



Report Designer

20.01.2020
Version 5.3

Report designer gives a possibility to completely control structure of your report and easily preview and modify it.

This tutorial demonstrates how to build reports using Report Designer:

- Open predefined project;
- Model Setup Report (First Page, Preface, Materials, Properties, Fem Loads and Constraints);
- Result Report (Content items, Predefined Tables, Add Plots and Tables);
- Number Format, Legend Settings;
- Tables and Plots for Static Stress Check;

Open Project

1

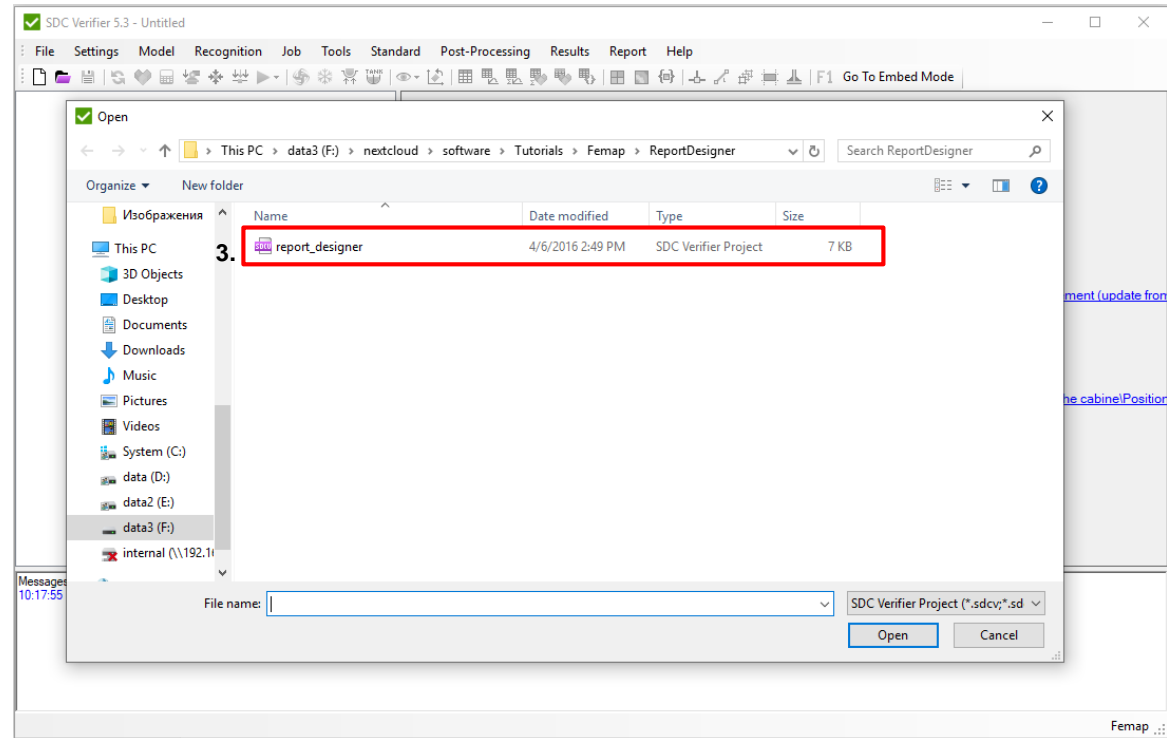
Launch **SDC Verifier** 

2

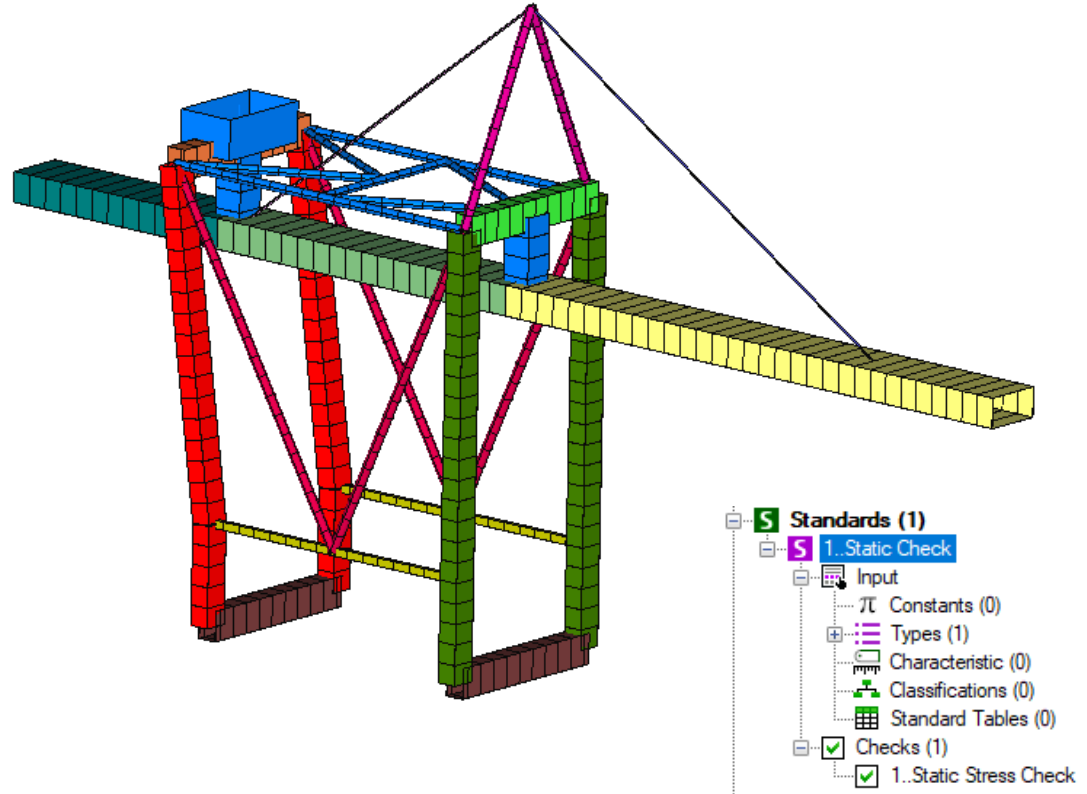
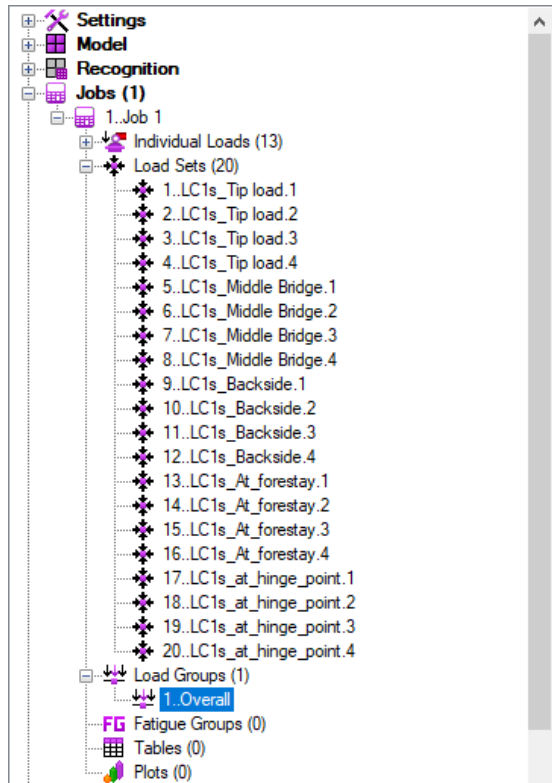
Execute *File - Open Project*.

3

Project: **Report_Designer.sdcv**




Predefined project

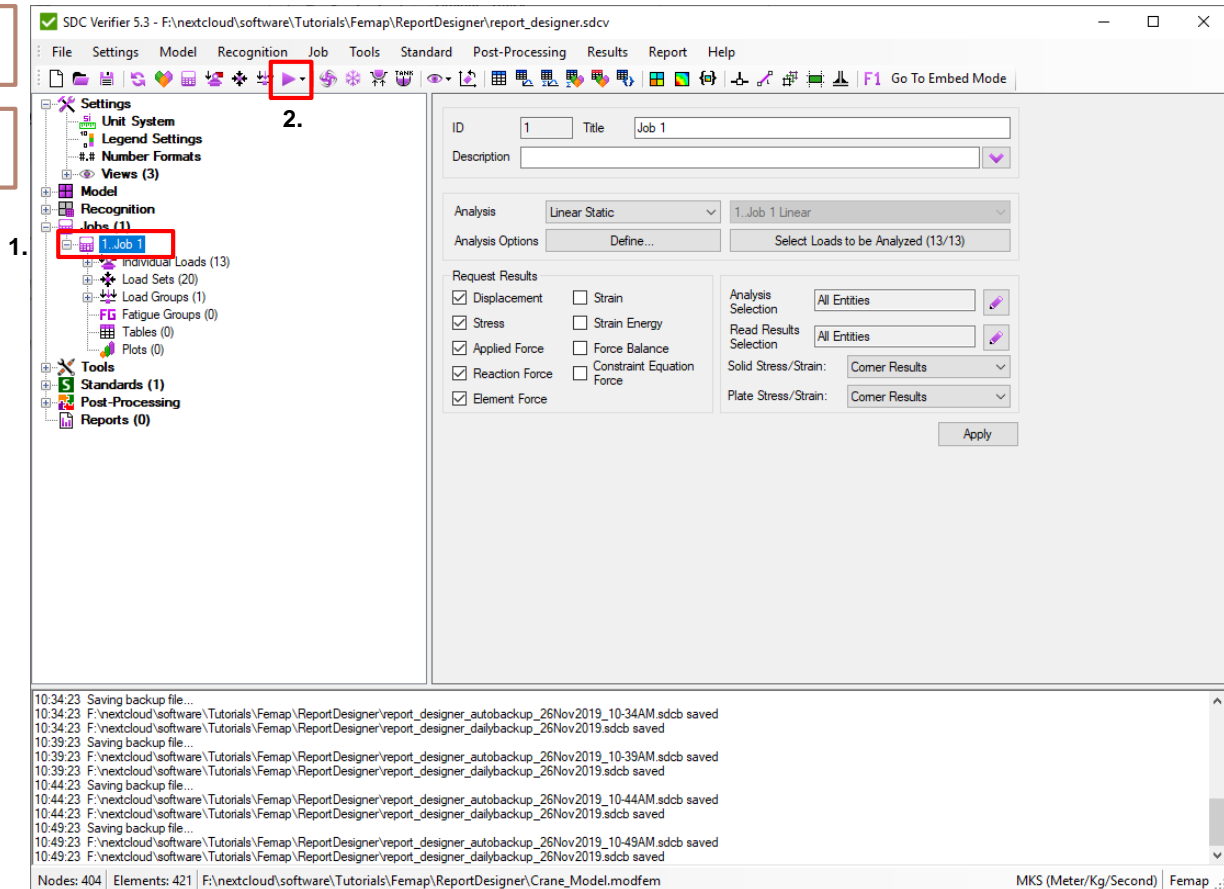


This tutorial use predefined project with the following created data: individual loads, load sets, load groups and static stress check. The focus of this tutorial is on creating report.

