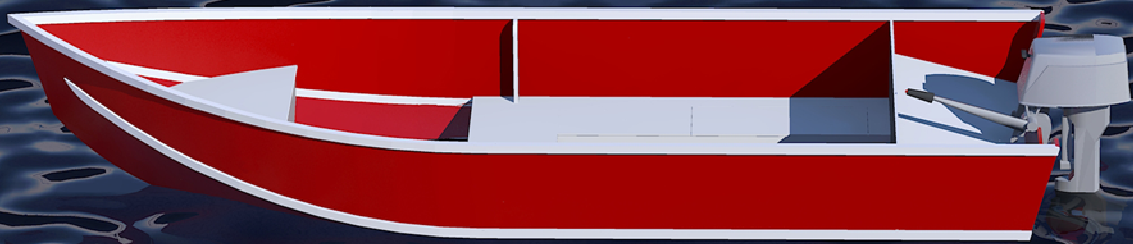
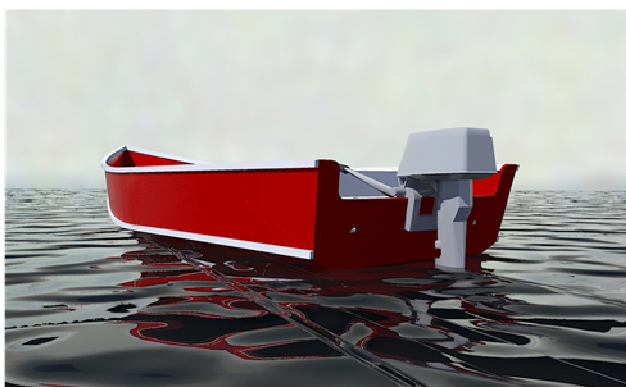
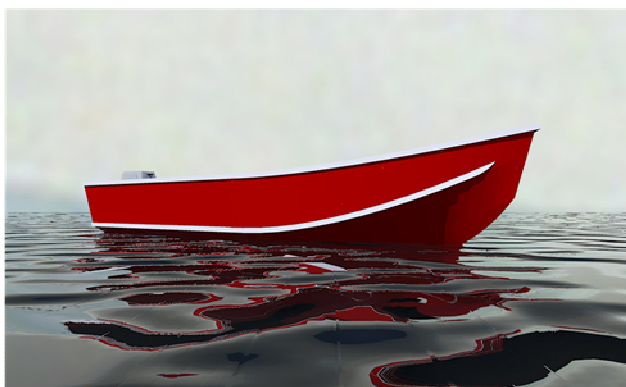
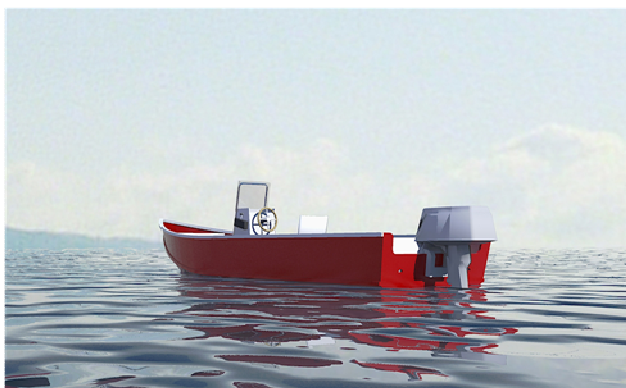
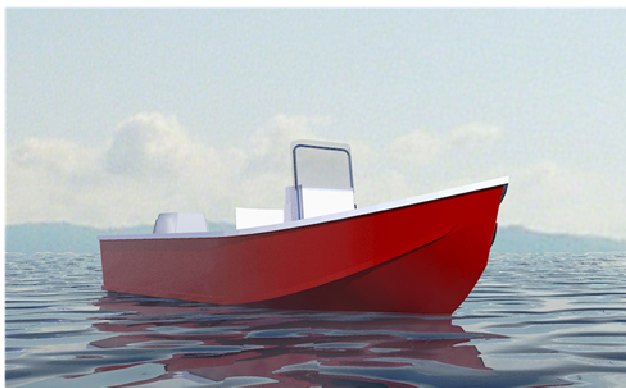


Volare



Study Plans



Contents

- 2 Introduction
- 4 List of Materials
- 5 Glue, Resin and Fixings
- 6 Tools
- 7 Construction Sequence

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

'Volare' comes in two versions. The console version and the utility version. Both versions can be built with the planing hull shown on the plans, or with a stepped hull, details of which are shown on the step supplement.

