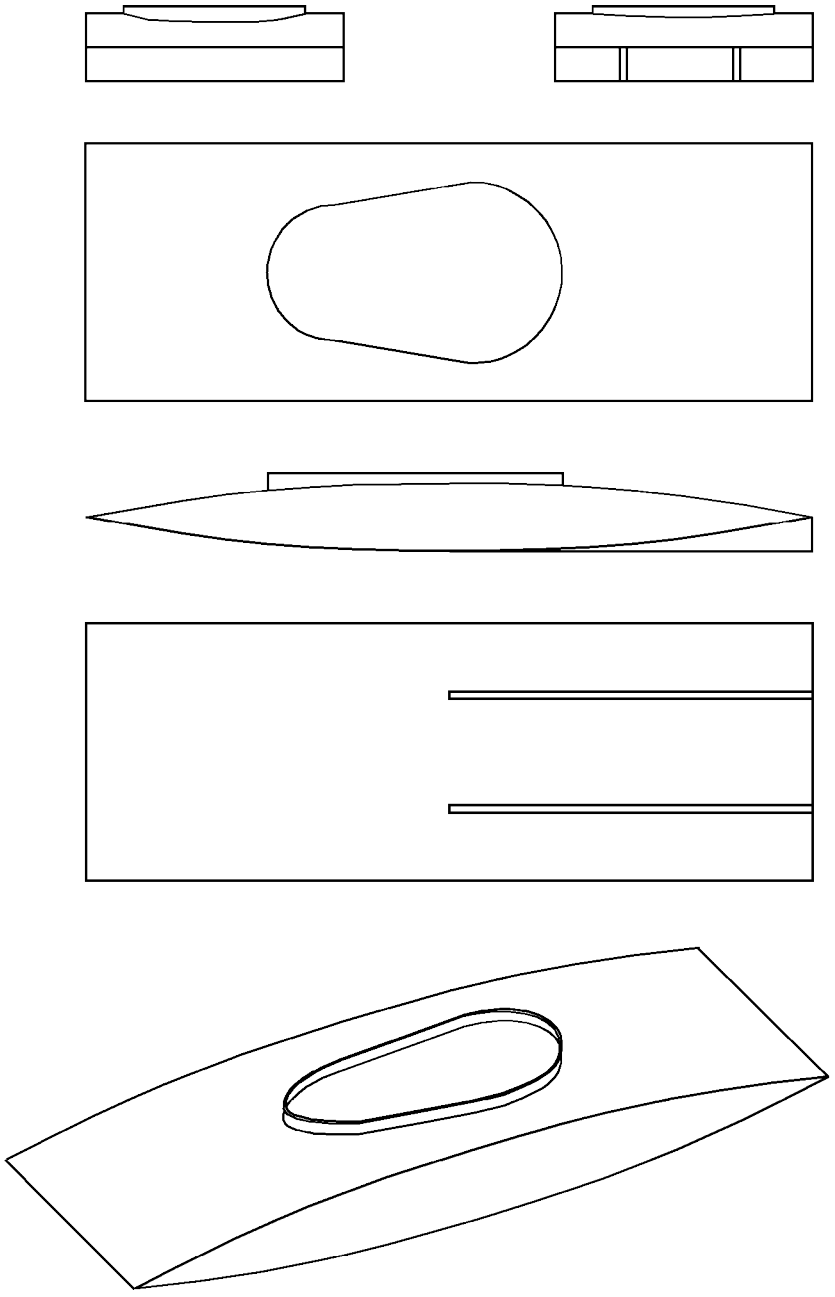
Building a Tik-Tak Kayak

A novelty boat made from 2 sheets of plywood and an 8' 2x4



Info, Caveats, and Recommendations

I am not a boat designer, I am not a craftsman. The TTK was born from a fever dream – I simply could not shake the idea of having a kayak that slid over the top of the water rather than plow through it. I built two prototypes, this manual is the refinement of both.

The TTK is a novelty boat – it serves no purpose than to be a 'different' project that will get someone on the water cheaply and quickly. To use it on anything other than calm, flat water is to court danger and possible - even probable – death or disability.

The boat can probably be built in a weekend or two. Once the pieces are cut, it would be a suitable project for children (with supervision, of course.)

Bill of Materials:
(2) sheets of exterior plywood, 5.2mm Luaun is probably most suitable as it is lighter than 1/4” ACX.
(1) 8' 2x4 of sufficent quality as to let you rip (2) knot-free 1x2s (easier to find than you'd think)

Glue
Epoxy is always the preferred glue, but it is overkill on a project like this.
Where the mating surfaces are smooth and there is good clamping pressure (attaching chine logs to the sides,) water resistant or water proof PVA glues like TiteBond II or III is recommended.
Anytime there might be a gap or large pieces are being fitted together (sole, deck, skegs, coaming) an expanding polyurethane construction adhesive like PL Premium is recommended. Even glues like Gorilla Glue, Ultimate, and the like will work.