Analyze Job

1 Click on Job “Linear Static Analysis” in the Model Tree.

2 Press  on toolbar to analyze job.



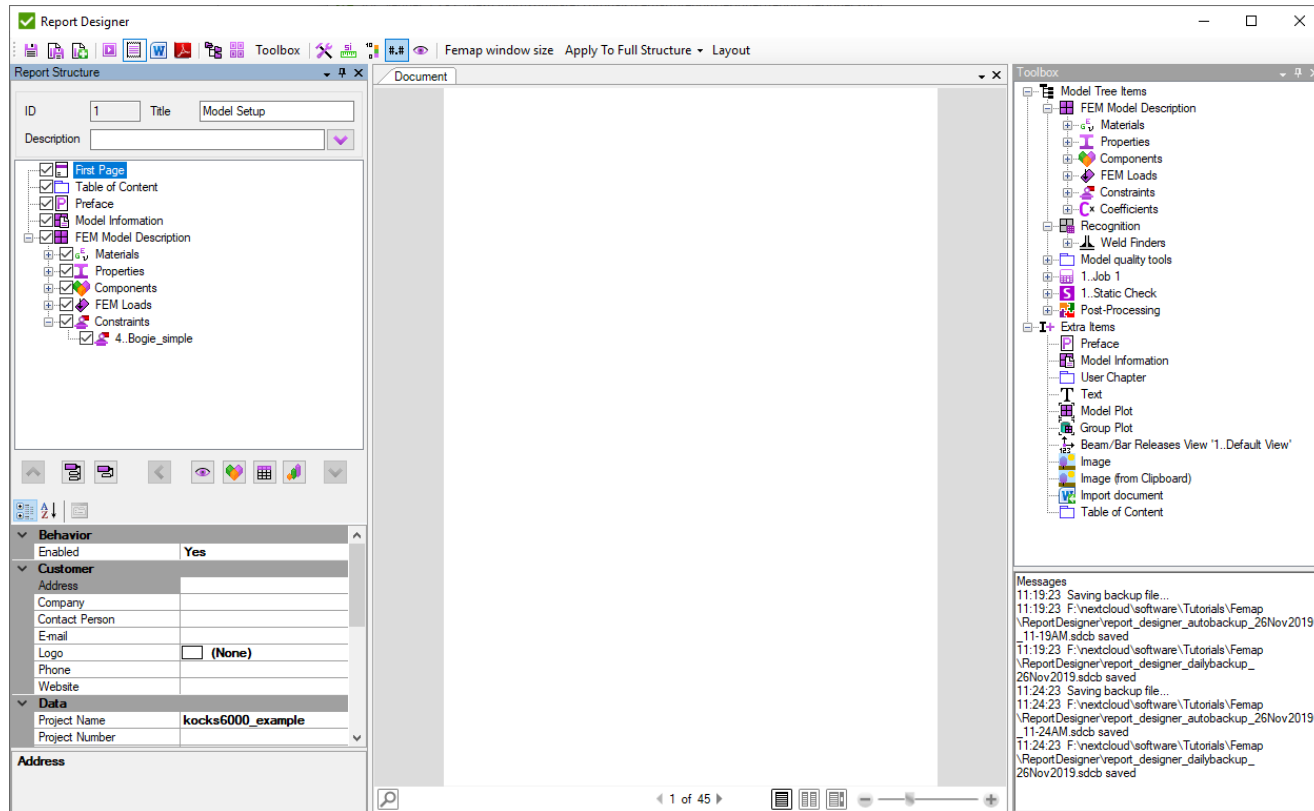
Report Designer Interface

Toolbar – contains main functions

Report Structure – displays structure of the report

Displays properties of selected item. It is possible to modify them.

Toolbox – items that can be added to report using drag & drop.

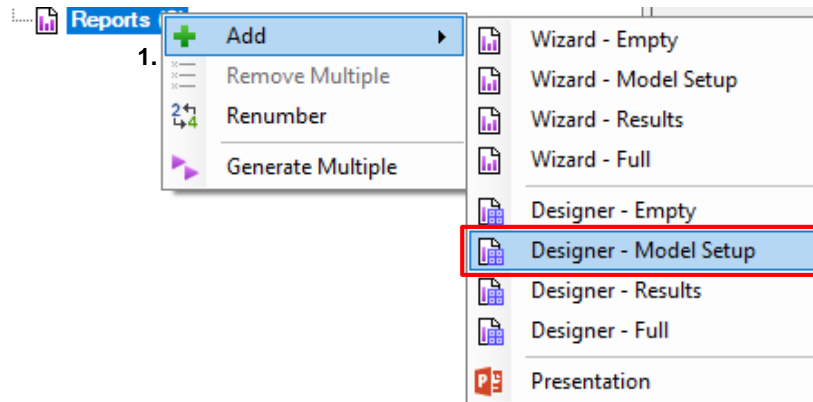


Report document

Add Model Setup Report

1

Execute Reports – Add – Designer -
Model Setup from report context menu



There are 4 templates of reports:

Empty – only first page and preface items are included;


Model Setup – description of model data (materials, properties, components, boundary conditions) is included;


Results – for each load extreme displacement tables, stress and displacement plots are included. Predefined tables: sum of reaction forces, stresses/displacements summary tables;

Full – Model Setup + Results + all tables created in Job.

Editing First Page


1 Execute *Edit* from First Page context menu

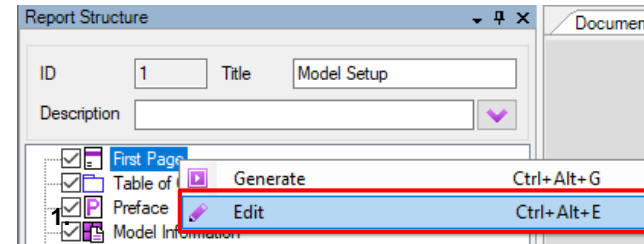
2 Press  and select Support Engineer from the library

3 Press  and select Customer from the library

4 Image – From View: **Selected**


5 Press *OK*.


Note: For engineer and customer the default data from library is used. It is possible to fill in your data and store it to the library  and reuse it in future projects.



First Page Editor


Engineer details

2. **Engineer**: Support 




Company: SDC Verifier 

E-mail: support@sdcverifier.com

Phone: +31 15 30-10-310

Address: Zijvest 25 [...] 

Web Site: sdcverifier.com

Logo:   


☐ Put logo on report plots


Project Details

Number: p0001 Version: 1

Name: Report Designer Tutorial


Customer details

3. **Contact Person**: customer 




Company: company 

E-mail: customer@company.com



Phone: +31 15 555-55-55


Address: Zijvest 25 [...] 

Web Site: company.com

Logo:   

Image

☐ From file  

4. ☒ From View 1..Default View 

5. **OK** Cancel

Generate First Page

1

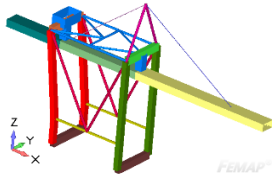
Execute *Generate* from First Page context menu



Model Setup

Report Designer Tutorial

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SDC Verifier

+31 15 30-10-310
sdverifier.com
Zijvest 25
2011 VB Haarlem
The Netherlands

Prepared for:
company

+31 15 555-55-55
company.com
Zijvest 25
2011 VB Haarlem
The Netherlands

Engineer:
Customer:
Project Number:
Version:
Date:

Support
customer
p0001
1
26/11/2019

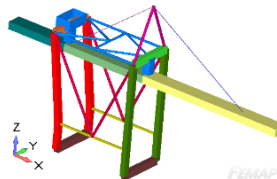
Report in Report designer



Model Setup

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SDC Verifier

+31 15 30-10-310
sdverifier.com
Zijvest 25
2011 VB Haarlem
The Netherlands

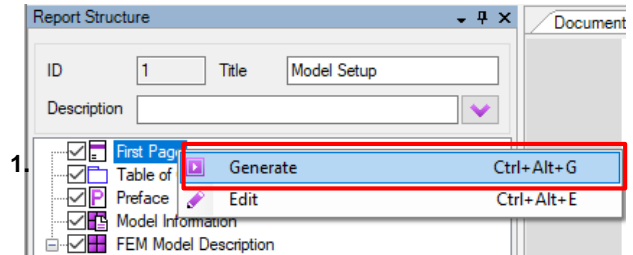
Prepared for:
company

+31 15 555-55-55
company.com
Zijvest 25
2011 VB Haarlem
The Netherlands

Engineer:
Customer:
Project Number:
Version:
Date:

Support
customer
p0001
1
26/11/2019

Exported report to Microsoft Word



www.sdcverifier.com

Prepared by
SDC Verifier



Prepared for
company

Company

Company name and logo from engineer and customer are used in footer. All pages except first one have the footer.

Generate Preface item

1 Select **Preface** item in report structure

2 Execute *Generate* from context menu

Preface

This document is generated with SDC Verifier 5.3 and calculated with Femap v12.0.0
Model File: F:\nextcloud\software\Tutorials\Femap\ReportDesigner\Crane_Model.modfem
Project File: F:\nextcloud\software\Tutorials\Femap\ReportDesigner\report_designer.sdcv
Report Profile: 1_Model Setup
Generation on: 11/26/2019 12:19:08 PM

Unit System

Current Unit System = MKS (Meter/Kg/Second). It is used in calculations for the following standards: API RP 2A, ISO 19902, Norsok N004, DIN 15018, FEM 1.001 and Eurocode3.

| Dimensions | Value |
|------------|----------|
| Length | Meter |
| Mass | Kilogram |
| Time | Second |
| Force | Newton |
| Stress | Pa |

In first paragraph you can find what versions of SDC Verifier and Femap were used, full path to the model and project files and based on what profile report was generated.

Description on current unit system. It has an influence on calculations according to some standards.

Introduction section – how to use and navigate in the report. By default is OFF.

Exclude Components

1

Select **Components** item in report structure

2

Set option Enables: **No** in property toolbox

Components item (with all sub items) are excluded from report. The Components item will not be generated but remains in report structure. Alternatively it is possible to delete item from context menu or using DEL button on keyboard.

1.

The screenshot shows the SDC Verifier interface. The top panel displays a hierarchical report structure with the following items: First Page, Table of Content, Preface, Model Information, FEM Model Description, Materials, Properties, Components, FEM Loads, and Constraints. The 'Components' item is highlighted with a red box. Below the report structure is a toolbar with various icons. The bottom panel shows the 'Behavior' and 'Data' sections. The 'Behavior' section has a table with the following rows: 'Break Page Before' with value 'Yes', and 'Enabled' with value 'No'. The 'Data' section has a table with the following rows: 'Title (Default)' with value 'Components', and 'Title (User)' with an empty field. The 'Enabled' row in the 'Behavior' section is highlighted with a red box.

| Behavior | |
|-------------------|-----|
| Break Page Before | Yes |
| Enabled | No |

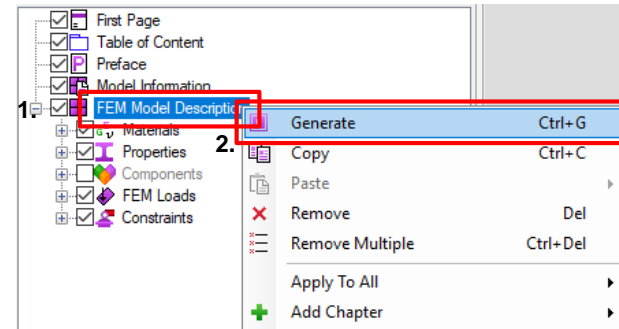
| Data | |
|-----------------|------------|
| Title (Default) | Components |
| Title (User) | |

2.

