

# 3

## Building a Hollow Vessel— The Complete Process

### Prepare the Drawing and Cut List

As with the bowl in chapter one, it is important to create a full-scale drawing on graph paper and then add the stock thickness desired for each ring level. (*Figure 1*) Measure

the inside and outside radii and subtract one from the other to determine the width of the stock needed for each ring. (*Figure 2*) Complete the cut list by adding the maximum length of stock required, calculate the segment

A ring segmented vessel



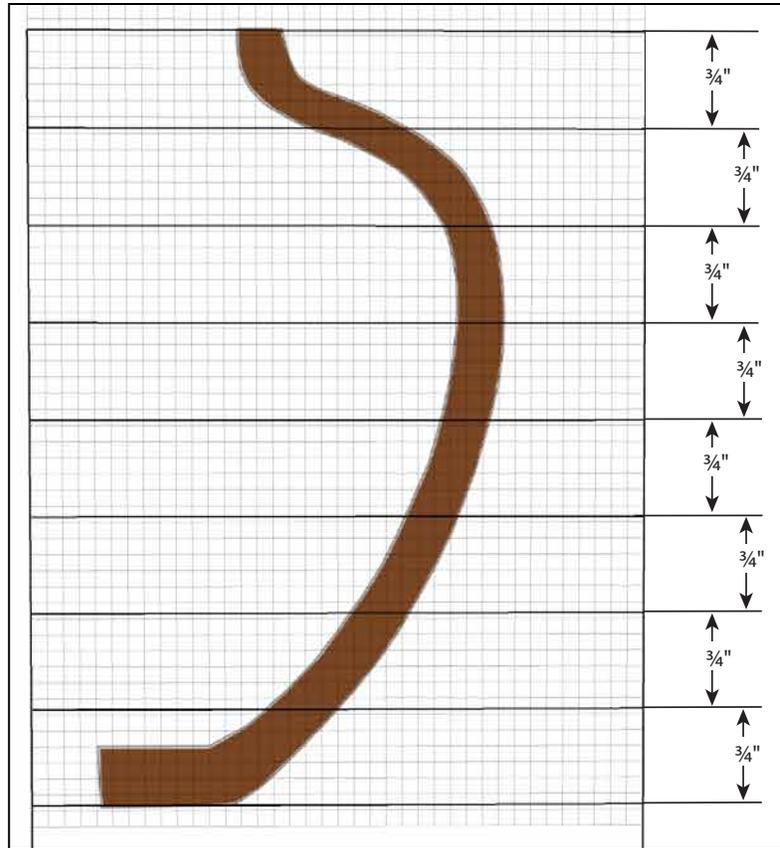


Figure 1

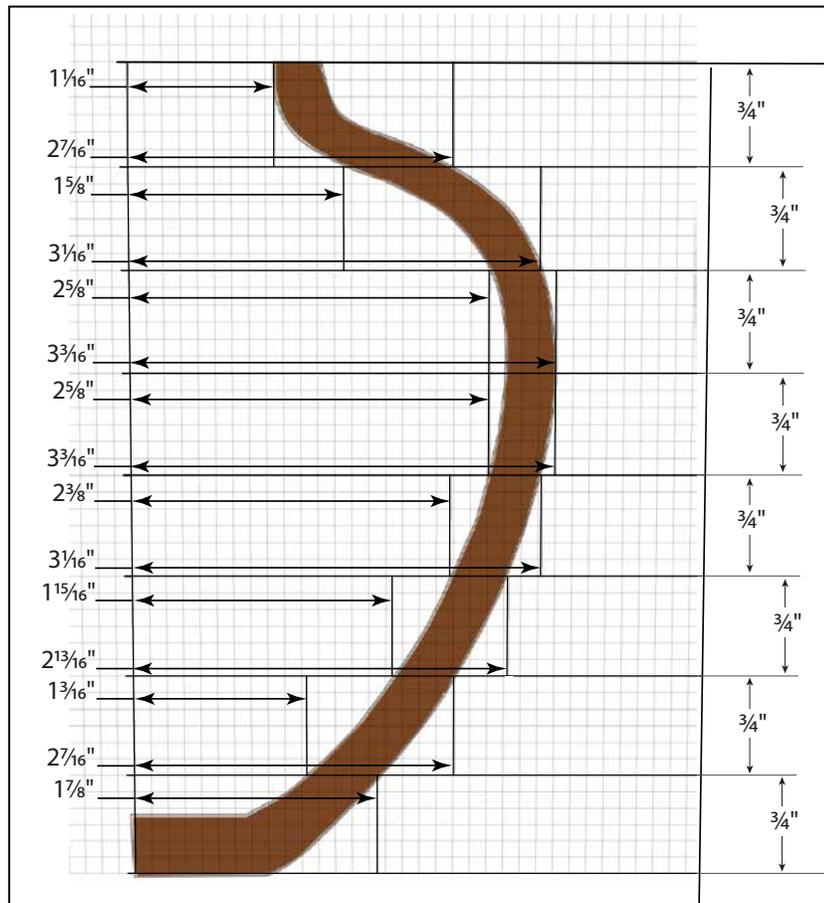


Figure 2

edge length from the circumference divided by the number of segments planned. (*See Cut List*)

### Prepare the Components

Prepare the rings as in the bowl. Check the diameters to be sure there were no errors in cutting. (*Figure 3*) Assemble the ring onto two faceplate/glue assemblies building the bottom portion to the largest diameter; the top portion of the vessel will be

built on the second faceplate/glue block assembly. (*Figure 4*)

### Turn the Vessel

After flattening the top ring of each assembly on the lathe, clamp the two halves together and turn the exterior shape following your drawing. (*Figure 5*)

The two sections then can be separated, hollowed individually and glued back together completing the hollow form.

### Hollow Vessel Cut List

Row No.	Type	Material	Stock Thickness	Stock Width	Stock Length <sup>1</sup>	Segment Edge Length
8	12-seg. ring	Bloodwood	¾"	1¼"	15½"	1¼"
7	12-seg. ring	Yellow heart	¾"	1⅞"	19½"	1⅝"
6	12-seg. ring	Yellow heart	¾"	⅝"	23"	1⅞"
5	12-seg. ring	Bloodwood	¾"	⅝"	23"	1⅞"
4	12-seg. ring	Yellow heart	¾"	¾"	22"	1⅝"
3	12-seg. ring	Yellow heart	¾"	⅞"	20"	1½"
2	12-seg. ring	Yellow heart	¾"	1⅜"	17"	1⅝"
1	Flat	Bloodwood	¾"	3¾"	3¾"	3¾"

