A Practical Prefab Dormer

Building on the ground is faster and safer than framing on the roof

While framing a new house, we had to build a small decorative dormer on the steeply pitched roof. We own a forklift with a telescoping boom; it's easily got the capacity to lift a dormer like this (as well as much larger ones), so we typically build the dormer on the ground for the sake of safety and efficiency, then hoist it into place with the lift. On this job, we were able to work in the dry on the first-floor deck, and the project kept my carpenters busy on a couple of snowy afternoons when I might otherwise have sent them home early. In this article I'll describe the steps we took to speed the framing.

by Tim McNamara

Wall Layout

We used a factory corner of a sheet of OSB as a giant framing square as we built the walls. I took the dormer's rise and run from the plans, and we cut the top plates and end studs accordingly **(1)**, beveling each of them at one end to match the roof pitch **(2)**, then nailing them together. We laid these right-angle assemblies along the edges of the OSB to keep them square, then simply pulled the length of the bottom plates (the hypotenuse of the triangle) with a tape measure — no calculation necessary **(3)**.

Studs

I laid out the wall studs working backward from the roof layout so the rafters would stack on top of the studs. The 24-inch on-center rafter layout was determined by the depth of the rake overhang — 6 inches, in this case. It pays to take time to get the stud layout right, because that generally eliminates extra cuts in the sheathing. Before nailing the studs in place, we tacked each wall triangle to the edge of the OSB "square" to ensure accuracy **(4)**. After nailing the studs in place **(5)**, we added the double top plates **(6)**, holding them back 3½ inches to allow for the lapping top plate across the front.


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Standing Up the Walls

We butted the two wall frames together to keep them square **(7)**, then nailed on the sheathing and trimmed it in place **(8)**. Next, we stood up the sheathed walls and joined them with a top plate across the front **(9)**.


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Squaring Up

We added a bottom plate **(10)**, then squared up the assembly and toenailed it to the deck to keep it from shifting around as we worked on it **(11)**.


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Front Wall

We laid out the front wall sheathing, pulling the radius for the arch-top window with a measuring tape **(12)** and cutting out the opening with a circular saw **(13, 14)**. We held the sheathing back ¾ inch at the top to allow the gable sheathing to lap the plate **(15)**. We then filled in the rest of the front wall framing, doubling up the corner studs and installing trimmers and a sill.


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Rafters

Though the construction drawings showed curved rafter tails cut out of full-dimension 2x12s, I decided that framing the roof with straight rafters and building up the curved profile with horizontal blocking would be easier and provide better nailing for the bent sheathing. We made a rafter pattern out of 2x6 stock **(16)** and cut the first pair of rafters, installing them flush with the gable end and their plumb cuts flush with the outside edges of the sidewalls **(17)**.

Curved Gable

To create the flared eaves, we used the curved-gable sheathing as a pattern. We scribed the gable according to the architect's plans, then cut it out **(18)** and nailed it up **(19)**.

Ridge

Next we laid out the ridge board and secured it between a second pair of rafters at the back of the dormer **(20)**. We placed a straightedge across the front face of the dormer to make sure there was no deflection in the hinge joint at the top plate **(21)**, then spiked the ridge to the floor at its back end, so that the whole dormer assembly was stiffly braced **(22)**.

Subfascia

After filling in the rest of the rafters, we ran 2x4 ceiling joists across the plates **(23)**, extending them a few inches to catch a 2x6 subfascia. For speed we ran the subfascia long, then trimmed it at the gable **(24)**; we held up its angled end on a scrap of ¾-inch sheathing, so the roofer would be able to slide his shingles into the gap.

Scribing the Valleys

We now had a pattern in place — the gable sheathing — from which we could accurately project the curve of the roof from front to back. The top of the 2x6 subfascia defined the bottom edge; the flare would smoothly transition into the straight 2x6 rafters at its top. The first step in the process was to cut plates for the valleys out of 2x12 stock and position these between the subfascia and the ridge **(25)**. These plates provided a target for projecting the flare from the gable, which we did by using various pieces of framing lumber, depending on the thickness and angle required **(26)**. With the curving valley thus scribed on the 2x12 plates, we pulled them out, cut the curved profile, then reinstalled the plates permanently at the ends of the jack rafters and blocking **(27)**.

Rake Overhang

It's easier to cut curves in OSB than in 2-by lumber, so we made the radiused barge rafters out of $^{3}/_{4}$-inch AdvanTech sheathing, using the gable end as a pattern. Before installing the rake ladder, we traced the profile onto a piece of Azek 1x12 PVC trim that we would install later **(28)**. We made the ladder with 2x6 blocks, and installed it so that there's a butt joint rather than a miter at the ridge **(29)**, which would give better nailing for the PVC trim and help prevent it from opening up.

Countdown

While the dormer was still inside, we trimmed out the gables and eaves with Azek **(30)**, then sheathed the roof with $^{3}/_{8}$-inch CDX plywood. We first hand-nailed to get the sheathing to conform to the curve, then finished up with staples. To make it easier to nail the valley plates to the roof deck, we left a couple of small sections of the sheathing tacked. Next we cut out the roof opening and placed some framing members around the edge to help us accurately position the dormer **(31)**. We were ready for liftoff.

Installation

We slid the dormer out through a large ground-floor opening **(32)**, attached it with straps to the lift, and hoisted it up. It took a single carpenter only a few minutes to fasten the dormer **(33)** and fill in the sheathing **(34, 35)**.

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