



Report designer

21.09.2020
version 2020

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

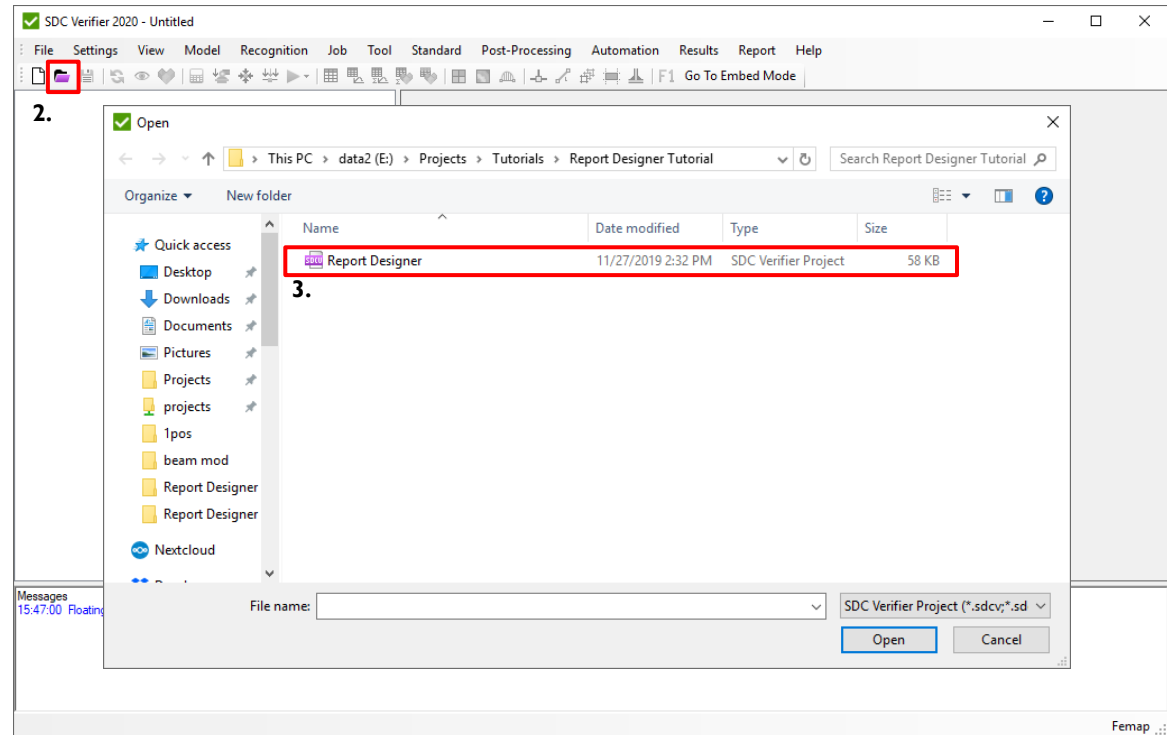
Launch **SDC Verifier** 

2

Execute **File**  - *Open Project.*

3

Project: **Report_Designer.sdcv**



Predefined project

The screenshot displays the SDC Verifier software interface. On the left, a project tree lists the following items:

- Views (3)
- Model
- Recognition
- Jobs (1)
 - 1..Job 1
 - Individual Loads (13)
 - Load Sets (20)
 - 1..LC1s_Tip load.1
 - 2..LC1s_Tip load.2
 - 3..LC1s_Tip load.3
 - 4..LC1s_Tip load.4
 - 5..LC1s_Middle Bridge.1
 - 6..LC1s_Middle Bridge.2
 - 7..LC1s_Middle Bridge.3
 - 8..LC1s_Middle Bridge.4
 - 9..LC1s_Backside.1
 - 10..LC1s_Backside.2
 - 11..LC1s_Backside.3
 - 12..LC1s_Backside.4
 - 13..LC1s_At_forestay.1
 - 14..LC1s_At_forestay.2
 - 15..LC1s_At_forestay.3
 - 16..LC1s_At_forestay.4
 - 17..LC1s_at_hinge_point.1
 - 18..LC1s_at_hinge_point.2
 - 19..LC1s_at_hinge_point.3
 - 20..LC1s_at_hinge_point.4
 - Load Groups (1)
 - FG Fatigue Groups (0)
 - Tables (0)
 - Plots (0)

The central 3D model shows a bridge structure with a blue rectangular load on top, supported by a green truss system. The bridge deck is yellow, and the supports are red. The structure is suspended by cables.


On the right, the 'Standards (1)' panel shows:

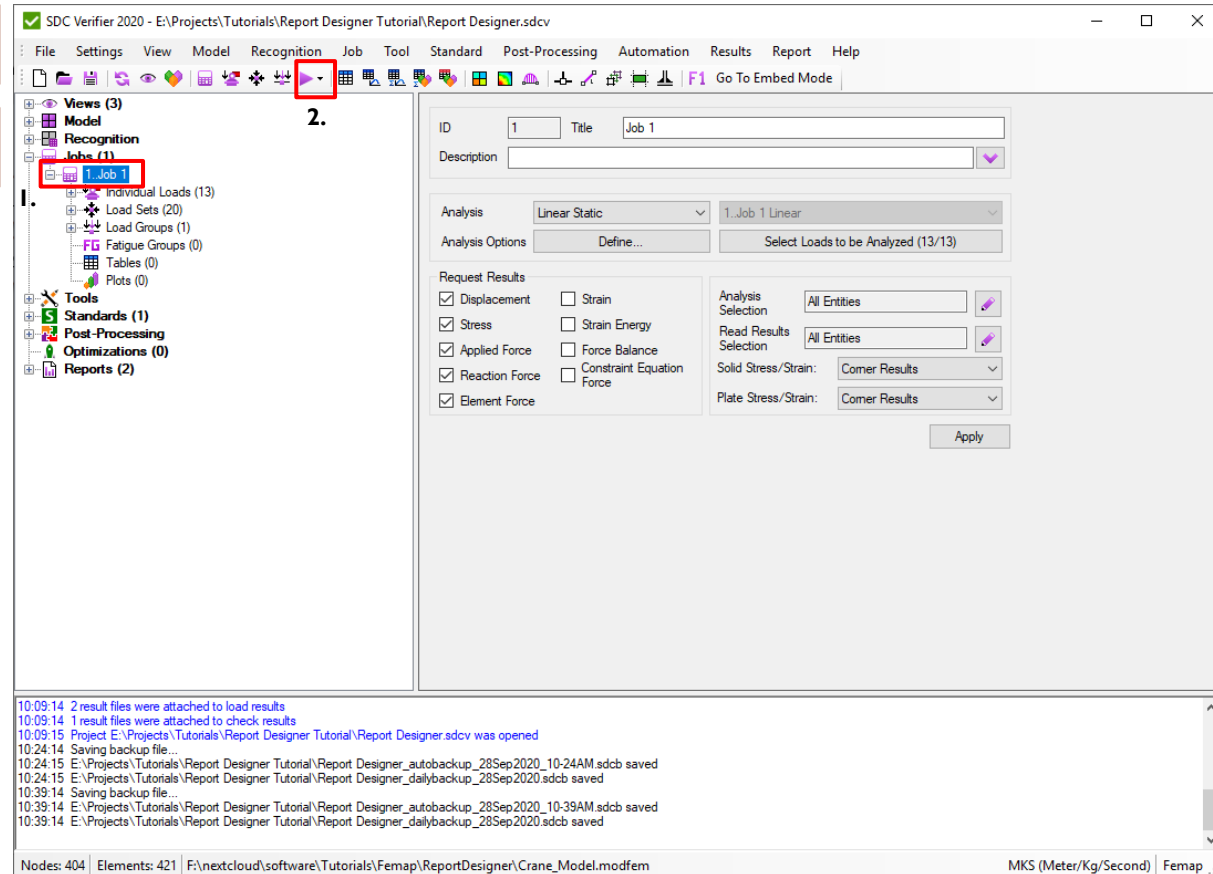
- 1..Static Check
 - Input
 - π Constants (0)
 - Types (1)
 - Characteristic (0)
 - Classifications (0)
 - Standard Tables (0)
 - Checks (1)
 - 1..Static Stress Check

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

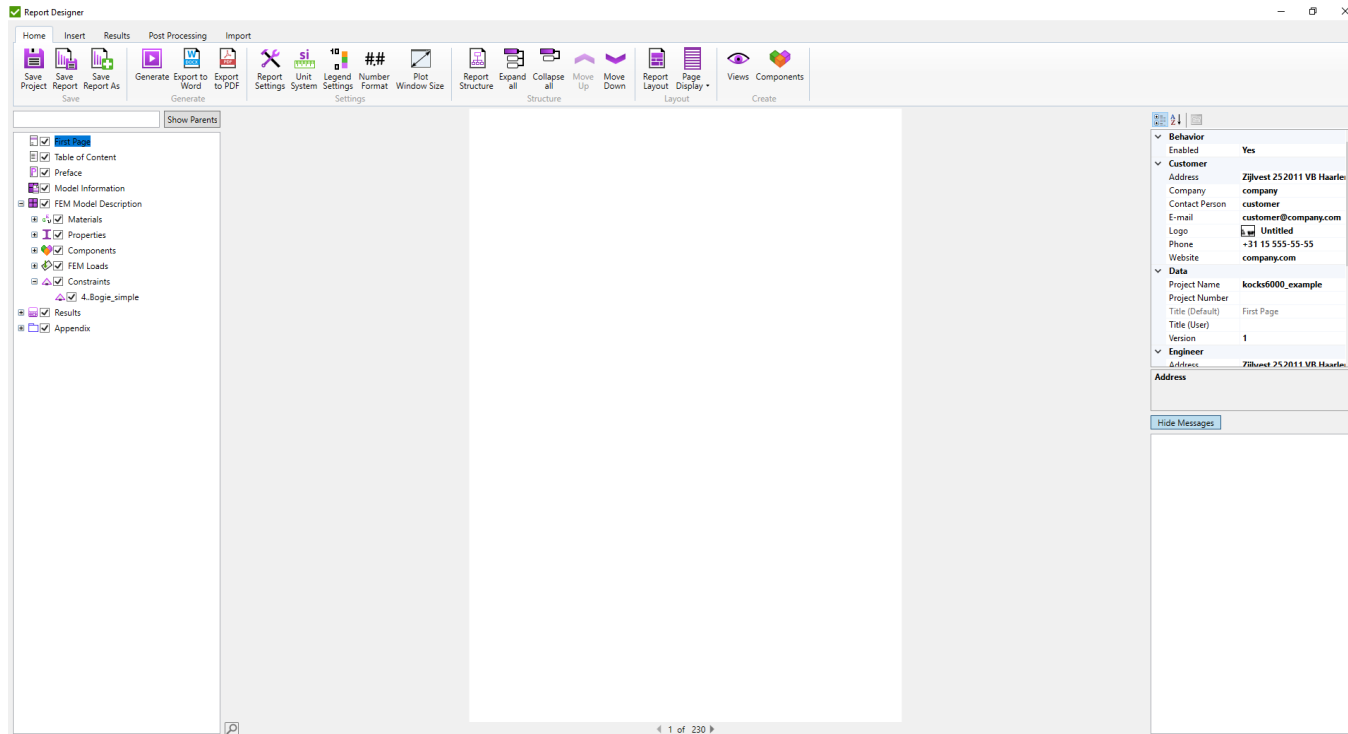
1 Click on Job “Linear Static Analysis” in the Model Tree.

2 Press  on toolbar to analyze job.



Report Designer Interface (Components)

Toolbar – contains main functions



Report Structure – displays structure of the report

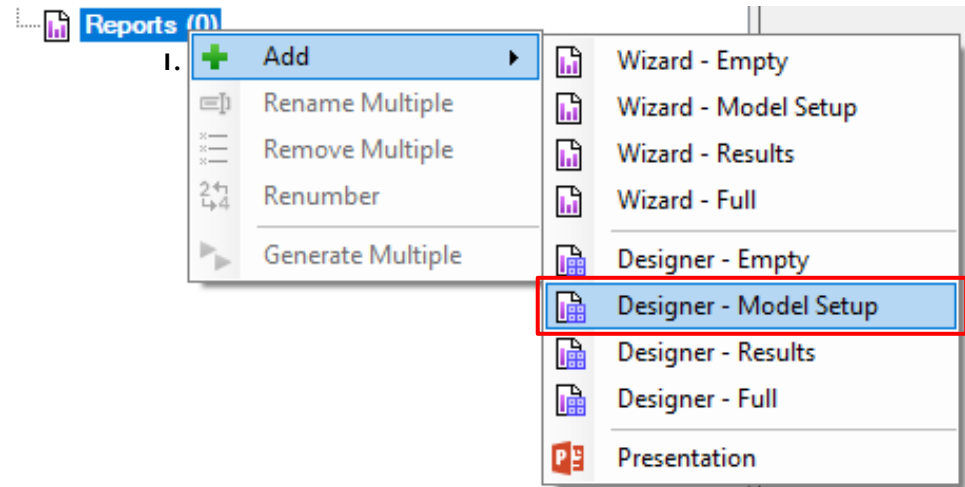
Displays properties of selected item. It is possible to modify them.

