

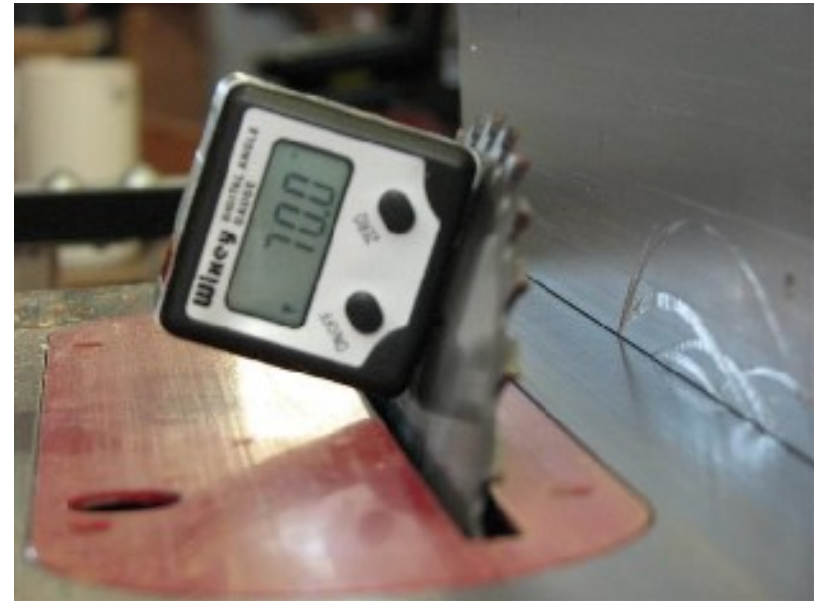
Turned Bird House

- Constructed with staved body, compound staved roof. Both BC Cedar Fence boards
- Base and finials from spruce cut-offs.
- Body 6" dia. X 7" H
- Overall ~ 14" H
- Dimensions not rigid.



Body Staves

- 9 staves cut at 20°
- Each stave 2 ¼" (Outside edge) x 7"L.
- Drill Entrance hole for one stave prior to assembly, Wrens – 1 ¼" Entry Hole
- Drill ¼" hole for perch if desired. Have had nesting success with & without perch.



Clamp staves with Band Clamp

- Using waterproof PVA glue and clamp fashioned from two sets of 2 Poly tubing clamps (~2 ½ - 3 ½" size) joined together. I used Titebond II.
- Hole is about 2 ½" from top of stave



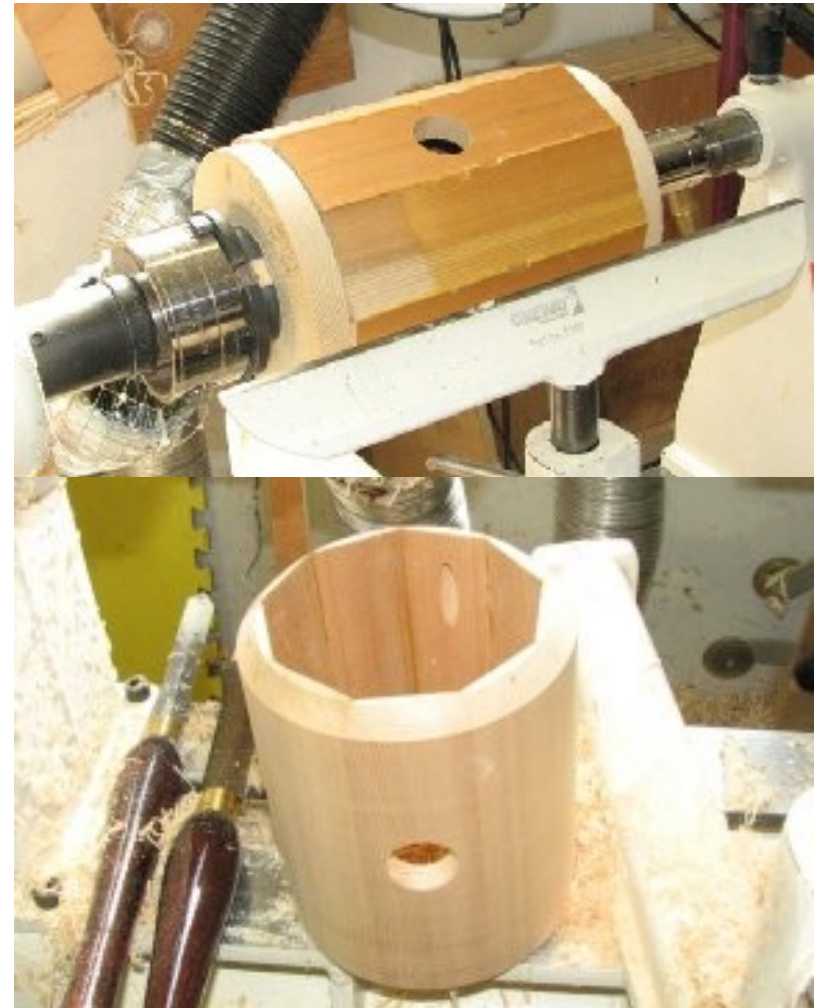
End Plates for Turning Body

- Prepare between centers two endplates from 2x8 Spruce with about a 4 $\frac{3}{4}$ " tenon to fit inside diameter of the body . Tenon on headstock end for chuck and use tailstock on right end to secure between centers.



