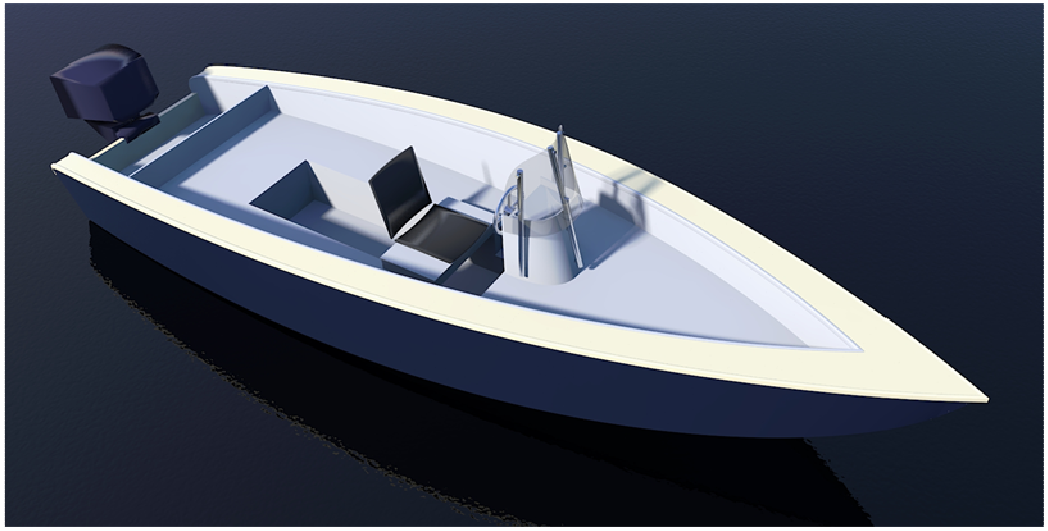
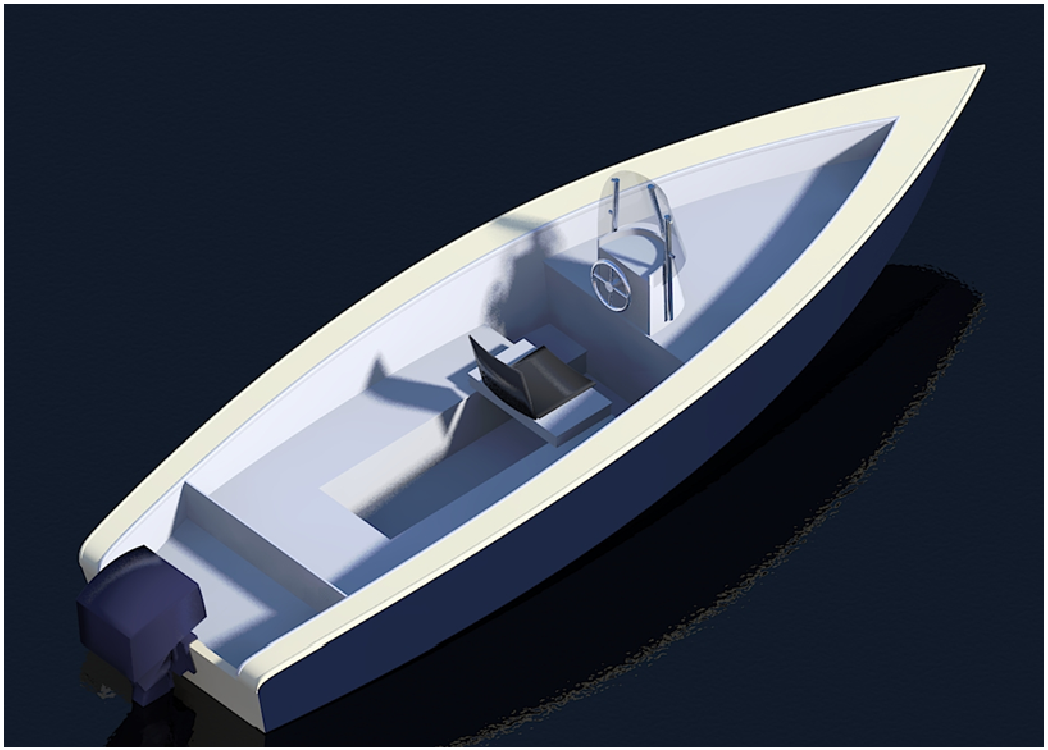
Delfini

19x6 Console
Semi Flat Hull

Study Plans





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Introduction

This is the 19' x 6' version of Delfini with a semi flat bottomed hull, i.e. a narrow flat central portion with V'd bilge panels. This should give a reasonable compromise between economy and rough water ability and the flat central section allows for beachability.

The boat is designed for long shaft (20”) outboard engines. Suggested engines are in the 25 hp to 50 hp range although, if lightly loaded, 15 hp would just be sufficient.

