

# One Model for all

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Product Specialist

November 2022

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Principal Engineer



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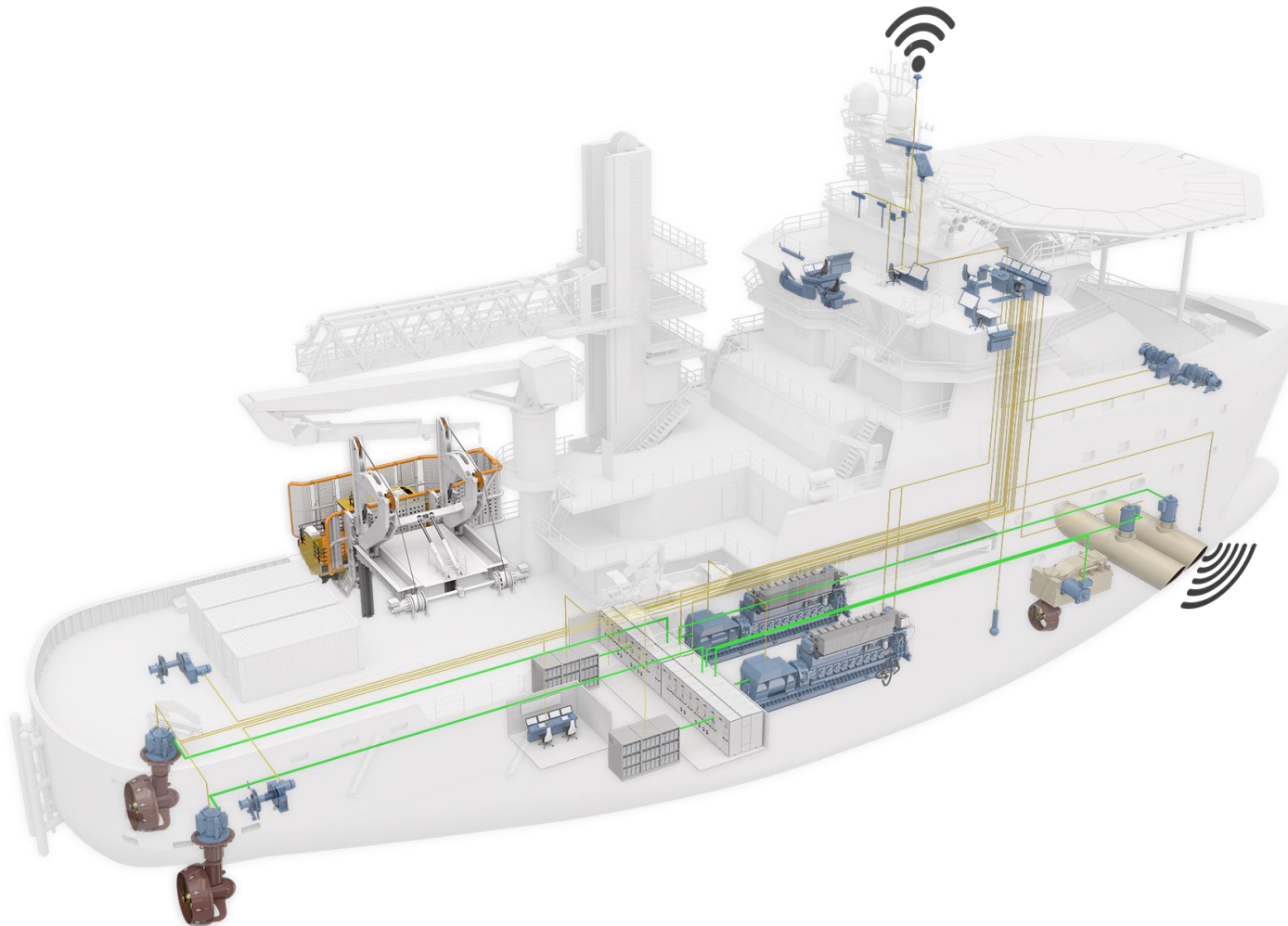
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# KM Ship design, Equipment & System “THE FULL PICTURE”



BRIDGE



AUTOMATION SYSTEM INTEGRATION



PROPULSION & MANEUVERING



ENGINES



ENERGY STORAGE & DISTRIBUTION



DECK MACHINERY



REMOTE SERVICES



SHIP DESIGN



SYSTEM INTEGRATION

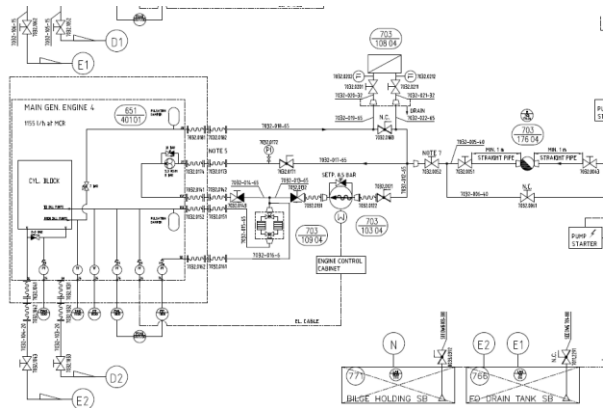


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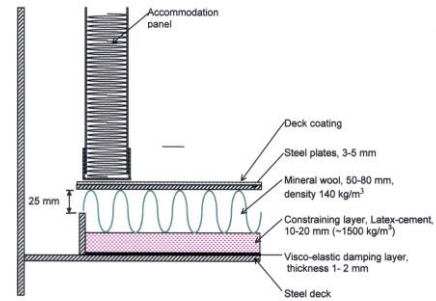
# Core competencies

Ship Design Engineering

## MACHINERY SYSTEMS



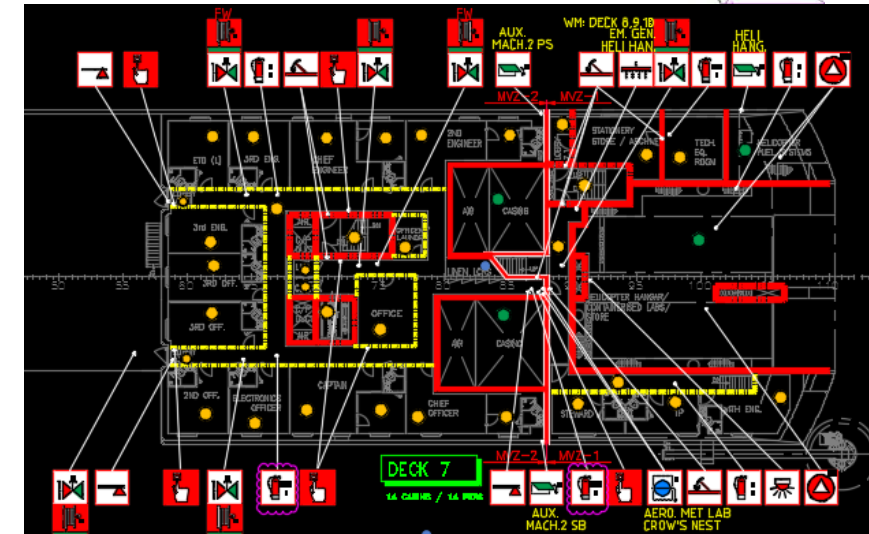
## ACCOMMODATION & SAFETY



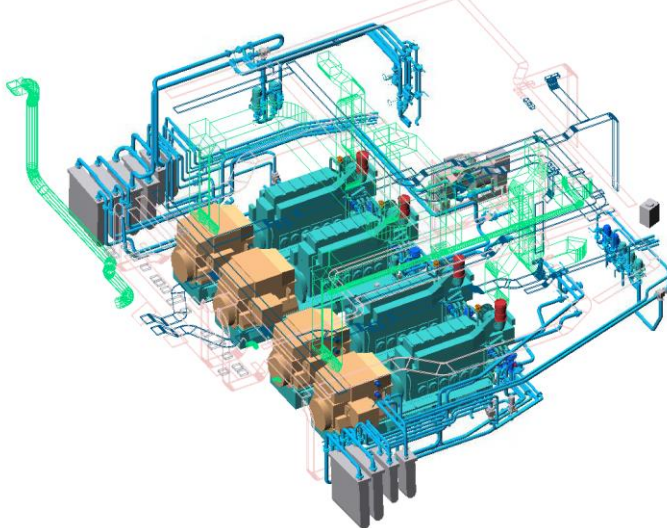
## FIRE / NOISE / COMFORT REQUIREMENTS

Fig. 4 Floating floor in combination with a visco-elastic damping layer

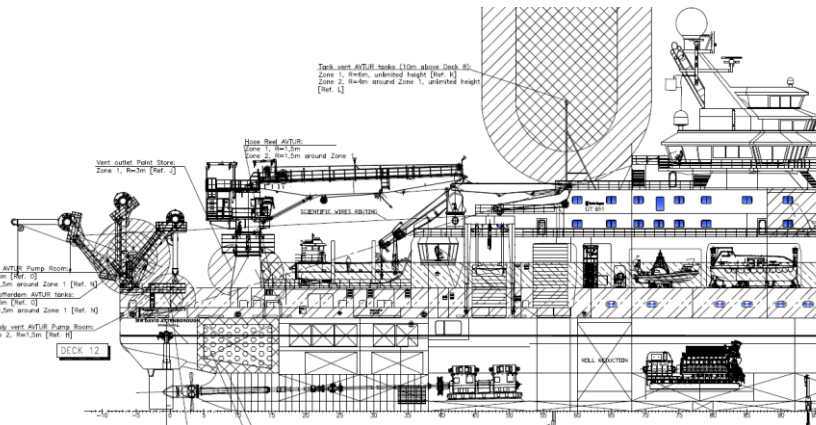
## ACCOMMODATION & SAFETY



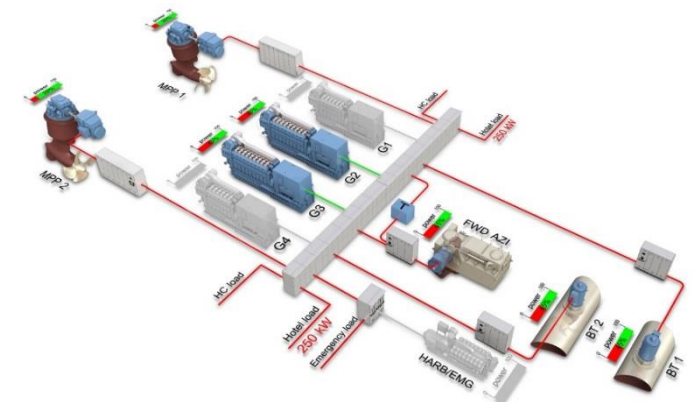
## MACHINERY ARRANGEMENTS



## HVAC – Vent. Calc. and Gas Zone definitions



## ELECTRICAL



WORLD CLASS – Through people, technology and dedication

KONGSBERG PROPRIETARY - See Statement of Proprietary information



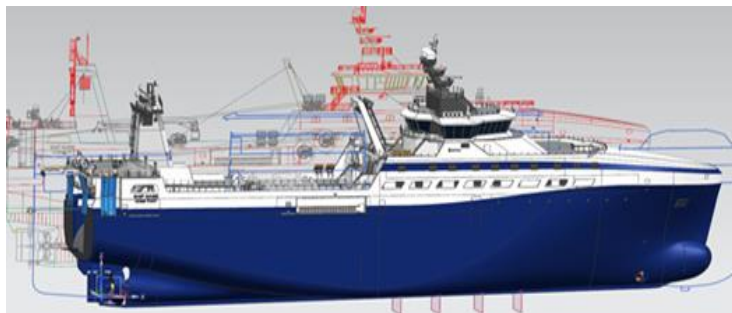
# Core competencies & activities

## Ship Design Engineering

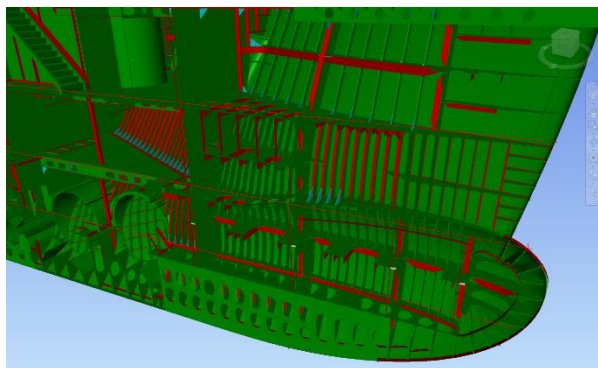


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### TECHNICAL SHIP DESIGN SUPPORT



