Tomorrow's small house

Edited by Elizabeth B. Mock

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TOMORROW'S SMALL HOUSE

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THE MUSEUM OF MODERN ART

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BOARD OF TRUSTEES

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TOMORROW'S SMALL HOUSE · MODELS AND PLANS

The exhibition was directed by Elizabeth B. Mock, Curator of Architecture, who also edited this catalog. Assistant Director: Susanne Wasson-Tucker, Acting Curator of Industrial Design.

MODELS IN THE EXHIBITION

Models to be added to the exhibition during the summer: on July 11th, a house by John Funk; on August 15th, a house by Wurster & Bernardi in association with Ernest J. Kump.

Model furniture by Betty DeMars unless otherwise noted.

Exhibition plans drawn by Susanne Wasson-Tucker.

All models are shown by courtesy of the *Ladies' Home Journal*. Unless otherwise specified, they are at the scale of one inch to the foot.

HOW THE EXHIBITION CAME ABOUT

A million and a quarter new dwellings will be needed each year after the war, a challenge without precedent in American building history.

The Museum has for some time felt that a major exhibition might help to stimulate interest in the problems and possibilities of such vast construction. We were delighted to find a basis for such a show in the *Ladies' Home Journal* collection of house models, specially designed for that magazine under the direction of its enterprising Architectural Editor, Richard Pratt.

These models were not originally made for display, but as means of achieving the persuasive color photographs which have been appearing in the pages of the *Journal* since January, 1944. The purpose of the project is best explained by Mr. Pratt:

"Our program is based upon the following assumptions:

"(1) That an average American family (of two adults and from two to four children, with an income of from $2,000 to $3,000 a year) has been unable to buy or rent a really adequate house.

"(2) That a really adequate home for such a family is one containing three bedrooms; one but preferably two bathrooms; ample living and dining space; a pleasant, well organized kitchen and laundry; plenty of closets, and a garage that might conceivably combine the functions of utility room, workshop and storage with that of car shelter.

"(3) That such a house depends upon the highest standards of design, with all which that implies in terms of security, attractiveness, comfort, convenience and economy; not only as to the house itself, but as to its community.

"(4) That such a house requires the modernization of the building industry, the cooperation of labor, the adoption of a universal building code, and the acceptance among manufacturers of the practice of standardized dimensions.

"(5) That such a house, so conceived, and costing from $4,000 to $6,000, can be realized by utilizing to the full our present potentialities in planning, materials, manufacture, assembly methods and financing.

"And that finally, to accomplish the objectives outlined above, there must be a well-informed and widespread demand on the part of the home-buying and home-renting public."

Outstanding architects were invited to design small but "really adequate" houses which would dramatize the advantages of modern planning and building techniques and the pleasanter possibilities of mass-production. The results are presented month by month in the *Journal*, together with the stern editorial admonition that such houses will not be within reach of average Americans until we

revitalize our home-building industry through the kind of coordination and research which is winning the war.

The Museum served as consultant in preparing for presentation those models which it chose for exhibition and collaborated with the *Journal* in the development of a model community.

WHAT TO LOOK FOR IN THE EXHIBITION

The danger of realistic models is the easy magic of the medium. The delight of tiny bentwood chairs, workable four-inch lawnmowers and real greenery is so immediate that one tends to stop right there, missing the forest for the trees. After all, the models aren't shown as evidence of the model-maker's skill, but as architecture. If the illusion is to be convincing, you must put your eyes just a little above the ground level of the model, then imagine yourself five or six inches tall and walk about each house until you feel quite at home, inside and out. Only then will you begin to understand the nature of the architects' proposals.

Remember that the houses were designed for the average circumstance of level land and temperate climate. Major changes would be necessary to meet the conditions of steep sites, extreme cold, heat or wind.

the glass wall

The most remarkable thing about the group as a whole is the quantity of glass, and it's there for better reasons than the personal whimsy of the architects. In almost every case the major rooms face the south with great sheets of glass. The wide roof-overhangs shade the interior in summer, when the sun takes a high curve over the sky, but allow the sun to penetrate deep into the rooms in winter, when its warmth is welcome. Heat loss is minimized by using triple sheets of glass, separated by dehydrated air for insulation, and by drawing curtains at night. Carried to its logical end, the principle results in the long, narrow plan of the Keck house (I), in which all rooms face south.

Such houses have proved to be extraordinarily comfortable and economical, even in the extreme climate of Chicago. On sunny winter days the heat can be turned off completely; and appreciable sun-heat radiates into the house even on cloudy days. People who haven't actually visited houses of this type usually have a premonition of glare, unfounded in fact. Glare is largely a matter of excessive contrast: a flash-light in a dark room, a small window in a dark wall. The ample, even light of well-designed modern interiors has just the opposite effect. There is, however, too much *fixed* glass in some of the model houses, and a needless lack of cross-ventilation.

space

Glass has psychological as well as practical value. When it isn't limited to the silly artifice of the "picture window" it can bring the whole outdoors right into the house. By minimizing the boundary between inside and outside, glass walls enlarge the apparent space and even small rooms seem unconfined. This concern with the quality and freedom of space is apparent not only in wall treatment, but in interior arrangement. The small house-holder escapes claustrophobia by way of the glass wall and the open plan—luxuries denied to his ancestors. Large sheets of glass are a comparatively recent invention, and the open plan became feasible only with the introduction of central heating.

the open plan

The living and dining areas of these houses, often entrance-hall and kitchen as well, become parts of one large, flowing space, divided at will by curtains, screens and folding walls. The waste of a separate room used exclusively for dining is avoided and each square foot has the possibility of multi-purpose use.

The plans are well contrived for the comfort and convenience of the mythical "average family." In some cases, however, the effect of spaciousness is accomplished only at the expense of privacy. A "study" which is open to the living room has purely euphemistic value. And one wonders whether better provision couldn't be made for indoor play. Some of the houses not only seem large, but *are* large, and it is doubtful whether the Wright house (VIII), or even the Koch house (II), could be made available to a slim pocket-book.

cellar? attic?

The architects have all voluntarily rejected cellars and attics. Each house is designed for erection on a concrete floor slab, with provision for radiant heating incorporated in floor, walls or ceiling, and the compact, fully automatic heating plants are logically placed on the ground floor. Specialized storage is cared for by impressive arrays of closets and cupboards, and most of the houses have adequate provision for undesignated storage—trunks, bicycles, garden tools, prams and all the bulky odds and ends which every family accumulates.

single-story living

Despite marked differences in architectural expression, many of the houses are so similar in basic conception as to suggest that the long, single-story, precisely outlined rectangle, open to the south and closed to the north, will emerge as the dominant post-war plan type. One-story houses can have many advantages. They're quieter, more convenient, better adaptable to changing living requirements, and their horizontality is usually more pleasing to the eye than the uneasy verticality of small multi-story houses.

prefabrication

There is nothing very revolutionary about these houses. The principles of design are many times tried and proved and the only faintly radical assumption is this: that the amenities which so far have been available only in relatively expensive tailor-made houses may now be offered to a wider public through mass-production. House and equipment would all be prefabricated—bathrooms, kitchen, fireplace, walls and roof.

panel construction

With the exception of the Wright house (VIII) and the masonry walls which separate the DeMars row houses (VII), each house is designed for assembly from standard-sized, factory-fabricated panels, some solid, some set with fixed glass, some with doors or movable sash. Study the plans and you will see that while the various architects have assumed various panel-widths, ranging from three to four feet, each one has used his chosen dimension as a "module," or planning unit, to regulate the length of walls and the size of openings.

Panel construction could properly have the great advantage of flexibility. The houses might easily be expanded, contracted or rearranged to conform to changing living requirements.