1. Stock length includes allowance for ⅛" saw kerf and additional "safety" length.

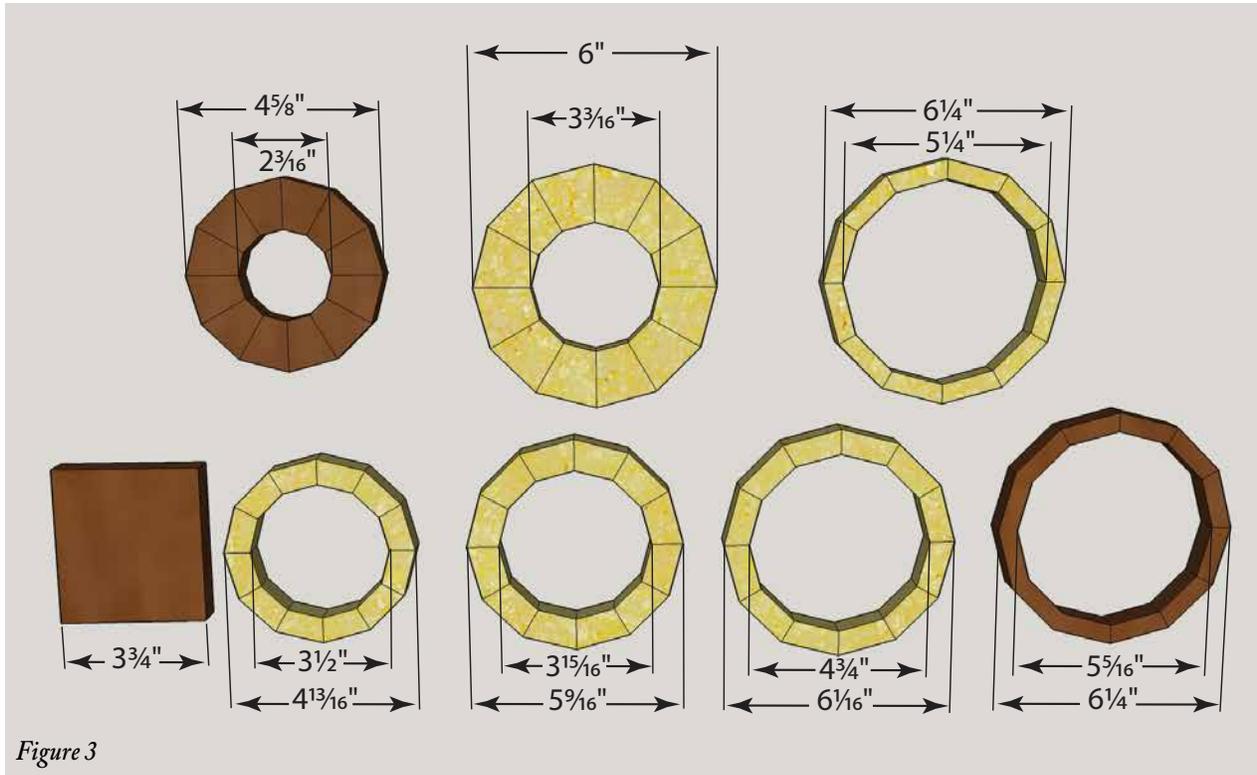


Figure 3

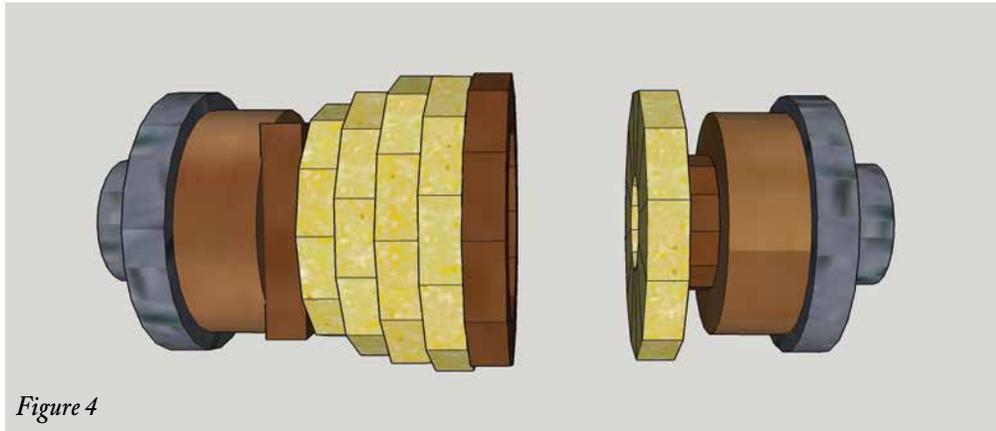


Figure 4

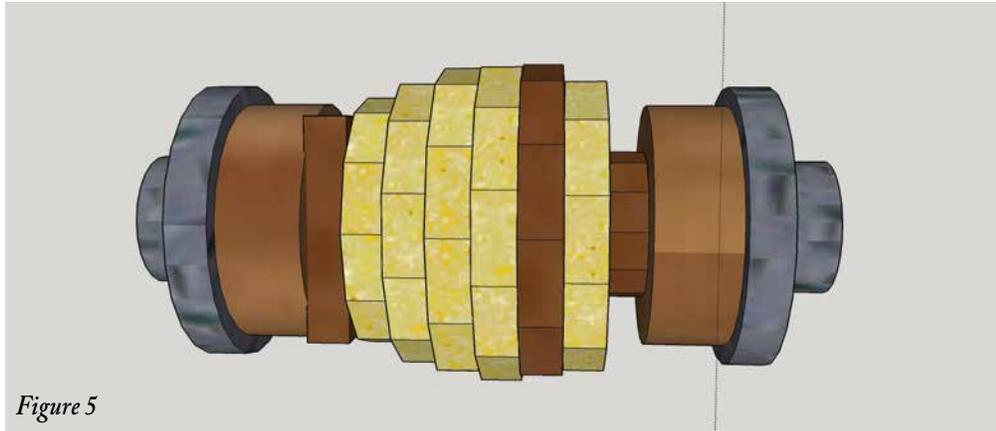


Figure 5

Strips cut to length and width



Cutting segments on the Wedgie sled



Bag the segments by ring number



## Building the Project Vessel

Cut the strips to the width and lengths needed from the cut list, numbering each strip. *(Photo 2)*

In this project the segments are cut using the Wedgie Sled™ and a zero clearance insert with a “segment deflector” attached which keeps the segments away from the spinning saw blade. *(Photo 3)*

Bag the segments separately by ring number. *(Photo 4)*  
Using 220 grit sandpaper, deburr the segments carefully.