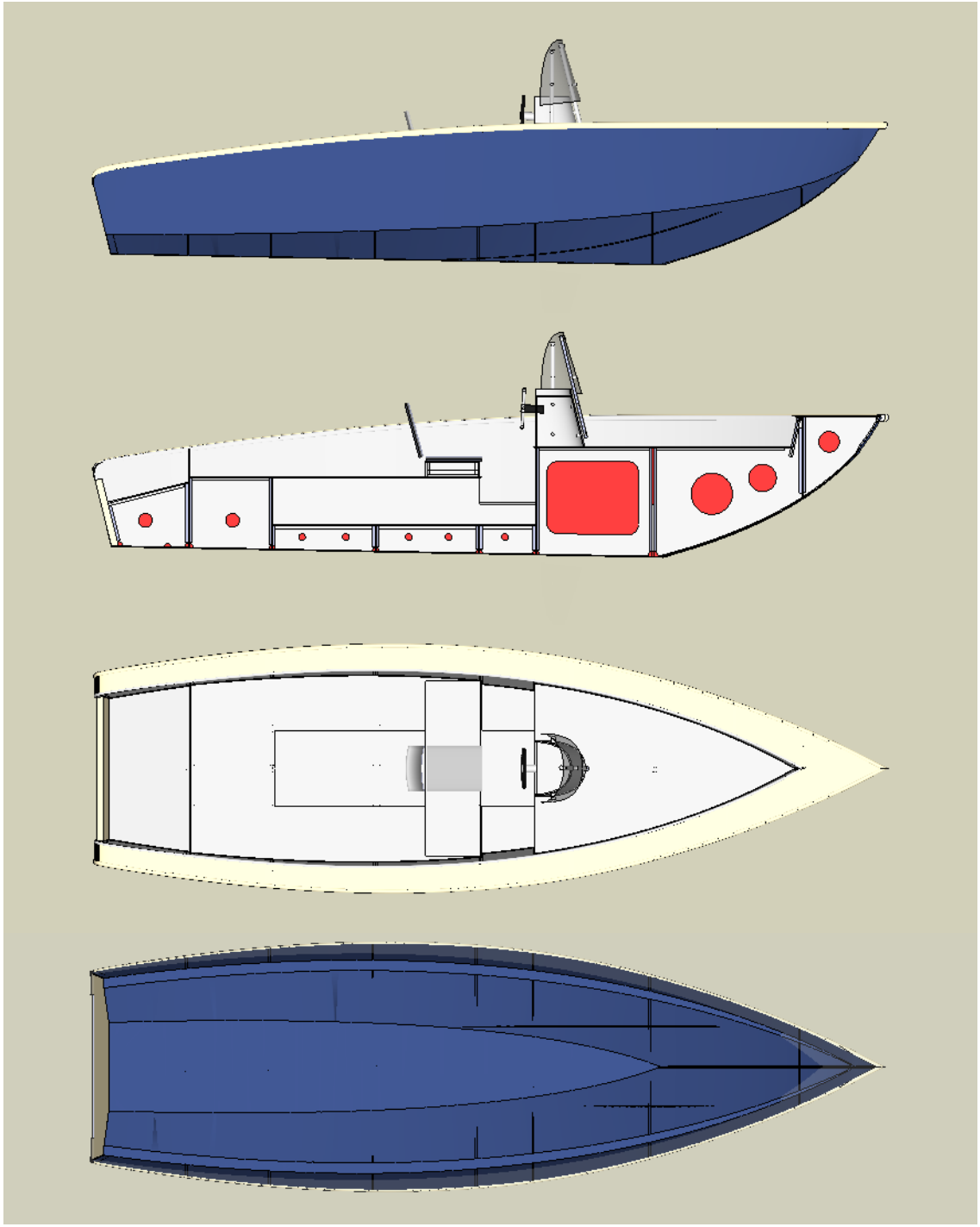
The plans package is in 4 parts as follows:

- This construction manual.
- The dimensioned scale plans in letter size format.
- The full size template drawings.
- The video which shows virtually every step of the build sequence.

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 epoxy resins and glass fiber.

Before buying materials, or starting to build this boat please read and familiarize yourself with the drawings and construction manual. Bear in mind that the build sequence and method of construction can be varied to suit your prererence.

