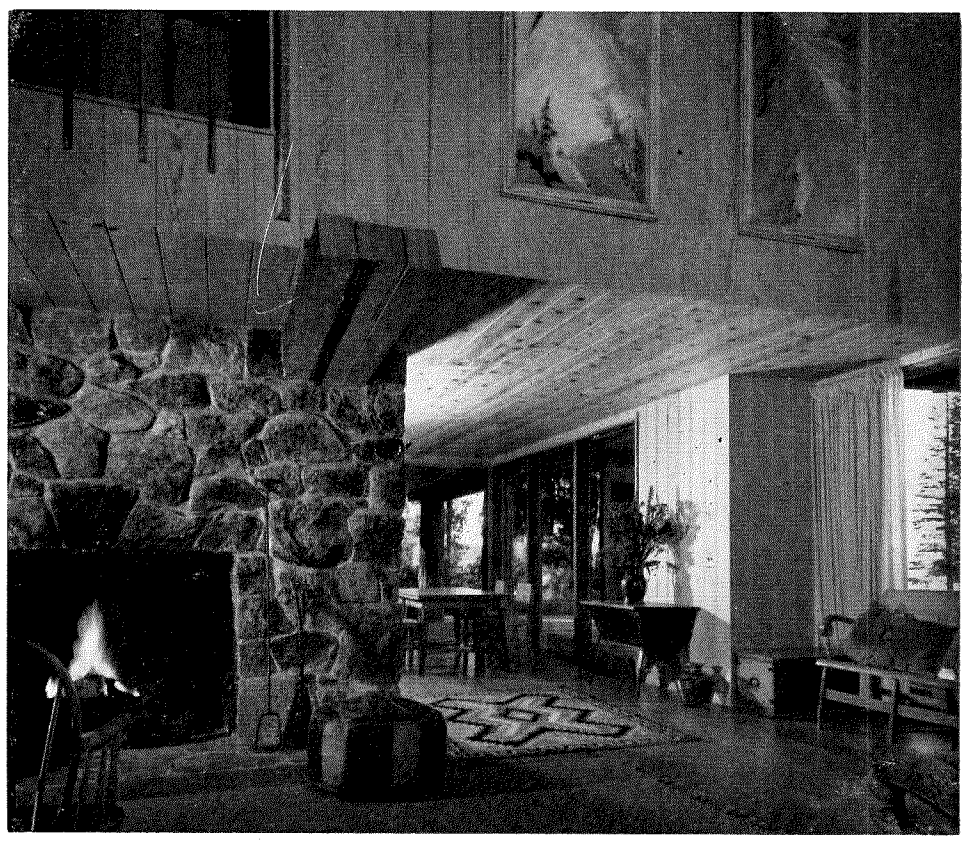


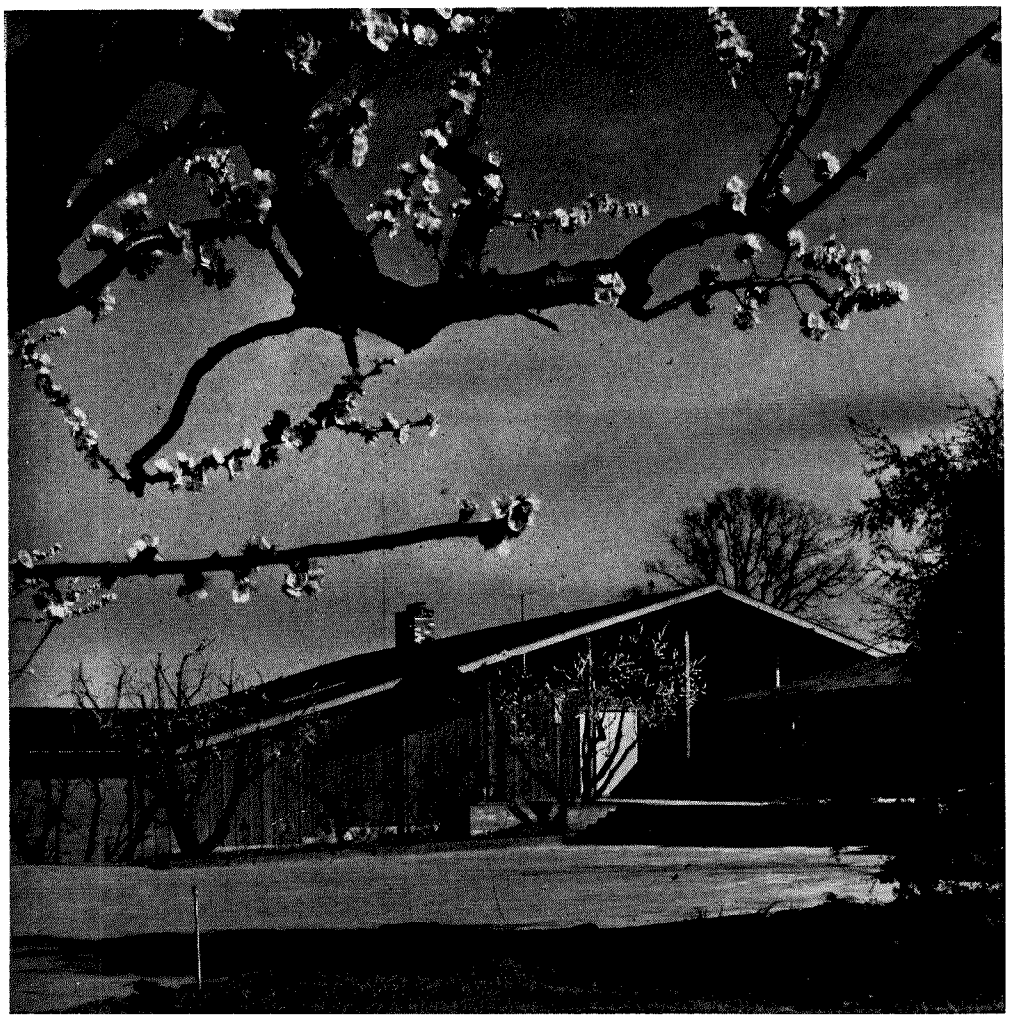
THE OTHER SIDE of the Lake Tahoe lodge: the same triangular lines, the same board-and-batten finish. Note how Esherick recalls diagonal roof line in the stair—which was left open to the eye through a glass wall. The way that same diagonal theme—roof line repeated in the stair—looks from the inside is shown in the picture to the left. The heavy roof timbers emphasize the direction.

INSIDE THE LODGE (see above and right) this same structural idea is repeated: rough, flat timbers placed side by side to form cantilevered girders, supported on a massive base (the stone wall, in this case) and a crisp, neat form on top.



Diagrammatic plan-perspective of the Tahoe main house shows mingling of spaces and diagonal forms.

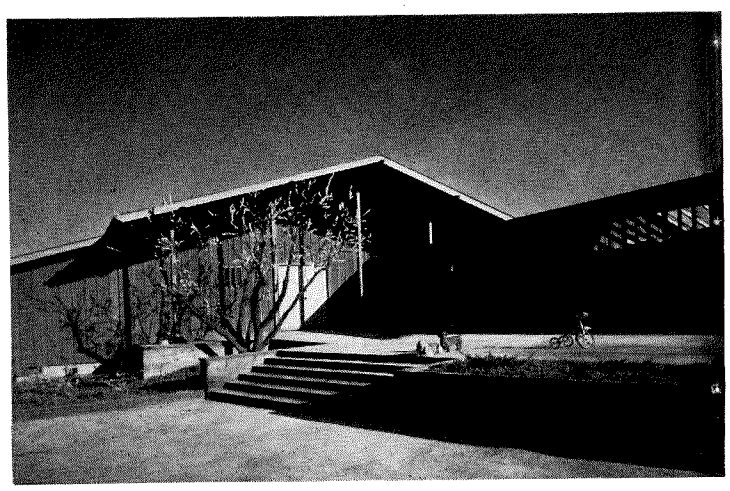




THE USE OF FORM

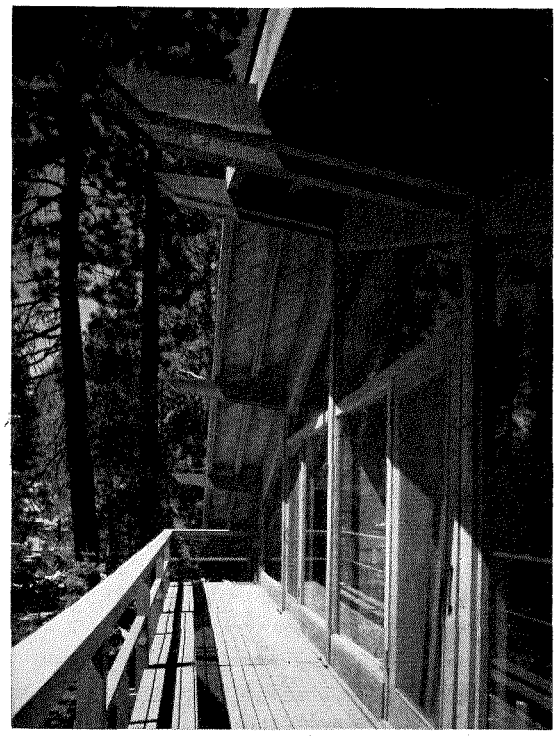
IN HIS SACRAMENTO HOUSE Joe Esherick uses the diagonal line to overcome rapid changes in grade. . .

. . . and then he reverses it and lets it dip down to tie in the pitched roof of the garage wing.

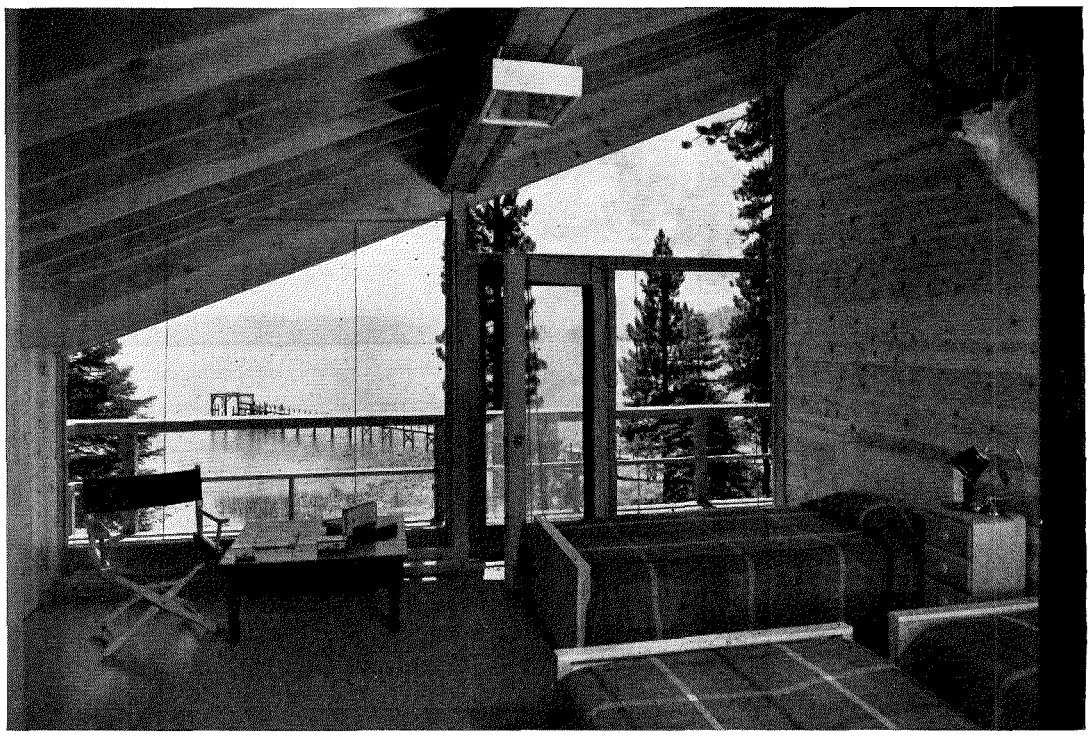


IN THAT SAME HOUSE, the bold triangle shape of the roof frame is used also to tie the house into the site (as we shall see later on). By making his ridge project beyond the line of his eaves, Esherick gives his gable end the directional quality he needs to point toward a dramatic view.

Photos: Roger Sturtevant



ALTHOUGH THIS TAHOE HOUSE does not have the pointed gable end, its gable has a similar directional quality because of the pointed and projecting purlins. This detail is smoother than the massive details in the Tahoe lodge, but it is just as sculptural.



THE INTERIORS of the same Lake Tahoe house, looking out from under the roof triangle.

IN ANOTHER HOUSE (below) on Lake Tahoe, Esherick has used the diagonal roof to make a relatively narrow and tall living room appear wider and less cramped.

Ernest Braun

As Esherick uses it, the wooden triangle with its diagonals gives direction to a space and cuts up tall and narrow wall panels. On the next three pages we shall see how this and other devices can be used to relate small and big volumes to one another.

THE USE OF SPACE

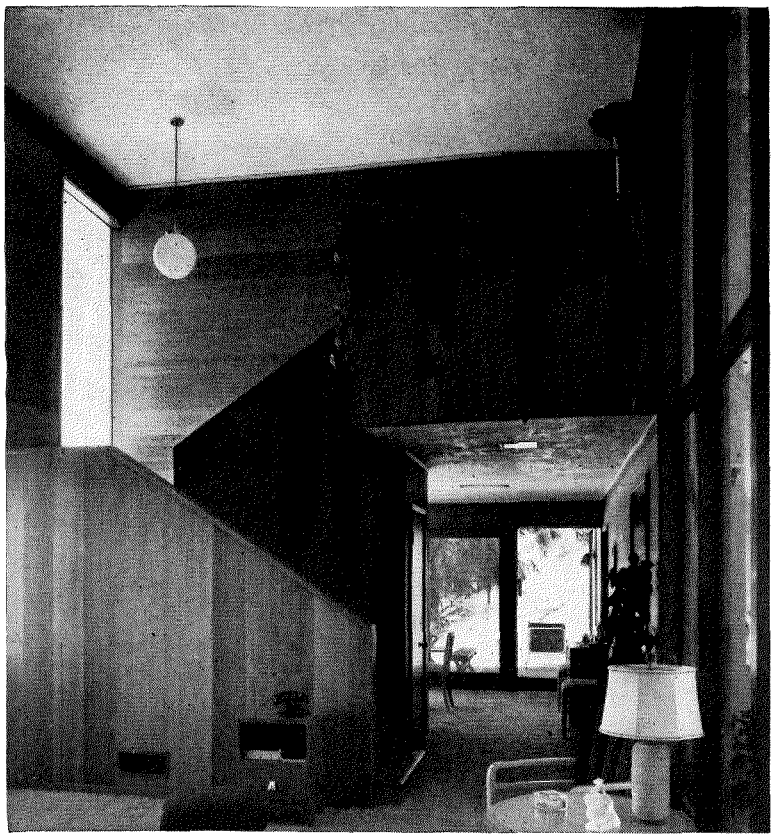
Lao-tse once said: "From its hollowness arises the reality of the vessel; from its empty space arises the reality of the house. Therefore by the existence of things we profit. And by the nonexistence of things we are served."

Joe Esherick's "materials"—with which he builds his houses—are interlocking volumes, continuous channels of movement. Esherick likes to contrast small, narrow and low passages with high and dramatic spaces into which these passages lead. He likes to carry one structural idea—the post and lintel, or the triangle—through his spaces to tie them together.

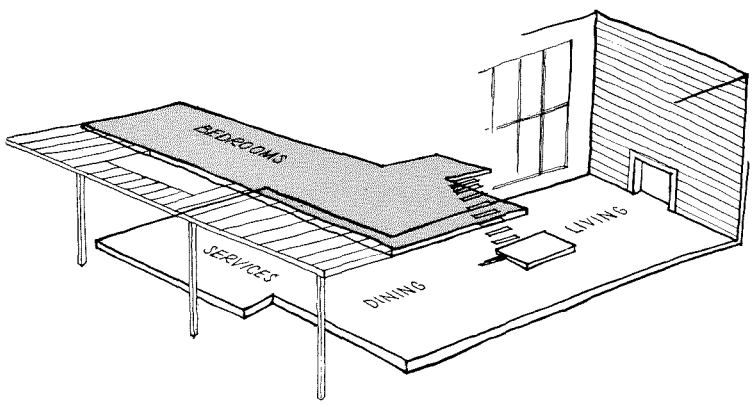
The "reality" of Joe Esherick's houses is the flowing space—or, better still, the flowing volume—that animates their "emptiness." In creating such flowing volumes, Esherick has run into several problems and has solved them with ingenuity and fresh ideas:

THE END WALL of the San Rafael living room is taller than it is wide. Esherick kept the room from looking like a corridor (a) by using the strong horizontals of wide redwood boards in the paneling; and (b) by having large glass panels on both sides of the room. (See large picture, opposite page.)

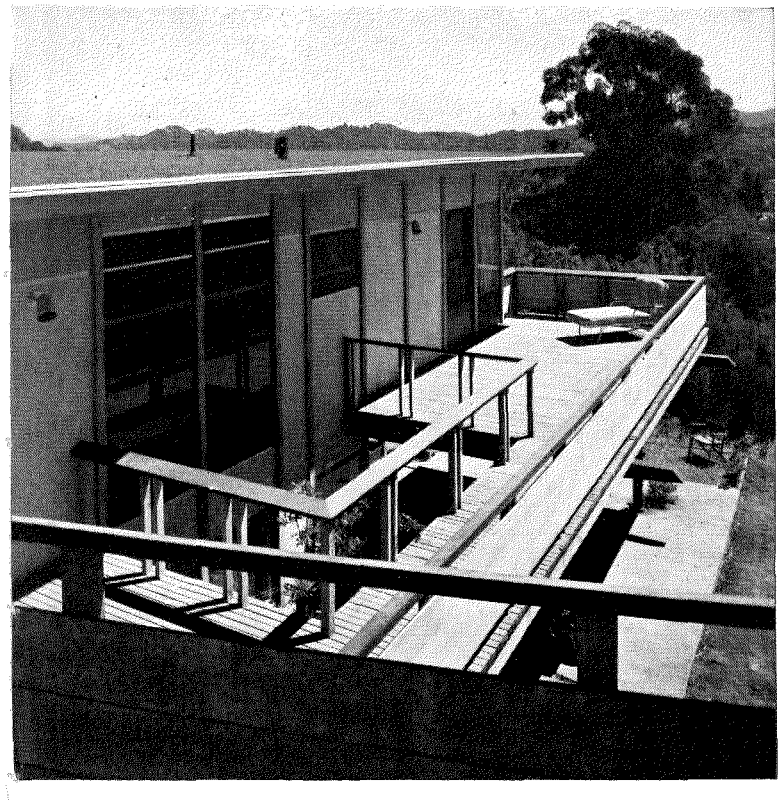
The light streaming in from both sides gives the room extra "volume"—a sense of greater width than it actually has. The underside of the balcony (right) gives the passage its low ceiling height. Stepping out from under it, you are at once struck by the drama of the two-story volume of the room.



Photos: Roger Sturtevant

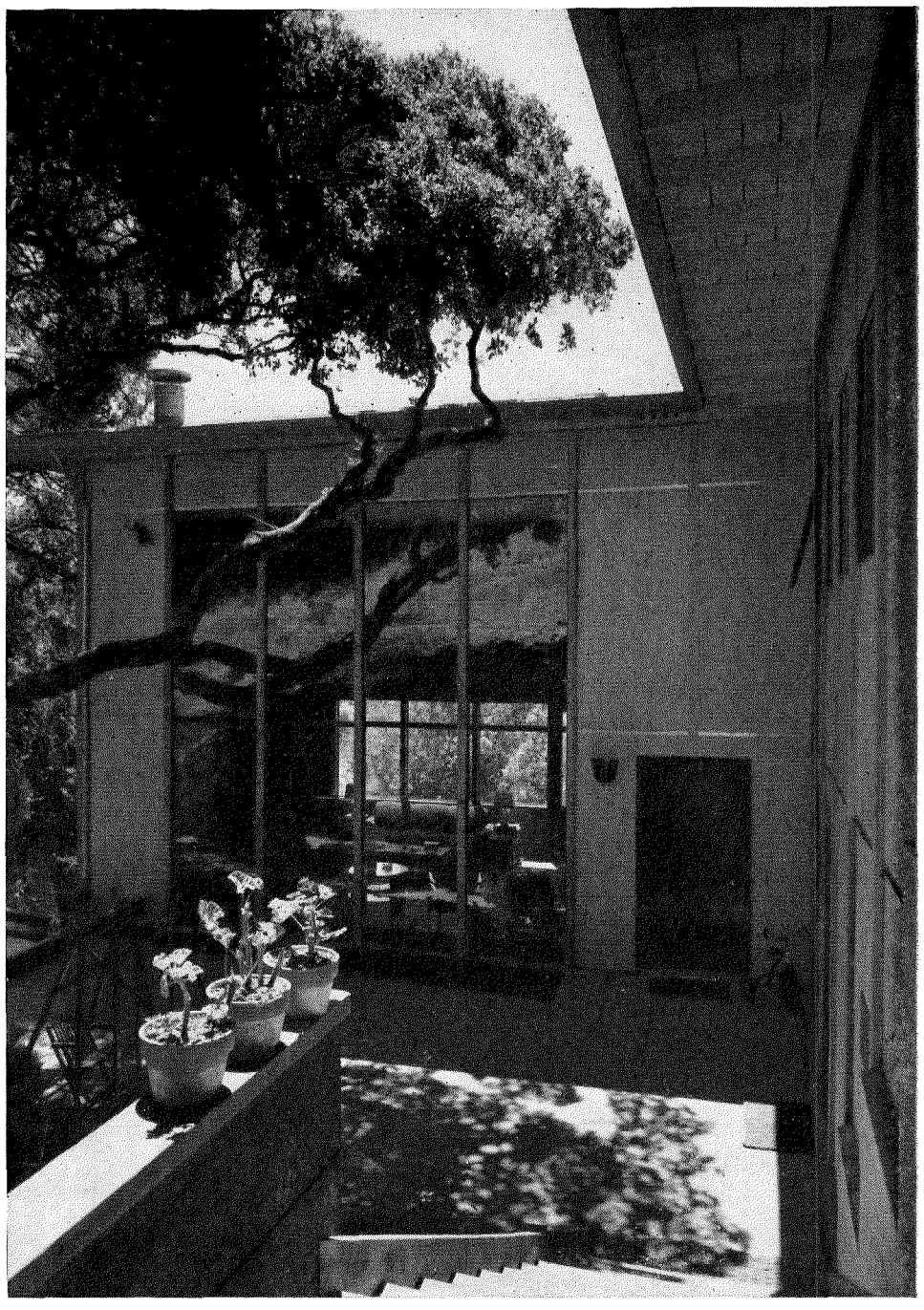


DIAGRAMMATIC plan-perspective of San Rafael house shows relationship between two-story living room and rest of house.

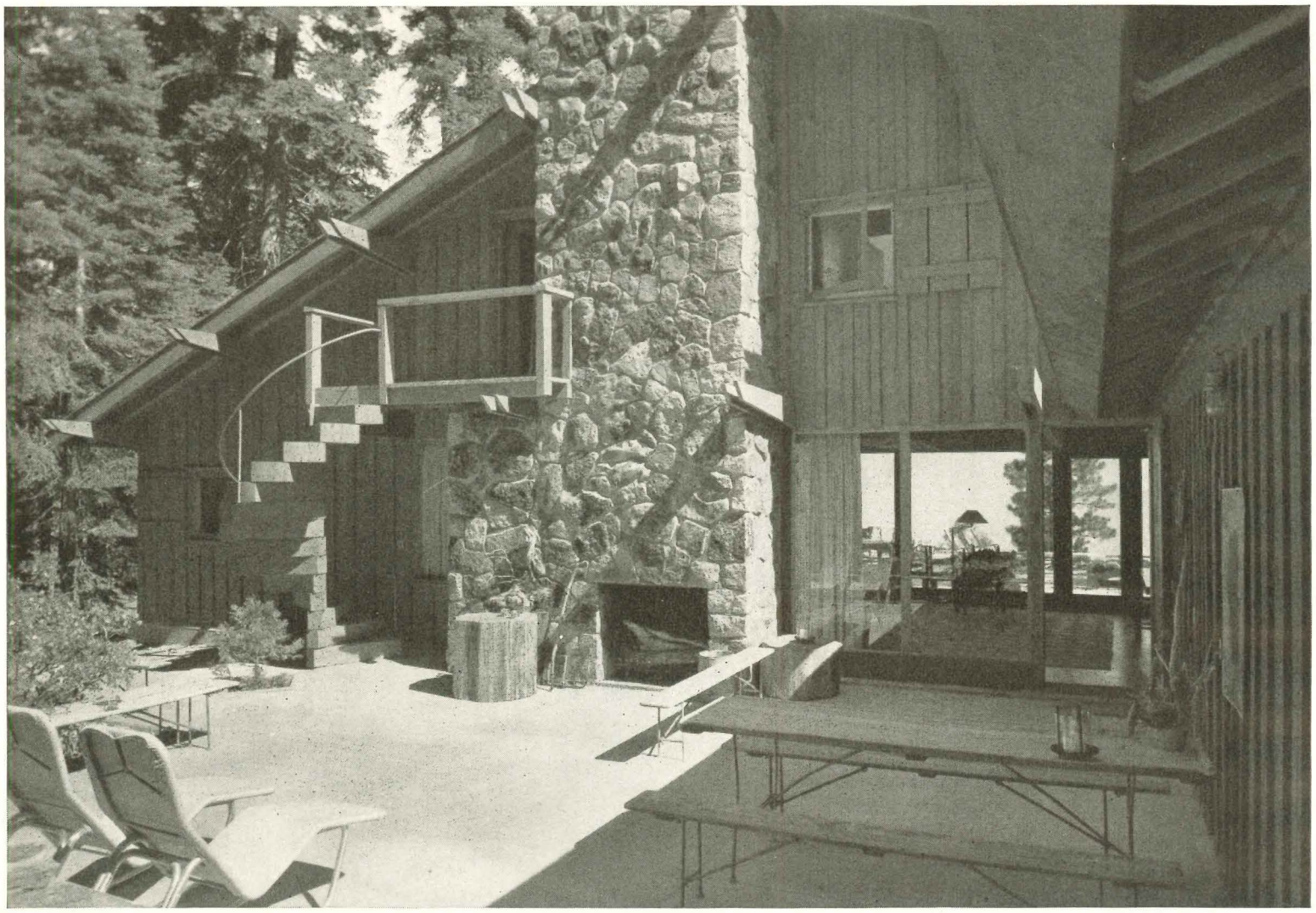


THE OPPOSITE end of the San Rafael living room presented a similar "corridor" problem, was solved with a composition of interlocking triangular forms. Note low ceiling height of entrance passage—a device to heighten drama of tall living room.

