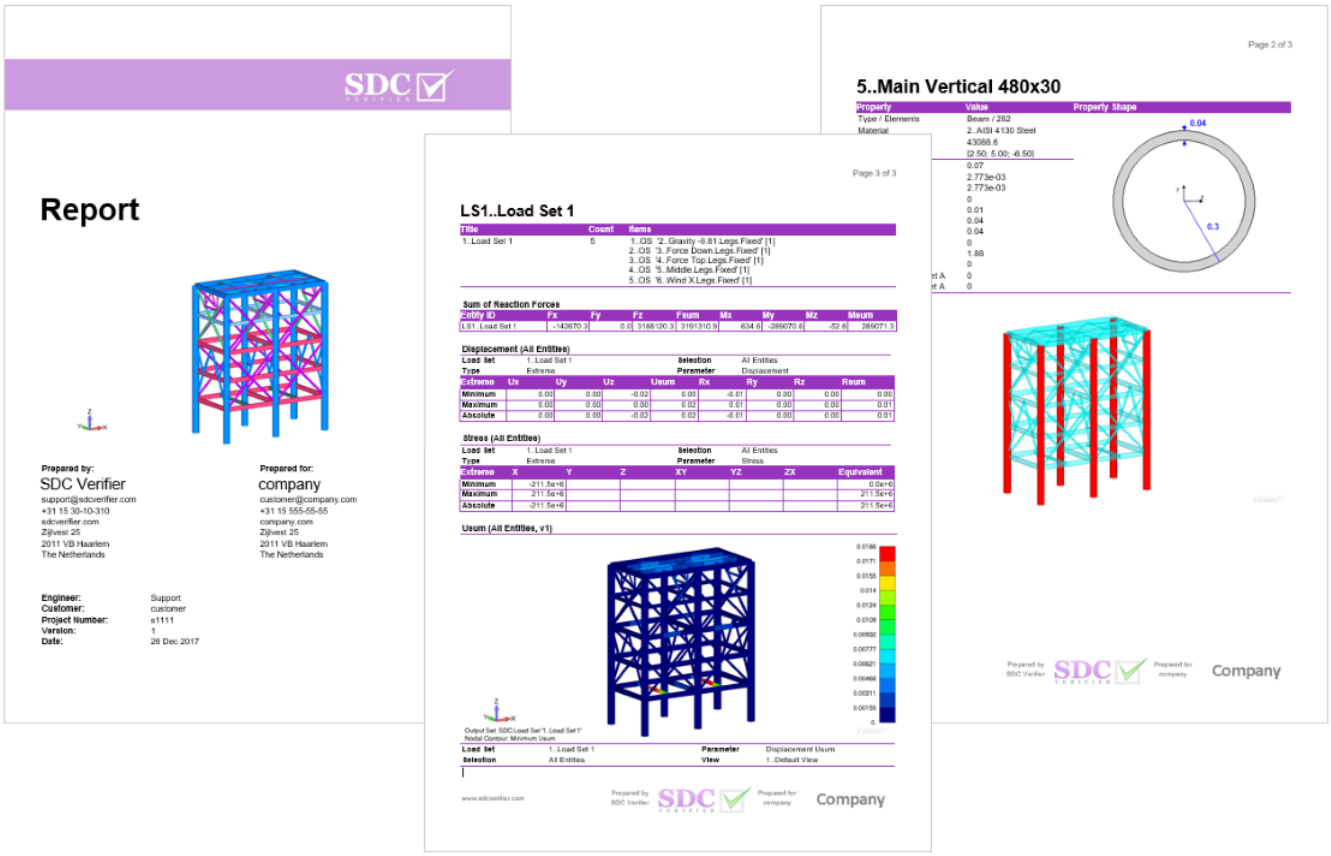
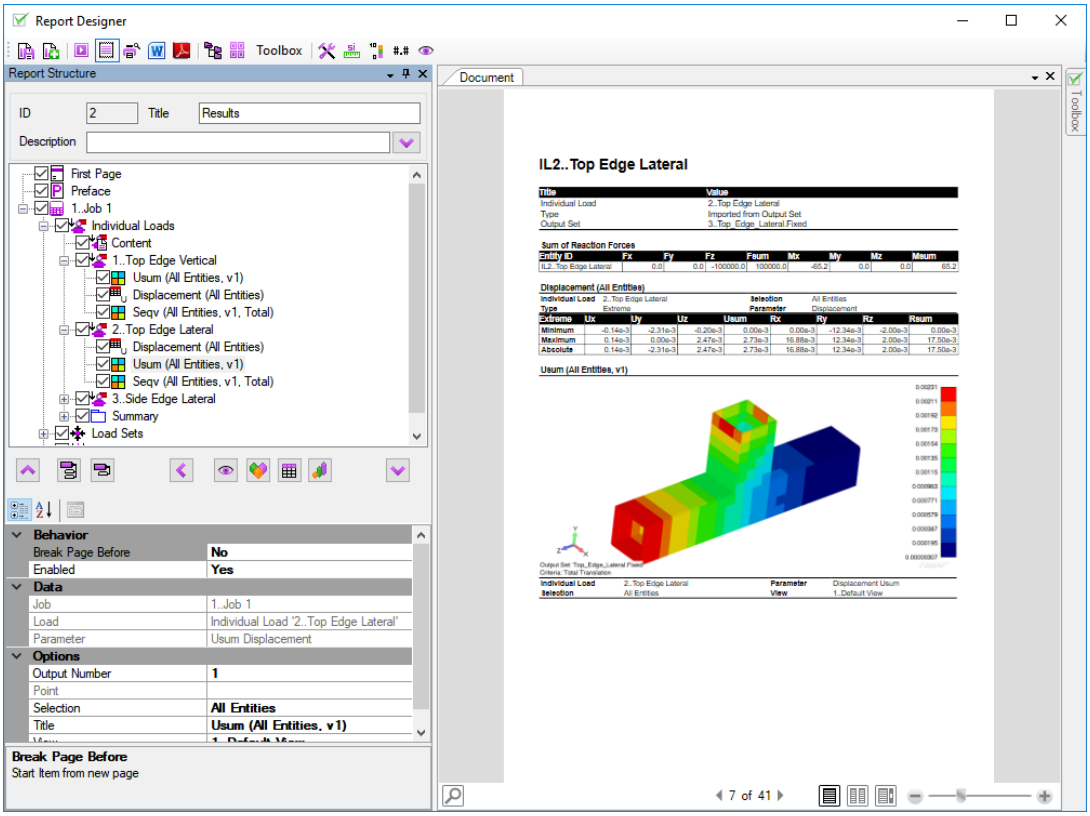
SDC Reporting

