

Double Eagle

Aluminum Bill of Materials

(Scroll down for Plywood Bill of Materials)

The following is a listing of the primary aluminum members required to build the Inboard Version, including their sizes, lengths, and/or square footage. The listing will require some modifications if building the Outboard or I/O Versions, but will be similar. This listing is to serve as a general guide only for cost estimating purposes and is not meant to be all inclusive. Do not use this list to purchase materials without first checking to the plans and instruction guide for options. In all cases the builder should check local sources for availability of stock sizes as well as possible substitutes. How the members are obtained from the stock and the manner in which the material is utilized can vary to suit stock sizes of materials available where the boat will be built. This is why many members are listed by square footage. In other cases, members may be made from flat bar, plate, or sheet material; it makes little difference in aluminum construction. Also, square footage or linear footage may be given for contoured members which can be cut to shape from plate or sheet stock, or could optionally be formed or bent from flat bar stock. Sizes and areas of materials include a factor for overage so that minor members not specifically noted can be obtained from scrap material.

MEMBER	SIZE/TYPE	AMOUNT REQUIRED
Hull, deck, cabin plating	1/8" sheet	500 sq. ft.
Bulkheads, tanks, girders	3/16" sheet	125 sq. ft.
Frames	1/4" plate	40 sq. ft.
Skeg/keel/stem	3/8" plate	16 sq. ft.
Strut legs (F.B. or plate)	1/2" x 4"	3 lin. ft.
Hull stiffener tee	2" x 1" x 3/16"	400 lin. ft.
Structural tee	2" x 2" x 1/4"	12 lin. ft.
Flat bar	3/16" x 1 1/2"	40 lin. ft.
Flat bar	3/16" x 2"	85 lin. ft.
Flat bar	3/16" x 3"	30 lin. ft.
Angle	1 1/2" x 1 1/2" x 1/8"	50 lin. ft.
Angles	1 1/4" x 1 1/4" x 1/8"	12 lin. ft.
Stanchions (102" wall rect. tube)	1 1/2" x 3"	10 lin. ft.

Shaft tube	1 3/4" OD 3/16" wall	2 lin. ft.
Pipe	3/4" Schedule 40	65 lin. ft.
Pipe	1 1/2" Schedule 80	18 lin. ft.
Pipe	2" Schedule 80	40 lin. ft.

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The following list of materials is intended to be a general guide only. Before ordering any materials, the text and plans should be checked for possible options. All lumber listed as 1" stock is to be standard "lumberyard four-quarter" material which when finished may vary to somewhat less or slightly more than 3/4" in thickness, unless specified as NET. All widths are NET and all lengths allow for cutting to fit. Grouping lumber and purchasing random-random material to resaw to the required size will result in considerable savings. All lumber used should be first grade free from shakes and knots. Although oak (white oak), Douglas-fir, and mahogany (dark red Philippine or Honduras) are called out in the listing, lumber typical to the locale and of similar types and weights may be substituted. All plywood (PW) is to be marine (MAR) or exterior (EXT) grade. The marine-type is preferable as the inner cores are solid and thus the panel has more structural integrity. Douglas-fir (DF) is satisfactory with the quality of the exposed faces of the veneer being designated by the letters "A" or "B". The "AA" grade panels are always preferable, however, "AB" grade is acceptable. All plywood should be a minimum of three plies. All fastenings should be bronze or hot dipped galvanized ferrous metal. Brass fastenings are not advised nor are the electroplated screws commonly sold in hardware stores. All screws are to be of the flat head type intended for wood. All nails are of the ring-type nail common to boat construction. Unless otherwise specified, all wood-to-wood joints are to be glued with a waterproof or highly water resistant glue such as plastic resin, resorcinol, epoxy, or other equivalent type used per the manufacturer's instructions regarding temperature, clamping requirements, curing time, and mixing method.

CHECK ALL SIZES TO THE WORK PRIOR TO CUTTING. Abbreviations used are: Mahog = mahogany; DF = Douglas-fir; PW=plywood; Ext=exterior; MAR=marine.

ITEM	MATERIAL	NO.	SIZE
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		PCS.	
LUMBER:			
Frame members	Mahog, Oak or DF	80 bd. ft. random-random "four quarters" (1") stock with some widths to 8"	
Keel	Mahog, Oak or DF	2	1" x 4" x 17'
Chine logs	Mahog, Oak or DF	2	1" net x 2" x 23'
Sheer clamps	Mahog, Oak or DF	2	1" x 2" x 25'
Bottom battens	Mahog, Oak or DF	2 2 2	1" x 3" x 21' 1" x 3" x 20' 1" x 3" x 19'
Carling	Mahog, Oak or DF	2	1" x 6" x 19'
Cabin clamp	Mahog, Oak or DF	2	1" x 7" x 19'
Deck battens	Mahog, Oak or DF	1 1	1" x 2" x 5' (makes 2) 1" x 2" x 7' (makes 2)
Strongback at centerline	Mahog, Oak or DF	1	1" x 3" x 6' (makes 2)
Spray rail	Mahog, Oak or DF	2	1" x 2" x 23'
Rub rail	Mahog, Oak or DF	2	1" x 2" x 25'
PLYWOOD:			
Bottom planking	DF Mar AA or AB	4 4	1/4" x 4' x 10'(*)(**) 1/4" x 4' x 12'(*)(**)
Side planking	DF Mar AA or AB	4	3/8" x 4' x 12'(**)
Transom, stem, breasthook, floor timbers	DF Ext AB	2	3/4" x 4' x 8'
Gussets, side planking butt blks	DF Ext AB	1	3/8" x 4' x 8'
Cabin bulkhead	DF Ext AB	2	3/8" x 4' x 8'
(*) Butt blocks for bottom planking will require some 1/2" plywood which is specified for use in some other parts of the structure, and these butt blocks may be taken from these panels. (**) Standard 8' panels are optional, scarf or butt joined as required.			
FASTENINGS:			
Screws: Flathead wood type, bronze or hot dipped galvanized			
<ul style="list-style-type: none"> • 3/4" #8 - 2 gross • 1" #8 - 1 gross • 1-1/4" #8 - 8 gross • 1-1/2" #8 - 3 gross • 2" #10 - 3 gross 			

- 3" #14 - 4 dozen

Nails: Ring type boat nails, bronze or Monel

- 1" - 4 pounds
- 1-1/4" - 3 pounds

Carriage Bolts: Bronze or hot dipped galvanized complete with nuts and washers. Check lengths to work. Threaded rod may be used alternately.

Glue: Epoxy - 2 gallons