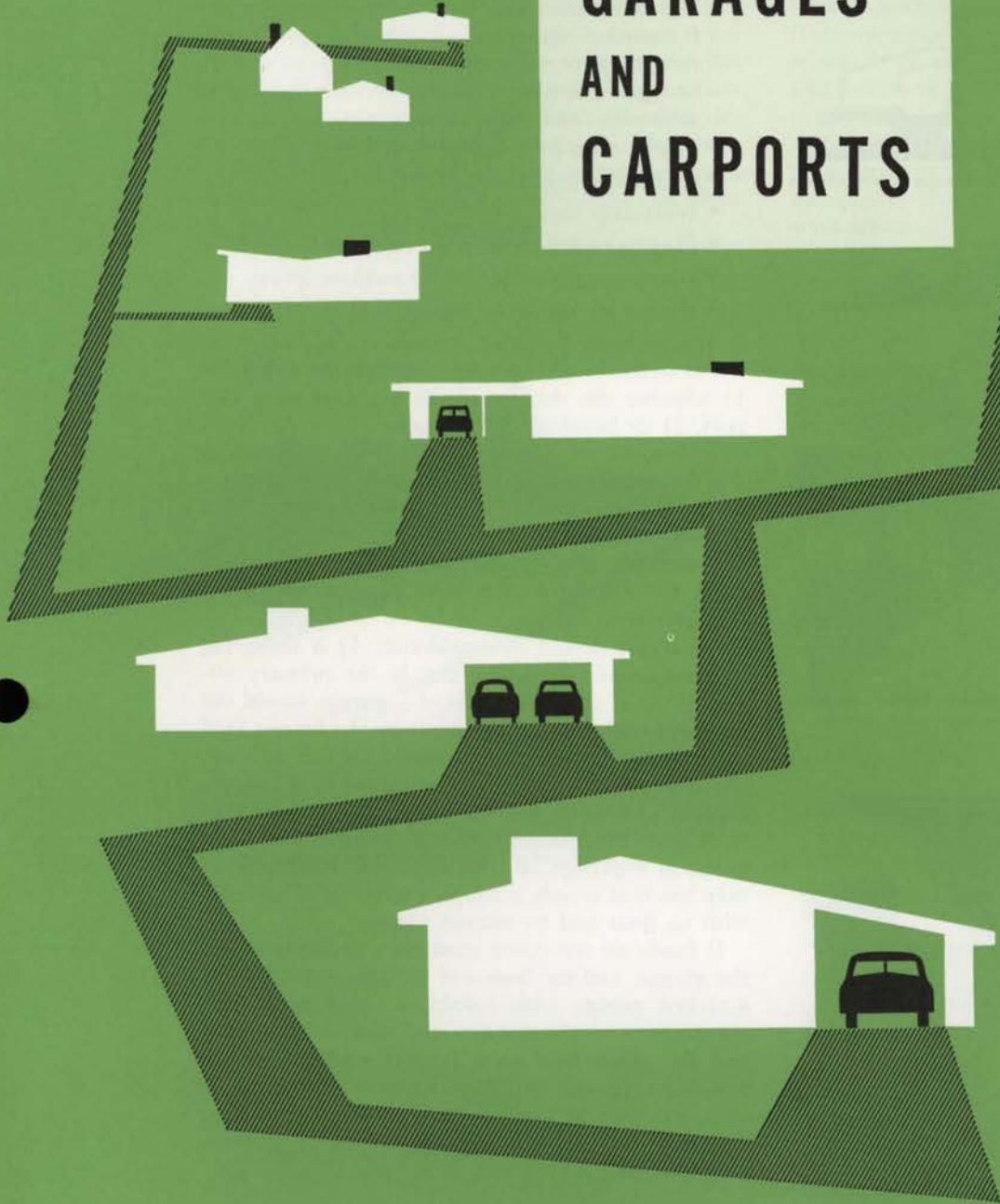


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# GARAGES AND CARPORTS



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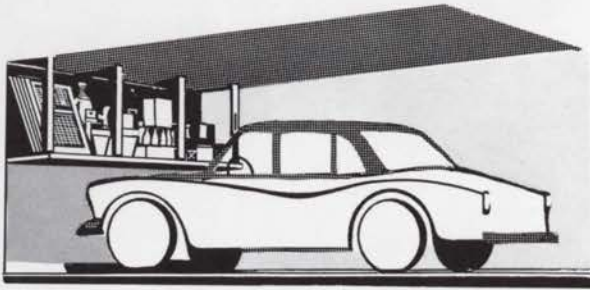
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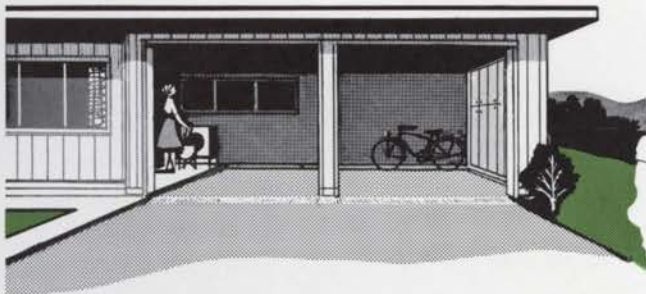
## GARAGE OR CARPORT CAN SERVE MULTIPLE PURPOSES



Space over hood of car can be utilized for storage in a minimum garage.



Storage units form one wall of this carport. Raised sidewalk and roof of carport provide a pleasant covered outdoor area.



This double garage is arranged so that there is a raised laundry area along the wall which opens into the kitchen. Storage units are built into the opposite wall. Two 9-foot garage doors are used for convenience.

A garage or carport which serves only as a shelter for an automobile is an extravagance in today's concept of house planning. The garage or carport can easily be designed to provide:

- The most convenient and cheapest storage area for garden equipment, porch and lawn furniture, bicycles, baby carriages, and general bulk storage. (Storage units can be installed at the side-walls and end-walls.)
- Utility area for laundry equipment.
- Clothes-drying space.
- Workshop area.
- Play space for children on rainy and cold days.
- Terrace space or porch for outdoor living.
- Shelter for the house against winter winds.

The multiple purposes, for which the shelter for the automobile will be used, will help to determine 1) whether the shelter will be a garage or a carport, 2) its location, and 3) its size.

