BUILDING A Coffered Ceiling

Caroline Bates

A plywood substrate speeds installation

by Tom Moore

I've been building and remodeling in northern Vermont for 30 years; my sons are the third generation to work in the family business. When my dad started, there was a higher level of craftsmanship in home building than we typically see today. When I took over the business, I promised him I'd maintain the high standards of quality that he established almost 35 years ago.

One of the ways we do that is by focusing on interior millwork — built-ins, staircases, fireplace surrounds, and so forth. The challenge has been to develop ways to install these elements efficiently without sacrificing quality. In this article, I'll describe how we build a coffered ceiling.

Layout

Making a coffered ceiling fit the room — whether in a new house or a remodel — comes down to thorough planning. After discussing with the clients what size coffers they want, I start with a detailed drawing of the room. My drawings show the ceiling dimensions as well as all door, window, fireplace, and built-in locations. I work with the drawings to determine panel sizes, so there won't be competition with existing

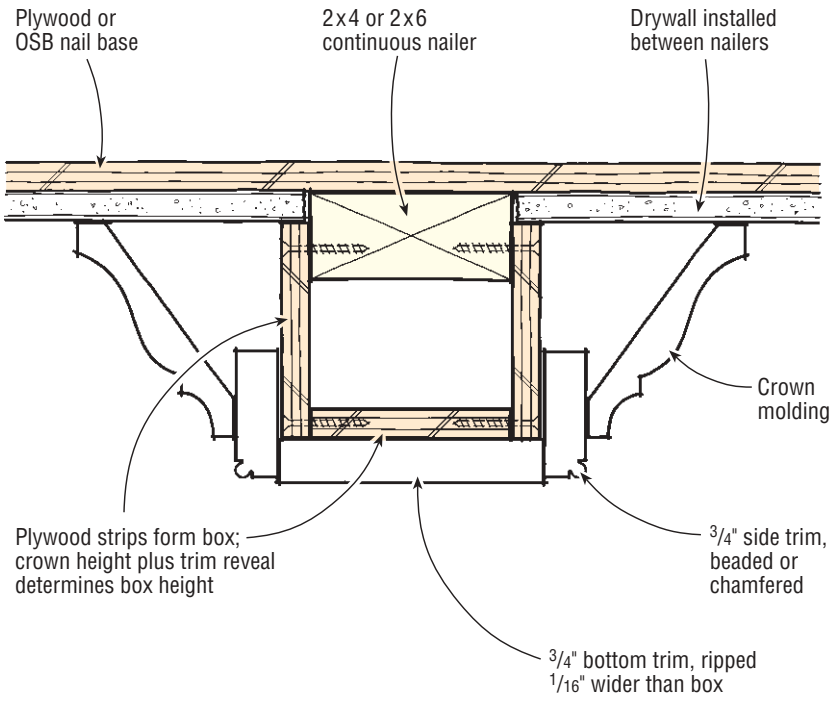

Figure 1. A continuous layer of plywood installed over the ceiling framing provides a solid base for dimension-lumber nailers. After the drywall has been hung and painted, the coffers are assembled from ripped strips of plywood, prefinished flat stock, and crown molding.

Figure 2. Half-inch or 3/4-inch plywood strips screwed into the nailers form the sides of the beams. The bottoms of the plywood boxes are 3/4-inch for easier fastening. Because it is so dimensionally stable, the plywood substrate helps to prevent gaps in the finish lumber.

architectural elements.

For example, when a fireplace is centered on the wall, I typically try to make the ceiling panels align symmetrically with the masonry. The key is not to draw attention to the ceiling but to make it look like all the elements were designed together. Sometimes symmetry doesn't work, however — for instance, when there are several competing elements in a room. In that case, you have to decide which elements get priority. Because the first impression of the room happens on entering, I usually give priority to the entrance when laying out the coffers. When the layout gets difficult, I always get the clients' input.