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

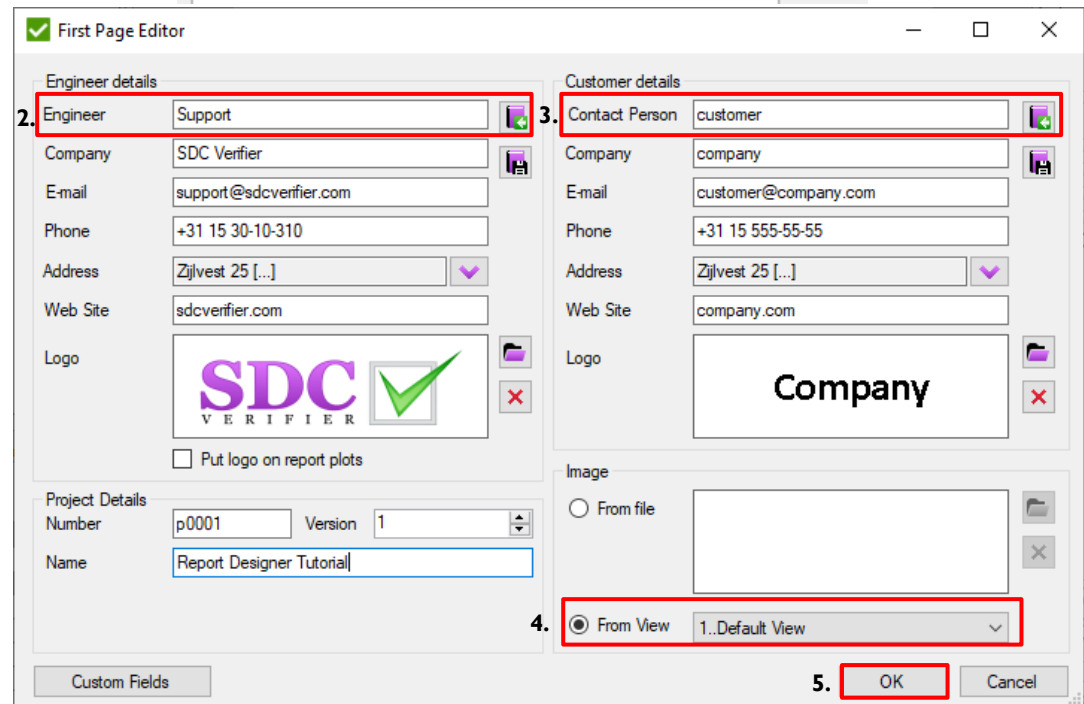
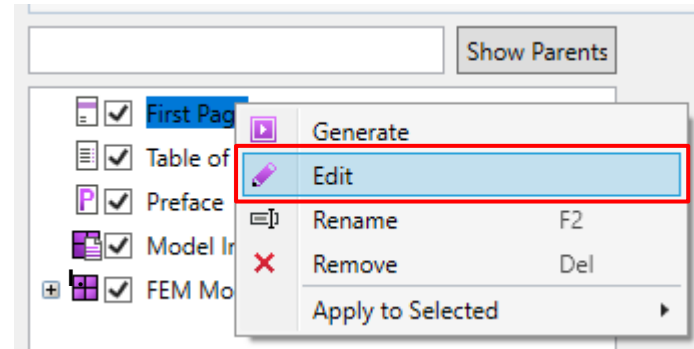
2 Press  and select Support Engineer from the library

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.

A screenshot of the 'First Page Editor' dialog box. The dialog is divided into several sections: 'Engineer details', 'Customer details', 'Project Details', and 'Image'. In the 'Engineer details' section, the 'Engineer' field is highlighted with a red rectangle and contains the text 'Support'. In the 'Customer details' section, the 'Contact Person' field is highlighted with a red rectangle and contains the text 'customer'. In the 'Image' section, the 'From View' radio button is selected, and the dropdown menu shows '1..Default View', which is also highlighted with a red rectangle. At the bottom right, the 'OK' button is highlighted with a red rectangle. Other fields include 'Company', 'E-mail', 'Phone', 'Address', 'Web Site', and 'Logo' for both engineer and customer details. The 'Project Details' section includes 'Number' (p0001) and 'Version' (1). The 'Name' field contains 'Report Designer Tutorial'.

Generate First Page

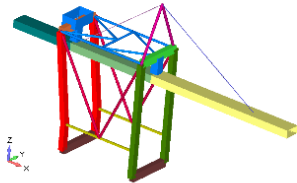
1

Execute *Generate* from First Page context menu



Model Setup

Report Designer Tutorial



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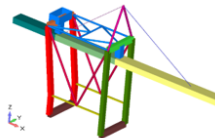
Engineer: Support
Customer: customer
Project Number:
Version: 1
Date: 29/09/2020

Report in Report designer



Model Setup

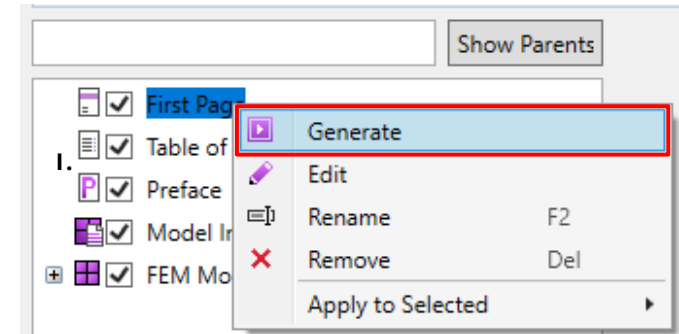
Report Designer Tutorial



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Engineer: Support
Customer: customer
Project Number:
Version: 1
Date: 29/09/2020

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 20.0 and calculated with Femap v12.0.0
Model File: F:\nextcloud\software\Tutorials\Femap\ReportDesigner\Crane_Model.modfem
Project File: E:\Projects\Tutorials\Report Designer Tutorial\Report Designer.sdcv
Report Profile: 3...Model Setup
Generation on: 9/29/2020 11:38:12 AM

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.

SDC Verifier contact information for questions

Check if SDC Verifier model is up to date with Femap model.

Exclude Components

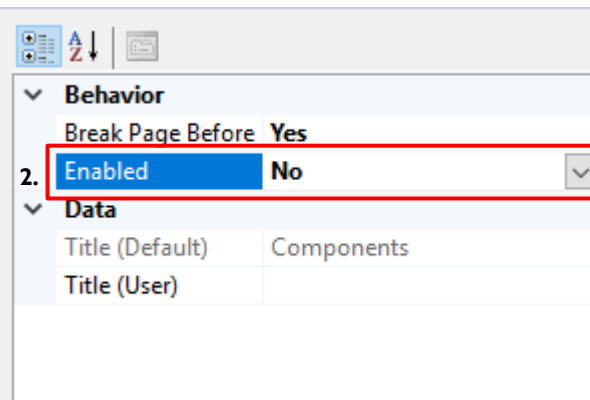
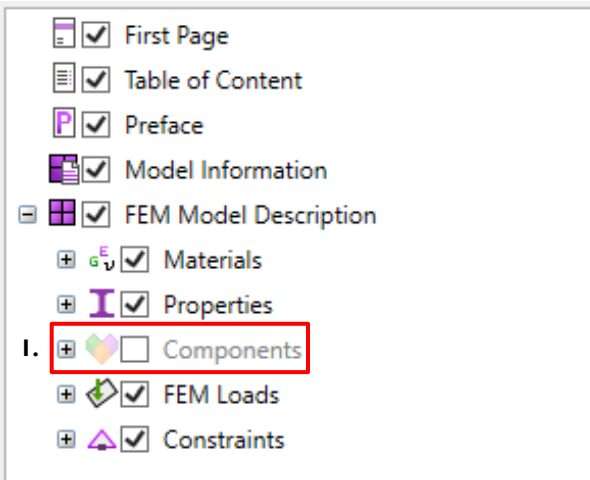
1

Select **Components** item in report structure

2

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

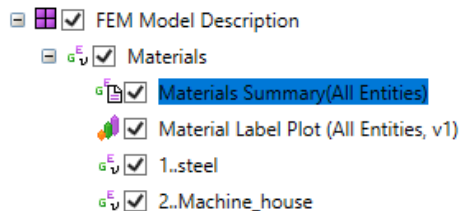
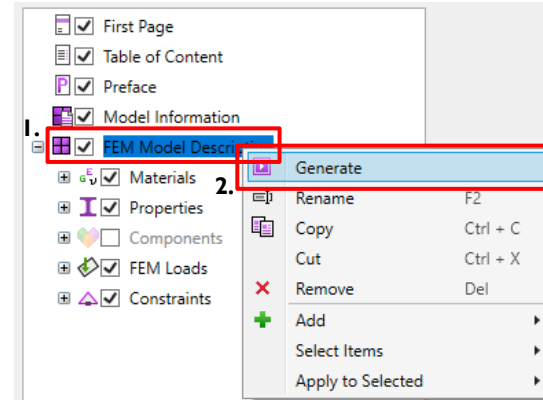
Components item (with all sub items) are excluded from report. The Components item will not be generated but remains in report structure. Alternatively it is possible to delete item from context menu or using DEL button on keyboard.



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.

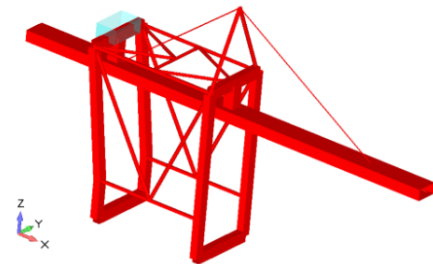
Materials Summary(All Entities)

Title	Elements	Mass [kg]	Mass Density [kg/m³]	Gravity Center [m]
1..steel	420	1937142.8	9.812.50	[-13.85; 0.00; 34.29]
2..Machine_house	1	78999.9	333.33	[-35.48; 0.00; 52.00]
Overall	421	2017142.7		[-14.70; 0.00; 35.00]

Material Summary – mass and gravity center overview over materials

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]	350.00e+6
Yield Stress [Pa]	240.00e+6



Detailed Material description with plot

Material Options

1

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

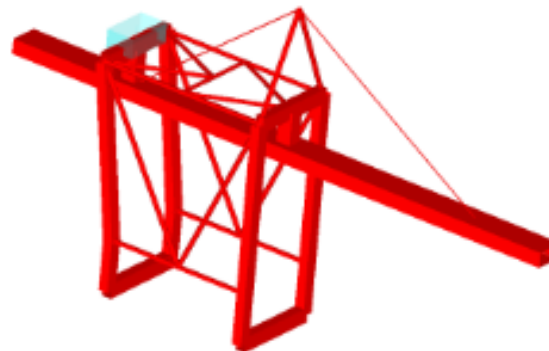
2

Preview Mode: **Display Only Selected**

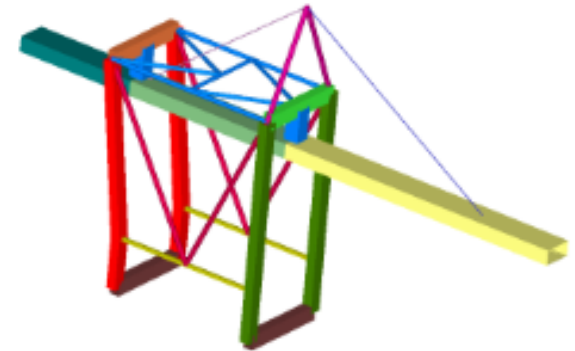
2.

▼ Behavior	
Break Page Before	Yes
Enabled	Yes
Include Plot	Yes
Include Selection	No
▼ Data	
Selection	All Entities
Title (Default)	1..steel
Title (User)	
▼ Plot	
Comments	Objects selected: 0
Preview Mode	Highlight
Views	1 selected...

