

CS-20 Bill of Materials

DO NOT PURCHASE ANY MATERIAL UNTIL YOU READ THIS SECTION.

LUMBER: Under the "Material" heading in the following chart, the kind of wood is not specified (NS) except in cases where a certain type of lumber will be advantageous due to beauty, strength or weight. White oak, mahogany (Philippine or Honduras), spruce, fir or similar types of wood common to the area for boatbuilding can be used. Seat cleats and similar members that impart no great structural strength may be almost any good grade of lumber. The wood should be knot free (small solid ones are permissible), properly dried, and free of splits. Lumber noted as 1" is "four quarters" lumberyard stock, usually finished to 3/4" net thickness. All widths are NET and the noted lengths allow for cutting to fit. However, lumber noted as 2" stock is lumberyard size in both thickness and width (e.g. A 2" x 4" will usually net 1 1/2" x 3 1/2"). Some of the solid wood members, such as the sheer are longer than stocked by most lumber yards. These may optionally be scarf joined at a 1:8 ratio bonded with epoxy adhesives. Stagger such joints so they are a minimum of 4' apart and make them in areas of the least bend. NOTE: The following listing is for the basic hull only, including deck framing and deck but not the sole or console. Although the sizes are noted individually, it is best to group the lumber and rip and trim to the required sizes. CHECK ALL SIZES TO THE WORK PRIOR TO CUTTING. Abbreviations used are: oak = oak (preferably white); Mahog. = mahogany; Sp. = spruce; DF = Douglas-fir.

NOTE: The first portion lists parts required for building the hull; the portion identified by the symbol ** are for the cabin and bridge.

ITEM	MATERIAL	NO. PCS.	SIZE
LUMBER:			
Frames	Mahog or Oak	35 board feet of 1" material	
Cleats along top of longis	NS	2	1' x 1" x 7'
		4	1" x 1" x 12'
Gusset cleats	NS	1 (makes 4)	1" x 1 1/2" x 4'
Deck strongback	DF	1	2" x 3" x 4'
Sheer lams	Mahog or oak	6	1" x 2-3/4" x 21'
Breasthook	Mahog or oak	1 (2 lams)	1" x 10" x 2'
Vertical at transom/ motorwell side junction	DF	1 (makes 2)	2" x 4" x 6'

Foredeck beam	DF	1	2" x 3" x 5'
#0 athwartship cleat	DF	1	2" x 3" x 3'
Motorwell centerline cleat	DF	1	2" x 3" x 2'
Motorwell tray cleats	DF	1 (makes 3)	2" x 2" x 6' 6"
#0 Deck cleats	NS	1 (makes 2)	1" x 1 1/2" x 5'
Motorwell bulkhead deck cleat	Mahog or oak	1	1" x 1 1/2" x 8'
Skeg	Mahog or oak	1	1 1/4" x 3" x 11'
**Deck to cabin side cleat	NS	2	1" x 1 1/4" x 11'
**Berth at CL	DF	1	2" x 3" x 6'
**Berth support beam	NS	1	1" x 4" x 6'
**Door sill	Mahog or oak	1	1" x 3" x 2' 6"
**Door stop	Mahog or oak	1(makes 3)	1" x 5/16" x 11'
**Door jamb	Mahog	2	1" x 1 3/4" x 4'
**Entry door hatch frame	Mahog	1 (makes 3)	1" x 4" x 5'
**Cabin side roof cleat	NS	2	1" x 2" x 7'
**Bridge side roof cleat	NS	2	1" x 2" X 5'
**Cabin side/roof corner filler	NS	2	1" x 1 1/8" x 5'
**Cabin roof longi	Mahog	2	1" x 3" x 7'
**Bridge roof longis	Mahog	2	1" x 3" x 7'
**Cabin side corner cleats	NS	1 (makes 4)	1" x 1 1/2" x 7'
**Bridge post - aft	Mahog	4	1" x 4" x 5' 6"
**Cleat for above	Mahog	2	1" x 1 1/2" x 5' 6"
**Lower side wing frame	Mahog	2	1" x 3" x 4' 6"
**Upper side wing frame	Mahog	2	1" x 4" x 4' 6"
**Side wing front post	Mahog	2	1" X 4" 3'
**WS top frame	Mahog	1 (makes 2)	1" x 8" x 4' 6"

