

**Jacques LHOSTE**

**3 rue de Caylus  
89000 AUXERRE  
France**

Email : [lhostej@ipoint.fr](mailto:lhostej@ipoint.fr)

Phone : (33) 386 721 300

Fax : (33) 386 721 304

## **Duckworks Magazine**

### **Design contest 2001**

I enclose an entry for the Duckworks 2001 Amateur Design Competition . I have read and understood the competition rules and agree to be bound by them .

I am an architect (not naval), fifty five years old and live in France in Burgundy .

I have designed and build for myself several boats from 8 to 24 feet all made of wood, ply or cold laminated veneer .

Project's name :

**ALIEN III**



## INTENDED USE

My basic need is for a kind of tender to my "yacht" .

We own a 20 ft daysailer which is moored at about 100yd of the shore in front of our summer house in Brittany .

There is always a lot of things to carry to and from this boat : people, gas, water, batteries, tools, anchors, chain, food, fishing equipment and so on ...

Actually i am using an inflatable 6 ft tender . Hard to keep yourself dry in such a bathtub .

Many peoples are using 7-8ft plastic prams, some of them are fitted with wheels . The beach is invaded by this coloured buckets . It is an offense to the landscape .

I had decided to build a classic 12 ft dory when i discovered Duckworks design contest .

Then i decided to adapt my project to the competition's rules without forgetting my personal needs .

I want a boat :

- Not too heavy, it has to be hauled on the beach
- Not too short, 10 ft is a minimum for a good weight carrying capacity and a correct stability
- Either rowed or sailed
- Fast and easy to rig
- Able to sail with two people aboard
- With good overall sailing performances, particularly by light weather and to windward (we have to overcome strong tidal streams)
- Easy to build and maintain
- Looking like a boat, neither a bucket nor a container

It will be used as a tender but also for fishing and fun in sheltered water by adults and teenagers.

## DESIGN

Some preliminary sketches led me to the conclusion that with two 8x4 sheets :

- The boat could be 10-11 ft long at the price of some scarfing
- Width could be a bit more than 4 ft which is good, not too wide, not too slim
- A two chines configuration with a flat bottom and a forward transom lead to less curved panel's development allowing a better use of the ply

The final project was elaborated with my favorite CAD program (Tubocad), optimised and very accurately drawn to avoid the job of full size lofting .

Once the definitive line plan drawn, hull's panels were decomposed into triangles to do the development . Tests showed that the accuracy is better than 2/100" on overall dimensions .

A virtual 3D model was built with Tubocad also . It showed well faired lines and good overall proportions .

Finally a 1/10<sup>th</sup> cardboard model was built directly from the printed development of the planking as a final check .

Longitudinal lines are smooth to keep a good heeled balance.

The sections show a narrow waterline for a low wetted area and ease of rowing . Initial stability is moderate but a few degrees heel increases the beam to leeward making the boat stiffer .

The rig is a kind of sail board's rig for efficiency and simplicity . No shrouds, no halyard, no boom, just a wishbone two blocks and a sheet . The boat will be rigged on the shore, sail and wishbone being lashed to the mast . The leech of the sail is straight because i suppose it must be so with Poly tarp . ( A sail made of cloth could have a rounded leech with two battens allowing an increased sail area) . The wishbone's trajectory is above the crew's heads .

## CONSTRUCTION

Stitch and glue was chosen for simplicity and economy .

Full size patterns of the panels can be plotted directly from the CAD files and put on the ply sheets to cut the parts .

The more accurate job to do is scarfing the 5 hull's panels .

The panels are joined by glass taped fillets .

The bottom is reinforced by an inside keel and two bottom stringers .

An external and internal gunwale with spacers add stiffness to the sides .

The structure is completed by the mast beam and the seat .

Every part must be screwed and glued .

The mast is a rounded box section build of four glued parts .

The whisbone is made of two parts glued , bent and lashed together .

One polytarp is used for the sail . A cover could be made with the other .

Every bit of plywood and timber is used with very few losses .

