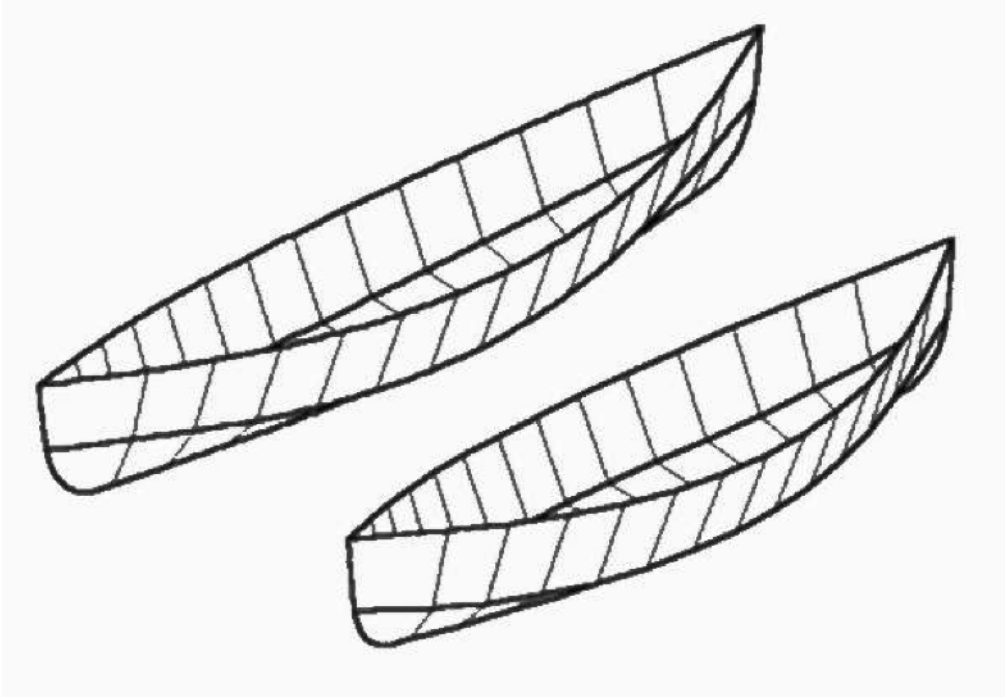
How to Build the EUREKA 155 CANOE



DESIGNER

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LICENCE

The price of this plan entitles the purchaser to build one boat only. The rights to build an additional boat are by the paying of a further license fee payable to the designer. The cost for the second and further boats is reduced.

It is usual for plans to be non-returnable and non-refundable as it is too easy for them to be copied, then returned. If you want to ask, do so, but I will usually refuse.

The purchaser must decide whether the craft will fit their purposes. I have offered a description of the craft and its building which is offered in good faith, but it is limited in that it is my opinion only.

As the workmanship and materials are out of the designer's control there is no guarantee or warranty of any sort offered.

Remember too that it is the user that decides the use of the boat on a given day. Use the boat in conditions you are comfortable with and gradually, as you get to know her, push that envelope.

Of course, wear appropriate clothing, carry the appropriate safety gear and be clear on its correct use.

Acknowledgements and an aside.

This plan pack is packed with hand illustrations made up by my good friend David Wilson. All the klutzy machine drawings are mine!

David and Robert Ayliffe were responsible for debugging the building method.

We all spent a lot of time on it as this was the boat that was going to make us all rich. We had a pipeline into Japan all set up with huge volumes of sales to schools.

For models alone I was going to be a millionaire (3 million schoolchildren multiplied by a dollar fifty each and that was just my royalty)! But then there was the Kobe earthquake which wiped our man in Japan out of existence – financially that is.

Ah well...

But you get to build and use this wonderful boat. So perhaps this is the best of all possible worlds after all.

Resources on the Net

My website has a lot of information – All links on one page here

a video of a different canoe but covers the marking out and some of the other processes very nicely – Building the Quick Canoe.

