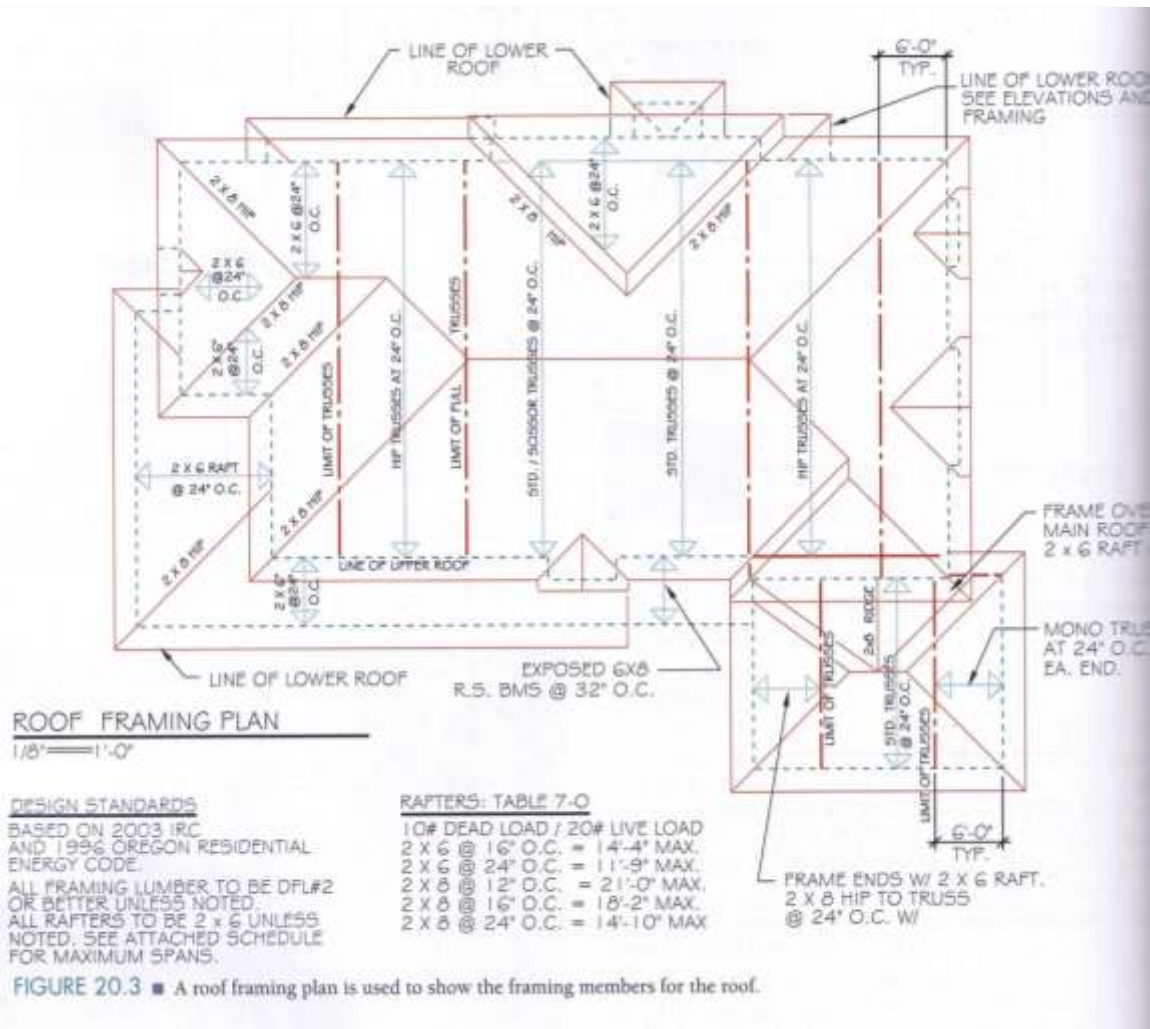


Roof Plan Components

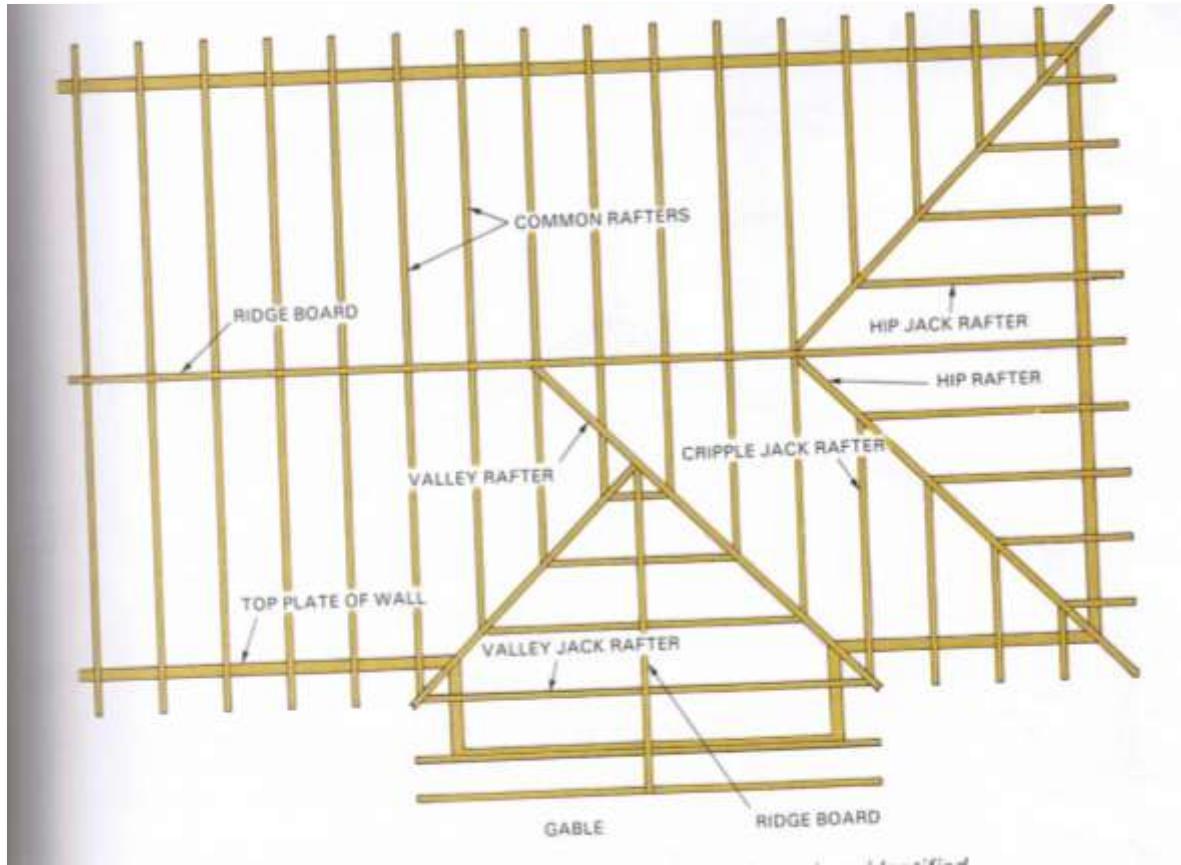
Roof Layout Plan



Roof Plan

A roof plan is commonly drawn to a scale of 1/8 inch per foot or 1/16 inch per foot.

A roof plan shows the shape of the roof, as well as roofing materials, underlayment and location of vents.



Roof Plan

A roof framing plan shows size and direction of the construction members that are required to frame a roof.

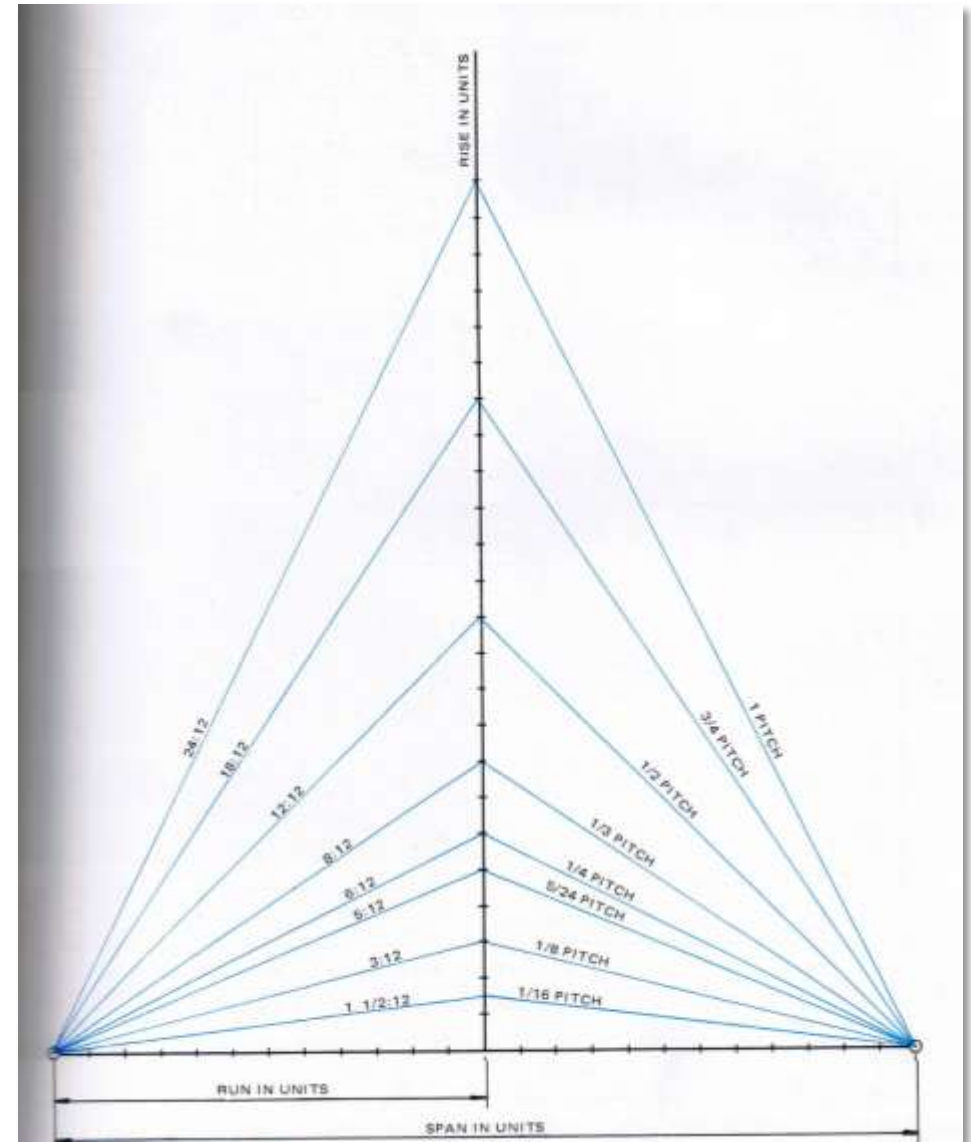
***Roof slope is a description of the angle that the roof rafter makes with a horizontal reference. It compares the horizontal run to the vertical rise. A 6:12 roof has a pitch of $1/2$.**



Fig. 17-6. Graphic illustration of roof rise, run, and span.



Fig. 17-7. The roof slope diagram represents the relationship of the rise to the run.



On a flat roof, a slope of $\frac{1}{4}$ inch per foot is often used to prevent water from ponding on the roof. (2 percent slope)

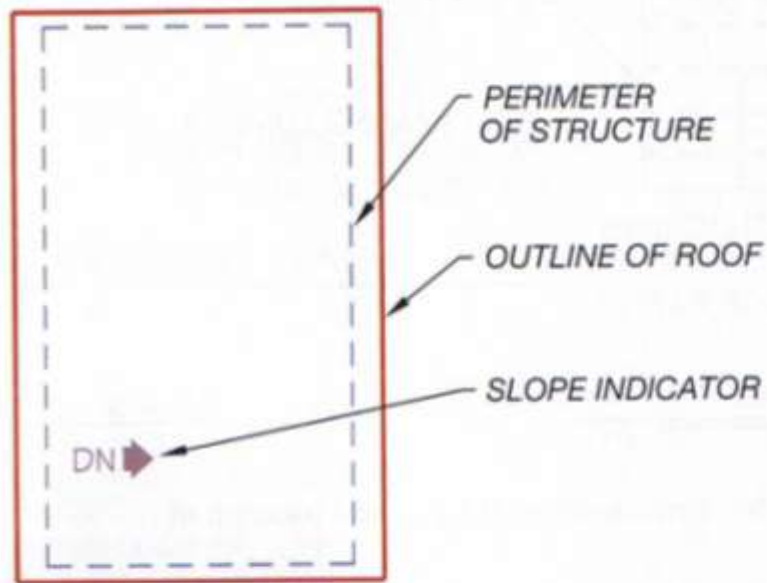


FIGURE 20.8 ■ Flat roof in plan view.



