

## 16. Laminated Spindles with Lumbar Contour

1. Rough saw long strips  
3/16" thick strips 2.5" wide.
2. Dry
3. Surface sand to 0.135  
inch thickness with 100 grit.  
The planer has tear out  
trouble with strips this thin.
4. Cut-to-length 26 inches  
for seven long spindles and  
15 inches for four short  
spindles. No knots allowed.



5. Glue-up 3 strips. Add two 2.5 x 3.5 x .25 inch glue blocks to base end. The glue blocks are added to the base to supply enough wood to create the taper plus a small bulge just above the seat. Choose the best looking strip for the front of the spindle. Use the belt sander to put a slight concave surface on one of the glue blocks and a slight convex surface on the other. Glue up the inner surfaces of the three strips and the glue blocks. Slide the assembly into the spindle gluing press and apply air pressure to the fire hose. Leave the air pressure on the press overnight, and repeat the process the next day. Each assembly will make two spindles.



6. Once all the spindles are glued up, split the assemblies in half using the table saw. Then rip the outside to clean up the messy edge. The final width should be about 1.0 inch.



7. Mark the bottom front of the spindle using the spindle template.



8. Remove the waste using the bandsaw. Roll over the spindle and roughly shape the base.



9. Use the belt sander to square the bottom end of the spindle so that later the spindle number can be written on this nice surface. This is the only place to write a number that will survive all the sanding.



10. Clamp on the drill adapter and use an electric drill and tapered tenon cutters to form the bottom taper. The  $\frac{3}{8}$  bottom end of the spindle should protrude  $\frac{1}{2}$  inch out of the taper  $\frac{3}{8}$  dowel cutter. Use a stop to control the final cut and assure all the spindle bases are the same.



11. Number the spindles and Insert them into the tapered boles in the seat.



12. Using the story stick. mark the position of the upper shoulder on each spindle. The marks should be 2.5 inches below the bow for the long spindles and 2 inches below the bow for the short spindles. Use a square and remark the spindles in pairs.



14. Mark the shoulder and top area using the spindle template.



15. With the bandsaw remove the upper end waste.

16. Use the router fixture and clean up the band sawed surface.





17. Round over the corners using a router with a  $\frac{3}{16}$  round-over bit.

18. Size the upper end of the spindles to  $\frac{3}{8}$  inch using the tapered tenon cutter.

19. Rasp all the rough surfaces, Test the upper end engagement in a  $\frac{3}{8}$  test hole – from the shoulder, 2" for long spindles 1.5 inches for the short spindles. Avoid the bottom tapered area.





20. Use the sanding fixture and sand the face and back to 400 grit. Hand sand all remaining surfaces to 400 grit.

21. Apply one coat of finish, avoiding the surfaces that will be later glued

This cow is milked!