### HULL STRUCTURAL DESIGN

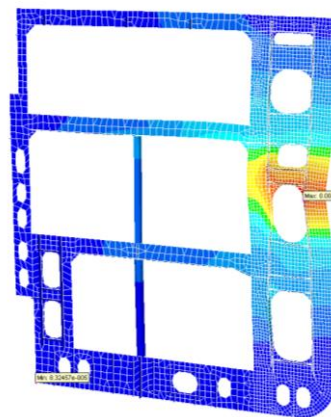


WORLD CLASS – Through people, technology and dedication

### VISUALISATION SUPPORT

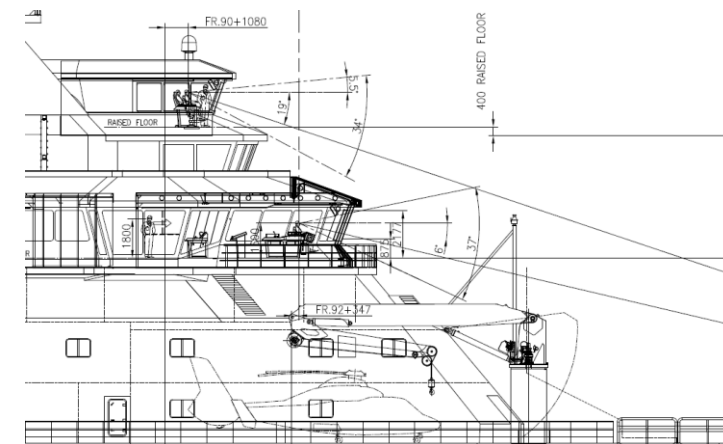


### ANALYSIS

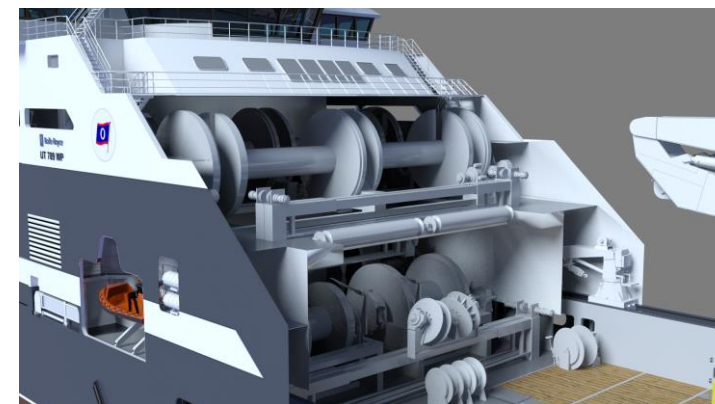


- \* STRENGTH
- \* NOISE
- \* VIBRATIONS
- \* FLOW
- \* PRESS DROP

### FUNCTIONAL ARRANGEMENTS 2D



### FUNCTIONAL ARRANGEMENTS 3D



KONGSBERG PROPRIETARY - See Statement of Proprietary information

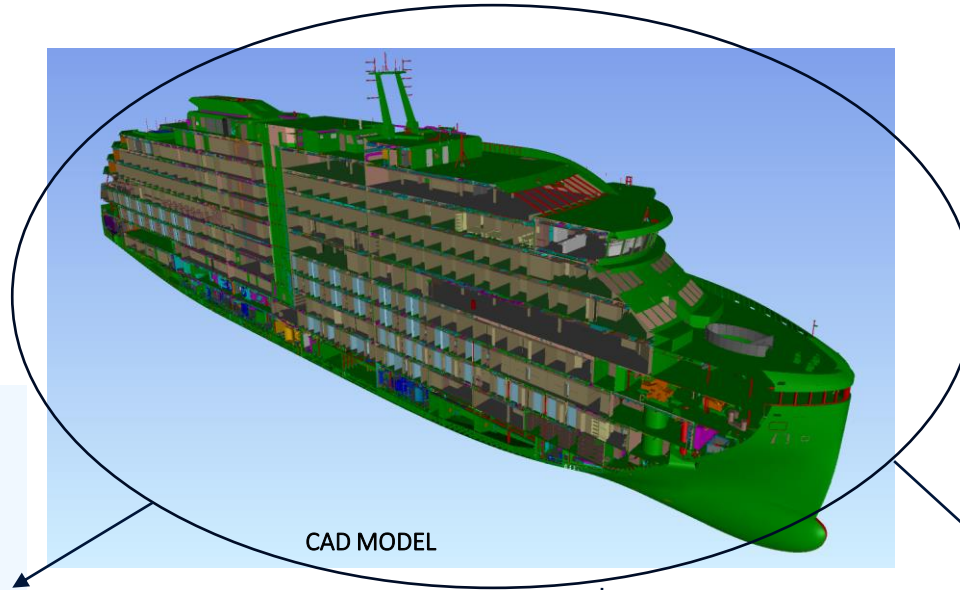
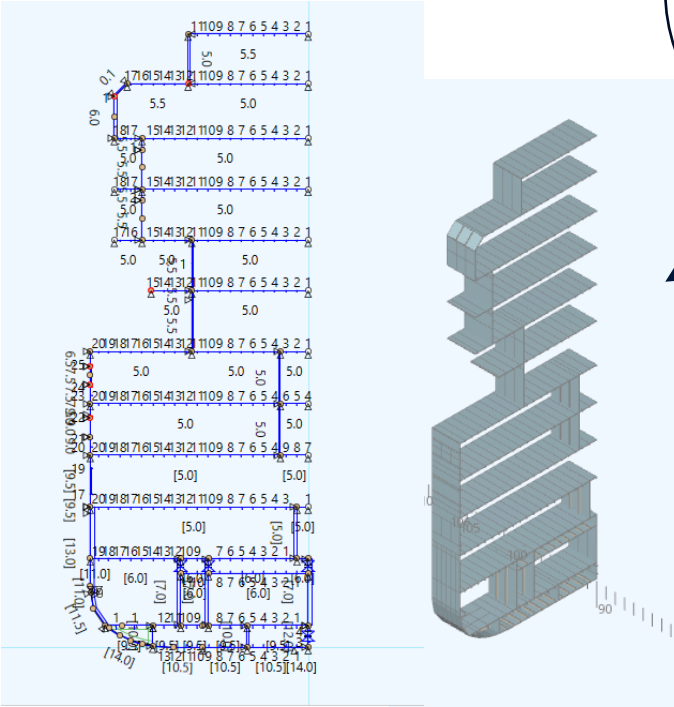




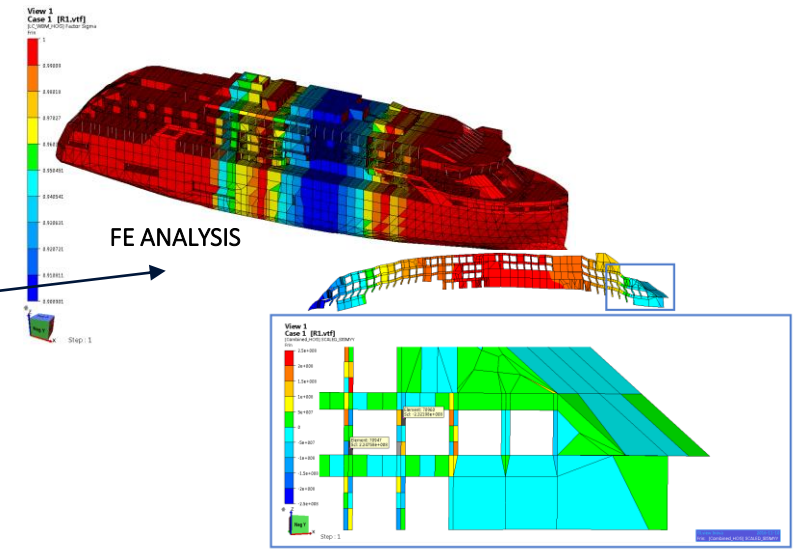
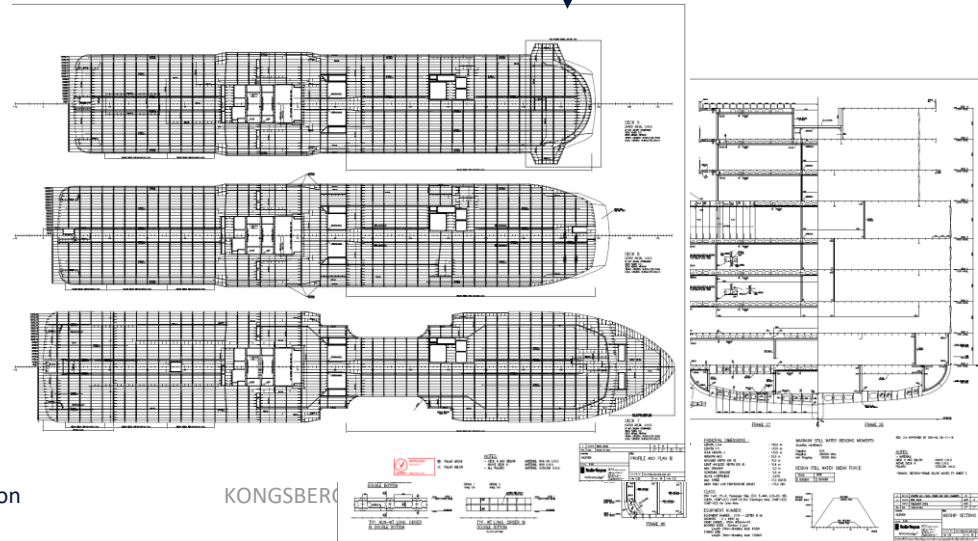
# Structure Basic Design -One Model for all



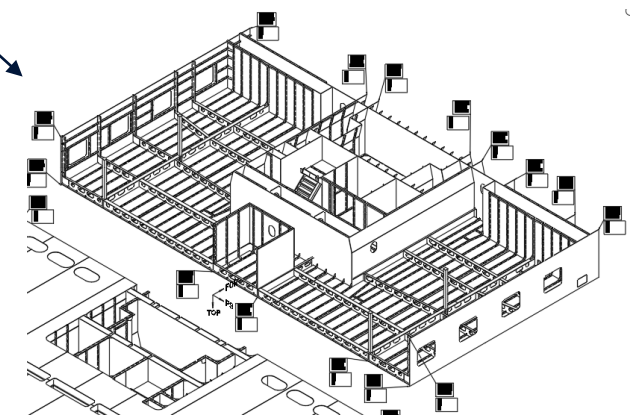
RULE/PREScriptive CALCULATIONS

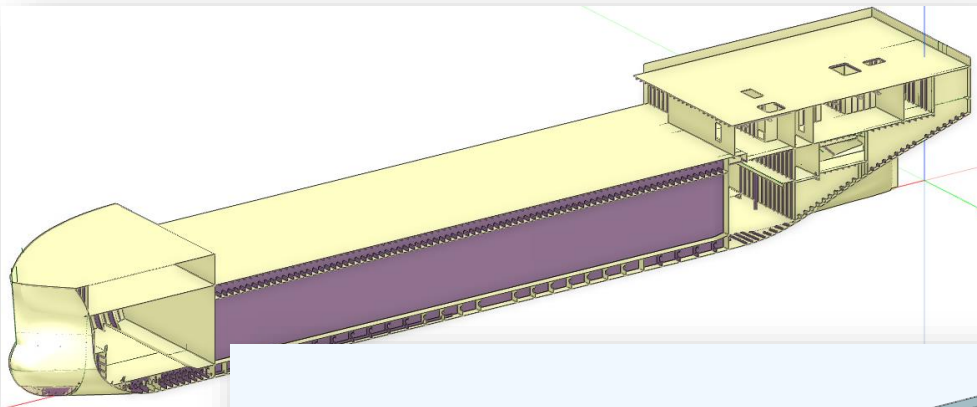


CLASSIFICATION DOCUMENTATION

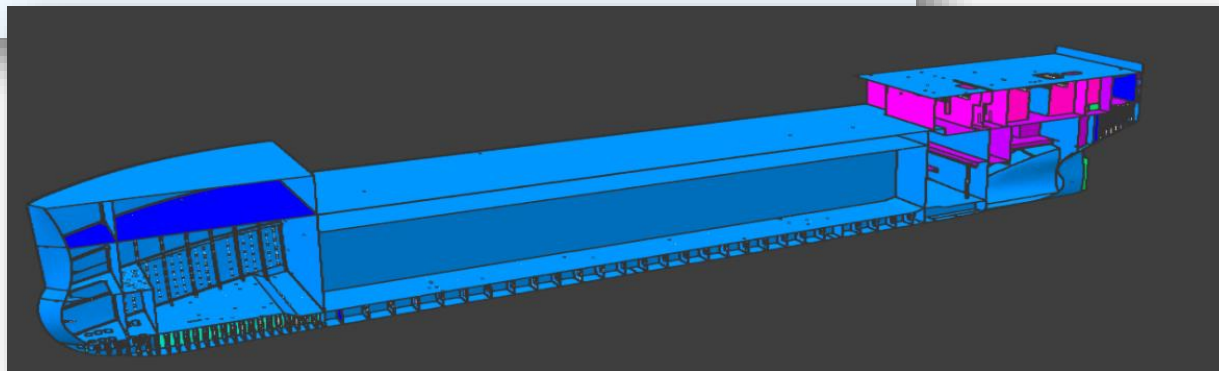
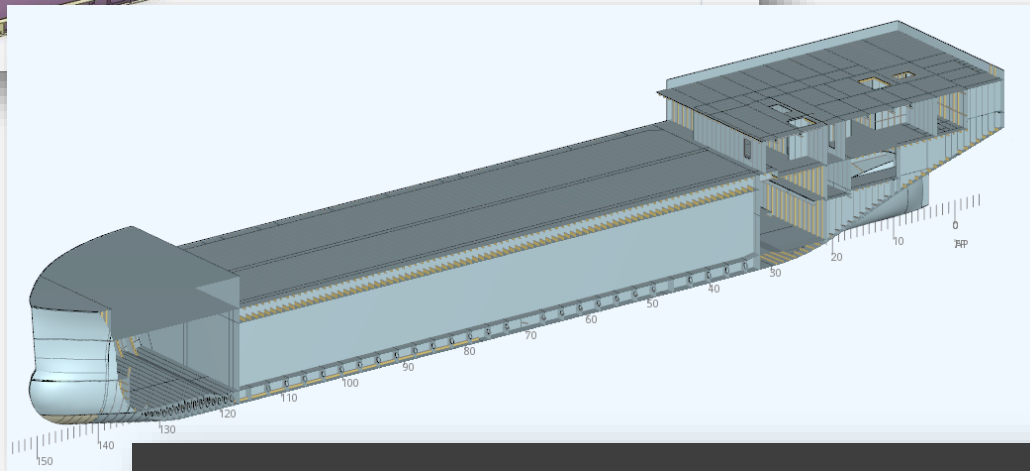