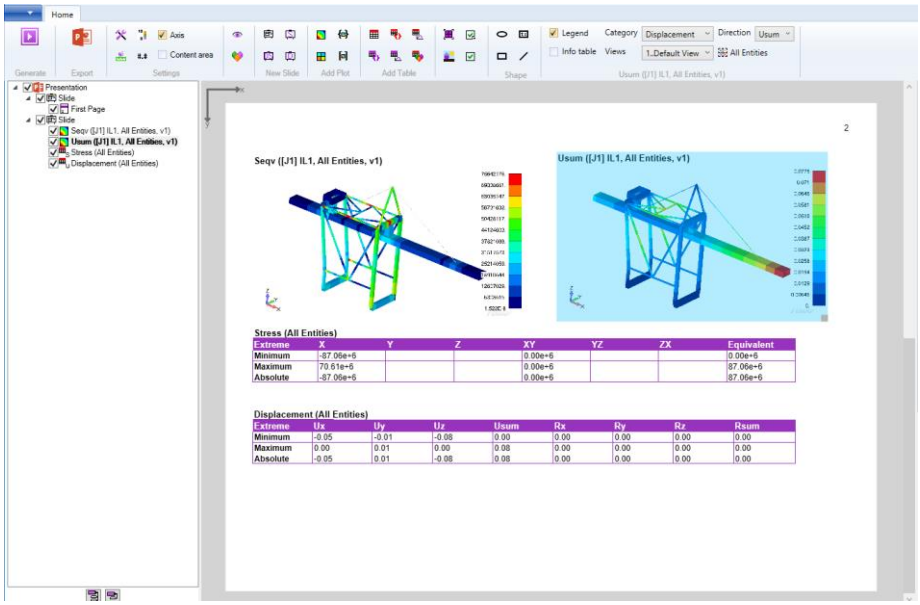
An extension for Ansys Femap and Simcenter which automates the generation of full calculation reports



