

Raising a Small Shed Dormer

by Rick Bessette

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As a remodeler, one of the most popular types of additions I build is the shed dormer. Typically, a family will outgrow the limited upstairs space in a cape and will decide to raise the roof at the rear of the house. This increases the living space while still maintaining the look and feel of the cape in front.

The trick in retrofitting a dormer is to get the roof off and back on as quickly as possible. I've built a lot of shed dormers and so far, I haven't had a problem with bad weather. A lot of this is luck, but part of the reason is that the approach I use guarantees that the roof will be off for only a few hours.

Be Prepared

A lot of planning and design work has to take place before I start ripping into

the existing roof. In addition to working out the floor plan with the clients, it's important to figure out the dormer ceiling height and the pitch of the new roof. Often the ceiling height is limited to around 7 feet because of the existing ridge height. You might be able to gain more head room by lowering the pitch of the dormer, but I prefer to keep enough pitch to allow for a shingle roof, usually 3/12 or steeper. (Some shingle manufacturers allow a 2/12 pitch, providing the roof is properly vented and the ceiling properly insulated.)

Once you know the ceiling height, you can size and order the windows. I make sure the windows will be delivered on time, and that I have the correct rough opening size in time for framing. I also allow plenty of lead time for large special-order items like tub/shower units so that they'll be delivered to the site on the day when the framing is open, and can be lifted into place from the outside.



Figure 1. As demo proceeds inside the house (top), carpenters strip shingles on the outside (middle). A hole opened up in one end of the roof allows demo debris from inside to be tossed directly into the dumpster (bottom).



On the day demolition begins, several other key components have to be in place.

Framing materials. Before starting any exterior demo, make sure you have all the materials that you need for the dormer on hand.

Dumpster. Demolition work for this kind of project generates a lot of debris, so you should always rent at least a 15-yard dumpster. Have the dumpster dropped as close to the work area as practical so you can throw material right in as you remove it.

To catch small debris and nails, I cover the ground below the dormer area with lumber wraps that I get free from my lumberyard. This makes final cleanup much easier.

Dust barrier. Seal off the rest of the house from the work. I staple 6-mil poly to wood strips and fasten the strips to the walls, floors, and ceilings at the boundary of the work area. Leave one place that can be easily opened and resealed to allow access between the house and the work area.

Remember also to cover existing wood floors in the work area. Even with protection, though, I plan on refinishing the floors.

Large tarp. Always have a rugged tarp large enough to cover the entire work area. Think about how you're going to secure it in case a sudden storm blows in, and what sort of temporary framing you'll need to keep it from sagging and filling up with water.

Experienced help. Although I usually work alone, for these projects I team up with Paul and Dennis Bernier, a father-and-son remodeling company. On those critical two days when the demo and framing are happening, it's nice to have the support of experienced builders who understand what needs to be done.

Subs and inspections. I also line up all the different trades that will be needed — typically a plumber, electrician, and a drywaller — and make sure they each have a set of plans. I get a firm date from each sub, and stay in touch in case anything changes.

A typical small shed dormer takes about two weeks from start to finish. Nothing destroys a schedule like having to wait for subs who are tied up on other jobs. The same goes for inspectors: If you work in an area where you

have to wait for inspections, make sure you have scheduled appointments on the days when you need them.

Day One:

Interior Demo, Stripping the Roof

On the first day on site, we demo the interior and remove the shingles from the roof (see Figure 1). The goal for the day is to have the inside of the structure completely clean and open, while outside the roof is stripped right down to the sheathing. That way, the roof is ready to pull off the next day if the weather permits, but the house can still be easily protected in case it rains.

Getting rid of interior debris. I avoid hauling the interior debris through the occupied areas of the house — it's messy and risks damaging furniture and finishes. Instead, whenever possible, I'll cut out a small area of the roof and toss the debris right into the dumpster, or onto tarps if the dumpster is too far away.

Once the inside is stripped and clean, I take care of any electrical or mechanical work that needs to be done between the floor joists, such as running or rerouting wires, pipes, and ducts. One mistake I see commonly is a first-floor kitchen or bath exhaust fan vented into the uninsulated space behind a cape kneewall. I always reroute these pipes, usually venting them into the soffit.

Roof stripping. We work up the roof as far as we can reach from staging set up just below the eaves, then use roof brackets as we move up the roof. Again, the ideal scenario is to toss the shingles directly into the dumpster. The lumber wraps spread on the ground below catch stray nails and bits of roofing.

