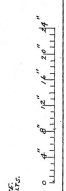


CONSTRUCTION -
 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED



12'6" CATBOAT

This is an ideal boat for children. She is about as safe as a small sailing boat can be, yet is well balanced and reasonably fast, in competent hands. She will carry four people comfortably in her roomy cockpit, and there is space under the deck for lunch, sweaters, and life-preservers.

Construction has been made simple to keep her well within the ability of the average amateur to build. She should always have a good re-sale value, if well built, as boats of this type are always in demand.

The Point Judith (Rhode Island) Yacht Club is using these boats as their junior one-design class for racing and for sailing instruction.

Mold Loft Work

Lay down the lines full size, as explained in Chapter III.

Show the stem, keel, mast step, floor timbers, centerboard and centerboard box, rudder, skeg, and transom knee on the mold loft drawing. Also show the special construction of frames 1 and 2, noting that the mast step is recessed into the floor timbers.

Preliminary Construction

Make the stem, keel, and chines. These three can all be made for you at the mill where you buy your oak lumber. They should be cut out and rabbeted on a circular saw. If you have a power saw you can do it yourself, but it is a hard job to do by hand. The procedure for making these parts is given in Chapter IV.

Lay out each frame and build it as described in Chapter IV. Also make the transom, centerboard box, centerboard, rudder and tiller and the side planks.

Cut out the piece for the skeg as shown on the construction plan. Also get out the stock for the clamps, and plane them on four sides.

Framing and Planking

Bolt the centerboard box to the keel.

Next, bolt on the transom, the transom knee, and the skeg. The bolts go through the skeg and transom knee. If no long bolts are to be had for this job, make your own by threading the ends of a long bronze (not brass) rod and screwing a nut over a washer on each end. Or rivet the outside end over a washer and use a nut and washer on the inside end. Quarter-inch diameter rod is heavy enough. Brass dealers carry a kind of bronze rod known as "free cutting"; this is easy to thread and work, and is recommended. Everdur bronze is stronger, but is harder to work, while the free-cutting bronze is stronger than you really need.

The stem is fastened to the keel with a long wood screw through the keel up into the end of the stem. This holds it in place while you are planking; once the sides are planked, the planking screws will hold the stem securely. The bronze clip, or angle, holding the stem to the keel can be made of the same material as the chainplates, $\frac{1}{8}$ " x 1" Everdur. Screw it on with 1", round head, bronze wood screws.

Bolt frames 10, 9, 8, 4, 3, 2, and 1 to the keel, each with a $\frac{1}{4}$ " bronze carriage bolt through the floor timbers. Have the head of the bolt on the outside, and a nut and washer on the inside. If the bolts are too long, cut off the ends and file them smooth so that no rough edges can scratch you. If there are rough threads anywhere you will be liable to scratch your hands when sponging out the bilge.

Now set up the framework as shown in Plan 12, page 126. Mark the centerline on the floor and lay out the frame stations at right angles to it. Also mark the location of the

stem and the transom. Set up the keel, frames, transom and stem, upside down. Fasten them in place and put in what bracing is necessary to hold the framework rigid. Have the center of the keel directly over the centerline, the frames all square across and plumb.

Fasten on the chines, using one long screw in each frame and one at each end. The forward screw goes into the keel, and the after one into the transom frame.

Cut out the side planks and fit them to the chine and stem. Make good fits here, as these joints have to be watertight. While doing this, the planks may be held in place with clamps or a few screws driven part way in. When you are satisfied with the fit, take off the planks, apply glue to plank and rabbet, and screw them to the framework, beginning at the stem. Use 1" flathead No. 8 screws, spaced about 2½".

Next fit frames 5, 6, and 7 alongside the centerboard box. Fasten the floors to the bed logs of the box with a small block of oak screwed and glued to each, or, better still, with a bronze angle on each side of the floor timber, riveted to the latter and screwed to the bed log.

Do each operation first on one side of the boat and then on the other. Do not complete one side before you start the other. Check occasionally to make sure that both sides are alike.

To plank the bottom, first fit the plywood to the rabbet along the keel. Fasten this joint temporarily and then mark the outline of the chine edge. Cut and fit this edge. Do not make a mistake here: if you cut this piece too small you will have spoiled a big sheet of plywood. Drill for the bottom planking screws, and glue and screw the bottom to the boat, using the same size screws as for the sides.

While the boat is still fastened down to the floor, sandpaper the planking and give it a coat of plywood sealer and a priming coat of paint.