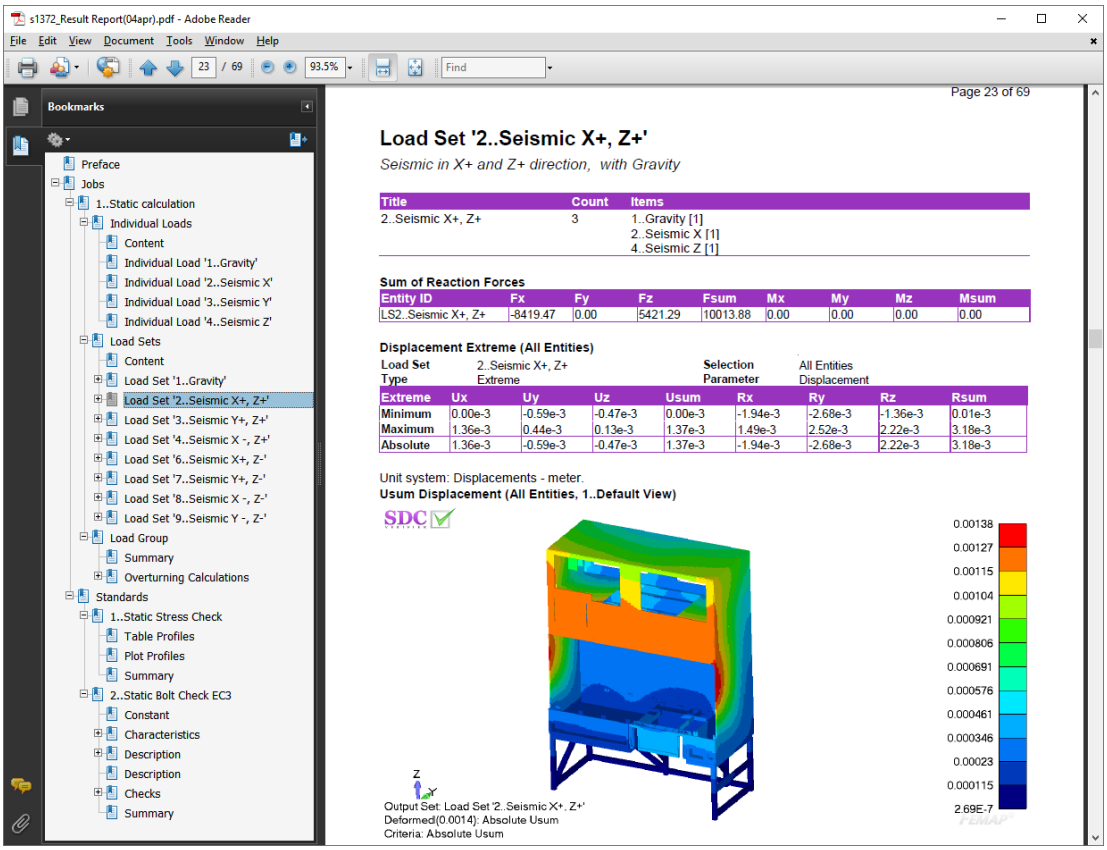
SDC Reporting is an extension for the CAE programs which automate the generation of full calculation reports. All SDC Reporting features are available within SDC Verifier software.
The report Designer is an advanced tool to document the FEA model and to create full calculation reports in Docx and PDF formats.



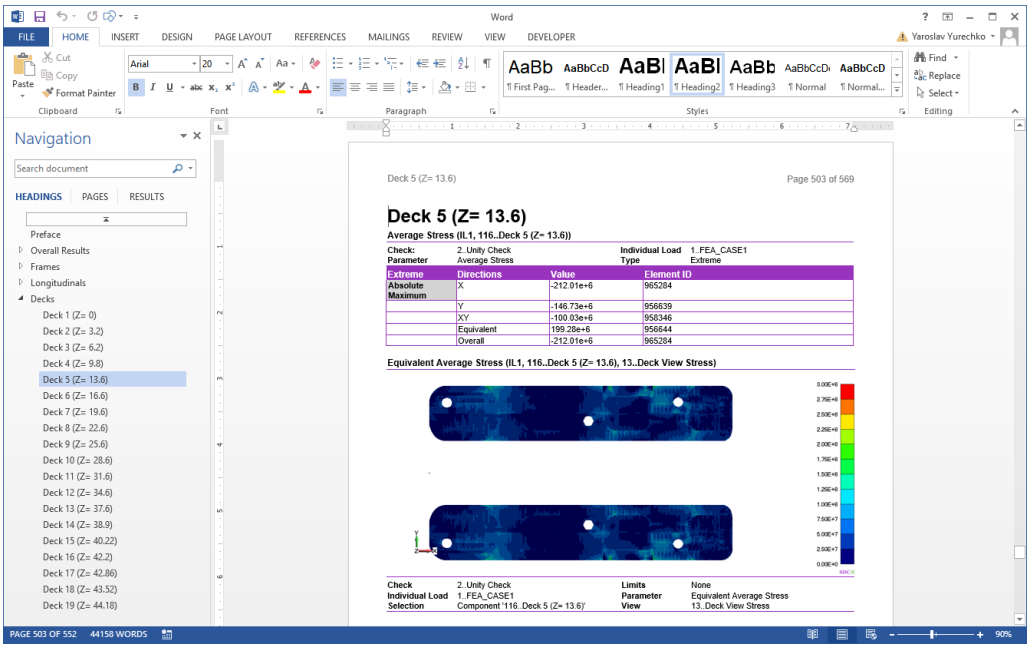
With the Presentation Designer quick Power Point presentations with summary and main results can be generated:



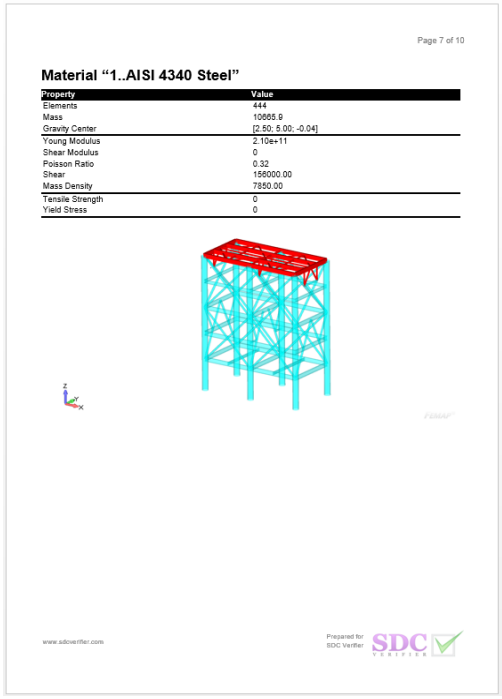
The report structure is translated into Microsoft Word and PDF bookmarks to facilitate navigation through the report.



