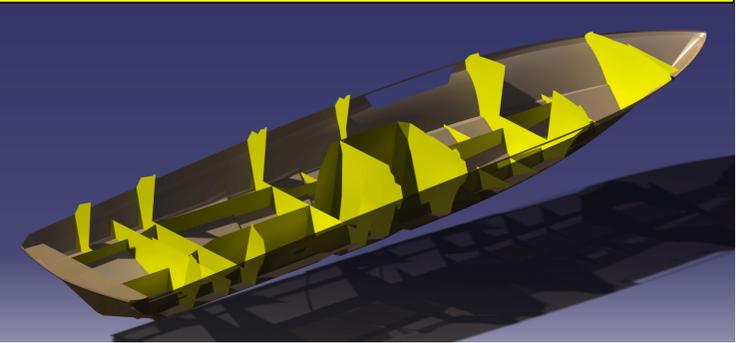
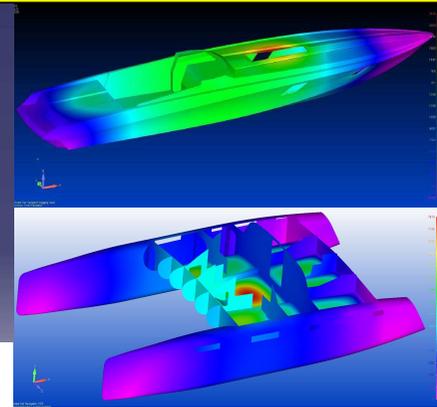
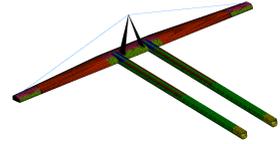
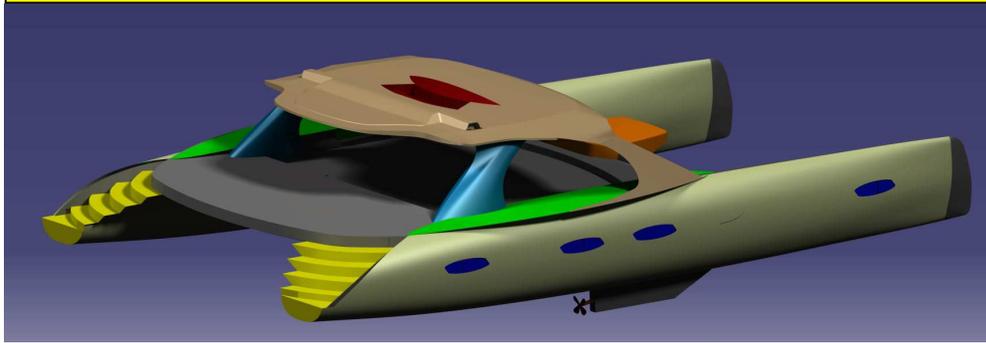


# STRUCTURAL CALCULATION NAVAL & COMPOSITE ENGINEERING



## Structural Engineering

Structural design and engineering from first principals as well as scantlings to regulatory rules from classification societies including BV, ABS, DNV, ISO and others. Engineering for metal and composites construction. New designs as well as calculations for assessment of conformance of existing designs to scantling rules.

## Composites Engineering

Laminate design, component engineering, panel and beam analysis, structural arrangements, construction drawings including build sequence sheets and process specifications. Application of Finite Element Analysis to a wide range of global composite structures for overall strength assessment as well as specialized studies for localized phenomenon including panel stiffness, inter-laminar shear strength, bearing strength, secondary bonding strength and crack initiation.

## Mechanical Systems

Design of complex mechanical systems including general arrangements, component design, functional specifications, structural and kinematic analysis, construction drawings, material specifications and manufacturing support.