## FASTENERS

**Resin** : One gallon epoxy is more than enough for gluing, filletting and coating all wooden parts .

**Fillers** : microsphere for fillets, wood fiber for gluing, talc or similar for fairing .

**Glass tape** : 4 inch woven cloth or biaxial, about 40 yard

**Screws** : stainless steel or bronze 3/4" - 200 , 1 1/2" - 60

**Steel nails and screws** : for temporary fastening

**Polyurethan** paint and/or varnish :

**Carpet tape** : for the sail about 15 yard (one seam has to be taped and sewed)

**Miscellaneous** : adhesive paper, solvent, sanding paper, ...

## FITTINGS

**Two blocks** for the main sheet .

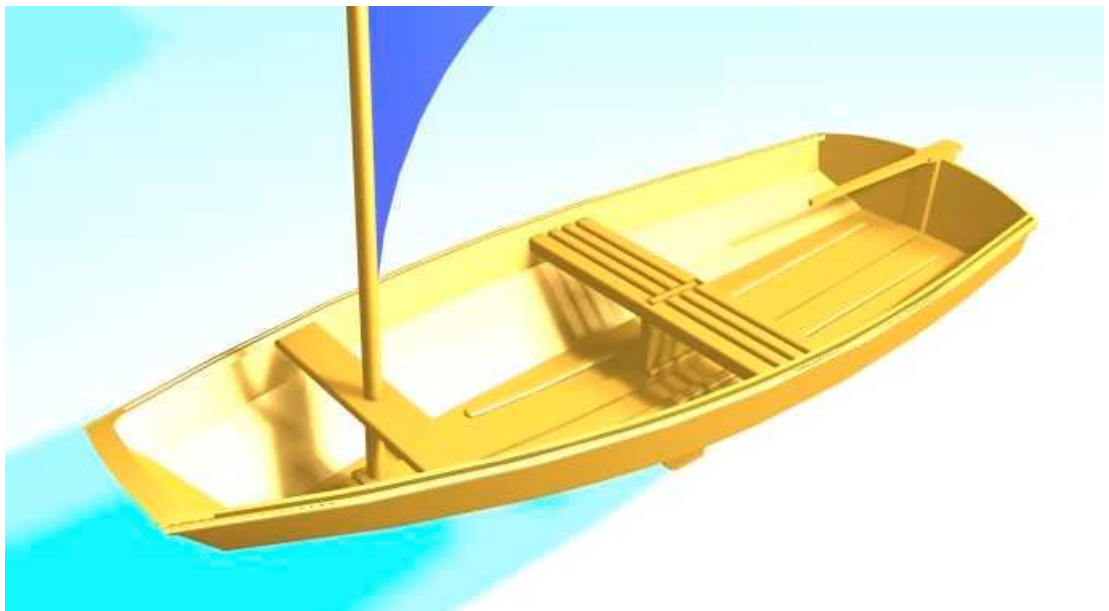
**Rudder** fixture .

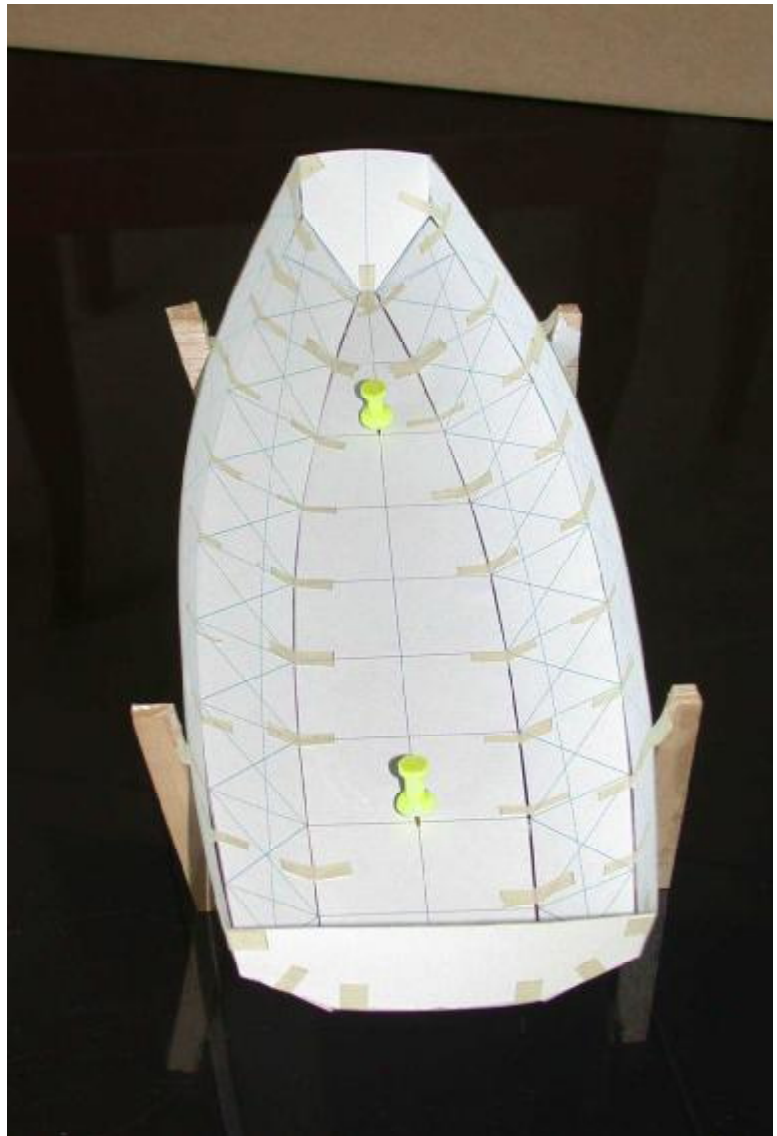
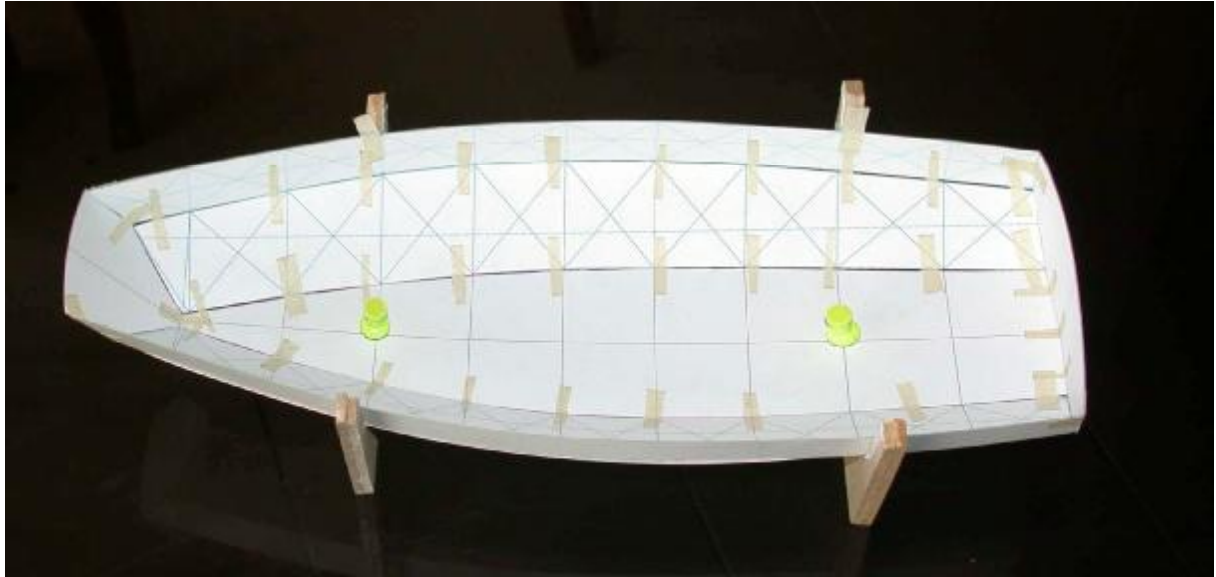
## SPECIFICATIONS

