

# A Brief Veneering Tutorial

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I've received a lot of questions from other speaker builders about how I do veneering. While I don't claim to be an expert, I thought I'd put together a short "how to" on the methods I use for my projects. ***I don't guarantee anything.*** I've screwed up on my own projects, expect to screw up on yours. Use my ideas at your own risk. That being said, let's get on with it. I am assuming that you are going to do a full wrap-around box.

## Veneer Selection

I prefer 10 mil paperbacked or NBL construction. If you are doing wrap around, two-ply is not the best choice. In two-ply, the backer veneer grain runs 90 degrees to the face grain. This makes it very stable but hard to bend. With NBL the grain on both veneers runs the same direction.

If you are planning an oil based finish, I highly recommend spending the extra money for NBL. Some oil finishes will penetrate paper backed veneers and dissolve your contact cement. This is especially true with oak, mahogany and other porous woods. You may be able to use paper backed, but test the process first.

## Box Preparation

If you are planning any wrapping of veneer, it is absolutely critical that all of your edges are straight, and your box is square. If it's not, you are almost certain to get bubbles on the corners. If your box is significantly "less than perfect", use square edges.

Sand the box completely with 120 -150. Fill dings with Bondo or some other hard filler. Rout your roundovers. I've been able to do 1/2" radius with Oak and Pecan. Using 3/4" is much more forgiving and less likely to split. After you rout the edges, check to see that the router has taken off an equal amount of material all along the edge. If not, then your box edge is not square and straight.

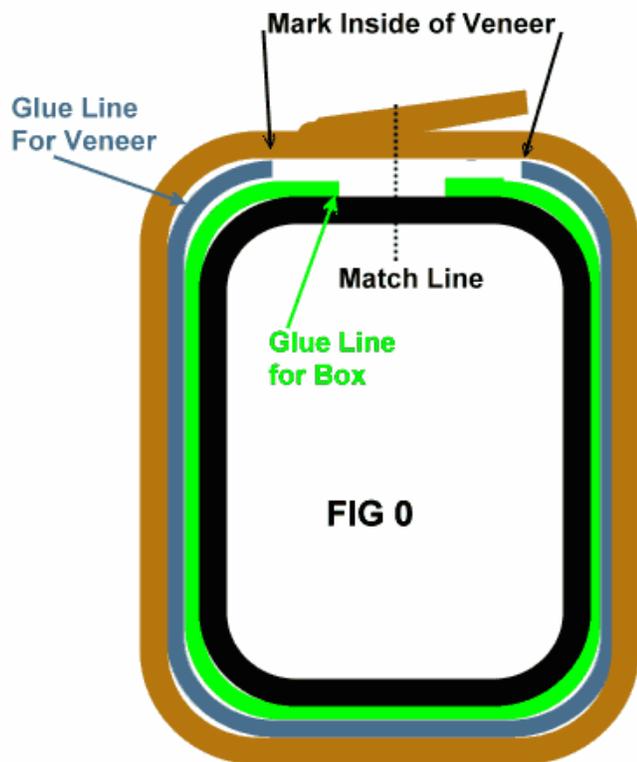
## Veneer Layout

Plan on 4" extra veneer where the overlap will occur. Plan on 1" extra for other edges. Measure the circumference of your box or simply add together the all the edges. Suppose our box is 8" wide by 10" deep by 24" high. I would cut the sheet 40" X 25". (8+8+10+10+4 overlap) The 25" is across the grain, 40" parallel to the grain. I use a utility knife and steel straight edge to cut. Take several light passes, use cardboard or something underneath that you can afford to scratch. I've also used those "chicken" scissors from the kitchen.

Turn the veneer face down and find the centerline. In our example, 20" from the edge. Draw a pencil line the entire length of the veneer. Now find the centerline of

the front baffle of the box. Mark this on the top, bottom and face of the box. Now lay the box on the veneer, and align the centerline marks. Move the box up and down so you have about a half inch overhang top and bottom. Draw a line on the veneer along the top and bottom of the box.

