

# Reproducing a Corbel

When restoring a house,  
making accurate copies  
of architectural details  
is often part of the job



Master Carpenter

BY MICHAEL FITZPATRICK

## The Craftsman

Michael Fitzpatrick ([BostonFurnitureMaker.com](http://BostonFurnitureMaker.com)) grew up in Suffern, N.Y., under the influence of his housewright and furniture-maker grandfather. After studying engineering in college, Michael took up woodworking and restoring old houses in the Boston area, eventually refining his stock in trade to cabinetry and architectural details. After attending the North Bennet Street School in Boston, he switched to full-time furniture making. His recent acquisition of an old house ([43ChurchSt.com](http://43ChurchSt.com)) in Westborough, Mass., put the brakes on furniture and placed him back in restoration mode, which is where we caught up with him.





A couple of years ago, my wife and I bought a house built in 1848. The building had been neglected for the past 30 years, and over the previous 100 years, a number of significant changes had weakened the structure. While restoring our new house, I discovered that many of the beautiful 19th-century details that I wanted to preserve were in need of repair. There were no significant historical interior parts left, but as a contemporary furniture maker, I was excited to restore the exterior to its original glory while remodeling the interior with a contemporary plan. Armed with a few old photos, some curious craftsmen on the payroll, and an enthusiastic architect, we had at it.

For our renovation, this meant re-creating many moldings, a front door, a historically accurate porch, and many new corbels. Of the 80-plus corbels that decorated the house, all but 20 needed replacement. Even though damaged, most of the corbels were intact enough for me to copy the details. After gathering the information, I was ready to make new corbels to match the originals. We had three styles to replicate.

Over my 30 years of remodeling houses, I have often run into situations where decorative elements—corbels in particular—are removed but are almost never replaced by the homeowner. If they are replaced, they're replaced with synthetic or wood corbels whose details aren't as crisp as the originals.

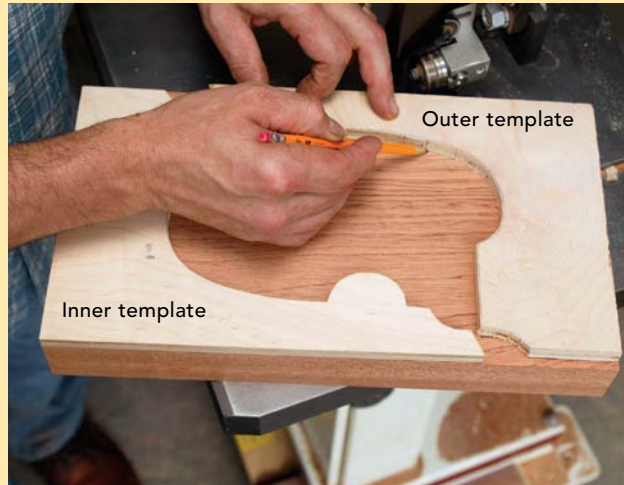
In my house, installing new store-bought corbels, which range in price from \$40 to \$60 each, would cost a lot. I knew, however, that if I copied the originals and made new pieces on a production line, replacing them would

## USE AN ORIGINAL TO MAKE TEMPLATES

Choose an intact existing example. Ripped on a bandsaw, 1-in.-thick slices of an original corbel are taken from the center and from one side so that all elements of the profile are represented.



**Transfer the shapes.** To make the template, trace the originals onto a piece of 1/2-in. plywood. After cutting out the shapes, refine the outlines until they're exact.



**Transfer again.** Trace both inner and outer templates onto 8/4 stock. Nesting the templates is a good way to conserve the material.



**Cut without binding.** After cutting out the rough shape on a bandsaw, it's a good idea to make relief cuts first into the curved lines so that the blade doesn't bind when cutting along the curve.

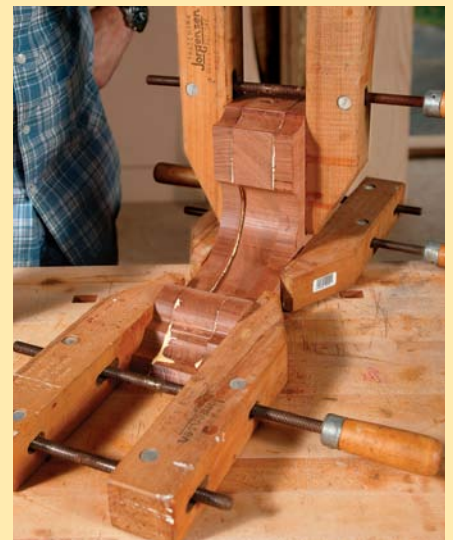


## ASSEMBLE THE BASIC SHAPE

Once the basic shape has been cut, screw the plywood template onto the blank. With a 2-in.-long 1/2-in. top-bearing straight bit in a router table, trim the blank flush to the template.