A note about Gluing:
My preferred method of assembly is to use 1” coarse thread drywall screws with fender washers to hold everything together while the glue cures. Once cured, I remove all the screws and fill the holes with toothpicks dipped in glue.

Fasteners: Even on a cheap-o boat like this, stainless steel or corrosion resistant screws are recommended. The only place that should need screws is the skegs – they take a beating.

These plans are offered free of cost. Always remember: You get what you pay for. Best of luck – Take pictures.

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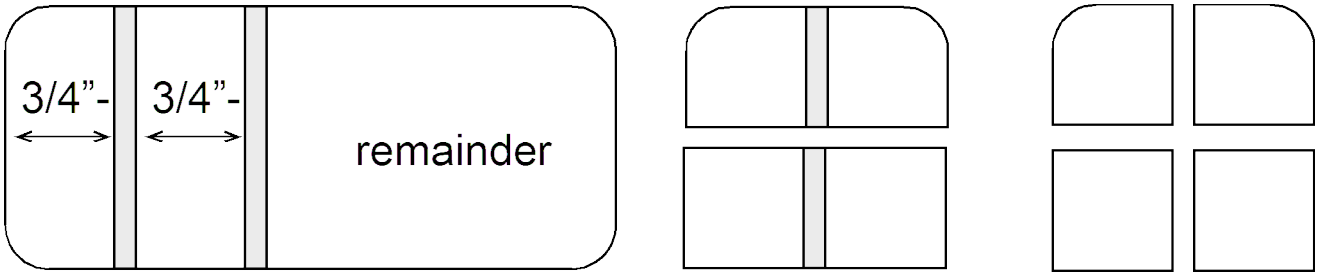
The Timbers

Chine logs, stems, and stanchions

Make the Chine Logs:
Start with a standard 8' 2x4. The chine logs will be bent to shape for the sides and will be under some stress. Find a 2x4 with at least 1-1/2” of knot free wood along one edge.

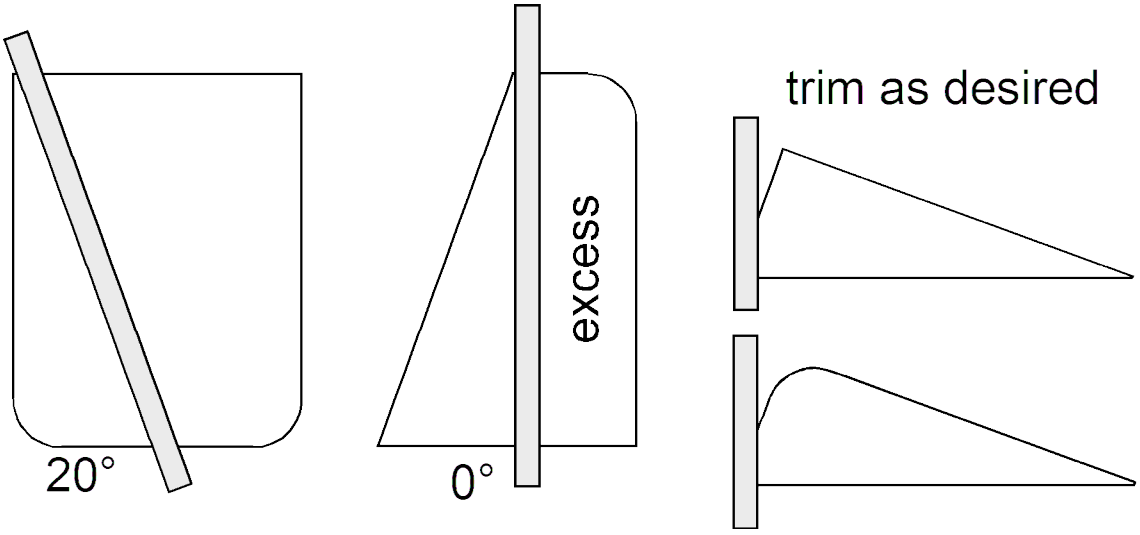
The stems and stanchions will not be under stress and can be as knotty as necessary.



Use a tablesaw, circular saw with a guide, or snap a line and try to follow it. The goal is to get (4) 8' long, fairly knot-free sticks that end up being a little less than 3/4” square.

Make the Stanchions:
Cut a 9” stick from the remainder and rip it into 2 pieces, ~3/4” x 1-1/2”. Save the scrap.

Make the Stems:
Cut a 32” stick from the remainder, then trim it to shape as shown. Save the scrap.



