

# HA'PENNY



**Midget outboard-powered express cruiser. Length: 18'-0". Beam: 5'-7". Displacement: 1,600 lbs. Speed: 23 m.p.h. with 33-hp. motor.**

**By John G. Kingdon**  
*Naval Architect*

**H**ERE are plans for a pint-sized V-bottom express cruiser that will really get up and go. Under the impetus furnished by a 33-hp. outboard, she'll do 23 m.p.h. with two people aboard. And she'll cruise along economically with this power at 19 m.p.h. Her name? It's taken from a couple of lines in an old English Christmas song that fit the desires of boat-hungry fellows in moderate means: "If you haven't got a penny, then a ha'penny will do. If you haven't got a ha'penny, then God bless you!"

For you boatmen who appreciate the figuring done by a naval architect, here are the results of a few of the calculations we put *Ha'Penny* through: center of buoyancy—2.41 ft. aft of midship; area of waterplane—64.4 sq. ft.; pounds per inch of immersion—343.5; block coefficient—.49; prismatic coefficient—.59; fineness coefficient—.74; speed-length ratio—5.63; moment to change trim 1 in.—133 ft.-lbs.

## Specifications

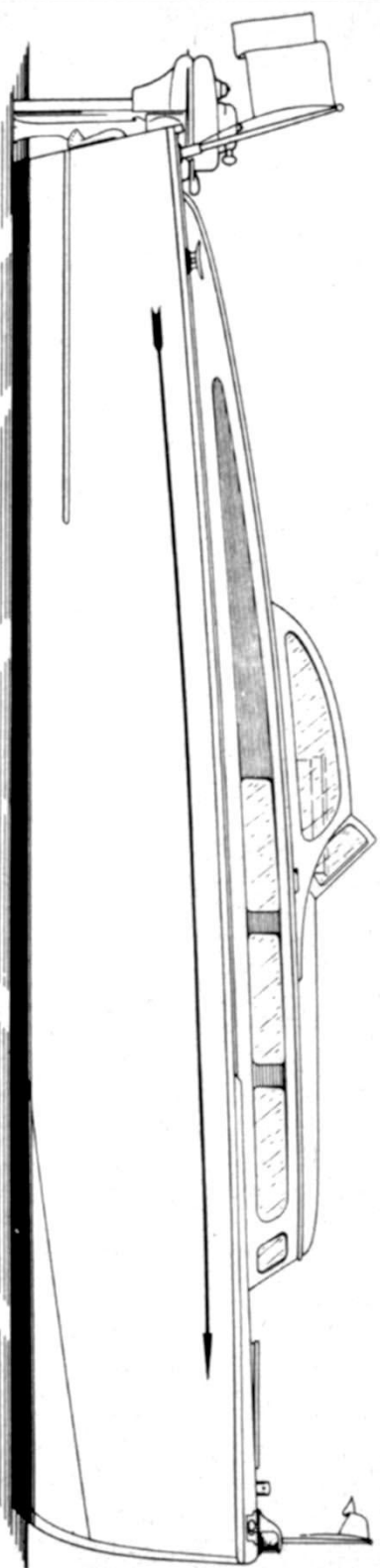
*General: Ha'Penny is a V-bottom boat*

having the following approximate dimensions: Length Over All: 18 ft., 0 in.; Length on Water Line: 16 ft., 11 in.; Beam: 5 ft., 7 in.; Draft of Hull in Loaded Condition: 8 in.