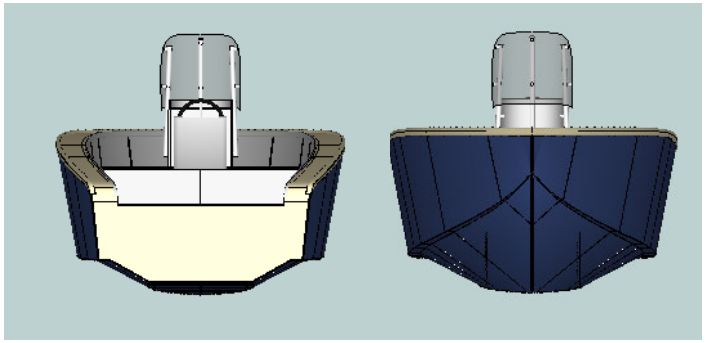


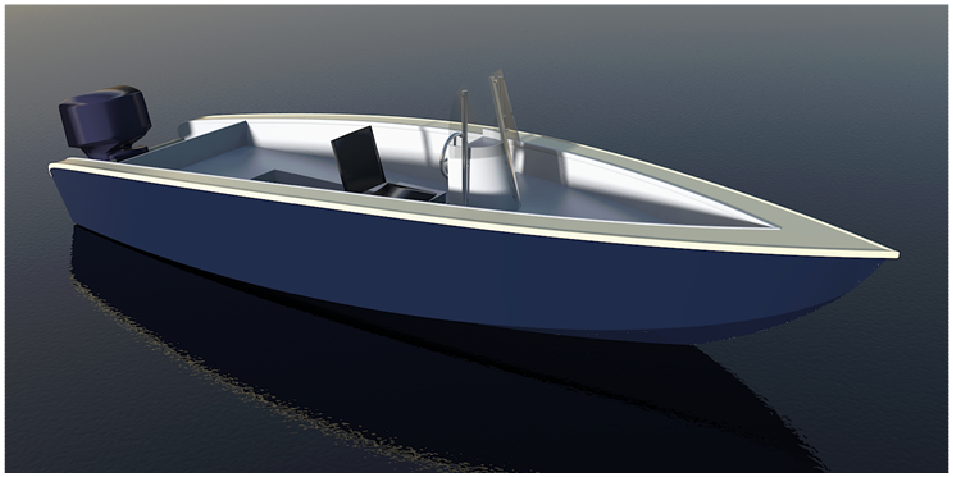
Specification

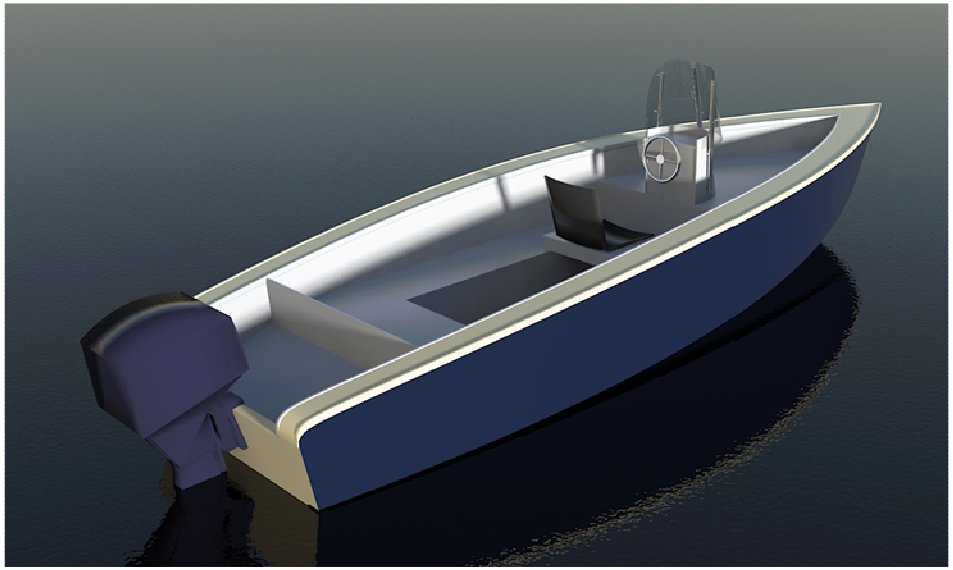
Length	19' 0"
Beam	6' 0"
Bare Hull Weight	600 lbs

Power Requirement - at 1500 lb displacement which is the approximate weight when loaded with 4 people, engine and ancillaries.

25 hp: 20 kts
50 hp: 30 kts







Introduction

Recommended Reading

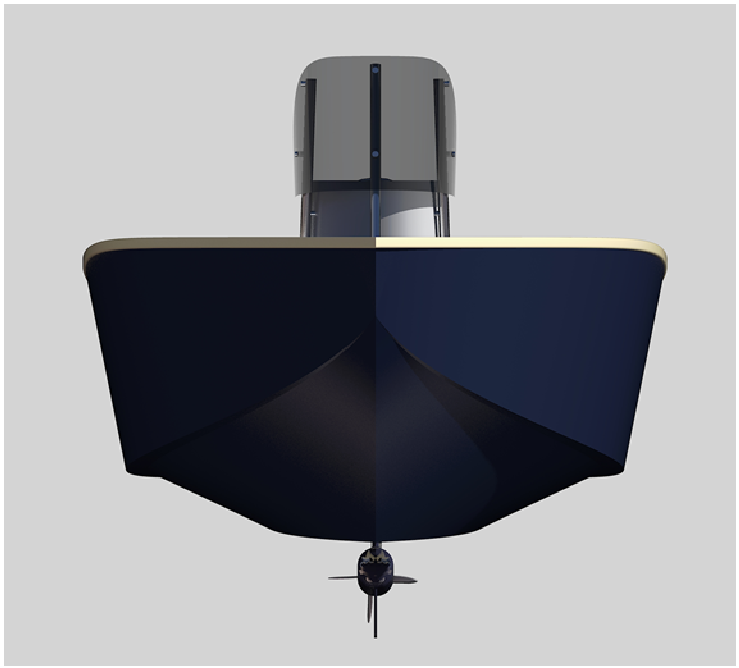
Two excellent books on the subjects of boat building and working with polyester and epoxy resins are:
Jim Michalak: 'Boatbuilding for Beginners (and Beyond)'
and
Harold Payson: 'Build the New Instant Boats'

