



# SDC Verifier for Navy Vessels

Standards-based structural verification software for surface naval vessels — using your existing FEA results or models built in SDC Verifier.

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## BUILT FOR:

- Naval shipyards
- Naval architecture and design bureaus
- Defense engineering contractors
- Structural and FEA engineering teams



# Where it helps in naval vessel structures verification



## Decks & Deck Panels

Global and local strength, deformation, equipment loads, stiffened and unstiffened panels behavior.



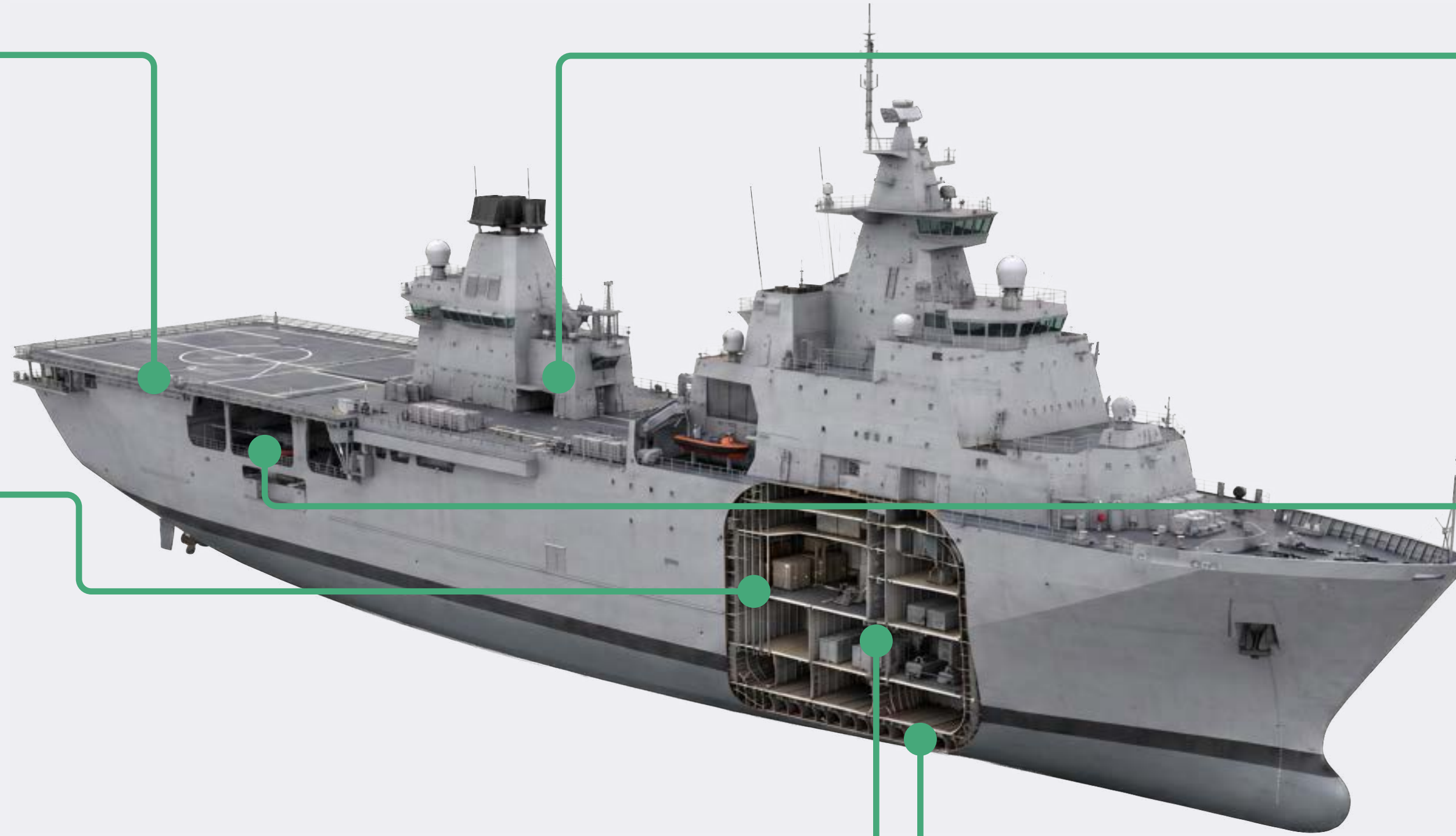
## Hull Plating & Shell Structure

Plate strength, buckling behavior, pressure-loaded panels, and governing structural zones.