FIGURE 20.10 ■ Many contemporary homes combine flat and shed roofs to create a pleasing design. *Courtesy LeRoy Cook.*

***Live Loads:** Those fixed or moving weights, which are not a structural part of the house. Examples include furniture, occupants, snow on the roof, etc.

Dead Loads: Those static or fixed weights of the structure itself. Example of dead loads are the weights of roofing, foundation walls, siding, joists, etc.

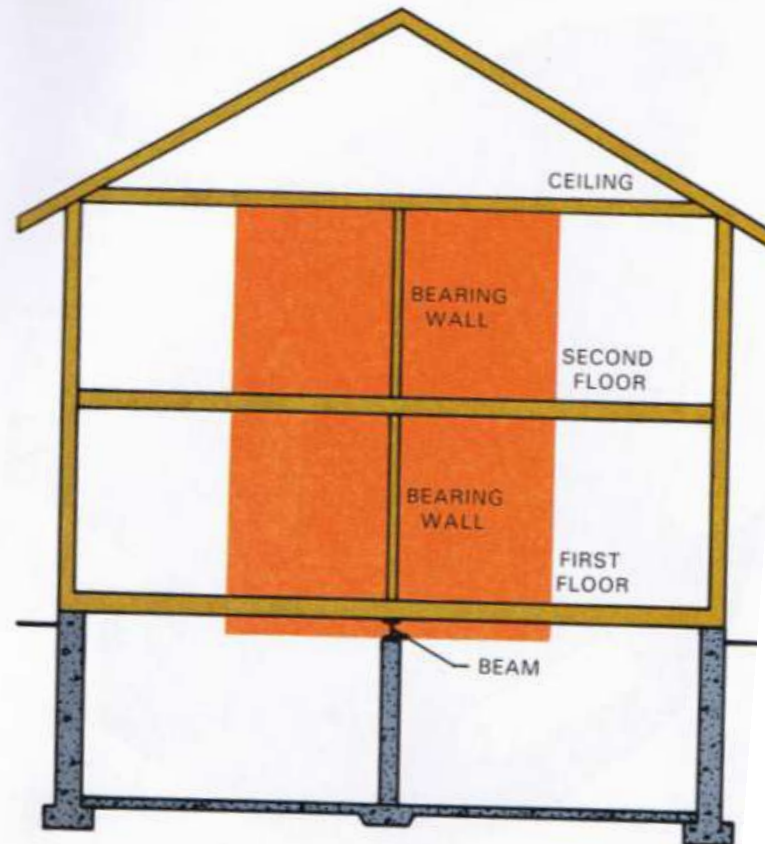


Fig. 9-27. Weight represented by the shaded area is supported by the beam.

Define the term parapet as used in reference to a flat roof:

It is a false wall surrounding the perimeter of the roof.



Flat Roof

The flat roof is a very common style in areas with little rain or snow. In addition to being used in residential construction, the flat roof is typically used on commercial structures to provide a platform for heating and other mechanical equipment.

When used, it must be shown on the roof plan

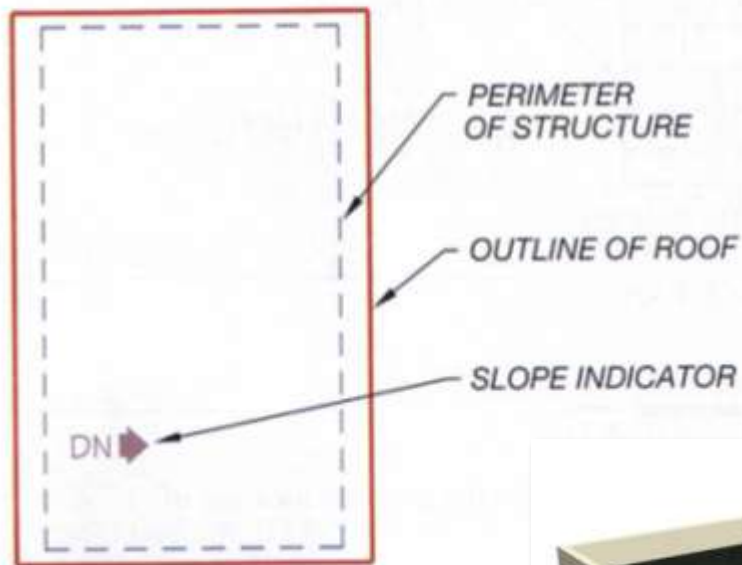


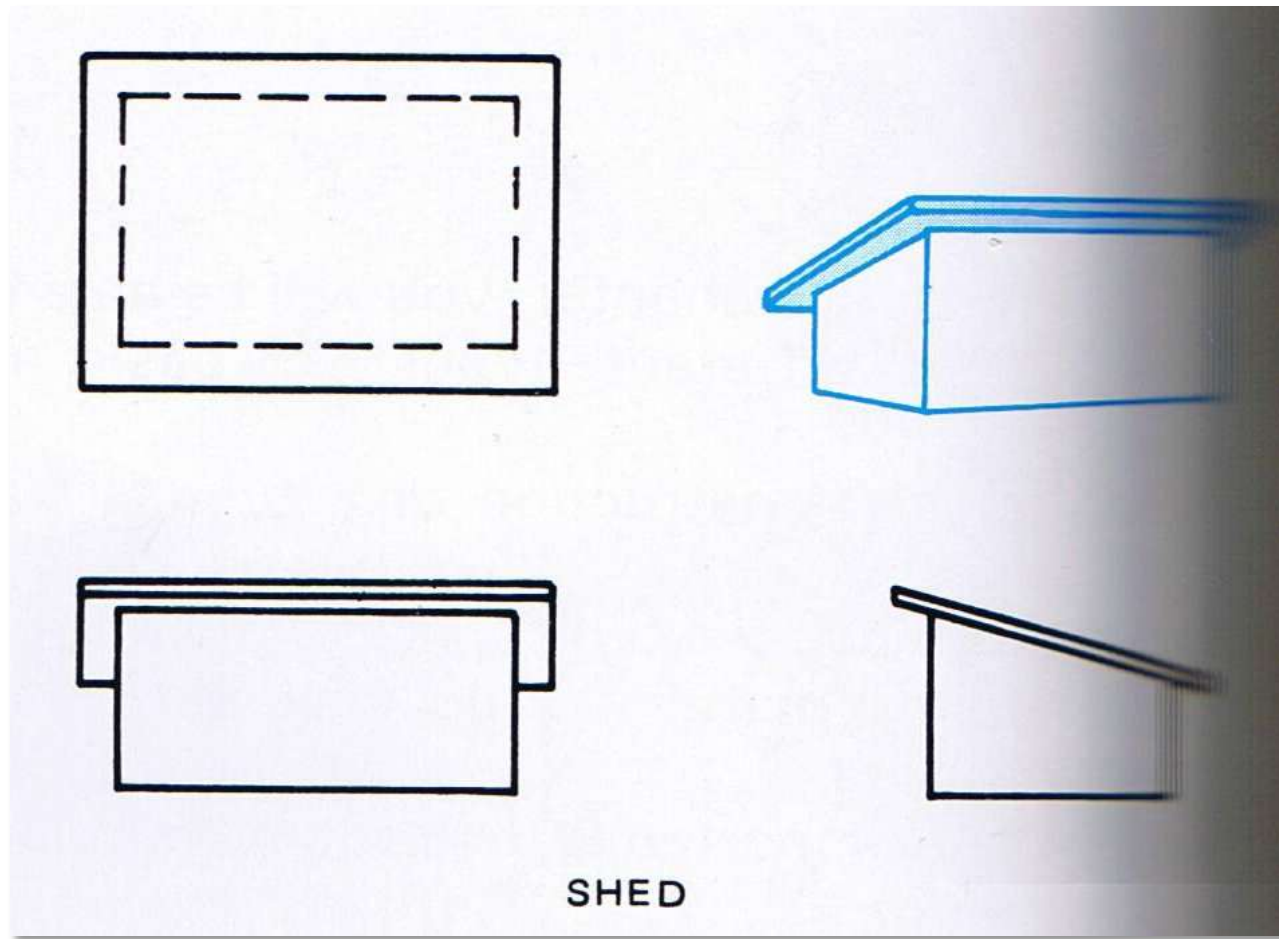
FIGURE 20.8 ■ Flat roof in plan view.



contemporary homes combine flat and gable design. Courtesy LeRoy Cook.

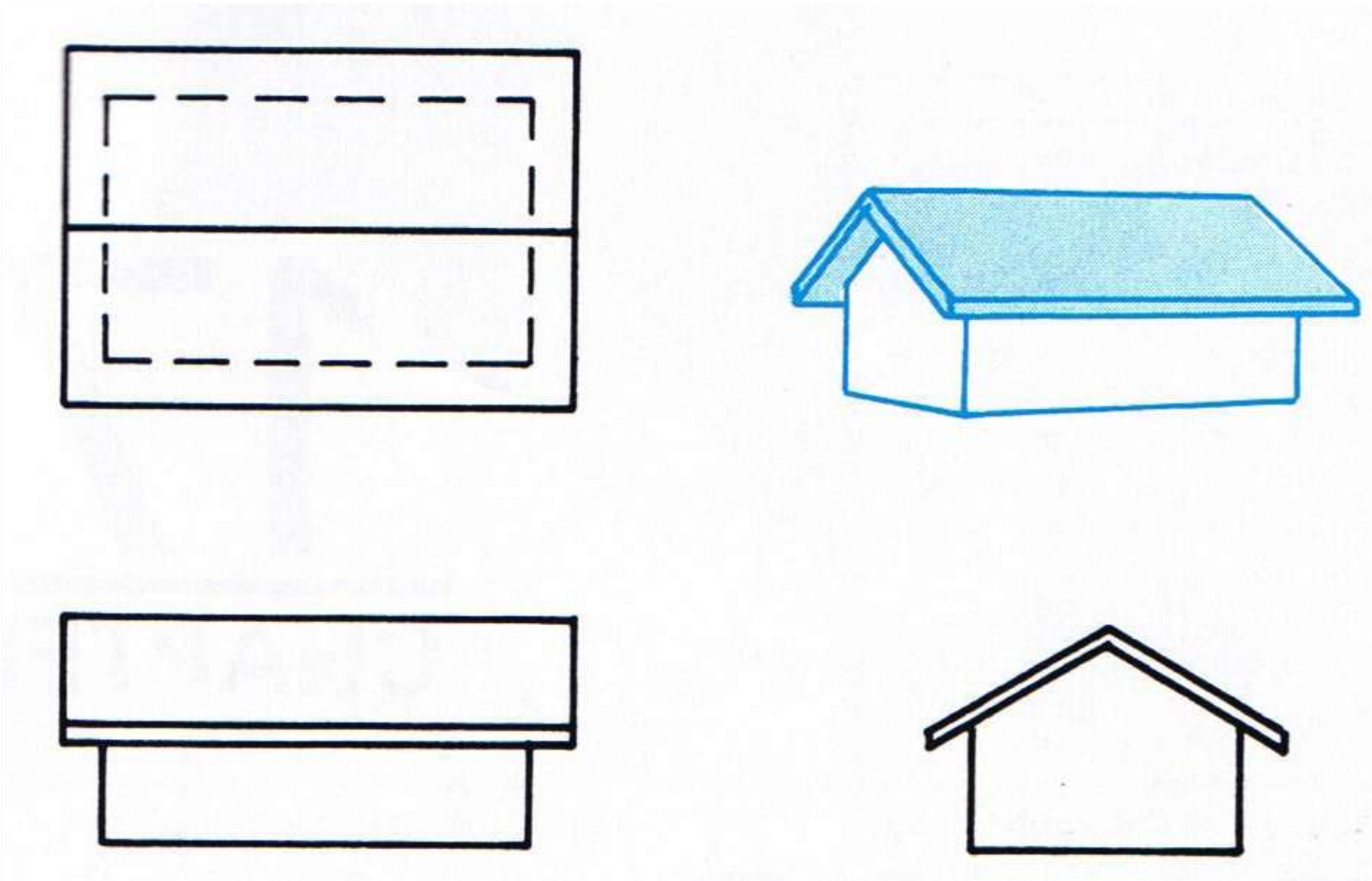
Shed Roof

The only limiting factors of slope on a shed roof are the roofing material and aesthetic considerations.



