

# Nicasio Woodworks

## Protocol For Carving A Symmetrical Bowl from Wet, Warp-Prone Wood

Making bowls from wet, figured wood has historically been restricted to lathe turners by twice turning. First in rough form and then a second turning of the dry, but warped bowl. Before this, there has been no practical approach for carvers to re-establish symmetry on the dry and unpredictably warped bowl. This protocol is suited to using complex grained wood to make bowls of all shapes, of any size and aspect ratio. It offers the ability to simply, reliably and precisely twice-carve a symmetrical bowl with sides and rims that are uniform and thin. This program can be seen on our YouTube channel: <https://www.youtube.com/@NicasioWoodworks>

Step	Protocol	Procedure	Rules
<b>1. Create Bowl Blank</b>	Flat and parallel	Create two flat parallel surfaces, trying to accurately saw, then using a hand or power planes to make the surface uniform	The block's two surfaces will be top and bottom baselines. They need to reliably host the bowl's rims, feet and handles.
<b>2. Rough Design of the Bowl - all designs</b>	Rim-Based Design:	1. Mark the rims using the circular templates, the compass or framing square. 2) Use each protocol's features to find and then mark midlines. 3) After drawing the bowl's exterior design lines, hand draw the carving lines inside the rim based on desired thickness to guide carving.	Carving lines define the wet bowl's wall thickness, leaving room for recovering the design after warpage
2.1 <i>Oval</i>	Nicasio Oval	1) Using small and large circle-based templates, draw the bowl's basin. In either order, use large circles for North-South sides and small circles for the East-West ends, drawing them tangent to each other. At the intersections of each pair of arcs, mark centerlines or measurements where appropriate. 3. Use square to transfer centerlines to the bottom of the block and then draw your choice of feet, at equal distance from centerlines.	1) N-S arcs must be large enough to both span the distance between outer ends of the smaller circles, and to extend down to midline. 2) Use narrowest possible, bold marking pen to ensure accuracy with high visibility
2.b <i>Triangle</i>	Compass based, rim design	1) Set compass or the trammel to length of the triangle's sides. 2) Choose the first corner, set the compass point there and then draw a short curve from that point in the zones for each of the other two corners. 3) Choose a spot on one of the new curves to be the second corner and place the compass there to draw a curve for the third corner where it intersects that corner's first curve. 4) Draw straight lines between the three corner points and mark the midline of each line. 5) Choose curves for the final rim shape. 6) Draw a line from each corner to its opposite midline and transfer those lines down the end of the block with a square. 7) Connect the three pairs of points across the bottom to find the middle. 8) Draw chosen feet on the bottom and handles on the top.	
2.c <i>Rectangle</i>	Use square for parallel sides	1) Simply draw a true rectangle of chosen length and width. 2) Measure for midlines and draw. 3) Use a square to transfer midlines to the bottom and mark. 4) March chosen feet and handles	
<b>3. Rough Carving</b>	Any carving tool will work	1) Start carving by scoring just inside the carving line. 2) Dig the basin, staying inside the carving line. 3) Saw off large non-bowl parts of exterior. 4) Begin exterior carving from the top of the bowl, so you can see both the interior and exterior. 4) Flip the bowl over and create a uniform surface connecting a point just below the rim's exterior to a safe point on the bottom that will keep the sides at the appropriate thickness.	1) If feet are narrower than the interior bottom, measure where to stop carving the sides. 2) Leave top's outer rim vertical for 1/4 <sup>th</sup> to 1/2 inch and keep sides moderately thick. Both enable to recovery from warpage.
<b>4. Drying</b>	Watch weight loss	Moderate the rate of drying by using a cool space initially and for some woods, paint end-grain. Weigh in grams to determine when dry. 2) loose knots and rotted zones may be glued/epoxied if unstable	Practice patience