## Bulkheads & Internal Divisions

Stiffened panels, openings, supporting members, and load transfer between structural regions.



## Equipment & Piping Foundations

Load-introduction areas, supporting steel, pipe hangers and penetrations, welded and bolted connections, and local deformation.



## Superstructures & Deckhouses

Structural strength, welded details, supporting interfaces, and local reinforcements.



## Stiffeners, Girders & Longitudinal Members

Member strength, stability, effective plate participation, and governing utilization.

# Operating Conditions & Load Scenarios

Organize vessel loads, operating cases, combinations, and envelopes within one verification workflow.



## Loads

- Buoyancy, Tank, Ballast, Wind
- Machinery and Equipment
- Lifting and Handling (cranes, pedestals etc.)
- Inertia Load
- Local Foundations



## Project & Environmental Conditions

- Hydrostatic pressure
- Wave pressure
- Project-defined operating conditions
- Corrosion
- Deck equipment and support reactions



## Mission Critical Cases

- Reactions for explosion cases
- Extreme operating envelope loads
- Residual strength under partial damage



## Fatigue & Design Inputs

- Operating cycles
- Load spectra
- Dynamic factors
- Required fatigue life



Define positions



Build combinations

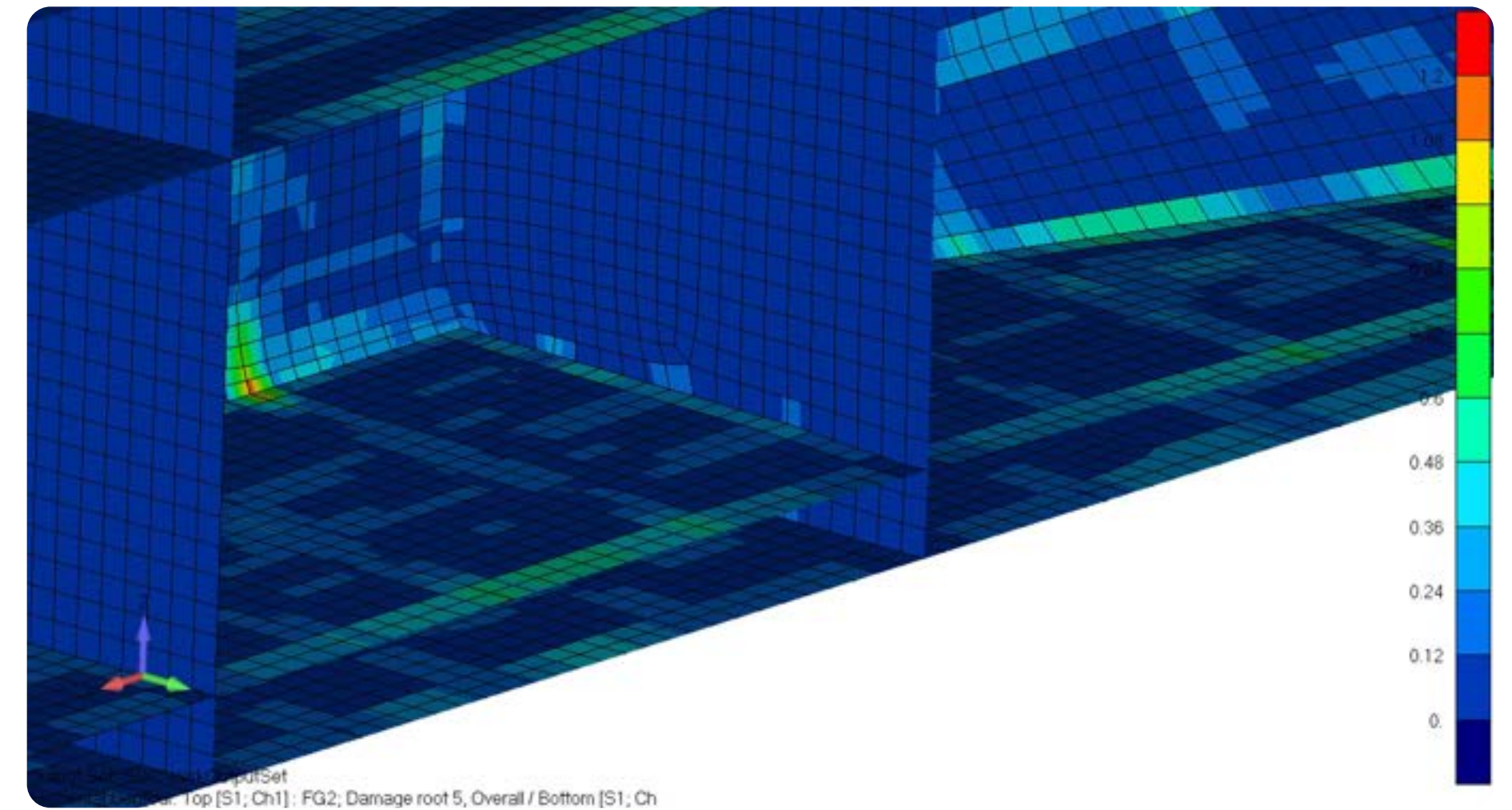
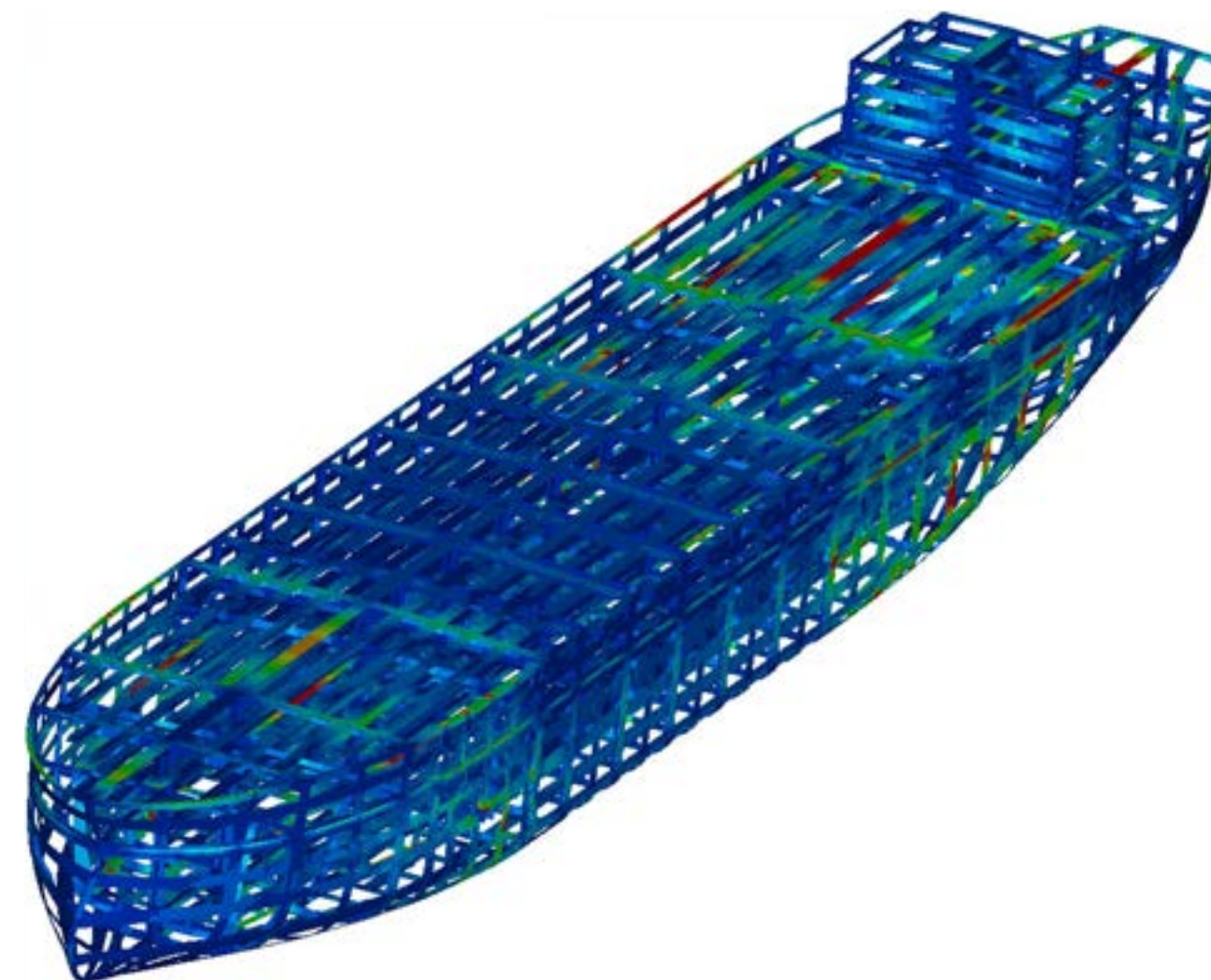
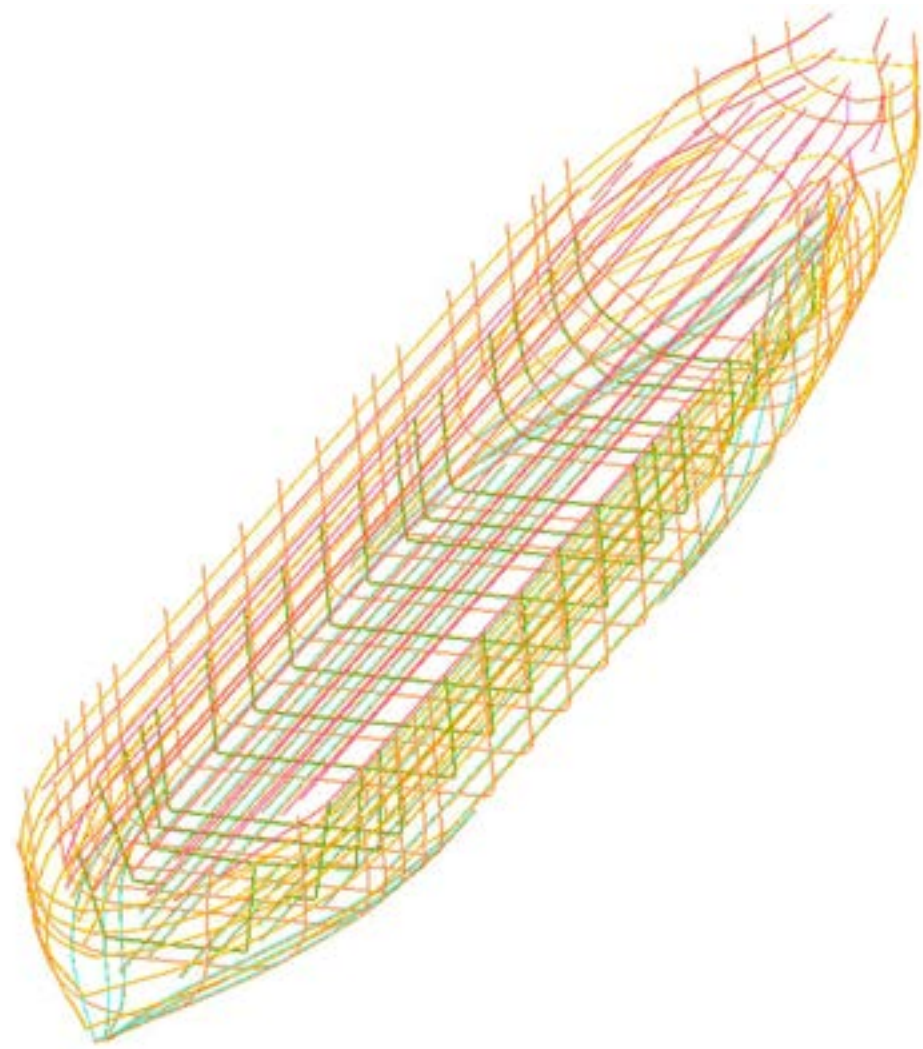


