

An Amateur's Approach to Designing and Making Lidded Boxes

W. J. (Bill) Smith
wjsmith49@gmail.com



What's He Going to Talk About?

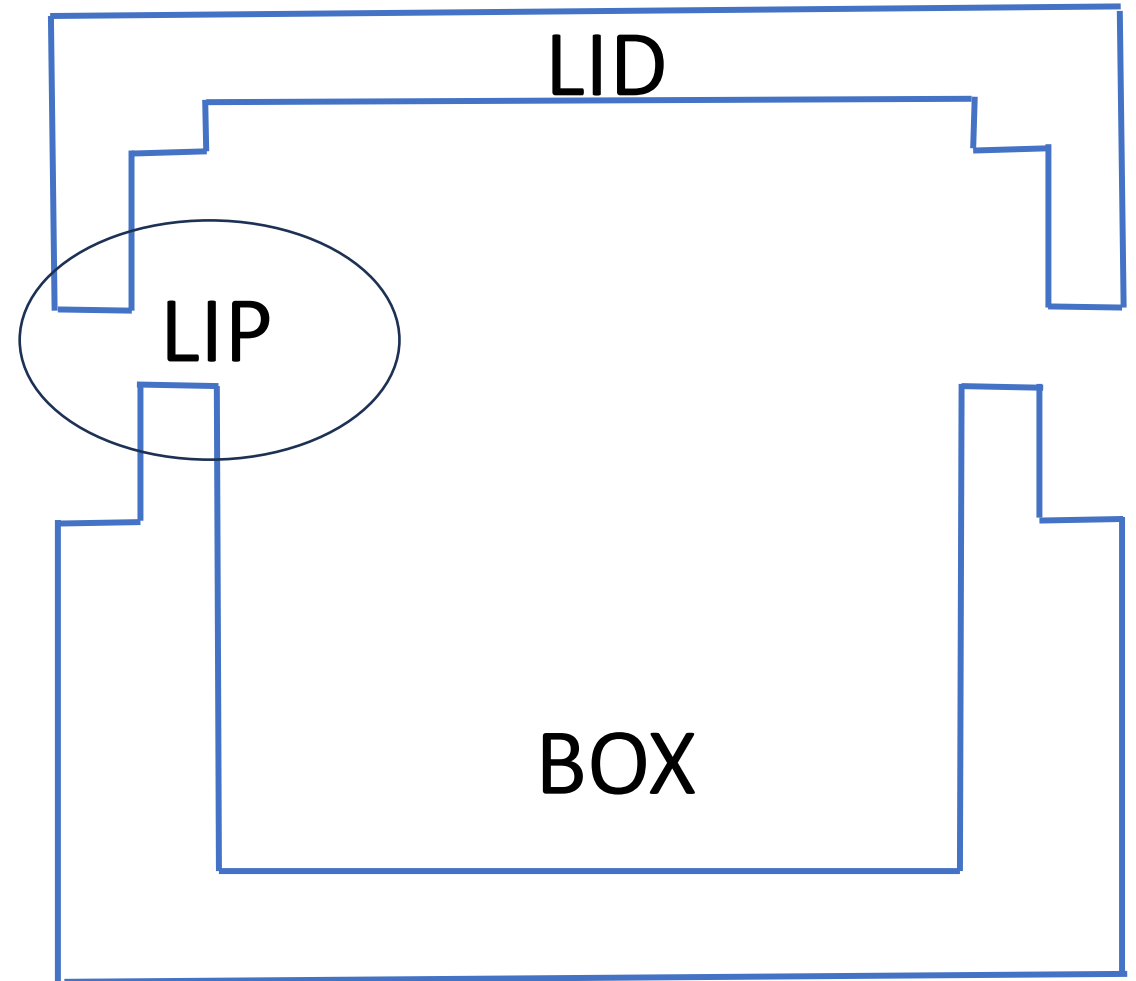
- The 10 Steps to Making a Box
- How I Plan the Box
- Box Design
- Some other Technical Considerations
- What Tools I Use

Then It's time to make a box!