## Build the Rings

Glue up each ring using band clamps or rubber bands. If the rings don't fit well use the half ring method to complete them.

Stack the rings in order to check the correctness of your planning and cutting. *(Photo 5)*

Number the edge of each ring in preparation for sanding the faces. *(Photo 6)*



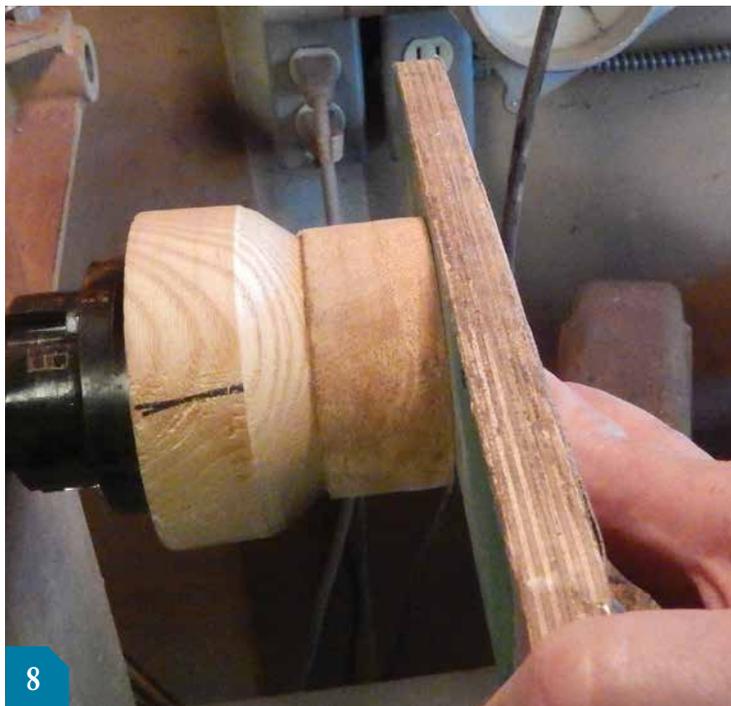
Rings stacked in order



Transferring the ring numbers to the ring edge



Preparing the first glue block by flattening



Sanding after flattening

### **Build the Project on Two Faceplate/Glue Block Assemblies**

Assemble and flatten two faceplate and glue block assemblies. Check the flatness with a straight edge. (*Photo 7*)

After the assemblies are as flat as you can achieve with turning tools, use a sanding stick with 80 grit sandpaper attached to complete the flattening process. (*Photo 8*)

