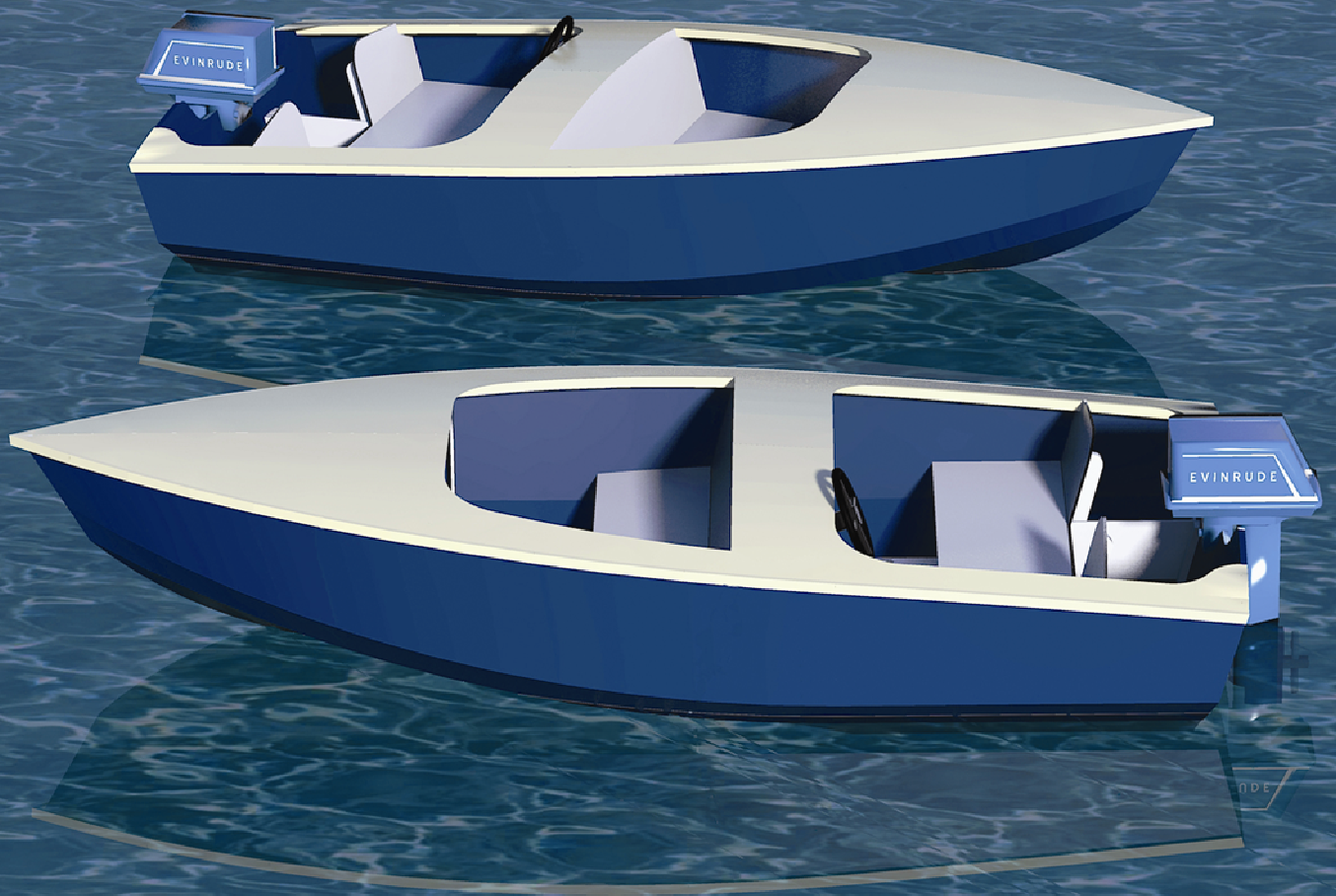
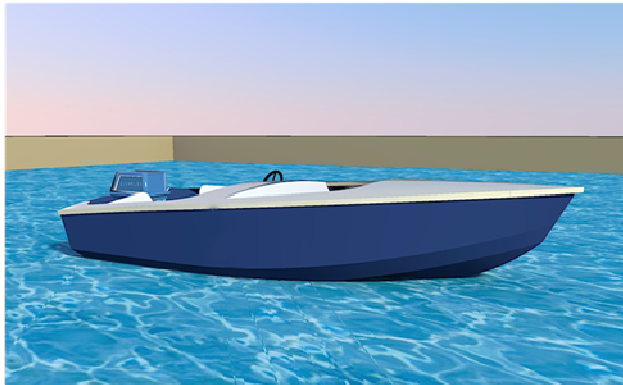