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  on the toolbar 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

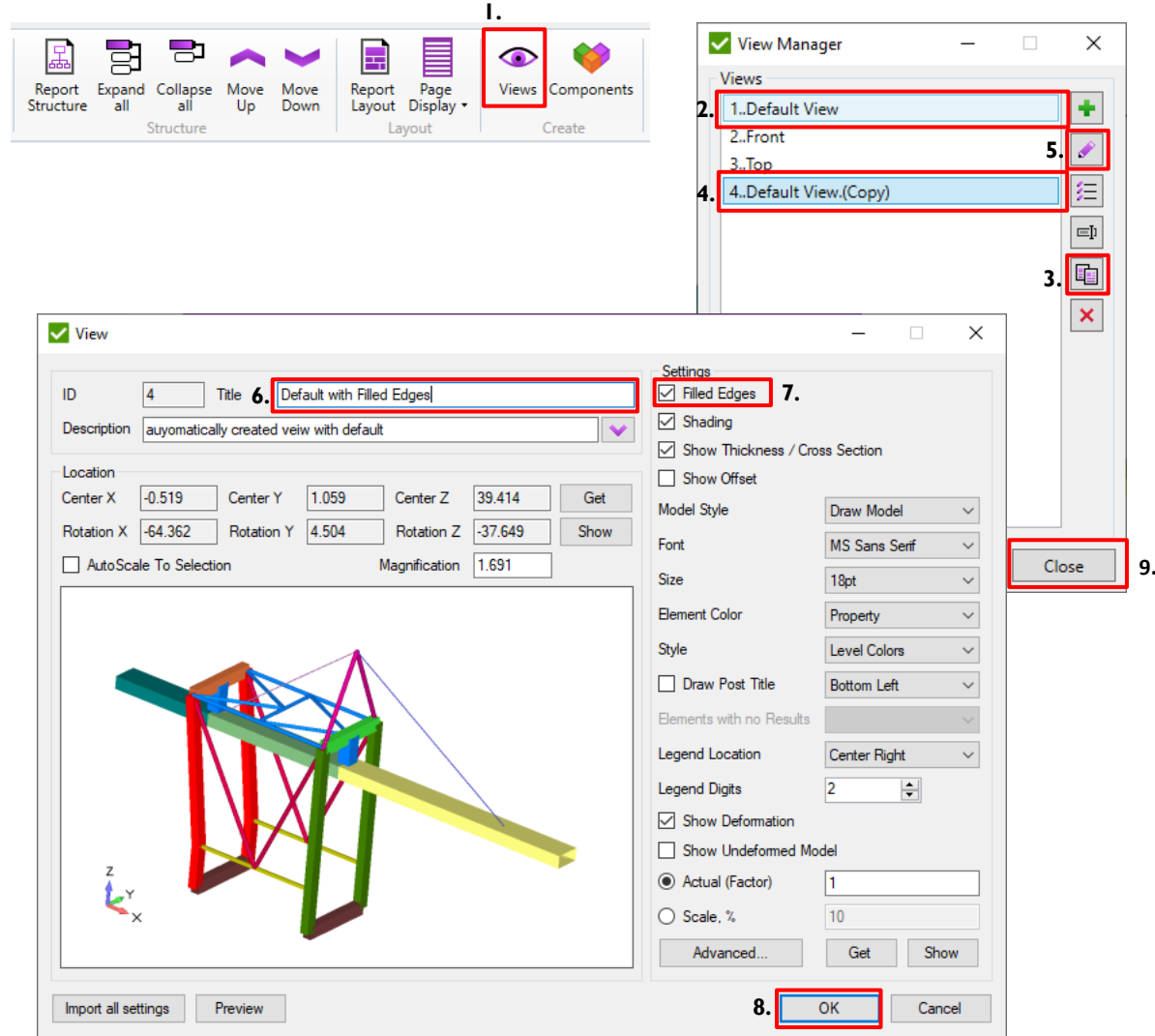
6 Title: **Default with Filled Edges**

7 **Filled Edges: ON**

8 Press **OK**.

9 Press **Close**.

1.



The screenshot displays the SDC Verifier software interface. At the top, a toolbar contains icons for Report Structure, Expand all, Collapse all, Move Up, Move Down, Report Layout, Page Display, Views (highlighted with a red box and labeled '1.'), and Components. Below the toolbar, the View Manager dialog box is open, showing a list of views: 1..Default View, 2..Front, 3..Top, and 4..Default View.(Copy) (highlighted with a red box and labeled '4.'). To the right of the list are icons for adding (+), editing (pencil), deleting (X), and other functions. A red box labeled '5.' is around the edit icon, and a red box labeled '3.' is around the copy icon. Below the View Manager, the View dialog box is open, showing the title '6. Default with Filled Edges' (highlighted with a red box) and the description 'automatically created view with default'. The 'Filled Edges' checkbox is checked (highlighted with a red box and labeled '7.'). Other settings like Shading, Show Thickness / Cross Section, and Model Style are visible. A 3D model of a structure is shown in the center. At the bottom right, the 'OK' button is highlighted with a red box and labeled '8.', and the 'Close' button is highlighted with a red box and labeled '9.'.

Apply View to all Fem Loads

1. Select **FEM Loads** in report structure

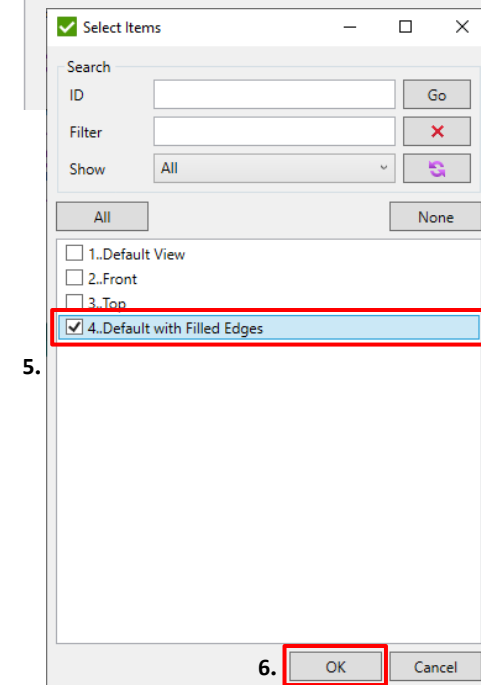
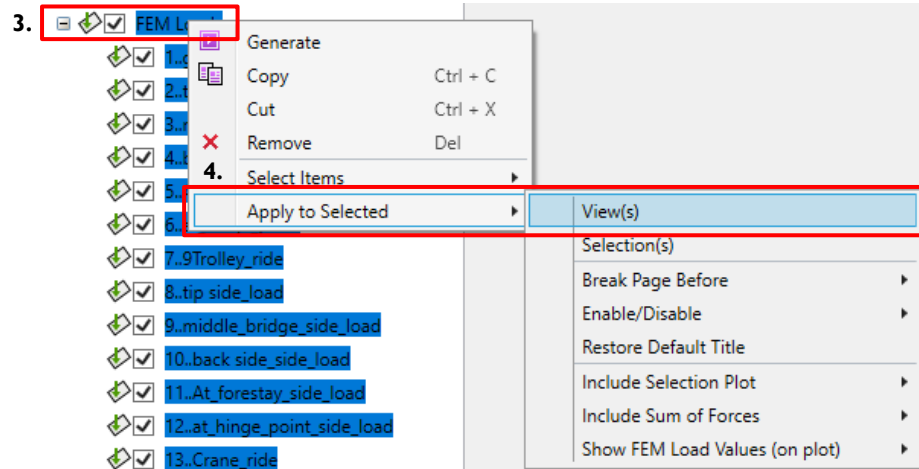
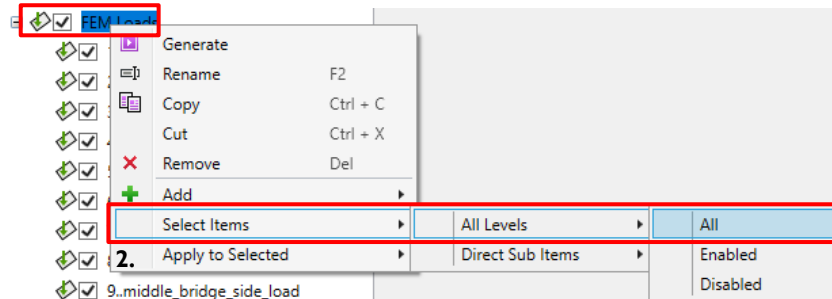
2. Execute *Select Items – All levels – All*

3. Select **FEM Loads** in report structure

4. Execute – *Apply to selected – Views*

5. Select: Default with Filled Edges

6. Press **OK**



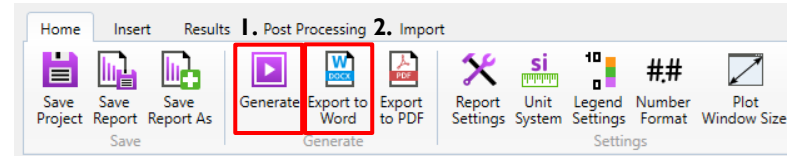
Generate Report

1

Press  to generate report

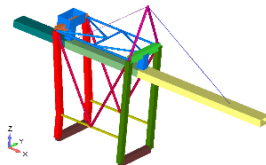
2

Press  to export report to Word



Model Setup

Report Designer Tutorial



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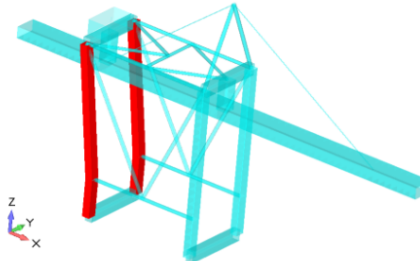
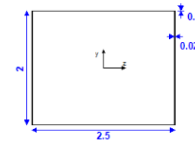
Engineer: Support
Customer: customer
Project Number:
Version: 1
Date: 30/09/2020

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The Netherlands

1..portside legs

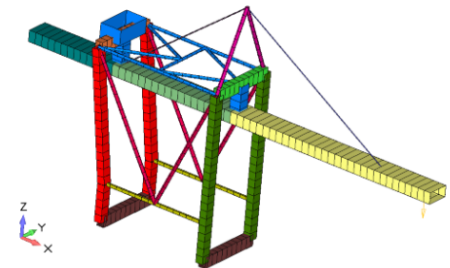
Property	Value	Property Shape
Type / Elements	Beam / 44	
Material	1.steel	
Mass [kg]	112491.4	
Gravity Center [m]	[-32.42; 0.00; 28.04]	
Area, [m ²]	0.13	
I1, [m ⁴]	0.08	
I2, [m ⁴]	0.15	
I12, [m ⁴]	0	
Torsion Constant, [m ⁴]	0.14	
Y Shear Area, [m ²]	0.08	
Z Shear Area, [m ²]	0.05	
Nonstructural Mass, [kg]	0	
Perimeter, [m]	9.00	
Warping Constant, [m ⁶]	0	
Y Neutral Axis Offset A, [m]	0	
Z Neutral Axis Offset A, [m]	0	
w [m]	2.500	
h [m]	2.000	
t1 [m]	0.010	
t2 [m]	0.020	



2..tip load

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

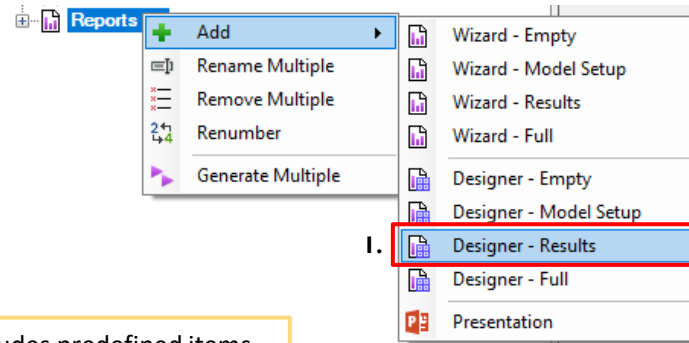
Sum around [0, 0, 0]	X	Y	Z
Sum Of Forces [N]	0e+3	0e+3	-1220e+3
Sum Of Moments [N m]	0e+3	68829e+3	0e+3



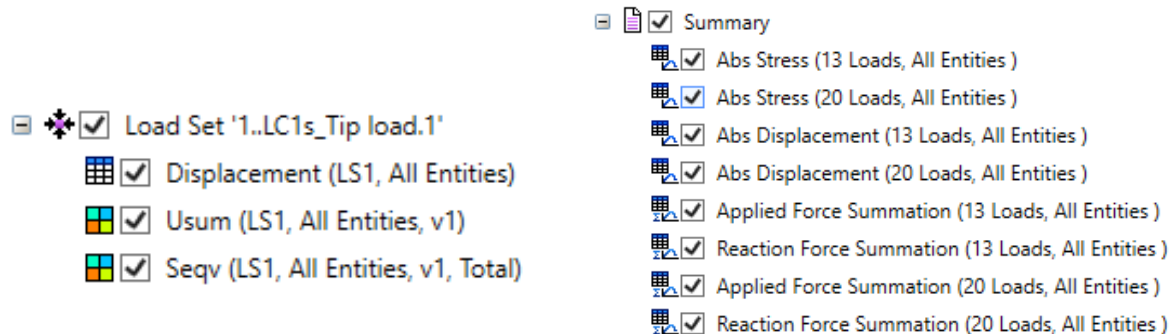
Add Result Report

1

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



Result report includes predefined items



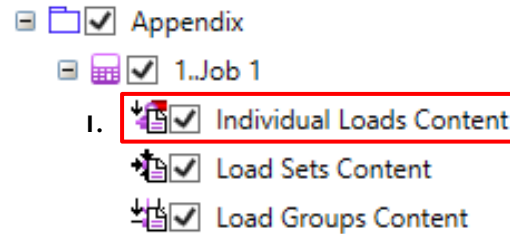
For each load extreme displacement table,
displacement and stress plots are created

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

Individual Loads Content

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

2 Execute *Generate* from context menu



Individual Loads 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.