Now check your wrap and make sure you have plenty of overlap. At this point the speaker is face down on the veneer.



Wrap your veneer around the box and mark the inside of the veneer and the box as shown in Fig 0. You will apply contact cement only to the indicated lines. This will enable you to complete the wrap on all sides before you cut the match line. You will cut the match over a dry place on the box.

It works best if you have a narrower dry gap on the box than you have on the veneer.

Your two lines on the box, and your two lines on the veneer should be drawn full length.

Thoroughly clean the box and veneer to remove any grease and dust. I use a

lightly dampened cloth with alcohol or mineral spirits. Let both dry thoroughly.

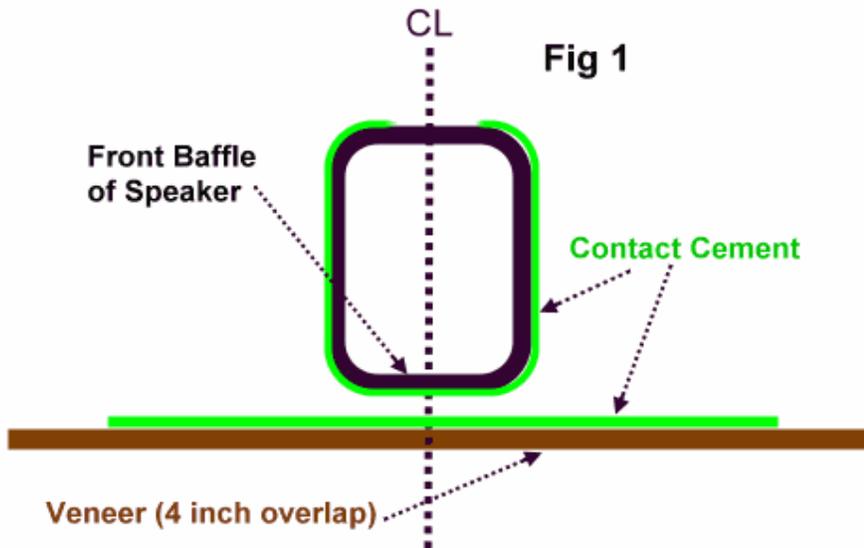
## Applying Contact Cement

I use the stinky, explosive, solvent based contact cement. The "eco friendly" water based stuff will curl veneer and just won't stick. If there aren't warnings about toxic fumes and blowing yourself up, don't use it. Do take it outside to do. A NIOSH rated respirator is recommended.

Layout your veneer on a flat table, piece of plywood, etc. Make sure the table is wide enough to completely support the veneer in all directions. Apply an even coat with a roller or one of those disposable BRISTLE brushes (not foam) to both the veneer and the box. Pay careful attention to the speakers top & bottom edges. In the wrap direction, apply only to the lines you drew on the box and veneer. For the grain direction, apply the way to the top and bottom of the veneer. Let the CC dry until it isn't sticky (READ THE CAN DIRECTIONS!). When dry, apply a second coat and let dry again. Go have lunch. CC is effective for a couple hours after it's dry. If it hasn't dried, you'll spend hours fixing things.