Create envelopes



Identify governing cases

# What you can verify



## ✓ Plate & Stiffener Buckling

Recognize panels, plates, stiffeners, and their dimensions and all required parameters for standards-based buckling verification.

## ✓ Fatigue assessment

Evaluate fatigue damage and life using defined stress ranges, operating cycles, and detail classifications.

## ✓ Structural strength

Evaluate strength and utilization across hulls, decks, bulkheads, superstructures, foundations, and selected load cases.

## ✓ Welds

Use automatic welds and connections recognition and review stresses, utilization and governing details.

## ✓ Serviceability / deformation

Review global and local deformation against project-specific acceptance limits.

## ✓ Deliverable

Governing load cases, verification results, utilization plots, tables, and a structured PDF report for engineering review.

# How it works — 4 steps

1



## Import or build the model

Use existing FEA results or build the model in SDC Verifier.

2



## Define and Set Boundary Conditions

Create load combinations, apply safety factors, and build envelopes to identify governing strength, buckling, serviceability, and fatigue cases.

3



## Recognize Panels, Welds & Structural Details

Automatically identify panels, plates, stiffeners, girders, members, welds, joints, and connections required for verification.

4



## Verify to selected standards & Report

Perform standards-based structural verification, identify governing results, and generate calculation reports with pass/fail results, plots, tables, and references.

## Dedicated Extensions for



Ansys Mechanical



Simcenter 3D



Femap (NX Nastran)

**LS-DYNA** result reading in Ansys supported

## Supported Geometry



Rhino



ACIS files



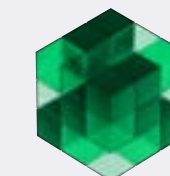
SOLIDWORKS



Inventor



**STEP**



**IGES**



**Parasolid**  
(.x\_t / .x\_b)

# Standards & Project Criteria

## Ship Plate & Stiffener Buckling

- ✓ IACS UR S35
- ✓ DNV CG-0128 Plate Buckling
- ✓ DNV RP-C201 Plate & Stiffener Buckling
- ✓ ABS 2004 Buckling & Ultimate Strength
- ✓ BV NR615 Plate Buckling
- ✓ LR CSR Plate Buckling

## Weld Strength & Fatigue

- ✓ DNV OS-C101-LRFD Weld Strength
- ✓ DNV OS-C201-WSD Weld Strength
- ✓ DNV RP-C203 Fatigue
- ✓ Eurocode 3 EN 1993-1-8 (where applicable)
- ✓ Eurocode 3 EN 1993-1-9 (where applicable)

## General Steel & Connections

- ✓ Eurocode 3 EN 1993-1-1
- ✓ Eurocode 3 EN 1993-1-5
- ✓ AISC 360 (where applicable)
- ✓ AS 4100 (where applicable)
- ✓ API RP 2A (where applicable)
- ✓ ISO 19902 (where applicable)
- ✓ Norsok N004

## ✓ Project-defined criteria

- Classification requirements
- Required fatigue life
- Corrosion allowances
- Utilization limits
- Deflection limits

