

## Coffin Construction Directions

### Materials needed:

Two boards for the coffin sides 15" wide and about a foot longer than you are tall.

Two boards 24" long and 15" wide for the coffin ends.

One board same length as the side pieces and 25" wide for the top of the coffin.

The bottom of the coffin will be made of 1x6 tongue-and-groove pine each about 24" long. You'll need between 14 and 16 of them, depending on the length of the coffin for a total of 28 to 32 lineal feet.



4 pieces of pine 3/4" x 3/4" x 5".

4 1-1/2" long pieces of 1/4" dowel. Sand a small bevel around both ends.

A small bottle (8 oz. or more) of a good woodworking glue and a small glue brush.

24 2" long wood screws. I like the GRK screws that use a Torx or star drive bit.

Six 21 inch pieces of 3/8" natural fiber rope. (About 11 feet total)



32 pegs, 5/16" square and 2" long, one end sharpened in a pencil sharpener until that end is just round, made from some medium-hard wood like poplar, walnut, mahogany, etc. Or 32 2" long pieces of 5/16" hardwood dowel.

## Tools Needed:

*(We will bring a complete set of tools to the workshop. Don't rush out and buy any, but if you have a cordless drill or any other favorite tools, bring them along)*

Circular saw

Router with both a 1/4" round-over bit and a 3/4" straight bit.

Drill/Driver with driver for wood screws, a 1/4" drill bit, a 19/64" bit and a 1/2" Speedbore drill bit.

Sander or sanding block with sandpaper.

Hammer

Awl

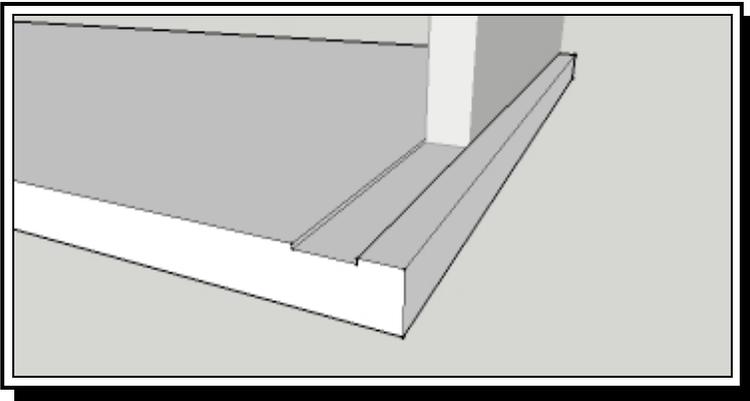
Masking tape

Rope cutter (sharp knife)

A pipe clamp that will open to more than 24"

## Material Preparations:

Cut the side pieces to length (I usually figure your height plus four inches for the inside measurement, then add another 2-1/2" for room to attach the end pieces). Then cut the end pieces to length. The coffin should be 24" wide (outside measurement) so the end pieces should be cut to 22-3/4". (Vaults are just 30" wide, so the coffin cannot be more than 29" wide. If you used wood handles, they would take up 5".)



### ***In case you've never heard the term dado***

*Dado: A slot in the face of one board that fits the end of another board thus making a joint. The width of the slot must be exactly equal to the thickness of the second board. The depth of the slot varies, but is usually shallow.*



Use a router with a 3/4" straight bit. Set the edge guide 1/2" from the bit and the depth of cut to 1/8".



On the sides, first rout a dado across the full width on the inside face of each end. Move the router from left to right to get the best cut.



Then rout a dado along the bottom edge BETWEEN the two dados you just routed across the width.



Then rout a dado the full length along the bottom edge of both end pieces.

Measure the length of the end pieces, just to make sure they are both equal to 22-3/4". Then cut the tongue-and-groove pine to the same size (22-3/4"). Each piece of pine is about 5" wide, so divide the measurement of the length of the coffin by 5, and cut that number of pieces of tongue-and-groove pine. Paint both ends of each piece with a generous coat of glue (the end grain with soak up the glue, so this coat will seal the surface). Put a coat of glue on the end grain of the 15"x 22-3/4" end pieces, too.

Mark the location of the pegs or dowels that will hold the coffin together by drawing a light pencil line on the outside of each end of the side pieces, 7/8" in from the edge, then make seven equally-spaced pencil marks on that line. These marks should line up with the center of the dado routed on the other side of the piece. Use an awl to start a hole on those pencil marks.

Check the fit of the tongue-and-groove bottom pieces in the long dado on the side piece. If it's snug, use a block plane on the "V" side of both ends to ease the fit.

## Coffin Assembly

Lay out one side piece on the bench in front of you, inside up. Spread a bead of glue in the dado at one end, and put another coat of glue on the end piece. Set the end piece in the dado; the edges must be in line with both the top and bottom edges of the side piece. The dados at the bottom should line up, too. Stand the two pieces up so their bottom edges are on the bench. Use the driver/drill to drive 2” screws into the end piece straight through the holes you started with the awl. Repeat the process with the other end piece. Lay the assembly down on the side piece so the end pieces are vertical. Spread a bead of glue in the long dado that runs along the bottom edge of the side piece.

Trim the grooved edge off one of the 22-3/4” bottom pieces. Spread glue on the edge you just trimmed and set that piece, with the “V” side facing down, in the dado where you just spread the glue so that the long edge you just glued fits in the dado at the bottom of the end piece. Continue to set bottom pieces in the same manner, paying attention so that the “V” side of each board is always down. DO NOT force the bottom pieces firmly together; they need to have a little room to expand as the humidity and temperature change. When you get to the other end of the coffin, cut the width of the last piece so it fits all the way into the dado.



