Boat 073 - General Specifications

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

Mahogany, Brazilian or African (often now called Ghana Mahogany), or Red Meranti for solid timber work. Most other hardwoods and softwoods are suitable but avoid Teak, Iroko and European Oak for structural lamination and bonding. Avoid softwoods with a high resin content (e.g. Pitchpine) or softwoods with large or loose knots. Khaya veneers are used for many laminating purposes (Red Meranti or African Mahogany would also be suitable). For timbers that are used extensively in the boat, it is preferable to choose timbers with a density of 550g/m^3 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 specifications below are those considered most suitable.

If you wish to build from ecologically sustainable sources, then please come back to us for a specification of suitable timbers.

Plywood

Must be WBP (weather & boil proof) grade minimum. 5-ply is better than 3-ply (applies to ≤6mm thickness - good quality thicker ply will automatically be 5-ply or more). Far Eastern WPB grade is usually satisfactory but the surface finish is not always very good. 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, 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 bonded on with be WBP grade adhesives. Gaboon (sometimes called Occumé) ply is excellent as is light in weight, strong and has a good finish. Israeli manufactured "Marine" and "Lloyds" qualities are usually available and economically priced.

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.

Boat 073 - General Specifications

Coating system	WEST™ wood epoxy materials. Use #105 Resin with #205 fast hardener (#206 slow hardener may also 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 absorbent timbers 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 usually 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. A proportion of #406 Collodial Silica can be added to improve smoothness of fillets.
Decorative finishes	Clear finishes should be UV resistant. 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. 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	70 sided x 40 moulded; 5mm laminations. African Mahogany. 3mm sliced Khaya veneers can also be used.
Bilge runners	African Mahogany or Elm. 20mm sided x 15mm moulded. Fitted with brass strip 12mm x 3mm or similar.
Centrecase	9mm ply

Boat 073 - General Specifications

Centrecase parts	African Mahogany
Daggerboard	12mm ply
Floorboards	African Mahogany or Larch
Floors	African Mahogany
Gunwhale	American Oak or European Ash 20mm sided x 30mm moulded.
Hog	African Mahogany, American Oak, European Ash or Elm. 100mm sided x 20mm moulded.
Keel	Clean Elm, European Ash or American Oak. 40mm sided x 25mm laminates. Brass strip 25mm x 3mm or similar screwed to underside.
Knees	3mm sliced Khaya (African Mahogany) laminations + African Mahogany blocking.
Planking	9mm plywood. Nine planks per side.
Rowlock chocks	African Mahogany.
Rudder	African Mahogany with 9mm ply blade.
Spars	North American Silver Spruce or Dougls Fir
Stem	African Mahogany or American Oak. 40 sided x 50 moulded. 5mm laminations. 3mm sliced Khaya veneers can also be used.
Thwart risers	African Mahogany 15mm sided x 30mm moulded.
Thwarts	African Mahogany; 9mm & 6mm plywood.
Transom	African Mahogany 18mm thick.
Useful WEST™ System reading and viewing	Basic application technique VHS training video. The Gougeon Bros. on Boat Construction (really required reading). WEST™ system Technical Manual.