Mia



Study Plans



Contents

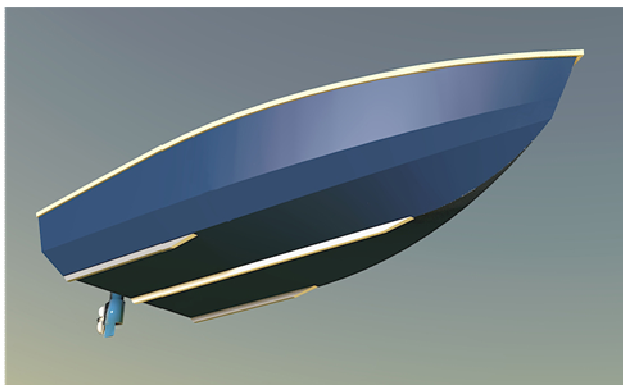
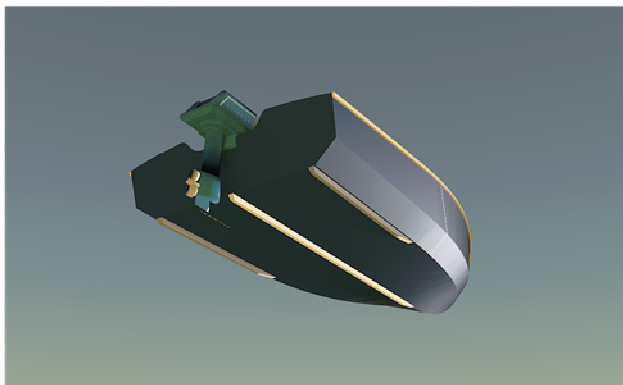
2	Introduction.
4	List of Materials.
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Introduction to the Study Plans

The study plans consist of an abridged version of the first 7 pages of the construction manual and the drawings, presented at a reduced scale.

Please note that the drawings are at a scale that does not allow dimensions to be read, some drawings are missing and several drawings are out of proportion. Don't attempt to build a boat from them!





Introduction

'Mia' is a 12 foot runabout, Her design is inspired by William Jackson's 1955 design for the 'Ace' which was produced by the Sande Boat Works between 1956 and 1962 (www.sandeace.com).

This design differs from those of the period in that it is to be constructed in the tape and epoxy resin method.

By designing the boat with 3D modeling software it has been possible to produce accurate dimensioned drawings and templates of all of the boat's components.

As a result, the boat has been designed so that all components, including seat frames, deck and hull panels combine to form a strong monocoque structure.

The boat is designed for short shaft outboard engines. 10 hp should get her on the plane with one person on board, 25 hp is the preferred engine size.

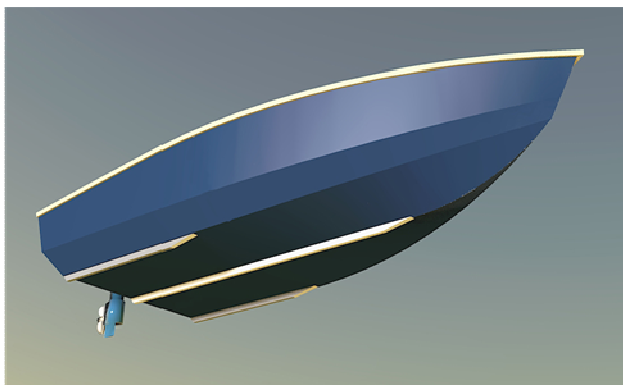
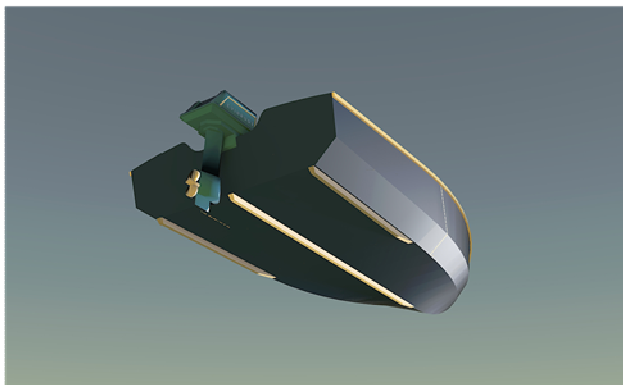
The plans package is in 3 parts as follows:

This construction manual.

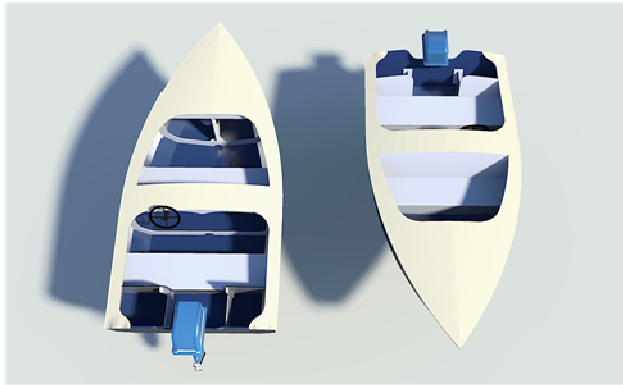
The dimensioned scale plans in letter size format.

The video which shows virtually every step of the build sequence.

The full size template drawings of all major components are also available separately.



