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House Planning

By

WILLIAM T. JONES, B. Arch.

Industrial Designer

and

DAVID T. JONES

Director, School of Architecture
and the Building Trades

International Correspondence Schools

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Part 2

Edition 1

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The reality of a room was to be found in the space enclosed by the roof and walls, not in the roof and walls themselves.

Okakura Kazuzo, The Book of Tea

Architecture home study course

House Planning

V.3 Part 2 /

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Director, School of Architecture and the Building Trades

International Correspondence Schools

Member, American Institute of Architects

Member, Construction Specifications Institute

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2. CLIMATE CONTROL Pages 17 to 27
The climate of your lot can be affected by such devices as planned planting, reflecting walls and pavement, and bodies of water.
3. TYPES OF PLANS Pages 28 to 42
House plans can be identified by type.
4. APPEARANCE Pages 43 to 48
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Many plans which at first glance appear to be quite satisfactory often reveal serious faults under close analysis.

6442B

House Planning

PART 2

General Considerations

The Basic Problem

1. In Part 1 of this text we studied the main areas of the house: the living area, sleeping area, and the work area. You learned that for maximum livability or comfort each of these areas must have privacy but still be easily accessible. To obtain privacy and, at the same time, accessibility for each area requires efficient planning.

In addition to the efficient placing of rooms and areas, the livability of a house depends on such factors as the following:

1. Economy in planning
2. Design for living
3. Natural light and ventilation
4. Utilization of the plot
5. Orientation
6. Mechanical equipment necessary for comfort

You learned about some of these factors in Part 1. In planning any house a basic problem is to obtain maximum livability while using the minimum amount of space.

Economy in Planning

2. Obtaining the greatest livability with the least expenditure of space does not mean that your house should be made as small as possible. In fact, a house may be large and elaborate but have no waste space. Regardless of how many or how few rooms, careful, economical planning is necessary. Rooms and closets may be of ample size, but they should not

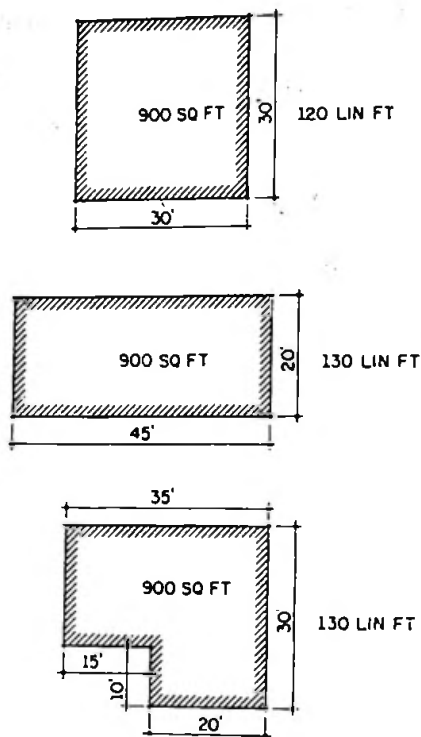


FIG. 1. MAXIMUM AREA WITH MINIMUM PERIMETER

be wasteful of space. Oversized rooms, instead of being comfortable, are often tiring. A house is not well designed unless it has been economically planned. Economical planning means adequate room sizes and adequate storage space.

Where cost dictates a minimum amount of space, it is well to remember that the square encloses a particular area with a minimum perimeter. This is shown in Fig. 1. The plan in (a) has 900 sq ft (square feet) of floor area and 120 lin ft (linear feet) of wall. The plans in (b) and (c) also have 900 sq ft of floor area but 130 lin ft of wall. Therefore, the house with the plan that approaches the square in its dimensions is usually the most economical to construct.

A circular house would be even more efficient than a square one. For example, a house with a 34' (foot) diameter would enclose 908 sq ft with a linear wall length of approximately 107'. Because of complications in layout and construction, however, the circular house is seldom built.

Circulation to the Parts of the House

3. To achieve economy in planning, you must give consideration to the circulation, or the route that provides access to, intercommunication with, and egress from the different areas and enclosed spaces in your house. The circulation may be from one room to another or by means of halls and corridors. Circulation should always be as direct as possible. On the other hand, the amount of space given to halls and corridors should be the minimum possible.

Designed for Living

4. In Part 1 you learned that furniture sizes should be considered while the rooms are being laid out, rather than afterward. Not only furniture sizes but also human sizes and individual and family activities must be kept constantly in mind.

Statistics indicate that the American people are growing larger and taller. If the members of your family are inclined to be tall, you may wish to make your ceiling heights 8'-6" or even 9'-0"; otherwise, you might be satisfied with a ceiling height of 8'-0". And if you are the type who likes to swing Indian clubs, you should provide corresponding space in your bedroom.

In summary, your house should be designed to provide a background for living. When planning your house, keep in mind furniture sizes, human sizes, and individual and family activities.

Natural Light

5. The earliest dwellings had windows that were made

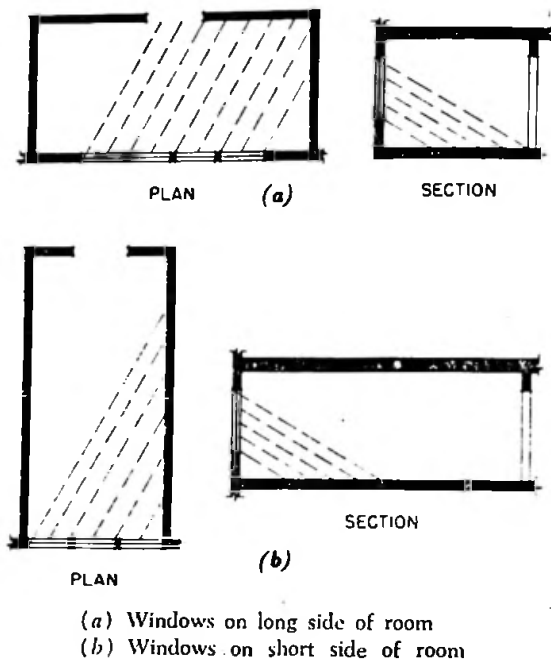


FIG. 2. NATURAL LIGHTING AS AFFECTED BY SHAPE OF ROOM

small to keep out animals and robbers. These first windows were covered with animal skins; later, translucent marble and mica were used. In about 500 B.C. glass was discovered, but it was almost 1500 years before it appeared in the homes of the western nations. By the end of the sixteenth century, glass became economically available to the middle-class merchants of the period.

The English manor houses of the Gothic period are noted for their large glazed windows. However, heating considerations and the tax on glass in England, which was initiated in 1695 and kept in force for over 150 years, served to curb the number and size of windows. Windows in colonial America were subject to the same tax. Because of this tax and also for reasons of safety and heating, windows were kept small.

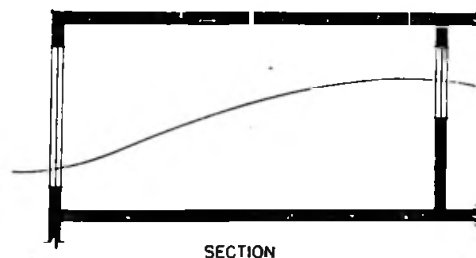


FIG. 3. WINDOW ARRANGEMENT SUPERIOR FOR LIGHTING AND USUALLY SUPERIOR FOR VENTILATION

Modern automatic systems of heating have made it possible to heat all parts of a house at one time. And the development of windows consisting of two sheets of glass with an insulating air space between them has cut down on the high heat loss that is characteristic of glass and has made it feasible to use large glass areas. Today a house need not have an inadequate amount of natural light. It is no longer necessary to live in self-contained, inward-looking rooms.

The widespread use of glass makes possible a closer coordination between outdoors and indoors. The sky and garden can become a part of the indoor scene, and natural light can be used to beautify the interior of your home.

Placing of Windows

6. The amount and location of glass in the outside walls has a great deal to do with the lighting of your home. Equally important is the shape of the rooms. In Fig. 2 it is obvious that a rectangular room with windows on the long side, as in (a), will receive more light than a rectangular room with windows on the short side, as in (b).

The contrast in lighting that results from having windows on one side only is frequently unpleasant. In Fig. 3 is shown a room with windows on two sides. The windows on one side are low and the windows on the opposite side are high

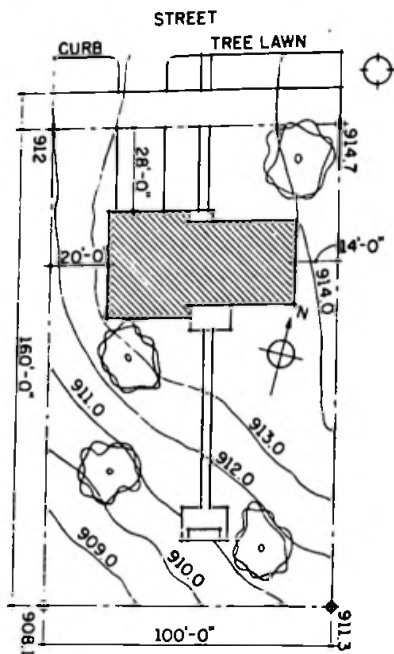


FIG. 4. TYPICAL PLOT PLAN

to provide wall space to receive furniture. With the light coming from two sides, the room will be uniformly lighted.

Ventilation

7. Besides admitting light, windows provide ventilation. The ventilation of a room with windows on one wall only presents difficulties, even though the room itself may have a desirable shape. The window arrangement that is superior for lighting a room is usually superior for ventilation. This is demonstrated in Fig. 3. The room has windows on opposite sides; here the cool air comes in the lower openings, while the warm air rises and passes out the high windows.

Utilization of the Plot

8. In order for you to enjoy maximum family life, the total

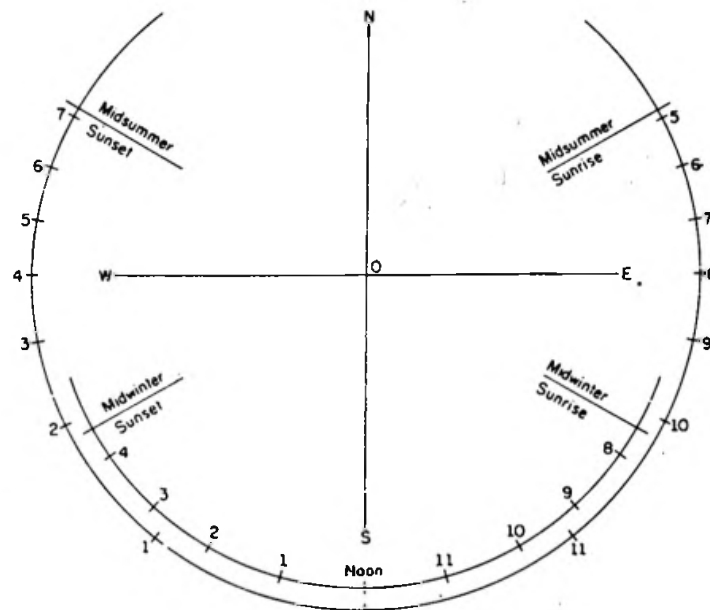


FIG. 5. HOURLY POSITION OF SUN IN RELATION TO POINTS OF COMPASS

use of your lot is necessary. In Part 1 of this text you learned something about such things as outdoor-living area and about the house in its relation to the entire site. The relation of the house to its site is shown by the plot plan. In planning your house, this plan should be one of your first considerations.

The plot plan shows the contour lines that are included on the survey. If these original levels are to be changed by filling in with earth or by removing high places, a second set of contour lines is required. The plan shows the relation of the house to the plot lines and gives the builder the information he needs to locate the building. The plan also shows the relation of the house to the walks and drives, to the points of the compass, and to outdoor-living areas. These outdoor-living areas must relate to and be similar in function to adjoining interior spaces.

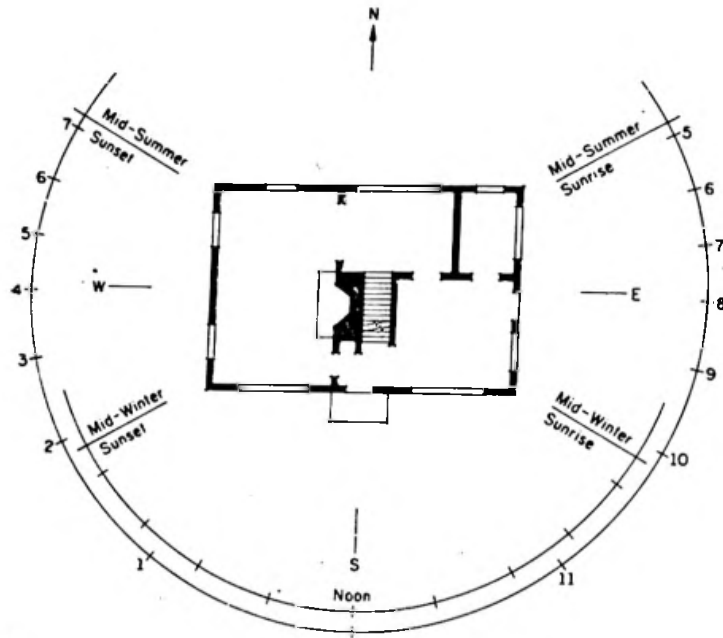


FIG. 6. SUNLIGHT RECEIVED BY VARIOUS PARTS OF TYPICAL SMALL HOUSE

The plot plan must be considered when you are studying the orientation of your house. A simple plot plan is shown in Fig. 4.

Nature of Orientation

9. The term orientation as used in house planning refers to the placing of the rooms in a house in relation to the sun. In Fig. 5 is shown a diagram that places the sun in position at every hour of the day both in midwinter and in midsummer. By drawing a line from any specific hour to the center *O* and then drawing lines parallel to that line, you can determine the area receiving sunlight at that hour.

The diagram of Fig. 5 with the addition of the plan of a

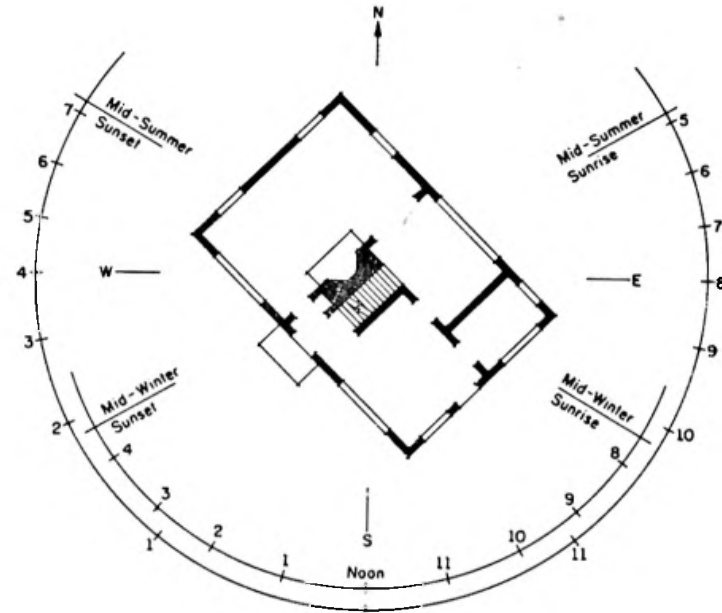


FIG. 7. IMPROVEMENT IN ORIENTATION OF HOUSE SHOWN IN FIG. 6 BY CHANGE OF POSITION

small house is shown in Fig. 6. From Fig. 6 you can see that the north side of the house will receive some sunlight in summer and none at all in winter.

The sun-position diagram and house plan of Fig. 6 are shown again in Fig. 7, but here the walls instead of being perpendicular to the N-S and E-W axis have been turned 45° (degrees). Instead of facing due north, south, east, and west, they now face northeast, southwest, southeast, and northwest, respectively. With the house in this new position the total hours of sun received in a year are enormously increased.

Objectives of Orientation

10. This locating of the house in relation to the points of the compass is an application of orientation principles—a most

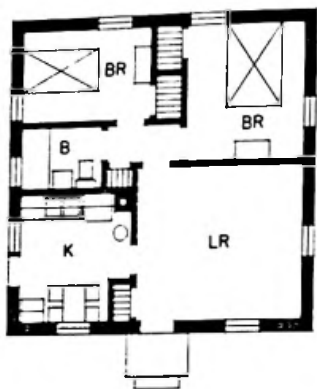


FIG. 8. STOCK PLAN FOR A SMALL HOUSE

important factor, since all living space is improved by some direct sunlight.

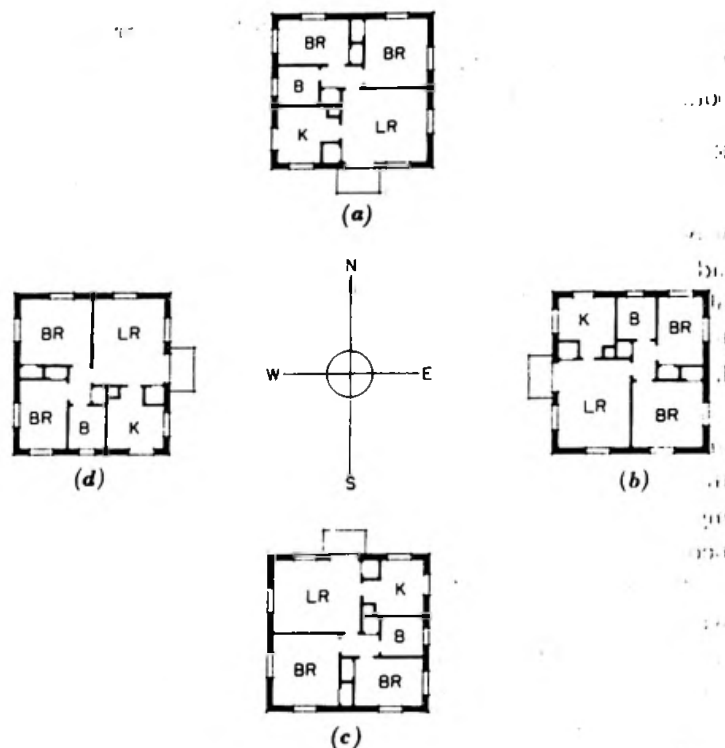
The living room preferably should have sunlight throughout the entire day. This requirement may be compromised to the extent that the morning sun can be eliminated on the theory that the living room is used only after midday. But the sun should be available in the living area from noon on.