They're both 15'4" long and 5' wide which is the length of two sheets of 8' plywood.

Construction is unusual in that she's built in two halves (bow end and stern end). This enables the majority of the construction work to be carried out in a small workshop.

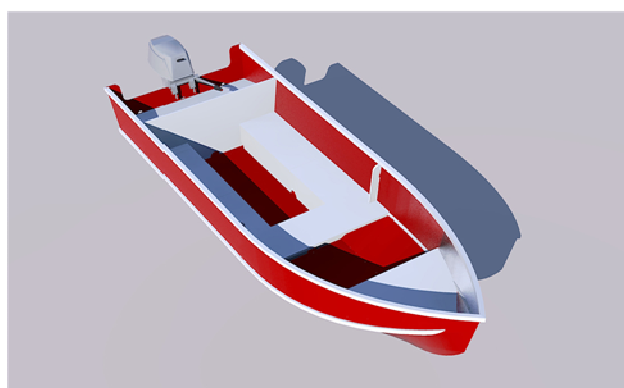
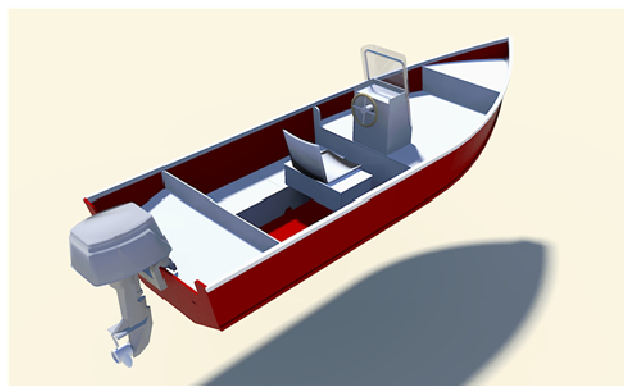
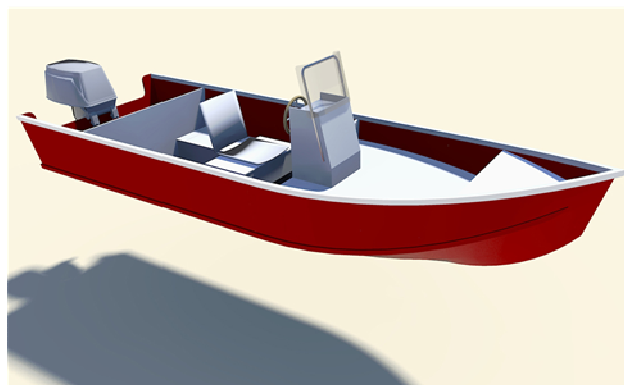
The stern section is built from straight sided panels. This simplifies much of the marking out and cutting of large sheets and panels. If your timber merchant offers a cutting service they can be cut there.

The bow and stern sections are designed to be joined permanently using epoxy resin between the end frames and additional layers of glass fiber cloth and epoxy resin over the joint area before applying to the complete outer hull.