PRODUCTION DOCUMENTATION





# AVEVA™ E3D Design

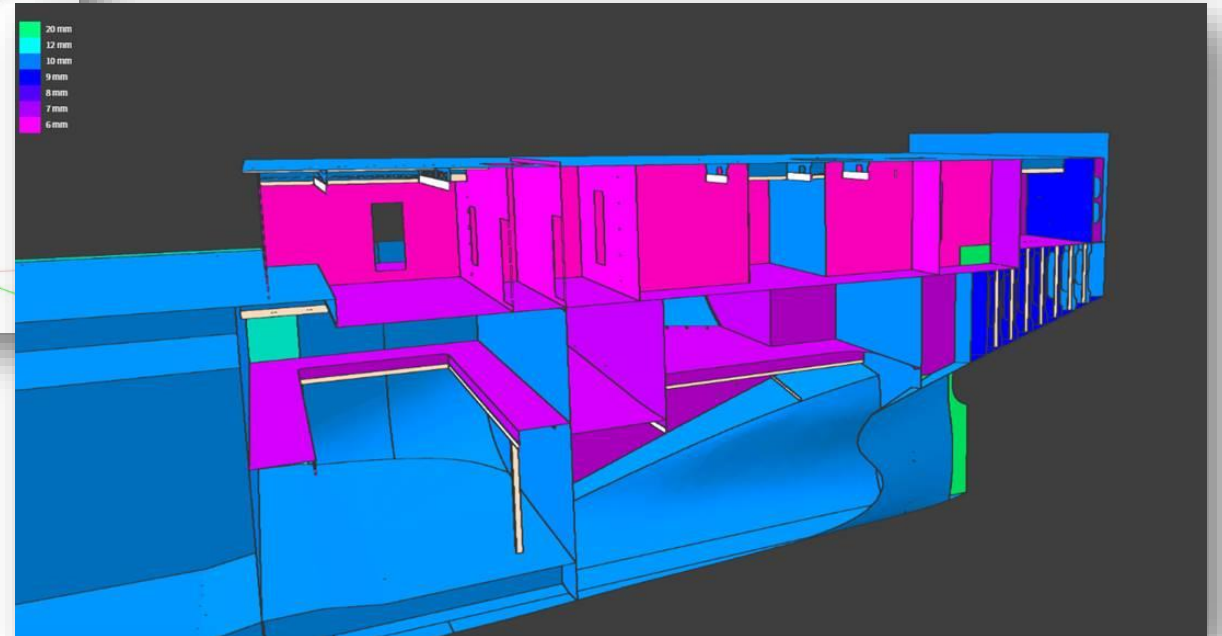
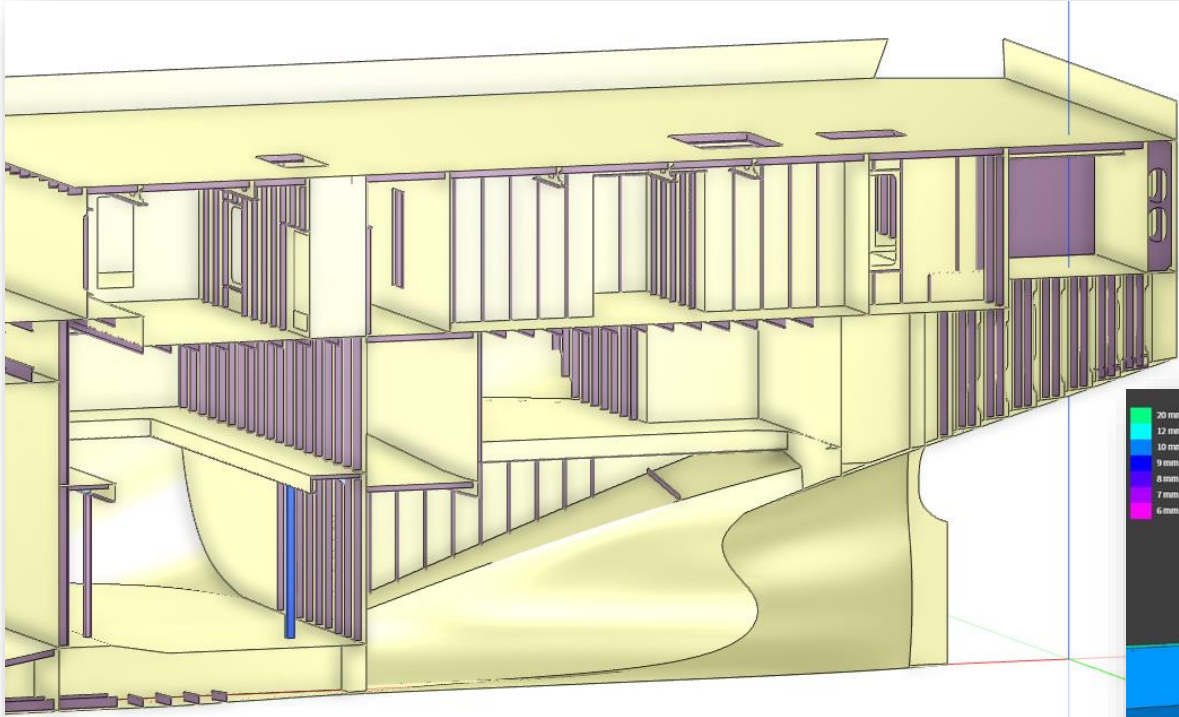