**Create the outer layers.** After kerfing the center of the blank on a tablesaw to guide the bandsaw blade, resaw the outer blank into two halves.



**Assemble the sandwich.** The full-width middle piece is flanked on both sides by a half-thickness piece whose profile is slightly prouder in the center. Use a small roller to spread glue on all mating surfaces, then clamp. Make sure all surfaces are aligned and that glue squeeze-out is consistent.

### Nicholson pattern-maker's rasp

My favorite hand tool has become my #49 pattern-maker's rasp by Nicholson (ApexHandTools.com). It cuts aggressively with great control. I was originally inspired by the late Sam Maloof and his use of the rasp when he was making his rocking chairs, and by my instructors at the North Bennet Street School while I was learning how to carve Chippendale chairs.

I also have found the rasp to be a go-to tool for renovation work. When I restore old porches, I use it to shape a matching ball-top newel or to shape a rail-cap piece to match an existing one. I use it all the time to make templates. Here, I used it to blend together the mating edges of the corbel assembly.





be cost-effective. Once the patterns and processes are set up, making 20 of something is not much more work than making five.

### First, make two templates

The easiest way to make a template of a corbel is to use the corbel itself. The centers are usually in the best shape, so that's where I go to get an accurate template. Here, I needed two templates: one for the inner profile and one for the outer. I disassembled the original and used a bandsaw to slice a piece out of the center and one from the outside.

Next, I traced the shapes onto a piece of 1/2-in. cabinet-grade plywood. After cutting out the rough shape, I used a rasp and file to refine the shape. Next, I traced the completed templates onto 1 7/8-in.-thick blanks of mahogany or sipo (a West African hardwood also known as utile). These species stand up well to exterior use, and they mill nicely. Back at the bandsaw, I cut out the profile about 1/8 in. beyond the line, leaving enough to trim with a router.

### Create the rough shape

I used a 2-in.-long top-bearing flush-trim bit in a router table to clean up the blanks. I screwed the template to each blank, strategically placing the screws so that the holes could be covered with moldings or applied pieces later. With both hands on the workpiece, I eased the stock into the bit and moved opposite the bit's rotation.

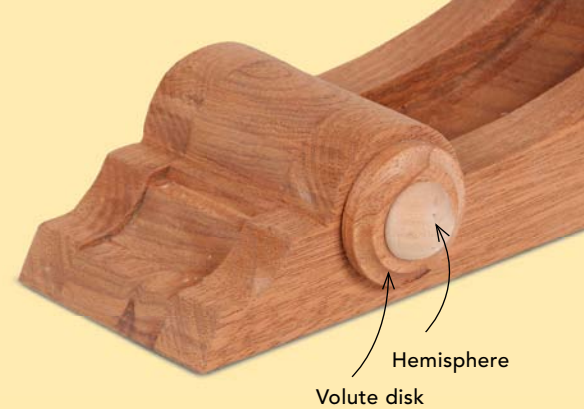
After shaping the blanks, I sawed each outside blank in half to create the left and right sides. Because I didn't want to spend more time than necessary, I turned the resawn face toward the outside and applied glue to the "factory" face. I also spread glue on both sides of the center piece and clamped together all three pieces. (If done right, there should be an even amount of glue squeeze-out around the entire piece.) After the glue dried overnight, I hand-planed and sanded both outside surfaces to remove machine marks, then used a rasp and file to mate the curved surfaces.

### Make the applied details

These corbels were decorated with two details: a 2-in.-dia. rosette and a flat pyramid. I made the 1/4-in.-thick rosette disks by cutting cylinders from 8/4 stock with a hole saw minus its pilot drill chucked in a drill press. The remaining process was an exercise in milling small parts and keeping my fingers clear of the blade. Hold-

## CREATE THE ROSETTE, PART 1

This process starts with a 1 1/2-in. cylinder cut from 8/4 stock. The author chucked a hole saw minus the pilot bit into a drill press to make the piece.