Now turn the boat over and saw off the excess frame ends. Paint the top edge of the side planks with plywood sealer and give the inside of the planking a priming coat of flat white.

Fit the clamps, bolting them through the frames with ¼"-diameter galvanized flat-head bolts, with washers and nuts on the inside, and have the bolt heads flush on the outside. Fit the deck beams by bolting or screwing them to the frames. Fit and fasten the blocks between the frames along the upper edge of the side planks. These are to receive deck edge fastenings.

Bolt in the mast step with four ¼"-diameter galvanized carriage bolts from outside the keel. Finish and paint the step before putting it in. To locate the hole in the step for the heel of the mast, and the corresponding hole in the deck above it, measure along the deck and along the mast step plank from the forward edge of the centerboard box, using the distance shown on your mold loft drawing.

Decking and Finishing

Fair the deck beams by laying a batten across from beam to beam and plane off any high spots. Square the ends of the short beams where they butt against the coaming. Fit the oak block for the mast partner. This block should measure 16" athwartships, 1¼" thick and wide enough to be a close fit between deck beams Nos. 1½ and 2, to which it is securely fastened, in a fore-and-aft direction, by means of a ¼"-diameter galvanized rod on either side of the mast hole. The rods will be threaded at both ends and have washers and nuts. Fit oak blocks under the deck between beams, where cleats are to be located. Fit the chainplate frames and chainplates as shown on the construction plan. Put the mooring eye in the stem. Fit the oak breast hook between the clamps just behind the stem, for the forward end of the deck plank to rest on.

Clean out all the shavings and sawdust and paint the inside of the hull where the deck will cover it.

Mark its outline and fit the deck, glue and screw it in place.

Make the toe rail for the bow, and screw it on.

↳ dowel plugs for
countersunk screws

HOW TO BUILD SMALL BOATS

Screw on the guard rails.

Make the cockpit coaming, fit it carefully, and screw and glue it in place.

Fit the cap on the centerboard box.

Put in the flooring, and seats if you want them, after giving them two coats of paint or varnish.

Bolt on the deck hardware and the rudder fittings.

Install the rudder and tiller, wire rope traveler, centerboard pennant, headstay chainplate, mooring eye, and the boom crutch strap.

Finish the painting, applying a total of at least three coats.

Rigging

Make the mast and the boom as described in Chapter IV, pages 23 to 25. Fit the hardware to these spars.

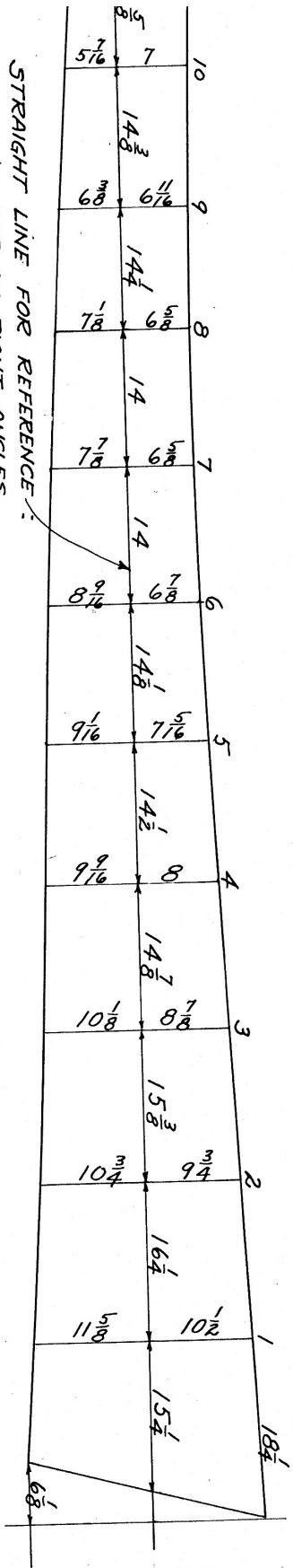
To locate the tangs in exactly the right place, clamp them to the mast, with the shrouds attached, where you think they should be. Open the turnbuckles all the way. Step the mast in the boat and see that the turnbuckle-ends just reach the chainplates. If they are not the right length, try again. When the exact location has been determined, screw them on permanently. Follow the same procedure with the headstay.

Just before you launch her, put on the last coat of copper bottom paint. Be careful not to rub off the wet paint as you put her in the water.

Before going sailing you should let her lie quietly in the water for two days to soak up. During this time you can finish all the little odds and ends. Splice the running rigging neatly, and get everything shipshape for the season. Sailing a dry boat may get her out of shape or do her some other harm, but you can sit in her and wish you were out sailing.