### **Build the Vessel**

Start the assembly by flattening one side of the top ring on a sanding disk or disc sander. (*Photo 9*)

The top ring is centered on one of the glue block assemblies; here we are using a live center cone assembly as an alignment aid. (*Photo 10*)

Prepare all other rings by sanding one side flat on a disc or processing through a thickness sander that will sand both sides flat and parallel. (*Photo 11*)



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Flattening the top ring on a sanding disk



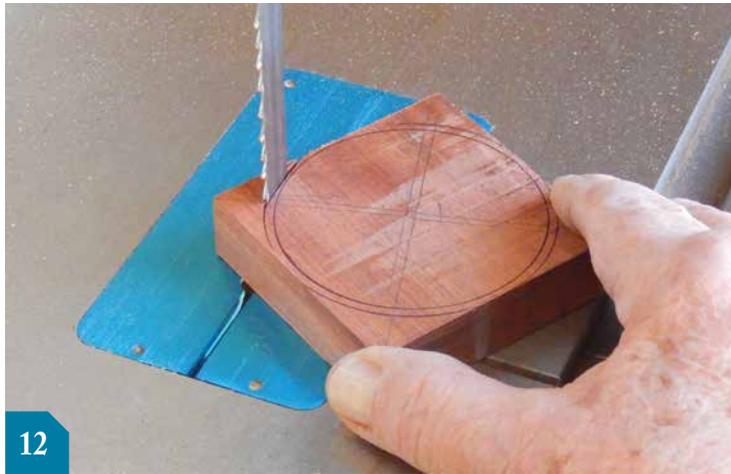
10

Gluing on the top ring with a Oneway alignment cone



11

Thickness sanding the rings to parallel faces



12

Trimming the base corners



13

Gluing on the base



14

Flattening ring seven with a gouge

Prepare the vessel base by trimming its corners on a bandsaw to save turning difficulties later.

*(Photo 12)*

Flatten the base and glue it onto the other glue block assembly.

*(Photo 13)*

After each level is added it must be checked for flatness. If the ring appears out of alignment with the lathe axis use your gouge to bring it back into alignment.

*(Photo 14)*

Once the alignment error is corrected the ring should be sanded with the sanding stick before the next ring is attached.

When adding a ring, mark the center of one segment and align that mark with a glue joint of the preceding ring to assure correct “brick-laid” configuration.

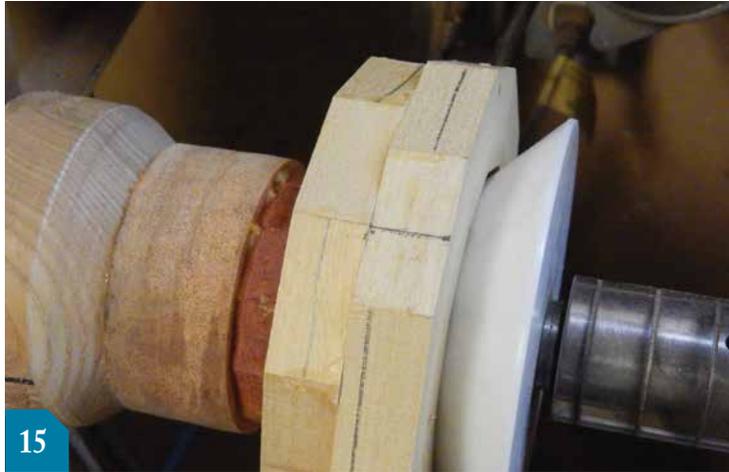
*(Photo 15)*

Build the base section only up to the widest ring in the planned vessel.