Monotony need be no threat, as the inumerable possible combinations of panel types and surfaces would provide all the variety which could be desired, even in a large group of houses. Indeed, the strict discipline of the module, emphasized by the joints between panels, might well have a beneficial effect on appearance. Much would depend, or course, upon the careful design of the panels themselves.

cost and quality

The economic advantages of such construction are difficult to assess. It is easy to over-estimate the possible savings by forgetting that the price of the house-shell is only one of many factors which determine the running cost of the house to owner or tenant. Many competent authorities agree that a 15% reduction in the total *monthly* cost is the maximum benefit which might be expected through prefabrication alone, and it is important to note that even this figure presupposes a durability which has not yet been technically achieved.

Maintenance costs and life span are no casual considerations. For war housing prefabrication had the crucial virtues of speed and off-site construction; cost was relatively unimportant and permanence in most cases not even desired. But if prefabrication is to justify itself under peacetime conditions, it must offer houses which are both cheaper and *better* than those otherwise available. It is wholly probable that economical, durable panel systems *will* be developed in various materials as manufacturers turn to civilian production. Already one hears of plastic-bonded sandwich-like panels which should efficiently replace all the dozen odd hand-applied wall layers of the average wood frame house.

The *rationalization and industrialization of building procedure* is, then, a legitimate source of hope for better, less expensive houses. But there are two other necessary reforms, equally dependent upon informed demand. One is *cheaper building money*. Well planned, well built housing is a sound investment which scarcely needs the enticement of high interest.

the neighborhood

The third great need is for *reasonable over-all planning*. A "well-planned" house implies not only a good interior arrangement, but a good relationship to streets, services, schools, shopping and recreation.

Unlike an automobile, a house is not a self-contained commodity. A great part of its value, present and future, depends upon the community of which it is a part. It is curious that the average American should be so ingenuously romantic about the new materials and building techniques, but so remarkably unconcerned with the considerably more immediate benefits which are offered by the new planning techniques.

THE HOUSE IN ITS NEIGHBORHOOD

Dream houses may be perched on clouds and rocked in nothingness, but the quality and value of a real house is largely determined by the obtrusive reality of site and surroundings. No one would think of building a house without a plan, but the haphazard development of large residential areas is just as foolish and extravagant, though quite customary. The desired end—good living with a time guarantee— can be achieved only if sound, imaginative planning is carried far beyond the confines of the house.

You probably have very definite ideas about the type of dwelling you would like, but have you ever thought about what constitutes a desirable neighborhood?

desiderata

Whether you prefer the convenience of an apartment or the independence of a house, there are certain things which you would probably want, each one dependent upon the lay-out of the community as a whole: safe, quiet, pleasant streets; trees, grass, view and a place to stretch out; convenient facilities for shopping and for education and recreation for all ages. If you're a home-owner you'll want assurance that these advantages are permanent, that the value of your property won't be decreased by encroaching blight.

If the pre-war subdivision provided some of these amenities, it was usually by chance rather than by foresight. But now, as the speculative builder turns to larger-scale development, he begins to realize the cash advantages of intelligent street-planning: a supersized block, surrounded by highways and indented with minor streets for house-to-house traffic, is more economical of land and utilities, less expensive to build and maintain, than the old-fashioned gridiron scheme of small, identical blocks, separated by identical streets, each needlessly designed for through-traffic.

Much more slowly the developer is becoming aware of the sales value of providing the necessary community facilities along with the house. Furthermore, any large new group of dwellings creates a valuable market. If the area is planned and executed as a whole, the entrepreneur can do so well on the commercial and recreational concessions that he can often afford to take a relatively small profit on the houses themselves. But such a development need not be restricted to private enterprise. It could just as well be cooperative or municipal.

need for variety

There is one more desirability. Even the most serious and able of the planners tend to overlook the human need for visual and social variety. Our low-rent public housing projects have been criticised for their monotonous appearance, in most cases quite justly, and the advisability of bringing together so many families of like economic status has sometimes been questioned. But is a typical public housing project any more depressingly uniform than a typical FHA development with its repetitive acres of small and similar one-story houses, each tenanted by a similarly young and fertile couple?

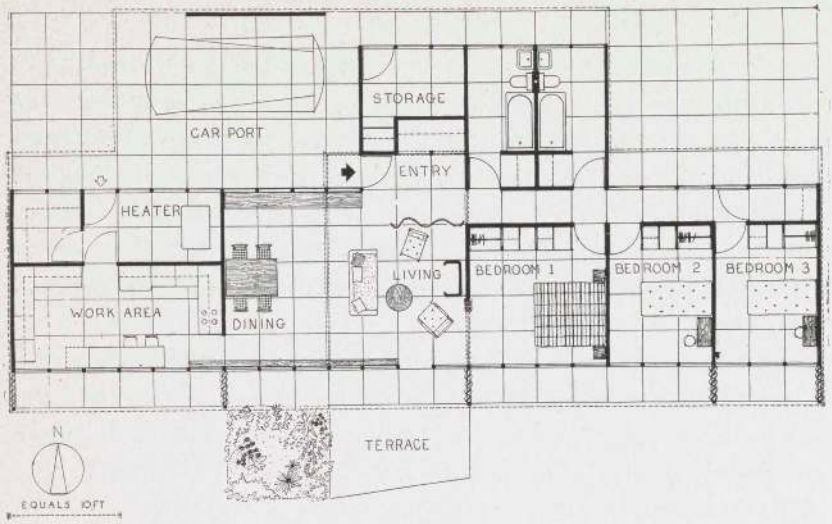
Zoning regulations and tax systems have been largely responsible for the dreary uniformity of our residential districts, as they've tended to limit high apartment houses to central areas, single houses to the periphery. This no longer seems inevitable, or even desirable. Large-scale development demands a new approach to zoning, with restrictions on over-all density (number of families per acre) rather than on the height and land-coverage of individual buildings.

Sometimes it makes more sense to concentrate dwellings in apartment blocks rather than spread them out as houses. On steep land apartments are often cheaper to construct, and assure the best view to the most people. The released land can become park, used in connection with both apartments and houses.

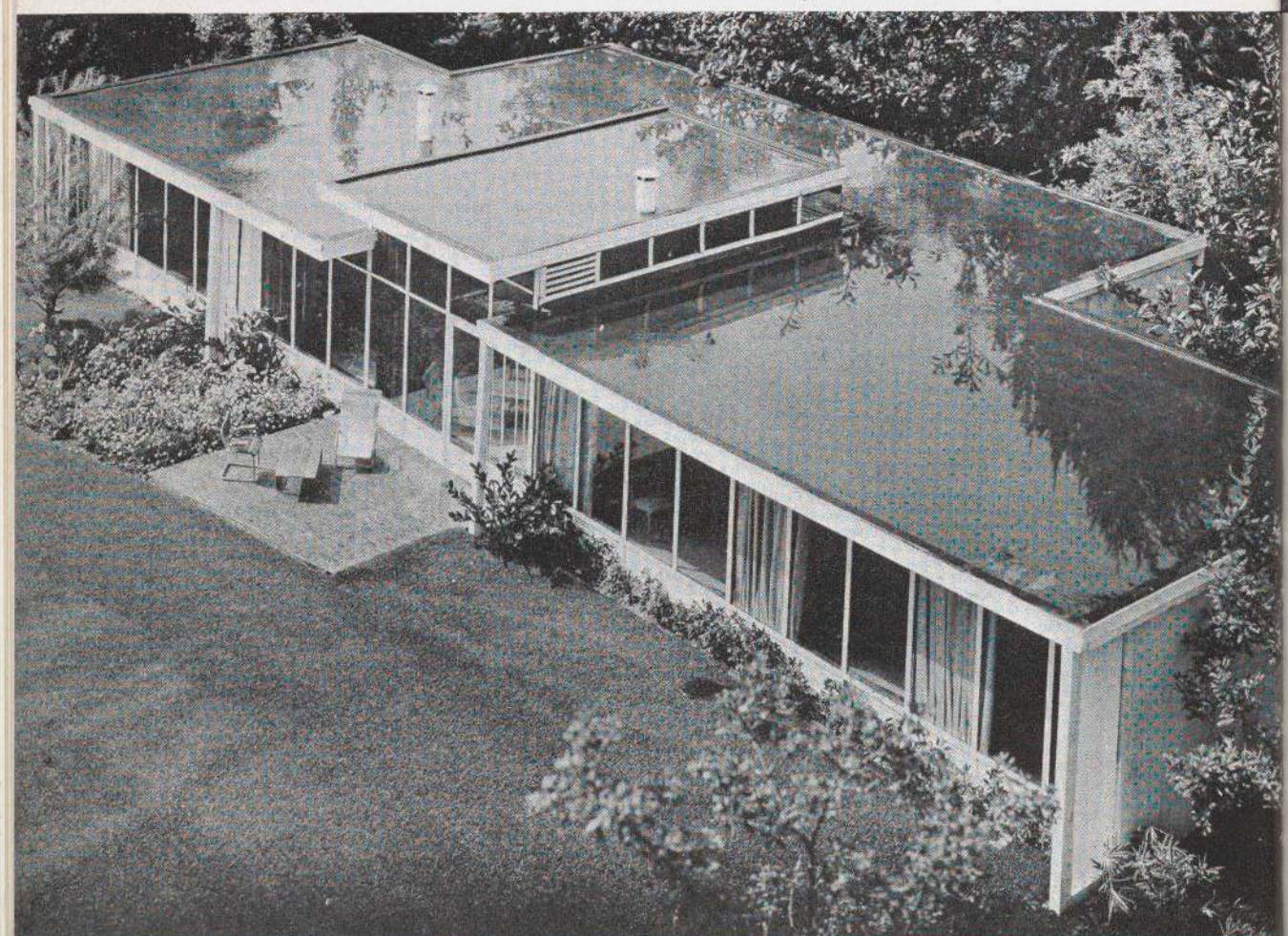
Why shouldn't each residential area offer many different types of dwelling to fit the tastes and income of different types of people? Isn't it possible that the result would be socially vigorous and aesthetically pleasing? The model discussed on page 18 is a start in this direction.