Anyone with a basic knowledge of woodworking should be able to make this boat. Whilst this manual sets out the construction sequence in detail, the builder should have a basic knowledge of and ability in working with wood and polyester or epoxy resins and glass fiber.



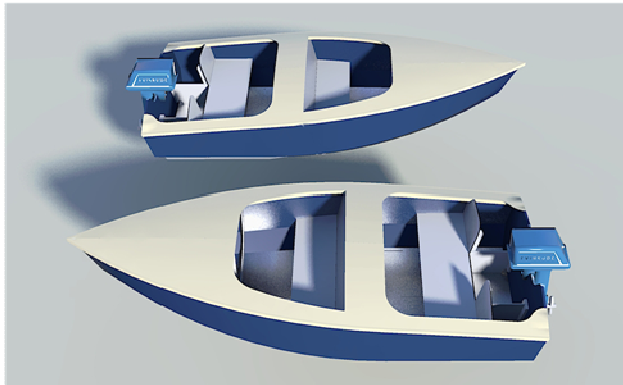
Introduction

Recommended Reading

Two excellent books on the subjects of boat building and working with polyester and epoxy resins are:

Jim Michalak: 'Boatbuilding for Beginners (and Beyond)'
and

Harold Payson: 'Build the New Instant Boats'



Disclaimer

If built properly this will be a safe boat. I cannot be responsible for the build quality, for your boating experience, or for the conditions of the water where you take the boat.

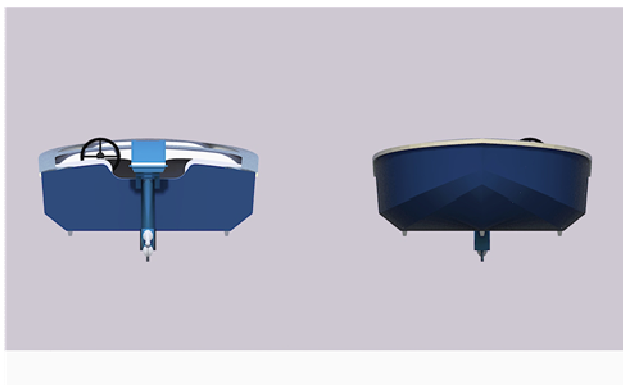
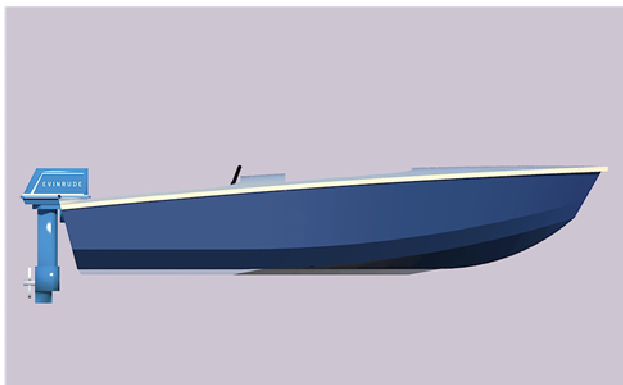
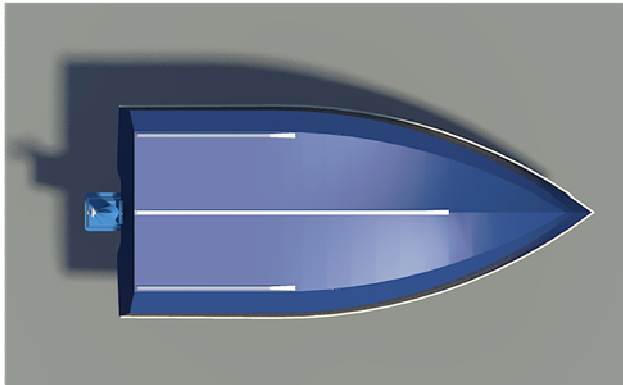
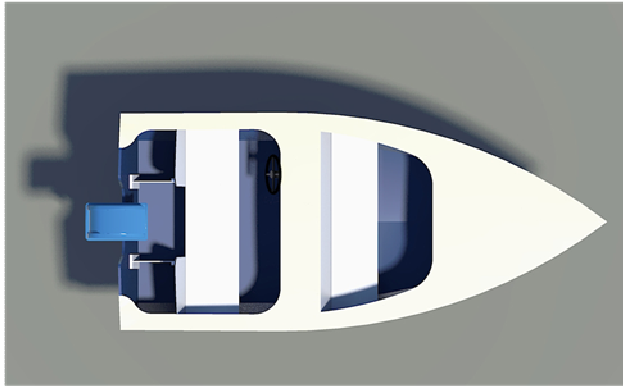
For these reasons (and because of the litigious times in which we live), no liability, (consequential or other) will be assumed for any losses arising from the use of these documents and drawings.



Copyright

The information contained in these documents (comprising this construction manual, the drawings, the full size drawings and the video) are the copyright of Andrew Walters. Purchase of these plans and assembly manual give the purchaser the right to build one boat.