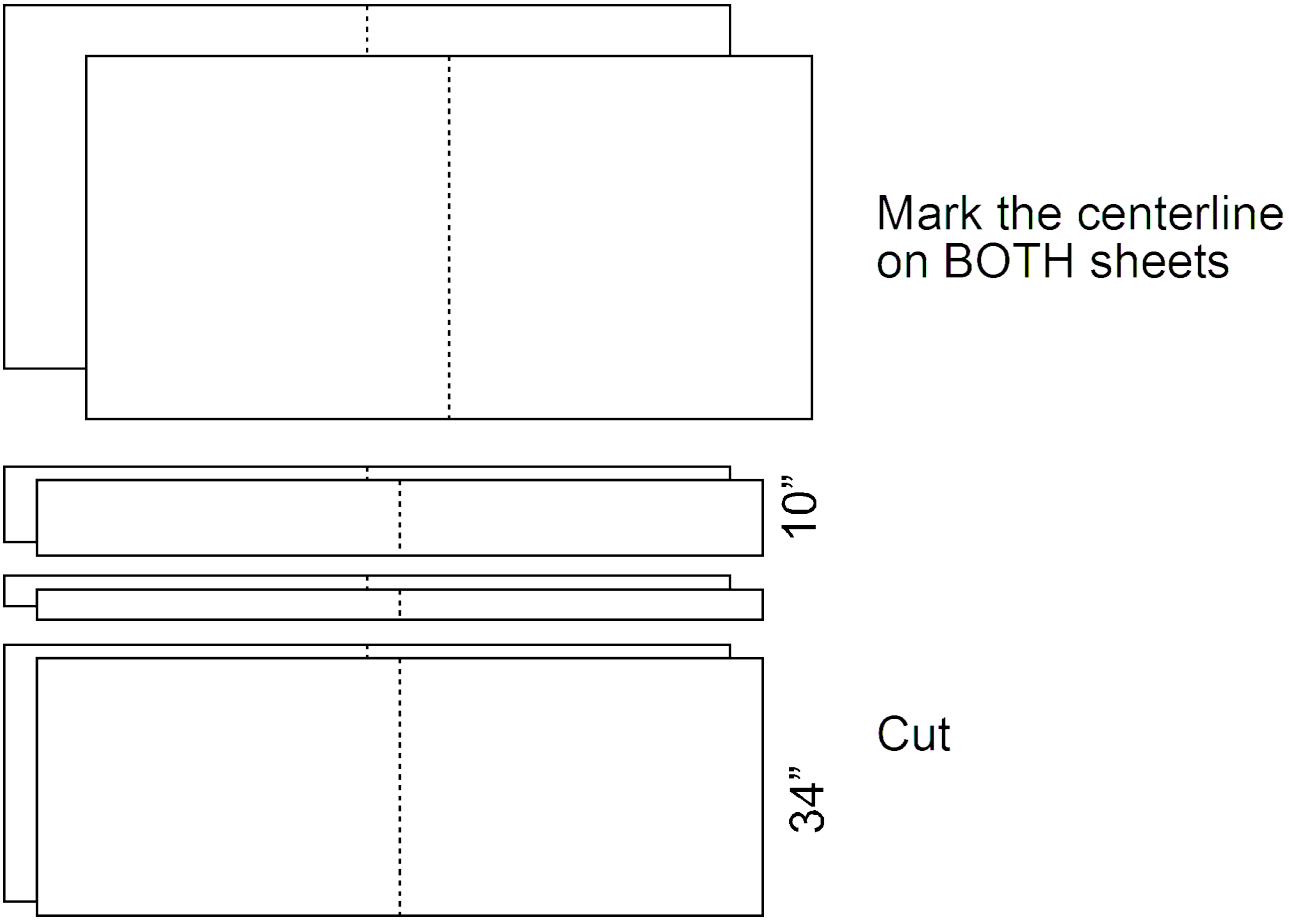
The Plywood

Sides, sole, deck, and skegs

NOTE: Always mark on the 'bad' side of the plywood. The bad side is the interior of the boat, the good side is the exterior.

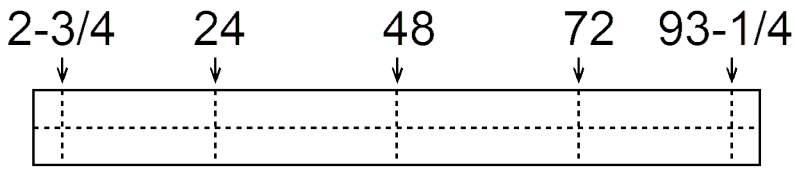
Initial Cuts

Clearly mark the centerline of on both sheets – this will become a reference mark that will be used throughout the construction. Keep the remainder for the coaming.



