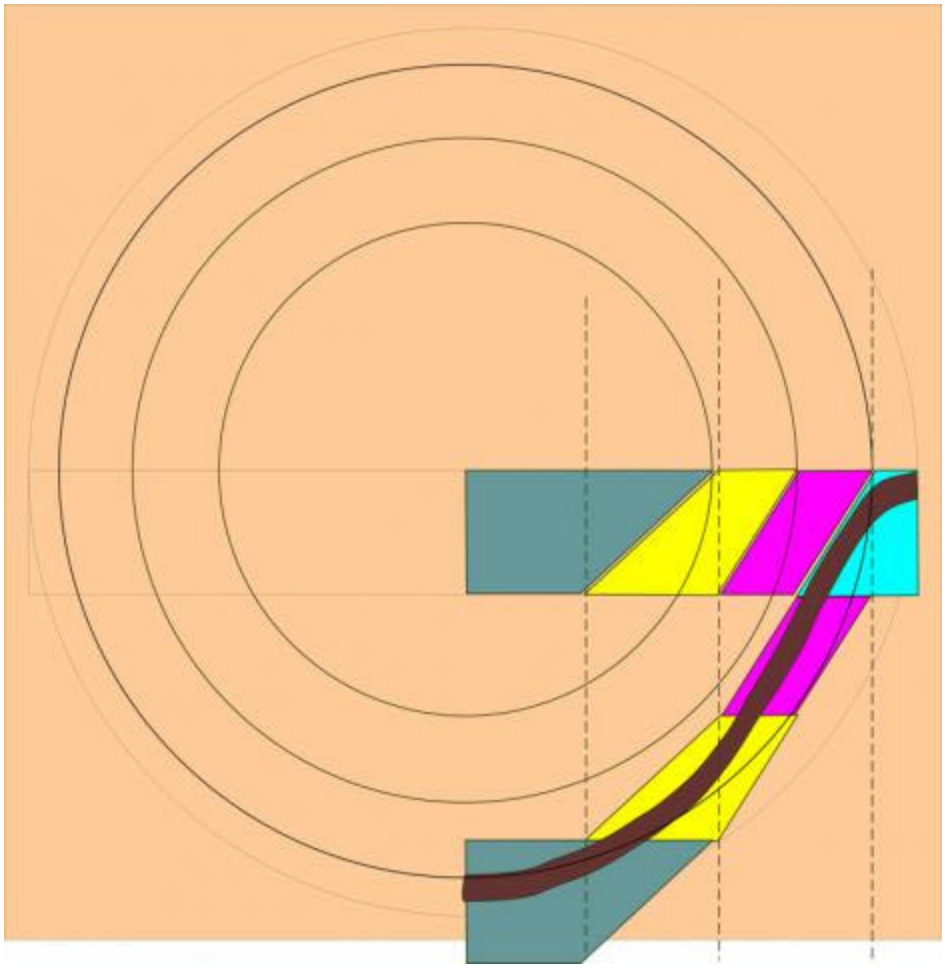
BFAB Theory:

This document explains how a traditional looking wooden bowl can be very efficiently constructed from commonly available wood planks. Although it is hard to believe without seeing it a 14 inch wide bowl 6 inches deep can be made from a single board 14” X 14” X 1.5” thick. Below is just such a bowl.

Although to process is straight forward it requires some careful planning and assembly execution before turning the bowl. The diagram below illustrates the concept.



Essentially a flat board (illustrated by the 4 colors linked horizontally) is cut into rings at an angle, then stacked to produce a bowl blank (illustrated by the 4 colors linked vertically), then turned into a bowl illustrated by the brown profile. Note that this illustration suggests you can actually achieve a rounded shaped bowl profile. Typically this process has resulted in a rather straight sided (not so pleasant looking) bowl. Improving the aesthetic outcome of this process has been my goal ever since the first funnel like bowl came off my lathe.