LOA :	127.0 "
LWL :	115.0 "
BOA :	49.0 "
BWL :	35.9 "
Draft :	4.2 "
Max freeboard :	13.4 "
Min freeboard :	9.8 "
Displacement :	310 lbs
Sail area :	54.3 sq ft
Empty weight :	110 lbs

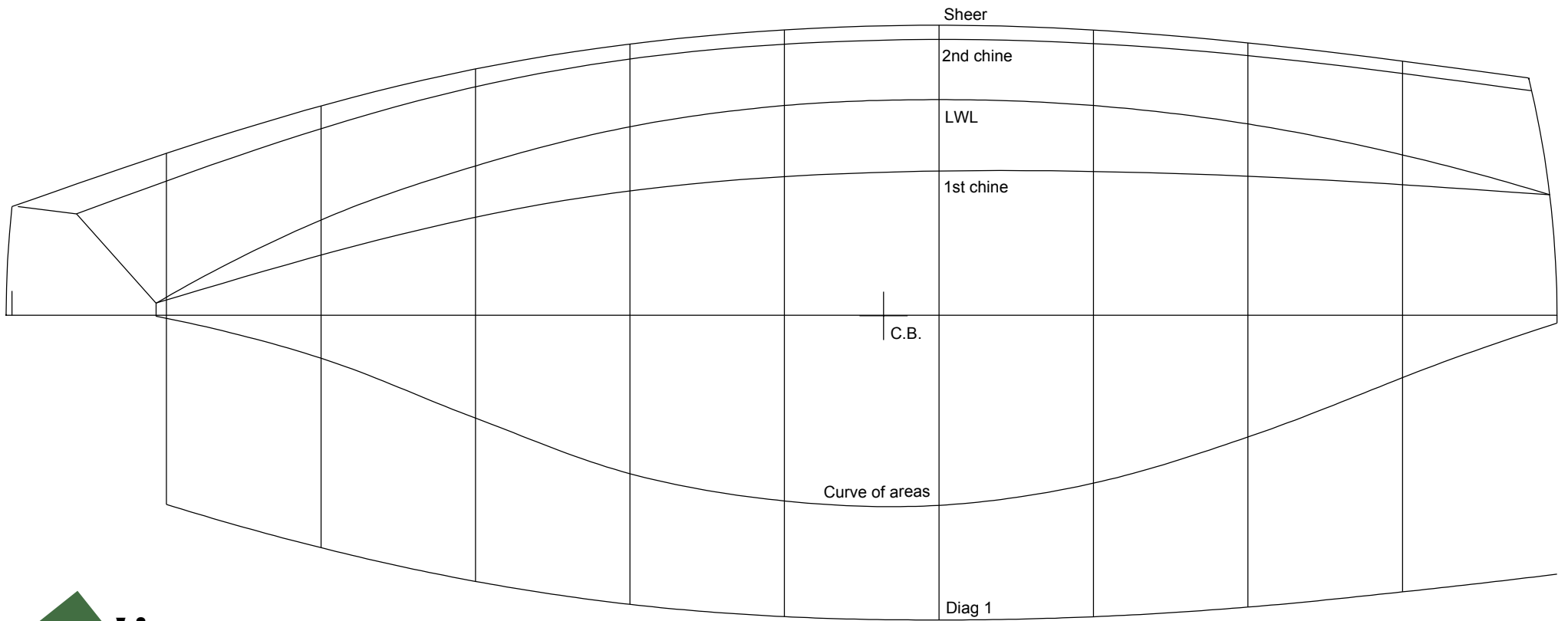
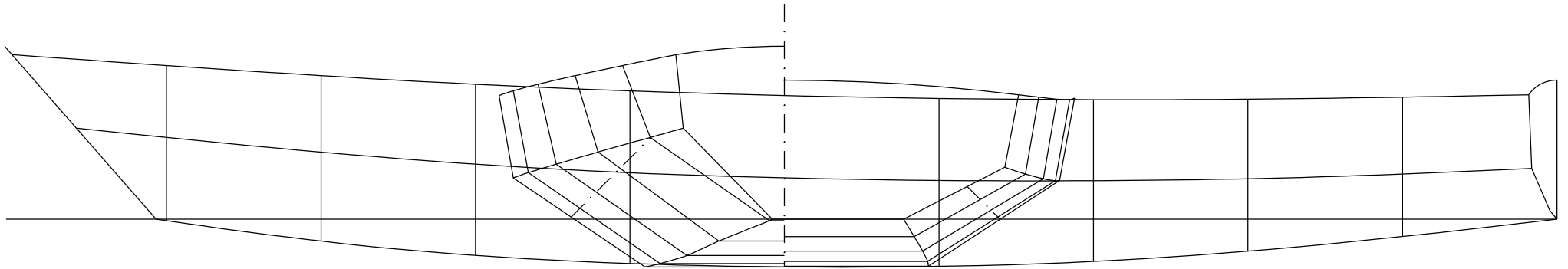


