

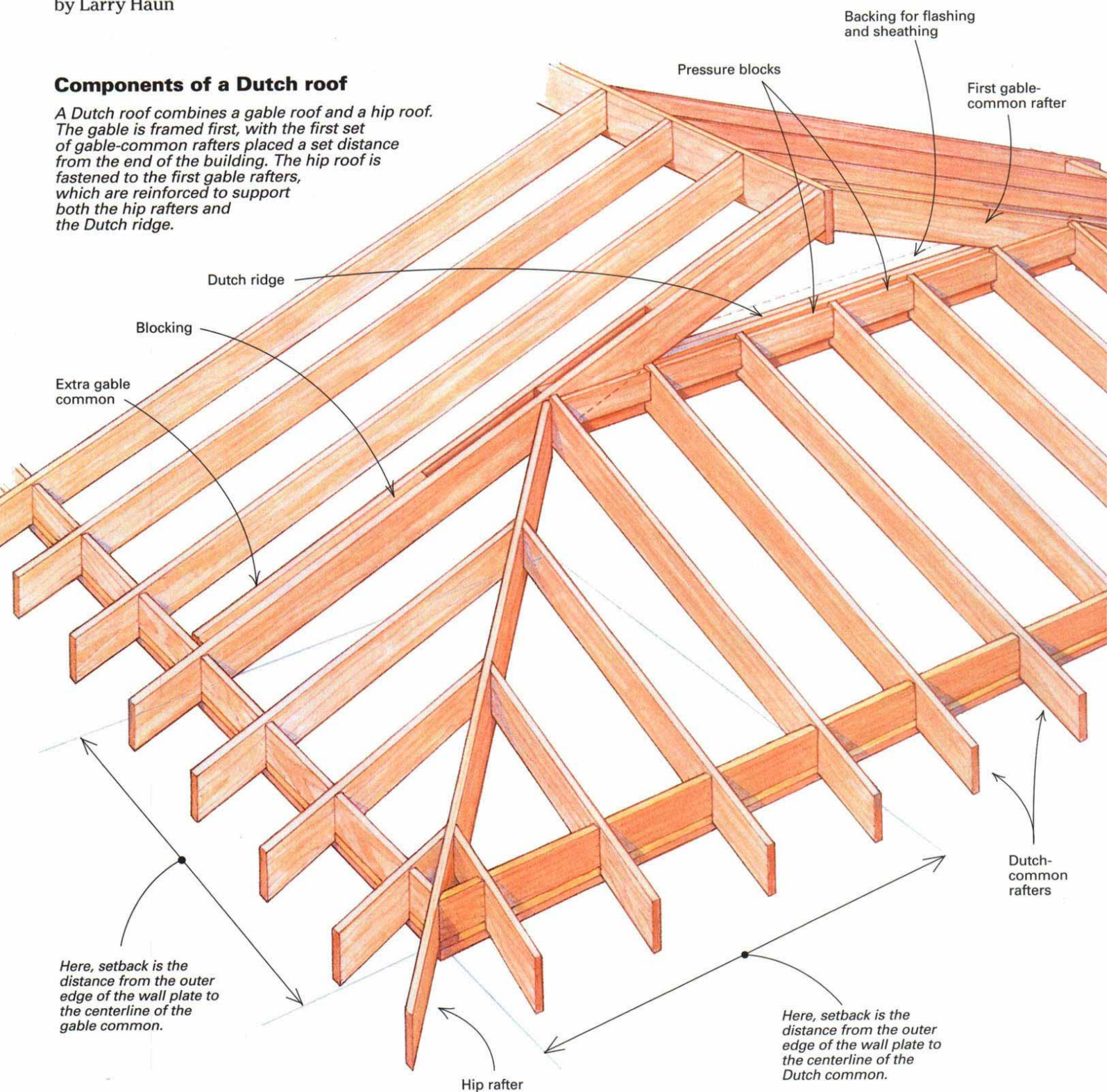
# Framing a Dutch Roof

Hang a hip roof on a gable end for a dramatic roof form

by Larry Haun

## Components of a Dutch roof

A Dutch roof combines a gable roof and a hip roof. The gable is framed first, with the first set of gable-common rafters placed a set distance from the end of the building. The hip roof is fastened to the first gable rafters, which are reinforced to support both the hip rafters and the Dutch ridge.