### TRICK OF THE TRADE

## Keep your fingers safe

Small parts are always tricky to make safely. I work with a basic rule: Keep my hands as far away from the blades as I can. I always use jigs and safe-hold devices in my shop. Push sticks for a tablesaw can be designed for many uses other than simply pushing square stock through a sawblade.

Here, I've drilled holes in two push sticks sized for the cylinder of rosette stock. The first (above) safely holds the stock so that I can rotate it against the cove bit. The second (right) lets me remove the profiled slice from the cylinder while the remainder is held securely. I flip it around to get the second piece. This setup works only if the cylinder fits tightly in the push stick; if it's loose, I don't use it. Because the hole may fatigue with time or change shape with humidity fluctuation, it's a good idea to make push sticks by the dozen and replace them often.





## CREATE THE ROSETTE, PART 2

To make the hemisphere at the center of the rosette, cut 1-in.-dia. wooden balls by holding them in a wooden hand screw that you've modified by cutting the tapered end down to make the bearing surface wider. After passing through the 1/16-in. thin-kerf blade, each half-sphere remains clamped in the hand screw.



ing the cylinder in a modified push stick, I profiled each end of the cylinder with a bearing-guided 1/4-in. cove bit in a router table. The push stick made it easy to hold the stock safely. I used a similar stick to cut the disks from the cylinder on the tablesaw, simultaneously slicing off the profiled end and pushing it past the blade. I repeated the process for the other end. The leftover was discarded because it was used only to provide a safe grip when I was working on the router.

The hemisphere portion was made by cutting a wooden ball in half. I bought the 1-in.-dia. balls online (Woodcraft.com) and cut them in half by clamping each ball in a wooden hand screw and passing it through the tablesaw blade. The two parts were glued and pinned to the corbel.

I made the applied pyramid by first ripping a long piece at 33°, flipping it around, and ripping it again at the same setting. Next, I cut the two facets on a miter saw set at 59°. The last two cuts needed to be squared off to create a uniform depth around the piece, so I modified a crosscut sled for a tablesaw.

After gluing the parts to the corbel and tacking them with a pneumatic brad nailer, I started sanding and priming in preparation for the corbels' installation. □

Photos by Charles Bickford, except where noted.

## In a perfect world, you could go to the corbel store

I could have ordered new PVC corbels from a source online, but I couldn't match the existing corbels. I would have had to replace them all, and besides, to my eye, plastic parts just don't look the same. To get the corbels I wanted, I had to make them myself. When our house was built in 1848, the builder wouldn't have wasted his time with such handwork. Instead, he would have ordered these corbels from a local millwork shop.

Manufactured architectural details became part of the building universe more than 150 years ago. The American Industrial Revolution (1750-1850) and the Victorian Era (1837-1901) profoundly affected material production and the style of houses being

built. Water-powered mills produced everything from textiles to barbed wire to parts like these corbels. Off-the-shelf parts made home building move along more quickly, and a builder could add ornamentation to houses without having to make parts on site.

After the Civil War, many local mills moved or failed. The railroad system had expanded, and factories sprang up in the Midwest that were able to ship house parts anywhere the train stopped. Catalogs offered anything you needed to complete a house, except for lumber and nails. The problem (if you want to call it that) then and now is that if you wanted something not offered in a catalog (or from the Internet), you had to make it yourself.





# CUT AND ATTACH THE PYRAMIDS



**Rip first.** After milling lengths of 2-in. by 3/4-in. stock, set the tablesaw to 33° and rip a bevel on both sides of the top.



**Crosscut next.** Moving to the miter saw, make a 59° cut at the end of the stock, advance the piece to a pencil line on the fence, and cut off the pyramid. The pencil line is safer than a hard stop, which would trap the offcut piece where it could be caught and thrown by the spinning blade.



**The last cut is a small one.** To make the final cut that squares the beveled ends, stack three 1 1/2-in.-wide strips of 1/4-in. plywood and screw them at one end to the sled. The free end is loose enough to act as a spring clamp for holding the small pieces securely as they are trimmed.



Online members can watch this Master Carpenter video at [FineHomebuilding.com/extras](http://FineHomebuilding.com/extras).



**Make sure it stays put.** In assembly-line fashion, the pyramids are glued with construction adhesive, the rosettes are glued with yellow glue, and both are tacked to the corbel body with brads that keep the pieces in place until the glue sets.

