LiftShip

An Overview

NSRP and “LiftShip” projects

LIFTSHIP 2
Research Announcement
218-451-003

LIFTSHIP
Research Announcement
2018-438

Improving the 3D CAD-to-FEM Interface for Shipbuilding Needs
Panel Project
2017-416

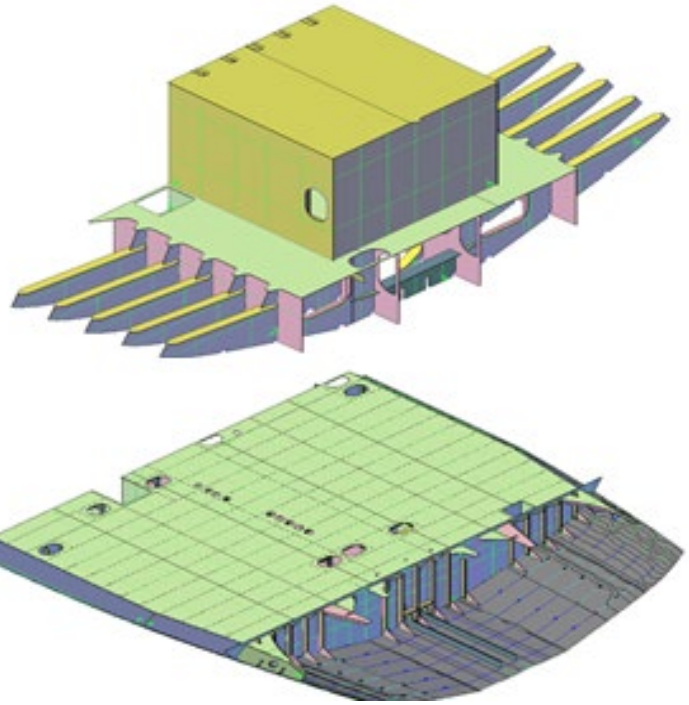
Meet the LiftShip 2 Team

LEAD:
Fincantieri Marinette Marine

Huntington Ingalls Shipbuilding
Austal USA
VT Halter Marine
Bollinger Lockport
NAVSEA Caderock

Genoa Design Int'l, Ltd.
Ship Architects, Inc.
ATA Engineering
Altair Engineering
ShipConstructor Software USA, Inc.

What is LiftShip

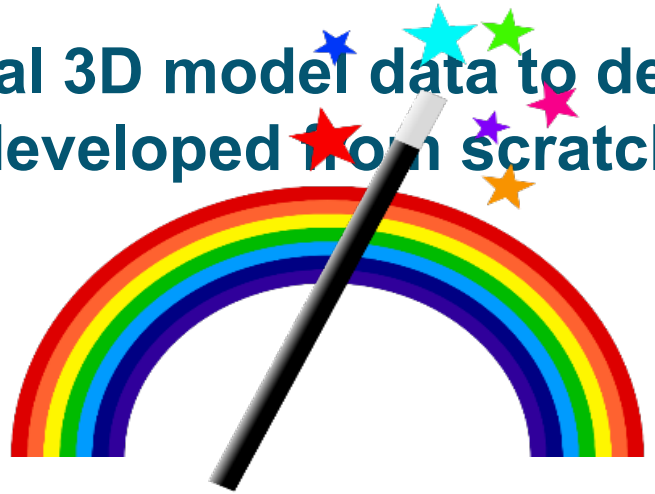


3D Model

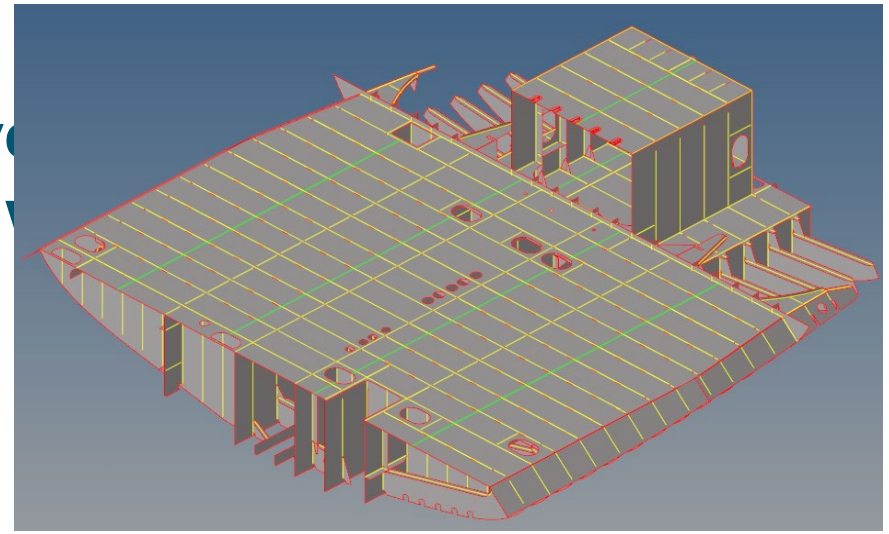
investigation in efficiency.

