



Designing and Turning Laminated Wood

Introduction

Creating laminated wood is simple, fun and extremely satisfying. Laying out patterns with different available woods is like being back in the third grade playing with colors. It is an opportunity to let your imagination run wild.

Laminating does not require specialized equipment and turnings made from laminated wood are quite eye catching. This is especially true when done as a multi-axis turning.

The laminated wood that I make does not require the precision angle cutting usually associated with segmented turnings. The wood is cut on the table saw and glued together to make turning blanks. I very seldom need to sand the wood after it has been cut. These turning blanks made from woods such as bloodwood, yellowheart, holly, and bocote; chosen for their color and grain patterns, are used to create unique and fanciful designs on the lathe. I often insert colored veneer between the pieces of wood before gluing. I believe the veneer greatly enhances the look of the turning.



Wood and Veneer Selection

I only use kiln dried wood because the stability and dryness of the wood is important in the gluing and in the type of turnings I create. The wood comes as 4/4 or 8/4 boards anywhere from 3' to 18' long and varying widths. The types of wood that I use include:

Bloodwood	Bocote	Bubinga	Canarywood
Chakte Viga	Cherry	Goncalo Alves	Macassar Ebony
Red Heart	Holly	Black Limba	Maple
Padauk	Black Palm	Yellow Heart	Spalted Tamarind
Peruvian Walnut	Zebrawood	Mahogany	

These woods are used because of their unique color, grain characteristics, availability, and price.

I am fortunate that in North Carolina these woods are readily available and reasonably priced.

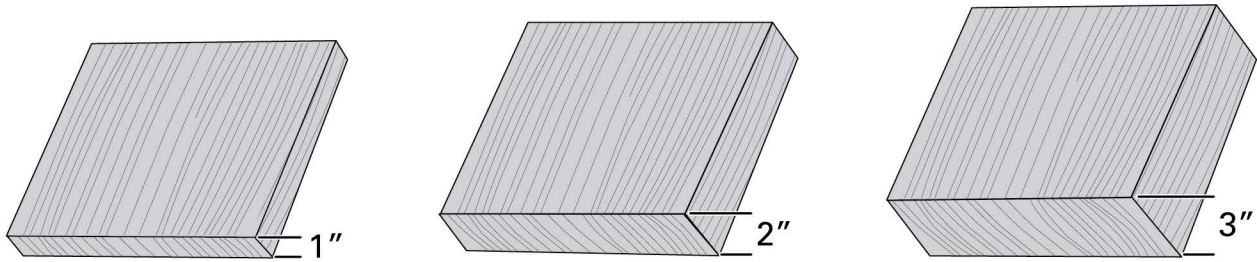
There are many other woods that I am sure would also make excellent laminated blanks.

The thin veneer I use is dyed and comes in a variety of widths and lengths. I generally use only solid colored veneer because the only part that shows in the finished piece is the edge, so beautifully figured veneer would be wasted. The use of black veneer can make any colored wood stand out. I also like using red, blue, white, yellow, green and orange veneers. The veneers can be used as a single piece or several pieces together of the same color or in any color combination.

Wood Preparation

I do not face the boards that I laminate unless I will be gluing on the face side of the wood.

I create 1", 2" and 3" thick blanks of various sizes using strips cut from 4/4 or 8/4 boards. (Fig. 1,2,3)



The boards that will be straight cut are cut to 1" longer than the final desired size so they can be trimmed to the exact size I want after they have been glued. If I am planning to turn an 8" plate, I would cut the wood strips 9" long. If I am planning on re-cutting the glued up blank on an angle, I cut the strips that make up the blank 1 1/2" longer than the final size.

I can use 4/4 boards to make 1", 2" and 3" blanks. However, I prefer to use 8/4 boards to make 2" blanks if I have the wood available. The 1" thick laminated blanks I design are usually 8" to 12" square. The 2" thick laminated blanks are often used to make large platters, so I prepare them to be 18" to 24" square.