Turn Body Between Centers

- Round using either a spindle roughing gouge, spindle gouge, bowl gouge or skew. Skew will give best finish. Leave rough finish.
- Using a skew, cut $\sim 45^\circ$ bevel at top to fit roof.
- If desired, add a bead at bottom edge of body or elsewhere



Compound Stave Roof Segments – Cpd Miter Saw

- Roof is made up of 8 segments. Rip board 3 1/2" wide, cut to 5 5/8" length with parallel 45° cut of each end and then cut compound tapers. (Corrected 2/18/2011)
See also method using full board width of 5 1/2" in future slide.
- Size was estimated from an actual size 6" dia. circle sketch with 8 segments of 45° each.



Clarification - Roof Staves on Compound Miter saw

- When I wrote this up, which was 10-11 months after I made the batch in 2008, I erred. The previous slide has been corrected. My theoretical measurement on my drawing was 3" wide at base, but in practice turned out to be 3 3/8" after experimenting. I actually used 3 1/2 " at base and 1/2" at top to calculate the angles. In practice, each segment in fact turned out to be 5 5/8" long , 3/4" wide at the top and 3 3/8" at the base. These measurements are after sawing the compound tapers. You have to start with discrete rectangular pieces, each of which are 3 1/2" x 5 5/8" which are cut from a board 3 1/2" wide and each end cut at 45°. Unlike segmented work, you cannot flip the board as you cut each piece due to the top and bottom 45° bevel for the roof slope. When cutting, aim to cut to each corner at the bottom and the top will turn out to the desired result.
- **Feb.18, 2011 – Just noticed that my description of blanks in previous slide was in error as well and have corrected slide as well as the above clarification. Long edges of board were not cut at 45°. Individual pieces are cut off at the angle to preserve long grain orientation.**

Compound Stave Angles

Calculations obtained at www.woodworkersguildofga.org/shophelpers/mitercalculator.htm

- Blade set at 74.3° and table set at 16.3°
- Could also be done on a table saw.



Yet another iteration for the SCMS

March 2012 - While reviewing this presentation I came to the conclusion that there had to be a way to use the full 5 ½" width of a cedar fence board and get two roof segments from a single beveled slice.

I decided to work on a table with a Toggle Clamp for the Sliding Compound Mitre Saw. It turned out two tables are required, but they simplify setting up the saw after they are made and the precision achieved on segments is well worth the effort. It is also significantly more safe while making cuts.

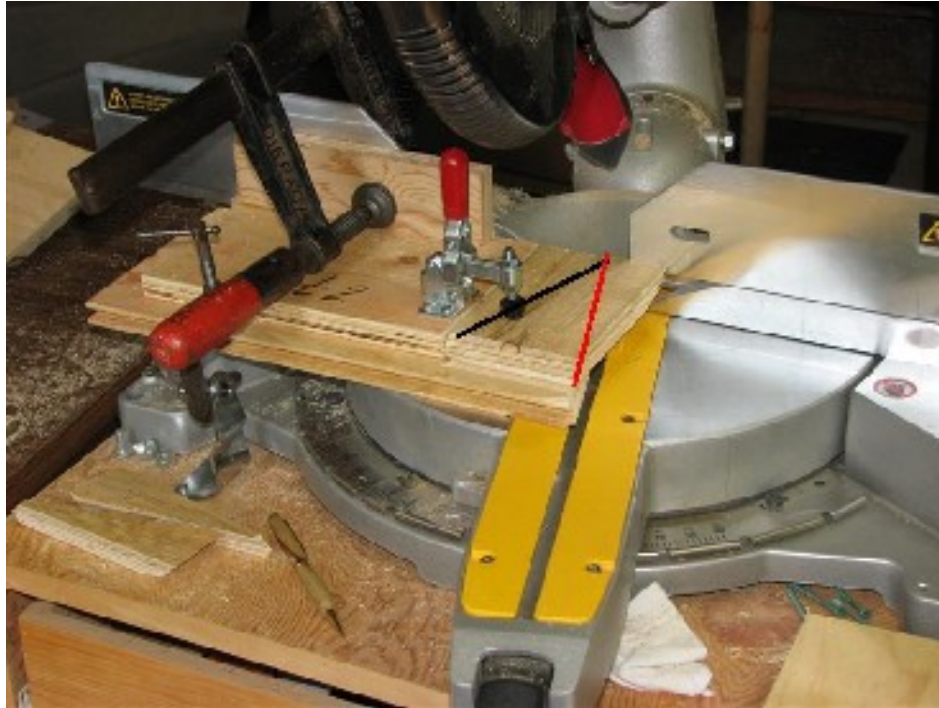
In order to make the tables, it is easiest to start with a good roof segment for placement of support pieces.