digital 3D model data to dev

be developed from scratch



Magic

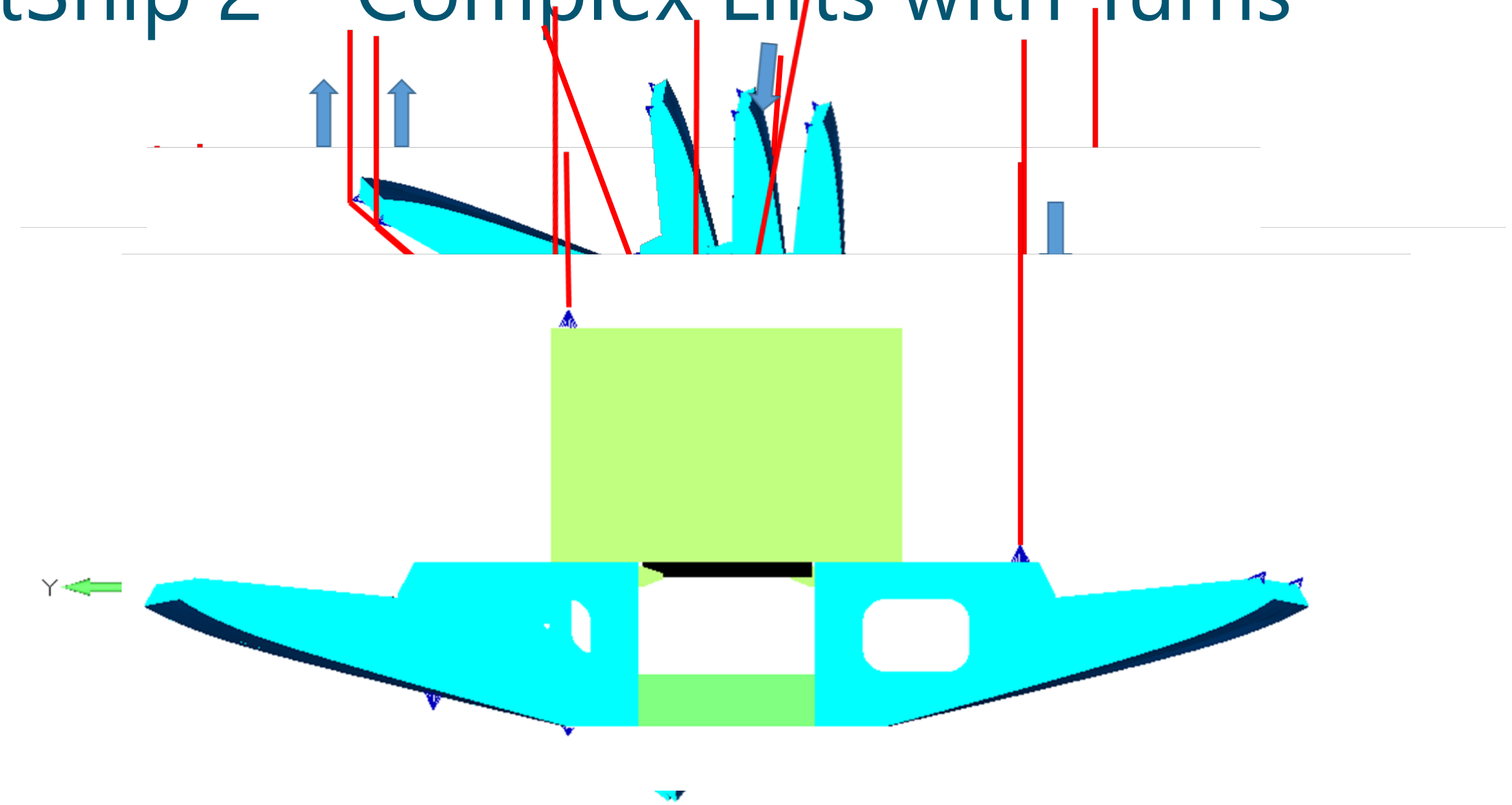


FE Model

LiftShip 2 (the continuation)