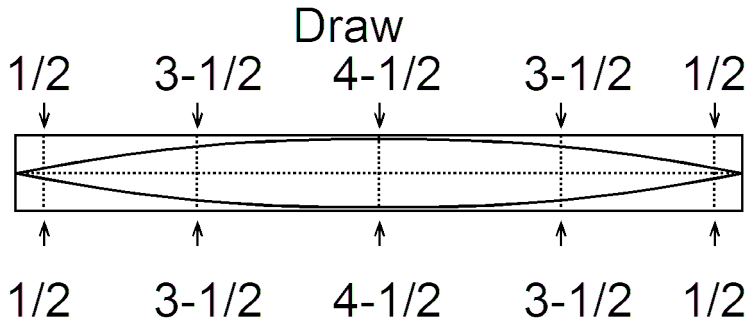
Lining Out the Sides

Take one of the 10” planks and mark it down the centerline, then make the station marks as shown.

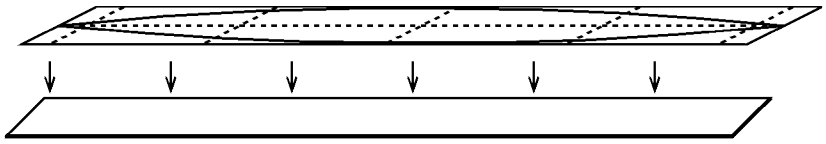


The Sides and Skegs

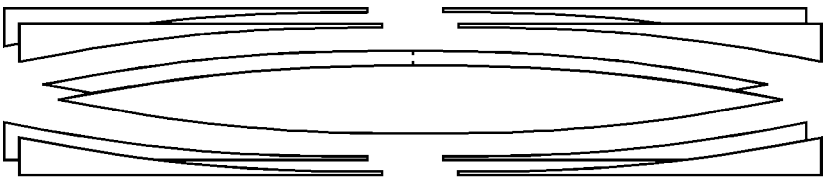
Lining out the Sides - Continued
Measuring up (and down) from the centerline, make marks on the stations.
Drive a finish nail into each mark
Use one of the chine logs as a batten and clamp it to the nails.
Trace along the edge of the chine log to get the shape of the side.



Cutting the sides
The sides need to be mirror images of each other – the 'good' face of the plywood is the exterior of the boat. The sides also need to match fairly well to reduce construction problems. To make exact mirror images, clamp both side pieces together – face to face – and cut them both at once.

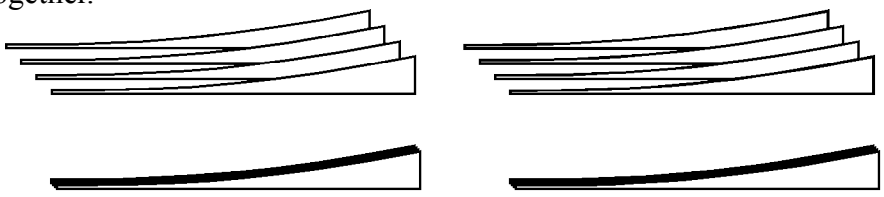


Clamp tightly - face to face



Cut

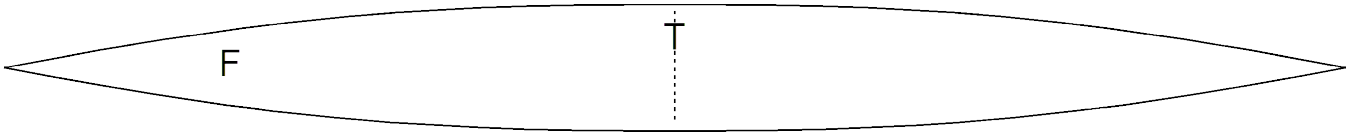
Making the Skegs
The scraps from the cutting of the sides become with twin skegs. Match (4) pieces for each skeg, glue and clamp them together.



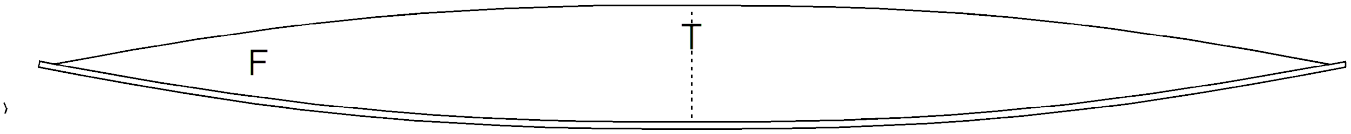
Glue and clamp

Attaching the Chine Logs

Insure Mirror Images
To reduce confusion during assembly, mark one edge “Top” and one end “Forward” on each side.



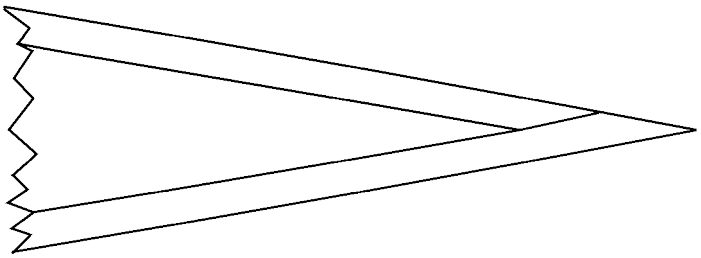
Attaching the Chine Logs
Mark the center of each chine log.
Attach the bottom chine log first.