The breakfast room should receive the morning sun. A sunny room is conducive to cheerfulness, and a cheerful breakfast is the ideal way to start a new day.

The dining room should receive the late afternoon sun or be lighted by it. The warmth and color of sunlight produce an effect of restfulness and ease.

The kitchen, as the principal workroom of the house, should have a cheerful atmosphere. It should receive sunlight from early morning until 4 P.M. if possible. After 4 P.M. the heat of the sun plus the heat generated by the cooking of the evening meal may tend to make the kitchen unduly hot.

The bedrooms should receive some sun; at what hours becomes a personal preference. The morning sun may awaken one person happily before rising time; to another person the morning sun may be definitely irritating. The midsummer



- (a) Site on north side of street
- (b) Site on east side of street
- (c) Site on south side of street
- (d) Site on west side of street

FIG. 9. ORIENTATION LIMITATIONS OF PLACING A STOCK PLAN ON ANY SITE

evening sun pouring into a bedroom may make it uncomfortably warm for the person who goes to bed early, but with cross ventilation the room may be cooled enough for one who retires late.

Seldom is it possible for you to arrange all the rooms in a house ideally. Usually, some compromises are necessary. Nor is it wise to sacrifice efficiency of layout for perfect orientation.

But it is equally foolish to plan houses in which living rooms are condemned to darkness and in which kitchens broil under the afternoon sun when a little forethought could prevent such conditions.

Examples of Orientation

11. In Fig. 8 is illustrated a basic house plan. Different ways of orienting this house are shown in Fig. 9. Let us consider first the plan in (a), which is situated on the north side of the street. From the standpoint of orientation, only the living room is located well; the kitchen would get direct sunlight from midday to sunset, making it unreasonably warm.

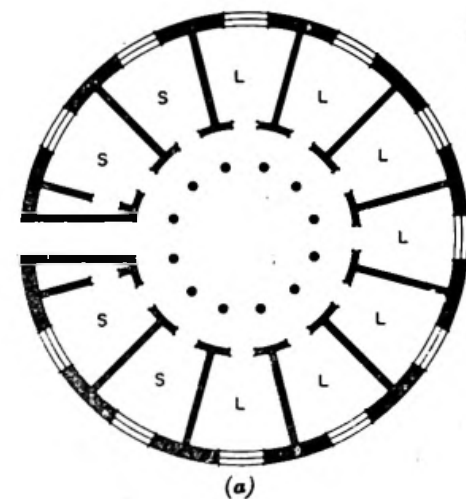
In the plan in (b) the living room has excellent orientation, and the kitchen would get afternoon sun. In the plan in (c) the kitchen would receive sunlight in the morning. The living room would get sunlight from midafternoon on. The bedrooms would have sunlight most of the day.

On the west side of the street shown in (d) the kitchen would receive sun in the morning and most of the afternoon. The living room would have full sunlight only in the morning, less and less as the afternoon progressed.

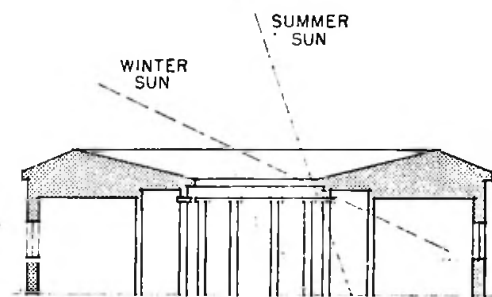
A study of Fig 9 shows that each site presents different problems and each site demands a different solution. In Fig. 9 the point is emphasized that it is not possible to take a stock plan and build it on any site. In planning your house, particularly in a city or suburban area where sidewalks and drives are already determined, you will encounter problems that limit your planning. How you overcome these problems with a minimum of compromise will be one measure of successful planning.

The Solar House

12. The solar house is a house that is heated by the rays of the sun; that is, the solar house is a practical application of the principles of orientation. About the solar house there



(a)



(b)

(a) Plan

(b) Section

FIG. 10. CIRCULAR POMPEIAN HOUSE

has been a great deal of misunderstanding. Three basic considerations are involved:

1. Proper orientation
2. The use of large windows
3. Control of the sun's rays

These considerations are not twentieth-century discoveries. Vitruvius, a Roman architect, in his *Ten Books of Architecture* remarked, "The special purposes of different rooms require

different exposures suited to convenience and to the quarters of the sky." And three hundred years before, Xenophon had written,

In houses with a south aspect, the sun's ray penetrate into the porticoes in winter, but in summer the path of the sun is right over our heads and above the roof, so that there is shade. If, then, this is the best arrangement, we should build the south side loftier, to get the winter sun, and the north side lower to keep out the cold winds.

The fact that an overhanging roof can control the rays of the sun was recognized thousands of years ago. The Pompeians, who built circular houses with the rooms radiating from a central courtyard, placed the living quarters where they would receive the winter sun and constructed an overhanging arcade that would cut off the stronger summer sun. This condition is illustrated in Fig. 10, with the plan in (a) and the section in (b). Note that the living quarters in plan (a) are marked L and the storage spaces S. In the section in (b) broken lines represent the rays of the summer and winter sun.

The accurate measurement of the sun's rays for the various latitudes, however, is a comparatively modern development. Throughout the United States, for instance, the rays from the summer sun strike the earth at approximately 70° and the winter rays at approximately 25° . These conditions are illustrated in Fig. 11, (a), (b), and (c). Study these diagrams carefully.

The solar house is not new. What is new is the utilization of solar heat during the winter months in *northern climates*.

Mechanical Requirements

13. The modern house, with its controlled temperatures, its highly efficient kitchen and laundry, and its attractive bathrooms, would not be possible without modern equipment. It is not the purpose of this text to compare the merits of various

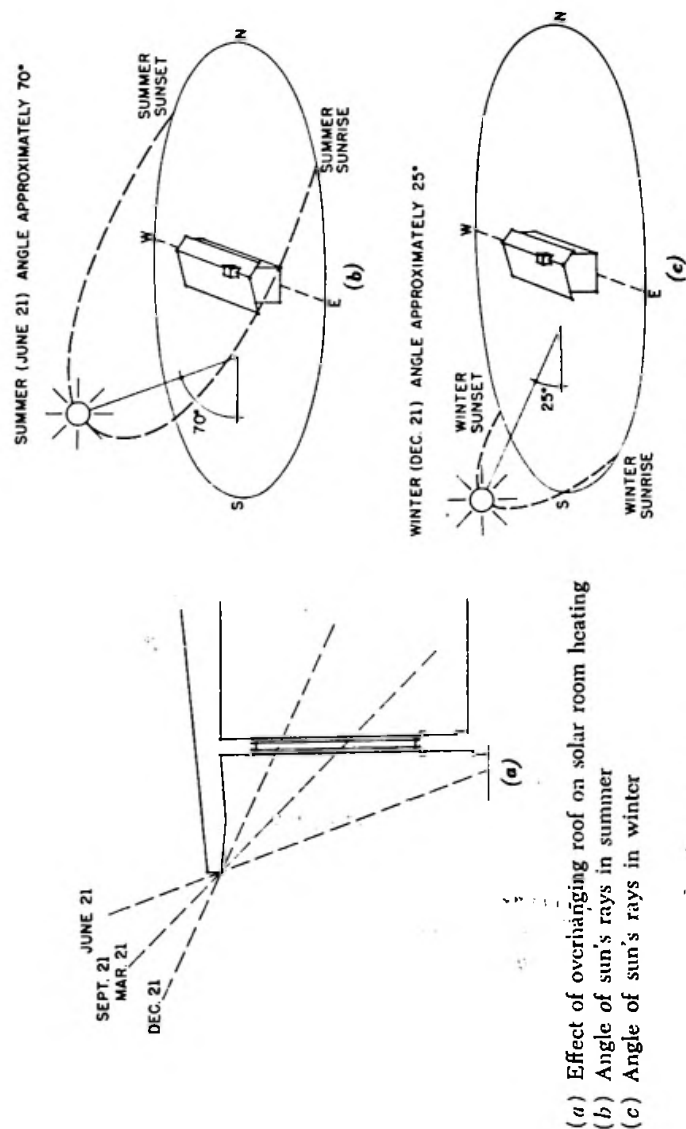


FIG. 11. ANGLES OF SUN'S RAYS IN SUMMER AND WINTER

heating and air-conditioning systems nor to discuss the various types of kitchen, laundry, and bathroom equipment. Much of this information is contained in other ICS texts. But whatever your choice of system or equipment, it should be made in the early planning stages so that you can provide enough space in your plans for ducts, piping, and equipment. Do not proceed with your plans and discover, when you come to build, that your utility room, for example, is too small. The sizes of your kitchen and laundry should be decided in like manner; the equipment and the arrangement of equipment for these rooms should be decided in the early studies.

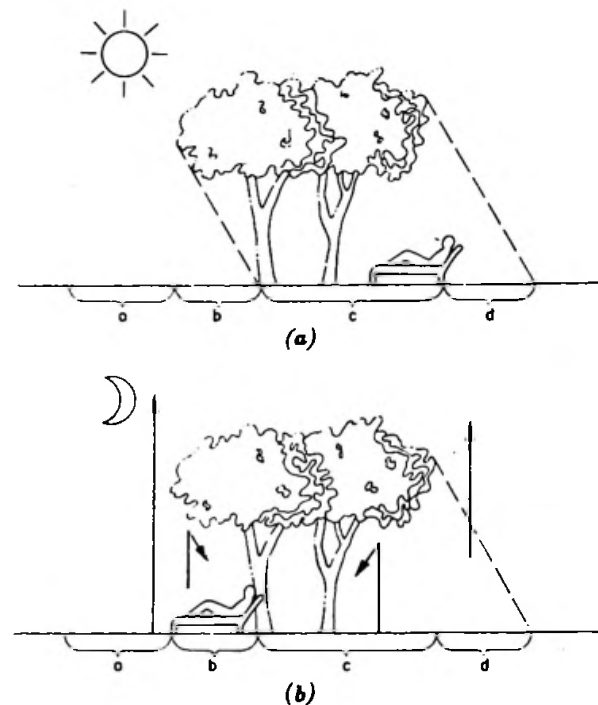
Summary

14. Your house must provide more than shelter; it must provide a way of life. The main areas of the house—the living area, the work area, and the sleeping area—must have privacy, must be easily accessible, and must be properly related.

A basic problem is to obtain maximum performance while using the minimum amount of space. The circulation among the various parts of the house should be as direct as possible and kept to a minimum. This requires careful economical planning. Economical planning, however, means adequate rather than minimum room sizes.

In planning your house, keep in mind such considerations as human sizes and furniture sizes, natural light and ventilation, mechanical requirements, location of the building on the plot, and orientation.

A factor that is closely related to orientation and the one that we should study next is climate control.



(a) Heat zones during day (b) Heat zones during night

FIG. 12. WARM AND COOL ZONES

Climate Control

Methods of Controlling Climate

15. Mark Twain's famous saying that "Everyone talks about the weather but no one does anything about it" is no longer true. There are many ingenious ways for controlling climate on even the averaged-sized lot. Climate control can make your home more comfortable in winter and summer and make your outdoor-living areas more pleasant and enjoyable. The climate of your lot can be affected by such devices as planned planting, reflecting walls and pavements, and bodies of water.

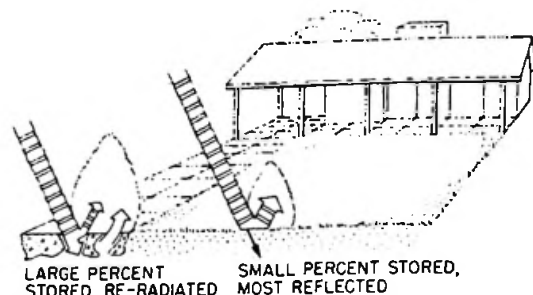


FIG. 13. GRASS AND PAVEMENT AS GROUND COVER

Trees and Temperatures

16. Ever since the first man moved from under a hot sun to the cool shade of a tree, plants have been among the most familiar and effective climate controls. Temperatures beneath trees are not uniform. In the conditions shown in Fig. 12 (a) we know that the shady zones *c* and *d* are the coolest spots on a sunny day. Zone *b* is a little warmer than zone *a*, because it receives some radiated heat from the tree itself in addition to the direct sun. When nightfall shuts off the heat source, zone *d* in Fig. 12(b) is the coolest, because it has received little direct sun during the day and no ceiling stops the rapid radiation of any heat it has stored. Zone *a* cools more slowly because of its greater amount of stored heat. The leaf ceiling above zone *c* reflects back its radiated heat, and therefore zone *c* cools more slowly than zone *d*.

Zone *b* remains warmest the longest, because it receives maximum daily heat and has protection against the radiation of stored heat at night. A terrace here will be comfortable for evening use in mild or cool climates. Zone *d* might be preferred in extremely hot or muggy areas.

Ground Cover

17. Low heat-storage makes plants the coolest ground cover. While paving absorbs up to 70 per cent of the sun's

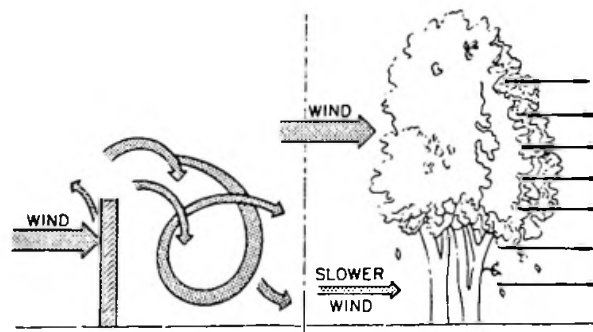


FIG. 14. WALL AND TREES AS WINDBREAKS

heat, grass retains only about 5 per cent. Grass turns heat away, absorbs glare, and has a color that is psychologically cooling. Even a narrow strip of grass before building is an effective baffle against heat. This is shown diagrammatically in Fig. 13.

Pavement is a good heat absorber and radiator that is useful in mild or cool climates but not under extreme heat. Paved areas store and radiate heat for hours after sundown; if the paved areas are close to the house, the heat radiation may cause stifling conditions in the house at night, making sleep difficult. In hot sections, gravel provides a better driveway or sidewalk surface, because its air spaces are poor heat conductors and hold down the temperatures above them. Plants are even better in this respect, because they give off moisture and the evaporation of the moisture makes the air cooler.

In other words, you can use ground surface to modify temperature extremes. If you wish to raise temperatures, pave around the house and terraces as much as possible. To hold temperatures down, use grass plantings.

Plants can also be used to absorb noise and dust. A test in one large city revealed that the dust count on the leeward side of an area was reduced 75 per cent by planting.

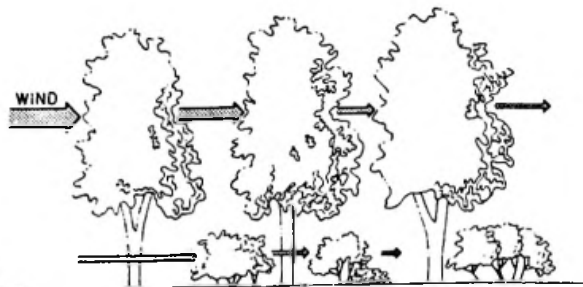


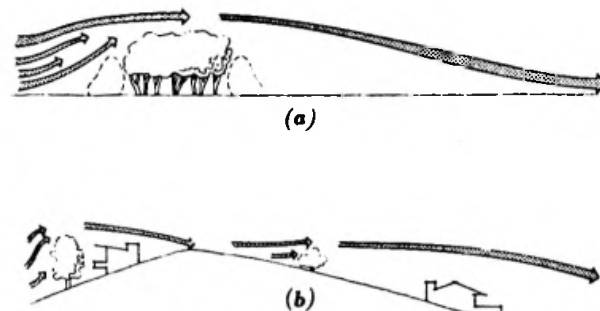
FIG. 15. SERIES OF WINDBREAKS FOR GREATER PROTECTION

Windbreaks

18. Wind breaks up into swirling eddies when it hits a solid perpendicular surface such as a wall, as shown in Fig. 14. In contrast, the many surfaces of a tree slow wind down gradually and pass it through evenly. Trees, as shown in Fig. 14, thus allow good ventilation while effectively reducing wind speed, since most of the leaves are concentrated where the velocity is highest. At lower levels, ground surface slows wind speed.

In Fig. 15 is shown how trees are used to form a series of windbreaks. This series of windbreaks gives better protection than a single one, because the baffle effect is repeated until the wind is brought to a standstill. If too much wind is your problem, trees and shrubs scattered throughout a yard are a more effective counteraction than a group aligned in a row. In the California citrus areas, windbreaks planted in a series of rows are used to cut down wind speed in the orchards.