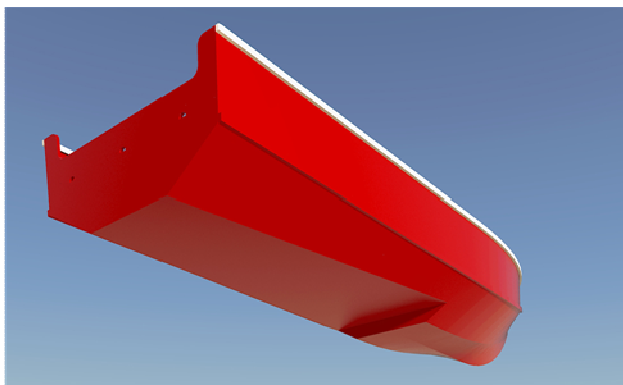
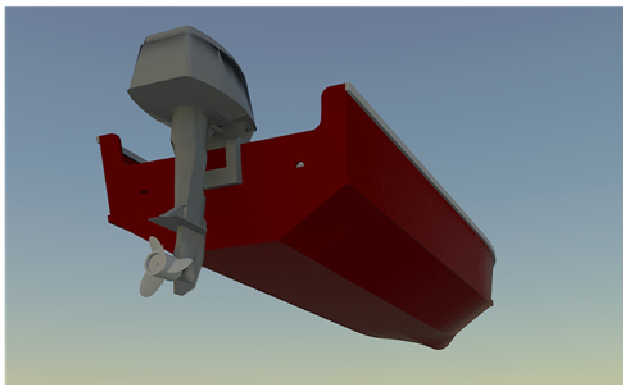
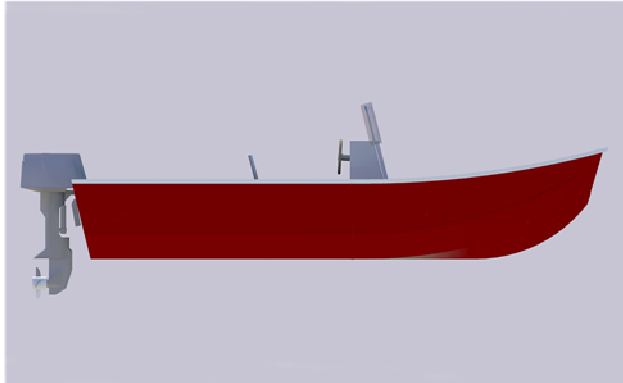
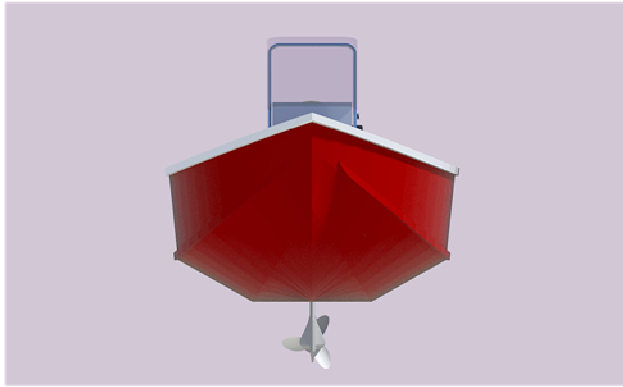
The boat is designed for long shaft (20") outboard engines. Suggested engines are 25 hp with 4 on board and 15 hp with 2 on board.

The plans package is in 4 parts as follows:

- The construction manual.
- The dimensioned scale plans in letter size format.
- The full size template drawings of the front hull sections, deck, stem and anchor box.
- 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 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'

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

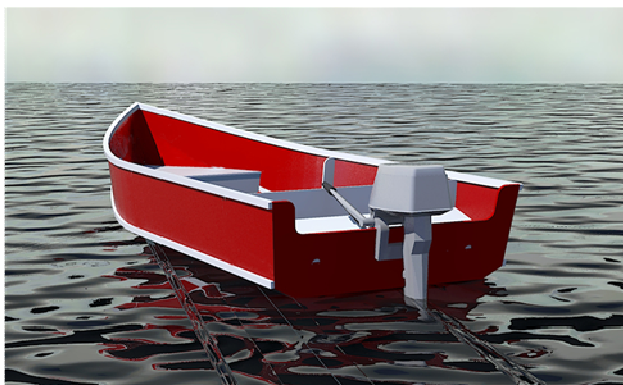
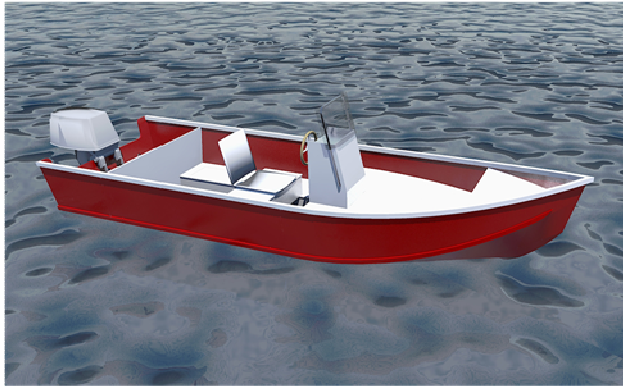
Disclaimer

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.