NOTE: I turn a wide variety of laminated turnings and therefore create many different sizes of blanks.

To make a 1" thick blank that is 8" long, I cut the 9" long 4/4 boards into strips 1/8" to 1/2" wide. (Photo 1) I cut as many strips from the boards as needed to make the 9" square blank. The glued-up blank will be cut to 8" square after gluing and before turning.

To make a 2" thick blank, I use the 8/4 wood. However, I could also use the 4/4 wood by cutting the boards 2" wide. Then I cut the 2" wide strips into thin strips that are anywhere from 1/8" to 1/2" thick. (Photo 2) These would be glued together to create a 2" thick blank long and wide enough for the size turning needed.



To make a 3" thick blanks, I would use the 4/4 boards. I would cut them 3" wide and then cut the 3" wide strips into thin strips. The length of the strips is determined by the planned turning.

I find that I can glue the strips together without sanding them. If a piece needs sanding, I use a drum sander with 120 grit sandpaper. The veneer to be used in the blank is easily cut to size on a paper cutter. (Photo 3)

I keep a stock of 1", 2" and 3" strips of wood of varying lengths cut to 1/8 to 1" wide in my studio so that they can be used to create new designs. (Photo 4) I store the strips of wood according to their color, grain and width. I also store strips of veneer in various sizes. (Photo 5)

I keep available pieces of laminated strips left over from other designs. Manipulating these strips of wood and veneer helps me create new designs. I do not need to have all the pieces needed to complete the design. If I like the design, I then cut more strips to complete it. An endless variety of designs are possible.



Gluing Tips and Techniques

I use TiteBond III glue for my laminations because it has an open time of 10 minutes. TiteBond II would work as well, however, it has an open time of only 5 minutes. I usually need the longer open time to complete my gluing. I am sure that there are other glues that would work as well. TiteBond III works well for me.

I use a 1" disposable brush that I trimmed to apply the glue. I apply the glue to both sides of the wood because I have found that it makes for better cohesion.



I lay out the strips of wood and veneer to be glued on newsprint. (Photo 6) The glue is poured into a shallow container to make it easier to load the brush. (Photo 7) Cover both sides of the wood. Be careful to lightly apply the glue, heavily applied glue is unnecessary and messy.

As I glue each piece, I stack them on top of each other being careful to line them up with one another. Depending on how many strips I am gluing, I stop after 10 or so and clamp the strips of glued wood together. If I wait too long, the glued strips will set up before I can adjust them to make sure they are lined up correctly.

I cover my bar clamps with wax paper to prevent the glue from getting onto the clamps. (Photo 8)

I can then continue gluing the rest of the strips. After gluing these strips, I join them to the earlier glued strips. Bob Behnke provides excellent Tips for Successful Gluing in the 2015 AAW Woodturning Symposium Handout Book.

The Use of Simple Jigs

I use several different jigs to hold the strips when clamping. These jigs are made with scrap 2" x 4" pine boards, plywood and vinyl floor tiling. I have built several sizes. (Photos 9, 10, 11, 12, and 13)

I screw the pine boards to the plywood and glue vinyl floor tiling to the plywood and the pine boards. The vinyl helps prevent the glued strips from sticking to the jig. I wax the vinyl before using it. Other types of non-stick material could be used instead of the vinyl.