**WS doubler for above	Mahog	1 (makes 4)	1" x 4" x 6'
**WS side frame	Mahog	1 (makes 2)	1" x 4" x 6' 6"
**WS bottom frame	Mahog	1 (makes 2)	1" x 5" x 4'
**WS center frame	Mahog	1 (makes 2)	1" x 3" x 6'
**WS center post	Mahog	1	1" x 4" x 3'
**#8 cabin front beam and doubler	Mahog	1 (makes 2)	1" x *12" x 4'
**BH #4 beam and doubler	Mahog	1 (makes 2)	1" x *12" x 5'6"
**Bridge beam and laminate	Mahog	1 (makes 2)	1" x *12" x 6'6"

* Wide stock may be difficult to obtain. Use the pattern arc to determine how best to use the width available. Beams on bulkheads need not be in full width as they are backed up by a doubler and could be butt joined over these. The bridge laminated beam could also have joints in the laminations well staggered and preferably no more than one per beam.

PLYWOOD: All plywood must be intended for marine or exterior use. Interior grades are NOT acceptable. Marine plywood has higher-grade inner plies, while the exterior grade cores may be of inferior material with inner voids not apparent to the eye. In most cases, the glues used in both marine and exterior panels are the same. A solid core marine grade is preferable, particularly for planking, although an exterior grade can be used with the understanding that unseen interior voids can cause problems. Douglas-fir plywood is acceptable, but those made with okoume, mahogany, or other higher quality veneers (usually imports) are preferable. The grade of the exterior veneer of plywood panels is identified by the letters A, B, and C with A being best, etc. The best face of all panels should be the one exposed. Any patches on lower grade veneers should be on the interior, especially on the forward bottom. Check the PLYWOOD LAYOUTS heading in these instructions for how to use the listed plywood to obtain the various parts.

Abbreviations used are: DF = Douglas-fir; Mahog. = mahogany; PW = plywood; Ext = exterior; Mar = marine.

ITEM	PLYWOOD DESCRIPTION	NO. PCS.	SIZE
LAYOUT I thru X	Ext or Mar, DF, AA or AB	16	3/8" x 4' x 8'
LAYOUT XI	Ext DF AB	3	3/4" x 4' x 8'
LAYOUT XII	Ext DF AB	2	5/8" x 4' x 8'
LAYOUT XIII	Ext DF AB	3	1/4" x 4' x 8'
LAYOUT XIV	Ext DF AB	4	1/4" x 4' x 8'
Keel and batten lams and longis	Ext DF AC	2	3/8" x 4' x 8'

NOTE: The above listed 3/8" plywood strips may need to be augmented by scrap from LAYOUTS I thru X.

FASTENINGS:

SCREWS: Flathead wood type bronze

- 3/4" #8 - 2 doz
- 1" #8 - 4 doz
- 1-1/4" #8 - 8 doz
- 1-1/2" #8 - 6 doz
- 3" #14 - 33 ea

NAILS: Ring type boat nails, bronze or Monel

- 1" - 1 pounds
- 1 1/4" - 1 pound

CARRIAGE BOLTS: With nut and washer

- 3/8" x 6" - 4 required

STITCHING WIRE: Copper wire 12 or 14 ga. Steel wire optional but must be removed. - 100 lineal feet

EPOXY RESIN: Epoxy Resin: For gluing, epoxy coating & resin putty

- INTERIOR: Approx. 5 gallons
- EXTERIOR: Includes fiberglassing - Approx. 7 gallons

MICROSPHERES (or equal): 4 lbs.

SILICA: 2 lbs.

FIBERGLASS CLOTH: For exterior sheathing, 7-8 oz. treated boat type.

- 14 1/3 yards - 38" wide
- 15 1/3 yds - 50" wide

BI-AXIAL CLOTH: 17 oz or equivalent.

- 6 yds - 50" cloth cut lengthwise into 3" and 5" widths.