**A virtual model**





The card board model is wired and put in the jigs, ready for filletting .



**Lines**

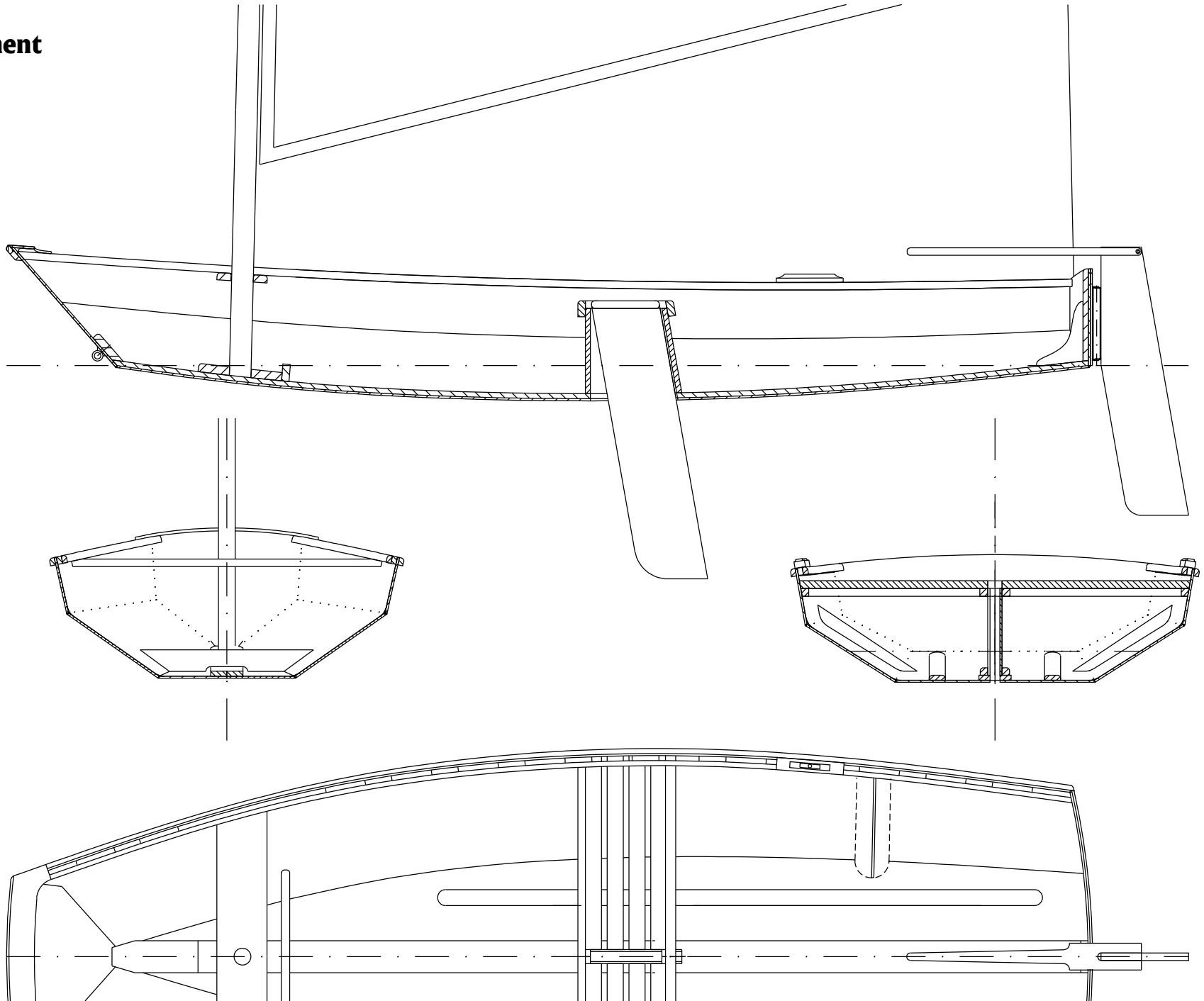
Scale : 1/12

Inside planking (add 1/4")