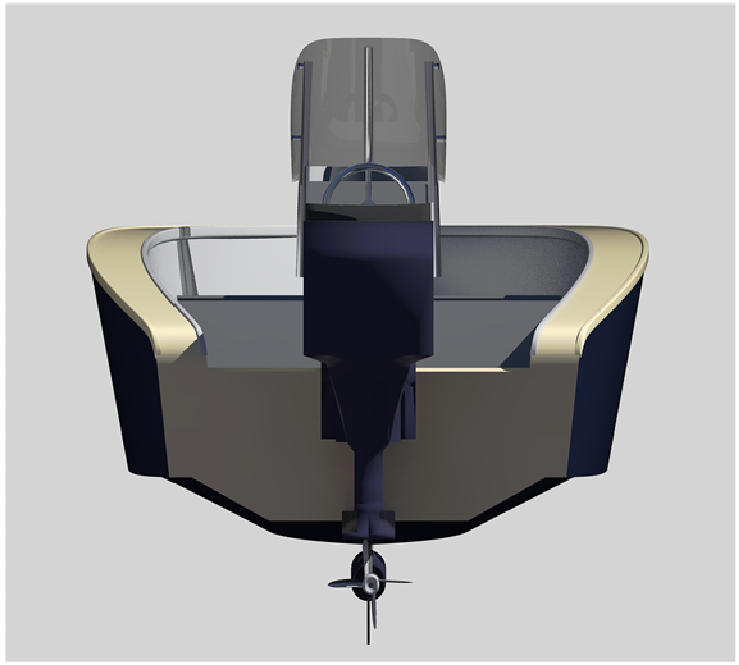
The West System website also has several downloadable user guides and manuals relating to their epoxy resin systems:
http://www.westsystem.com/ss/

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 and no warranty is made, including that of fitness for purpose.

Copyright





List of Materials

Marine Plywood:

1/2"x4'x8'
5 sheets

3/8"x4'x8'
8 sheets

1/4"x4'x8'
10 sheets

1/8"x4'x4'
1 sheet

1 1/2" square timber for the temporary supports
about 12'

3/4" square timber for batten fixings
about 350'
Note: less will be required if all joints are taped and epoxy resin jointed

50 yard roll of 3" glass tape

17 yards of glass cloth to cover the hull

3 gallons of epoxy resin

About 5 pounds of resin thickening powder

4 sheets of 8'x4'x2" (1220mmx2440mmx50mm) Styrofoam for the flotation

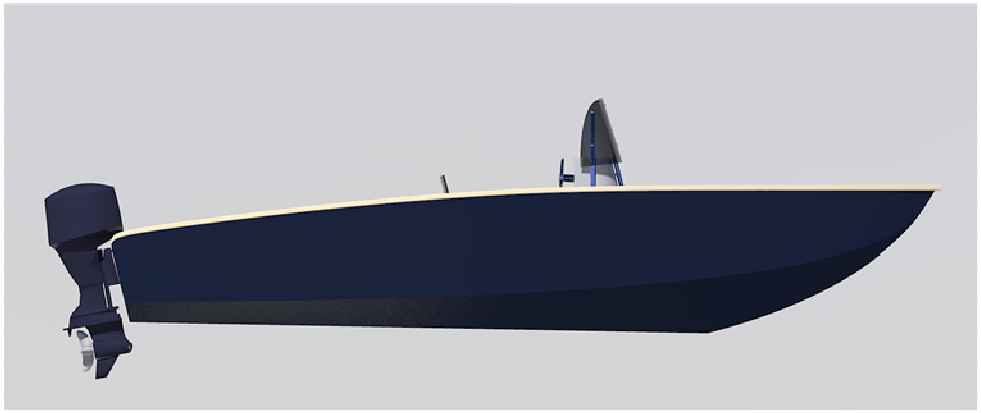
For the console screen:

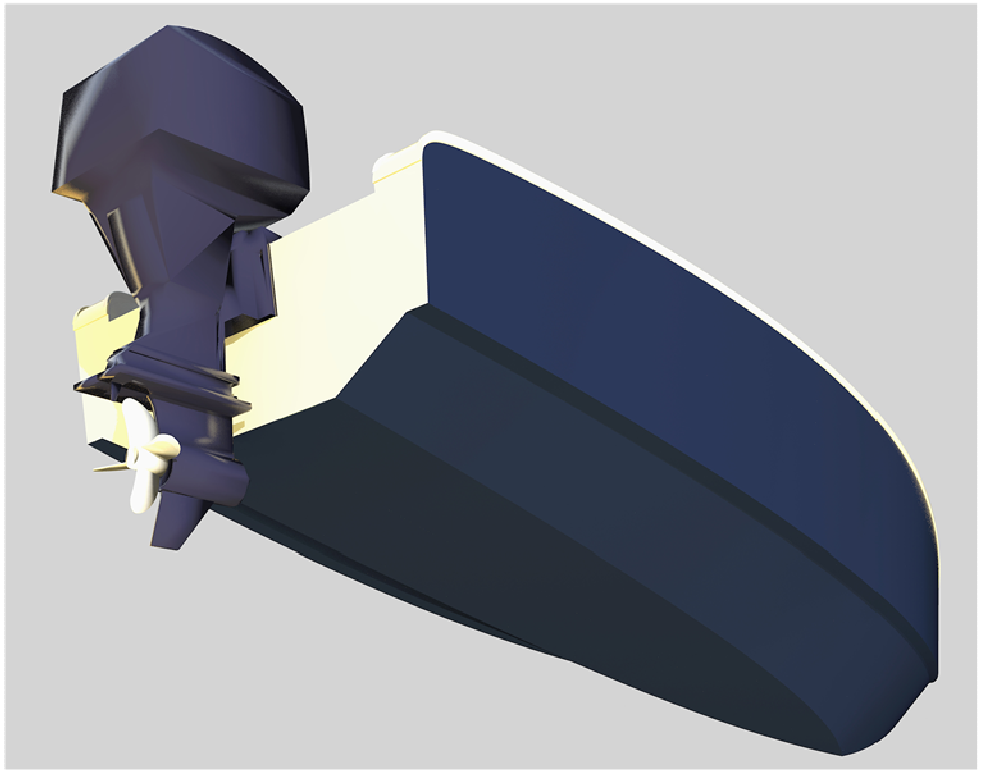
1 sheet 1/4" perspex
36" x 20"

For the console screen supports:

1 1/4" dia stainless steel tube
about 7' 6"

3/4" dia stainless steel tube
about 2' 0"





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.duckworksbbs.com/supplies/epoxy/marinepoxy/index.htm)

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

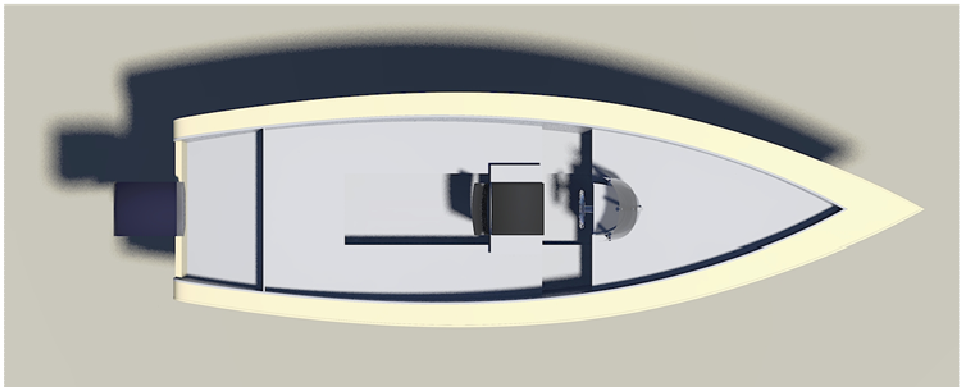
Polyester resin should not be used as a glue.

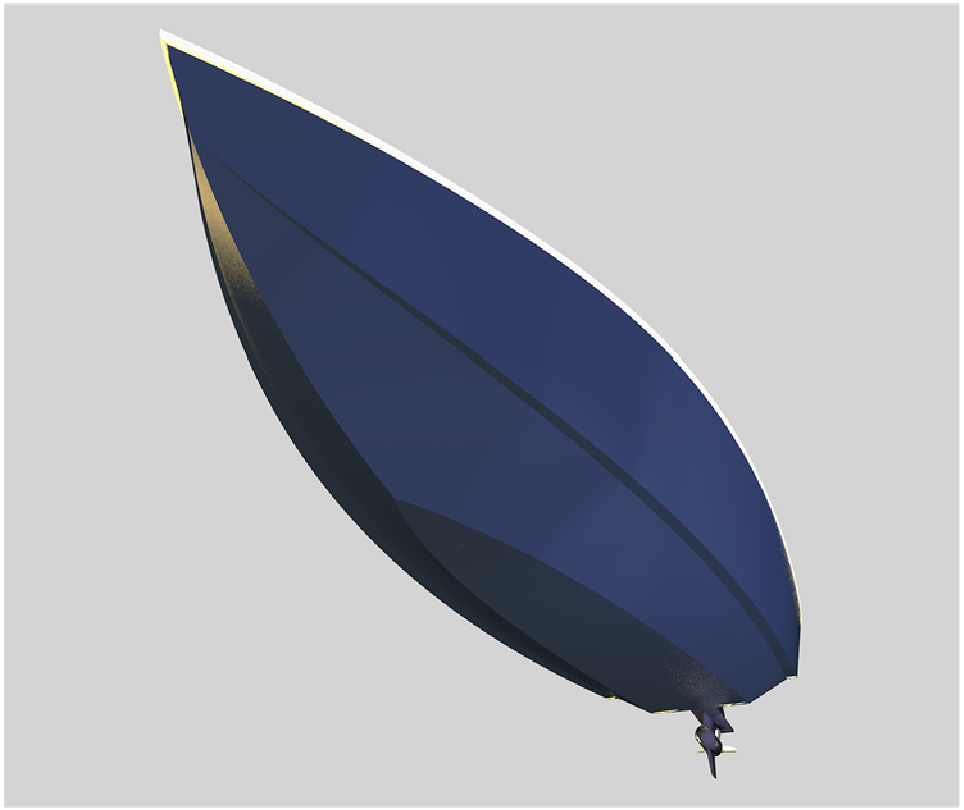
The drawings show the use of 3/4" x 3'4" battens, glued in place at all framing / panel joints. If preferred these can be omitted and replaced with fiberglass tape and epoxy resin joints.