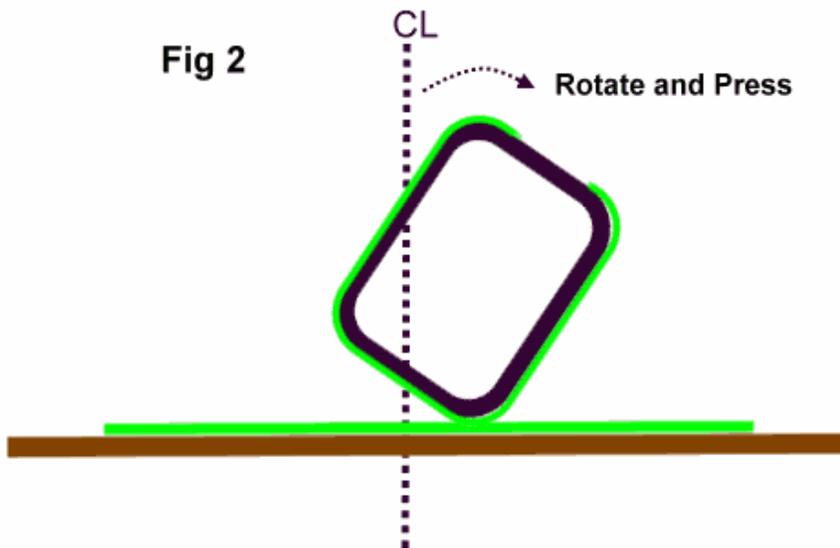
## Applying the Veneer

The veneer is still laid out, glue side up on your table. Take some wax paper or brown craft paper and completely cover the veneer everywhere EXCEPT the front baffle. (Remember you marked the baffle location on layout) Use a couple pieces of



scrap or wood dowels to support the box and carefully align the box using your centerline marks and your overhang marks. When you are satisfied, remove ONE piece of scrap and gently lower the box down onto the veneer. (A buddy would be a great help.)

If you are still happy with the alignment, remove the other scraps press the baffle down firmly onto the veneer. Take a deep breath and relax.

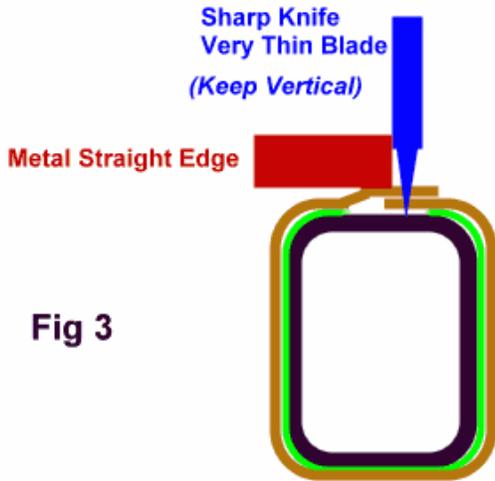


Remove the wax paper from one side of the veneer. Hold the box at the top and bottom. Now press down firmly and rotate the box onto the veneer as shown in figure 2. You can continue all the way to the back. Repeat the process for the other side.

Now your veneer is stuck to the box. Using a plastic

taping knife, or mdf scrap, firmly "scrape" the veneer starting in the center of the baffle and working out toward the edges. I also like to use a rubber mallet to gently pound down the roundover and along all of the square edges. You are just trying to get out any air bubbles and secure the bond. Be careful not to mash the over hung edges.

## Cutting the Match Line



Set your speaker on the baffle. Overlap the veneer ends and clamp a long metal straight edge to the box. Make sure that the guide side covers both pieces of veneer. Get out your Xacto knife or utility knife and put a new blade in it.

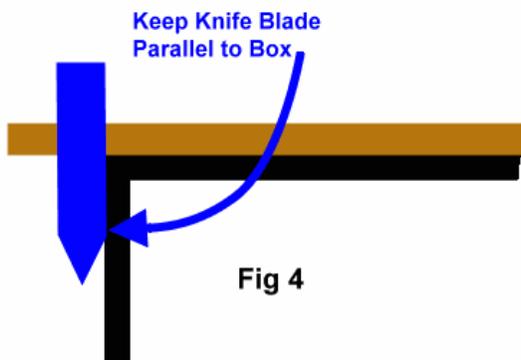
Holding the knife vertical, carefully cut the veneer along the straight edge. Take several gentle cuts, making sure that each cut falls in the same channel as the last. (The knife will have a tendency to follow the grain so take your time.) Continue cutting until you have cut through both pieces of veneer.

Remove the clamps and straight edge. Open the flaps and discard the scrap piece underneath. Since you used one line to cut both pieces, they should be a near perfect match.