1st Cut Table for SCMS – 3 ½” blank



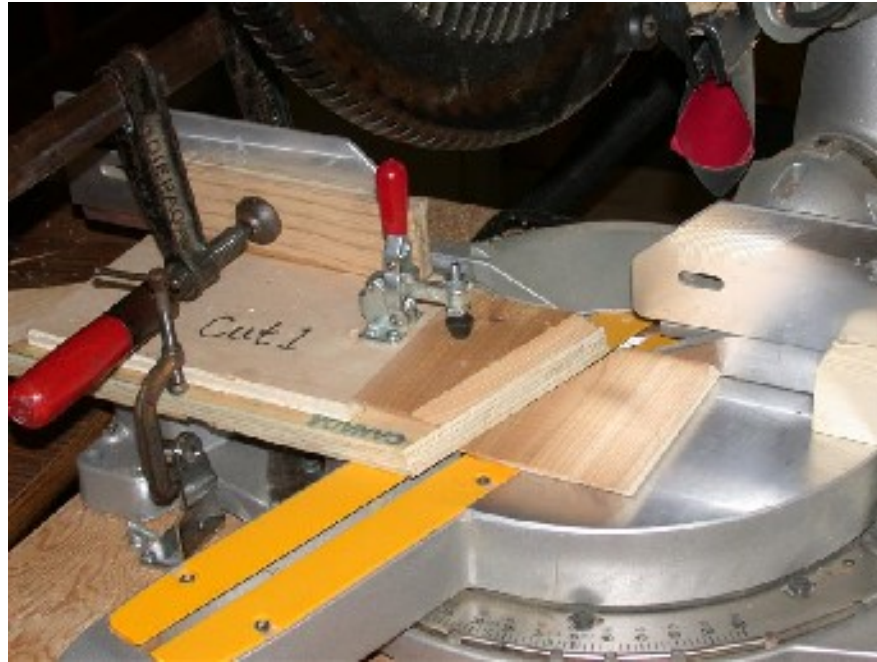
To make table, start with a piece of plywood, and a good roof stave, align blade & saw table. Make cut in base and position piece with straight edge labeled Cut 1. Brad or tack in place on base plate. Add a back plate to clamp to saw fence. Properly position and brad in place. Add toggle clamp for safety and precision. Note position of blank, 45° bevel down and to rear.

2nd (Red line) Cut Table for SCMS – 3 1/2" blank



Saw table rotated to other angle, cut-off from 1st Cut used to make table as per 1st Cut table. Piece is rotated 180°. Note toggle clamp holding blank for safety and precision.

SCMS Using 5 1/2" blank



First cut is the same as if using a 3 1/2" wide piece. A cutoff from a 3 1/2" piece will be required as a support/alignment piece for next step to cut the second stave. The piece on the left resulting from this first cut will have to be processed again on the second table. One piece of the waste from that second cut of the first stave is retained and needed for the second cut on the second stave. The second stave is to the right and the second cut for it will be made on table one. If confused just start playing with the pieces!