Terminology:

Three Important Parts of a Lidded Box

- The Lid: the top of the box
- The Box: the bottom of the box
- The Lip: where the bottom and top meet
 - The lip may be part of the box, part of the lid, or both



My 10 Steps to Making a Lidded Box

1. Plan before you cut (slides 5, 6, and 7)
2. Prepare your billet between centers (see slide 9)
 - Turn it round to approach the desired box diameter
 - Put tenons on both ends of the billet
 - Mark the blank -- lid, lip, box, and excess on each end
 - Cut the billet in two, forming a box blank and a lid blank
3. Put the lid blank in a 4-jaw chuck, hollow and sand the inside of the lid
4. Shape the lip part of the lid, if it is part of the lid (see slide 8)
5. Put the box blank in a 4-jaw chuck, shape the lip of the box
 - Trim the lip so the box and the lid fit tightly
6. With the lid on the box, shape and sand the top of the lid
7. Shape the sides of the box and the lid: have the outside of the box and lid flow together attractively; embellish and sand the box and lid
8. Remove the lid from the box; hollow the box; sand the inside; cut the box free
9. Use the excess wood to form a jamb chuck to hold the inside wall of the box
10. Mount the box on the jamb chuck and finish the box bottom – shape and sand

Step 1, Plan the Box

Define its Purpose

- Who's going to use it?
- What's it going to hold?
- How big should it be?



