Tips & Techniques for Turning Hollow Forms
An Introduction to Shape & Form

Introduction & Thoughts on Design:

The hollow form is an excellent place to start the study of shape and form. A good hollow form, just like a good bowl form stands out due to its purity of form and shape. The overall shape, with an eye toward good proportions, is essential when creating a gallery quality form. The shape is the most important factor even if one is going to carve, texture or in any way add embellishment to the piece. Good shape and form is the essential element that will help the work to stand out. A good form will look stand out whether it is viewed right side up or upside down. Size is very important to setting up the best form for the material being used. By that I mean that just because the wood you have mounted in the lathe is 5" in diameter and say 14" long does not mean you have to use all the wood in the blank. Take away any material that needs to be removed to provide for a well balanced form. In some cases excess material can be used in other projects, sometimes it just has to be removed. Size is also important. I have seen some very large pieces that were less than ideal as more time and energy were spent on turning a large piece rather than paying attention to important details such as the flow of the lines and nice sweeping curves that take one's eye on a pleasing trip around the form. A good flowing fair curve is far superior to abrupt curves or curves that lead the eye astray. Transitions from the shoulder to the neck are best if they are smooth flowing and just melt into each other. Another area to consider is how the bottom of the form relates to the surface that it is resting on. By bringing the line down the side of the piece and gently curving it around through the bottom of the form, the piece appears to float off the surface. Not only does this effect improve the overall appearance of the hollow form by making it appear to be floating but it also adds a feeling of lightness. This technique also helps to create a continuous flowing line leading your eye down and around the work.

For your first hollow form I would suggest turning it from green or fresh cut wood as it is far easier to turn and hollow than dry wood. One of the problems

encountered when using green/wet wood is that you need to go from start to finished piece as soon as possible, for as the wood dries it will begin to change shape. The other thing to watch out for when turning green wood is that it is critical to have a fairly even wall thickness to minimize distortion when the form dries. Time to have at it and make some shavings fly!

Materials:

3” to 4” Diameter by 7” or 8” green wood
3” x 3” x 6” Wood: Maple, Poplar, Cherry preferably dry
3” x 3” x 3” scrap Maple, Poplar for reverse turning finished form

Tools:

1 ¼” Spindle Roughing Gouge
3/8” Spindle Gouge
¼” Parting Tool
¼” Point Tool
¼” Skew
½” Round Nose Scraper
¾” Drill Bit Forstner or Spur Drive
Thickness gages such as double ended calipers or Veritas Deep Calipers
Small Hollowing Tools: swan neck style or 1/4” square bent end tools
Easy Rougher small Swan Neck Hollowing Tool

Any one of a Number of Hollowing Tools will work. Just remember we will be hollowing a small vessel

Hunter Tools also offers a small Swam Neck style hollowing tool set

Mike Jackofsky Hollowing Tools

Hollowing Tools Equipped with an Outrigger Arm

Veritas Deep Calipers

Procedure:

1. Mount the 3” x 3” x 6” blank between centers and turn it to a cylinder with a foot with a proper shoulder on what will be the bottom, for mounting in your chuck.

2. Mount the blank in the chuck and bring up the tailstock for extra support. With the tailstock adding support the shaping can be done a bit more aggressively.

3. Establish the top and bottom of the hollow form before beginning to start shaping the form. Remember to leave a bit of extra wood at the base for easy access when it is time rough in the bottom and to part the hollow form off the lathe.

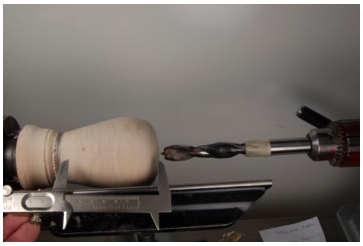
4. Now begin to shape the Hollow form. Keep in mind the guidelines for creating a pleasing shape. The best proportions are the ratios 5/8 to 3/8 or 2/5 to 3/5. I usually pick the one that makes the math easier as one is slightly smaller than the Golden Ratio and one is slightly larger than the Golden Proportion. These suggested ratios not only relate to the placement of the largest diameter top to bottom of the form but also to how the height relates to the overall diameter of the form. In reality, I tend to shape my pieces by eye rather than actually measuring them as I have a good sense of pleasing proportions.

