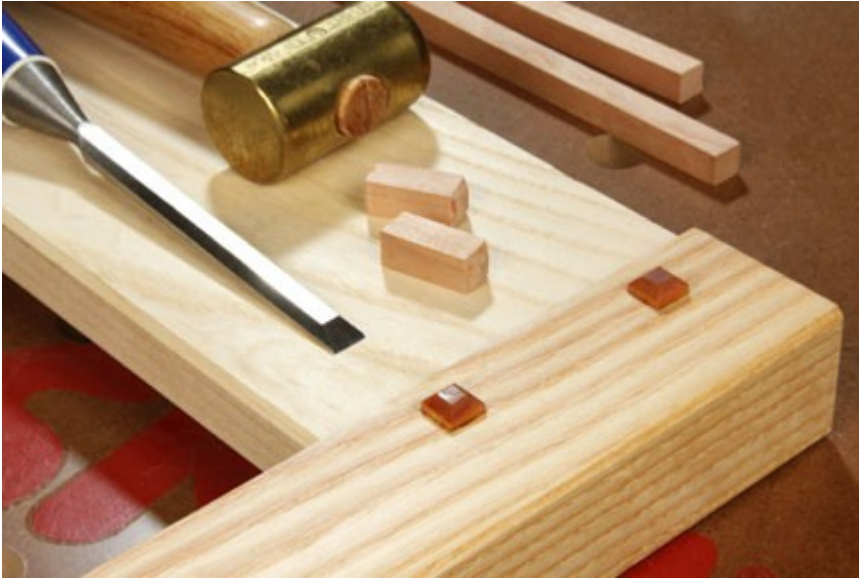


Pegging a Mortise and Tenon Joint



Pegs add strength and flair to classic joinery.

Mortise and tenons are among the strongest joinery options in woodworking. Still, the interface between a tenon and its mortise creates a cross-grain gluing situation that depends on the strength of the glue bond to hold it together. A time-honored method of fortifying this connection is to drive one or two pegs across the joint. Aside from their structural advantages, pegs also add a decorative element to your project. They can be as simple as dowels, but in this custom eZine, you'll learn how to install square pegs with beveled edges. Consider using a darker wood species for your beveled pegs to add even more visual interest.



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5

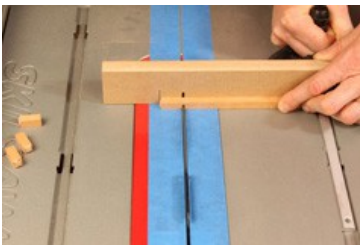


Photo 6



Photo 7

Step 1: Before you begin the process of installing pegs, go ahead and glue up your mortise and tenon joints and allow the glue to cure. If you're building a table, for instance, glue up pairs of legs with an apron to form subassemblies as we show here. That way, you can still install the pegs while the parts can be positioned flat on a worksurface.

Step 2: Determine where you want to locate pegs on the joint. It's a good idea to position the pegs as far apart as possible but still intersecting the tenon 1/4 to 1/2 in. in from its edges. Locate the pegs about the same distance in from the top surface of the mortised workpiece (in other words, about 1/4 to 1/2 in. in from the tenon shoulders). Mark the peg centerpoints.

Step 3: The pegs we're installing in the sample leg/apron joint shown here will be 3/8 in. x 3/8 in. square. Determine the proportions of your pegs, then install a Forstner bit in your drill press that matches this dimension. Set the drilling depth so your pegs will either stop midway through the joint—but pass completely through the tenon—or pass all the way through the mortised workpiece. Either stopped or through pegs are acceptable options, but if you want your pegs to strengthen the joint, make sure they pass through the tenon and at least partially into the opposite mortise wall. Clamp a fence to your drill press table to hold the workpiece stationary, and bore both peg holes (see Photo 1).

Step 4: Draw layout lines to square up the peg holes. Using a sharp chisel, pare away the waste along your layout lines all the way down to the bottom of the peg holes. Start this process by scoring all four layout lines with a light tap on the chisel. Then, holding the chisel so the blade is square to the workpiece and the edge is resting in the score cut, begin to tap it down into the peg hole. Instead of driving the chisel all the way down one side of the hole, remove the waste in a series of four chisel taps all around the opening, repeating the process to pare away about 1/8 in. of waste each time (see Photo 2). Lever the blade in toward the center of the hole to progressively break the waste loose. Check your progress as you work to make sure the walls of the peg hole are flat and square all the way to the bottom.

Step 5: Joint and plane the stock you'll use for your pegs so that its thickness matches the peg hole openings. You'll know you have a good fit if you can insert a corner into the peg hole without forcing it or seeing a gap on either side (see Photo 3).

Step 6: Step to your table saw or band saw and rip your peg stock into square strips that match the hole dimensions. You can cut these strips safely between the rip fence and blade if you use a narrow push stick to support the workpiece all the way through the cut (see Photo 4). If your table saw has an independent splitter or riving knife, make sure to use it for this operation to prevent the saw kerf from closing up behind the blade. Adjust the rip fence as needed until your "sticks" of peg material can be push-started into the peg holes with light to moderate pressure.

Step 7: You can form the bevels on your pegs in a number of different ways, but a small stationary disc sander does the job quickly and accurately. In Photo 5, we've clamped a simple two-piece sanding jig to the disc sander table to hold the peg blanks at 45° to the disc. Bevel one edge and see if you like the amount of bevel created, then rotate the stick to each face and sand up to the same lines to form an even bevel all around (see Photo 5).

Step 8: Determine how long you want your pegs to be. It's a good idea to make

them slightly shorter than the peg hole depth if the holes are stopped (to leave some room for glue), or a bit longer than needed for a through hole so you can sand the cut end flush after installing it. If you use a table saw to cut your pegs free, you may need to close up the throatplate opening around the blade to prevent small pegs from falling down inside the saw or catching the blade and shooting back up at you. A few strips of painter's tape can make a quick, makeshift "zero-clearance" throatplate. Attach a piece of scrap to your saw's miter gauge to form an elongated fence. It should extend past the blade. Mark it to set the length of your pegs, and then cut the first one free, pushing the miter gauge all the way past the blade. This will help to "sweep" the peg clear. Repeat the bevel-sanding and crosscutting process to make as many pegs as you need for your project (see Photo 6).

Step 9: File or hand-sand the peg bevels if needed to remove any burn marks left from the power sander. To install the pegs, drizzle a small amount of glue down onto all four faces of the peg hole. Insert the peg, and press it into place with a small C-clamp (see Photo 7). This can be a better alternative to tapping with a mallet, which will occasionally split or break a peg off in the hole as well as mar the beveled edges.

Now, your mortise and tenon joints are both attractive and braced to stand the test of time.