Step 1, Plan the Box

Design: What Do I Want the Box to Look Like

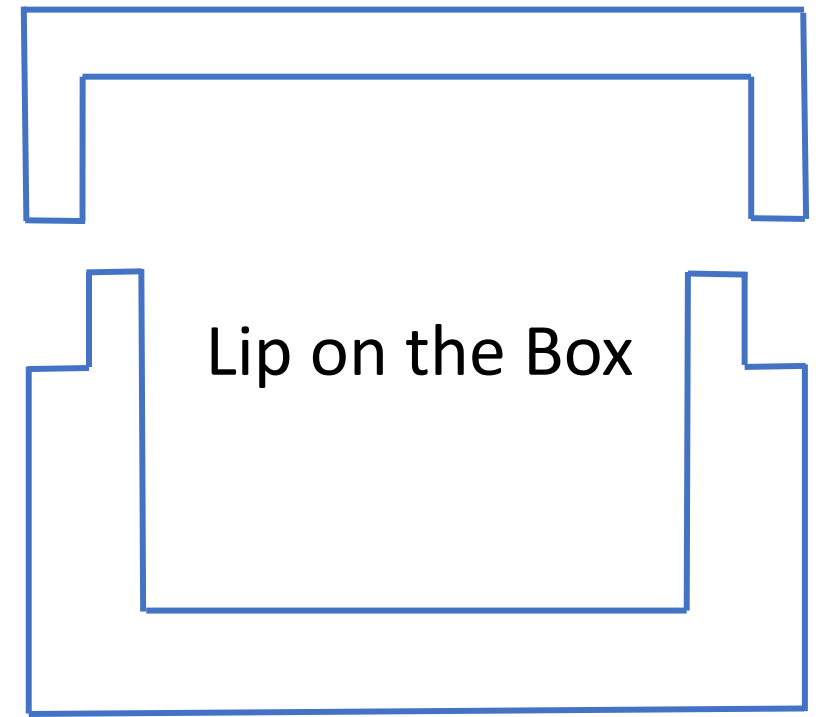
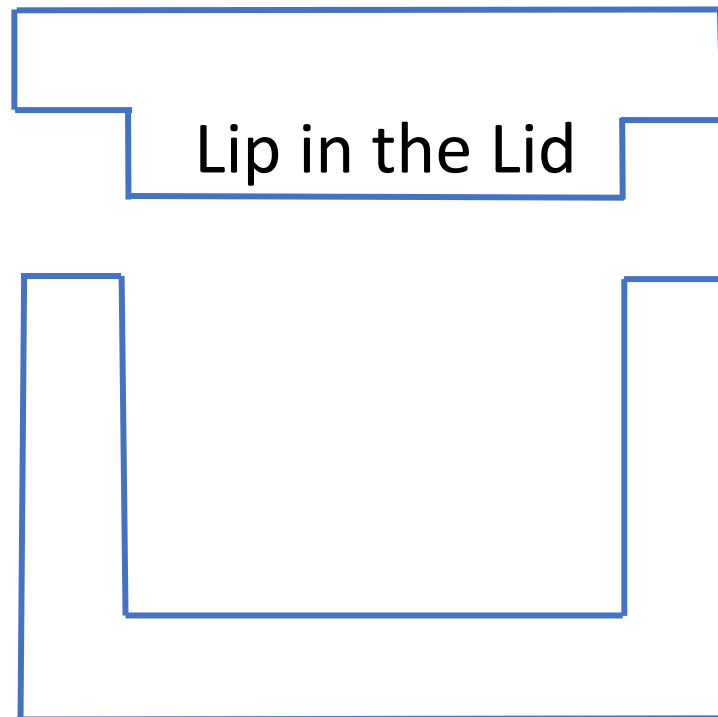
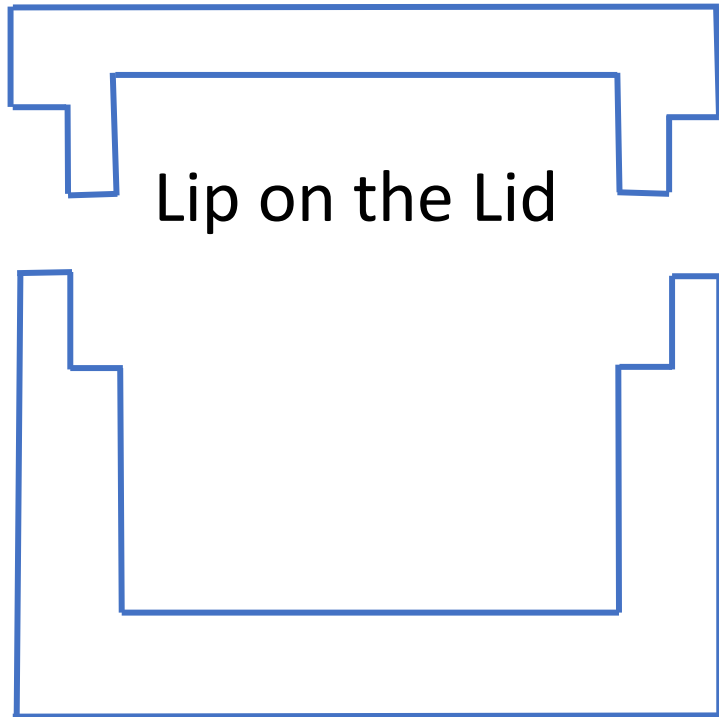
- Size usually depends on purpose
- Proportion: Does the Golden Ratio apply?
- What will the shape be?
 - Artistic or Utilitarian
 - Does it need a finial, a foot, and/or embellishments
- Wood:
 - Is grain-matching a factor?
 - Would use of two contrasting wood add appeal?