TO KEEP EXTERIOR SPACES and volumes from being blocked and bottled up by the house proper, Esherick uses a good many through-views in his houses. The picture below shows the view through the San Rafael living room.

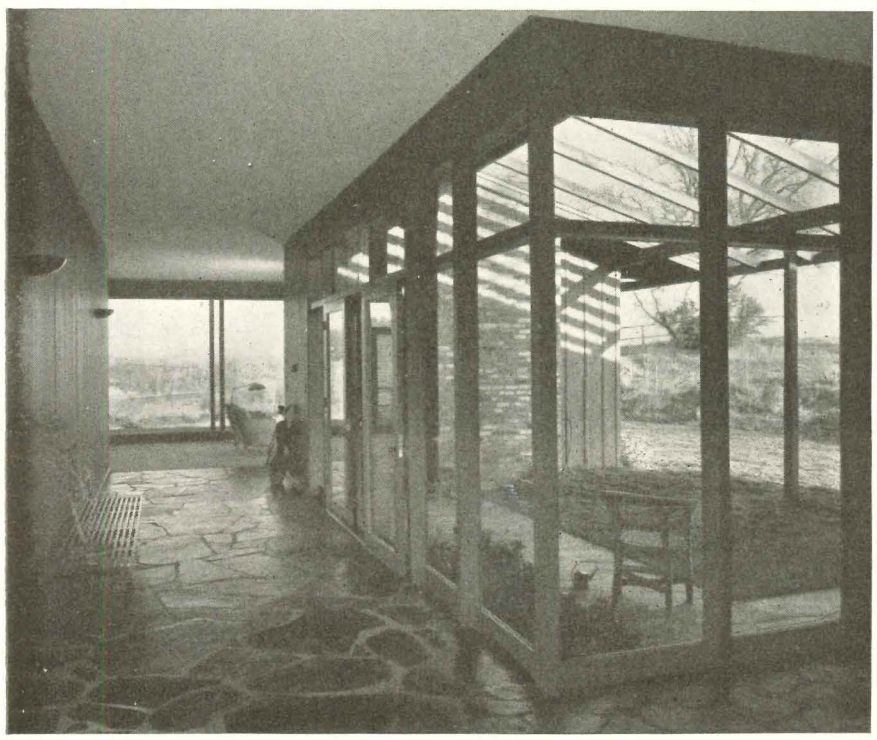


THE PICTURE TO THE LEFT shows the San Rafael balcony, which has a large hole cut into it in order (a) to let the upper and lower levels be seen simultaneously; and (b) to permit the space surrounding the house to flow up, and around, and over, and past it.



THIS TAHOE HOUSE uses the two principles demonstrated on the previous page—but in a somewhat different fashion. It is transparent in parts, so that there is a sense of continuously flowing space, all the way through the house. But the visual relationship of upper and lower floors is established by the curving line of the reinforced concrete stair — a massively sculptured spiral that also helps tie the slanting roof line to the ground.

Photos: Roger Sturtevant



AND IN THE SACRAMENTO HOUSE, Esherick permits surrounding space to flow not only into and through the house, but upwards through a roof trellis as well. About this picture he says: "The perfectly blank, windowless west side of this house does two things: It doesn't let any sun in and it hides the view until you open the front door and look down the gallery and on out. Opening the door is pretty dramatic."

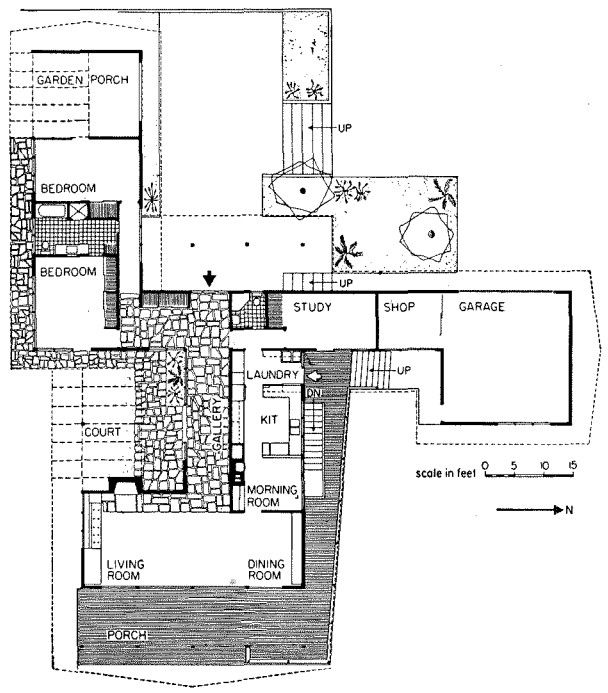
Naturally, these experiments with exterior space lead directly to the problem of relating house to site. Esherick's successes in that direction are discussed on the opposite page.

THE USE OF SITE

"The field you are in looks like any of the others you have passed through," Esherick says about his Sacramento house, "until you see that what appears to be just the crest of a little rise is actually the edge of an 80′ high bluff. From the edge there is a beautiful view of a bend in the American River below, then on over the still dry foothills to the Sierra beyond. . . " And about the Tahoe houses: "It is the unique case where most of the time you are someplace where you are looking or can look back at the house. You do not live in the house at all, except at night."

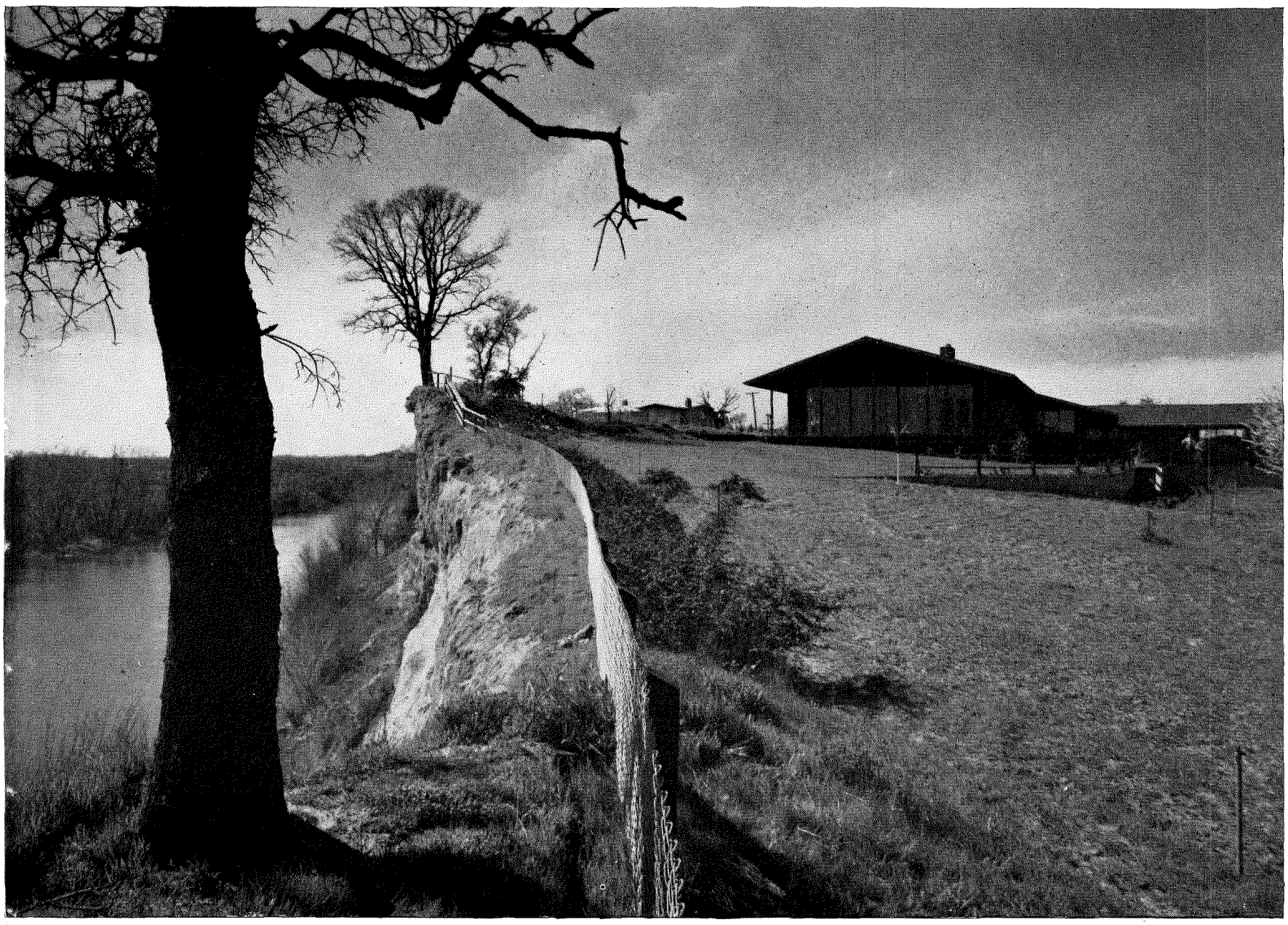
To Joe Esherick, the space outside a house (which is the site) is indivisible from the space inside. Moreover, since so much living goes on around his houses rather than inside them, they must look right in their setting—just as a fireplace must look right in its wall.

Here are some of Esherick's houses that "look right" in their setting —here, too, are the reasons why:



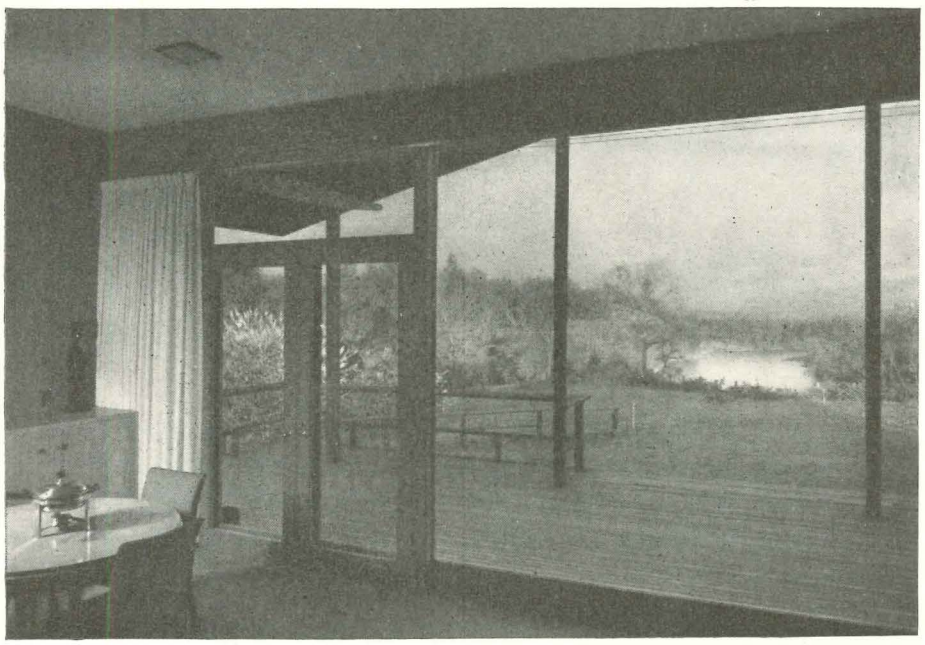
Plan of rambling Sacramento house

THIS IS THE SACRAMENTO HOUSE (the one Esherick described above). Note how the gentle slope of the roof blends into the gentle roll of the land.



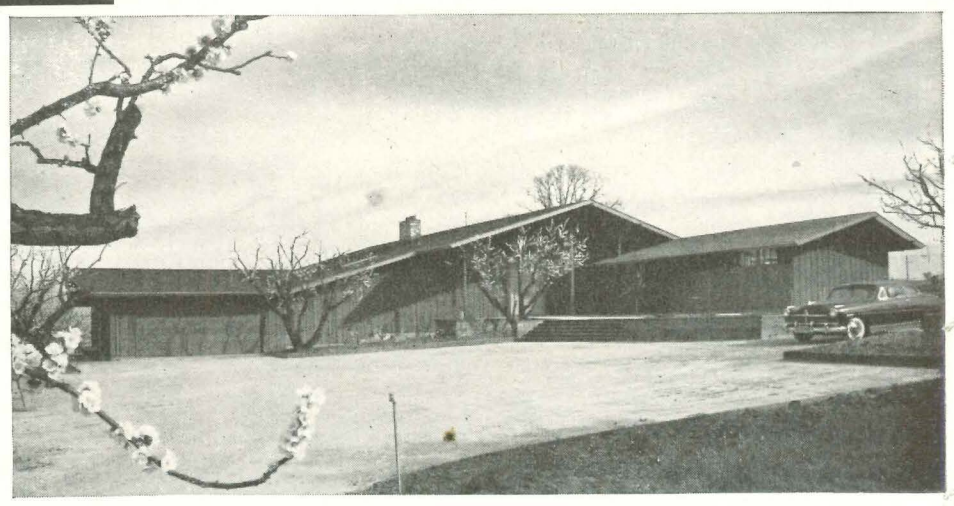
Photos: Roger Sturtevant

IN THIS HOUSE on the edge of Lake Tahoe the flat plane of the wide terrace is a reflection of the flatness of the lake beyond. The trees are left untouched by the architecture. (Incidentally, the sunshades in this house can be dropped down to cover the glass wall when the owners are away.)



THIS IS THE "DRAMATIC VIEW" Esherick talks about when he speaks of his Sacramento house: the American River in the foreground, the Sierra in the distance.

IN THE SACRAMENTO HOUSE, changes in grade were gracefully bridged with the long, low-slung diagonal of the roofs. The diagonal parallels the slope of the land.



AND IN THE TAHOE LODGE the problem was that "most of the time you are someplace where you can look back at the house." So the lodge was made to look very much like another beautiful mountain crest; the vertical boards and battens were designed to recall the verticality of the tall trees; the strong triangular shape designed to tie the house firmly to the ground and make it part of its site.

Ernest Braun

Esherick's severest critics say that his houses don't go far enough—that the vacation lodges in particular are just "Swiss chalets" with a modern treatment. The answer of "Western conservatism" is that the architect is at his best when he ennobles those ways of building and living which the *community* has evolved; that change for its own sake is merely "showing off." Whatever attitude is taken toward tradition or popular building, all architects may well study the three-dimensional qualities of Joe Esherick's work.

Lichenaceous ornament

By John Lloyd Wright, AIA

To many a modern architect the word "ornament" is a dirty word. Yet during the 20 years of its banishment a good deal of Ornamental Sin seems to have crept into the once pure devices intended to replace it. Ideas of "natural planting," of "texture," of "painted pattern," and of "the building itself as the ornament" have developed alarmingly into the cults of the rotten branch, the corrugated corroboree, the Mondrian abstract, or the building as a giant mushroom, a flying wedge, an uptilted umbrella. In other words, the choice seems to lie no longer simply between ornament and no ornament. A new choice has been added: ornament sub rosa. Perhaps an open discussion is again in order.

John Lloyd Wright proposes a system based on nature and recalling the once anathematic ornament of the jigsaw. Technically the jigsaw enthusiasts 100 years ago were enjoying an age of plentiful wide boards that could be filigreed with their enchanting new tool. Today Wright appropriately suggests the use of little sticks—all we have left that is not too precious—and running them through the table saw.—ED.

A magnificent expression of enrichment in nature, integrated to structure, is the lichen on the rock. Lichens of gray, yellow, brown, black or greenish blue color are found the world over: from frozen North to tropical South, from beaches to loftiest mountain peaks. Over 4,000 species of this strange, beautiful flowerless plant have been described.

The lichen could not exist without the rock. The rock could exist without the lichen, but this unique partnership of overlaid pattern harmoniously enriches the rock.

Through the ages architecture has had many forms of enrichment. They can be grouped under three headings: (1) Structural ornament; (2) Natural ornament; (3) Applied ornament. Let us sum them up briefly.

Structural ornament is integral with the structure and cannot be separated without the collapse of the structure or the weakening of that part from which it has been removed. No ornament could convey more beauty and sincerity than structural ornament. But today, though the architect be endowed with the imagination necessary to produce the effect that satisfies man's craving for beauty through structural ornament alone, the cost in most cases would be prohibitive.

Natural ornament is produced by finely proportioned arrangements of plants, grasses, trees and flowers. No ornament would more nearly satisfy and uplift man than natural ornament. It is wonderful. But here we are faced with the fact that even though a fantasy can be created through natural ornament alone, there is involved the problem of constant care and upkeep. Yet natural ornament *can* be effectually and economically used to enhance all other types of ornament.

Applied ornament or ornament on the surface, used solely to produce an effect upon structure but not related to the structure, has no worthy place in architecture. This condemnation of applied ornament should not be extended to the idea of adding independent works of art, if these are compatible with the uses of the structure, even though they are not directly related to the structure. Compatibility is as important as relationship. And compatibility yields relationship of spirit if not of letter.

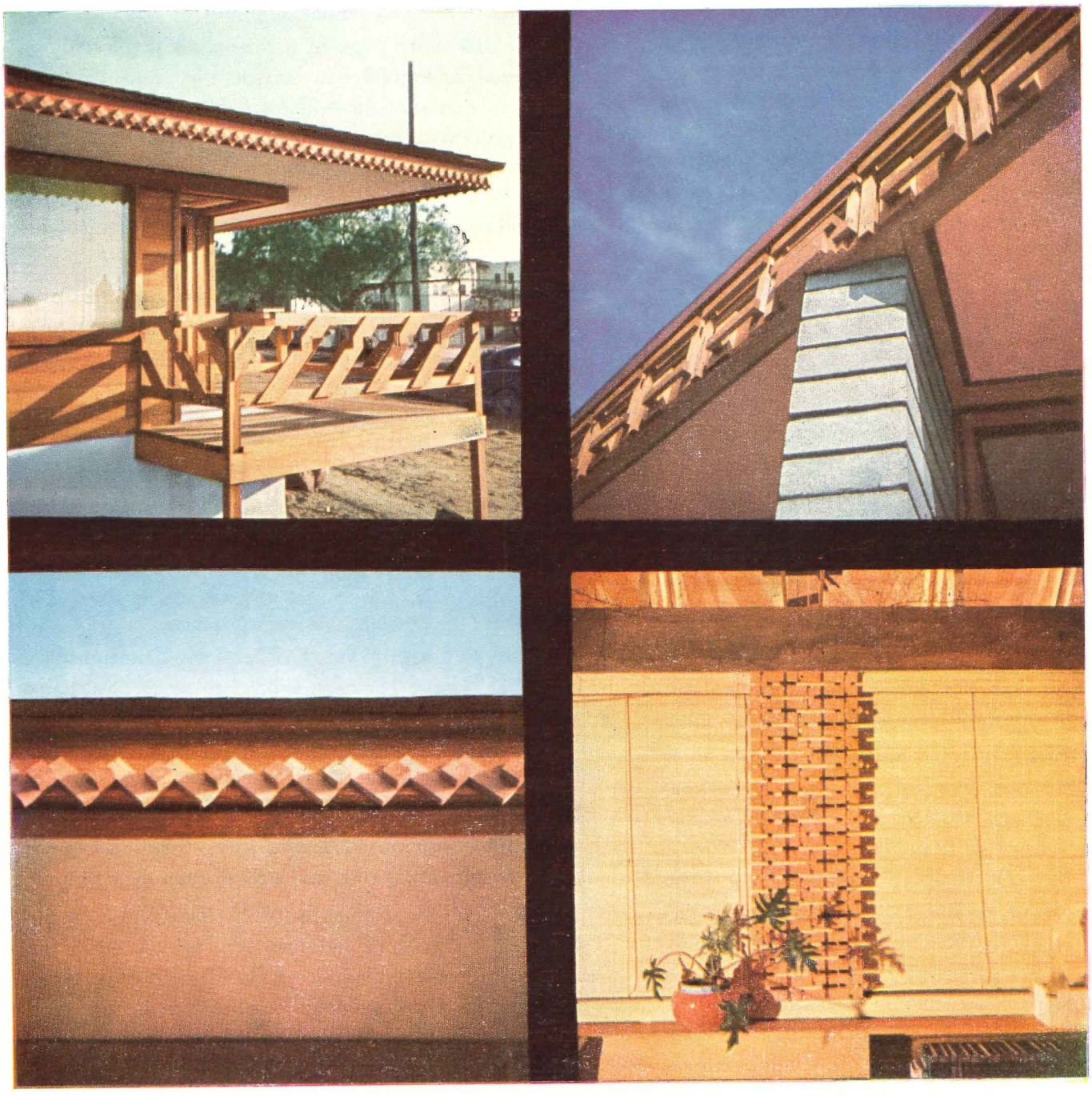
There is a type of ornament that cannot be identified under any one of the foregoing headings. This type I have named "lichenaceous." Unlike natural ornament, which can exist without the structure, lichenaceous ornament can no more exist without the structure than can the lichen without the rock. Lichenaceous ornament takes its place in crustaceous adherence to the structure. Whether it be foliaceous or extremely simple in form, the relationship is an intimate mutualism. It is ornament integrated. Like the thallus (the plant body itself) it may be simple or branched, can vary widely from minute complex forms to large single forms. The cost? In most cases not prohibitive.

There is a great need today in modern architecture for ornamentation that can be produced at low cost. Due to the lack of enrichment of modern architecture, many persons who would otherwise prefer its simplicity and sincerity do not feel comfortable living with the severity of it. But since sincerity does not mean severity and simplicity *need* not mean barrenness, enrichment can be harmoniously incorporated.

Ornament can be as inviting as an open hearth and as warm and friendly.

Lichenaceous ornament gives us a vast storehouse to draw from for the enrichment of our buildings. The possibilities for variation in design are as numerous as the harmonies in music, as unlimited as mathematics. A particularly pleasing point is that this ornament can be designed for efficient machine production and united to the structure by layman as well as by tradesman. In fact, I find that with lichenaceous enrichment, soul and pocketbook can meet. And, as the lichen paints big rocks with its delicate patterns and makes its abode more beautiful while paving the way for other forms of life, just so can lichenaceous ornament enhance the structure to which it adheres.

The scrap pile could actually furnish most of the material called for in John Lloyd Wright's system of "lichenaceous ornament" (ornament that is attached to the structure as a lichen attaches itself to a rock). View 1 shows a "chain" pattern applied to a roof facia—note the harmoniously designed railing;—view 2, a close-up, shows how simply the work is done. View 3 is an elaborate "fret" pattern and view 4 a "panel" pattern used indoors.



What Lies Ahead for Home Building—

Stable volume of 1,000,000 or more new houses a year—more competition, closer profit margins, and a far better product

The biggest new U. S. industry since World War II is not television, nor any of the fabulous new products of the laboratory. It is home building, reborn as an assembly-line industry after many millenniums as a handicraft. In 1950 it grossed nearly $12 billion, as much as the whole textile industry, almost as much as the whole chemical industry or the whole automotive industry.

Its sudden rise did more than any other single factor to confound the prophets of postwar depression. In fact, the new home-building industry played much the same part in the prosperity after World War II as the newly great automotive industry played in the prosperity after World War I. It provided new homes for one out of every seven American families, and whenever a new house was occupied as many as 16 families played musical chairs and moved into nicer homes. All this spelled boom for many other industries, for each move called for new furniture, new appliances, new cars, new stores, new highways, new schools, new churches.

The invention which made this new home-building industry possible is a new financing plan worked out in partnership with government. Under this plan millions of families have been able to buy new homes with little or no down payment at a monthly cost cheaper than rent. Equally important thousands of builders have been able to finance multimillion-dollar housing developments on government-guaranteed advance commitments for mortgages. So well has this plan worked that in six years the total cost to the taxpayers for creating a whole industry has been less than the cost of price support for a single year's crop of potatoes! Home building is thus an outstanding example of government-&-industry co-operation.

Home building is also the decade's outstanding example of free competition among thousands of units.

The steel industry is bigger, but fifteen great corporations make 90% of the steel. The auto industry is bigger, but three great corporations build 87% of the cars. In home building it still takes 10,920 builders to put up 72% of the professionally built houses, 22,430 to put up 83%.

Until now much of the housing the new industry has created has been strictly Model T, and the best builders admit they have hardly scratched the surface of the economies their new mass production should make possible. Manufacturers are just beginning to think in terms of supplying co-ordinated products for industrial assembly instead of materials for handicraft fabrication. Architects are only just beginning to recognize the social responsibility and financial opportunity the new industry combines for them, and builders are only just beginning to realize that better design will repay its cost many times over. Horse-and-buggy building codes still add $1,000 to the cost of too many small houses, and profits still show some of the bonanza margins characteristic of a new boom instead of the close figuring characteristic of an established industry.

But for all that, home building has made more progress than any other major segment of the economy.

Given a few more years of a reasonably stable volume of around 1,000,000 new homes a year, competition should cure most of these faults, force builders to figure closer profit margins, introduce many more construction economies, improve their design, and in general make much the same kind of progress the automotive industry made when competition made its Model T products unsalable.

That stable volume of around 1,000,000 new homes a year now seems reasonably assured by three factors:

1. Nothing less than 1,000,000 new homes a year will keep up with new family formation and replace the 46,000,000 existing homes over an 80-year cycle;

2. The "new type of tenancy" created by low down payments and low monthly charges makes homes as easy to buy as to rent, even in bad times;

3. Government policy is clearly directed to a stable construction volume.

Before the war, home building was notoriously a feast and famine business, subject to more destructive upswings and downswings than almost any other segment of the economy—down swings which justified the saying that "the most important thing to know about home building was when to get out of it."

More stable volume will make home building a much better business to get in and stay in than ever before.

Because it will be a much better business, more people will want to be home builders—and so the one thing more sure than anything else is that from now on home builders will face far tougher competition—competition that will force them to offer better and better homes, greater and greater values.

Thanks to the job the home builders have already done the wartime housing shortage is almost satisfied. Fewer families are doubled up now than at any time since 1930, and the American people are better housed than ever before.

This is a record of which the home builders can well be proud, but in a very literal sense it means they have now built themselves out of their easy market. From now on they must sell their new houses to people already well housed—at least by yesterday's standards.

That is just another way of saying that home builders who expect to share fully in the next decade's 1,000,000-house-a-year market will have to make their houses so much more attractive and so much more livable and so much better value that millions of families will want to move out of the good homes they already have and into better new homes. And while all builders are getting their values up, many of them will also have to get their costs down to a point where they can tap the tremendous market that the private home-building industry has hardly touched so far—the average families which have never before been able to afford a new home.

The industrial revolution comes at long last to home building

The essential fact to know about the home builders is not that they have built nearly six million new homes since the war—some good and some not so good. The essential fact is not the houses they have built, but the industry they have launched—an industry whose potential for better living it would be hard to overestimate.

