9 Room Planning—Service Area

Objectives

After studying this chapter, you will be able to:

- Plan the service area of a home by applying good design principles.
- Design a functional kitchen to meet a family's needs.
- Select kitchen appliances that are appropriate for a design.
- Plan an efficient clothes care center.
- Describe appropriate dimensions for garage space.

Key Terms

Clothes Care Center
Corridor Kitchen
Island Kitchen
L-Shaped Kitchen
Peninsula Kitchen
Service Area
Straight-Line Kitchen
U-Shaped Kitchen
Work Centers
Work Triangle

The *service area* supplements the living and sleeping areas of the house. It supplies equipment and space for maintenance, storage, and service. The service area includes the kitchen, clothes care center, garage or carport, utility, and storage, Figure 9-1. Due to its varied functions, design of the service area requires careful planning.

Designing with CADD

CADD systems can speed up the design process. For example, once a symbol is developed for the service area, it may be used as often as desired without having to draw it again. Placement and orientation of symbols is quick and easy. In addition, specialized CADD software is available for the design of kitchens, specifying windows, and pictorial representation. Figure 9-2 shows two very different types of CADD drawings.

Kitchen

A principal use for the kitchen is food preparation. Its use may, however, be extended to include dining, laundry, and storage, Figure 9-3. There are six basic kitchen styles:

- Straight Line
- L-Shaped
- Corridor
- Island
- U-Shaped
- Peninsula

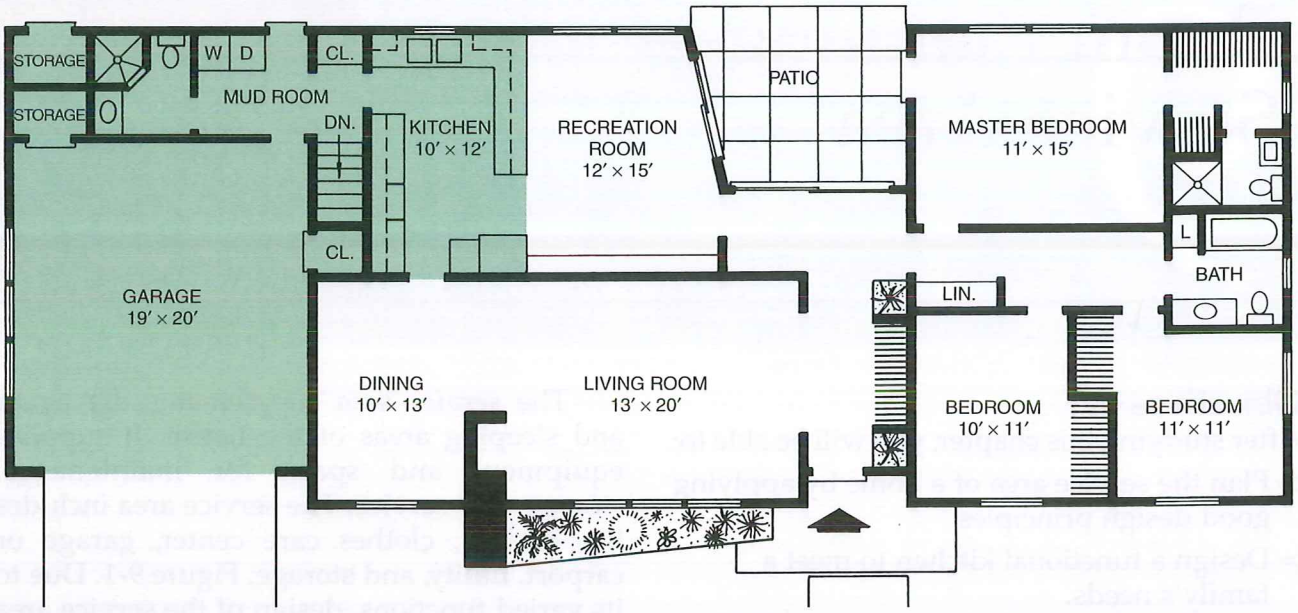
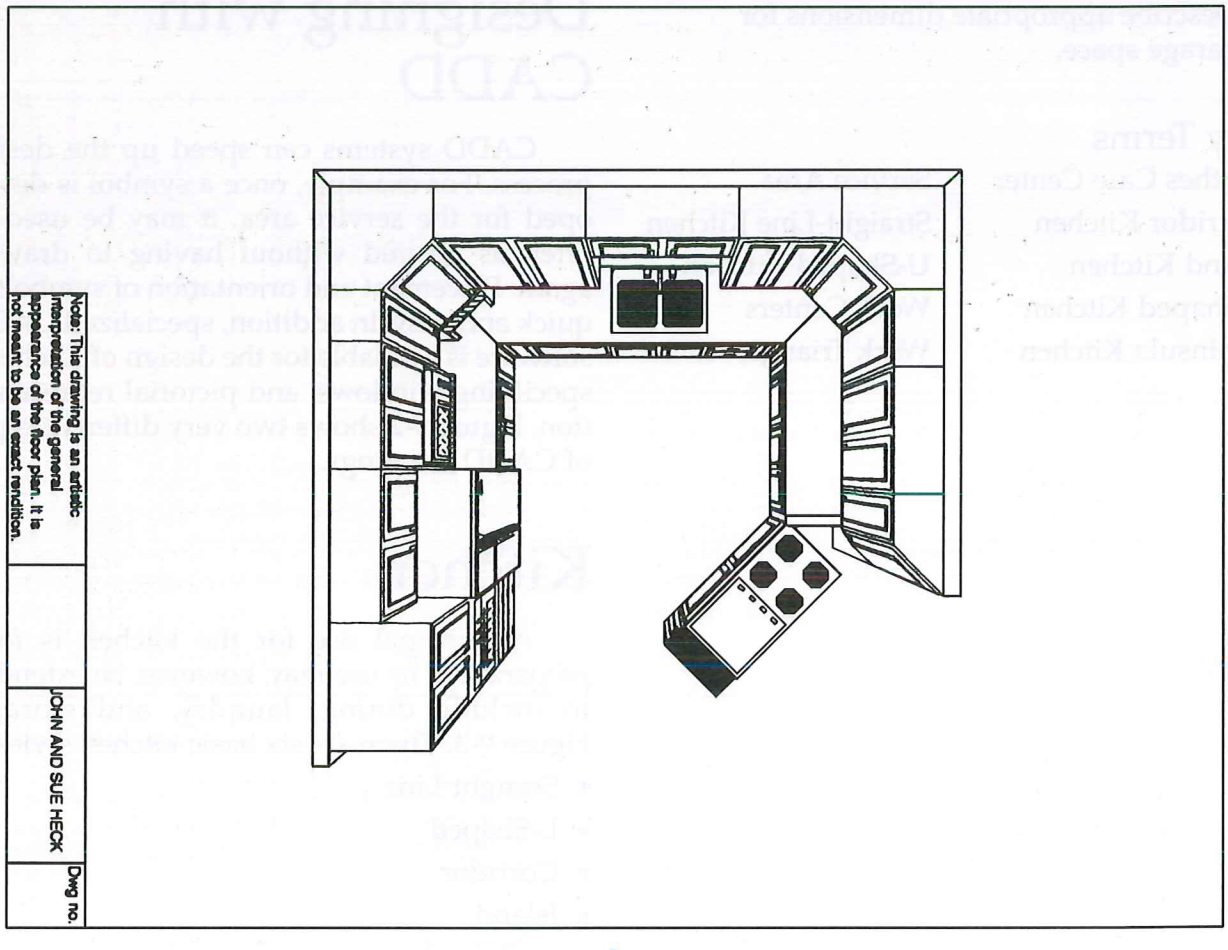


Figure 9-1. The service area of this house includes the garage, kitchen, laundry, mud room, a bath, and some storage.



A

Figure 9-2. A—This one-point perspective drawing of a kitchen was drawn using CADD. (20-20 Computerized Design)

B

Figure 9-2. *Continued.* B—This CADD-rendered image of a kitchen shows enough detail to communicate even small design features. (SoftPlan Systems, Inc.)

Figure 9-3. This kitchen is designed for food preparation, dining, and storage. (Pittsburgh Corning Corporation)

Nearly every one of the kitchen styles can easily be adapted for a handicapped person. Toe space of 6″ deep and 8″ to 11″ high is needed under the cabinets for wheelchair footrests. Knee space of 28″ to 30″ wide, 27″ to 30″ high, and 21″ to 24″ deep can be provided by an overhang or extended counterspace.

Kitchen design presents unique problems. Inefficiency and added cost will result if the problems are not solved. From the standpoint of cost, the kitchen is usually the most expensive room in the house per square foot and receives the most use of any room.

Kitchen Planning

Planning of an efficient kitchen involves the placement of appliances, adequate storage cabinets, and food preparation facilities, Figure 9-4. This placement creates the ***work centers***—food preparation center, cleanup center, and cooking center. In designing kitchens, give considerable thought to the general location of each of the kitchen work centers. The arrangement should be logical and minimize the amount of walking required by the homemaker, Figure 9-5.

The ***work triangle*** is one measure of kitchen efficiency. It is determined by drawing a line from the front-center of the range to the refrigerator to the sink and back to the range. The lengths of these three lines are added together to produce the length of the work triangle, Figure 9-6. For an efficient kitchen, this distance should not exceed 22′.

Figure 9-4. This contemporary kitchen has ample space for storage, food preparation facilities, and appliances. (Wilsonart International)

Figure 9-5. The arrangement of the work centers in this compact kitchen minimizes the amount of walking required when preparing food. (Lis King)

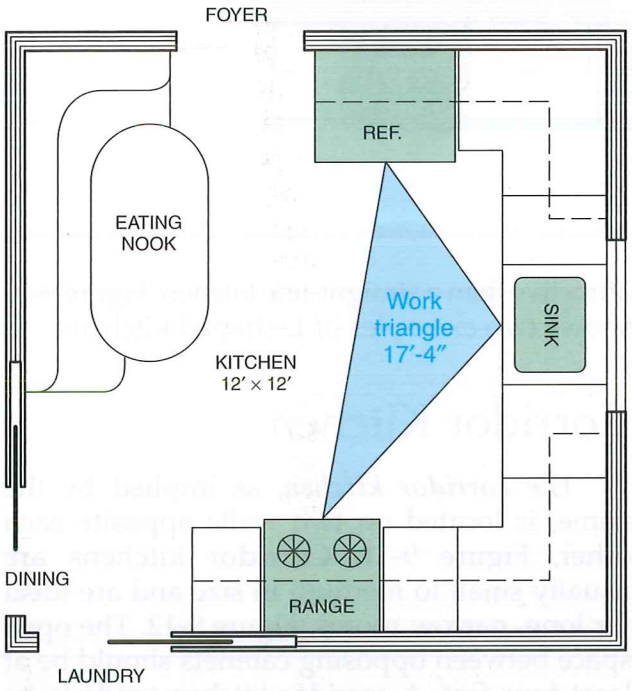


Figure 9-6. The work triangle is a good measure of kitchen efficiency. The combined length of the three sides should not exceed 22'.