You may be surprised to learn that thick, grovelike windbreaks protect in two directions; as illustrated in Fig. 16 (a). Stagnant air within the stand forces the wind up and over the obstacle. This creates a dead air space immediately in front of the windbreak as well as a quiet leeward zone. Wind direction, humidity, sun exposure, and views may all be involved in windbreaks.

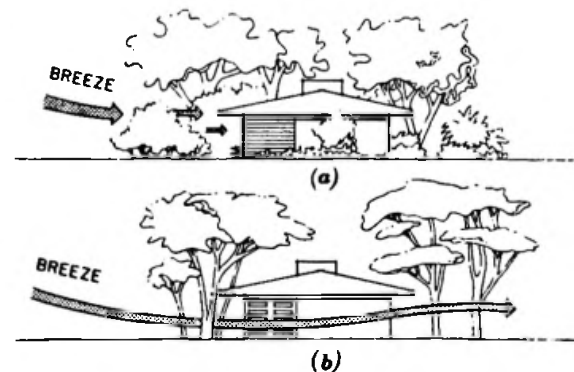


(a) Operation of grove of trees as windbreak
(b) Positioning of windbreaks and houses

FIG. 16. PROTECTED ZONES FORMED BY GROUPS OF TREES

The positioning of these windbreaks in regard to a house on a slope is shown in Fig. 16(b). Note that the trees are placed quite close to the house on the steep upslope but are farther away on the downslope. If the trees are close to the house to screen the sun on a cool downslope, artificial windbreaks may be used to supplement the trees.

19. If humidity is a problem, close planting as shown in Fig. 17(a) should be avoided. Instead, as in (b), you should use an open type of planting with a high leaf canopy to let the



(a) Effect of close cover (b) Effect of open cover

FIG. 17. HUMIDITY CONTROLLED BY PLANTING

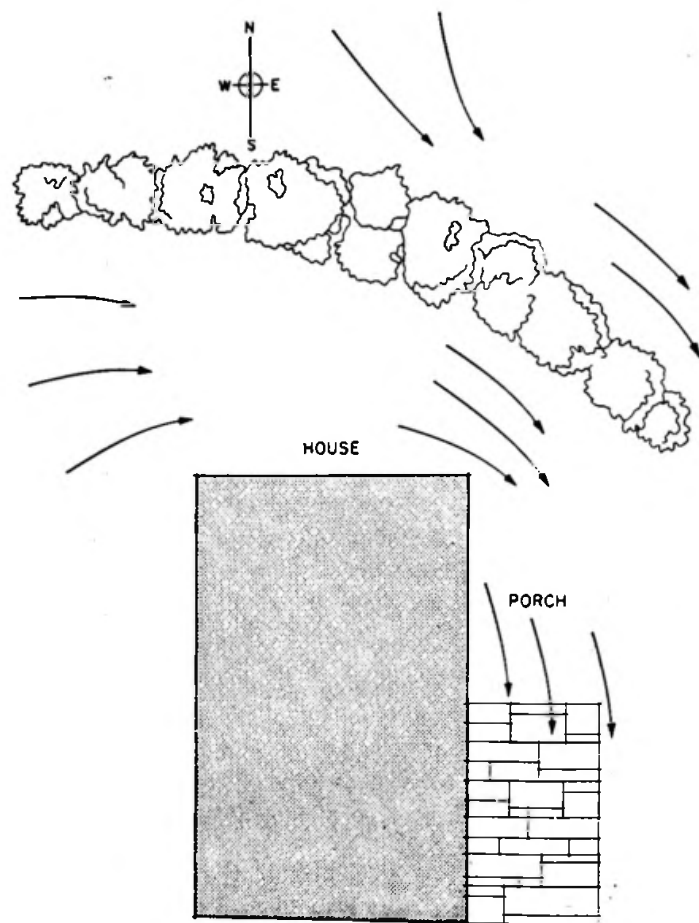


FIG. 18. WINDS GUIDED BY A WINDBREAK

circulation help dry the air while still providing sunshade. The reduction in amount of leaf surface also helps, because then less moisture is added to the air by transpiration. On the other hand, in a hot, dry climate, additional moisture and windbreak protection is welcomed. Sprinkling the plants will help cool the atmosphere, because latent heat is taken from the atmosphere when water is evaporated from the leaves.

Controlled Breezes

20. In many areas of the country, the coldest winds come from the north, northeast, or the northwest; in the summer, they usually come from the west, southwest, or south. By a curved planting of evergreen trees and shrubs in the form of a high hedge, the wintry blasts from the north can be guided around the house. Such a windbreak is shown in Fig. 18. If at 32 F (degrees Fahrenheit) this windbreak reduces the wind from 12 to 3 miles per hour, there will be a substantial savings in the amount of fuel needed to heat the house. In areas where cold winds are a winter problem the cost of planting can often be amortized by fuel savings alone.

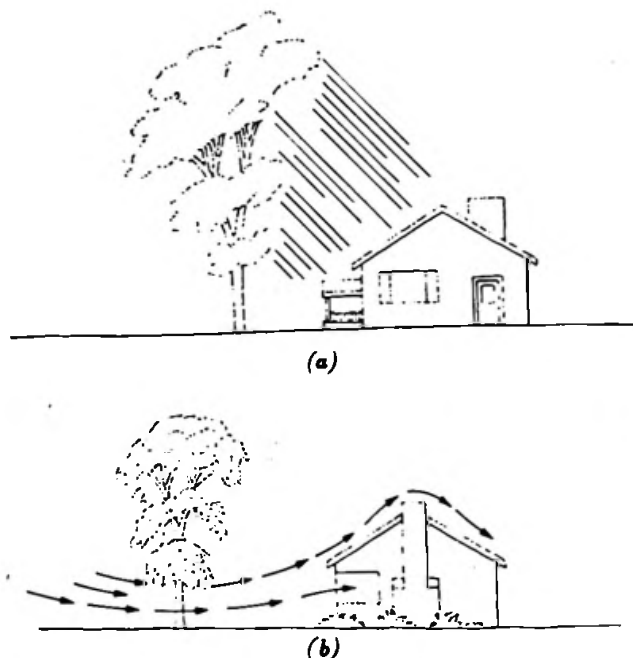
In the summer, when the breezes from the west are desirable, the same amount of air entering the wide opening will be forced through the narrow space between the house and the planting, thus increasing both the air movement and the coolness. An outdoor terrace on the east then will be cooler on hot summer nights.

In your area, conditions may differ from those described in the preceding paragraphs. By observing the direction of prevailing winds, you can plan your planting to control those winds to make your home warmer in winter and cooler in summer.

Directed Shade

21. In the summer in the northern part of the temperate zone the sun sets in the northwest; it sets nearer to due west as one goes south. The hottest part of the day is in the early afternoon when the more direct rays of the sun strike the roof of the house. Later in the afternoon, the sun's rays pour directly on the west wall of the house, often heating it to an uncomfortable degree. Roof-top temperatures of 140 F have been recorded.

A tree so located that it will shade the wall and roof in the



(a) Shading effect of tree
(b) Effect of tree on wind movement

FIG. 19. ROOF TEMPERATURES REDUCED BY SHADE

afternoon, as shown in Fig. 19(a), will keep your house temperature more comfortable and may reduce the wall and roof temperatures by as much as 20 F to 40 F. In the spring, fall, and winter, the tree shading your house will not interfere with the sun, which will be setting in the southwest. Moreover, by use of a tree which sheds its leaves, the sun will be certain to shine on the ground during the cold season when you need all the natural warmth you can obtain. Low planting should not prevent cooling breezes from passing underneath the tree as shown in Fig. 19(b).

Reflecting Surfaces

22. All types of structures can be considered as radiators. Fences, houses, and garages all absorb heat from the sun and

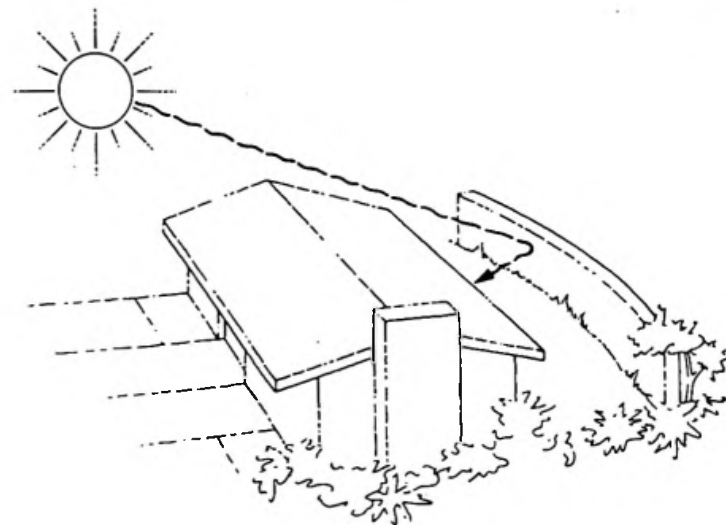


FIG. 20. WALL PROVIDING A REFLECTING SURFACE FOR LIGHT AND HEAT

then radiate it at you. Masonry walls have perhaps the greatest capacity for this radiation; you can use them to force plant growth or to add warmth to an outdoor living area.

In order to receive this radiation in cooler climates, your outdoor activities should be moved close to the house. In the hotter sections of the country these same activities should be moved away from the house to escape this radiation.

Reflecting surfaces can be used to bounce light and heat into sunless areas, as shown in Fig. 20. The darker corners of your house and garden can be warmed and brightened by the reflections of sunlight falling on white or light-colored walls. In the evening a patio will be more effectively warmed if the heat from a brazier or stove is reflected from adjoining walls.

Frost Control

23. Cold air, like water, flows downward and settles at the lowest point; early frost sometimes flows in a layer two or three inches above the ground. A slope of a foot or so on a

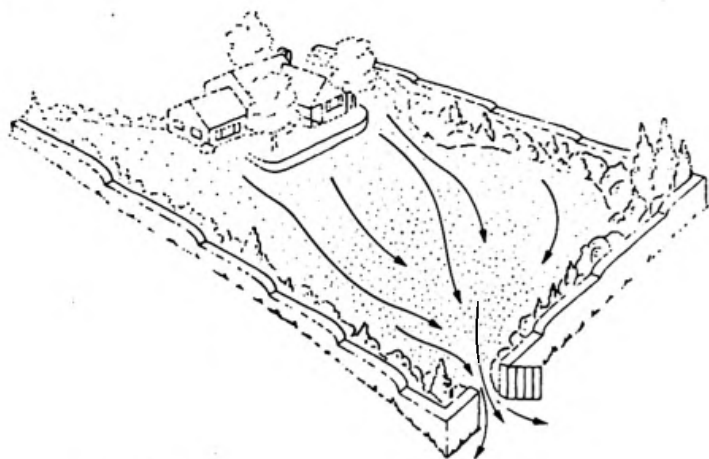


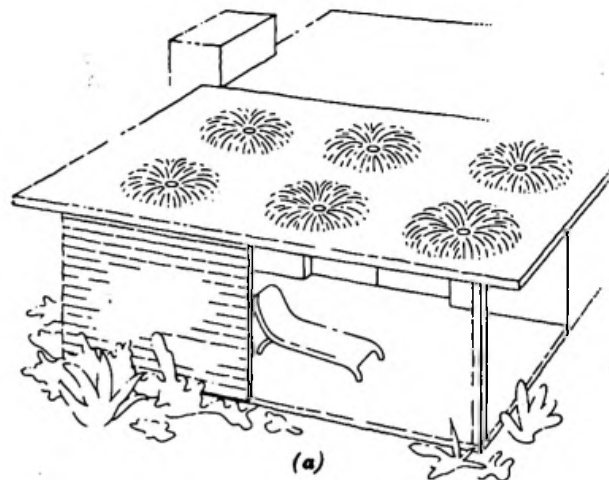
FIG. 21. METHOD FOR ELIMINATING FROST POCKETS

lot is all that is needed to set air in movement. In the average yard, frost pockets can often be eliminated by placing a gate in the hedge or wall on the lower side of the garden. The coldest air will then flow out through the gate as shown in Fig. 21. In this way you can prevent some of the earlier frosts in the fall and the late frosts in the spring. Conversely, in the summer, by keeping the gate closed, a cool pocket of air will collect on the lower side of the garden and provide a cool place to sit on hot summer nights.

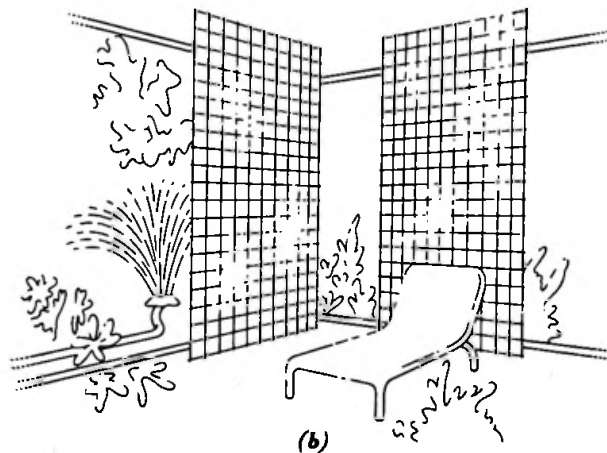
Water

24. Water can be an important factor in affecting the climate of your site. As air picks up moisture, its temperature is reduced by removal of part of the latent heat required to evaporate the water. Cooling by evaporation can be stepped up by placing sprinklers on a roof area, as shown in Fig. 22(a), or by playing a stream of water on a windscreen of coarse burlap, as shown in (b).

In addition to cooling actually, water cools psychologically. A reflecting pool or a cascade in your garden will recall cool lakes and rivers.



(a)



(b)

- (a) Sprinklers on roof surface
- (b) Vertical windshield and cooling-water spray

FIG. 22. COOLING BY EVAPORATION

Summary

25. Climate control should be one of your preliminary considerations in planning your house and developing your site.

The climate of your site can be modified by planting trees and shrubs that are placed to control winds in winter and the sun's rays in summer, by reflecting walls and pavements, and by bodies of water. Trees and shrubs not only control wind and sun but act as collectors for blowing debris and dust.

Next let us study some of the various plans that you can choose from in planning your house.

Types of Plans

Basic Types of Houses

26. There are various solutions to the problem of assembling the parts of a house into a satisfying whole. No single type of plan presents the ideal solution to all problems. In one case the requirements of the problem may dictate a one-story house; in another case they may dictate a two-story house or a split-level house. Some factors that vary with each individual problem are size of the lot, its topography, its location in the city, the suburbs, or in the country, and family requirements.

Basically there are three types of houses: the one-story house, the two-story house, and the split-level house. There are innumerable variations of each of these types. We will study the plans for these types and some of their variations in the following pages. In designating room titles on plans throughout this text the following abbreviations have been used:

LR	Living room	V	Vestibule
K	Kitchen	H	Hall
D	Dining room	W	Wardrobe

BR	Bedroom	DR	Dressing room
B	Bath	BK	Breakfast nook
U	Utility room	S	Storage
AP	All-purpose room	P	Porch or pantry
G	Garage		

The One-Story House

27. For convenience and livability the one-story house cannot be surpassed. It places all areas on one floor where they are easily accessible and where light and air are available. It eliminates the hazard that stairs offer to the very young and the very old.

However, the one-story house has its particular problems. With all facilities such as laundry, heater room, and storage on the one floor the one-story house is spread out over a considerable area. A larger lot is required, especially if the house and lot are designed for outdoor living. The problems of proper circulation, of keeping the main areas of the house distinct, and of adequate storage space are intensified.

The Two-Story House

28. Perhaps your plot is not large enough to receive a one-story house; in that case it may be that your only solution is to build a two-story house.

The two-story house provides privacy for the bedrooms. A countering disadvantage is that it requires travel up and down stairs. Space is needed for the stairs, and usually the second-floor construction is more expensive than the first-floor construction. On the other hand, the two-story house requires less roof and foundations than does the one-story house.

The Split-Level House

29. The split-level house is a compromise between the one-story house and the two-story house. There are various arrangements of the split-level plan, but essentially it consists

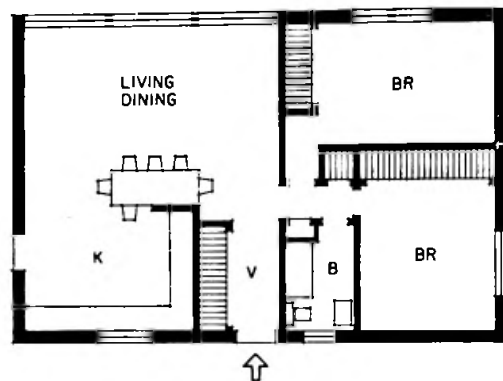


FIG. 23. SIMPLE RECTANGULAR PLAN

in having the living room, dining room, and kitchen housed in a one-story portion with the sleeping quarters, the garage, and sometimes a recreation room in a two-story portion. The floor line of the living area is located approximately midway between the floor lines of the two-story portion. The split-level house is best suited to slightly sloping ground; with the garage in the basement the split-level plan provides a compact house.