In regions of cold weather, drifting snows, or driving rains, there is little choice — a garage is a logical shelter. A garage is also preferred if the space is to be used as a protected clothes drying area, a cold-weather play area for the children, a workshop, or as an extension to the living area for use during mild weather.

A carport should be considered: 1) if sheltering the automobile from the sun is the primary objective; 2) if the solid walls of a garage would cut out light and summer breezes from the house; 3) if the solid walls of a garage would appear to block the approach to the house or crowd it; 4) if the carport can serve also as a porch or terrace; or 5) if cost is a consideration. A carport can cost as much as a garage, or it can be built for considerably less if it is only a simple extension of the roof with no floor and no storage space.

If funds do not cover immediate construction of the garage, and the design of the house calls for an attached garage with continuous roof over both the house and the garage, the roof can be built and the space used as a carport until funds are available. In any case, the location of the driveway and that of the garage or carport should be definitely established when the house is planned even though construction is delayed.

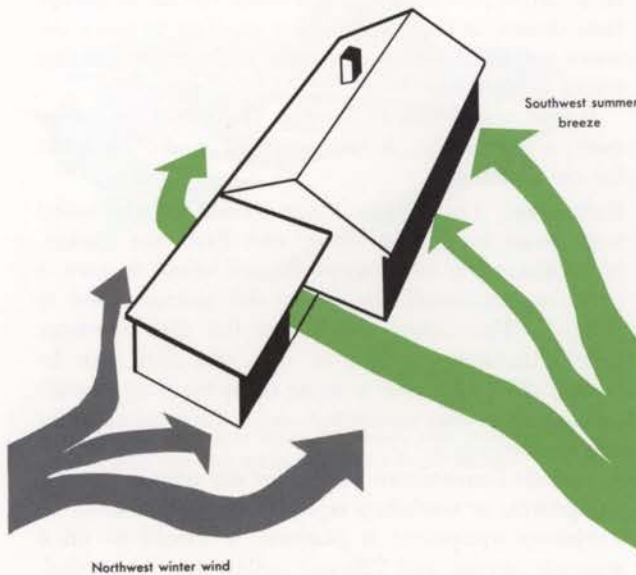


Instead of a double garage, this house has a carport and a single garage. The carport also serves as a covered outdoor living area. Storage space is provided in one wall of the carport.