## Finite Element Analysis

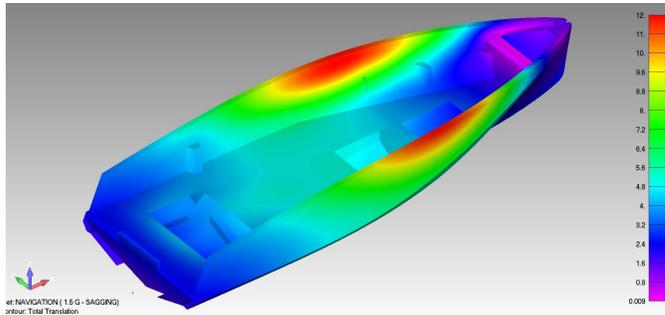
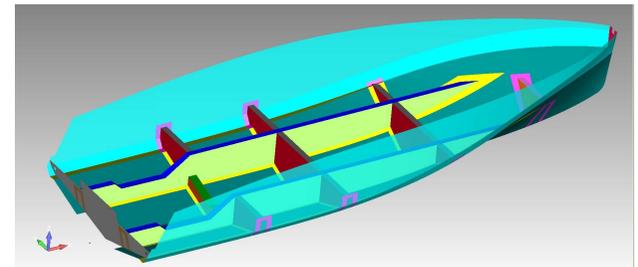
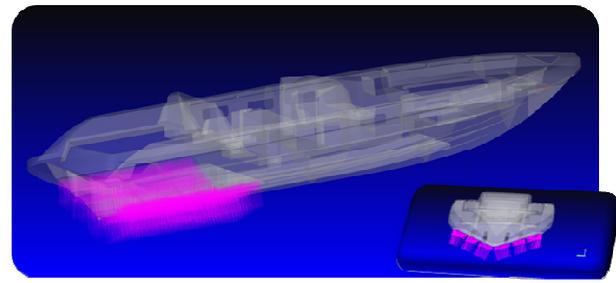
Extensive experience applying Finite Element Analysis (FEA) to a wide range of structural engineering problems. Analysis types include linear static, non-linear static, inertia relief, buckling, normal modes, contact and transient dynamic. Experience also includes multi-disciplinary studies.

## Surface Modeling and Drawings

Modeling of structural components and systems including composite laminates. Detail geometry modeling of hulls, decks, superstructures and internal structures to meet styling goals and functional criteria. Detailed construction drawings.

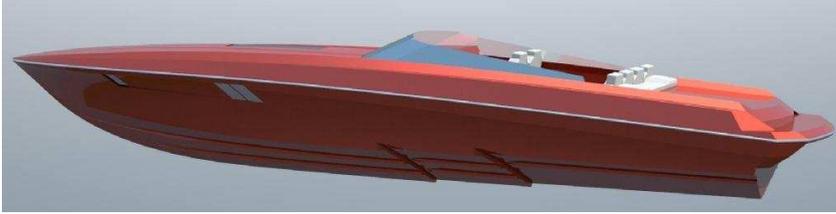
## OUR TOOLS

FEA Softwares : Femap / Nastran , Catia Elfini  
CAD : Catia V5 , Autocad , Rhinoceros



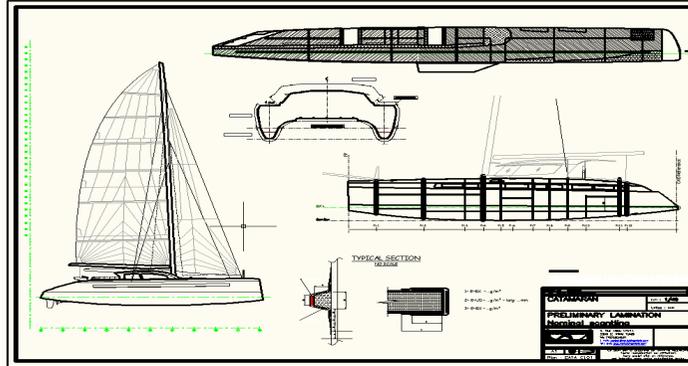
# STRUCTURAL CALCULATION NAVAL & COMPOSITE ENGINEERING

## APPLICATIONS



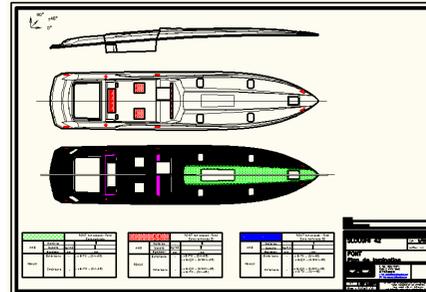
### Ship Scantlings and Finite Element Analysis

Scantlings to various BV, ABS and DNV Rules, classical spreadsheet-based engineering in addition to global and local FEA.



### Finite Element Analysis - Hull/Deck/Internal Structure

Composite models with fully balanced load cases utilizing input from rig loads, keel & stability loads, hydrostatic & dynamic loads .



### Composites Design and Engineering

Laminates for hulls, decks, internal structures, keel fins, rudders, daggerboards, components. Scantlings to BV, ABS, ISO, and DNV. Detailed construction drawings.

### Finite Element Analysis - Structural Components

Keels, rudders, daggerboards, chainplates, forestay/backstay fittings, canting/lifting keel structures,...

### Classification Society Rule Compliance

Calculations for new or existing designs to assess conformance with regulatory requirements. Experience with many marine rules from BV, ABS, ISO and DNV.



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