Generate Model Setup items

1 Select **FEM Model Description** item in report structure

2 Execute *Generate* from context menu



FEM Model Description

This paragraph shows detailed or brief model overview.

Materials

This paragraph contains materials information.

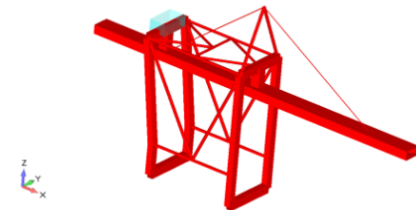
Materials Summary(All Entities)

| Title | Elements | Mass [kg] | Gravity Center [m] |
|------------------|----------|-----------|-----------------------|
| 1..steel | 420 | 1937142.8 | [-13.85; 0.00; 34.29] |
| 2..Machine_house | 1 | 79999.9 | [-35.48; 0.00; 52.00] |
| Overall | 421 | 2017142.7 | [-14.70; 0.00; 35.00] |

1..steel

| Property | Value |
|-----------------------|-----------------------|
| Elements | 420 |
| Mass [kg] | 1937142.8 |
| Gravity Center [m] | [-13.85; 0.00; 34.29] |
| Young Modulus [Pa] | 2.10e+11 |
| Shear Modulus [Pa] | 0 |
| Poisson Ratio | 0.30 |
| Shear [Pa] | 0 |
| Mass Density [kg/m³] | 9812.50 |
| Tensile Strength [Pa] | 360.00e+6 |
| Yield Stress [Pa] | 240.00e+6 |

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Material Summary – mass and gravity center overview over materials

Detailed Material description with plot

Material Options

1

Select Material: **1..Steel** in report structure

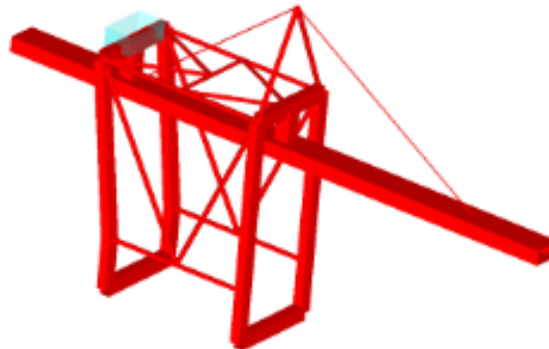
2

Preview Mode: **Display Only Selected**

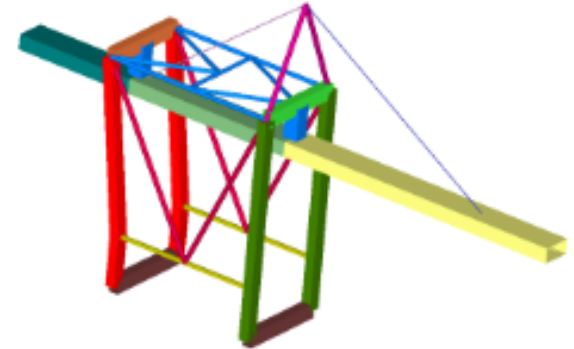
2.

| | |
|-------------------|---------------------|
| Behavior | |
| Break Page Before | Yes |
| Enabled | Yes |
| Insert MinMax | No |
| Insert Plot | Yes |
| Data | |
| Selection | All Entities |
| Title (Default) | 1..steel |
| Title (User) | |
| Plot | |
| Comments | Objects selected: 0 |
| Preview Mode | Highlight |
| View | 1..Default View |

It is possible to exclude plot using option – Insert Plot.
Using View option it is possible to change display options for the plot.




Preview Mode: Highlight



Preview Mode: Display Only Selected

Create View for Fem Loads

1 Press  to open View Manager

2 Select View: **1..Default View**

3 Press  to copy view.

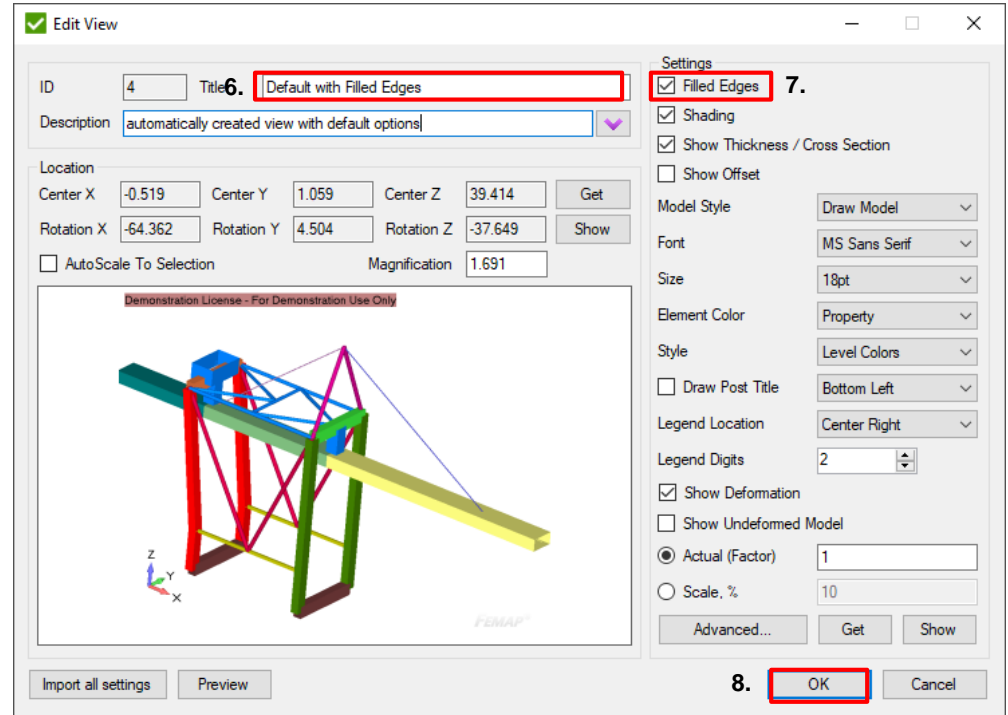
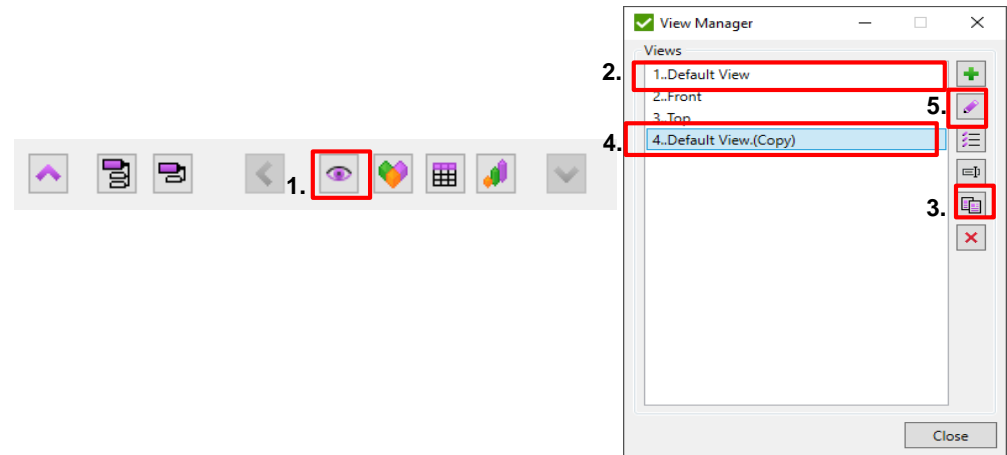
4 Select: **4..Default View.(Copy)**

5 Press  to edit view

6 Title: **Default with Filled Edges**

7 **Filled Edges: ON**

8 Press **OK**.



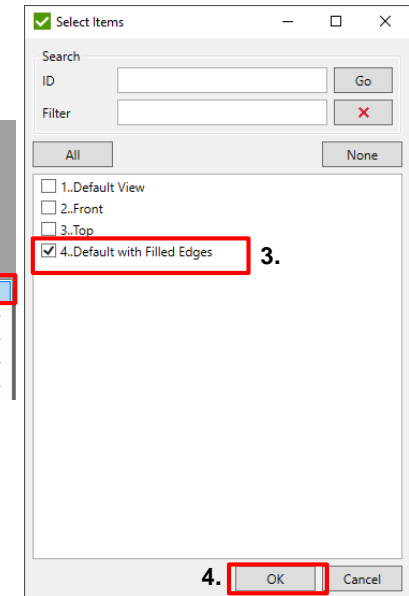
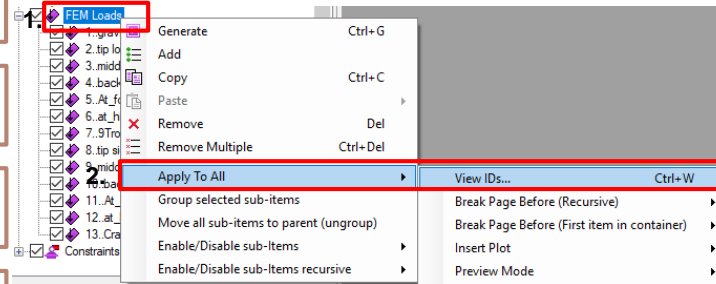
Apply View to all Fem Loads

1 Select **Fem Loads** in report structure

2 Execute *Apply to All – View IDs* from context menu

3 Select: Default with Filled Edges

4 Press **OK**

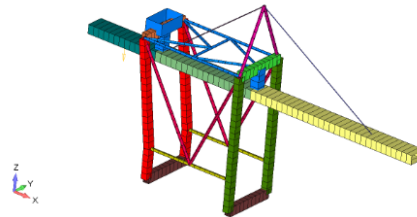


Apply to All menu helps to change properties (view, selection, break page before, etc.) for multiple items at once.