Results can not only be ordered by loads, but also by selections (for example, frames, longitudinals, decks).



Automatic description of the materials and properties data (including mass overview). The elements related to material/property are highlighted.



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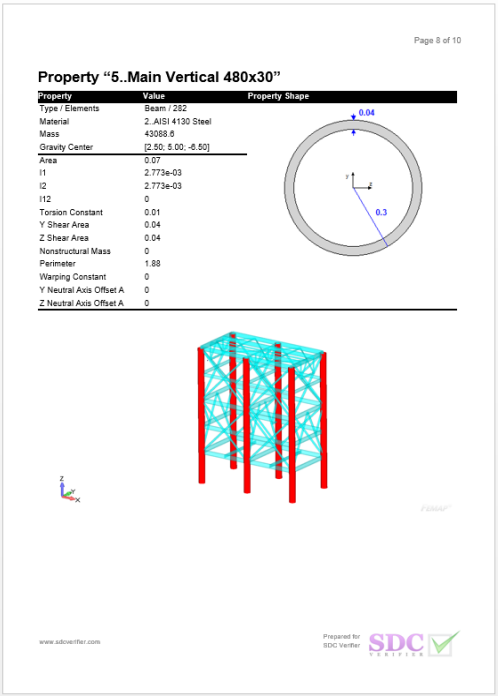
Material "1..AISI 4340 Steel"

Property	Value
Elements	444
Mass	10665.9
Gravity Center	[2.50; 5.00; -0.04]
Young Modulus	2.10e+11
Shear Modulus	0
Poisson Ratio	0.32
Shear	156000.00
Mass Density	7850.00
Tensile Strength	0
Yield Stress	0



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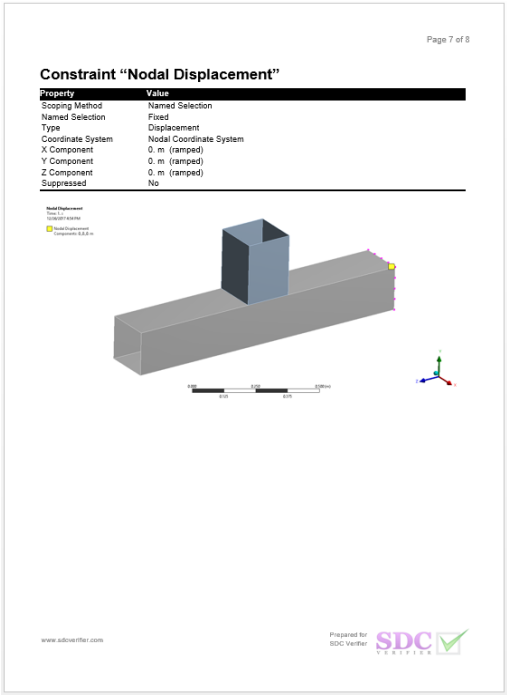
Property "5..Main Vertical 480x30"

Property	Value
Type / Elements	Beam / 282
Material	2..AISI 4130 Steel
Mass	43088.6
Gravity Center	[2.50; 5.00; -6.50]
Area	0.07
I1	2.773e-03
I2	2.773e-03
I12	0
Torsion Constant	0.01
Y Shear Area	0.04
Z Shear Area	0.04
Nonstructural Mass	0
Perimeter	1.88
Warping Constant	0
Y Neutral Axis Offset A	0
Z Neutral Axis Offset A	0

Property Shape

All boundary conditions and the description of the applied loads are automized.



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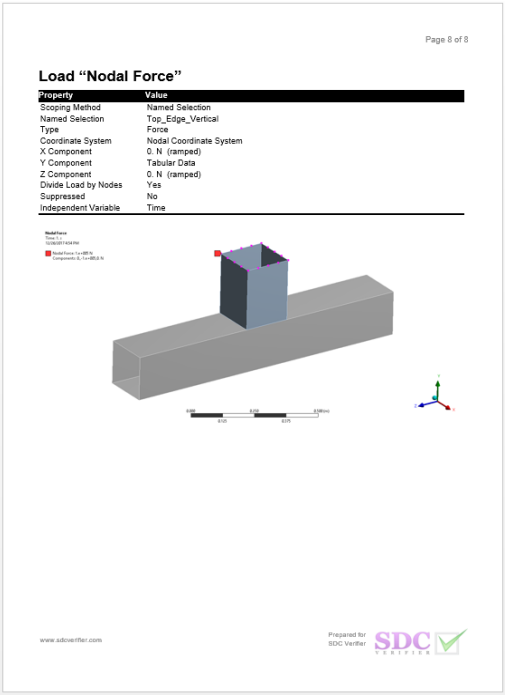
Constraint "Nodal Displacement"

