

Sailboat Design Requirements

Your Sailboat Design Report must be:

- Word processed with picture of computer generated sail plan
- Portrait format with clearly labeled section headings
- Stapled in upper left hand corner
- Concise and clearly written

Your target reader should be someone who is capable of understanding the physics but has never seen your design.

Cover Page

Include:

- The title of the report
- Picture of sail design (hull shape + sail plan)
- The names of all group members

Abstract

The abstract is a concise statement of purpose of the project and an overall summary of your sailboat design.

(1-2 paragraphs)

Design

Draw a labeled diagram of your design (this must be computer generated).

Label (as applicable): *Mast, Boom, Mainsail, Headsail, Hull, Keel, and Rudder*

Include the following measurements:

<u>Boat Design Specifications</u>	
LOA:	_____ ft.
LWL:	_____ ft.
Draft:	_____ ft.
Displacement:	_____ lb.
Ballast:	_____ lb.
Sail Area:	_____ square ft.

Data

Present the data collected in the design. Please note that data is something that is measured. Present all the calculations used to determine the ratios used in your design for each individual piece of the overall design.

Calculations to Include:

- Displacement-Length Ratio

$$\frac{\text{Displacement (lb)} / 2240}{[(0.01 \times \text{Length (ft)})^3]}$$

- Ballast-Displacement Ratio

$$\frac{\text{Ballast (lb)}}{\text{Displacement (lb)}}$$

- Hull Speed

$$1.34 \times \sqrt{\text{LWL}}$$

- Sail Area-Displacement Ratio

$$\frac{\text{Sail Area (square ft)}}{(\text{Displacement (lb)} / 64)^{2/3}}$$

Results, Analysis, & Discussion

Describe the design choices that were made, and why you chose each.

Discuss your results, including comparisons with other boat designs. Explain why specific design choices were made and how they add to the overall design and functionality. Describe the ideal environment in which your design would perform at optimal efficiency (Is it a racing sailboat? An offshore cruising sailboat?).

(2-3 paragraphs)

Comments & Conclusion

This section is very similar to the abstract, but allow for comments and explanations.

- Summarize the main design choices for the overall design
- Comment on potential problems that might arise with your design in its ideal environment

(1 paragraph)