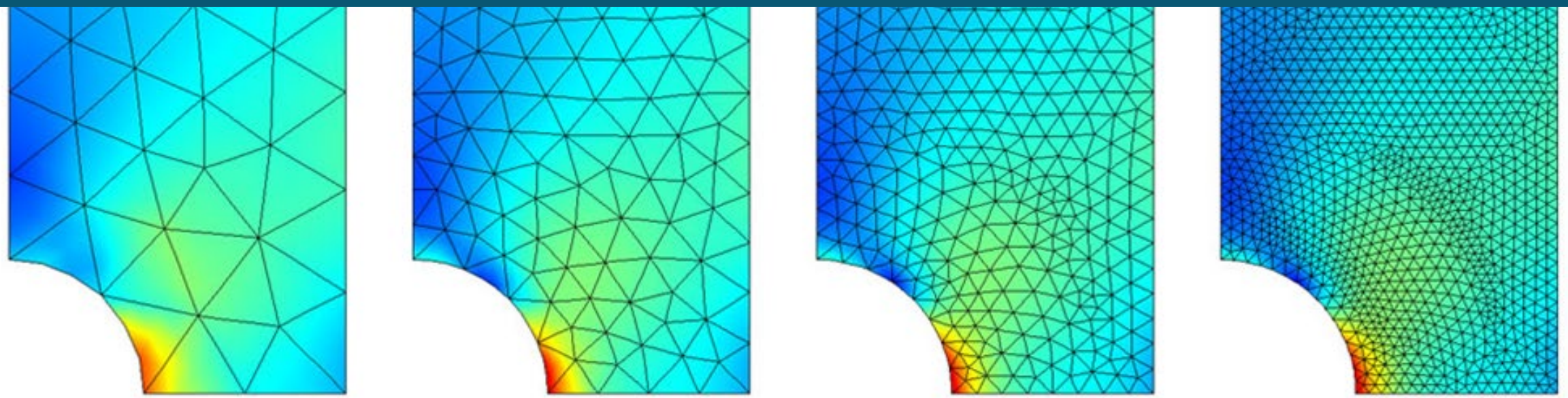
- ✓Perform analysis on Lifts with Turns / Complex Lifts
- ✓Provide a user-friendly method to change the Level of Detail of the Finite Element Mesh to suit the intended analysis
- ✓Develop Enhanced Visual Reporting of the analysis to support the Stakeholders