Here, setback is the distance from the outer edge of the wall plate to the centerline of the gable common.

Here, setback is the distance from the outer edge of the wall plate to the centerline of the Dutch common.

I recall the first time I was given house plans with a Dutch roof (sometimes called a Dutch hip or Dutch gable). The plans looked difficult even though I already knew how to frame both a gable and a hip roof. When I realized that the Dutch was really just a combination of the roofs I already knew how to frame, the plans looked simple, and the roof went together fairly easily. Since then, I've framed plenty of Dutch roofs.

**Build the gable first**—The Dutch is a section of hip roof in which hip rafters run into a gable end instead of going up to a ridge (drawing below). Exactly where the gable interrupts the hip is called the setback, the distance from the end of

the building to the first set of gable-common rafters. When stick framing a Dutch roof, I begin by checking the plans for the amount of setback. A long setback means that the roof will show more hip than gable; a short setback shows more gable than hip.

On the house we featured here, the plans specified a 5-in-12 slope on the gable roof with setback of 5 ft. 6 in. to the center of the first pair of gable-common rafters. I lay out this distance on the top plates and cut and build the gable section of the roof (see *FHB* #60, p. 83).

**Use rafter tables to lay out commons, hips and jacks at the same time**—The hip section of the Dutch roof requires several framing members: hip rafters that run 45° from the corners,

Dutch-common rafters that run perpendicular to the gable end and hip-jack rafters that die into the hip rafters. To figure out the lengths of all of these framing members, I use the setback distance, 5 ft. 6 in., and the roof pitch, 5-in-12, and I consult a rafter table (*The Full Length Roof Framer*, A. F. Riechers, Box 405, Palo Alto, Calif. 94302). You also could use a ft./in. calculator (Calculated Industries Inc., 4840 Hytech Drive, Carson City, Nev. 89706; 800-854-8075).

The 5-ft. 6-in. setback is also the run—the horizontal distance covered by the rafter as seen in the plan view—of the Dutch-common rafters. Doubling this figure gives me the span, the dimension necessary for using most rafter tables. In this case the span is 11 ft., and the rafter table's common-rafter column shows the length of the Dutch-common rafters for this roof as 5 ft. 11½ in. to the center of the Dutch ridge. I subtract half the ridge thickness, ¾ in., to find the exact plate-to-ridge length of the Dutch-common rafters; then I mark and cut them.

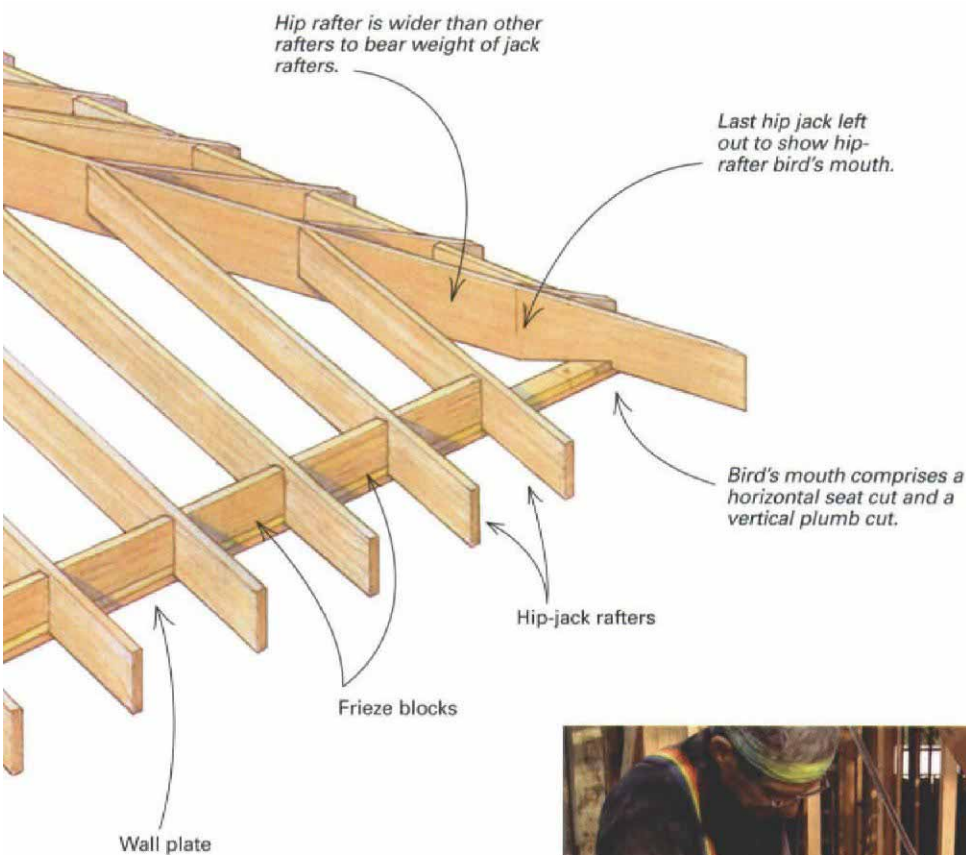
Jack rafters are laid out in pairs and cut with a bird's mouth on one end just like the commons, but they have a 45° cheek cut (photo, bottom right) where they butt into the hip rafter. The first pair of jacks is shorter than the common rafter, and each successive pair is shorter than the previous pair. The difference in length is the common difference and can be determined using the rafter table. For a 5-in-12 pitch, the common difference for jacks spaced 16-in. o.c. is 1 ft. 5⅝ in.