The split-level house does not have the convenience of the one-story house in which everything is on one level. On the

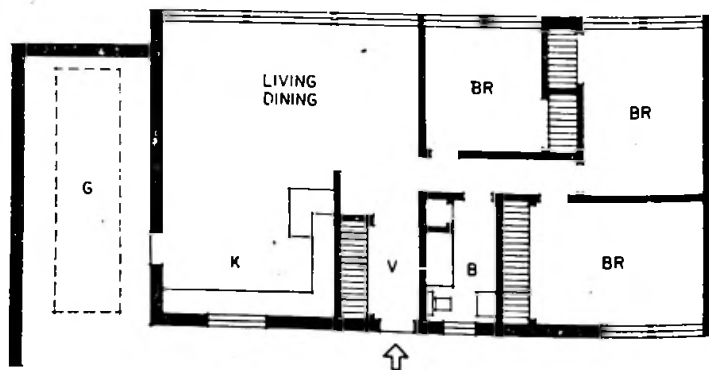


FIG. 24. RECTANGULAR PLAN WITH GARAGE

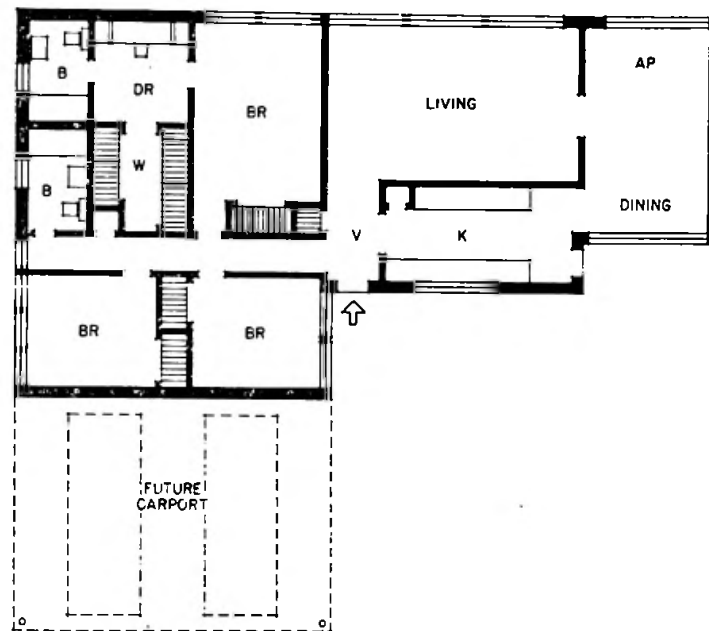


FIG. 25. OFFSET RECTANGULAR PLAN

other hand, it does not require the large lot that is needed for the one-story house, nor does it require the vertical travel that is needed for the two-story house. With the living area between the sleeping area and the garage you are usually only a short flight of stairs from the next activity. Like the two-story house, the split-level house has the advantage of providing distinct privacy for the sleeping area. And, as you learned in Part 1 of this text, the most economical location for the garage is in the basement.

The Rectangular Plan

30. The various types of houses may be built to different types of plans; no single type of plan or layout is ideally suited to solve all problems. The same factors that will determine your type of house—lot size, topography, and family requirements—will also influence your choice of a plan.

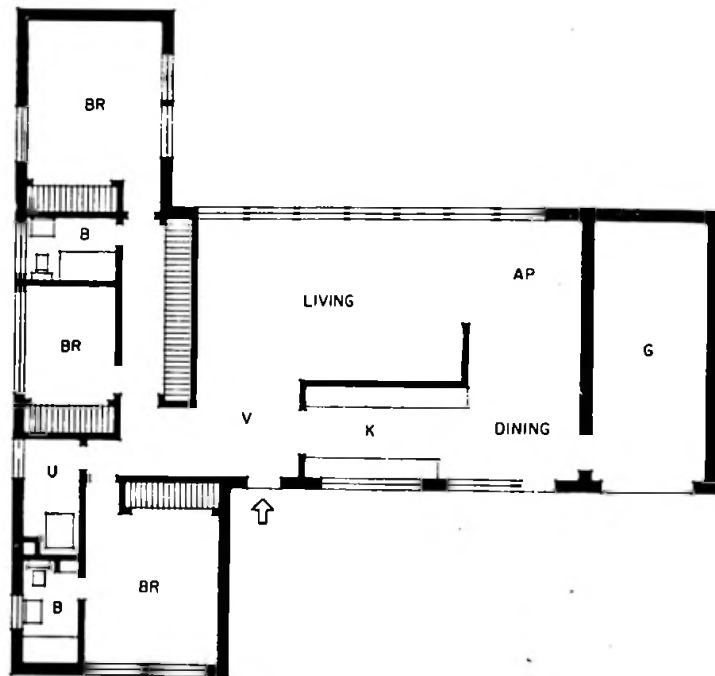


FIG. 26. THE T-SHAPED PLAN

Of the various types of plan the one-story rectangular type is the simplest. This plan—with its box shape, its minimum of exterior walls, and its concentrated plumbing—is easy and cheap to build. An example of the plan is shown in Fig. 23; it may be expanded by the addition of a third bedroom and a garage, as shown in Fig. 24.

A development of the rectangular plan is the offset rectangular plan shown in Fig. 25, which reduces circulation space still further. The dotted lines show the garage or carport which might be added to this plan.

The T and L Plans

31. The T and L plans are adaptations of the offset rec-

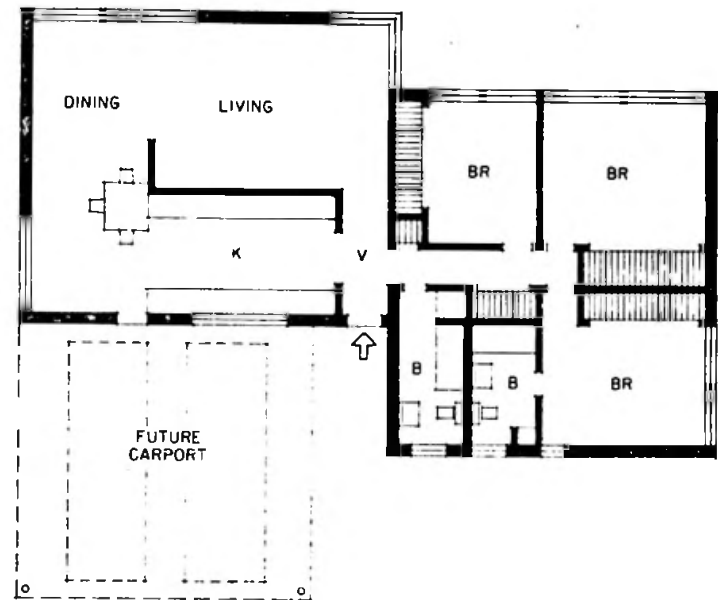


FIG. 27. THE L-SHAPED PLAN

tangular plan. These plans allow flexibility of layout, effective separation of living and sleeping areas, and compact circulation. As a rule, they provide an opportunity for interesting elevations. Because of greater exterior wall area and irregular roof framing, T- and L-type houses usually cost more to build than does a house of rectangular plan. A T-shaped plan with a one-car garage is shown in Fig. 26. An L-shaped plan is shown in Fig. 27; the dotted lines indicate the two-car carport that might be added.

An advantage in a plan type such as the T or L, both of which have the sleeping and living quarters in separate sections, is that a four-bedroom sleeping unit can easily be substituted for the three-bedroom unit. A T-shaped plan with four bedrooms is shown in Fig. 28. A future carport is shown by the dotted lines.

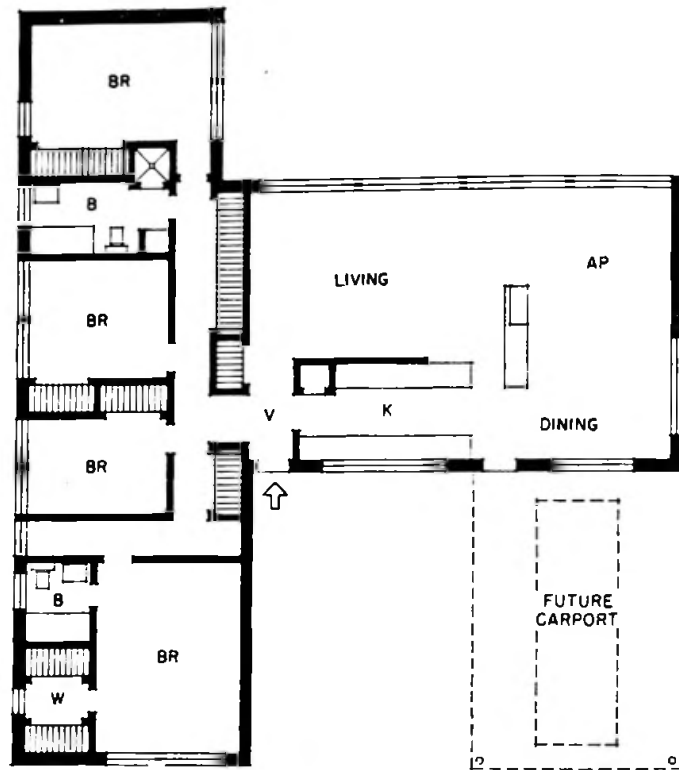


FIG. 28. T-SHAPED PLAN WITH FOUR BEDROOMS

An L-type plan that has been expanded or opened up is shown in Fig. 29. This plan shows an excellent separation of living and sleeping areas and a variety of exterior courts and terraces. Notice how the carport mass serves to provide privacy for the outdoor-living areas.

Utility-Core plan

32. The advantage of the utility-core plan is that the utilities—the baths, laundry, kitchen, and utility room—are concentrated in one area. In addition, the core acts as a buffer between living and sleeping areas.

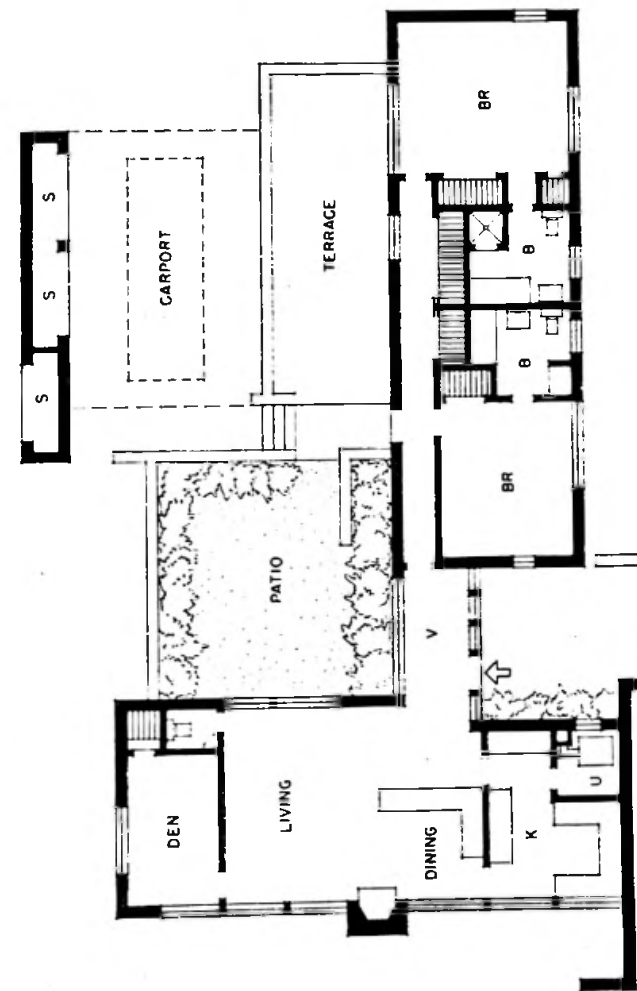


FIG. 29. EXPANDED L-TYPE PLAN

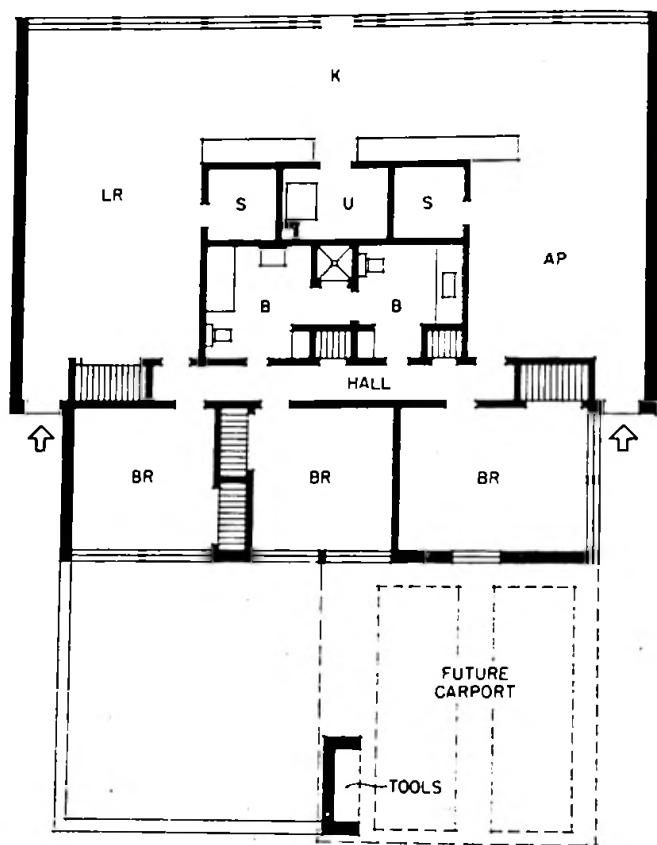


FIG. 30. UTILITY-CORE PLAN

This type of plan is often very compact, but sometimes it has the disadvantage of excessive circulation space. These characteristics are apparent in the utility-core type of plan shown in Fig. 30. Notice the distance from the kitchen to the front door.

The H and U Plans

33. The utility-core plan may be used with the H and U types of plan, which divide living and sleeping areas into

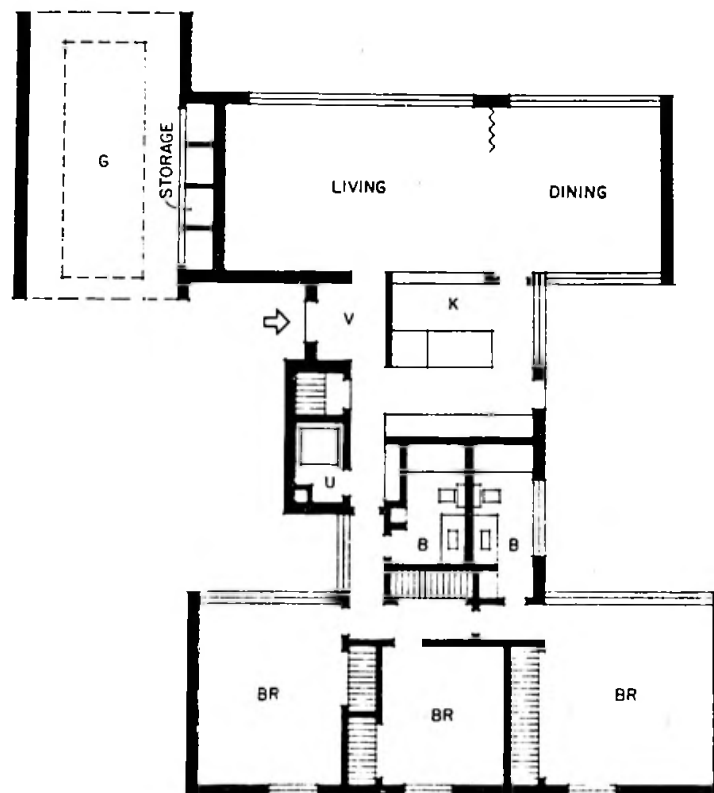


FIG. 31. THE H PLAN

separate sections. An H plan is shown in Fig. 31. Here the utility core forms the connecting bar of the H, with the bedrooms in one wing and the living room and dining room in the other wing. This plan has a proper distribution of living, work, and sleeping areas. Its disadvantage is the amount of exterior wall required.

A U-shaped plan is shown in Fig. 32. In this plan, the all-purpose room is easily accessible from the bedrooms so that it may be used as a play area for the children. At the same time, it is within easy supervision of the kitchen control

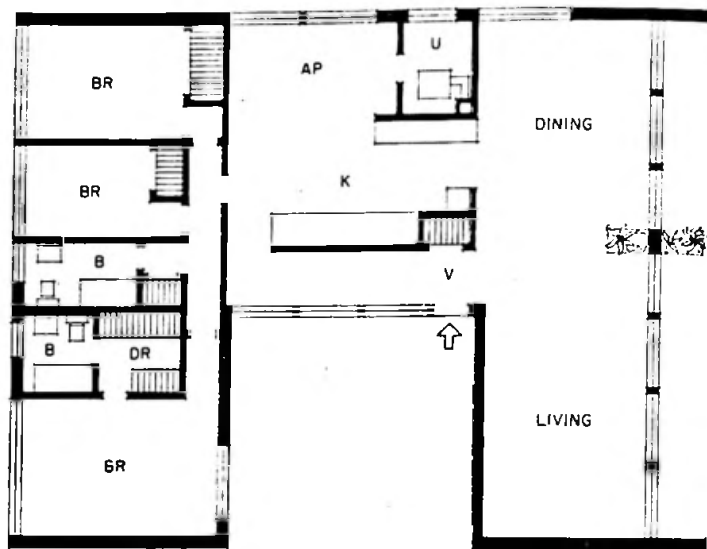


FIG. 32. THE U PLAN

center. In this plan the utility core is well located, acting as the control center of the house.

