Wood Turners Worldwide

worldwidewoodturners.org and the art of making shavings

Newsletter

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Doug Miller

Left: Pecan lidded bowl - the lid was cored from the bowl, purple heart knob; **Below:** Offset segmented hickory bowl; **Bottom from left to right:** Maple urn; Walnut sphere with oak jack; Manitoba maple vase with pyrography.

Roger Wollam

Dale Slaughter

Don Francis

Heather Budarick

Jeff Walters

Tom Kenny

Jayson Cote

Matt Harber

Clockwise from top left: Chinese elm and walnut segmented vase; Cherry and curly maple cube; Box elder mushroom carved and painted; Poplar bowl.

Doug Rowe shared the progression of his elm three tiered snack bowl.

Your art belongs in our newsletter! Email hi-res images to editor@worldwidewoodturners.org. Include a brief description and make sure you identify yourself so I can give you credit!

Laser Engraving for Wood Turners Pt. 2

… Continued from Volume 2, Issue 6

Health and Safety Considerations: Engraving with Confidence and Caution

While laser engraving is an incredible tool for adding intricate details and personalization to wood-turned projects, it's important to recognize that you're working with a powerful beam of focused energy—essentially controlled fire. That means safety should always be a top priority.

Unlike traditional woodworking tools that involve physical contact, a laser engraver applies intense heat to the wood to vaporize the surface and create designs. While this process is safe when done correctly, it also produces smoke, fine dust particles, and potentially hazardous fumes. Additionally, if not properly monitored, the laser's heat can ignite wood, catch flammable materials on fire, or cause burns.

To ensure that your laser engraving experience is both safe and efficient, it's essential to follow these best practices.

Proper Ventilation is Essential: One of the most overlooked aspects of laser engraving safety is air quality. Since lasers burn wood to engrave designs, the process produces smoke, fine particulates, and fumes—some of which can be harmful if inhaled. Without proper ventilation, these airborne particles can linger in your workspace, causing respiratory irritation, eye discomfort, and potential long-term health risks.

To maintain a clean and safe working environment, consider the following ventilation solutions:

- Use an exhaust system – If you're working indoors, install a dedicated fume extractor or an exhaust fan-and-duct system that vents smoke outside. Many commercially available laser enclosures come with built-in exhaust ports for this purpose.
- Work in a well-ventilated area – If you don't have an exhaust system, ensure you're working in an area with good airflow, such as a garage with open doors or near windows equipped with fans.
- Use an air filtration unit – A HEPA filter or activated carbon air purifier can help capture fine particles and reduce lingering odors from the engraving process.
- Enclose the Laser Engraver – If possible, use a laser enclosure to contain smoke and fumes while also improving safety. Many enclosed laser systems come with built-in extraction systems, reducing the amount of airborne residue in your workshop.

  Enclosures serve multiple benefits:

- They prevent smoke from dispersing freely into the workspace.
- They help direct fumes toward ventilation systems more effectively.
- They add an extra layer of safety, keeping stray laser reflections contained.

Warning: Never engrave indoors without proper ventilation. Working in an enclosed, poorly ventilated space can lead to smoke buildup, reducing air quality and creating a potential fire hazard.

Additionally, the type of material you engrave plays a role in air quality. Some materials, like plywood, MDF, and pressure-treated wood, release toxic fumes when burned.

Avoid engraving:

- MDF (Medium Density Fiberboard) – Contains formaldehyde-based adhesives that release dangerous fumes.
- Pressure-treated wood – Contains chemicals that can be hazardous when burned.
- Plastics and synthetic materials – Many plastics release chlorine or other toxic gases when engraved.

Stick to natural woods like maple, walnut, cherry, oak, and birch for the best engraving results with minimal fumes.

By ensuring proper ventilation and using an enclosure, you

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can minimize health risks, reduce smoke exposure, and create a safer, cleaner workspace for your laser engraving projects.

Protect Your Eyes and Skin: Even though most consumer laser engravers don't emit visible beams that can burn skin, laser exposure can still be dangerous. Some engravers use infrared or ultraviolet light that is invisible to the human eye, meaning you won't feel the damage until it has already occurred.