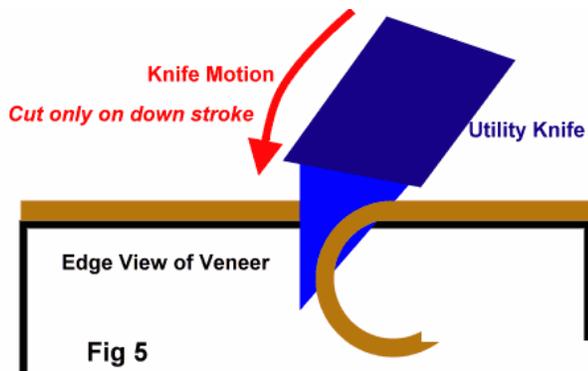
Peel back the veneer ends, and prop them open with a couple of scraps. Apply contact cement to the box and to the veneer flaps. Make sure they don't touch until they are dry. When dry, fold one flap down, press and scrape it. Fold the other flap down, and begin pressing and matching at the top of the speaker. You may have some slivers at the match, its ok. I use my rubber mallet to gently pound down the seam, and the area around it. When done, hand sand the seam with 180-220 and a wooden block.

## Trimming and Edge Finishing

For NBL and heavy veneers I use a flush trim bit in my router. It usually does an OK job when cutting along the grain, but tends to tear out on cross grain (especially on oak). For mission critical work and paper backed veneer, I use my utility knife. It takes longer, but the results are more predictable – once you master the technique.



Begin by trimming along the grain. Cut of excess and leave 1/8" or so. This will alert you to the "right" direction for cutting. The knife will follow grain. You want the knife to follow grain away from the box – not into the box. Hold the knife at about 45 degrees with your forefinger along the knife barrel. (Non retractable blades are best). Try to keep the blade parallel to the box so you don't gouge the side.



Now push down and slightly back in a slow sawing motion. The veneer will tend to curl as shown in figure 5. If you leave a bit of excess don't worry about it.

It's safer to start an inch or so back from a corner so you don't tear out the edge. Get most of it off, and nibble the last piece off gently. When you are done with the long grain proceed to cross grain.

Next we get out a nice flat wood or mdf sanding block and some 180-220 paper. Sand only in the grain direction. Begin sanding with part of the block on the box, and part in the air. Sand ONLY from "air" onto the side of the box until the veneer is flush with the box side. Repeat on all edges.

Now that the veneer is flush and square all the way around, Stop and examine all the edges. Scrape away any excess contact cement with your knife, and sand flush. Finally, take your sanding block and chamfer the edges. Hold the block at 45 degrees, and take 4-6 strokes off of each edge. Don't push to hard, there's not much there. Now take your block and lightly work over each three-edge corner until smooth. Do a final sandpaper hand rub around all edges. Let your box cure for overnight before applying your finish. Go have a beer.

### Other Observations

- I don't know about yellow glue and hot iron methods. I don't use them.
- For square edge boxes, try to take the side-top-side out of one long strip where possible, it will look a lot better.
- Dry fit everything first. Take your time.
- Don't obsess about edges. Nobody sits 6" from your speakers. My preferred sequence. Back, Front, Sides, Top, Bottom. Your milage may vary.
- I typically cut my thru holes on the panels. Then veneer and finish. I use my flush trim bit to open the holes, then a rabbeting bit to cut recesses for the drivers. Some masking tape helps keep the surface from scratching.
- I don't care how cheap you are, your time is worth something. Buy decent veneer and enough to do the job. Don't try to save an extra 1/4" and come up short. Splicing is a major pain. The scrap is great for practice finishing.
- I have used 3M Spray adhesives. They work fine. But the low yield, masking time, and tricky edges don't save much time.
- Staining wood exaggerates flaws. If you must, try it on your scrap veneer.
- Relax, have fun, nobody but you will see the flaws. It's just a hobby.