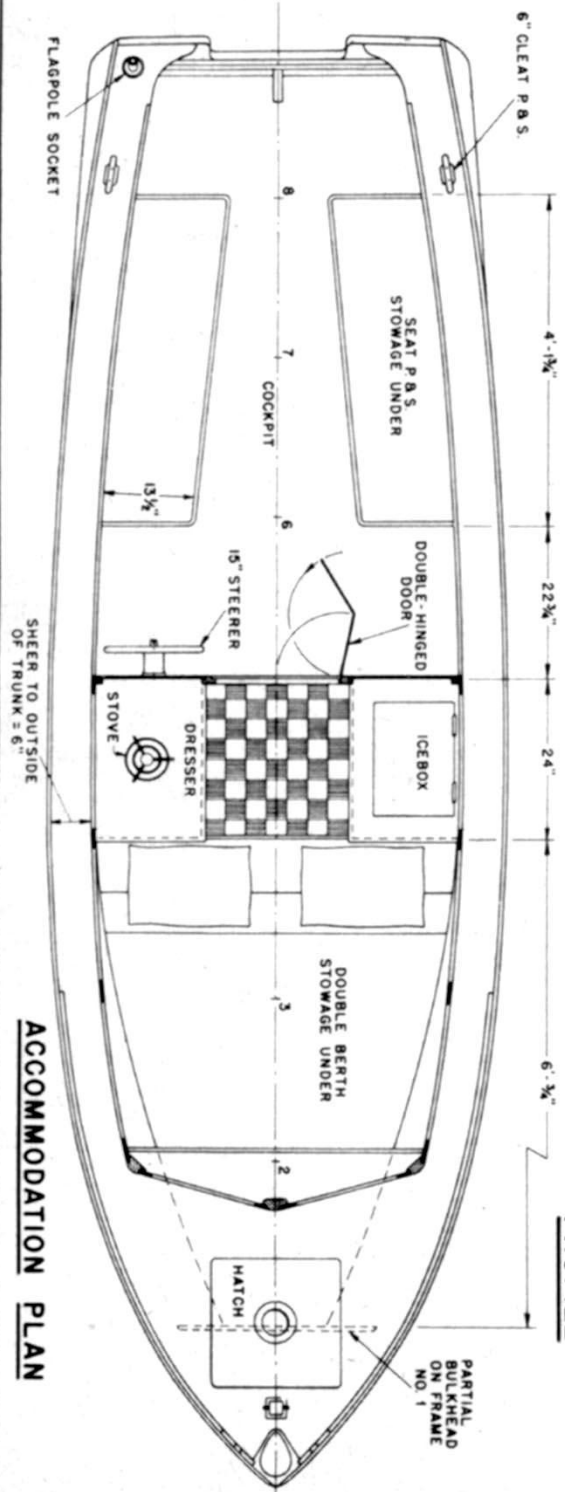
It is presumed that familiarity with boat terms is possessed by the man who is to build her. There is nothing complicated about *Ha'Penny*, but she should not be attempted without at least a modicum of prior boatbuilding experience.

All material dimensions are actual finished sizes, not lumber-yard rough figures. The house stringers, for instance, are specified as being of white oak, surfaced four sides to  $\frac{1}{8}$ "x2 in. When you place the order for them, the mill will run 1x2½-in. or 1x3-in. rough stock through its machinery and come up with nicely finished stuff that will measure exactly  $\frac{1}{8}$ "x2 in.

All faying surfaces should be coated with nonhardening marine glue before being fastened. All inaccessible places, such as below the cabin flooring, are to be painted before they are closed in. Use only the best grades of marine paint and varnish



**PROFILE**



**ACCOMMODATION PLAN**

throughout. Common house paint will not stand up at sea.

**Lines:** Lay down the lines full size on a smooth floor, fairing as necessary.

**Bottom Frames:**  $\frac{3}{4}$ x3 in. **Side Frames:**

$\frac{3}{4}$ x3 in., sawed from 4-in. and 5-in. widths.

**Floors:**  $\frac{3}{4}$ x4 in., 18 in. long in after frames.

Forward, the lengths must be reduced because of the increased deadrise in the hull form.

**Deck Beams:**  $\frac{3}{4}$  and  $1\frac{1}{2}$ x2 in.,

sawed from 2-in. and 4-in. widths. **Hatch**

**Carlings:**  $1\frac{1}{2}$ x2 in. Use  $1\frac{1}{2}$ -in. screws in

the frame assembly. Notch for the keel-

son, seam battens, chines, and clamps.

Don't forget the limber holes in way of the

keelson. Notch the deck beams for the

house stringers and hatch carlings, which

meet them with half-and-half lap joints,

and for the king plank, which is let in flush

with the tops of the beams. The deck beams

just forward and aft of Frame No. 1 are

let into the clamps with half-and-half

joints. The hatch carlings are secured with

2-in. screws.

**Stem and Gripe:** Cut the stem from

$1\frac{3}{4}$ x $7\frac{1}{2}$ -in. material and the gripe from

$1\frac{3}{4}$ x $8\frac{1}{2}$ -in. stuff. Rabbet them to let the

planking in flush and cut recesses behind

the rabbets to take the ends of the chines.

