

# Wave form bowls – from a class by John Beaver

Presented by Steve Reynolds

## Simple Wave bowl



- Start with a kiln dried blank that has been squared up.
- On an end grain face sketch the shape of the bowl.
  - Use a closed form bowl. An open bowl shows what appears to be an oval on the inside and disrupts the wave illusion on the exterior.
  - Mark the center line.
  - Mark thirds of the bowl.
  - Use a compass to draw an arc. The arc is centered on the top third mark and the compass radius is set to the width of the blank. A second blank of the same size helps to give the compass point a resting spot.
- Drill 2 holes 1/8" in the top of the blank for registration later in the glue up. Insure the holes are in the middle of the top and not too deep so that they will be turned away later in making the bowl.
- Cut the arc at the bandsaw. A 1/4" blade with a fine tooth count leaves a smoother finish and is recommended. But you will need to be patient in doing the cutting and not force the blade, which can result in twists and a ragged cut. Use even pressure and do not pause in the cut.

Sanding should be a last resort, but using the top as a form to sand the bottom (and the reverse) can work.

- Cut veneer(s) for the wave. Depending on the wood species they can be 1/16 to 3/16's thick. With several pieces or thick veneers it is best to soak the veneers, microwave them if possible, and dry clamp the pieces together to pre-bend the veneers. Also the veneers will need to be drilled out for the registration holes. Dry fit the pieces to check the fit and adjust if necessary.
- Assemble the pieces with glue. Use glue on each side of each piece, drive in 1/8 dowels to keep the assembly from slipping. Use lots of clamps to insure a tight fit, and mop up the squeeze out. If you don't get squeeze out glue you maybe starving the joint. Dry for at least one day.
- Mount on the lathe and turn a bowl.



## Celtic Weave bowl



- Start with a kiln dried blank made fully square. An over long blank may waste a bit of wood but will provide more areas to get clamps on and help keep the piece square and aligned. There are multiple glue ups that happen so it can be awkward.
- Mark the exact vertical center line on two adjacent sides. Determine where you want the center of the weave to be and mark that on the centerlines. The plan is to put an 'X' of veneer on the two sides through the point on the centerlines.
- Decide on the angle you want to use. Take a protractor and sketch angles, start in the 10 to 30 degree range, until you are satisfied.
- First cut - Cut the blank at the chosen angle, either on a chop saw or bandsaw. It needs to be straight and go through the identified spot on the center line.
- Glue the pieces up with veneer in the cut. Use adequate glue, plenty of clamps, and make sure the assembly stays square.

- Second cut – Using same angle on the other side of 0 degrees make an ‘X’ and glue up. It is critical to have the cut go through the same point on the center line as the first. And if the blank gets out of square even that will not prevent a loss of alignment on the opposite side.
- Cuts three and four – move to the adjacent side and repeat the process for the first and second cuts.
- Mount on the lathe and turn.
- The pattern shows up best on a gentle curve in a vertical side. Turning the piece where this weave is on a changing radius can distort the effect. Something to try later.



## Wave form bowl by John Beaver

These wave form bowls were developed by John Beaver. His website is [www.johnbeaver.net](http://www.johnbeaver.net) where you can examine a full gallery of his work. The techniques and forms are his intellectual property and are being shared with the woodturning community for non-commercial use.



- Start with a rough turned bowl. The wood must be dry to lessen movement in the remaining steps.
- For a protruding wave the outside will be turned down later. If a recessed wave is the goal the outside should be turned to final shape and sanded. These will be referenced as separate options later in the notes.
- Examine the grain to select the position of the wave. Mark the rim of the bowl at the two high points.
- Use a contour gage to copy the interior shape of the bowl. Cut two MDF blocks to fit inside the bowl exactly. Insure the fit is tight along the entire length and that the blocks do not come above the rim.
- Use hot glue attach the blocks inside the bowl. Use plenty of glue and add additional glue along the side seams. The bowl is going to be spinning on the lathe in multiple pieces held by these blocks so fitting and gluing the blocks should not be rushed. Drill 1/8" holes in the glue blocks

for dowels rods that will act as registration pins later. Mark one of the blocks along the three sides to aid in reassembling pieces later.