Several of the battens are located above the waterline. If the boat isn't going to be kept permanently in the water then in these places the battens could be fixed with a waterproof PVA wood glue of a quality equivalent to Titebond II Premium Wood Glue.

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

'Raptor' polymer composite nails (used with a nail gun, refer to the section on tools overleaf) make for a very fast way of holding glued surfaces in place quickly and accurately. The method is to glue both faces, put in position, shoot a few nails in. They're strong enough to hold things in place whilst the glue sets and, being plastic can be sanded, chiseled or planed over without damaging cutting blades - and don't rust.





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
Spirit level and string line

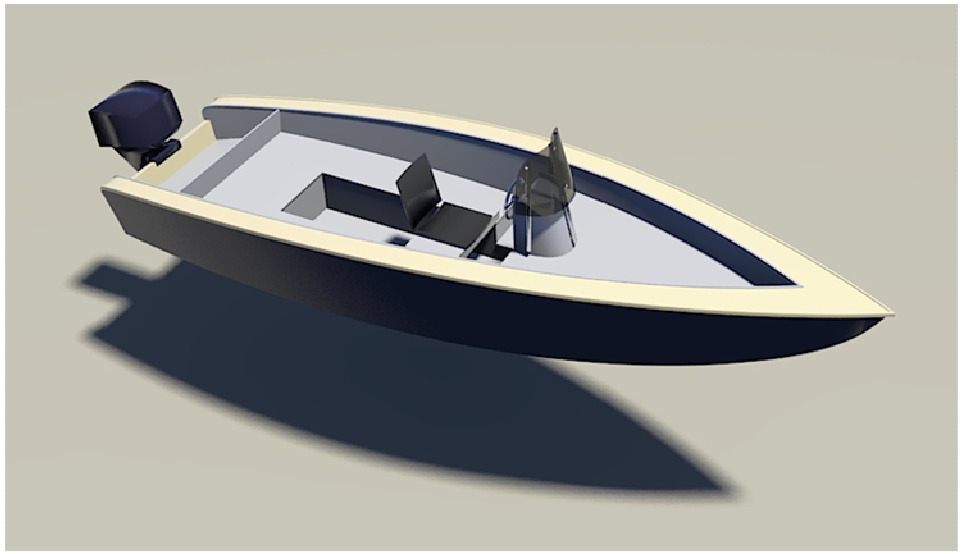
Power Tools

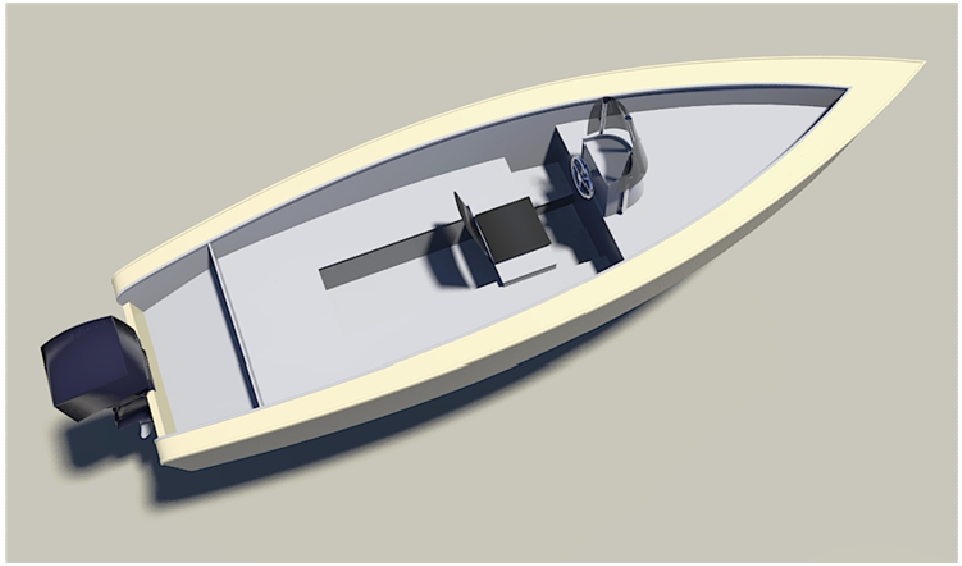
Battery powered drill and battery powered impact driver.
I find these essential for driving screws and drilling.
These tools have changed the way that I work with wood.
Instead of clamping things in place I often screw them on temporarily then remove the screws after everything is taped and glued and 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.duckworksbbs.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.