**Bulkhead No. 5:**  $\frac{3}{8}$ -in. plywood, framed

all around except in way of the companion

door with  $\frac{3}{4}$ -in. material. The door frame

measures  $1\frac{1}{8}$ x2 in. and is rabbeted to take

the plywood and the door. Secure the ply-

wood to all framing with  $\frac{3}{4}$ -in. screws on

4-in. centers.

**Transom:**  $1\frac{1}{8}$  in. Made up of three

transverse pieces joined with  $\frac{1}{4}$ -in. ply-

wood splines and plastic resin glue.

**Transom Framing:**  $\frac{3}{4}$ x4-in. stuff along bottom

and  $\frac{3}{8}$ x4-in. material, cut from 6-in. widths,

along sides. At the bottom of the motor

cutout there is a  $\frac{3}{4}$ x3-in. transverse mem-

ber. To support the aft end of the cockpit

flooring, there is another transverse mem-

ber measuring  $\frac{3}{4}$ x2 in. Secure the framing

to the transom with  $1\frac{1}{2}$ -in. screws on 3-in.

staggered centers.

**Stern and Quarter Knees:**  $1\frac{1}{4}$  in. Cut

the stern knee from an 11-in. width and

the quarter knees from 8-in. widths. Notch

the stern knee for the transom bottom

framing and the quarter knees for the

clamps and house stringers. Secure the

transom to the stern knee with six 3-in.

screws and to each quarter knee with four

3-in. screws.

**Keelson:**  $1\frac{1}{4}$ x4 in., tapered forward to

meet the gripe.

**Keel:**  $\frac{3}{4}$ x1 in.

Secure the keelson to each floor with

two  $\frac{1}{8}$ -in. bolts and to the stern knee with

six 3-in. screws. At the bow, the stem,

gripe, keelson, and keel are assembled with  $\frac{3}{8}$ -in. through-bolts. The floor on Frame No. 1 is secured to the gripe with one  $\frac{1}{8}$ -in. bolt. The keel is fastened to the keelson with  $1\frac{1}{2}$ -in. screws on 6-in. centers.

**Stopwaters:**  $\frac{1}{4}$ -in. diameter, two required, driven in slightly undersize holes bored through stem-and-gripe and gripe-and-keel joints in way of rabbet.

**Skeg:**  $\frac{3}{4}$ x3 in., tapered as shown and fastened to keel and keelson with 3-in. screws driven from above on 4-in. centers.

**Chines:**  $1\frac{1}{4}$ x $1\frac{1}{4}$  in., secured with  $2\frac{1}{2}$ -in. screws.

**Clamps:**  $\frac{3}{4}$ x3 in., secured to each frame-head and quarter knee with two  $1\frac{1}{2}$ -in. screws.

**Seam Battens:**  $\frac{3}{8}$ x $1\frac{1}{4}$  in., secured to framing with  $\frac{3}{4}$ -in. screws.

**Bottom Planking:** Spiled for and cut to shape from  $\frac{3}{8}$ x $5\frac{1}{2}$ -in. stock. Start with the garboard strakes and work alternately from side to side out to the chines. Secure to battens with 1-in. copper nails on  $1\frac{1}{2}$ -in. centers, turning the ends of the nails over on the inside. Fasten each plank to each frame with two  $\frac{3}{4}$ -in. screws.

**Breasthook:**  $1\frac{1}{2}$ x $8\frac{1}{2}$  in., shaped as shown. Instead of butting the breasthook against the clamps, it would be better practice to make the ends wider and notch out for the clamp ends, which could then be fastened to the breasthook with  $1\frac{1}{2}$ -in. screws. Secure the breasthook to the bow with two  $\frac{1}{4}$ x5-in. bolts.

**Side Planks:** Spiled for and cut to shape from  $\frac{1}{8}$ x $5\frac{1}{2}$ -in. material. Start with the strakes at the chines and work alternately from side to side up to the sheerstrakes. Use fastenings of the same size as employed on the bottom planking.