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)
4 sheets

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

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

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

1 1/2" square timber for batten fixings (re-
use temporary support timber)
about 10' (3m)

1 1/2"x3/4" timber for batten fixings
about 200' (60m)

7"x1 1/2" timber for the motor board
5' (1500mm)

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

14 yards of glass cloth to cover the hull

Two gallons (9 liters) of epoxy resin

About 5 pounds (2 kg) of resin thickening
powder

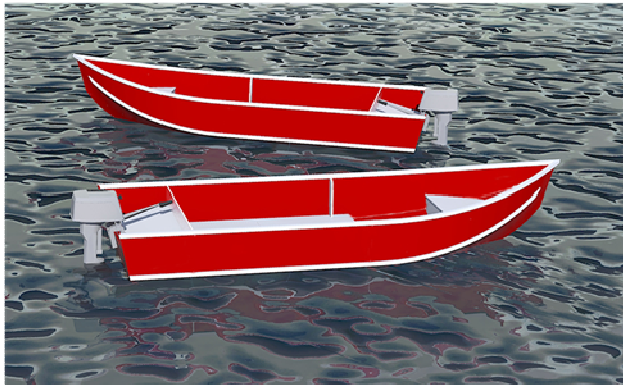
5 sheets of 8'x4'x2"
(1220mmx2440mmx50mm) Styrofoam for
the flotation



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.

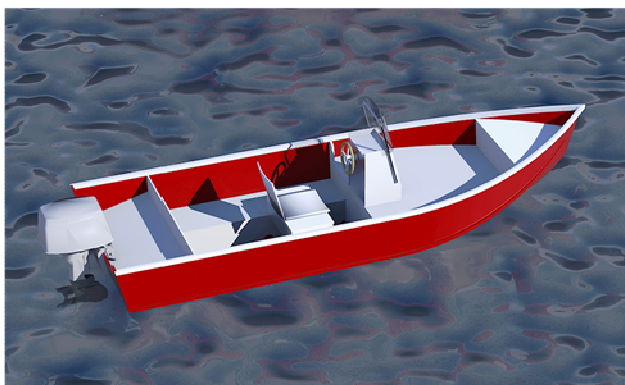
Polyester resin should not be used as a glue.

Any screws that you plan to leave in should be stainless steel. I often use 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.





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.

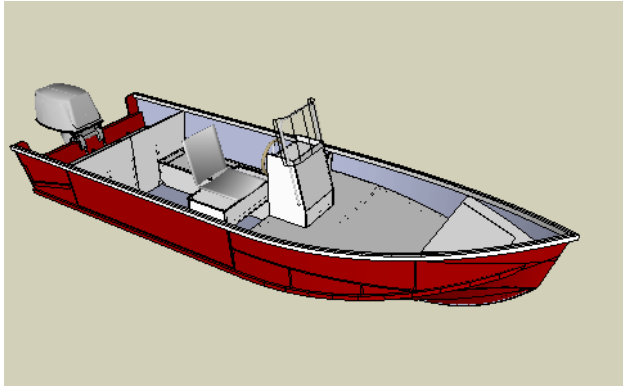
I find these essential for driving screws and drilling.

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.



