Functional Diagrams

INTRODUCTION

After gaining an understanding of both the client's needs and the site, the designer possesses two general sets of information. The first set stems from meeting with the clients and is a written list of elements and spaces required to satisfy the client's needs and expectations. The second set of information is the site inventory and analysis that is recorded with written notes and graphic symbols on a copy of the base map. The written portions of these two sets of information are combined in the final step of the research and preparation phase to establish the design program.

With the research and preparation phase completed, the landscape designer is ready to start designing. To do this, an effective method is needed for combining the written design program information with the specific conditions of the site. This is done with functional diagrams. This chapter discusses what functional diagrams are, their purpose and significance in the design process, a method for preparing them, and design qualities that can be studied by using functional diagrams.

DEFINITION AND PURPOSE

Functional diagrams are freehand drawings that use bubbles and diagrammatic symbols to graphically depict the project elements of a design as they relate to each other and to the specific conditions of the site. While the site inventory and analysis are prepared with the aid of a base map, functional diagrams are developed using the site analysis and the base sheet. The purpose of functional diagrams is to create a broad-brush, conceptual layout of the proposed design, based upon function. They provide the general organizational structure for a design similar to what an outline does for a written report. Functional diagrams can be considered the underlying foundation of a design. Later phases of the design process are based on these diagrams.

Functional diagrams are used to study various factors that deal with the function and general layout of the design. At this time, less thought is given to specific appearance or aesthetics, which is done later in the design process. Designers can communicate with other designers and clients concerning the overall functional organization of the site with the graphic language of functional diagrams. This graphic language allows for quick expression of ideas. It is common for designers to initially formulate a number of mental images or preconceived ideas about a design. While some of these ideas might be specific, others are more general and need to be quickly transferred to paper to allow the designer to study them. The sooner these ideas are drawn on paper, the easier it is to evaluate them. The graphic vocabulary of functional diagrams is invaluable tool for this much needed quick expression. And because functional diagrams are freehand and general in their graphic style, they can be revised or altered rather easily. This encourages creativity by studying alternatives as one searches for an appropriate design solution.

IMPORTANCE OF FUNCTIONAL DIAGRAMS

Functional diagrams are crucial to the design process because they can (1) establish a sound functional basis for the design solution, (2) encourage the designer to remain general about the appearance of the design, (3) encourage the designer to explore alternatives, and (4) provide opportunities for the designer to go beyond preconceived ideas.

Establishing a Sound Functional Basis

A functional diagram that has been carefully thought out will provide a proper basis for the remaining design phases. The importance of this phase cannot be overstressed. Decisions made about a design at this early stage are apt to be carried throughout the remainder of the design process. Thus, it is critical that decisions made during this step be sound ones. If they are not, they will be continually revealed in later phases of the design project. Keep in mind that the appearance of a design as reflected in form, materials, and material patterns cannot overcome functional deficiencies. A design must first and foremost have a solid functional foundation.

Staying General

One of the most common faults of inexperienced designers is the inclination to begin a design project by drawing forms and design elements in the plan that are too specific (Figure 8-1). Novice designers frequently make the design look "real" as quickly as possible. For example, the edges of terraces, decks, walls, and planting beds are much too often given a highly defined form too quickly without sufficient thought toward the functions. Similarly, materials and their patterns are often drawn in too much detail without proper understanding of their location or intended function. Too much detail too soon is apt to cause the designer to overlook underlying functional relationships.

Another reason for studying a design in a general fashion before specifics are considered is the factor of time. Since changes are inevitable during the process of design, being too specific too soon will result in time-consuming changes made in later design phases. The more detailed a plan is, the more time it takes to redraw it when changes need to be made. Certainly all phases of design involve changes. But in the initial phases, general functional organization can change rather quickly and effortlessly when drawn appropriately with the graphic language of functional diagrams.

182

Functional Diagrams

183
The spaces in a functional diagram should be drawn as freehand bubbles, not as exact forms.

**Studying Alternatives**

It is obvious that a designer will accumulate a substantial mental library of ideas over time as design experience is gained. The more exposure one has to designs, whether it be through photographs or actual experience, the more ideas one has to draw on for future reference. This mental file of ideas has tremendous value; for it enables the designer to think of different options for any given project. These options (alternatives) are very important to the growth of designers. Growth occurs when a designer tries new ideas. Studying alternatives during design phases will prove to be valuable for formulating new ideas. Functional diagrams encourage the use of alternatives because of their quick and simple graphic character.