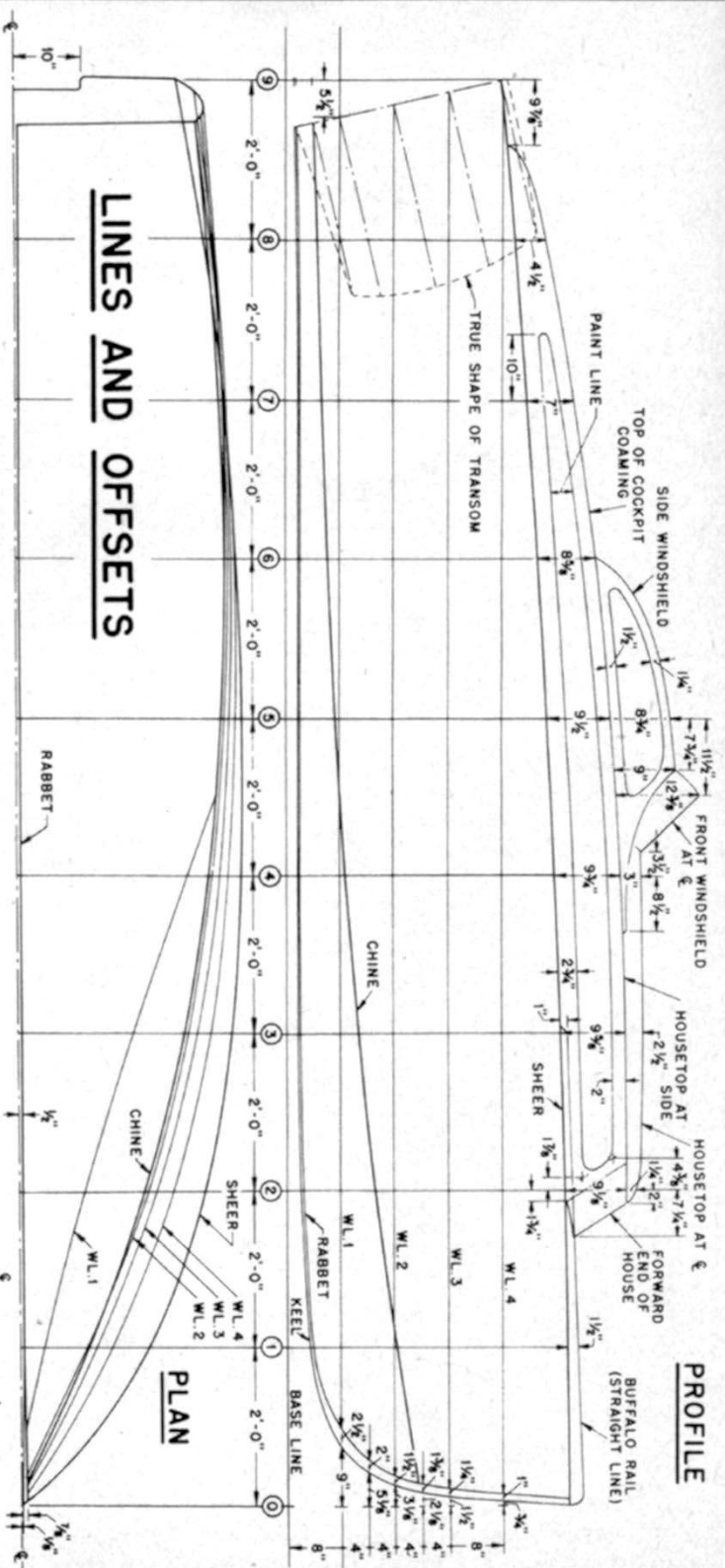
**King Plank:**  $1\frac{1}{8}$ x $4\frac{1}{2}$  in., in two lengths. Lay in notches in the deck beams and form a half-and-half joint with the breasthook. Secure each length with three  $1\frac{1}{4}$ -in. screws at each end.

**House Stringers:**  $1\frac{1}{8}$ x2 in. Set in half-and-half joints at the deck beams and secured to beams and quarter knees with 2-in. screws.

**Main Deck:**  $\frac{3}{8}$ -in. plywood. The after ends lie in  $\frac{3}{8}$ -in. rabbets in the quarter knees. Secure to structural members with  $\frac{3}{4}$ -in. screws on 4-in. centers.