List of Materials

Marine Plywood:

1/2"x4'x8' (12mmx1220mmx2440mm)
3 sheets

3/8"x4'x8' (12mmx1220mmx2440mm)
2 sheets

1/4"x4'x8' (12mmx1220mmx2440mm)
4 sheets

1 1/2" square timber for the bottom skids
2 pieces 8' (2440mm) long

1 1/2" square timber for the temporary
supports
about 40' (13m)

1 1/2"x3/4" timber for the coaming,
gunwales, seat supports and deck supports
about 90' (28m)

2"x1" timber for the rear seat back braces
3'

50 yard roll (45m) of 3" (75mm) glass tape

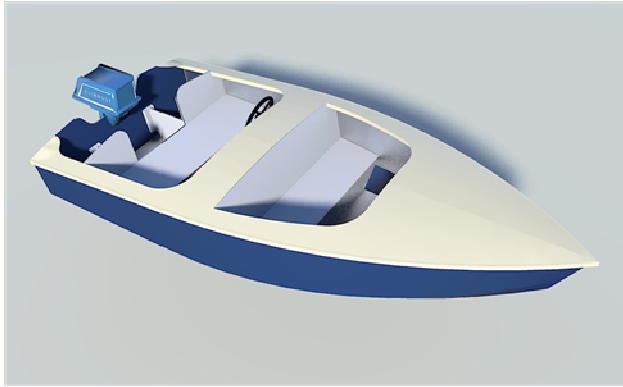
8 yards of glass cloth to cover the bottom of
the hull

If you plan to cover the whole hull get 12
yards

Two gallons (9 liters) of epoxy resin

About 5 pounds (2 kg) of resin thickening
powder

2 sheets of 8'x4' (1220mmx2440mm)
Styrofoam for the flotation



Glue, Resin and Fixings

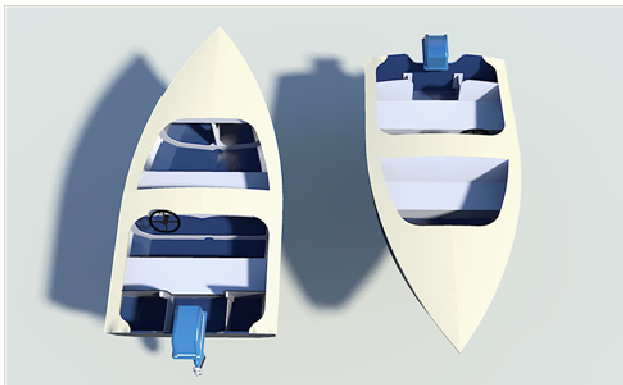
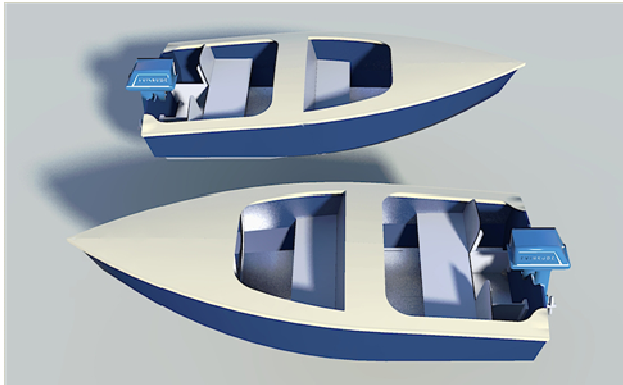
The preferred method of construction is to use epoxy resin throughout for both the gluing and the glass cloth covering.

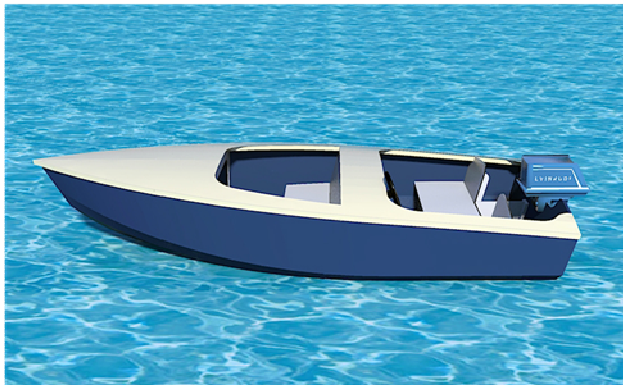
Duckworks Boat Builders Supply sell epoxy resins at a price which makes the use of other glues and resins a false economy. (<http://www.duckworksbbbs.com/supplies/epoxy/marinepoxy/index.htm>)

Polyester resin can be used as an alternative for the taped glass cloth covering. It is not as durable or as waterproof as epoxy resin.

Polyester resin should not be used as a glue.

Any screws that you plan to leave in should be stainless steel. I often use cheap screws to hold everything together before gluing and taping, then take them out and fill the holes at the finishing stage.