And here is the Eureka build specifically by Daniel in Uruguay.

And a Eureka Canoe build in Hungary.Building the eureka canoe slideshow

Feel Free to ask questions on my facebook page -
https://web.facebook.com/groups/storerboatplans

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THE EUREKA 155 – DESIGNER'S COMMENTS

The original, smaller EUREKA 130 was originally required to carry two Japanese schoolchildren and light gear for a weekend away. During the design process it became clear that the children that were being talked of were young adults.

As a result the displacement was increased to allow capacity for two adults and some gear. The boat is quite capable of carrying 370lbs retaining reasonable freeboard. It is a suitable boat when time spent is more important than distance covered.

In light of the original requirement there are large air buoyancy/storage compartments fore and aft.

The hullshapes are computer generated which allows much greater freedom in shape than traditional manual methods.

The weight of 50lbs would be achievable using Gaboon Plywood which is 30% lighter than most other plywoods.

The Eureka 155 was developed from the smaller boat. This allows stability to be improved without creating a too blunt shape, which produces a boat more suitable for long distance travelling or where carrying a load.

Reports of the first boat launched show it to be much easier to paddle than the usual plywood canoe, and indeed much better than most production glass hulls - this becomes important where distances are being covered - greatly reducing the effort required from the paddlers.

The other major bit of feedback is on the appearance - Eurekas are very handsome boats - quite unusual for the average plywood boatbuilding project.





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MATERIALS – METRIC

Comments on Materials

It is envisaged that the Eureka will be built of Gaboon (Okoume) Ply. Gaboon is about 2/3 the weight of the usual marine ply and finishes to a rich, mid brown colour.

The boat should be glued with a high solids epoxy system such as Bote Cote, or other quality marine resin system.

The timber used in assembly should also be light. Clear oregon is specified for most timberwork.

Materials list

All dimensions are finished sizes and are in mm unless stated otherwise.

WRC - Western Red Cedar (Australia) or other light, stable, straight grained timber with good gluing properties. No loose or large knots. Alternatives are Kirri/Paulownia

Oregon - Douglas Fir, select dry stock. Fine grain, no knots. Alternative is Hoop Pine or other pine

Part	Size	Length	Qty	Species	Comment
5 or 6mm Ply	2440 x 1220	-	3	Gaboon	(hull skin)**See note below
Fairing batten	15 x 15	5100	1	Oregon	(used for marking out hull)
Gunwales	25 x 19	5100	2	Oregon	
Deck Centre Stringer	25 x 15	2000	1	Oregon	
Inwales	25 x 12	5100	2	Oregon	
Inwale spacers	25 x 12	5100	1	Oregon or WRC	
Seat Supports	45 x 19	5000	1	Oregon	
Centre Spreader	75 x 19	1000	1	Oregon	
Deck Supports	45 x 15	1200	1	Oregon or WRC	

Important Note – the plywood selected requires a minimum sheet width of 1220mm (the old standard of 4 feet width) to fit all the panels as they are drawn in this plan. The sheets will be OK if they are 2440mm long rather than the 2500mm listed above but the width needs to be the 1220 for easy marking out.

The original plan was for 5mm Gaboon ply, but this is now unavailable in most places, so I recommend 6mm (1/4") for most builders. It is possible to build of 4mm (3/16") ply but the hull after assembly needs some light (75gsm – 2oz) fibreglass cloth over the bottom and bilge panels and then 25mm (1") overlap onto the topside panel. This eliminates the need for glass tape on the outside of the hull.