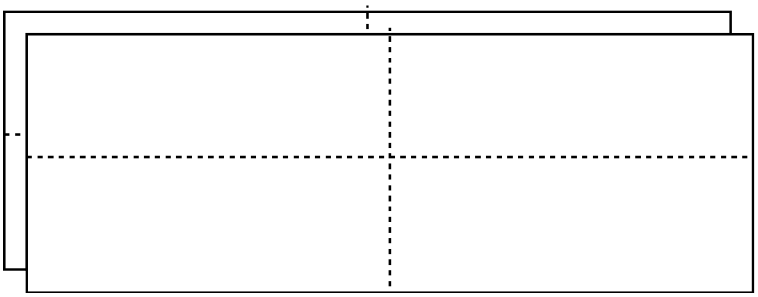
Starting in the center, glue and screw the chine logs to the inside of sides.
Match the edge as closely as possible while still following the natural bend of the chine log - the surfaces will be sanded/smoothed later.

NOTE: Use screws as often as needed to get a tight fit – usually one every 6” or so.

Trim off the excess and attach the top chine. The ends will be trickiest, but an exact fit is not necessary – just get it close.



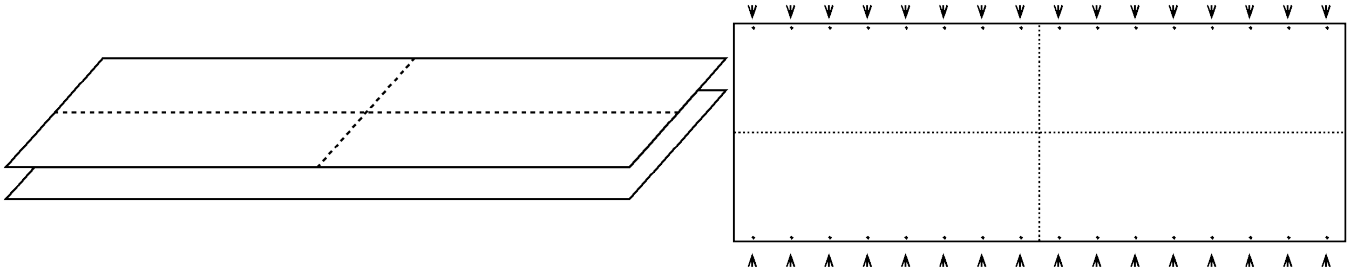
Preparing the Sole and Deck
Mark the centerline of each panel



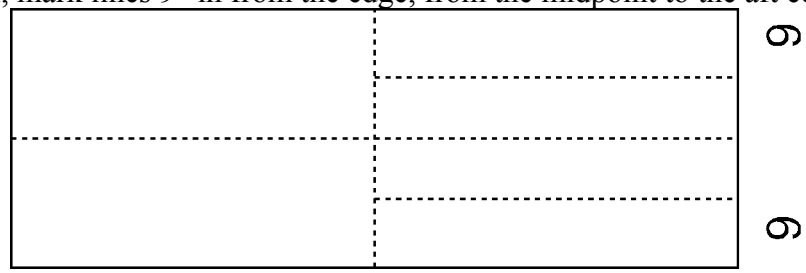
Select one panel to be the sole (bottom) the other will be the deck (top)

Preparing the Deck and Sole – Continued

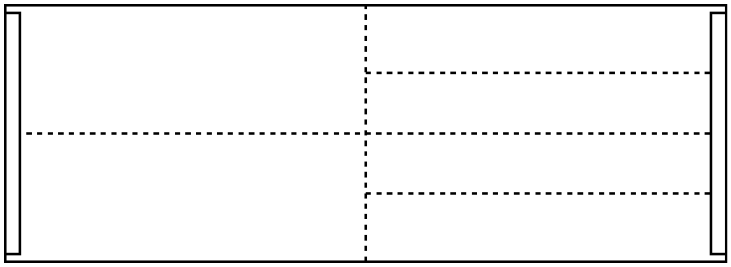
Predrill Screwholes for the Chines
Stack the sole and deck face to face. Predrill screw holes all along the edge, about 6” apart and about 1/2” to 5/8” in from the edge.

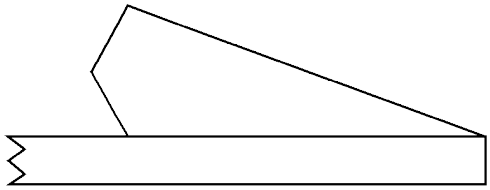


Preparing for the Skegs
On the bottom panel, mark lines 9” in from the edge, from the midpoint to the aft edge.