**NAUTICUS HULL**  
Rule strength analysis of hull structures



**KONGSBERG**

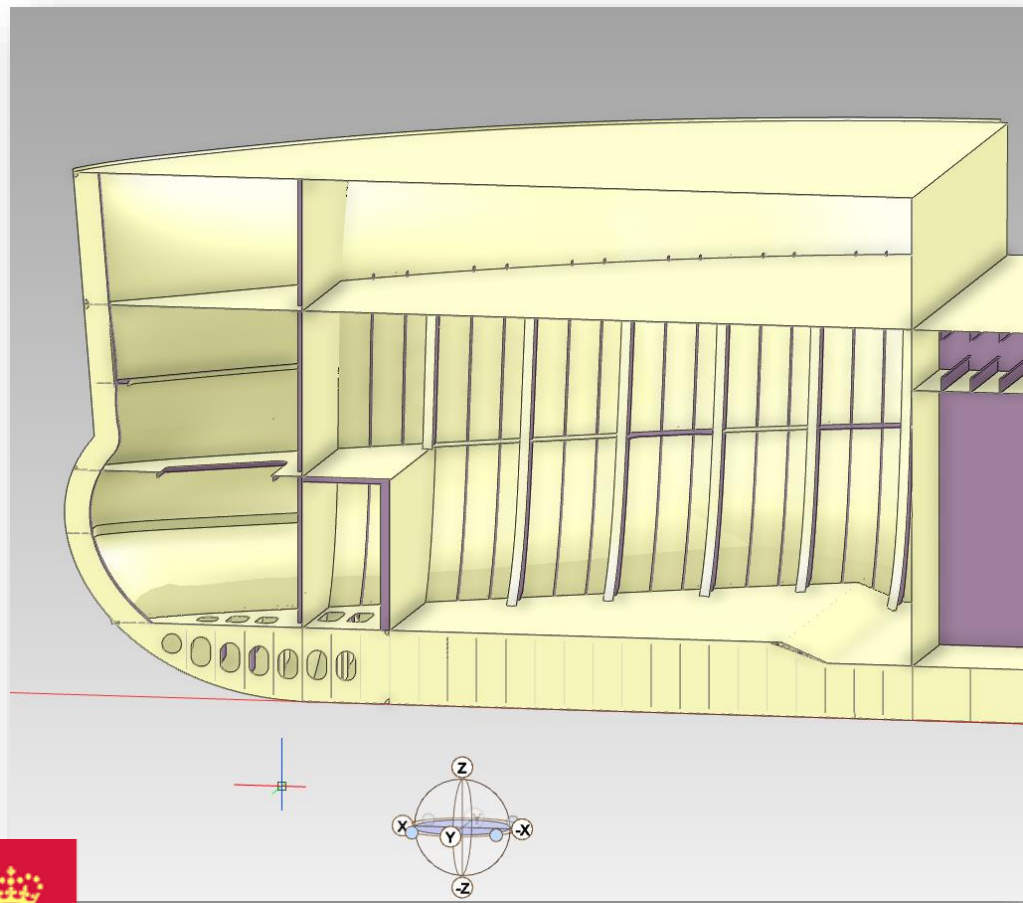
**AVEVA™**



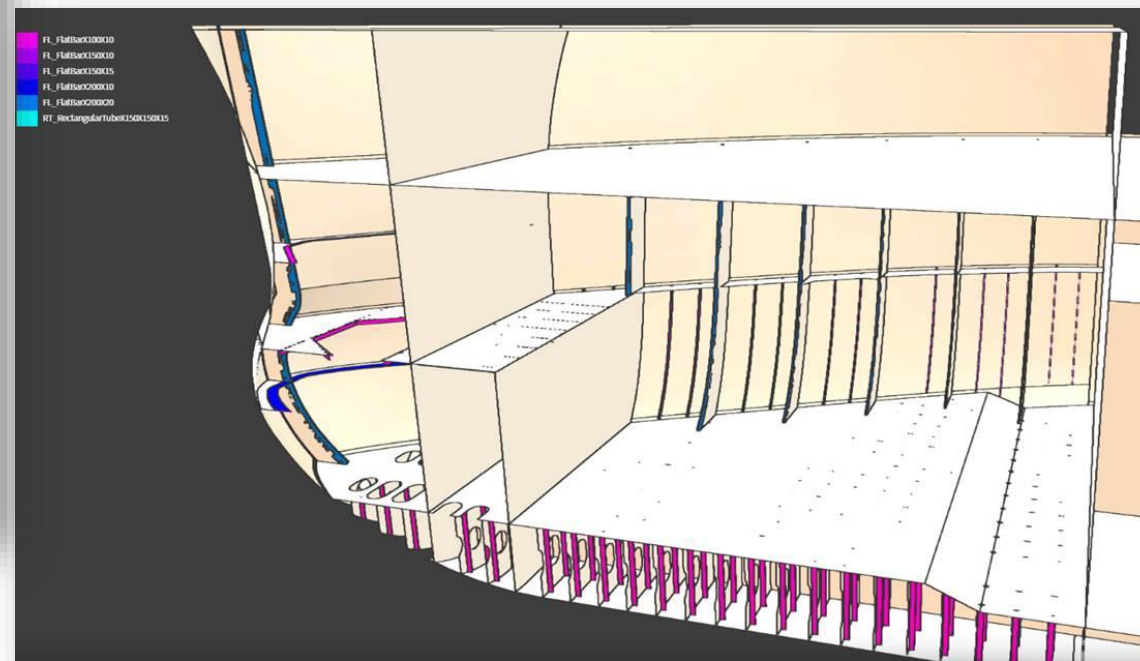
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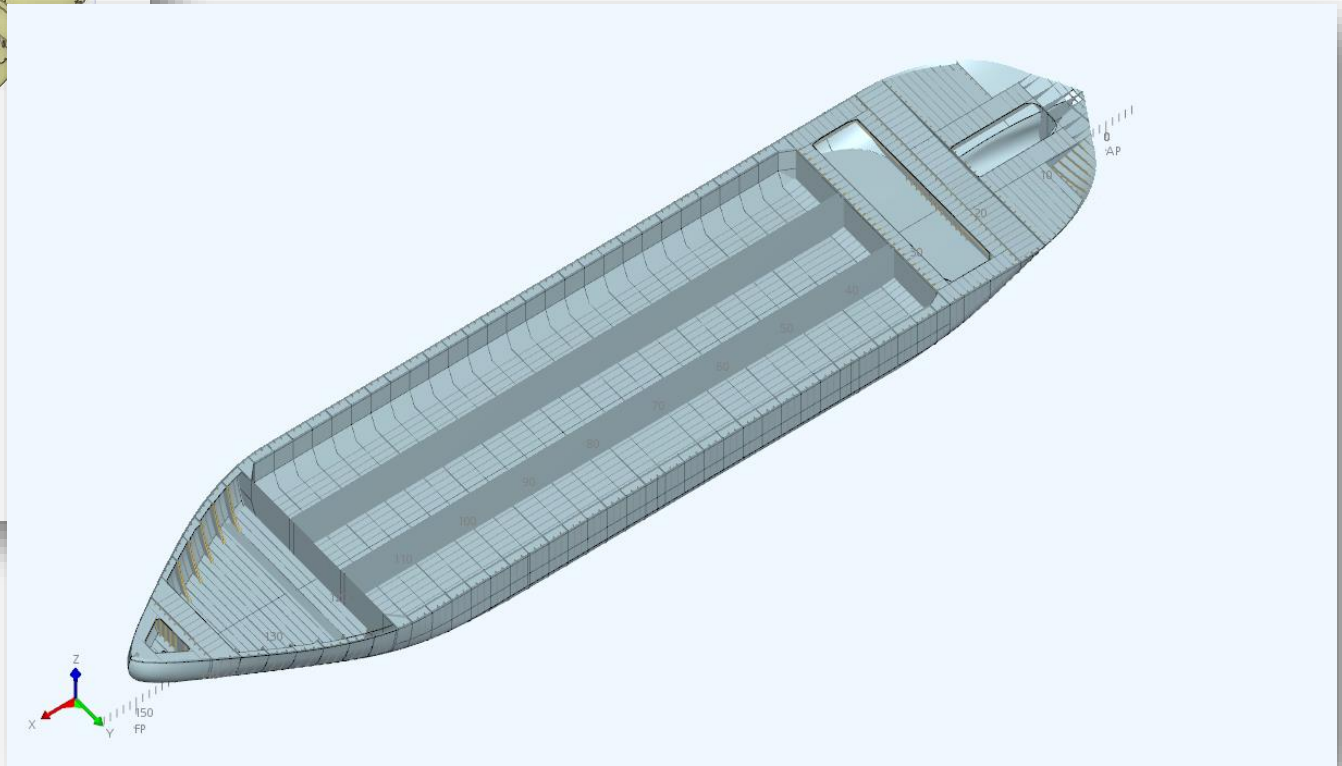
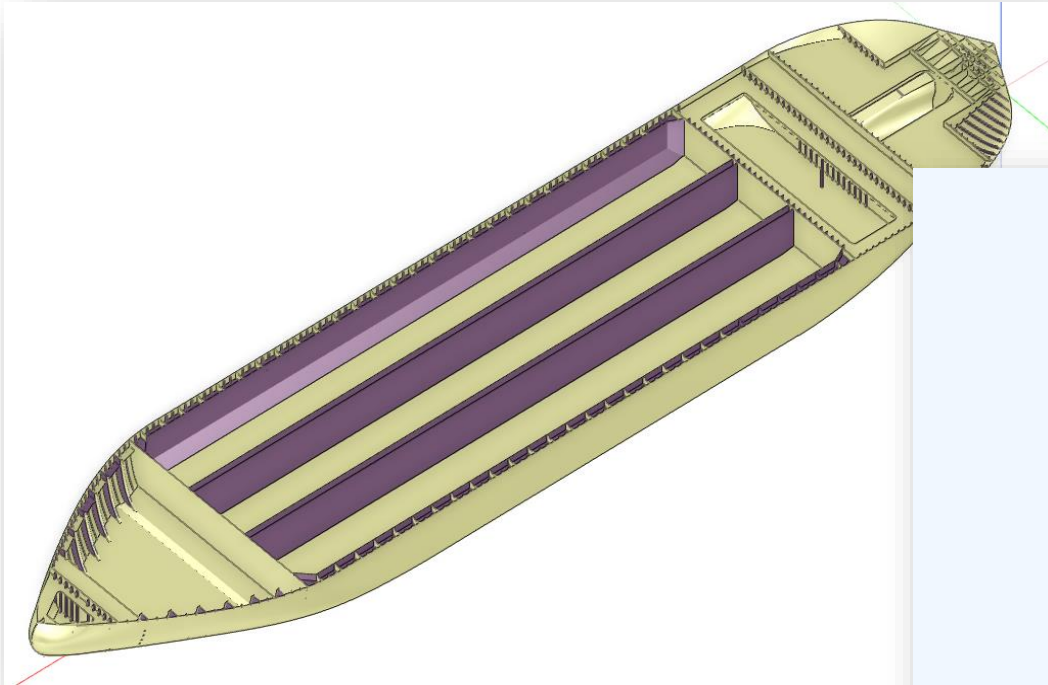


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# NAUTICUS HULL

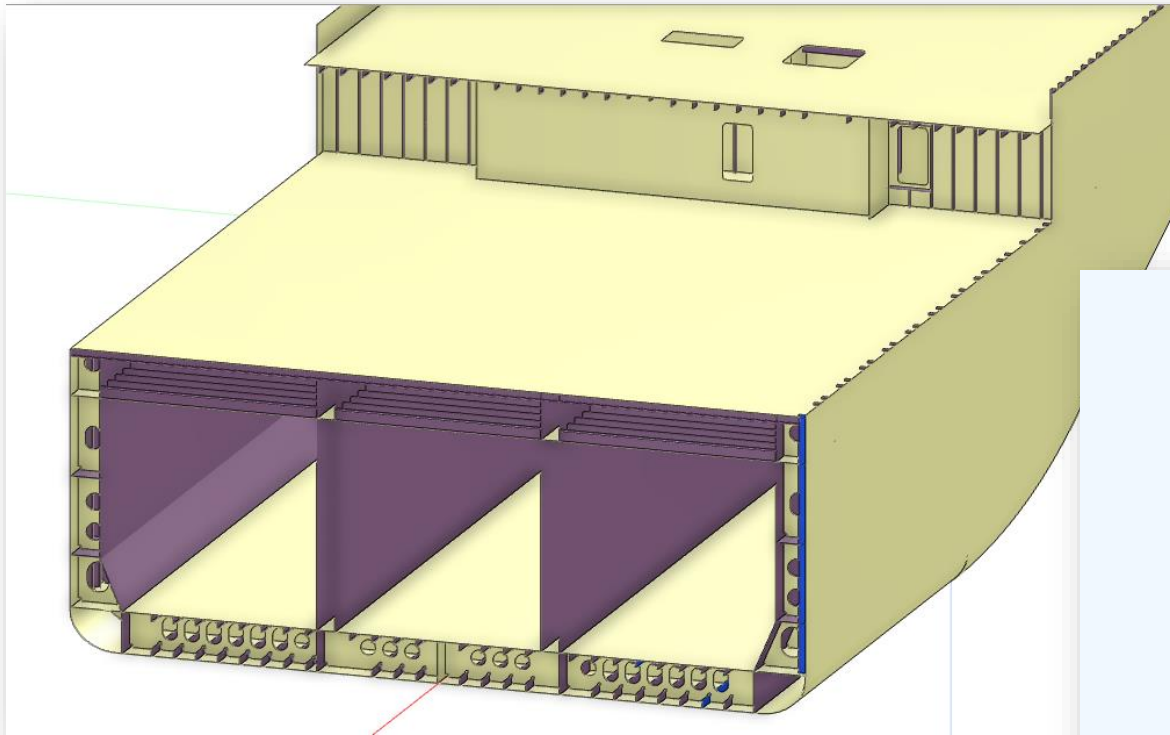
Rule strength analysis of hull structures



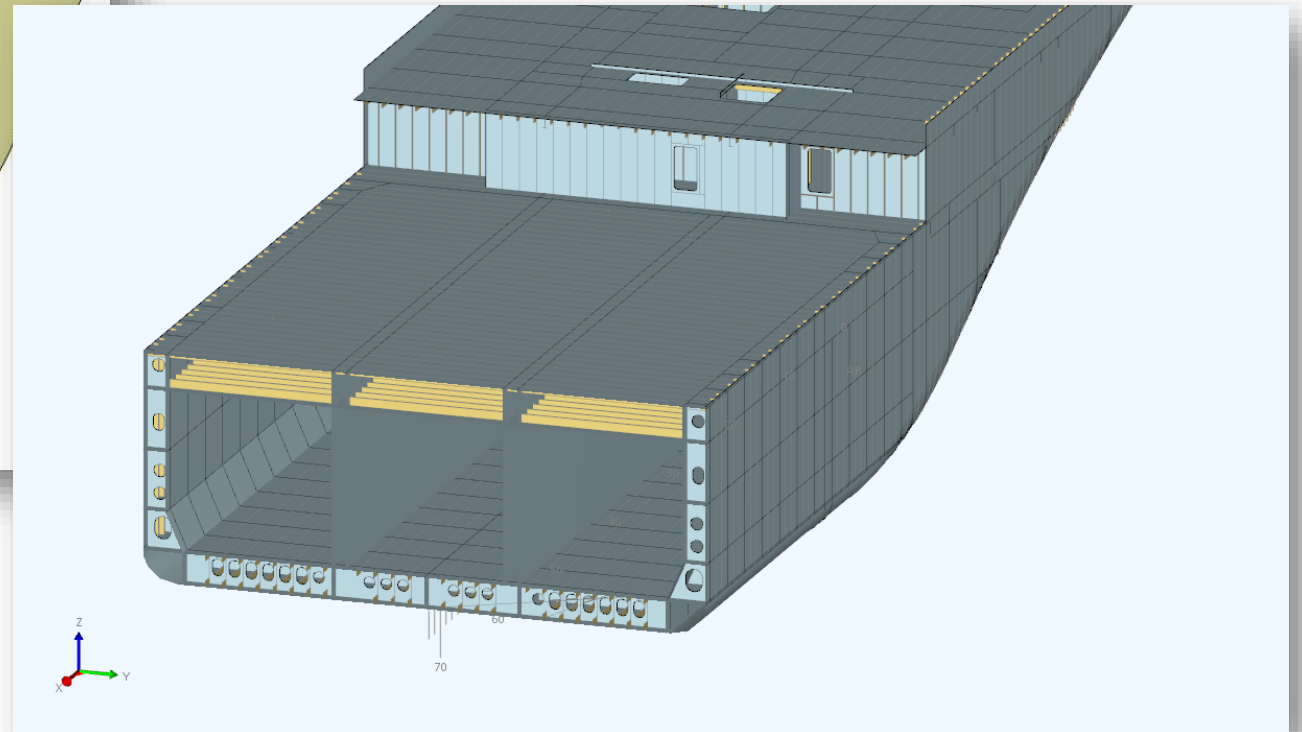
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**NAUTICUS HULL**  
Rule strength analysis of hull structures



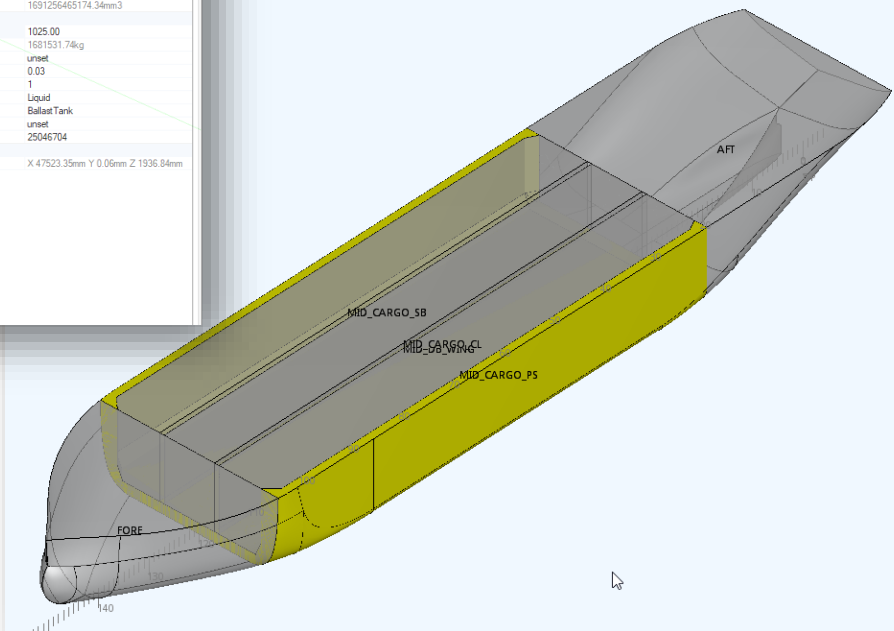
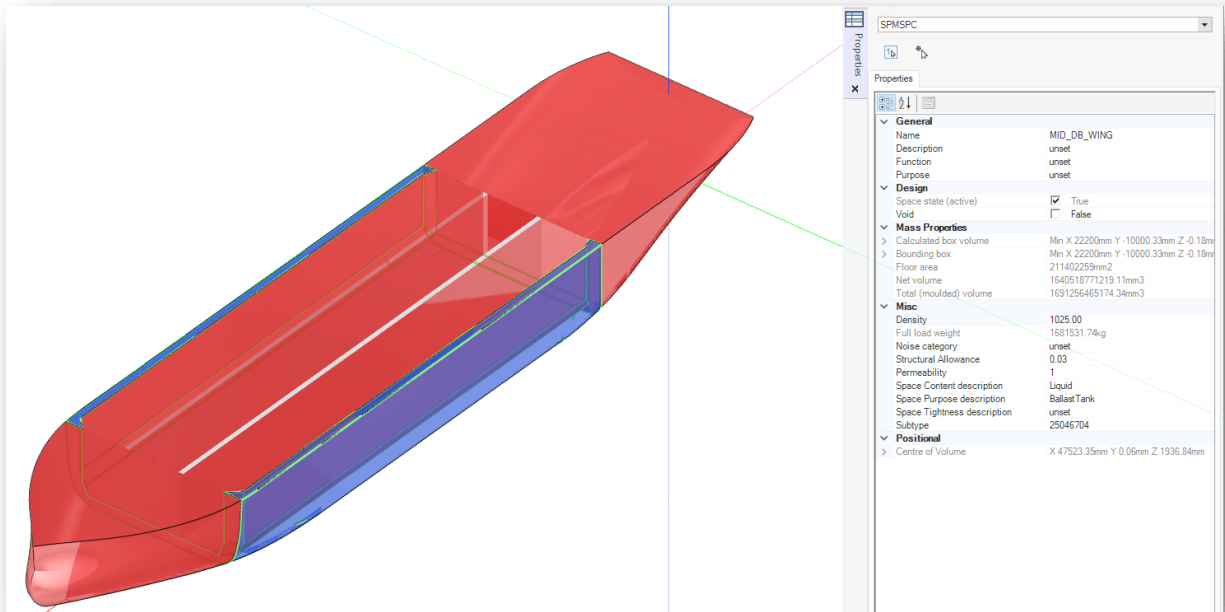
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# NAUTICUS HULL