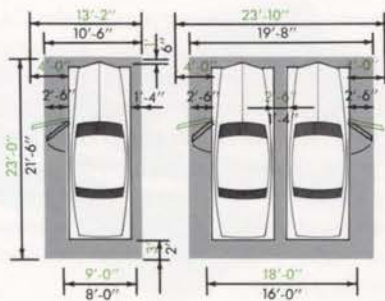
# SITE PLANNING



The garage area can serve as the principal entrance court to the house, as is shown here. Both the front door and the service door are easily accessible from the driveway. The turn-courtyard is another desirable feature.



Place garage to protect house from winter winds. Do not block summer breezes.



Minimum dimensions for the single and double garage are shown in black. For ease of access, the dimensions shown in color are recommended. The area shown is for car storage only, and additional space should be allowed for general storage and work areas. All dimensions in this circular are based on standard-size American cars.

Setback requirements and other building regulations will affect the location of the garage. If the garage or carport is to be used as a multiple-purpose structure, these uses will help to determine the location on the lot and its position in relation to the house, although other factors, such as the approach to the street, must be considered.

When adding a garage or carport to an existing house, especially when a place for a garage was not provided in the original site plan, the location must take into consideration landscaping features such as trees and terraces.

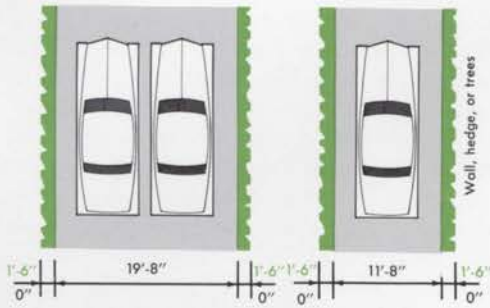
**Entrance Area:** With the increasing importance of automobiles in family activities, the garage or carport area or the driveway serves as the principal entrance court to the house, and should be recognized as such in designing the house. The main entrance should be easily accessible from the driveway, and the service door from the garage or the carport.

**Orientation:** If a choice of locations for the garage is available, the orientation should be considered in respect to prevailing winds, and winter and summer sun. In areas where the direction of prevailing wind in winter is different than that in summer — such as a southwest breeze in the summer and northwest wind in winter — the garage can sometimes be located to protect the house from winter winds (making it easier to heat) without blocking the desired summer breeze. Where mechanical cooling is planned or installed, location with the respect to the summer wind is less important. It sometimes is desirable to place the garage on the west side of the house to protect the house or the outdoor living area from direct sun. A desirable southern exposure should not be blocked by a garage.

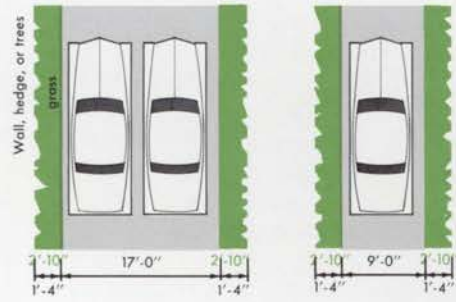
**Detached Garage:** While a detached garage is not normally considered as desirable as the attached garage or carport, its use may be necessary on narrow lots, in instances where the alternate use requires isolation from the house, or where side-yard and setback regulations are less restrictive for the detached building. If at all possible, the detached garage should be connected to the house by a breezeway or porch.

**Driveways:** Preferably, the driveway should be straight and as short as possible. If the lot is large enough, an off-street parking area or a turning area is desirable. The driveway should not be located close to a corner of the house, existing trees, or an area which is to have high landscaping. These may block the driver's view, which can contribute to accidents.

In the ideal situation, the drive is sloped from the garage to the street. The drive should be shaped to drain to the edges or to the middle. If there is no slope to the street, the drive can be sloped to the side or to a drainage inlet or ditch, as the contour of the land requires. The minimum slope for drainage is  $\frac{1}{8}$ " per foot of length or width of pavement in the direction of drainage.