Every rise in the American standard of living since Colonial times has followed some shift from handicraft to industry. Industrializaton has given the average family incomparably better clothing, incomparably better food, incomparably better mass entertainment, incomparably better transportation. It has given every family far more time for leisure and recreation and culture, given every family comforts unknown even to the wealthiest of our forefathers.

The last great element of our economy to enter this vastly stirring industrial revolution is home building. Only in the past six years has home building at long last entered even the first stages of its industrialization. And the important thing to observe about these first years is that already a few builders here and there have shown that volume-built houses *can* be better designed, better built and better suited to today's way of life than most of the houses custom-built at twice the cost (in today's dollars) a generation ago.

The four essentials to the successful industrialization of home building are:

1. The invention of financing and sales methods which will open up a mass market. This step has already been taken.

2. The introduction of production-line methods for final assembly. These have already come into general use among thousands of builders.

3. The development of standard dimensions, so that prefabricated parts may be precut to fit together quickly and economically for final assembly. First steps toward this dimensional standardization are being taken through the increasing use of the 4″ module and the establishment of certain larger basic dimensions to which stock parts for almost every part of the house can be pefabricated in a vast variety.

4. The spread of far higher standards of design. On this front too, the path of future home-building progress has been clearly indicated. More builders than ever before are working with architects, and already one volume builder has paid his architect more for the design of a house to sell at $10,000 than the fee an individual client would expect to pay his architect for a $250,000 house.

How fast the pace of industrial progress in home building will accelerate from now on, no man can tell. But as industrialization advances there is no reason to doubt that the volume-built house a generation from now could be as much better than the average custom-built house a generation back as today's Ford is better than the best Brewster-body horseless carriage of 1905.

Photos: (above) Julius Shulman; others George de Gennaro

IS AN ARCHITECT WORTH HIS FEE?

Banker finds $75 design + $10 color scheme = $1,000 more value

LOCATION: La Habra, Calif.
MAC-BRIGHT CO., Builders
EDWARD H. FICKETT, Architect
WILLIAM MANKER, Color Co-ordinator

Too often, home builders find mortgage lenders unwilling to give full credit for better design and better planning. Here is a successful Los Angeles development for which the lender actually suggested the architect and cheered the result as enthusiastically as the home buyers.

"The architect added at least $1,000 to the salability of these well built houses," says J. Howard Edgerton, president of California Federal Savings & Loan (one of the West's largest). "They are the best buy in their price class in Southern California."

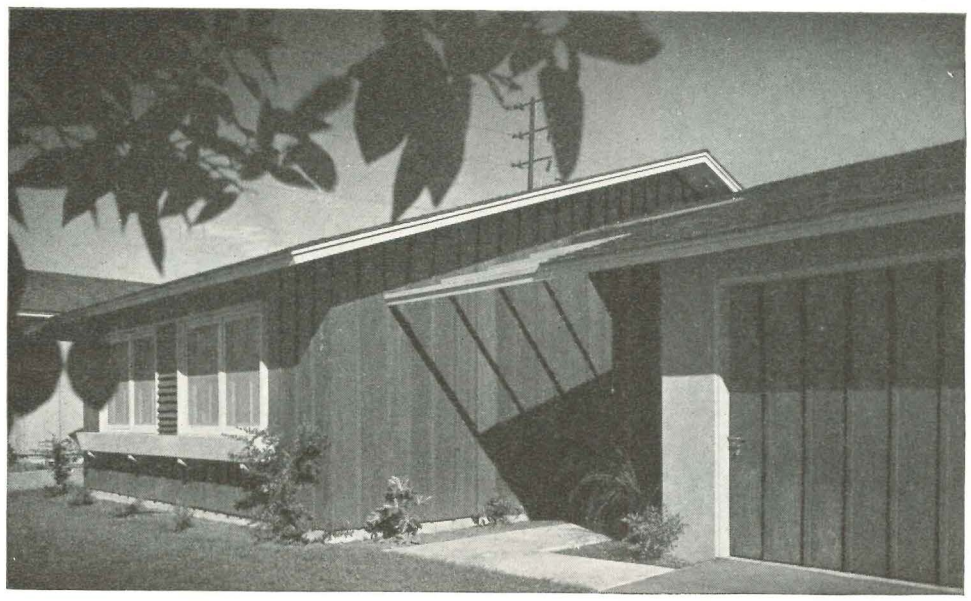
Builders Kenneth Albright and Curtis McFadden, who paid a design royalty of $75 per house, are more than pleased with what Architect Edward Fickett contributed to their 160-unit La Habra project. "How better could we have spent $12,000? Houses in the $13,000 range are plenty hard to sell with down payments up to $4,500. Without the sales appeal the architect developed, what would we have had to sell?"

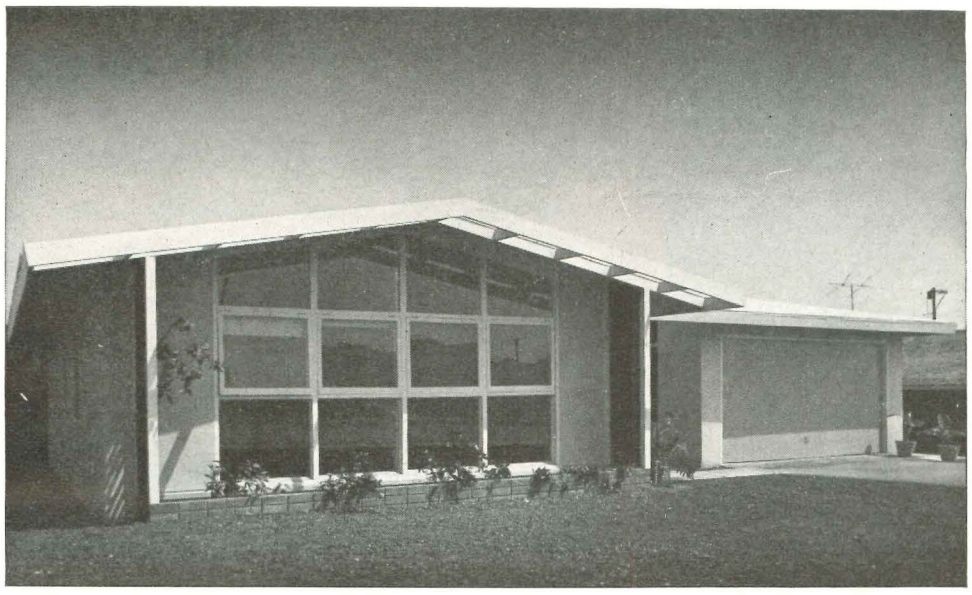
Architect Fickett, who has designed thousands of other builders' houses, is pleased too. "I never had a client quite so willing to go along on using new ways to make houses more livable and more attractive. We compromised with public taste by keeping fairly close to the California ranch house, but almost all the details are contemporary, and we never had to compromise where livability was involved."

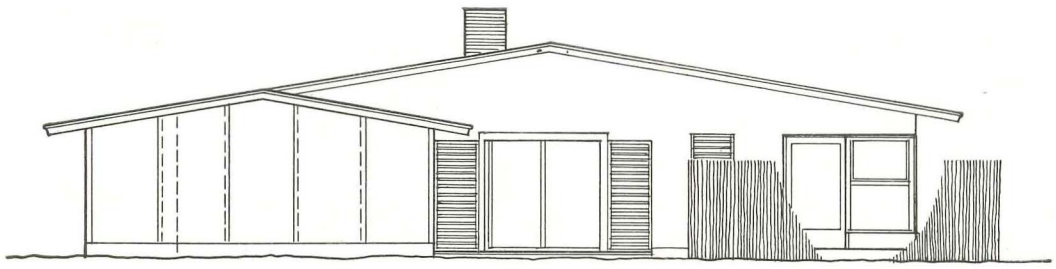
Actually Fickett gave these ranch houses a freshness and design rightness too seldom found in medium priced houses. The development as a whole is given architectural character by such uniform features as the wide (3′) overhangs, the 2 in 12 roof pitch, and the repeated use of the grape stake motif, sometimes vertical, sometimes horizontal. It is given distinction by the good proportion of many details like the occasional glazed gable ends in which the big scale fenestration is matched by the heavy mullions and muntins and the bold cheek walls on either side.

Architect Fickett is a builder's son, understands the builder's problems, talks the builder's language. But he is fired by the importance of giving home buyers something better, and when necessary he is perfectly willing to fight the builder on the builder's own terms for what he believes in. On this project, he did not have to do much fighting, for the builders were almost as interested as he was in getting something better.

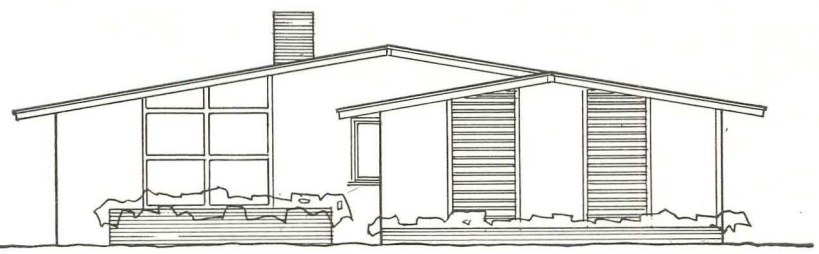
Perhaps the most important new idea the architect sold the builders was the importance and low cost of better color. Color specialist William Manker was retained at $10 a house to make an attractive pattern for



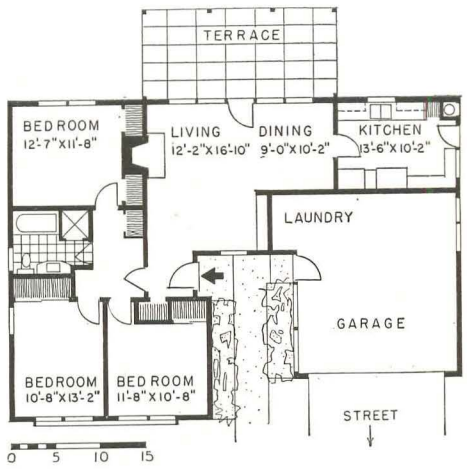




Front elevation of Plan B shows how carefully Architect Fickett worked out details and variations. Fence (cutaway in drawing) at right shields bedroom from street.



Front elevation of one of the D series. Each plan had several front and rear changes, numerous detail variations.



Floor Plan A was most popular because kitchen permitted serving meals in back garden.

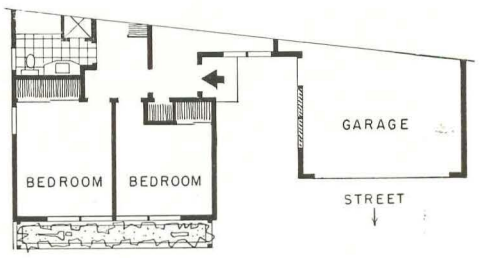
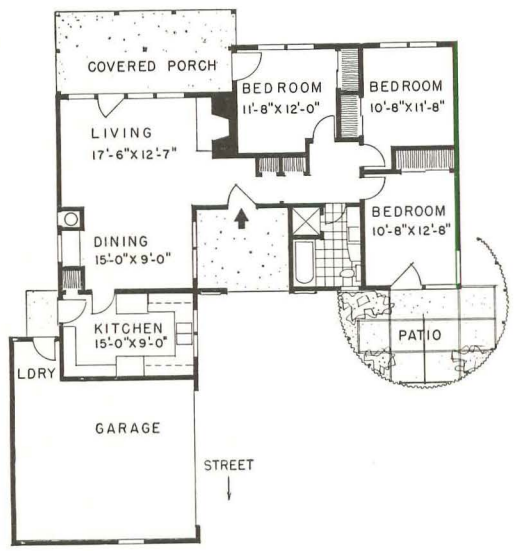
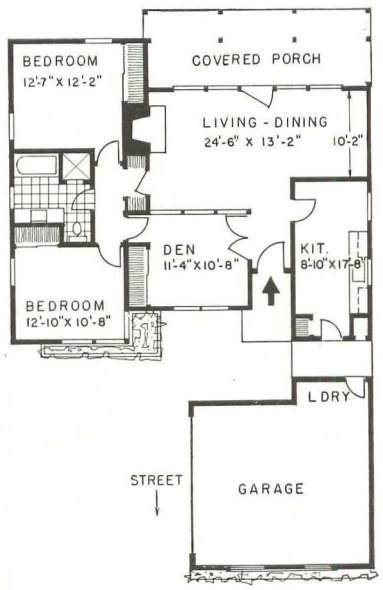


Photo at left is same plan but with floor-to-ceiling bedroom windows which proved very popular.



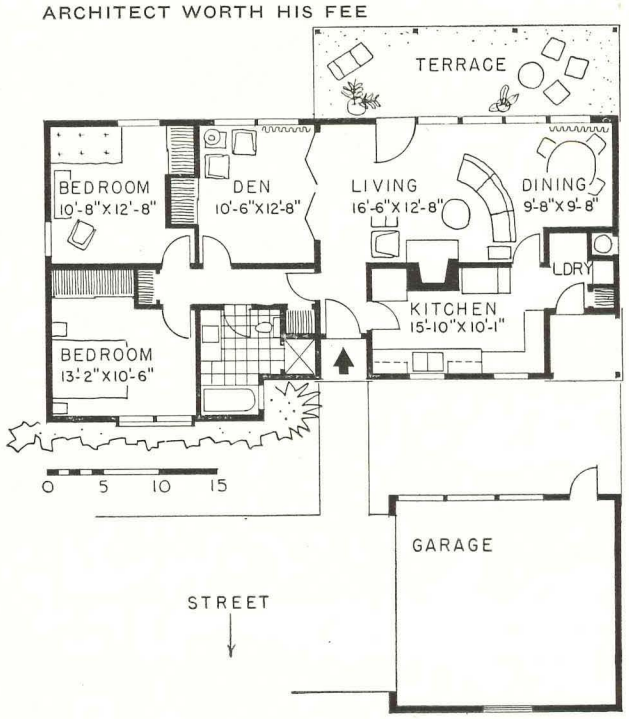
Floor Plan B has one bedroom at front and two at back. It tied in popularity with Plan C (p. 142)



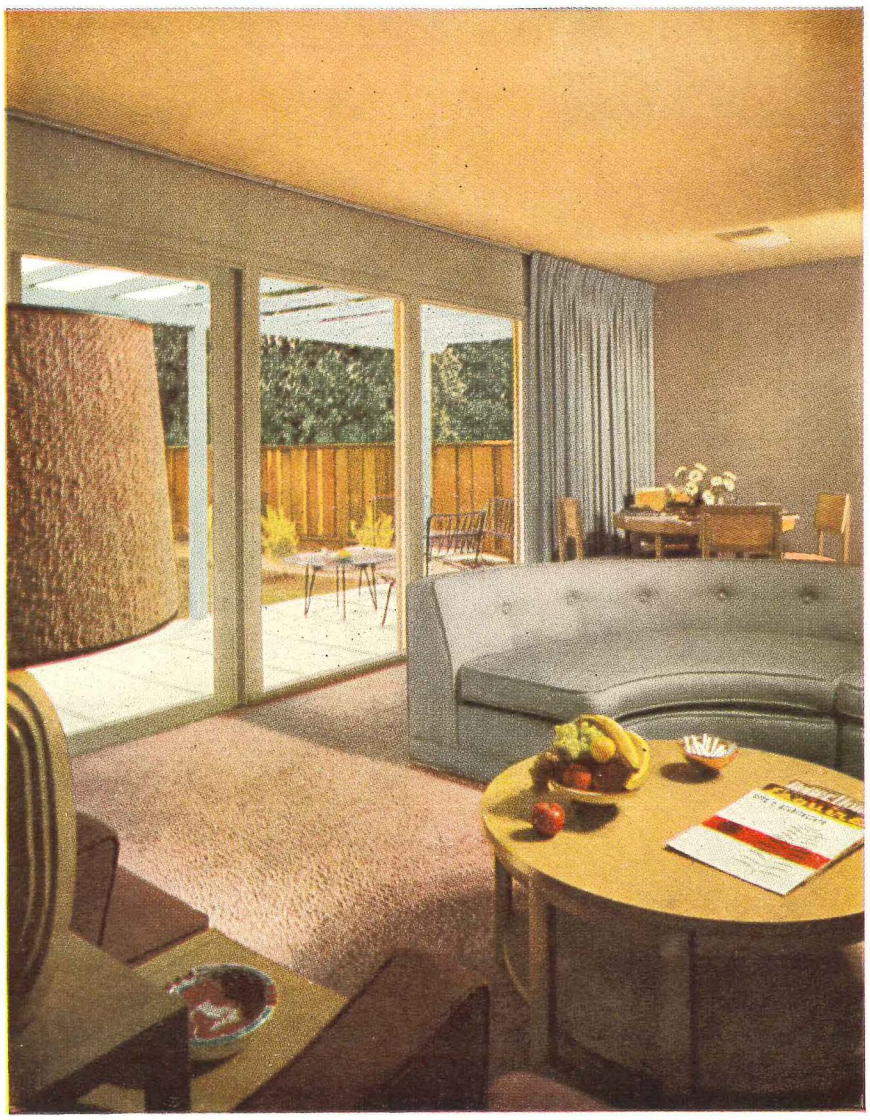
Floor Plan D was least popular. Its third bedroom or den was in front, center of house, separated from living room by louvered doors.

Attractiveness of paved rear terrace is evident here. All terraces had some overhang. Vines had not had time to cover trellis in this early photograph of a model house.

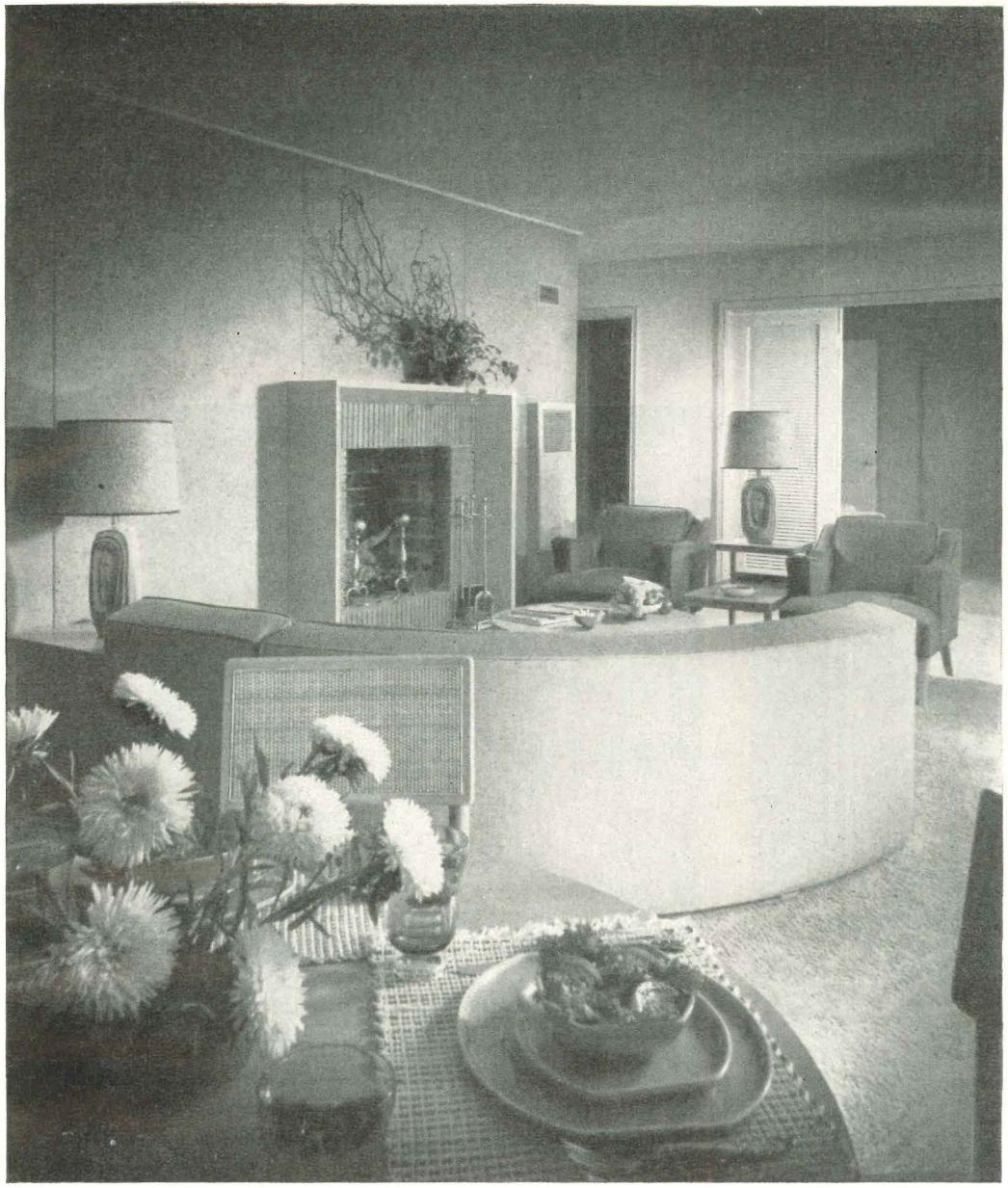
ARCHITECT WORTH HIS FEE



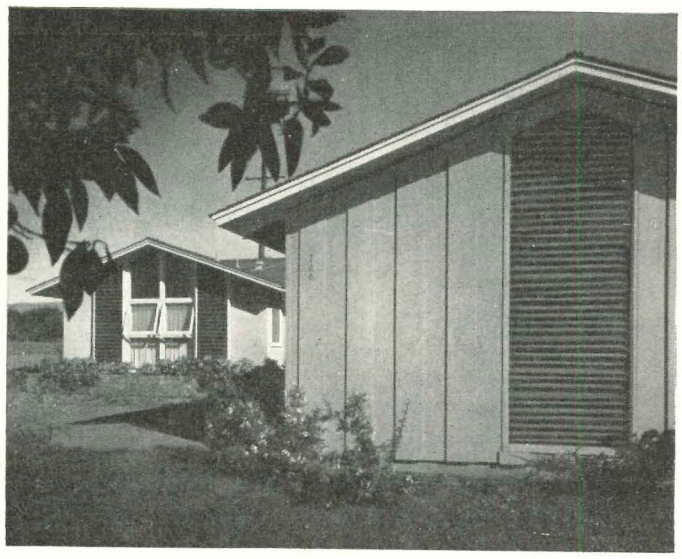
Floor Plan C (plan of house photographed on these two pages) was built with third bedroom or a den next to living room. Kitchen has both an adjoining laundry and porch.



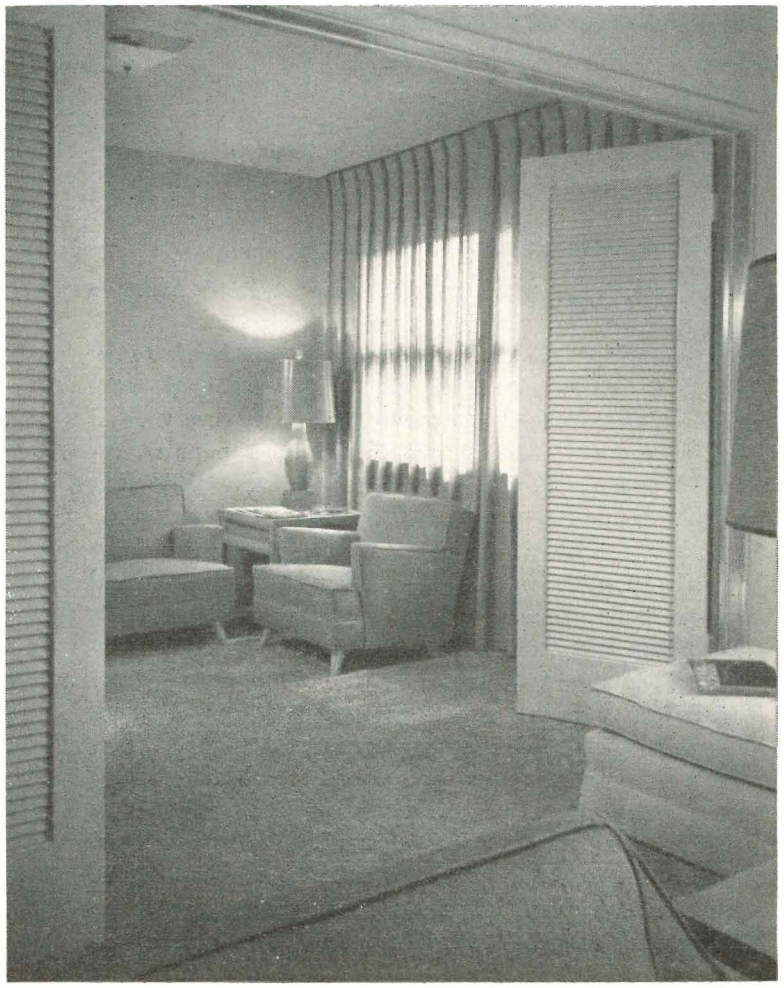
Model house, furnished by Barker Bros., Los Angeles, shows unusual quality of these houses for $13,000. Colors by William Manker were a great sales feature, sliding glass doors to rear terrace popular. In this house, living-dining area is 26′ 2″ in length. With folding doors to den open (as on opposite page) another 10′ 6″ is added.



Fireplace above is one of ten different designs drawn by the architect. This view was taken from dining area.



Grape stakes used on exteriors or in other ways form a motif carried through the neighborhoods. Sixty per cent of the exterior walls is of redwood which was used in many ways to get interesting effects and avoid monotony.



View from television room or den (in Plan C only) showing louvered, folding doors to living room.