Rule strength analysis of hull structures



MID\_DB\_WING [y: -10000/10000, z: 0/8000]

Compartment	
Name	MID_DB_WING
Type	Ballast water tank
FE hold no	-1
Volume [m <sup>3</sup> ]	1691.3
Bounding box [mm]	
X	#37 to #122
Y	-10000 to 10000
Z	0 to 8000
COG [mm]	
X	#79+123
Y	0
Z	1937
Type	
Type of compartment	

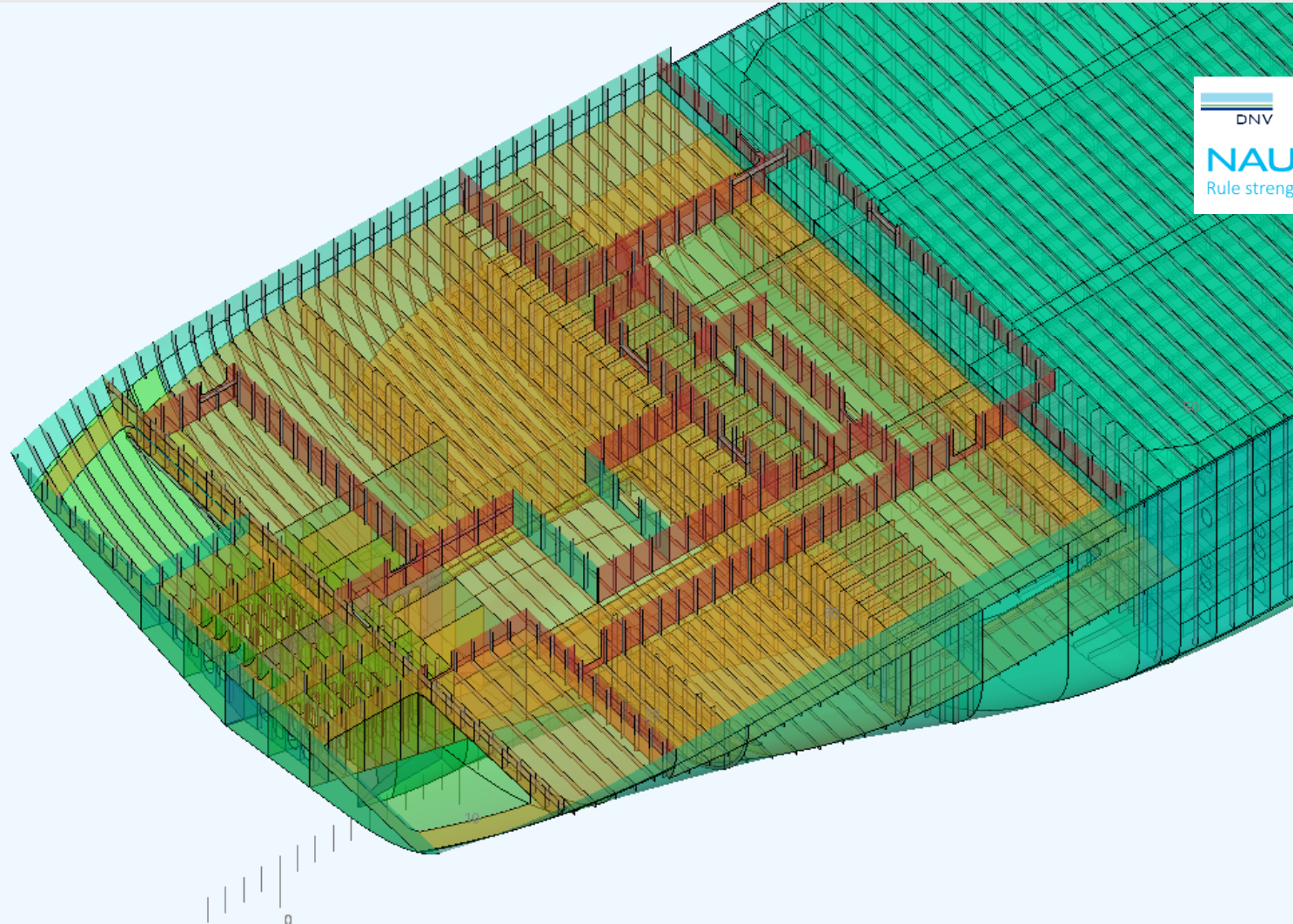
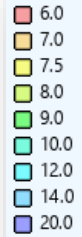