**Scribing and cutting hip rafters**—The lengths of hip rafters are listed under the hip/valley column in the rafter table. For a 5-in-12 pitch, the hip for an 11-ft. span is 8 ft. 1¼ in. This is measured from the ridge (a Dutch ridge in this case) to the plumb cut at the end of the hip's mouth.

Just like common rafters, hips have to be shortened by half the thickness of the ridge. Unlike commons, which meet the ridge at a right angle, hips come in at 45°, so they have to be shortened by half the 45° thickness of the ridge, or 1/16 in. This dimension yields an adjusted hip-rafter length of 8 ft. ⅜ in.

A Dutch roof has two hips, so I place two pieces of hip stock, crowns up, on the horses. Hip stock should be 2 in. wider than the commons and long enough to include the tail that forms the overhang. The plans call for an 18-in. overhang; the actual length of the hip tail, about 26 in. comes from the rafter table.

I mark the ridge plumb-cut location square across the top edges of the hip stock, then scribe



**Rafter templates speed layout.** In the small photo at far left, the author positions a hip-rafter template to mark the bird's mouth. Hips are wider than commons and jacks, so the left half of the template is used to scribe the hip tail, which must be ripped down to the width of the jacks and the commons. In the near-left photo, the author uses a different template to scribe a cheek cut on a jack rafter.



**Use the Dutch commons to locate the Dutch ridge.** Using a Dutch-common rafter as a template, the author marks its plumb cut on the first gable common. After the opposing gable common is marked, the Dutch ridge will sit even with the top of these lines.

the plumb lines with a hip-rafter template. (A rafter template is like a short rafter in that it's got the ridge cut, the bird's mouth and the rafter tail all on a piece of 1x the same width as the rafter but only about 2-ft. long. I make templates for each type of rafter in a roof.) The ridge plumb cut can be a 45° cheek cut or a double-side cut: two 45° plumb cuts that form a point. I've never been convinced that one cut is better than the other, but on this roof I made a double-side cut just for the sheer enjoyment. To make this cut, I use the tongue of the framing square to mark a second plumb-cut line 1½ in. away from the first one. With the saw set at 45°, I make the first side cut; then I go on to make the second cut in the opposite direction.

Next, I flush up the ridge ends of the hip stock, measure out 8 ft. ¾ in. (the adjusted rafter length) and mark for the heel plumb cut on the top edge of the rafters. I align the hip template's registration mark with the mark for the heel cut

on the hip stock and scribe the bird's mouth, which, because this is a hip rafter, has a deeper seat cut than a common rafter (bottom left photo, p. 57). Then I use the template to scribe the tail part of the hip rafter and rip it down to the width of the common and jack rafters.