Food and cooking utensil storage should be located near the areas where they are to be used, Figure 9-7. For example, pots and pans that are always used on the range should be stored near the cooking center. Do not store them near the food preparation center.

A kitchen that is handicapped accessible may follow the same layout as any other plan. However, the work surfaces should be lower, sinks should have clearance underneath, and cooking units should be accessible. In addition, ample space must be provided for wheelchairs.

Straight-Line Kitchen

The ***straight-line kitchen*** style is frequently used in small houses, cottages, and apartments. See Figure 9-8. Little space is required for this style and it usually provides for an efficient arrangement of kitchen facilities. Two disadvantages of the style are that it provides a limited amount of cabinet space and the result is usually not very interesting. The straight-line kitchen is seldom used unless space is very limited.

L-Shaped Kitchen

The ***L-shaped kitchen*** is located along two adjacent walls, Figure 9-9. This style results in an efficient workspace. Two work centers are

A B

Figure 9-7. A—These food storage units are located near the food preparation center. (Wilsonart International) B—These pull-out drawers provide storage that is convenient and organized.

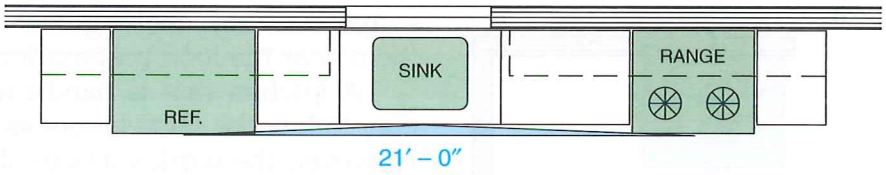


Figure 9-8. This is an example of a straight-line kitchen.

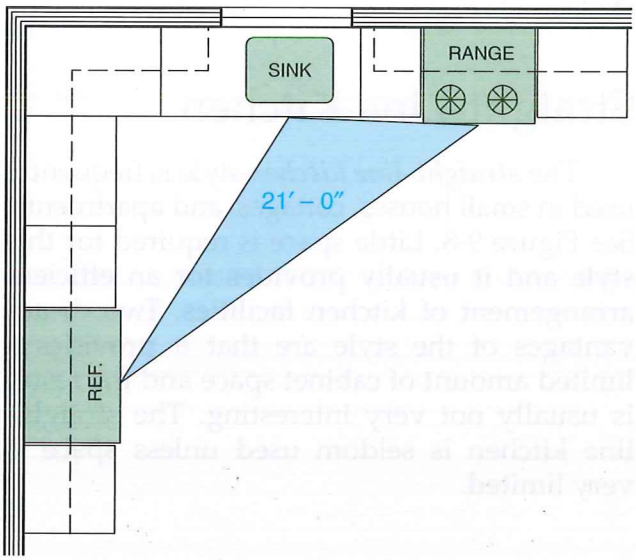


Figure 9-9. An L-shaped kitchen is located on two adjoining walls and provides a traffic-free work triangle.

generally located along one wall and the third on the adjoining wall. This style is not intended for large kitchens because the efficiency of the plan is lost if the walls are too long. An L-shaped kitchen is usually more attractive than a straight-line kitchen. Figure 9-10 shows two examples of L-shaped kitchens.

Corridor Kitchen

The ***corridor kitchen,*** as implied by the name, is located on two walls opposite each other, Figure 9-11. Corridor kitchens are usually small to medium in size and are ideal for long, narrow rooms, Figure 9-12. The open space between opposing cabinets should be at least four feet. A corridor kitchen tends to be an efficient workspace. However, the style is not recommended if traffic is to be heavy through the kitchen.

U-Shaped Kitchen

The ***U-shaped kitchen*** is probably the most popular and one of the most attractive of the six kitchen styles, Figure 9-13. It has a highly efficient workspace. The work triangle is compact and functional, Figure 9-14. In addition, there is no traffic through the kitchen

A B

Figure 9-10. A—This L-shaped kitchen has a contemporary decor. (Manufactured Housing Institute) B—An L-shaped kitchen with traditional decor.

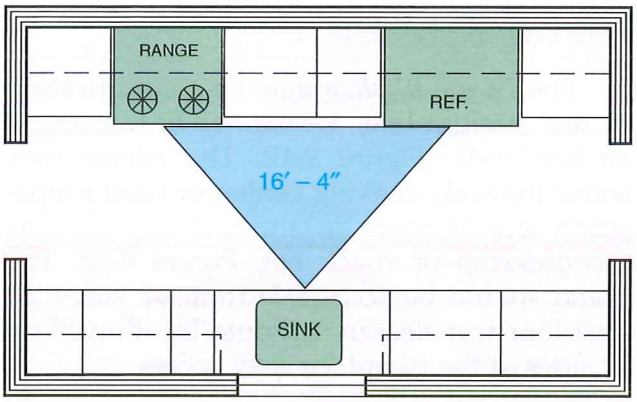


Figure 9-11. This typical corridor kitchen has plenty of cabinet space.

Figure 9-12. A compact corridor kitchen with convenient storage and an efficient workspace. Notice the meal planning center. (Manufactured Housing Institute)

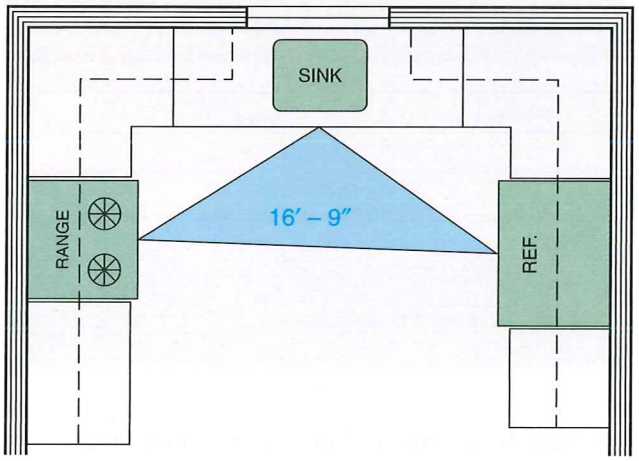


Figure 9-13. The U-shaped kitchen is perhaps the most popular style.

A

B

Figure 9-14. A—Efficiency and beauty are the key elements of this unique U-shaped kitchen. B—This medium-size U-shaped kitchen is pleasant for preparing meals. The counter space on the left can be used for meal preparation or serving informal meals.

to other areas of the house. Most U-shaped kitchens are medium-size with the open space between the legs of the U being about 5′ or 6′.

Peninsula Kitchen

The ***peninsula kitchen*** is a popular style because it provides plenty of workspace, Figure 9-15. It is attractive and can easily join with the dining area using the peninsula as a divider. The peninsula may be used as the cooking center, food preparation center, or eating area, Figure 9-16. As in a U-shaped kitchen, the amount of traffic is reduced and the work triangle is small.

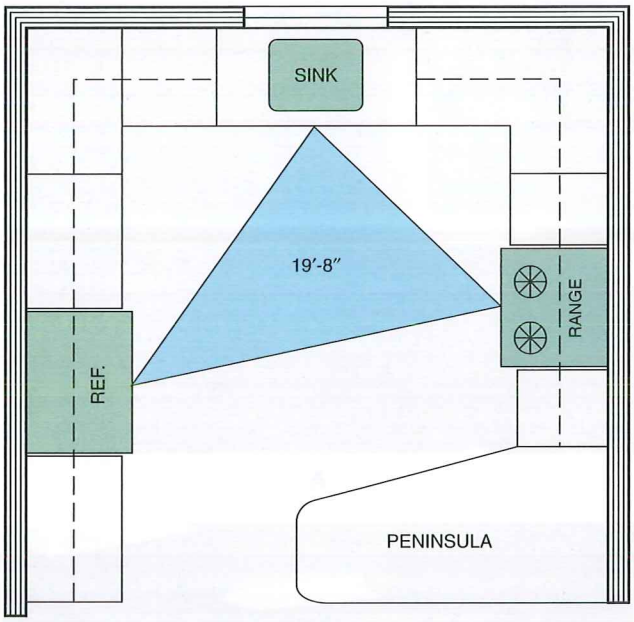


Figure 9-15. The peninsula kitchen is a popular style.

Island Kitchen

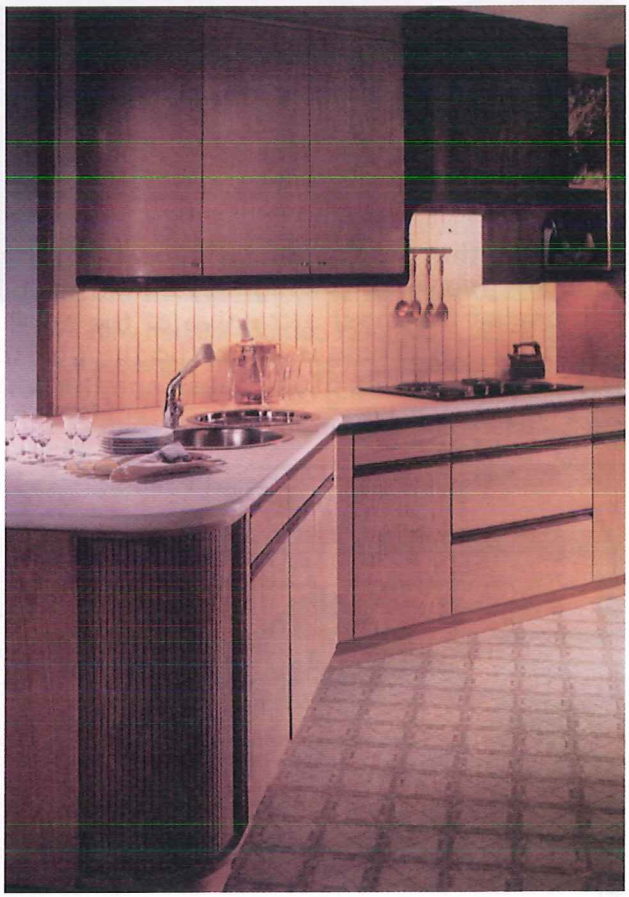
The ***island kitchen*** may be a modification of the straight-line, L-shaped, or U-shaped kitchen style, Figure 9-17. The island may house the sink, cooking center, or food preparation area. In some instances, it may serve as a countertop or snack bar, Figure 9-18. The island should be accessible from all sides. At least four feet clearance should be allowed on all sides of the island for easy access.