Cutting second stave from the 5 ½” blank

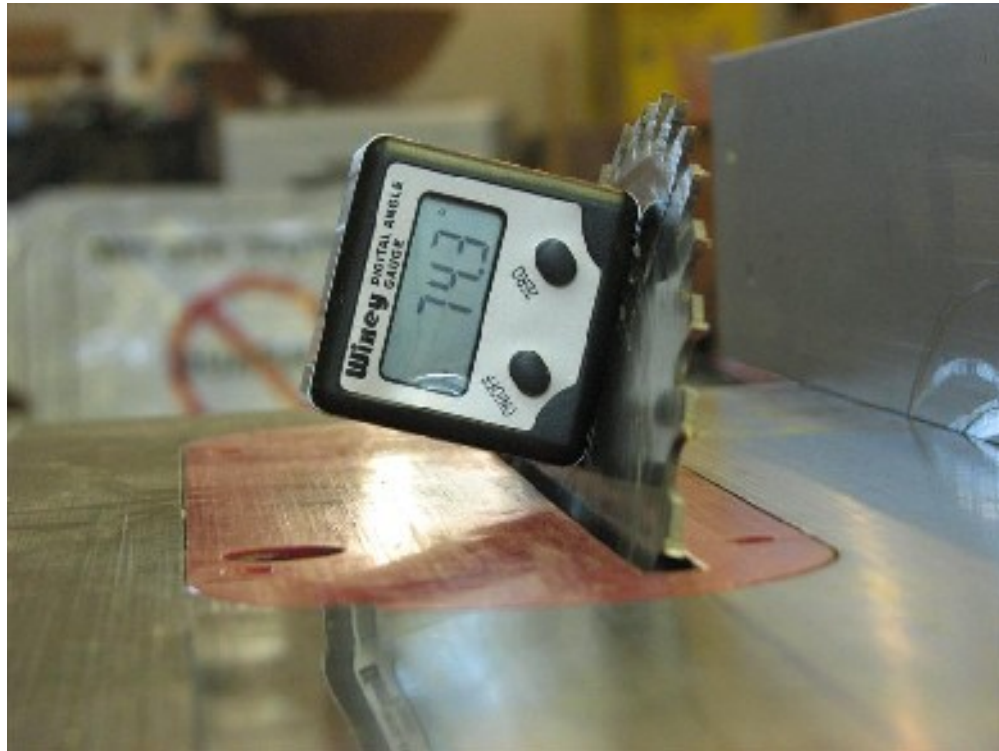


Using Table No. One, insert the cutoff from first segment produced to the left of the right hand remainder of the first cut, paying attention to the orientation. The toggle clamp should secure it in place. Make the cut to complete the second stave.

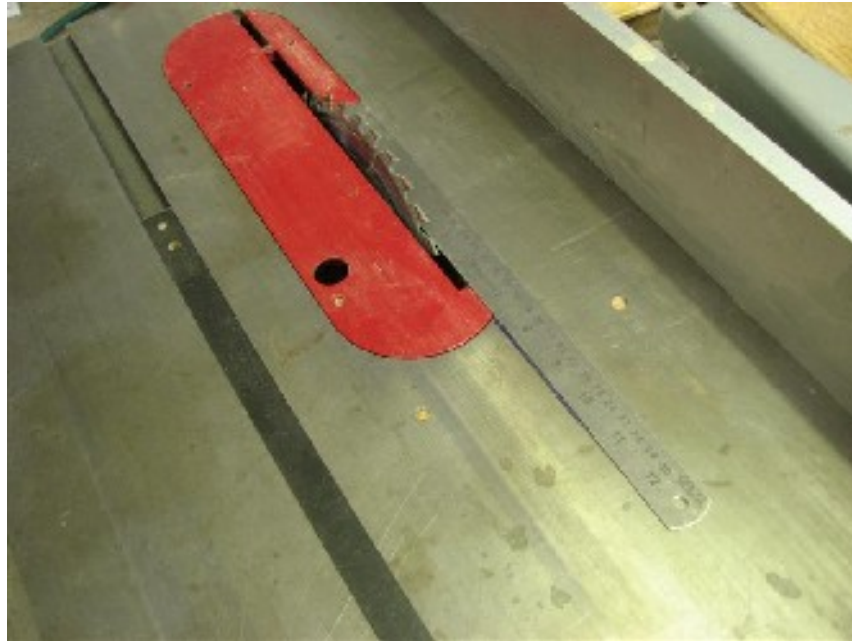
Table saw method for roof staves

- The next few slides detail the use of a sled on a table saw. Construction of the sled is easiest accomplished by having a starting blank as well as a stave available to physically place on a sled to locate holding pieces. A prototype stave can be cut from a board with a miter gauge by making one cut and flipping the board over to make the second cut. The grain orientation will not be correct but the size will be equal to the final requirement. The support pieces on the sled are taken from cutoffs.

Table Saw Blade at 74.3°



Using a straight edge ruler, determine and mark the right edge of the saw blade on the table for a reference point



For prototype - make the first cut with blade at 74.3° and Miter Gauge at 16.3° Make four staves and check to see if they will form half a roof.



Make a mark $\frac{3}{4}$ " to right of first mark, flip board over and align and make second cut, so that a point results on the the top surface and bottom surface is $\frac{3}{4}$ " wide at the apex.



In order to get correct grain orientation, Starting Pieces are cut from cedar fence boards cut at 45° and 5 5/8" total length. Each will produce two compound staves for roof. This could be done on table saw. I find SCMS easier for crosscut work.



Laying Out Sled - 1st Cut, Position supporting pieces from cutoffs so that first cut just kisses bottom right edge of blank. I used Brad gun to fasten supporting pieces to sled.



Laying out 2nd Cut - Flip the blank over and using a small cut-off piece on the right (circled), position blank so that second cut will result in a pointed end on the stave. Fasten the support piece with brads.