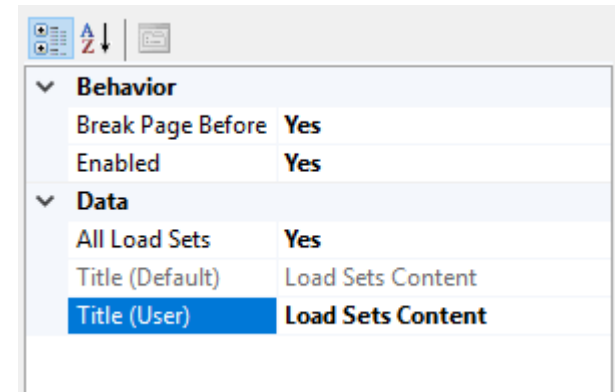
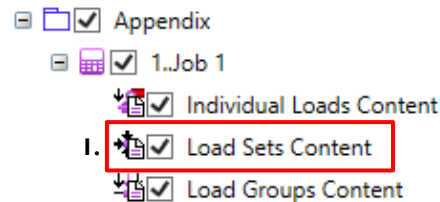
Load Set Content

1

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

2

Execute *Generate* from context menu



Load Sets Content

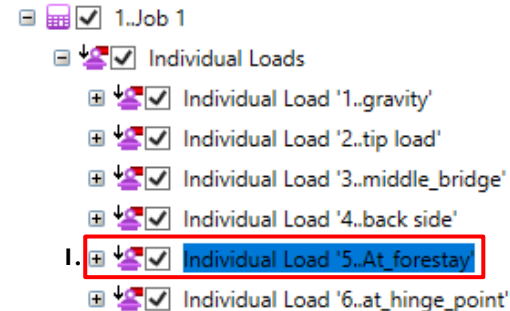
Title [Safety Factor]	Count	Items [Partial Load Factor]
1..LC1s_Tip load.1 [1]	5	1..gravity [1.15] 2..tip load [1.35] 7..9Trolley_ride [1.15] 8..tip side_load [1.15] 13..Crane_ride [1.15]
2..LC1s_Tip load.2 [1]	5	1..gravity [1.15] 2..tip load [1.35] 7..9Trolley_ride [1.15] 8..tip side_load [-1.15] 13..Crane_ride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

Individual Load Options

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

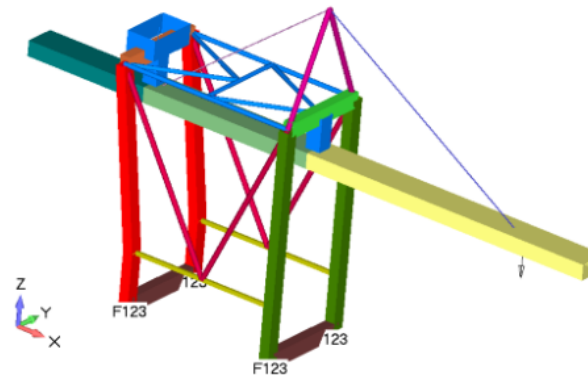
2 Execute *Generate* from context menu

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



Individual Load '5..At_forestay'

At_forestay ; Bogie_simple



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'	0e+3	0e+3	1220e+3	1220e+3	0.0	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

Displacement (IL5, All Entities)

Individual Load Type	5..At_forestay Extreme	Selection Category			All Entities Displacement				
	Extreme	Ux [m]	Uy [m]	Uz [m]	Usum [m]	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

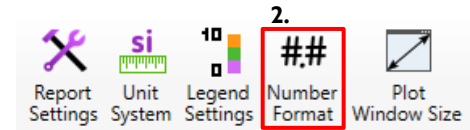
Digits after decimal point = 2

Displacement (IL5, All Entities)

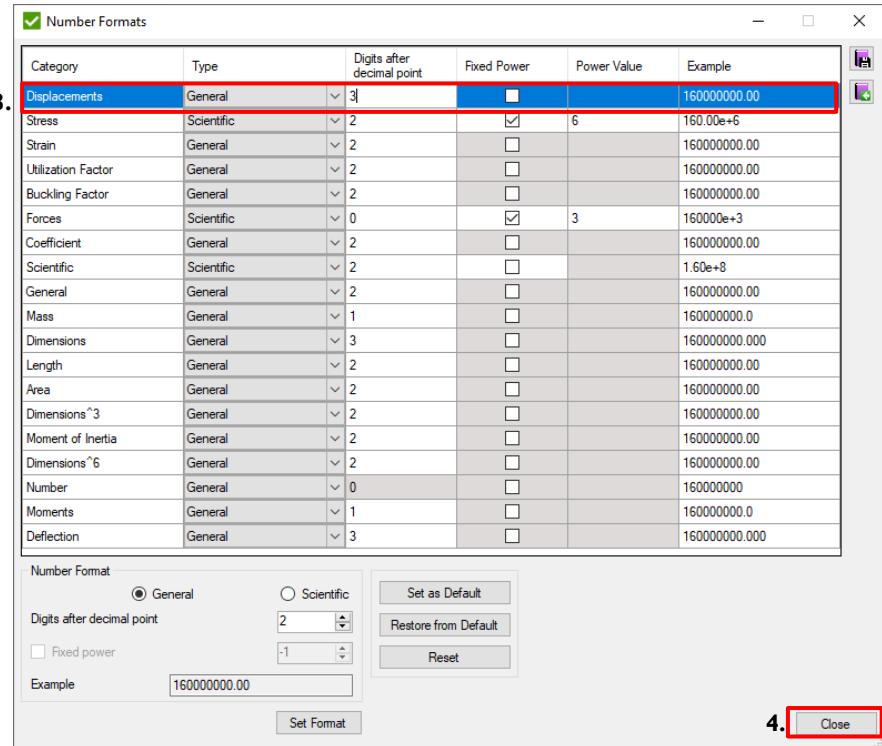
Individual Load Type	5..At_forestay Extreme	Selection Category			All Entities Displacement				
	Extreme	Ux [m]	Uy [m]	Uz [m]	Usum [m]	Rx	Ry	Rz	Rsum
Minimum		0.000	-0.004	-0.114	0.000	0.00	0.00	0.00	0.00
Maximum		0.030	0.004	0.013	0.114	0.00	0.00	0.00	0.00
Absolute		0.030	0.004	-0.114	0.114	0.00	0.00	0.00	0.00

Digits after decimal point = 3

- Individual Load '5..At_forestay'
1. **Displacement (IL5, All Entities)**
 - ☒ Usun (IL5, All Entities, v1)
 - ☒ Seqv (IL5, All Entities, v1, Total)



3.



4. **Close**

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

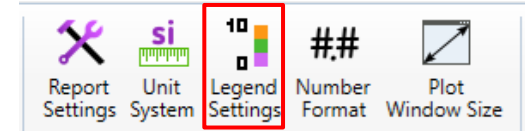
Press *Close*

5

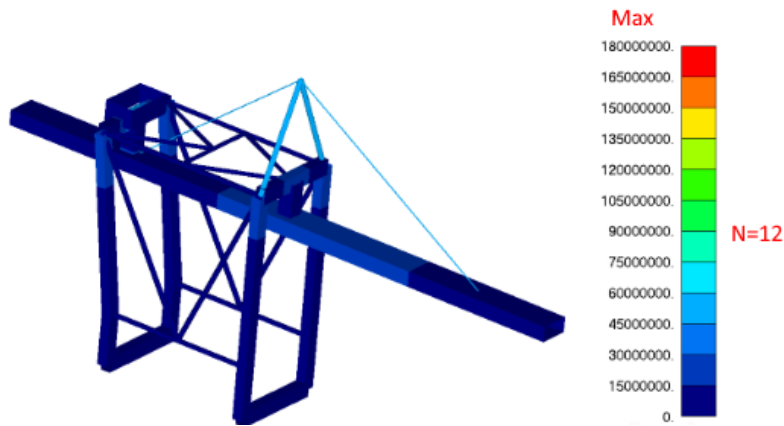
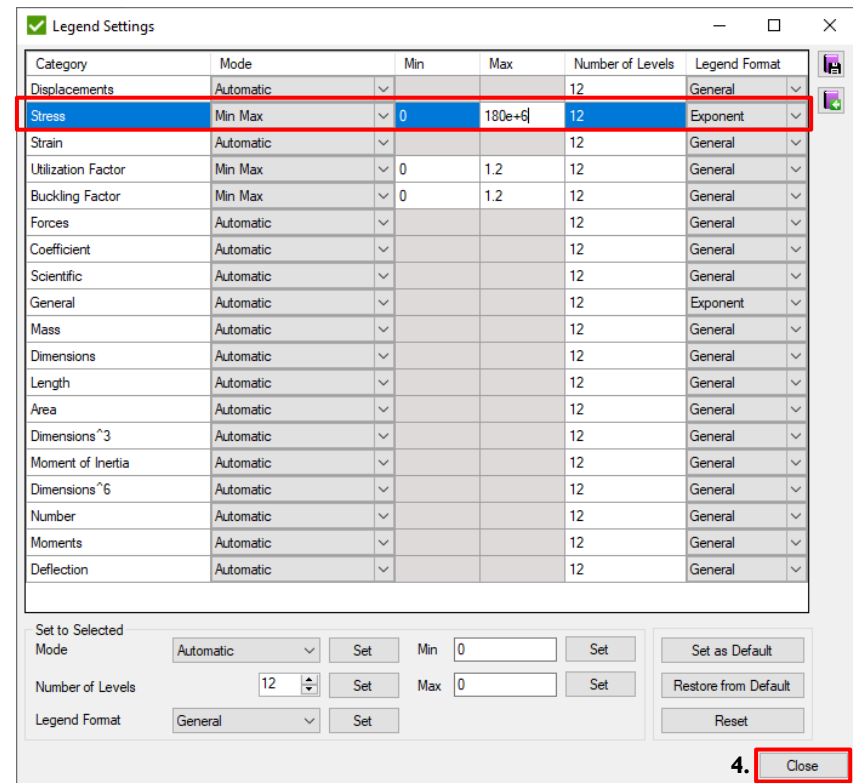
Execute *Generate* from context menu


- Individual Load '5..At_forestay'
- ☒ Displacement (IL5, All Entities)
 - ☒ Usun (IL5, All Entities, v1)
 - ☒ **Seqv (IL5, All Entities, v1, Total)**

2.



3.

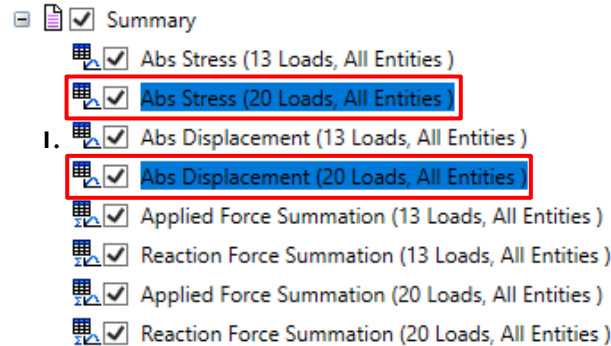


Legend Settings controls legend options for different categories. It is possible to save settings to the library and reuse in another projects. 