Cabinets and Appliances

Kitchen appliances include the stove/range, oven, refrigerator, dishwasher, microwave, garbage disposal, and so on. The appliances shown on a floor plan are those that are generally not movable. Appliances such as toasters

A

B



C

Figure 9-16. The peninsula in a peninsula kitchen can serve many functions. A—For cooking or serving. (Manufactured Housing Institute) B—As an eating area that can double as a hobby area. (Manufactured Housing Institute) C—As a food preparation center. (Wood-Mode Cabinetry)

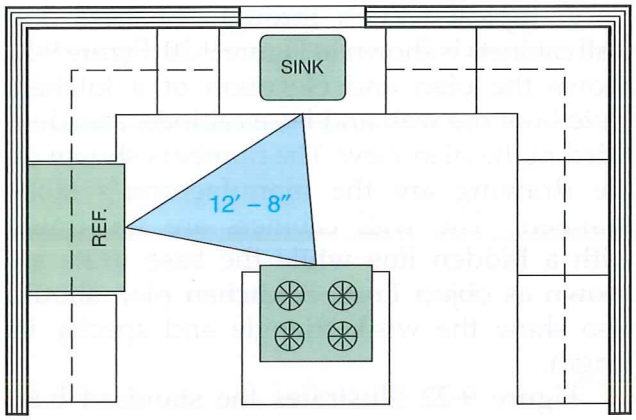


Figure 9-17. An island kitchen design.

and food processors are not typically shown on a floor plan, though they may be shown in a presentation drawing. Kitchen appliances are available in a variety of styles, colors, and sizes. Symbols and standard sizes of kitchen appliances and sinks are shown in Figure 9-19.

An electric stove or cooktop may provide more safety for the handicapped user than a gas appliance. A wall-type oven at eye level is more easily accessible than other types. An appropriate refrigerator must also be selected.

Kitchen cabinets provide the majority of storage space in most kitchens. They are produced in standard sizes, but may be made to custom sizes if required. Most standard base cabinets are 34-1/2″ high and 24″ deep with a width in 3″ increments, such as 15″, 18″, or 21″. Wall cabinets are either 12″ or 13″ deep. Cabinets 12″ to 30″ inches high (in 3″ increments) and 12″ to 36″ wide (in 3″ increments) are also available. Wall cabinets are also produced in taller dimensions, some as tall as 45″.

In base cabinets, compartmentalized drawers instead of shelves can bring the full depth of the base cabinets within reach of the handicapped user. Also roll-out bins, racks, baskets, and shelf trays can be used to make

A

B

C

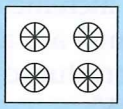
Figure 9-18. The island in an island kitchen design can serve many functions. A—The cleanup center. B—The cooking center. (Lis King) C—The food preparation center. (Lis King)

Refrigerator

Cu. Ft.	Width	Height	Depth
9	24″	56″	29″
12	30″	68″	30″
14	31″	63″	24″
19	34″	70″	29″
21	36″	66″	29″

Standard free-standing range

Width	Height	Depth
20″	30″	24″
21″	36″	25″
30″	36″	26″
40″	36″	27″



Double-oven range

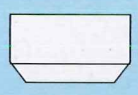
Width	Height	Depth
30″	61″	26″
30″	64″	26″
30″	67″	27″
30″	71″	27″

Drop-in range

Width	Height	Depth
23″	23″	22″
24″	23″	22″
30″	24″	25″

Built-in cooktop

Width	Height	Depth
12″	2″	18″
24″	3″	22″
48″	3″	22″

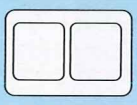


Range hood

Width	Height	Depth
24″	5″	12″
30″	6″	17″
66″	7″	26″
72″	8″	28″

Single-compartment sink

Width	Depth
24″	21″
30″	20″



Double-compartment sink

Width	Depth
32″	21″
36″	20″
42″	21″

Figure 9-19. Appliance symbols and sizes.

base cabinets usable. A lazy Susan is convenient for wall or base cabinets in corners.

It is difficult for people in wheelchairs to reach shelves higher than 48″. The bottom of wall cabinets should be situated so the first shelf can be reached from a seated position, usually not more than 17″ above the counter. Cabinets over stoves and refrigerators are exceptions, however, mechanical assistance must be provided for these cabinets to be used by the handicapped. Shelves in wall cabinets should be adjustable.

A typical section through the base and wall cabinets is shown in Figure 9-20. Figure 9-21 shows the plan and elevation of a kitchen. Note how the wall and base cabinets are identified in the plan view. The numbers shown on the drawing are the manufacturer's stock numbers. The wall cabinets are illustrated with a hidden line while the base units are shown as object lines. A kitchen plan should also show the work triangle and specify its length.

Figure 9-22 illustrates the standard base and wall cabinets that most manufacturers produce as standard units. Be sure to check the specifications of the cabinets selected before drawing the kitchen plan. Careful consideration of all specifications and design requirements is an essential part of developing the kitchen plan.

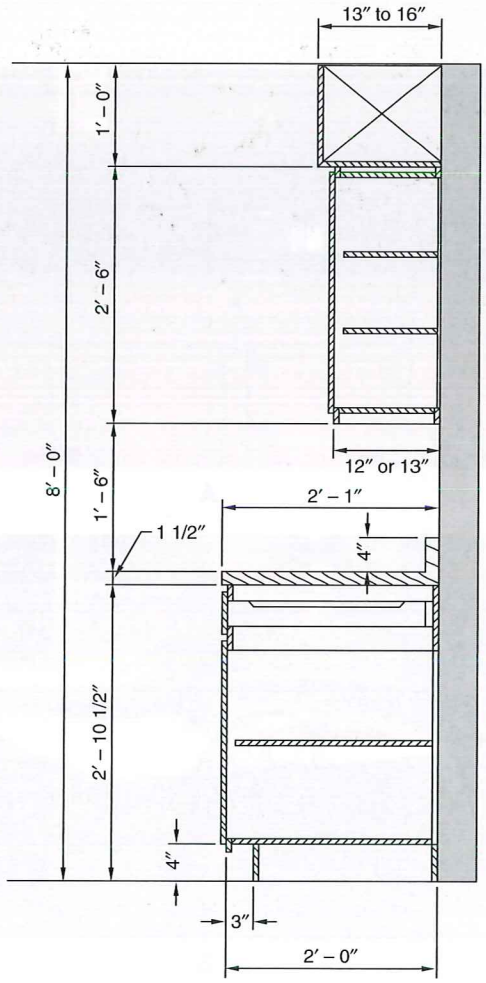


Figure 9-20. A typical section through the base and wall cabinets.

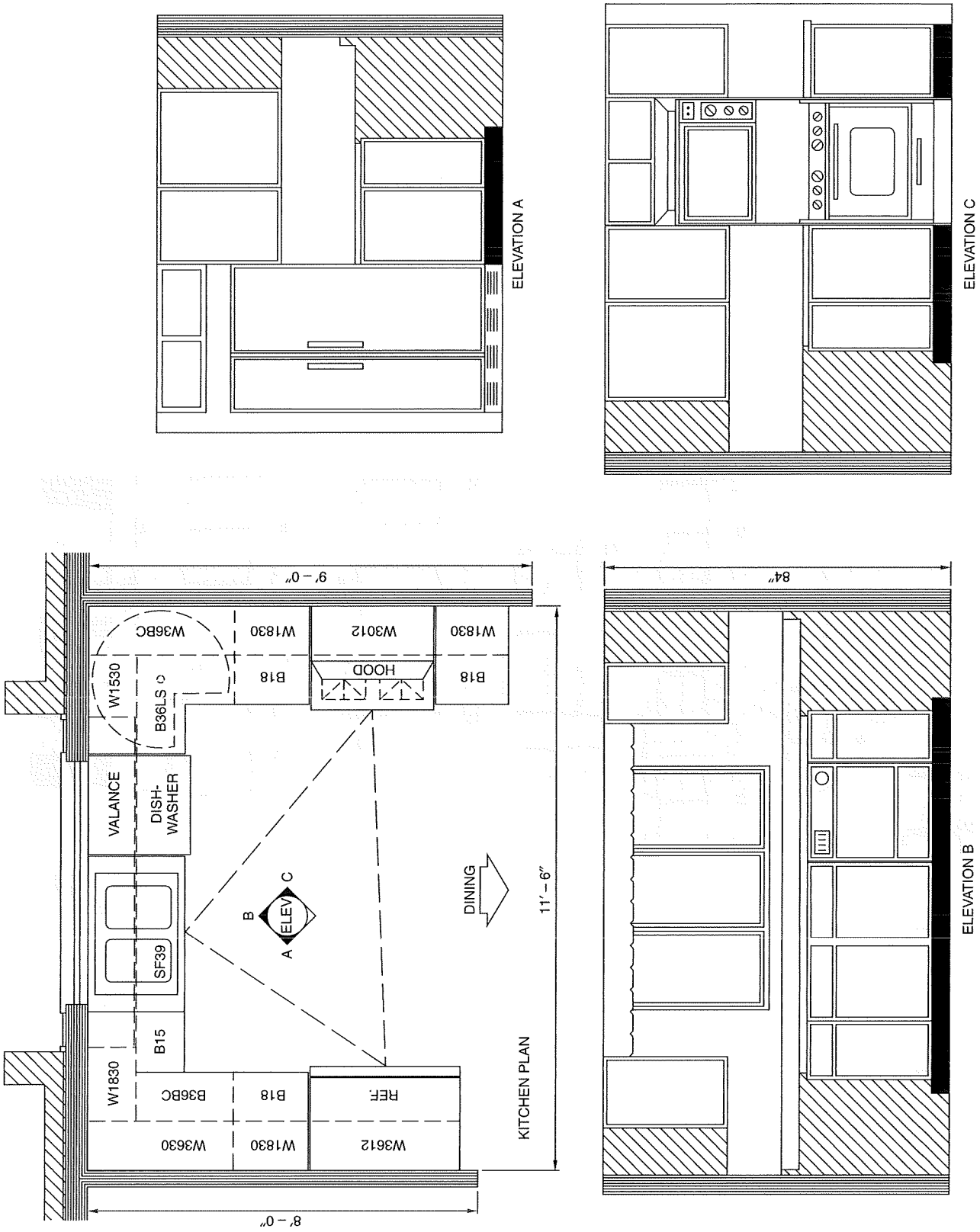


Figure 9-21. Construction drawings for a kitchen.