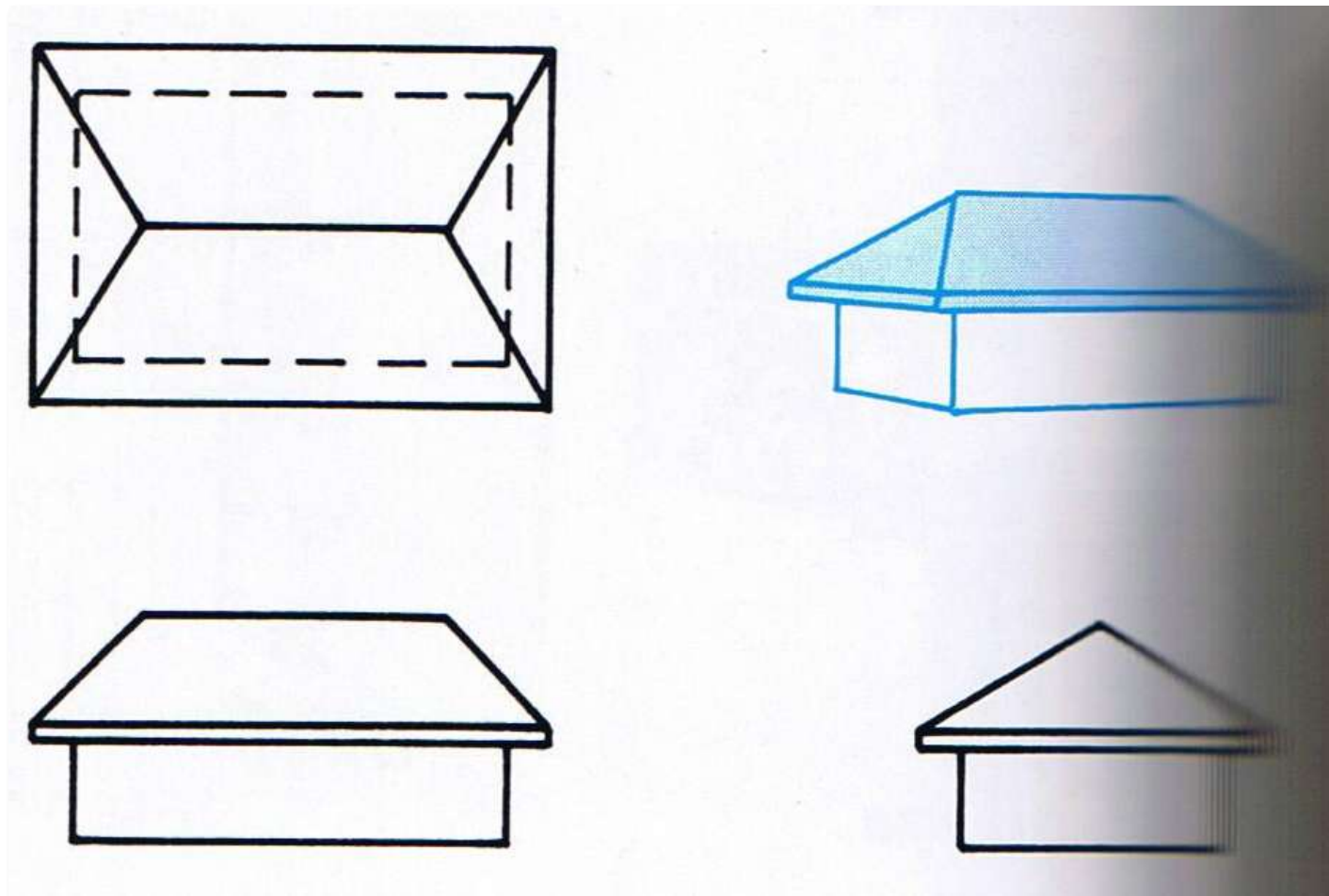
Gable Roof

***A Gable roof is the most common type of roof used in residential construction. It is made up of two shed roofs that meet to form a ridge between the support walls.**



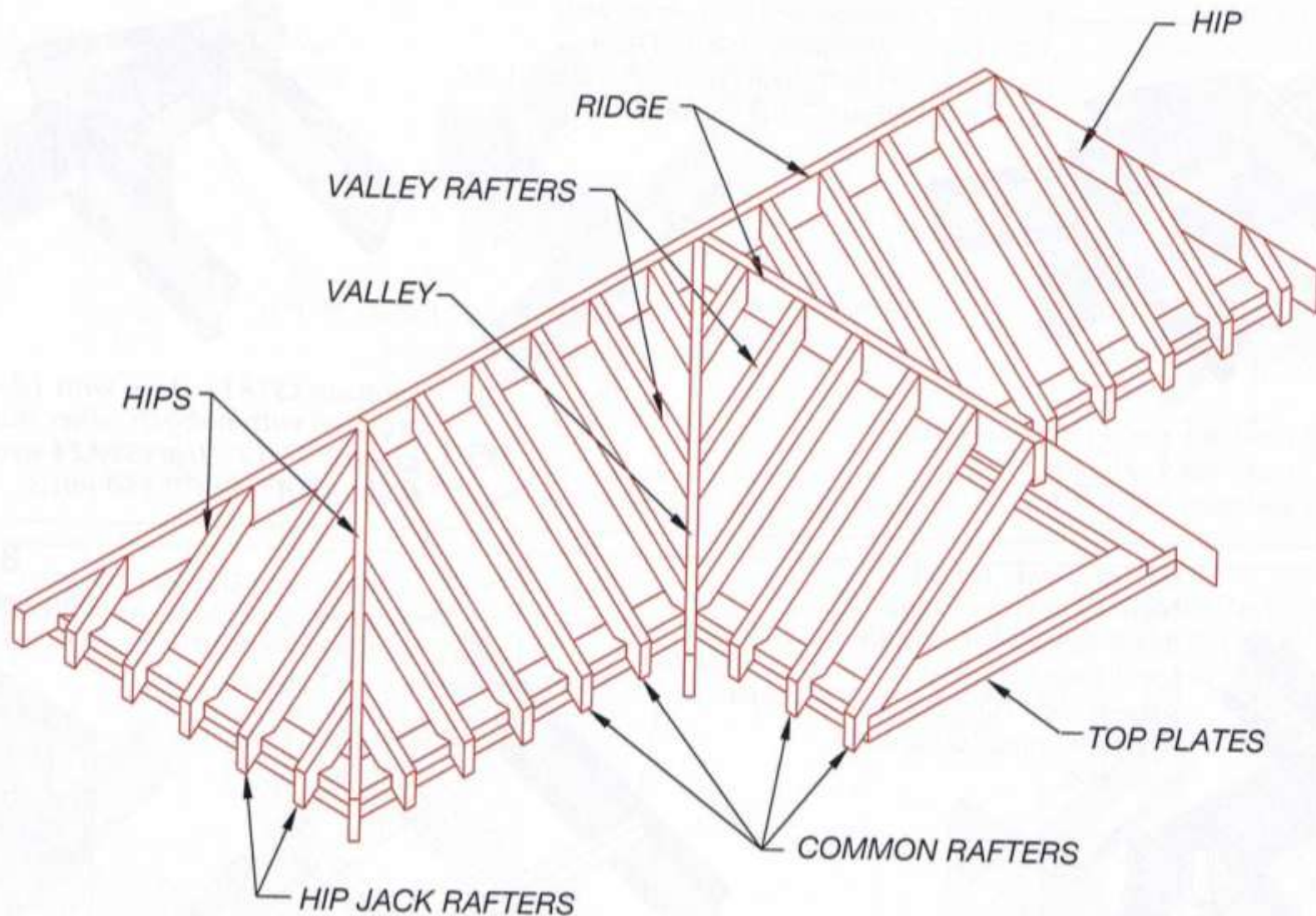
Roof Plan

***A Hip roof has many similarities to a gable roof but has a minimum of four surfaces instead of two.**



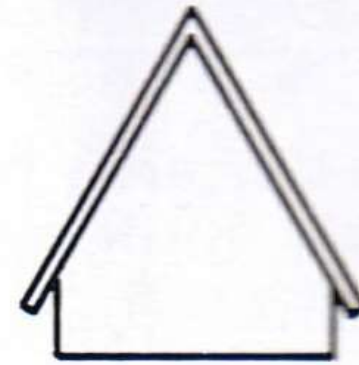
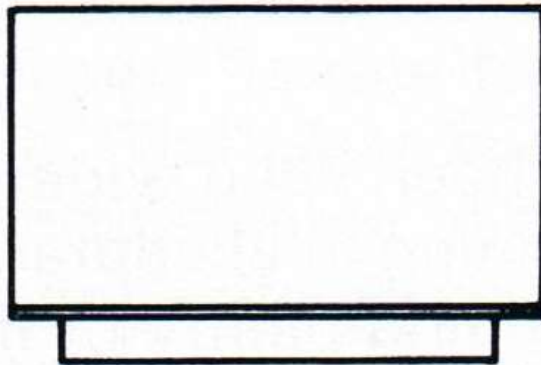
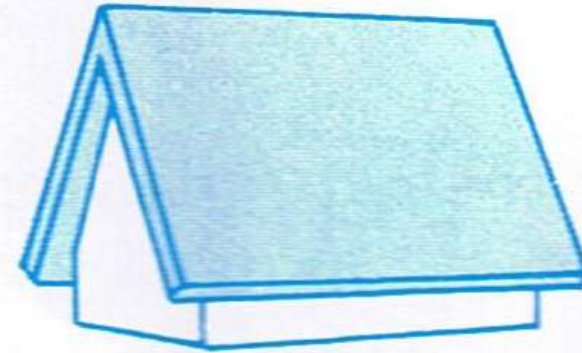
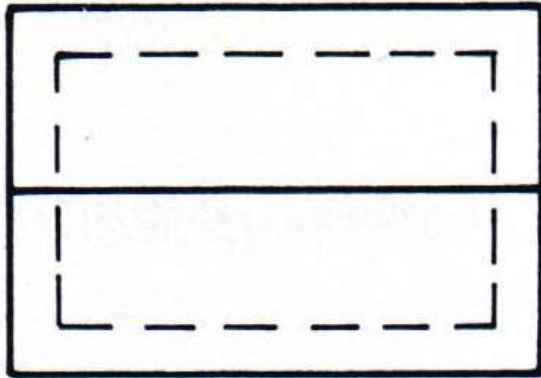
Roof Plan

The intersections of gable surfaces are called either hips or valleys.



A-Frame Roof

An A-Frame structure uses rafters to form its supporting walls.



A-FRAME

On a roof plan, the  symbol preceded by the letters DN is called a slope indicator.