# Arrangement

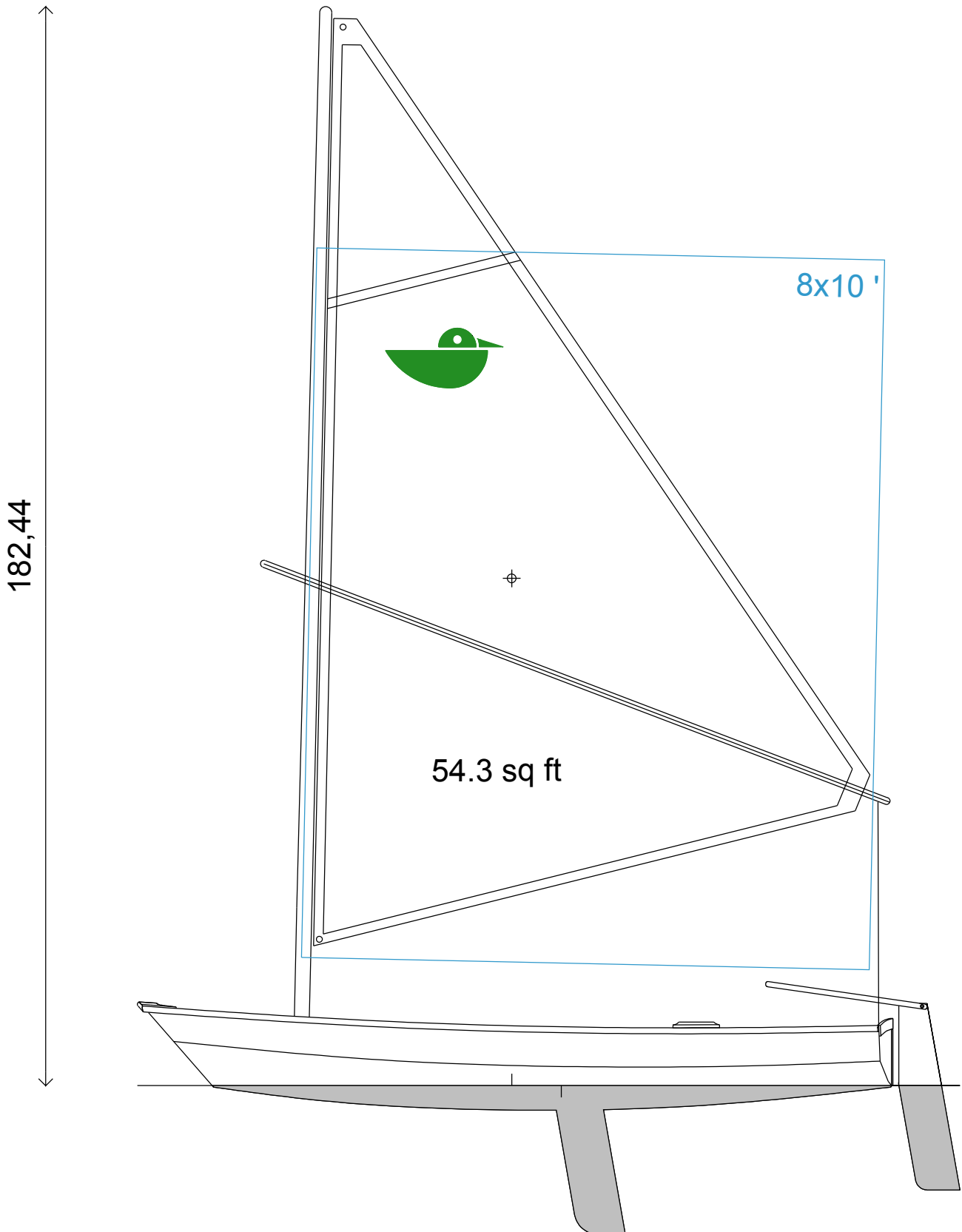
Scale : 1/16

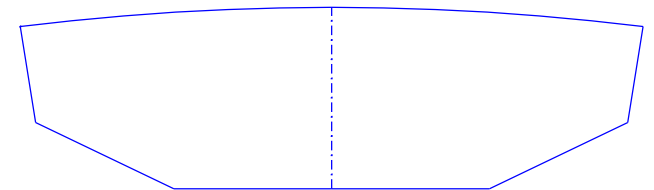
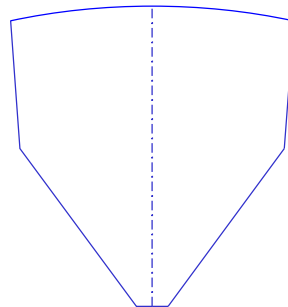
