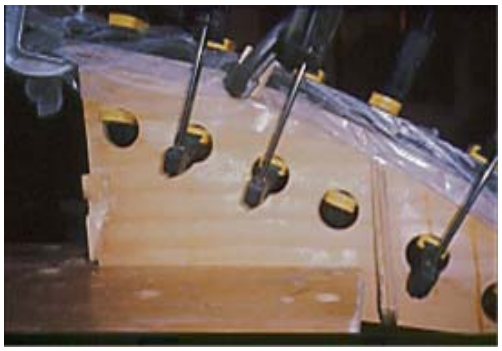
Building Inside and Outside Stems

Photo #1

Photo #2

Photo #3

Photo #4



Rip 12 - 1/8 in. strips from a 5-foot cedar plank, and 12 – 1/8 in. strips from a hardwood, usually mahogany.

Note: by cutting thin you will not require any steaming of the wood.

Cut large enough holes in your end forms to accommodate clamps. **(Photo #1)** Clamp the end forms into a vice. **(Photo #2)** If you can do both at once, do so.

Note: We strongly urge you read the safety material that should have been provided when you purchased your epoxy resin. Distributors should provide a full manual about the product. Always wear latex or plastic gloves and ventilation protection when working with resins. An allergic reaction can occur from contact exposure.

Mix up a small amount of resin with a medium hardener as per instruction ratios. Brush resin onto both sides of four strips of cedar and stack up with a fifth one on top and a sixth one on the bottom. Wrap this stack in wax paper and set side. Repeat this procedure for six strips of hardwood and also wrap in wax paper. **(Photo #3)**
The wax paper will prevent the stacks from sticking to each other or to the forms when you clamp and bend.
Stack the bundle of hardwood on top of the cedar stack and place both on top of one of the stems. Attach to the end form with trigger clamps, C-clamps or bar clamps using large holes in forms. Have extra length hang over both ends. This will be cut off later. **(Photo #4)**

Note: clamp from both sides of end form as this will help to prevent the stack being pulled to one side or the other. It will also help if you use small blocks and clamps on either side of the stack to keep them aligned on top of each other. (Photo #5)

Repeat this whole procedure for the other end form. Leave the stem assemblies clamped overnight to allow the resin to completely set.

Photo #5

Photo #6

Before removing stems the next day, tear back the wax paper and mark on the stems where the stems extend beyond the forms. Remove stems and separate all four stacks. Tear off all wax paper and set outside stems aside. **(Diagram #1)**

Shaping Inside Stems

The inside stems will end up being permanently attached to the inside of the boat. The strips will be glued to them in the building process at the bow and stern of the kayak. For the strips to lay flat against the inside stems, the stems need to be beveled and shaped with a Surform, spoke shave, plane and/or sandpaper. The resulting shape will end up somewhat triangular with varying degrees along its length. **(Diagram #2)**
Note: be sure to wear eye protection when scraping or planning wood with edges of epoxy

Temporarily attach the inside stem to the end form with clamps with the end form attached to the boat mold. You will not need to clamp in every hole, just enough to hold it firmly while you plane it. Use a medium length batten placed along the forms to determine the bevel required for the strips to lay flat on the inside stem.

Begin with the top of the stems, as the angle you will need to cut is the same as the top of the forms that the bow and stern end forms attach to. Increase the angle as you go down its length. Remove and replace clamps as you go. **(Photo #6)**

Hint: You can also shape the bevel that is required as you build your boat. Clamp the inside stem to the end form after you have attached all forms and shape the angle required as you put strips on the boat. Just keep ahead of the strips enough so you can get your tools in there. In this method, the angle required will be evident as the strips are put on the boat.