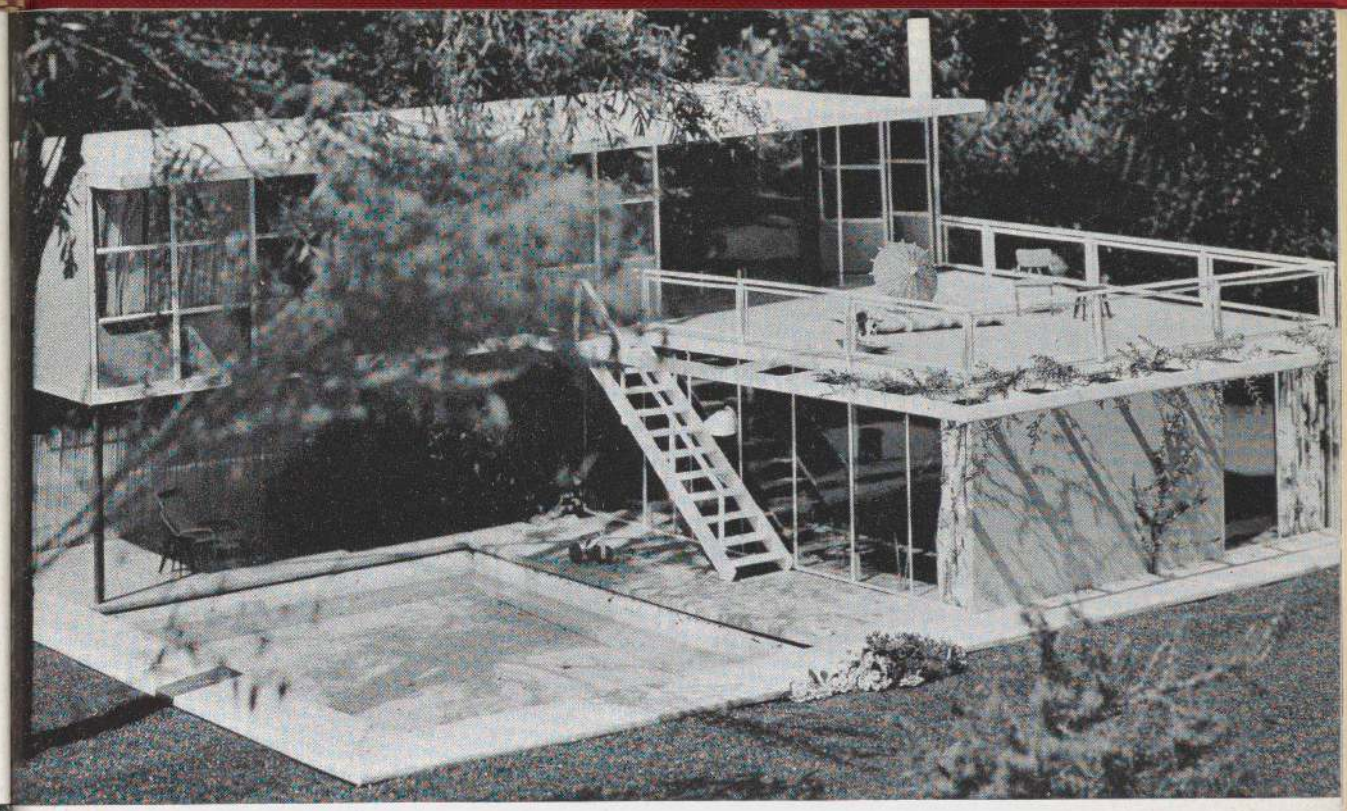
E. B. M.

1.



Architect: George Fred Keck. Rooms face south to trap the low winter sun, but deep eaves provide shade in summer. Although the glass is fixed in place, screened louvers at the base of the south wall and the top of the north wall provide excellent, easily controlled cross-ventilation. Water on the roof helps to keep the house cool.





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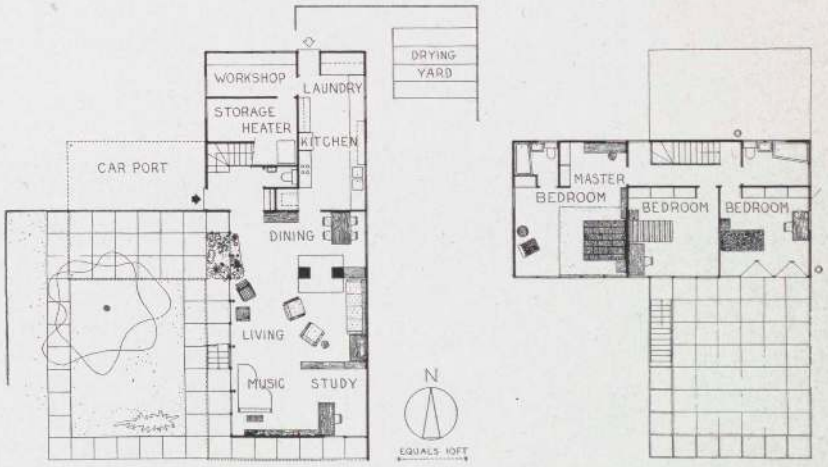
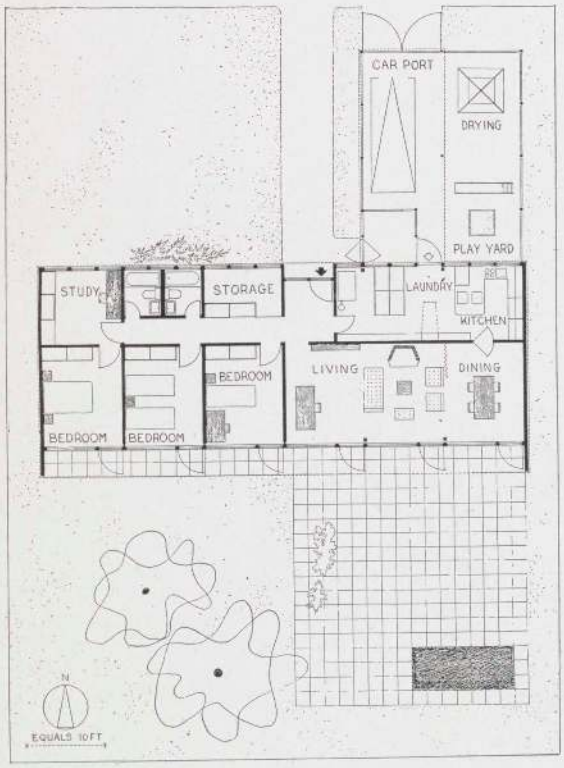


Architect: Carl Koch. Upper and lower stories are defined as separate blocks, forming a right angle. The geometric clarity of the scheme is appealing, and the advantages of carport and sheltered terrace below, sundeck above, might well compensate for the extra cost of the construction. Various types of prefabricated panel would fill in the light metal framework. The long grid of the bedroom wall is so pleasant in scale and proportion as to become an important decorative feature.