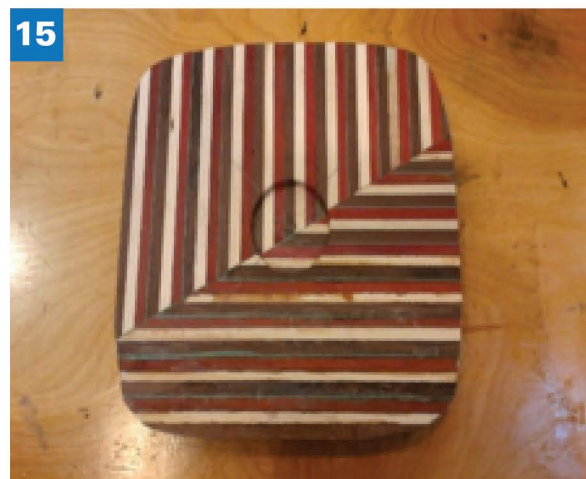
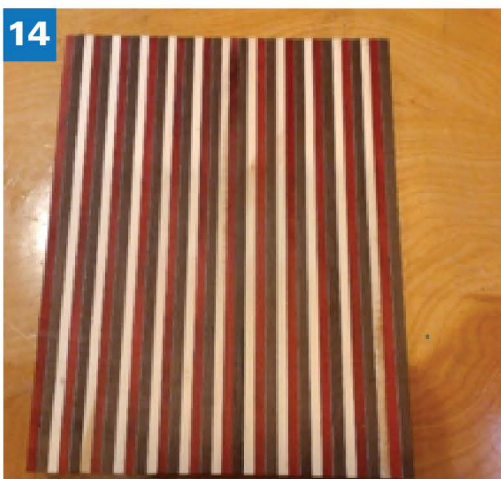
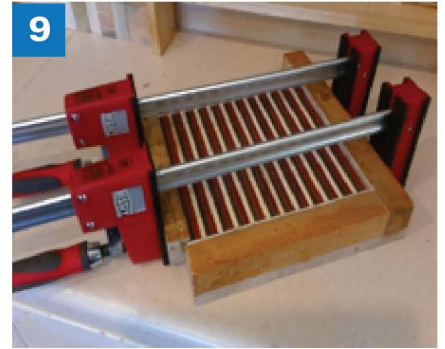
I put the freshly glued strips into the jig and use the bar clamps to squeeze the strips together. I place wax paper on top of the blank to keep any excess glue from the clamps. (Photos 9,10,11)

I often use a book clamp to make sure that the glued strips are all firmly seated in the jigs. (Photo 12) I have found that when putting pressure on the strips they have a tendency to buckle. Using the book press prevents this from happening.

When clamping glued up blocks of wood such as 6" x 6" x 3" or 3" x 3" x 3" I use the book press without any bar clamps. (Photo 13)

When I have finished gluing up a blank, I clean up the edges on a table or miter saw and scrape the excess glue from the faces of the blank. I use a hand scraper, planer or drum sander to do this. (Photo 14)

At this point I can turn the laminated blank or I can cut it again either along its length or at an angle and re-glue it into a variety of designs. I can also add other strips of wood and veneer to it. (Photo 15)