Property	Value
Scoping Method	Named Selection
Named Selection	Fixed
Type	Displacement
Coordinate System	Nodal Coordinate System
X Component	0. m (ramped)
Y Component	0. m (ramped)
Z Component	0. m (ramped)
Suppressed	No



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Load "Nodal Force"

Property	Value
Scoping Method	Named Selection
Named Selection	Top_Edge_Vertical
Type	Force
Coordinate System	Nodal Coordinate System
X Component	0. N (ramped)
Y Component	Tabular Data
Z Component	0. N (ramped)
Divide Load by Nodes	Yes
Suppressed	No
Independent Variable	Time

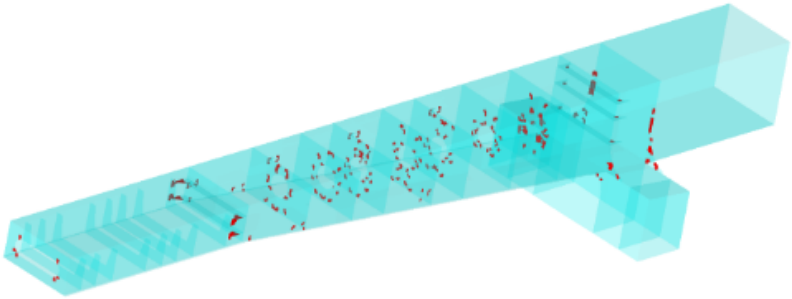
The mesh quality based on 8 different criteria is checked and described in the element quality section.

Element Quality (1..Default View)

Perform elements checks based on the Femap Quality Element Criteria

Quality Type	Limit	Quality Type	Limit
Aspect Ratio	10	Taper	10
Alternate Taper	0.5	Internal Angle	30
Skew	30	Warping	20
Nastran Warping	0.05	Jacobian	0.6

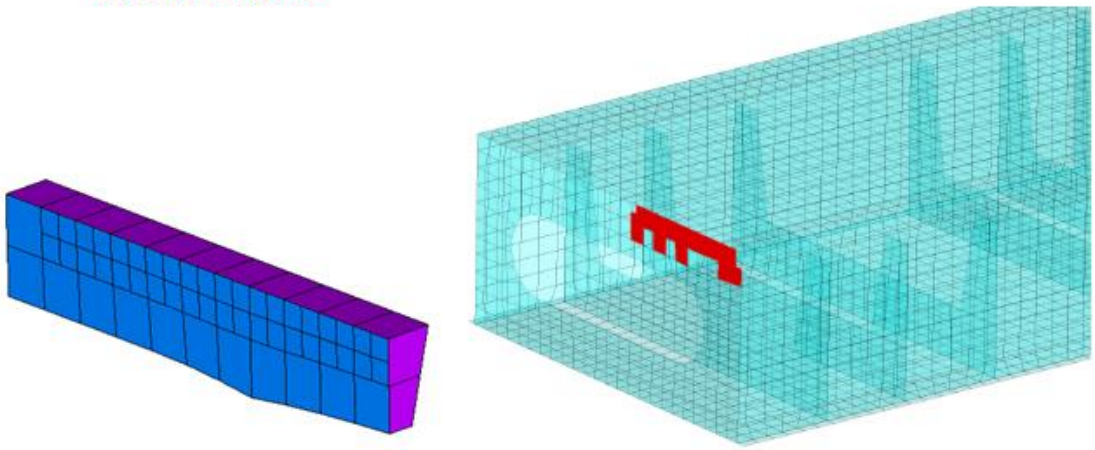
Count of elements that failed the selected quality checks: 403



The Free Edge tool recognizes locations where the connection between the model parts is lost due to incompatible meshing.

Property	Value	Property	Value
Selection	All Entities	Views	1

Count of Free Edges:42



The total mass overview for different selections (materials, properties, user selections) including COG.

Title	Elements	Mass	Gravity Center
1..steel	386	813741.1	[-3.11; 0.00; 49.81]
2..AISI 4340 Steel	0	0.0	[0.00; 0.00; 0.00]
3..machine room	5	63750.0	[-37.50; 0.00; 56.50]
4..wheels	8	188400.0	[-15.00; 0.00; 1.50]
6..e house	1	40000.0	[-28.00; 0.00; 56.00]
Overall	400	1105891.1	[-8.02; 0.00; 42.19]

In the SDC reporting tool a lot of different table options are present to make a complete overview of the calculation results. For example, a reaction forces for selected load situations with Min and max highlighted in each direction.