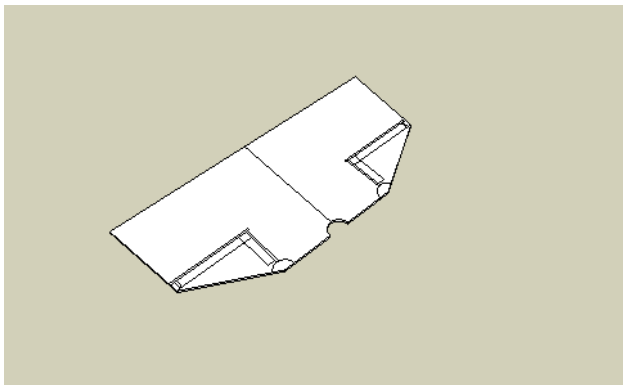
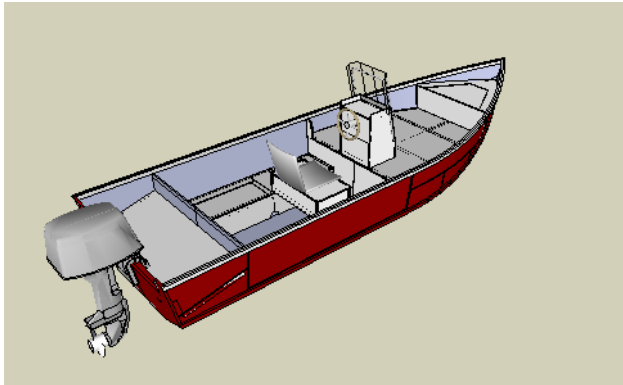
The Construction Sequence

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.

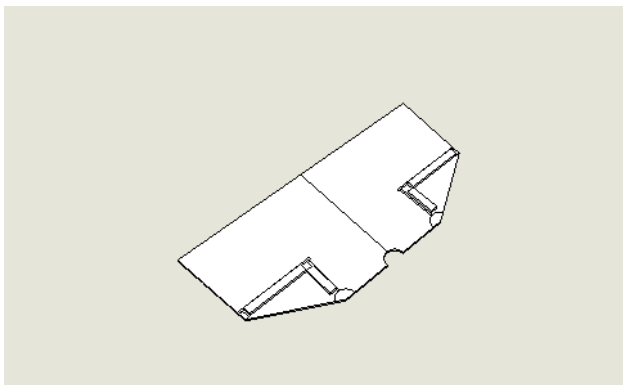
If you bought the plans in .pdf format make sure that you print them without scaling. The full size templates include dimensions to enable you to check this.



Stern Section

Frame 3 Stern End

On the bow face mark the center line and positions of the supports for the side seat top and front.



Fix the support battens.

Drawings

drawing number	title	scale
100	arrangement plan	1/2" : 1'
101	arrangement side elevation and section	1/2" : 1'
102	arrangement bow & stern elevations	1/2" : 1'
103	stem	1" : 1'
104	frame 1	1" : 1'
105	frame 2	1" : 1'
106	frame 3 bow end - viewed from bow	1" : 1'
107	frame 3 stern end - viewed from stern	1" : 1'
108	frame 4 - viewed from bow	1" : 1'
109	frame 4 - viewed from stern	1" : 1'
110	transom	1" : 1'
111	transom knees & splashwell top	1" : 1'
112	deck	1" : 1'
113	side seats	1" : 1'
114	console	1" : 1'
115	seat	1" : 1'
116	anchor box	1" : 1'
117	bottom - rear section	1" : 1'
118	side & chine - rear section	1" : 1'
119	side - front section	1" : 1'
120	chine - front section	1" : 1'
121	bottom - front section	1" : 1'
122	cutting plan - 1/4" (6mm) plywood	1/2" : 1'
123	cutting plan - 3/8" (9mm) plywood	1/2" : 1'
124	cutting plan - 1/2" (12mm) plywood	1/2" : 1'

all drawings are letter size (8 1/2" x 11", 215.9mm x 279.4mm)

drawing is to scale when printed at letter size

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'Volare'
Drawing Schedule

Templates

drawing number	title
200	stem & anchor box top
201	deck
202	side - front section
203	chine - front section
204	bottom - front section