Glue on trimmed edge



Glue into dado



First board goes into dados on end and side



More bottom boards into dado.  
Not too tight to neighbor



Last bottom board cut to fit into dado on end and loose to board on other side. (1/8" clearance)

Now for the fun part. It would help to have another pair of hands, but you can do this yourself. It is worth your time to practice before you spread the glue. When you're ready, spread a bead of glue in all three dados on the remaining side piece and set it on top of the coffin so the ends and all of the bottom pieces fit in their dados. Drive 4 screws into each end piece as you did on the other side piece. Now hold the middle of the coffin together, pushing in from both sides, as you roll the coffin so the bottom is facing up. Put a pipe clamp across the bottom of the coffin so the bottom pieces will stay in their dados. Measuring 7/8" from the bottom edge of the coffin, mark four hole locations more or less evenly spaced along the length of the coffin. You can see where the joints are between the bottom pieces, so avoid the joints and mark the hole locations in the middle of the bottom pieces. Before you drive screws into the bottom, check the coffin for squareness. Measure the two diagonals. They should be equal, but within 1/4 inch is probably close enough. Start the holes with the awl and drive 2" screws into the holes and into the bottom boards. Repeat on the other side.

Now trim the top piece so it is just as long as the side pieces and 1" wider than the outside width of the coffin (should be 25"). To determine where the cleats go, center the lid on top of the coffin. Scribe the location of the outside of each corner on the underside of the lid. Flip the lid and draw new lines at each corner parallel to your scribes but offset towards the center by 7/8". Take each of the four 6" pieces of pine, spread glue on one side, set it so that one side and one end line up with the inside pencil marks and clamp it in place. Leave the clamps on for at least one half hour.



Apply glue to cleats



Align cleat and clamp

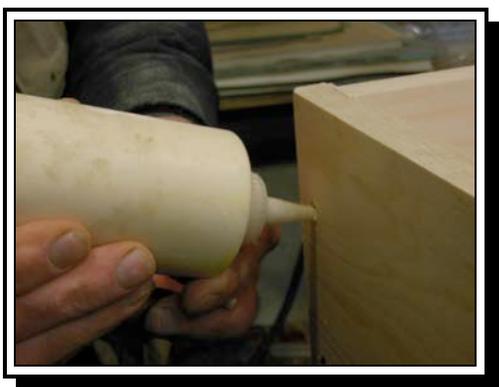
It is handy to have a second drill/driver for this step, but you can get along without it. Remove one screw at a time from the coffin. Put the 19/64" drill bit in the drill/driver. Drill a 19/64" hole a little less than 2" deep starting in the hole created by the screw you just removed BUT ON A 15 DEGREE ANGLE so that the hole does not go into the channel created by the screw but does stay in the end or bottom piece into which you are drilling. Alternate the direction of the angle, going down on the first peg, then up on the second, or left and then right, depending on whether you are drilling into the ends or the bottom boards. Squirt a small amount of glue into the hole. Take one of the 5/16" square pegs or dowels and, using the hammer, drive the peg or dowel into the round hole, oriented so the points of the square are pointing up and down and side to side, not parallel to the edges of the assembly. Pound the pegs until they are almost completely in the hole. You can leave a little to be sawn off and sanded later. Then repeat for the rest of the screws and pegs or dowels.



Back out screw



Drill new hole at 20° angle



Put glue in the hole



Drive peg into hole

While waiting for the glue to dry, drill holes for the rope handles. You'll want to put six pencil marks on each side of the coffin, about 5" up from the bottom, 6" and 12" in from each end and 3" on each side of the point midway from both ends of the coffin. Start the hole with the awl, then drill a 1/2" hole through the side at each pencil mark just until the point of the drill bit comes through the inside of the coffin, then finish the hole by drilling through that penetration point from the inside until the hole is complete. Take the rope and wrap a piece of masking tape around it every 21". Cut the rope through the middle of the masking tape. Tie an overhand knot in one end of the rope. Pass the other end of the rope through one hole from the inside then pass it back through the hole 6" away, then tie another overhand knot in the end of the rope.



Drill hole part way through from outside



Finish drilling from inside



Cut rope to 21 in. (6 pieces)



Tie overhand knot on end



Thread rope from inside out then back in again. Tie knot #2



Give handle a good tug to set knots and test.

Now make a pencil mark in the top corners of each side 4" from the end and 3/8" down from the top edge. Start the hole with the awl then drill a 1/4" hole through the side of the coffin, trying hard to keep the drill bit level and perpendicular to the side of the coffin. Now remove the clamps holding the short pieces of pine to the coffin lid and place the lid on the coffin. The cleats should fit inside the corners of the coffin while allowing a little room for movement. Holding the coffin lid in place, insert the drill with the 1/4" bit through the 1/4" hole in the upper corners of the coffin sides, then drill a 1/4" hole through each cleat. Remove the top and run the 19/64" bit through the 1/4" holes you just drilled in the cleat. Do NOT enlarge the 1/4" holes in the coffin sides. The lid will be held on the coffin by hammering the 1/4" dowel pins through the 1/4" hole in the upper corners of the coffin sides and into the 5/16" hole in the cleats on the underside of the lid.



Drill through existing hole into the cleat inside

Sand everything that you think needs sanding, while appreciating what you've just accomplished and enjoying the feel of smooth wood under your hand.



The top coffin is the one we made to illustrate these directions, straight sides, rope handles.

In the middle is one with flared sides and wood handles, and a gentle curve in the bottom edge.

The bottom one has flared sides and rope handles, made with rough-cut wood.

All three were made using the same construction techniques.