Summed Reaction Force

Category Absolute Reaction Force **Loads Count** 11
Selection All Entities

Entity ID	Fx	Fy	Fz	Fsum	Mx	My	Mz	Msum
IL1..Top Edge Vertical	0.0	100000.0	0.0	100000.0	-196.4	0.0	0.0	196.4
IL2..Top Edge Lateral	0.0	0.0	-100000.0	100000.0	-65.2	0.0	0.0	65.2
IL3..Side Edge Lateral	0.0	0.0	-100000.0	100000.0	0.0	0.0	0.0	0.0
LS1..All_combinations.1	0.0	110000.0	-200000.0	228254.3	-281.2	0.0	0.0	281.2
LS2..All_combinations.2	0.0	-110000.0	-200000.0	228254.3	150.8	0.0	0.0	150.8
LS3..All_combinations.3	0.0	110000.0	0.0	110000.0	-150.8	0.0	0.0	150.8
LS4..All_combinations.4	0.0	-110000.0	0.0	110000.0	281.2	0.0	0.0	281.2
LS5..All_combinations.5	0.0	110000.0	0.0	110000.0	-281.2	0.0	0.0	281.2
LS6..All_combinations.6	0.0	-110000.0	0.0	110000.0	150.8	0.0	0.0	150.8
LS7..All_combinations.7	0.0	110000.0	200000.0	228254.3	-150.8	0.0	0.0	150.8
LS8..All_combinations.8	0.0	-110000.0	200000.0	228254.3	281.2	0.0	0.0	281.2

Extreme results as the absolute maximum stress for different selections (materials, properties, user selections).

Abs Stress (IL1, 5 Selections)

Individual Load IL1..TopEdgeVertical **Selections** 5
Parameter Absolute Stress

Components	X	Y	Z	XY	YZ	ZX	Equivalent
Material '1..S275'	1.0e+6	-0.8e+6		0.5e+6			1.6e+6
Material '2..S340'	-30.8e+6	-31.3e+6		-12.5e+6			33.3e+6
Material '3..S420'	-31.1e+6	41.0e+6		27.4e+6			62.1e+6
Material '4..DC01'	-31.1e+6	-70.3e+6		-30.0e+6			79.3e+6
Material '5..DC11'	42.6e+6	-160.8e+6		-31.7e+6			157.9e+6

A quick overview of the absolute maximum displacements over all loads in one table:

Absolute Displacement

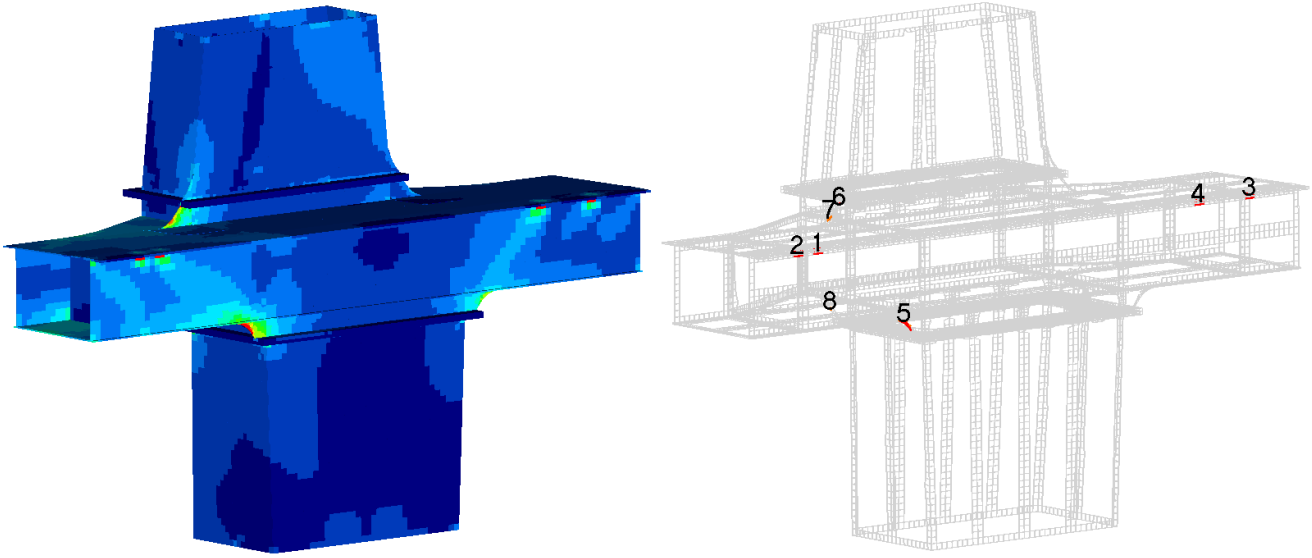
Category Displacement **Loads Count** 11
Selection All Entities