Sometimes the coffer has to cut in around built-ins or chimneys. In those situations, I try hard to size the coffers so as to prevent tiny 2- or 3-inch runs of crown.

A Good Base

We've found that installing a layer of plywood or OSB under the coffered ceiling is the fastest way to guarantee that we have nailing where we need it.

In new construction, we install the plywood before the drywall. In existing homes where everything is relatively level, we install the plywood directly over the drywall (see Figure 1). On older homes where the ceiling is out of level, we sometimes use furring strips and shims to level the surface before installing the plywood substrate. My rotary laser is the perfect tool for that task.

Layout and Nailers

After installing the plywood, we snap lines that mark the location of the beams. This is our last chance to critically look at the ceiling. We look for odd-shaped coffers and short runs of crown, while double-checking beam locations.

Once we're sure everything is okay, we install dimensional lumber between our snapped lines. We resist the temptation to use short pieces of scrap, because long lengths of 2x4 or 2x6 can be more

easily coaxed into a straight line. Some coffered ceilings have drywall panels; others are all wood. On a new home with a drywall ceiling, we'll install the grid of nailers, then let the drywall contractor hang and finish the ceiling in between. We return after the drywall is painted to install the beams and coffers. For a wood ceiling, we install 1/4-inch veneer plywood between the nailers, securing it with construction adhesive and pneumatic brads. From that point on, the process is the same for both drywall and wood coffers.

Plywood Boxes

Once our grid of nailers is in place, we rip plywood into strips and screw them to the nailers to form the boxes that will support the finished material (Figure 2). The height of the crown, plus the reveal below, determines how tall to make the box.

Finish Work

We start with the beam bottoms, which are made from 3/4-inch stock ripped 1/16 inch wider than the plywood box. This ensures a tight joint where the sides overlap (Figure 3). Although we try to avoid splices, large rooms can make joints along the beam's bottom unavoidable. We locate them out of sight from the main entry and use biscuits and yellow glue to create tight joints.

The beams shown here are cherry, and we prefinished them in the shop with several coats of tung oil. We try to minimize nail holes on site, nailing about every 20 inches with 16-gauge finish nails. We fill the holes with soft, rub-in-type putty.

Once the bottoms are covered, we install the side pieces. Routing a bead or chamfer along the bottom edge creates an interesting shadow line and makes the crown molding appear larger. We miter and glue the corner joints and fasten with trim nails (Figure 4, next page).

Installing the Crown

Putting up the crown takes more

Figure 3. A Bosch miter finder helps achieve a perfect joint at beam intersections (top), while biscuits help prevent the joints from moving over time (center). The carpenter uses a scrap of the side material to help center the bottom piece (bottom).

Figure 4. To avoid wasting stock, the side pieces are only as wide as they need to be (left); the crown molding covers the rest (right).

Figure 5. Storing the beam stock on high cleats keeps it in easy reach of a carpenter working from stilts.

Figure 6. A telescoping leg from a camera tripod serves as an accurate inside-dimension measuring tool. The leg is locked into place, then handed down to the carpenter making the cuts.

time than any other step, but a couple of tricks keep things moving. Back in the shop, we rough-cut most of the crown pieces to make handling easier. Sometimes we even pre-cope one end, so the field carpenters can quickly cut the piece to length and nail it up. With two carpenters on the job, one can install the pieces while the other cuts to length and copes when necessary.

Because the carpenter doing the nailing works from stilts, we'll sometimes stock the material on temporary cleats to make it accessible (Figure 5).

We install the longest perimeter crown pieces first. Then we move to the individual coffers, starting with one of the shorter sides, where we install a piece with two square cuts. The next piece, on one long side, is coped to the first piece on one end and cut square at the other, as is the third piece, on the opposite long side. The final piece, coped at both ends, winds up on a short side, which minimizes waste if we make mistakes while coping.

For accurate measuring, we use an improvised tool — a telescopic leg from a camera tripod. By extending it inside the coffer, we can make accurate measurements on both long and short points (Figure 6).

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