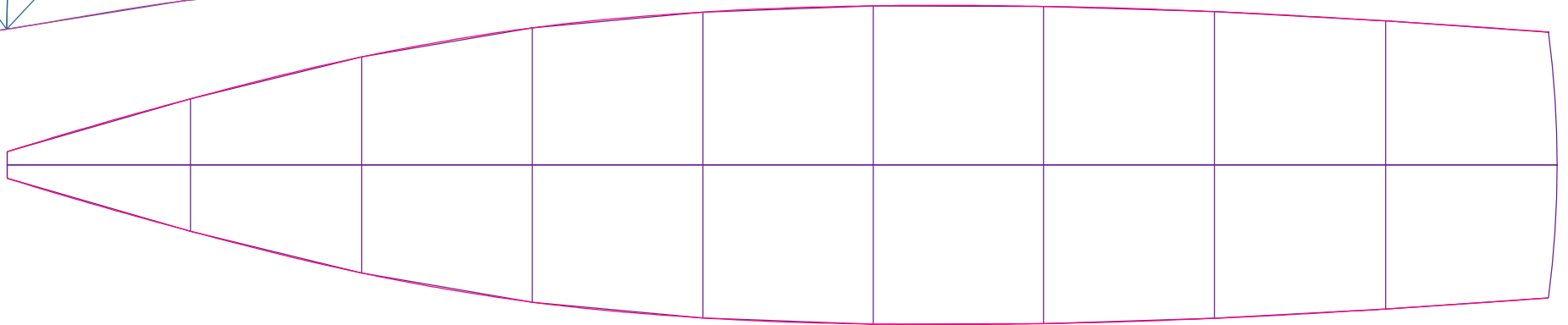
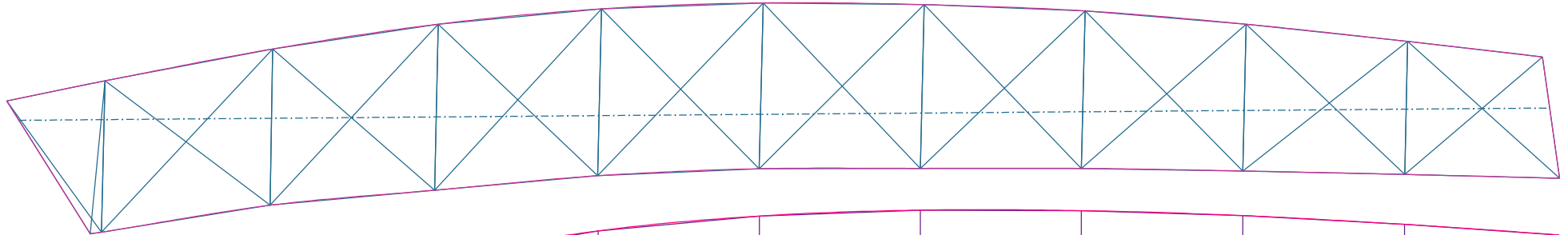
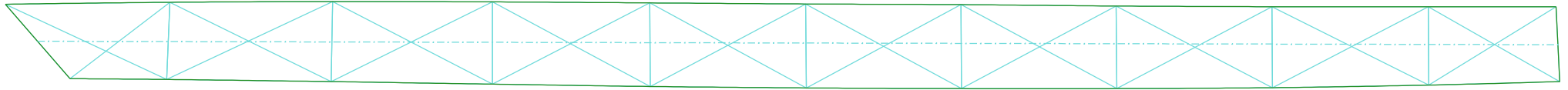