The In-Line Plan

34. The in-line plan often offers an excellent solution for many unusual site conditions such as exist on a narrow lot or on a steep hillside. An in-line plan is shown in Fig. 33. This plan provides a proper disposition of areas and good circulation, but at the expense of a long corridor. An in-line plan by Frank Lloyd Wright is shown in Fig. 34. Notice that there are no windows in the kitchen; all the kitchen wall space is used for equipment.

House with Inner Court

35. The house with inner court has been used since ancient Egypt and early Pompeii. In inhospitable regions the inner court has been used to provide a livable oasis and tranquil

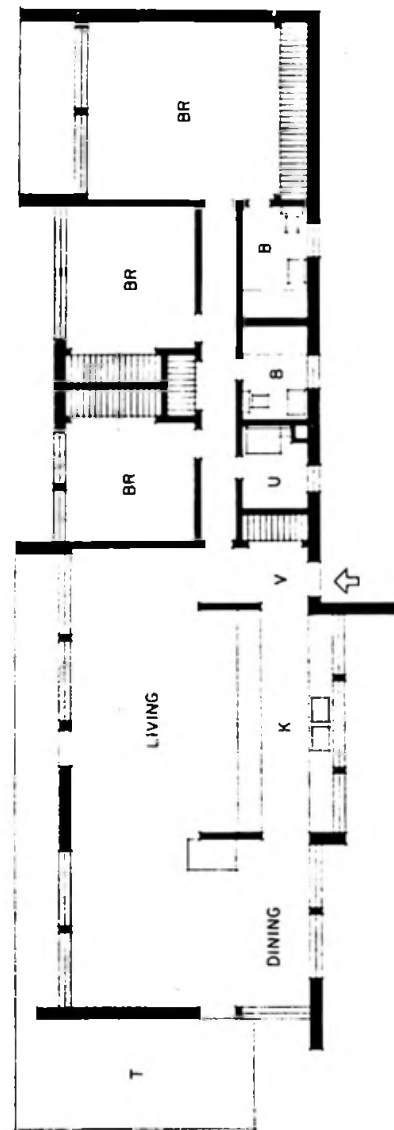


FIG. 33. THE IN-LINE PLAN

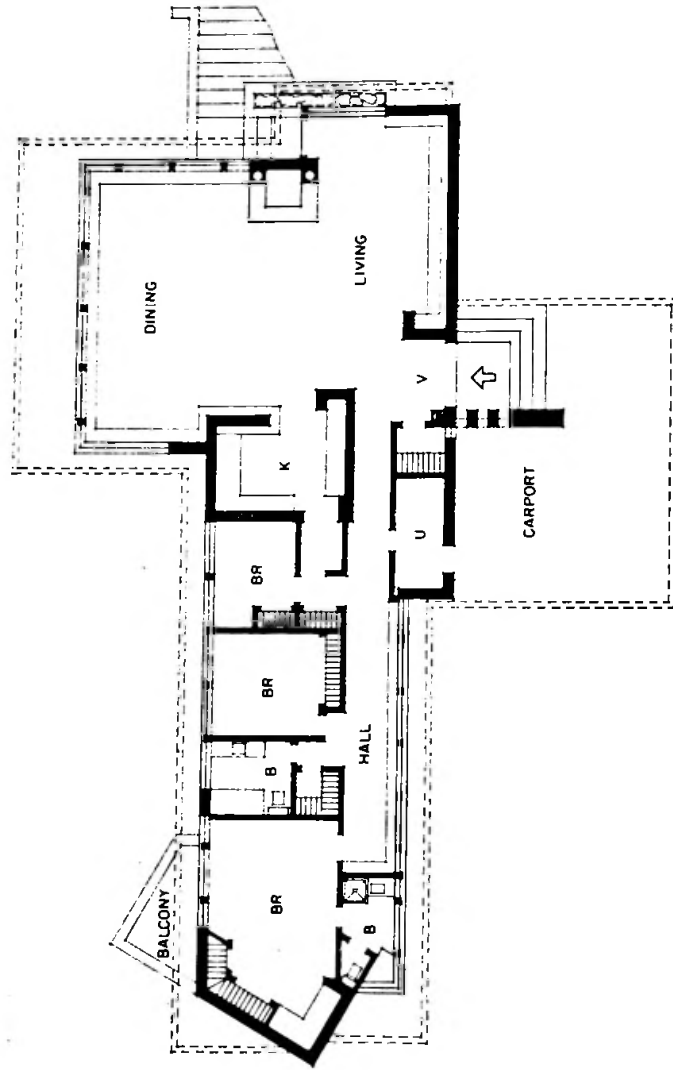


FIG. 34. ANOTHER IN-LINE PLAN

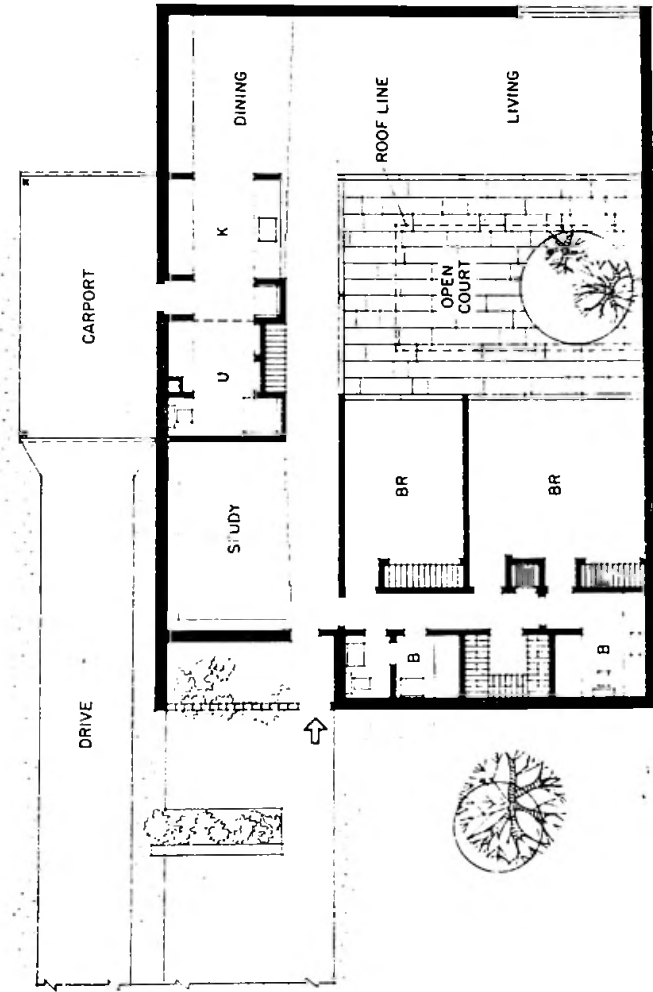


FIG. 35. HOUSE WITH INNER COURTYARD

sanctuary. Where large numbers of people have congregated in small areas, it has provided a retreat and privacy.

The inner court can be used with the one-story house or with the two-story house in the country or in the city. It can be used to real advantage in the city house where the lot is not large enough to provide for outdoor living. Such a house is shown in Fig. 35. In this one-story rectangular plan sliding partitions convert the house into small private rooms or into a big space for entertaining.

Summary

36. Good plans are usually simple. Each type of plan has its advantages and disadvantages; each type has its endless variations. In any type of plan you should in general try to achieve the following: 1) the separation and proper relation of living, sleeping, and working areas, 2) a main entrance that is convenient to the center of house circulation, 3) a kitchen located as the work center and control unit of the home, 4) a secondary entrance to the kitchen and access to the garage and service area, 5) the reduction of circulation to a minimum, 6) the proper relation of outdoor-living areas to interior areas.

The plans that you have studied thus far have been for one-story houses. Of the various types of houses, the one-story house lends itself to the development of the greatest number of outdoor-living areas. Whether you decide to plan a one-story house, a two-story house, or a split-level house will depend on such factors as the size of your lot, its topography, and your family requirements.

But before we study any more plans let us consider some of the factors that affect the exterior appearance of a house.

Appearance

Factors Involved

37. A good plan can contribute greatly to the comfort and convenience of your house. It cannot, however, solve all problems of house design. The plan must be developed into a three-dimensional form that is visually attractive within and without. The form developed should utilize the full potentialities of the plan to provide a frame for modern living. Your house must not only be comfortable to live in, it must be good to look at. Good looks are an essential ingredient of any quality product.

The factors involved in the appearance of a house are not mere matters of taste or style, they are important design factors which make a house not only good looking, but also good living. While a consideration of all of the principals of architectural design is not within the scope of this text, there are certain fundamentals with which you should be familiar.

The Traditional Styles

38. There are still home owners who prefer to have their homes designed in some historic style, such as Colonial, Spanish mission, or English manor house. While many gracious and comfortable homes have been built in the historic styles, too often such houses consist of a series of boxes called rooms inside a larger box the outside of which has been designed in the style desired. On the other hand, owners in increasing numbers, instead of depending on some traditional way of arranging rooms or decorating the exterior, are beginning to prefer houses in which their needs have been satisfied in a sensible and tasteful manner with a natural and honest use of materials.

Choice of Materials

39. The best products, whether they be clothes, cars, or homes, are usually examples of restraint and good taste. In the

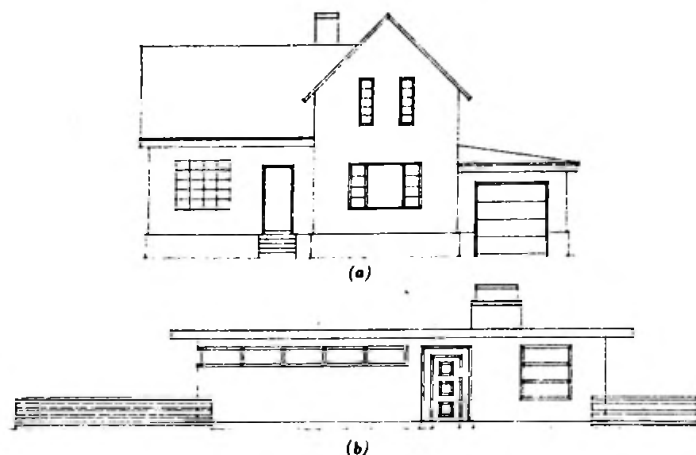


FIG. 36. ACCENTING THE HORIZONTAL

same way that the most luxurious cars are the ones with the cleanest lines and the least chrome, the most expensive looking houses are those whose appeal is based on good proportions, carefully studied details, proper contrasts in texture, and good materials.

A house is not given distinction, for instance, by using such phony features as picture windows that do not have an attractive view, corner windows for no reason except to look modern, false dormers, shutters that do not operate, and false dove cotes. Nor is a brick house made more attractive by giving it a stone front. The stone front only proclaims the fact that you consider stone better than brick but could not afford a completely stone house. This "shirt-front" treatment is based on the concept that a house is usually seen from the front. It isn't; it is usually seen from an angle. Actually, a well-designed brick house can possess as much distinction as a well-designed stone house.

Accent the Horizontal

40. The higher your house is the shorter it will look. By

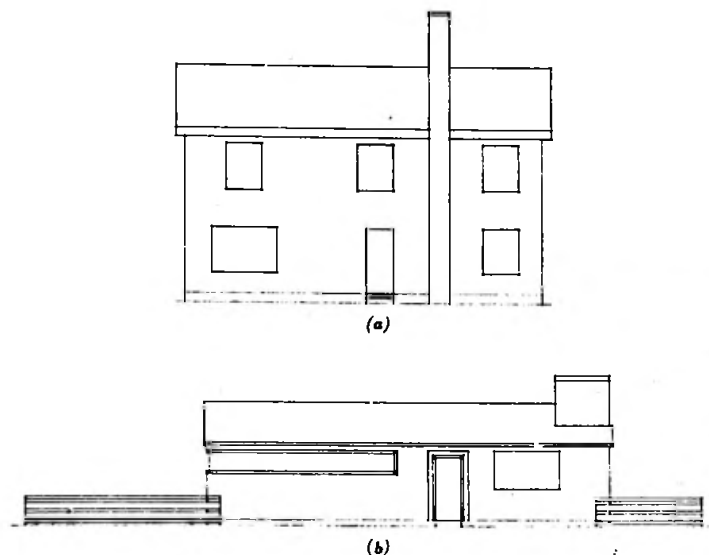


FIG. 37. POOR AND GOOD CHIMNEY DESIGN

emphasizing horizontal lines you can make your house look longer and therefore larger. You can emphasize horizontal lines by using a low-pitched roof, overhanging eaves, and unbroken ridge and eave lines, by having the highest possible grade level against the house, and by adding horizontal fences. This is shown in Fig. 36, (a) and (b), where two houses are drawn at exactly the same width. Notice how the house in (b) not only appears larger but also tends to flow together as a harmonious design rather than as a collection of unrelated units.

If it is not properly designed, the chimney is often a disturbing element in a horizontal composition. The most common of the poorly designed chimneys is the tall, small one that is not placed at the gable end of the house. Such a chimney is shown in Fig. 37(a). A better solution is shown in (b).

Here the chimney is low and massive and looks to be part of the house rather than a separate vertical element.

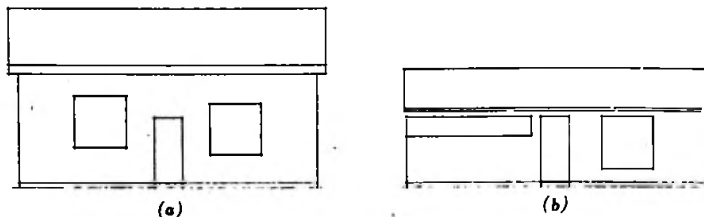


FIG. 38. LOCATION OF WINDOWS

Location of Windows

41. The location of the windows in your house should be influenced first by the rooms the windows serve. But the windows should also be located with an eye to their exterior appearance. There are a few simple rules that you can use in locating your windows.

The first rule is to group your windows; combine two or more windows with mullions. One large window will look better than scattered small ones. Surround your groups of windows with lots of wall space. Do not be afraid of long uninterrupted wall spaces. By grouping your windows, you can give movement to your window pattern, either vertical or horizontal movement.

Your windows should be lined up. In two-story houses, the windows on the upper-floor should be centered over those on the floor below. When windows are not of the same height, it is best to line up the heads and let the sills stagger. In one-story houses keep the windows close to the eaves. By lining up door and window openings, you can eliminate the effect of a box that has been punched full of holes and emphasize the horizontal lines. This is illustrated in Fig. 38, (a) and (b). In the house in (a) the window heads do not line up; in the house in (b) the window heads do line up.

Keep It Simple

42. Some designers make the mistake of combining too many diverse elements in the exterior of a house. A good

rule is to keep it simple. Common errors are too many contrasting colors, too many different kinds of windows, too many different materials—too much make-up in general.

The color of the roof plays an important part in the appearance of your house. Black, gray, and neutral shades are good roof colors. White is an excellent choice; it reflects the heat well and will help to make your house look larger. The bright blue roof has been the least successful.

While too much make-up is to be avoided, your house, on the other hand, should not look bare as a factory looks. It should be inviting. Your front entrance should make a visitor feel that he is coming to a hospitable home.

The Interior

43. Since most of the family's living activities are carried on inside the house, the interior of the house is more important than the exterior. In fact, what is important in a house are not walls and ceilings, but enclosed space and how it is used. The outside of the house should be a result of what happens inside. It should express the human use and comfort of the interior.

Your house should be designed from the inside out. In such a house form follows function; in fact, form and function are one. Continuity between the esthetic and the structural become completely one. The house is a complete organism; to use a common architectural term, it is *organic*.

Because of cost and size limitations that often occur in the contemporary house, it is frequently advisable to make every effort to increase the apparent size of rooms and to avoid a boxlike confined interior appearance. This may be done by stopping certain walls short of their intersection with other walls, thus providing a visual impression of the space beyond, as shown in Fig. 39. And by the use of full-height glass walls combined with enclosing screens beyond the exterior line of the house, you can add to the visual area and to

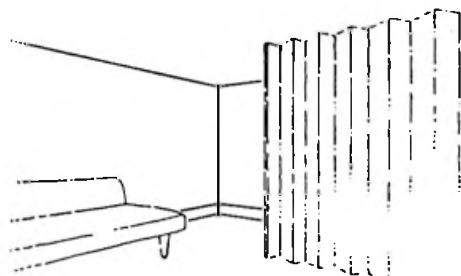


FIG. 39. PROVISION OF VIEW OF SPACE BEYOND

the useful space as well, as shown in Fig. 40. The feeling of spaciousness is increased by using the interior surface materials continuously through glass walls to the outside walls and soffits.

Contemporary interior design is characterized by plain surfaces, few moldings, an honest use of materials, an appreciation and use of color, an increased use of natural light, and a closer relation to the outdoors. The keynote of contemporary design is simplicity. Simplicity, however, is not to be confused with plainness or crudeness.

Summary

44. A good plan by itself cannot solve all of the problems of house design. The plan must be developed into a three-dimensional form that is visually attractive within and without. In any house it is the enclosed space that is important, not the walls and ceilings. The outside of the house should be a result of what happens inside; it should express the human use and comfort of the interior.

The study of architectural design is not within the scope of this text. However, here are a few simple rules that you should keep in mind in deciding what treatment to give the exterior and interior of your house.

1. Keep it simple. Try to avoid too many different materials, too many different kinds of windows, too many contrasting colors, and strong roof colors.