**The Dutch ridge is scribed in place**—The next step is to use a Dutch-common rafter to mark the location of the Dutch ridge that hangs between the first pair of gable commons. I place the Dutch common flush alongside each gable common, seat cut to seat cut, and scribe the plumb cut (photo above).

Next, I pick out a 2x that's 2 in. wider than the Dutch commons. This 2x will be the Dutch ridge, which supports the top ends of the Dutch commons. With a little help, I hold the ridge stock in place against the gable commons so that it crosses them at the top of the plumb lines I've just scribed. I scribe each end of the ridge by mark-

ing on the underside of the gable common; then I cut the ridge to length. Next, I spike the ridge in place up under the commons with several 16d nails (top photo, facing page). Later, I'll reinforce it with a backer

**Blocking separates and strengthens the rafters**—Now, I pull up the hip rafters, position them directly over the outside corners and fasten them to the wall plate with two 16d toenails on one side and one on the other. I nail off rafters at the plate first with the hip rafter centered on the corner. At the ridge, the plumb cut lies flat against the gable commons. I drive three 16ds through the commons into the hips.

The 5-ft. 6-in. setback means that the first set of Dutch commons is positioned 5-ft. 6-in. o.c. from the corners of the building. Each common is nailed to the top plate with two 16d toenails on one side and one 16d on the other. At the ridge, the first Dutch commons butt against the side



**The Dutch ridge is nailed between the first pair of gable-common rafters.** After striking a chalkline to position the top of the Dutch ridge, the author and his brother nail the 2x10 ridge between and under the 2x8 gable commons. The Dutch-common rafters hang from this Dutch ridge.



**Blocking prevents twisted rafters.** The author nails a 2x pressure block to the Dutch ridge. A pressure block goes between all of the Dutch commons.



**2x6 backing strengthens the Dutch ridge.** Because the Dutch ridge only was nailed under the gable commons, a backing ridge is face nailed to the gable commons and to the Dutch ridge for added support.



**Double the first gable for support.** The gable end supports the hip roof, so a second set of gable commons is installed. The gap is filled with 2x blocking.

cuts of the hip rafters, and they're spiked in place with two 16ds.

Next, I nail with three 16ds a 14½-in. pressure block, a 2x block the same size as the common, to the Dutch ridge and tight against the common (bottom left photo, above). The front edge of the pressure block is flush with the common. The pressure block helps keep the rafter in place.

At the plate line a 14½-in. 2x frieze block is nailed between each rafter with one 16d at one end and two at the opposite end. This block helps keep the rafter from rolling over and strengthens the roof structure. Then I install another common and another pair of blocks and so on until I get to the jack rafters.

Before nailing in the hip-jack rafters, I sight down the hip rafter and make sure it's straight from the ridge to the plate. If the hip is bowed, I temporarily brace it straight until the jacks are nailed in place. Then, beginning with the longest jack, I nail it at the plate against a 14½-in. frieze

block, driving two 16ds into the block and one 16d toenail into the plate on each side of the jack. I nail each jack to the hip with three 16d nails, taking care not to bow the hip rafter from side to side. Once the opposing jack is nailed in, the hip is locked in place. Then I install the rest of the jacks and frieze blocks.

Once all the jacks and commons are nailed in, the overhangs can be measured, marked and trimmed to length, and the fascia can be nailed on. The length of the hip overhang is determined simply by extending the chalkline on the commons all the way across the hip. When cutting rafter tails to length, I check to be sure I'm using the common-rafter template on the commons and the hip-rafter template on the hips.

**The Dutch ridge needs extra support**—With all the rafters in place, it's time to reinforce the ridge and commons holding the upper part of the Dutch roof. I nail a long 2x, 2 in. wider than

the Dutch ridge, to both the Dutch ridge and the two supporting gable commons (bottom center photo, above). The ends of this backing ridge are flush with the top of the gable commons.

Next, I place another set of gable commons against the backing ridge, space them from the two ridge-supporting gable commons with 2x blocking and nail the new set of gable commons to the plate, the gable ridge and the backing ridge (bottom right photo, above). This second set of gable commons and the backing ridge provide plenty of support for the Dutch roof. The last step is to hold a 2x6 directly over the Dutch ridge, mark, cut and nail it to the backing ridge. This 2x6 acts as backing for flashing needed between roofing materials and siding. □

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