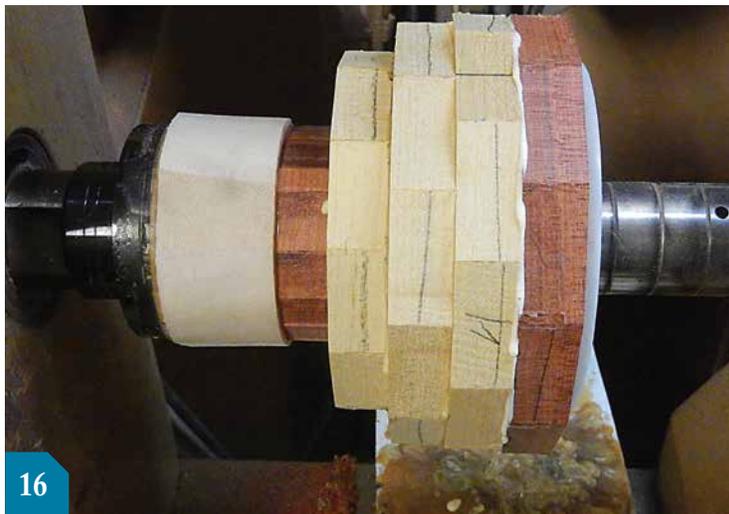
*(Photo 16)*

When the two assemblies have been completed, re-flatten the top ring of each on the lathe so that when clamped together they run properly in line. When this is done you are ready for turning.

*(Photo 17)*



Aligning ring six

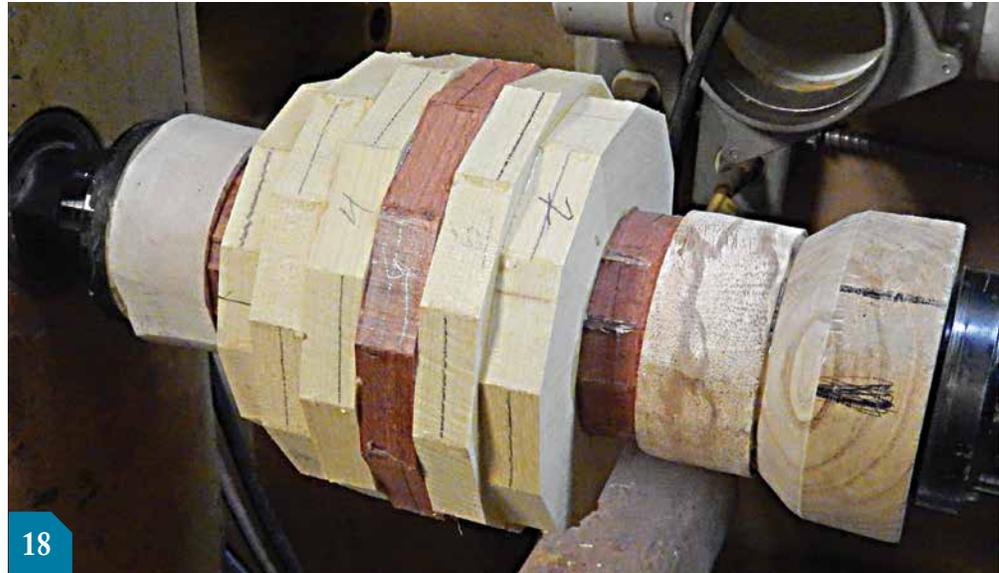


Building to the  
widest ring



Both assemblies  
flattened and ready  
to turn

Top-bottom  
clamped on the  
lathe and ready  
to turn



18



19

Exterior turned



20

Interior of the base hollowed

### Turn the Vessel

Clamp the two assemblies together on the lathe. A live center with lathe threads will allow the top assembly to remain rigidly in place on the tailstock. *(Photo 18)*

Turn the exterior to match the drawing leaving the base oversized for support during the next steps. *(Photo 19)*

Remove the top assembly and hollow out the interior of the base section working from the top ring downward in steps. You may need a round nosed scraper to finish the deepest portion of the base. *(Photo 20)*

When the hollowing is completed, sand and seal the interior. *(Photo 21)*

Replace the base with the top section and hollow it out. *(Photo 22)*

With your calipers check the wall thickness of the base section and match the wall thickness of the top ring of the base assembly; then seal the top's interior. *(Photo 23)*