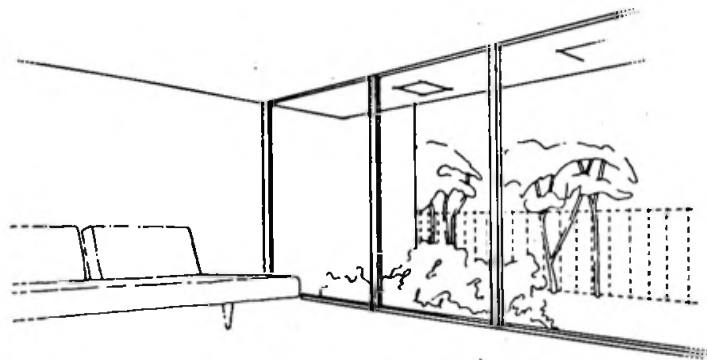


FIG. 40. ADDING VISUAL AREA TO ROOM

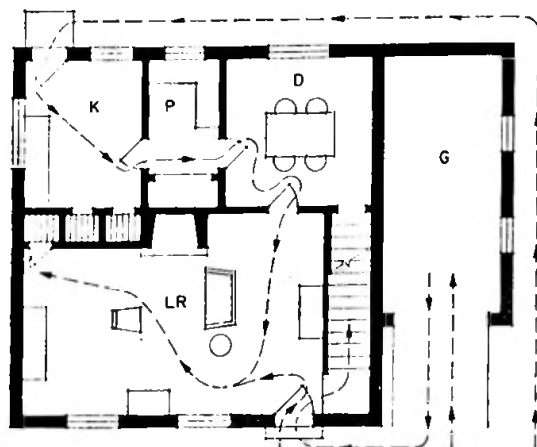
2. Be honest. Avoid such features as false dormers, false dovecotes, picture windows that do not look out onto a view.
3. Accent the horizontal. Horizontal lines will make your house look longer and therefore larger.
4. Even the best materials will not add up to a quality product if they are not properly used. They must be tastefully combined.

Plan Analysis

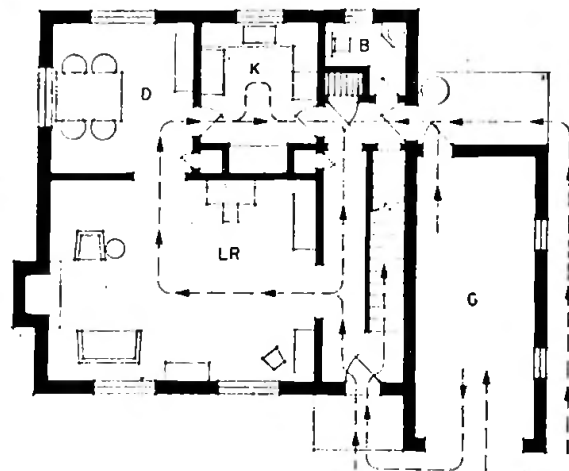
Objectives

45. Many plans which at first glance appear to be quite satisfactory reveal serious faults under close analysis. In this text, it is impossible to offer for analysis examples of all the various types of plans and the many variations of each type. In the following pages, we will study some examples of both good and bad planning with a brief analysis of each example. Included are examples of the two-story and the split-level houses which were mentioned in preceding pages.

Some of these examples have been included to illustrate a particular point. But in considering all examples, keep



(a)



(b)

(a) Plan that affords poor circulation

(b) Circulation improved by rearrangement of same area

FIG. 41. STUDIES IN CIRCULATION

in mind the objectives previously outlined: 1) the separation and proper relation of living, sleeping, and working areas, 2) a main entrance that is convenient to the center of house circulation, 3) a kitchen located as the work center and control unit of the home, 4) a secondary entrance to the kitchen and access to the garage and service areas, 5) the reduction of circulation to a minimum, 6) the proper relation of outdoor-living areas to interior areas.

Study in Circulation

46. Two offset rectangular plans are shown in Fig. 41, (a) and (b). In each plan, the house has the same overall dimensions. In each plan, the circulation is shown by the dotted lines. In plan (a) the circulation is poor. In going from the kitchen to the front door the housewife must travel through the pantry, dining room, and living room. Door swings interfere with ease of circulation. This is particularly obvious in the dining room. Travel between the house and the garage is awkward. The fireplace is not well placed: the area in front of the fireplace is in the line of traffic.

In plan (b) the same area has been rearranged. Notice how the circulation has been improved. The kitchen is so located that there is easy access to the front and side entrances. The pantry has been eliminated, which improves the circulation between kitchen and dining room. The fireplace is in a better location at the end of the living room and out of the line of traffic. Easy access has been provided from the service entrance to the garage.

Various studies of circulation have shown that in the average house the main traffic routes are as follows:

1. Between kitchen and dining room
2. Between dining room and living room
3. Between bedroom and bath
4. Between kitchen and living room
5. Between kitchen and bedroom



(b)



(a)

(a) First-floor plan

(b) Second-floor plan

FIG. 42. TWO-STORY HOUSE WITH CENTRAL HALL

6. Between kitchen and service entrance

7. Between kitchen and front entrance

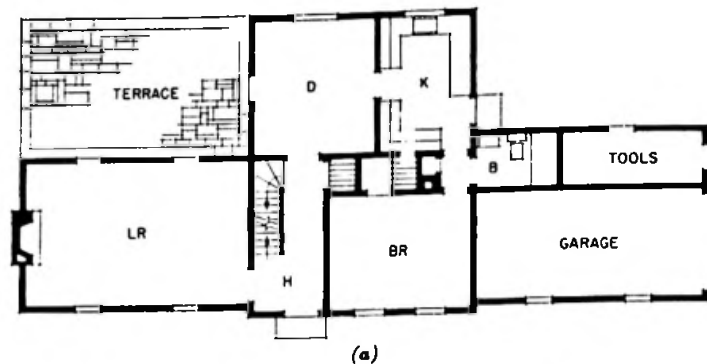
From this it appears that the kitchen is the control center of the house. Obviously, the correct placing of the kitchen is of prime importance.

The Symmetrical Plan for Two-Story House

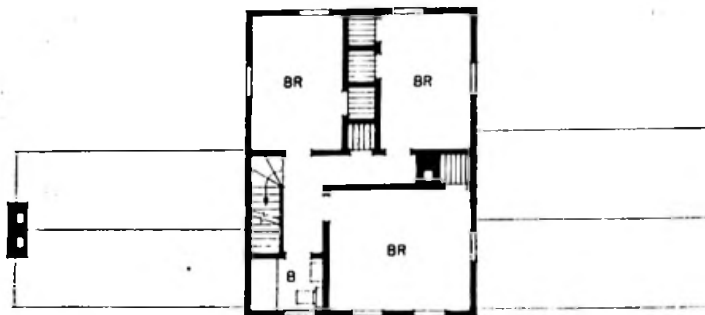
47. Before the advent of the contemporary style, the two-story Georgian house, or Colonial house as it is commonly known, was popular in many parts of the country. This rectangular type of house usually had a hall running through the middle, as shown in Fig. 42(a). Here the dining room and living room are the same width, so that the plan and front elevation form a symmetrical composition. Many compact comfortable houses have been built to this box-type of plan. In fact, during the last century, most American homes were variations of the two-story, central-hall plan, with living and work areas on the first floor and the bedrooms upstairs.

One criticism of this plan is the space that is required for the central hall. Another criticism is the restriction imposed by a symmetrical plan, which may require rooms to be either oversized or undersized in order to balance. This is apparent in Fig. 42(a), where the living room and dining room are adequate but the kitchen is too small. Lack of flexibility for future expansion is an additional problem of the symmetrical plan. The second floor shown in (b) again emphasizes the excessive amount of hall.

48. Another example of the restrictions that are imposed by symmetry is shown by the T-shaped plan shown in Fig. 43. This house is impressive with its over 60' of front, but the plan shows a major error: the garage balances the living room in plan and in elevation. In order to look well, the windows in the garage must have *shades* or *blinds* that, in fact, should match those in the living room. Without shades or blinds



(a)

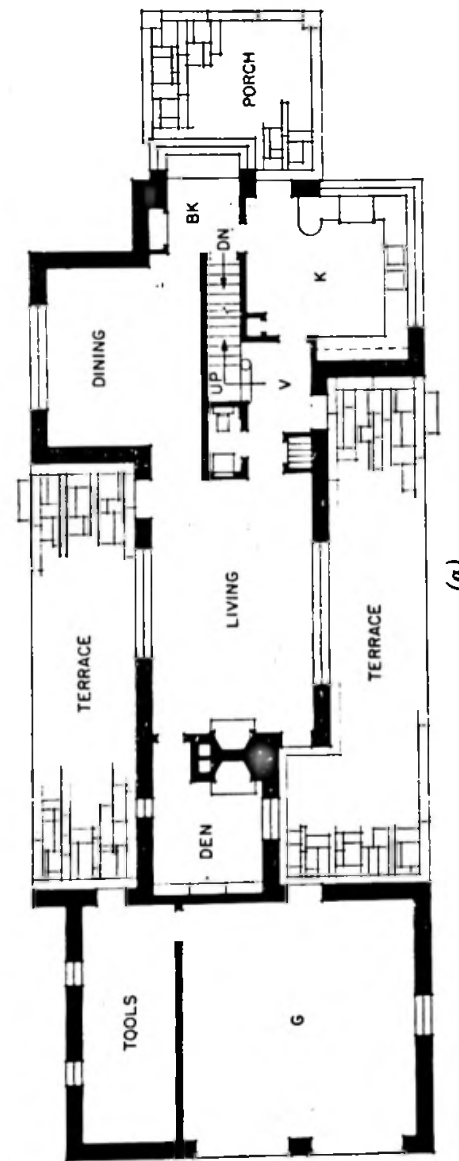


(b)

(a) First-floor plan

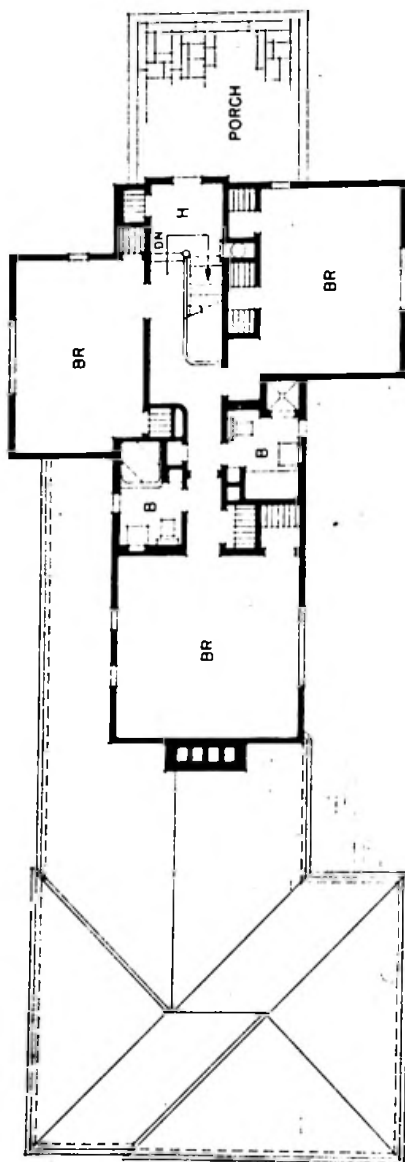
(b) Second-floor plan

FIG. 43. EXAMPLE OF RESTRICTIONS IMPOSED BY SYMMETRICAL PLAN the front of the house will present a bare appearance. This is indeed a serious error. A fundamental rule of architectural design is that a part must appear to be what it is. A garage should not be camouflaged to look like a living room. Theoretically, the exterior of any building—and certainly a house—should be such that a competent architect or architectural student can study it and arrive at a correct mental picture of the plan.



(a)

FIG. 44. FIRST-FLOOR PLAN FOR AN UNSYMMETRICAL TWO-STORY HOUSE



(b)
FIG. 45. SECOND-FLOOR PLAN FOR AN UNSYMMETRICAL TWO-STORY HOUSE

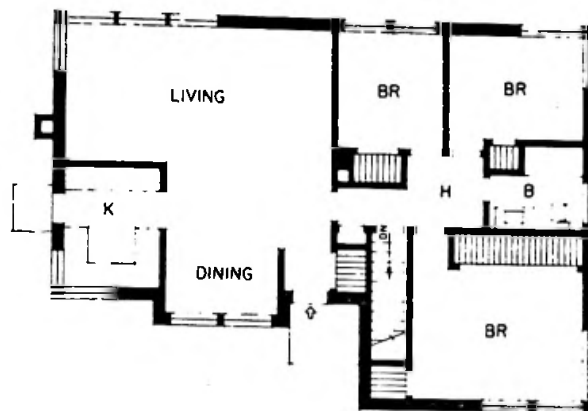


FIG. 46. FIRST OF TWO SMALL HOUSES

In the case of the house shown in Fig. 43 the architect, to achieve symmetry, has forced a solution. Symmetry is at times desirable, but forced symmetry is unpleasant. It is better to have natural unbalance.

The rest of the first-floor plan is no better. The clothes closet is placed at the end of the hall, which means it is necessary to walk 14' to hang up a hat or coat and another 14' to get back to the living room. The stairs have winders which are inexcusable. It is a long walk from the kitchen to the front door and an even longer walk to serve refreshments in the living room. And to go from the kitchen to the front door it is necessary to go through the dining room. The dining room has a door or window in the middle of every wall, which will make it difficult to arrange furniture.

The second floor has an excessive amount of hall space for the rooms involved. The closet space is far from generous. The full-sized window in the front of the bathroom matching those in the front bedroom might prove undesirable.

Today most houses are built according to unsymmetrical plans. The unsymmetrical plans for a two-story house are shown in Fig. 44 and 45.

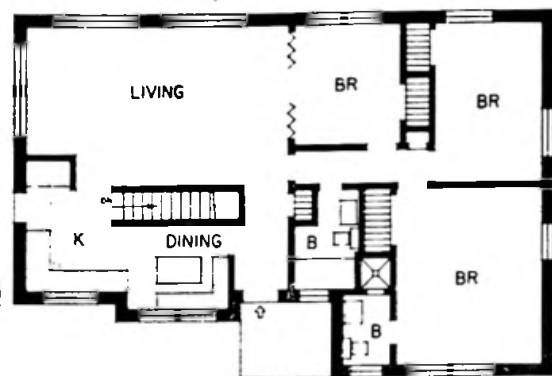


FIG. 47. SECOND OF TWO SMALL HOUSES

Two Small Houses

49. In Figs. 46 and 47 are shown the plans of two small houses. Both plans are L shaped and are similar in layout. Each has its advantages and disadvantages. It is interesting to compare what two different architects have done with essentially the same scheme, and it is particularly interesting to note what the addition of a few square feet of area may mean to the livability of a house.

The plan in Fig. 46, which contains 1100 sq ft, has many good points. There is no waste space. A small entry hall, a good-size clothes closet in the hall, closets in all bedrooms, good size dining space, cross ventilation in two of the three bedrooms, a linen closet—all of these are definite assets.

However, this plan also has its disadvantages. Most important is the fact that the entire plan is tight. While there is no waste space, there is also no space to spare. Every room would be improved by a little more area.

The kitchen is small, and from the kitchen it is necessary to walk through the dining area to answer the front door. The dining space, while adequate in floor area, is inadequate in regard to wall space for the placing of furniture. The bedroom closets are on the small side.

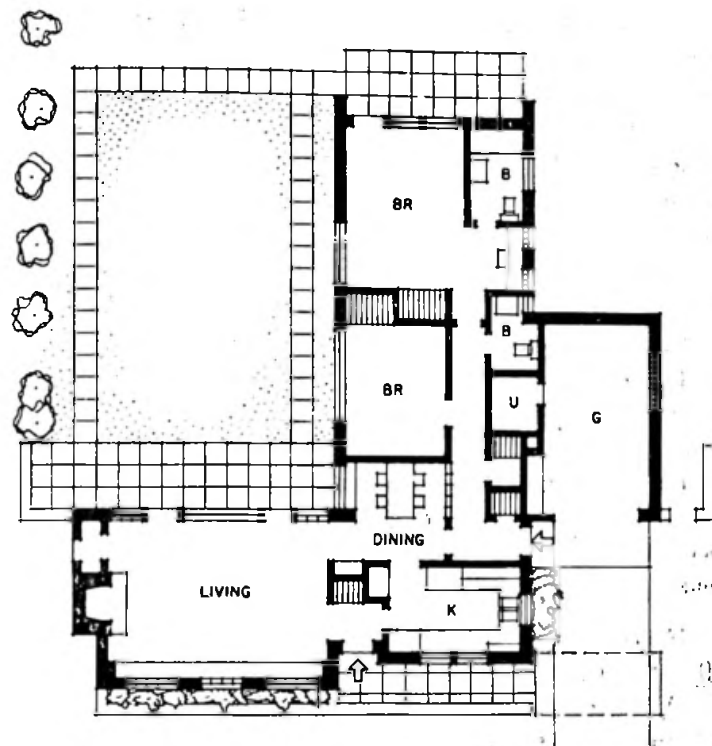


FIG. 48. AN L-SHAPED PLAN WITH FAULTS IN CIRCULATION

50. The second plan shown in Fig 47, contains 1133 sq ft. This increase of 33 sq ft over the area of the first plan has been used wisely. Study this plan carefully, and particularly in comparison with the preceding example. The folding partition at the end of the living room allows the adjoining space, if not required as a bedroom, to be added to the living area, making it 34' long, or this room could be used as a nursery or children's playroom. With the partition open this room could be closely supervised from the kitchen. The partition could be closed at any time, thereby returning the living room to its original size.