**Going Beyond Preconceived Ideas**

A mental library of ideas available for future reference is developed by every designer through experience and exposure. Owing to the wealth of this stored visual information, it is common to have preconceived ideas for a design. Sometimes these preconceived ideas are so strong that a solution can be imagined quite easily. This insight can be exciting for a designer but it should be handled sensitively so it will contribute positively to the designer’s growth. Too often preconceived ideas are the only ones that are considered. We are not suggesting that these insights be ignored, but keep in mind that the preconceived idea is only one idea and it is just the first one. Although the first idea may be a good one, the designer will never know if it is better than other ideas unless other ideas are explored. A designer should not accept the first idea without examining alternatives. Once this is done, a better design solution usually emerges.

**FUNCTIONAL DIAGRAMS**

To begin preparing a functional diagram, the designer should have a copy of the design program, site analysis, and base sheet. Each of these items will be used to develop functional diagrams. The designer should also have a roll of tracing paper and a supply of soft pencils. The use of drafting equipment (t-squares, triangles, templates, etc.) are not necessary since everything will be drawn freehand during this step.
### Table 8-1: Functional Size Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Area/Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Person standing alone</td>
<td>5 sq ft</td>
</tr>
<tr>
<td>2. People standing in conversation</td>
<td>8 sq ft/person</td>
</tr>
<tr>
<td>3. Sitting</td>
<td></td>
</tr>
<tr>
<td>a. Single aluminum lawn chair: $2' \times 2'$</td>
<td></td>
</tr>
<tr>
<td>b. Single wood deck chair with cushions: $2' - 6'' \times 2' - 6''$</td>
<td></td>
</tr>
<tr>
<td>c. Groups of chairs:</td>
<td></td>
</tr>
<tr>
<td>Two chairs</td>
<td></td>
</tr>
<tr>
<td>Four chairs</td>
<td></td>
</tr>
<tr>
<td>Two chairs and couch</td>
<td></td>
</tr>
<tr>
<td>d. Bench: seat depth: 18''</td>
<td></td>
</tr>
<tr>
<td>e. Bench arrangement for conversation</td>
<td></td>
</tr>
<tr>
<td>Intimate</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>f. Single aluminum lounge chair (for sitting or sun bathing): $2' \times 6'$</td>
<td></td>
</tr>
</tbody>
</table>

### Diagrams

- **g. Groups of lounge chairs**
  - Two lounge chairs
  - Three lounge chairs and coffee table

- **4. Eating**
  - a. Two people
    - Chair by itself: $2' \times 2'$
    - Table by itself: $2' \times 2'$
    - Minimum area needed: $2' - 6'' \times 5'$
    - Preferred area:
  - b. Four people
    - Chair by itself: $2' \times 2'$
    - Table by itself: $2' - 6'' \times 2' - 6''$
    - Minimum area needed: $6' \times 6'$
    - Preferred area:
  - c. Six people (picnic table)
    - Bench by itself: $1' \times 5'$
    - Table by itself: $2' - 6'' \times 5'$
    - Minimum area needed: $5' \times 6'$
    - Preferred area:
d. Eight people (picnic area)
   Bench by itself: 1' x 5'
   Table by itself: 2' - 6' x 5'
   Minimum area needed: 5' x 7' - 6'
   Preferred area: 8' x 6'

5. Cooking and food preparation
   a. Grill by itself: 2' x 2'
   b. Counter top: 2' x 4'
   c. Overall area needed: 20 sq ft