Stress and displacement tables over loads

1 Select **Abs stress** and **Abs displacement** together, under Summary item

2 Execute *Generate* from context menu



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 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	-178.40e+0			-0.02e+0			178.40e+0
LS2.LC1s_Tip load.2	-178.40e+0			0.02e+0			178.40e+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	-113.16e+0			0.00e+0			113.16e+0
LS6.LC1s_Middle Bridge.2	-113.16e+0			0.00e+0			113.16e+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	139.42e+0			0.00e+0			139.42e+0
LS10.LC1s_Backside.2	139.42e+0			0.00e+0			139.42e+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_At_forestay.1	-148.02e+0			-0.01e+0			148.02e+0
LS14.LC1s_At_forestay.2	-148.02e+0			0.01e+0			148.02e+0
LS15.LC1s_At_forestay.3	-144.57e+0			-0.01e+0			144.57e+0
LS16.LC1s_At_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

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	0.389	0.00	0.01	0.00	0.01		
LS2.LC1s_Tip load.2	0.073	-0.111	-0.352	0.389	0.00	0.01	0.00	0.01		
LS3.LC1s_Tip load.3	0.059	0.111	-0.351	0.389	0.00	0.01	0.00	0.01		
LS4.LC1s_Tip load.4	0.059	-0.111	-0.351	0.389	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_At_forestay.1	0.059	0.100	-0.239	0.259	0.00	0.00	0.00	0.00		
LS14.LC1s_At_forestay.2	0.059	-0.100	-0.239	0.259	0.00	0.00	0.00	0.00		
LS15.LC1s_At_forestay.3	0.045	0.100	-0.238	0.259	0.00	0.00	0.00	0.00		
LS16.LC1s_At_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

Press ## to open Number Format

3

Select category Forces

4

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

5

Press *Set Format*

- Summary
 - ☒ Abs Stress (13 Loads, All Entities)
 - ☒ Abs Stress (20 Loads, All Entities)
 - ☒ Abs Displacement (13 Loads, All Entities)
 - ☒ Abs Displacement (20 Loads, All Entities)
 - ☒ Applied Force Summation (13 Loads, All Entities)
 - ☒ Reaction Force Summation (13 Loads, All Entities)
 - ☒ Applied Force Summation (20 Loads, All Entities)
 - ☒ **Reaction Force Summation (20 Loads, All Entities)**

Number Formats

Category	Type	Digits after decimal point	Fixed Power	Power Value	Example
Displacements	General	3	<input type="checkbox"/>		16000000.000
Stress	Scientific	2	<input checked="" type="checkbox"/>	6	160.00e+6
Strain	General	2	<input type="checkbox"/>		160000000.00
Utilization Factor	General	2	<input type="checkbox"/>		160000000.00
Buckling Factor	General	2	<input type="checkbox"/>		160000000.00
Forces	Scientific	0	<input checked="" type="checkbox"/>	3	160000e+3
Coefficient	General	2	<input type="checkbox"/>		160000000.00
Scientific	Scientific	2	<input type="checkbox"/>		1.60e+8
General	General	2	<input type="checkbox"/>		160000000.00
Mass	General	1	<input type="checkbox"/>		160000000.0
Dimensions	General	3	<input type="checkbox"/>		160000000.000
Length	General	2	<input type="checkbox"/>		160000000.00
Area	General	2	<input type="checkbox"/>		160000000.00
Dimensions^3	General	2	<input type="checkbox"/>		160000000.00
Moment of Inertia	General	2	<input type="checkbox"/>		160000000.00
Dimensions^6	General	2	<input type="checkbox"/>		160000000.00
Number	General	0	<input type="checkbox"/>		160000000
Moments	General	1	<input type="checkbox"/>		160000000.0
Deflection	General	3	<input type="checkbox"/>		160000000.000

Number Format: ☐ General ☒ Scientific

Digits after decimal point: 0

☒ Fixed power: 3

Example: 160000e+3

5. Set Format

Reaction Force Summation (20 Loads, All Entities)

Loads Count	20	Category		Reaction Force						
Selection	All Entities	Type		Expand						
Load	Fx [N]	Fy [N]	Fz [N]	Fsum [N]	Mx [N m]	My [N m]	Mz [N m]	Msum [N m]		
LS1..LC1s_Tip load.1	-223100	-635704	24403396	24412694	0.0	0.0	0.0	0.0		
LS2..LC1s_Tip load.2	-223100	635704	24403396	24412694	0.0	0.0	0.0	0.0		
LS3..LC1s_Tip load.3	223100	-635704	24403396	24412694	0.0	0.0	0.0	0.0		
LS4..LC1s_Tip load.4	223100	635704	24403396	24412694	0.0	0.0	0.0	0.0		
LS5..LC1s_Middle Bridge.1	-223100	-635704	24403394	24412692	0.0	0.0	0.0	0.0		




Reaction Force Summation (20 Loads, All Entities)

Loads Count	20	Category		Reaction Force						
Selection	All Entities	Type		Expand						
Load	Fx [N]	Fy [N]	Fz [N]	Fsum [N]	Mx [N m]	My [N m]	Mz [N m]	Msum [N m]		
LS1..LC1s_Tip load.1	-223e+3	-636e+3	24403e+3	24413e+3	0.0	0.0	0.0	0.0		
LS2..LC1s_Tip load.2	-223e+3	636e+3	24403e+3	24413e+3	0.0	0.0	0.0	0.0		
LS3..LC1s_Tip load.3	223e+3	-636e+3	24403e+3	24413e+3	0.0	0.0	0.0	0.0		
LS4..LC1s_Tip load.4	223e+3	636e+3	24403e+3	24413e+3	0.0	0.0	0.0	0.0		
LS5..LC1s_Middle Bridge.1	-223e+3	-636e+3	24403e+3	24413e+3	0.0	0.0	0.0	0.0		

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

Add Extreme Stress Tables

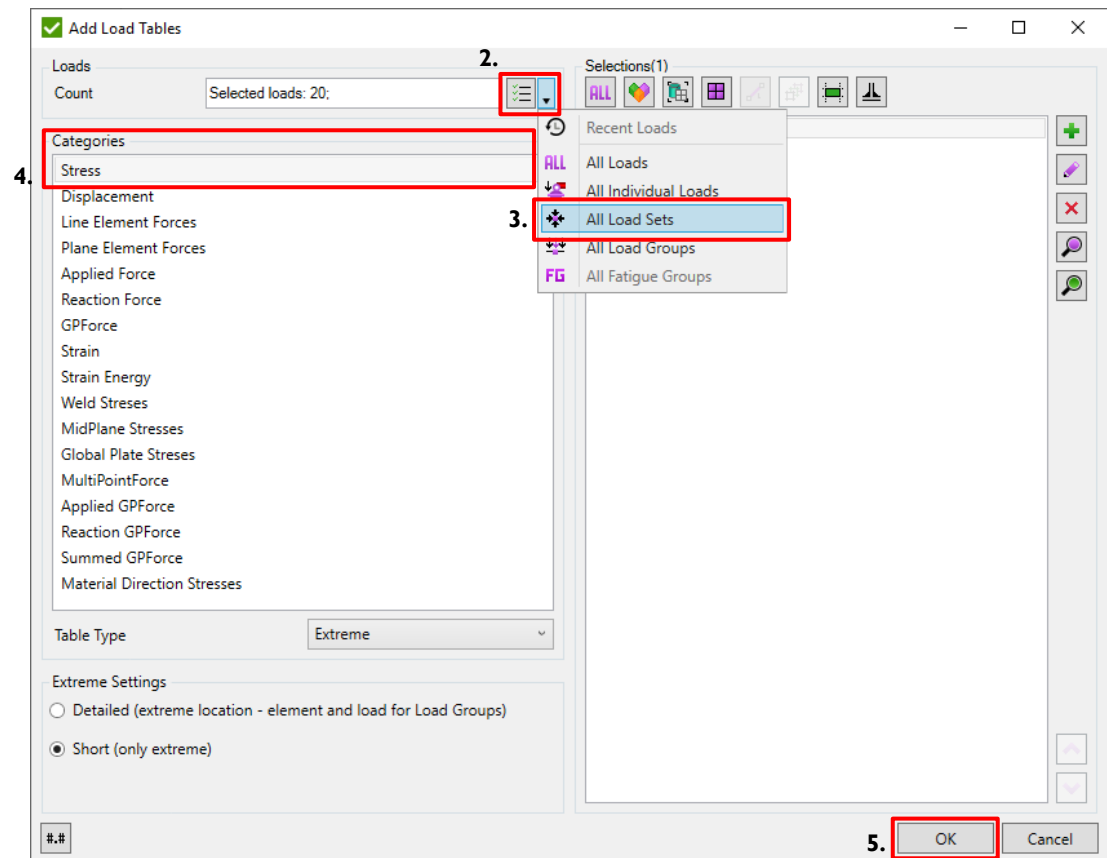
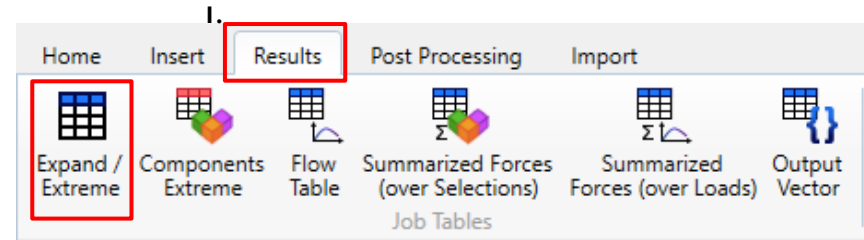
1 Press Results on the toolbar and select  to open tables window

2 Use dropdown menu for load selector

3 Select all Load Sets

4 Categories: **Stress**

5 Press **OK**



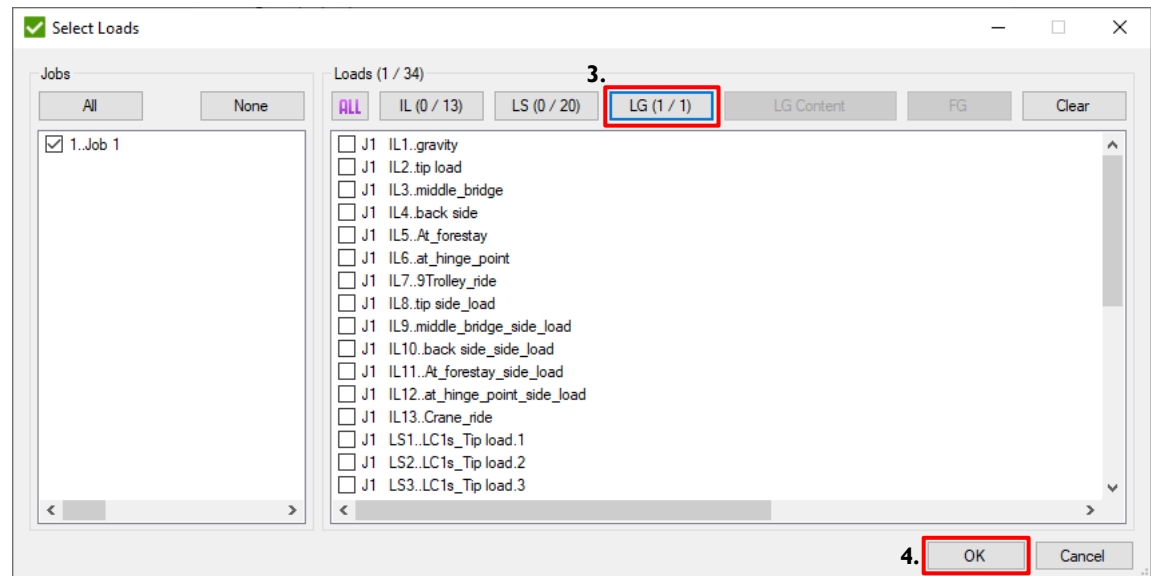
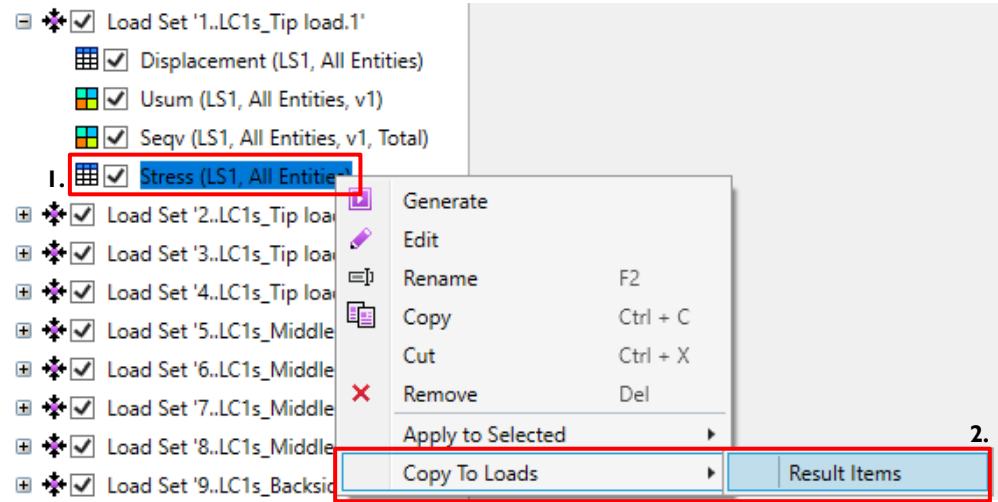
Copy Table to Load Group

