





Cutting Summary Student project1 p.1

| Row | Type | Seg-ments | Board Thick-ness | Diameter | Diameter | Segment Edge Length | Vertical Spacer Width | Board Width | Board Length | Miter Angle | Blade Tilt Angle | Slope |
|-----|-------------|-----------|------------------|-----------|-----------|---------------------|-----------------------|-------------|--------------|-------------|------------------|-------|
| 10 | Flat Walnut | 12 | 1/2" | 3" od | 1-1/8" id | 13/16" | 0" | 1" | 8-5/16" | 15° | | |
| 9 | Flat Maple | 12 | 3/4" | 6-3/8" od | 1-3/8" id | 1-11/16" | 0" | 2-1/2" | 14-9/16" | 15° | | |
| 8 | Flat Maple | 12 | 3/4" | 7-1/8" od | 4-1/2" id | 1-15/16" | 0" | 1-3/8" | 20-5/16" | 15° | | |
| 7 | Flat Walnut | 12 | 3/4" | 7-1/4" od | 5-5/8" id | 2" | 0" | 15/16" | 22-1/8" | 15° | | |
| 6 | Flat Maple | 12 | 3/4" | 7-1/8" od | 5-3/8" id | 1-15/16" | 0" | 1" | 21-9/16" | 15° | | |
| 5 | Flat Maple | 12 | 3/4" | 6-7/8" od | 4-5/8" id | 1-13/16" | 0" | 1-3/16" | 20-1/16" | 15° | | |
| 4 | Flat Maple | 12 | 3/4" | 6-1/8" od | 3-7/8" id | 1-5/8" | 0" | 1-3/16" | 17-11/16" | 15° | | |
| 3 | Flat Maple | 12 | 3/4" | 5-3/8" od | 2-7/8" id | 1-7/16" | 0" | 1-5/16" | 15" | 15° | | |
| 2 | Flat Maple | 12 | 3/4" | 4-3/8" od | 1-5/8" id | 1-3/16" | 0" | 1-3/8" | 11-7/16" | 15° | | |
| 1 | Disk Walnut | | 5/8" | 3-1/4" od | | | | | | | | |

od = Outside Diameter, id = Inside Diameter, uod = Upper Outside Diameter, lod = Lower Outside Diameter

Segmented Project Completion Instructions

Discussion:

This instruction sheet describes the basic steps in constructing a ring segmented vessel. While projects may vary the work steps will remain basically the same. Some open bowl project will only require one face plate.

When turning the vessel or bowl concentrate on obtaining the correct shape by referring to your drawing. Disregard the voids between the rings and concentrate on the curvature; as you approach the correct shape and diameter the voids will disappear.

- Prepare stock
 - True and square stock
 - Rip stock to the required Board widths on Cutting Summary
- Cut segments
 - Trim one end of prepared stock to 15 degrees
 - Flip over to cut first segment
 - Number first segment
 - Repeat for all twelve segments
 - Sand each segments with 180 grit to remove any burrs
- Build rings
 - Build half rings first
 - Assemble ring in band clamp
 - Prepare two thin shims
 - Glue segment 1-6 and 7-12 only creating two half rings
 - Assemble half rings into band clamp
 - Insert two shims between segments 6-7 and 1-12 (the unglued edges)
 - Tighten clamp while keeping the ring flat
 - Wipe away excess glue
 - Complete ring
 - Disassemble half rings from band clamp and examine for flatness with a straight edge
 - With a stationary disk sander, flatten the half rings and recheck with straight edge
 - Glue exposed ends and re-clamp
 - Flatten rings
 - Thickness sander
 - Flatten one side until no irregularities are visible
 - Reverse and flatten opposite side
 - Disk sander
 - Hold each ring to the disk and sand one side flat
 - Check with a straightedge for flatness

- Belt sander (not recommended)
 - Carefully sand one side until no irregularities are visible
 - Lay ring flat on the sander and slide carefully across the belt
 - Rotate the rings one segment and repeat
 - Continue for twelve rotations than check for flatness with a straight edge
 - Finally check for uniform thickness with dial calipers and adjust as required
- Assemble project
 - On each of two faceplates, attach a glue block of approximately the diameter of the foot and one approximately the diameter of the top neck ring to be affixed
 - On the lathe, true up the face of the attached glue block
 - Then sand flat with the ring flattening sanding stick
 - Check for flatness with a straight edge and bright light
 - Glue the project base to one face plate centering carefully
 - Glue the top ring to the second face plate centering carefully
 - When the glue is dry re-flatten each assembly as described above
 - Proceed from both the bottom and the top of the vessel flattening at each ring completed
 - The base assembly should be completed through the widest ring of the vessel only; on the other face plate complete the balance of the vessel
 - Flatten the final level on both assemblies
- Turn project
 - Turn the exterior
 - Mount the base assembly on the lathe headstock
 - Place the other assembly (vessel top) on the live center and press the two halves together with the tail stock quill
 - Turn the exterior shape **DO NOT REDUCE THE NECK OR FOOT TO ITS FINAL DIMENTION AT THIS POINT**
 - Remove from lathe
 - Turn interiors
 - Mount each vessel portion on the lathe and complete the interiors
 - Assure the wall thickness of the abutting rings are the same wall thickness
 - Assemble the vessel
 - Remount the base assembly on the headstock and the top assembly on the tailstock and compress to check alignment as before
 - Pull the top half away slightly and add glue and recompress to clamp
 - After glue is dry, re-true the exterior of the vessel to correct any alignment errors if necessary

- Complete the exterior shape of the neck reducing its diameter to the desired size
- Part off the face plate holding the top of the vessel
- Complete the vessel
 - Turn the neck carefully and at higher speed to completed shape
 - After the neck interior has been opened, remove any projecting interior veneer for the joint location with a small scraper carefully inserted through the neck
 - Reduce the foot of the vessel to its final diameter
 - Sand the exterior of the vessel and apply finish to your satisfaction
 - Part off base from primary faceplate