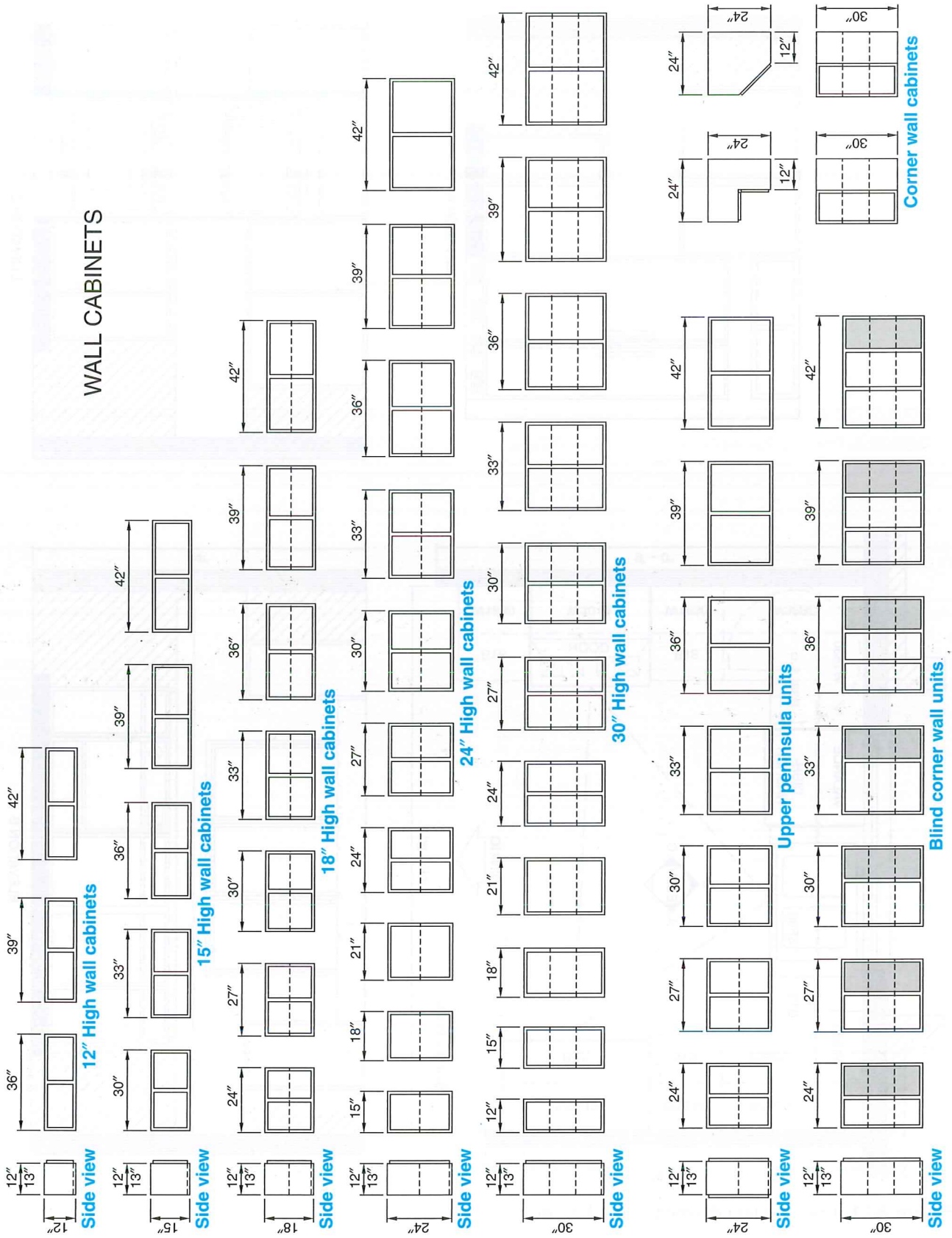


Figure 9-22. Standard wall cabinet sizes and designs.

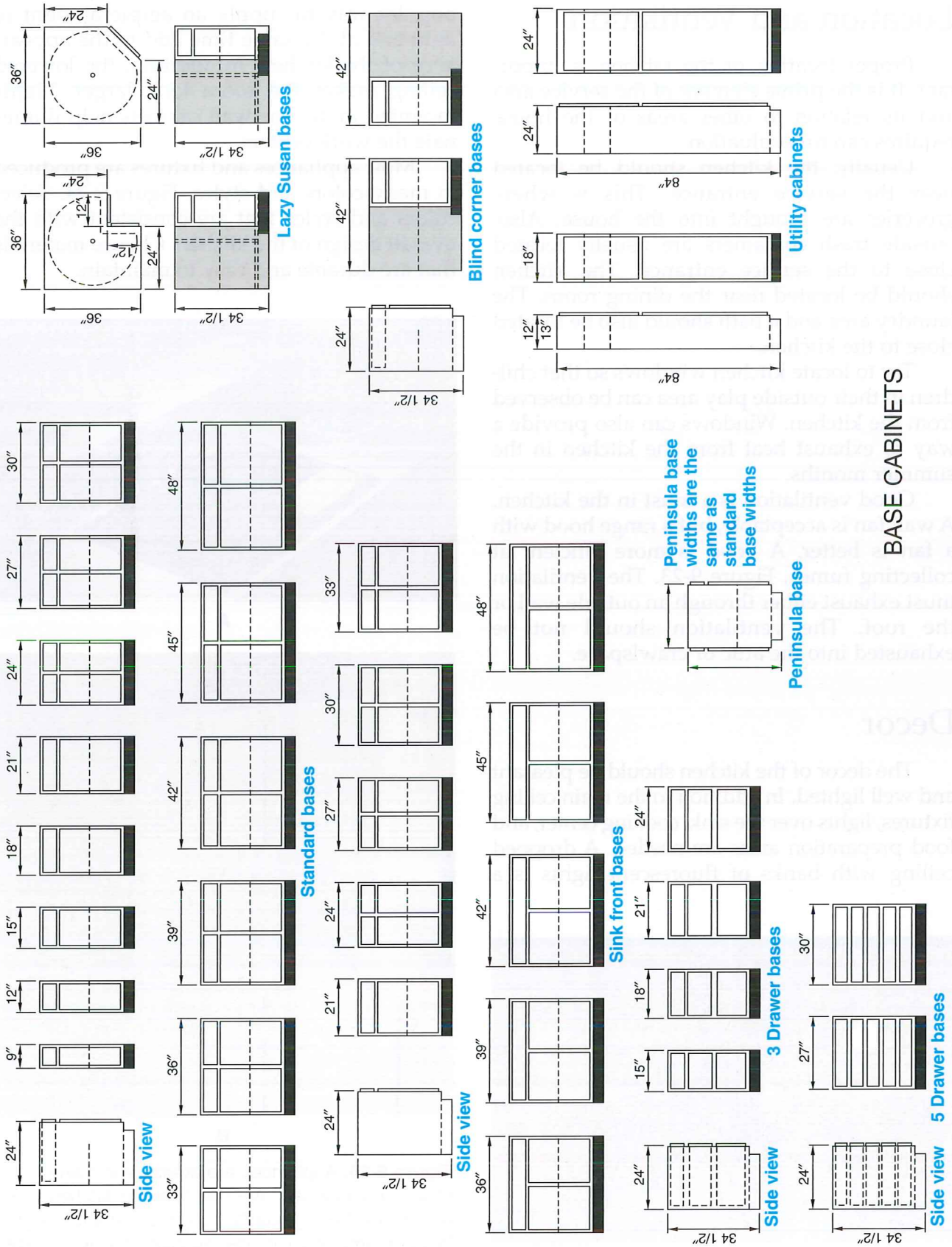


Figure 9-22 (Continued). Standard wall cabinet sizes and designs.

Location and Ventilation

Proper location of the kitchen is important. It is the prime element of the service area and its relation to other areas of the house requires careful evaluation.

Usually, the kitchen should be located near the service entrance. This is where groceries are brought into the house. Also, outside trash containers are usually located close to the service entrance. The kitchen should be located near the dining room. The laundry area and a bath should also be located close to the kitchen.

Try to locate kitchen windows so that children in their outside play area can be observed from the kitchen. Windows can also provide a way to exhaust heat from the kitchen in the summer months.

Good ventilation is a must in the kitchen. A wall fan is acceptable, but a range hood with a fan is better. A hood is more efficient at collecting fumes, Figure 9-23. The ventilation must exhaust either through an outside wall or the roof. The ventilation should not be exhausted into the attic or crawlspace.

Decor

The decor of the kitchen should be pleasant and well lighted. In addition to the main ceiling fixtures, lights over the sink, cooking center, and food preparation areas are needed. A dropped ceiling with banks of fluorescent lights is a popular way to supply an ample amount of light and at the same time add to the appearance of the kitchen. In addition, the lowered ceiling makes the room look larger. Lights mounted under the wall cabinets help illuminate the work centers.

Most appliances and fixtures are produced in many colors and styles, Figure 9-24. Select colors and styles that are consistent with the overall design of the kitchen. Choose materials that are durable and easy to maintain.

Figure 9-23. This unique range hood has charcoal filters to reduce odor. It is large and efficient in removing odors.

A

B

Figure 9-24. Appliances are available in many colors and materials. A—This beautiful kitchen sink will provide lasting quality, easy maintenance, and a hygienic area. Also, notice the stainless steel range and hood. (Photo Courtesy of Kohler Co.) B—This kitchen refrigerator is designed to be energy efficient and match a certain decor.

Applications

Figure 9-25 shows an island kitchen. This efficient design has a desk for meal planning, ample storage, and easy access to the work centers. In addition, one side of the island serves as a breakfast area. The island serves as a room divider and is convenient to the adjoining living room.

The U-shaped kitchen shown in Figure 9-26 has many extras. There is a large desk that can be used for planning meals and storing many cookbooks. The design is efficient with lots of room provided for movement. The dining area is conveniently located next to the food preparation center. The utility closet can be used as additional storage for pots and pans or it can double as a small pantry. Another advantage of this plan is the service entry, which facilitates garbage removal and restocking supplies. This plan is designed for the person who enjoys planning and preparing large meals.

Kitchen Eating Areas

An eating area in the kitchen is convenient for serving informal meals and snacking. It should be located outside of the food preparation area, yet convenient to it. When planning a kitchen with an eating area, allow sufficient space. Thus, the overall size of the kitchen will be larger than one without an eating area. Good lighting is important for the eating area. The design should include ample lighting.

A kitchen eating area such as the one shown in Figure 9-27A is popular with many families. The arrangement of table and chairs is flexible to accommodate a varying number of people. Other households prefer an eating counter with chairs or stools, Figure 9-27B. A change in countertop height can separate the cooking area from the eating area. Allow for knee space under the counter. If chairs are to be used at the eating counter, the counter height should be 26".