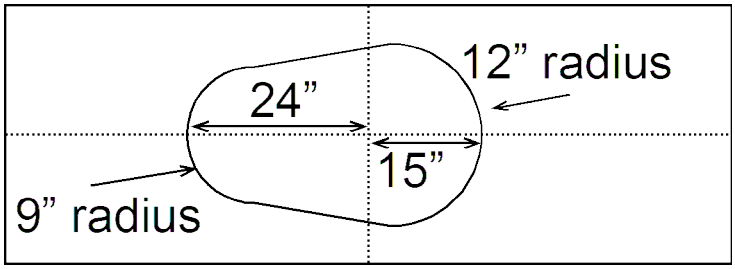


Attaching the Stems
On the bottom panel, glue and screw the stems with the pointy edge matching the edge of the panel. Stem is centered on the panel



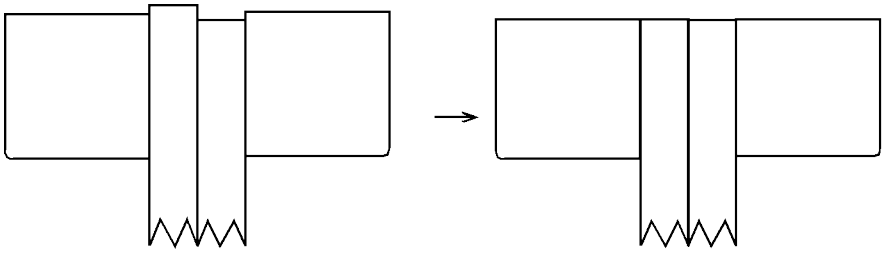


The Hatch
On the deck panel, draw the hatch as shown.
Take care in cutting, the cutout will be kept and used to reinforce the bottom.

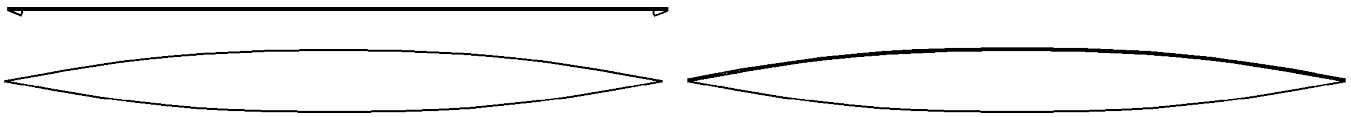


Assembly

Finishing the Sides
When the glue has cured, clamp the sides together, face to face, top to top, and plane/sand them to match. Do both edges, top and bottom.

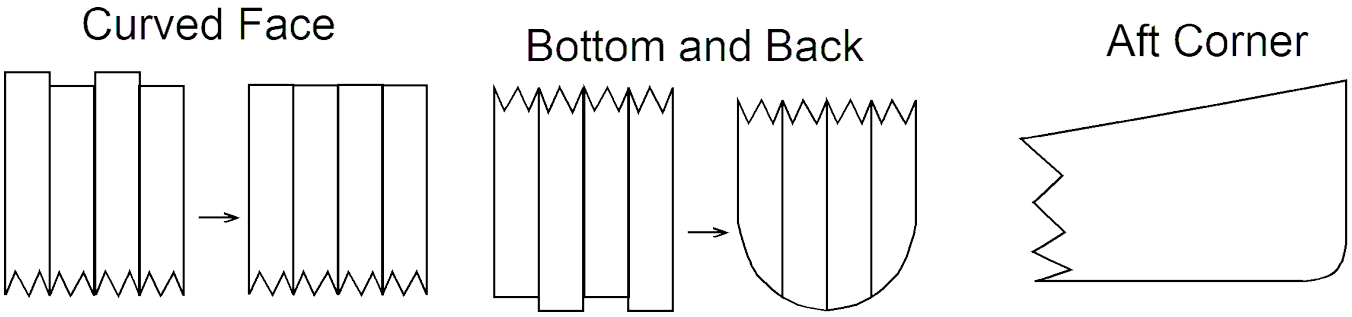


Attaching the Sides to the Bottom
Prop up the sides - upside down - so they are standing. 'Dry Fit' the bottom (without glue) to practice placing the bottom on the sides. Make sure the center of the bottom lines up with the centermark on the sides.
Apply a liberal amount of glue on one of the sides. Place the bottom on the side. Start in the middle and work towards the ends, screwing the bottom down, carefully lining up the edges.

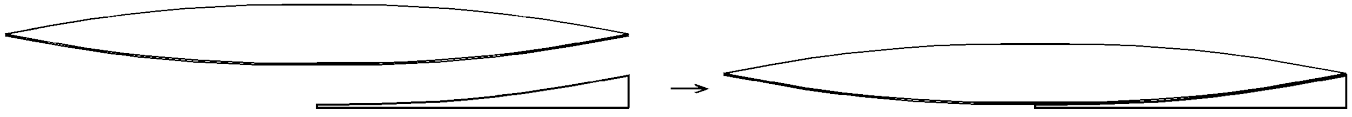


Repeat glue and screw with the other side

Finish the Skegs
Smooth the inner surface of the skegs, round the exterior edges, and put a nice rounding on the corner.