1 Execute **Stress Table** under Load Set

2 Select **Result Items** from context menu

3 Table Type: **Load Group**

4 Press **OK**




Move item in the structure

1

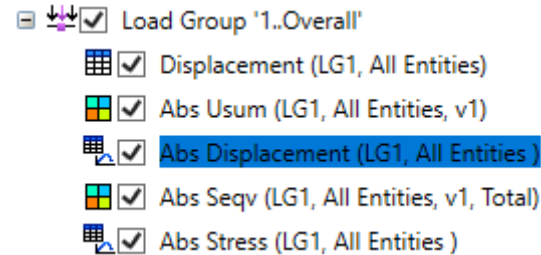
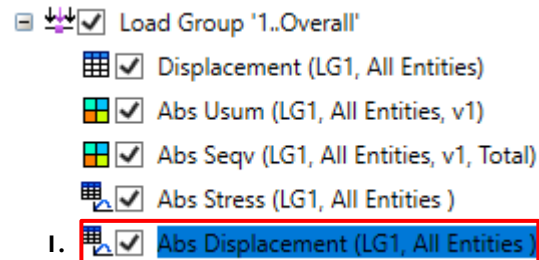
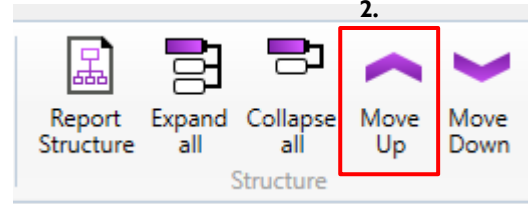
Select **Abs Displacement (LG1, All Entities)**

2

Press  twice to move item up

Move up and move down is possible using Ctrl + Up and Ctrl + Down

2.



Add plots for Load Group

1 Execute **Stress Table** under **Load Set** tree

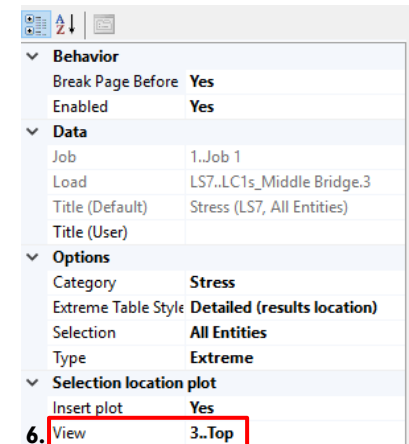
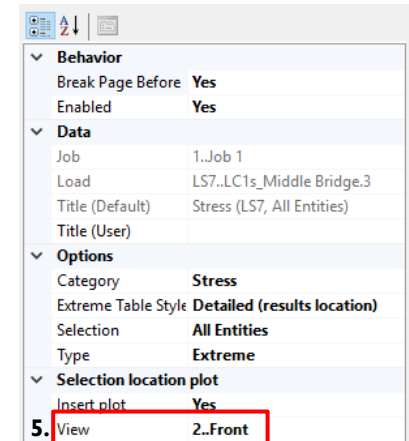
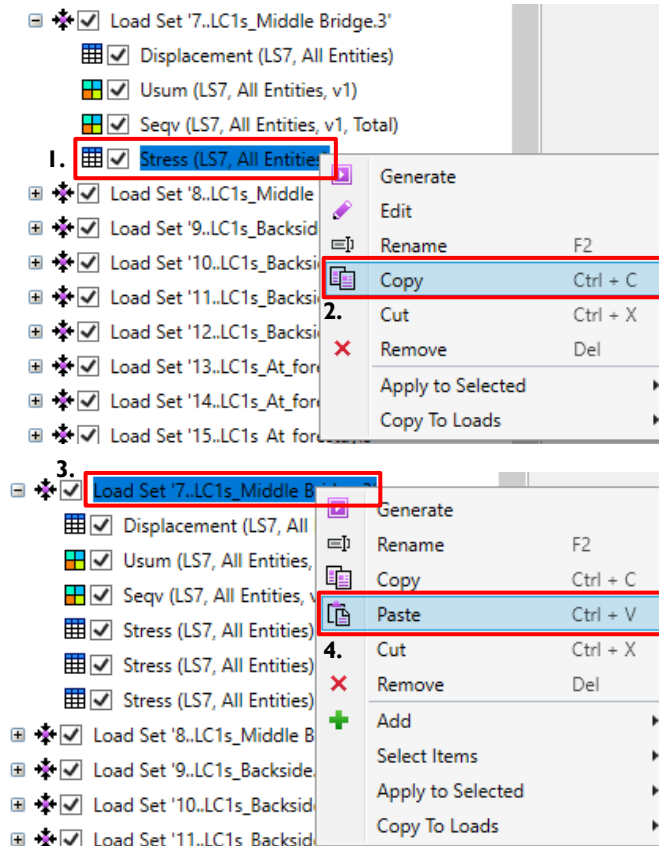
2 Select *Copy*