6. Recreation
   a. Badminton (doubles): 17' x 39' (playing surface)
      20' x 44' (overall area)
   b. Croquet: 30' x 85' (playing surface)
      50' x 95' (overall area)
   c. Frisbee, baseball, football throwing: 15' x 40'
   d. Horseshoes: stakes 40' apart
      10' x 30' (overall area)
   e. Tennis (doubles): 30' x 78' (playing surface)
      60' x 120' (overall area)
   f. Volleyball: 30' x 60' (playing surface)
      45' x 80' (overall area)
   g. Backyard basketball: 25' x 25' minimum
   h. Court basketball: 42' x 60'
   i. Swimming
      Average-sized pool: 18' x 36' (without deck)
      Need between 24 and 36 sq ft/swimmer
      Lap pool: 10' x 60'
      Spa/Jacuzzi: 5' x 5'
   j. Sand box: 4' x 4'
   k. Swing set: 10' x 15'

7. Storage
   a. Garbage cans: 2' diameter
   b. Two garbage cans: 2' x 6'
   c. Cord of wood: 4' x 4' x 8'

8. Parking
   a. Single car: 9' x 18'

just don't fit. If this happens, then there needs to be a change in the design program after consulting with the clients.

Location

With a firm comprehension of the size needed for required spaces and elements, the designer is now ready to start actually drawing a functional diagram. The designer should first place a clean sheet of tracing paper on top of the site analysis. This should be done so that the observations and recommendations of the site analysis can be continually referred to during the first tries at placing the various spaces and elements on the site. With the site analysis serving as a base, it is more likely the designer will keep the site factors in mind while organizing the functional diagram.

The site location of each of the required spaces and elements should be based on functional relationships, available space, and existing site conditions.

Functional Relationships. Each space and element should be located on the site so that it is compatible with the functions of adjacent spaces and elements. For example, the designer might ask: Where could the living/entertaining space be placed? Could it be located near the play area? Or could it be located near the outdoor eating space? If the outdoor living/entertaining space is placed here, what might go on the west side of it? Questions should also be asked about the relationship between indoor and outdoor. For instance, where could the outside eating space be placed in relation to the kitchen?

Of course, functions that work together or depend on each other should be placed next to or near each other, while functions that are incompatible should be separated. Some decisions about the functional relationship between spaces and elements will be obvious while others need to be studied before decisions are made. The designer should try alternative relationships among the spaces (Figure 8-3). Quite frequently, new functional relationships are discovered through trial and error. The designer should not be afraid to make mistakes in this early phase of the design process. In most design professions, it is common to put ideas on paper that are not perfect or completely worked out during this conceptual phase. This is a better approach than trying to work everything out in one's head before drawing it.

Available Space. The decision as to where to place the various spaces and elements is also dependent on the availability of space. Each space and element must fit its selected location. Problems arise when a space is too large for a particular area of the site. This situation may require a reorganization of the functional diagram, a reduction of the size of the space or element, or the elimination of the space or element from the design.

Existing Site Conditions. Each space and element should be situated on the site so that it relates properly to the existing site conditions and the site analysis. For example, an outdoor living and entertaining space ideally should be located in a place that has partial shade, views of attractive site features, with direct access to the inside of the house. The vegetable garden should be placed on well-drained

![FIGURE 8-3](image)

The designer should explore alternative functional relationships among the spaces.
and fertile soil, in mostly full sunlight, and near a water source. And there are different ideal site conditions for other spaces. To identify and understand these conditions more clearly, the designer may want to make a list of the ideal site conditions for each space and element that is to be located on the site.

After identifying the ideal site conditions required for each space or element, the designer can proceed to locate the spaces and elements on the site where these ideal conditions exist. This sounds simple in theory and often is in practice. However, there are times when some or all of the ideal conditions desired for a required space or element do not exist on the site. For example, there may not be a place on the site with partial shade, attractive views, and direct access for the outdoor living and entertaining space. In this situation, the designer should attempt to place the space or element where as many of the ideal conditions as possible are located without jeopardizing the site or the ability of the space to function properly. Or, the designer may propose to carefully modify the existing site so it will serve as a proper setting for the space or element. For example, shade trees or attractive features could be added to the site if these conditions do not exist for the outdoor living and entertaining space.

Proportion

Another factor that should be taken into account when drawing the functional diagram is proportion. The proportion of an outdoor space is the relative relationship between length and width. One common tendency in this step is to draw most spaces as simple circular bubbles (Figure 8-4). This type of diagram makes each outdoor space similar to a building where every room is a perfect square. Of course, this would not be appropriate.