Tools

If you have a home workshop you've probably already got everything that you need. Below I'll concentrate on the essentials:

Hand Tools

Hand saw
Hammer
Chisels
Screwdrivers
Putty knives

Power Tools

Battery powered drill and battery powered impact driver.

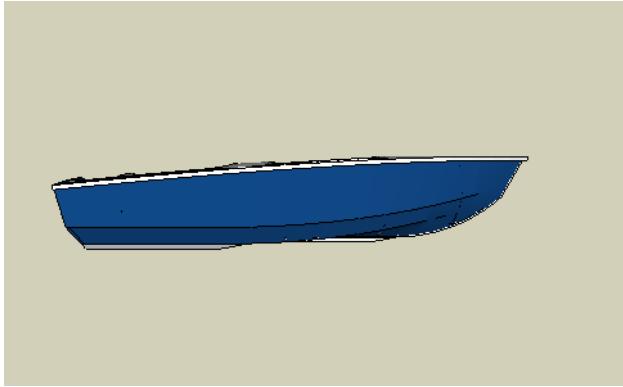
I find these essential for driving screws and drilling.

These tools have changed the way that I work with wood. Instead of clamping things in place I often screw them on temporarily then remove the screws after everything is taped and glued and fill the holes in with polyester or epoxy filler.

Circular saw
jig saw
belt sander

An angle grinder with a sanding attachment. Very useful for beveling edges and taking out excess filler. They can sand away very rapidly so practice first and wear gloves, a breathing mask and protective goggles.

Brad nailer and a selection of 'Raptor' polymer composite nails and a nail gun. (<http://www.duckworksbbbs.com/tools/raptor.htm>) Not essential but a very fast and efficient way of holding things in place. Always use in conjunction with glue.



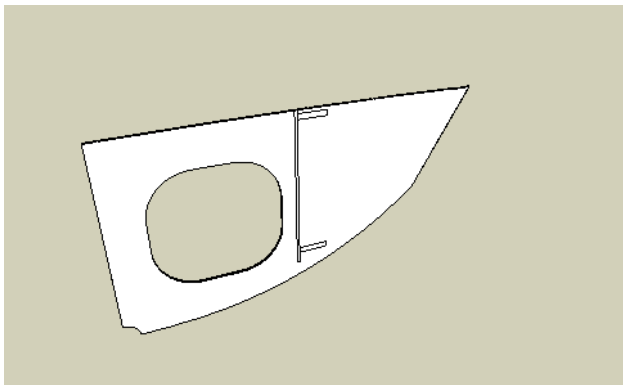
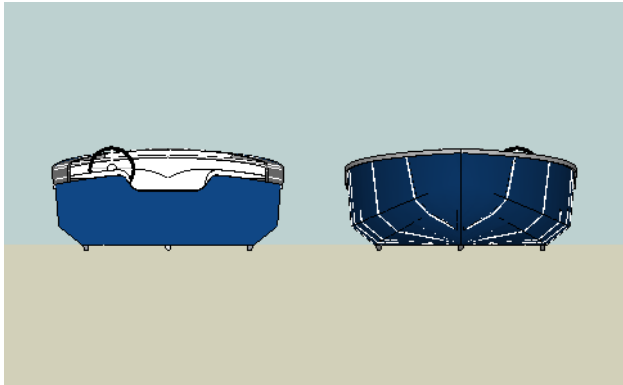
The Construction Sequence

The following pages give a step by step construction guide.

Before starting cut out all of the parts using the drawings or full size templates.

If using the full size templates you can either temporarily glue them onto the plywood with low tack aerosol adhesive, or mark through with a toothed dressmaker's wheel.

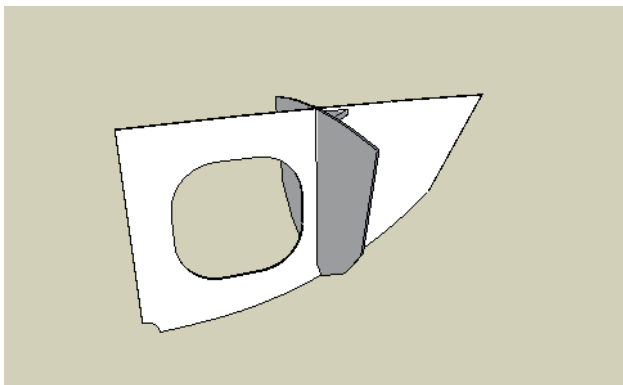
If you bought the plans in .pdf format make sure that you print them without scaling. The full size templates include dimensions to enable you to check this.



