

Glen-L 30 Fiberglass Bill of Materials

(scroll down for plywood version bill of materials)

All lumber used should be first grade free from knots, shakes, or other defects. Lumbers typical to the locale and proven in use on boats in the locale may be used. Suitable woods include white oak, mahogany (both Philippine and Honduras types), Sitka spruce, Douglas-fir, longleaf yellow pine, Port Orford cedar, apitong, and teak. All lumber thickness specified is standard lumberyard stock finished as full as possible except for stock noted "net". For example, stock listed 1" is purchased as "four quarters" stock which will finish from 3/4" to 7/8" in net thickness. All widths are noted as net. An exception is material which is listed 2" or thicker, which will usually finish less in both thickness and width dimensions. Grouping lumber and purchasing random-random material to resaw to the required size will result in considerable savings. All wood must be checked to the work for accuracy. All plywood must be intended for marine or exterior use. Interior grades are not acceptable. The marine grade core features solid inner plies, while exterior plywood cores may have inner voids not apparent to the eye. In most cases, the glues used in both types are the same waterproof variety. All plywood is preferably five ply type if available with the best face being used for the exposed surface. Douglas-fir plywood is acceptable for all plywood, although various hardwood veneer types can be used alternately.

MATERIALS-FASTENINGS & METALS: All fastenings should be non-corrosive type. Screws as noted are the flat head type, while nails should be the annular ring shank nail commonly used in boatbuilding. Screws should be hot dipped galvanized or silicon bronze, while nails can be Monel or bronze type. Electroplated steel which will rust and low strength brass fastenings should not be used. For a boat which will remain in salt or brackish water for a considerable length of time, bronze fastenings are recommended. For a boat which will not remain in salt water or will be trailered, hot dipped galvanized fastenings can be used. Stainless steel can be used for the various sail hardware items although some grades of stainless steel are not highly corrosion resistant. Dissimilar metals (such as bronze and aluminum) should not come in contact with one another, especially where they will be immersed in salt water.

HULL CONSTRUCTION MATERIALS: The following list of materials used in the construction of the basic hull is based on the square footage of the actual hull. It is not possible to accurately calculate the materials that will be required when building a hull using fiberglass materials. There are several reasons for this limitation. First, fiberglass materials come in not only varying weights but also various widths which will vary not only the lengths of a given width that will

be required, but also how the widths of material will be utilized in the actual lay-up in the construction. Also, the fact that joints in the material will require staggering in many cases will vary the amount used. Another nuance is the fact that additional layers of material will be required in some areas and not in others. Of course, there is the chance that some material will be wasted as well. Also, it is not possible to accurately determine how much resin will be required. It is possible to accurately determine how much resin SHOULD be used to obtain the ideal resin/glass content, but this figure will not include lost resin from running off during application, or wasted resin which can set up before being used. The figures listed for both fiberglass material and resin take these factors into consideration and allow some degree of extra material, however, it is highly probably that the builder will require more materials than listed due to these variables. For these reasons, it is recommended that the builder use the list as a general guide only. Resin is best purchased in bulk quantities for a boat this size, starting off with one drum of resin initially and using this amount before buying more resin. Similar statements are applicable to the fiberglass planking and the foam material, although to a lesser degree. The figures listed include an overage factor, however, much will depend on how the builder utilizes the material as well as the sizes purchased. The listing includes materials for the basic hull only and does not include any material used for the internal cabin structure or joinery work due to the possible variations which may be desired by the builder. In many instances, a portion of the laminate will state "or equivalent". This statement means that any combination of fiberglass material may be used as long as the total weight of fiberglass material used is the same.

HULL MATERIAL LISTING - FIBERGLASS PLANKING METHOD:

- Fiberglass planking 12" wide: 650 lineal feet
 - Fiberglass mat 3/4 oz per square foot (1 oz opt.): 2825 square feet or approximately 133 lbs
 - Fiberglass cloth (optional) 7.5 per square yard: 98 yds. 38" cloth, or 98 square yards of width to suit (35 yds of this for deck)
 - Fiberglass woven roving 18 oz per square yard: 217 square yards or 245 lbs
 - Fiberglass mat 1-1/2 oz - 2 oz. per square foot (for deck): 30 or 40 lbs. depending on weight (300 sq. ft.)
 - Polyester resin w/catalyst: 3 drums (55 gal size) or approximately 1500 lbs net
- Approx. 20 gals. or 200 lbs. non-thixotropic laminating resin for fiberglass planking

HULL MATERIAL LISTING - FOAM SANDWICH METHOD:

- Foam material (PVC) 5/8" thick x 3' x 6': 30 sheets
- Fiberglass mat 3/4 oz per square foot (1 oz opt.): 2825 square feet or 133 lbs
- Fiberglass cloth (optional) 7.5 oz per sq yd: 161 yds 38" cloth, or 161 yards of width to suit (35 yards for deck)
- Fiberglass woven roving 18 oz per square yard: 189 square yards or 213 lbs
- Fiberglass mat 1-1/2 oz.-2 oz. per sq ft (for deck): 30 or 40 lbs. depending on weight (300 sq. ft.)
- Polyester resin w/catalyst: 3 drums (55 gal size or approximately 1500 lbs net)

Glen-L 30 Plywood Bill of Materials

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. 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 spruce (Sitka variety) and mahogany (dark red Philippine type) 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.