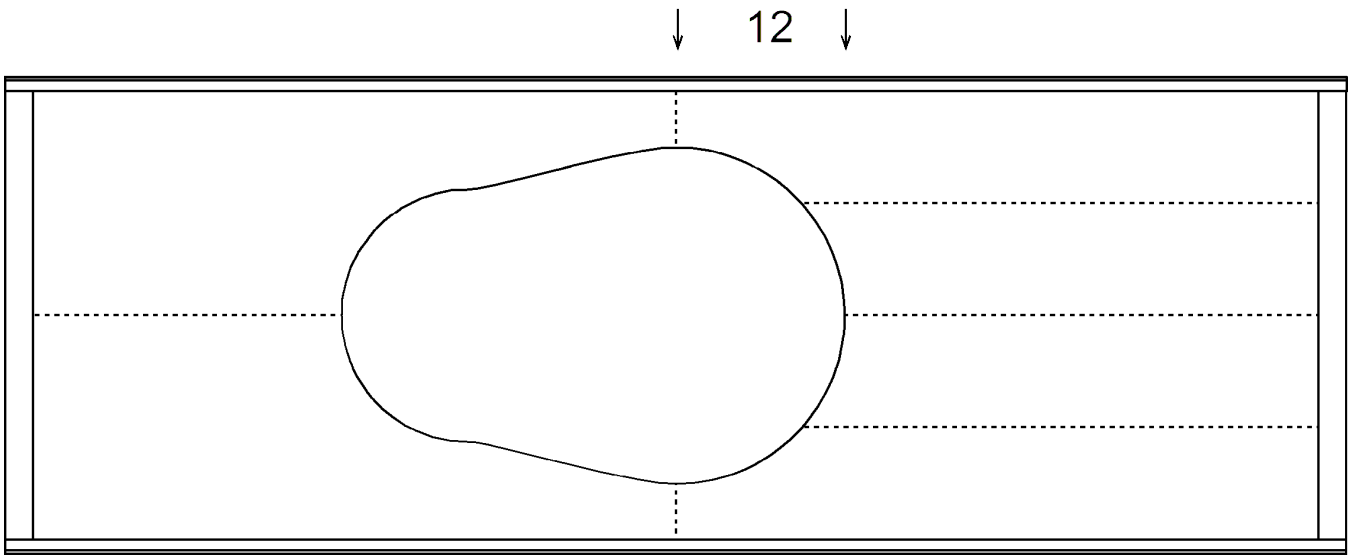


Attach the Skegs
Predrill some holes along the guidelines drawn earlier. Center the skegs on the holes. Using liberal amounts of glue, glue and screw the skegs to the bottom.

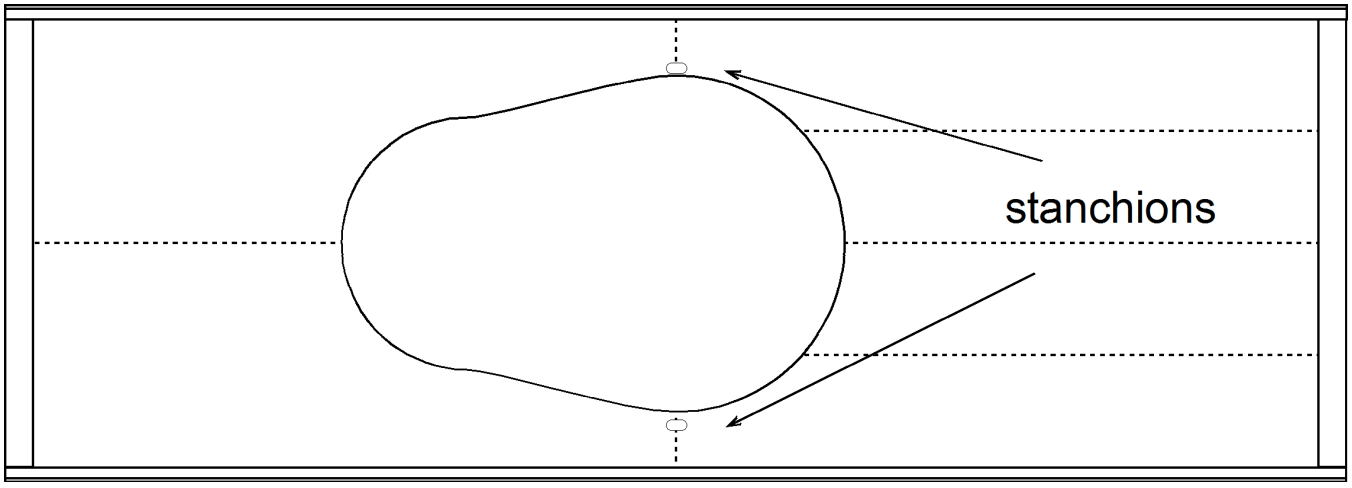


Assembly – continued

Reinforcement
To prevent paddlers from cracking the bottom when entering or exiting the boat, glue the cutout from the hatch into the position shown



Attach the Stanchions
To provide shape for the curve of the deck and support the thin decking when paddlers are entering and exiting the boat glue and screw the the stanchions on the centerline, about 4” in from the outside edge of the boat.