**Buffalo Rails and Bow Filler:** Taper the  $1\frac{1}{8}$ x2-in. buffalo rails as shown in the lines drawing and set them in rabbets in the 2x6-in. bow filler. Shape the bow filler to match the camber of the foredeck and to provide a proper base for the combination light. Secure the combination light and bow filler with bolts through the breasthook and king plank. Fasten the

# PROFILE



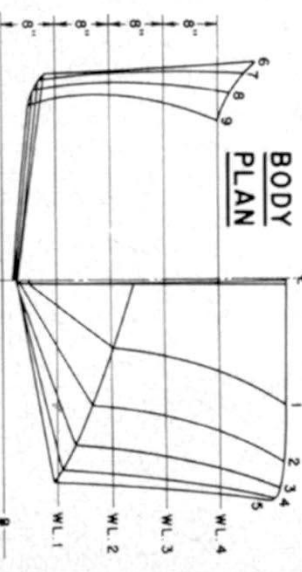
# LINES AND OFFSETS

## TABLE OF OFFSETS

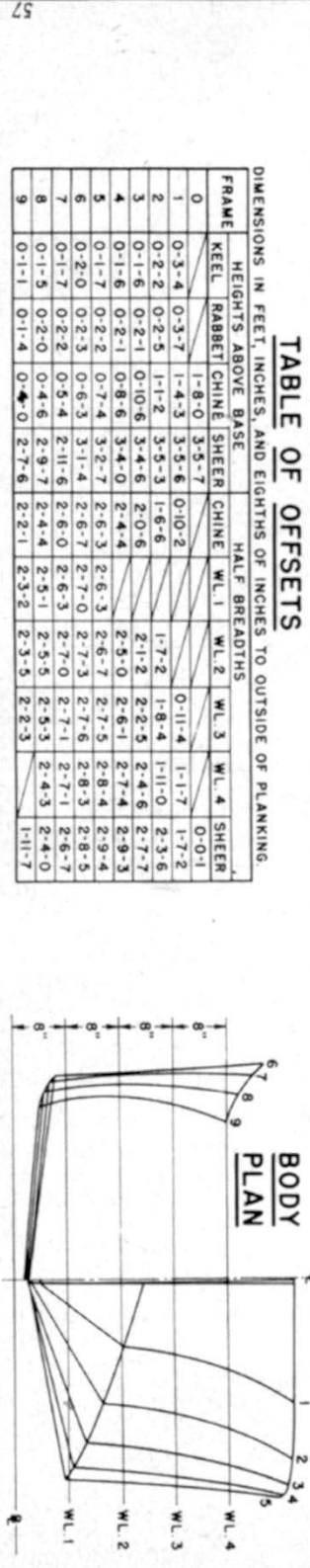
DIMENSIONS IN FEET, INCHES, AND EIGHTHS OF INCHES TO OUTSIDE OF PLANKING.

FRAME	HEIGHTS ABOVE BASE	HALF BREADTHS				SHEER			
KEEL	RABBET	CHINE	SHEER	CHINE	W.L. 1	W.L. 2	W.L. 3	W.L. 4	SHEER
0	0-3-4	0-3-7	1-8-0	3-5-7	0-10-2	0-11-4	1-1-7	1-7-2	0-0-1
1	0-2-2	0-2-5	1-1-2	3-5-3	1-6-6	1-7-2	1-8-4	1-11-0	2-3-6
2	0-1-6	0-2-1	0-10-6	3-4-6	2-0-6	2-1-2	2-2-5	2-4-6	2-7-7
3	0-1-6	0-2-1	0-8-6	3-4-0	2-4-4	2-5-0	2-6-1	2-7-4	2-9-3
4	0-1-7	0-2-2	0-7-4	3-2-7	2-6-3	2-6-3	2-6-7	2-7-5	2-8-4
5	0-2-0	0-2-3	0-6-3	3-1-4	2-6-0	2-7-3	2-7-6	2-8-3	2-8-5
6	0-1-7	0-2-2	0-5-4	2-11-6	2-6-0	2-6-3	2-7-0	2-7-1	2-6-7
7	0-1-5	0-2-0	0-4-6	2-9-7	2-4-4	2-5-1	2-5-5	2-4-5	2-4-0
8	0-1-1	0-1-4	0-4-0	2-7-6	2-2-1	2-3-2	2-3-5	2-4-3	2-4-0
9	0-1-1	0-1-4	0-4-0	2-7-6	2-2-1	2-3-2	2-3-5	2-4-3	2-4-0

# BODY PLAN



# PLAN



buffalo rails to the filler with 1 3/4-in. screws and to the clamp with 3-in. screws on 6-in. centers.

**Hatch Coaming:** 1 1/2 x 1 1/2 in., rabbeted out to take the hatch framing and secured with 1 1/2-in. screws in the rabbets on 4-in. centers into the deck.