4..back side

| Definition | Load Type | Applied On | Values |
|----------------------|-----------|------------|------------------|
| Force on Node | Force | Nodes: 311 | (0, 0, -1220000) |
| Sum around [0, 0, 0] | | | |
| Sum Of Forces [N] | X | Y | Z |
| Sum Of Moments [N m] | 0e+3 | 0e+3 | -1220e+3 |

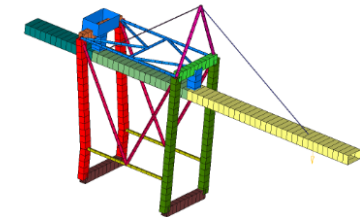
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5..At_forestay

| Definition | Load Type | Applied On | Values |
|----------------------|-----------|------------|------------------|
| Force on Node | Force | Nodes: 370 | (0, 0, -1220000) |
| Sum around [0, 0, 0] | | | |
| Sum Of Forces [N] | X | Y | Z |
| Sum Of Moments [N m] | 0e+3 | 0e+3 | -1220e+3 |

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Generate Report


1

Press  to generate report

2

Press  to export report to Word

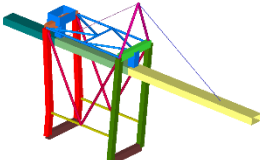


SDC 

Model Setup

Report Designer Tutorial

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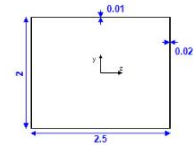
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SDC Verifier
+31 15 30-10-310
sdverifier.com
Zijlvest 25
2011 VB Haarlem
The Netherlands

Prepared for:
company
+31 15 555-55-55
company.com
Zijlvest 25
2011 VB Haarlem
The Netherlands

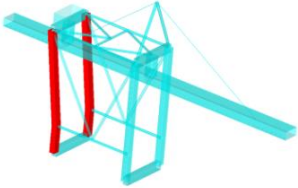
Engineer: Support
Customer: customer
Project Number: p0001
Version: 1
Date: 26/11/2019

1..portside legs

| Property | Value | Property Shape |
|------------------------------|-----------------------|----------------|
| Type / Elements | Beam / 44 | |
| Material | 1. steel | |
| Mass [kg] | 112491.4 | |
| Gravity Center [m] | [-32.42; 0.00; 28.04] | |
| Area, [m²] | 0.13 | |
| I1, [m⁴] | 0.08 | |
| I2, [m⁴] | 0.15 | |
| I12, [m⁴] | 0 | |
| Torsion Constant, [m⁴] | 0.14 | |
| Y Shear Area, [m²] | 0.08 | |
| Z Shear Area, [m²] | 0.05 | |
| Nonstructural Mass, [kg] | 0 | |
| Perimeter, [m] | 9.00 | |
| Warping Constant, [m⁶] | 0 | |
| Y Neutral Axis Offset A, [m] | 0 | |
| Z Neutral Axis Offset A, [m] | 0 | |
| h [m] | 2.000 | |
| w [m] | 2.500 | |
| h1 [m] | 0.010 | |
| h2 [m] | 0.020 | |



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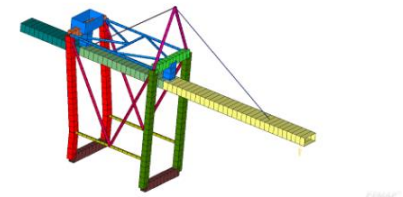


2..tip load

| Property | Value | |
|---------------|-------|-------------|
| Fem Load Type | | Nodal Force |
| Type | | Force |
| Selection | | 0 node(s) |
| Fx | | 0 |
| Fy | | 0 |
| Fz | | -1220000 |

| Sum around [0, 0, 0] | X | Y | Z |
|----------------------|-----|------------|------------|
| Sum Of Forces [N] | 0.0 | 0.0 | -1220000.0 |
| Sum Of Moments [N m] | 0.0 | 68625000.0 | 0.0 |

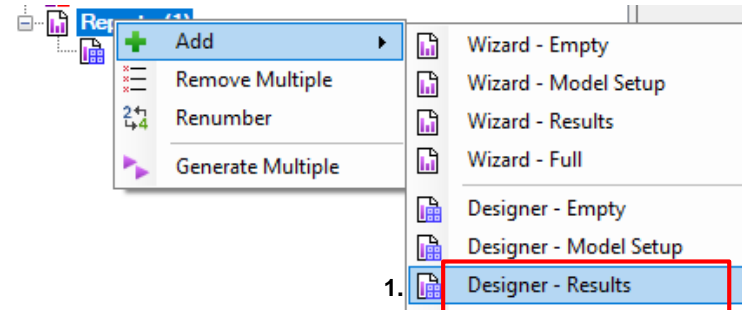
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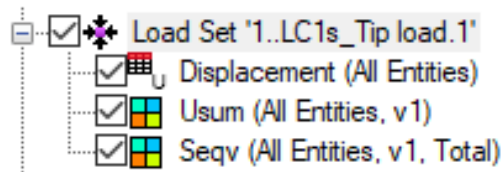
Add Result Report

1

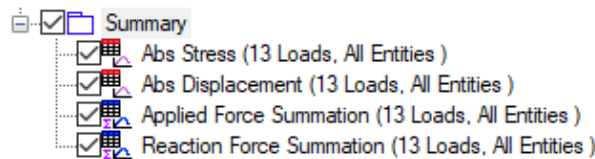
Execute Report – Add – Designer- Results from report context menu



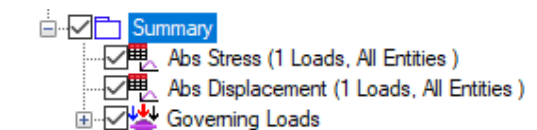
Result report includes predefined items



For each load extreme displacement table, displacement and stress plots are created



For individual loads and load sets the following summary tables are included: applied and reaction forces summation, displacement and stresses over loads

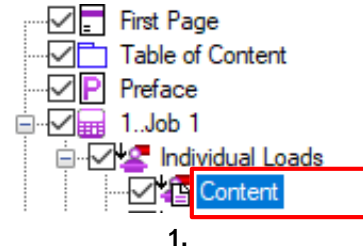


For load groups displacement and stresses over loads tables are included only

Individual Loads Content

1 Select **Content** under Individual Loads item in report structure

2 Execute *Generate* from context menu



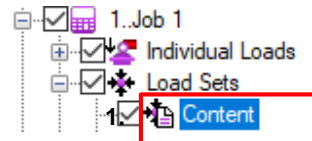
Content

| Individual Load [Safety Factor] | FemLoad / Output Set | Constraint |
|----------------------------------|------------------------------|-----------------|
| 1..gravity [1] | 1..gravity | 4..Bogie_simple |
| 2..tip load [1] | 2..tip load | 4..Bogie_simple |
| 3..middle_bridge [1] | 3..middle_bridge | 4..Bogie_simple |
| 4..back side [1] | 4..back side | 4..Bogie_simple |
| 5..At_forestay [1] | 5..At_forestay | 4..Bogie_simple |
| 6..at_hinge_point [1] | 6..at_hinge_point | 4..Bogie_simple |
| 7..9Trolley_ride [1] | 7..9Trolley_ride | 4..Bogie_simple |
| 8..tip side_load [1] | 8..tip side_load | 4..Bogie_simple |
| 9..middle_bridge_side_load [1] | 9..middle_bridge_side_load | 4..Bogie_simple |
| 10..back side_side_load [1] | 10..back side_side_load | 4..Bogie_simple |
| 11..At_forestay_side_load [1] | 11..At_forestay_side_load | 4..Bogie_simple |
| 12..at_hinge_point_side_load [1] | 12..at_hinge_point_side_load | 4..Bogie_simple |
| 13..Crane_ride [1] | 13..Crane_ride | 4..Bogie_simple |

Content shows what boundary conditions are for Individual Load. If Individual Load was created based on results than Output Set is shown instead of FemLoad.

1 Select **Content** under Load Sets item in report structure

2 Execute *Generate* from context menu



| Behavior | |
|-------------------|---------|
| Break Page Before | No |
| Enabled | Yes |
| Data | |
| All Load Sets | Yes |
| Title (Default) | Content |
| Title (User) | Content |

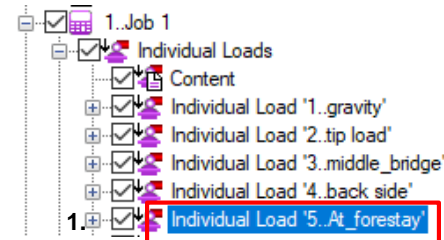
Content

| Title [Safety Factor] | Count | Items |
|------------------------|-------|--|
| 1..LC1s_Tip load.1 [1] | 5 | 1..gravity [1.15] 2..tip load [1.35] 7..9Trolley_ride [1.15] 8..tip side_load [1.15] 13..Crane_ride [1.15] |
| 2..LC1s_Tip load.2 [1] | 5 | 1..gravity [1.15] 2..tip load [1.35] 7..9Trolley_ride [1.15] 8..tip side_load [-1.15] 13..Crane_ride [-1.15] |

Individual Load Options

1 Select **5..At_forestay** in report structure

2 Execute *Generate* from context menu



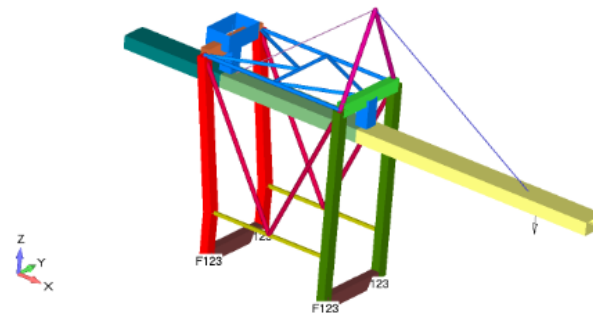
Individual Load '5..At_forestay'

At_forestay ; Bogie_simple

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Individual Load includes Plot, Content and Sum of Reaction forces. It is possible to control what should be displayed using Options

| Behavior | |
|-------------------|----------------------------------|
| Break Page Before | Yes |
| Enabled | Yes |
| Data | |
| Job | 1..Job 1 |
| Load Type | IndividualLoad |
| Title (Default) | Individual Load '5..At_forestay' |
| Title (User) | |
| Options | |
| Include Content | Yes |
| Plot Forces | Yes |
| Selection | All Entities |
| Sum Of Forces | Yes |
| Plot | |
| View | 1..Default View |



| Title | Value |
|-----------------|-----------------|
| Individual Load | 5..At_forestay |
| FemLoad | 5..At_forestay |
| Constraint | 4..Bogie_simple |
| Output Set | 27..At_forestay |
| Safety Factor | 1 |

| Sum of Reaction Forces | | | | | | | | |
|------------------------------|--------|--------|-----------|-----------|----------|----------|----------|------------|
| Load | Fx [N] | Fy [N] | Fz [N] | Fsum [N] | Mx [N m] | My [N m] | Mz [N m] | Msum [N m] |
| Constraint '4..Bogie_simple' | 0.0 | 0.0 | 1220000.1 | 1220000.1 | 0.0 | 0.0 | 0.0 | 0.0 |

Number Formats

1. Select **Displacement (All Entities)** table under load **5..At_forestay**

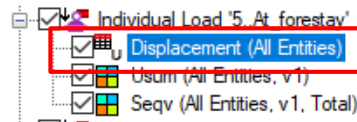
2. Press **##** to open Number Formats

3. Digits after decimal point: **3** for Displacement category

4. Press *Close*

5. Execute *Generate* from context menu

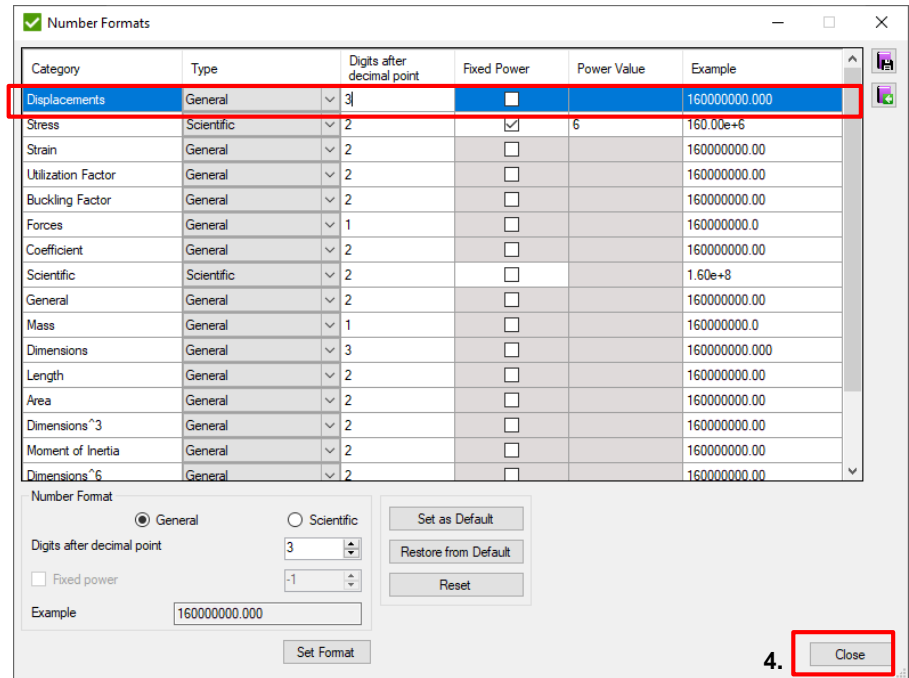
1.