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Plate thickness

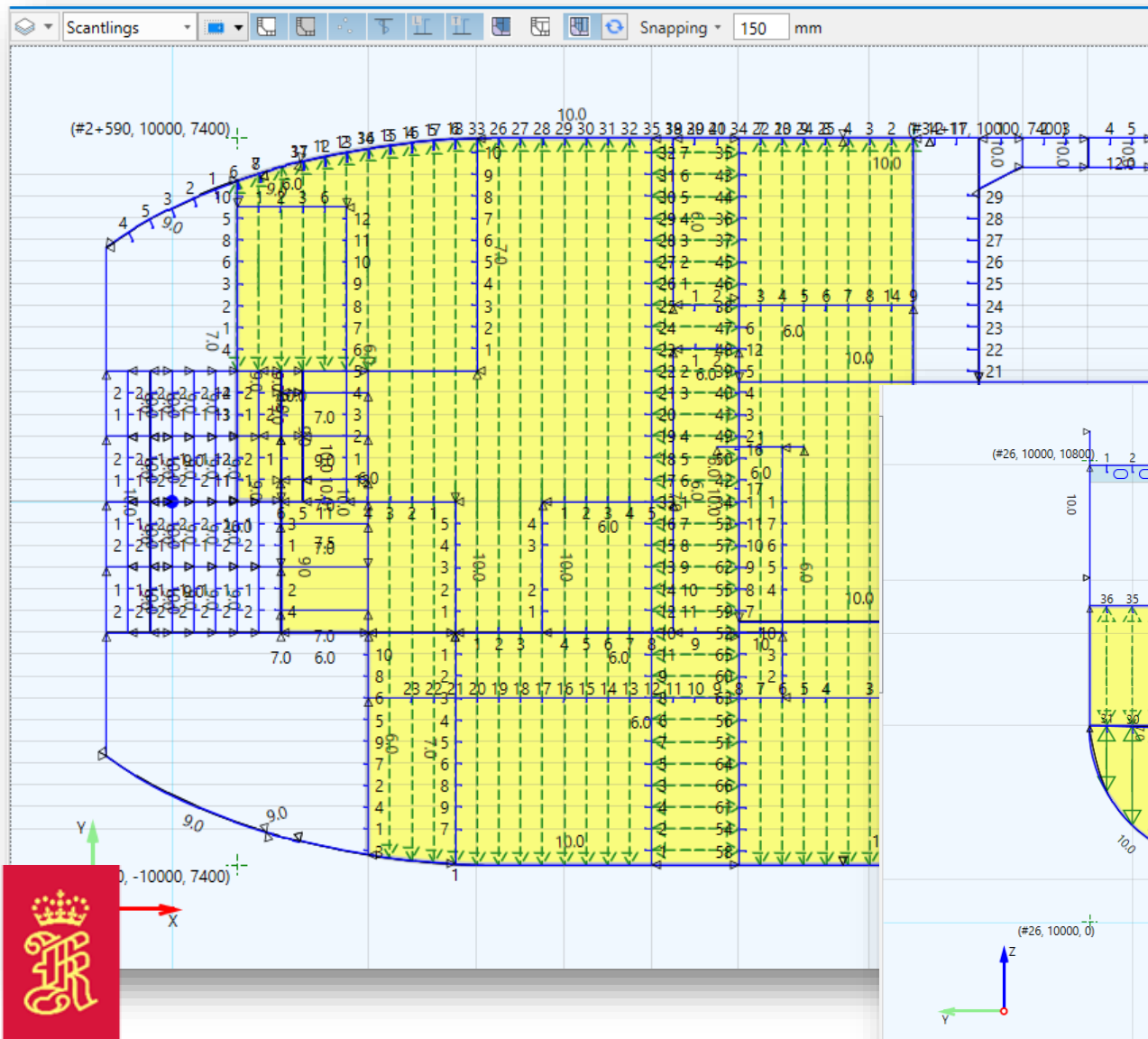


DNV  
**NAUTICUS HULL**  
Rule strength analysis of hull structures

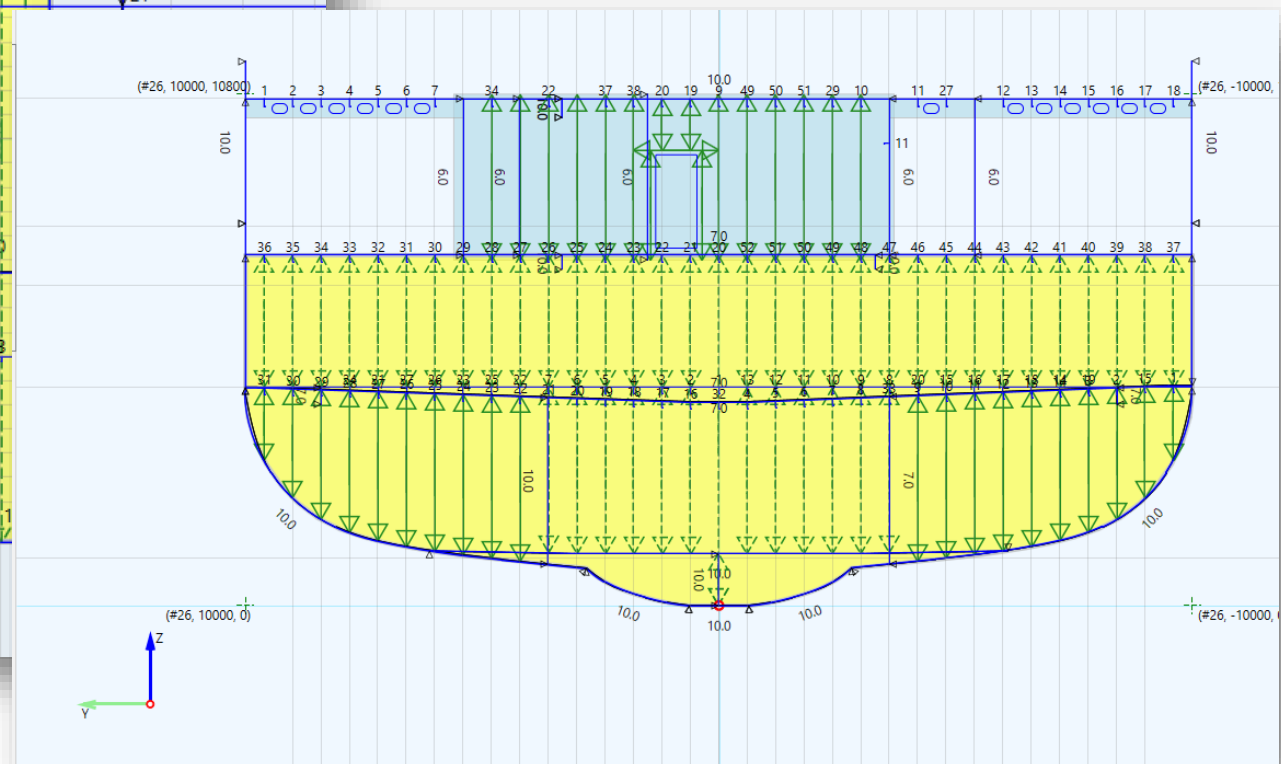


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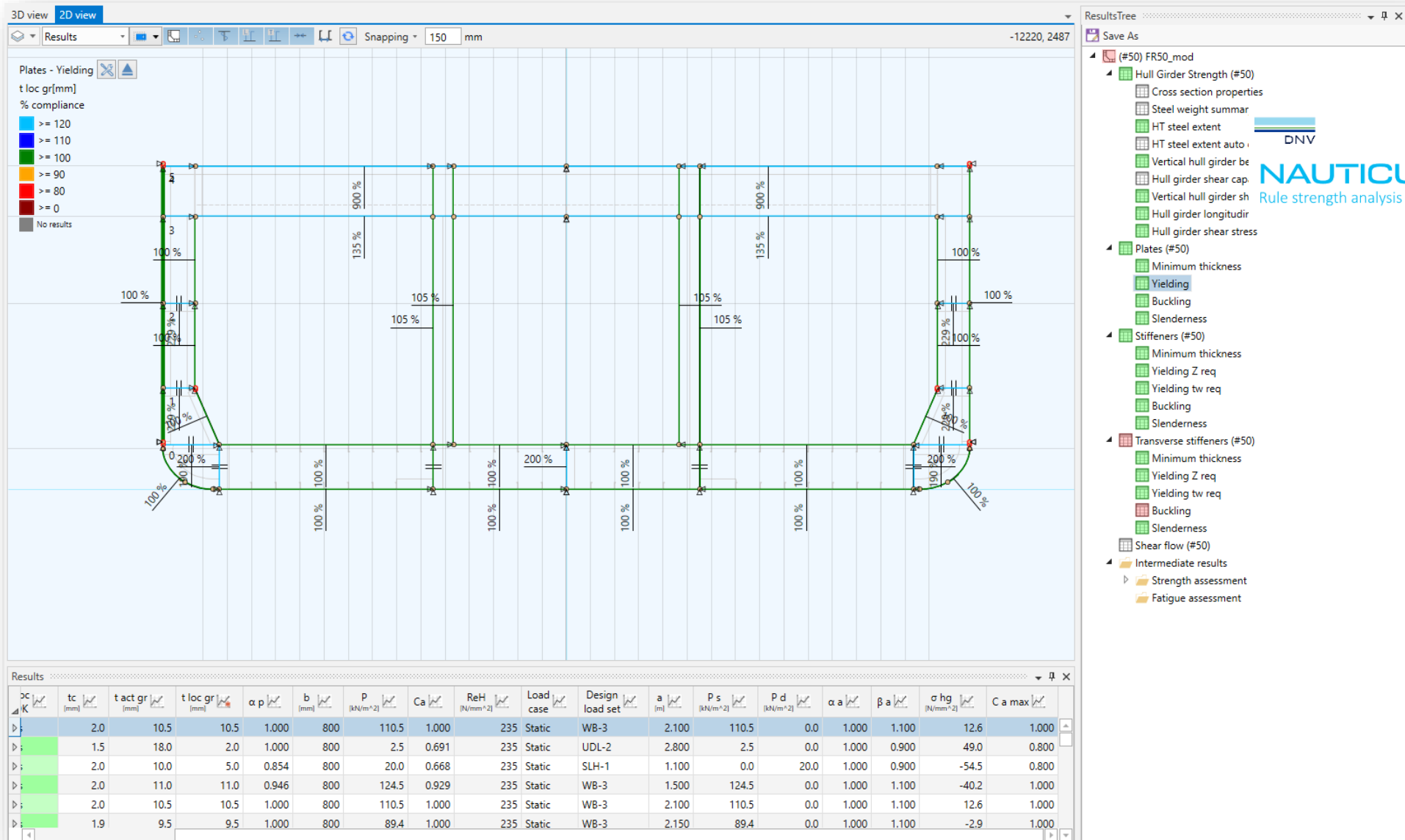