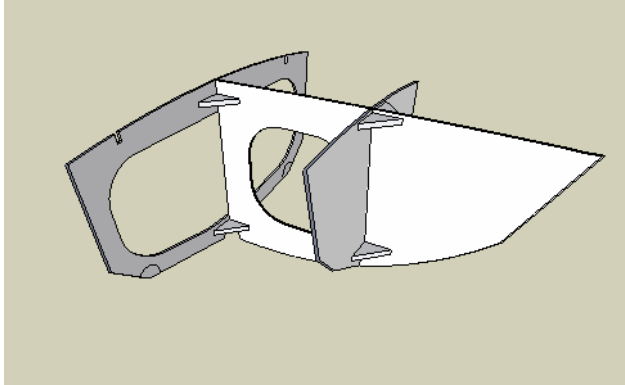
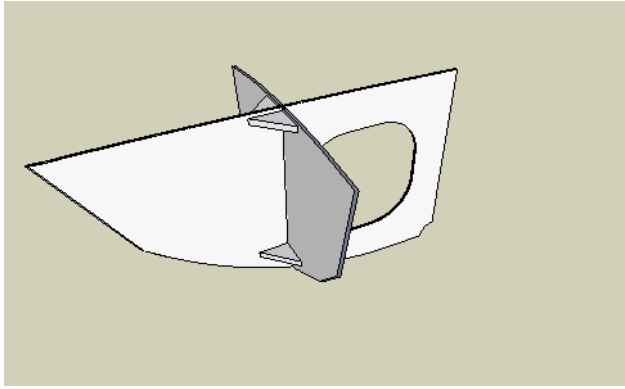
Stem and Frame 1

Fix both sides of frame 1 to the stem.

Screw and glue using the corner blocks and either taped joints or glued battens to the vertical faces.

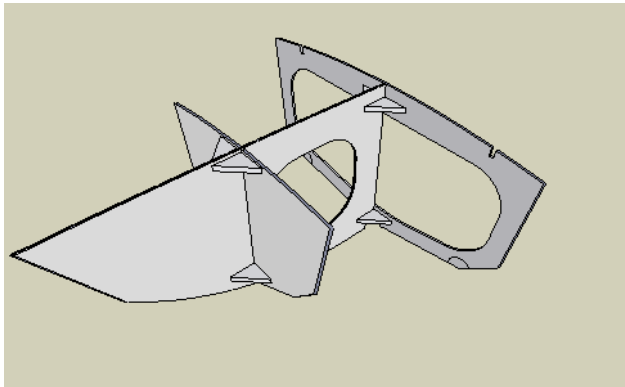


Make sure that top faces align and that the stem and frame 1 components are at right angles.