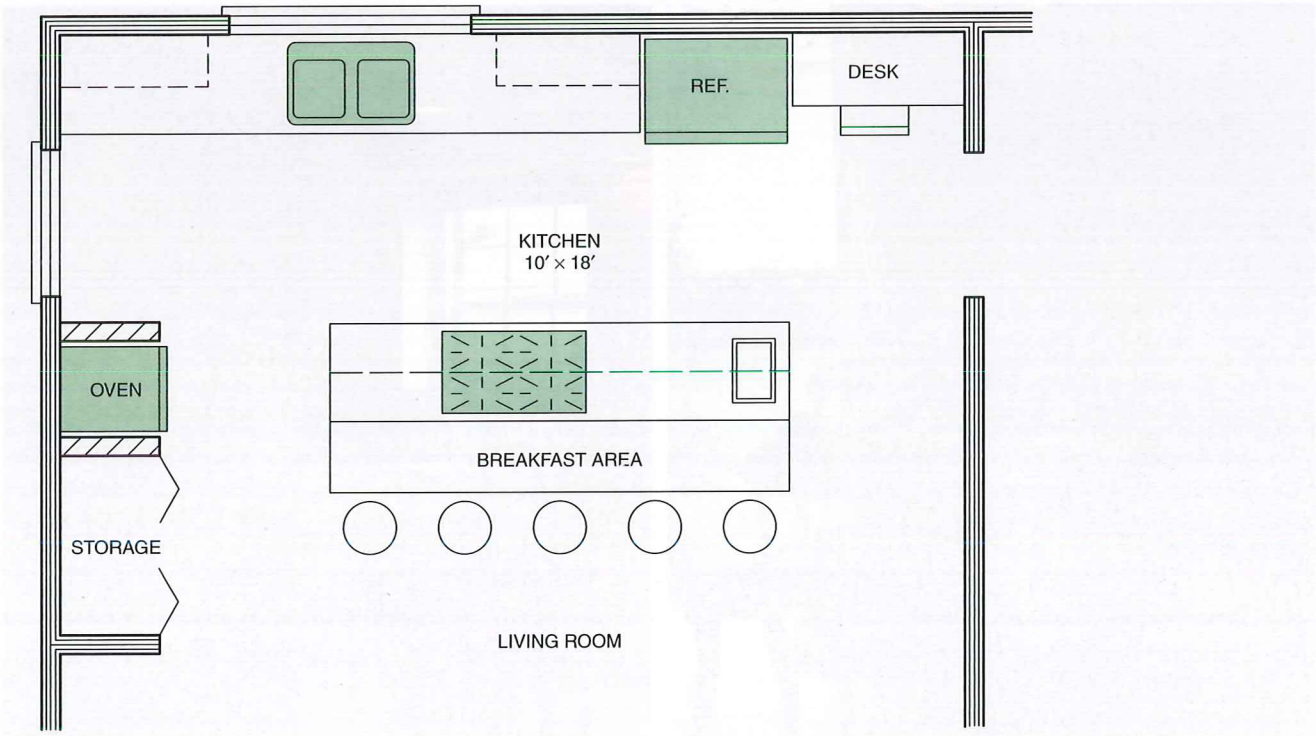


Figure 9-25. An island-style kitchen. The island serves as a divider between the kitchen and the living room. It also provides a breakfast area.

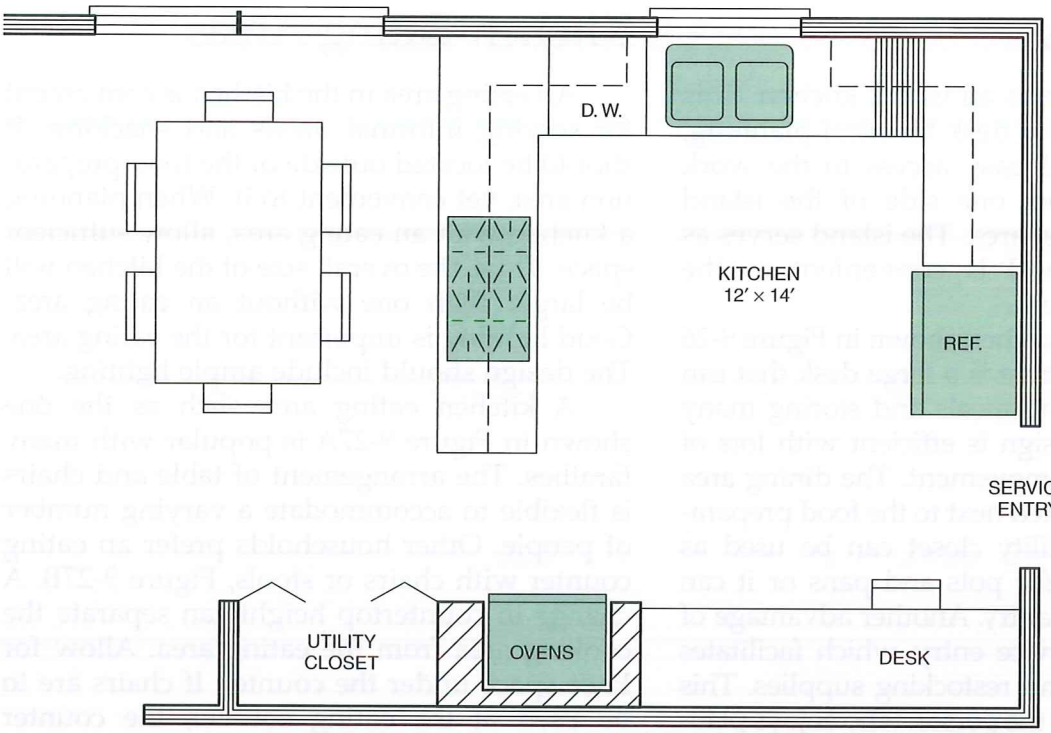


Figure 9-26. This stylish U-shaped kitchen is designed for planning and preparing large meals.

A B

Figure 9-27. A—This attractive kitchen eating area allows for flexibility in serving people. B—Eating counters require less space than a table, but may not serve as many people.

Tables with pedestal legs or open leg space are more convenient for wheelchair users. Also, be sure to allow sufficient space around the table or counter for maneuvering the wheelchair.

Clothes Care Center

A ***clothes care center*** provides an area for washing, drying, pressing, folding, storing, and mending clothes. It is intended to be more than a "utility" room. Many traditional utility rooms are drab and are located away from other service areas of the house. If possible, locate the clothes care center near the kitchen. A large clothes care center can also serve as additional space for recreation activities, such as flower arranging, crafts, or other hobby.

The clothes care center is intended to be bright, cheerful, and convenient, Figure 9-28. It should be large enough to provide adequately for the activities to be performed there. The clothes care center must also provide ample storage for cleaners, soaps, sewing accessories, folded and pressed clothes, and so on, Figure 9-29.

The clothes care center must be well ventilated and lighted. The floor must be resistant to water and easy to clean. Ceramic tile or vinyl flooring are popular choices. However, durable hardwood floors are used as well.

Figure 9-28. This clothes care center is bright and cheerful. It provides ample workspace and convenient storage.

Countertops should be durable, soil resistant, and easy to clean, Figure 9-30.

Figure 9-31 shows the sizes and shapes of appliances and furnishings commonly used in a clothes care center. A well-designed clothes care center is illustrated in Figure 9-32. Note that this room includes all the functions associated with clothes care. The built-in ironing board saves space when not in use. The laundry tub/sink is near the washer for convenience. Cabinet storage space is provided above the washer, dryer, and sink.

A compact clothes care center is shown in Figure 9-33. This room is organized for

A B

Figure 9-29. A—This clothes care center has ample storage, a built-in ironing board, and concealed waste container. (Wood-Mode Cabinetry) B—A washer, dryer, and ample storage space are the main features of this clothes care center.

maximum efficiency of space. The ironing board swings up into the wall so it is out of the way when not in use. Soiled clothes are collected in the bin below the clothes chute, which is convenient for wash day. A sewing and mending area is flanked by generous counter space. There is more than average storage available in this well-planned center.

The clothes care center shown in Figure 9-34 is designed for a basement location next to the recreation room. A series of storage shelves separates each area and adds many cubic feet of storage space. Wall cabinets line one wall and create a trim appearance, as well as adding storage space. Counter area is sufficient for folding clothes or mending. Organization is the key in this plan.

For greater wheelchair accessibility in the clothes care center, a front-loading washer can be

Figure 9-30. This clothes care center has a durable and easy-to-clean countertop. The floor is also durable and easy to clean.

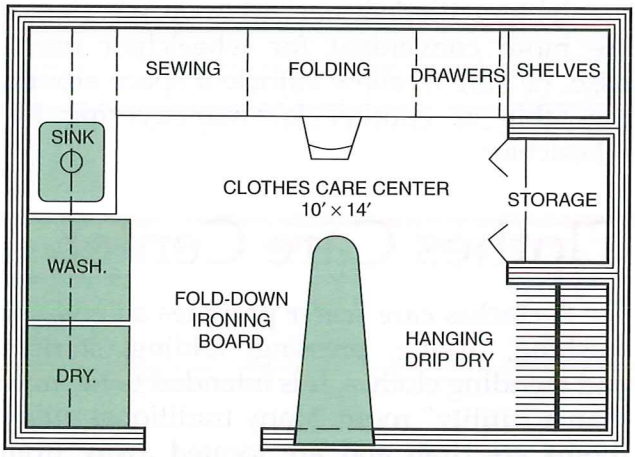


Figure 9-32. This well-designed clothes care center has all the facilities for washing, drying, pressing, folding, storing, and mending.

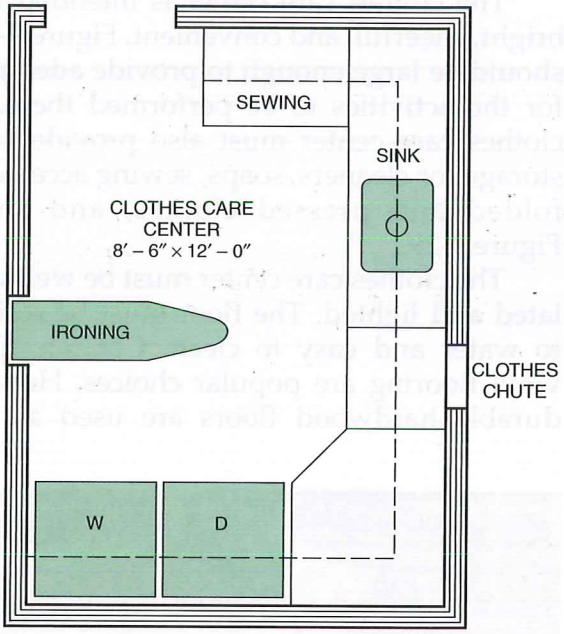


Figure 9-33. A clothes care center that is compact yet provides for washing, drying, sewing, storage, and ironing.

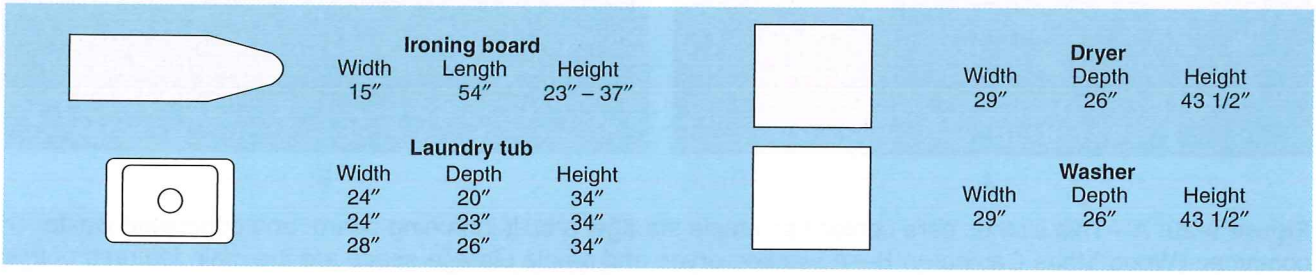


Figure 9-31. Furniture and appliance symbols used for a clothes care center.