III.

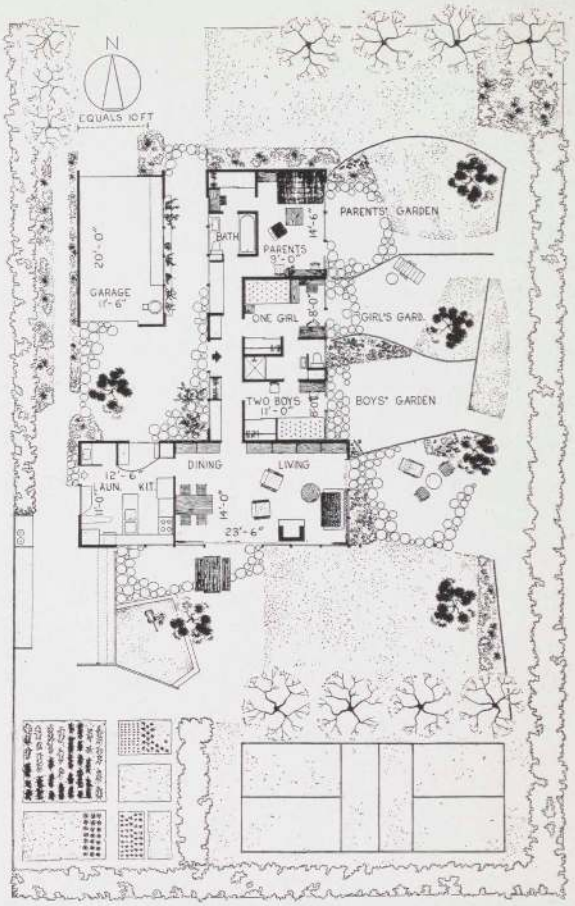


Architect: Philip Johnson

Not a miniature mansion, but a concisely stated small house, distinguished by the clarity of its plan and the spare elegance of its structure.

A spinal wall separates the major rooms on the south from the minor rooms on the north and recessed wood columns carry the roof, leaving the two long walls free for unlimited glass. The garden side is a rhythmic band of fixed glass and doors, their narrow gray-painted frames set directly against white mullions. These doors are the only source of ventilation for the bedrooms.

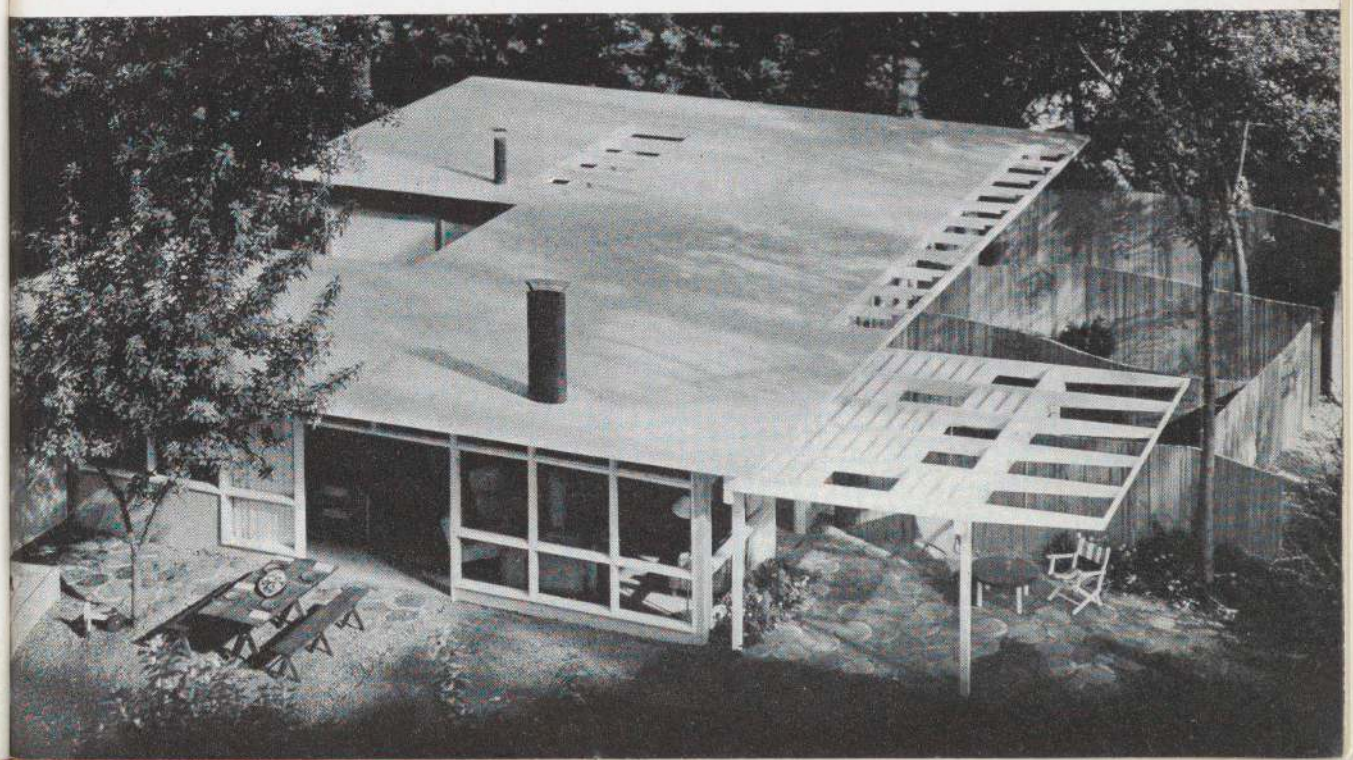
Rooms are sensibly planned and well proportioned. The kitchen-laundry with its adjoining service and play yard has been developed with particular care, the storage room is capacious, and the very private little room at the end of the corridor would serve a number of useful purposes.



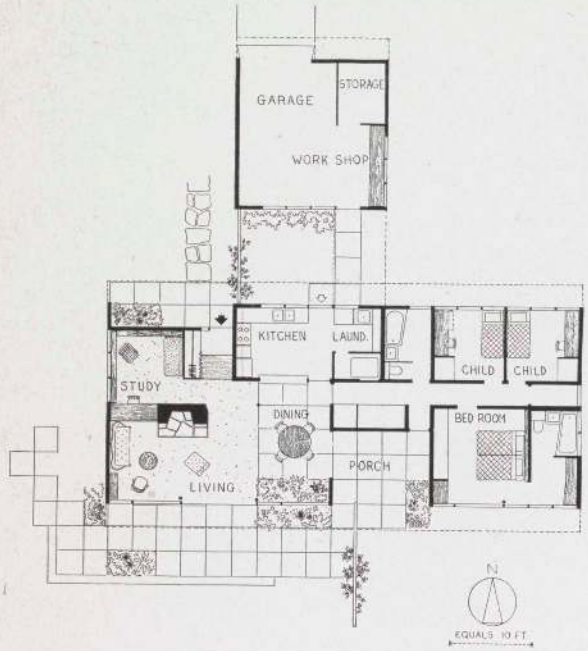
Architect: Mario Corbett. Landscape architect: Garrett Eckbo.