Load	Ux	Uy	Uz	Usum	Rx	Ry	Rz	Rsum
IL1..Top Edge Vertical	0.01e-3	-2.10e-3	0.81e-3	2.11e-3	2.24e-3	0.21e-3	0.19e-3	2.25e-3
IL2..Top Edge Lateral	0.14e-3	-2.31e-3	2.47e-3	2.73e-3	16.88e-3	12.34e-3	2.00e-3	17.50e-3
IL3..Side Edge Lateral	0.00e-3	0.01e-3	0.08e-3	0.08e-3	-0.07e-3	0.04e-3	0.02e-3	0.08e-3
LS1..All_combinations.1	0.14e-3	-4.61e-3	3.39e-3	4.64e-3	19.13e-3	12.34e-3	2.00e-3	19.16e-3
LS2..All_combinations.2	0.14e-3	0.44e-3	1.62e-3	1.67e-3	14.62e-3	12.34e-3	2.00e-3	15.98e-3
LS3..All_combinations.3	0.14e-3	-0.45e-3	-1.55e-3	1.61e-3	-14.63e-3	12.34e-3	1.99e-3	15.99e-3
LS4..All_combinations.4	0.14e-3	4.63e-3	-3.32e-3	4.65e-3	-19.14e-3	12.34e-3	2.00e-3	19.17e-3
LS5..All_combinations.5	0.14e-3	-4.63e-3	3.32e-3	4.65e-3	19.14e-3	12.34e-3	2.00e-3	19.17e-3
LS6..All_combinations.6	0.14e-3	0.45e-3	1.55e-3	1.61e-3	14.63e-3	12.34e-3	1.99e-3	15.99e-3
LS7..All_combinations.7	0.14e-3	-0.44e-3	-1.62e-3	1.67e-3	-14.62e-3	12.34e-3	2.00e-3	15.98e-3
LS8..All_combinations.8	0.14e-3	4.61e-3	-3.39e-3	4.64e-3	-19.13e-3	12.34e-3	2.00e-3	19.16e-3

The number format of all tables can be customized for different result categories (for a SI unit model Stress with fixed power e+6 shows MPa or N/mm2 and e-3 shows mm for displacements) :

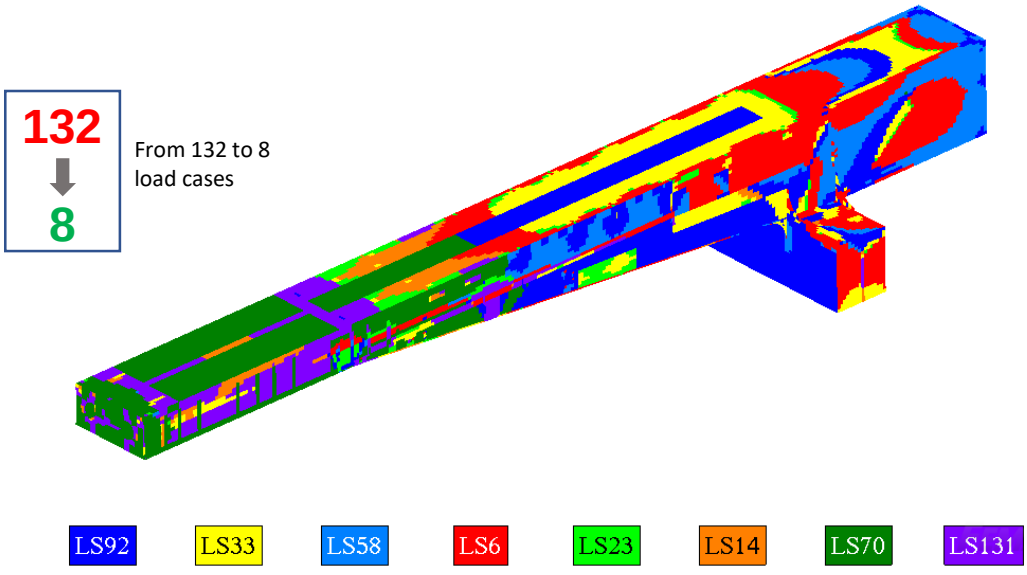
Category	Type	Digits after decimal point	Digits For Power	Fixed Power	Power Value	Example
Displacements	Scientific	2	1	☑	-3	160000000000.00e-3
Stress	Scientific	1	1	☑	6	160.0e+6
Forces	General	1		☐		160000000.0
Utilization Factor	General	2		☐		160000000.00
Buckling Factor	General	2		☐		160000000.00

The Peak Finder finds all peak zones based on the user criteria and presents the results using labeled plot:

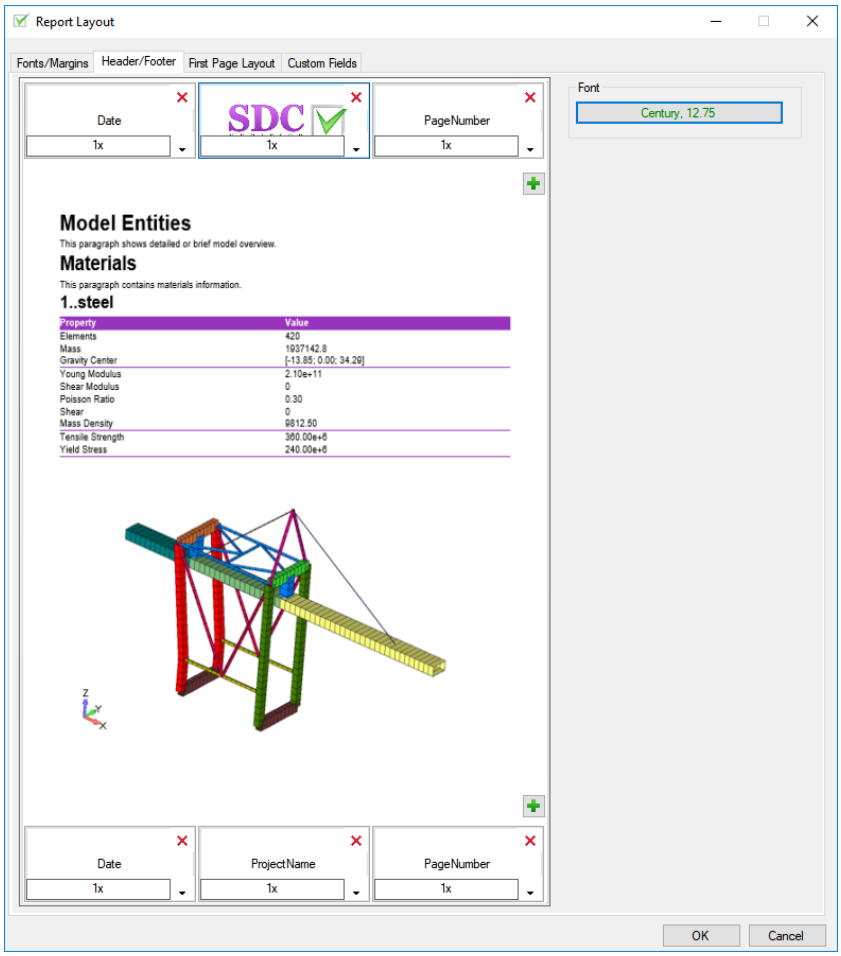


Zone	Value	Zone	Value
Zone 1 (Elements: 2)	1.45	Zone 5 (Elements: 15)	1.41
Zone 2 (Elements: 2)	1.44	Zone 6 (Elements: 1)	1.21
Zone 3 (Elements: 2)	1.43	Zone 7 (Elements: 3)	1.09
Zone 4 (Elements: 2)	1.42	Zone 8 (Elements: 1)	1.01

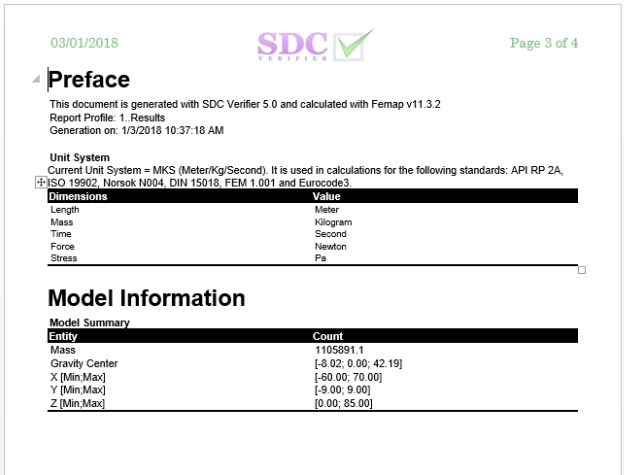
The Governing Loads tool extracts the critical loads out of a large group of load combinations:



In a report template it is possible to configure the layout of the first page, header, footer, fonts and margins:



The Header/Footer items can contain a project information (e.g. customer company name or logo), custom text or image. In addition, user can create custom fields and use them in the report layout.



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Preface

This document is generated with SDC Verifier 5.0 and calculated with Femap v11.3.2
Report Profile: 1..Results
Generation on: 1/3/2018 10:37:18 AM

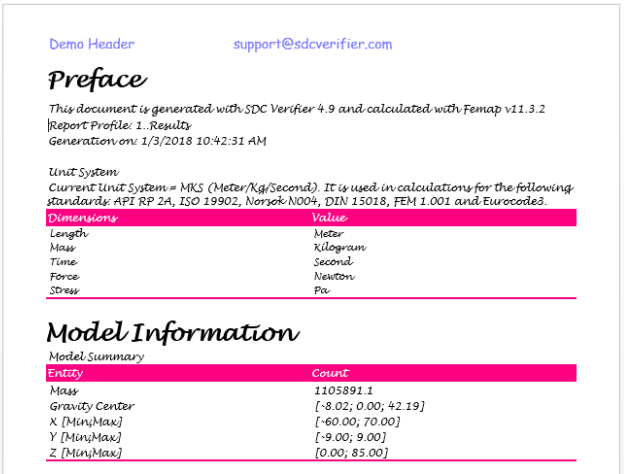
Unit System
Current Unit System = MKS (Meter/Kg/Second). It is used in calculations for the following standards: API RP 2A, ISO 19902, Norsok N004, DIN 15018, FEM 1.001 and Eurocode3.

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

Model Information

Model Summary

Entity	Count
Mass	1105891.1
Gravity Center	[-8.02; 0.00; 42.19]
X [Min;Max]	[-60.00; 70.00]
Y [Min;Max]	[-9.00; 9.00]
Z [Min;Max]	[0.00; 85.00]



Demo Header support@sdcverifier.com

Preface

This document is generated with SDC Verifier 4.9 and calculated with Femap v11.3.2
Report Profile: 1..Results
Generation on: 1/3/2018 10:42:31 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
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Stress	Pa

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