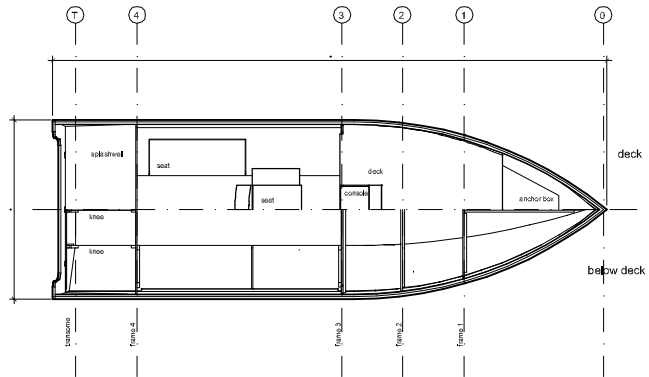
all templates are on 36" x 96" sheets

drawing is to scale when printed at letter size

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'Volare'
Drawing Schedule



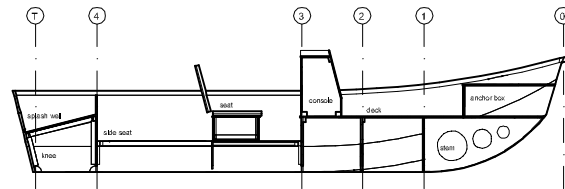
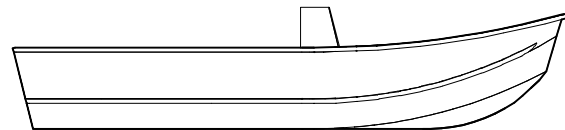
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'Volare'
Arrangement Plan
June 2012 Scale 1/2"=1'

Drawing Number 100



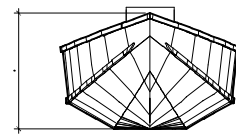
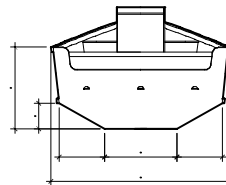
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drawing is to scale when printed at letter size

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'Volare'
Arrangement Side Elevation & Section
June 2012 Scale 1/2"=1'