ABBREVIATIONS: Douglas-fir=DF, Mahogany=mahog, Plywood=PW, Marine plywood=MAR

ITEM	MATERIAL	NO. PCs.	SIZE
LUMBER:			
Bulkhead & transom frame members	Oak or mahog	235 bd. ft. random-random material with widths to 10" or more, 1-1/4" stock.	
Floor timbers & stem	Oak, mahog or DF	75 bd. ft. random-random material with some widths to 12", 2" stock.	
Keel	Oak or mahog	2	1-1/4" x 8" x 26'
Chine logs	Oak or mahog	2	1-1/4" x 3" x 29'
Sheer clamps	Oak or mahog	2	1-1/4" x 3" x 32'
Raised sheer clamps	Oak or mahog	2	1-1/4" x 2" x 24'
Bottom planking battens	Oak or mahog	8	1-1/4" x 2" x 28'
Side planking battens	Oak or mahog	8	1-1/4" x 2" x 31'
Carlings	Oak or mahog	2	1-1/4" x 2" x 21'

Decking strongback	Oak or mahog	1	1-1/4" x 4" x 6'
Decking battens	Oak or mahog	2 2 2	1-1/4" x 2" x 20' 1-1/4" x 2" x 6' 1-1/4" x 2" x 7'
Seat back/side deck carling	Oak or mahog	2	1-1/4" x 2" x 7'
Cabin clamp	Oak or mahog	2	1-1/4" x 2" x 18'
Cabin top strongback	Oak or mahog	1	1-1/4" x 6" x 15'
Cabin top battens	Oak or mahog	4	1-1/4" x 2" x 17'
Cabin side	Oak or mahog	2	1" x 7" x 18'
Cabin front	Oak or mahog	1	1-1/4" x 6" x 3'
Cockpit coaming	Oak or mahog	2	1" x 6" x 7'
Hatch beams	Oak or mahog	2 1	1-1/4" x 3" x 4'-6" 1-1/4" x 4" x 2'-6"
Motor stringers	Oak, mahog or DF	2	2" x 6" x 7'-6".
Motor stringer blocking	Oak, mahog or DF	1	2" x 2" x 7'

Cockpit sole beams	Oak or mahog	2	1-1/4" x 4" x 5'
Misc. hull cleats	Oak or mahog	200 lineal feet, 1" x 2" stock	
Sheer rub rail	Oak, mahog or teak	2	1-1/4" x 2" x 32'
Keel appendage (1st lamination)	Oak, mahog or DF	1 1	1-1/4" x 7" x 20' OR 2" x 8" x 20'
Keel appendage laminations	Oak, mahog or DF	360 lineal ft 1-1/4"x5" stock, (12' min lengths) OR 276 lineal ft, 2" x 6" stock,(12' min lengths each)	
Keel appendage heel piece	Oak, mahog or DF	1	3" x 8" x 4' (or laminate as rqd)
PLYWOOD:			
Transom	DF AB Ext	1	3/4" x 4' x 8'
Stem laminations & breasthooks	DF AC Ext	1	3/4" x 4' x 8'
Bulkheads	DF AB Ext	8 4 OR 14 Total	1/2" x 4' x 10' 1/2" x 4' x 8' 1/2" x 4' x 8'
Side & bottom planking	DF AA or AB MAR	50	1/4" x 4' x 8'

Raised sheer side planking	DF AB Ext	2	3/8" x 4' x 8'
Decking, forward	DF AB Ext	2	1/2" x 4' x 8'
Decking, side	DF AB Ext	3	1/2" x 4' x 8'
Cabin top	DF AB Ext	2 2 OR 5 Total	1/2" x 4' x 8' 1/2" x 4' x 10' 1/2" x 4' x 8'

FASTENINGS:

- SCREWS: Flat head wood type, bronze or hot dipped galvanized iron.
- 1" #8 Screws - 5 gross
- 1-1/4" #8 Screws - 8 gross
- 1-1/2" #8 Screws - 3 gross
- 2" #10 Screws - 11 gross
- 3" #14 Screws - 1 gross

- NAILS: Ring type, Bronze or Monel
- 1" #12= 9 pounds
- 1-1/4" #12 - 13 pounds