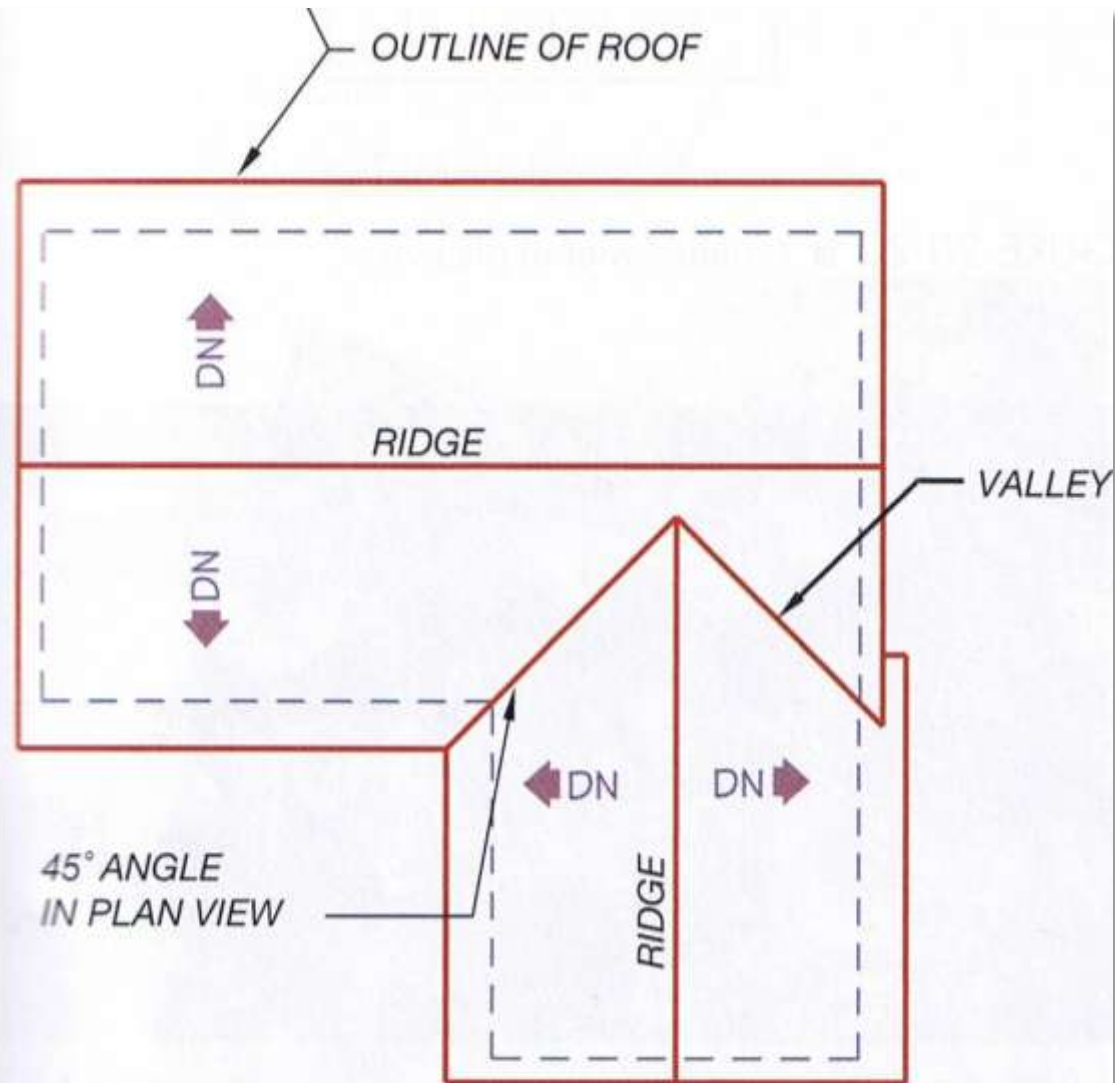
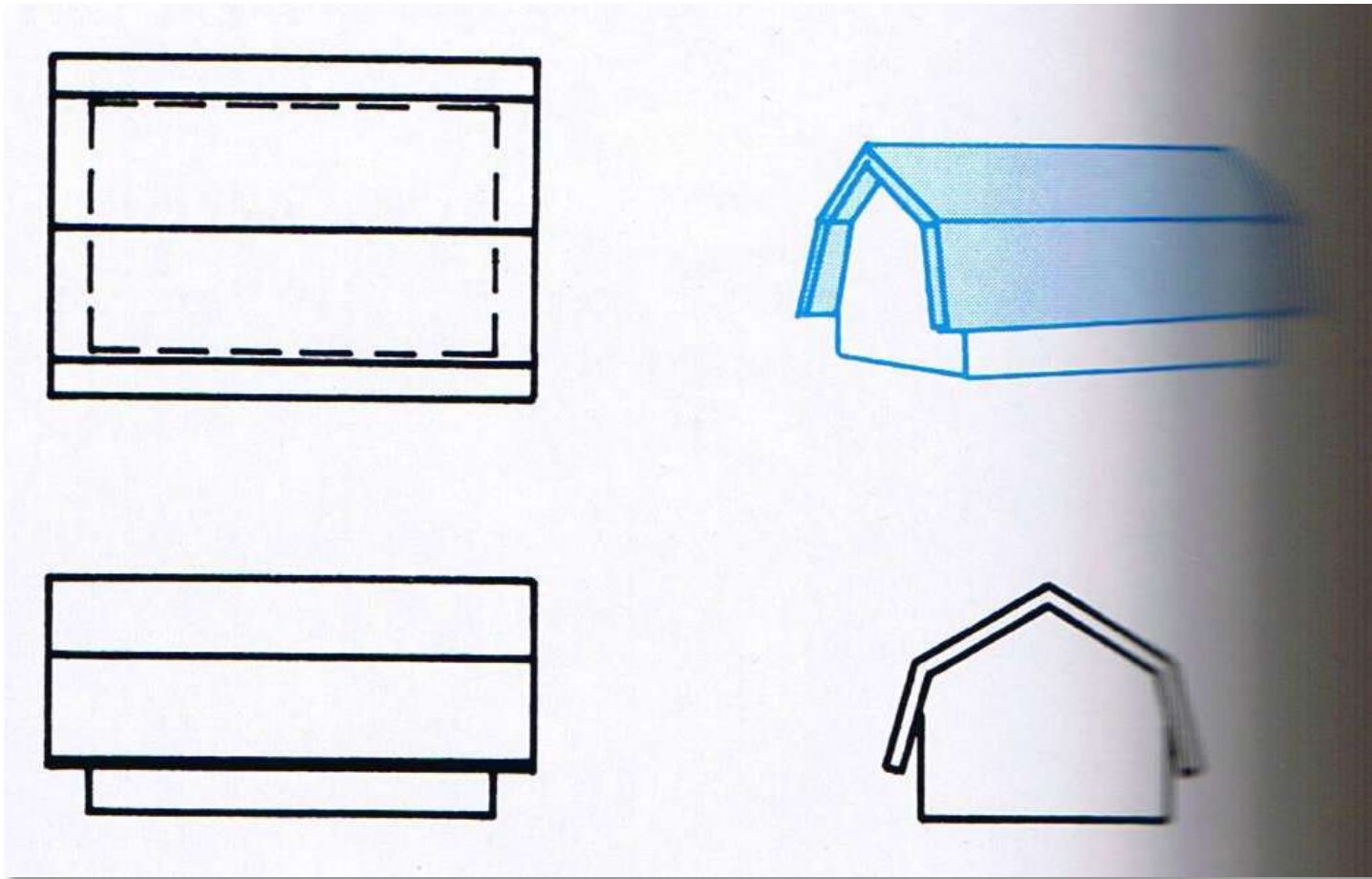


FIGURE 20.22 ■ Hips and valleys in plan view.

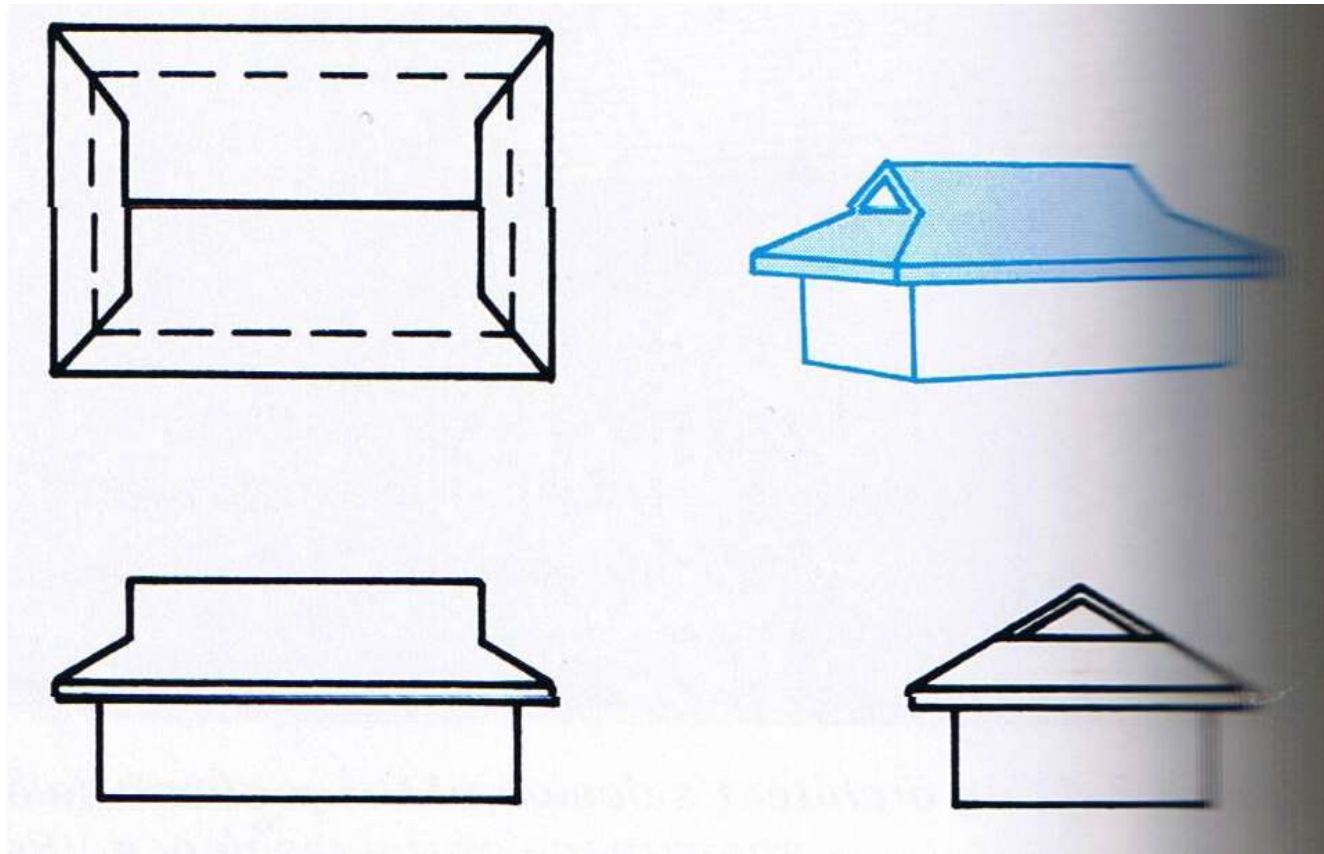
Gambrel Roof

A gambrel roof is patterned somewhat after the gable roof but has two separate slopes, the lower portion of the roof being a steeper slope than the upper.



Dutch Hip Roof

A Dutch hip roof is a combination of a hip and gable roof.



Dormer Window

*Briefly describe a dormer:

A dormer is an opening framed in the roof to allow for window placement.