Specially designed for California, this small house takes excellent advantage of the possibility of outdoor living. The garden is literally an extension of the house and every foot of land is planned for intensive use. Each room has its own redwood-paved terrace, each with a special character. Sapling fences give privacy to the bedroom courts and protect them from wind. A louvered roof is partial shelter for the living room terrace, and the open dining terrace extends to become a play yard, overlooked by the kitchen. Although the house is completely oriented to its garden, the street front and entrance court are extraordinarily inviting.

Floor plan and site use follow a familiar California pattern, but the effect is fresh and positive.



V.

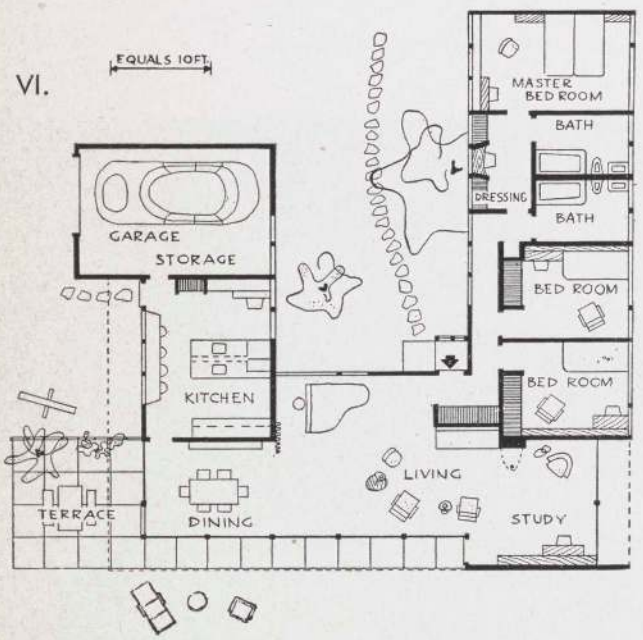


Architect: Hugh Stubbins, Jr.

The unusual roof slopes to interior drains. Since it is carried by steel columns, walls can be freely placed —an advantage which the architect has exploited. The house is compact and economical: its spacious effect is largely the result of the open, rhythmic relationship between living areas, the great wall of glass with its sliding door, and the roof projection which carries the eye beyond the glass. The indoor-outdoor garden is a further contribution to the cheerful confusion between interior and exterior.

Plans of both house and garage are excellent, although the corridor is long and dark, the small bedrooms are sunless, and the study is too public for concentrated work. Notice how easily the old furniture takes to its untraditional setting.

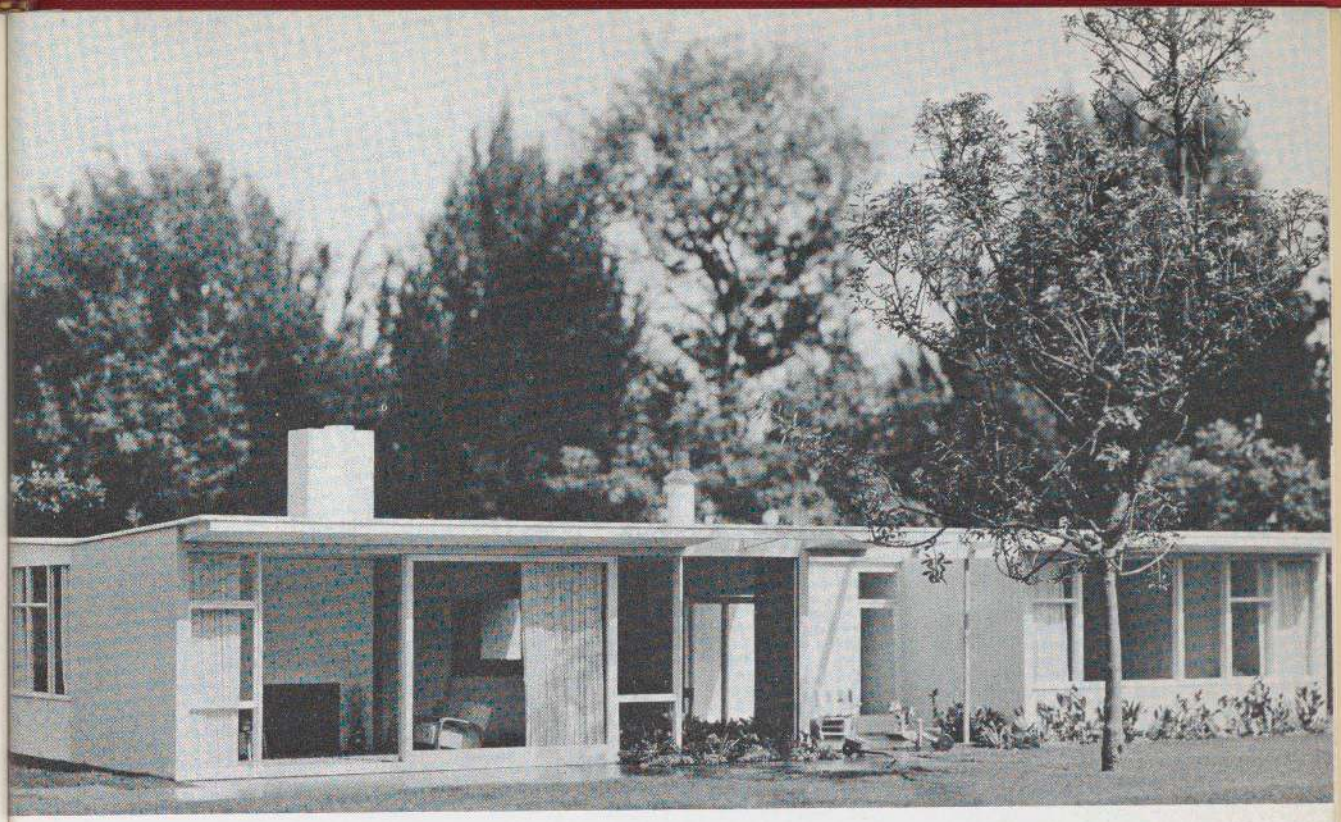
VI.

