

# Open Frame Segmenting

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This is the second part of a two part presentation I gave on Open Segmenting to my woodturning club, West Bay Woodturners.

I hope these notes augment the slides sufficiently to provide insight into my efforts to develop Open Framed segmenting techniques. This is an ongoing effort – I'm still trying different ideas to further refine the techniques described in these slides.

# Exploring Open Framed

-In Process -

Inspiration from two sources



Breaking Out

Malcolm Tibbetts



Journeys



Chained Ambition

David's Vanier's demo at  
2014 AAW Symposium.

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Malcolm's Journeys gave me inspiration for my first Open Frame object, Times Flies By – Celebration of 50th Anniversary. Subsequently, I saw Malcolm's Breaking Out and attended demo on Missing Segments at the 2014 AAW Symposium in San Jose.

Recently I have been doing open segmented objects and have decided to explore techniques for the Open Framed work.

## Some Successes



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The globe was my first attempt at Open Framed work. I like the openness but, it was a lot of work. Each filler block had to be extracted from the frame by drilling 2 or 3 holes, sawing between the holes with a coping saw blade, and then carving out the filler material. The frame was damaged. Had to be a better way.

I have had some successes and some failures. After the 8" bowl, I made a series of 6" jugs. The first attempt was a success, jug on the left, but I thought the frame, 1/8", was too heavy for the size. The next few attempts have been made of black dyed veneer, where the frame is .075" thick. Have mixed results.

## Some Failures



Process Failure



Turned Top Layer too thin  
Weak frame material - veneer



Miniature – Process Failure

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These are some of the failures I have experienced for one reason or another. For the jug on the left, I tried cherry the the same thickness as the black veneer, .075" and .035". Couldn't get the filler blocks out without breaking the frame.

The center jug was my first attempt with the veneer material, most of the filler blocks came out, but the upper frame was turned too thin and broke apart in the process of removing the filler blocks.

The miniature's frame on the right broke apart when trying to remove the filler blocks.

All of these probably would have survived had I removed the filler blocks by drilling and carving – but the point of the trials was to avoid having to do that.

## Technique Objective

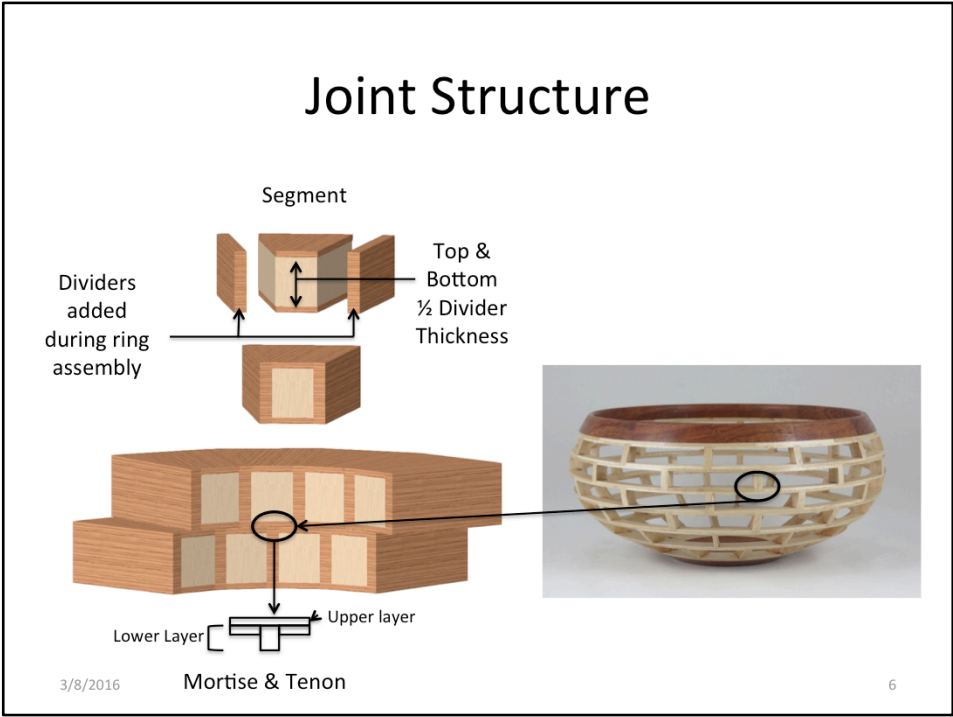
- Be able to remove filler segments with minimum effort;
  - Filler blocks not glued in
  - Structure can withstand action to extract filler blocks
- Filler blocks secured by;
  - Glue wicking from joints
  - Physical pressure from surrounding segments

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Once the bowl is turned, the filler blocks are held in place by glue that may have wicked from the joints and pressure from the surrounding segments.

The objective is to minimize these effects. It is expected that with some effort, hopefully just finger pressure, that the filler blocks can be removed. The more pressure required, the more likely the thin frame will be damaged.