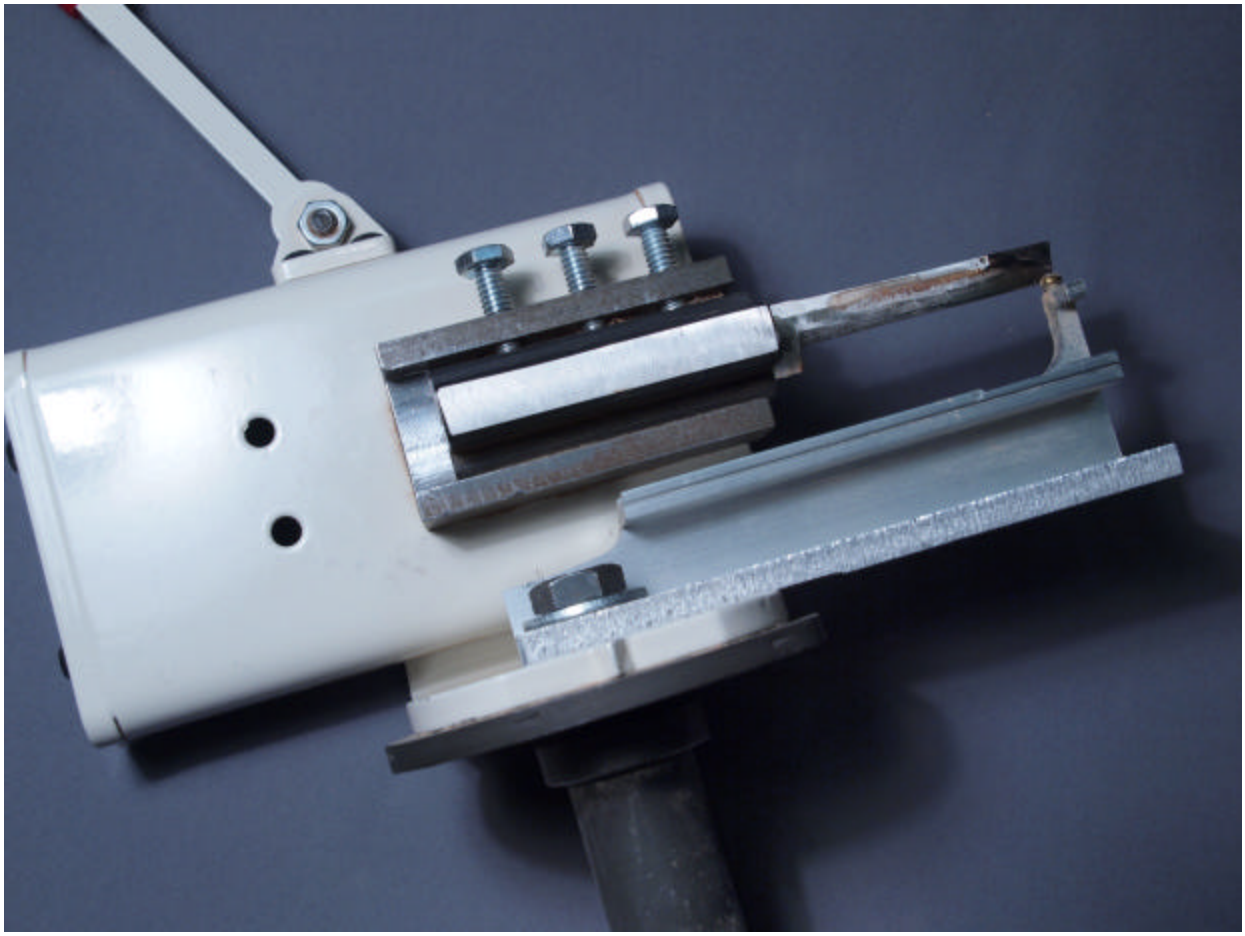
The trick is once you understand the concept, how do you calculate the correct angles and assemble the pieces in a wood shop environment using traditional tools. After much experimenting and trial and error, I believe I have developed a shop friendly and wood worker friendly process.

So although I did not invent BFAB the idea, I have developed some jigs and perfected a process that makes it possible for any turner to routinely and successfully accomplish the task.

This process takes into consideration the following variables:

