CABBS Mini-Skiff

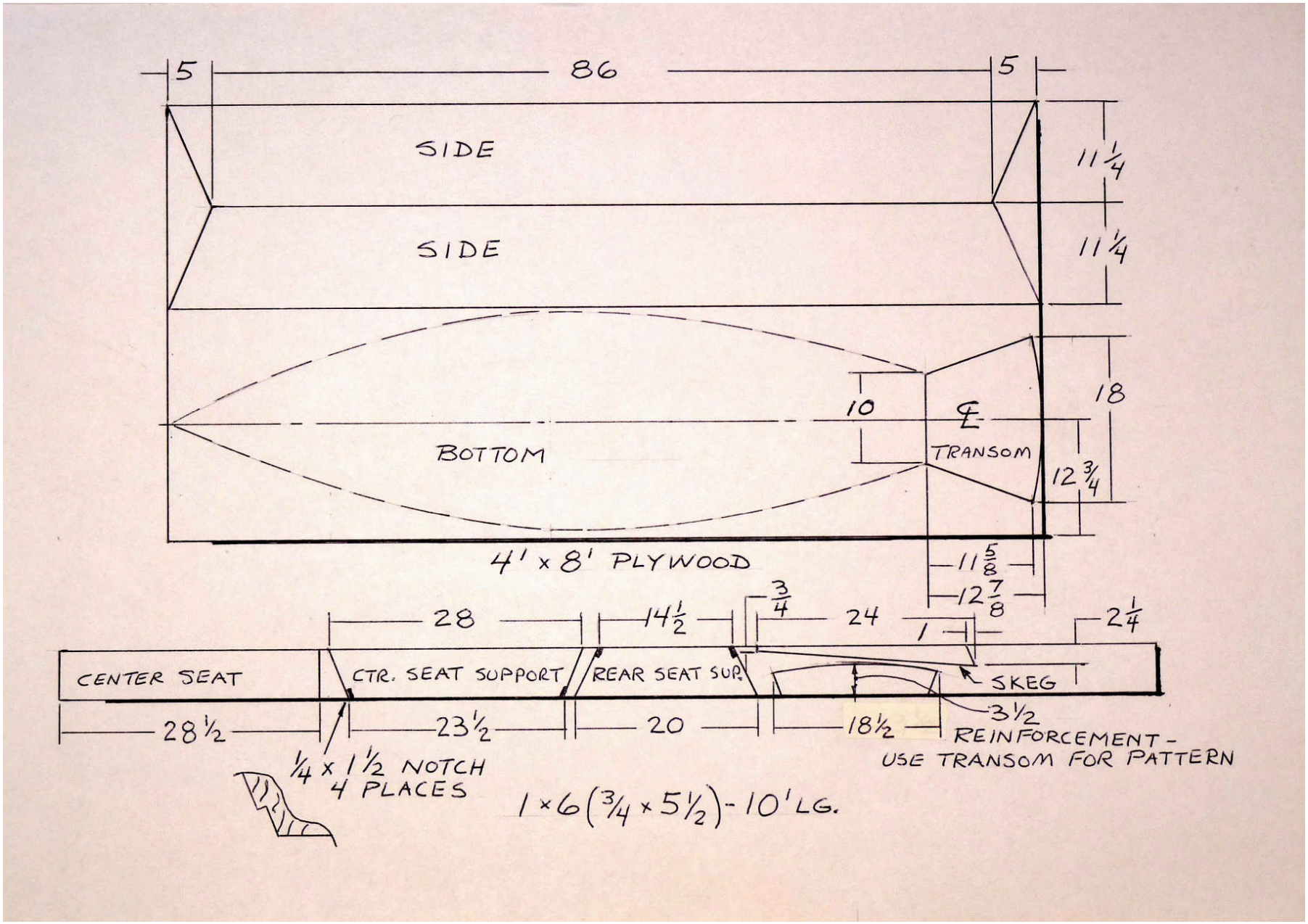
A children's boat from ONE 4' x 8' sheet of plywood
(And a few other pieces of wood)

INTRODUCTION: The innovative amateur boat builders of CABBS have once again put together a simple boat that any parent or grandparent would find easy to build with a child. Its concept and build instructions are similar to the CABBS Optimist Dinghy which has become so popular with amateur builders around the world. This Mini-Skiff, like the CABBS Opti, is a 'screw and glue' design using a common construction adhesive rather than epoxy and therefore safer for children to build. Its simple graceful lines are a delight to build and to be seen on the water. The boat will provide lots of fun but should only be used under adult supervision. All children using it must wear a life jacket.

