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Scarfing Lumber

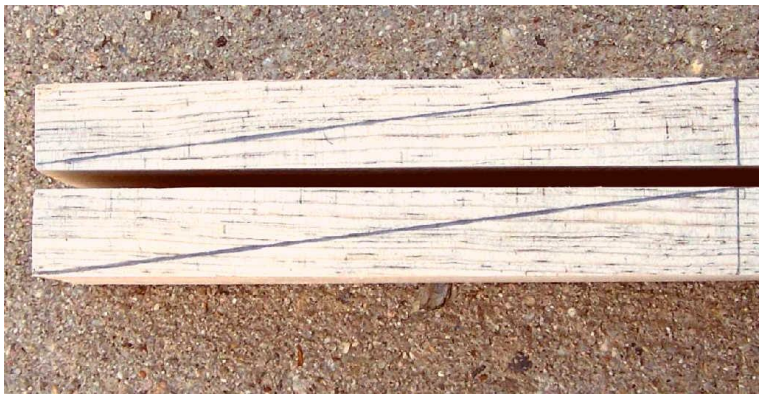
By: George S. (A prolific Spira International boatbuilding customer)

This is a method for scarfing together two shorter boards into one long board. It results in an aesthetically appealing joint, while having the strength and durability needed for a safe, seaworthy craft.

The material used for this example was a 1 x 6 x 72” board from the local lumberyard, ripped it in half making two boards with a finished size of 3/4” x 2-1/2” x 72”. The same method may be used regardless of the size of board, the only difference will be the scale of the cuts.

As with all woodworking and boat building projects please be sure to use the appropriate safety equipment for the tool you are using. Safety First!

First, decide on the appropriate scarf ratio. Successful joints can be made with a ratio as low as 5:1 and as high as 15:1, but a ratio of 8:1 is a good compromise when joining dimensional lumber such as this. The length of the scarf may them be determined by multiplying the thickness by the ratio: 3/4 x 8 = 6, so the length of the joint will be 6 inches.



Next, mark the cut on the board itself. For this example, measure 6" from the end and drew a line square across the board, making a rectangle. Then take a straight edge and connect the opposite corners of the rectangle diagonally like this:

It is a good idea to also mark the back side of your cut.

There are many different types of saws that will work for this kind of work, and every woodworker will undoubtedly have his or her own preference. An excellent choice however is the Japanese style pull saws. These have a very thin blade and tooth clearance (kerf) so can make very precise cuts. They cut on the pull stroke rather than the push like American and European saws, and it's amazing at how quickly and accurately they will saw through a piece of wood. Start by lining up the saw very carefully with the cut line.

The more accurate you are at this stage, the less work later you'll have later on. It is important to keep the cut from wandering as it will greatly reduce the amount of finishing needed later.

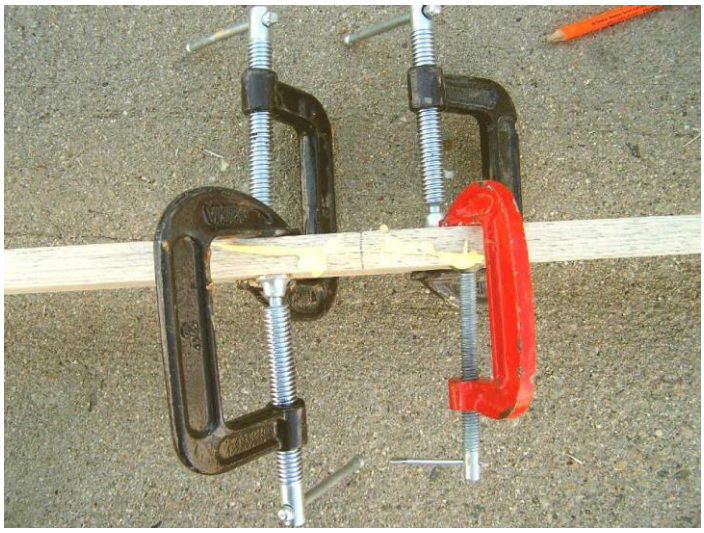
Eventually you will have your board cut all the way and it'll look something like this. Set it aside and cut the other board to match.

Next, stack the two pieces to be spliced, atop each other and clamp them together so that they make one long continuous taper, something like this:

For clean-up work there are several tools that will do the job. Most find a combination of a hand plane, a Sureform tool and a long sanding block will get the taper cleaned up well. A belt or random orbital sander also works well for some. In any event, shoot for a nice, straight, continuous slope when you are finished. Any waves in the surface will be gaps in your glue joint and will weaken the overall joint.

Check the joint before gluing. It must "dry-fit" our pieces together. Measure the thickness in the middle of the joint and slide the boards around until you have your desired thickness, in this case is 3/4". After you have your pieces where you want them make a mark across the gap with a pencil.

Ideally you should use two-part epoxy for this joint. There are other synthetic glues that will make the joint strong enough, and these photos are of a joint glued with Titebond II, but epoxy will always be the strongest option. To glue, mix the adhesive according to the manufacturer's instructions, and spread it evenly across the face of the inclined surfaces. Then bring the joint together ensuring they align to your pencil mark. Clamp the pieces in place with the appropriate force for the adhesive used, but also be very aware of the straightness of the board. Allow the glue to cure fully before removing the clamps.



The amount of work involved in finishing the joint depends on the intended use. If it is to be used as a chine log, sheer clamp or similar part on a painted boat then simply scrape off the glue, sand it with some 40 grit and it's ready to use. If it will be a varnished and used as an aesthetic part of the boat, put additional time and effort into making it attractive, you can spend additional time sanding and more finely finishing the surface.

The total working time invested to turn the two 72" boards into one 138" board in the illustrations was about 15 minutes and that included stopping to take the pictures. If multiple pieces were being scarfed, and no photo essay was being staged, an average about 10 minutes per joint would be your total time invested in this procedure.

I hope this tutorial has been helpful. Have a wonderful day.

-George S.