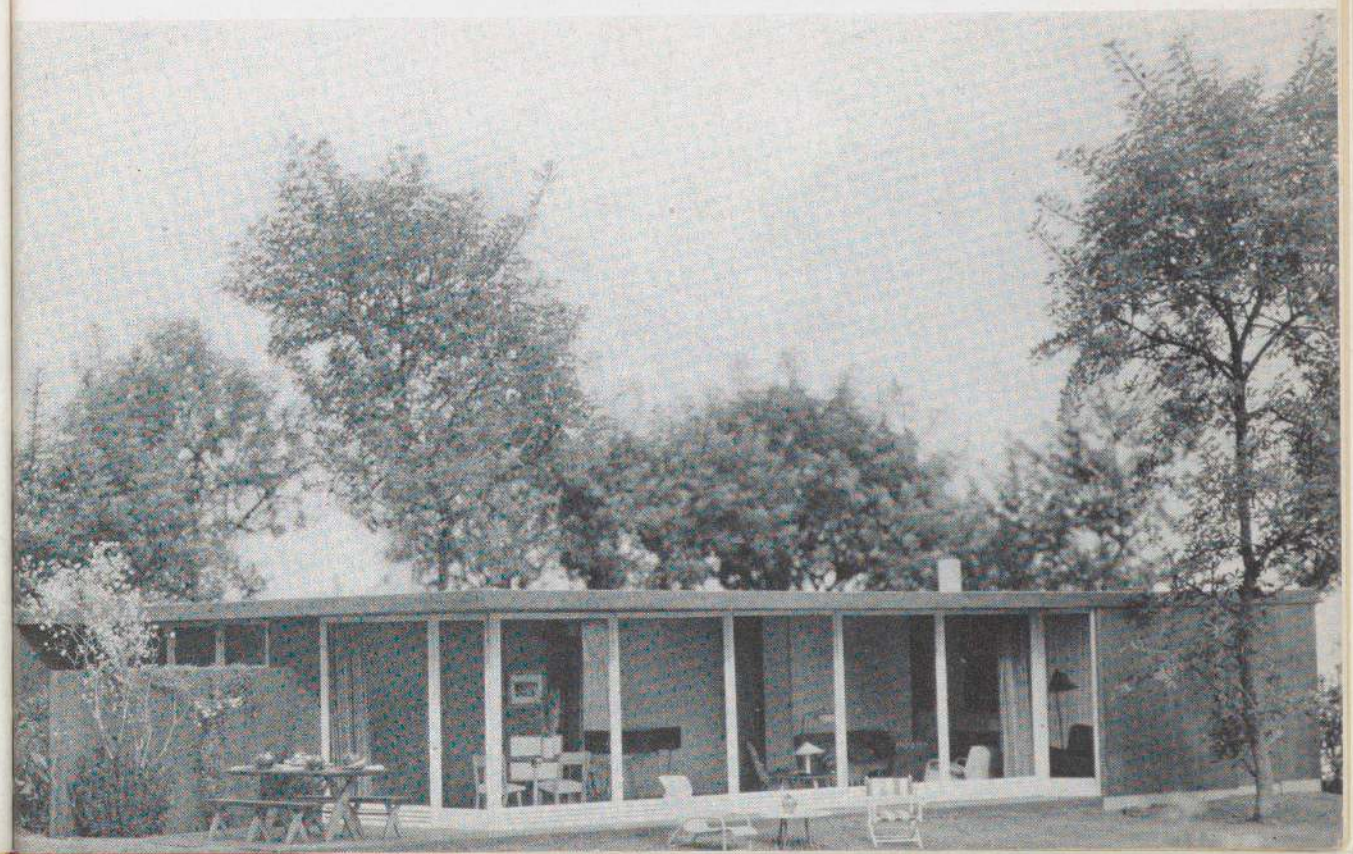


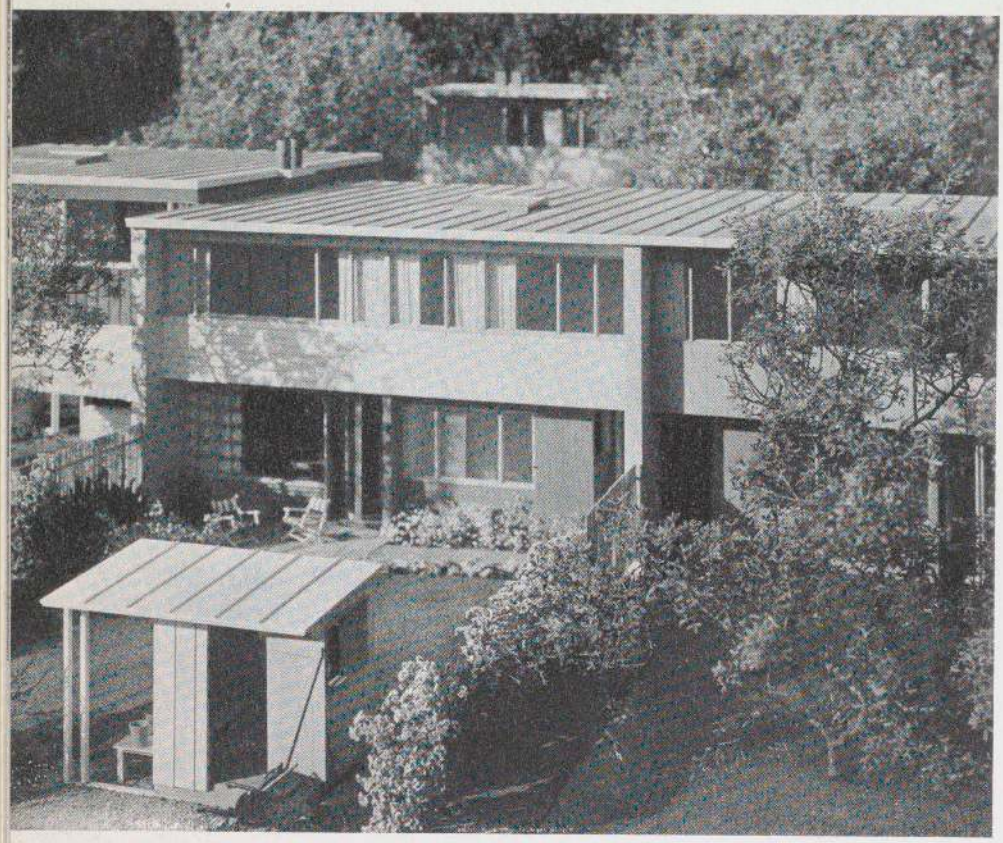
Architects: Plan-Tech Associates.

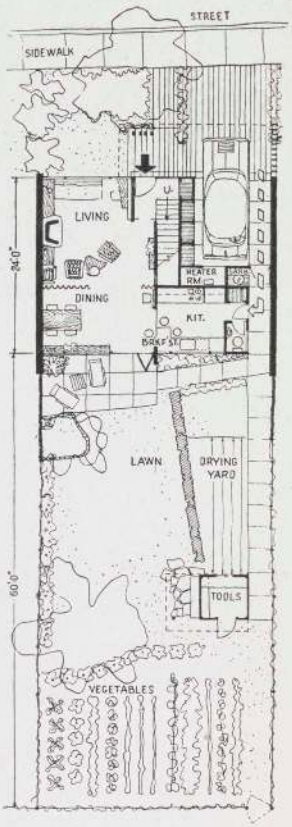
The U-shaped plan gives a quiet, well-separated bedroom wing and a living area with four exposures, but has one great liability: the living room becomes a corridor which separates bathrooms and children's rooms from the service wing and most of the work in progress. The spread-out construction is best suited to a warm climate.

All the mechanical equipment and fixtures for cooking and laundering are contained in the prefabricated wall-unit between kitchen and laundry. Notice the window-side breakfast counter and the easily supervised play yard. The living area is one large space, pleasantly articulated for various activities, although serious "study" would scarcely seem to be one of them.









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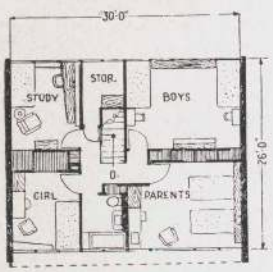


upper floor

Architect: Vernon DeMars

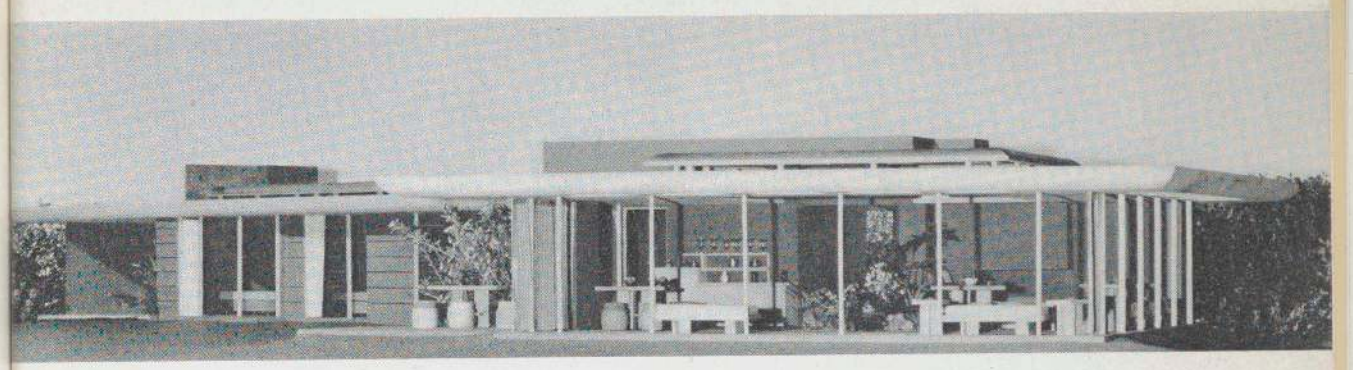
The average person is intolerant of row houses, perhaps because those he has seen are monotonous on the outside, dark on the inside, and devoid of privacy, inside and out.