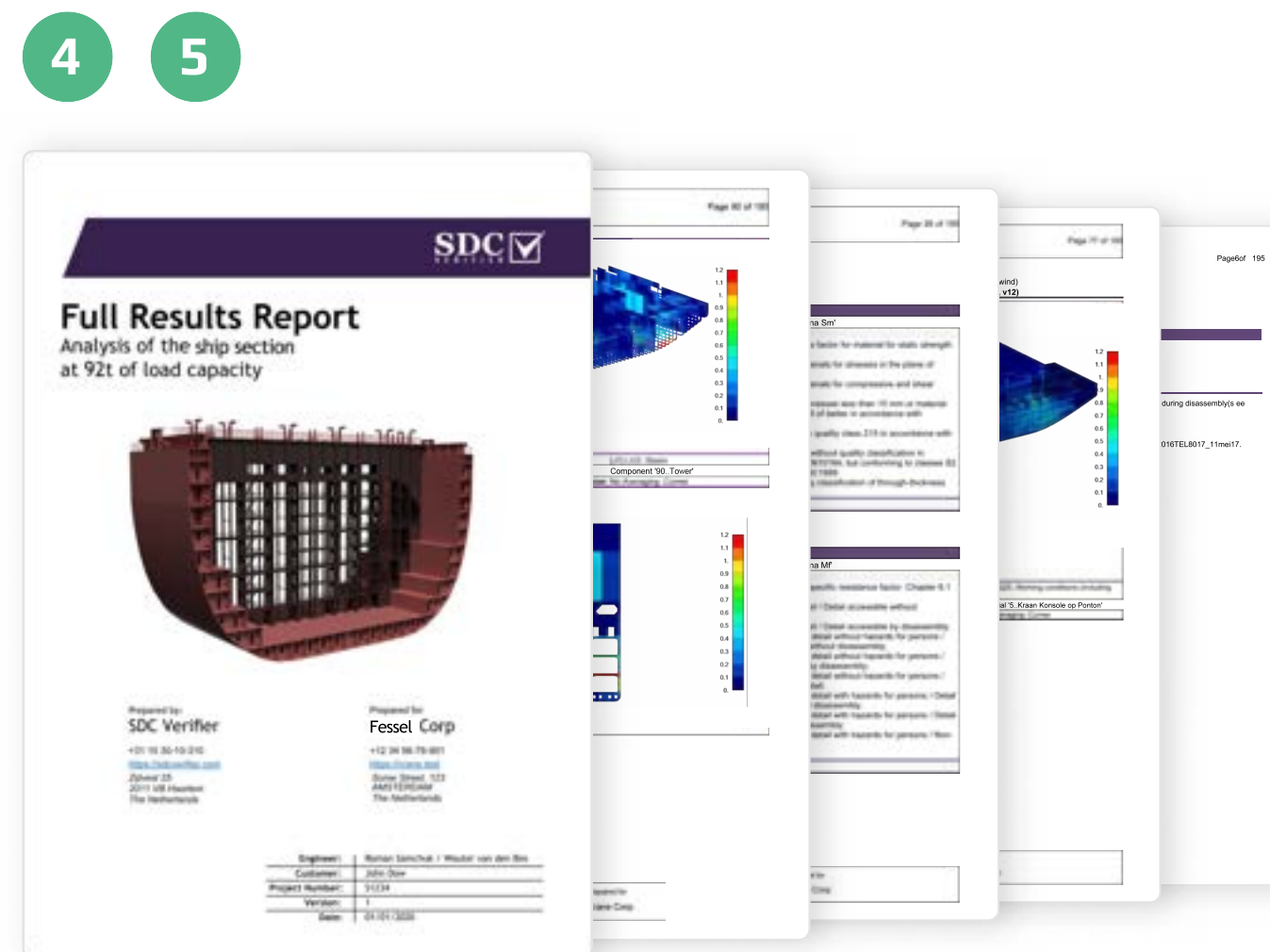
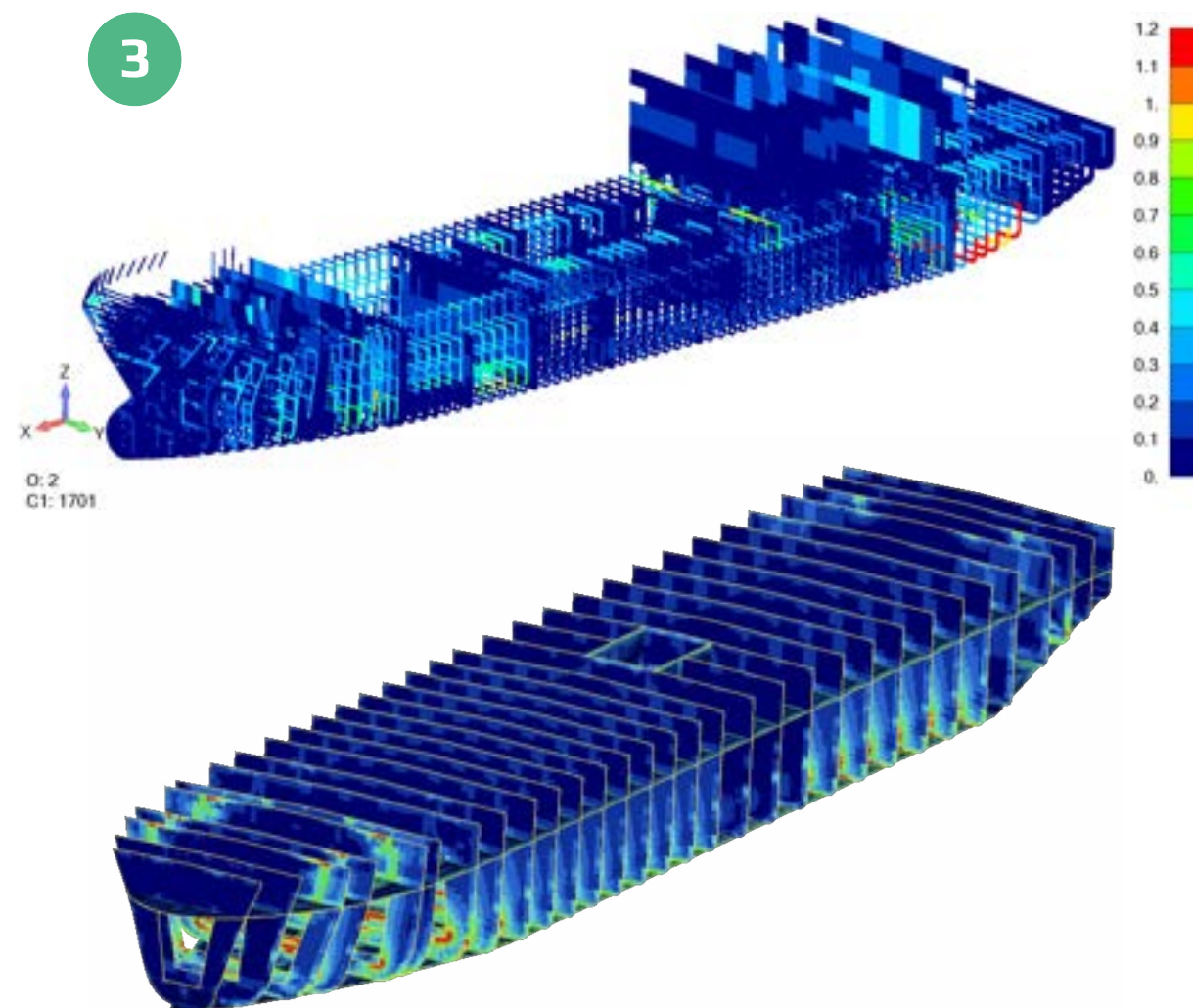
