

Design 077 – Basic Specification

Measurements	Metric system throughout, unless otherwise noted (screw lengths and gauges for example). All linear dimensions are given in millimetres (and “mm” is not always suffixed to the numbers).
Solid Timber	<p>African Mahogany (often now called Ghana Mahogany) for the majority of solid timber work. Most other hardwoods and softwoods are suitable but avoid Teak, Iroko and European Oak (American Red & White Oaks are fine) for structural lamination and bonding (with the exception of teak if laid to the decks). Avoid softwoods with a high resin content (e.g. Pitchpine) or softwoods with large or loose knots. Khaya (which is another name for African Mahogany) veneers are used for many laminating purposes. For timbers that are used extensively in the boat, it is preferable to choose timbers with a density of 550g/m³ or less so as not to build up excessive structure weight. Buy all timber kiln dried if possible and store in dry and well ventilated conditions. Stick between baulks/planks of timber to allow good air circulation. Moisture content of timber should be 12% or less. The timber types given in the cutting list are those considered most suitable (and commonly available in Europe).</p> <p>If you wish to build from ecologically sustainable sources, you will need to check this carefully with your timber merchant.</p>
Plywood	<p>Must be WBP (water & boil proof) grade minimum. Better quality plys usually have a greater number of thinner laminates in them. Far Eastern WPB grade is usually satisfactory but the surface finish is not always very good and it is sometimes too heavy. BS 1088 is marine grade - but this is not structurally necessary. If the boat is to be clear finished, choose a ply with a good face veneer (Makore, Gaboon, Khaya, Brazilian Mahogany or similar fine grain red timber). If the boat is to be painted, good quality WBP Douglas Fir or Birch ply is satisfactory. When decoratively veneered ply is used structurally, the decorative veneers must also be bonded on with WBP grade adhesives. Choose plys no heavier than 530g/m³</p>

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An excellent ply to build the boat from is Gaboon (sometimes called Occumé) throughout as it is light in weight, takes WEST very well and has a decent face veneer. Israeli Gaboon ply is available at reasonable cost in “Marine” grade and also “Lloyds” grade. Either is OK.

Plywood from ecologically sustainable sources is difficult. The only plys available that approaches this are Finnish birch ply and North American Douglas Fir ply. Both these (in the correct grades) are suitable structurally, but the surface veneers are not really very decorative.

Coating system	WEST™ wood epoxy materials. Use #105 Resin with #205 fast hardener (#206 slow hardener will seldom be necessary). If a clear (varnish) finish is required to larger panels then use #207 coating hardener (note different ratio mix). Minimum three coats on all structures and areas of the boat.
Glue	WEST™ #105/#205 resin mix modified with #403 microfibres (about 7% to 10% by weight - but you will soon judge better by consistency which should be a thickish paste, but still runny). End grain and bare timber to be wetted out with #105/#205 and allowed to stand for 15 minutes before gluing with resin/#403 mix. Pre-coated areas (where the WEST™ coating has gone off to be sanded thoroughly and any surface “sweat” removed. Timber direct from the saw is suitable for gluing. Timber from the planer can be shiny, with the surface cells compressed - roughen slightly with medium abrasive paper. See also WEST™ fact sheet.
Filleting	WEST™ #105/#205 resin mix modified with #405 filleting blend.
Decorative finishes	Clear finishes should be UV resistant. If conventional varnishes are to be used, we recommend that one coat of 2-pot varnish is applied before using conventional varnishes - otherwise the conventional varnish may have difficulty in curing. The same applies to paint finishes - one coat of 2-pot first, then conventional or acrylic.
Fastenings	Very few fastenings are required. Brass or stainless countersunk wood screws are fine. Use a Stanley “screwsink” of the correct size for the screw when boring off for screws to obtain best hold and clean countersinks.

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Stanley “plugcutters” are available for each gauge of screw and the dowels produced match the countersink made by the screwsink. Where screws are not to be dowelled over (glue dowels in with WEST™), or filled over with WEST/#407 microballons, fudge plenty of WEST™ down screw hole (a pipe cleaner is ideal for this). Wax screw if it is required to be withdrawn later.

Apron laminates	Ash or African Mahogany - or Khaya veneers
Beams	African Mahogany or Khaya veneers
Breasthook	African Mahogany
Deadwood	Ash or African Mahogany
Coachroof carlings	African Mahogany
Coachroof corner posts	African Mahogany
Deck & superstructure	9mm Gaboon ply
Main hatch carlings	African Mahogany
Centreboard case post	African Mahogany
Centreboard case blocking	African Mahogany
Centreboard case cap	African Mahogany & Khaya laminates
Cleating generally	African Mahogany
Cockpit carlings	African Mahogany
Coachroof coamings	African Mahogany
Coachroof front	African Mahogany
Floors	African Mahogany
Frames	Khaya laminates and African Mahogany solids
Hog	Ash or African Mahogany
Hull Skin (moulded)	Western Red Cedar strip planking + 2 off Khaya veneers
Hull Skin (lapstrake)	9mm Gaboon ply

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Interior furniture	9mm Gaboon ply + African Mahogany solids
Keel	Ash or African Mahogany
King plank	African Mahogany
Main carlings	African Mahogany
Main hatch & box	4mm Gaboon ply + African Mahogany or Khaya laminates + African Mahogany solids
Mast post	African Mahogany
Mast runner	African Mahogany
Outboard well stringers	African Mahogany
Shelf	Douglas Fir or African Mahogany
Stem laminates	Ash or African Mahogany - or Khaya veneers
Stern post	African Mahogany
Transom	Gaboon ply + African Mahogany solids
Trim	African Mahogany