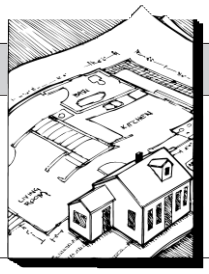

Adding Space Under the Roof

by Gordon Tully

The beloved Cape shape, with the 12/12 pitch rafters springing from the first floor plate, provides too little space and light on the second floor for modern tastes. A common fix for this problem is to stick a shed dormer on the back of the house, where only the neighbors and owners will see it: the Queen Anne front, MaryAnn behind approach. Because the dormer looks exactly like what it is — an extraneous bump — it doesn't have any stylistic implications. And it's probably the cheapest way to add space upstairs.

In the designs that follow, all the changes to the outside take place from the roof up. They assume you don't want or need to change the lower walls. Once that's not a constraint, then you have many more options available, as well as many new problems. You're not just adding a dormer, but redesigning the lines of the house — another subject altogether.

Basic Shape

Ideally, a shed dormer should not line up with anything. The roof should spring from below the ridge, the ends should be well in from the gables, and the front wall should be set back from the wall below, as in Figure 1. Every one of these measures improves the look of the dormer. But they also add cost and reduce the usable space. So the question becomes how much and where to compromise.

Ridge connection. The easiest compromise is to start the dormer roof at the ridge. You must have a structural ridge beam to distribute the loads, so you might as well hang the dormer off the beam. This will simplify the roof form and increase the pitch of the dormer roof, as in Figure 2.

Back wall. A second compromise, aligning the back wall of the dormer with the wall below, causes an unsolvable aesthetic problem. When the dormer wall is set in from the plane of the wall below, a lot of roof will show between the two walls, which is good: The dormer will look like a dormer. On the other hand, if you align the walls and the eaves are short, the dormer will look tall and ungainly, and the little piece of roof will look tacked on, as in Figure 3.

But depending on the budget, you may have to live with that in return for the added space and greatly simplified framing. Even with the walls aligned, I would still leave the existing roof eaves in place (or build a new roof in the same plane), because the horizontal line of the eaves will visually cut the height of the two-story back wall.

Dormer ends. The one compromise I try never to make is to extend the dormer to the gable end. The only exception is if the rake has a wide overhang. Then the shadow lines from the overhangs make the design look acceptable. But the trim on a typical Cape is minuscule, so if you run the dormer to the end, the old rake trim will make it look as if you simply drew a line on the side of the house to disguise the incredibly ugly lopsided shape you have created. To make this look good, you need an overhang of a foot or two.

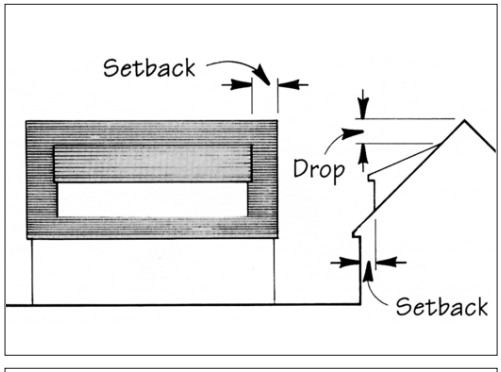

Figure 1. *From a design standpoint, the ideal shed dormer is one that is set back and in from all the roof's edges. But space and money constraints may force compromises.*

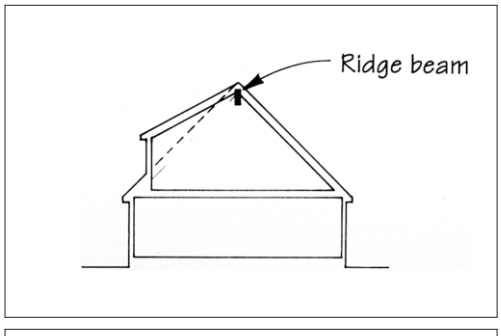

Figure 2. *Hanging the dormer roof from a structural ridge beam adds space, saves money and time, and causes minimal aesthetic problems.*

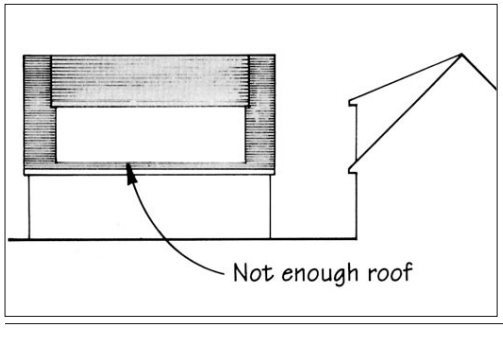

Figure 3. *Leaving too little roof below the dormer makes the lower roof look tacked on — but still looks better than cutting the lower roof away.*

Rethinking the Shape

For a little more money, you can get around the shed's inherent problems by playing with its shape.