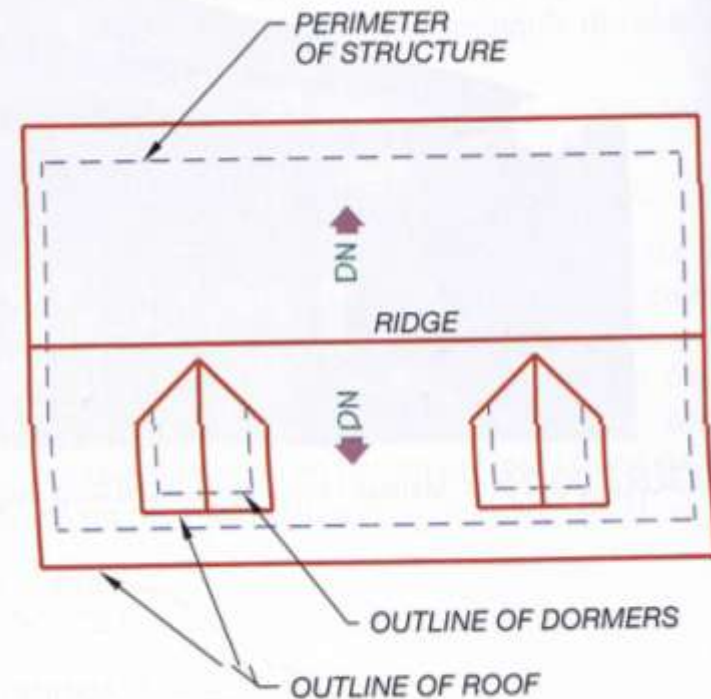
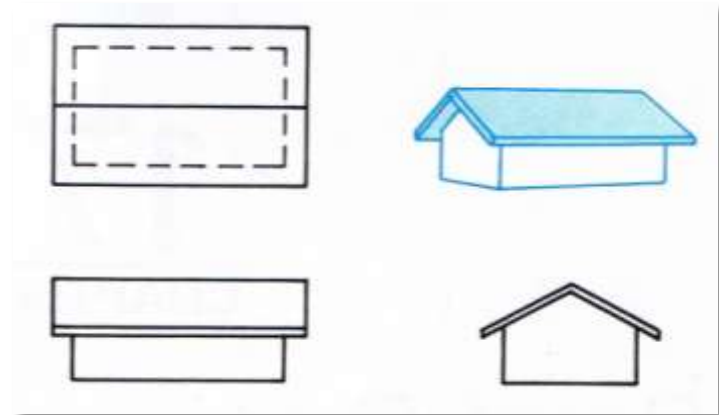
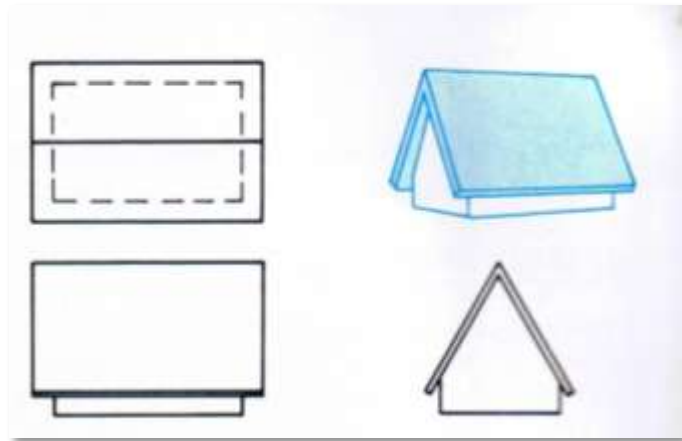
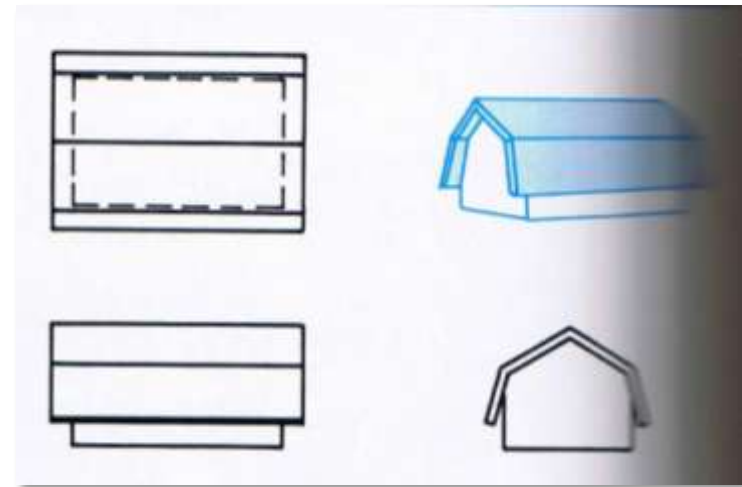
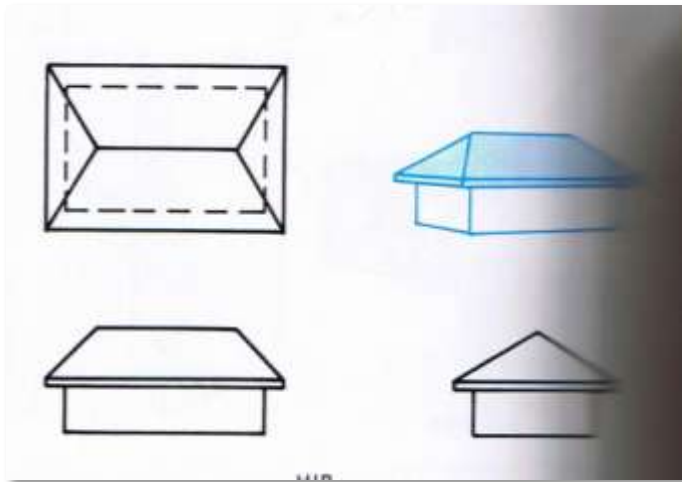
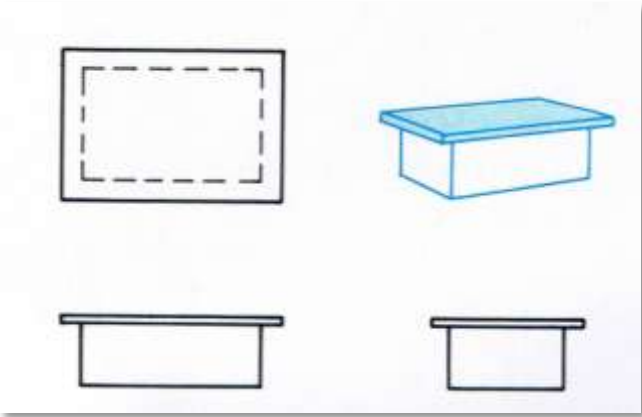
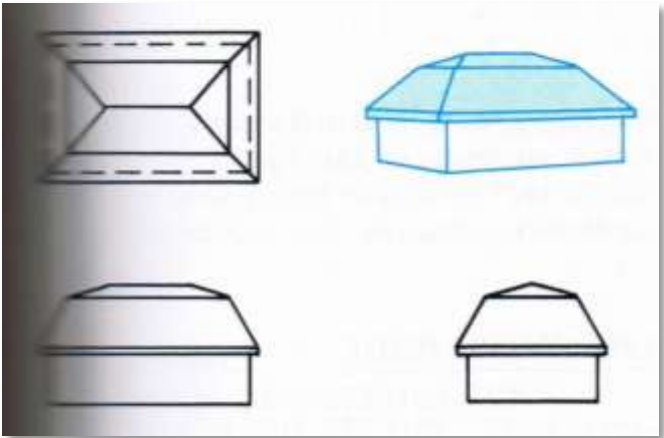
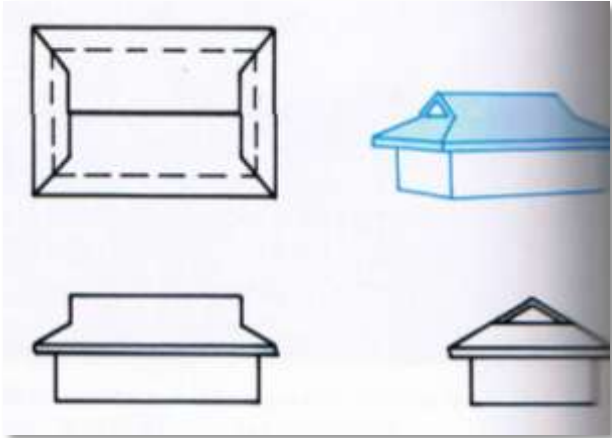
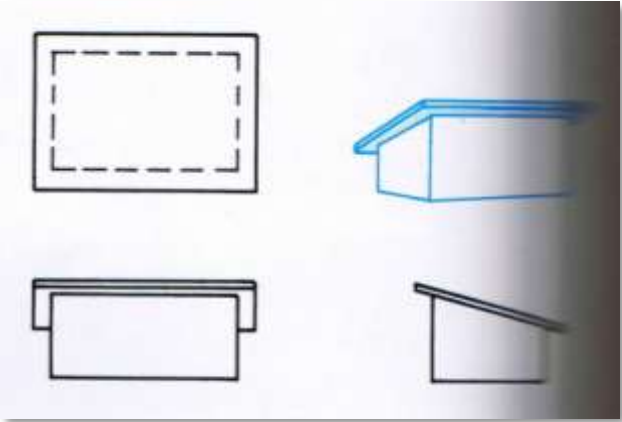


FIGURE 20.31 ■ Dormers in plan view.

Match the following roof names with the appropriate figure.



Match the following roof names with the appropriate figure.



The weight of the roofing material will affect the size of framing members all the way down to the foundation level.

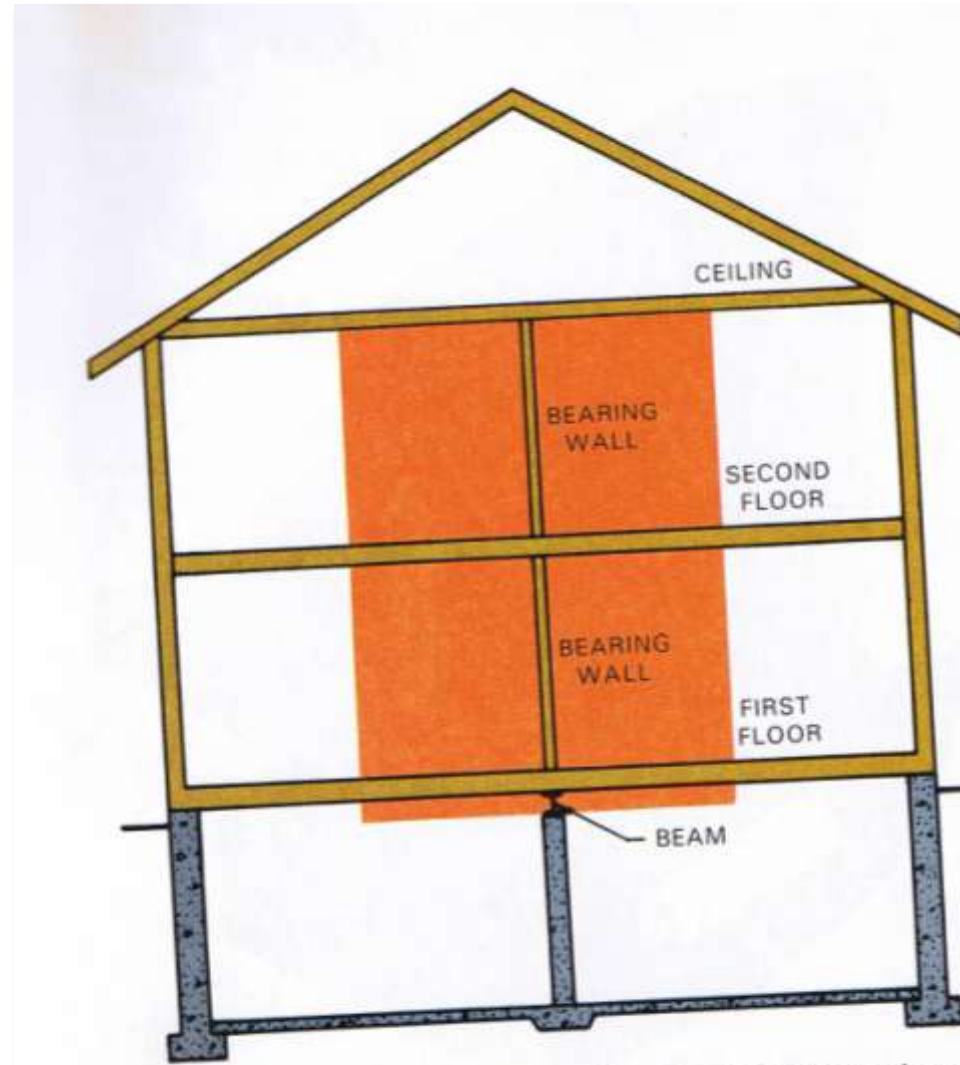


Fig. 9-27. Weight represented by the shaded area is supported by the beam.

A square is used to describe an area of roofing that covers 100 square feet.



Built-up roofing of felt and asphalt is typically used on flat or low slope roofs below a 3 in 12 slope.