3 Execute **Load Set**

4 In context menu select *Paste* (twice)

5 For second **Stress Table** set View **2..Front** in Property Grid

6 For third Stress Table set View = **3..Top** in Property Grid



Add table for Static Stress Check

1

Select **Check Tables** from Toolbar

2

Select **Static Stress Check**

3

Select 

4

Select **Direction over Parameters**

5

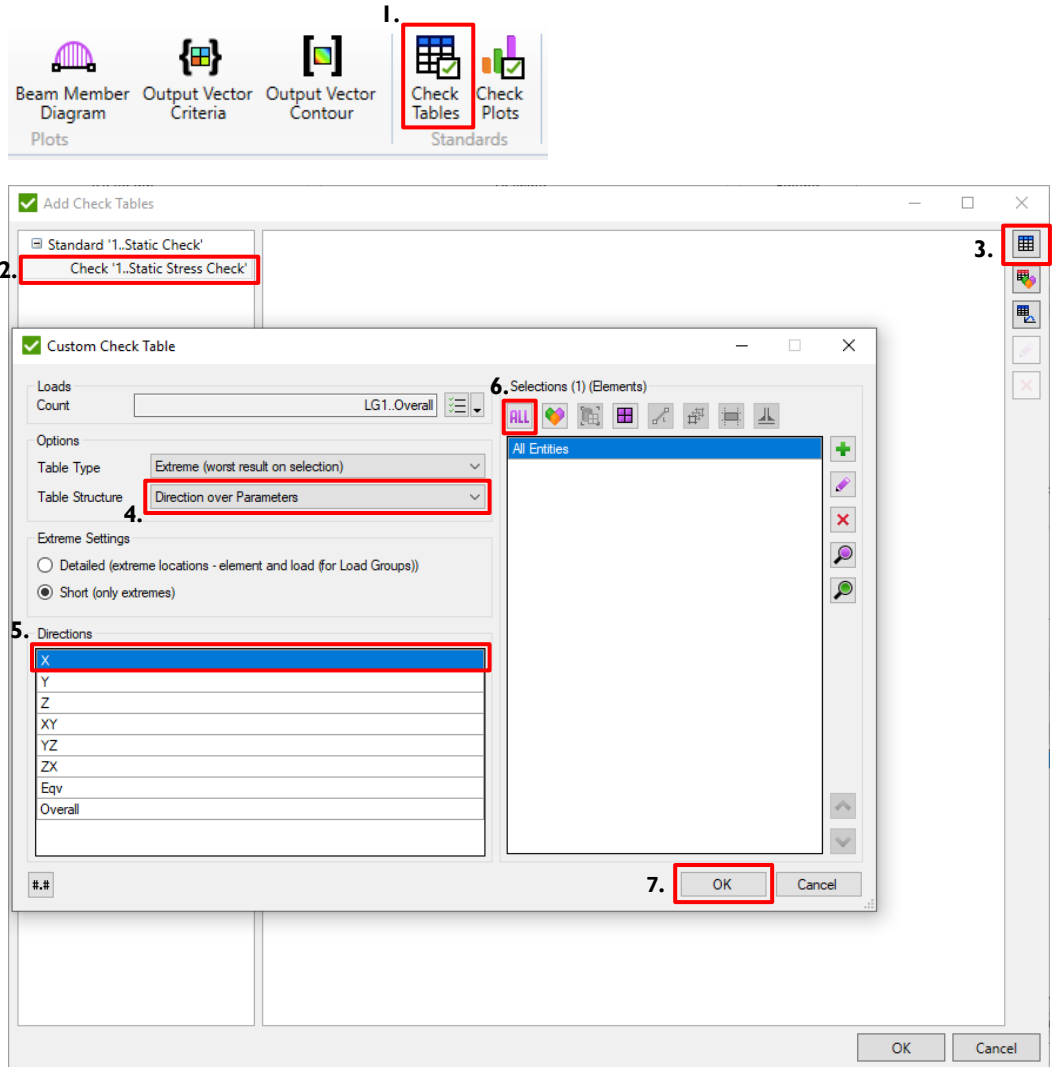
Direction: **X**

6

Press  to add full model selection

7

Press **OK**



Add Plot for Static Stress check

1

Select **Check Plots** on the Toolbar

2

Select **Static Stress Check**

3

Press **Check Plots**

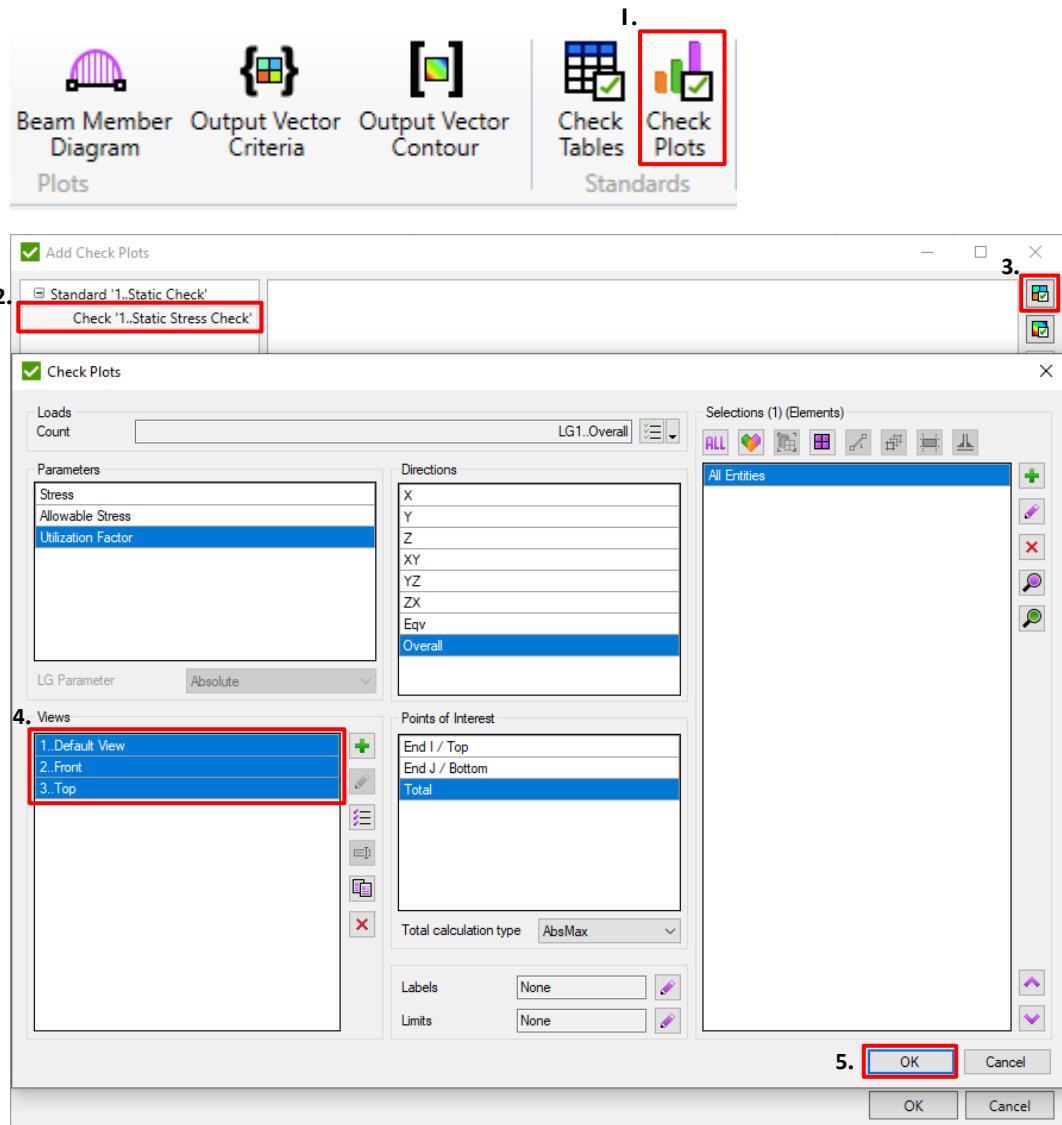


4

Select Views with IDs 1-3

5

Press **OK**



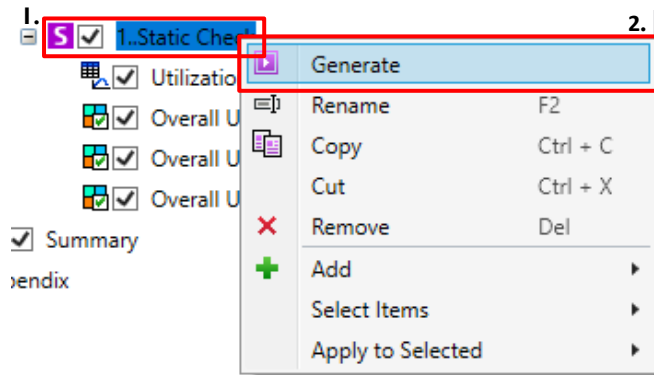
Generate Static Stress Check results

1

Select **Static Stress Check**

2

Execute *Generate* from context menu



1..Static Check

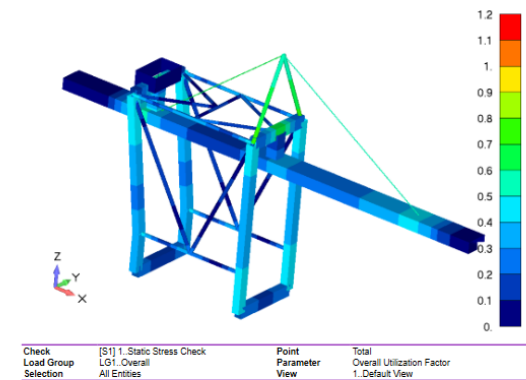
Unit System

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.

Utilization Factor (LG1, All Entities)

Check	[S1] 1..Static Stress Check				Load Group	LG1..Overall		
Parameter	Utilization Factor				Selection	All Entities		
Load	X	Y	Z	XY	YZ	ZX	Eqv	Overall
Load Group	0.74			0.00			0.74	0.74
'1..Overall'								

Overall Utilization Factor (LG1, All Entities, v1, Total)



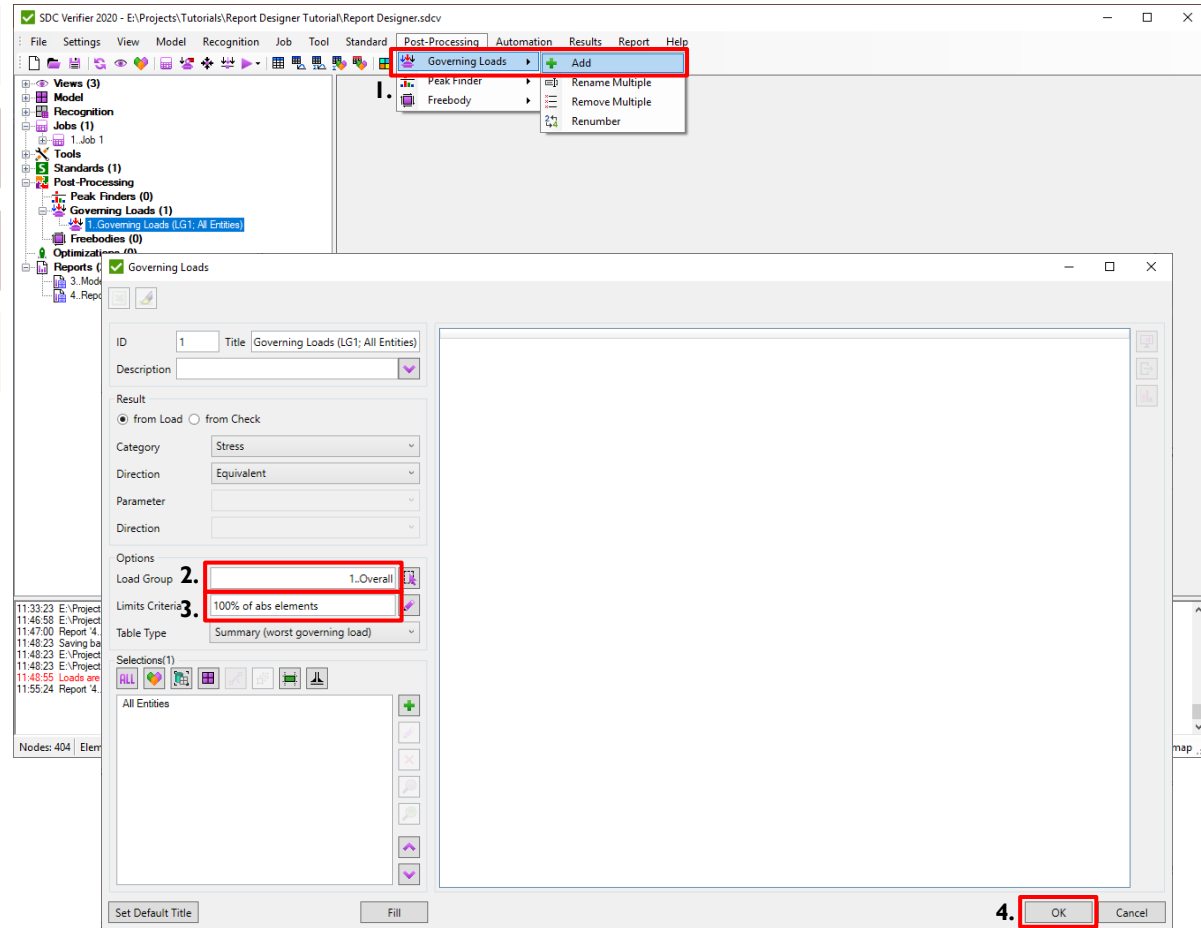
Add Governing Loads

1 Select *Post-Processing- Governing Loads*
- Add

2 Load Group **1.Overall**

3 Limits Criteria **100% of abs elements**

4 Press *OK*



Add table for Governing Loads

1. Select **Post-Processing** from Toolbar

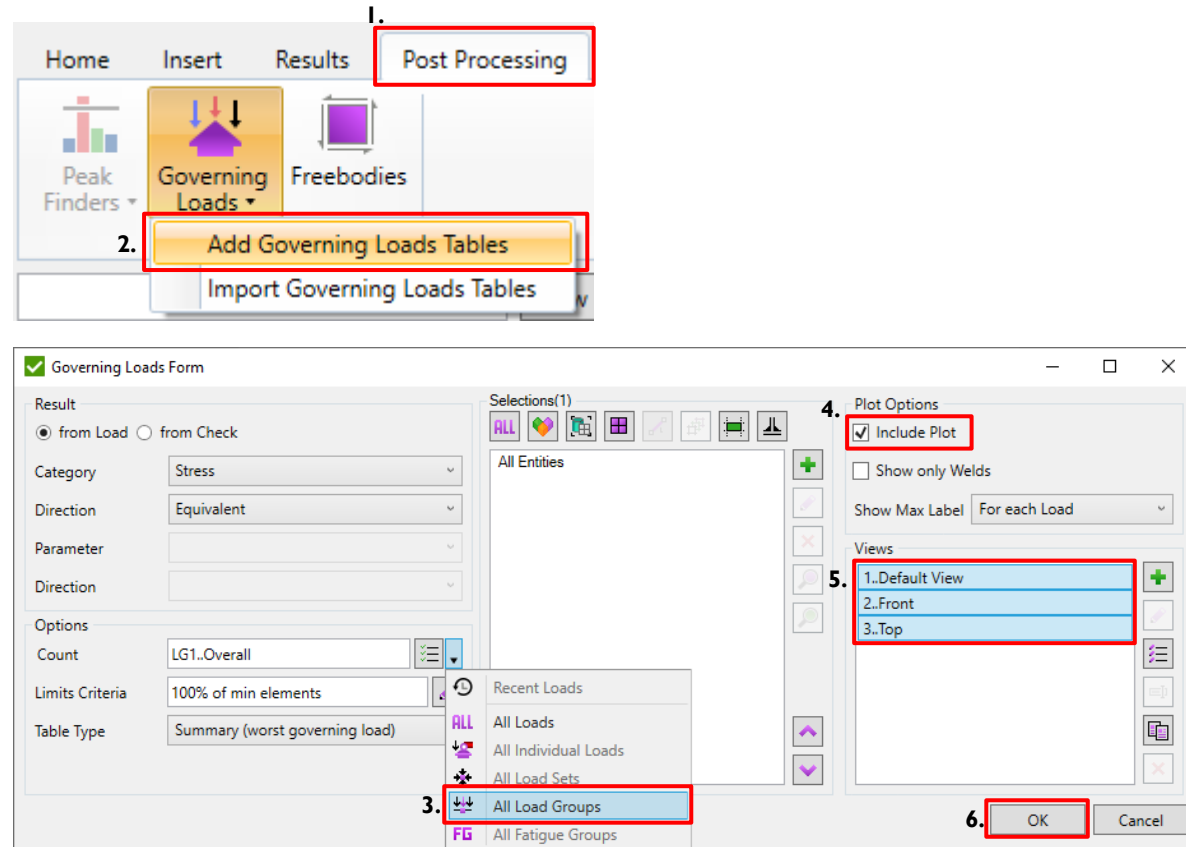
2. Select **Add Governing Load Tables**

3. In dropdown menu select **All Load Groups**

4. Press **Include Plot**

5. Select Views with IDs 1-3

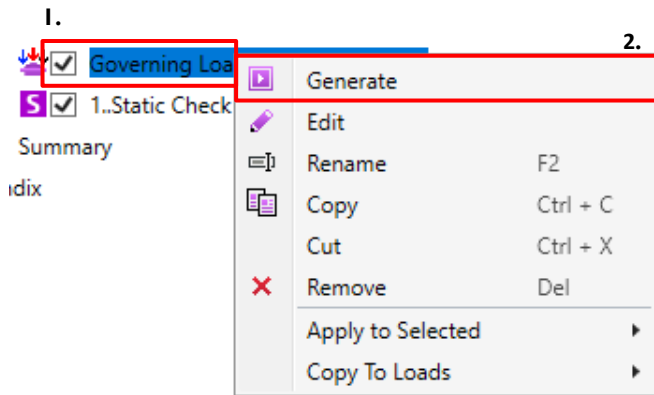
6. Press **OK**



Generate Governing Loads results

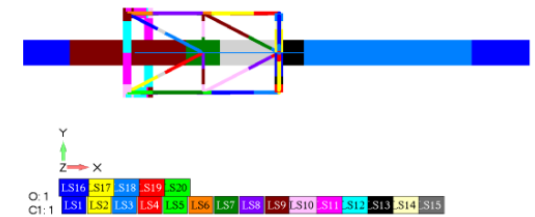
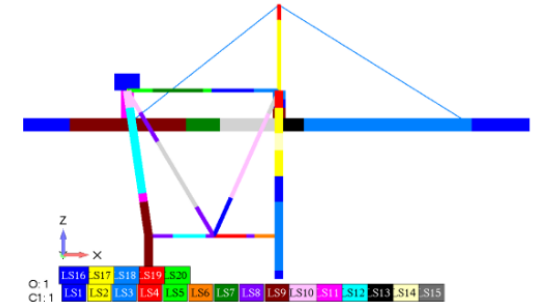
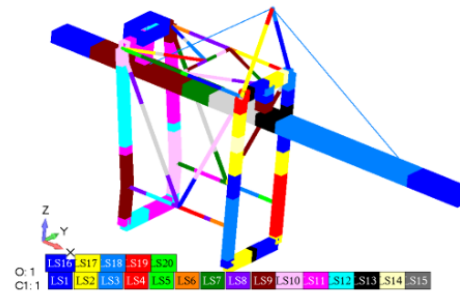
1. Select **Governing Loads**