# Sail plan

Scale : 1/24

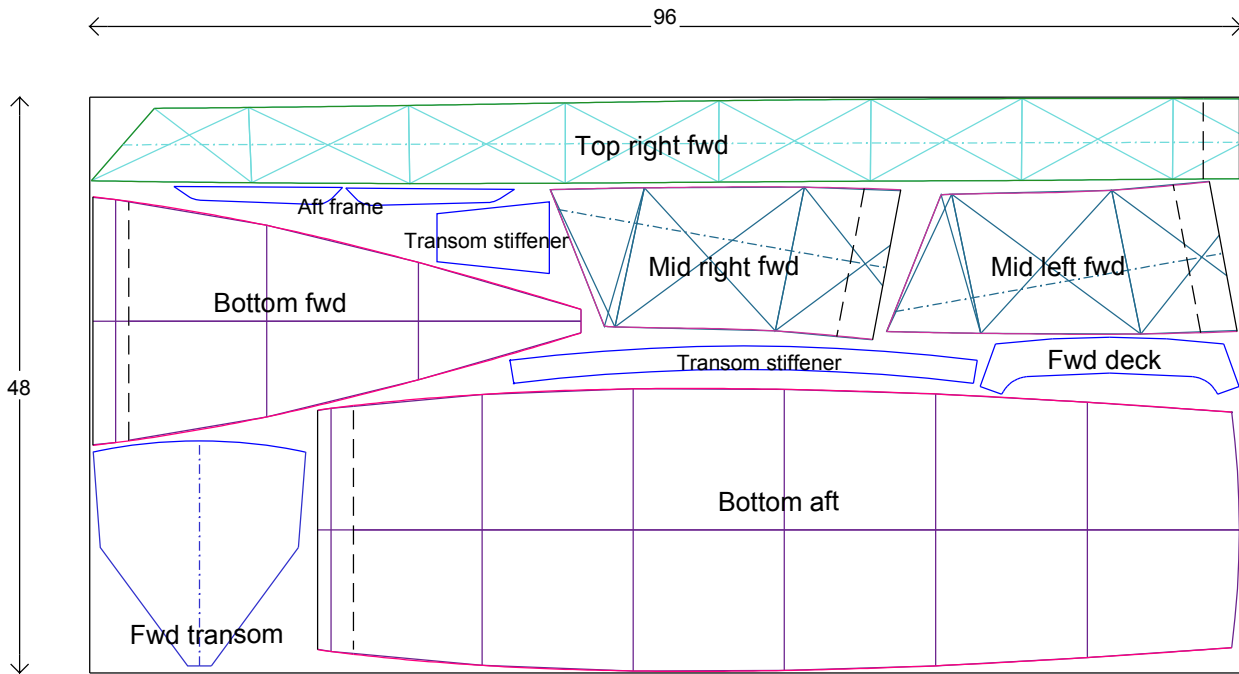




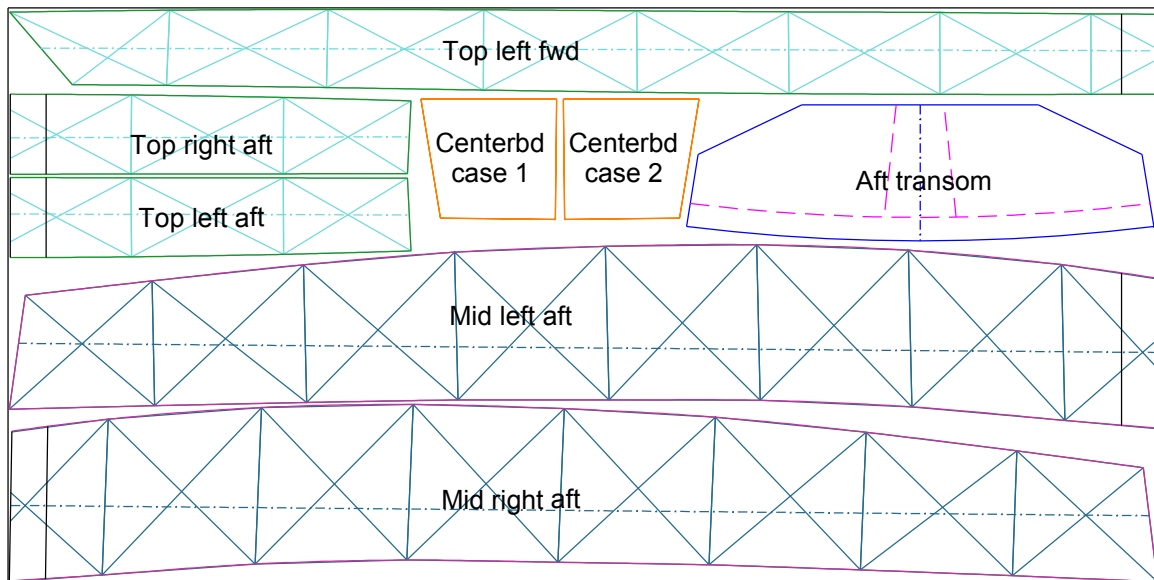
# Development of the hull

Scale : 1/12

sheet 4/8



**First sheet**



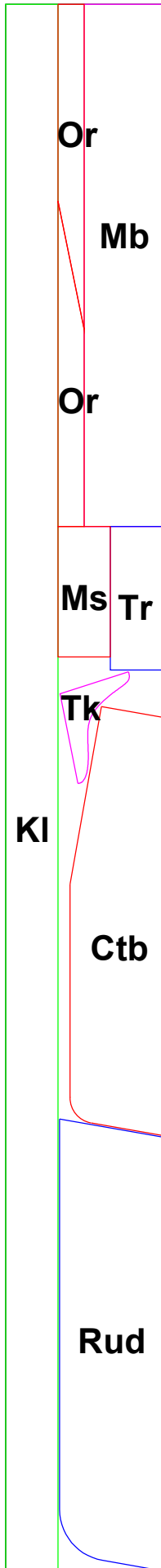
**Second sheet**

A minimum distance of 1/4" around the sheets and 1/4" between parts has been kept

