

Roof Framing

A roof frame is an important structure not only because it supports the roofing and helps keep the building dry, but because its style and shape have a great impact on the character of the building, the feel of the interior space, and the amount of storage space available.

There are four common roof types shown in this book. A *gable* roof is the classic, triangular design, with two sloped sides meeting at the peak, and flat ends (called *gable ends*).

Gambrel roofs are like gable roofs with an extra joint on each side, resulting in two different slopes. A *hip* roof is structurally similar to a gable, but has no gable ends. *Shed* roofs are the simplest style, with only one sloped plane. They can be built with frames or, for small structures, a sheet of plywood.

All of these roof styles have a designated slope, which is the degree of angle of each side. The slope is expressed in a ratio that states the number of inches of vertical rise per 12" of horizontal run. For example, a roof that rises 6" for every 12" of run is said to have a slope of 6-in-12. Roof slope is indicated in plan drawings by a triangular symbol known as the *roof-slope indicator* (see page 387). You'll use the roof slope to lay out rafters and fascia.

In standard roof framing, rafters are the principal structural members, rising from the walls to the ridge board (or *hub*, in gazebos) at the peak of the roof. Rafters in outbuildings typically

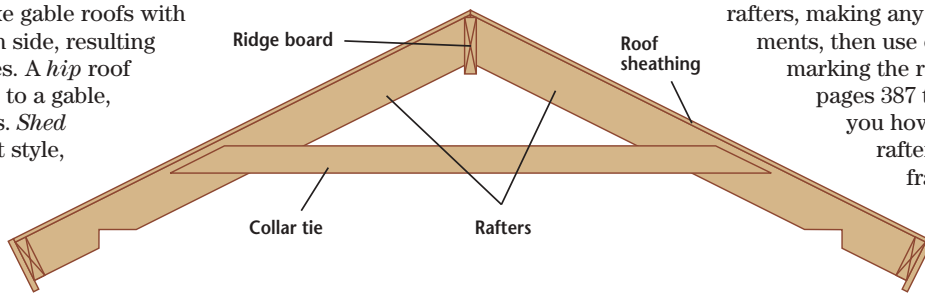
are made from 2 × 4s or 2 × 6s, are spaced 16" or 24" on center, and are installed perpendicular to the length of the building. To keep the roof planes from spreading apart, *rafter ties*, or *collar ties*, are nailed between opposing rafters to form a structural triangle. With shed-style roofs, the rafters span from wall-to-wall and no ridge board or ties are needed.

The key to successful roof framing is making accurate cuts on the rafters. Take your time to cut the first two

rafters, making any necessary adjustments, then use one as a pattern for marking the rest. The project on pages 387 through 389 shows you how to cut and install rafters in a gable roof frame, but the basic procedures are the same for gambrel and hip roofs.

As an alternative to rafter framing,

you can take your plans to a truss manufacturer and have custom trusses built for your project. However, this will cost you more and probably will limit your storage space: the internal supports in truss frames leave little room for storage.



TOOLS & MATERIALS

- Basic tools (page 18)
- 4-ft. level
- 8d, 10d, and 16d common nails
- Circular saw
- 2 × lumber
- Framing square

TIP: MARKING ANGLES WITH A RAFTER SQUARE

A rafter square is a handy tool for marking angled cuts—using the degree of the cut or the roof slope. Set the square flange against the board edge and align the PIVOT point with the top of the cut. Pivot the square until the board edge is aligned with the desired DEGREE marking or the rise of the roof slope, indicated in the row of COMMON numbers. Mark along the right-angle edge of the square.