OFFSET TABLE.
HEIGHTS ARE FROM W.L., HALF BREADTHS FROM ϕ ., IN INCHES.

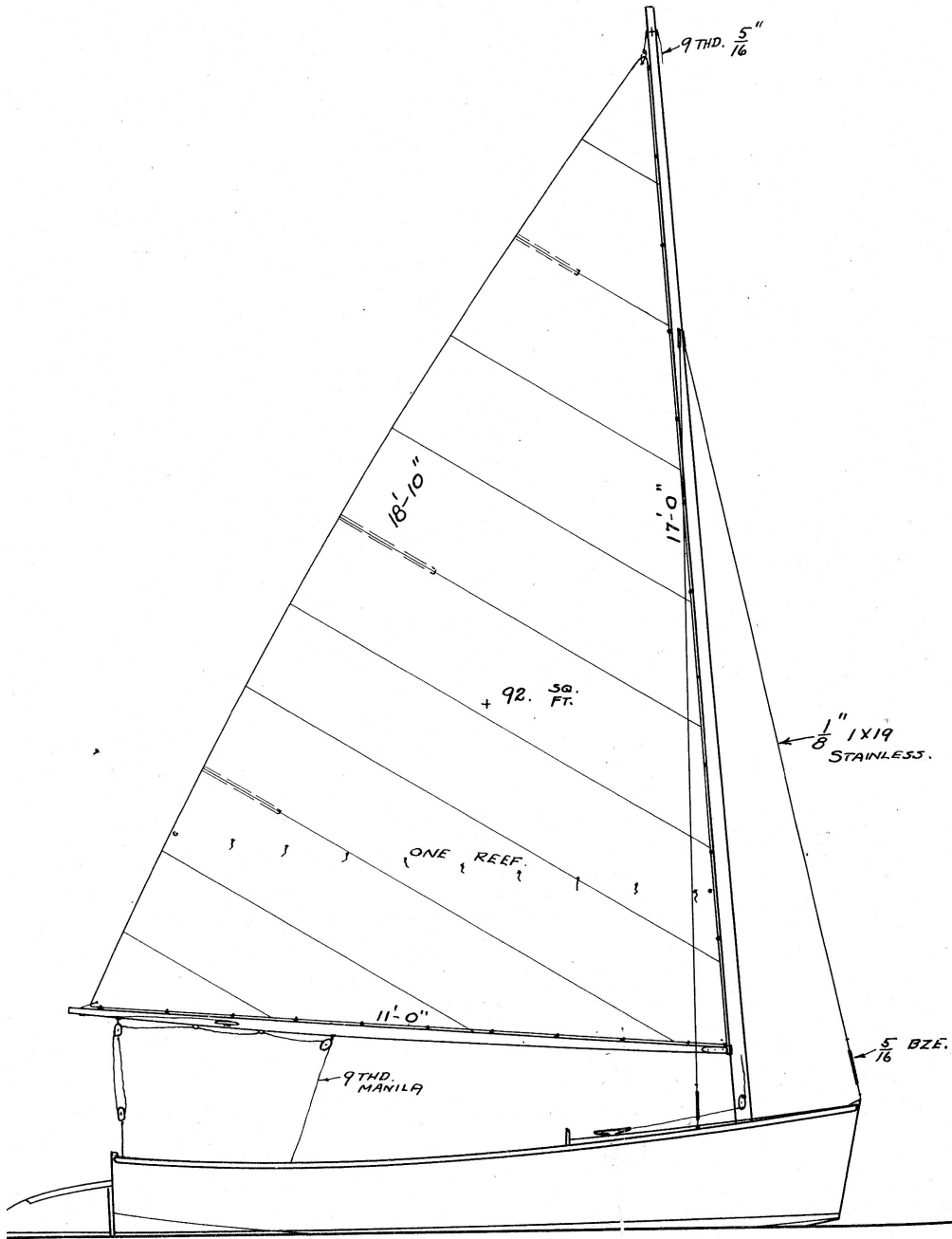
ME →	0	1	2	3	4	5	6	7	8	9	10	T
T SHEER	$25\frac{5}{8}$	$22\frac{7}{8}$	$20\frac{1}{2}$	$18\frac{3}{8}$	$16\frac{5}{8}$	$15\frac{1}{4}$	$14\frac{3}{8}$	$14\frac{1}{8}$	$14\frac{3}{8}$	$14\frac{7}{8}$	$15\frac{3}{4}$	17
CHINE	$1\frac{3}{8}$	$\frac{5}{8}$	$-\frac{1}{8}$	$-\frac{3}{4}$	$-\frac{1}{4}$	$-\frac{1}{3}$	$-\frac{1}{4}$	$-\frac{5}{8}$	$\frac{1}{4}$	$1\frac{3}{8}$	3	$4\frac{7}{8}$
KEEL	$1\frac{3}{8}$	$-\frac{5}{8}$	-3	-5	$-6\frac{1}{2}$	$-7\frac{3}{8}$	$-7\frac{3}{4}$	$-7\frac{1}{2}$	$-6\frac{1}{8}$	$-4\frac{5}{8}$	$-2\frac{1}{2}$	0
DECK	$\frac{1}{8}$	$11\frac{5}{8}$	$19\frac{7}{8}$	$26\frac{1}{4}$	31	$34\frac{1}{4}$	36	$36\frac{3}{8}$	$35\frac{1}{4}$	$33\frac{1}{8}$	30	$26\frac{1}{8}$
CHINE		$7\frac{1}{8}$	$15\frac{5}{8}$	$22\frac{3}{8}$	$27\frac{3}{8}$	$30\frac{3}{4}$	$32\frac{7}{8}$	$33\frac{3}{8}$	$32\frac{3}{8}$	$30\frac{3}{8}$	$27\frac{3}{8}$	$23\frac{5}{8}$
RABBET		$1\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{7}{8}$	3	3	3	$3\frac{1}{4}$	$2\frac{7}{8}$	$2\frac{5}{8}$	$1\frac{7}{8}$	$\frac{7}{8}$