**NAUTICUS HULL**  
Rule strength analysis of hull structures

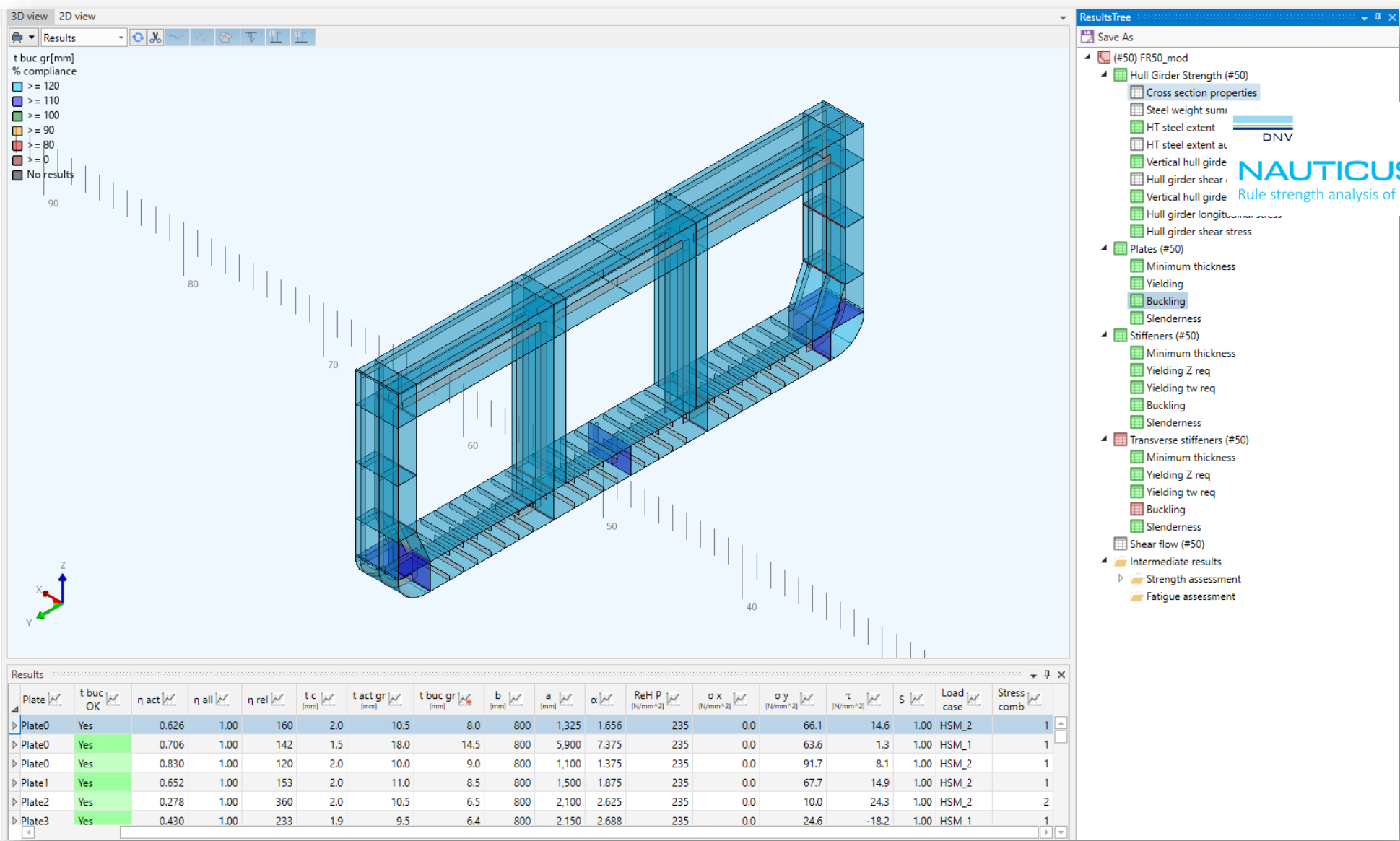


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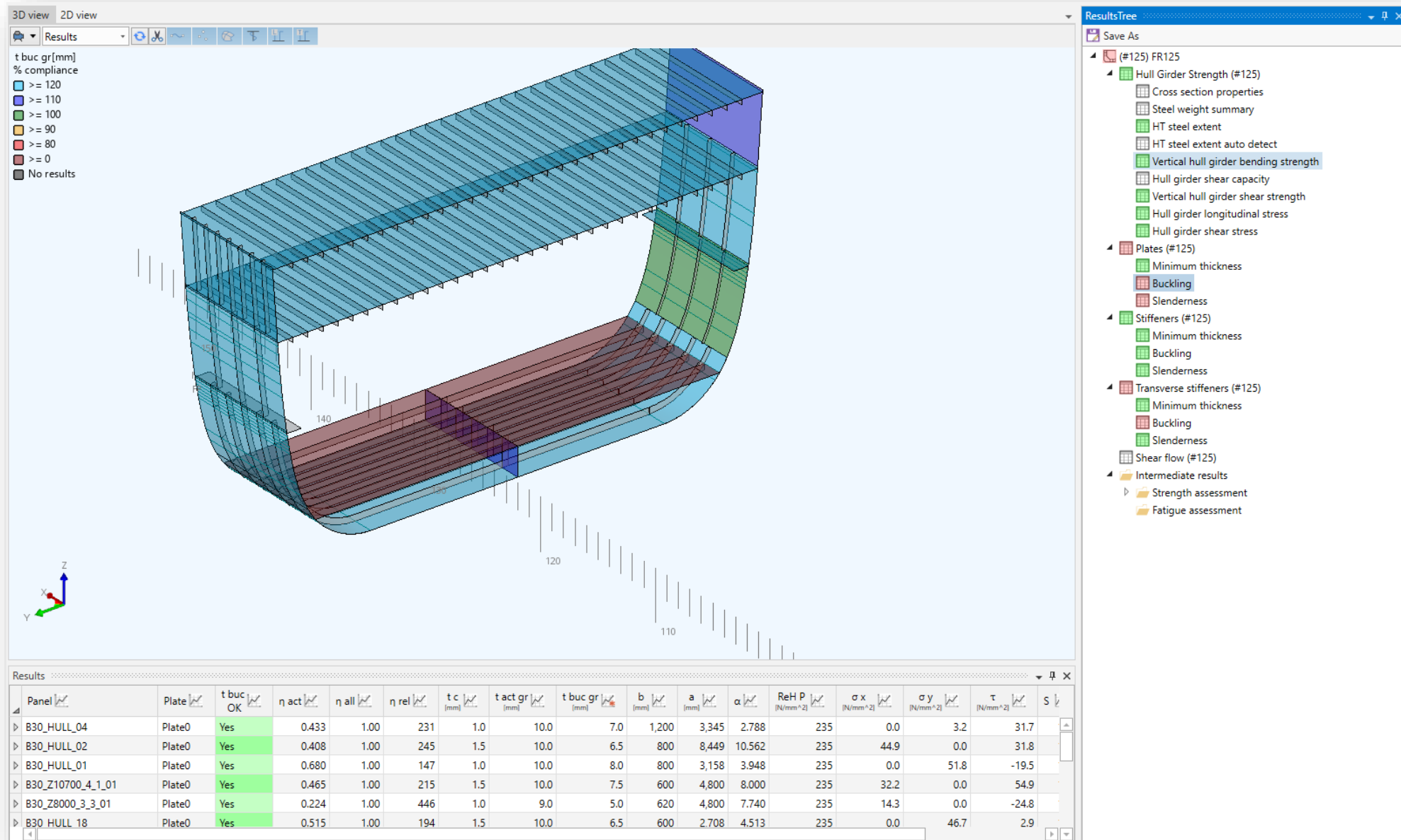
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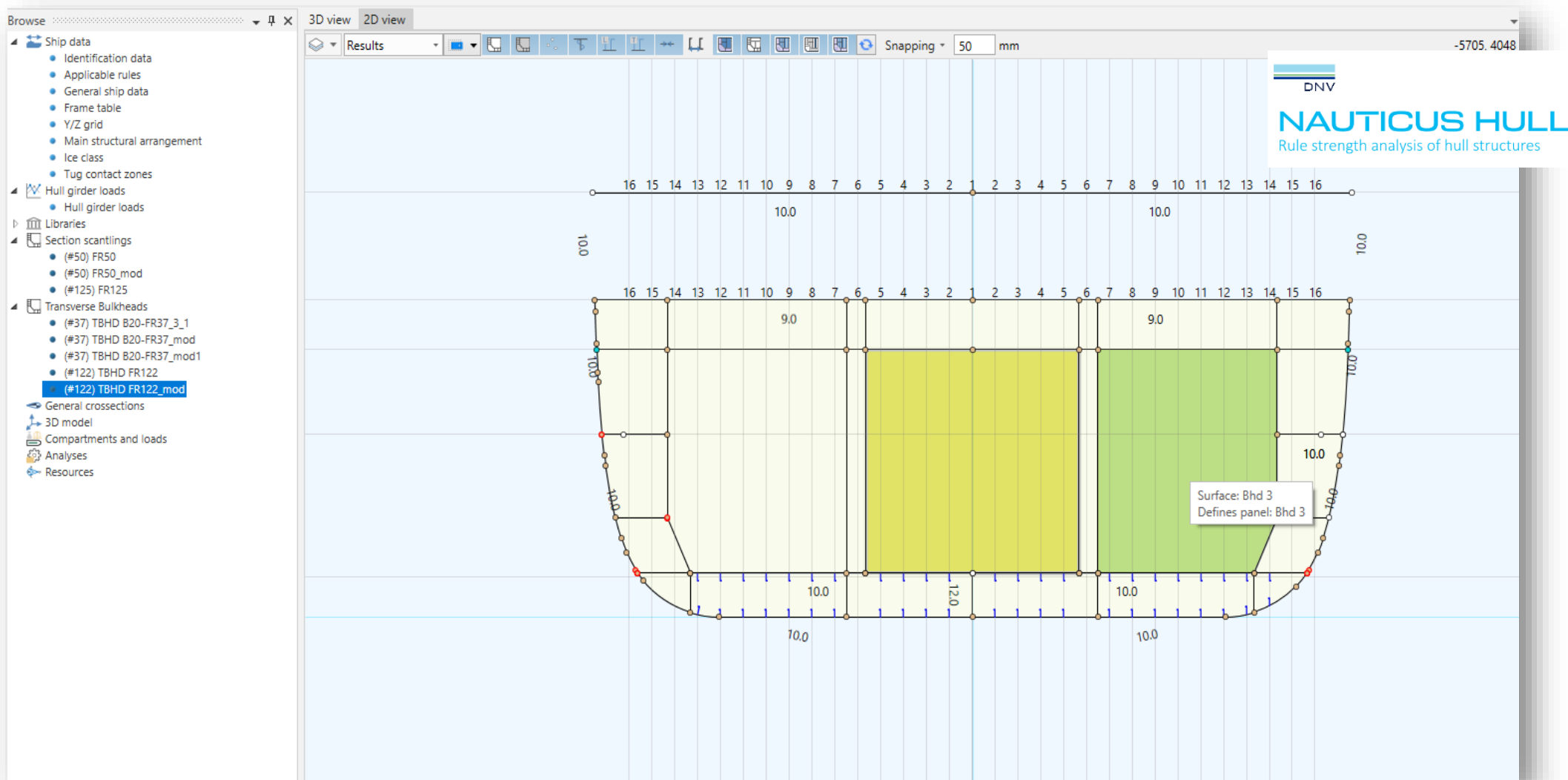
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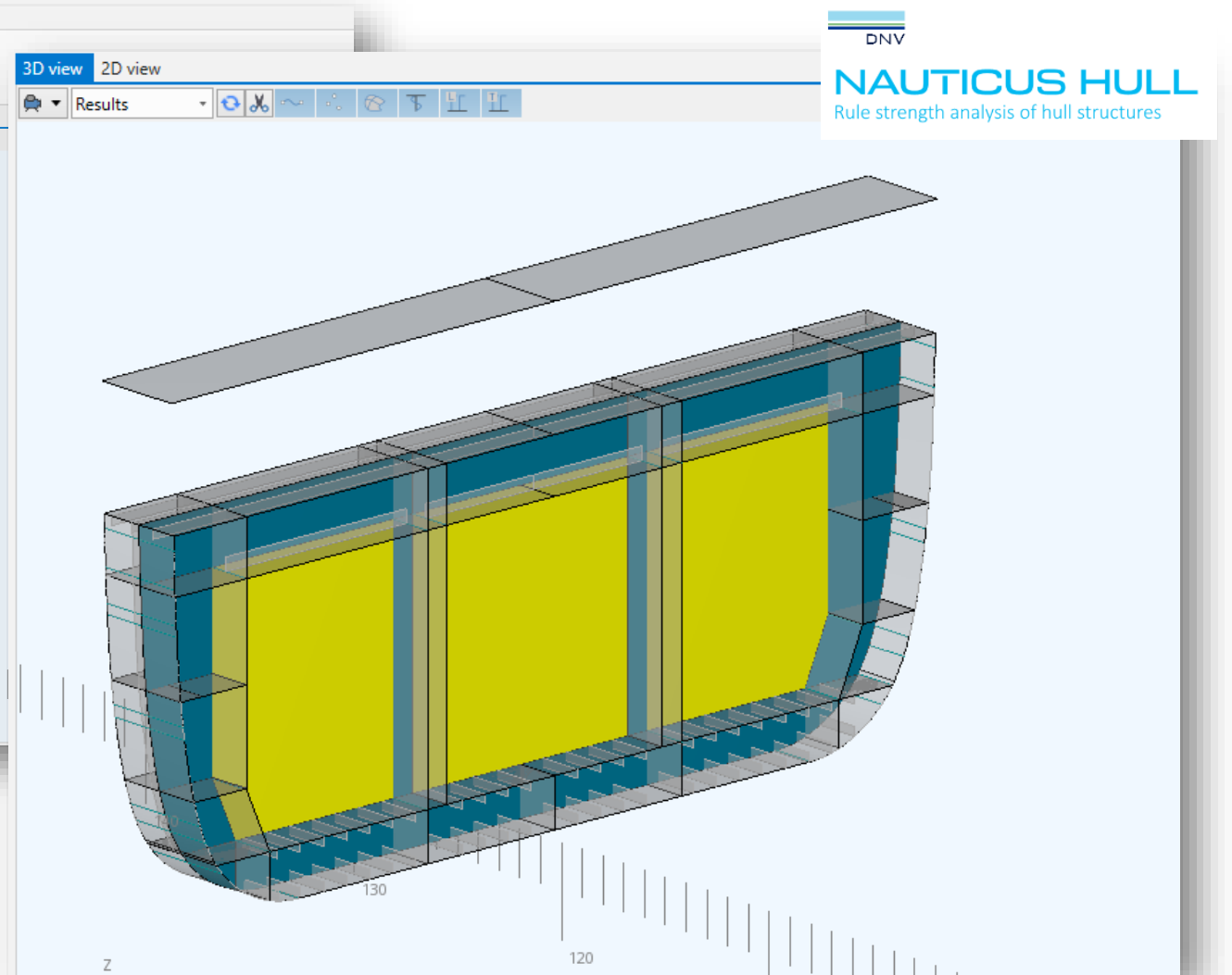
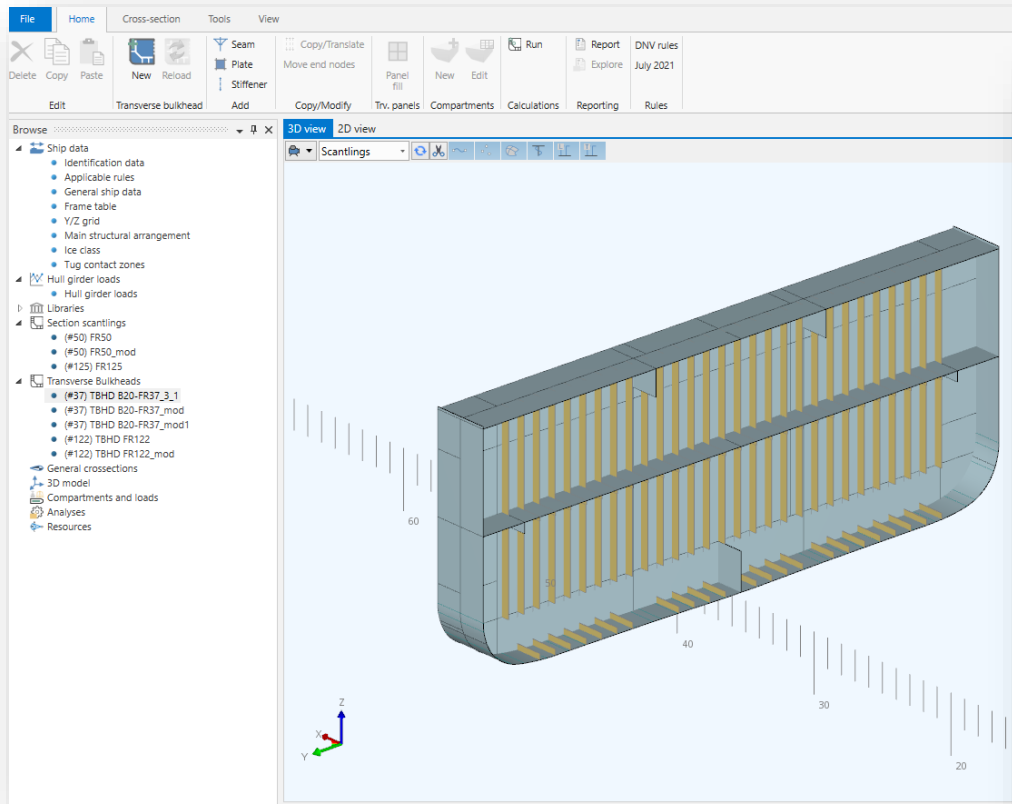
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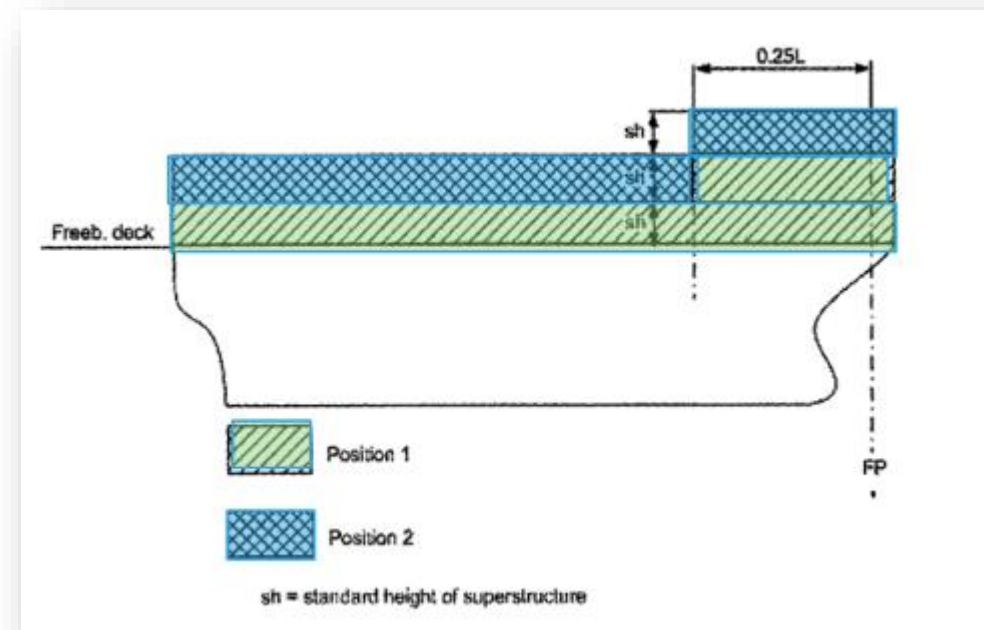
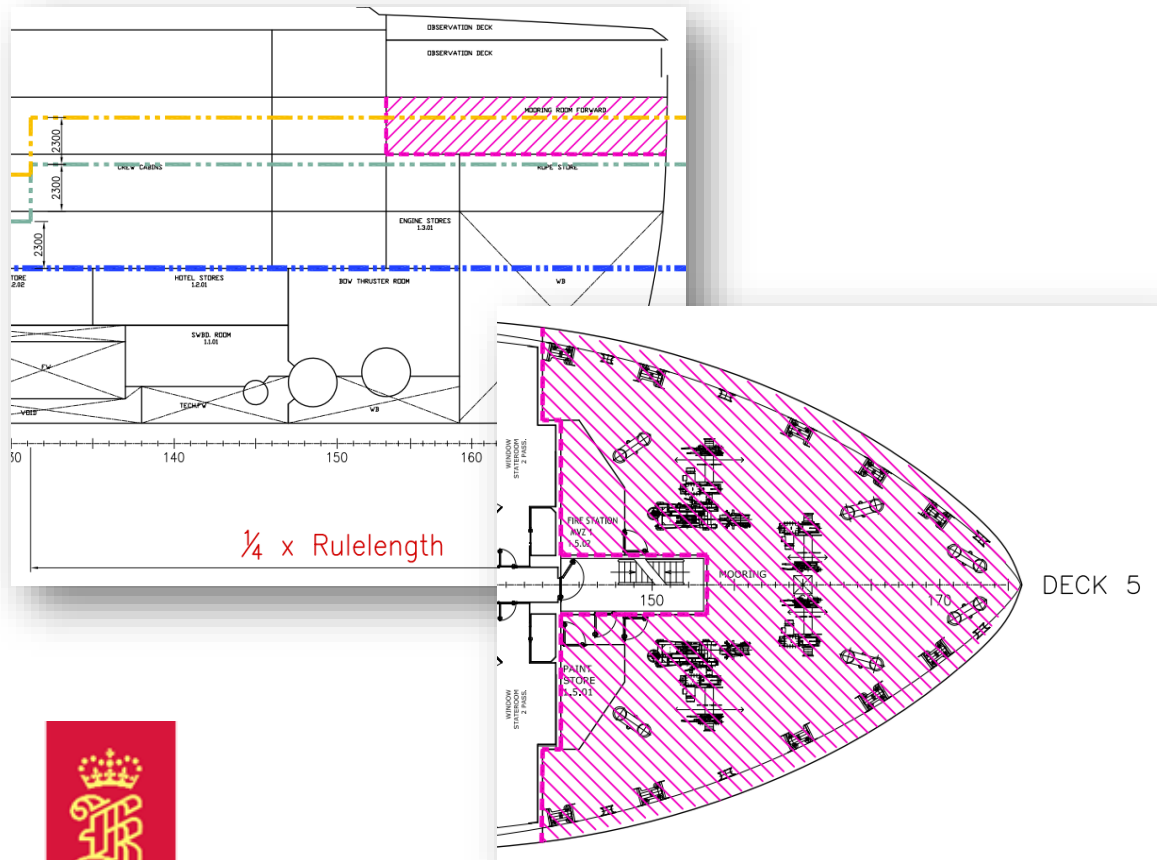
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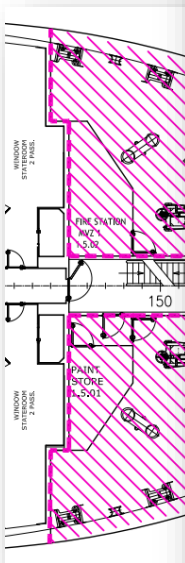
# Load-Line Approval



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# Load-Line Approval



3D model of a fire station structure with a red roof. A software interface titled 'LoadLine Positions' is overlaid on the right side of the image. The interface includes sections for 'Select LoadLine Position Arrangements', 'Attribute Mapping', 'Position Equipments', and 'Output'.