Sealing the interior of the base assembly



Top interior hollowed



Wall thickness matched at the glue line



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Preparing to glue on the top section



25

Vessel glued together



26

## Close the Vessel and Complete

Remount the base assembly on the headstock. Add a thin bead of glue to the top assembly. (*Photo 24*)

Using the lathe as an alignment tool, glue the two assemblies together assuring glue squeeze out and segment alignment. Do not wipe away the excess glue. (*Photo 25*)

Part off the top's neck ring from the glue block when the glue is dry. (*Photo 26*)

Clean up the neck exterior and interior carefully. (*Photo 27*)

Clean up the vessel exterior removing excess glue and sanding. (*Photo 28*)

Reduce the base to its final dimension and add a small parting cut at its bottom to ease sanding. (*Photo 29*)

Complete sanding and apply a topcoat. (*Photo 30*)

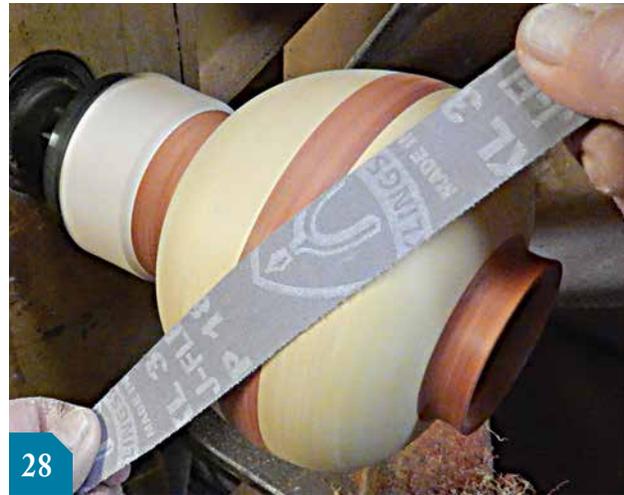
Part off and complete the bottom of the base. (*Photo 31*)

Neck section parted off



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Neck section shaped interior and exterior



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Rough sanding of the exterior



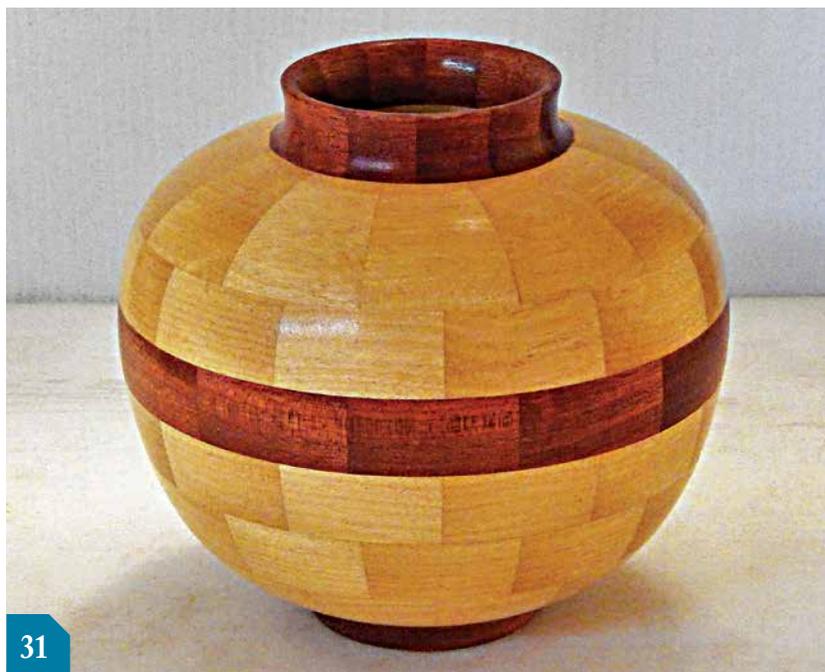
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Base reduced and shaped



30

Top coat applied



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The finished hollow vessel