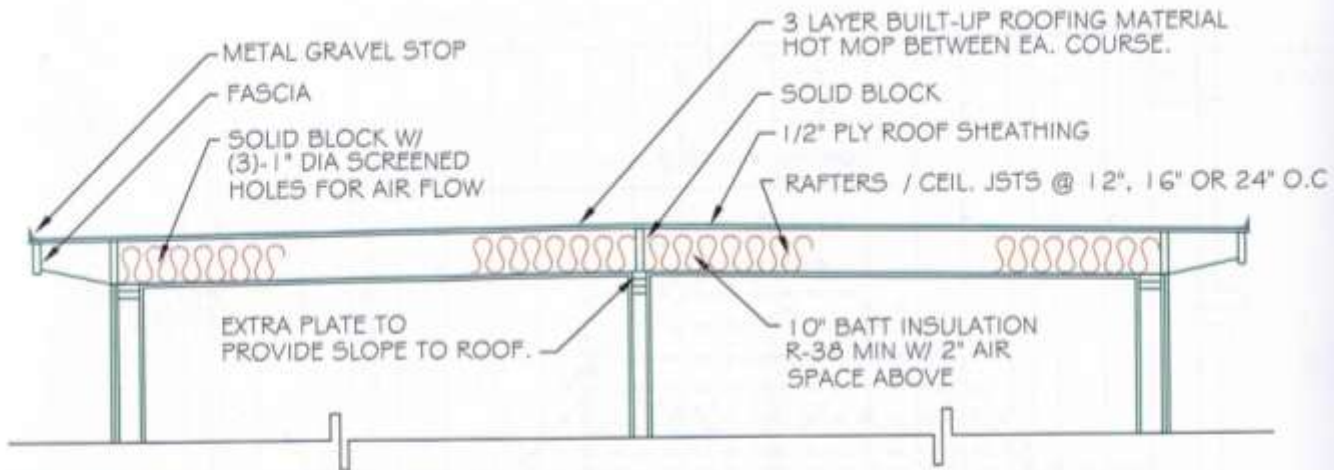


FIGURE 20.7 ■ Common construction components of a flat roof.

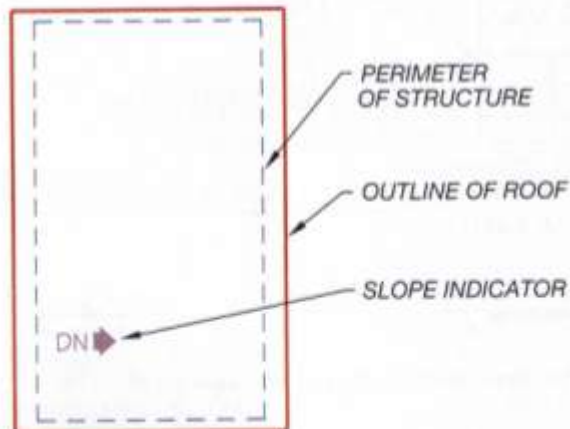
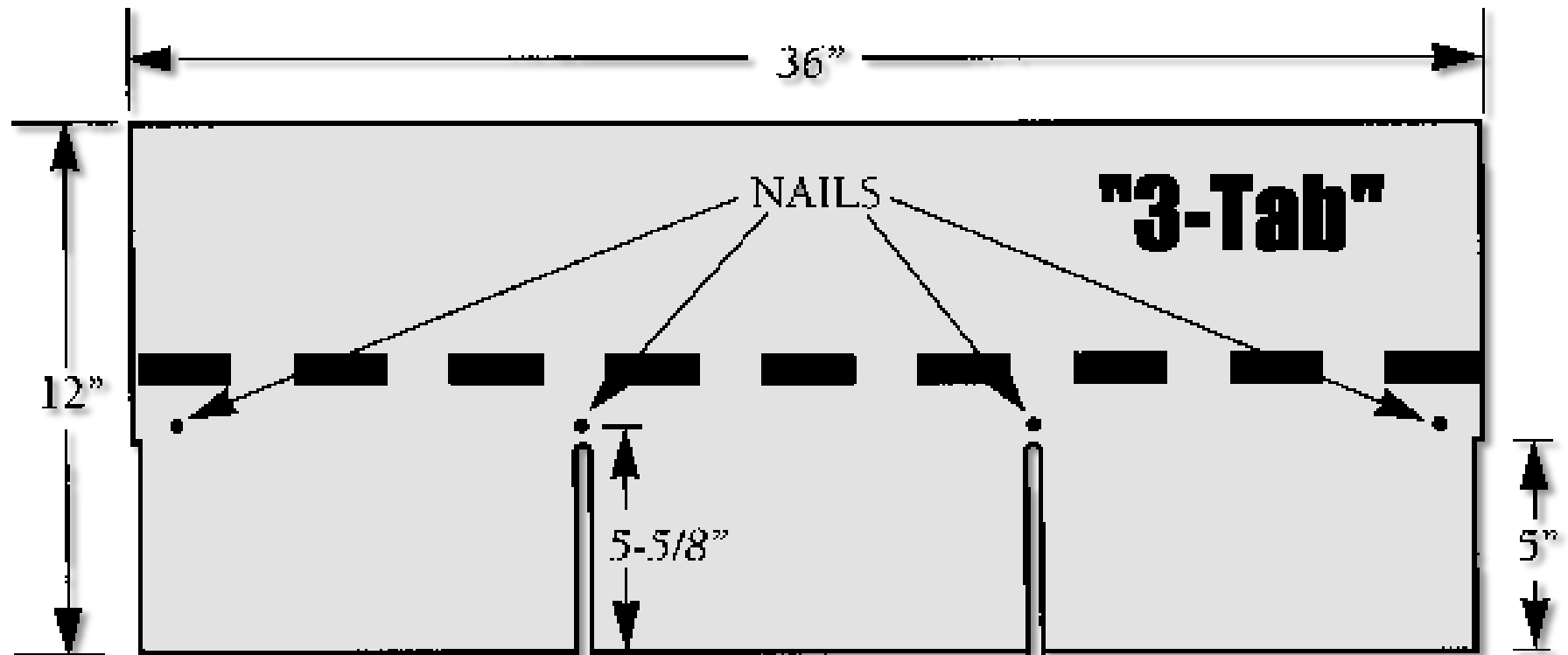


FIGURE 20.8 ■ Flat roof in plan view.



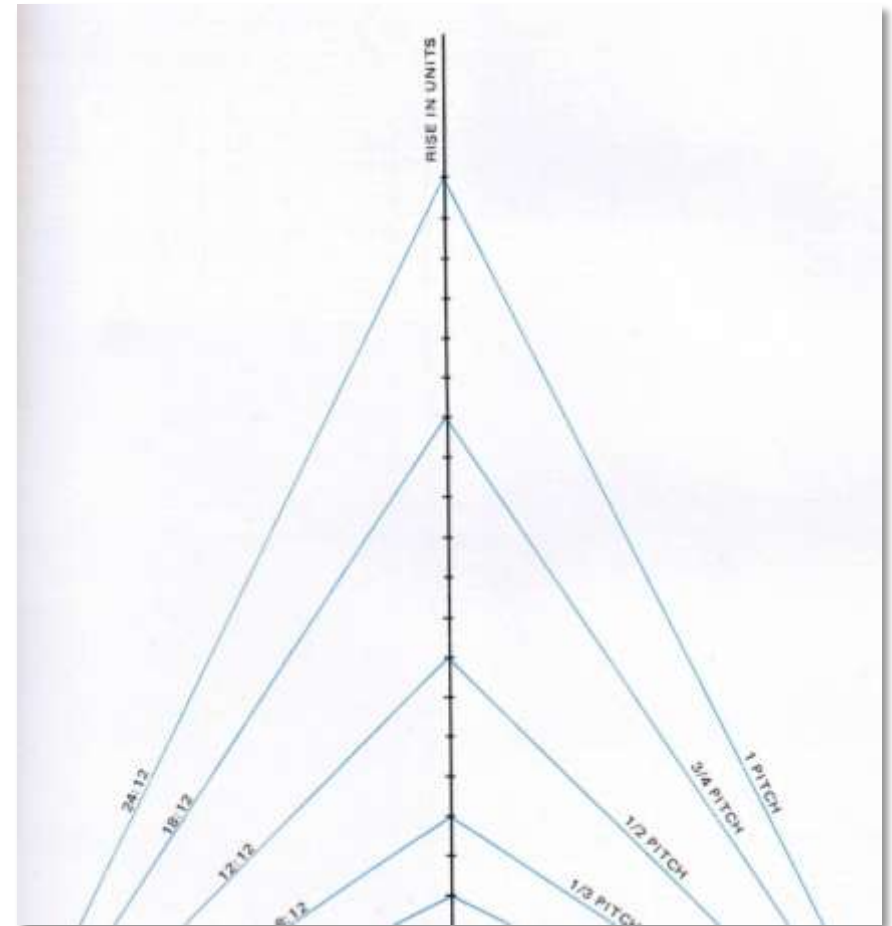
FIGURE 20.10 ■ Many contemporary homes combine flat and shed roofs to create a pleasing design. *Courtesy LeRoy Cook.*

The standard shingle is a three tab rectangular strip weighing 235 pounds per square.

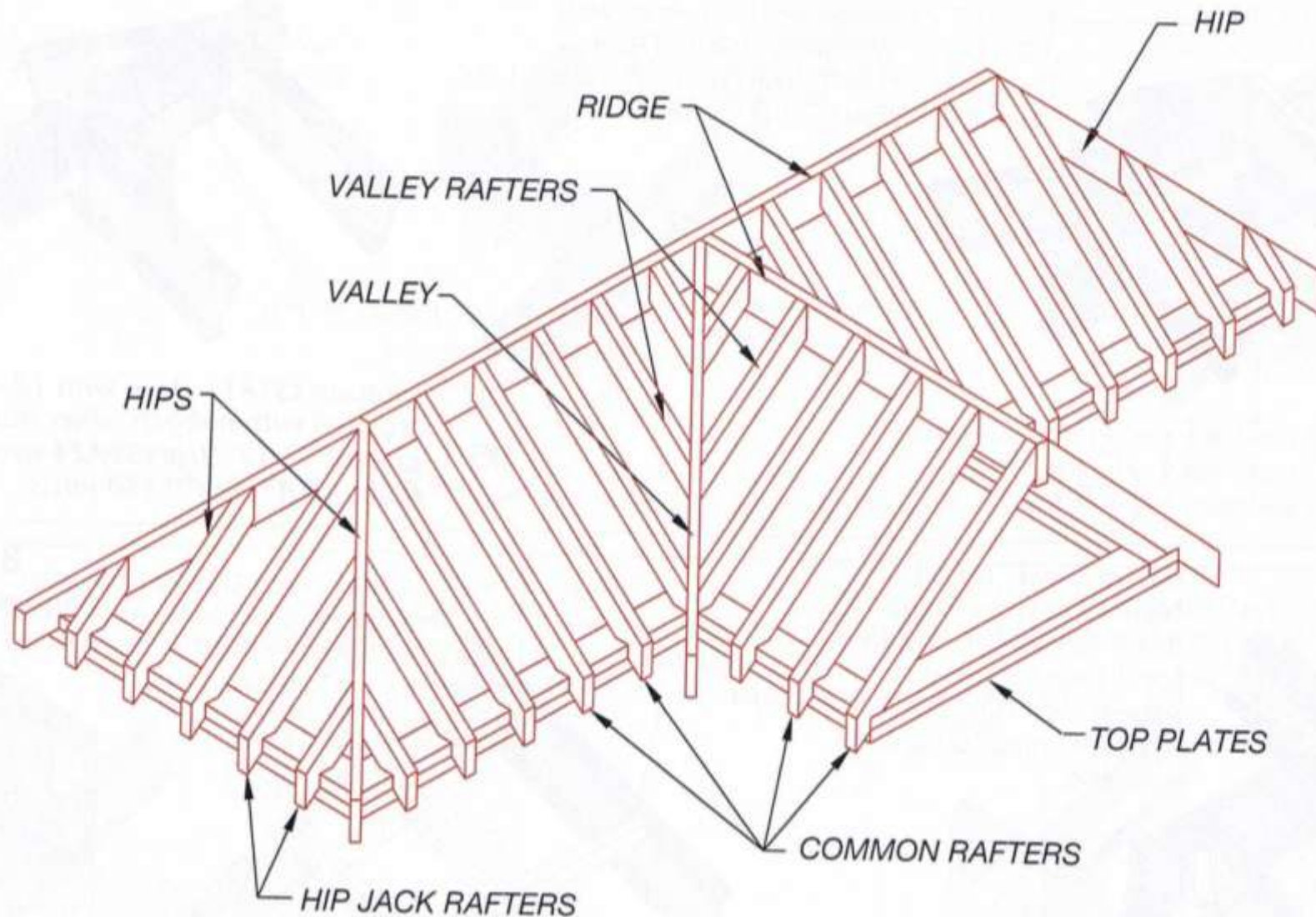


On shingle roofs most building codes require a minimum slope of 4:12 with an underlayment of one layer of 15 pound roofing felt.