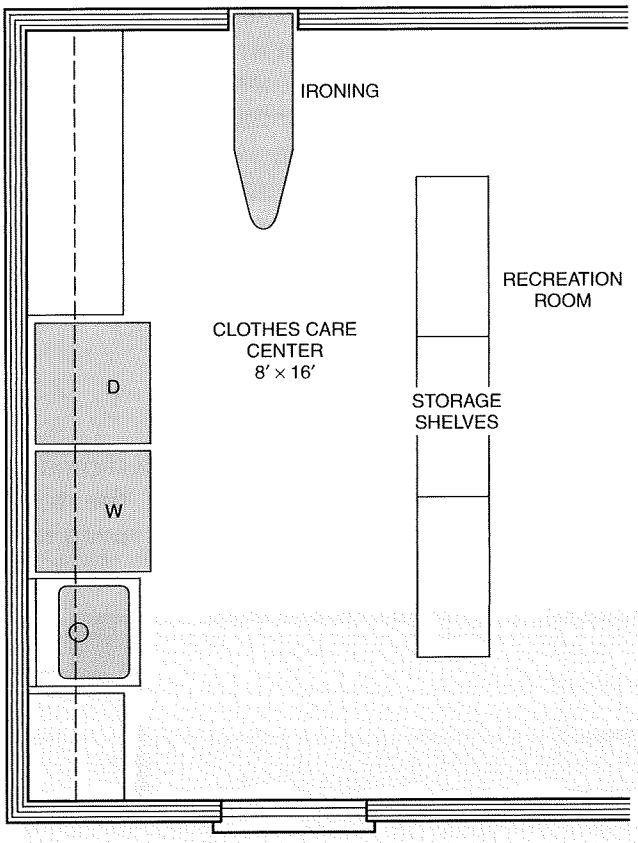


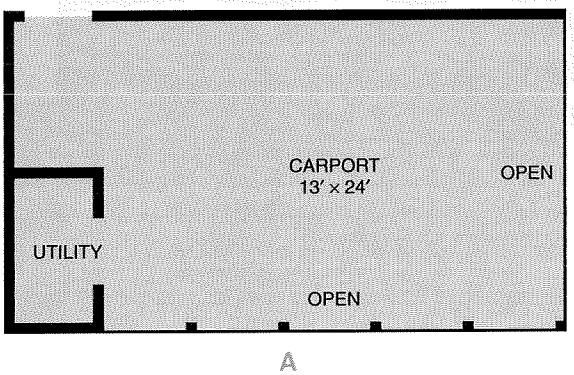
Figure 9-34. This clothes care center is designed for the basement.

used. Front-loading washers and dryers may be placed on a short platform for access to the units. However, all controls must be accessible. A stacked system (dryer above washer) minimize the number of steps required in the clothes care center and may be suitable for those who use canes, crutches, or walkers. Locating the clothes care center on the main floor eliminates having to climb stairs to get to it.

Garage or Carport

The primary purpose of a garage or carport is to provide shelter for the homeowner's cars. The garage or carport may be small and simple or large and complex. In addition, they can be attached to the house or detached (free standing).

Several factors should be considered when deciding between a garage or a carport. A carport is open on one or more sides, Figure 9-35. As such, it provides less protection and security for the car than a garage. In addition, certain house styles look better with a carport while other styles look better with a garage. In



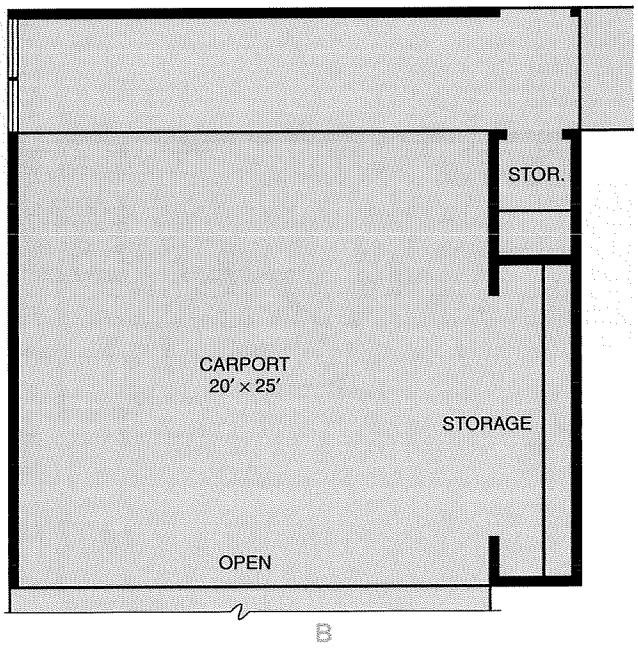


Figure 9-35. A—This single-stall carport is open on two sides and has a small utility area. B—This carport has space for two cars and lots of storage.

cold climates, a garage may be more desirable. Carports are less expensive to build than garages and may be satisfactory for warm, dry climates.

Size and Location

The size and location of the garage or carport will depend on the number of cars to be housed, the size and layout of the house, and the space available. A single-car facility may range in size from 11′ × 19′ to 16′ × 25′, Figure 9-36A. A space designed for two cars may be as small as 20′ × 20′ or as large as 25′ × 25′, Figure 9-36B. The overall space may be increased considerably if a work area or utility storage is planned into the facility, as in the right-hand illustration in Figure 9-36B.

To be handicapped accessible, a garage or carport should be a minimum of 24′ long. This will provide space for passing in front or in back of the car. A minimum of 5′ should be planned on the side of the car for a door to be fully opened and a wheelchair placed next to the car. A width of 12′ to 14-1/2′ is recommended for one car and a wheelchair.

Design

A garage or carport should be designed as an integral part of the style of the total structure, Figure 9-37. This does not mean that

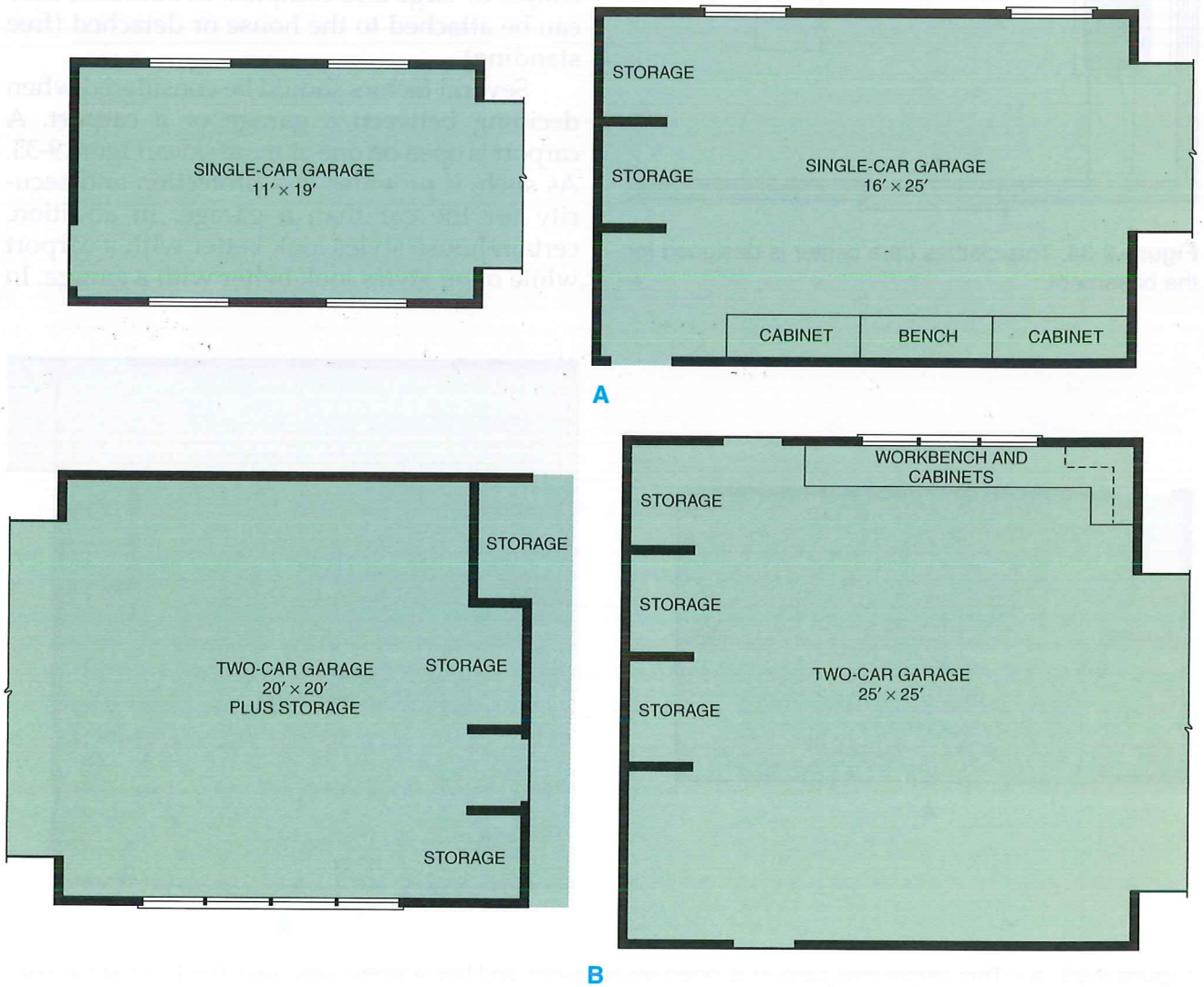


Figure 9-36. The size of the garage or carport will depend on its intended use. A—The single-car garage on the left is small with no storage facilities. The single-car garage on the right has ample storage and a workbench. B—The two-car garage on the left has adequate storage. The two-car garage on the right is much larger because of the added workbench.

the facility must be attached. However, if care is not taken, an attached or detached garage or carport can detract from the appearance of the house.

If the garage is detached (free-standing), a walkway should be provided to the house. The walkway should lead to the service entrance and provide easy access to the kitchen. In some climates, a covered walkway may be desirable, Figure 9-38.