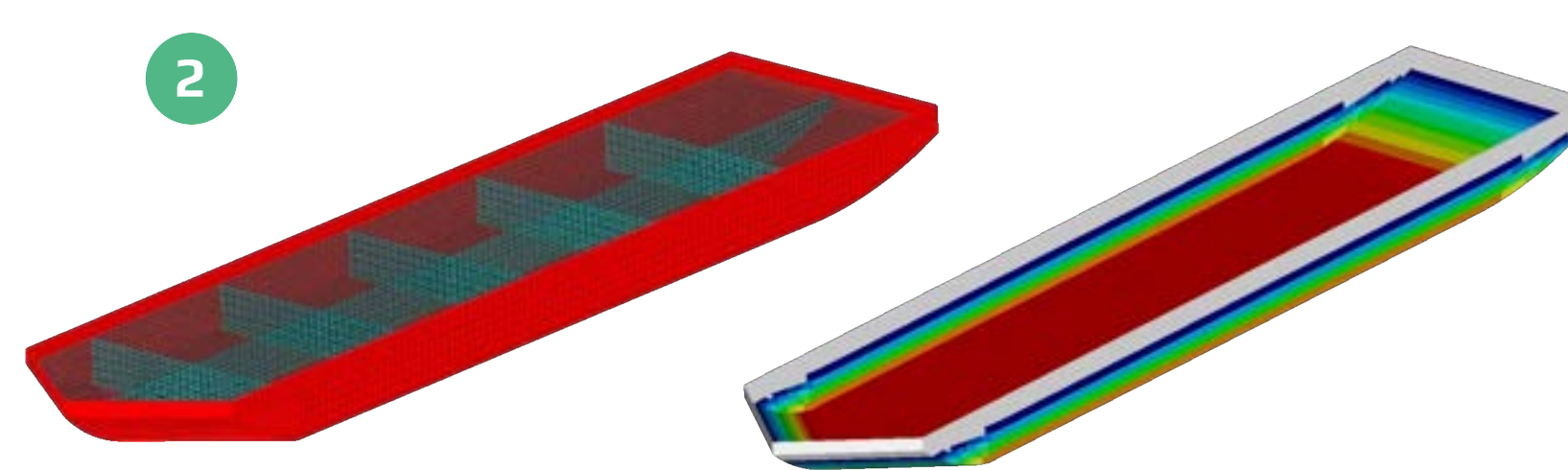
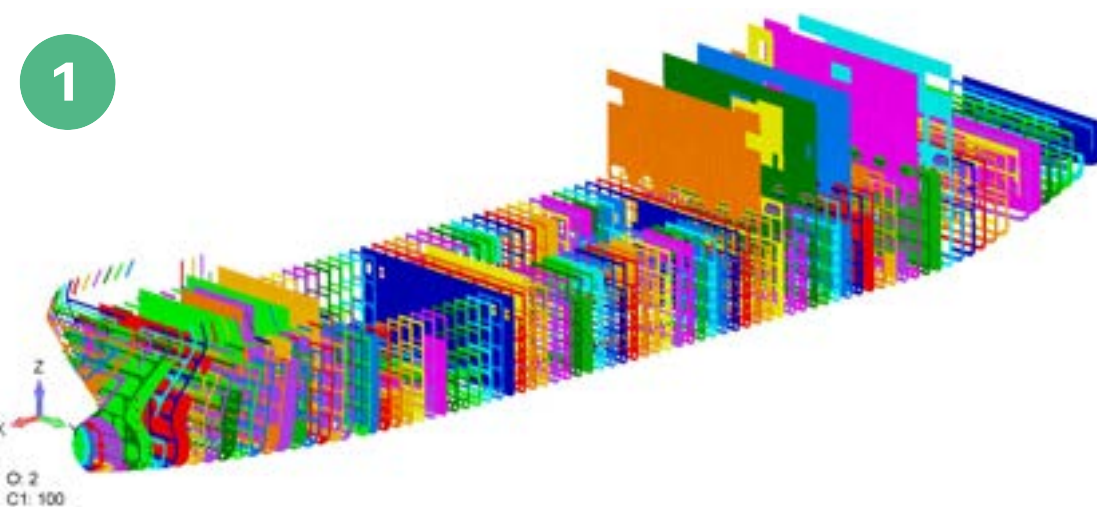