**Hatch:** 5/8-in. stock secured to a 1 1/2 x 1 1/2-in. frame with 1 1/4-in. screws on 4-in. centers. Rabbet out the hatch framing to match the coaming and install a 4-in. dead-light in the hatch.

**Cabin-Front Framing:** 1 1/8 x 4 in. Three upright and two transverse members are required. The uprights are rabbeted to take the cabin sides and front and are rounded off as shown. The transverse members sit atop the uprights and in notches in the cabin-top clamps. They are rabbeted to take the forward end of the plywood cabin top and extend 5/8 in. beyond the cabin-top clamps to provide landings for the cabin sides. Secure each upright with two 1/4-in. drift bolts driven from below. Fasten the transverse members to the uprights with six 1/4-in. drift bolts.

**Cabin Sides and Front:** 5/8-in. material. Each side consists of a sill, a plate, and four stiles. Each front consists of a sill, a plate, and two stiles. The sills and plates are grooved to take tongues in the stiles. The sills are secured to the house stringers with 1/4-in. bolts (it will be necessary to put filler pieces beneath the deck in way of the front sills) and the stiles and rails are fastened in place with plastic resin glue. Aft of the cabin, the cabin sides are continued to form cockpit coamings. Here, the sides are in single widths with their ends scarphed into the ends of the above-described members. The cockpit coamings are fastened to the house stringers with 1/4-in. through-bolts. All fastenings are on 12-in. centers.

**Cabin-Top Clamps:** 3/4 x 2 in., notched for half-and-half joints at cabin-top beams. Secure to cabin sides with 1 1/4-in. screws on 6-in. staggered centers and to cabin-front framing with 3-in. screws.

**Cabin-Top Beams:** 5/8 x 1 1/4 in. and 1 1/4 x 1 1/4 in., cut from stock 4 in. wide.

**Companion-Hatch Carlings:** 1 1/4 x 1 1/4 in., notched for half-and-half joints at cabin-top beams. Secure beams and carlings with 2-in. screws.

**Cabin Top:** 1/4-in. plywood secured with 3/4-in. screws on 4-in. centers.

**Companion-Hatch Coaming:** 1 1/4 x 1 1/4 in., rabbeted out to take hatch framing and secured with 1 1/4-in. screws in the rabbets on 4-in. centers into the deck.

[Continued on page 60]

## BILL OF MATERIALS

(Approximate Quantities Required.  
No Joiner Work Included.)

### Exterior or Marine-Grade Plywood

- 1 sheet, 1/4" x 4'-0" x 8'-0"
- 3 sheets, 3/8" x 4'-0" x 8'-0"

Specify that all wood listed below is to be used for boat-building and is to be air dried to a maximum of 15% moisture content. All hardwood is to consist of first, second, and select grades only. All softwood is to consist of A and B grades only.

### White Oak or Longleaf Yellow Pine

- 2 pieces, S4S 3/8" x 3", 8'-0" long
- 1 piece, S2S 1/2", 12" wide, 2'-1" long
- 1 piece, S2S 1/2", 6" wide, 2'-1" long
- 2 pieces, 1/2" x 1", 20'-0" long, finished half round
- 64 square ft., S2S 3/4", random widths and lengths
- 2 pieces, S4S 13/16" x 2", 14'-0" long
- 1 piece, S4S 13/16" x 4 1/2", 2'-6" long
- 1 piece, S2S 1 1/8", 11" wide, 14'-0" long
- 1 piece, S4S 1 1/8" x 4", 16'-0" long
- 1 piece, S2S 1 1/8", 8" wide, 24" long
- 1 piece, S2S 1 1/8", 11" wide, 2'-3" long
- 1 piece, S4S 1 1/2" x 1 1/2", 12'-0" long
- 1 piece, S4S 1 1/2" x 2", 3'-0" long
- 1 piece, S2S 1 1/2", 4" wide, 12'-0" long
- 1 piece, S2S 1 1/2", 8 1/2" wide, 3'-0" long
- 1 piece, S2S 1 3/4", 7 1/2" wide, 3'-4" long
- 1 piece, S2S 1 3/4", 8 1/2" wide, 3'-0" long
- 1 piece, S2S 1 13/16", 4" wide, 7'-0" long
- 1 piece, S2S 2", 6" wide, 7" long