Step 1, Plan the Box

Technical Considerations

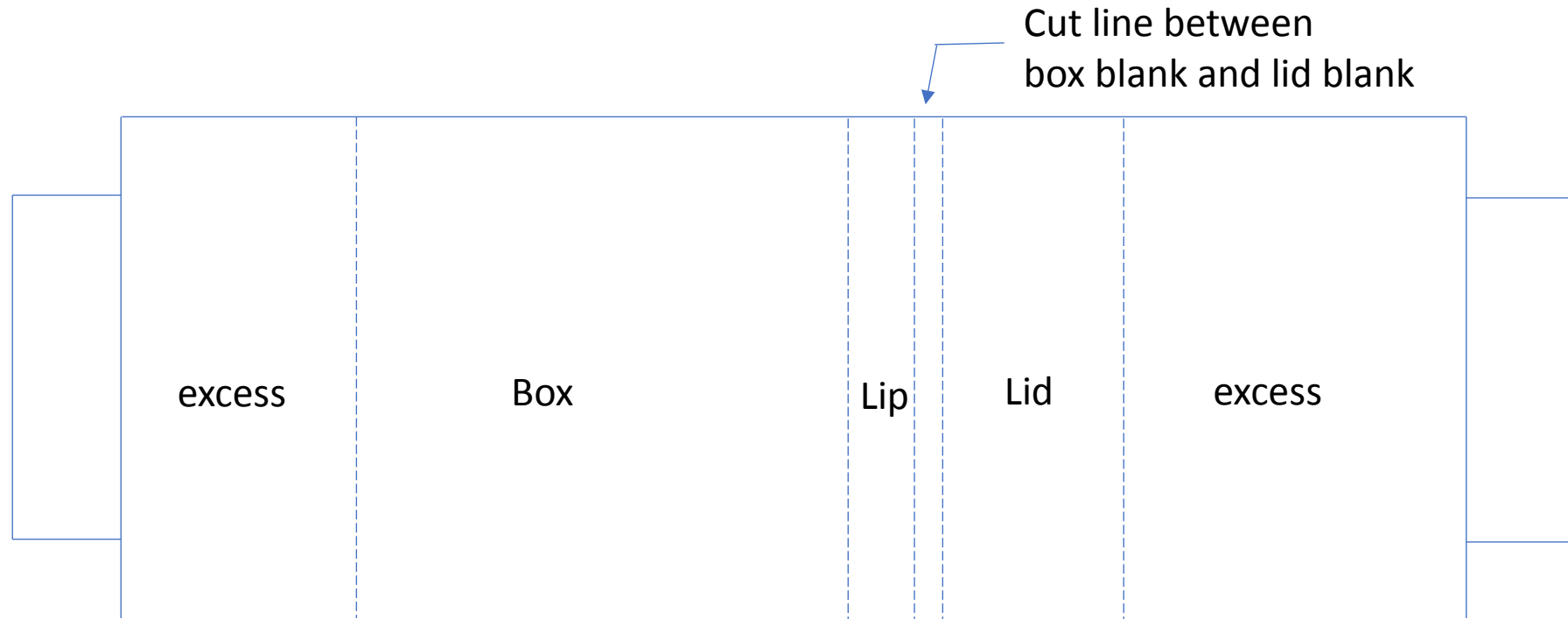
- Grain Orientation: Cross-grain or End-grain
 - Box and Lid of the same wood tend move more evenly if they are end-grain orientation
- Wall thickness often depends on who will use the box
 - Kids' boxes may need thicker walls
 - More artistic boxes may look better with thinner walls
- The Lip: how the Lid and the Box fit together
 - Lip configuration often depends on how the box will be used
 - The shape of the box may dictate which lip configuration looks best
 - Boxes with short lids often work best with a lip inside the lid
 - Some options are shown in slide 8

Three of the Many Ways to Fit a Lid on a Box (Not the only ways)



Step 2

Preparing, Marking, and Cutting the Billet



Note 1: If you leave excess material on both ends, you'll have room to remake a piece to correct a mistake.

Note 2. Select the lip configuration to determine which side of the cut the lip should be on. Refer to slide 8.