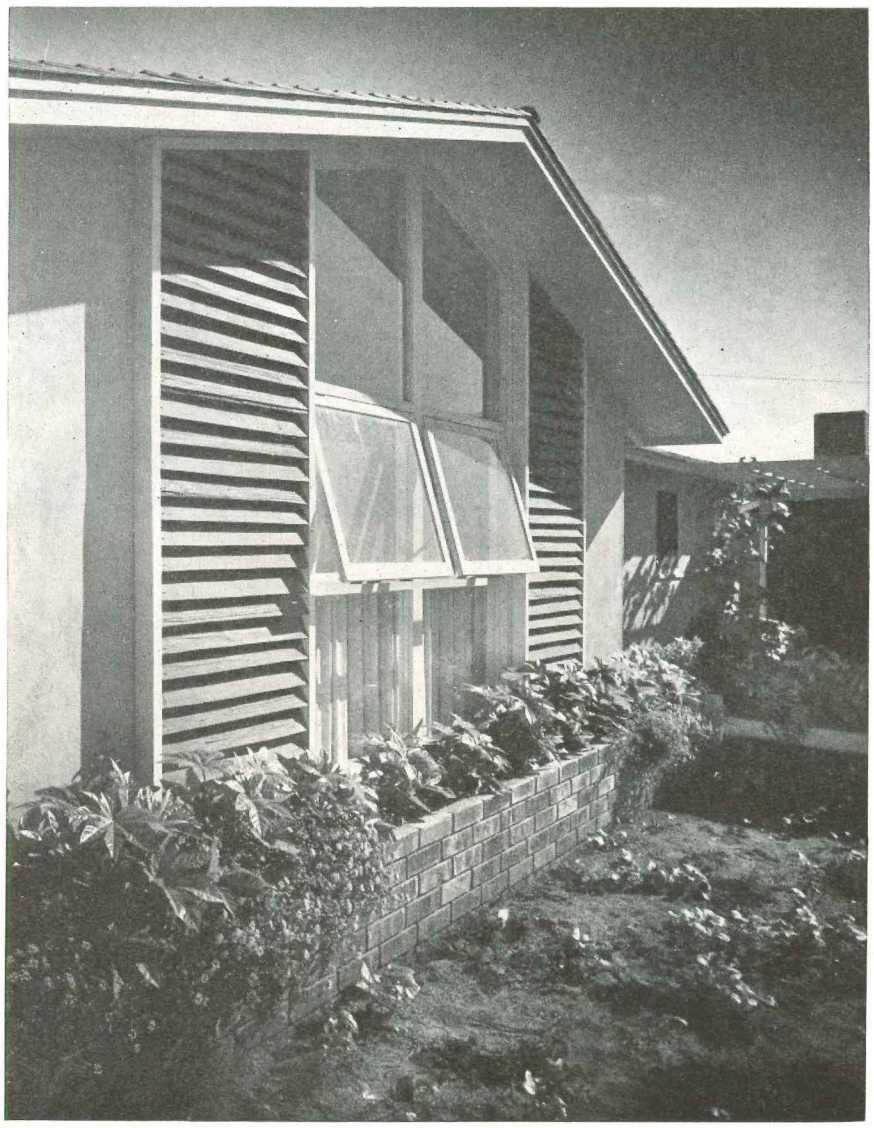
all the houses along the street and to harmonize the colors of various rooms. (For Manker's explanation, see page 145.)

These special colors added about $100 per house to the painting contract, raising it from $350 to $450. The colors made such a hit that the builders have retained Manker for a lower priced, 400-house development too.

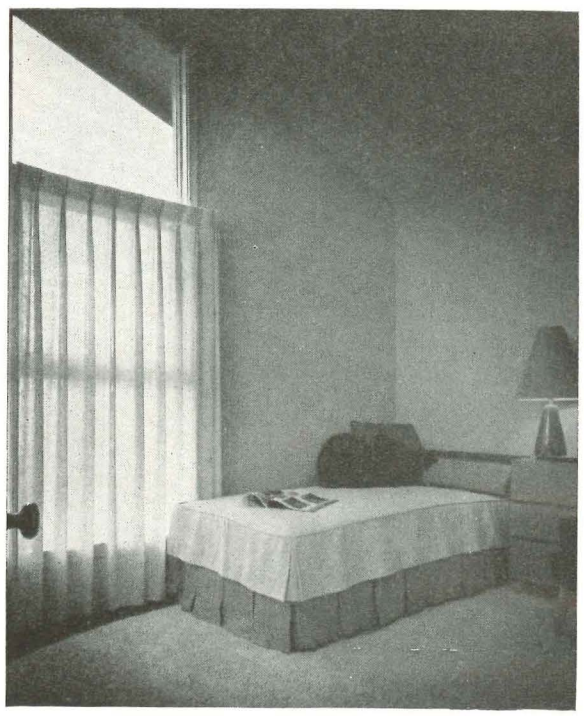
Other selling points the architect contributed:

1. All the houses offer possibilities of indoor and outdoor back-yard living which were something of an eye opener to prospective home buyers. To that end:
   - All the houses were given rear living rooms with floor-to-ceiling window walls that really are window walls and can be slid back to open the living area to a large (8′x20′) paved patio, which is either trellised or fully roofed.
   - All houses were sited to avoid cutting down trees in the back yard, so every house has two or more orange and avocado trees in the rear (because of grading, trees in front could not be saved).
   - All the back yards are completely surrounded with a $150 redwood fence, with the service yard separately fenced in either at the rear of the yard or near the kitchen. All garages were placed close to the street, partly for convenience and partly to leave the rear yard free for family living.

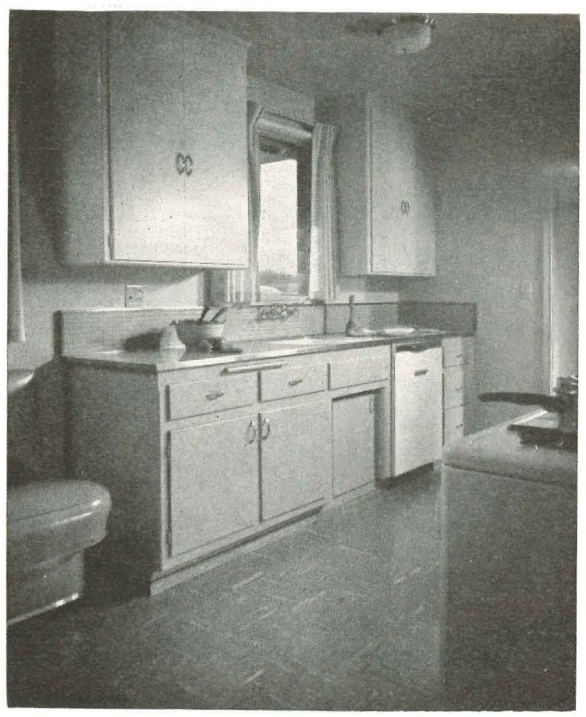
(Continued on page 144)



Grape stakes laid horizontally give an interesting texture. Brick planting boxes, proportion of overhang, well designed windows are characteristic touches.



Always conscious of how the house will look when furnished, Fickett designs so standard-length curtains can be used even with high gabled windows.



Kitchens are nearly 16′ long, have general appearance of those in houses costing twice as much. Built-in dining nooks, double sinks with garbage disposer, automatic dishwasher, ample cabinets are included.

Home buyer got considerable choice

2. Fickett's four basic plans give the home buyer considerable freedom of choice. For example:

- Three plans put the kitchen on the street side, handy to the front door, but the fourth (Plan A, top page 141) puts the kitchen in the rear handy for outdoor dining. To everybody's surprise, the rear kitchen proved the most popular, accounted for 60% of the sales compared with about 15% each for Plans B and C and 10% for Plan D.
- Two plans provide three bedrooms, the other two provide a multipurpose room which can either be used as a third bedroom or thrown wide open to the living area. There are ten different fireplace styles, so any buyer who dislikes the fireplace shown in the picture on page 143 has nine others to choose from. Buyers are also offered several choices for another very popular feature—the paneled wall behind the fireplace which could be of either redwood or cedar.
- In some houses the bedrooms have beamed ceilings following the roof lines and tall windows running up to the gables. In other houses the bedrooms have conventional walls and conventional windows. The tall windows made a hit, but the builders were surprised to find how few buyers commented on the beamed ceilings.

3. To avoid monotony, many variations in the exterior appearance of the four basic plans were worked out.

- Each of the four basic plans can be reversed. On three, the roof line can be turned. Some houses have red cedar shingle roofs; others have white dolomite built-up roofs.
- Further variety is provided by the choice of five types of siding on the street fronts—tongue-and-groove, board-and-batten, lap boarding, flat paneling and exterior plywood (board-and-batten proved the most popular).

4. All the bathrooms are oversized (8′x8′ instead of the standard 5′x7′), with a stall shower as well as a tub and with a Pullman lavatory 4′ long.
5. Glass louvers, which are only just finding their way to California, were used in all baths and kitchens and also for ventilation in the living rooms.

Quite apart from these selling points developed by the architect, the builders also developed many salable values. For $13,000 the buyers get a 1,152 sq. ft. house plus a 2-car garage on a lot 60′x110′ or larger, plus $100 worth of landscaping. All the rooms are oversized, notably the kitchen, which includes ample cabinets, an electric dishwasher and garbage disposer and a built-in leather-upholstered breakfast nook.

HOW TO COLOR-PLAN A BUILDING DEVELOPMENT

Ideas and techniques behind the color schemes

By William Manker, Color co-ordinator and consultant

The success of over-all, exterior color planning for a builder's development depends on:

1. Giving the tract a "ready-to-live-in-today" appearance. Since full-grown shrubbery is expensive to buy and transplant, color can be counted on to soften the rawness inevitable in all new houses. Color can help sell the house.
2. Giving sufficient color choices so the client will not feel it necessary to repaint immediately in order to have the schemes that he wants.
3. Proper scheduling so that the painter and his staff will not spend valuable time trying to decide just where each color is to be used.
4. Supporting the architecture but not dominating it. Color should unify the plot plan and encourage the owner to landscape and improve his investment.

Exterior colors

Color planning is as important for builders as plot planning, involves careful study of the specific locale, orientation and type of architecture.

The acceptance of standard-color materials (such as stucco, paints, stains and roofing materials) leaves little leeway to create harmony in a housing project. On the contrary, these elements almost invariably add up to inharmonious color schemes, create rows of houses with strong trim and incidental color notes completely out of keeping with wall and roof tones.

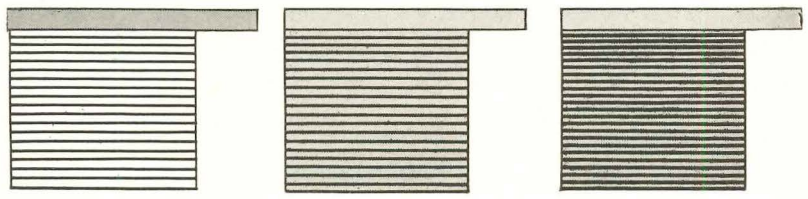
Color emphasis should be on the over-all appearance of the street rather than the individual house. Neighbor relation is as evident colorwise as it is architecturally.

At La Habra Park the general color value of the houses on each street was first established—not too dark or too light. Second, the trim and accent colors were determined and related to the over-all exterior colors. Third, the houses were color-plotted to create a harmonious street view. Also taken into account were the roof materials; shingle roofs predominate, are interspersed with built-up, stone-covered roofs.

The exterior colors were selected from a total of 12 wall colors and eight trim and accent colors.

Exterior wall colors included wood stains and stucco paints.

EXTERIOR COLOR USE PERCENTAGE CHART



Percentage wise the tract represented 34% in "light-medium" colorations, 25% in "medium" colorations, 41% in "medium dark" colorations. All colors in the above three categories were "grayed" to key them to a common color factor value.

The trim and accent colors were used on facia, eaves, door and window trim, exterior eave "egg crates," posts and beams and principal entrance doors.

Four exterior colors in the "light-medium" values include lemon-yellow, yellow-green, warm gray and gray-green.

Three exterior colors in the "medium" values are coral, turquoise and green-yellow.

Five exterior colors in the "medium-dark" values are used, warm brown, blue-gray, green olive, warm gray and coral.

The street view therefore became a sequence of related grayed colors without a sharp variation between the dark and light houses. The trim color often repeated a wall color established several houses apart and helped tie them together harmoniously.

Interior colors

Seven interior color plans were provided. Seventeen flat colors were selected for walls and ceilings in the living-dining area and the bedrooms.

Interior color schemes were based on room orientation, each having three bedroom color selections based on warm, medium and cool locations. (In general a north bedroom should be warmer in color than other rooms; a west room cooler; east rooms should be warm to medium cool; south rooms medium cool to cool.)

The kitchen and bath colors were planned for each house. Five wall color schemes were used but colors of wall tile, breakfast nook and asphalt tile gave latitude to the five basic colorations. The necessity of ordering the tiles months in advance precluded owners from selection of colors, but the kitchen-bath color setup would go with any of the seven interior schemes the client might wish to select.

Five enamel colors were used for the bath-kitchen setup. Case linings were keyed high in color for accent. The bath and kitchen of a house used the same paint color scheme and the same floor and wall tile in order to expedite labor and material handling.

IS HOUSING INFLATIONARY?

Not necessarily, says Home Building's No. 1 Economist, not even with minimum down payments. In fact, this year too few homes would be more inflationary than too many

By Miles L. Colean

Is housebuilding inflationary? This is a loaded question and it cannot be answered unless we first agree on the answer to another question: What is inflation?

Our definition is this: Inflation is what happens when money loses its purchasing power. If you have any questions about how we came to that definition and what we mean by that definition, it is explained in one easy lesson at top of the opposite page.

What, now, about housebuilding? Is it inflationary? Does it threaten to make money lose its purchasing power?

Since houses are among the most necessary and most durable of goods—since, in other words, they represent real, long-term utility and a means of long-term investment—there is nothing inherently inflationary in their production (as there is in the production of war goods). In fact, so long as home building is financed out of savings, home building cannot have any direct or prolonged inflationary impact, regardless of whose savings are used, regardless of how big the down payment or how big the mortgage.

There are no other kinds of goods about which this may so confidently be said. And yet, we are often told that home building was one of the most inflationary features of the postwar period.

Let's look at the record

During the war housebuilding was sharply curtailed at the very time when the number of people with the money to buy houses was greatly increased. This created one of the conditions for inflation—an excess of money in relation to the supply of goods. The result was immediate. The price of existing houses skyrocketed as purchasers well supplied with money pressed into a market undersupplied with houses.

The same inflation continued after the war, when we began to build again. People rushed to buy the new houses much faster than even the materials to produce them could be made. Home prices, already high because of the inflation in the price of existing houses, rose all over the place.

This price rise should have corrected itself by slowing down buying until supply could get into balance; but this natural correction was prevented by various postwar government actions and policies which increased the swollen supply of money even further and made it still easier for people to use it. These actions included:

1. making it possible and profitable for insurance companies and other lending institutions to get funds for mortgage lending by selling their U. S. government bonds to the commercial and Federal Reserve Banks where, by the processes of central banking, they became new money;

2. keeping interest rates low, thus encouraging people to borrow heavily the money that did not represent actual savings;

3. lowering down payments on FHA and veterans' loans so as greatly to increase the number of people who could bid for the excess money that was available for mortgage loans.

Even though home building increased to ten times its wartime low, it could not keep up with the demand suggested by these policies so prices moved steadily upward.

But it was not housebuilding or housebuilders that caused the almost continuous price rise. It was the combination of a war-created shortage of houses with the government's recklessly easy money policy that did it. Housebuilders did all they could to correct the situation: they broke building record after building record to meet the souped-up demand. If they had not done so, the price rise in houses would have been even greater than it was, so long as demand remained high and the reckless money policy was followed.

What happened in 1951

With a brave show of spirit, the Federal Reserve Board in March of 1951 finally changed its bond buying policy, so that temporarily at least the money-making process was slowed down. The froth was taken off the market, and house buying was restored to its true character of savings investment.

As long as the new FRB policy can be maintained, lending institutions will have to rely primarily on the funds that come to them in the form of savings, and the volume of their loans can be increased only as rapidly as new savings come in. The rate of expansion obviously cannot be as rapid as that made possible by the artificial methods of making money, but once the shock of the change is over, the rate probably would prove satisfactory. And there would be no resulting inflation.

But how will things work out in 1952?

Our present difficulty is that we are again in a war and are getting ready for a still bigger one. Consequently, it is again necessary to pay billions of dollars for goods that have no economic value in the ordinary sense. So far these war goods have pretty well been paid for by taxation, but the outlook is that, before 1952 is out, taxes will not be enough. Then the government will have to go out and borrow—issuing new bonds that will come into direct competition for savings with houses and all the other things that people want to buy or to invest in. The big question will then be: Will the savings be enough to go around? Unless government spending is reduced, they almost

Inflation in one easy lesson

Inflation is what happens when money loses its purchasing power. This may result when either (1) the available supply of money increases faster than the obtainable quantity of goods and of services, or (2) the supply of goods and services declines in comparison with the money in circulation.

Rising prices are not a cause of inflation. They are at most a symptom of inflation that has already taken place. Sometimes rising prices may even prove to be deflationary, for rising prices—unless accompanied by increases in the supply of money—are likely to be self-correcting, either by discouraging buying or by stimulating production.

If the output of new goods keeps up with the growth of the money supply, no inflation is likely. Conversely, if the amount of new money increases no faster than the production of new goods and services, there is no inflation, because the relationship between money and goods will remain constant. This happy situation exists as long as the production of the additional goods is financed out of savings. whether these are the buyer's own savings or the savings of someone from whom the buyer borrows. The reason for this is that when savings are invested directly in goods, there is no artificial increase in the supply of money.

When, however, available savings are insufficient to finance all the production desired and savings have to be supplemented by commercial bank credit—that is, by artificially increasing the supply of money—then inflation is under way.

This is what happened during the war. We had to buy a lot of goods in a hurry to supply the armies of the world. We were unwilling or unable to do this wholly by taxation and the sale of bonds to money savers, so we manufactured money by the various means open to the central banking system.

In the main, it was this process of "monetizing" the debt during and after the war that was mainly responsible for wartime and postwar inflation, but there were other angles.

1. The war goods produced by the manufactured money had no ordinary economic value when they were made. It was just as if so much material and work had been dumped into the ocean. Consequently, there was no chance of an offset between goods and money.

2. The money manufactured by the banking system was left in the economy in an easily usable state, at the same time that the amount of goods people could buy was much reduced.

3. Scarcities or fears of scarcities stepped up the rate of buying and the rate of money turnover; while business firms, in order to keep up with the tempo of demand, borrowed heavily from commercial banks.

The second and third of these actions increased the volume of money in circulation, while the first reduced the supply of goods available for civilian purchase. As a result a terrific inflationary pressure was built up, which overwhelmed the price control system and sent us on our postwar price rise spree.

In brief, inflation, as we have recently experienced it, was the result of an unbalanced increase in the money supply. It was given unusual intensity because the war goods made with the money could not be used by the people who had the money, and because the amount of civilian goods available for purchase was necessarily restricted.

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certainly will not. So the government may be faced with the old dilemma of either making more money by an expansion of bank credit or else restricting the buying of normal goods.

Neither alternative is good. If the bonds are taken up by the banking system (instead of by individuals and savings institutions), an immediate inflationary impact will be felt. If goods are restricted, the influence on prices will be the same. And if the two are used together as they were during World War II, the lid will be off.

Priority for housebuilding

Another curtailment of private housebuilding can be seriously inflationary. Demand for houses is still strong—so strong that despite credit controls, material controls, and general confusion, the market has absorbed 1,000,000 new homes in 1951 on top of 1.4 million in 1950. The number of families is still increasing, and full employment makes new families seek houses sooner and older couples hold on to them longer. We are still far short of being replaced. The amount of deteriorated housing accumulated during depression and war.

Any severe restriction now, therefore, will breed trouble for both the present and the future.

Yet it is just such action that bemused prophets are now vigorously urging. Mr. Eric Johnston, the erstwhile economic stabilizer, has demanded that housebuilding be cut to a limit of 450,000 to 500,000 new units during 1952 as an "anti-inflationary" measure. The effect would obviously be just the opposite. It would be about the most unstabilizing move that an economic stabilizer might dream of making.

For the present, it would mean the bidding up of prices and rents of existing houses, with the attendant evils of rent control and danger of further corruption of the credit system. It would cause the disruption of efficient building organizations, with the loss of capacity later to overtake the shortage.

For the future, it could produce again the impatient clamor for houses which followed World War II and made it politically difficult to restore sound financing methods.

What to do

Every effort should be made to prevent a repetition of the policies which forced construction costs up to more than twice their pre-World War II levels. That experience indicates that the first objective should be to control the monetary system—rather than trying first to control everything else.

The resort to bank financing of a federal deficit should be a very last resort. The way to avoid this is to keep the deficits to a minimum by reducing waste in military expenditures and by imposing a Spartan frugality on other government spending, and then to finance what must be borrowed directly from savings rather than from the banking system.

Saving, of course, should be encouraged, and home buying should be recognized as such an important form of saving that it could play an important part in economic stabilization. Money invested in houses is not available for spending on more volatile commodities. Consequently, the stabilizers might well consider giving housebuilding a priority next to defense itself, encouraging as large a volume of new housebuilding as may be financed out of savings (including, of course, the savings of lenders) and limited otherwise only by the amount of materials that can be made available.

The requirements of national security plainly must come before everything else. But it is also well to bear in mind, as the insatiability of the military appetite is more and more demonstrated, that national security means more than arms alone. Since there can be no such thing as absolute security, the several dangers to it and the several means of achieving it must be weighed together. Inflation can be as serious a threat —and is perhaps a more present threat—than invasion. Both must be guarded against, not one to the exclusion of the other.

One important way to guard against inflation is to put real savings into housebuilding. And considering all the risks ahead, we may well begin to ask, not *is housing inflationary?* but *can we afford to run the risk of inflation by unduly restraining housing?*

HOW TO MAKE A GOOD BUY BETTER

Make a house larger, give more and better bathrooms, give better heating, windows, storage, floor plans—all at no more cost

Place & Co. of South Bend, Ind. have just brought out their 1952 models which clearly demonstrate that when a builder is determined to improve his houses he can find ways to do it.

They have given their customers larger rooms, a better heating system, an extra half-bath, better windows, more storage space and greater livability for less money (considering cost increases) than they did before.

What Place & Co. offer:

- A four-bedroom, 1,120 sq. ft. house for $11,400.
- A three-bedroom, 962 sq. ft. house for $10,600.
- A cold-climate house insulated throughout and with an efficient, warm air perimeter heating system in the slab.
- All double glazed windows.
- An extra half-bath made possible at low cost by a cleverly designed plumbing tree.
- Kitchen and utility room 13′x13′ with dining space next to a window.
- Floor plans designed for families with children.
- Well planned storage space and 36 sq. ft. of outside storage, plus storage in an attic reached by a disappearing stairway.
- Lots at least 60′ wide; many are wider. (Garages or carports may be had but they are extras. No kitchen appliances are included.)

Virgil Place and his sons have been building in Indiana for many years. In South Bend the firm's Twyckenham Hills development is a neighborhood of well built homes that are a municipal asset. Place is just finishing the last of 100 houses there ranging from around $16,000 to $26,000, has also built lower cost, two- and three-bedroom houses.

But for its new 183-acre McKinley Terrace project, where there will be some 800 houses in a few years, the firm wanted a better house for the money than it had built before. In addition to Virgil Place, there are two sons, Andy and Bob, and two sons-in-law, Jim Peacock and Henry Amt. Spark-plugged by their father, the boys set out to improve their previous designs.

They knew they could build a three-bedroom house for very little more than their old two-bedroom model had cost, so they ditched the small house completely. As they figured new ways to build a better three-bedroom house, they found they could standardize many items in their three- and four-bedroom models and make each house about 100 sq. ft. larger than their old designs at no extra cost, considering cost increases. With the economies of a simplified plumbing tree, designed by staff engineers William Weist and George Hones, they were able to add a half-bath for only $50 more. They wanted double glazing and found ways to buy and install it for less money than they had been paying for aluminum windows and storm sash. They made other improvements, listed below, which they believe let them sell their houses at from 10% to 20% below the local market.

Why Place & Co. did what they did may be of more significance to other builders than what they did. Their philosophy might be summarized as follows:

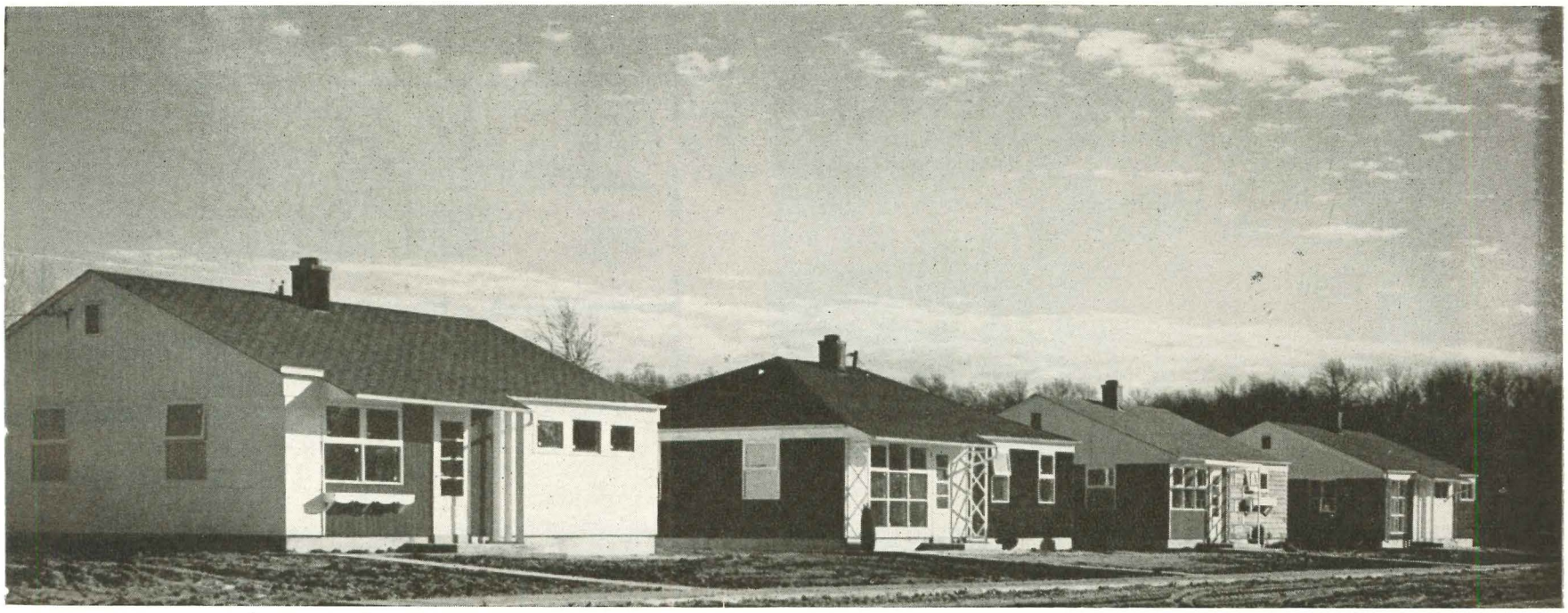
House size: Give as much enclosed space as possible. A house 28′x40′ is better than a house 24′x42′ because the former is more nearly square, yet with 112 sq. ft. more has only four more feet of outside wall. Enclosed living space purchased when the house is built is a better buy for the average family than money spent for kitchen equipment or a garage. Such extras can always be added later.