STRAIGHT LINE FOR REFERENCE.
FRAMES ARE AT RIGHT ANGLES
TO THIS LINE.

TRUE SHAPE OF SIDES BEFORE BENDING.

E. I. SCHOCK. KINGSTON, R. I.



SAIL PLAN

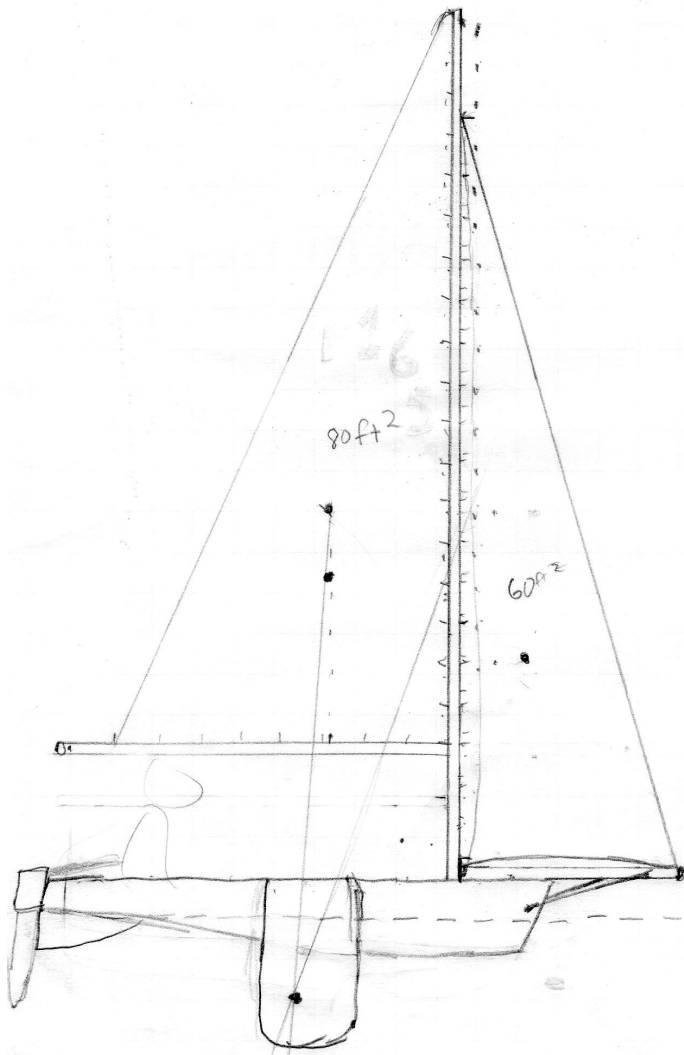
Above is my original sail plan, and below is the sail plan with my redesigned rig.

1:4 1:9

1:2

4:8

□ .25" = 1'



3.5
x 2.3

3.5' x 2.3