

# Box Basics

A WoodWorks Seminar by Lynne Yamaguchi (© 2006, [www.lynnemmaguchi.com](http://www.lynnemmaguchi.com))

Before making a box, you must decide three interdependent factors: wood, grain, and design.

## Selecting the wood

Look at the wood from the sides and the ends. Is there sufficient figure to make for an interesting box?

Is the figure of an appropriate scale to the size of the box you want to turn?

Is the wood dry enough to warp minimally after turning? This is especially critical if you choose to orient the grain sideways.

If you are using two woods, do they suit each other? Are they of similar density and hardness? Do they move similarly?



**Bocote box, 1.94"**

## Deciding how to orient the grain

What orientation of the grain yields the most interesting figure?

Does this orientation work with the design you have in mind?

Does the direction of the fibers provide sufficient strength for the structure of the box?

Will the grain orientation allow matching of the figure in the lid and body?

## Design considerations

Does the box have an intended function? Does the design meet the needs of that function?

Does the design of the box show off the figure of the wood? Does the wood complement the design?

What size will the box be?

What shape will the box be? Will the lid follow the same shape as the body, or will it have a separate form?

What type of lid will it have?

Two basic types of lids: those that fit into the mouth of the body (“inside”) and those that fit over the mouth (“outside”)

Threaded lids fall into the same two types

Fit: suction tight or loose enough to open with one hand or in between

Does the fit suit the function?

Does the fit suit the environment?

Does the fit suit the grain orientation?

Should the figure of the body and lid match?

### **Tools for end grain boxes**

Roughing gouge  
Spindle gouge  
Square-nose scraper  
Round-nose scraper  
Parting tool

### **Tools for side grain boxes**

Bowl gouge  
Round-nose scraper  
Square-nose scraper for perpendicular sides or flat bottom  
Hollowing tools for undercut shoulders

### **Basic instructions for an end grain box**

1. Cut the stock to length, allowing for loss due to parting and chucking. Note which end you want to use for the lid and which for the body.
2. Mount the stock between centers or in a four-jaw chuck with support from the tailstock.
3. Round the stock, if appropriate.
4. Cut a tenon at each end of the stock to fit your chuck.
5. With a pencil, mark on the spinning stock the positions of the bottom of the lid, the flange (part of either the lid or the body), the shoulder of the body, and allowances for parting.
6. Mount the stock in the four-jaw chuck, lid end out for a box with an “inside” lid, body end out for one with an “outside” lid.



**Walnut box, 1.63"**

### ***For a box with an inside lid***

- 7a. Cut the flange for the lid and an allowance for parting. Cut the flange straight (with parallel sides, not dovetailed or angled) for the best fit. Part off the lid.
- 8a. Shape and hollow the body, taking care to keep the mouth smaller than the flange of the lid. Carefully size the inner lip to snugly fit the flange of the lid.
- 9a. Sand the interior of the body. **DO NOT SAND THE INNER LIP.** If you use a friction finish, apply it to the interior of the body now. Some turners prefer to leave box interiors bare.
- 10a. Fit the lid into the body. If possible, use the tailstock for added security while shaping the lid. Shape the lid, beginning at the joint between the lid and the body. Once that area is cleanly cut, sand it and wrap the joint with masking tape for added security if you need to move away the tailstock to finish shaping the lid.

### ***For a box with an outside lid***

- 7b. Part off the body.
- 8b. Hollow the lid. Cut the inner sides straight for the best fit. Shape the inside top of the lid if desired.

- 9b. Sand the inside top of the lid. **DO NOT SAND THE INNER LIP.** If you use a friction finish, apply it to the interior of the lid now. Remove the lid from the chuck.
- 10b. Mount the stock for the body in the chuck. Shape and hollow the body, taking care to leave sufficient thickness for the flange. After hollowing, carefully size the flange to snugly fit the lid.
- 11b. Sand the interior of the body. **DO NOT SAND THE OUTER FLANGE.** If you use a friction finish, apply it to the interior of the body now.
- 12b. Fit the lid onto the body. If possible, use the tailstock for added security while shaping the lid. Shape the lid, beginning at the joint between the lid and the body. Once that area is cleanly cut, sand it and wrap the joint with masking tape for added security if you need to move away the tailstock to finish shaping the lid.
- 11 / 13. Remove any masking tape, and sand the exterior of the body and lid. Avoid overheating from friction as this can change the fit of the lid in or on the body. If you use a friction finish, apply it to the exterior of the body and lid now.
- 12 / 14. Remove the lid from the body, and remove the body from the chuck. Mount a waste block in the chuck and make a jam chuck by cutting a tenon that will snugly fit inside the lip of the body. Alternatively, cut a recess that will snugly fit the flange. Cut deeply enough so that the shoulder of the body firmly contacts the waste block. Cut a shoulder on the waste block that is roughly the diameter of the body.
- 13 / 15. Fit the body onto the jam chuck. Wrap masking tape around the joint between the waste block and the box body for added security. If possible, also use the tailstock for added security while shaping the base.
- 14 / 16. Finish shaping the base. Move the tailstock away if necessary to add any finishing touches.
- 15 / 17. Sand the base. If you use a friction finish, apply it to the base now. Remove the body from the jam chuck.
- 16 / 18. If you haven't yet applied a finish, do so now, and you're finished.

## **Resources**

*Turned Boxes: 50 Designs*, by Chris Stott (Guild of Master Craftsman, 2002)

*Turning Boxes with Richard Raffan*, by Richard Raffan (Taunton, 2002)

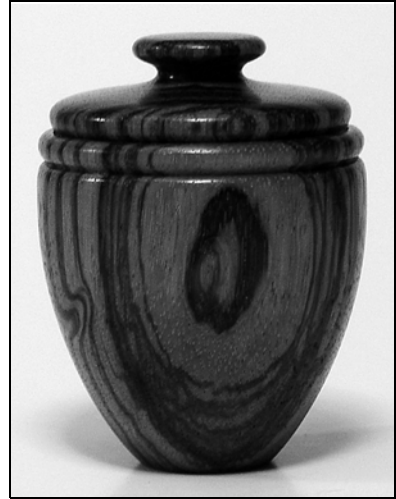
**Examples of turned boxes**



**Zebrawood box with walnut lid,  
1.88"**



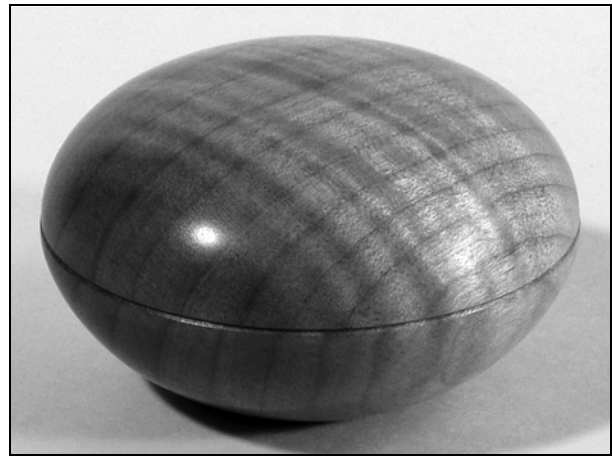
**Walnut box, 1.63"**



**Zebrawood box, 1.88"**



**Chilean mesquite jar with azurite inlay, 4.75"**



**Curly maple box, 2.75"**



**Sapele box with birdseye maple lid and sapele  
handle, 3.18"**