To protect yourself:

- Wear laser-safe goggles – If your engraver is open-frame (not enclosed in a housing), laser safety glasses are essential. These goggles protect against accidental laser exposure.
- Avoid looking directly at the laser beam – Even indirect reflections from certain surfaces can be harmful to your eyes.
- Don't place your hands near the engraving area – While most engravers have safety mechanisms to prevent accidental burns, it's best to keep hands clear of the laser's path.
- Wear gloves if handling hot materials – Some woods retain heat after engraving and can cause burns if touched immediately after the process.

Warning: Never operate a laser engraver without checking if you need eye protection. Some machines (especially high-powered diode or fiber lasers) can cause irreversible eye damage even from brief exposure.

To be continued in Volume 2, Issue 8 …

Dane Chandler

Brenda Thornton

Do you have a tutorial, tip, or trick? It belongs in our newsletter! Email text and high-resolution photos to editor@worldwidewoodturners.org!

Ted Swiderski

Above left: Apple ring box; **Right:** Chinese elm bowl; **Bottom left:** Crabapple and ash hummingbirds.

Segmented Basket Illusion Vase Demonstration

Bob Grinstead demonstrated his techniques for making a basket illusion segmented vase, and a basket illusion carved vase during our meeting March 19th. Video of that meeting and the separate videos of the demonstrations can be found on our YouTube channel, @worldwidewoodturners1.

This is my try at Ross McClelland's woven vase. He posted it on the Segmented Bowl Turning Face Book group. It is not a conventional segmented build but it is easier than it looks. Just take your time placing the verticals and then cutting the horizontal pieces by hand.

Let me take you through the build of this vase.

Draw out the vase you want on graph paper. I lay my vases and bowls out on 1/4" graph paper I make using Excel but you can just buy the paper. Every 4 squares make 1". Draw in the shape of the vase then draw in the wall thickness.

Color in the squares it will take to make your material fit the walls you drew. . Most of the time my material is 3/4" thick. If it is thicker or thinner, don't worry about it, it doesn't matter much. So a colored cube, 3 squares vertical and 4 square wide equals a 3/4" H x 1" W block. Make sure your blocks are wide enough to accommodate the curve of the vessel. Error on the wide side. Glued up rings are seldom truly round, so when you glue them on top of each other they might shift a little one way or the other.

This vase consist of 10 verticals and 10 horizonal pieces for each ring. Cut all of the verticals first out of 3/4" material. Most will be 1-1/4" tall and the width depends on the width you need for each ring. Some rings will be different widths to accommodate the walls of the vessel.

The first and last ring will also have 10 verticals each that are only 1/4" tall

I use the standard formulas for segmented rings to figure out the top edge of each segment in each ring. When you lay it out on graph paper you are working with only half of the vessel or the radius of each ring.

Formulas:

Closed Ring Segment Formulas ((R*2*3.14)/ S)*1.024
R – radius
S – number of segments per ring
1.024 - fudge factor

(Rings with a small number of segments (like 12) need a fudge factor to keep the final ring size true.

Rings with 18 or more segments per ring probably don't need this.)

Example= 4” radius of ring, 10 segments per ring ((4" x 2 x 3.14) /10) x 1.024 = 2.572”

The angles on each end of a segment in a closed ring is (360/# of S)/2.

Example: The last ring is a true closed segment ring of 20 segments.

The angles on each end of the segments will be (360/20) /2 = 9 degrees.

I use this information to determine how much material I need for each ring. Just multiple each segment length by the number of segments for that ring plus a few inches for the saw kerf and waste material.

Since both the verticals and horizontals are out of 3/4" stock just ensure you have enough material of the same width to make both the verticals and horizonal pieces for each ring.

It is best to try and keep the grain going in the same direction on each piece of material. If the pieces are small sometimes it is hard to see or keep track of the grain, side vs top.

In our case the horizonal segment length is determined using the formula, minus the thickness of each vertical.