Livability: Family livability, especially for children, is the most important quality in a floor plan. Always provide runway space from back door to kitchen, toilets and bedrooms so children won't have to go through the living rom. If there has to be a choice between a front entrance hall and a "mud" (or utility) room off the kitchen where the kids can leave their boots and play clothes, take the mud room.

Give the kitchen a real dining area. Provide extra-large closets, an outside storage area and a disappearing stairway to storage space in the attic.

In the planning stage measure every room against furniture size to make sure it is satisfactory for furniture arrangements.

Advanced planning: In a highly competitive market, a builder can give extra value only through careful planning. Double



Place's model houses from which 22 sales were made the first weekend and another 18 (with temperature at 15° below zero) the second weekend. Double glazed windows were a great sales feature. First and third houses are three-bedroom, others are four.

glazed windows, for example, can be brought into the $10,000 house only if the framing is engineered to eliminate needless members (see drawing on p. 152). An extra half-bath can be provided only if it can be installed inexpensively through better plumbing design. If a builder has two or more different floor plans, they must be standardized as far as possible. (In Place houses, three- and four-bedroom models have the same kitchens and baths, windows are alike, heating is practically the same, all equipment and details are identical.)

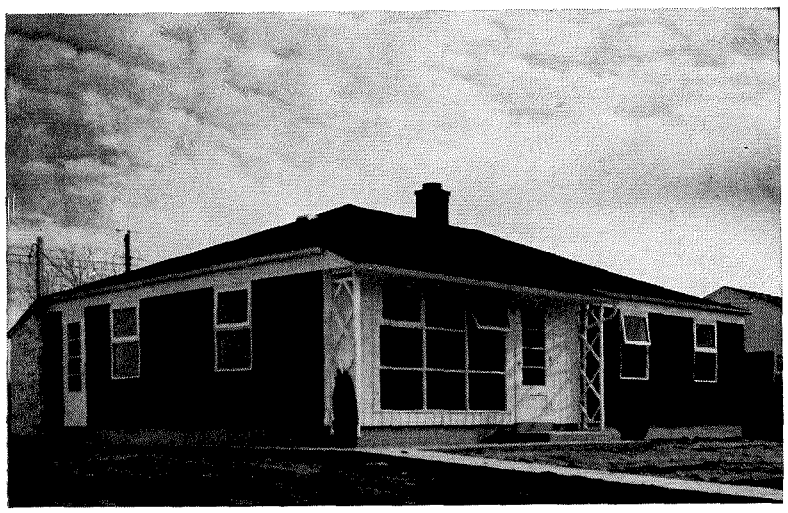
Purchasing: Money can be saved in the purchase of many items such as lumber, insulation and heating ducts by buying less than top-grade quality and upgrading them through careful selection, but never at the cost of performance.

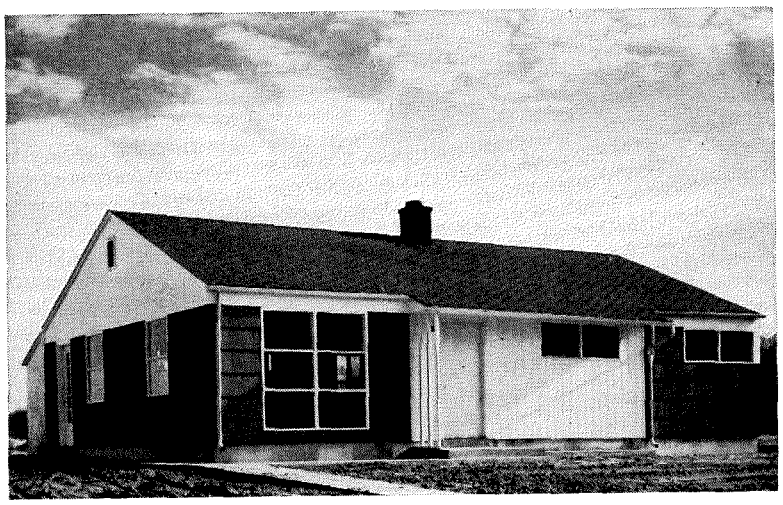
Land policy: Buy good land and give good-sized lots. Larger or wider houses need wider lots. "The cost of raw land is peanuts," says Place, "when compared with the final, retail price of the finished house."

Diversification: In a city the size of South Bend (115,000) a builder can increase the size of his operations by building in several price classes, in several styles and more than one location. The fact that he is known as a builder of quality houses adds stature to his lower cost houses. (Place has an efficient precutting, partial prefabrication operation and sells about 250 houses a year to other builders. A related organization, Bimsco, sells Place houses in a precut packaged form to franchised builder-dealers in an area 200 miles around South Bend.)

Sales techniques: Make a house such a good bargain it will practically sell itself. Give the public what it wants. Staff engineers designed the houses, made their low price possible. (Architects would criticize some of the detailing, such as storage shed line, window treatments, would urge Place to make his houses as fine esthetically as they are efficient.)

What Place & Co. wanted	And what they did about it
More living space at an economical price	By making their house more nearly square, they added 112 sq. ft. to their old 4-bedroom house without adding to the perimeter. They made their 3-bedroom house 98 sq. ft. larger and enlarged the perimeter only 4'. By standardizing dimensions and equipment, their new 4-bedroom house sells for only $800 more than the new 3-bedroom house. The extra 168 sq. ft. cost the buyer $4.76 per sq. ft.
Lower costs	They standardized plumbing and equipment for kitchen and 2 baths of both houses. Heating is practically identical. They buy lower cost lumber, tile ducts and other materials and upgrade them. Everything is engineered for precutting, subassemblies, ease of construction. Entire walls (not just sections) are made flat, raised in one piece.
Double glazing in all windows	They discovered how to buy glass cheaper, then standardized on two sizes. Their engineers devised a cheaper framing method that results in one of the lowest cost installations in the country.
An extra half-bath at a reasonable figure	Place engineers devised a 2-piece plumbing tree that eliminates 7 parts and saves $55 per house, enough to pay for half the cost of the extra bath.
More storage space	In the 4-bedroom house they provided 6 inside closets with 54 sq. ft. of space plus 30 sq. ft. of utility room, an attic which is reached by a disappearing stairway, and 36 sq. ft. of outside storage. The 3-bedroom house has 5 closets.





Photos above show two of the many variations in design and materials in the four-bedroom model. All windows are double glazed. Outdoor storage shed is at rear.

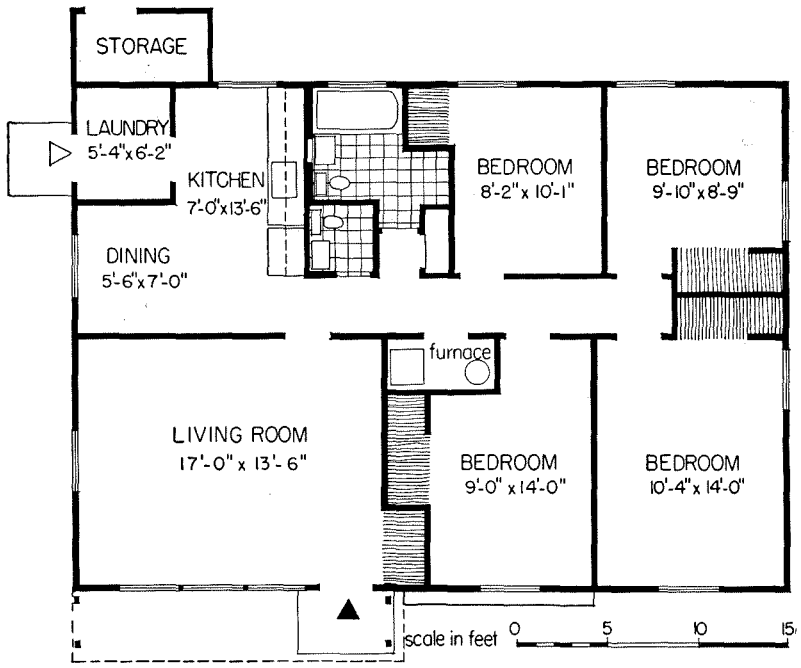
Insurance firm wanted all "deluxe" models

Originally Place & Co. had planned two versions of both the three-bedroom and four-bedroom house. The standard model was to be the same size as the deluxe, but would not have the extra half-bath, double sink, as many linear feet of kitchen cabinets, as expensive kitchen counters, and a number of other items that mounted up to $450 for the smaller house and $500 for the larger one. About half the houses were planned for FHA and half for VA financing.

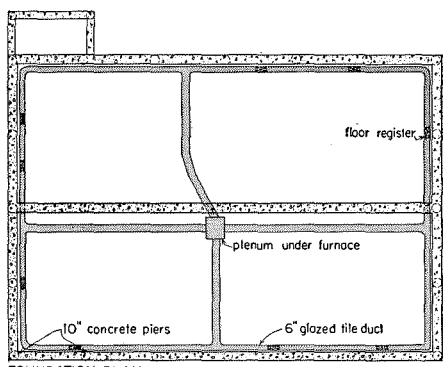
However, when the Prudential Insurance Co. became interested in the project it suggested that the houses would be better if no standard models were built, and that the extra half-bath and other improvements be included in all houses. This was done.

In a sense, Place's "special deluxe" models are now the ones with carport, porch and related storage area. Since about half of all the first buyers wanted this $1,300 extra it is apparent that the carport will continue to be a popular extra. The carport is so designed that it can be enclosed as a garage.

A peculiarity of the South Bend building code makes attached garages expensive to build. Outside the studs there must be plywood sheathing and then conventional siding. Inside the studs there must be ¾″ of tongue-and-groove sheathing and on the inside of that, plaster or plasterboard.

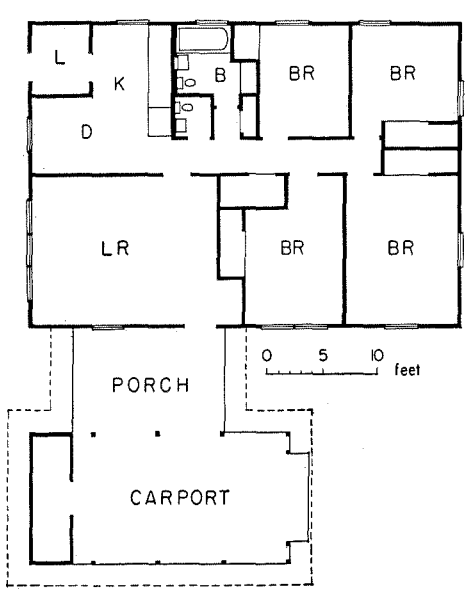


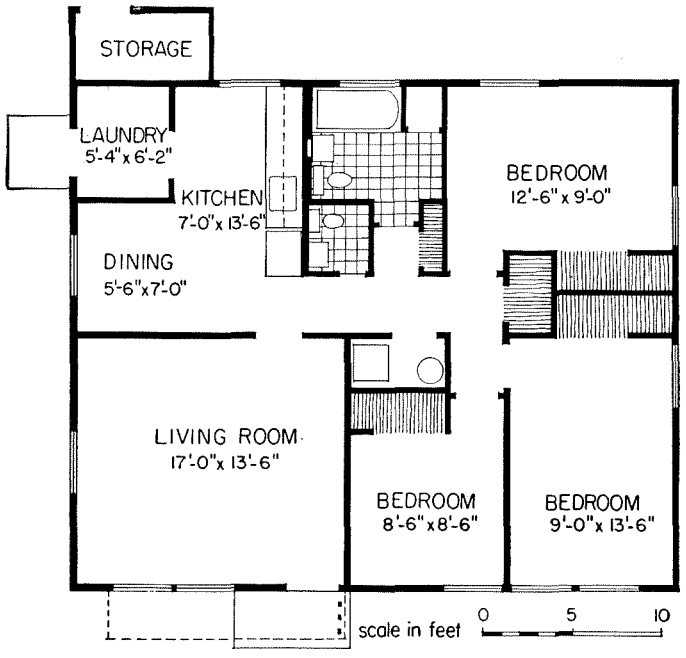
Four bedroom house has livable plan. Kitchen has large dining area, can be shut off from living room with a sliding door. A popular feature is the combination laundry and "mud" room where children can leave their boots and outdoor clothes. Children coming in from outdoors can use either bathroom or their bedrooms without passing through living room.



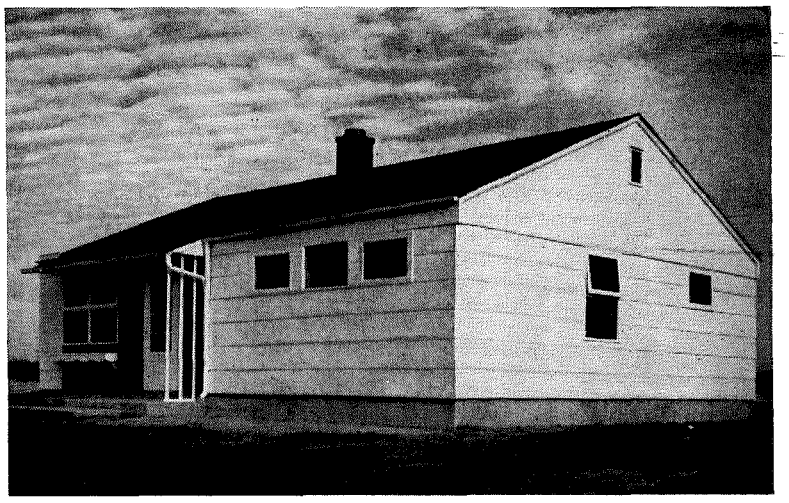
FOUNDATION PLAN

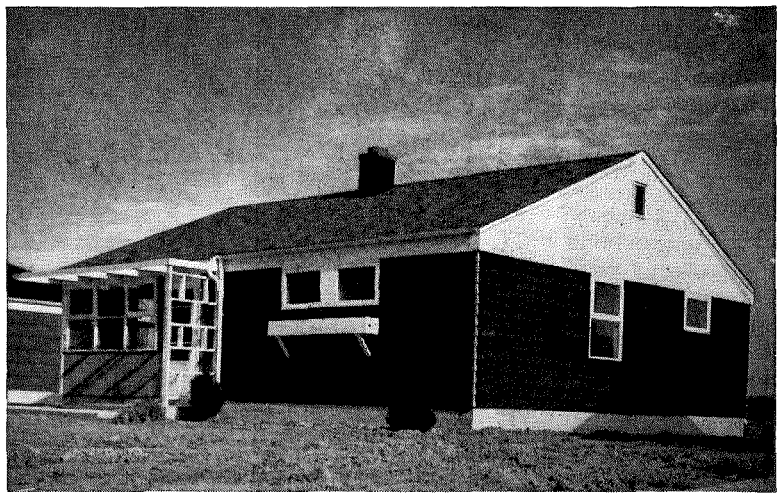
Heating system, above, uses 6″ feeders and 8″ perimeter glazed tile ducts. Below: Half the early buyers paid $1,300 extra for carport and porch, which turns living room to rear.





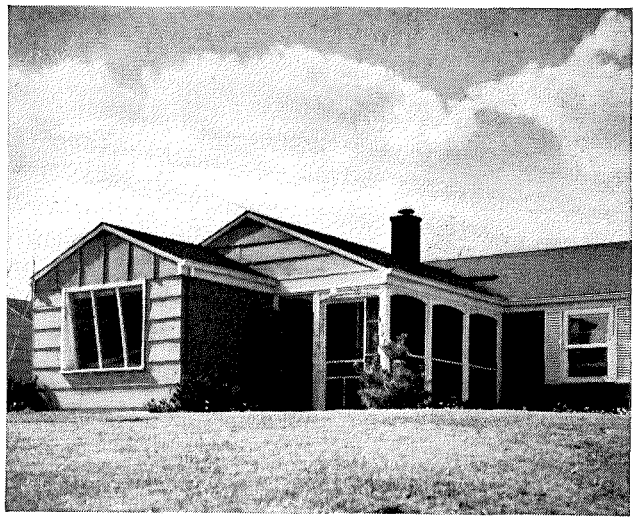
Place got his prices down by standardizing three- and four-bedroom models. Kitchens and two baths are identical. Living room and heater room are in same position. Window glass is of only two sizes and all windows that open are made alike. New 1952 houses were made approximately 100 sq. ft. larger than earlier models at almost no extra cost.



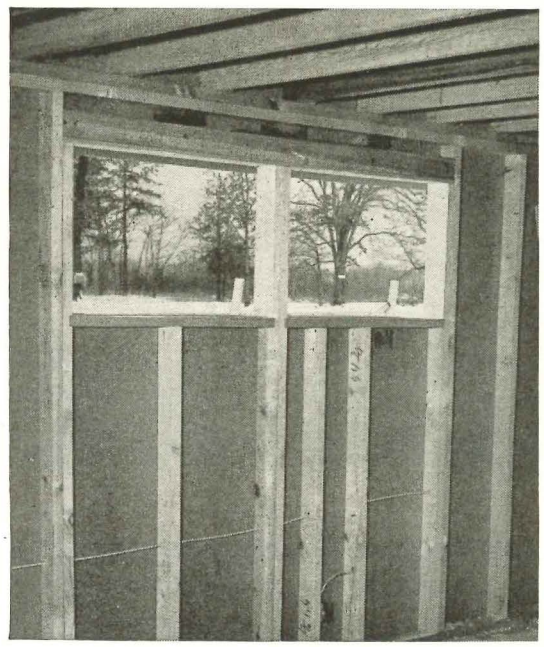


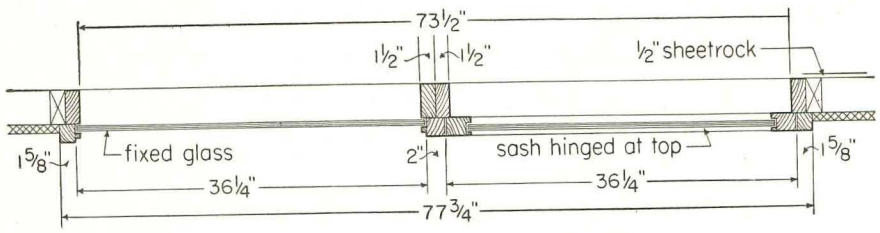
Houses above are three-bedroom models with 952 sq. ft. plus outside storage selling for $10,600. They added 98 sq. ft. to old three-bedroom house. By making new plan more nearly square, they added only 4' to perimeter.

A portion of earlier development, Twyckenham Hills, where 350 houses are now built, with room for 150 more. Houses are two-, three- and four-bedroom models ranging up to $26,000 or more. Rolling land, curved streets add value.

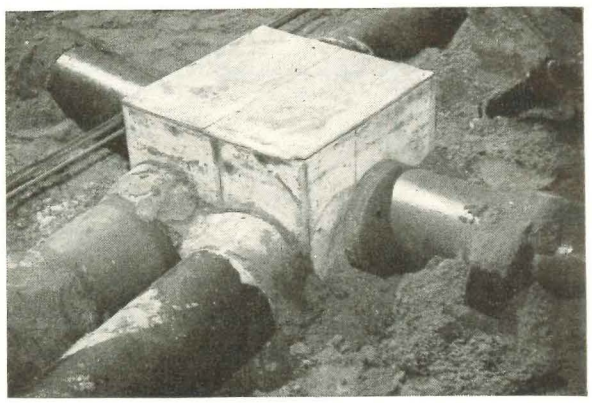


This house was built two years ago in Place's other South Bend project, Twyckenham Hills, a small section of which is seen at left. House sold at $14,400 and is characteristic of higher priced houses in that development which sell for up to $26,000. Front room at left was originally planned as a garage, was converted to a studio room when house was under construction. Many lots here run 90' to 100' wide.

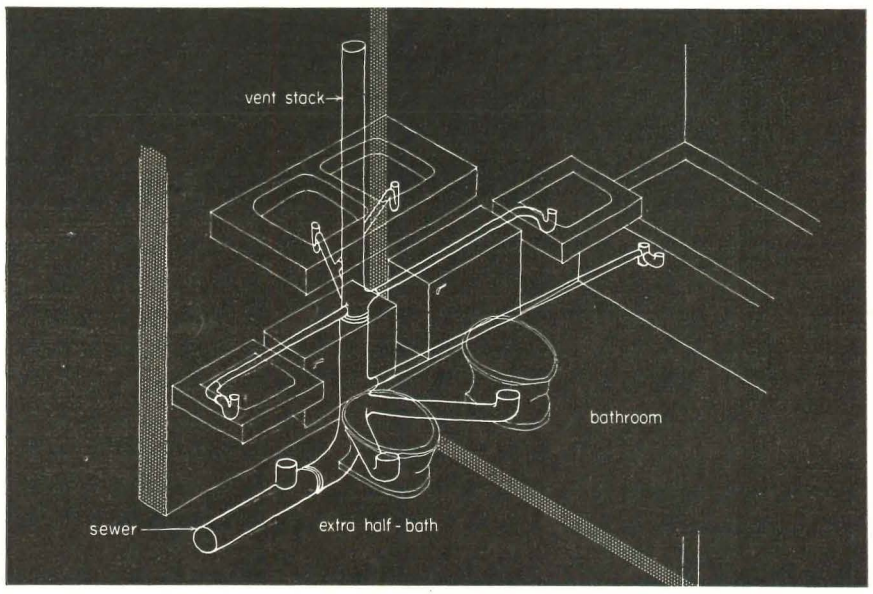




Secret of low cost double glazing was due to smart purchasing and to cleverly designed windows that serve as structural members.



Place & Co. have tried several kinds of heating ducts, find glazed 6" sewer tile is best and cheapest. Three-bedroom house has 65,000 Btu counter-flow furnace; four-bedroom: 85,000.



One of the smartest gadgets in Place's houses is the simplified plumbing tree which eliminates seven parts. Without reventing, it serves two sinks and garbage disposer, two toilets, two washbasins, a bathtub and a floor drain. Patterns for the castings cost $500 but can be used about 500 times. Each casting costs $11 but together they save about $55 per house. This tree made it possible to add an extra half-bath at a total cost of only $50.

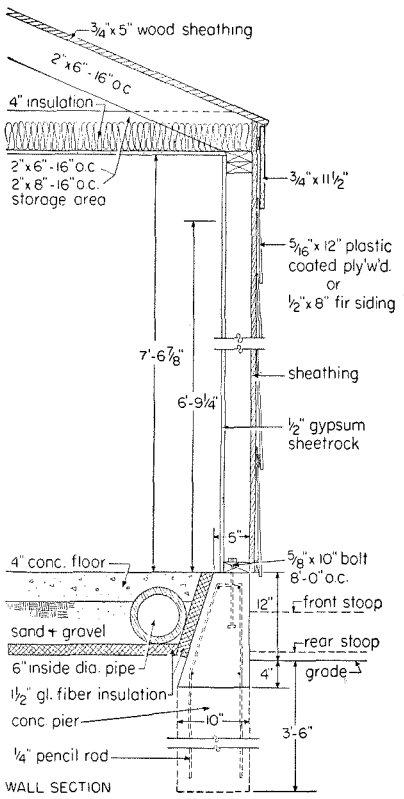
THUMBNAIL SKETCH OF OPERATIONS

Windows: Virgil Place began by shopping around for double glass until he got a price that made it economical. Then he standardized on two sizes: 24″x36″ and 20″x32″. The firm's engineers designed windows that were structural, load-bearing members that could be built in the shop and that used less lumber than conventional windows. They got the lumber cheap by buying No. 2 or better Ponderosa pine for $100 per thousand and upgrading it in their shop, choosing clear sections for areas that would show and getting the equivalent of lumber that would cost $250 or $275 per thousand.

Costs on a two-glass window of which the upper pane hinges out are: glass, $12; sash, $4.50; screen, $2; weatherstripping, 60¢; hardware, $1.50; lumber and labor, $5.40. At $26 they saved $2 on an aluminum window with screen and storm sash. Their nine-pane window (62 sq. ft.) costs them $122 installed. They make windows in from one to nine panes. All headers are the same, made from two 2x4's.

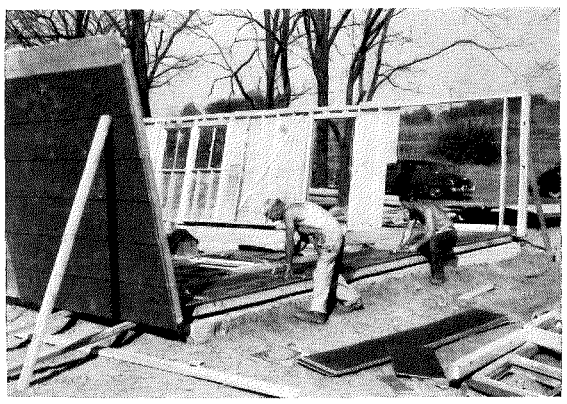
Plumbing: A study of the two floor plans shows that kitchens and two baths for the three-bedroom house are exactly the same as for the four-bedroom. Engineers Weist and Hones designed a two-piece plumbing tree that takes the place of nine sections. Without reventing, it handles the waste from a double sink and a garbage grinder, two toilets, two washbasins, one bathtub and a floor drain. Pattern for the castings cost $500 and should last for around 500 times. The two castings cost $11 each. They save installation time and some 28 lbs. of lead. Andy Place figures this simplified tree saves $55 per house. That is just over half of what it costs to turn a closet into lavatory with a toilet and a washbasin.

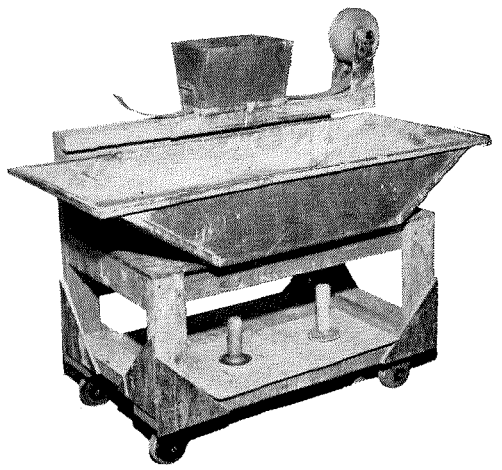
Giving credit where credit is due, Place says he was encouraged to add the half-bath by the FHA in Indianapolis where officials



WALL SECTION

Many builders fabricate their framing and put siding on while frame is horizontal, but few tip up the entire wall of one side at a time. Everything possible is precut at Place's shop. Drawing at left shows construction details.





This homemade machine speeds up the process of applying cement to tape for taping plasterboard. It is on coasters, can be moved from room to room. It may be superseded by a hand-held dispenser originated by Hutchinson & Carey in Denver, if the new type proves to be faster.

persuaded him, with his own figures, that he could install it at a small additional cost.