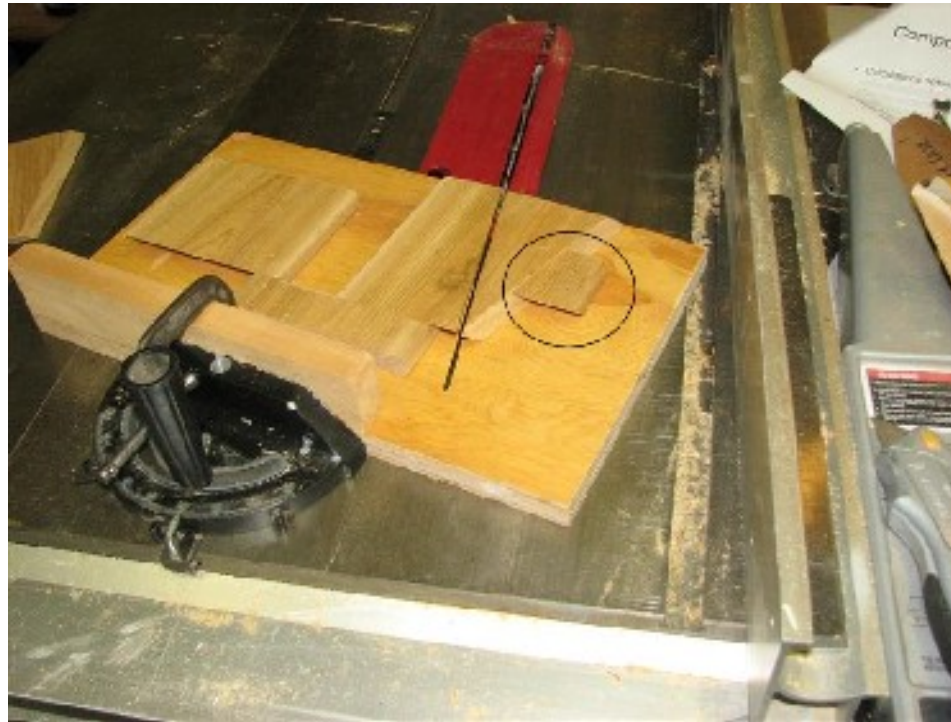
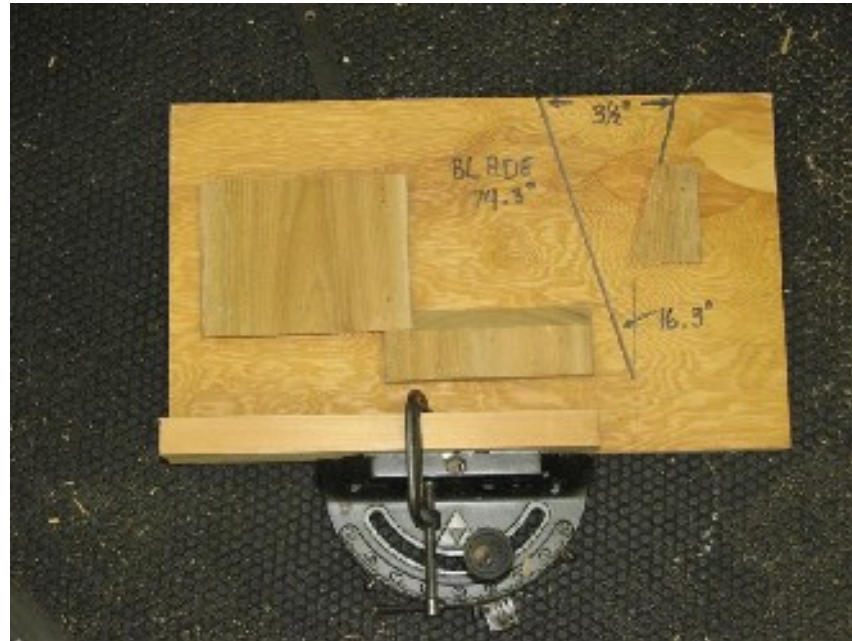


Table Saw Sled for Roof Segments



5 5/8" long pieces from cedar fence board, cutoff at 45° angle, two roof segments result from each blank. Toggle clamps could be added to this sled as well.

Cut One



Cut two

Note use of push/hold
down stick



Cut Three

Note Use of Push/Hold down stick



Roof Glue-up

- Glue 4 segments at a time, rubbed glue joint with waterproof PVA held with masking tape.
- Saw fence makes convenient alignment tool when gluing.



True-up Roof Halves

- True up the face on a disk sander if necessary. If saw angles are set correctly, this step is not needed.



Complete roof glue-up

- Glue two halves together using rubbed joint and masking tape to secure.
- Glue two halves together in about 20 minutes to half an hour after gluing four segments while still a bit of flexibility.