Day Two:

Off With the Roof, Up With the Dormer

If the weather is still on our side, the next day starts with pulling off the roof sheathing. But first, we have to make a few critical cuts to define the outer edges of the dormer (Figure 2).

Cutout. When adding a full-length dormer to a cape, it's best to leave the existing roof line intact at the gables,



Figure 2. Critical cuts up the rake (top) and above the rafter tails (left) define the dormer cutout. The author leaves the original eaves and gable lines intact to preserve the cape appearance.

Figure 3. Before the rafters can come out (right), the ridge must be temporarily supported (inset).



Figure 4. Day Two, midmorning break: The roof is off (inset); several hours of fast framing lie ahead. Patching in the subfloor behind the kneewall gives a flat surface for framing the dormer wall (right).

to maintain the look and feel of the style. Working on the roof, I measure in from the end of the house and mark a line that's about $\frac{1}{4}$ inch back from the inside face of the wall framing on the two gable ends of the house. I cut a small hole through the roof sheathing to verify the measurement. For a full-length dormer, the bottom plate of the new dormer walls should line up with the existing wall framing inside.

For dormers that are set in from the end of the house, I cut the sheathing so that it hangs $1\frac{1}{4}$ inches beyond one rafter. Then, when we pull off the existing rafters, I tuck one of them under the overhanging sheathing to provide a double rafter to support the dormer end wall. The plywood sheathing is then $\frac{1}{4}$ inch back from the inside face of the framing, out of the way of the drywall.

Rafter tails. It's also important to the finished look to leave the existing eaves overhang in place. To do this, plumb up on the end of the house to mark a point that's about $\frac{1}{4}$ inch to the outside of the exterior wall sheathing on the rear of the house. Mark both ends of the roof, snap a chalk line, and make the cut with the circular saw blade set slightly deeper than the thickness of the roof sheathing.

Once the edges of the dormer are defined, you can remove the sheathing inside the marked area.

Removing the rafters. Now it's time to remove the rafters from the cutout area. Before pulling the rafters from one side of a roof, you'll need to install some posts to temporarily support the ridge (Figure 3). When the dormer roof goes in, I tie the two sides of the roof together with full-width ceiling joists. This stabilizes the roof loads. (For more on dormer structure, see "Taking the Sag Out of Shed Dormers," 9/93).

I plumb down along the sides of the rafters at the eaves cutout and cut them with my Sawzall. Be careful when you do this — it may be necessary to temporarily support the eaves overhang from underneath. On the job pictured here, no temporary support was needed: False rafter tails had been installed after the wall sheathing and were supported by a ledger.

Rim joist. With the rafters out of the way, now is a good time to cut $1\frac{1}{2}$ inches off the ends of the floor joists

and install a rim joist (I find this faster than fitting in blocking between the joists). The rim joist helps keep the insulation in place and seals out air infiltration; it also makes the floor framing more stable. Because of the way the house shown here was framed, however, I didn't need a rim joist: The exterior sheathing held the insulation in place while a horizontal 2x4 braced the framing against rotation.

Framing the Shed

At this point it's a simple matter to hand up plywood and lay any new sub-floor that's needed. This makes a nice, level deck for framing the dormer wall (Figure 4). While existing exterior wall framing is usually 2x4, I always use 2x6 for the new walls where possible.

Before closing up the framing, make sure to bring in the tub/shower unit, if there is one. It's usually a lot easier to do it from the outside than to have to snake it up the stairs through a small house. And don't forget the drywall: If it's boom-lifted while the framing is open, you can use 12-footers. If you have to bring it through the house later, you'll probably be limited to 8-foot lengths.

When framing the dormer roof (Figure 5), I generally match the style of the existing overhangs. Even though you're in a hurry to get the dormer in the dry, take time to stretch strings and check the framing for plumb, level, and square.

Don't forget ventilation. Be sure to include soffit and ridge vents on the shed roof. I use Prop-R-Vent in each rafter bay above the dormer wall to maintain the air space into the attic. Because these panels flatten easily, I sometimes have to trim the end of the insulation right above the wall to prevent it from blocking the air space.

We don't quit on the second day until we've got the roof sheathing and felt paper on. At that point, the pressure's off and it's an easy matter to button up the house for the night.

The following day, roof shingles go down and housewrap goes up. If the windows have arrived, we put those in; then it's smooth sailing to the end of the job. ■

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Figure 5. By the end of the second day, the dormer roof is sheathed and papered (left). The finished dormer maintains the low-profile look and feel of the original cape (below).