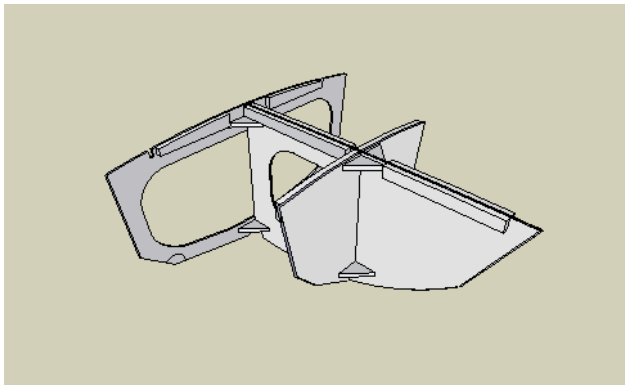


Frame 2

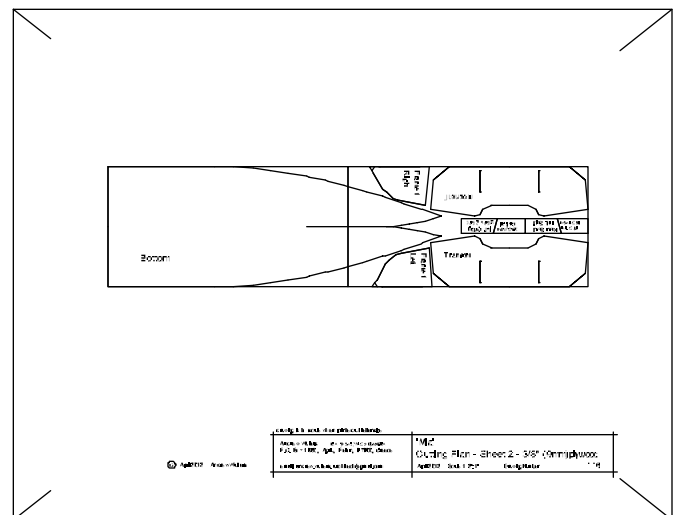
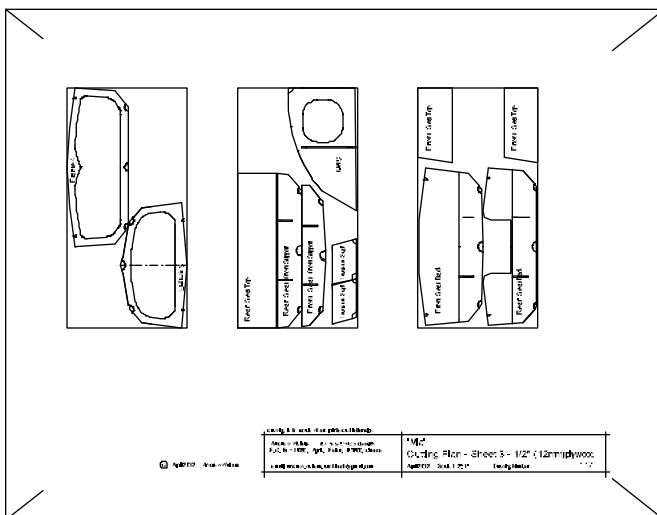
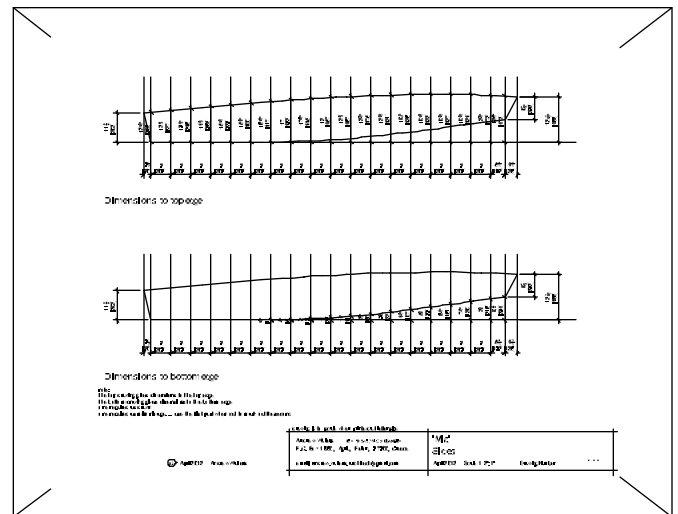
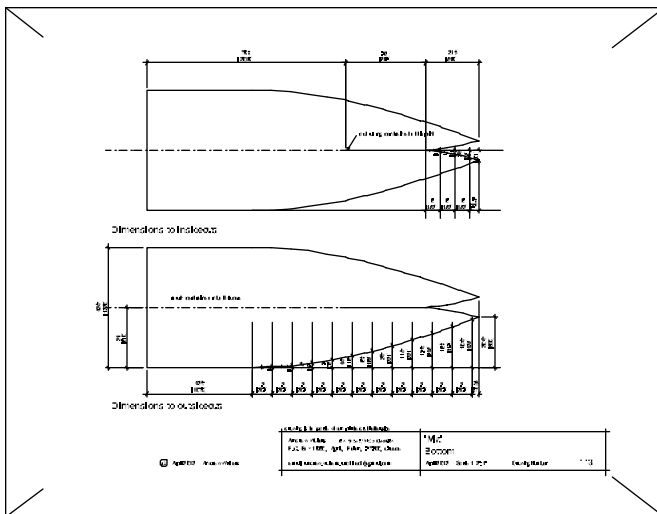
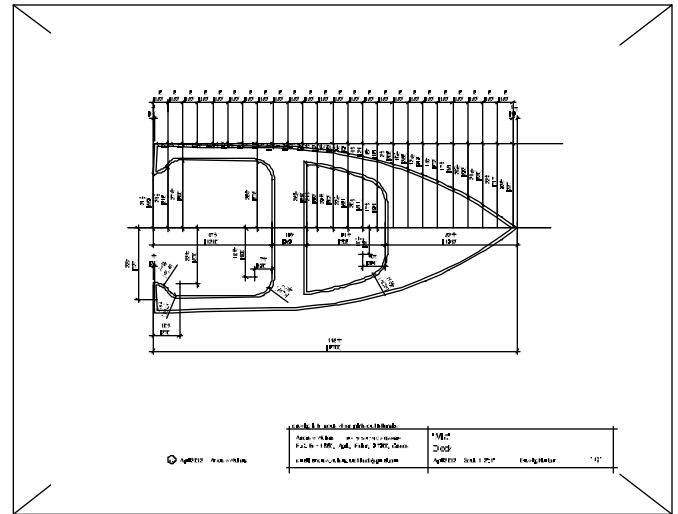
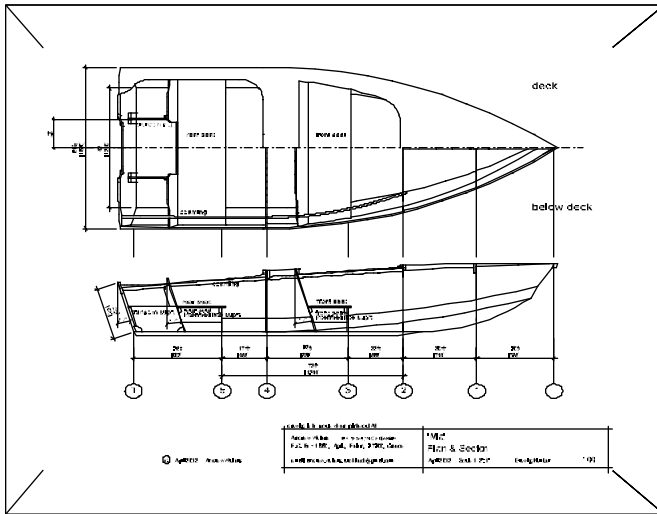
Fix frame 2 to the stem in the same manner making sure that the top faces align and the stem / frame 1 are at right angles.