- Configure the jig. Set the pin to a radius roughly the diameter of the bowl. Clamp the jig to the bandsaw with the center line at the teeth of the saw blade. The saw blade should be a 1/4" fine tooth to have a smooth cut.
- Mount the bowl and the chuck in the jig. With masking tape along the side of the jig mark the tape for the top of the bowl (when the rim just touches the blade). Make marks on the tape to denote the top and bottom of the wave cuts you desire.
- Make the top cut by swinging the jig through an arc. Use steady pressure and a light hand. And verify you are making the top cut first, cut the bottom first and you will have real problems trying to cut the top next.
- Handle the cut pieces with care. Knocking off an MDF block can make reassembly awkward or unlikely.
- Adjust the jig and make the second cut for the bottom of the wave section.

Option #1 The recessed wave version, can appear as a bowl inside a bowl.

- Mark the desired recess on both sides of the center section, the wave. Sand away the waste, a disc sander is useful here. Test fit the bowl to insure it is a smooth symmetric curve. Soften the edges and finish sand. Be careful not to break off the MDF blocks.
- The amount of wood removed depends on your design, 3/16" is a reasonable starting point.
- If you are dying anything on the outside and want to avoid bleeding dye from or to the wave now is a good time to color. Adding a layer of thin veneer can introduce a sharp line and/or restrict bleed through.
- Go to the glue up.

Option #2 The protruding wave version.

- Set the wave section aside and prepare the rest of the bowl to go back on the lathe.
- Stack thick veneer sections to replace the same thickness as the wave section. Drill holes through the veneers using the existing holes in the MDF blocks. Sandwich everything together on the lathe. Use a sacrificial board and the tailstock to keep the assembly together.
- Since the bowl was oversized it needs to be turned down consistently. By drilling very small holes the depth of the amount of wood to be removed will give you a visual check. Putting an arrow on the sacrificial piece at the tailstock will make them easy to find as you check the progress of your turning. If you drill holes 3/16" deep that will be the amount that the wave protrudes.
- Finish sand the bowl.
- Hand sand the wave section, rounding the exterior edges and exposed section. Do not sand the area that will be glued or you will change the fit.
- Test fit the bowl together checking for tight joints and symmetric curves.
- Do any desired coloring to the pieces.
- Proceed to the glue up.

## The Glue Up

- Do a final test fit. If you sand any of the gluing surfaces be very cautious, or you can be chasing a tight fit for some time.
- Work out the clamping strategy you will use. Putting the piece on the lathe and clamping with the tailstock and a board works well.
- Set up a few dozen Q-tips, an ounce of water, and a sharply pointed dowel or stick.
- Apply glue up only one side of one piece. The piece you apply the glue to should be the narrower section to minimize cleanup. Trying to do the whole bowl at once is chancy since the glue can set up before you can clean up any excess. And sanding off glue residue that could ruin the finishing is very awkward, it can change the curves and sharp corners you are trying to create.
- Clamp the assembly.
- Immediately take a Q-tip and wipe up any squeeze out, being careful to use a new Q-tip when needed to avoid smearing the glue around. If you were cautious applying the glue this may only take a few Q-tips. Otherwise you may be using a new Q-tip every half inch.
- Make a second pass with damp (not wet) Q-tips. Follow up with the sharp dowel to get into corners.
- Repeat the process starting with dry Q-tips one more time.
- After the glue dries glue up the next section.

## Complete the bowl

- Once the glue is fully cured the bowl interior can be turned.
- Using pliers twist off the MDF blocks. If they do not twist off they can be turned off. But it is messy, needs light cuts, and the dowel aligning the blocks must be removed first.
- Turn, sand, and finish.

## Variations

This process lends itself to a wealth of variations as can be seen in the gallery at [www.johnbeaver.net](http://www.johnbeaver.net). There are multiple waves, wave slots, tilted waves, and asymmetric waves to name a few.