Heating: Both models are heated by a warm air perimeter system from 65,000 or 85,000 Btu counterflow furnaces in the center of the house. Four 8″ glazed tile feeder ducts carry air to a 6″ perimeter tile duct. The three-bedroom house has 11 floor registers and the four-bedroom house 12. Place has used this system for three years, says people like it better than radiant warm water heat which costs at least $300 more. Perimeter ducts used to be 8″ but with FHA and other technical experts' approval they were reduced to 6″ and work just as well. The firm saves about half the cost of top-grade tile ducts by getting seconds with slight imperfections. A few are thrown away, but most can be used with no lowering of quality.

Construction methods: Production will be at the rate of six houses a week when weather permits. As late as the middle of last month, 54-man concrete crews were pouring slabs at a rate of five a day to get ahead of the winter freeze. Place & Co. own earth moving equipment, buy ready-mixed concrete. They have a full union operation, subcontract only their asphalt tile, gutter, downspouts and electrical work. In addition to conventional bulldozers, scrapers, shovels and trucks they make a practice of buying Navy surplus "bomb buggies" which they use for hauling lumber, to carry portable generators, and for other trailer purposes.

Few critical materials used: "We consider these real war houses," says Virgil Place, "since they require almost no metal, few critical materials. We use cast-iron plumbing trees, back-to-back plumbing, no galvanized ducts in our heating system—only a small boot of sheetmetal for our return air. There are only 10′ of 1½″ galvanized pipe in the whole house. Our hardware is at a minimum. We use wood kitchen cabinets, wood windows. We still include two lbs. of alumninum per house for flashings. We are way *under* the government requirements."

All lumber is precut in the shop. Plans are engineered so it is almost impossible for construction crews to make mistakes. Place & Co. tried and abandoned a layout method that used a marked steel tape and now have layout jigs that speed framing, which is done flat on the slab. Sheathing and siding are also put on while the frame is horizontal; then the whole side of a house is raised at once.

On exteriors they use cedar shingles, cedar siding both horizontal and vertical, striated plywood, flat plywood and plastic coated plywood. A great deal of clear red is used which they buy for only $65 per thousand because it has slight imperfections on one side where a plane skipped or where the grain is torn. That side is turned in and the rough facing turned out with shingle stain on it. People like it and it saves $120 a house. Roofs are sheathed with plywood and covered with asphalt shingles.

Wage rates in South Bend: carpenters, $2.42; painters, $2.30; plumbers, sheetmetal men and electricians, $2.55; cement finishers, $2.42; bricklayers, $3.50; common laborers, $1.81.

Sales methods: Son-in-law Jim Peacock and Paul Hays run the sales department and report constantly on what people want. The new houses are geared so closely with buyers' requests that the firm is not worried about sales.

Virgil Place has said: "What we think, or what an architect thinks, doesn't amount to a hoot until you get right down to who is going to buy the house. The buyer is going to dictate and tell us what to do, and we are going to jump through their hoop". In the past at least 75% of sales was made while houses were under construction.

Peacock says people in South Bend in this price class want more closets, more storage space outside for bicycles, more space to eat in the kitchen, a front living room, a kitchen at the back and a floor plan that keeps children out of the living room as they go from back door to bathroom or bedroom. He says people can quickly tell a good floor plan from a poor one, that more women are conscious of what makes a good, livable house than ever before. Their customers prefer hip roofs to gable, like a slab better than a colonial front door, prefer a kitchen at the back of the house, and prefer redwood siding or wood shingles to asbestos shingles.

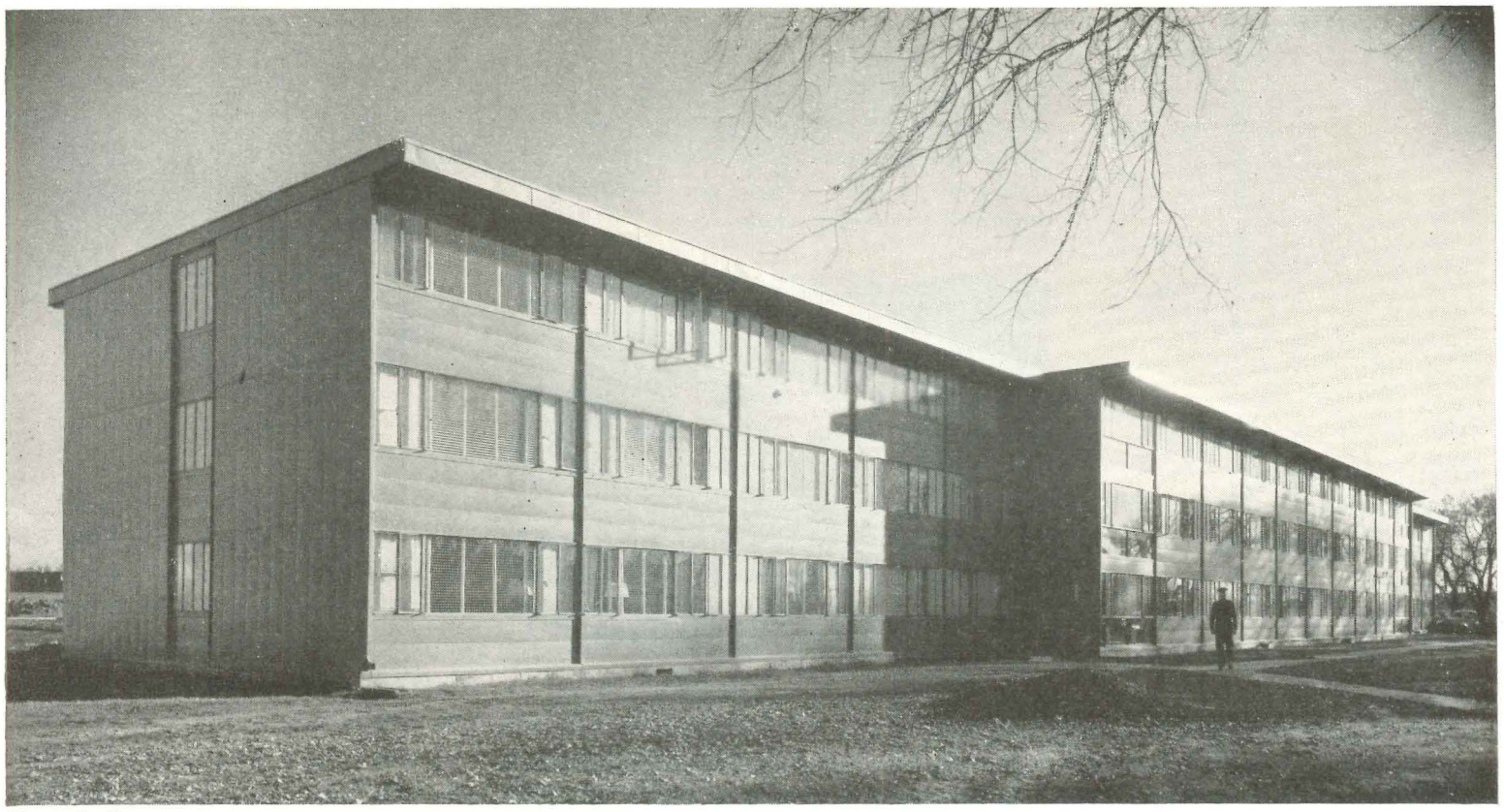
Before the new houses were opened to the public last month, the four model houses had been surrounded with a 6′ fence. This aroused a great deal of curiosity. Some 100 families paid $100 down in the first four weeks and got a printed option that looked like gold mining stock with a number on it entitling them to a house on a "first come, first served" basis. They had not seen houses or floor plans. The option money was put in the bank in their name but they had the satisfaction of telling their friends they had "bought a house."

On the opening weekend, 22 families made the additional down payment, signed up for houses. "The response was wonderful!" says Andy. "We've never seen such enthusiasm for new houses. Sales are going to be OK."

COST BREAKDOWN

(for 3-bedroom, $10,600 house)

Foundations and slab	$ 475
Lumber, doors, cabinets, millwork	1,800
Labor (all except painters)	1,750
Hardware	100
Plumbing	850
Heating	350
Wiring	210
Floors (asphalt tile and labor)	140
All painting	390
Grading and seeding	105
Lot and improvements	1,890
General administration, overhead, selling costs and miscl.	1,750
Profit	889



Murray Studio

AIRMEN'S DORMITORY of prefab steel parts goes up fast, provides more privacy and comfort than old barracks for less money

GI's "never had it so good." For Air Force enlisted men at Offutt Field, Omaha, the new dream-dormitory meant better living than the old open-bay barracks.

For the Air Force, it meant new lessons learned in efficient planning, convenience. Although steel framing and skin will be replaced in future barracks by masonry and wood designs "to save critical materials and for economy," it resulted in three things: 1) some of its new features will be incorporated in future GI barracks; 2) the Air Force now intends to encourage contractors' proposals for "non-conventional" methods and materials. And, most important, 3) it might give civilian planners ideas for low cost garden apartments or college dormitories at such future time as steel is again in ample supply.

Life: Bourke-White

General Curtis LeMay

When General Curtis LeMay moved his Strategic Air Command to Offutt AF Base, he was faced with an acute manpower problem: His highly trained technicians weren't re-enlisting. Paywise, he could not compete with civilian employers, but he felt certain he could improve on Air Force housing to help keep down personnel turnover. When an old cavalry barracks burned down, he asked his ranking bachelor sergeants for suggestions, cut through red tape with characteristic drive and presented SAC sketches to headquarters that resulted in the building pictured here.

The steel-framed, three-story 37′ x 282′ dorm was erected with standard insulated steel curtain-wall panels, standard room-width (14′) steel sash windows and standard steel panel floors topped with 2″ of concrete and asphalt tile.

Advantages claimed to the Air Force and the taxpayer:

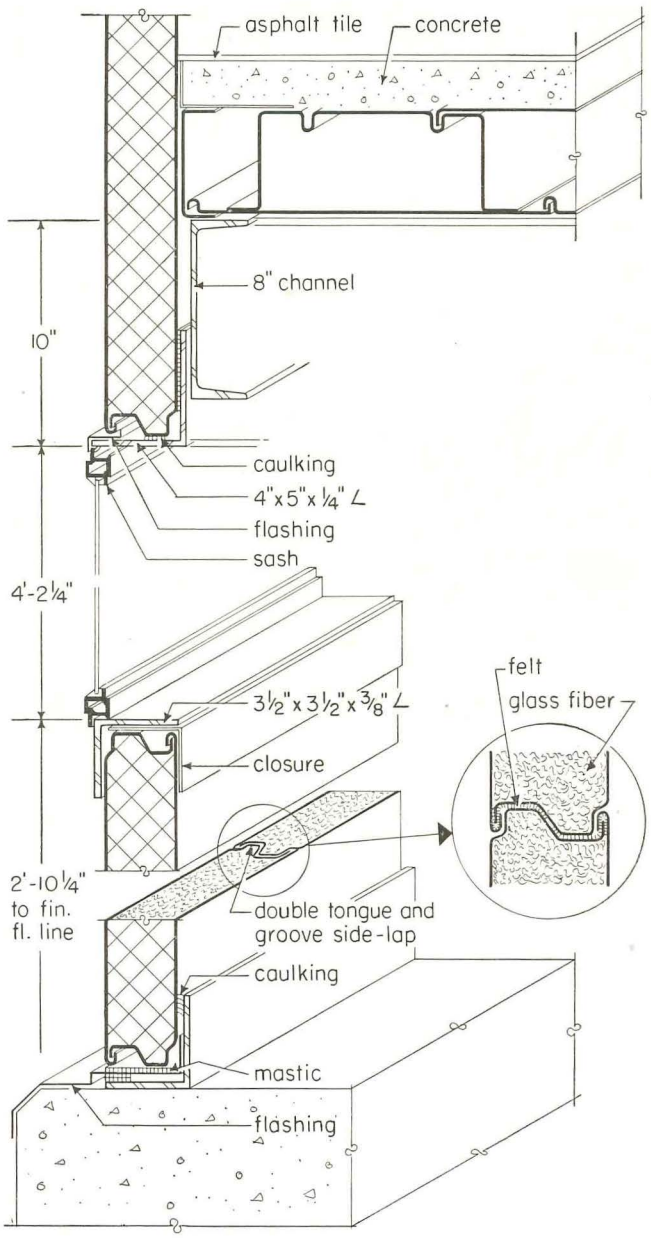
Less erection time: 180 days, including 37 lost to wet weather during the foundation stage. Posts, girders, floor and wall panels, window sash all are prefabricated. Floor panels become a working surface as soon as they are laid, reducing scaffolding.

Less labor: with slab-on-ground, only 1,100 cu. yds. were excavated—for a perimeter trench and small boiler room for the steam heating system.

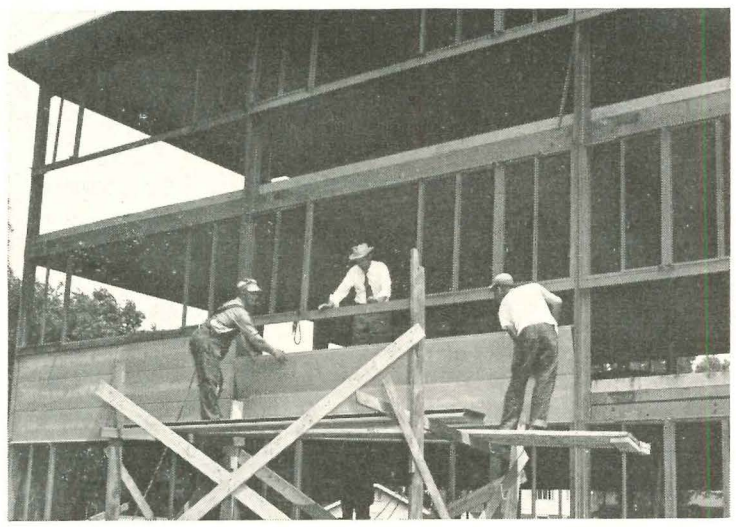
Less maintenance: steel ceilings and walls are prime-coated at the factory, need only a coat of paint to finish them. Like the asbestos-board interior partitions, they can be washed with soap and water.

Less danger: all materials used in the building are non-combustible.

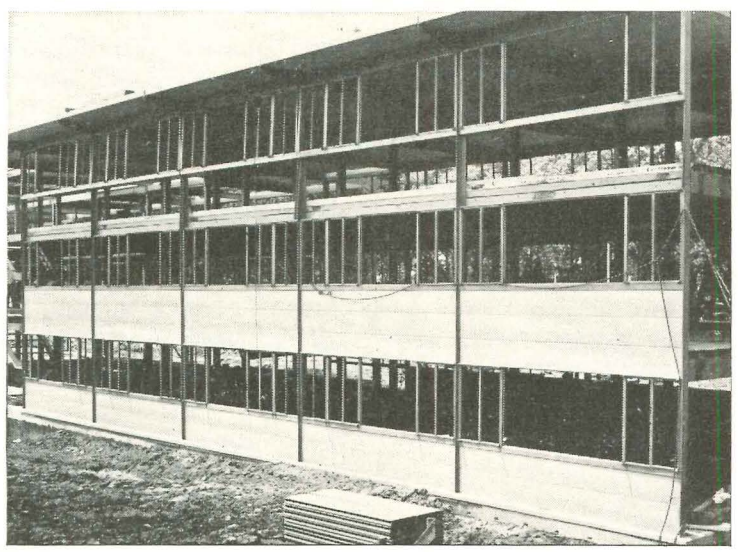
Less money: the total contract price, including engineering, site improvements, utilities and furnishings for the 216-man dorm amounted to $325,824—or $1,508 per man housed, which compares favorably with conventional barracks of wood or masonry. (One of the Air Force's latest contract awards for 17 wood barracks figures out to $1,867 per man.)



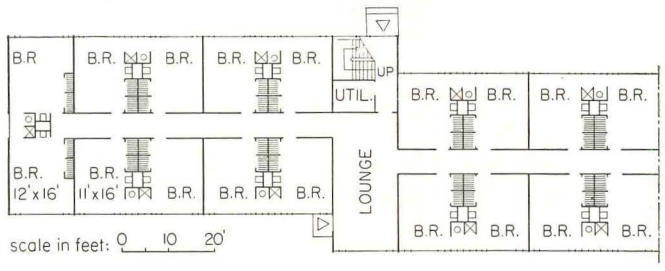
Typical exterior wall section (above) shows steel "sandwich" panels and cellular floors. Below, GI's enjoy new advantages: only two men per room, a closet apiece, twin beds instead of double-deckers, lavatory, adjoining outside bath, drawers, desks, lamps and Venetian blinds.



Two men set panels in place from simple scaffold. Steel can be laid up in most weather; closing-in time is lessened by prefabrication of all covering members: walls, roof, windows.



The 16" x 3" x 14' panels are filled with glass fiber insulation, transmit as little heat and sound as 13" masonry. Like interior partitions of 1¾" asbestos board, they are movable and salvageable for changes, additions.



Half of first floor plan shows two-man rooms separated by closets, lavatories and bathrooms. All three floors of the 37' x 282' dormitory are identical, with two stairwells, two 23' x 14' lounges and 5' wide halls.

WOMAN BUILDER TURNS OUT A COMPLETE "NUCLEUS" HOUSE FOR $5,880 Dorothy Shahan's 912 sq. ft. house in Phoenix is the country's top Title I buy, and a bargain in what women like

LOCATION: Phoenix, Ariz.
FRANK R. FAZIO, Architect
FARMER & GODFREY CONSTRUCTION CO., Builders
DOROTHY SHAHAN, Developer

"In FHA's opinion, this house is one of the four or five best values in the low cost field, and just about the best designed. It is the biggest Title I buy we've seen."
So says Herbert C. Redman, Assistant Commissioner of FHA in charge of field offices, of this 912 sq. ft. house in Phoenix.

Every builder gets some of his best ideas from his wife. She knows what women like—and usually it's the woman who chooses the home.

No doubt this woman's angle is one reason why Mrs. Dorothy Shahan, one of the two woman directors of NAHB, has been able to produce so much house for so little money. At $5,880 ($1,130 down, $29 per month under Title I FHA financing), it is a real bargain in what women like:

- This "nucleus" house lends itself to additions to keep up with growing family needs, with the result that 75 houses originally built like peas in a pod are already being expanded and changed by their owners.
- To further avoid any row house monotony, the plan can be turned in any of three directions, and there are nine different exterior elevations.
- Wider, deeper-than-average lots (see page 160) make possible the above variations in both expansion and siting.
- It is packed with "extras" not required under Title I, such as interior plastering and painting, closet doors, picture windows; it is even planned so that a simple cooling system can be installed at a cost to the owner of only $126.
- Extremely generous rooms include a party-sized living room (15′ x 20′ plus an 8′ dining L).
- A pass-through links kitchen and living areas.
- There are good schools and bus pickup at each house. (Location is away from the industrial section, nine miles east of Phoenix and near the Scottsdale winter resort area.)

When Mrs. Shahan made up her mind to convert her own 80-acre ranch into a crop of good low cost houses, she drew on personal experience: she had raised three children, studied and drawn countless house plans, supervised the building of two houses for her own family. She had also been in the real estate business for four years, and taken a strong and womanly interest in "the 60% of my clients who needed a house I couldn't find for them—a good small house they could pay for and still have money for real furniture instead of made-over packing boxes." She felt she knew what these young couples wanted, and planned her Park McDowell subdivision with them in mind.

"I wanted to build the most house for the least money. I wasn't an architect or a builder, but I was sure it could be done, and that the ranch I'd lived on for 21 years was the place to do it. I was so sure—and so determined—that I didn't give up when nearly everyone discouraged me. I simply decided to roll up my sleeves and see what I could prove."

That it can be done is exactly what Mrs. Dorothy Shahan and her architect, Frank Fazio, have proved.

First step was a park land plan with curving roads and lots varying from 65′ to 85′ in width and from 112′ to 140′ in depth, averaging about 75′ x 125′. These were first measured out by Mrs. Shahan's 26-year-old son with the aid of a 6″ rule, finally checked and approved by a leading land engineering firm.

Next she arranged for utilities, her greatest original outlay being for a mile-long 8″ pipe to the end of the city's master line. (Later, the city water department paid her back.) Road paving and curbing were not required nor, under Title I, were trees. However, with a typically feminine attitude, Mrs. Shahan decided trees were important, and put in what few she could afford.

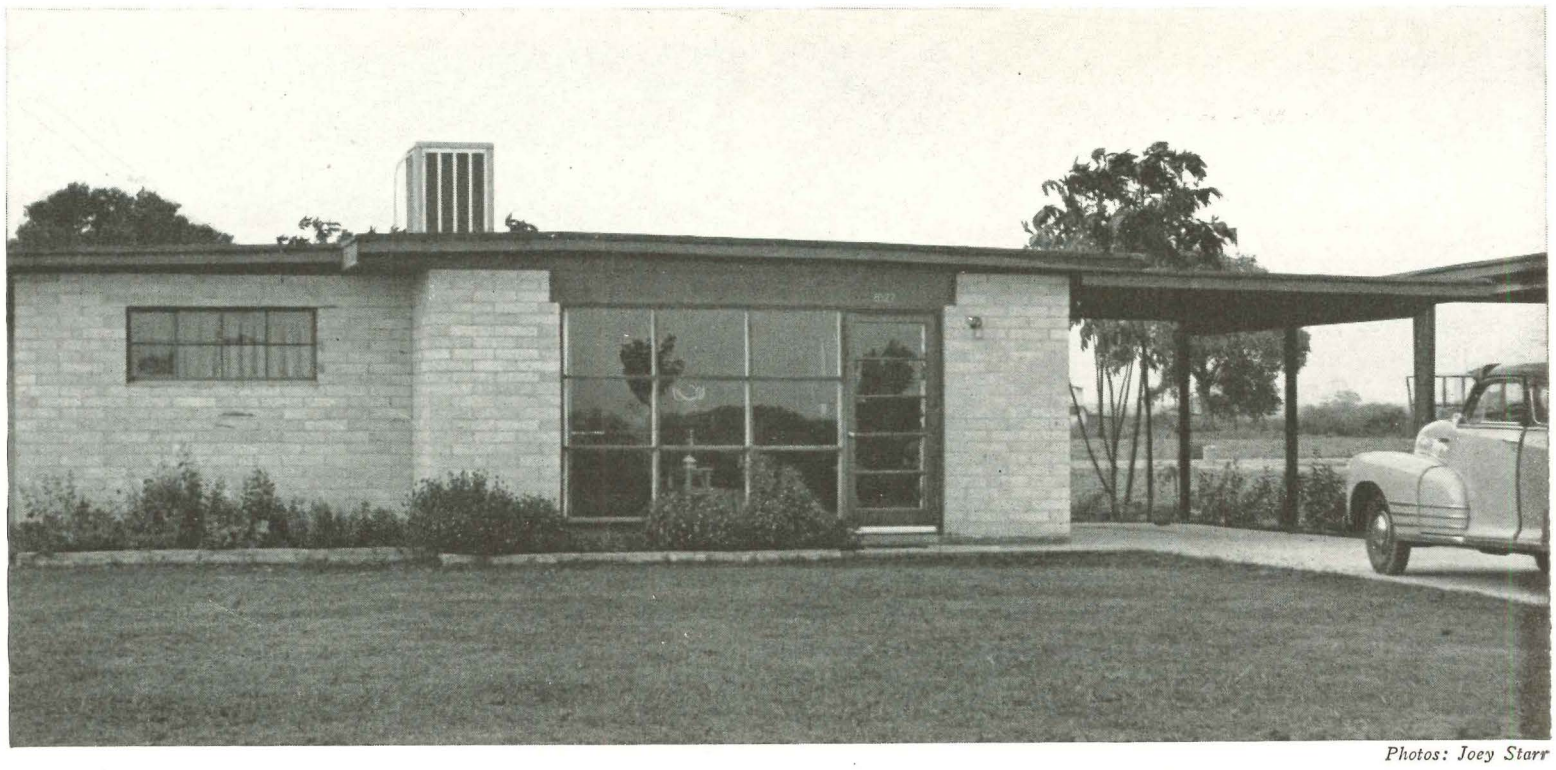
Then came the long, hard, disappointing search for the kind of house plans she wanted. There seemed to be none in existence, and no one who could produce them. But, says Mrs. Shahan, "I didn't see why it couldn't be done—that simple house with space used for big rooms, and set up so each owner could add on, modify, tinker until there would be no row-on-row sameness, but each house suited to the owner's way of living."

It was because she "couldn't see why" that Mrs. Shahan persisted and kept on searching until finally she found local architect Frank Fazio. To him, her requirements were a challenge and an opportunity.

Fazio had been working on the design for an economy house, and was convinced that "low cost houses should not be just a squeezed-down version of more expensive houses." He believed in "planning instead of skimping." He had the architectural and engineering know-how, the ability and desire to design a good house that could be built at minimum cost.

The design and construction ideas went hand in hand, each making the other possible and proving again that the place to cut corners is on the drawing board.

▸ *Construction planning:* There is only one interior bearing wall, of frame studding, right down the center of the house. On one side of it the two bedrooms were built as one big room; likewise, on the other side, the kitchen and living-dining room were built as one. This meant, for example, that instead of dismantling their scaffolding to move from one bedroom to another, the plasterers had simply one large room to work in. The shell could be completely finished first, and prefabbed wardrobes and closets later shoved in as room partitions.



Photos: Joey Starr

Neat exterior has picture window-front door grouping, carport (extra) to add to apparent width. House may be turned any of three ways (below).

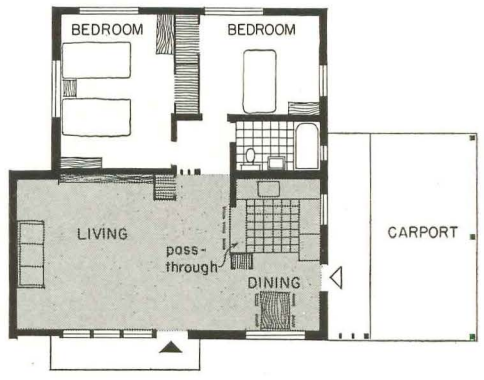
▸ *Building method:* The building was so planned that the different crews could work quite independently of each other. Each crew came in and did its job as fast as possible, moved smoothly from house to house until all were completed, never had to come back. First the plumbers went in and put up the plumbing trees for all 75 houses; then the concrete workers poured footings, stems and floor slabs all in one operation instead of the usual three; the masons built the walls; the carpenters put in the bearing walls and the roof framing, etc. Lumber was precut and delivered in one-house packages.

▸ *Economical materials:* Exterior walls are 4″ x 8″ x 16″ pumice blocks, unpainted. (The 8′ ceiling height was determined by the fact that the masonry blocks added up to 8′; the steel window frames fitted the same module.) Doors are gumwood slab. Floors in kitchen and bath are asphalt tile; colored concrete elsewhere. Heating is by gas furnace in the living room wall.