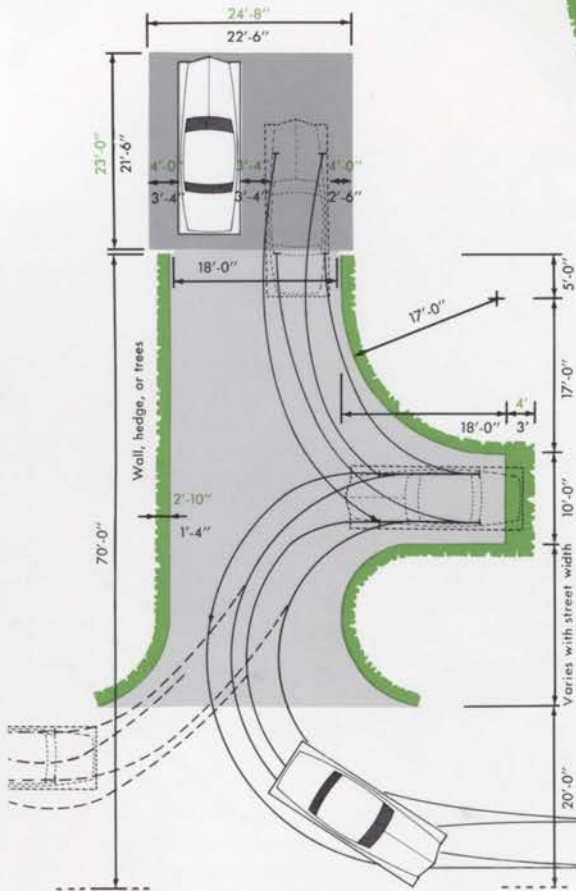
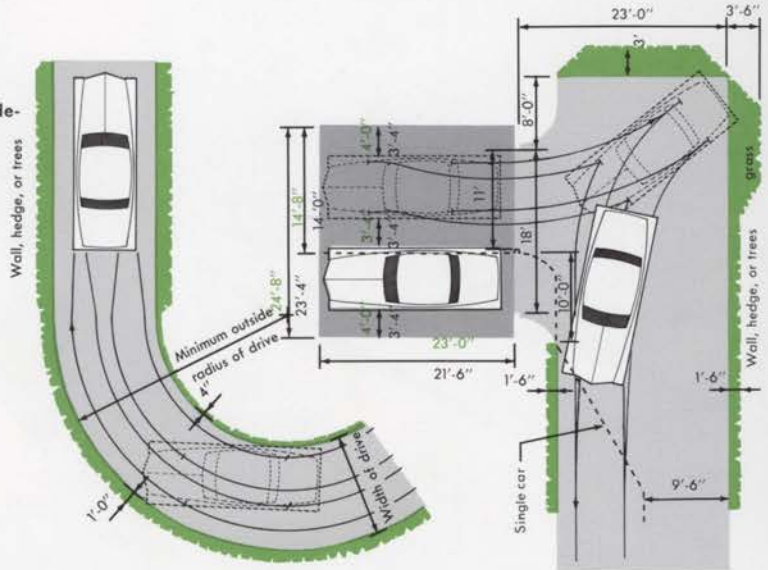
The above minimum and recommended (in color) driveway widths are suggested where the driveway is used both for parking and for a walkway. An additional two feet can be added to the double drive to allow space for the doors to open between cars.



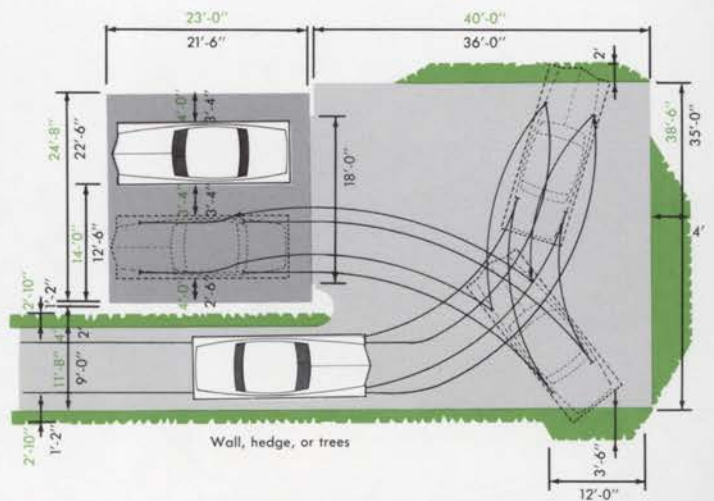
The above minimum and recommended driveway widths are for use where the driveway is used for parking only and not as a walkway.