LiftShip 2 – Complex Lifts with Turns

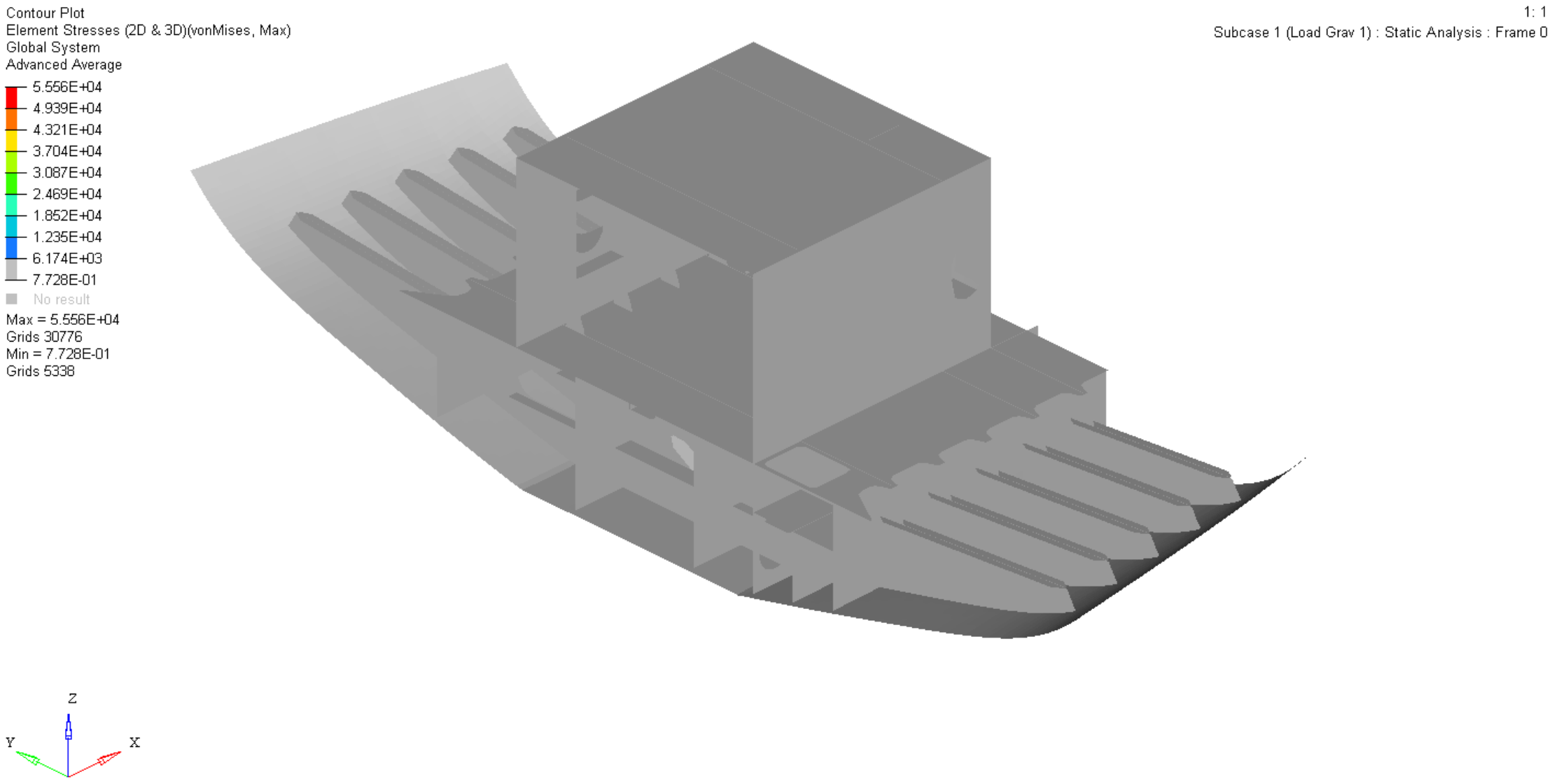


LiftShip 2 – Level of Detail

The user's ability to quickly modify the finite element mesh to allow for different analysis based on the users needs. For example, less detailed mesh supports quicker analysis support many “what-if” scenarios while a highly detailed analysis will support a detailed FEA