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<b>5. Re-establish baselines</b>	Mark uniform level on rim, then feet	1. Set the bowl on a flat surface and use a Marking Rod to draw a line equidistant above the table to define the new rim. 2) Carve or/and sand the top to the line, depending on severity of the warp. 3) On the bottom, carve and sand the feet so the bowl sits stable and the rim is parallel to the bench surface.	Start with the rim, as this is the most conspicuous part of the bowl's geometry. All else confirms to it.
<b>6. Re-Design Top and lock in the Shape</b>	Use same rim-based design	1. If warpage was too severe to permit use of the same measurements used in Rough Design, modify to get as close as practical. 2) draw the replacement design on the rim, as before. 3) Draw top centerlines as before. For ovals, it may be necessary to build platforms at the bowl's ends to in which to draw intersections of any chosen N-S arcs. Alternatively, create parallel lines across the tops of the E-W circles to measure for E-W midline.3) Draw new carving lines inside the rim to guide carving steps. 4) Carve or sand away excess wood outside the rim's design lines to finalize rim dimensions.	The conclusion of the step is when the rim's exterior is carved/sanded to uniformly be just wide of the Design Line.
<b>7. Design Bottom</b>	Use Square corner or Squaring Box	<u>1) For oval and rectangular bowls</u> , set the bowl against a back wall, near a corner, and orient it so that both E-W midlines are equidistant from back wall. Verify that the measurements correspond to be ½ of the width of the bowl. 2) Draw each end's midline a short distance down from each end. 3) Flip the bowl over, re-orient the bowl against the back wall and draw the centerline across the bottom, parallel to the back. 4) Push the bowl into the corner, again re-orient the bowl to the back so it is also against both the back and the end walls. Measure for the mid-point of the bowl's length and mark it. Using a square, draw a line perpendicular to the back at the center point. 5) Measuring from that center point, re-design the feet spaced equally from the centerlines. 6) Draw thickness of handles to guide carving. <u>For triangular bowls:</u> 1) Choose a spot on the wall away from the corner, where the back and bottom converge. Draw a pair of perpendicular lines: the first extends vertically up the back from that point and the second extends forward along the floor. 2) Place any of the bowl's three centerlines on the back vertical line and that centerline's opposite end on the bottom's line. 3) Use a square to draw a line from the back wall at the back wall's vertical line across the bottom of the bowl. 4) Rotate the bowl two times and repeat to create properly oriented lines for feet and for the bowl's center. 5) Draw feet	Corner must be truly square to permit the easy use of squares to create bottom centerlines
<b>8. Finish Carve Interior and First Exterior step</b>	Three Steps	1) Guided by Carving Lines and the ability to simultaneously observe the inside and outside, carve the interior with your most aggressive tool to approximate dimensions. 2) Switch to burr head and eliminate deep cuts to make surface more uniform. 3) Switch to 80 grit sandpaper to carve for more uniformity and eliminate surface waves. 4) using the aggressive carver only, carve the exterior, while the bowl remains upright and it is possible to approximate the interior's slope. 5) Flip over the bowl and meet the initial exterior carving by carving from the appropriate area on the bottom to the initial exterior carving. 6) Monitor depth by observing across the top of bowl to ruler with an end on bottom.	All aggressive carving at this stage is kept well away from carving lines and intended thickness. Each successive step can get closer to the intended final dimensions as the potential damage done by each successive step is less.
<b>9. Carve Exterior for Uniformity</b>	Large Belt, stationary Sander	1) Use the big sander for sculpting of convex or flat exterior surfaces. 2) Use uniform motions across the straight end of the sander's roller and its wide flat top to sculpt the exterior to match and compliment the interior. The end of the sander is great for out-curve rims and to do focused removals.	Keep track of evolving thickness by visually watching the declining thickness and measuring as needed.
<b>10. Finish Sanding</b>	Multi-step	Use a rotary drill, ideally an angled drill, for close quarter work and a random orbital sander. Sand away prior marks and fix thickness anomalies found by touch and measurement with hook and loop sanding discs.	Goal is the walls being of uniform thickness – by touch and sight
<b>11. Quality Control</b>	Final flattening	1) Once the bowl has equilibrated its internal stresses after thinning to its new dimensions, re-level on a flat surface. If any wobble, rub the bowls top or/and bottom against the surface, to make a mark. 2) sand away the marks and repeat until there is no remaining wobble. 3) Perform final sanding.	Wait 1 – 2 weeks between achieving final thickness and final leveling