SDC Verifier applies implemented standards together with project-, customer-, and classification-defined criteria established by the responsible engineering team.

# What the Verification Output Looks Like

Representative structural-verification outputs for naval vessel structures

## Model



## Result

1 Model Setup & Recognized Elements

2 Load Combinations & Review

3 Standards Compliance Results

4 Structure Optimization

5 Calculation reports ready for review

### Bottom Summary

- Verification according to standards
- Model optimization recommendations
- Structured reports

# Why engineering teams use SDC Verifier



## Recognize Panels & Welds Faster

Automatically organize structural details required for plate buckling, weld-strength, and fatigue verification.



## Evaluate Multiple Cases in One Workflow

Run verification across selected combinations and envelopes and identify the governing results.



## Compare Design Revisions

Review changes to plating, stiffeners, welded details, foundations, and reinforcements — no need to rebuild the verification workflow after revisions.



## Simplify Engineering Review

Present pass/fail results, utilization plots, tables, load references, and standards-based calculations in structured reports.

**SDC Verifier  
saved up to**

**80%**

**of the time for modeling,  
analysis and creating report.**

# Verify Your Navy Vessels Structure in SDC Verifier

Use your existing FEA model to evaluate structural strength, plate and stiffener buckling, welded details, fatigue, and governing load cases.

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