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# first-principles-marine-design

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Electric Ship

First Principles for Marine Design

## Structured Data

This webpage QR code

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First principles for marine design are the hallmark of the electric ship.

PDF Version of the webpage (first pages)

<https://electricship.com/topics/first-principles-marine-design.html>

## Marine Design:

As a student of Elon Musk and Nikola Tesla, it's refreshing to see that they both had similar methodologies for design and inventing. For them, the clear path is not to keep improving legacy technology, but to use physics to develop a new path.

The Concept: First principles. Instead of forwarding current form (imitating current design), forward function as the initiator. Use information from different disciplines to make current innovation. Most people are so focused on form, that they overlook the function. As Elon Musk says, people often live life by analogy.

First principles involves boiling down problems to basic elements and then coming up with unique solutions. Be wary of ideas that you inherit, since they are already laden with problems and barriers. Old ideas set a boundary around creativity. That distinction is the difference between continuous improvement and first principles. First principles means that you abandon allegiance around first forms, and put the function front and center. What are you trying to accomplish? What is the functional outcome of what you are trying to achieve? Optimize function and ignore the form. This is how you learn to think for yourself.

Our Innovation: The new function we are building as the core design is a rail based yacht. That is, multihull rails to which superstructure is attached. This design element throws out conventional design along with the bilge, below waterline mechanicals, cramped quarters, and sinking. It is replaced with a new methodology for rethinking the function of yachting and marine design. The multihull concept is the most efficient waterplane available. With the exception of foils (which bring the craft above the water and is literally flying), this design takes advantage of low water drag which results in lower power requirements for propulsion. The modular design extends habitability and capacity easily. This is a projection of hydrodynamic design and function into the future.

Efficiency vs Cost: Typically at odds, efficiency doesn't necessarily mean higher cost. In this case, function is the derivative of design, and allows the hull to be the static design point, while everything attached to it, becomes modular. The hulls (three in this case) become the least design element. There are no complex curves, waterplanes, or hydrodynamics. The hulls become solid flotation with thin, structural bearing rails, to which the superstructure is attached in modules.

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