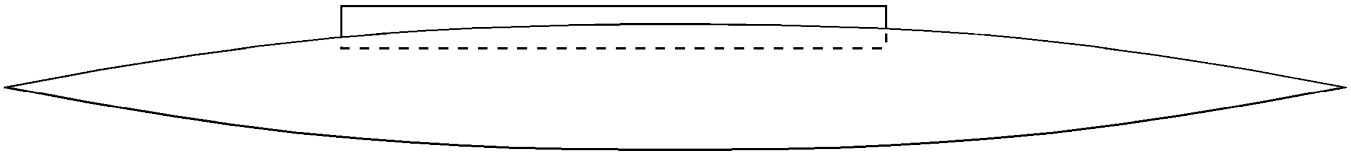


Paint
To protect the interior from water damage and increase the life of the boat, paint all interior, non-glueing surfaces of both the sole and the deck. Estimate the position of the stanchions for the deck (dry fit and mark.) Make sure to leave 1” along the interior sides and 2” at the ends of the deck. Also leave a 1” perimeter around the interior of the hatch.

Assembly and Finishing

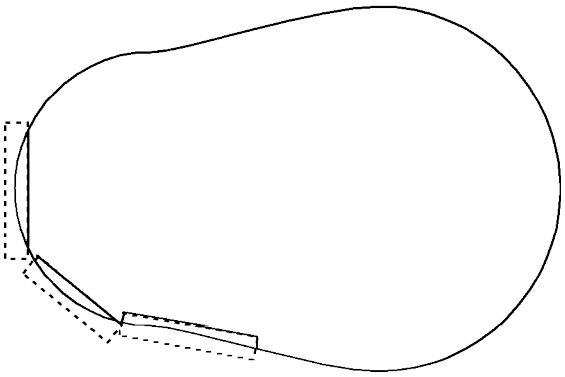
Attach the Deck
When the interior paint has dried, use liberal amounts of glue (PL Premium is recommended) to attach the deck to the sides, stems, and stanchions.

Coaming
The coaming goes around the inside edge of the hatch to help prevent water from coming inside when the boat takes some water over the bow.

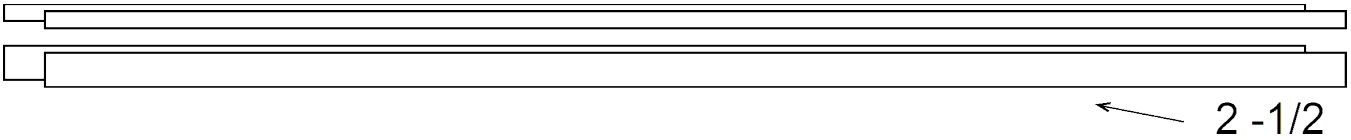


One (of many) ways to add a coaming to your boat is described below:

Create the Backers
Rip the remaining pieces of the 2x4 into 1x2s. Hold the pieces up under the opening for the hatch and trace the curve. Cut the curve from the piece and glue the piece to the underside of the hatch. Continue all along the perimeter.



Rip the Coaming
Coaming height is personal preference. Shorter coaming makes entry/exit easier but provides less splash protection. For durability, the coaming should be 2 layers of ply thick. It will take ~115” of material to make a coaming all around the cockpit hatch and there is 192” of unused plywood left over. One way to get enough material to have an acceptable coaming would be to rip the remaining ply into a 2 1/2” piece and a ~1 1/4” piece

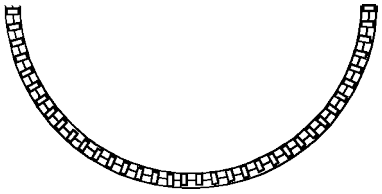


Finishing It Up

Make it Bendable
There are several ways to make wood bendable. One way is to cut grooves every 1/2” or so almost completely through the wood, saving just the last ply.

NOTE: The pieces will most likely crack or even break when glued and screwed into position. To save time, you can just put grooves over a 30” section for the bow curve and a ~39” section for the aft curve, then piece straight, ungrooved pieces in between.

Install the Coaming
Glue and clamp (or temporarily screw) the first layer with the intact surface facing outward. Using liberal amounts of glue, glue and clamp (or screw) the second layer (overlapping any seams) with the intact surface facing inward.



Final Steps
Remove any unwanted screws, fill any holes (toothpick dipped in glue works well), sand and smooth all corners and edges, fill any gaps with caulk, paint, and enjoy.