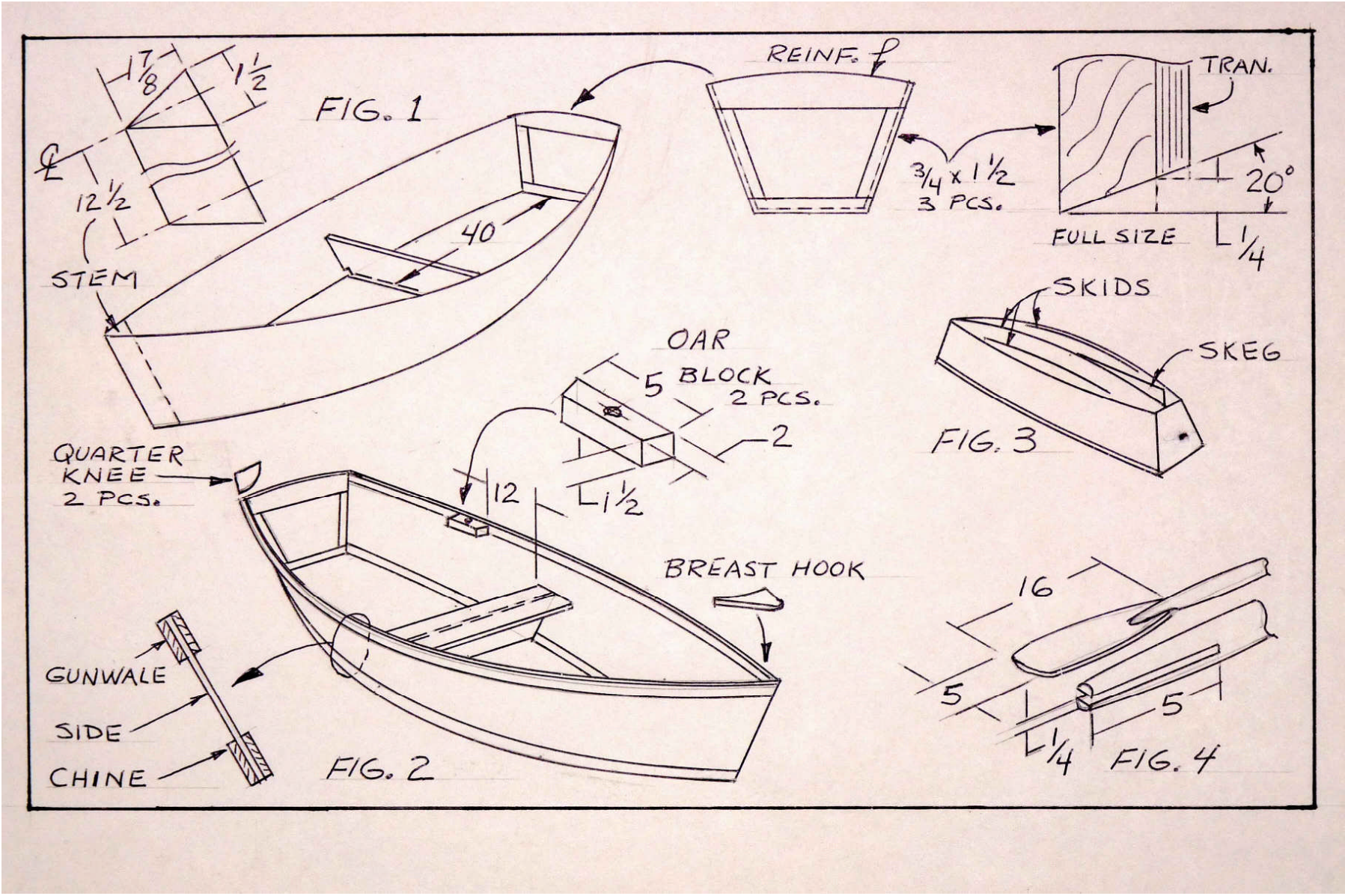
MATERIALS:
The following wood materials can be obtained at most "big box building suppliers" but we find that local small lumber yards have a better selection of materials and know their products. Tell them what you are building and they will always help.

One sheet ¼ - 4' x 8' Luan (underlayment) plywood		**TOOLS:**
One piece 2 x 6 – 10' lg. SPF		Cordless drill and #2 Phillips bits
One piece 1 x 6 – 10' lg. Poplar or SPF		#2 Phillips hand screw driver
		7/64" dia. drill for screw pilot holes
Four 10oz tubes – PL Polyurethane Premium construction adhesive		Hand reciprocating (jig) saw
One qt – mineral spirits		Hand circular saw (a table saw makes it easier)
Rubber, Vinyl or Nitrile gloves		Power sander
Safety glasses		Small C-clamps
Tweezers (for splinters, yes it is a wood project)		Caulking gun
One box of 100 - #8 x ¾ lg. Flat head Phillips wood screws		Block plane
One box of 100 - #8 x 1 1/4 lg. Flat head Philips wood screws		Sandpaper, 80 and 120 grit
One box of 100 – ¾ lg. ring shank nails (panel nails are OK)		
Two 1 ½ diameter closet poles		
Exterior Latex primer paint		
Exterior Latex house or porch paint		
Paint rollers and brushes		
Rags for clean up		
Small putty knife or paint stir sticks or tongue depressors.		
One small child (grandchildren do nicely)		