![Diagram](image)

**FUNCTIONAL DIAGRAM**

Each outdoor room needs special consideration based on the intended use of that space. Proportions should vary as intended uses vary. Generally, spaces can have equal plan proportions or unequal plan proportions.

**Equal Plan Proportions.** A space that has equal plan proportions is one in which the length and width are about the same (Figure 8-5). Such a space lacks an implication of direction and therefore is well suited for collection, stopping, or gathering. A space of equal plan proportions can be inward oriented when proper enclosure exists (Figure 8-6). This type of space is often suitable for sitting and for conversation among individuals in a group. The outside entry foyer where people stop and gather before entering or after leaving the house is another space where equal plan proportions are appropriate (Figure 8-7).
Unequal Plan Proportions. A space with unequal proportions (Figure 8-8) is one in which length is greater than width or vice versa. Outdoor rooms with such proportions are like hallways in a building and suggest movement due to their long, narrow quality (Figure 8-9). Long enclosed spaces are also appropriate for directing views in the landscape toward their ends or terminus points (Figure 8-10). While spaces with unequal plan proportions are good for circulation, they are not suited for gathering because such activity gets in the way of movement through the space. And it is difficult to arrange furniture for conversation in long narrow spaces; such an arrangement looks similar to a subway car (the left side of Figure 8-11). It is easier for people to talk to each other when they face each other (the right side of Figure 8-11). However, long spaces are good for arrangement of furniture for looking out at other points in the landscape, such as from a porch or veranda (Figure 8-12).

Configuration

Configuration is the general shape of a space. For example, the configuration of a space may be simple, L-shaped, or complex. However, configuration does not refer to the specific form of a space, such as whether an area is round, square, curved, or angled. Configuration is similar to proportion in that it is concerned

FIGURE 8-7
The outside entry foyer may have equal plan proportions to suggest stopping and gathering.

FIGURE 8-8
Length and width are not similar in a space with unequal plan proportions.

FIGURE 8-9
Spaces with unequal plan proportions are like hallways and suggest movement.

FIGURE 8-10
Spaces with unequal plan proportions tend to direct attention to their ends when the sides are enclosed.

Diagram

Plan

Perspective
with the outline of a space, although in more detail. Some basic plan configurations are described and illustrated in the following paragraphs.

Simple Configuration. The generalized shape of a space can have a simple configuration (Figure 8-13). A space withthis configuration has a strong sense of unity because the entire area can be seen easily and completely at one time from any location. A simple configuration is most suitable for gathering spaces like an eating area or an outdoor entry foyer.

"L-shaped" Configuration. As the name implies, a space with this configuration bends around a corner (Figure 8-14) and establishes two smaller subspaces in the legs of the "L" while still maintaining a sense of connection between them. A space with an "L" configuration can offer a sense of intrigue because each subspace may not be entirely apparent as viewed from the other subspace. A feeling of mystery is created by what lies hidden around the corner (left side of Figure 8-15). The inside corner is a strategic place that can be seen easily from all locations within the "L" configuration and therefore is a potential place for a focal point (right side of Figure 8-15). Examples of L-shaped spaces might include a major entertaining space with a small seating area to the side (left side of Figure 8-16), or a wood deck with an eating area and an observation area adjacent to it (right side of Figure 8-16).

Complex Configuration. A third possible configuration for outdoor space is composed of an edge that has many variations in its alignment (Figure 8-17). These edge variations or "pushes and pulls" add variety to the space they surround. Each "push" away from the space creates a small subspace and each "pull" provides some separation between the subspaces. When this is done with an outdoor entertaining space, small pockets of space (the "pushes") for small intimate groupings are created around the perimeter of the central space (Figure 8-18). Another example of a complex configuration is a wood deck designed to provide several different and unique views into the surrounding landscape (Figure 8-19).
Internal Subdivision

Another important consideration of the functional diagram to address is the internal organization of each space. This step gives the designer the opportunity to understand more clearly how each space is to function within itself. One example of this is provided in Figure 8–20. Here the internal organization of an outdoor living and entertaining space was subdivided into more specific use areas. A conversation space (space "A" on the diagram), quiet sitting space (space "B"), and a sunning space (space "C") were all identified within the living and entertaining space. The same consideration is given to the planting areas, which can be divided into more specific plant types according to their size and type of foliage (Figure 8–21). However, no shrubs or other small-scale plant materials are shown or studied individually until the preliminary design phase is reached.