The bookend approach. One option is to add a small gable at each end of the shed, as in Figure 4 (next page). The design looks as though the space between two small dormers has been filled in, and leaves the gable dormers as the dominant features. This breaks down the scale of the shed into something that can perch more comfortably on the roof.

This design looks best if the shed section sits back from the gable sections a bit. The simplest way to do this is by adding an extra layer of framing to the fronts of the gables, creating a 10-inch wall.

This "bookend" design can also be used to improve the looks of an existing shed dormer. You will have to shave off the existing roof at the sides of the dormer so the outside slopes of the added gables will run back and intersect with the main roof.

Gambrels or gables. Another option if the house has a relatively

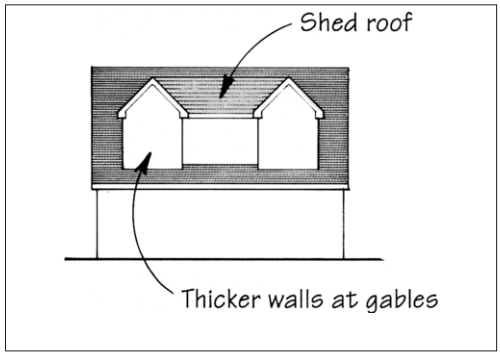

Figure 4. *Adding a gable to either end of a shed dormer can dress it up substantially.*

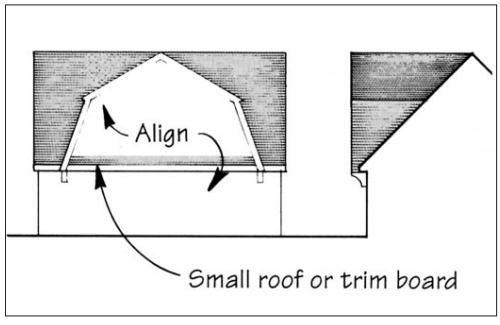

Figure 5. *A gambrel dormer can add more space without looking as out of place as a large shed dormer. The author prefers one with an overhang (right), "supported" aesthetically by brackets.*

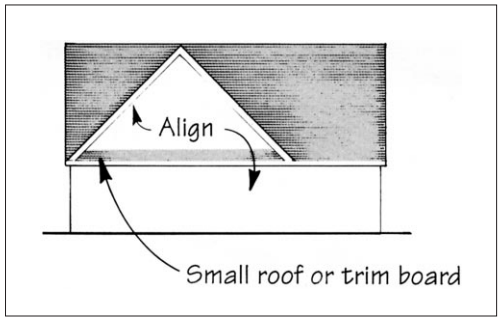

Figure 6. *A gable dormer matching the pitch of the main roof adds less space per dollar than a gambrel or shed, but can be placed anywhere along the length of the house, depending on interior design needs.*

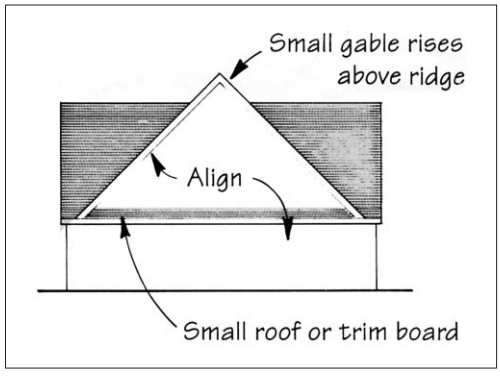

Figure 7. *A gable dormer running the length of the house can peek over the top a bit without being unsightly. But it probably gives the least space per dollar of any of these solutions.*

short ridge, is to mix styles and build a gambrel-roofed dormer on the back of the house, as in Figure 5. It probably shouldn't run all the way to the end of the gable. A gambrel is actually more historically accurate than a shed, since many old Colonials had gambrel roofs.

A similar approach for Capes with longer ridges is to duplicate the end gable on either the front or back roofs, or both, as in Figure 6 (although this yields less usable space for the dormer). The design gives the building a farmhouse look. You can locate the new gables where you wish along the existing roof, depending on interior needs.

Carrying this to its extreme, you could build a new gable roof across the entire long side of the house, as in Figure 7. It won't stick up much above the main ridge unless the house is very long relative to its width (uncommon in true Capes). Or you could finish the job and build a gable on both the front and back.

Do Your Homework

Whatever approach you take, analyze the structure carefully. Do the post loads overload plates and sills? How do you deal with the roof thrust if you build cross-gables? If you set the floor in, does the roof load overload the floor joists? These are all questions best answered with the (surprisingly reasonable) help of a registered engineer. ■

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