Everyone knows that intensive land use and shared walls make the row house much more economical than the free-standing house, but here is proof that the usual disadvantages can be avoided by skillful design, based on how people *like* to live.

Projecting party walls and a staggered building line define each house as a separate unit, and varied colors and textures give each house its own special character. Privacy is both actual and apparent. The masonry party walls would be soundproof, and their protruding ends, continued in trellises and fences, are effective screens. Notice the open passage to the garden and the separation of outdoor living area from service yard. Flexibility is not limited to the exterior. Interior partitions can also be arranged in different ways for different needs and tastes.

Unlike most row houses, this one is shallow and wide, allowing for lots of glass and good cross-ventilation. Since the living room runs from front to back, the house can face either north or south.

Such houses would be practical even on fairly expensive ground, and should be welcomed by people who want their own house and garden, but not at the expense of urban convenience and atmosphere.



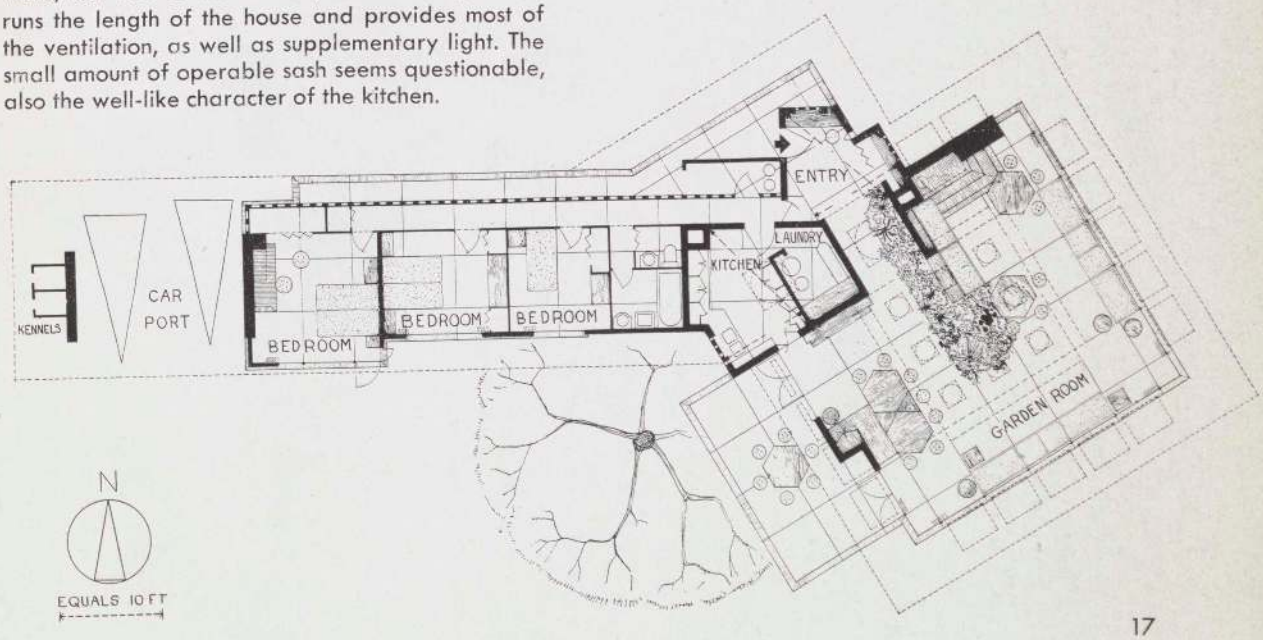
Architect: Frank Lloyd Wright

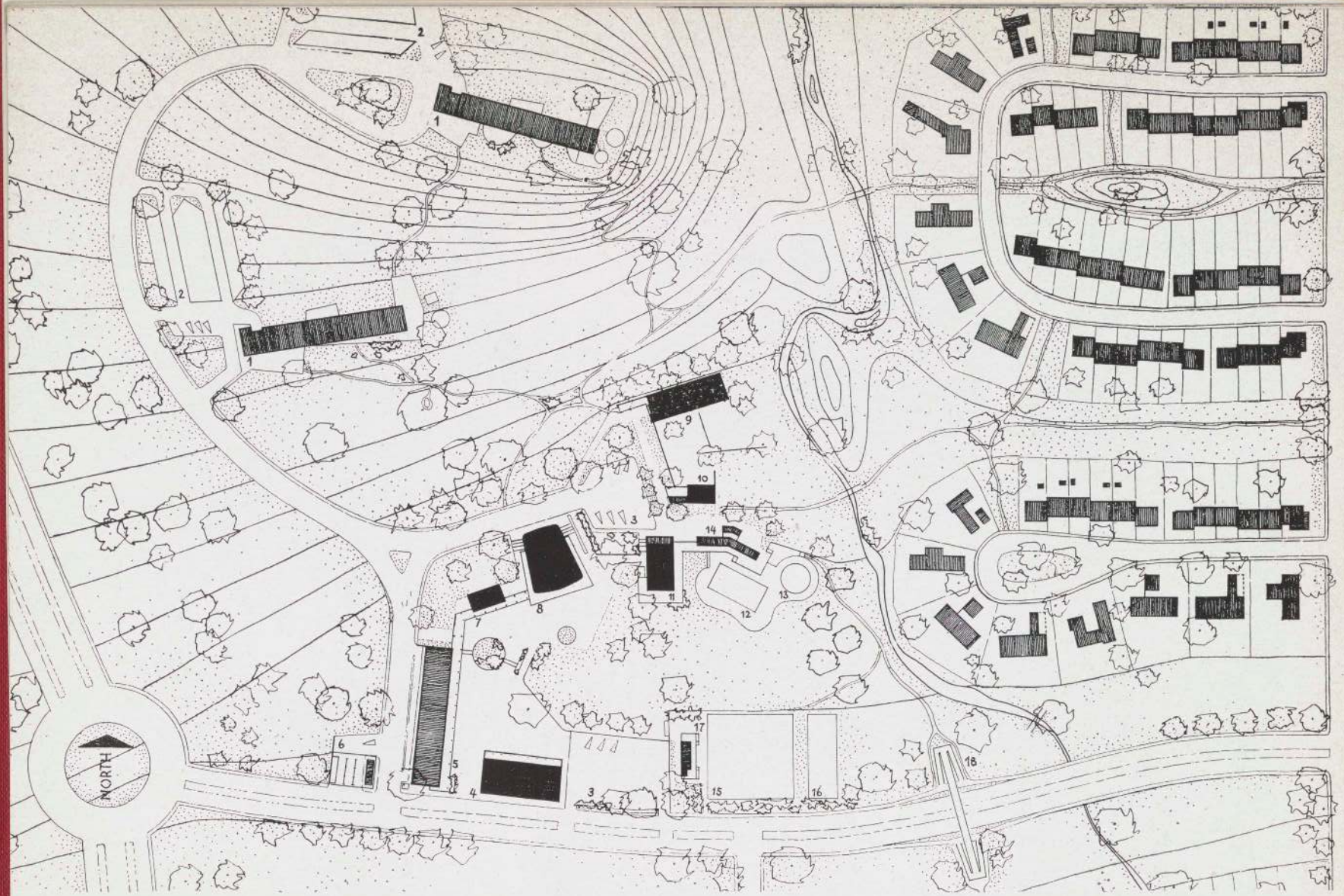
VIII.

A house with the audacity of a comet. The masterful hand of the architect is evident in the freely manipulated space and the vigorous, imaginative use of brick and concrete, steel and glass.

The garden room is a great glass square, set on a concrete floormat. Its thin, up-swept roof slab of reinforced concrete is pierced at the eaves for lightness and centered with a movable clerestory. Under this hole-in-the-roof, modern version of the Roman compluvium, growing plants make a green and fragrant partition between living and dining areas.