The minimum outside radius for a single curved drive depends upon the width of the drive.

Width	Minimum outside radius
9'-6"	55'-0"
10'-6"	31'-0"
11'-6"	24'-9"



The minimum and suggested (in color) dimensions for a side-entrance garage are shown above. An eighteen-foot garage door is required to allow entrance and exit with only one backing maneuver.



On many streets, it is dangerous to back into traffic, and a turnaround area is desirable if there is space available at the front of the lot.

The minimum and suggested (in color) dimensions for a rear-entrance garage are shown above. Less side yard but more back yard is required. An eighteen-foot door was assumed in sizing the turning area.

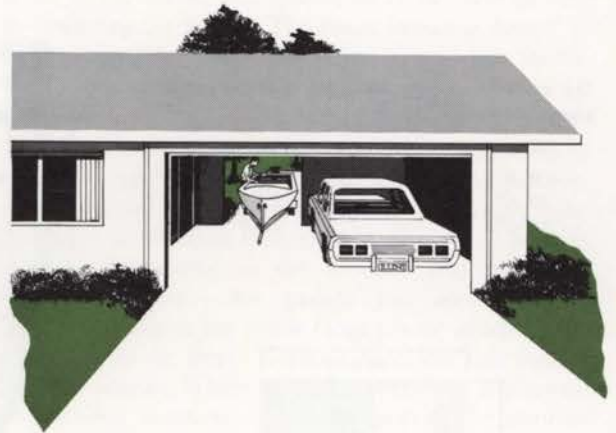
## DESIGN OF GARAGES

The attached garage is important in the architectural design of the house, since it forms a large part of the total facade of the structure. Garage designs that extend the line of the house ridge or the lines of the eaves, or those which seem to add to the total length of the walls (through the use of plain garage doors or side- or rear-entry garages) generally make the house look larger and more attractive. Designs which offer strong contrasting color or material often detract from the appearance of the house. For those who object to the garage opening facing the street, the side-entrance or rear-entrance garage can often be integrated into the house design.

Because of its size, the garage door must be selected with an eye to appearance, particularly if the garage faces the street. Doors should be simple in design so they do not dominate the house. A strong contrasting color or pattern on the door is generally undesirable. If the garage is to be used as an occasional extension of the living area, consideration should be given to translucent reinforced plastic doors, which admit considerable amounts of light even when closed. Also, screens are available to fit in standard-sized door openings. A large door in the back wall of the garage will provide access to back yard storage and work areas.



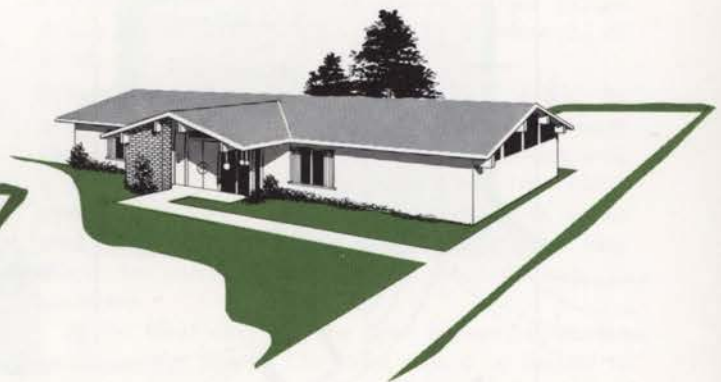
When the garage door faces the street, care must be taken to select a door which harmonizes with the house design.



A large door in the back wall of the garage allows access to the rear yard for storage and work area, and can permit the garage to be used as an extension of a rear patio area.



A garage facing the side lot line requires more side yard, but the door is not as dominant in the appearance of the house.



A rear-entrance garage takes less side yard than the side-entrance garage, and the garage contents are not on view when the door is left open.

# RECOMMENDATIONS FOR GARAGE CONSTRUCTION

The following recommendations are listed as a guide to garage planning and construction.

**Size:** The size of the garage will vary according to the uses planned for it. The illustrations indicate the minimum dimensions and clearances for one- and two-car garages for automobile storage only.