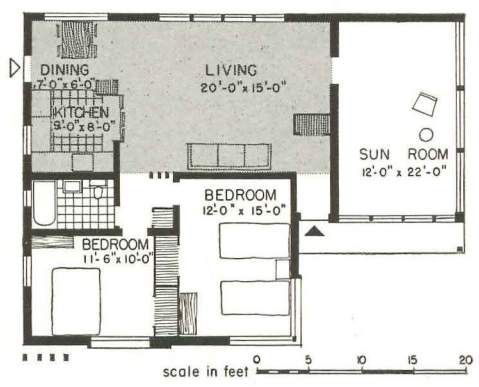
▸ *Roof structure:* The roof framing is one of the best construction features. With the single interior bearing wall bisecting the house, the roof is supported by long (18′) joists which span the entire 16′ width of either half and run on to provide a 2′ overhang. Stock pieces of lumber 2″ x 14″ x 18′ long were cut on a diagonal lengthwise and placed high end to high end, 16″ o.c. These are 9½″ high at the center and 4½″ high at the outer ends, thus providing a slight pitch for drainage.

▸ *Expandability:* To demonstrate what can be done with the basic plan, Mrs. Shahan is now living in a model she has dubbed "Little by Little." She has already converted the garage into a 12′ x 22′ studio-sunroom at a cost of only $788, is now building a patio and terrace off the living room, which faces toward the back. (The nearly flat roofs also help make these houses suitable for additions.)

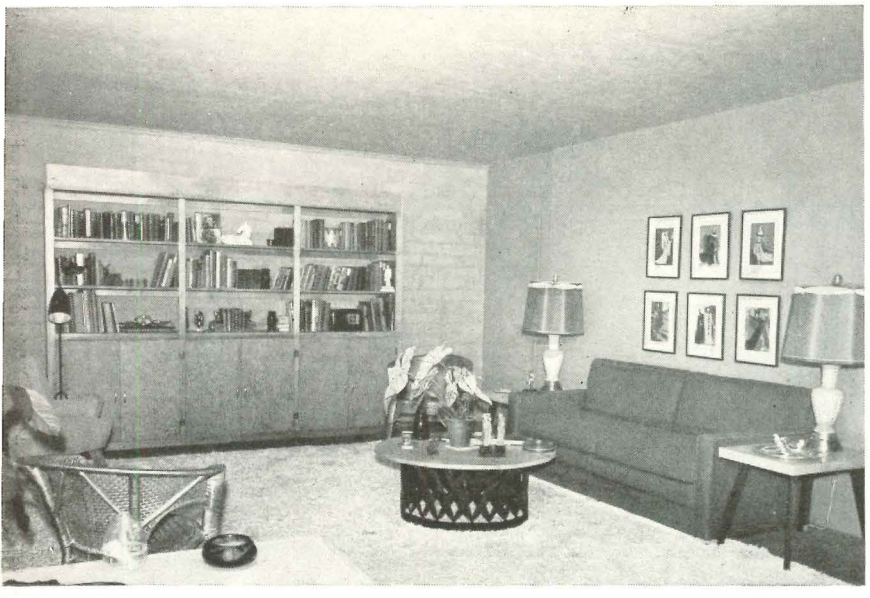
Basic floor plan, showing the living area at side (see picture above).



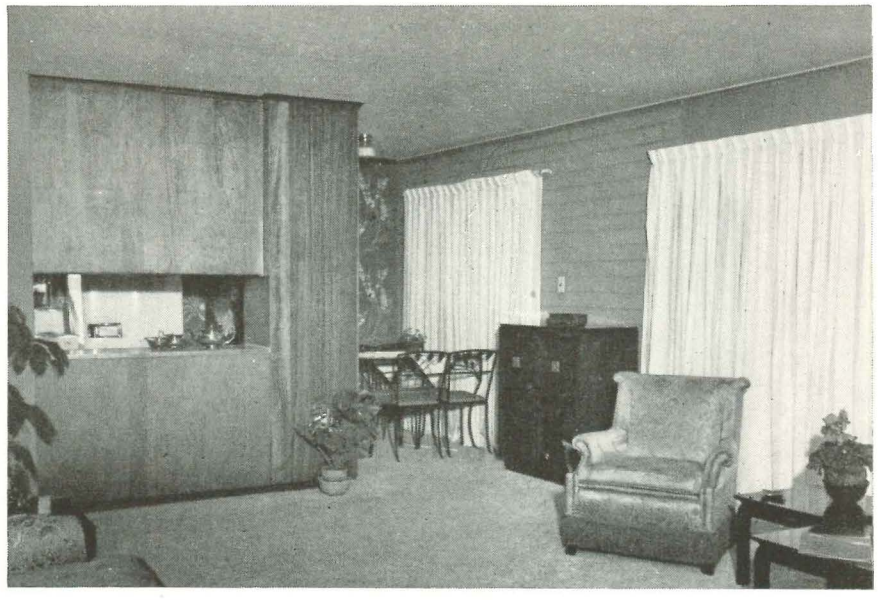
Variation, with living area across front, direct access from carport.



Same plan, with the living area in back, carport converted into sunroom.



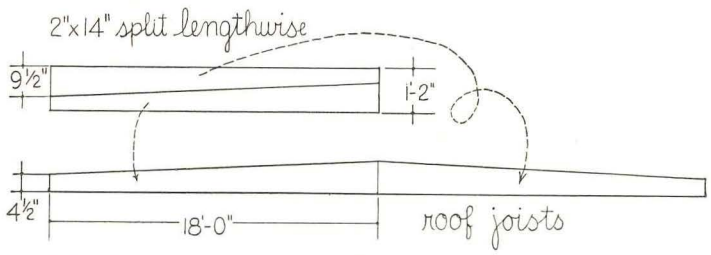
Prefabbed bookcase is an extra, may be placed on wall adjoining bedroom or carport (see plans). Living room is 15′ x 20′—big enough for both furniture and navigation.



View of living room looking toward dining area shows the kitchen pass-through, an idea that appeals to every woman who does her own work and entertains without a maid.

▸ *Cooling system:* At an extra cost of $126 to $136 (depending on Btu's preferred), owners may have a cooling system installed. This is an evaporative cooler on the roof which blows cool air through a plenum chamber in the hall and on into vents in every room. (Sheet metal duct in plenum chamber is included in house cost.)

▸ *Special features these houses have:* Although Title I requires only that the "shell" be structurally complete, these houses offer also a plaster job, interior painting, closet doors, ceilings insulated with aluminum foil or 4″ rock wool, picture windows, copper screens, more lighting (four plugs in living room, two in each bedroom plus cove lighting over the wardrobes, two in kitchen, one in bath). And, most important, floor space: most houses in this price class are only about 800 sq. ft. (Average Title I house built in 1950 had an estimated value of $5,069, and average floor area of 638 sq. ft.)



Roof framing is of stock pieces of lumber 2″ x 14″ x 18′ long, cut on a diagonal lengthwise and placed high end to high end, 16″ o.c. Pitch is 5″, from 9½″ at center to 4½″ at outer ends.

▸ *What is not included:* Carports are extra ($300); also the prefabbed bookcase shown in living room pictures. There are no sidewalks, and roads are not paved or curbed. (Roads are 28′ wide and do have an "all weather" driving surface, a 4″ topping of decomposed granite rolled in.) Planting is not included. There is no weather stripping, flashing or slab waterproofing.

Not the least of Mrs. Shahan's abilities are her persistence and salesmanship. To prove that her house could be built at her price, she got sub-bids on every item before calling for a general contractor. And to prod FHA officials, she showed how she would operate—and how she would sell.

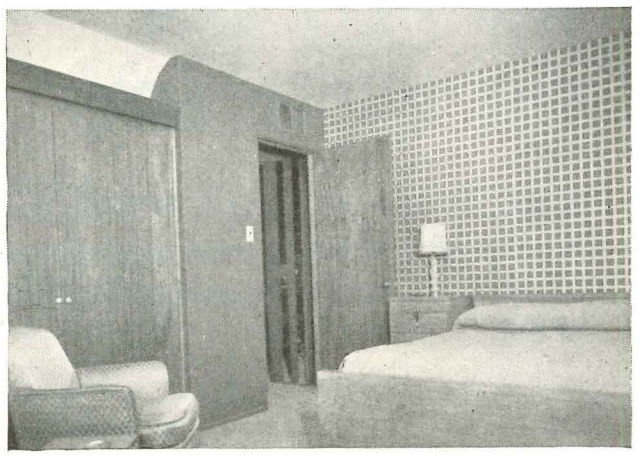
One Sunday in October 1950 she put an ad in the paper, a sign on the property, and drove out and sat in her car with blueprints adhesive-taped to the windshield. In two Sundays, while laborers were clearing the land and surveyors laying out the lots, Mrs. Shahan sold 10 houses; within a month, 35 more; the whole 75 were sold before they were finished, at a total cost of less than $500 for ads.

All this in an area reportedly overbuilt and where houses are going at a small profit if any. The reason why is given by impartial observers who say that these are "more house," "better design," and "more complete." Not only are local people excited: Mrs. Shahan says she has had letters from 11 states requesting the plan—which she is glad to send out as "one answer to low-cost own-your-own homes."

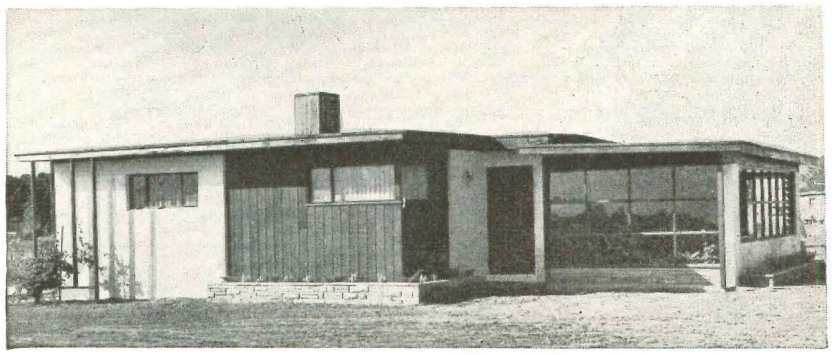
With this record, Mrs. Shahan is encouraged for the future. She hopes eventually to have a total of 340 houses on her land, now is awaiting FHA Title II approval for the next 20, to sell for under $7,000. Chief reason why Mrs. Shahan wants Title II financing is that it will reduce the required down payment to about $650. (When she first started her original 75 houses, selling price was to be $5,370; when rising costs forced her to push it up to $5,880, down payment had to go up from $620 to $1,130 because maximum FHA commitment under Title I is $4,750.) These next houses will have the same basic floor plan plus a 4′ x 8′ exterior storage room, exterior painting, paved and curved streets, planting and trees.

Judging by past performance, there is no doubt but what plenty of young buyers (in the whole development, there are only five people over 50) will come and get what Mrs. Shahan calls a "house to grow up in."

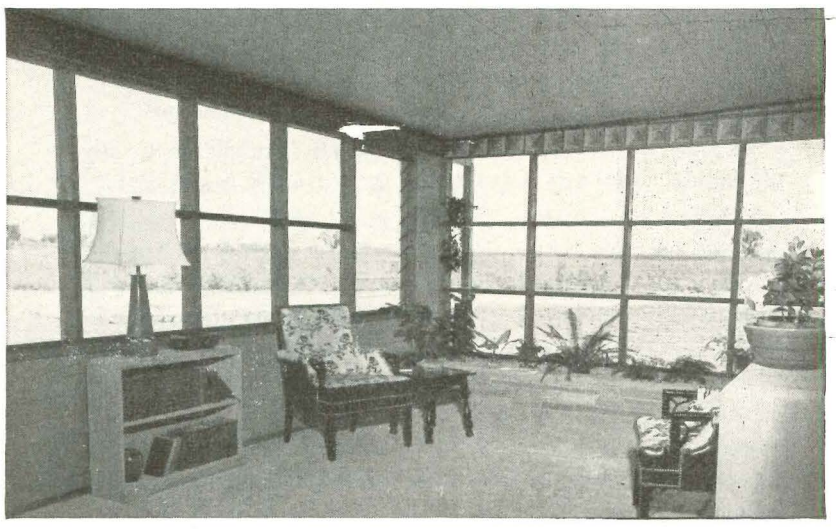
Opposite end of living room at left shows the bookcase and coat closet facing the front entrance, and door to studio-sunroom. (This is Mrs. Shahan's experimental model.)



Corner of larger bedroom shows vent (above door) for cooling system; cool air is blown through plenum chamber in hall, and on into vents in every room. The wardrobes, topped with cove lighting, are 15" below ceiling height.



Kitchen is an efficient, compact U arrangement, with a splendid array of cupboards, shelves, broom closet (left corner). Note kitchen work counter doubles as snack bar.



With house turned so bedrooms face front, carport can be converted into a studio-sunroom (above), extra bedroom or playroom. Redwood trim is one of nine exterior variations.

COST BREAKDOWN

Land	$700	Plaster, incl. labor	248	Septic tank, sewer connections	87
Water, roads, trees	175	Electric wiring and fixtures	108	Glass, mirrors, etc.	45
Concrete, slabs, etc.	430	Heating	88	Removing debris	15
Reinforcing steel	61	Metal ducts	50	Insurance	41
Pumice block masonry	431	Plumbing	430	Contractor's fee & overhead	300
Lumber, and mill work	489	Painting, floor sanding	242	Financing, bank, etc.	272
Wood sash and doors	73	Hardware, rough & finish	35	Architect's fee, surveying fee	57
Steel sash, copper screens	77	Asphalt tile	30	Title	13
Cabinets, wardrobes, etc.	351	Insulation	59	Profit	451
Roof	102	Carpentry	410	TOTAL selling price	$5,880

THE CASE FOR THE WIDER LOT

If the builder of today's $8,000 to $15,000 house took a closer look at costs, he might find a wider lot would increase his house's salability at little extra expense

Many a builder thinks twice today before putting windows on the sides of his houses. He hesitates because the house next door is so close side windows might create the shortcomings of a fish bowl.

Though the amount of raw land available in the U. S. totals hundreds of millions of acres, the plot of ground beneath today's "good" subdivision house is seldom more than 7,200 sq. ft.—120 to the rear, 60 along the front. No doubt even 60′ x 120′ represents progress, for 25 years ago lots were more apt to be 40′ wide. But 25 years ago the houses on those 40′ lots were apt to be two-story affairs, whereas today's small house is apt to be a ranch house 35′ long with a 10′ garage at one end. And a 45′ rambler can be almost as crowded on a 60′ lot as a 25′ house on a 40′ lot.

In brief, although the 1951 subdivider may have designed a fine house and thrown in food freezers and garbage disposers, the chances are he crowded his houses in architectural claustrophobia, end-to-end in a virtual elephant chain, trunk hitched to tail.

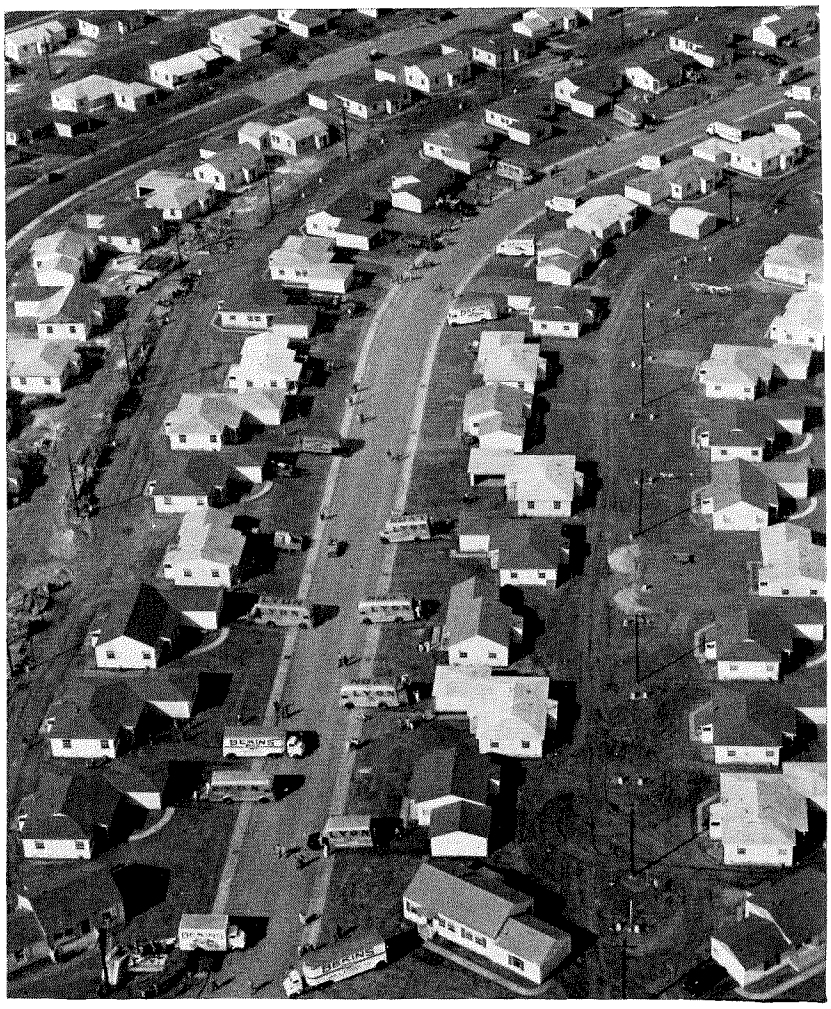
"Sure," cries the subdivider, "there's nothing I'd like more than to give my customers nice, wide, roomy lots. But money doesn't grow on trees, you know, and additional front footage costs something, *especially* for improvements we have to put in. How can we afford to throw in a 10′ wider lot?"

Perhaps the best answer to that question might be to ask the builder if he knows just what the extra 10′ would cost.

It might not cost him anything at all. Bill Levitt, moving up from 60′ lots in Levittown, L.I. to 70′ lots for all but the smallest houses in Levittown, Pa. says: "Most builders spend more money squeezing their houses on to 60′ lots than it would cost them to provide adequate frontage." John Highland, architect chairman of the NAHB Design Committee, says an irregular roof needed to fit a narrow lot may cost enough extra to eat up all the economy of a narrrow lot. Others have found grading costs or septic tank costs much higher on narrow lots, which also allow inadequate area for intelligent site planning even for such simple things as moving the house a little to save old trees.

But even without these savings, the extra 10′ is not very expensive. The added land (not counting improvements) would cost as little as $15 at $500 a raw acre, only $30 on land costing the more customary $1,000 an acre, only $60 at $2,000 an acre.

Improvements are something else, of course—and some communities require improvements far in excess of Urban Land Institute standards—"a Cadillac chassis for a Chevrolet body." Average is $13.90 a front foot—$834 for a 60′ lot, $973 for a 70′ lot. Is the added $139, spread over 25 years, more than a buyer would pay? His lot would be only 17% bigger—but the spacing between houses would be 67% greater



Sixty-foot lots do little to aerate this West Coast boxcar row. Wider lots would have permitted better orientation, more privacy.

—25′ instead of 15′. And his home would be far safer against the creeping blight which always follows overcrowding—"neighborhoods wear out much faster than houses."

What all this adds up to is that any builder who thinks the net cost of an added 10′ will be anything like $200 is probably one of two kinds of optimist:

1. An optimist who thinks it will cost nothing at all to squeeze his house down to fit a narrow lot, or
2. An optimist who counts as cost the profit he might hope to make on more houses jammed on to his development, forgetting that he could sell more houses quicker if he bought a little more land to build them on.

On one point there seems to be considerable agreement between the subdividers themselves, the architects who design their houses, the land planners who define lot sizes, the government officials who regulate house financing, university professors who make objective studies, real estate brokers who deal in raw land. That point of agreement is that there should be a ratio close to 15% between the cost of the improved lot and the sales price of the house. If the improved lot costs more than 15%, FHA and the mortgage bankers start finding the project "undesirable from an appraisal standpoint." On the other hand, it makes no sense to spend $7,500 construction money on $500 land. The table at the bottom of page 161 shows where this 15% point comes for various sizes of lots at various raw land costs. It indicates, for example:

- An $8,000 house can have a 70′ frontage on land costing up to $1,250 a raw acre.
- A $10,000 house can have a 70′ frontage on land costing up to $2,500; an 80′ frontage on land costing up to $1,500.
- A $15,000 house can have a 100′ frontage on land costing up to $3,000.

Improvement costs vary. The improved front foot (with allowances for side-street engineering included) costs $16.04 in the North Atlantic states, $13.05 in the South Atlantic states, $14.32 in the North Central states, $12.05 in the South Central states, $14.03 in the Far West states. The national average is $13.90 per improved front foot. These are mean figures compiled by the FHA from most of the country's developments.

Individually, HOUSE & HOME learned improvement costs fluctuate a good deal depending upon topography, existing water and sewage tie-ins, community requirements and the extent to which utility companies are willing to co-operate.

Sanitary sewers vary from $2.90 per lineal foot in the Midwest to $6.75 in the East. Water mains, $2.50 in the East, $12.10 in the Midwest. Grading, $2.10 in the Midwest, $4.75 in the East. Curbs and gutters, $1.50 in the West, $4 in the East. Paving, $4.32 in the West, $7.10 in the Midwest. Sidewalks, $1.20 in the West, $3.20 in the East. Storm sewers, $1.70 in the Midwest, $7.80 in the West.

Raw land prices reach even wider extremes: $25 per acre in the "distressed sale" of probated estate land; $200 to $3,000 in northern New Jersey; $500 for rugged hillsides in California's Marin County; $400 in Oklahoma; $1,500 in New Jersey's Mercer County; $825 to $1,500 in the suburbs of East Lansing, Mich.; $900 in Phoenix; $250 to $750 in South Bend, Ind.; $750 to $1,000 in Denver; $1,000 in Kansas City, Mo.; $800 to $1,000 in Seattle; $2,000 in Miami; $2,500 to $4,000 along the elegant North Shore of Long Island's Nassau County; $1,200 in the area around Chicago; $1,500 in that around St. Louis. A pretty good national average, however, is around $1,000 per acre for raw land suitable to hold the $8,000 to $15,000 house subdivision.

In strictly raw land dollars and cents, it costs $22.96 per 1,000 sq. ft. on $1,000-per-acre land. In other words, the average 60′ x 120′ lot costs $165.31 raw. Adding another 10′ x 120′ slice to it to bring its width to 70′ would only be spending $27.55 more for raw land.

An additional 1,200 sq. ft. of $1,500-per-acre land would cost the builder $41.33; of $2,000-per-acre land, $55.10; of $3,000-per-acre land, $82.66. On $500-per-acre land the cost of an additional 1,200 sq. ft. in raw land is a mere pittance—$13.90. Raw land, which has the virtue of permanence, can then be provided for the price of an electrical "extra." And its price is not an inflated one for land costs have risen far less than building costs in the postwar housing market.

The pro-wide lot group

There is a battery of arguments to show why the greater lot width is not only economically feasible but now almost mandatory under FHA zoning restrictions. Builders have found people *want* wider lots and they are willing to pay more to get them. Architects find more width means better platting, better designed homes. Site planners say the fewer lots per block, the lower the front footage in improvement costs. But let the wider lot advocates speak for themselves:

David D. Bohannon, California developer and former president of the National Assn. of Home Builders, finds the wider lot is not merely economically possible: "It contributes materially to the value of the individual house; there is no question of its desirability from the customer's point of view; houses look larger on a wider lot; the site can be developed to better advantage; the house owner gains additional privacy and freedom from noises; and, *within reasonable limits*, buyers will pay a little more for the additional lot width."

John Hancock Callender, architectural consultant to the Housing Research Foundation (the former Revere program), finds the wider lot promotes: having a house's main axis

COST OF VARIOUS SIZE LOTS—assuming a range of raw land prices and a fixed cost of improvements at $13.90 per front foot (U. S. average)

Raw land cost per acre

Lot Size	$250	$500	$750	$1000	$1250	$1500	$2000	$2500	$3000
60 x 120	875.25	916.50	957.75	999	1040.25	1081.50	1164	1246.50	1329
70 x 110	1017.25	1061.50	1105.75	1150	1194.25	1238.50	1327	1415.50	1504
70 x 120	1021.25	1069.50	1117.75	1166	1214.25	1262.50	1359	1455.50	1552
80 x 110	1162.50	1213	1263.50	1314	1364.50	1415	1516	1617	1718
80 x 120	1167	1222	1277	1332	1387	1442	1552	1662	1772
90 x 100	1302.75	1354.50	1406.25	1458	1509.75	1561.50	1665	1768.50	1872
90 x 110	1307.75	1364.50	1421.25	1478	1534.75	1591.50	1705	1818.50	1932
100 x 100	1447.25	1504.50	1561.75	1619	1676.25	1733.50	1848	1962.50	2077
100 x 110	1456	1516	1579	1642	1705	1768	1894	2020	2146
110 x 110	1598.25	1667.50	1736.75	1806	1875.25	1944.50	2083	2221.50	2360
120 x 120	1750.75	1883.50	1916.25	1999	2081.75	2164.50	2330	2495.50	2661

Above ▪▪▪▪▪▪▪ falls within 15% FHA approved zone for an $8,000 house
Above ——— falls within 15% FHA approved zone for a $10,000 house
Above ●●●● falls within 15% FHA approved zone for a $15,000 house

The table shows how $8,000 to $15,000 houses can have 70′ to 120′ widths and still be within FHA's 15% ratio.

parallel the street to preserve the rear area for privacy; confining the carport or garage to the side; providing large side windows. "A wider lot means more decorative planning, more recreational area, a more functional use of the lot."

Builder Robert Jemison, Jr., of Birmingham, Ala., says developers have been penny-wise and pound-foolish in crimping lot widths. "A housebuilder is often justified in temporarily omitting some of the frills in a house in order to have adequate land. Otherwise the houseowner becomes disappointed when someone builds on either side of his small site, destroys his privacy and depreciates the value of his house."

Professor William A. Malone, of Michigan State College's Department of Landscape Architecture and Urban Planning, says studies show where there is a density of more than six families per block additional recreation area should be provided for the children. "Too many real estate developments still are being platted on minimum requirements. In a great many of these developments blight is planted before a stake is driven." And Malone's studies show too many lots per block mean higher maintenance and repair bills through greater traffic and, of necessity, higher taxes in the future. Some communities, particularly in Northern New Jersey, have stopped issuing building permits. Builders put up so many houses per acre in their vicinity that school and community facilities can't take any more people. Miami's Dade County has just put in a 7,500 sq. ft. minimum to keep builders from doing the same thing to them with their 60′ x 120′ lots.