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MATERIALS – IMPERIAL

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Part	Size	Length	Qty	Species	Comment
1/4" Ply	8ft x 4ft	-	3	Gaboon	(hull skin)**See note below
Fairing batten	5/8" sq	16	1	Oregon	(used for marking out hull)
Gunwales	1 x ¾	16	2	Oregon	
Deck Centre Stringer	1 x 5/8	7	1	Oregon	
Inwales	1 x ½	16	2	Oregon	
Inwale spacers	1 x ½	16	1	Oregon or WRC	
Seat Supports	1 ¾ x ¾	16	1	Oregon	
Centre Spreader	3 x ¾	4	1	Oregon	
Deck Supports	1 ¾ x ¾	4	1	Oregon or WRC	

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Miscellaneous Materials

Epoxy	3 litres (1 Gallon)
Fortifier gluing powder	0.5 kg or 1kg if filleting the interior (1 lb / 2lb if fllleting

Glass Comments – there are a number of choices for the glass taping, filleting or epoxying of the panel joins. They are

1. The original method of glass taping the joins - Glass tape 50mm (2") x 48m (155ft)
2. Micro filleting and then filleting the inside seams (Page 15) – increase high strength glue powder to 4 litres and reduce glass tape by 22m.
3. Glass cloth instead of glass taping external seams 5m x 1m width 70gsm glass cloth (5 yards x 1 yard width 2oz glass cloth) . This is a very light cloth that wets down and coats up nicely. Many suggest the glass needs to be much thicker than this, however we have found it quite successful for cabined trailer boats up to 6m (20ft). Reduce glass tape by 22m.

Consumables

Note - all these materials are included in kits supplied by me or Duck Flat Wooden Boats.

Barrier creme for hands	Used religiously the epoxy will come off with soap and water. DO NOT USE SOLVENTS FOR CLEANING SKIN.
Bag of disposable gloves	
Disposable Brushes	4 approx
Foam rollers	4 - the 150mm type with a thin layer of foam on the cardboard roller. If you can get a short roller cage handle (50 or 75mm - ask your epoxy supplier or included in kit) it means the rollers can be cut in three - a good economy for a little boat like this.
Cable ties or copper wire	We used to use cable ties from an electronic shop but in recent times have gone back to heavy gauge copper wire
Bugle headed dry wall (Gyprock) screws	
	about 50 of 20mm (3/4") - see Appendix.
Masking tape	19mm (3/4") wide (the blue “Scotch” brand from 3M is the best behaved
Roll of plastic packaging tape	
	37mm or 50mm wide (1 1/2 or 2").
Small bag of panel pins.	(small nails for temporary use when marking out plywood
Sheets sandpaper	alumina paper (white grit) is best.
	Use 150 or 180 grit for tidying up fibreglass tape
	Use 240 grit for sanding plywood (along grain only!)
Some plastic sheeting	useful to prevent epoxy drips making a mess on the floor
“Snap lock" plastic bags	small size – box from supermarket
Clean, empty tin cans	many

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Stirring sticks	made of scrap timber 200 by 20 by 6mm approx.
Two plastic inspection ports	for access to front and rear buoyancy tanks if fitted (about 100mm, 4" diameter), available shipchandlers.

TOOLS

Tape Measure	The best type for boatbuilding has Metric on one edge and inches with sixteenths marked on other.
Metal straight edge	Around a metre (3 - 4ft) long.
Combination square.	
Jigsaw and/or Japanese back saw.	
Reversible drill with clutch	Use with bugle headed gyprock screws - see Appendix.
Planes	Stanley #4 or Block Plane
Chisels	19mm or 25mm (3/4" and 1")
Sharpening Stone	To keep the Planes and Chisels sharp.
Honing oil	To use on stone. You can make your own by adding a small amount of engine oil to Kerosene - a couple of tablespoons to a pint.
Files	A rasp and a medium cut file with round backs.
Sanding Block	
Trestles	Two or three trestles or saw horses - I have used foam fruitboxes or milkcrates at different times which are adequate. The most useful device of this type is the Triton brand "workmate" which is a trestle with a built-in sashcramp. It sells for around $110 though sometimes is much cheaper.
Welder's spring clamps	They are generally about $2 each, but must have strong spring – a firm squeeze. Check them all - springiness can vary a lot.

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