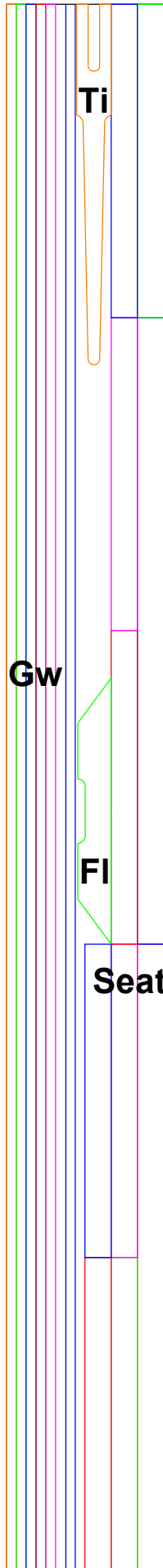


# Use of timber

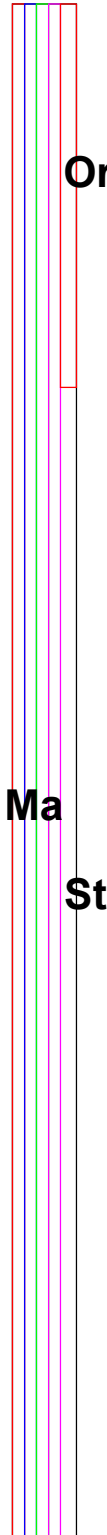
Scale : 1/16



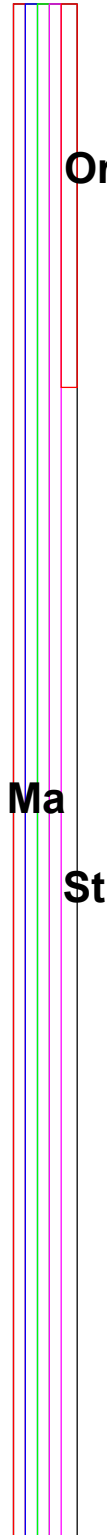
12x1



12x1



2x4

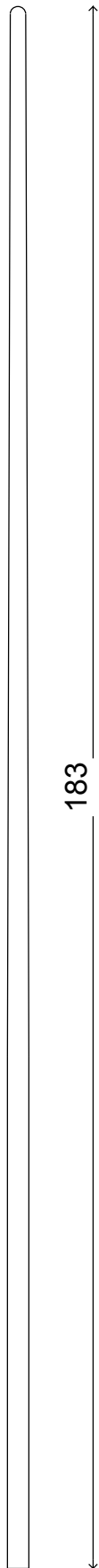
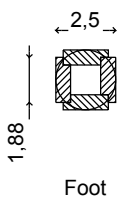
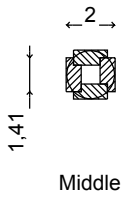
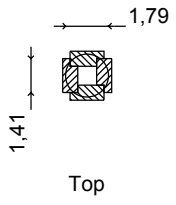


2x4

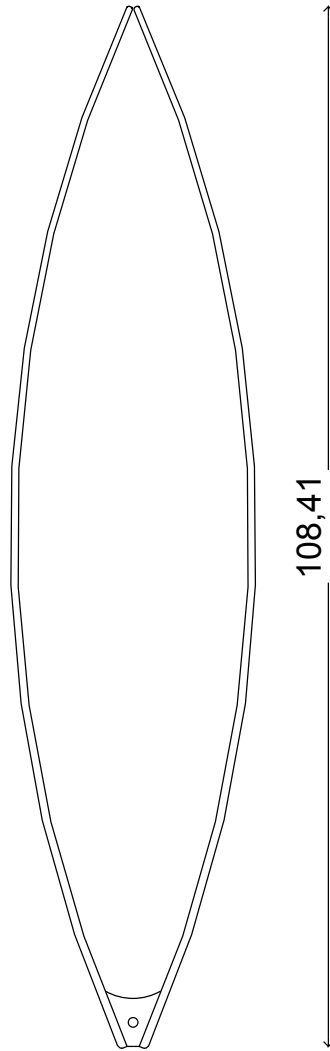
<b>KI</b>	Keel
<b>Rud</b>	Rudder
<b>Ctb</b>	Centerboard
<b>Tk</b>	Transom knee
<b>Tr</b>	Transom reinf.
<b>Ms</b>	Mast step
<b>Mb</b>	Mast beam
<b>Or</b>	Oar
<b>Gw</b>	Gunwale
<b>Ti</b>	Tiller
<b>FI</b>	Floor
<b>Seat</b>	Seat
<b>Ma</b>	Mast
<b>St</b>	Stringer



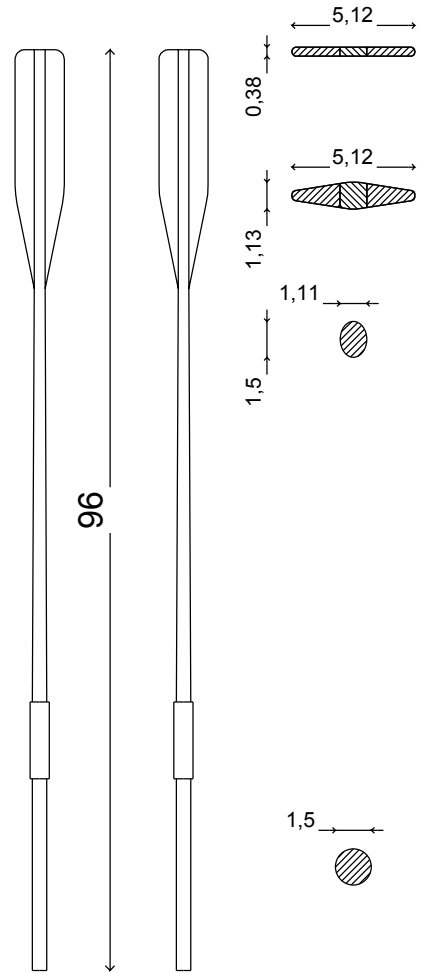
**Spars**  
Scale : 1/24



**Mast**



**Whishbone**



**Oars**