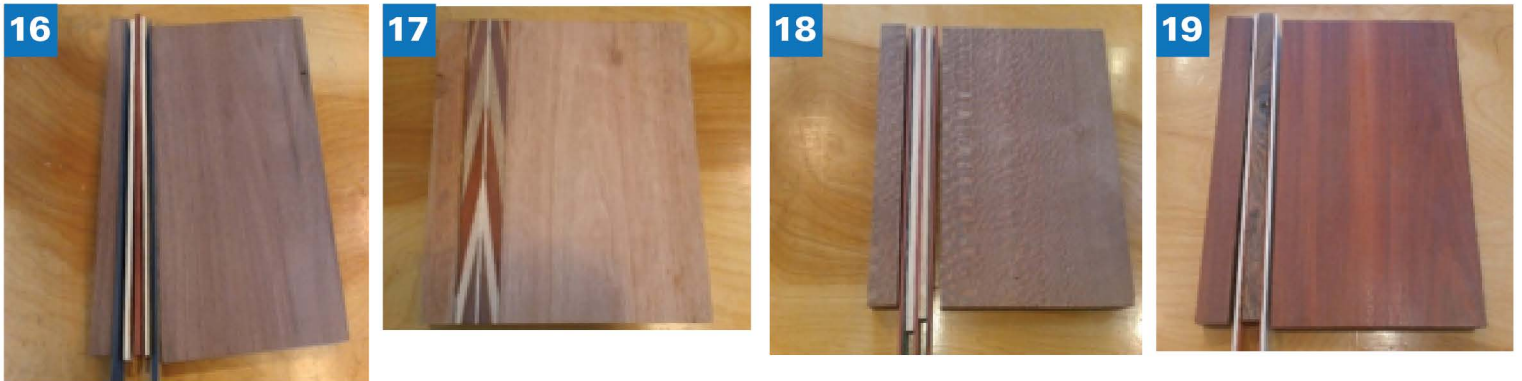


Designing Laminated Blanks

Designing the blanks I use in my laminated turnings is where the fun truly begins. I will explain how I go about choosing the wood and veneer for my plates and platters, because designing blanks for bowls, hollow forms, bottle stoppers, candle sticks, etc. is done in a similar fashion.

I make several types of laminated plates and platters. The differences in designing the plates and platters is that the plates are made from 4/4 blanks and the platters are made with 8/4 blanks. The plates (8" to 10") are smaller than the platters (14" to 24").

One way to design a plate is to start with a 1" thick piece of wood 8" square. I cut the wood along the grain about 1" in from one side. I then insert several selected strips of wood and veneer 8" to 9" long in the cut I made. I add the 1" x 1" x 8" piece I earlier cut from the blank and glue them together. After the blank is glued, I square the blank up on the table saw. (See my handout "[Turning a Square Laminated Plate](#)")



You can make the insert as fancy as you want. I generally cut the strips of wood fairly thin. Sometimes I use leftover glued up strips from other projects as inserts. I sometimes put more than one insert in the plate. (Photos 16, 17, 18, 19)

I have made plates where the insert is at a 45 degree angle in one corner and I have sometimes used a curved insert. (Photo 20, 21)



The second type of plate I make is where the whole plate is laminated. I do this in several ways. One is to merely select the desired wood and veneer and glue them together. The strips of different colored wood can be all the same width or a variety of widths. (Photos 22, 23, 24)



Often, I cut the laminated blank across the grain and move the strips around to create a new design, occasionally adding additional wood strips and veneer. (photos 25, 26, 27, 28, 29, 30)



The glued up blank can be re-cut at an angle to create interesting laminated strips. I prefer a 10 degree angle. I can then reorganize these strips and add other strips of non-laminated wood and/or colored veneer to create some really fascinating designs. (Photos 31, 32, 33, 34)