**Garage Door:** For the single garage, an 8-foot door is common and minimum. A door 9 feet wide is well worth the additional cost. On a double garage, a 16-foot door is cheapest and a minimum. Two single doors will provide greater convenience and add clearance between cars for easier access. An 18-foot single door is desirable, and is an absolute necessity if the approach to the garage is other than straight. The usual heights of doors are 6'-4" to 7'-0"; taller ones are available and should be considered if recreational vehicles or trailers are to be stored.

Overhead doors, either one piece or sectional, are available in a variety of designs and with several types of operating hardware. Some project when opened; others slide back into the garage. Some require no space over the doors; others require 16" to 18" above the top of the door opening. (Outswinging hinged doors are difficult to open in the snow and wind, and are easily damaged. Sliding and folding doors hung from overhead tracks take valuable garage wall space; moreover, obstructions such as sticks and stones interfere with door operation.)

**Door Operators:** Automatic electric operators are available for almost any type of overhead door. They may be controlled from permanent push-button installations or by radio.

**Other Doors:** One service door is recommended in addition to the automobile door. If the garage is attached, a second door to the adjacent yard is desirable in addition to the connecting door to the house.

**Windows:** At least one window is desirable for natural light. Windows are needed for light and ventilation if the garage is to be used for a play area, workshop, or laundry. High windows may be advantageous over storage and work areas, since they permit use of the wall space.

**Roof:** If there is enough room within the roof structure, provisions should be made for attic-type storage. A folding, pull-down stairway is suggested. Insulation is needed in the roof if the garage is to be heated.

**Fire Separation:** The wall between the house and an attached garage should have a one-hour fire rating. For frame construction, this would typically be 5/8" Type "X" (fire-resistive) gypsum board or lath and plaster as an interior finish on the garage side of the wall. If there is no ceiling in the garage, this protection should extend to the roof line. The wall should be insulated, and should not contain plumbing which is subject to freezing. If there is a living area above the garage, the ceiling should be protected similarly.

**Foundation Wall:** Raise the foundation wall at least 4 inches above the garage floor to protect the bottom plate of the frame wall from dampness.

**Floor:** A concrete slab floor should be one or two inches above the driveway to avoid ice, snow, and surface water difficulties. For maximum convenience, the area in which the car stands can be depressed an inch or two so that water from snow melting from the car will be conducted away from the walking areas. If the garage is attached to the house, the floor should be one or two steps lower than that of the house to prevent dirt, water, and gasoline fumes from entering the house. The floor should be sloped one to two inches to the door so that water dripping from the car will run out the door. If a laundry, storage, or work area is provided, it is recommended that it be raised above the area where the car stands.

**Plumbing:** If a floor drain is permitted, connect it to a dry well, not to the sewer system or the septic tank. Most plumbing codes prohibit the use of garage floor drains, as they could allow gasoline to enter the sewer system as well as provide a place for gasoline fumes to accumulate.

Install water supply lines if the garage is to be used as a laundry. A water supply is also desirable for car washing.

**Electricity:** The garage lights should be controlled both from inside the house and from the garage. Most automatic door operators are wired to turn a light on automatically when the garage door is opened. The wiring system for the door operator should include a switch so that this light can be turned off if the door is to be open for long periods of time, or so that unwanted use of the door operator can be prevented.

Provide convenience outlets for car repair, laundry equipment, or workshop equipment as applicable. If workshop equipment is planned, it should be on a separate circuit, and 220-volt outlets may be needed.

**Heating:** Provisions should be made for heating the attached garage in any northern region, even if the garage is used only for the storage of automobiles. It is only necessary to heat the garage above freezing, in most instances, but if it is to be used for a play area, shop, or laundry, the heating system should be capable of maintaining the area at 70°. The central heating system (warm air, hot water, or steam) may be extended to heat the garage. To avoid fumes being brought into the house, there should be no return-air duct from the garage. A power-vent-type wall heater may be used if the central heating system does not have adequate capacity, or if the garage is detached. Local codes may prohibit the location of a heating unit in the garage.

A snow-melting system, consisting of electric heating cables or hot water pipes embedded in the driveway, and their appropriate controls, is a useful accessory in northern areas. If the driveway has a steep slope, they may almost become a necessity.