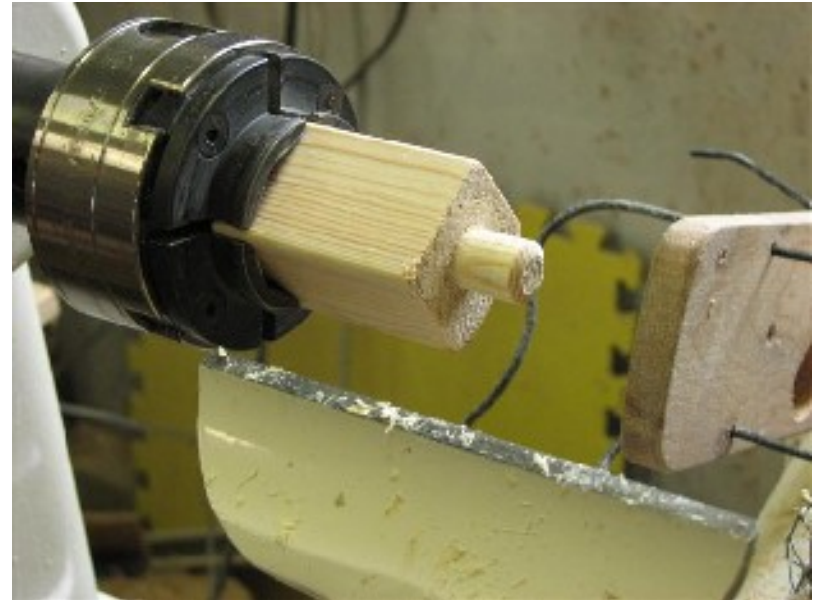
Drill 5/8" hole for finial

- Centering as best you can, drill a 5/8" hole where finial will be mounted. This hole is also used for mounting on lathe to shape the roof.



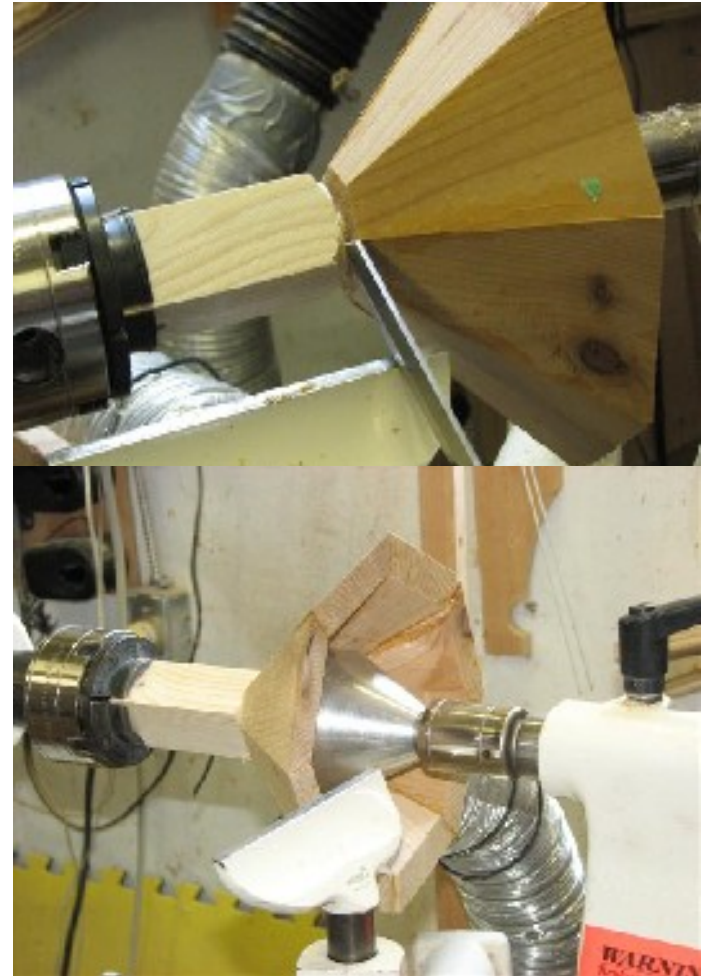
Jamb chuck for mounting roof

- From a piece of spruce 2x2 turn a 5/8" diameter jamb chuck to hold roof for turning. A 5/8" box end wrench makes a great measuring tool.