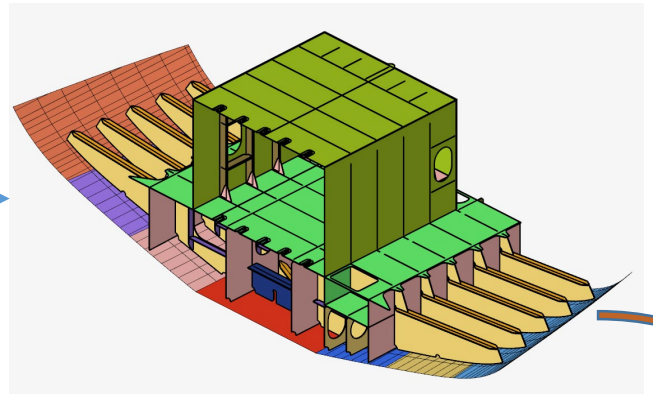


LiftShip 2 – Enhanced Visual Reporting

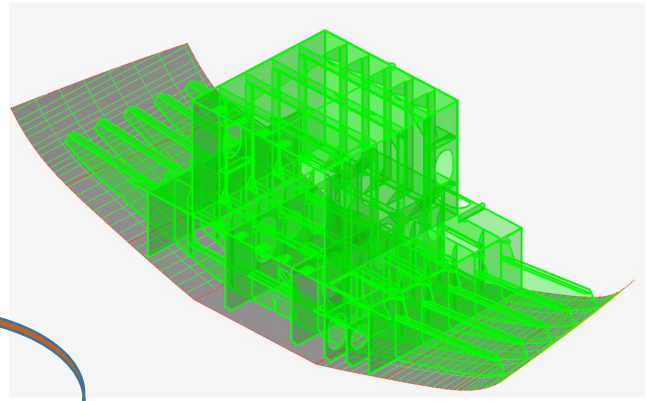


LiftShip 2 – Hypermesh Workflow

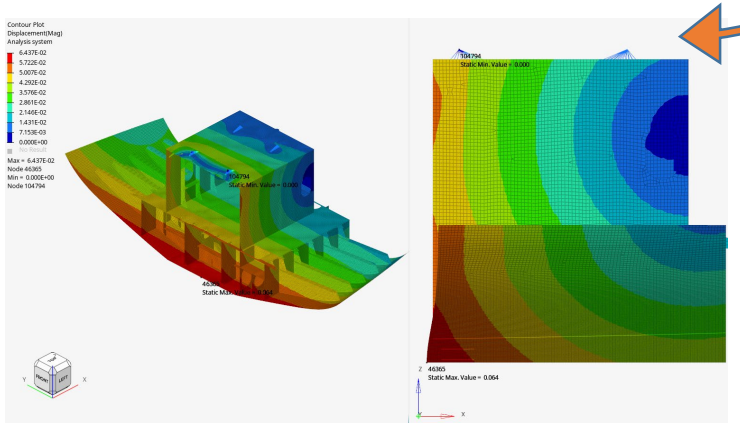
HyperMesh Desktop 2017 using the project training U200 model