2.



3.



4.

Displacement Extreme (All Entities)


| Individual Load Type | 5..At_forestay Extreme | Selection Parameter | | All Entities Displacement | | | | |
|----------------------|------------------------|---------------------|-------|---------------------------|------|------|------|------|
| Extreme | Ux | Uy | Uz | Usum | Rx | Ry | Rz | Rsum |
| Minimum | 0.00 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Maximum | 0.03 | 0.00 | 0.01 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| Absolute | 0.03 | 0.00 | -0.11 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 |

Digits after decimal point = 2

Displacement Extreme (All Entities)


| Individual Load Type | 5..At_forestay Extreme | Selection Parameter | | All Entities Displacement | | | | |
|----------------------|------------------------|---------------------|--------|---------------------------|--------|-------|-------|-------|
| Extreme | Ux | Uy | Uz | Usum | Rx | Ry | Rz | Rsum |
| Minimum | 0.000 | -0.004 | -0.114 | 0.000 | -0.001 | 0.000 | 0.000 | 0.000 |
| Maximum | 0.030 | 0.004 | 0.013 | 0.114 | 0.001 | 0.002 | 0.000 | 0.002 |
| Absolute | 0.030 | 0.004 | -0.114 | 0.114 | -0.001 | 0.002 | 0.000 | 0.002 |

Digits after decimal point = 3

Number Formats controls how numbers are displayed in tables for different categories. It is possible to save settings to library and reuse in another projects. 

Legend Settings

1 Select Equivalent Stress – **Seqv(All Entities)** under load **5..At_forestay**

2 Press  to open Legend Settings

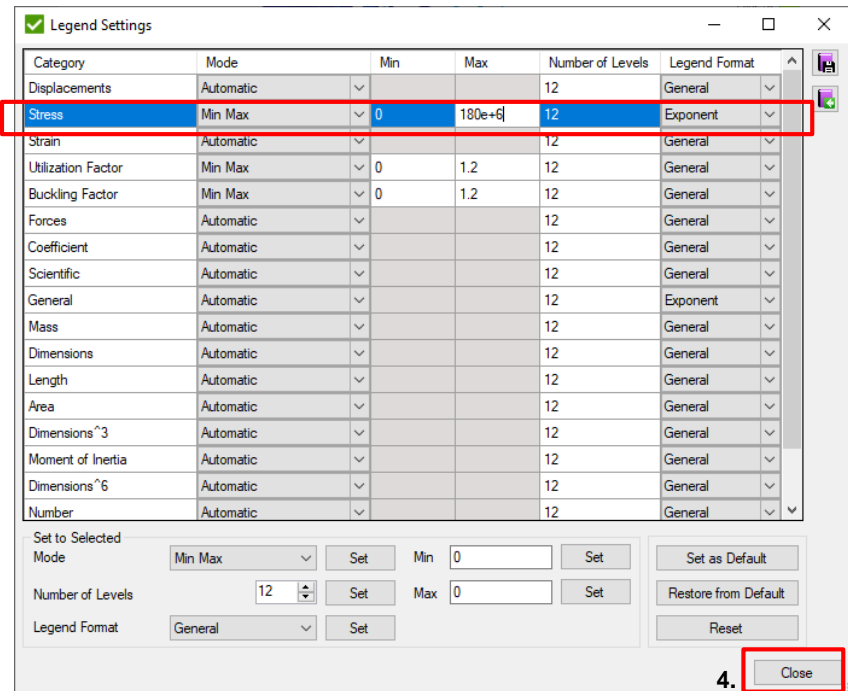
3 Max: **180e+6** for Stress category

4 Press *Close*

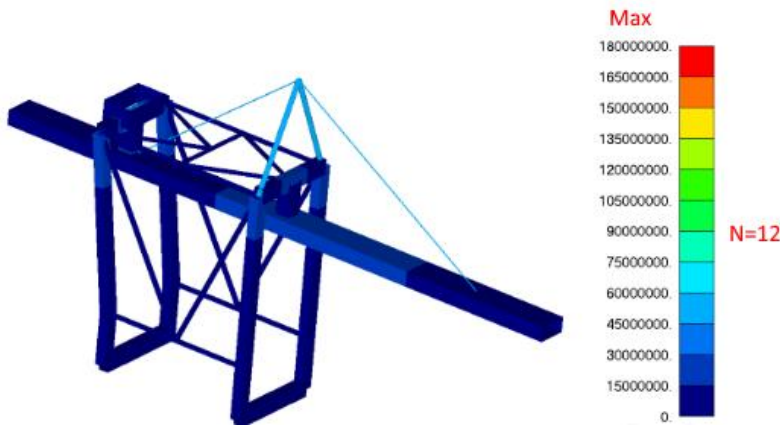
5 Execute *Generate* from context menu




3.



4.



Legend Settings controls legend options for different categories. It is possible to save settings to the library and reuse in another projects. 

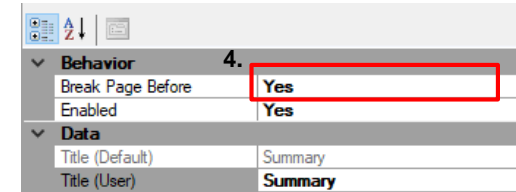
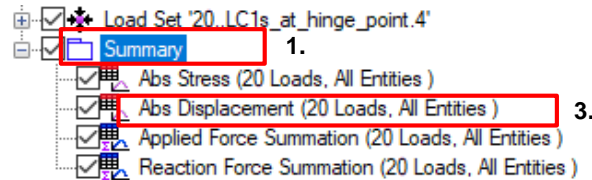
Stress and displacement tables over loads

1 Select **Summary** under Load Sets item

2 Execute *Generate* from context menu

3 Select **(LS) Abs Displacement(All Entities)**

4 Break Page Before: **Yes**



Summary

| Abs Stress (20 Loads, All Entities) | | | | | | | | | |
|-------------------------------------|--------------|----------|--------|----------|---------|---------|-----------------|--|--|
| Loads Count | 20 | Category | | Stress | | | | | |
| Selection | All Entities | Type | | Extreme | | | | | |
| Parameter | Abs | | | | | | | | |
| Load | X [Pa] | Y [Pa] | Z [Pa] | XY [Pa] | YZ [Pa] | ZX [Pa] | Equivalent [Pa] | | |
| LS1.LC1s_Tip load.1 | -170.40e+0 | | | -0.02e+0 | | | 170.40e+0 | | |
| LS2.LC1s_Tip load.2 | -170.40e+0 | | | 0.02e+0 | | | 170.40e+0 | | |
| LS3.LC1s_Tip load.3 | -172.95e+0 | | | -0.02e+0 | | | 172.95e+0 | | |
| LS4.LC1s_Tip load.4 | -172.95e+0 | | | 0.02e+0 | | | 172.95e+0 | | |
| LS5.LC1s_Middle Bridge.1 | -113.10e+0 | | | 0.00e+0 | | | 113.10e+0 | | |
| LS6.LC1s_Middle Bridge.2 | -113.10e+0 | | | 0.00e+0 | | | 113.10e+0 | | |
| LS7.LC1s_Middle Bridge.3 | -115.13e+0 | | | 0.00e+0 | | | 115.13e+0 | | |
| LS8.LC1s_Middle Bridge.4 | -115.13e+0 | | | 0.00e+0 | | | 115.13e+0 | | |
| LS9.LC1s_Backside.1 | 130.42e+0 | | | 0.00e+0 | | | 130.42e+0 | | |
| LS10.LC1s_Backside.2 | 130.42e+0 | | | 0.00e+0 | | | 130.42e+0 | | |
| LS11.LC1s_Backside.3 | 142.59e+0 | | | 0.00e+0 | | | 142.59e+0 | | |
| LS12.LC1s_Backside.4 | 142.59e+0 | | | 0.00e+0 | | | 142.59e+0 | | |
| LS13.LC1s_AL_forestay.1 | -148.02e+0 | | | -0.01e+0 | | | 148.02e+0 | | |
| LS14.LC1s_AL_forestay.2 | -148.02e+0 | | | 0.01e+0 | | | 148.02e+0 | | |
| LS15.LC1s_AL_forestay.3 | -144.57e+0 | | | -0.01e+0 | | | 144.57e+0 | | |
| LS16.LC1s_AL_forestay.4 | -144.57e+0 | | | 0.01e+0 | | | 144.57e+0 | | |
| LS17.LC1s_at_hinge_point.1 | 148.51e+0 | | | -0.01e+0 | | | 148.51e+0 | | |
| LS18.LC1s_at_hinge_point.2 | 148.39e+0 | | | 0.01e+0 | | | 148.39e+0 | | |
| LS19.LC1s_at_hinge_point.3 | 145.20e+0 | | | -0.01e+0 | | | 145.20e+0 | | |
| LS20.LC1s_at_hinge_point.4 | 145.09e+0 | | | 0.01e+0 | | | 145.09e+0 | | |

Stress and displacement extreme flow tables give nice results overview among loads. For each direction min and max values are highlighted. Min = aqua, Max = red.

| Abs Displacement (20 Loads, All Entities) | | | | | | | | | | | | |
|---|--------------|----------|--------|--------------|------|-------|------|------|--|--|--|--|
| Loads Count | 20 | Category | | Displacement | | | | | | | | |
| Selection | All Entities | Type | | Extreme | | | | | | | | |
| Parameter | Abs | | | | | | | | | | | |
| Load | Ux [m] | Uy [m] | Uz [m] | Usum [m] | Rx | Ry | Rz | Rsum | | | | |
| LS1.LC1s_Tip load.1 | 0.073 | -0.111 | -0.352 | 0.399 | 0.00 | 0.01 | 0.00 | 0.01 | | | | |
| LS2.LC1s_Tip load.2 | 0.073 | -0.111 | -0.352 | 0.399 | 0.00 | 0.01 | 0.00 | 0.01 | | | | |
| LS3.LC1s_Tip load.3 | 0.059 | 0.111 | -0.351 | 0.399 | 0.00 | 0.01 | 0.00 | 0.01 | | | | |
| LS4.LC1s_Tip load.4 | 0.059 | -0.111 | -0.351 | 0.399 | 0.00 | 0.01 | 0.00 | 0.01 | | | | |
| LS5.LC1s_Middle Bridge.1 | -0.033 | 0.057 | -0.079 | 0.098 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS6.LC1s_Middle Bridge.2 | -0.033 | -0.057 | -0.079 | 0.098 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS7.LC1s_Middle Bridge.3 | -0.044 | 0.057 | -0.078 | 0.098 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS8.LC1s_Middle Bridge.4 | -0.044 | -0.057 | -0.078 | 0.098 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS9.LC1s_Backside.1 | -0.032 | 0.050 | -0.144 | 0.152 | 0.00 | -0.01 | 0.00 | 0.01 | | | | |
| LS10.LC1s_Backside.2 | -0.032 | -0.050 | -0.144 | 0.152 | 0.00 | -0.01 | 0.00 | 0.01 | | | | |
| LS11.LC1s_Backside.3 | -0.043 | 0.050 | -0.142 | 0.150 | 0.00 | -0.01 | 0.00 | 0.01 | | | | |
| LS12.LC1s_Backside.4 | -0.043 | -0.050 | -0.142 | 0.150 | 0.00 | -0.01 | 0.00 | 0.01 | | | | |
| LS13.LC1s_AL_forestay.1 | 0.059 | 0.100 | -0.239 | 0.259 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS14.LC1s_AL_forestay.2 | 0.059 | -0.100 | -0.239 | 0.259 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS15.LC1s_AL_forestay.3 | 0.045 | 0.100 | -0.238 | 0.259 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS16.LC1s_AL_forestay.4 | 0.045 | -0.100 | -0.238 | 0.259 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS17.LC1s_at_hinge_point.1 | -0.032 | 0.067 | -0.089 | 0.111 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS18.LC1s_at_hinge_point.2 | -0.032 | -0.067 | -0.089 | 0.112 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS19.LC1s_at_hinge_point.3 | -0.044 | 0.067 | -0.088 | 0.111 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| LS20.LC1s_at_hinge_point.4 | -0.044 | -0.067 | -0.088 | 0.112 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |

Stresses for all load sets

Displacements for all load sets

Reaction Forces

1 Select (LS) Reaction Forces Summation under Summary

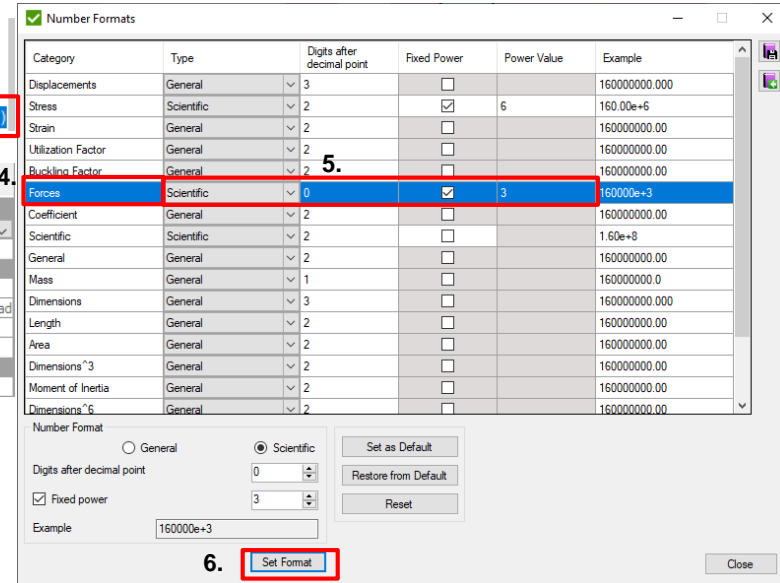
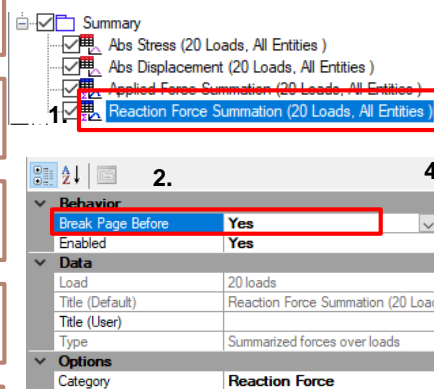
2 Break Page Before: Yes

3 Press ## to open Number Format

4 Select category Forces

5 Scientific: ON
Digits after decimal point: 0
Fixed Power: ON
Fixed Power Value: 3

6 Press Set Format



| Category Type | Absolute Reaction Force Expand Flow Table | | | | Loads Count Selection | 20 All Entities | | | |
|---------------------------|--|-----------|------------|------------|--------------------------|--------------------|-----|------|--|
| Entity ID | Fx | Fy | Fz | Fsum | Mx | My | Mz | Msum | |
| LS1..LC1s_Tip load.1 | -223100.0 | -835703.5 | 24403396.0 | 24412694.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| LS2..LC1s_Tip load.2 | -223100.0 | 835703.6 | 24403396.0 | 24412694.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| LS3..LC1s_Tip load.3 | 223100.0 | -835703.5 | 24403396.0 | 24412694.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| LS4..LC1s_Tip load.4 | 223100.0 | 835703.6 | 24403396.0 | 24412694.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| LS5..LC1s_Middle Bridge.1 | -223100.0 | -835703.5 | 24403394.0 | 24412692.0 | 0.0 | 0.0 | 0.0 | 0.0 | |




| Category Type | Absolute Reaction Force Expand Flow Table | | | | Loads Count Selection | 20 All Entities | | | |
|---------------------------|--|---------|----------|----------|--------------------------|--------------------|------|------|--|
| Entity ID | Fx | Fy | Fz | Fsum | Mx | My | Mz | Msum | |
| LS1..LC1s_Tip load.1 | -223e+3 | -836e+3 | 24403e+3 | 24413e+3 | 0e+3 | 0e+3 | 0e+3 | 0e+3 | |
| LS2..LC1s_Tip load.2 | -223e+3 | 836e+3 | 24403e+3 | 24413e+3 | 0e+3 | 0e+3 | 0e+3 | 0e+3 | |
| LS3..LC1s_Tip load.3 | 223e+3 | -836e+3 | 24403e+3 | 24413e+3 | 0e+3 | 0e+3 | 0e+3 | 0e+3 | |
| LS4..LC1s_Tip load.4 | 223e+3 | 836e+3 | 24403e+3 | 24413e+3 | 0e+3 | 0e+3 | 0e+3 | 0e+3 | |
| LS5..LC1s_Middle Bridge.1 | -223e+3 | -836e+3 | 24403e+3 | 24413e+3 | 0e+3 | 0e+3 | 0e+3 | 0e+3 | |

Number format from general is changed to scientific with fixed power = 3. The numbers became more readable.