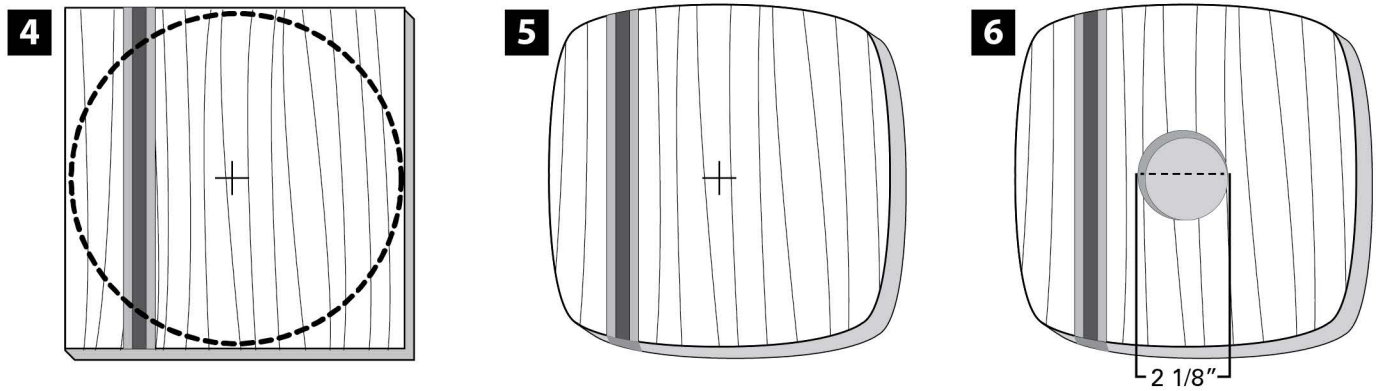


Platters are designed in the same way as the plates except that I use 8/4 wood which is usually 14" to 24" long and a variety of widths. With laminated platters, you do not need a large blank to make a large platter. A large blank can easily be created by gluing strips of wood together. (35, 36)

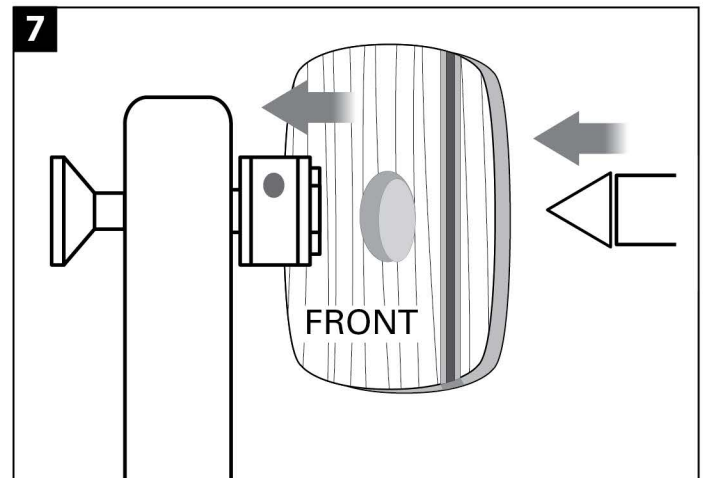


Turning Laminated Wood

Once I have settled on the design that I want, I cut the blank to its final size for turning. For my plates and platters, I use a compass to draw a circle if I want a round piece (Fig. 4) or I just round off the corners for a square piece.(Fig.5) For all my other laminated turnings; I prepare the blank as I would non-laminated wood.



I prepare my plates and platters for mounting by drilling a 3/16" deep hole in the center of the face of the blank with a 2 1/8" Forstner bit. (Fig. 6) I am then mount the blank on my Oneway Talon chuck with #2 jaws using expansion chucking to hold the blank. (Fig. 7)



When turning laminated wood, it is important that you use light cuts with a sharp tool, because the blank is usually a mix of soft and hard wood. Both your push and pull cuts should be light and smooth. I start shaping the back of the plates and platters with a light pull cut until I have the edge curved. Once the end grain on the edge has been curved you can use a push cut without tearing the wood. I find that laminated wood is more prone to tear out than solid pieces of wood.

Finishing Laminated Wood

I carefully sand my laminated pieces keeping in mind that some of the wood is softer than others, and therefore, it is easy to create dips in the soft wood. I sand to 600 grit and apply a coat of shellac sanding sealer. I re-sand with 600 grit and apply a coat of oil/varnish making sure to wipe off any excess. I let the finish dry overnight and sand it with 800 grit paper. I then add a final coat of finish and let dry for several days before buffing with Tripoli and wax. Lacquer finish could also be used, although, I prefer oil/varnish.



The oil/varnish I use is a mix of 1/3 pure Tung oil, 1/3 gloss polyurethane, and 1/3 mineral spirits. I apply it with a paper towel, making sure to wipe off any excess.

Sources

Wood

WorldTimber, Hubert, NC

The Hardwood Store of NC, Gibsonville, NC

Veneer

Sauers Veneer, Lexington, NC

Book press

Shop Fox Presses found on Amazon

Glue

Titebond III is available at Home Depot, Lowe's, and most wood working stores

Gallery of Laminated Turnings