2. Execute *Generate* from context menu



Governing Loads (LG1; All Entities)

Category	Stress	Direction	Equivalent
Criteria	100% of min elements		
Selection	Elements Count	Min Entity Id	Min Value
All Entities	421 / 421	131	175.40e+6
			LS1_LC1s_Tip load.1



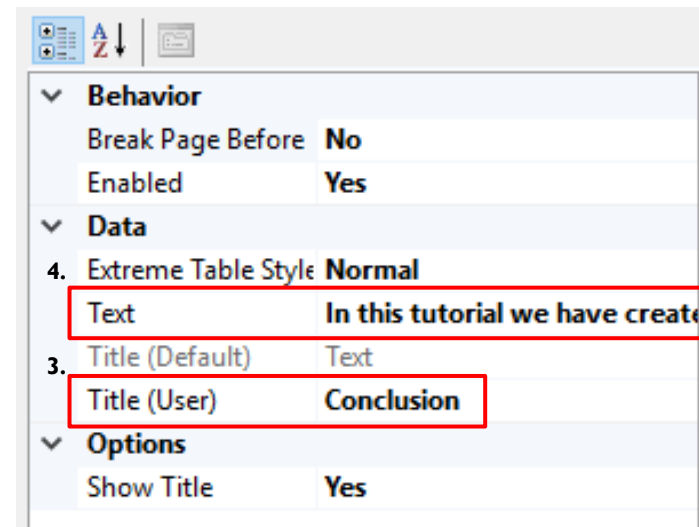
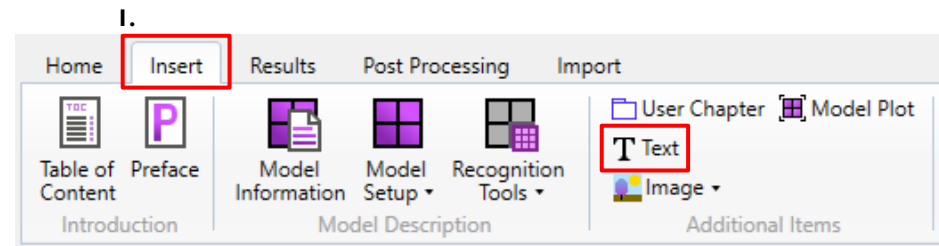
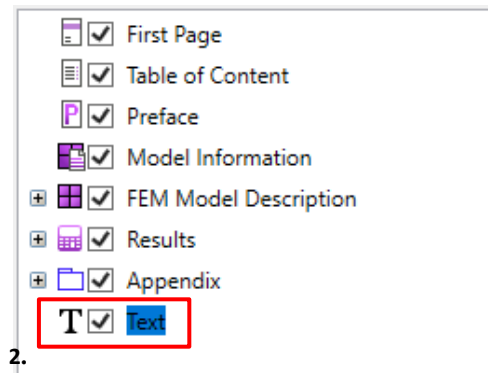
Add Conclusion

1. Select **Insert** on the Toolbar and click on **Text** item

2. Select **Text** in model tree

3. In display properties set the Title: **Conclusion**

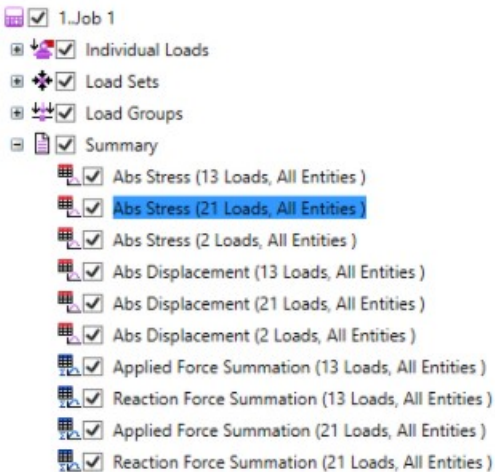
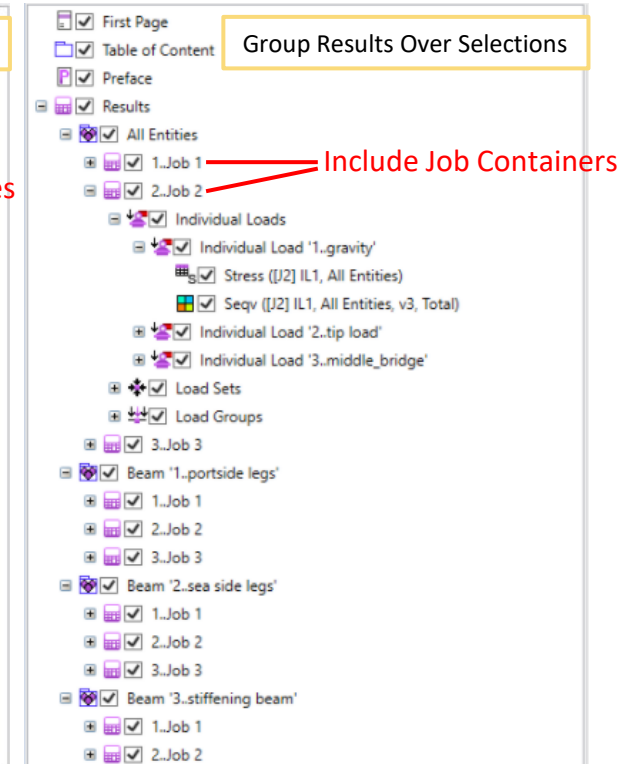
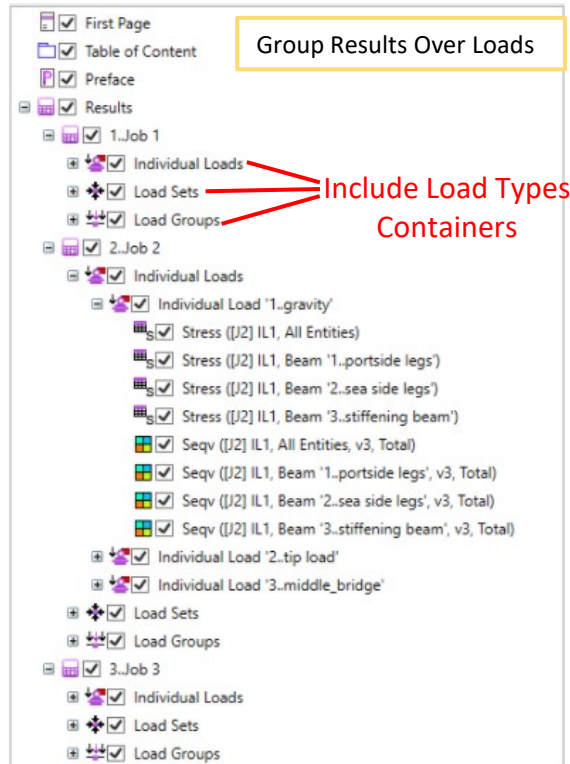
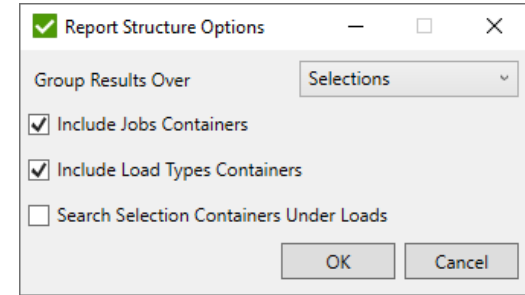
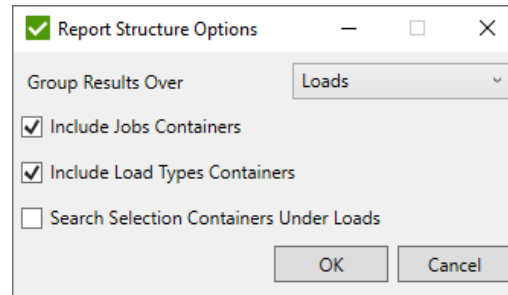
4. Text: **In this tutorial we have created 2 reports using Report Designer**



Report Structure

When Table/Plot is edited and load/selection is changed, the item is moved under correspondent Load/Selection automatically. Moreover, when the item is dropped under Load/Selection its load/selection is updated as well.

Tables/Plots with multiple loads of the same Job are placed under Job Summary Chapter (for loads from different Jobs in Summary under Results chapter):



Import from word document

1

Select **Import** on the Toolbar and click on *Word Document*

2

Select **Import document** in report structure

3

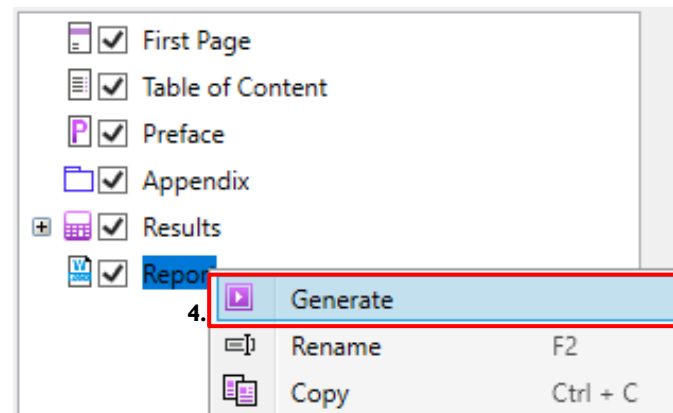
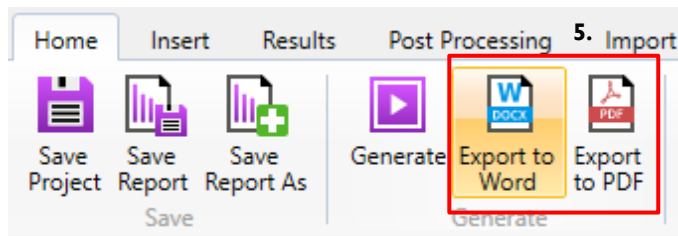
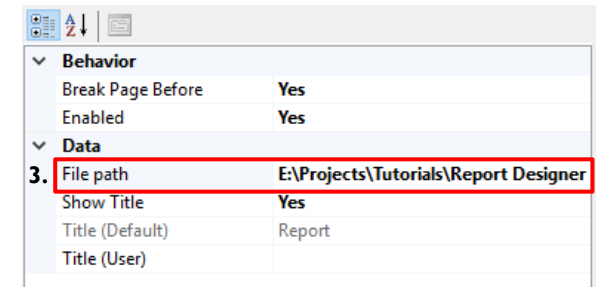
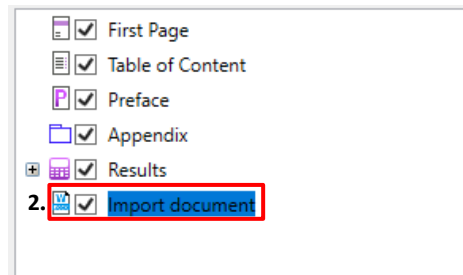
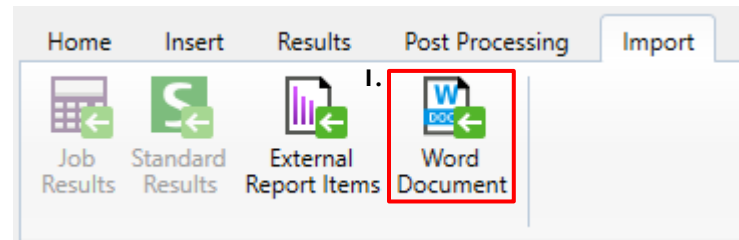
In display properties set the file path


4

Generate

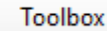
5

Your word file will be displayed after report is exported to word or PDF



After generation is finished press  to export generated report to Word

2.



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