### Sitka Spruce

- 20 pieces, S4S 3/4" x 1 1/4", 20'-0" long
- 2 pieces, S2S 5/8", 4" wide, 10'-0" long
- 1 piece, S4S 3/8" x 2", 12'-0" long
- 2 pieces, S4S 3/8" x 3", 20'-0" long
- 1 piece, S4S 1 1/8" x 1 1/4", 14'-0" long
- 2 pieces, S2S 1 1/4", 1 1/4" wide, 20'-0" long
- 1 piece, S2S 1 1/4", 4" wide, 5'-0" long

### White Cedar or Mahogany

- 1 piece, 5/16" x 3/4", 10'-0" long, finished half-round
- 2 pieces, 5/16" x 5/8", 16'-0" long, finished half-round
- 12 pieces, S2S 5/16", 5 1/2" wide, 20'-0" long
- 12 pieces, S2S 3/8", 5 1/2" wide, 20'-0" long
- 1 piece, S4S 3/8" x 2", 4'-6" long
- 2 pieces, S4S 3/8" x 3", 16'-0" long
- 2 pieces, 1/2" x 1 1/2", 16'-0" long, finished quarter-round
- 2 pieces, S2S 1/2", 9" wide, 8'-0" long
- 1 piece, S2S 1/2", 10" wide, 6'-6" long
- 2 pieces, S2S 5/8", 2" wide, 10'-0" long
- 2 pieces, S2S 5/8", 3" wide, 12'-0" long
- 2 pieces, S2S 5/8", 4" wide, 10'-0" long
- 2 pieces, S2S 5/8", 9 1/2" wide, 8'-0" long
- 1 piece, S4S 1 1/8" x 2", 8'-0" long