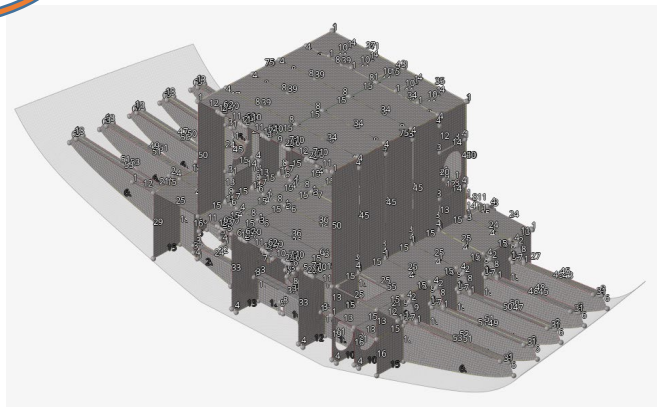
SSI CAD Import



Geometry Prep Automation

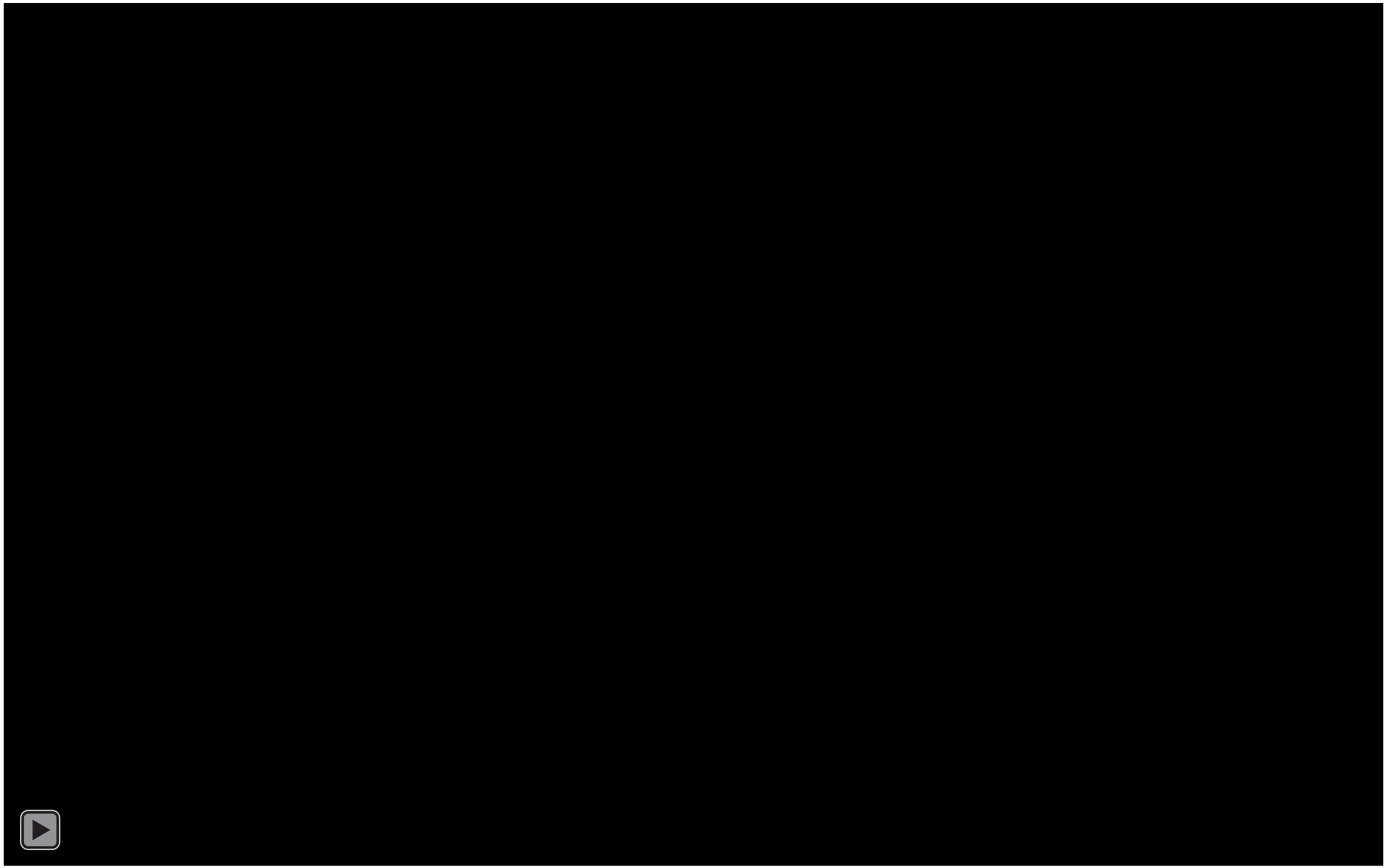


Go-No-Go Visual Reporting

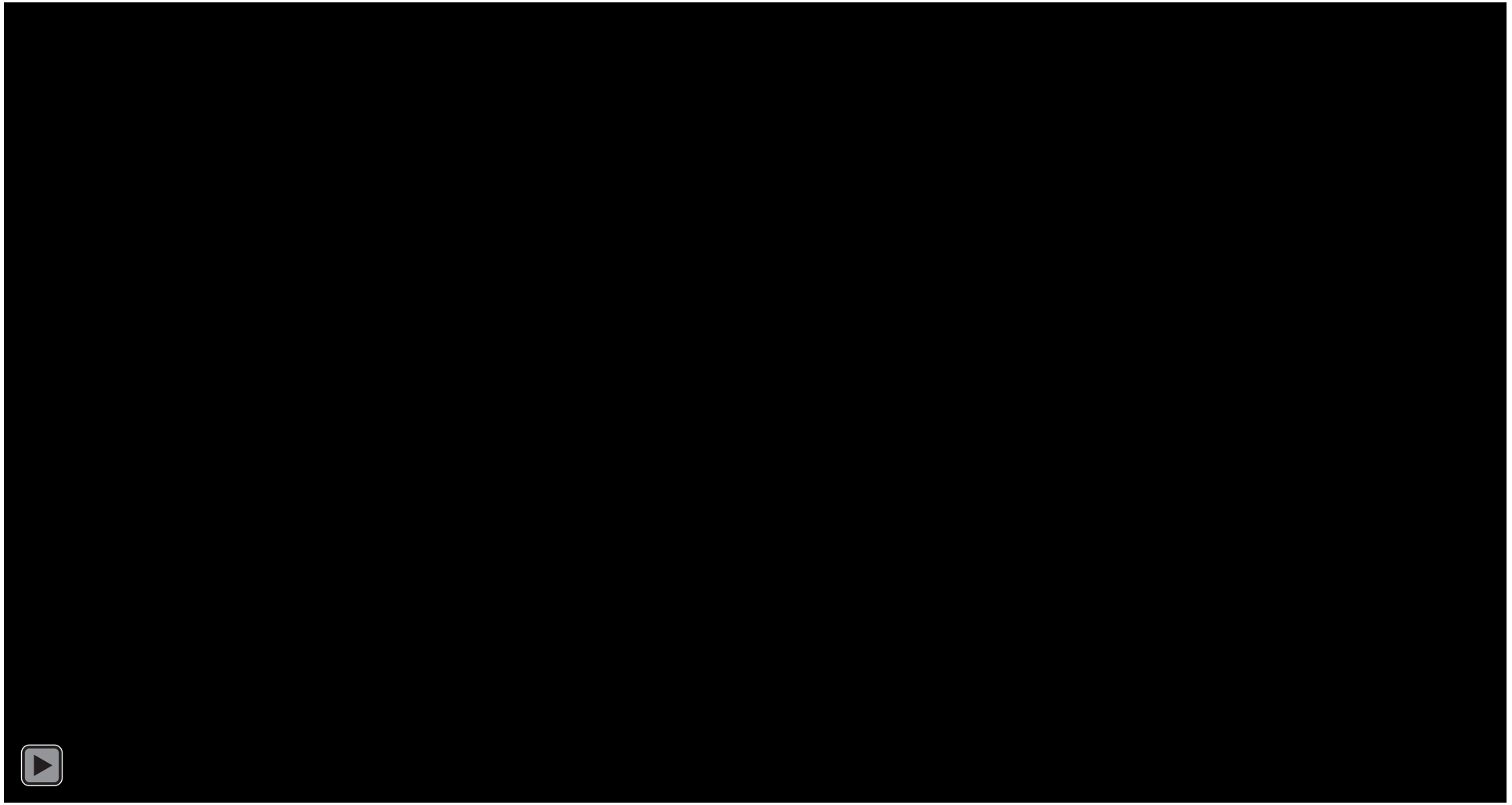


Mesh Control & Quality

LiftShip 2 – ShipConstructor Overview



LiftShip 2 – Altair Engineering Demo

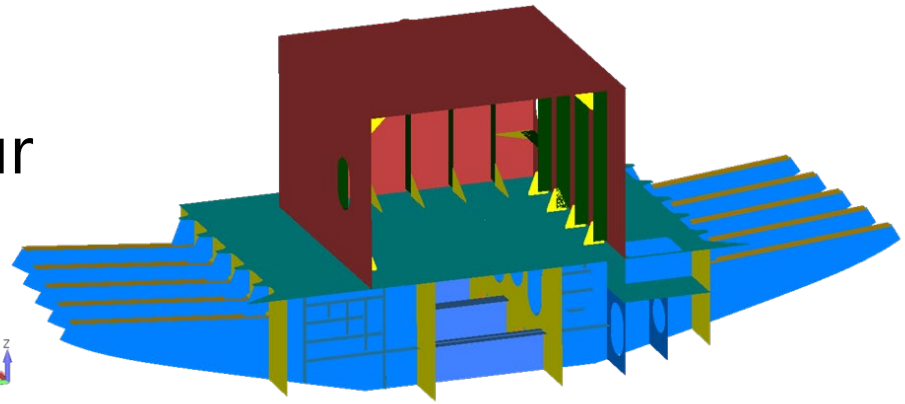


LiftShip 2

Shipyard Productivity
&
Safety Enhancements
through the reuse of 3D model digital data

LiftShip 2 – ATA Engineering Quantitative Cost Analysis

- If an ATA Engineering customer asked ATA to assess a lift of the sample demonstration module, ATA's initial estimate would be a 44-hour level of effort for ATA engineers.
- By leveraging the tools developed under this NSRP program, ATA estimates a 50% savings in effort.



Task	Standard Methods	With LiftShip Femap Tools
Geometry Preparation & Quality Checking	20 hrs.	4 hrs.
FE Meshing	8 hrs.	8 hrs.
Setup of Loads & Constraints	8 hrs.	1 hrs.
Results Post-Processing and Reporting	8 hrs.	8 hrs.
Total Labor Savings:		~ 50%

Thank you

Erik Bjorkner (SSIUSA)
erik.bjorkner@ssi-corporate.com

Victoria Harris (ATA Engineering)
victoria.harris@ata-e.com

Deepak MC (Altair Engineering)
deepakm@altair.com

NSRP
NATIONAL SHIPBUILDING RESEARCH PROGRAM™
Taking Shipbuilding and Repair to the Next Level