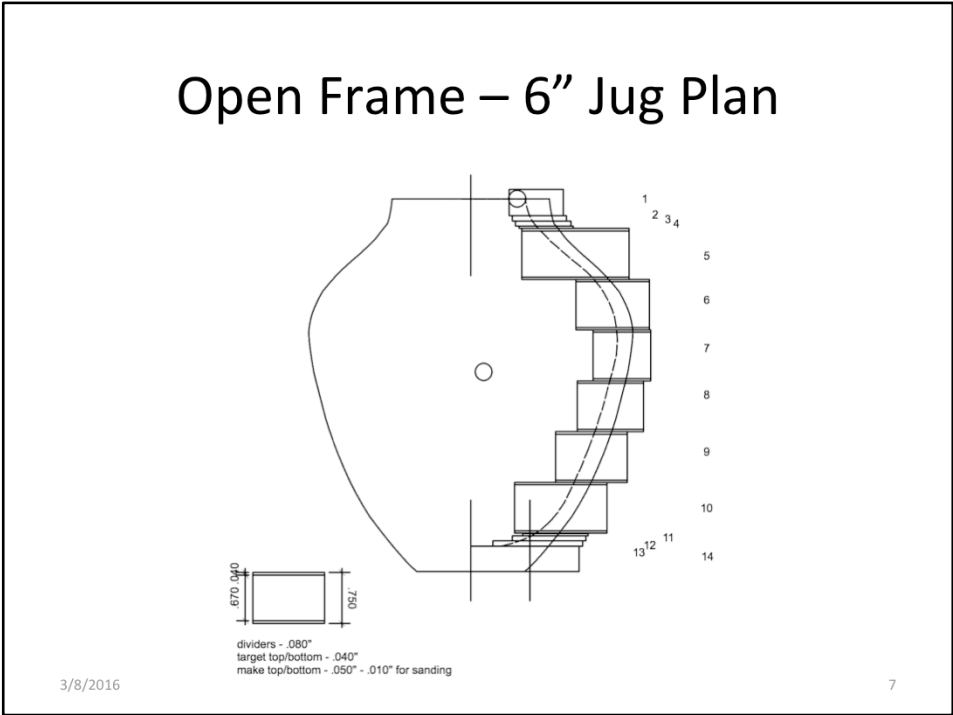


This figure illustrates how the joints are formed. The joints are miniature mortise and tenons.

The segments are made of a filler block with a top and bottom made of the frame material. The top and bottom form the horizontal frame members. Since the segment will be glued to the layer below and above it, the segment's top and bottom are half thickness of the dividers, making the final horizontal dividers equal the vertical dividers.

The dividers, added during ring assembly, are the full height of the segment.

# Open Frame – 6" Jug Plan



A typical plan – I allow about 1/4" inside and outside for turning. This becomes important in making the segment material.

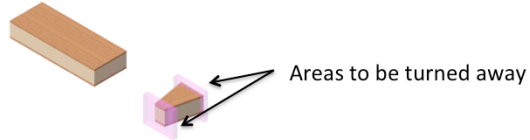
I use VectorWorks, very expensive but I have used it for years and know it.





# Flat Stock Preparation

Attach frame material to filler only in areas to be turned away



Have tried various methods

Narrow strip of Titebond  
Wicks  
slow to do

Heat activated edging  
promising  
Not a common turner  
technique



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First step is to prepare the segment stock. In the plan I allow  $\frac{1}{4}$ " for turning. If I can constrain the glue holding the top and bottom frame material to the filler material to this  $\frac{1}{4}$ ", then the glue will be turned away.

## Flat Stock Preparation (2)

Glue Film – inconsistent  
adhesion



Medium CYA Glue  
Promising  
Used for latest failure



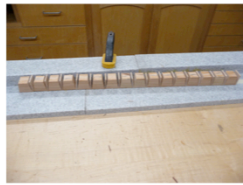
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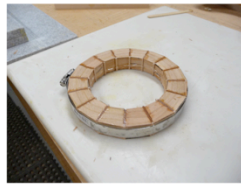
Medium CYA glue looks promising – doesn't appear to have wicked. I'm going to try thick CYA in future tries.

## Ring Glue Up

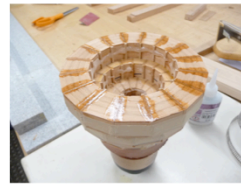
- Most challenging aspect



No glue  
between  
segments



Medium CYA  
on mating  
surface



CYA on other  
surface after  
glued to stack

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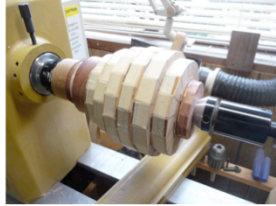
I assemble my rings by placing the segments and dividers on masking tape first then bringing the ring together.

I use either hose clamps or plastic wire ties to hold the ring together. I need the segments tight enough so when the top joints are glued, the glue doesn't wick down. However, if they are too tight, too much pressure makes removing the filler blocks tough.

I also glue the inside with hot melt glue.

I sand one surface of the ring flat, apply medium CYA glue, sand the residue off, glue the ring to the stack with original Titebond, sand the other ring surface, apply medium CYA to that surface, and sand the residue off.

# Turning



## Filler Block Removal

What went wrong?

Frame thickness, .040" & .080" may too thin  
Hose clamps created too much pressure  
zip ties used before

Need to find method to  
reduce segment holding  
pressure



OOPS!

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With the stack glued up, I turn the outside.

I wrap the outside with tape to hold the segments in place as I turn away the glue on the inside.

I turn the inside. I try for about  $\frac{1}{4}$ " thickness at the top. About  $\frac{2}{3}$  way down I start to flare out the thickness so I have about  $\frac{3}{4}$ " on the bottom. Any inconsistency in wall thickness is readily apparent when the filler blocks are removed but not so much when it is turned.

This jug was a failure! I used hose clamps for the rings and I believe they created too much pressure. The material may be just too thin.

Still working on the next step.

End

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If you have comments or questions, please feel free to email me or post comments on my posting of Veneer Jug. Thank You, Tom Kenyon