

H aving now built several dozen nodeless rods and taught this method for building bamboo fly rods now for a couple of years, I feel the time is right to consolidate and update the information on nodeless construction techniques. As I have perfected and taught my nodeless construction techniques and methods I find even more reasons to stick with building nodeless rods. The use of nodeless construction techniques for building bamboo fly rods has many benefits for the rodmaker.



FIGURE 1. A culm in stages of being split

Some basic benefits for the builder are as follows:

- Efficient utilization of the bamboo culm, especially for damaged culms and for 1 piece rods.
- No special heat-treating oven required.
- Ease of splitting.
- Spliced strips are straight.
- Ease of planing.
- Very little final straightening is normally required.

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• Faster (believe it or not).

Building a nodeless rod is no longer the Herculean Feat or Holy Grail Rodmaking that the Garrison book made it appear. The construction techniques required today have been updated and simplified. The average rodmaker can easily accomplish a nodeless rod in the same time or even less than it takes him to build a rod using his current method.

TECHNIQUE

Nodeless construction allows the rodmaker to view the culm differently. The reason is that you can choose to utilize only certain or good sections from a culm and thus manufacture your strips from them. A bad spot in a section only effects that immediate area and not the whole culm.

You can opt for a flamed or blonde rod. I have built them both ways. A flamed nodeless rod will show bad splices more readily than a blonde rod. I did my first flamed nodeless rods as a training exercise to help develop my splicing skills. If you choose flamed, then flame your culm as usual before any of the following steps.

Cutting out the Nodes.



FIGURE 2. Culm Sections after nodes are removed.

Now cut out the nodes. Cut approx. 1 in. from the center of the node. The resultant scrap node will be about 2 in. long. Several helpful hints here:

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A hacksaw is not the best implement to cut bamboo. I have found a Japanese Razor Saw to be the best hand saw to use. A world of difference, it really cuts fast and makes this an easy task. Use the fine tooth (22 - 24 tpi) side of the saw.

A power band saw also works well. Remember to turn (rotate) the uncut culm into the blade instead of trying to saw straight through. Failure to do so can result in splinters in the bamboo where the blade comes out on the bottom.

Color Code each Section.

Mark the butt end side of each section piece as it is cut with a colored marker. Use a different color for each section. Record the color sequence order for future reference. A strip of masking taper can be used for this purpose. later you can wrap up the left over pieces and attach the color coding with it. This is in case of having to make a replacement section later on.

Heat Treatment.

Heat-treat the culm sections. I treat the sections for 8 minutes at 350 degrees. A normal kitchen oven can serve the purpose. Several helpful hints here:

- Always preheat the oven to given temp for at least 15 minutes.
- Use a high temp thermometer to double check the stove's thermometer.
- · It may help if you put the culm sections on a piece of
- If the oven is small, you may treat the culm sections to be used for the tip and butt separately. I normally use the top 3 to 4 sections for the tip sections and then the next 2 to 3 sections for the butt depending on length of the finished rod.
- Halfway through the heat treating, flip the sections back to front to insure even heat distribution. If you have a convection oven, you may not need to do this.

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Splitting.





Split each culm section. I split each section into 24 pieces. Some helpful hints here:

- Use a bamboo froe, a wooden mallet, and a 6 in. square block of wood as a chopping block.
- Stand the culm sections on end long ways as if you were splitting wood for the fireplace.
- Place the froe on the culm section perpendicular to the enamel where you want to split and strike with mallet. The section should split easily.
- To get 24 pieces from each culm section split in half, then each half into thirds, each third in half, then each half in half (2 x 3 x 2 x 2 = 24).
- Wrap the 24 pieces for the section together with masking tape insuring all the colored ends are pointed in the same direction. Put aside and continue on till all sections are split.

Splicing strategy.

Determine a strategy as to how the culm sections are to be spliced together to get strips long enough. To insure the spliced strip is long enough, take the desired finished length of the rod section plus 5 inches.

For rough figuring of the length of a splice section from culm pieces use the total length of the pieces minus 4 inches.

Tip sections can normally be done from consecutive culm sections. Normally tips can be done from the top 3 - 4 culm sections.

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Butt sections may require that two of the longer lower culm section pieces be used consecutively to get the length required without. I normally take the 2 - 3 culm sections below those I used for the tip section. I only need 6 strips use 1 piece from the lowest culm section and 2 pieces each from the next two culm sections so that the finish strip is made up of pieces in the following order: 1-2-2-3-3. This gives me enough length and power fiber in the sections for a butt section without making excessive splices from the lowest culm sections.

Splicing.

Prepare the culm section pieces to be spliced. Some helpful hints:

• Layout all the culm sections pieces for one strip at a time in order with the colored end pointing toward the butt end.



FIGURE 4. Pith side before and after planing.

• Plane the rough pith off the back of each strip to insure a flat parallel surface to the enamel side being careful not to take too much material off and also dress up any over or under cut sides.

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FIGURE 5. End of Strips - left one needs dressing.

• Mark the pith side of each section piece with pencil so after the splice is planed you know the order of the pieces in the strip and which side is the butt side if pieces get out of order.



FIGURE 6. Section in splicing block ready for planing.