Edges

The outside edge around a space can be established in different ways. It may be defined by a change of materials on the ground plane, slopes or changes in elevation, plant materials, walls, fences, and/or buildings. In turn, spatial edges may have a variety of characters based on the transparency of the edge. Thus, the line drawn around a bubble in the functional diagram can be elaborated to suggest transparency characteristics.
A complex configuration can provide perimeter subspaces with views directed out into the surrounding landscape.

The spaces of a functional diagram can be subdivided into more specific functions.

Transparency. Transparency is the degree of opaqueness of a spatial edge, which influences how well a person can see. Three types of transparency are (1) solid, (2) semitransparent, and (3) transparent (Figure 8-22).

1. Solid edges are those that cannot be seen through like a stone wall, a wood fence, or a dense mass of evergreen trees. This type of edge would be used where complete separation or privacy is desired.
2. Semi-transparent edges are those that can be partially seen through, such as a wood lattice, a louvered fence, a panel of smoked plexiglass, or a loosely foliated hedge. This type of edge provides a sense of spatial enclosure while maintaining some degree of openness.
3. Transparent edges are completely open, providing an unobstructed view into a desired area from the space. This type of edge could be created by a wall of glass or by the lack of a vertical plane.
FIGURE 8-23
Entry and exit points as well as through circulation should be shown on a functional diagram.

Circulation

Circulation is concerned with the access points of spaces along with a generalized pattern of movement through the spaces. The points of entry and exit can be located on the diagram by drawing simple arrows at the desired locations (Figure 8-23). Here, the arrows indicate movement to and from the space. In addition to access, the designer should also study and determine the most significant paths of movement through those spaces where continuous circulation is planned. This can be designated with simple dashed lines and arrows pointing in the direction of movement. This should be done on the basis of the function of that space and address only the major routes of movement, not every possible path of movement.

In considering circulation, the designer should ask several questions. Should the circulation occur through the middle of the space, around the outside edges of the space, or in a direct line from the entry to the exit, or should it casually meander throughout the space? The designer should study alternatives for circulation and decide which is most compatible with the intended function of the space (Figure 8-24).

Not only is the location of the circulation examined, but its intensity and character are also considered. As indicated before, the graphic symbols used to represent circulation are dashed lines and arrows. The specific type of arrow drawn can suggest, among other qualities, the intensity and character of the circulation.

Intensity. The intensity of circulation is a factor of the frequency and importance of a circulation path. Two general types of circulation intensity are primary circulation and secondary circulation.

1. Primary circulation. This type of circulation is of major importance and occurs with moderate to high frequency. Examples of primary circulation include the front entry walk between the driveway and the front door or the connection from the inside living room through the exterior living and entertainment space into the lawn area.

2. Secondary circulation. This type of circulation is of less importance and occurs with lower frequency in comparison to primary circulation. A side route around the house or a casual garden path are examples of secondary circulation. Figure 8-25 and Figure 8-26 show graphic examples of primary and secondary circulation, respectively.

Views

Views are another factor that should be studied in a functional diagram. What a person sees or doesn’t see from a space or a particular point within a space is important to the overall organization and experience of a design. During the development of a functional diagram, the designer concentrates on those views that are most significant to the major spaces of the design. The different types of views studied are (1) panoramic views or vistas, (2) concentrated or focused views, and (3) blocked views.
Panoramic View or Vista. This type of view takes in a wide area and often emphasizes a view in the landscape that is some distance from the viewer. It is an encompassing view. A view to a distant mountain range, to the valley below, or out onto an adjoining golf course are a few examples. When these views extend off the site to adjoining or distant points in the landscape, they are referred to as borrowed landscapes. These are typically good views that a designer attempts to enframe or, at the very least, leave unobstructed so they become part of the design's visual experience. Figure 8-27 shows graphic examples of a panoramic view.

Concentrated or Focused View. This type of view focuses on a particular point in the landscape, such as a piece of sculpture, a unique tree, or a bed of showy flowers. A concentrated view may be to a point either on or off the site. Figure 8-28 shows how a concentrated view might be shown in a functional diagram.