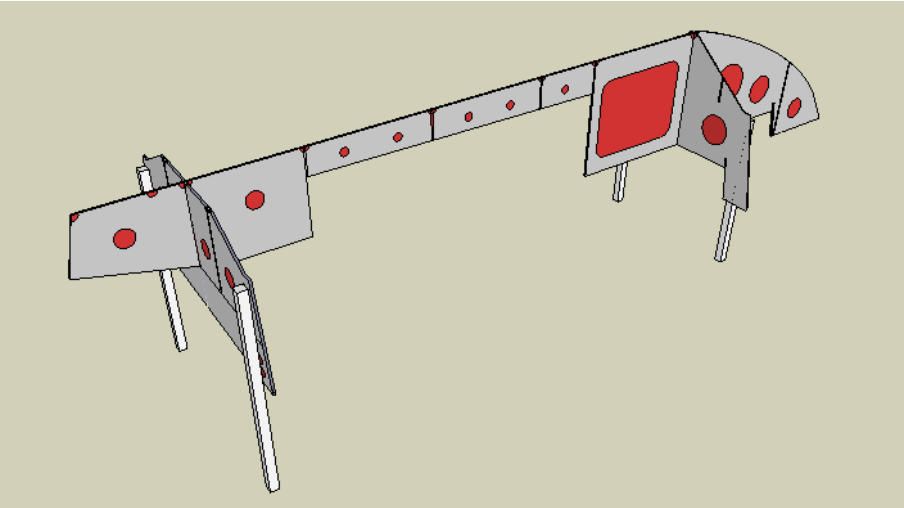
If using the full size templates you can either temporarily glue them onto the plywood with low tack aerosol adhesive, or mark through with a toothed dressmaker's wheel.

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.

Please note that the drawings do not show a tolerance for fitting components together. Adjustments should be made accordingly when cutting out. This is particularly important when cutting the assembly slots in the framing panels.

Areas marked red on the following drawings indicate holes in the panels.

Please note that there are many spaces on the boat that are suitable for storage compartments which can be located to suit the builder's preference. Bear in mind the minimum flotation requirement of 19 cubic feet.



Frame 1, Frame 7 and Keel

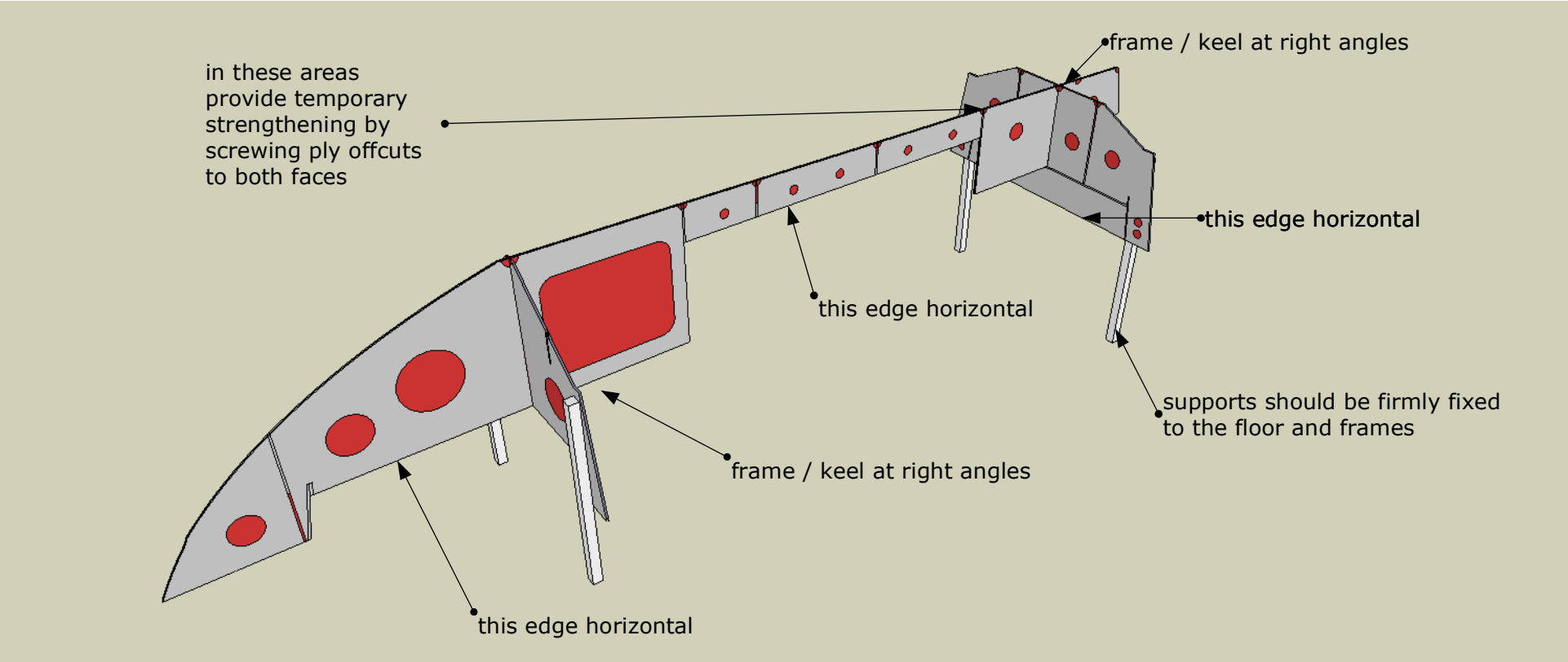
Assemble as shown.