Plan the garage or carport with storage in mind, Figure 9-39. Provide space for outdoor recreation equipment and gardening tools, if no other specific facility is provided for that purpose. Many homes have a garage that is full of tools and other equipment and the car

Figure 9-37. The two-car garage on this house is well designed to be an integral part of the style of the house. (Photo Courtesy of James Hardie® Siding Products)

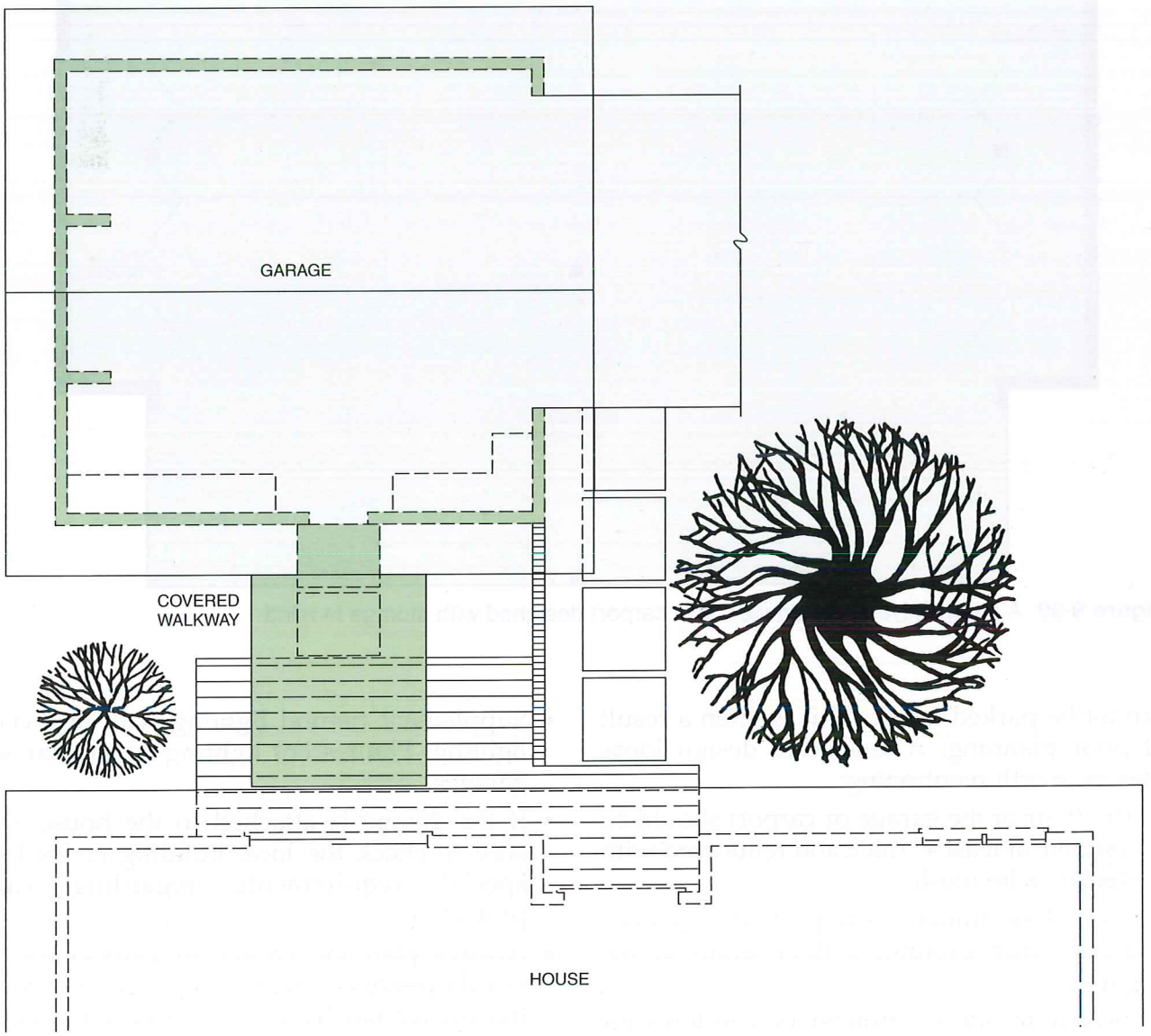


Figure 9-38. This plan shows a detached garage with a covered walkway to the house.

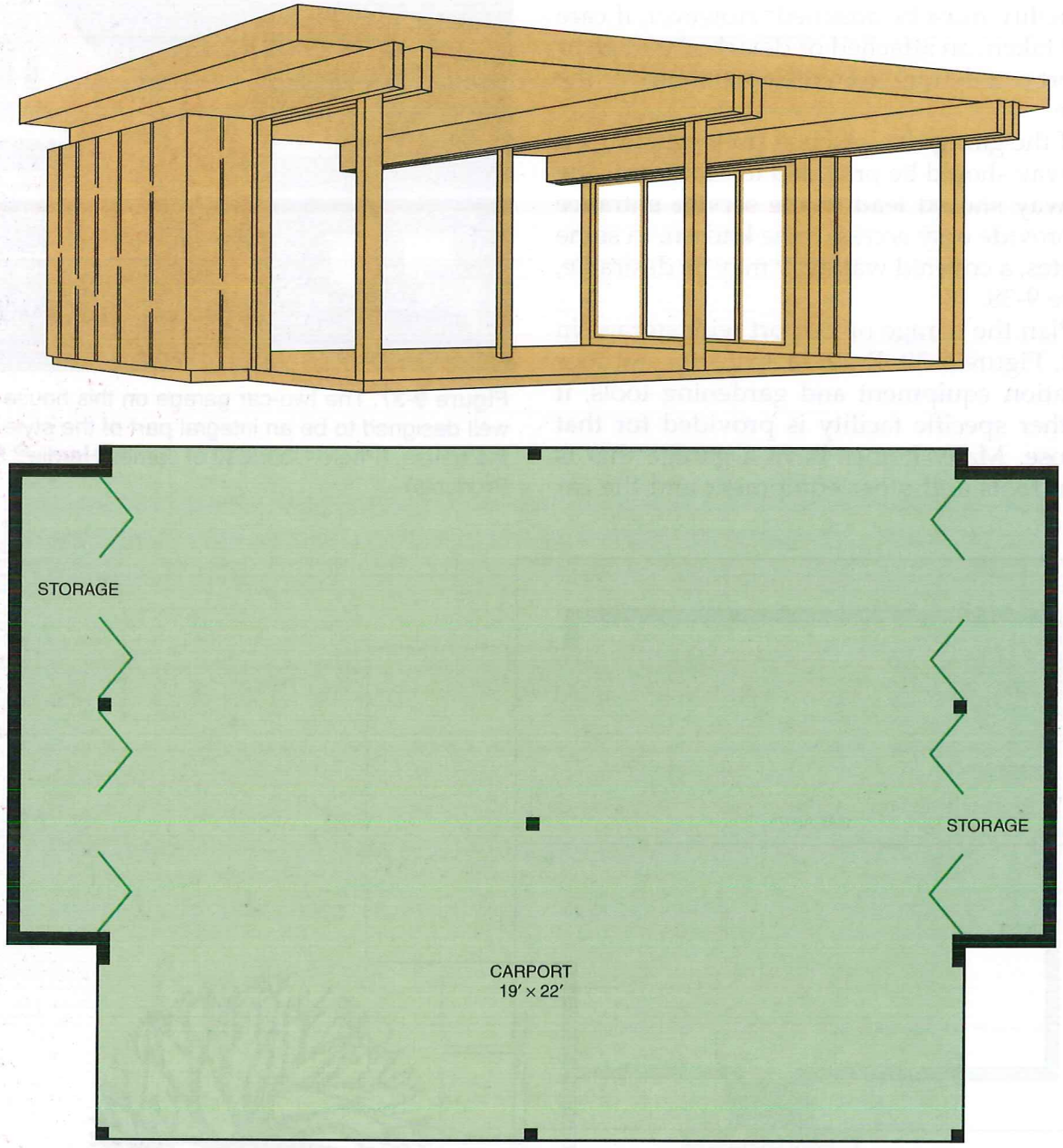


Figure 9-39. A perspective and plan view of a carport designed with storage in mind.

cannot be parked inside. This is often a result of poor planning. A few other design ideas may be worth mentioning:

- The floor of the garage or carport should be concrete at least 4″ thick and reinforced with steel or wire mesh.
- Good floor drainage is important. However, many cities prohibit a floor drain in the garage.
- Include an ample number of windows for ventilation and natural lighting.
- Supplement natural lighting with artificial lighting. Fluorescent lighting is popular in garages.
- If the garage is attached to the house, be sure to check the local building codes for special requirements regarding fire protection.
- Always plan the garage or carport for a standard-size car even though the prospective owner may have a compact car. If necessary, adjust the design for larger vehicles.

Doors

Garage doors are often called overhead doors. They are available in standard sizes and come in wood, fiberglass, plastic or vinyl, aluminum, and steel. Wood has been a traditional choice and is still preferred by many, but it requires frequent painting and is expensive. Metal doors are popular, require little maintenance, and are inexpensive. Fiberglass is very durable and allows some natural light to come through even with the door closed.

A single-car garage door is usually 8′ or 9′ wide and 7′ or 8′ high. A two-car garage door is usually 16′ wide and 7′ or 8′ high. Recreational vehicles may require a higher garage door. Garage doors are also produced in widths of 18′. Figure 9-40 shows single- and two-car garage doors in different styles.

Driveway

The driveway should be planned concurrently with the garage. The minimum driveway width is 10′ for a single-car garage. A two-car garage requires a wider driveway, at least at the garage.

If space is available, a turnaround is often recommended. This allows the driver to pull forward into the garage or carport and forward out onto the street. Backing directly onto the street should be avoided when possible. Figure 9-41 shows two turnarounds with dimensions.

Applications

The garage shown in Figure 9-42 is designed to be constructed from common building materials using common techniques. A slab foundation and stud walls constitute the basic structure. Standard trusses are used to form the gable roof. Bevel cedar siding is used on the exterior, however, vinyl siding can be used instead. The design is both economical and attractive.

The basic proportions of a garage or carport are relatively fixed, but several ideas may be applied to improve the appearance. For example, a Dutch hip, butterfly, or mansard roof may be used to give the structure a unique style. A different roof style will change the overall appearance considerably. The use of new siding materials, such as vinyl, may also improve an otherwise drab structure. Textured siding with rustic stain or weathered redwood boards add character and charm. Windows may be conventional types or fixed panels of colored glass or plastics. It is possible with the application of a few innovative ideas to transform a garage into an attractive structure that adds much to the total "home environment."

A B

Figure 9-40. A—This three-car garage has a single-car garage door for each bay. B—This house has a two-car garage and a single-car garage.