Blocked View. This type of view is an undesirable view that needs to be screened. High plant materials, walls, fences, and so on can all be used to block un-sightly views. Graphic examples for indicating blocked views are illustrated in Figure 8-29.

Focal Point

Focal points, closely associated with views, are visual accents or elements that are unique and stand out in contrast to their surroundings, such as a gnarled tree, a water feature, attractive spring flowers, a piece of sculpture, or a large tree. It is important to plan the location of focal points in functional diagrams so they can be coordinated with views. Focal points should be strategically placed to high-light special points of the landscape. They should not be overused and scattered indiscriminately throughout an area as this will create a chaotic appearance requiring the eye to look at too many different accents. A few graphic examples for focal points are shown in Figure 8-30.

Elevation Changes

Elevation changes should also be studied during the development of functional diagrams. It is during this stage that the designer should start thinking about the third dimension of the ground plane. The designer might ask: “Should one have to go up from the lawn area to the outside entertaining space, or should the two spaces be at the same elevation? If there is to be a change, about how much should it be? One foot? Three feet?”

One way elevational changes between spaces can be expressed in a diagram is by means of spot grades (Figure 8-31). This method allows the designer to determine what space is higher than another and by approximately how much. Another way of indicating elevation change in the functional diagram is by lines that represent step locations along a circulation path (Figure 8-32).

As can be seen from the preceding paragraphs, there are a number of factors of design organization that need to be thought about during the functional diagram phase. It is not always easy to study all these factors together, but it is essential to do so. It is necessary to examine each of these factors in association with the others so the overall design can function in a logical, well-planned, and coordinated manner. The more study given to the organization of a design at this time in the design process, the easier the design decisions become in subsequent phases.

FUNCTIONAL DIAGRAM SUMMARY

As stated earlier, the designer should study the different design factors when preparing a functional diagram. Each of these factors influences the others and
should be studied in concert with one another. When the functional diagram is completed, the entire site area should be covered with bubbles and other graphic symbols representing all the necessary spaces and elements of the design (Figure 8-33). There should be no blank areas or “holes” in the layout (Figure 8-34). When this occurs, it indicates the designer has not made a decision about the use of this area of the site, and it should be determined what will occur there.

Another suggestion for this step of the design process is to remember to use alternatives. In fact, it is advisable to try two or three quickly developed alternatives for the overall site organization. Alternatives encourage the designer to be creative about organizing the site functions and to perhaps discover a better way of solving a problem than was initially apparent. With a series of alternatives, the designer is better able to pick the one alternative or combination of alternatives that is best for further elaboration in the next step of design.

FUNCTIONAL DIAGRAMS FOR THE DUNCAN RESIDENCE

To better illustrate the thought process involved in the preparation of functional diagrams, let us return to the Duncan residence. Having completed all the steps of the research and preparation phase, the designer is now ready to prepare a series of functional diagrams for the Duncan residence.

Figure 8-35 shows the first attempt to organize all the major spaces and elements for the Duncan residence in a functional diagram. The diagram shows a widened entrance walk that extends some distance along the driveway to permit better recognition of the main entrance and easy access from the driveway. The sitting space is placed adjacent to, but separate from, the entrance walk so circulation will not disturb or divide the space. Planting areas are woven in and

FIGURE 8-31
Elevation changes between spaces can be expressed with spot grades.

FIGURE 8-32
Lines can be used within a circulation path to graphically indicate general step locations.

Yes!

FIGURE 8-33
The entire site area should be covered with bubbles and other symbols in a completed functional diagram.

No!

FIGURE 8-34
There should be no blank areas or holes on a completed functional diagram.
around these spaces to help define them and to provide visual interest for a person walking along the entrance walk. The existing Sugar Maple is integrated with this planting.

Secondary circulation has been provided around the east side of the house for access between the driveway and the proposed work/storage space. The work/storage space is located near the side door of the garage for convenience and placement out of view from both the indoor and outdoor living spaces. The west side of the house, by contrast, is left open except for a mass of trees for afternoon shade.