As the angle of the roof is increased, the size of the overhang may need to be decreased so that the eave will not extend into the line of sight from the window.



Hips represent the intersection between two roof planes and are represented by a line drawn at an angle that is one-half of the angle formed between the two supporting walls.



The attic area must be provided with vents that are covered with 1/8 inch screen mesh.

The attic access should have an opening that is 22 inches by 30 inches with a minimum headroom clearance above the access door of 30 inches.

Avoid placing the access in areas such as the garage; areas with high moisture content, such as bathrooms and utility rooms, or in bedrooms that will be used by young children.

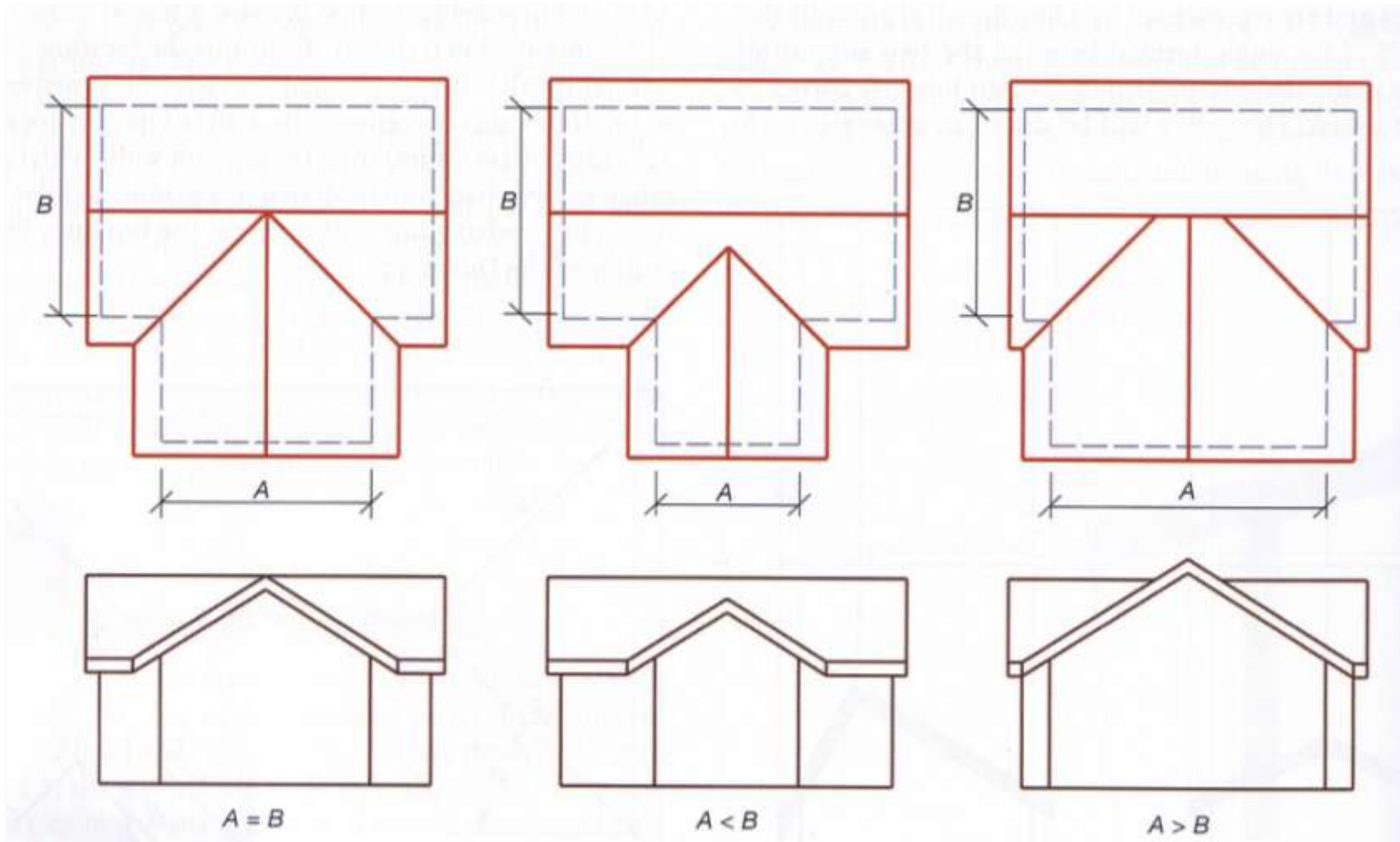
Code requires that the access be located in a hallway or other accessible location.

Attic and Crawl Space Access

Access is necessary to attics and crawl spaces. The crawl access may be placed in any convenient location such as a closet or hallway. The crawl access should be 22 × 30" (560 × 762 mm) and located in the floor, as shown in Figure 14.82.

Crawl space access can be shown on the foundation plan when it is constructed through the foundation wall. When it

When slopes on both sides of the roof are equal, the wider the distance between the support walls the higher the roof ridge will be.



A small gable built on the up-slope side of the chimney to divert water away from the chimney is called a saddle.

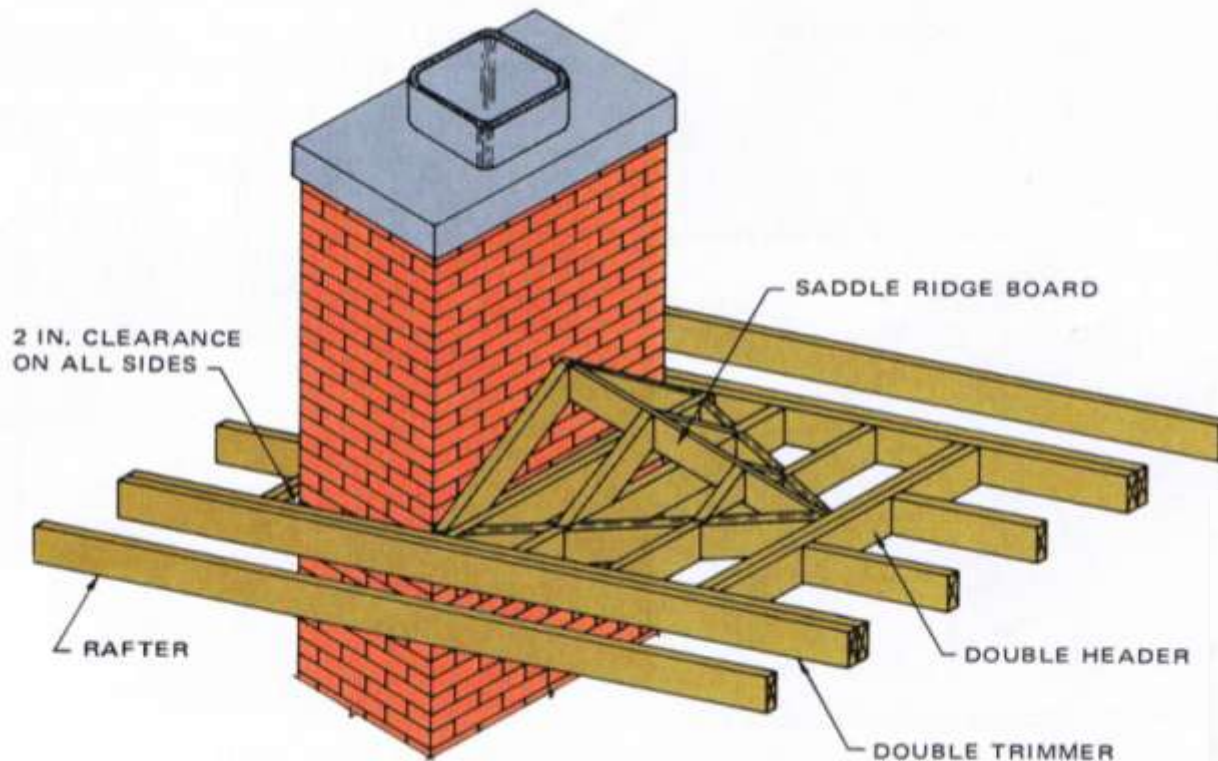
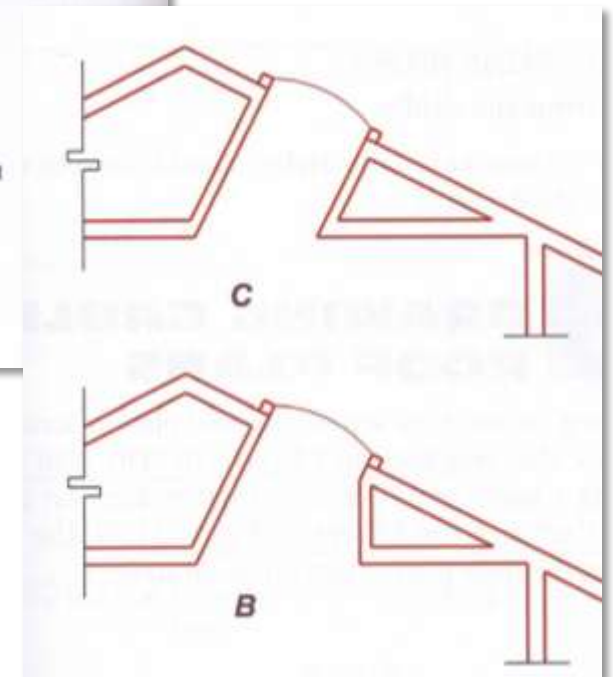
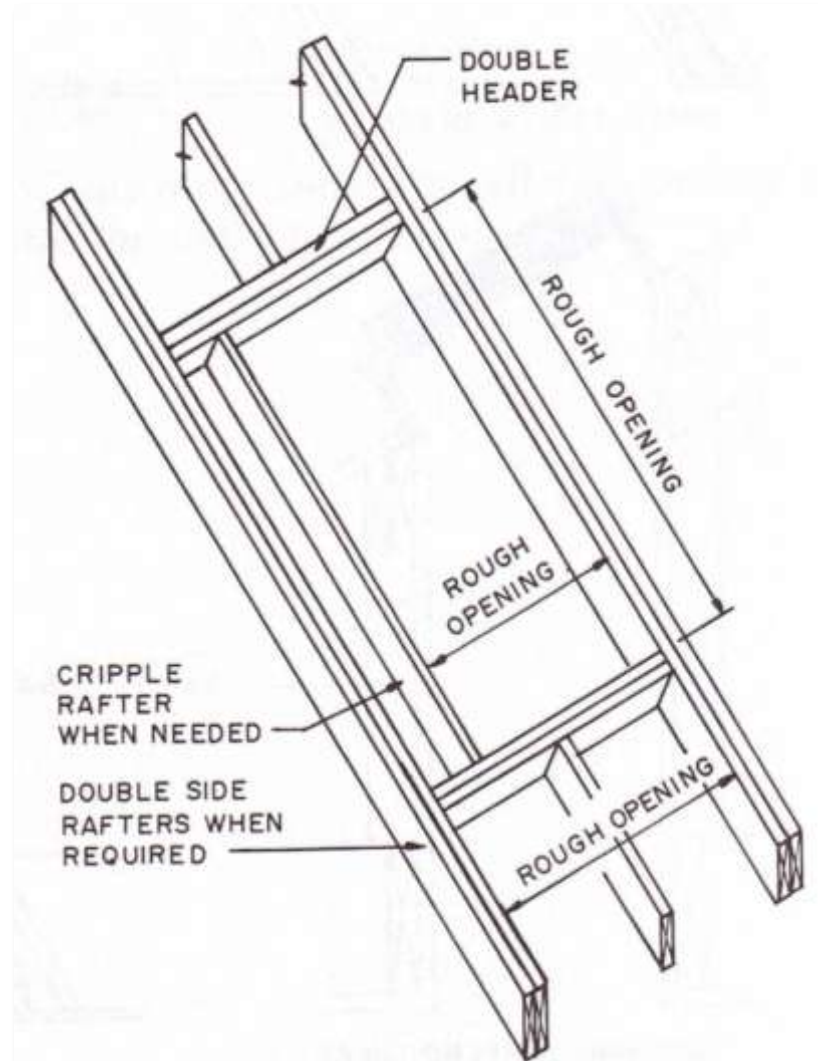


Fig. 15-13. The framing for a saddle to shed water away from the chimney.