### White Pine

- 1 piece, 1/4" dia., 12" long

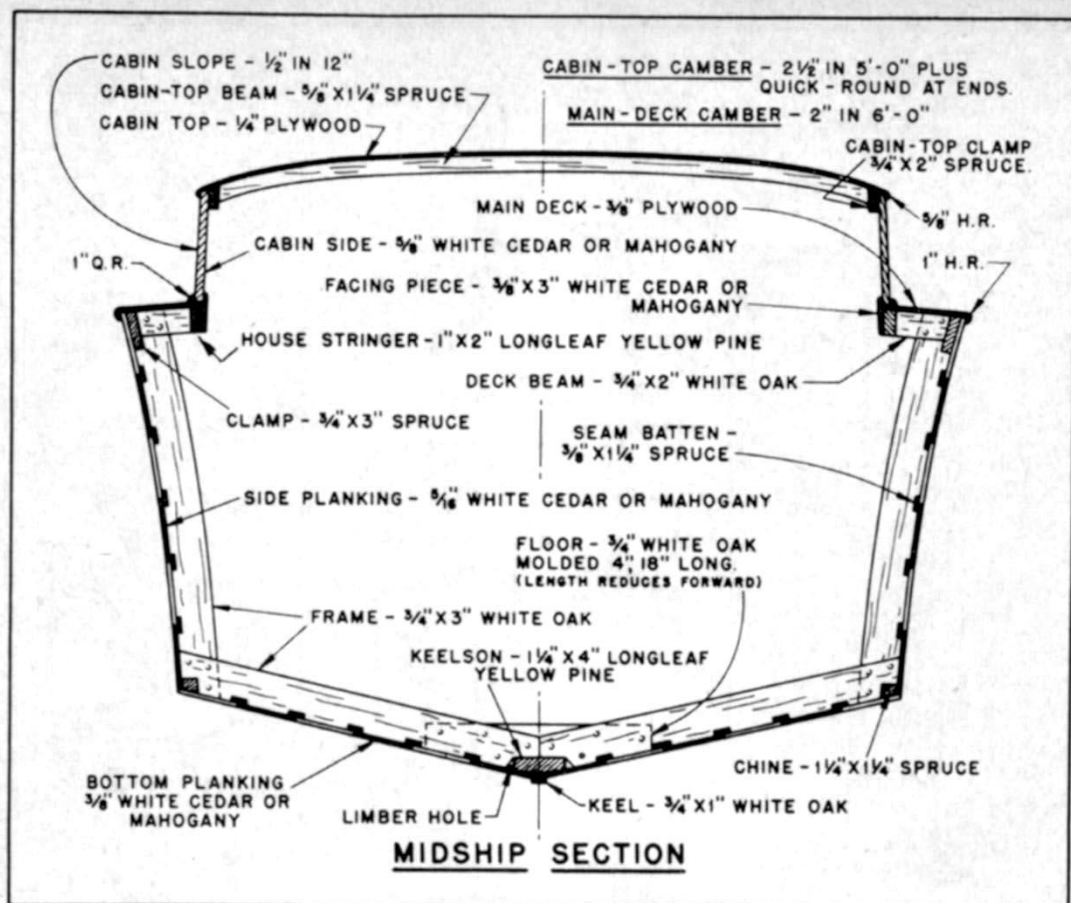
### Fastenings

- 1 gross bronze 3/4" No. 6 roundhead wood screws
- 8 gross bronze 3/4" No. 7 flathead wood screws
- 1 gross bronze 1" No. 8 flathead wood screws
- 8 dozen bronze 1 1/4" No. 8 flathead wood screws
- 2 gross bronze 1 1/2" No. 10 flathead wood screws
- 2 dozen bronze 1 3/4" No. 12 flathead wood screws
- 3 dozen bronze 2" No. 14 flathead wood screws
- 2 dozen bronze 2 1/2" No. 14 flathead wood screws
- 1 gross bronze 3" No. 14 flathead wood screws
- 5 lbs. copper 1" nails
- 1 1/2 lbs. copper No. 15 burrs
- 22 brass 1/4" x 5" flathead stove bolts
- 16 brass 5/16" x 4" flathead stove bolts
- 1 brass 5/16" x 6" flathead stove bolts
- 1 piece bronze 1/4" rod, 20'-0" long, for drift and through-bolts, with nuts and washers
- 1 piece bronze 3/8" rod, 3'-0" long, for drift and through-bolts, with nuts and washers

### Miscellaneous

- 1 1/2 gallons nonhardening marine glue
- 1 lb. plastic resin glue
- 7 1/2 gallons varnish and marine paint in desired colors
- Marine hardware and fittings for this boat can be purchased from John Dory, Box 96, Fair Haven, New Jersey





**Companion Hatch:**  $\frac{5}{8}$ -in. stock secured to a  $1\frac{1}{4}$ x $1\frac{1}{4}$ -in. frame with  $1\frac{1}{4}$ -in. screws on 4-in. centers. Rabbit out the hatch framing to match the coaming.

**Facing Pieces:**  $\frac{3}{8}$ x3 in., secured with two rows of  $\frac{3}{4}$ -in. roundhead screws on 6-in. centers.

**Cockpit Beams:**  $\frac{3}{4}$ x2 in., secured to side frames with  $1\frac{1}{2}$ -in. screws.

**Cockpit Flooring:**  $\frac{3}{8}$ -in. plywood, secured to beams with  $\frac{3}{4}$ -in. screws on 6-in. centers. Two flush hatches, for access to the bilges, should be cut in this flooring and properly framed.

**Cockpit-Floor Facing:**  $\frac{3}{8}$ x3 in., secured to side frames with  $\frac{3}{4}$ -in. screws.

**Cabin Flooring:**  $\frac{1}{2}$  in., in three pieces. The center one is secured to the floors and the two side pieces are fastened to the bottom frames. Secure with 1-in. screws.

**Windshield:**  $\frac{1}{2}$  in. Each section is in one width, is bandsawed to shape, and has rabbeted cutouts for the glass. Secure with 3-in. screws on 4-in. centers. Fillers should be installed under the cabin top to carry

the two front sections and their fastenings.

**Companion Door:**  $\frac{1}{2}$  in. Make in two halves, hinged together, and secure to door frame with additional hinges. Install handle and lock to suit.

**Hatch Facings:**  $\frac{3}{8}$ x2 in., secured with  $\frac{3}{4}$ -in. roundhead screws.

**Moldings:** 1-in. half-round along sheer, secured with 1-in. screws on 6-in. centers;  $\frac{5}{8}$ -in. half-round along top of cabin and at turn of bilge aft, secured with  $\frac{3}{4}$ -in. screws on 6-in. centers; 1-in. quarter-round at intersection of main deck and cabin side, secured with 1-in. screws on 6-in. centers.

**Joiner Work:** Recommendations are given on the plans. No specific instructions are attempted because materials and degree of finish will depend on individual requirements.

**Windows:** All fixed windows are to be of  $\frac{1}{4}$ -in. plate glass, set in rabbets and secured with quarter-round moldings. The hinged windows are to be framed in conventional manner. •

# ***HA'PENNY***