Add Extreme Stress Tables

1

Press  to open tables window


2

Table type: **Load Sets**

3

Select all Load Sets

4

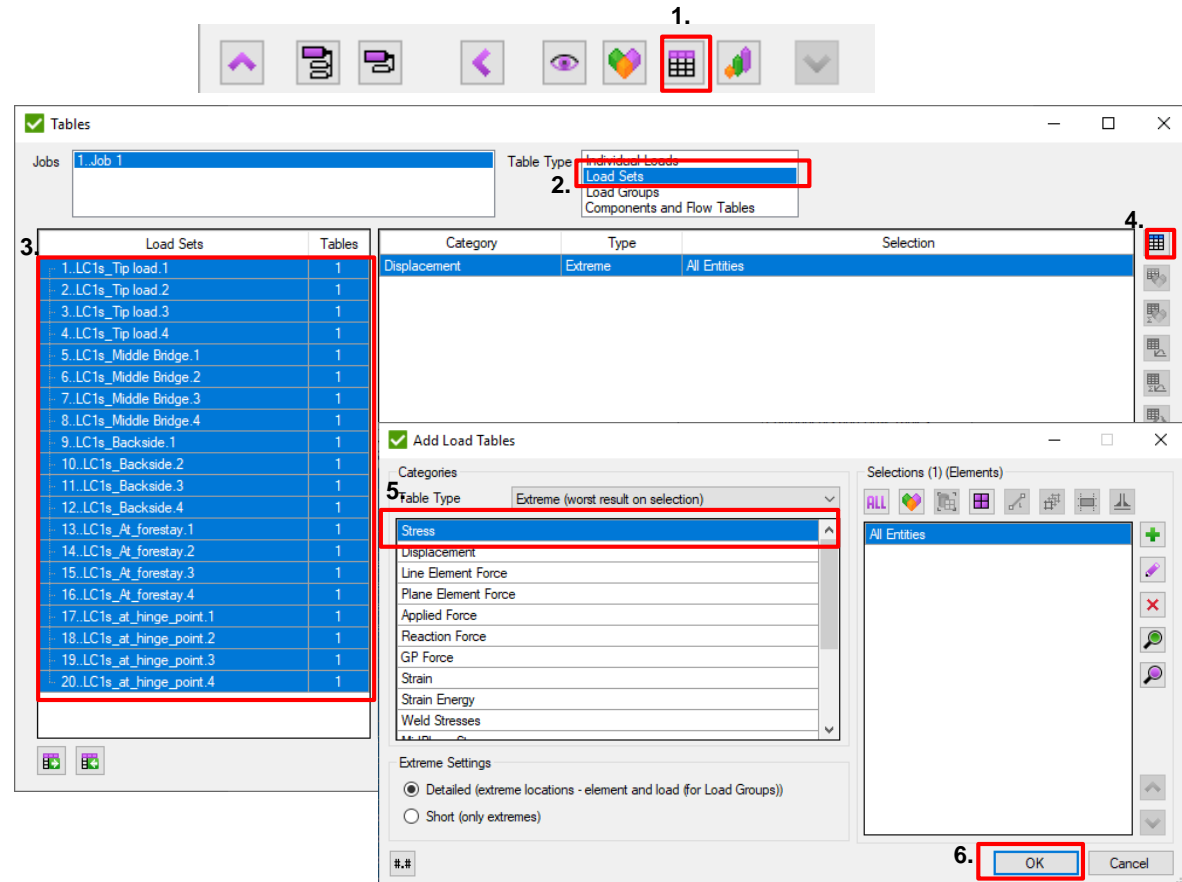
Press  to add table

5

Categories: **Stress**

6

Press **OK**




Copy Table to Load Group

1

Select Extreme Stress Table


2

Press  to copy table to clipboard

3

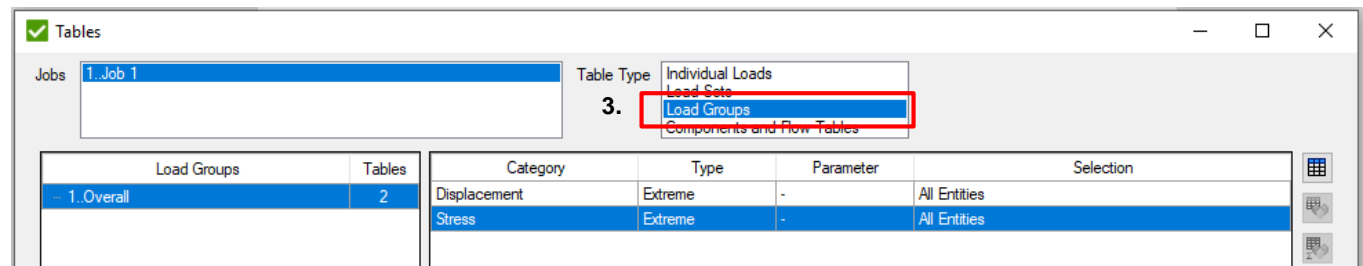
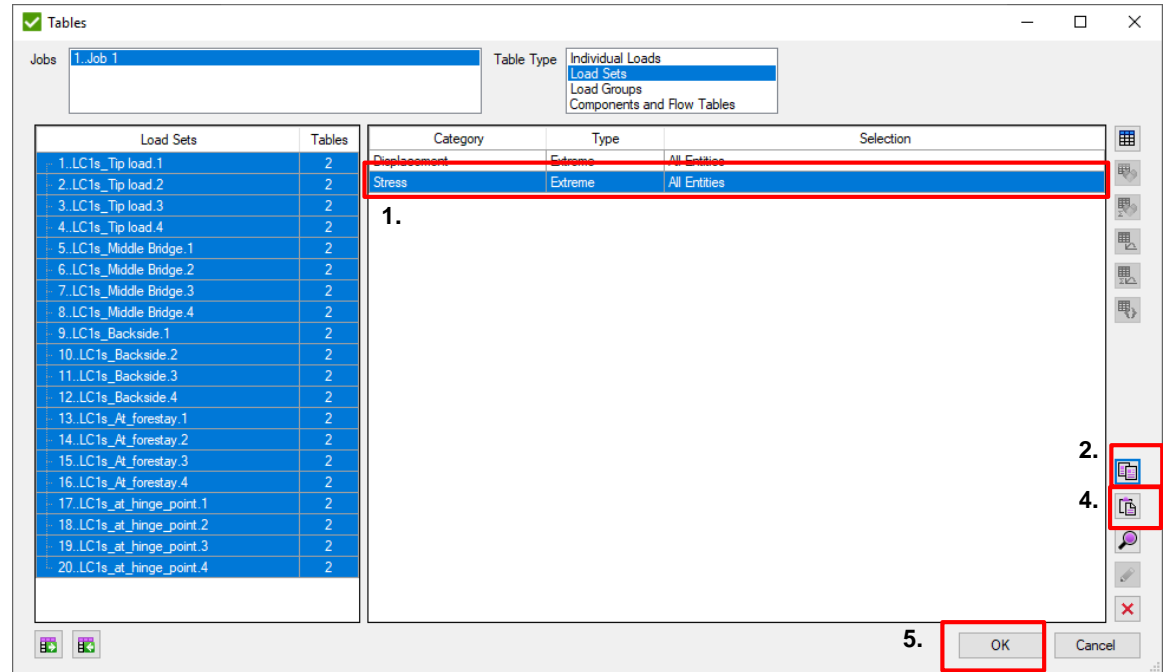
Table Type: **Load Group**

4

Press  to paste table from clipboard

5

Press **OK**




Move item in the structure

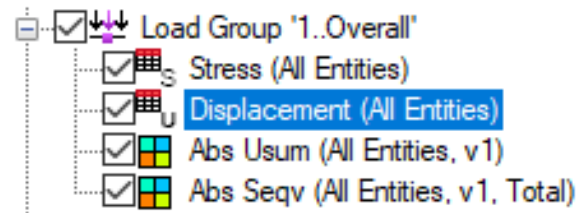
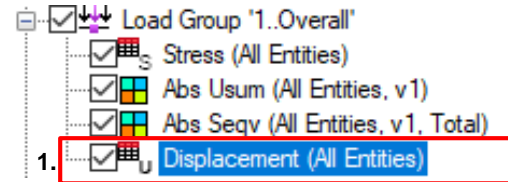
1

Select **Displacement (All Entities)**

2

Press  twice to move item up

It is possible to use keyboard short-cut to move items:
Ctrl + and Ctrl -.




Add plots for Load Group

1 Create two extra views: Front and Top.
(how to create new View look at slide 14)

2 Press  to add plots

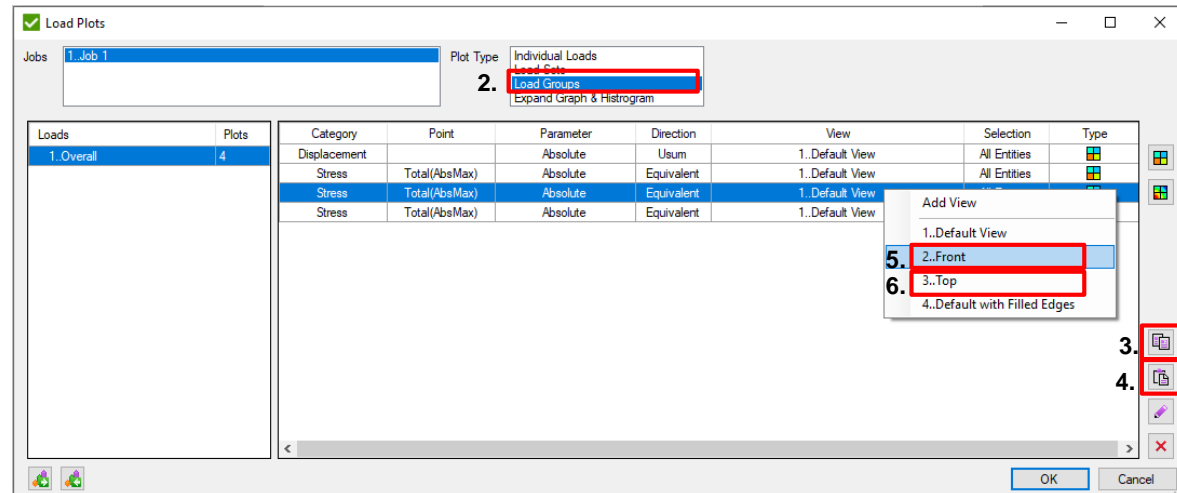
3 Table Type: **Load Group**





4 Press  to copy plot to clipboard

5 Press  twice to paste 2 plots.

6 For third plot set View = **2..Front** using context menu (on top of View column)

7 For fourth plot set View = **3..Top** using context menu



| Category | Point | Parameter | Direction | View | Selection | Type |
|--------------|---------------|-----------|------------|-----------------|--------------|---|
| Displacement | | Absolute | Usum | 1..Default View | All Entities |  |
| Stress | Total(AbsMax) | Absolute | Equivalent | 1..Default View | All Entities |  |
| Stress | Total(AbsMax) | Absolute | Equivalent | 2..Front | All Entities |  |
| Stress | Total(AbsMax) | Absolute | Equivalent | 3..Top | All Entities |  |

It is possible to modify views/selection/parameter for few plots at once using context menus on top of correspondent column.

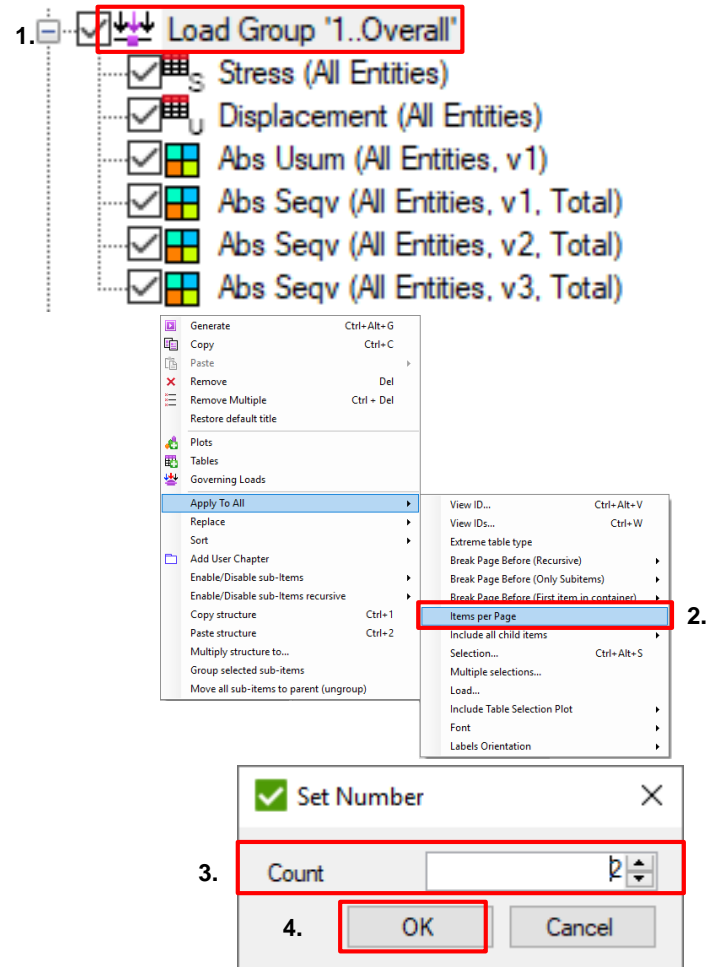
Apply to all – 2 items per page

1. Select: **1..Overall** under Load Groups

2. Execute Apply to All – Items per Page

3. Count: 2

4. Press *OK*



Add table for Static Stress Check

1

Select **Static Stress Check**

2

Execute Tables from context menu

3

Select **Direction over Parameters**

4

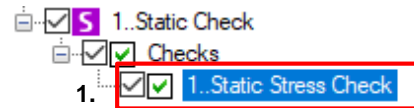
Direction: **X**

5

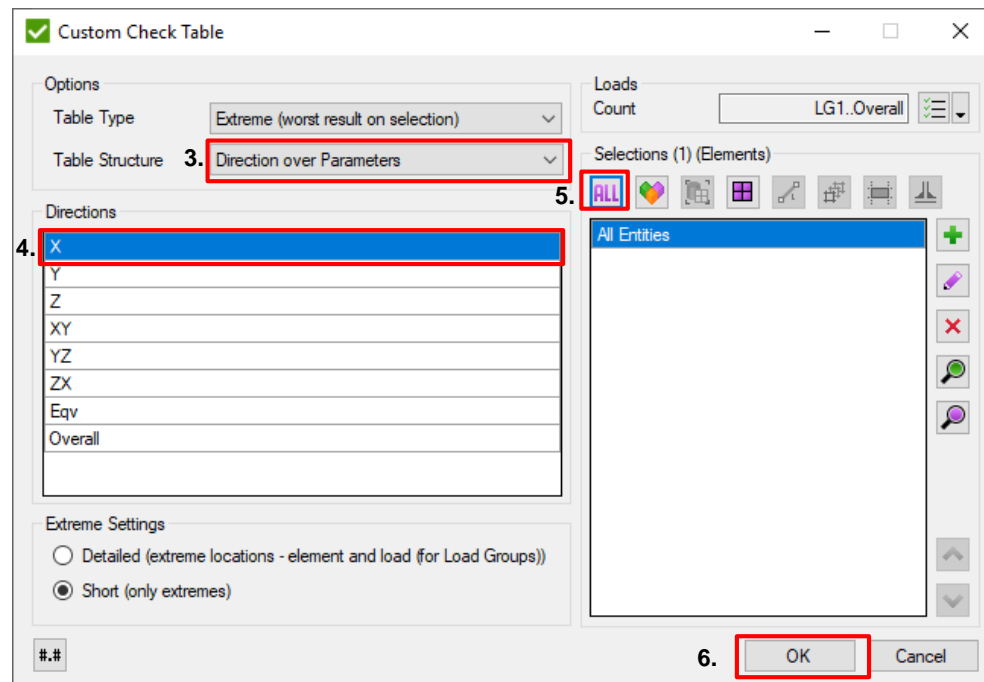
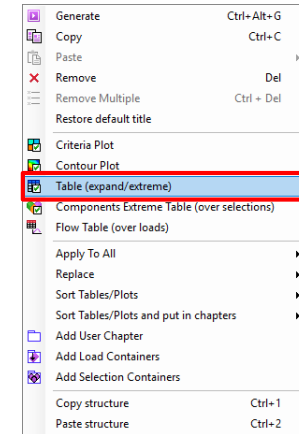
Press **ALL** to add full model selection

6

Press **OK**



2.