Drawing Number 101



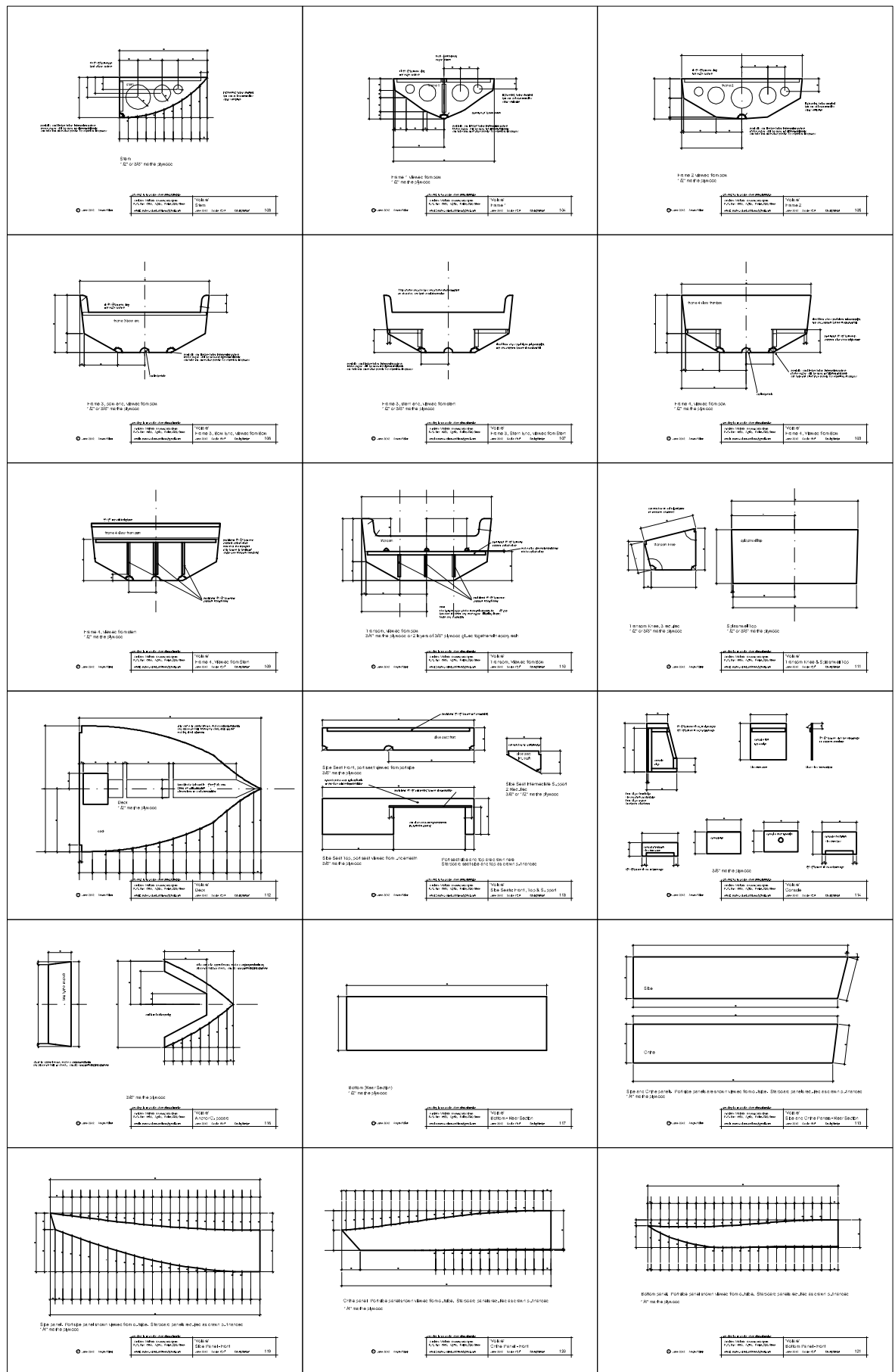
© June 2012 Andrew Walters

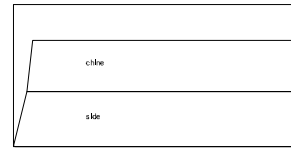
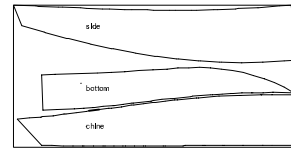
drawing is to scale when printed at letter size

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'Volare'
Arrangement Bow & Stem Elevations
June 2012 Scale 1/2"=1'

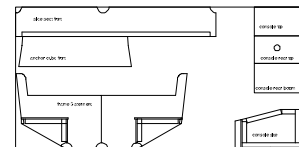
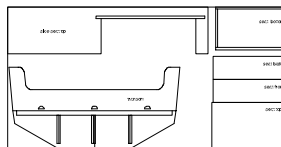
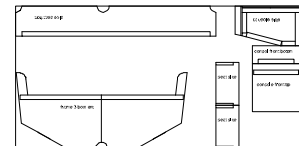
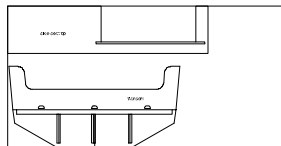
Drawing Number 102





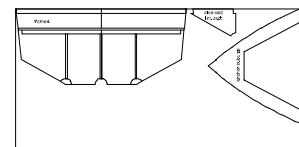
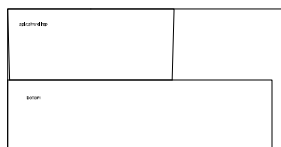
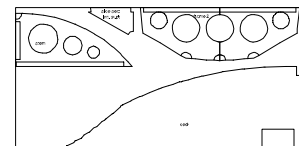
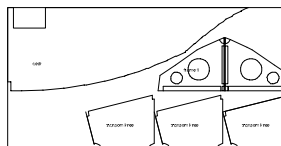
Side and Chine panels. One set required as drawn. One set required handed
1/4" marine plywood

drawing to be scaled when printed at letter size	
Andrew Walters BA (Hons) MSc Dip Arch P.O. Box 1960, Agria, Pelion, 37300, Greece email: andrew.walters.architect@gmail.com	'Volare' Cutting Plan - Sheet 1 - 1/4" (6mm) plywood June 2012 Scale 1/2"=1' Drawing Number 122