In the backyard, the proposed raised terrace would function as an outdoor eating space near the family room and sitting room. The grill is located to the northeast of this space so smoke from the fire would be blown away from the space (prevailing wind is from the southwest). The outdoor living and entertaining space is placed farther from the house so it can take advantage of views into the rest of the backyard. The eating space is made more private with the suggestion of a privacy fence on the east side of the space, and the living and entertaining space is partially surrounded by plant materials for privacy.

The lawn area in the backyard has been left open and spacious to allow for recreation and games. Some screening on the west, north, and east gives privacy that is now lacking in the backyard. The play area in the northeast portion of the site has been left where it presently exists so it will be very visible for supervision from the house. The existing tree in the northeast corner is also retained and integrated with additional plantings so it will not appear as an isolated element.

Figure 8-36 shows another alternative. In this concept, the sitting space in the front has been integrated with the existing stoop, making one large space rather than two isolated ones. The entrance walk has been separated from the driveway by planting areas to cut down on the visual massiveness of the driveway’s pavement. In addition, a turn-around has been proposed to make it easier to back out of the driveway. Planting occurs on both sides of the driveway near the street to soften and subtly hide the driveway. In the backyard, the outside eating and living/entertaining spaces are located so they function as outdoor extensions of the family room by converting the existing window into a sliding glass door. The play area has been moved so it will not be such an obvious element to look at. It is still located where it can be seen from the outdoor living spaces. And a narrower screen has been suggested along the northern property line so it will not take up as much area of the backyard.

Each of these alternative functional diagrams explores a different way of organizing the required spaces and elements on the site. As in most typical situations, the Duncans and the designer found some of these more appealing than others. After reviewing the two alternative diagrams, the Duncans decided they liked a combination of ideas from the different diagrams. So, the designer took the Duncans’ preferences and produced one more functional diagram, Diagram “C” (Figure 8-37).

The front yard of the Duncan residence in the functional diagram has been given more study. The configuration of the entry foyer/sitting space, entrance walk, and lawn area have been modified. The entry foyer/sitting space has now been subdivided into more specific use areas and the location of the seating has been suggested. The planting areas have also been subdivided to indicate the general location of different types of plants (though no shrubs or ground cover have been shown as individual plants). In addition, study has been given to the relative ground elevation of the various spaces. This functional diagram indicates the entry foyer/sitting space is to be about one foot above the entrance walk. Views and focal points are other factors that now appear on this functional diagram. The same considerations are given to the backyard.
FIGURE 8-36
Functional Diagram "B" for the Duncan residence.

DUNCAN RESIDENCE
4140 WILLOW BEND
EUGENE, OHIO

FUNCTIONAL DIAGRAM - B

FIGURE 8-37
Functional Diagram "C" for the Duncan residence.

DUNCAN RESIDENCE
4140 WILLOW BEND
EUGENE, OHIO

FUNCTIONAL DIAGRAM - C
INTRODUCTION

Chapter 8 discussed how functional diagrams are used to establish the overall functional and spatial organization of a design during the first step of the design phase. The organization of all these factors in a functional diagram furnishes the structure and foundation for the next step of the design process: preliminary design. Preliminary design starts with the functional diagram and ends with an illustrative site plan, which may be supplemented with sections, elevations, and perspectives depicting all the elements of the design in a semirealistic graphic manner. To complete a preliminary design, the designer examines three interrelated factors. The first is careful consideration of the aesthetic organization and appearance of the design based on knowledge and application of three basic design principles: order, unity, and rhythm. These principles help the designer create a visually pleasing design solution.

The second factor, called form composition, is the study of the exact location of all two-dimensional edges and lines of the design. The designer accomplishes this by converting the approximate outline of spaces developed earlier in the functional diagrams to specific two-dimensional forms. This step begins to establish visual style or theme of the design.

The third factor examined in preliminary design is spatial composition. Spatial composition is the design’s third dimension of outdoor rooms that are based on the foundation of the form composition. The designer uses grading (landform), planting, walls/fences, steps, overhead structures, and so on, to complete the total environment of the design during this step.

The objectives of this chapter are to (1) discuss the definition and purpose of a preliminary design, (2) outline the process for developing a preliminary design, and (3) discuss the basic principles of design. The other important aspects include...