Ralph Eberlin, East Coast civil engineer and site planning specialist for such communities as New Jersey's Radburn and the forthcoming Aluminum Co. of Canada town at Kitimat, B.C., has figures to show that wider lots mean fewer people and less traffic on the street. This means sidewalks can be eliminated or cut down to one side and street pavements narrowed. (FHA officials say there is really no advantage in holding to 30′, all-purpose width for purely residential streets; 26′ allow one car to park and one to pass. Instead, FHA suggests, the collector streets, which occur much less frequently, should be pushed to 32′ or 34′.)

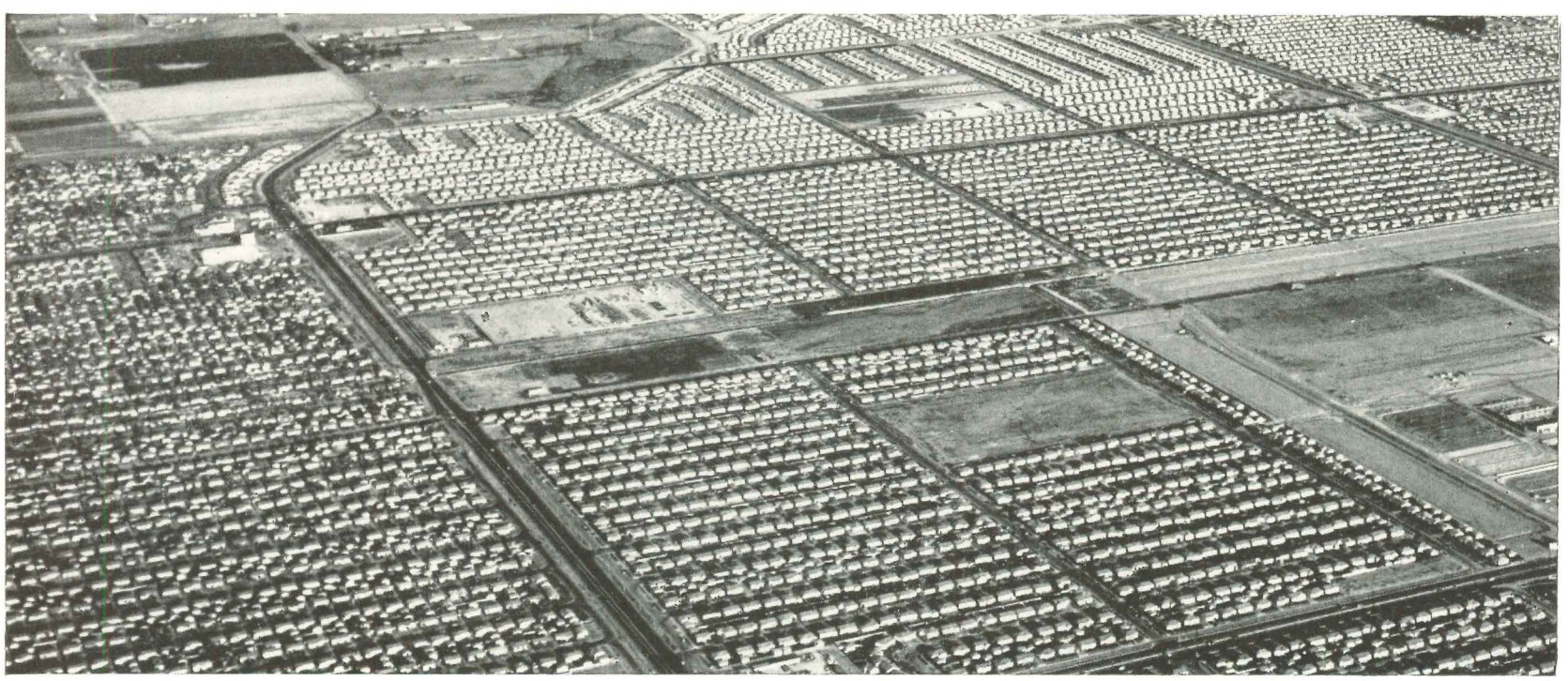
Another site planner, **Roger Wilcox,** put together his own co-operative development on Long Island Sound and found that his wider frontages (100′) let him use septic tanks instead of sewers, thereby halving sanitary costs for a 60′ lot.

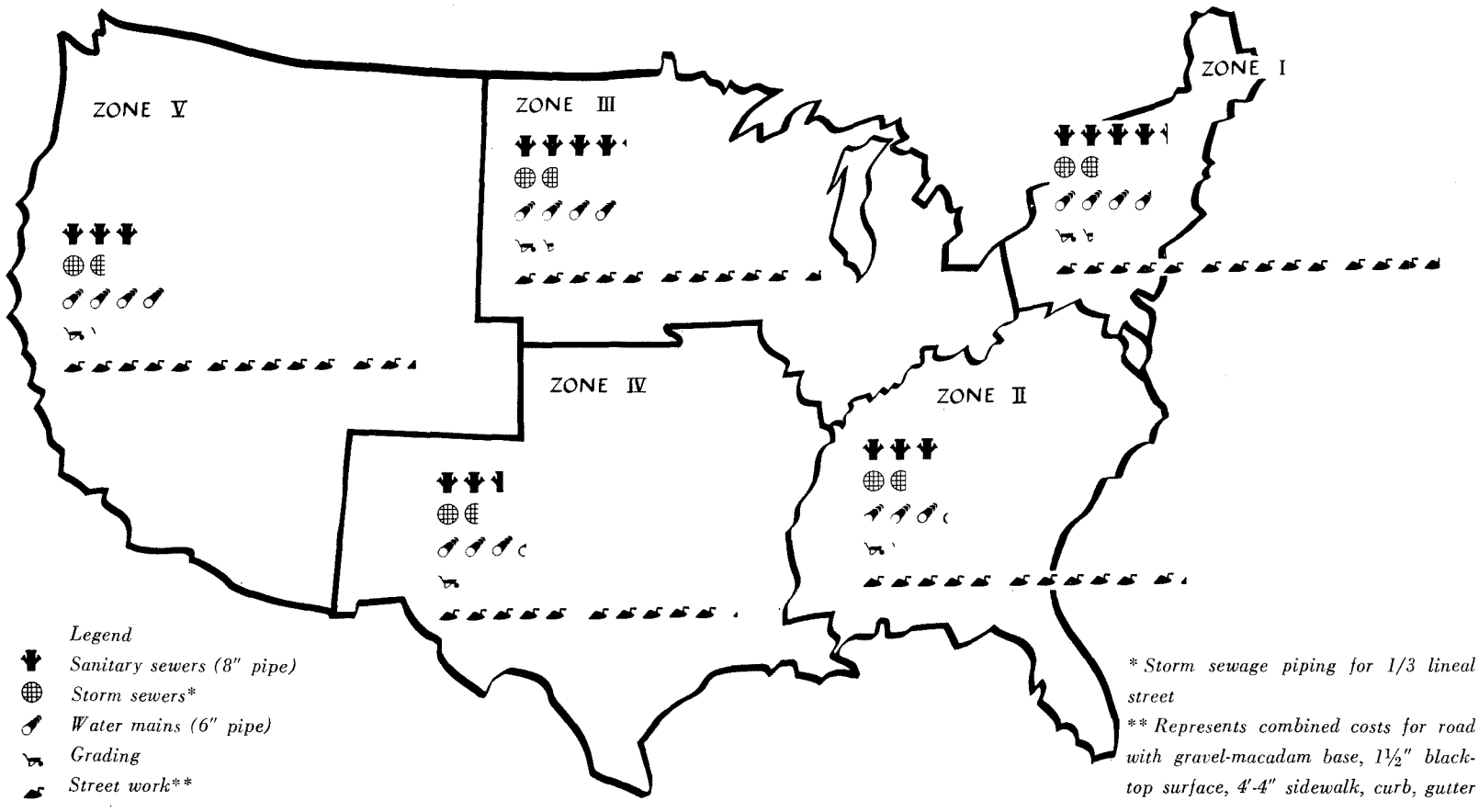
Other wide lot proponents find sewer and water pipes can be cut down from 10″ to 8″ diameters on a less crowded street, another saving. There are those who say builders can cut down on lot depth when they provide more land on the sides of their houses, contending householders don't bother cultivating anything beyond the 100′ depth anyway. With more leeway in the width, land planners can lay out a more interesting neighborhood. Wider lots provide expansion room for later-day additions, something a householder might be pondering when he moves in with one child and (though he may not yet have talked it over with his wife) anticipates several more when times become more prosperous. Unclaimed lots, left over after the major part of the subdivision is complete, will sell more easily if they are wider. And greater spacing between houses means less chance of fires spreading.

S. E. Sanders, Washington, D.C. city planner, was able to draw a neat comparison between lot sizes in laying out a north and south section for the Woodley Homes in Fairfax County, Va., across the Potomac from Washington. In the south tract, which had 10,000 sq. ft. lots, he was able to save trees, do a minimum amount of grading and permit the builder to cut down on foundation costs by laying his slabs directly on the grade. In the north tract, where the plots were 7,200 sq. ft., trees had to be removed, three elevations of grading were necessary. Houses on the south tract, partly because they were built first when costs were lower, sold at the same price as those on the north.

The Urban Land Institute recommends the 70′ lot width for ranch-type houses in its *Community Builders Handbook,* finds ranch houses demand outdoor as well as indoor privacy.

"If I had only known how it would look later . . ." some builders whisper after failing to provide their developments with breathing space. These houses are on 50′ lots—virtual claustrophobia.





The map above shows comparative lineal foot improvement costs in the five main U. S. zones. Front footage costs (including trees, planting strips, street signs, a 6% allowance for engineering and 15% for intersections): $16.04 for Zone I; $13.05 for Zone II; $14.32 for Zone III; $12.05 for Zone IV; $14.03 for Zone V. U. S. average: $13.90.

The anti-wide lot group

Not everybody is for the raw lot, naturally, or the millions of raw acres in the U.S. would be nibbled at more rapidly. Primarily, the subdivider in his capacity as realtor objects. He wants to carve as many lots out of his commodity—raw land—as possible. However when it comes to his capacity as builder, the subdivider's argument falls short. Here he is interested in *selling* houses, to the extent of throwing in all sorts of "extras" like stoves and washing machines. Yet, for often the same price, he neglects the most salable "extra"—the permanent one of additional land to guarantee the house privacy during its lifetime. Here is what the anti-wide lot group contends:

William Feder, executive of Housing Associates, Inc., builder of Long Island's large Forest City, says people are primarily interested in getting as much house as possible for their dollar; lot size is a purely secondary consideration. He reports Forest City experimented with houses on 75′ and 85′ lots, found them nowhere as salable as its houses on 60′ lots. (Forest City, however, charged $40 more per front foot for these lots.)

One Seattle builder reports the $6,000 to $10,000 householder doesn't keep up his side yards, *isn't interested* in greater width. Others point out the FHA refuses to accept a valuation higher than a house's replacement cost—not even that if it considers the cost inflated. Therefore the builder has to work within a pretty close margin to anticipate the final say-so from government. On the West Coast, some builders say people actually *prefer* narrow lots, rely on fences for their privacy.

Seward Mott, land planning co-ordinator for many large developments on the East Coast, thinks the idea of stretching lot width at the expense of depth can be way overdone. He finds it more economical for subdivision houses to have narrow widths and longer depths, thus giving the householder more land without increasing the front foot improvement costs.

HOUSE & HOME also wondered about the feasibility of squaring a lot—cutting back on rear land and evening off the sides, balancing at least the raw land loss and gain.

Mott thinks this would be pretty difficult. Supposing, says he, you select a 90′ x 90′ lot. Houses normally require at least a 25′ setback to meet FHA standards. They have a 30′ depth. If the entire lot depth is only 90′, all that remains for the back yard is 35′—not much romping room. And then, he reasons, if you extend the lot depth, you also have to extend the lot width in order to maintain the square pattern. And with the increase in width you begin to exceed the 15 per cent ratio of lot cost to total cost.

Beyond the decision of an individual subdivider, the lot size is also governed by zoning regulations. The FHA, before granting its approval for financing, requires a 25′ setback from the street for close-in areas; a 40′ setback for those further out. For ranch-type houses, as noted earlier, it requires a 20′ distance between walls of adjoining houses, averaging out as a 10′ setback on each side. The FHA considers 100′ as a practical minimum for depth; sometimes approves 95′. Communities also have ideas on minimum frontages and over-all lot size.

Whatever his individual problems, a subdivider, providing his improvements are within or below the national average, cannot discount the dollars and cents statistics:

▸ 70′ to 100′ lots *are* possible for $8,000 to $15,000 houses.

▸ Ten additional front feet of improved land *can* be added to a 120′ deep lot for as little as $165.31—the price of the small gas range often thrown in as an "extra".

▸ Raw land itself costs practically peanuts—$22.96 per 1,000 sq. ft. for $1,000-per-acre land.

Plus this, the subdivider can take some pretty sure risks:

▸ His house, sitting on a wider lot, will look individually better, and add to the quality of the whole subdivision.

▸ People, within reasonable limits, are willing to pay more for width—fellow subdividers have already discovered that.

WHAT'S NEW IN SLAB HEAT?

In Cleveland it's fiber duct feeders installed in a new way

Every builder who switches to slab construction has to face the problem of choosing a heating system.

Builder Robert Dvorak of Cleveland spent 14 months studying other builders' methods before he decided on a new variation of a warm air perimeter system which he thinks has several advantages.

He uses seven radial feeders of 6″ laminated fiber duct which are imbedded in his slab. His ducts lead directly from a counterflow furnace to a concrete box beneath a floor register. There is no perimeter circuit.

While many builders have used radial systems, this is reported to be the first done in this manner. Dvorak uses a precast plenum below the furnace and precast register boxes. On the rock or gravel base strips of 10″ fiber duct split lengthwise (see photographs) are laid. On top of them is placed a building-paper moisture barrier. The 6″ warm air duct is located directly over the half-duct troughs.

Purpose of the lower trough is to speed installation, as it eliminates making a trench in the gravel and assures a 2″ clearance of concrete below the heating duct. As the slab is poured, concrete flows below the duct which rests on 2″ wood blocks or concrete cradles.

Advantages of this method

No metal. Except for a few sheetmetal collars where ducts terminate at angles in the plenum, no metal is used.

Speed of installation. One long piece of duct from the furnace to the register is easier and faster to handle than numerous short lengths of other duct material.

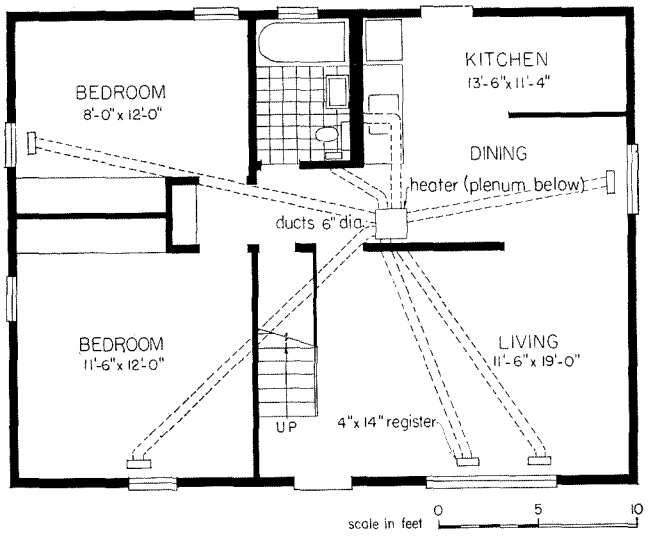
Control. Positive control of 2″ shell of concrete surrounding duct is assured because small duct rests in larger, half-duct beneath. Clearance is maintained by wood blocks or precast concrete cradles. Ducts will not float during construction.

Cost saving. Unless a builder has a source of very cheap material for other ducts, these fiber ducts are cheaper than sheetmetal or sewer tile. Cost for Sonoairduct in less than carload lots is around 23¢ per linear ft. for the 6″ size. The 10″ size split at the factory costs around 20¢ per ft. for the half section. Thus the two pieces total around 43¢. Dvorak uses slightly over half as many feet of duct as if he used four feeders and a complete perimeter duct.

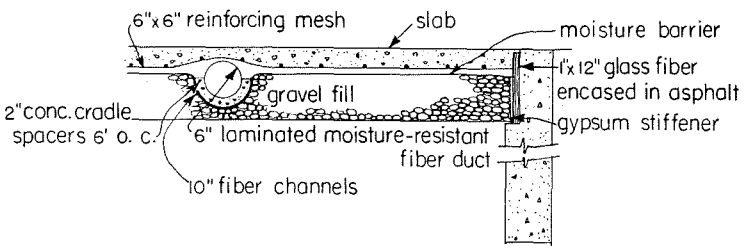
Most of the 150 builders who are now using Sonoairduct do not put a split portion below the moisture barrier.

Dvorak builds a two-bedroom, 768 sq. ft. house (plus an expandable attic) which he sells at $11,500 to $13,000. His heating system costs $385 for furnace, ducts and registers, including a duct running up to the second floor. This is about $50 cheaper than if he installed a perimeter system with conventional ducts.

Dvorak's system loses one of the benefits of a true perimeter design which is to keep the outside areas of a slab warm by an encirclement of warm air, since his ducts touch the outer area in only five places. However, his system was designed by an experienced heating engineer, has the blessing of the National Warm Air Heating & Air Conditioning Assn.



Plan of Dvorak's heating system shows seven radials that lead from central plenum to register boxes. An additional opening in right-hand side of plenum, not shown here, is used for a duct up to expansion attic.



Cross-sectional drawing shows details of construction. Moisture barrier lies on top of both gravel and 10″ fiber channel. Two inches of concrete separate the 6″ duct from moisture barrier and channel below.

Some builders will be more concerned about the quality of the ducts than about efficiency. Can ducts be crushed by careless workmen? Will they absorb water? How long will they last?

After Bureau of Standards tests the ducts were accepted by both FHA and VA. They are strong enough so they will not be crushed by workmen walking on them or by the weight of cement. Because of an outer wrapper impregnated with asphalt the material will not absorb moisture. Whether they will last as long as the house remains to be seen.

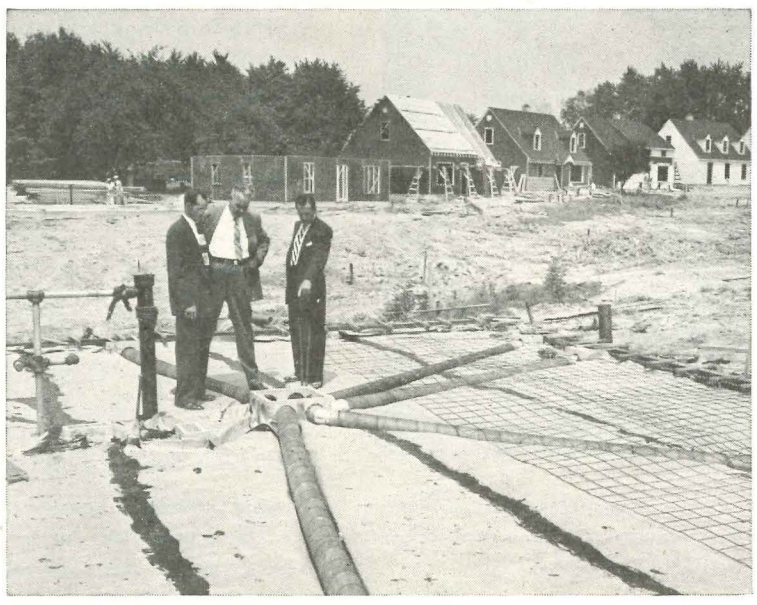
Because he built on hilly ground where there will be a drainage problem, Dvorak took great pains to make his slabs dry. He talked slab construction with other builders, including several sessions with Levitt's technical expert Irwin Jalonack. He was careful to pour his slabs in warm weather. If there was the slighest chance of rain, he covered his crushed rock base at night with a tarpaulin so it would not absorb moisture just before the slab was poured.

On some of his lower lots he used two moisture barriers, one below and one on top of his gravel fill. He also put special drains between high and low ground to carry off the water. If study and care will produce a good slab and an efficient heating system, Dvorak should achieve them.

The 10" fiber channels before moisture barrier is spread. Precast plenum pit is made by local burial vault firm. Left to right: Dvorak, James Martin of Warm Air Assn., City Heating Inspector John Scheel. A wood cover keeps concrete out of plenum.

Wood stools, like the one held by Dvorak, are inserted in precast register boxes to keep out concrete and all other rubbish while construction is going on.

Foundation walls and slab are poured in one operation. Portable wood form serves as outside wall. Inside wall is 1" x 12" insulation board of asphalt covered glass fiber with a ½" x 8" gypsum stiffener. Removable paddle dams (held by Dvorak in foreground) serve as form spacer as well as helping to control the pouring operation. Inspector Scheel, right, is pointing to precast register boxes. This corner of the house is the living room where two registers are close together under a 6' window.



At this stage the moisture barrier has been laid over gravel fill. Six-inch ducts are now resting in trough made by lower channel. As slab is poured, concrete flows entirely around the air duct, forming 2" covering.

If there was any chance of rain, tarpaulins were spread over gravel at night to keep out moisture before next day's slab pouring. Six by six reinforcing mesh is used.

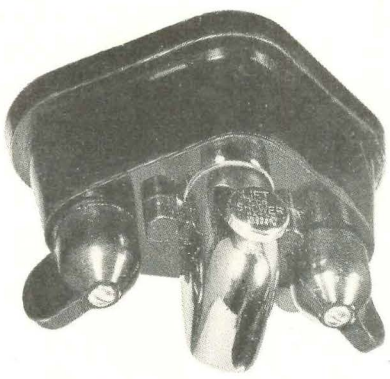
Home builders can cut their use of critical items with

ALTERNATE MATERIALS, NEW PRODUCTS

NPIA's Joseph Schulte

This single mixing valve for showers does the work of two, saves copper. There are others for basin faucets.

"Fronteer" metal front sets for all-wood cabinets are made by Western Metalcraft Corp., Olympia, Wash.



Malleable iron coated inside and out with glass replaces 80% of copper in this Repcal Surface Fitting for tubs.

*How can architects and builders produce more houses using less copper, aluminum and steel? Last fall NAHB hired Joseph Schulte, president of the New Products Institute of America, to track down new and old products and materials that might answer this question. When NAHB convenes this month in Chicago, most of Schulte's findings will be on display for builders to see, touch and talk about. Following is a partial NPIA-*HOUSE & HOME *survey of what's on the market:**

Iron fittings—Malleable iron coated with glass has eliminated 80% of the copper in faucets manufactured by Repcal Co., Vernon, Cal.

Single mixing faucets—Fixtures like the Moen Mixing Valve blend hot and cold water in one faucet, reduce amount of copper normally needed for two. Has been marketed for several years by Ravenna Metal Products, Seattle.

Plastic fittings—Plastic has replaced copper and chrome for showerheads in some stock lines such as Repcal. Water faucets with durable escutcheons and handles of American Cyanamid's "Beetle" plastic are being molded by Plastic Masters, Inc. of Buffalo, Mich. A new electroplating method now enables Plastiplate Co. to produce all-plastic doorknobs and fixtures with a thin tough coat of chrome, nickel, brass, lead.

Aluminum wire—lighter, cheaper, with 84% of copper's conductivity, it has been in use for some 40 years, mostly for service cable. Okonite, U. S. Rubber, General Electric, General Cable and others have developed smaller insulated sizes for residential use.

Low voltage switch control—GE, Square D, the Touchplate Co. of Long Beach Calif., among others, make low voltage systems said to eliminate 3 lbs. of high voltage copper wire and 15 lbs. of steel in an 800 sq. ft. house. Relay is located in a plastic box at the light; cables have non-metallic sheathing. In service four years, notably in Southern California.

Conduits—Plastic "Carlon" tubing is being used in 300 homes in Houston as telephone wire conduit; light, flexible, can be stapled.

Plastic pipe—widely used by industry for corrosive chemicals and gases; has been in service underground as gas line since 1942, is now in use for cold and warm water. Competitive to copper in price, it can be used for drinking water, sludge, cooling, electrical conduit, radiant slab heating. In one underground water department installation in Detroit it appears to be outlasting lead and copper it replaced. Noncorrosive, light shipping weight, comes in long lengths with plastic fittings. May soften, enlarge, sag if used for domestic hot water. Make sure of local codes, though. In widest use is "Carlon" (Carlon Products Corp., Cleveland). Among the others: Mills Plastic Pipe (Elmer Mills Corp., Chicago); "Kraloy" (Golden Bear Co., Los Angeles); "Plastimode" (Plastic Process Co., L. A.).

New plumbing code. The National Plumbing Code being adopted by many communities can reduce use of metals in a house by 42%—in a five-room, one-bath house; for instance, pipe could be reduced from 1,639 lbs. to 934 lbs. Biggest items: 1) reducing the soil pipe from 4″ to 3″; 2) reducing the weight of pipe from heavy duty to standard; 3) reducing the size of roof vents from 3″ to 2″, adequate to stop back venting (re-venting is unnecessary as long as bathroom fixtures are within 8′ of stack); and 4) eliminating most of the shut-off valves usually placed on riser pipes to bathroom fixtures as an added convenience, instead permitting just one master valve on the street side of the meter.

Heating systems—Substitutes for metal duct work: hollow core concrete slabs for combination perimeter heating; glazed tile ducts, hollow concrete blocks. In areas where electricity is cheap (i.e., TVA) electric radiant heating can save copper pipe, duct metal. Among the non-metallic ducts: **Sonoairduct**—a laminated fiber tubing in slabs for warm air perimeter heating. Must be imbedded. (See page 164.) **Lasco**—a reinforced asbestos duct for overhead or basement duct work made by Lynch Asbestos Co., Los Angeles; sound-absorbing, low-cost, can be sawed, assembled quickly. Available in different sizes; delivery in California only.

Flashing—Rubberized asphalt sheeting such as "Seal Pruf" (Rubber & Plastic Compounds, New York) is cheap, non-organic, pliable, durable, accepted for concealed door and window flashing (March issue '51). Other non-metallics are "Wasco Fabric Flashing" with a 15 lb. felt core, "Fabricote," a 4 oz. asphalt-saturated fabric covered with an 18 oz. bituminous compound on each side (Wasco Co., Cambridge, Mass.)

Thin copper sheeting backed with paper or fabric is scarce, most going on defense orders. Among the brands: "Copper Armored Sisalkraft" (Sisalkraft Co.), "Cop-O-Top" (Chase Brass & Copper Co.) and "Cop-R-Tex" (Wasco). Comes in rolls, is roughly one-third the price of regular copper sheet.

"Chino," a nonferrous alloy of copper, zinc and magnesium made by the Cheney Flashing Co., Trenton, N. J. is in wide use and ample supply nationally. It comes in rolls, sheets and through-wall flashing, sells at a little more than half the price of copper.

* Suggestions for expanding this list by builders and architects as well as manufacturers will be considered for publication in a subsequent issue.