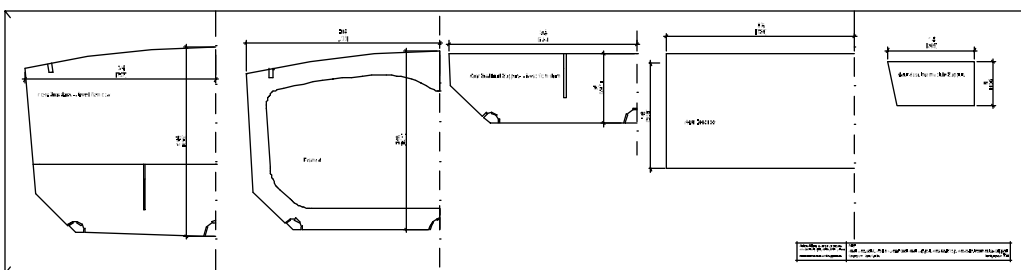
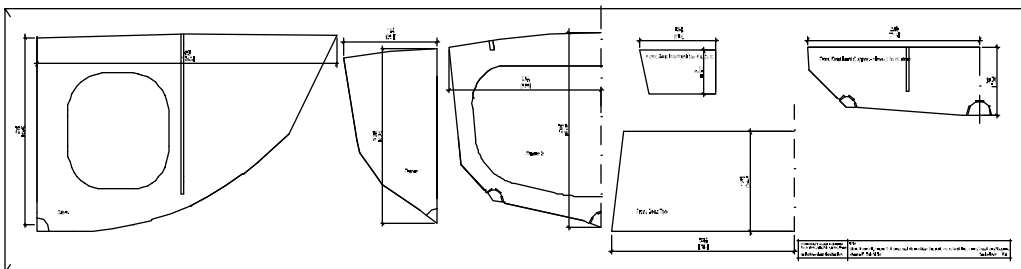
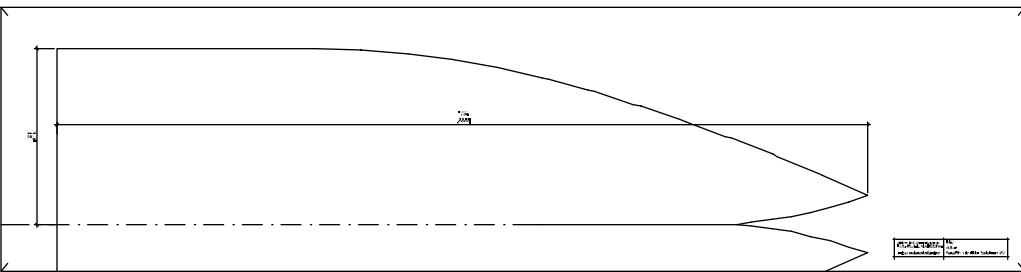
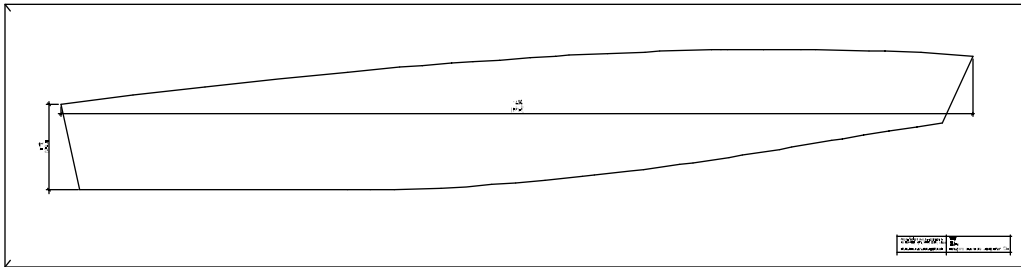
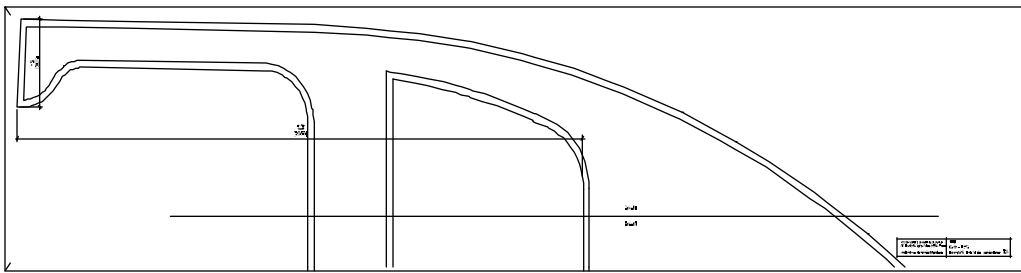


It should look like this.



Then fix the deck support battens to the top of the frames and stem.





Full Size templates