Note also that most of the bedroom closets are more ample,

that the bathroom adjacent to the master bedroom is superior to that at Fig. 46, and that the third bedroom could in a pinch be used as a double room.

Study these two plans carefully. The big difference in these plans is not the 33 sq ft of area involved, but the manner in which the space is arranged. The plans are similar, but there is no comparison in their respective merits.

Three L-Shaped Plans

51. An interesting L-shaped plan is shown in Fig. 48. At first glance this plan appears to work well. The kitchen is close to the living room and dining room and controls the front and side doors. The living room has light and air on both the long walls. The bedrooms are secluded. However, it is necessary to walk through the dining area to get to the bedrooms from either the living room or the kitchen. This makes the dining area a hall.

52. Another interesting L-shaped plan is shown in Fig. 49. Notice that the bedroom area is completely isolated from the living area by its own entrance and hall and that this entrance is accessible from both the street and the patio. Also well placed is the kitchen at the front of the house.

On the unpleasant side is the fact that the dining room is a corridor from the kitchen to the main entrance. Also, the living room is a corridor from the kitchen to the bedroom areas.

53. Much better than either of the plans shown in Figs. 48 and 49 is the L-shaped plan shown in Fig. 50. Especially noteworthy is the circulation. The front vestibule gives access to the living room, bedrooms, and kitchen. The kitchen controls both the front entrance and the service entrance through the laundry. Notice that the dining room and dining terrace are completely concealed from the front vestibule. On the other hand, the hall in the sleeping area is long, but this is

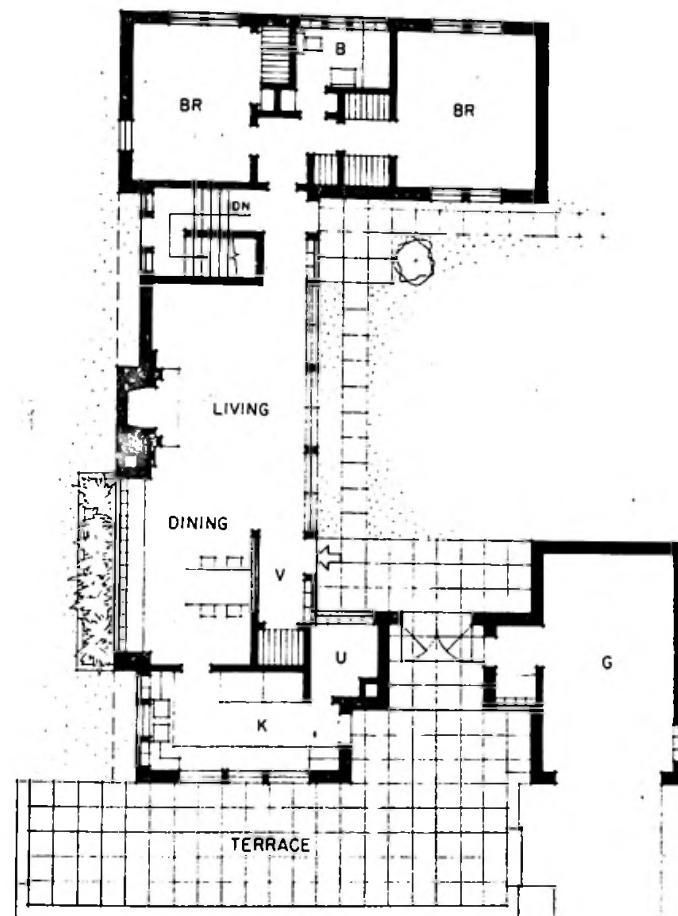


FIG. 49. ANOTHER L-SHAPED PLAN WITH FAULTS IN CIRCULATION difficult to avoid in a one-story house. The travel from the laundry to the drying yard is also long.

The house is well oriented. The sun would shine into the kitchen in the morning and into the dining room in the evening. The living room has a southern exposure.

Other advantages are the amount of glass throughout, the

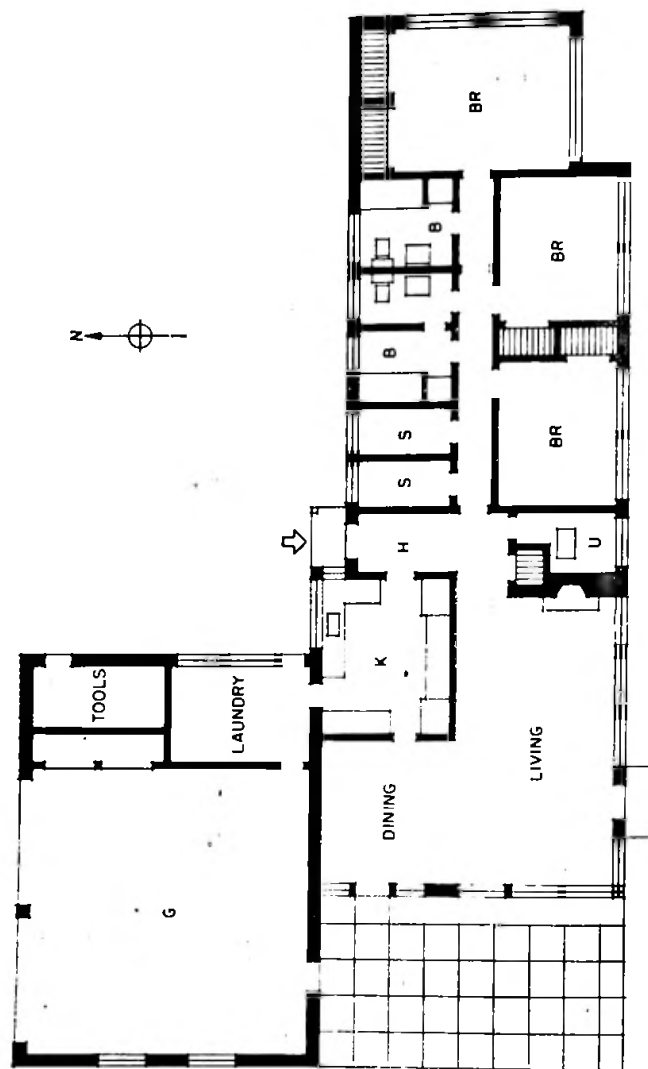
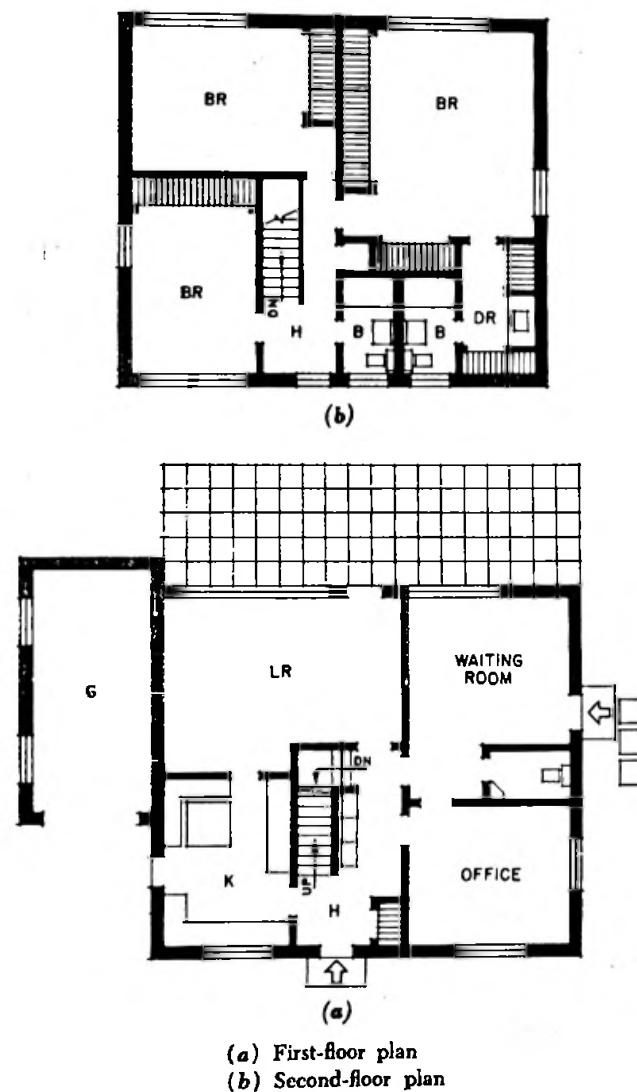


FIG. 50. L-SHAPED PLAN WITH SATISFACTORY CIRCULATION AND ORIENTATION



(a) First-floor plan
 (b) Second-floor plan
 FIG. 51. HOUSE AND OFFICE

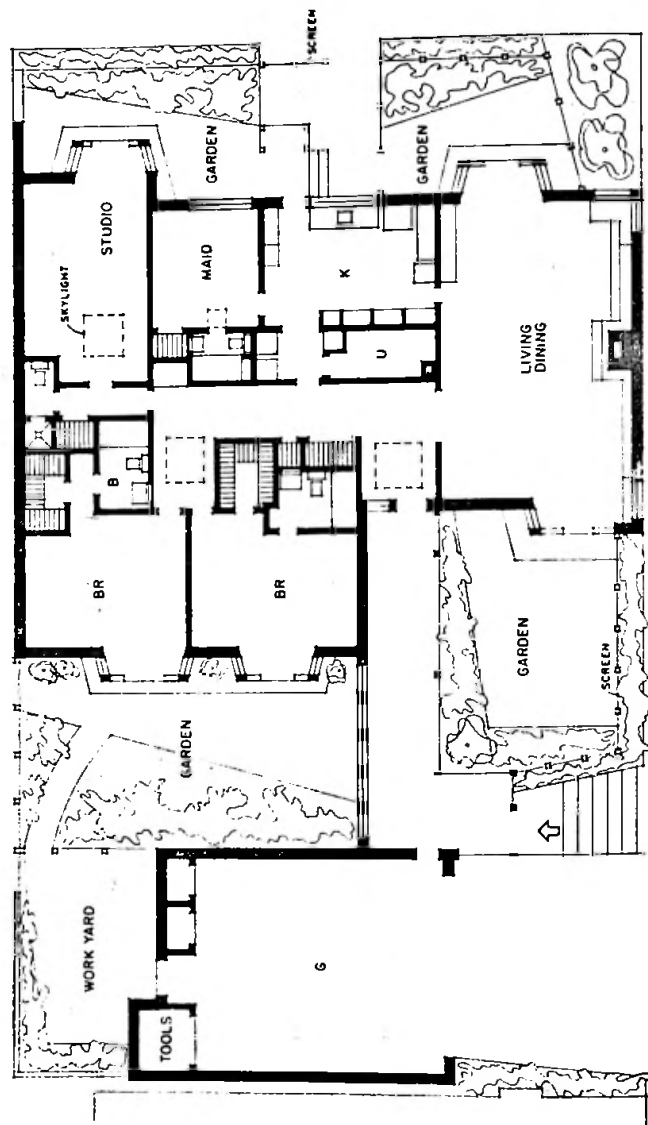


FIG. 52. CITY HOUSE ON CORNER LOT

adequately sized rooms, the private bath for the master bed room, and the multiple-use bathroom for other bedrooms.

House and Office

54. If you are a doctor, lawyer, artist, architect, or engineer, you may require a house with a room provided for an office. The box type plans shown in Fig. 51, (a) and (b), are for a two-story house with a small office and waiting room.

There are many commendable things about these plans. The front vestibule provides access not only to the waiting room and office but also to the kitchen, living room, upstairs sleeping quarters, and downstairs recreation room.

The office itself is small and is intended as an evening office rather than a full-time affair. It can be readily converted to a study. The waiting room with a small toilet room could easily become a guest room.

A study of the upstairs shows that the bedrooms are all of fair size with adequate closet space. The upstairs hall has been kept to a minimum.

City House on Corner Lot

55. The corner lot has the advantage of having unrestricted light and air on the two sides. On such a lot the garage can be placed at the rear with access to the side street, which allows the house to be developed along the main street. Such a house is shown in the irregular L-shaped plan of Fig. 52.

Notice that the house has been built on the property line opposite the side street. This is not allowed by the zoning laws in some cities. Also on this lot, which is comparatively small, notice how by the use of fences and planting the lot has been utilized for outdoor living; each of the main areas of the house is provided with its separate garden.

The importance of planning for total use of property becomes apparent when you consider the disadvantages of plans which ignore outdoor areas. If usable outdoor areas are ac-

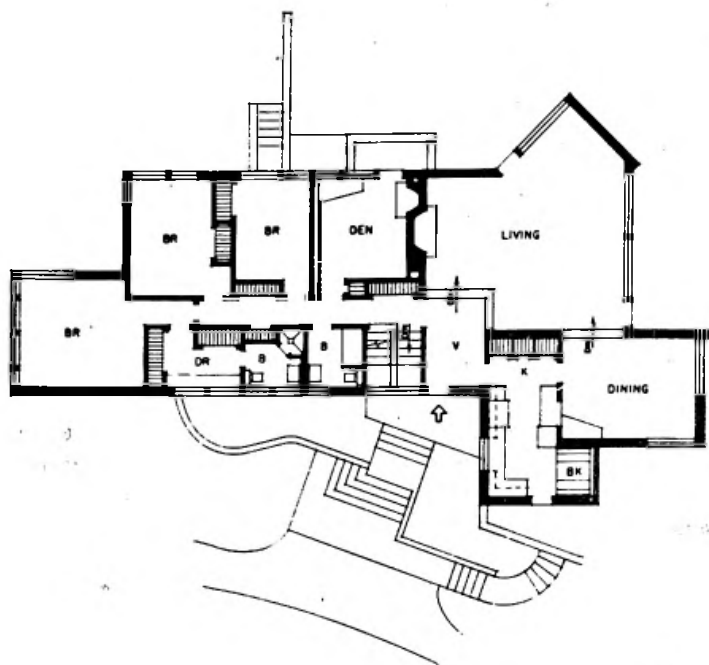


FIG. 53. T-SHAPED PLAN ON SLOPING LOT

cessible only through the service porch or other such devious means, they cannot be used as integral parts of your house.

T-Shaped House

56. The first-floor plan of a T-shaped house is shown in Fig. 53. The plan, with its various terraces, shows that the house is on a sloping lot. The sleeping, work, and living areas in this house are well arranged and are accessible from the front vestibule. The stairs in the front vestibule lead to the basement, which contains recreation, laundry, and storage rooms. The living room of this house demonstrates the fact that a room may be irregularly shaped but still be very satisfactory. Notice that the living room is sunk, being two risers below the normal level of the first floor.

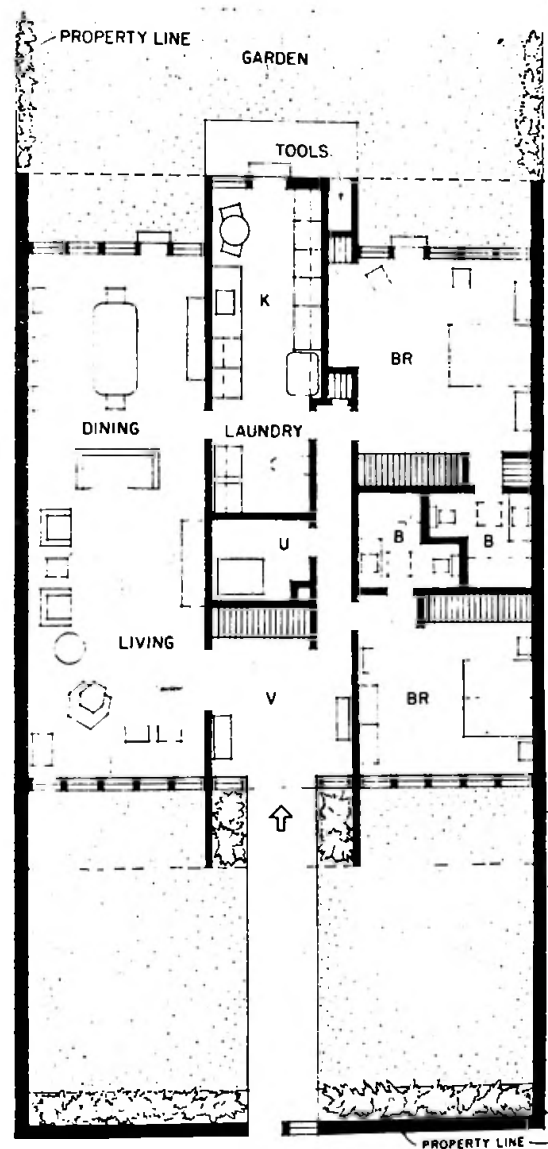


FIG. 54. A WALLED-IN HOUSE

A Walled-In House

57. The rectangular plan for a walled-in house is shown in Fig. 54. This house presents no windows to the exterior of the property at all; its windows open only to the two walled gardens within the enclosure. This type of solution might suggest itself in a neighborhood where the house is surrounded on three sides by neighbors' houses and backyards with no outlook and where privacy is desired.

In this plan the interior baths and part of the kitchen are lighted by skylights

House with Patio

58. The concept of building a house with windows on all four sides and with the principal rooms facing the street comes from the tradition of the English manor house set in the middle of a great park with the park itself surrounded by fences or walls. Most American homes have been built on this principle, ignoring for the most part the Mediterranean concept of having a blank wall to the street, building the side and rear walls on the property line, and having a great open court in the middle which provides sound as well as visual privacy from the neighbors.