A skylight is connected to the ceiling by an enclosed area called a chase or well.



A roof plan requires very few dimensions. Typically only the overhangs and openings are dimensioned. These may even be specified in note form rather than with dimensions.

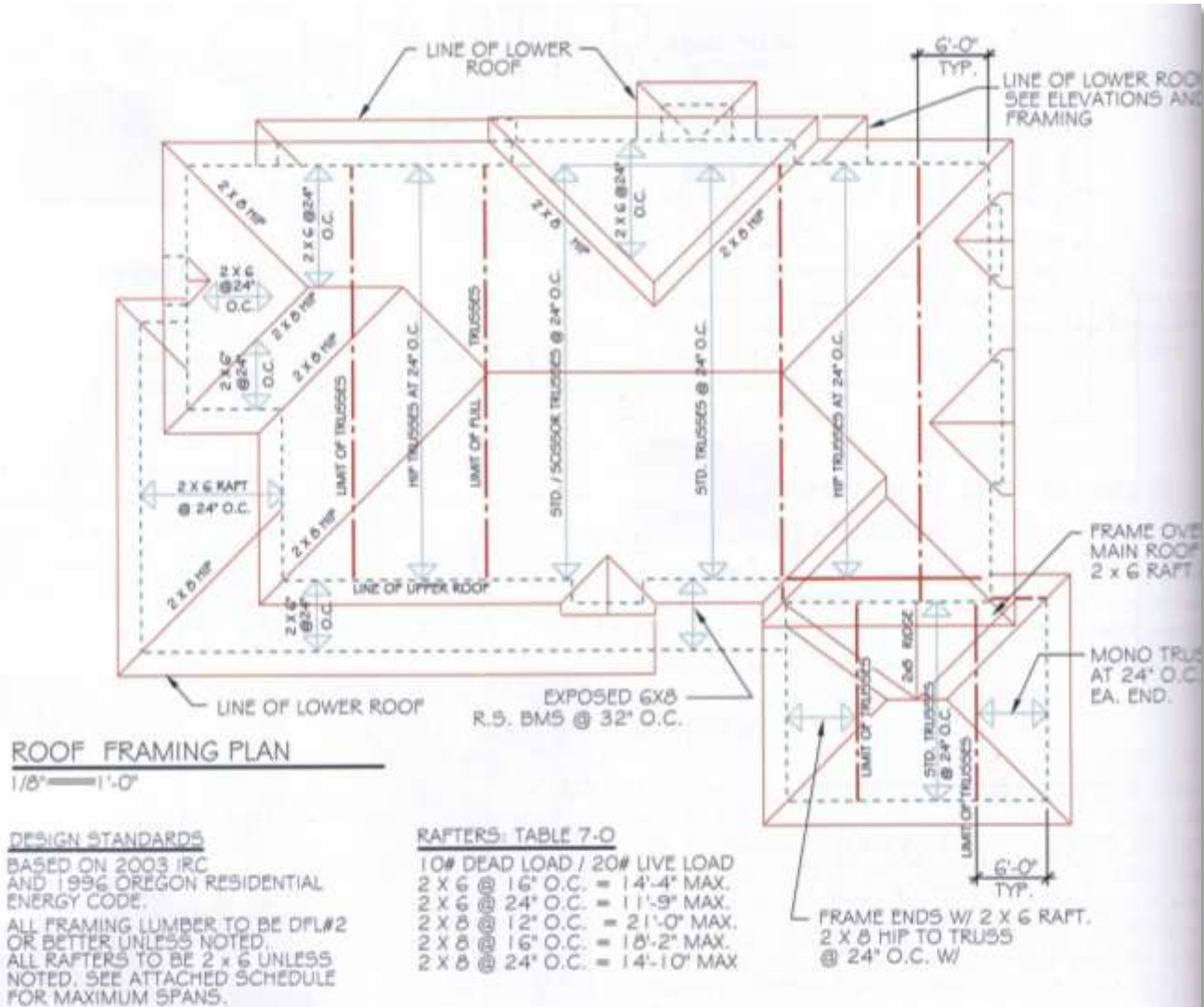
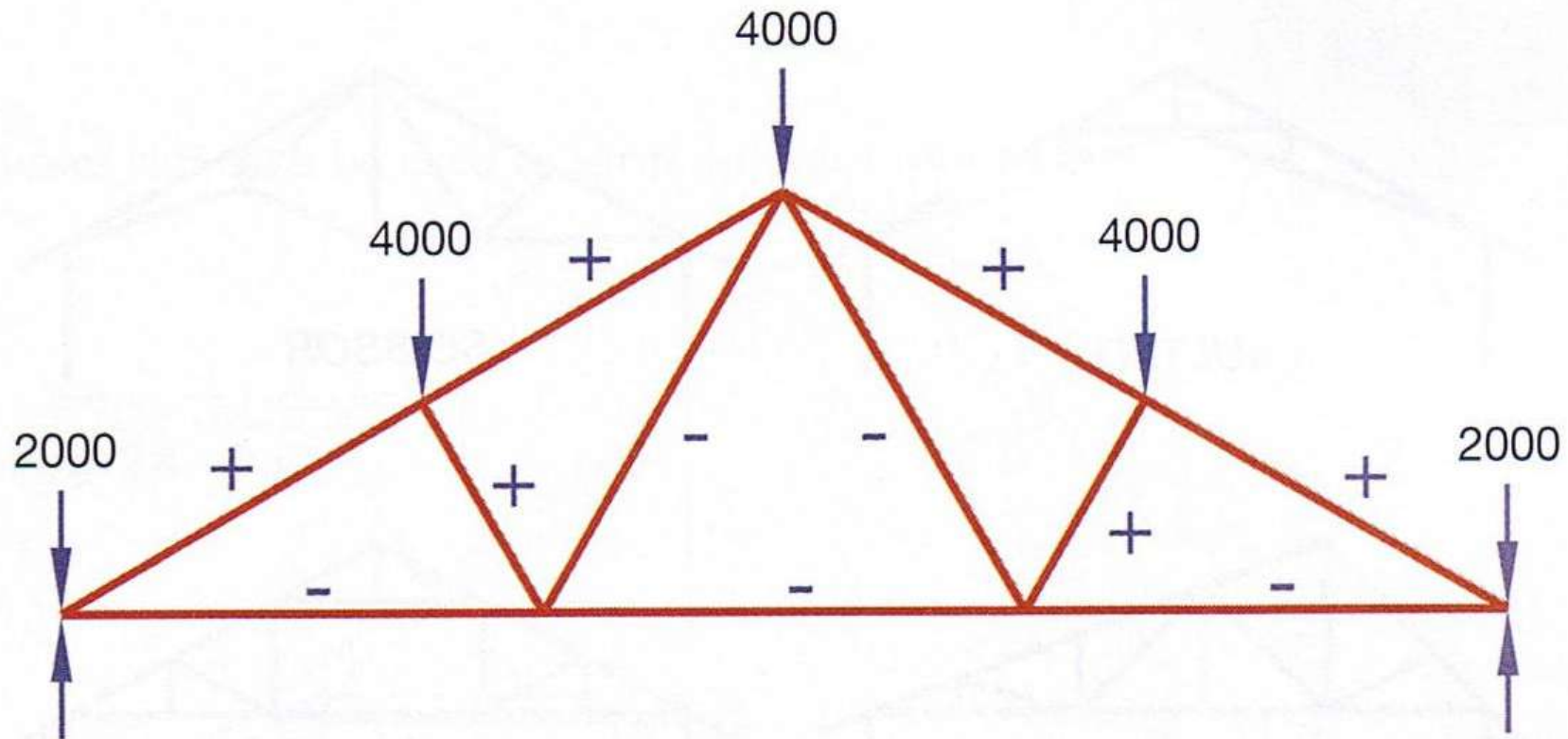


FIGURE 20.3 ■ A roof framing plan is used to show the framing members for the roof.

Trusses

Trusses are designed so that the weight to be supported is spread to the outer walls. This is done by placing some members in tension and some in compression. A member in compression is indicated by a plus sign, and one in tension is represented by a minus sign.

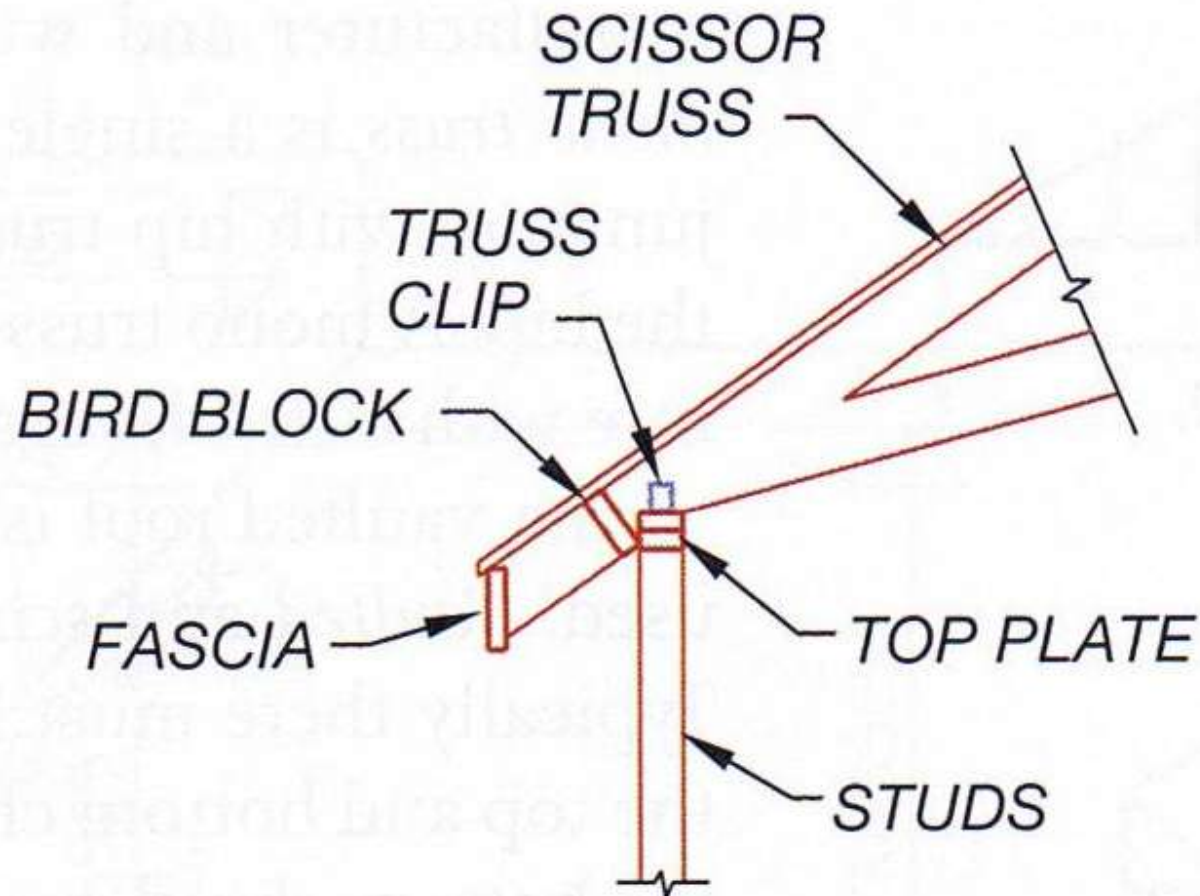
*Most trusses are spaced 24" O.C.



Fascia Board

A fascia is a trim board placed at the end of the rafter or truss tails and usually perpendicular to the building wall.

*The fascia can be made from either 1X or 2X material, depending on the need to resist warping.



Vents

***Vents may be placed in the gabled end walls near the ridge.**

In some areas, a continuous vent is placed in the eaves, or a vent may be placed in each third rafter space.