The bedroom wing reaches out on the diagonal, with entry and lofty, top-lighted work-space at the angular intersection. Ceilings are low over the glass walls, but rise to the lantern, or clerestory, which runs the length of the house and provides most of the ventilation, as well as supplementary light. The small amount of operable sash seems questionable, also the well-like character of the kitchen.





1 apartments, 2 garages, 3 parking, 4 supermarket, 5 shops, 6 service station, 7 library, 8 auditorium, 9 nursery, school, 10 workshop, 11 restaurant and club, 12 swimming pool, 13 children's pool, 14 bathing lockers, 15 tennis courts, 16 bowling green, 17 pavilion, 18 footbridge.

16 bowling green, 17 pavilion, 18 footbridge.

IX. The House in its Neighborhood. A collaborative project of the *Ladies' Home Journal* and the Museum of Modern Art. Original site plan by Vernon DeMars, developed by Serge Chermayeff and Susanne Wasson-Tucker. Community buildings by Chermayeff and DeMars. Apartments by Chermayeff. Houses are small editions of models I–VIII.

A neighborhood is a specific social organism and planning unit which provides housing and essential community facilities for 1000–1500 families. Among these facilities would be an elementary school, a clinic, fire protection, shops and recreational buildings. This model represents a fragment of such a neighborhood, including a shopping and recreation center and a nursery school, one of several which would be strategically dispersed throughout the neighborhood.

The community has three easily distinguished elements: first, the houses themselves, grouped about the two quiet roads at the right; second, the widely spaced eight-story apartment blocks (1) on the steep hill at the north-west of the tract; and third, the group of shops and community buildings near the minor road at the base of the hill. Trees and grass flow in and out to give breathing space to each part of the project, and a brook meanders peacefully through its heart. The main highway at the left is screened off by a protective park strip.

Each house is reached by a quiet shady street, free of through-traffic, and open on its garden side to the park, and to the footpaths which run through the park to connect every part of the community. Of the two types of residential street which have been used, the U-street seems preferable for its easy maneuverability, its one-way traffic and its more clean-cut appearance.

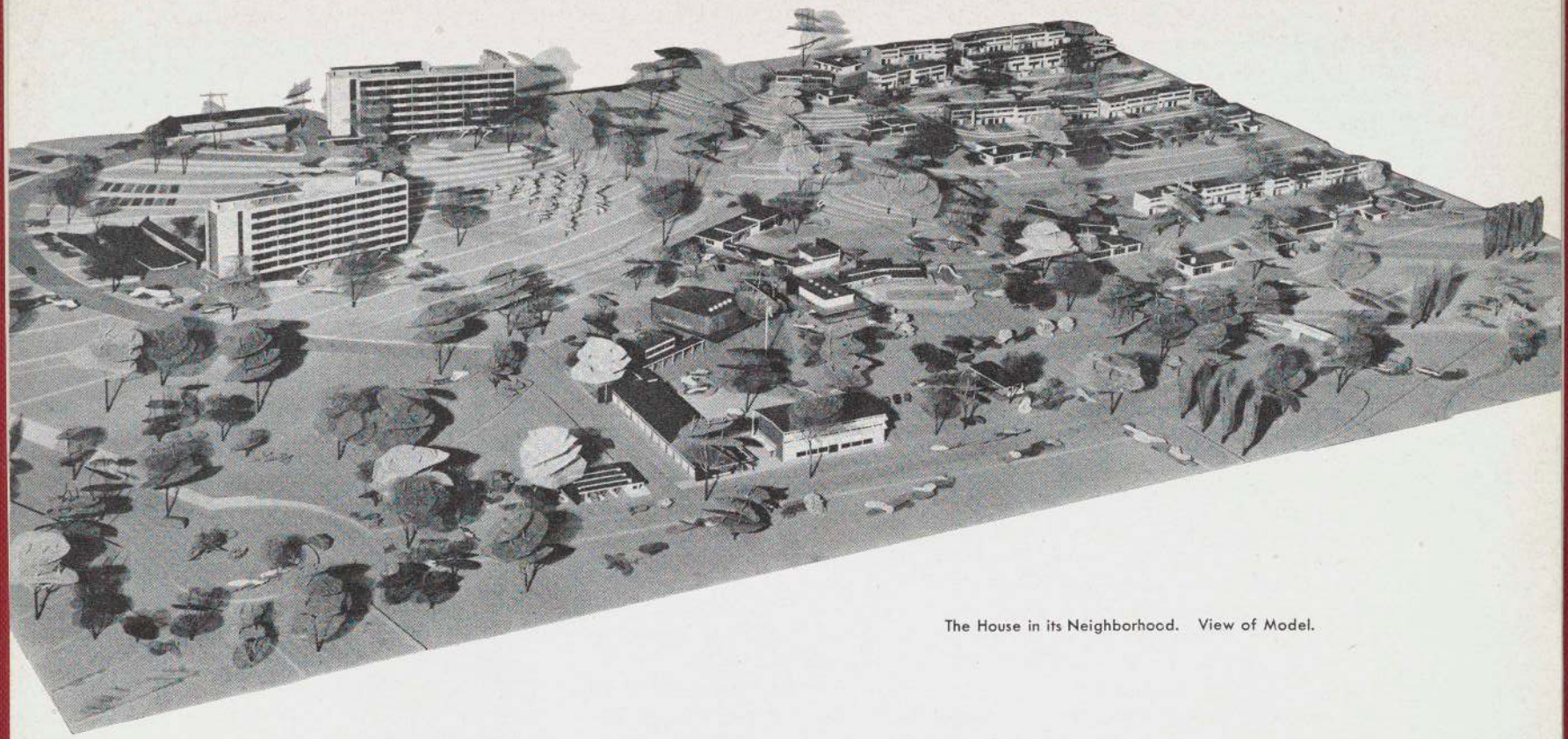
All of the exhibition houses are represented, but the row house is preponderant because of its economical land-use and its suitability to various orientations. Another virtue is the positive, rhythmic definition which it gives to the streets. The single houses on the wedge-shaped lots at the end are in this sense less successful, as space seems to slip out and the street loses its character. But in other respects they make very good sense, as the sites become identified with the park which they overlook, while street frontage and utility lines are kept to a minimum.

On the hill, where houses would have meant expensive excavation and terracing, rise the thin, proudly isolated slabs of the two apartment blocks (1). Each would have forty-eight apartments on its eight dwelling floors, preferably occupied by families without small children. The size and scale of these buildings has been carefully considered in relation to the rest of the project. There is no sudden intrusion of gigantism, and even the upper floors seem to retain some contact with the ground. Each apartment has its own balcony, each opens widely to sun and view and every tenant has access to the roof terrace. The ground released by the apartment houses becomes open green space, benefiting every resident of the community, and the gardens flow under the buildings to become sheltered open space.

At the base of the hill are shops and community buildings, well provided with off-street parking area and a convenient service station (6). Shopping itself is sociable, and the shops are logically grouped with other more literally social facilities. Leave your car in the parking lot and enjoy the simple pedestrian pleasures of this traffic-free oasis. Go first to the adjacent supermarket (4), gay with its high portico and its striped awnings, then to the more intimate shelter of the arcade which leads from the row of shops (5) to the library (7) and finally to the auditorium (8) for movies, lectures, theatricals. These buildings swing about in a long, rhythmic line to define a pleasant paved court, open on the far side to a finger park. Walk a little further and you'll find a restaurant and club building (11), with an open dining terrace which overlooks the swimming pools (12, 13) beyond. On the flat land by the road are tennis courts (15) and bowling green (16), while less formal sports can be pursued anywhere in the open meadows.

Without crossing a single traffic-street, a small child can safely walk from his house or apartment to the nursery school (9) at the center of the common parkland. Near the nursery school is a craft workshop (10), where older children and adults can busy themselves in their spare time. Children from the residential area on the south side of the model can cross over the road on a ramped footbridge (18), well suited to baby carriages and bicycles.

Would this be anything like *your* idea of a pleasant community?



The House in its Neighborhood. View of Model.