• Plane the splices for all the pieces in a strip. All pieces in a strip should be placed in the splice block with the enamel side facing the same direction. For a rod section, plane 3 strips with the enamel facing left and 3 with the enamel facing right. Helpful hints:

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- Place each strip securely into the splicing block so the end of the piece just sticks out on the bottom side.
- Start planing the highest part of the piece sticking out taking off about .008
- Plane flat to the block. If you are using a wooden splicing block, then finish the splice off using a mill bastard file even with the block.
- Flip the piece to splice the other end, keeping the enamel facing the same direction.



FIGURE 7. Section planed flat to splicing block.

- Now dry fit the pieces together and to make a good straight strip and mark truth line across the splice:
- Pick up the first two pieces in the strip and check the splice joint to insure both planed surfaces are flat and you have a tight fit.
- Sight down the two pieces joined together and adjusts the strip positions so you have a straight strip being formed.
- With a pencil, put a line across the splice to serve as your truth line for gluing.

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FIGURE 8. Truth line on splice for reference.

Gluing

Glue and clamp the strip together. - Choice of glue for splices should be compatible with the glue you will glue the rod up with. Problem can exist with glues that are heat sensitive (Titebond-II and Hide glues) and a glue that requires a thermal set (Nyatex Epoxy). The combination of Titebond and Epon Epoxy complement each other nicely.



FIGURE 9. Spliced strips ready for gluing.

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- Put wax paper down on the area where you want to glue the pieces up. This serves as a good surface to glue on and doesn't stick to the glued joints.
- Lay out 3 clamps per splice joint.
- Put Titebond-II glue on both sides the splice joint. For the first couple of times do one splice joint at a time. Later you can glue all the splice joints in a strip after you have become proficient at fitting the pieces together.





- The best way to get a good fit and insure the enamel surfaces are flush is to use your fingers. They will tell you if the two enamel surfaces are not flush. After a splice has been made run your finger over the splice to see if you can feel if they are offset. Best way to clamp is to hold the two pieces in the middle of the splice and clamp one end, then clamp the middle, and lastly the remaining end.
- If you have good natural light through a window, hold the splice up to see if the surfaces are flush.

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FIGURE 11. Splice joint glued and clamped.

Dressing the Glued Strips.

After the glue has dried, remove the clamps and dress the strips. Some helpful hints:

• First remove excess glue from the enamel side using a mill bastard file. I use the file to knock off the excess glue and also to smooth any splice where the enamel may not be totally flush. If you run your fingers the length of the strip you should feel no bumps on the enamel side of the strip. This will give you a smooth flat surface for future planing.



FIGURE 12. Use file to remove excess glue from enamel.

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• Plane excess glue off the pith side at the splices. This also should produce a smooth surface.





• Turn the strips on edge and plane the side of the splice smooth. Plane in the direction of the splice and not against it. This means you will have to flip the strip for the second side. Also when you plane the side of the strip do so trying to maintain the 7 1/2 degree angle that you first form needs that results from normal splitting of the culm.



FIGURE 14. Strip dressed and ready for planing.

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Ready to Plane.

Cutting Strips to Size.

Layout the dressed strips putting the all splices that are in one direction together and those in the other direction in another group. Now offset the groups so the splices do not align up. The splices should be offset a minimum of two inches on center but can be more if you have enough length to do so. I do this for structural strength of each splice. I do not recommend that splices should form a picket fence pattern when put together. Having too many glue joints coming together at the same spot is not a good idea. Now measure and cut strips to desired length.

Color Code the Strips.

Take all the strips and sort them by whether they have a left hand or right hand splice. Mark on the emamel of the butt side of one set of strips a red mark that identifies that all these strips have the same direction splices in them. Latter, when you assemple the strips for gluing you can quickly identify each set of spliced strips. It does get hard to seperate which strips are which after you have done final planing. This step will help you alternate strips when you get ready for gluing.

READY TO PLANE.

You should now have strips that are straight, flat, and heat-treated. You now can find your angles and proceed as normal. You will find planing is much easier and simpler not having to deal with nodes. The only minor planing problem I know off is a dull plane can cause a very minor chip out at the beginning of a splice when planing against the splice. When I am ready to do my final planing to dimension, I first do one pass with a sharp plane down the side against the splice to get it flat. Then do the remainder of the planing required on the other side in the direction of the splice to avoid this problem altogether.

FINISHED PLANING

When final planing has finished, you will need to assemple the strips and put them together as you want them to appear in the rod. At this point using the color code on the enamel you can easily alternate the strips and tape together ready for gluing. Using the registration marks from planing you insure the strips are as they were in the final form and the taper will

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Sumary

be accurate at these points and looking at the enamel you insure they are alternated between left and right hand splices.

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SUMARY

Although the remainder of the building of a rod is the same, I find there is a tremendous amount of time will be saved in all planing phases. Planing is easier and quicker not having to deal with nodes. The only suggestion for final planing to dimension that I offer is to make one pass down the strip against the direction of the splice when your blade is sharp. Then do the remainder of the planing on the side with the direction of the splice. A dull plane could lift the front of the splice and produce a small chip. A sharp blade will not. So if you see a little chip off the fine point of a splice, blame it on a dull blade. I no longer use my Lie Nielsen 212 scraper plane. I find that the only reason I used it was to "attack" node areas. Additionally, a nodeless rod usually comes out of the gluing process remarkably straight, requiring little or no straightening.

I wish you good luck in building nodeless rods and hope you will see the benefits this construction technique has.

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