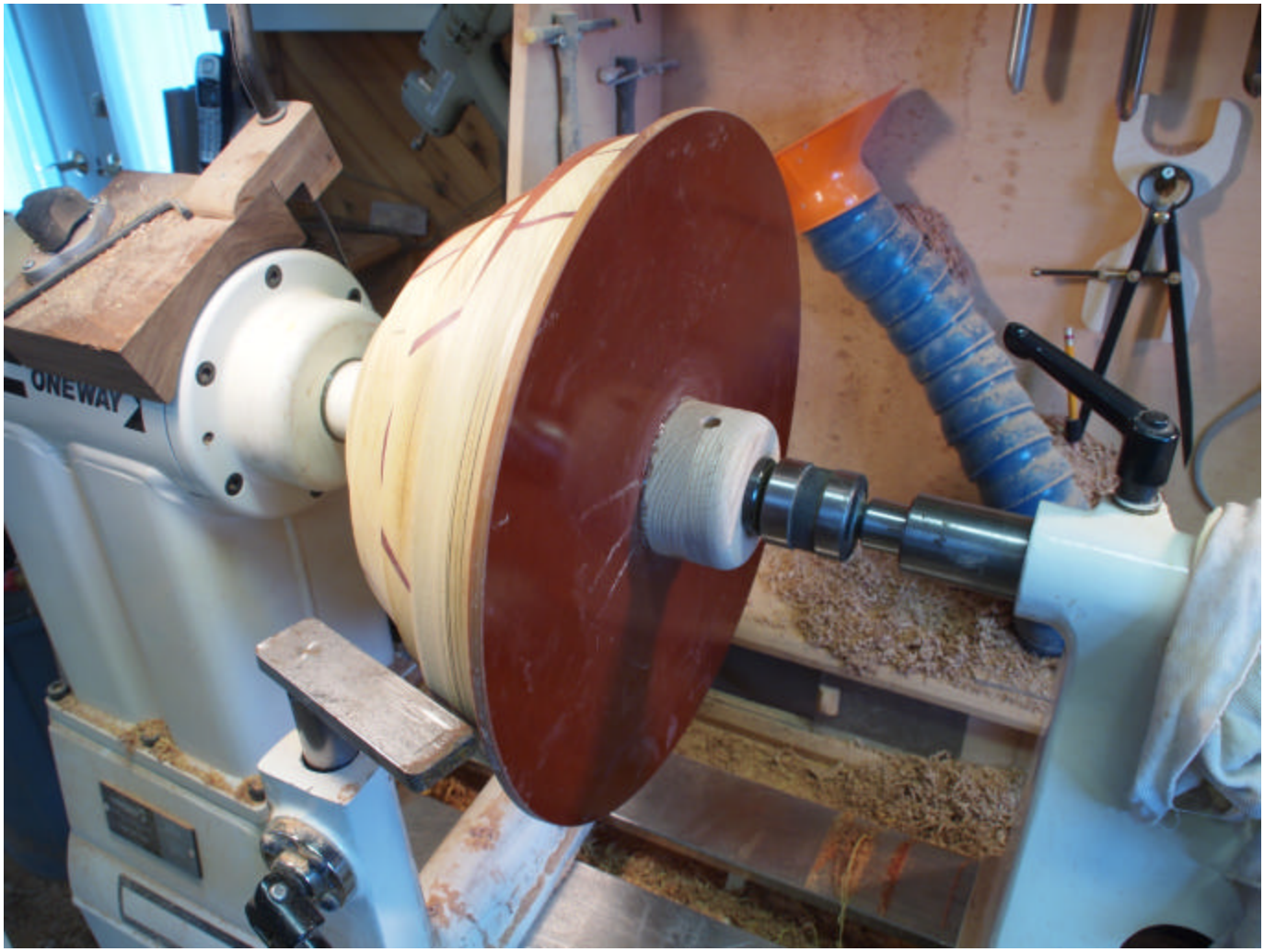
1. **Size of the bowl**
   a. **Diameter**
   b. **Height**
   c. **Profile (anything but a funnel)**
   d. **Wall thickness (approximately 3/8)**
2. **Board Thickness**
3. **Ring cutter thickness (kerf result)**

Two jigs are required to ensure accurate ring cutting and good glue ups of the rings.
The ring cutting tool:



The cutting section should be approximately 3/32 by 3/8 by 2 ¼ inches. This is ground down from a 3/32 x ½ x 4 cutting tool blank. The nose is v shaped and the top is flat.