**LoadLine Positions**

Select LoadLine Position Arrangements

Position 1  
Position 2  
/ActualLoadLinePos2

CE CE

Attribute Mapping

OCXAttribute	DesignAttribute
elementType	:EquipType
guidRef	:Guidref
id	
applianceTightness	:applianceTightness
applianceMaterial	:applianceMaterial
maker	:Supplier
fireClass	:fireClass
standardReference	
drawingReference	:DrawingID
hasWindow	:hasWindow

Total Items = 17  
SaveMapConfig

Output  
Browse

Position Equipments

Drag a column header here to group by that column.

Type	Name
<input checked="" type="checkbox"/>	EQUI /Copy-of-24043_512_1508
<input type="checkbox"/>	PIPE /Copy-of-4049-8211-8412
<input type="checkbox"/>	EQUI /Copy-of-4049_GOODSNECK_T04

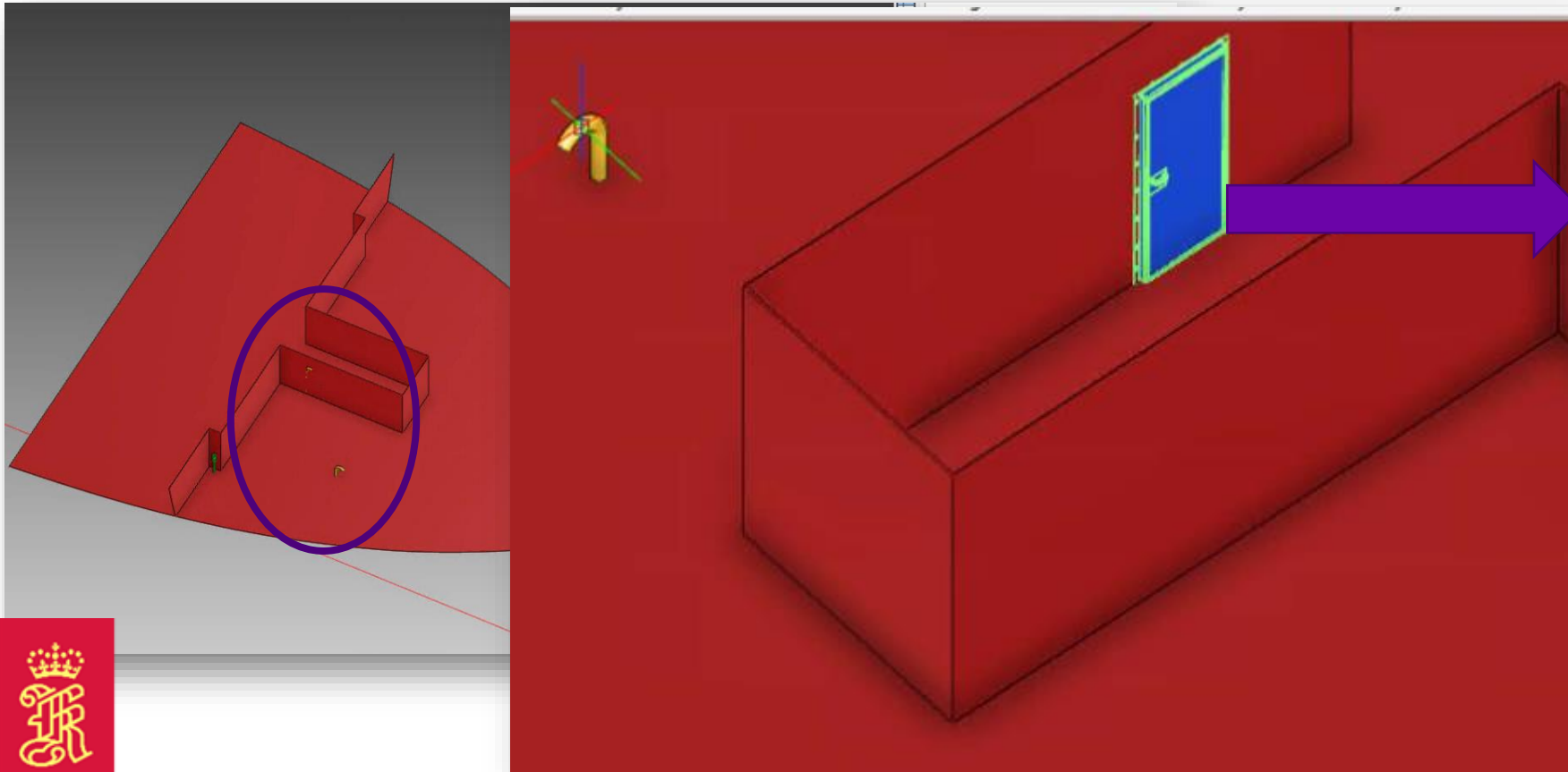
Total Items = 3  
FindEquipments Export Query



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# Load-Line Approval



Properties

<b>General</b>	
Name	Copy-of-Z4043_512_1508
Description	Single hinged door type HB-H w / G.
Function	
Purpose	unset
Lock	False
Owner	Copy-of-A4053-WALL
Property sets	unset
<b>Specification</b>	
Insulation	Nullref
Reference	Null Element
Parameters	
<b>Positional</b>	
Position	X 115692mm Y -1280mm Z 13304.
Orientation	Y is Z and Z is -Y
<b>Mass Properties</b>	
User weight	
User wet weight	
<b>Miscellaneous</b>	
Information	(...)
User defined attributes	(...)
LoadLineGroup	
:applianceMater	Steel
:applianceTight	Spraytight
:closingApplianc	
:closingType	
:coamingThickn	unset
:compartmentPu	
:EquipType	Door
:fireClass	B30
:Guidref	18ac615d-6c5a-4419-bc47-4803d2
:hasWindow	False
:height	1800
:SillHeight	300
:width	900
Miscellaneous	



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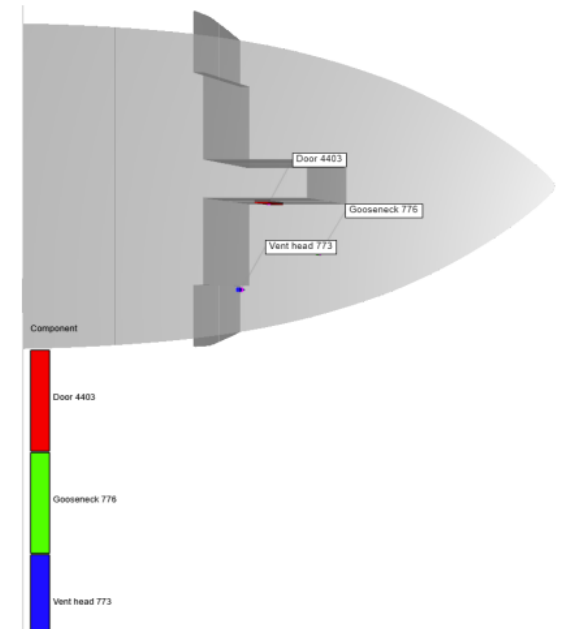
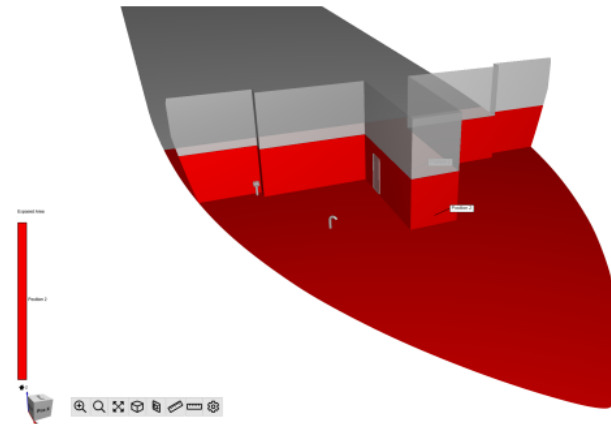
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# Load-Line Approval

```
<?xml version="1.0" encoding="UTF-8"?>
<ocx:ocxXML xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" schemaVersion="2.8.5" language="en" xmlns:ocx="http://data.dnvgl.com/Schemas/ocxXMLSchema">
  <ocx:LoadLine>
    <ocx:Zone ocx:zoneFunction="Load-line" ocx:positionType="Position2">
      <ocx:PhysicalSpace>
        <ocx:Cell>
          <ocx:CellBoundary ocx:GUIDRef="{021A820F-79B4-4BF0-9427-F6CC8760F736}" ocx:refType="ocx:Panel" />
          <ocx:CellBoundary ocx:GUIDRef="{2A8D086D-5B73-4512-B8C8-ADFE4772D44C}" ocx:refType="ocx:Panel" />
        </ocx:Cell>
      </ocx:PhysicalSpace>
    </ocx:Zone>
    <ocx:ApplianceCollection>
      <ocx:VesselReference ocx:GUIDRef="{64728A75-A3A4-429A-8206-1A5B2542045E}" />
      <ocx:Door id="ID1" ocx:applianceTightness="Spraytight" ocx:applianceMaterial="Steel" ocx:GUIDRef="{18AC615D-...}">
        <ocx:ShapeRef ocx:shapeRef="Default">
          <ocx:Transformation>
            <ocx:Origin>
              <ocx:X numericvalue="115692" unit="u2" />
              <ocx:Y numericvalue="-1280" unit="u2" />
              <ocx:Z numericvalue="13304.5" unit="u2" />
            </ocx:Origin>
            <ocx:PrimaryAxis x="1" y="0" z="0" />
            <ocx:SecondaryAxis x="0" y="0" z="1" />
          </ocx:Transformation>
          <ocx:Scaling x="1" y="1" z="1" />
          <ocx:ShapeRef>
            <ocx:SillHeight numericvalue="300" unit="u2" />
            <ocx:Transformation>
              <ocx:Origin>
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                <ocx:Y numericvalue="-1280" unit="u2" />
                <ocx:Z numericvalue="13304.5" unit="u2" />
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              <ocx:PrimaryAxis x="1" y="0" z="0" />
              <ocx:SecondaryAxis x="0" y="0" z="1" />
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          </ocx:Door>
          <ocx:GooseNeck id="ID2" ocx:applianceTightness="Gastight" ocx:applianceMaterial="Steel" ocx:GUIDRef="{B58B...}">
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              <ocx:ShapeRef>
                <ocx:VentilatedSpace ocx:compartmentPurpose="Freshwater" />
              </ocx:GooseNeck>
              <ocx:Mushroom id="ID3" ocx:applianceTightness="Watertight" ocx:applianceMaterial="Steel" ocx:GUIDRef="{7BCB3BE4-8B8A-436E-85D1-69B12F0168AB}">
                <ocx:ShapeRef ocx:shapeRef="Default">
```


## Load-line mock-up




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# Thank you

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 [@avevagroup](https://twitter.com/avevagroup)

#### ABOUT AVEVA

AVEVA is a global leader in engineering and industrial software driving digital transformation across the entire asset and operational life cycle of capital-intensive industries.

The company's engineering, planning and operations, asset performance, and monitoring and control solutions deliver proven results to over 16,000 customers across the globe. Its customers are supported by the largest industrial software ecosystem, including 4,200 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 4,400 employees at 80 locations in over 40 countries.

[aveva.com](https://www.aveva.com)



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# Thank you