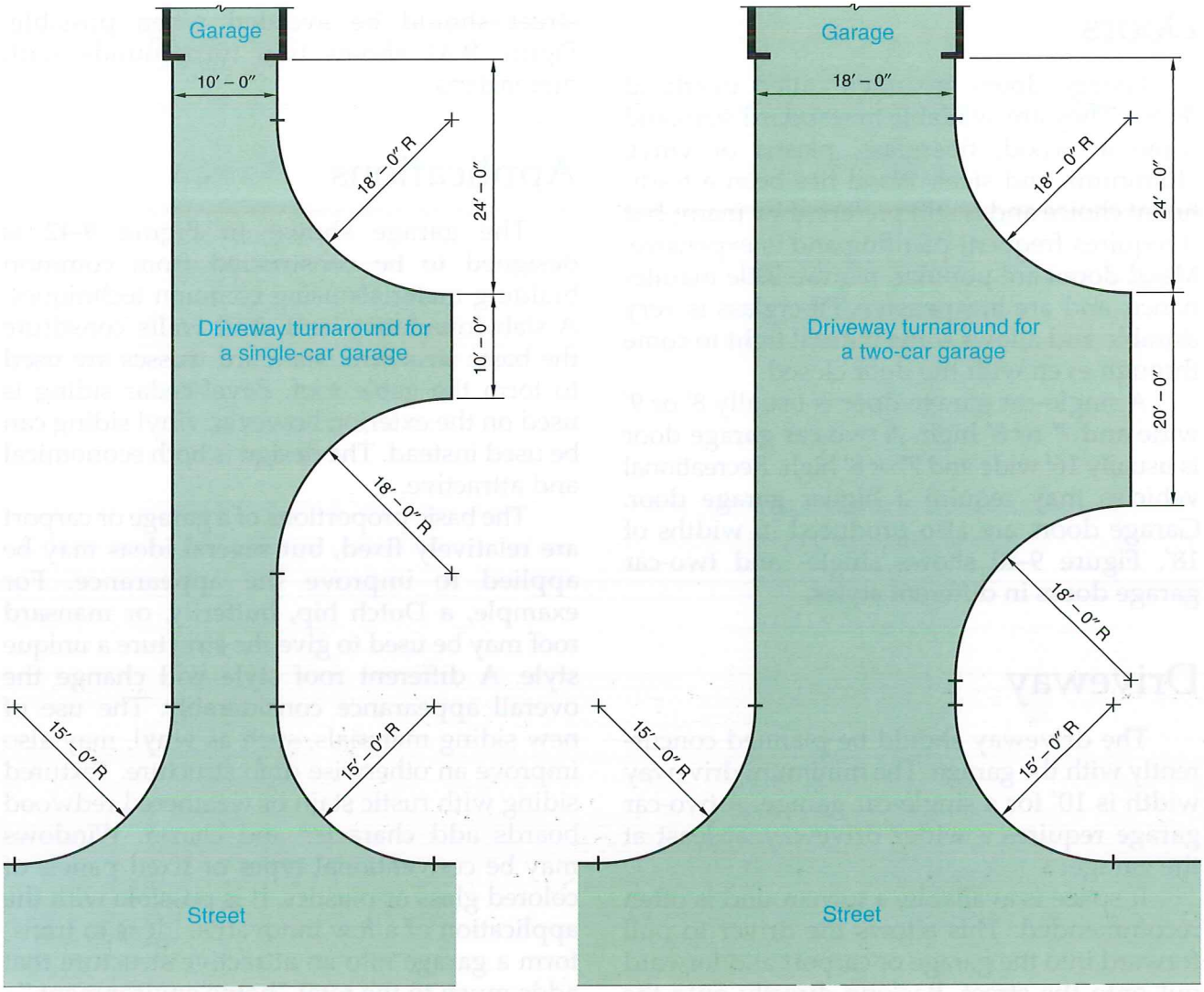
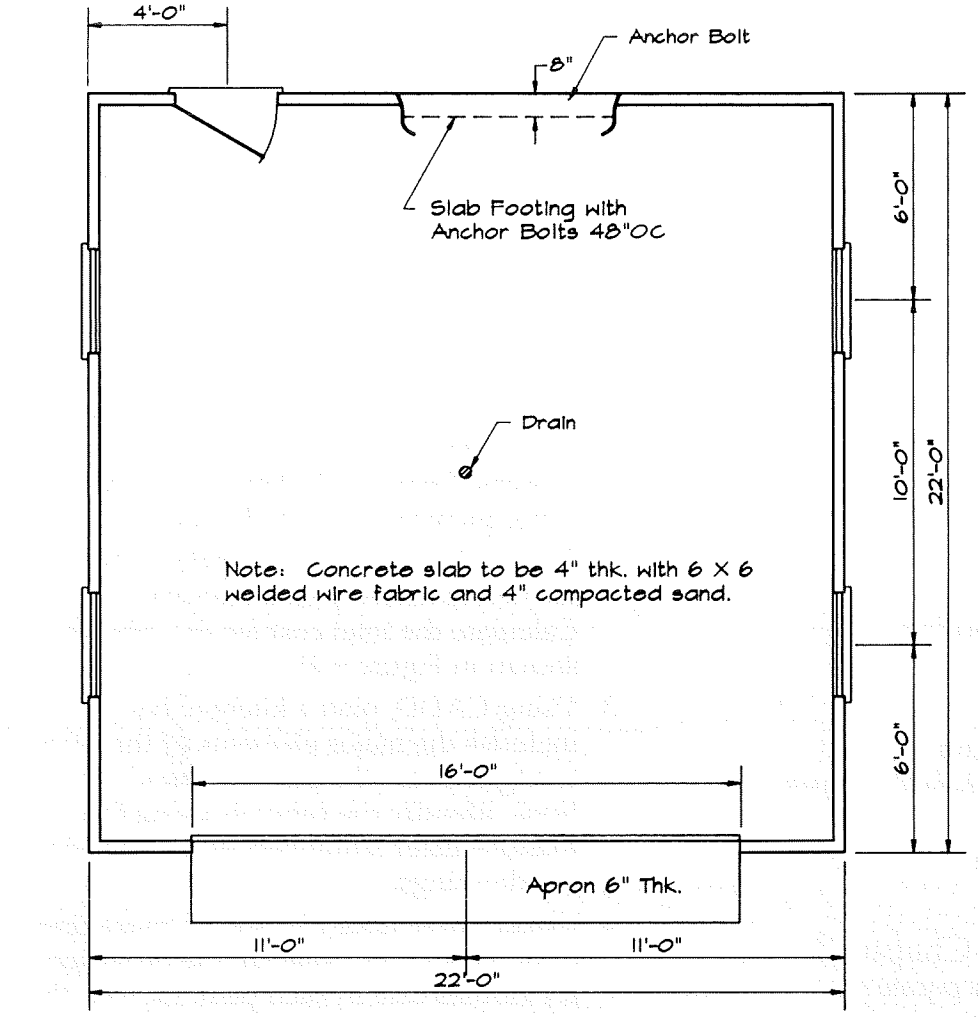


Figure 9-41. Standard dimensions of turnarounds for single- and two-car garages.



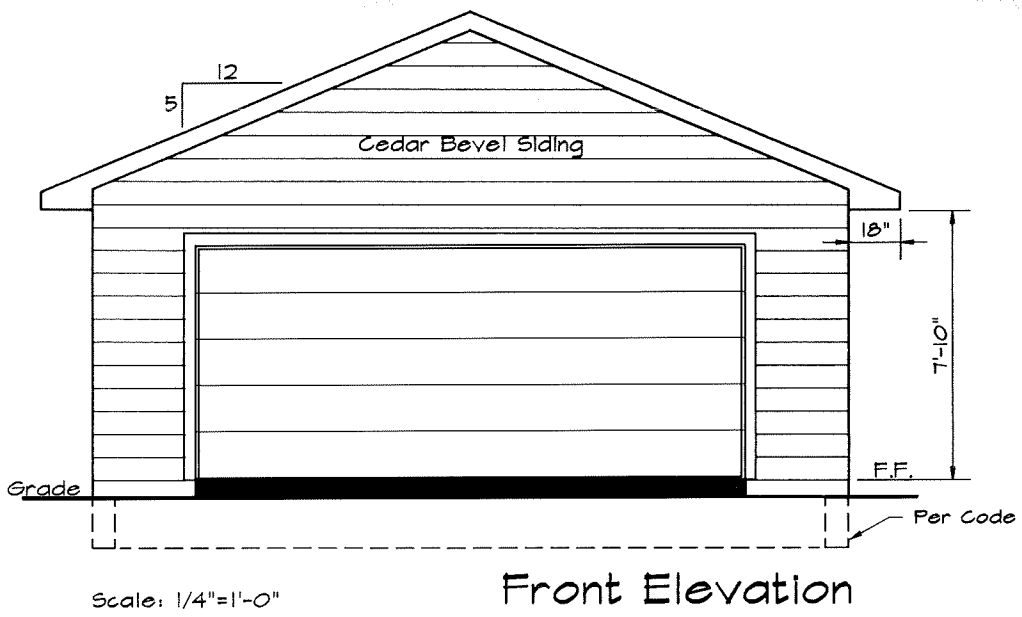


Figure 9-42. Plans for a basic two-car garage.

Internet Resources

www.anchorwall.com
Anchor Retaining Wall Systems

www.hurd.com
Hurd Windows and Patio Doors

www.jameshardie.com
James Hardie Building Products, Inc.

www.lpcorp.com
Louisiana-Pacific Corporation, a manufacturer of building materials

www.marvin.com
Marvin Windows and Doors

www.masonite.com
Masonite International Corporation, a door manufacturer

www.portcement.org
Portland Cement Association

www.raynor.com
Raynor Garage Doors

www.sterlingplumbing.com
Sterling Plumbing, A Kohler Company

www.whirlpool.com
Whirlpool Corporation

Review Questions – Chapter 9

Write your answers on a separate sheet of paper. Do not write in this book.

1. Kitchen cabinets are produced in standard widths, heights, and depths. The standard width increment is _____.
2. The dimensions of a single-car garage are approximately _____.
3. The minimum width of a driveway for a single-car garage is _____.
4. A clothes care center should provide for which activities? List at least four.
5. Identify the six basic kitchen designs.
6. The maximum acceptable length of the work triangle in a kitchen is _____.
7. The service area of a home generally includes which individual areas?
8. Kitchen base cabinets are normally _____ high.
9. Exhaust fumes from a kitchen hood fan should not be expelled into the _____.
10. List common materials in which overhead doors are available.
11. The standard width of a kitchen base cabinet is _____.
12. The counter height for a kitchen eating area that is designed for chairs should be _____.

Suggested Activities

1. Visit an appliance store and obtain literature on the newest kitchen appliance designs. Prepare a bulletin board display using pictures from the literature.
2. Secure specifications and price lists of kitchen cabinets from a manufacturer. Calculate the total cost for the cabinets shown in Figure 9-21.
3. Using CADD, plan a kitchen that includes the major elements of the work triangle. Draw the plan view and elevations. Identify the cabinets using the manufacturer's numbers and dimension the drawings.
4. Obtain three floor plans from magazines or other sources. Analyze the provisions for clothes care in each plan. Explain the strengths and weaknesses of each. Propose improvements where needed.
5. Measure the length and width of a standard-size car. Using CADD, design a plan (top) view symbol for a car. Develop symbols for at least three different styles of cars. Then, design a single-car garage that provides adequate space for the car and extra storage. Use the car symbols to help plan the garage.
6. Using CADD, draw kitchen symbols from this chapter. Add these to your symbols library for future use.