Or in the example above of 10 segments per ring, 2.572 - .75 = 1.822"

So you would need at least 18.22" (1.822 x 10 segments) of material plus the kerf for each cut (10) and the waste at the end of the stick for just one ring (because you need something to hold on to

making the final cut).

Glue the wood you are going to use for the base of the vase to a chuck / waste block with a paper joint. Turn it round to the diameter in your graph and any thickness. Sand this flat.

The first layer consist of 10) 1/4" h x 3/4" thick verticals at the correct width for layer 1 and 10 horizonal scrap spacers (not glued place) out of scrap wood. Each end cut at 18 degree. These are only used to correctly space the first layer of verticals. Once the verticals are glued in place and dry remove the spacers and throw them away.

Sand the tops of the verticals of this and all layers flat before adding the next layer.

The next layers, except the last one, consist of 10) 1-1/4" h verticals and 10) horizontals.

The next to last layer will consist of 10) verticals 1/4" H x the correct width for this ring.

The last layer is a solid ring of 20 segments.

Glue a 1-1/4" h vertical to the base, centered between two of the 1/4" verticals and adjusted out to the correct distance from the base (see your graph).

Temporally center the next vertical. Use a horizontal piece with about an 18 degree angle cut on one end. Place this angle piece against the glued vertical and on top of the temporary vertical. Then mark the horizontal piece, cut and sand to length. It doesn't have to be perfect. All of the verticals just need to be close to above the vertical below to look right. The angles won't matter much either because the pieces will be thin when you finish turning it. In the end it will still look like a woven basket.

Glue these in place and move to the next set of pieces till the ring is finished. When dry, sand the ends of the verticals flat.

The outside of each horizonal layer needs to be turned just or almost round so you can use this edge to align the next layer. Set the next layer at the correct distance in or out depending on the ring / graph.

Use the same process with the rest of the rings.

After you have 3 rings on you can start turning some of the inside edges down. Don’t get carried away because you might need the wall thickness end the end, Stay away from the top of the last ring. There is not much support on this section yet.

Turn the inside in sections as your vase grows or you can wait till the end and turn it all out at one time starting at the top working down.

I flattened the outside of the center rings enough to allow me to use a steady rest to hold the vase as it grew in length.

The next to last ring will consist of 10) 1/4" h verticals, spaced between the existing verticals of the preceding ring

The top ring is a solid ring of 20 segments. I use a string clamp to glue the ring up with freezer paper underneath so I won't get glue on the table.

Make sure all of the outside corners are even. Once you have the clamp tight, raise the ring up above the paper to help allow the ring to settle into a round shape. Put the ring back on the paper and press it flat. I use a flat board and a weight to help flatten it out.

Sand this ring flat on one side and glue on the top ring, separating the glue joints.

Once the vase is completely together you can turn and shape the outside.

I made a plug to fit in the end of the top ring, then I could remove the steady rest and use this plug and the tailstock to help hold the vase while I turned the outside.

Sand the outside to completion.

Now hollow the vase to the wall thickness you want. Put the steady rest back on and remove the plug.

I used a D-Handled hollowing jig and swivel head I made. Then used a camera setup to help follow the wall of the vessel. Since the walls are open, you could do this by eye just stopping more often to check the wall thickness.

I sanded the inside some just to keep curious fingers at bay. This completes the build of the vase.

Use a putty knife to pry the vase off the glue block.

Turn the vase around. Using another plug made to fit the headstock and the top of the vase, hold the vase with the tail stock.

Turn the glue off, finish and sand the bottom of the vase

Don't forget to sign and mark the bottom before you put the finish on. I used a spray can of Krylon Triple Thick.

Howard King

Bob Moffett

Gerald Jensen

Above top: Red mallee bowl; **Above:** Walnut platter with purple calcite and walnut shells embedded in resin; **Left:** Ambrosia maple offest bowl.

Worldwide Woodturners meets every Wednesday at 7 PM EST via Zoom! Go to worldwidewoodturners.org and click "Go to meeting." Weekly demonstrations!