CUT SHEET


5
86
5
SIDE
SIDE
11 1/4
11 1/4
BOTTOM
10
℄
TRANSOM
18
12 3/4
4' x 8' PLYWOOD
11 5/8
12 7/8
3/4
28
14 1/2
24
1
2 1/4
CENTER SEAT
CTR. SEAT SUPPORT
REAR SEAT SUP.
SKEG
28 1/2
23 1/2
20
18 1/2
3 1/2
REINFORCEMENT -
USE TRANSOM FOR PATTERN
1/4 x 1 1/2 NOTCH
4 PLACES
1 x 6 (3/4 x 5 1/2) - 10' LG.

CONSTRUCTION SHEET



GETTING STARTED: All dimensions are in inches unless shown otherwise. Review the plans thoroughly and then layout the parts on the ply panel and the 1 x 6 as shown on the CUT SHEET. Note that the bottom panel, outlined with dashed lines, has no dimensions. Don't worry its shape will be determined later in the build. It is shown thus so you do not use the panel for some other purposes. Take the time to accurately locate, layout and cut the parts as shown. Time spent here is always rewarded with a fair and square boat.

ADHESIVE: A few notes on the proper use of the polyurethane adhesive. Apply with a caulking gun and then evenly spread the adhesive with a putty knife, plastic applicator or a flat thin piece of wood. Wear your protective gloves and safety glasses. If you get some on your skin, remove IMMEDIATELY with a rag soaked in mineral spirits and wash thoroughly with soap and water. Once cured, it is almost impossible to remove. Which means that all joint "squeeze out" should be removed with the putty knife or a sharpened piece of wood before it cures. It DOES NOT sand very well. Use a rag soaked with mineral spirits to clean the boat and your tools.

To fill holes, cracks and gaps in plywood, make a 1:1 mixture of the PL adhesive and saw or sanding wood dust. Add a little mineral spirits to smooth the mixture and slow the curing time. It expands while curing so to avoid any excess sanding, force it down with a putty knife long enough for it to stiffen. If the glue up situation allows, cover with a piece of HDPE plastic, such as Glad Cling wrap, and clamp a piece of wood over all. It will leave a perfect surface with the rest of the wood.

CONSTRUCTION: Cut the 10 ft. long 2 x 6 to 8 ft.-2 inches long. Both pieces will be used. Rip a ¾ inch thick x 1 ½ inch wide piece from the 8 ft – 2 inch long piece. Use this ¾ x 1 ½ piece for the transom reinforcing and the rear seat risers. Add the reinforcing parts to the ply transom according to the Figure 1 illustration. Use adhesive and ring shank nails to attach the pieces. Let the adhesive cure and then bevel the three straight sides of the transom according to Figure 1.

Rip a 1 ½ inch x 1 7/8 inch piece from the 1 ft.-10 inch piece of the 2 x 6. Cut to length and shape as shown in Figure 1. This is the Stem post.

FORMING THE HULL: Working on a flat surface, a floor or a piece of heavy plywood on saw horses, assemble the transom, side panels and stem post. Referring to Figure 1, start with the transom, match the side panels very carefully and drill pilot holes for a few screws to hold them together. Pull the other end of the panels inward to the stem post, leaving it extend a little above and below the panels. It will be trimmed later. Drill pilot holes and add a few screws to hold them together. This is called a "dry fit up". Again starting with the transom, remove the screws from one side, apply the adhesive and reattach using the SAME screw holes. Do the same for the other three joints and allow the adhesive to cure.

Referring to Figure 1, mark the side panels to the dimension shown. Take the Center Seat Support, align the rear edges with the marked lines, force it down until the bottom is touching your flat surface. This spreads the side panels and forms the shape of the boat. Allow the stem and transom to rise up as it forms the bottom rocker profile, BUT keep the support and its adjacent side panels down tight to the flat surface. You will need help to hold everything in place for the next step. Drill screw pilot holes through the side panels into the support and install the screws. Step back and take a look. Isn't she a sweetly shaped boat? Now remove the support and glue and screw it back together just like the transom and stem.