Three Design Considerations for Shaping the Lip

1. How do you make the lid fit the box appropriately?

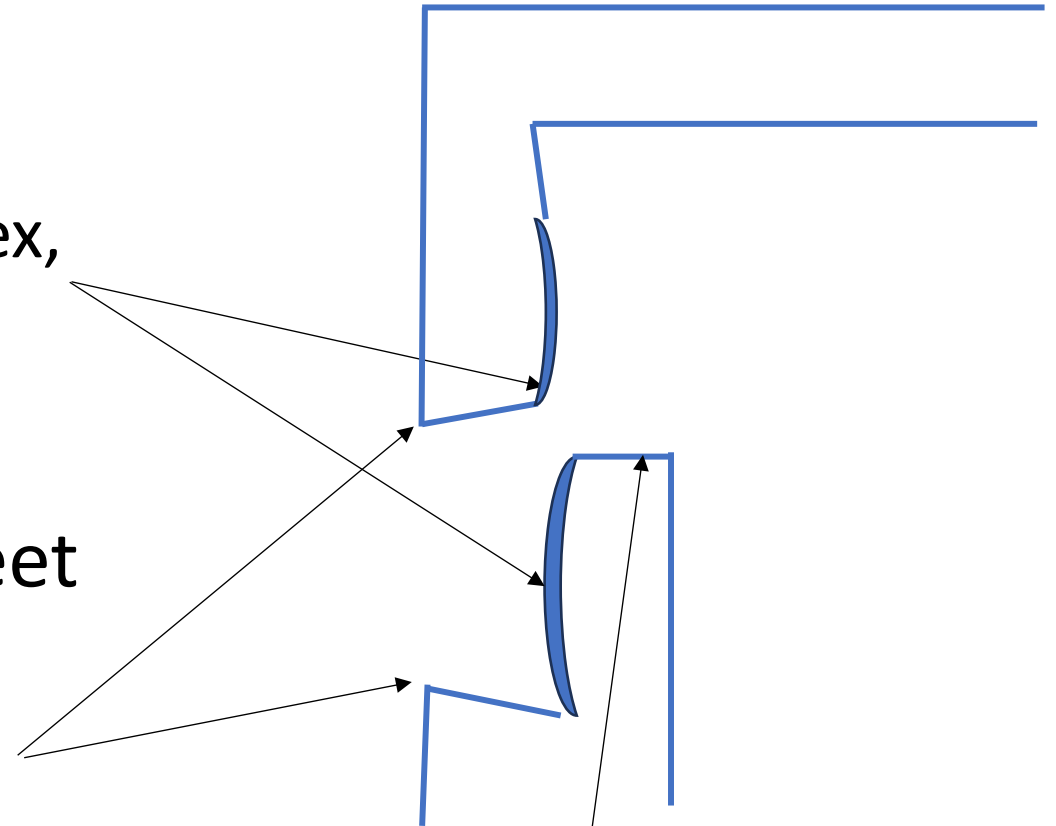
Make the mating surfaces slightly convex,
Trim as needed

2. How do you make the lid and box meet all the way around?

Bevel one or both the mating surfaces

3. What if I make the Lip is too long?

Trim the a little off the lip



Rules to Remember

- Rule #1: Wood will always move!
 - Wet wood moves more unpredictably than Dry Wood
 - End-grain moves more predictably than cross-grain
 - Wood movement may impact grain matching between the Lid and Box
- Rule #2: Make sure the inside isn't bigger than the outside!
 - Keep wall thickness in mind as you hollow and shape
 - Remember the Lid fit you selected during the Step 1

What Tools Do I Use?

I Always Use:

- A Pencil and a Ruler
- Calipers
- Spindle Roughing Gouge
- Narrow Parting Tool
- Spindle Gouge
- Square-nose Scraper
- Round-nose Scraper

Sometimes I Use:

- Skew Chisel
- Bedan or Wide Parting Tool
- Bowl Gouge
- Hand Saw
- Point Tool
- Embellishing Tools
- Jacob's Chuck & Forstner Bit

Next Step: Go make Sawdust!