In Fig. 55 is shown the rectangular plan for a house with an open court or patio. In this plan the front and side walls are kept as blank as possible; light and air are obtained from the court and from the rear private garden. This plan provides complete privacy from neighbors and from passers-by.

A Split-Level House

59. In Fig. 56 is shown a plan of a split-level house. The living area is on the first floor; the sleeping area is on the upper floor. The garage and utility rooms are in the basement.

The plan is basically good. The main areas are well located. The circulation is good in most respects. The rooms are adequate in size. Access from the front door to

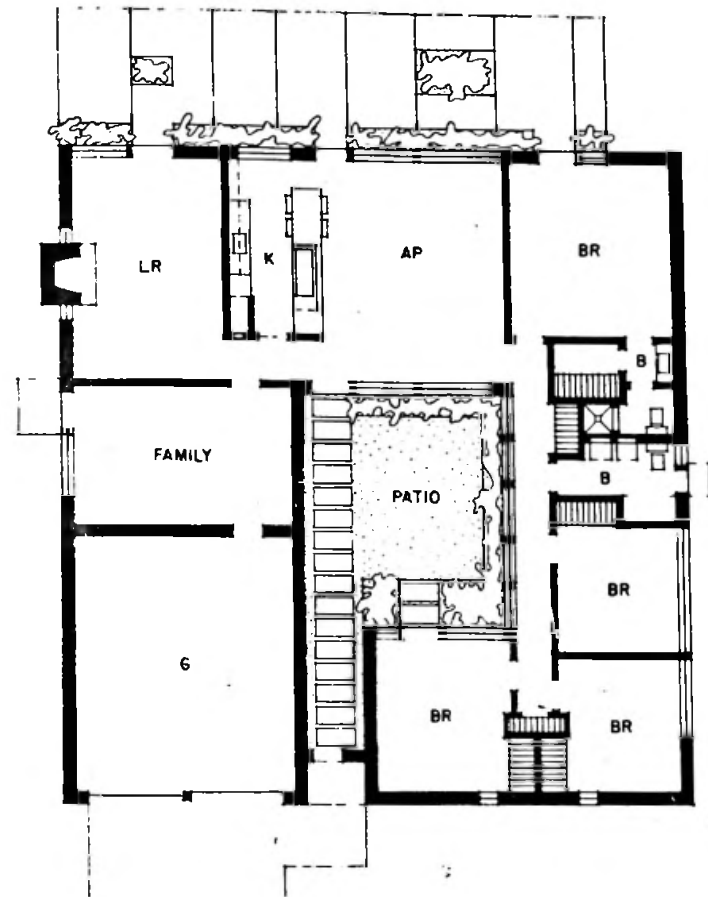


FIG. 55. HOUSE WITH PATIO

the kitchen can be had without passing through the living room. The main bath and the kitchen are back to back.

But the plan also has its disadvantages. The service entrance is through the dining room. The living room floor is one step below the dining room and the hall. The sunken living room always has a certain appeal, but a single step is dangerous. The front corner is too valuable a location for the bathroom.

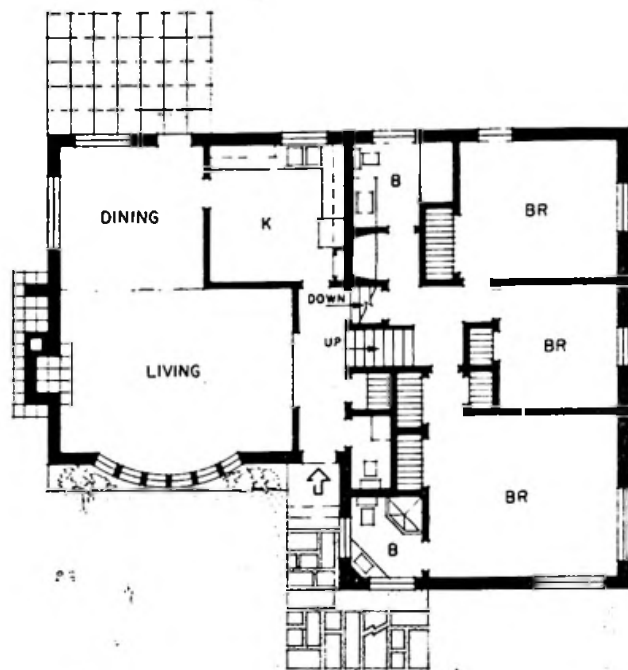


FIG. 56. SPLIT-LEVEL HOUSE

House on Sharply Rising Ground

60. While the split-level house is suited to slightly sloping ground, it may not provide the solution for ground that has a decided slope, as, for example, a hillside site. On such a site, the grade may place the first floor at approximately grade level on one side of the house and the basement at grade level on the other side. This produces a house in which one wall of the basement is entirely out of the ground. Light and air may be brought into such a basement, making it livable and ideally suitable for a laundry, recreation room, and extra bedroom. The plans for such a house are shown in Figs. 57 and 58.

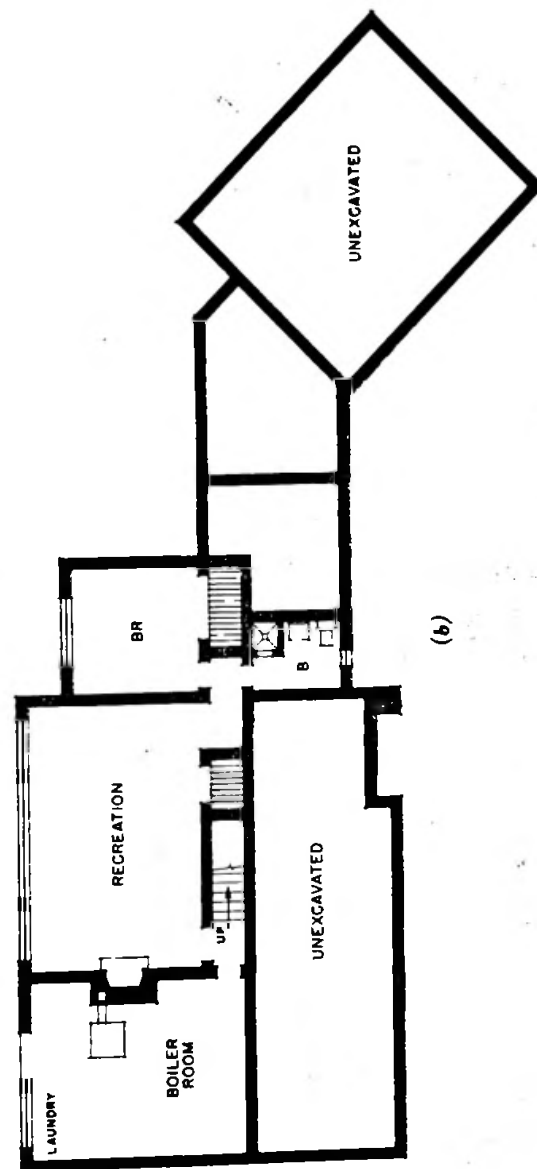


FIG. 57. BASEMENT PLAN FOR HOUSE ON SHARPLY RISING GROUND

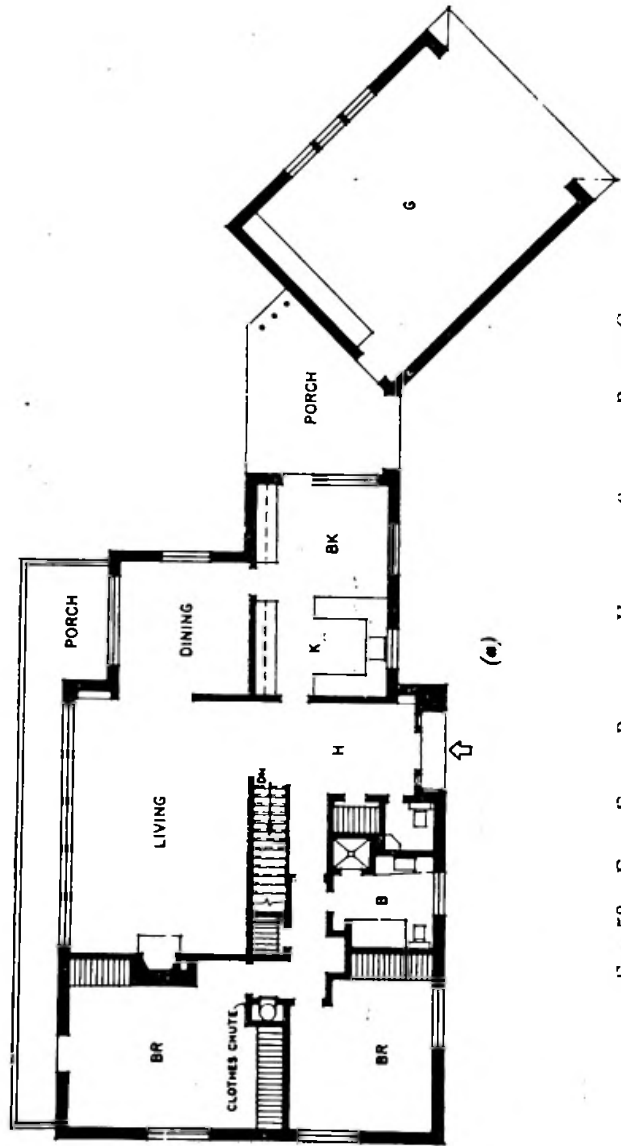


FIG. 58. FIRST-FLOOR PLAN FOR HOUSE ON SHARPLY RISING GROUND

Summary

61. In the preceding plans you have seen that, regardless of type, certain factors are fundamental in determining the livability of a plan. Among these factors are circulation, the placing of the main areas of the house, the location of the kitchen as the control center of the house, orientation, and the relation of the house to outdoor areas.

This brings us to the end of Part 2 of *House Planning*. You have learned about the general considerations that affect house planning, about some of the factors that affect appearance, and about the major types of plans.

You have learned that each type of plan has its endless variations. You have learned that good plans are usually simple, that in such plans the basic problems of house planning have been solved in a direct manner.

You have learned that what is most important in a house is the space within.

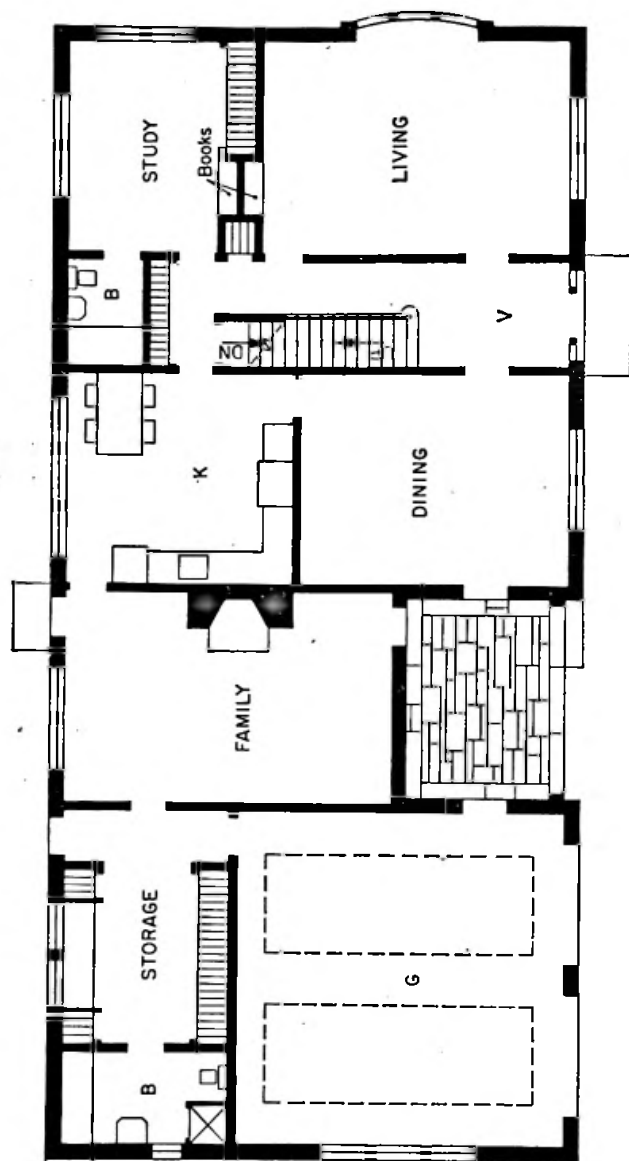


FIG. 59. FIRST FLOOR PLAN, MODIFIED TRADITIONAL HOUSE

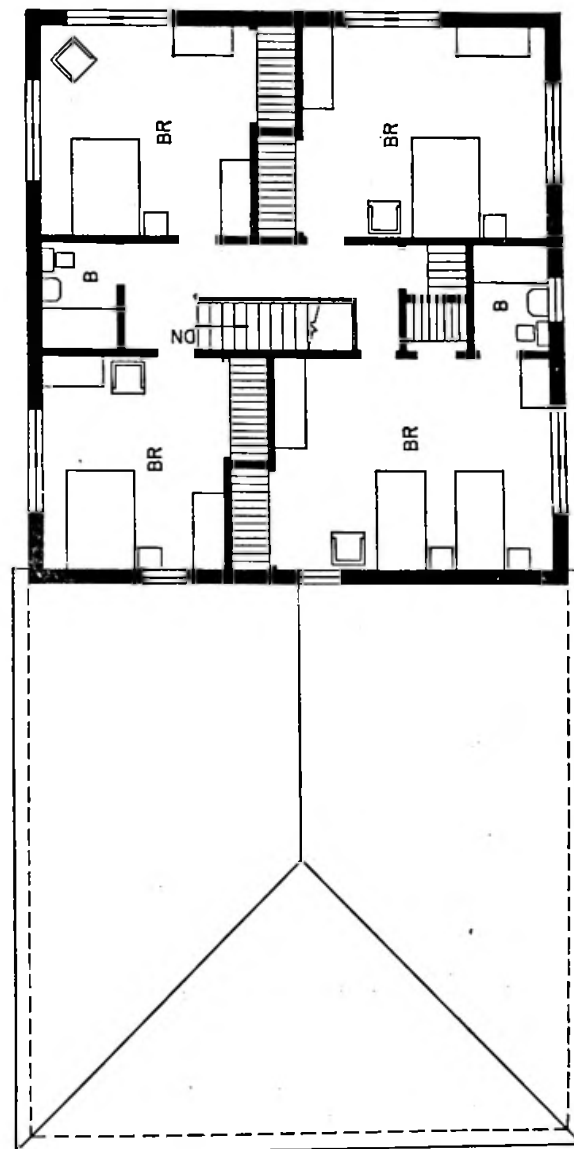


FIG. 60. SECOND FLOOR PLAN, MODIFIED TRADITIONAL HOUSE

Modified Traditional House

61. In Fig. 42 and in Art. 47 we studied the traditional two-story house with a center hall. Figs. 59 and 60 show how this traditional plan may be modified to meet contemporary needs.

The house shown in Fig. 59 has been made much larger than that shown in Fig. 42 by the addition of a family room, 2-car garage and a study which can also serve as a guest room. On the second floor the larger house accommodates four bedrooms and two baths.

Summary

62. In the preceding plans you have seen that, regardless of type, certain factors are fundamental in determining the livability of a plan. Among these factors are circulation, the placing of the main areas of the house, the location of the kitchen as the control center of the house, orientation, and the relation of the indoor areas to outdoor areas.

This brings us to the end of Part 2 of *House Planning*. You have learned about the general considerations that affect house planning, about some of the factors that affect appearance, and about the major types of plans.

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House Planning

Serial 6442B-1

PART 2

Edition 1

Examination Questions

Notice to Students.—Study this instruction text thoroughly before you answer the following questions. Read each question carefully and be sure you understand it; then write the best answer you can. You will profit most if you answer the questions in your own words. When you complete your work, examine it closely, correct all the errors you can find, and see that every question is answered; then mail your work to us. **DO NOT HOLD IT** until another examination is ready.

1. a) List three important factors that you would consider when designing the exterior of your house.
b) List briefly the objectives that you would strive for in the interior design of your house.
2. List six general objectives that you would keep in mind when planning a house.
3. In the development of a house and site where humidity is a problem what type of planting would you use?
4. Problem in design. Two simple sketches will be required. They may be drawn on quadrille-ruled paper, which you may purchase or make yourself, or they may be drawn on plain transparent bond paper. If you prepare your own ruled paper, you must use care in making the squares equal, and the lines should be drawn faintly in ink. The squares should be about 6 to the inch, or $\frac{1}{4}$ " x $\frac{1}{4}$ ".

A garage for two cars should be provided, and it should be connected with the house. The entire plot is to be laid out with the various outdoor-living areas indicated.

Two sketches will be required. One sketch will show the layout of the entire property showing how you would utilize the outdoor areas. If submitted on transparent bond paper this sketch should be drawn at the scale of $\frac{1}{32}'' = 1'0''$. The other will show a first-floor plan, a front elevation, and a side elevation and if submitted on transparent bond paper this sketch should be drawn at the scale of $\frac{1}{8}'' = 1'0''$. The first-floor plan is to indicate furniture. The drawings may be rendered if desired. The sheets are to be marked at the top, "Exercise in House Planning." Your name, your class letters and number, the date of completion, and the words "Examination Question 4" are to be lettered on the bottom edge of the sheet. Send in the two drawings, together with the answers to the other examination questions.

International Correspondence
Schools, Scranton, Pa.
Architecture home study
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