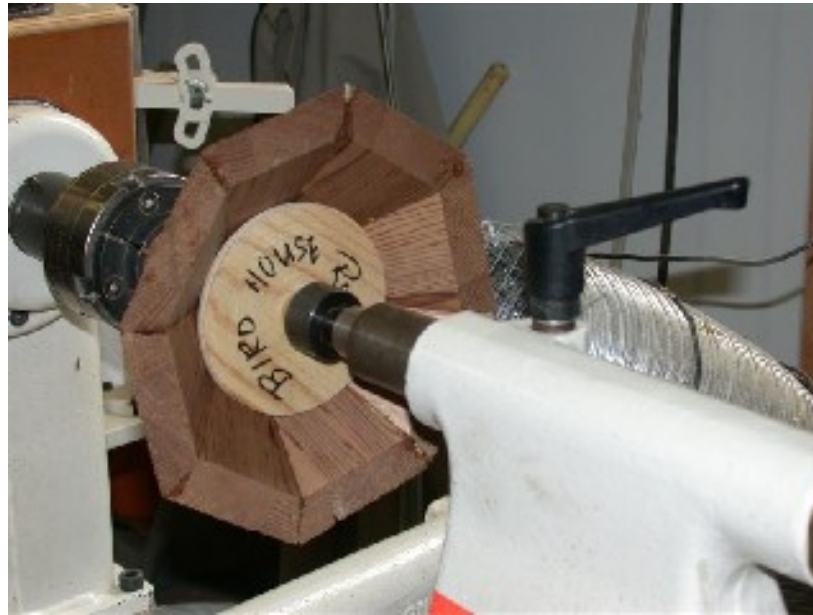


Roof mounting on lathe

- Mount on jamb chuck with a Reverse Cone support on tailstock. True up top with parting tool for seating against jam chuck and for finial later.
- If you do not have Oneway Live Centre, make a disk as per next slide.



Jam Disk to hold roof for shaping



With bandsaw cut a disk from $\frac{1}{2}$ " or $\frac{3}{4}$ " plywood or hardwood about $4 \frac{1}{4}$ " in diameter. True up between centres and cut a 45° bevel on front face to engage inner surface of roof staves. For small lathes turning a cone to simulate the Oneway Cone, will give some extension to the quill and would be helpful for maneuvering tool rest in tailstock area.

Shaping Roof

- Shape roof using a bowl gouge with a pull cut . With a skew shape top inwards to ~ 1 ¼” diameter to mate with finial.
- Leave rough.



Shape inside edge of roof

- Using a bowl gouge, shape the inside edge of the roof in about 1 ½ - 2" to mate with body.
- True up bottom edge as well for appearance.



Turn Finial for Roof

- From 2x2 Spruce turn a finial. Have some fun with a skew!
- Base ~1 1/4" to match roof.
- Short 5/8" tennon
- Mount with waterproof glue



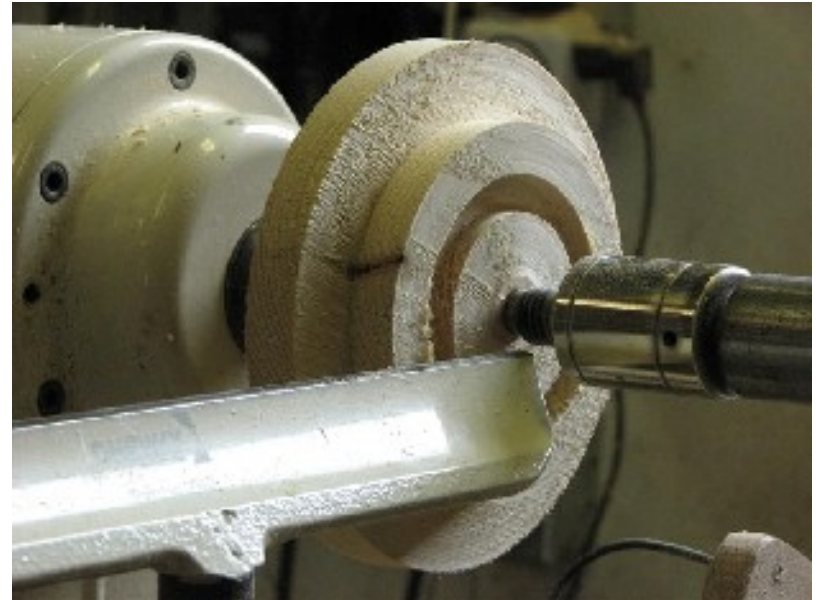
Base plate Blank

- Base is band-sawed from a piece of 2x8 Spruce 6 ½" in diameter or ½" larger than body diameter. Mark centres.
- Mount between centres and true up outside edge and face with a bowl gouge.



Turn Tennon on Base Blank

- With Parting Tool, turn a recessed tennon to mount in chuck jaws, Diameter dependent on your chuck setup. With very large jaws, just use insert tennon.
- With Parting Tool and small bowl gouge, turn larger insert tennon to secure the base inside the body. Allow sufficient length of the tennon (about $\frac{1}{2}$ ") for screws to bite from outside body



Shape Exterior of Base

- Using a bowl or spindle gouge, turn a pattern for the base with a $\sim 1 \frac{1}{4}$ " raised area in centre to mate with base finial.
- Sand with 120 grit sandpaper on lathe