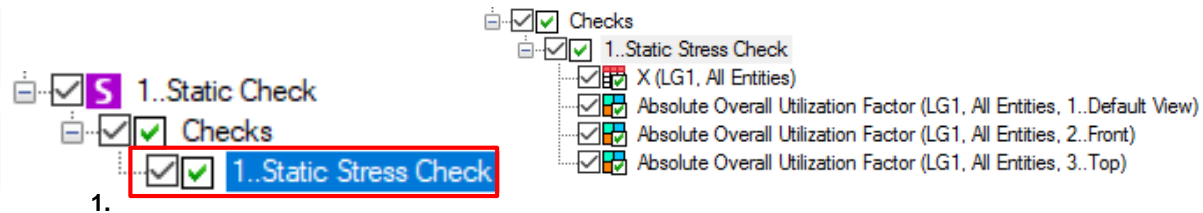
Add Plot for Static Stress check

1 Select **Static Stress Check**

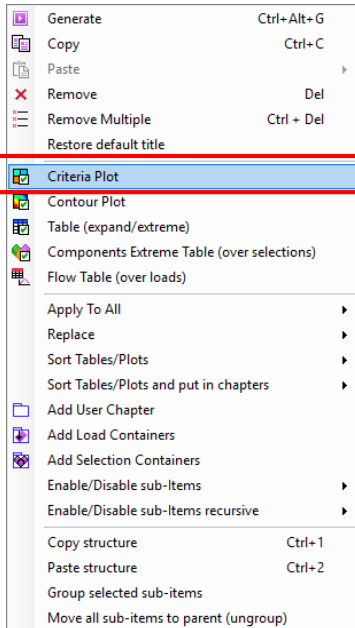
2 Execute **Criteria Plot** from context menu

3 Select Views with IDs 1-3.

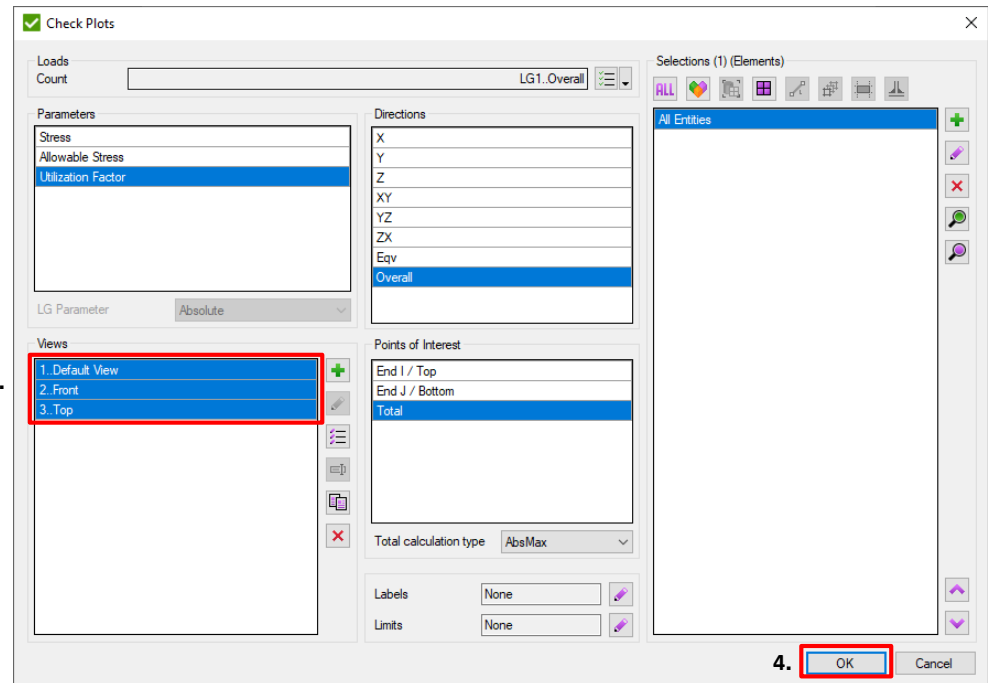
4 Press **OK**



2.



3.



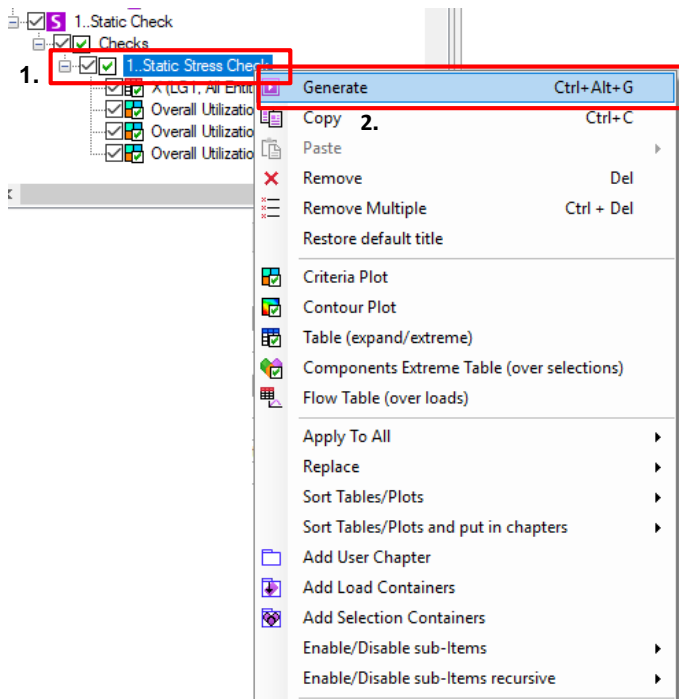
Generate Static Stress Check results

1

Select **Static Stress Check**

2

Execute *Generate* from context menu



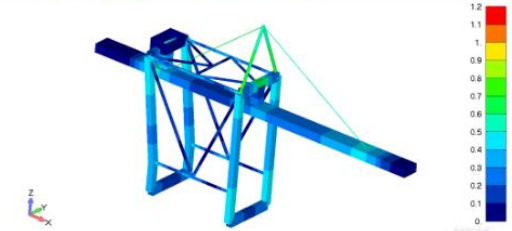
1..Static Stress Check

| Property | Value |
|-------------------|--|
| Category | Elemental Custom Check |
| Selection | All Entities |
| Parameters | 3 |
| Alias (Parameter) | Stress (Stress) |
| All | Sabs |
| Alias (Parameter) | Sallow (Allowable Stress) |
| All | $\min(\text{Yield}, 0.7 \cdot \text{Tensile}) / \text{LGroupSafetyFactor}$ |
| XY | $\min(\text{Yield}, 0.7 \cdot \text{Tensile}) / \sqrt{3} / \text{LGroupSafetyFactor}$ |
| YZ | $\min(\text{Yield}, 0.7 \cdot \text{Tensile}) / \sqrt{3} / \text{LGroupSafetyFactor}$ |
| ZX | $\min(\text{Yield}, 0.7 \cdot \text{Tensile}) / \sqrt{3} / \text{LGroupSafetyFactor}$ |
| Alias (Parameter) | UF (Utilization Factor) |
| All | $\text{Abs}(\text{Stress} / \text{Sallow})$ |
| Overall | $\text{Max}(\text{me.x}, \text{me.y}, \text{me.z}, \text{me.xy}, \text{me.yz}, \text{me.zx}, \text{me.eqv})$ |

X (LG1, All Entities)

| Standard Load Group | 1..Static Check | Check Selection | 1..Static Stress Check |
|---------------------|-----------------|------------------------|------------------------|
| 1..Overall | 1..Overall | 1..Static Stress Check | All Entities |
| Extreme | Stress | Allowable Stress | Utilization Factor |
| Minimum | | | |
| Value | -178.40e+6 | 240.00e+6 | 0.00 |
| Element ID | 131 | 1 | 284 |
| Maximum | | | |
| Value | 148.51e+6 | 240.00e+6 | 0.74 |
| Element ID | 252 | 1 | 131 |
| Absolute | | | |
| Value | -178.40e+6 | 240.00e+6 | 0.74 |
| Element ID | 131 | 1 | 131 |

Absolute Overall Utilization Factor (LG1, All Entities, 1..Default View)



| Check Load Group Selection | 1..Static Stress Check | Point Parameter View | Total Overall Utilization Factor |
|----------------------------|------------------------|----------------------|----------------------------------|
| 1..Overall | All Entities | 1..Default View | |

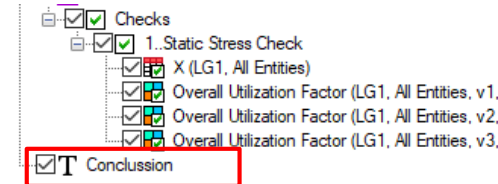
Add Conclusion

1 Select Text item in report toolbox

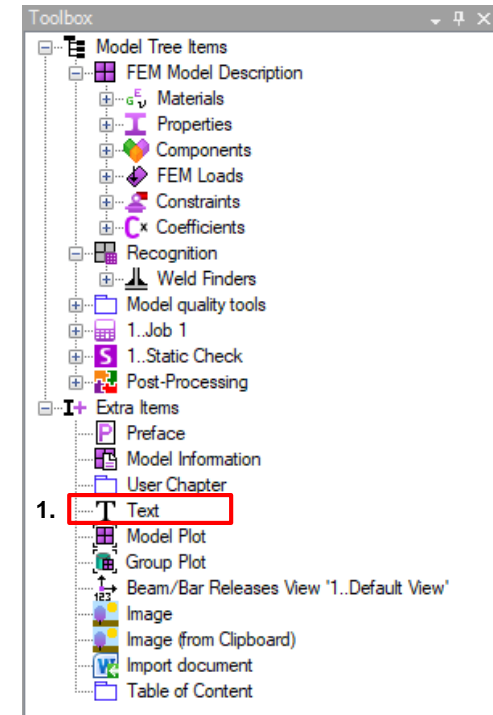
2 Add Text item to report using Drag & drop

3 Title: **Conclusion**

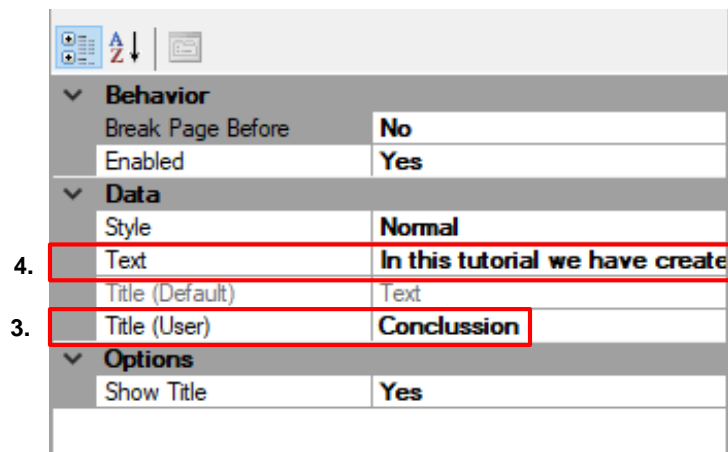
4 Text: **In this tutorial we have created 2 reports using Report Designer**



2.




1.

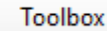


4.

3.

After generation is finished press  to export generated report to Word

2.



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| Prepared for company | Company |
|-------------------------|---------|
|-------------------------|---------|