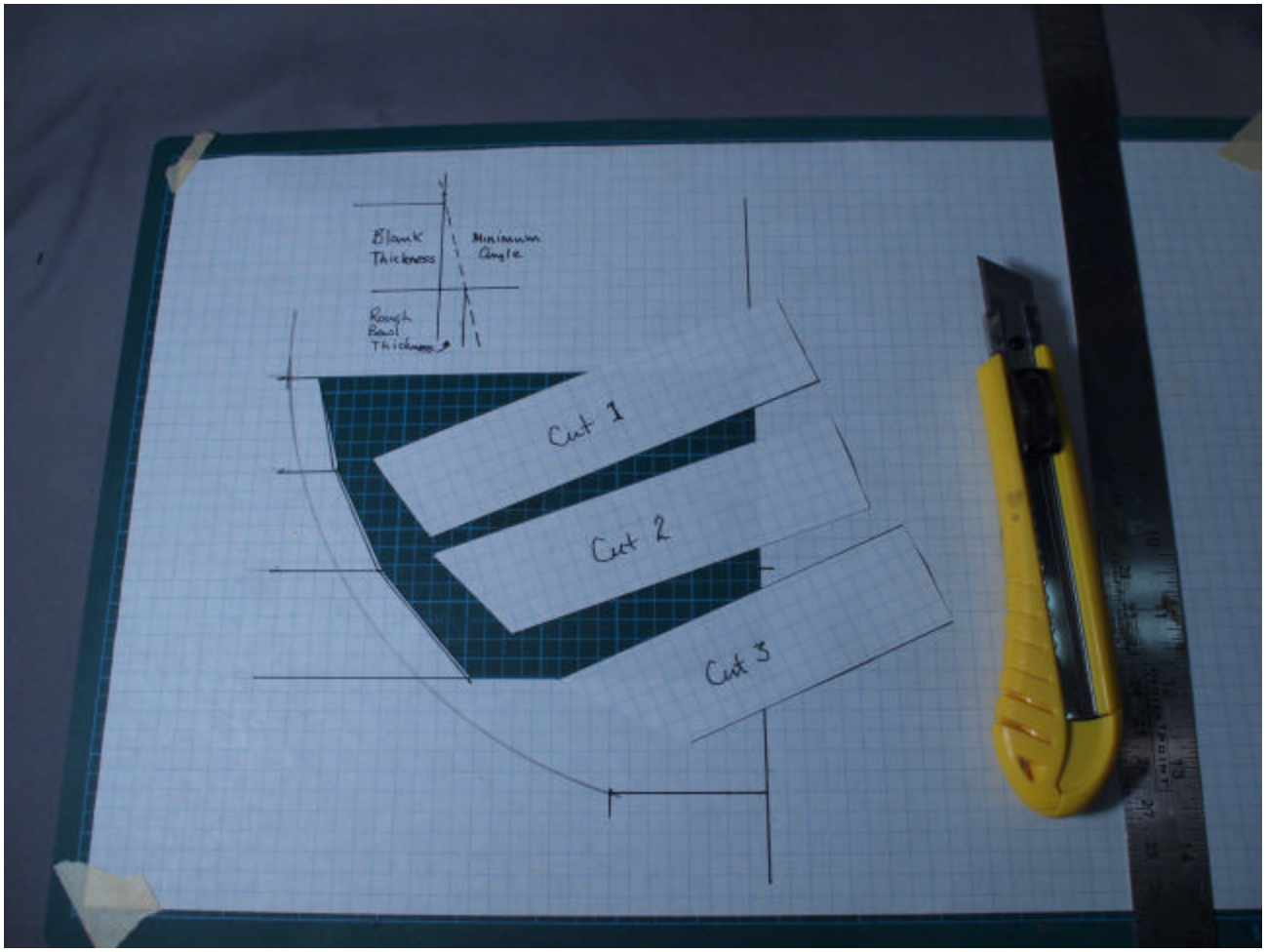
The tail stock press:



The ring angle calculations require a compass and some graph paper. No matter what size of bowl you wish to make the following steps will allow you to prepare the templates you need to cut all the appropriate angles for each layer.

1: Draw a ¼ circle with a radius equal to the bowl size
2; Draw an arc ½ inch inside the ¼ circle

3: Draw the bottom horizontal line to create a flat bottom
4: Draw layer lines equal to the thickness of the blank
5: Draw angle lines to match the inner circle
Note all angles (first one) must match or exceed the minimum angle calculation (dotted line).
6: Cut out paper templates to use as angle guides.



Some rules to remember:

1. **The bigger the bowl diameter, the thicker board should be. Below are some basic guidelines.**
   a. **Under 8 inches ¾ thickness or more**
   b. **Under 12 inches 1 inch thickness or more**
   c. **Under 15 inches 1 ¼ inch or more**

   d. **Under 18 inches 1 ½ inch or more**
2. **Keep the grain orientation of each ring the same as it came off the board unless it is a compound blank.**
3. **Use water resistant glues to assemble the blank.**