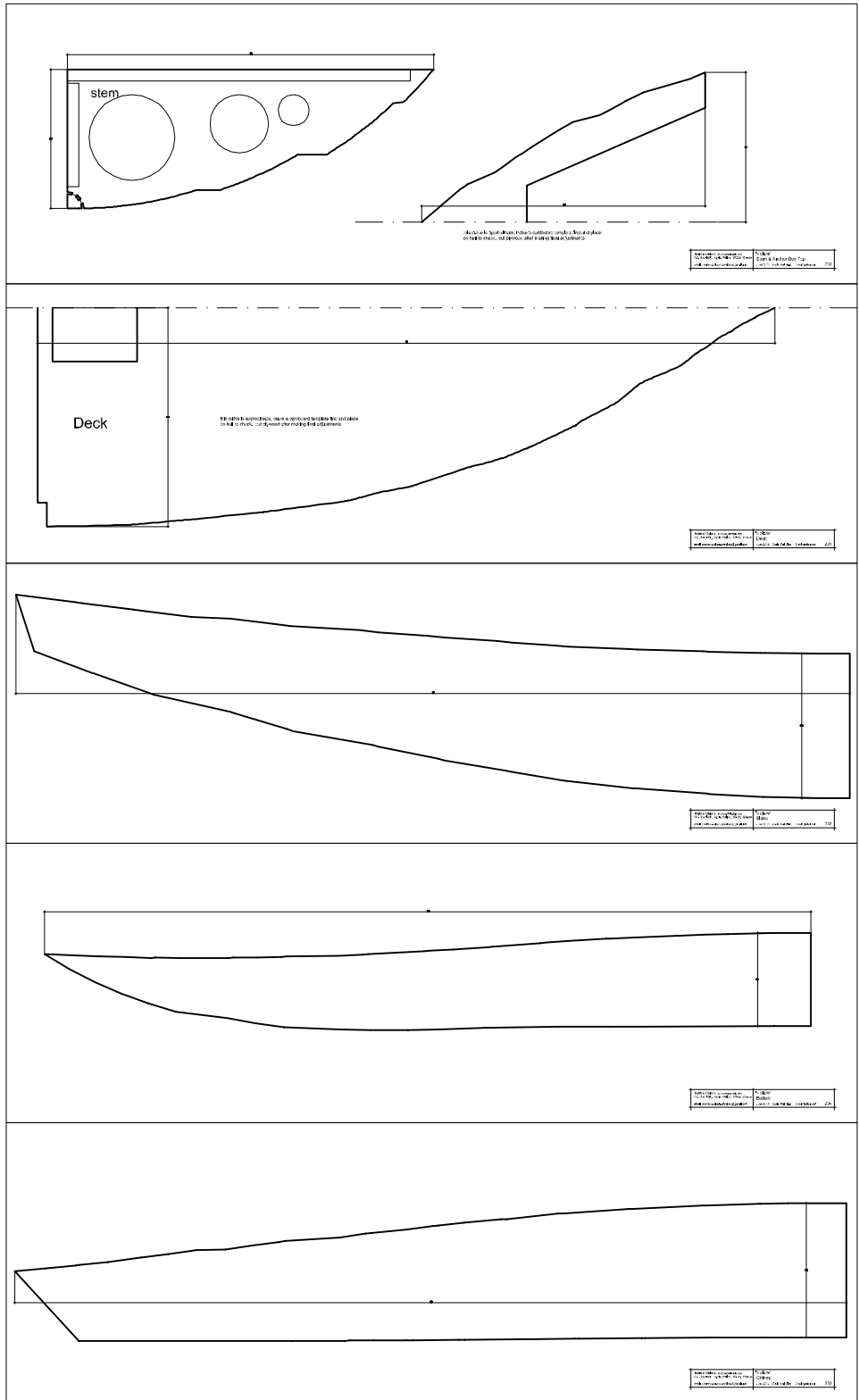
3/8" marine plywood

drawing to be scaled when printed at letter size	
Andrew Walters BA (Hons) MSc Dip Arch P.O. Box 1960, Agria, Pelion, 37300, Greece email: andrew.walters.architect@gmail.com	'Volare' Cutting Plan - Sheet 2 - 3/8" (9mm) plywood June 2012 Scale 1/2"=1' Drawing Number 123



1/2" marine plywood

drawing to be scaled when printed at letter size	
Andrew Walters BA (Hons) MSc Dip Arch P.O. Box 1960, Agria, Pelion, 37300, Greece email: andrew.walters.architect@gmail.com	'Volare' Cutting Plan - Sheet 3 - 1/2" (12mm) plywood June 2012 Scale 1/2"=1' Drawing Number 124



Full Size Templates