GUNWALES AND CHINES: Rip 8 pieces of ¼ inch thick x 1 ½ inch wide from the 2 x 6 8 ft. – 2 inch long piece. Try to minimize the number of knots in the pieces. Knots about ½ inch in diameter should be OK, as long as they are not along the ¼ inch edges. These are the longitudinal stringers for the gunwales and the chines. The inside gunwales and chines need to have their ends trimmed to match the angles of the transom and stem post. The outside gunwales and chines can be installed with over hangs on both ends and then trimmed after installation. Attach the gunwale pieces one at a time. Using clamps, you can glue the pieces and get a tight fit without the need for screws. Trimming the ends as required, making a tight fit to the top of its support, install the Center Seat. Be sure to glue the seat ends to the side panels. (By now you should know how to screw and glue the joints.)

Turn the hull over. Attach the chine pieces in the same manner as the gunwales. Using a straight edge that spans the maximum width of the bottom, fair the bottom of the chines using a block plane or a sander until the straight edge lies flat on the chines for the full length of the bottom. Fair the stem post to suit. Also check the fairness along the length of each chine so that no 'waviness' is introduced. This is particularly important if using a sander.

BOTTOM PANEL INSTALLATION: Now go get that piece of ¼ inch ply for the bottom. Mark the center of the transom along its bottom edge. Mark the center of the ply panel width along its UNCUT edge. Match the panel center mark to the transom center mark keeping the uncut edge flush with the rear edge of the transom.

Drill a single screw pilot hole on the center, thru the panel and into the transom. Install the screw. Bend the panel down to the stem post, center it and check for overhang of the bottom along both chines. Adjust to even out the overhang, and install a screw into the Stem post. Use a pencil or ink marker to scribe a line along both chines defining the bottom panel. Check for any serious gaps between the chines and the bottom panel. Mark any for additional fairing. Mark the panel "this side up", remove the panel and carefully saw it to shape just OUTSIDE of the line to leave enough material for fairing to the chines.

On the hull sides at the chines, mark the center of the seat support. On the "this side up" of the panel, draw a pencil "nail line" along both edges of the bottom, ½ inch in from the edge. Return the bottom panel to the hull, realign the fit up holes and install the screws. Check the fit up for gaps and edge overhang. If all is OK, install two more screws into the transom. Remove the bottom, apply adhesive to the hull joints, don't forget the seat support. Install the bottom, beginning with the transom screws and then working forward along both edges placing the ¾ inch long ring shanked nails on 4 inch centers. After about four nails on each side, loosen the stem post screw. This will insure that the bottom will lie flat as your work proceeds forward along the chines. Make sure the bottom pulls down tight with NO gaps at the chines. Scribe a line across the bottom at the seat support marks and nail the joint. Clean up all the glue "squeeze out" both INSIDE and OUTSIDE of the hull. Let the glue cure. Use a block plane or sander to fair the bottom to the chines.

TURN THE HULL UPRIGHT

Fair the gunwales, transom and stem post to themselves, round the stem and all edges to suit. Make cardboard patterns for the two quarter knees and the breast hook. These can be made from ¼ inch plywood and attached to the top of the gunwales OR you could use ¾ inch material and inlet them flush with the gunwales for a really good looking job. Cut the two oar blocks and drill to suit the oarlock shank diameter. Install according to Figure 2. At this point the boat construction is done and the finish sanding and painting could be completed, BUT there are some EXTRAS, and who doesn't like EXTRAS!

EXTRAS:

REAR SEAT: Take the Rear Seat Support from the CUT SHEET, and place it in the hull, moving it back towards the transom until it fits snugly against the bottom and sides. Trim a little if required. Add seat risers to both the sides and across the transom. Make these from the ¾ inch x 1 ½ inch piece ripped previously. Fit them in place and bevel the top edges to be fair with the top of the seat support. Do the fairing before you install the risers. Make a cardboard pattern for the seat and cut out of ¼ ply or what-have-you. Screw and glue the seat in place OR add some small blocks of wood to the bottom to keep it from slipping off its supports. Drill a one inch diameter hole in the seat for a finger lift and you have a neat little locker to keep your stuff.

SKEG AND SKIDS: Turn the boat over. See Figure 3. Cut three ¾ inch x ¾ inch pieces 5 feet long from remnants of the 2 x 6. Get the skeg from the CUT SHEET. Mark the centerline of the bottom and two parallel lines as shown in Figure 3. Drill pilot holes along these lines. Apply glue to the skeg and skids then install screws from the inside.

OARS: Refer to Figure 4. Slot the ends of the closet poles, make two ¼ inch thick oar blades from leftover material and assemble with ring shanked nails and glue.

A NOTE OF CAUTION: Young children and deep water can be a tragic mix. DO NOT allow the use of any boat by children WITHOUT direct adult supervision. All children near water MUST WEAR a life jacket. We love our children, keep them safe.

Good Luck and Enjoy!
Hank Vincenti
CABBS