Frames should be vertical (use a level) and at right angles to the keel.

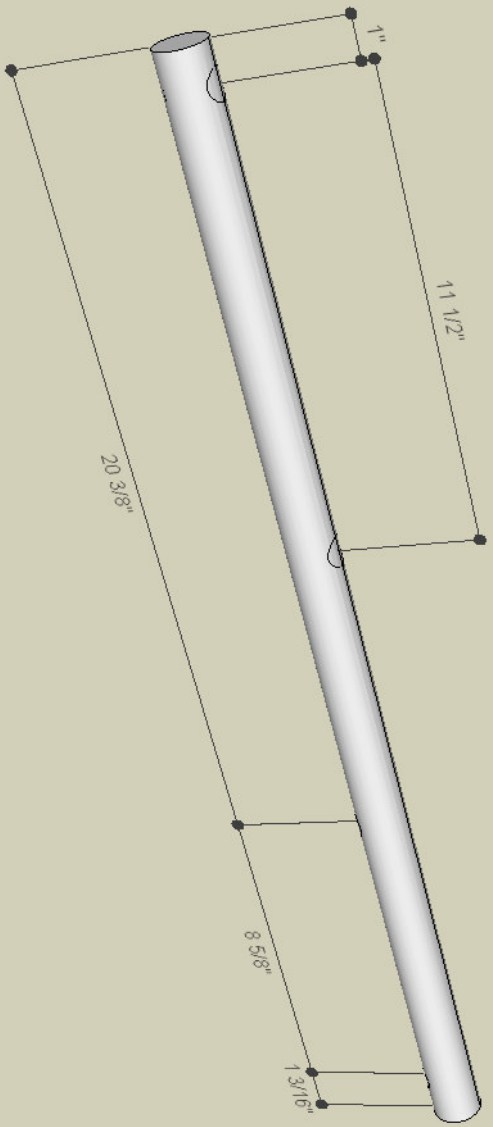
The keel bottom is NOT horizontal - refer to the arrangement section.

The top face of the keel should be horizontal (with the exception of the motorwell area).

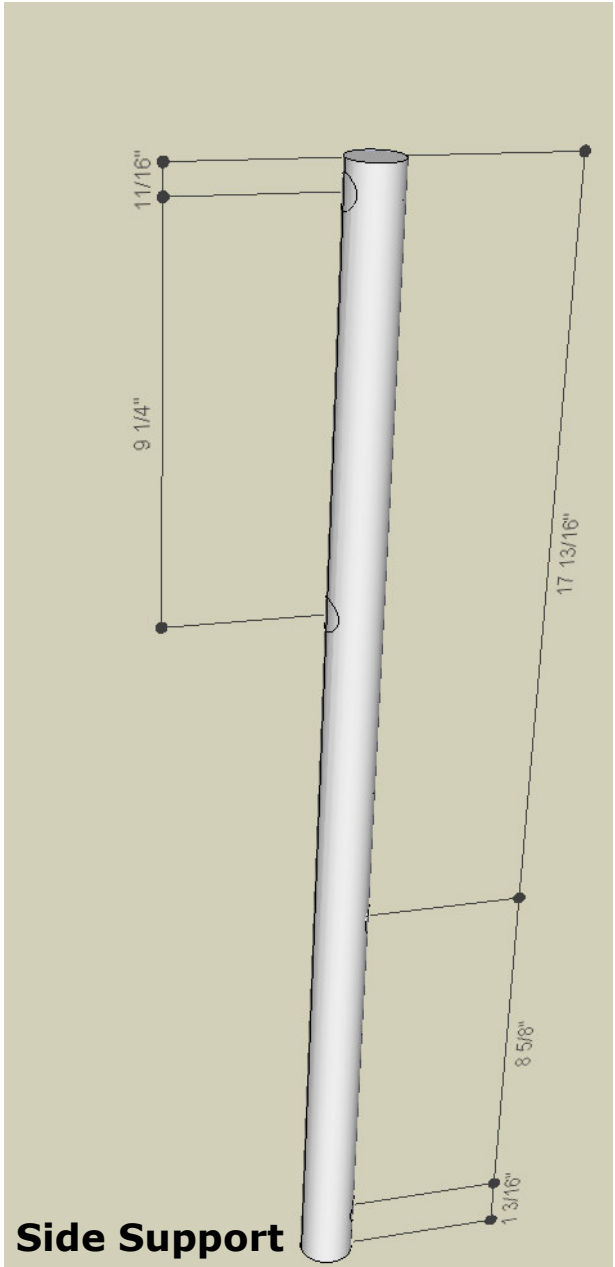
The top faces of frames 1 and 7 are also horizontal.



Console Side Support and Front Support Dimensions



Front Support



Side Support

One required as drawn.
One required handed.