**Note: If you are going to be measuring the Golden ratio, be aware that strict adherence to these proportions can make for a very static piece. The work may look to mechanical and the lines too stiff. It is far better to stray from the guidelines a bit and just let the form take shape. Besides good proportions the most critical item affecting the overall look of the form is the ability to have a flowing fair curve leading your eye around the form thus creating a more kinetic feel. The work will feel lively and just pop out as a striking form.*

5. In a class room situation especially if teaching design, it might be a good idea to have the students shape their forms then remove them still in the chuck from the lathe for a brief constructi ve critique of their work. It also helps to look at the piece in the vertical position the way the form will actually be viewed to get a better feel for how the form is taking shape. This should be done before one begins to hollow it and it is too late to modify the overall shape and proportions.

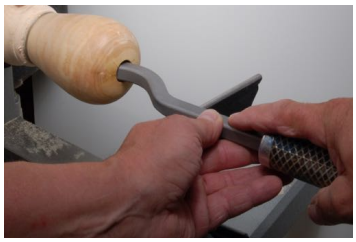
6. Once the outside shape has been established and refined, it is time to sand the out side as once the hollowing begins, the blank may begin to go slightly out of round as material is removed from the inside.

7. Before starting to hollow the form it is advisable to drill a hole in the top of the blank all the way down to the approximate finished depth of the hollow form. This hole provides not only access for the hollowing tools but it also sets the depth for the bottom of the vessel.



Note: There are a variety of tools on the market designed to make the hollowing process easier and more accurate. Some tools come equipped with laser attachments to help set the wall thickness and minimize the potential of breaking through the wall and ruining the piece. The best hollowing tools have some sort of stabilizing system to off set the forces trying to twist the cutting edge over causing a catch due to the torque of the machine and the fact that the cutter's edge is not in line with its support on the tool rest. I have found that the easiest ones to use for large hollow forms have an extra tool rest that acts as a stabilizer by trapping the bar and minimizing the potential for the tool to fall below center or to torque over during the hollowing process. I tend to use a hollowing tool that has an outrigger arm as it is far easier to set up. Although when turning large forms I set up my Oneway Hollowing system that has a separate tool rest that traps the bar and makes it far easier to control the tool when hollowing. I suggest that you get up with some turners that do hollow forms and try out the different systems until you find one that you feel comfortable using.

8. Begin hollowing by opening up the hole that was drilled to make it easier to get the tool in and out. On larger hollow forms it is best to hollow the top third to finished wall thickness and then the middle section and finally the bottom third. The amount of sanding that needs to be done on the inside of the vessel will depend upon the size of the entry hole. Only the part that can be seen or touched needs to be sanded.



Swan Neck Hollowing Tool with adjustable/removable out rigger arm & collar

Swan neck Tool with adjustable angle settings

**Note: Sometimes I will separate the vessel into two parts, saving one for the top to cover up the large access hole after I have finished hollowing. That way I can use a large hole to hollow through and then glue the top piece back on and drill a tiny hole through it thus making it look as though I did the impossible by hollowing the form through a tiny hole.*

9. Once you have finished hollowing and sanding the vessel it is time to part it off and reverse turn it to finish turning the bottom. They are many ways to mount the hollow form for turning the bottom. One method is to turn a nub to fit the mouth of the vessel and gently trap the form between centers using a cone in the bearing center. By taking very light cuts, clean up the bottom leaving only a small nub at the cone center that can be carved off once the form is removed from the lathe. Another method used mainly for larger vessels, is to mount a long stick or rod in the head stack that makes contact with the inside bottom of the vessel and puts pressure against the bearing centers cone or cup center, which helps to keep the vessel running true. Once again one must take light cuts to avoid ruining the hollow form.

10. Once the bottom has been finished it is now time to apply your favorite finish. You can add color to your piece or, if you left extra material for carving, you can now carve it or you can add gilding (see David Marks' DVD titled "Gilding & Chemical Patinations").

11. Admire your work and start planning your next piece.

Natural Edge Hollow Form by Soren Burger

Claro Walnut Hollow Form by Alan N. Leland