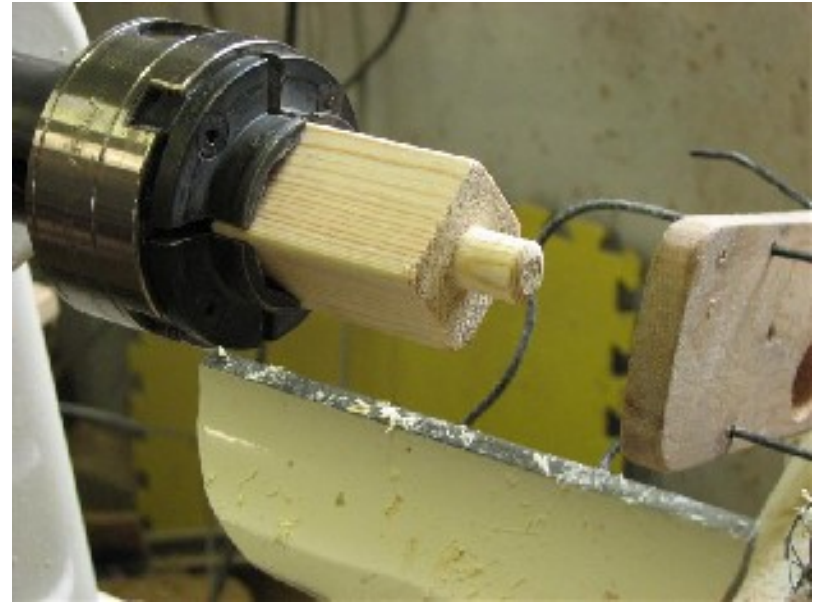
Drill Mortise for Base Finial

- With a 5/8" Forstner bit held in Jacob's Chuck in tailstock drill a 3/4" – 1" deep hole for finial tennon.



Turn tennon on Base Finial Blank

- Turn a 5/8" diameter tennon about 3/4" long a 3" piece of 2x2 Spruce. Base finials may also be turned just short of completion and then glued and finish turned in conjunction with last stages of base plate.



Glue Base Finial Blank to Partially completed Base

- Again with waterproof glue, mount the tennon blank to the base.
- Note variety of base configurations



Turn Base Finial

- Remount the base with recessed tennon in the chuck jaws and turn the base finial according to your inspiration of the moment. This is a birdhouse. Let Whimsy prevail!



Assembly

- Drill 3 - 1/8" holes at ~45° on the beveled edge of the body to mount roof. Attach the roof using a Stubby screwdriver and suitable 1" screws.
- I used sheet metal screws.
- Ventilation cuts optional



Base Assembly

- Depending on design of base, a small piece of base overhang adjacent to the mounting slat may have to be removed prior to mounting.
- Drill 2 – 1/8” holes around perimeter of the body about 1/4” up from bottom edge so that 1 1/4 ” screws can be used to secure the base to the body. Position the holes so that they may be accessed for removal of base to clean each spring.
- Due to screw placement in mounting slat, base may need installation after positioning bird house in final place.

Screw Placement for base



If a bead is used on the bottom of the body, angle the hole slightly down and drill just above the bead.

Mounting Slat

- Attach to the back of the body a piece of 1x2 or 1x3 approximately 14-16" in length.
- Drill two 1/8" screw mounting holes in the back of the body, one directly opposite the entry hole can be accessed through the hole.
- Secure slat with a 1" screw inserted using a stubby screwdriver from inside the body.
- Robertson square drive screws used throughout construction.
- Mount in final place using a couple of 2" deck screws through the slat into tree or fence etc.

Alternate roof design

- An alternative to the compound staved roof, is to use a roof very similar to the base plate in construction.
- Or - by gluing up two layers of 2x8, a tapered roof could easily be turned.
- Further still a glued ring construction could be used. I leave that to you to design.

Terraced Roof Design is Stylish



Additional Notes

- I did not apply any finish, preferring to allow it to weather to a nice gray colour.
- For Tree Swallows or Bluebirds – use 1 1/2” hole
- Some sources quote 1 1/8” hole for wrens

Enjoy your feathered friends!



Or other visitors



Additional Resources

American Woodturner March 1992, pgs 2,3,4

Turned Birdhouses – Robert Rosand

American Woodturner March 1997, pgs 14-18

Turned Birdhouses – Susan Schauer

Both above available on-line in member's section of AAW website

<http://woodturner.org/Member/journal/journal1.asp>

American Woodworker March 1990, pgs16-21

Turned Birdhouses – Andy Barnum

Viewable on Google Books, Search “American Woodworker March 1990”

Same article appeared in Woodturning Magazine Issue No. 3 and is contained in Useful Woodturning Projects, The Best from Woodturning Magazine

Note: Adobe Flash Player required for both on-line viewing

- Hope you have enjoyed this project. It is obviously easier to do in quantity as many steps are required.
- Drop by my Photo Album at www.picturetrail.com/mikebrazeau
- Send any comments or questions to mjbrazeau@sympatico.ca
- Completed March 13, 2009
- Updated for Table Saw Sled Feb. 18, 2011
- Updated for SCMS Tables and Jam disk, March 27, 2012