



Tutorial

# Get started with SDC Verifier

Updated on: January 9th 2024

Tested with: SDC Verifier 2023 R2



Simcenter3D 2306

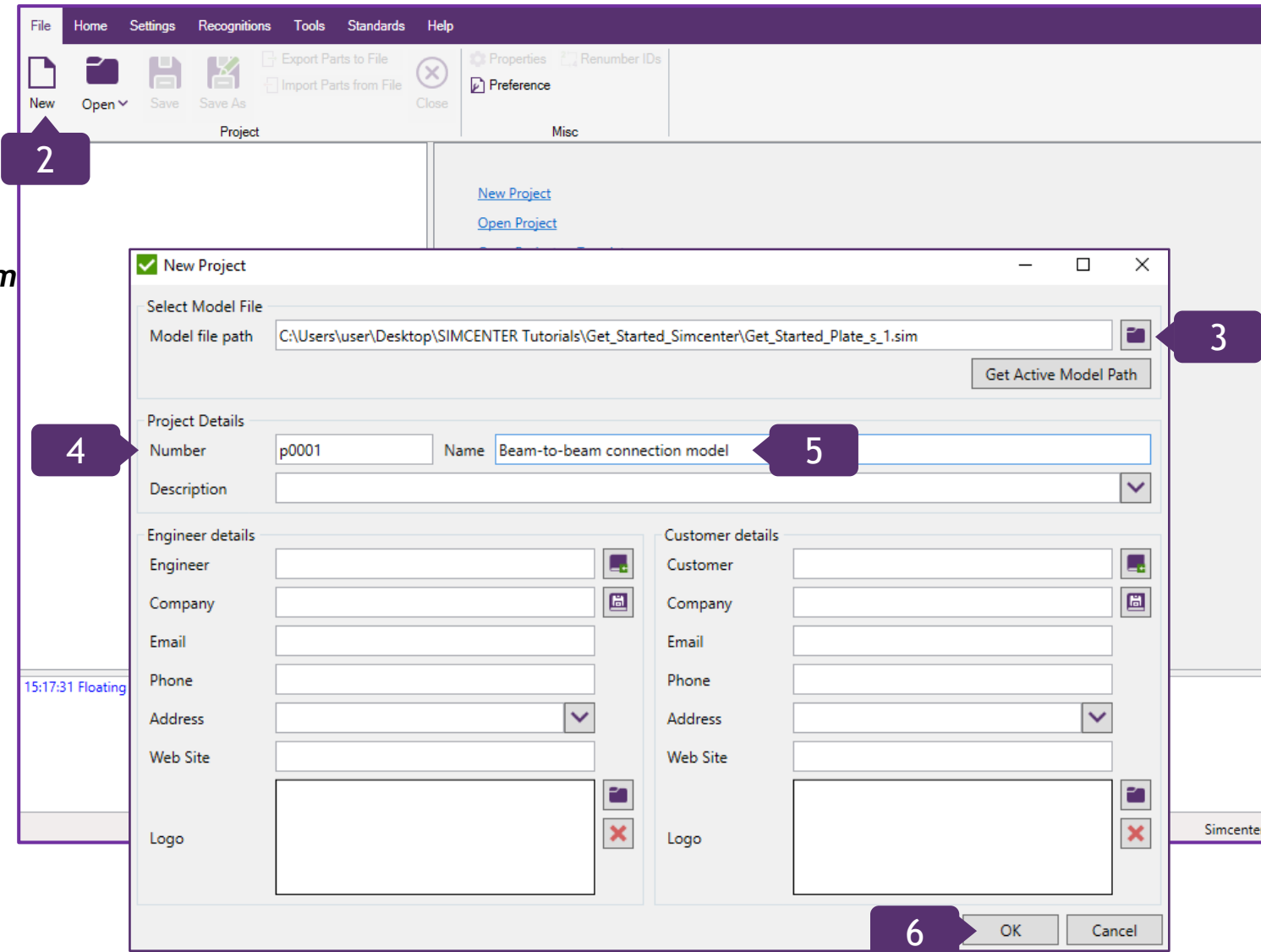
SDC Verifier is a powerful Simcenter add-on that helps verify structures according to standards and generates full calculations reports.

This step-by-step tutorial is designed to *get you started* with main SDC Verifier features:

- Creating new project;
- Create Individual Loads, Combinations and Envelop;
- Define Views;
- Model Setup report;
- Calculation report;
- Open as template feature;

# Create New Project

- 1 Launch SDC Verifier for Simcenter 3D 
- 2 Execute *File - New*
- 3 Press  and select *Get\_Started\_Plate\_s\_1.sim* model
- 4 Number: p0001
- 5 Name: Beam-to-beam connection model
- 6 Press *OK*



The screenshot shows the SDC Verifier for Simcenter 3D application window. The 'File' menu is open, and the 'New' option is selected. The 'New Project' dialog box is displayed, showing the following fields and options:

- Select Model File:** Model file path is set to `C:\Users\user\Desktop\SIMCENTER Tutorials\Get_Started_Simcenter\Get_Started_Plate_s_1.sim`. A 'Get Active Model Path' button is also present.
- Project Details:**
  - Number: p0001
  - Name: Beam-to-beam connection model
  - Description: (empty)
- Engineer details:**
  - Engineer: (empty)
  - Company: (empty)
  - Email: (empty)
  - Phone: (empty)
  - Address: (empty)
  - Web Site: (empty)
  - Logo: (empty)
- Customer details:**
  - Customer: (empty)
  - Company: (empty)
  - Email: (empty)
  - Phone: (empty)
  - Address: (empty)
  - Web Site: (empty)
  - Logo: (empty)

The 'OK' button is highlighted, indicating the final step in the process.

# Job Explanation

1

Expand Jobs => 1..Job 1 to check the components of the analysis

2

Title: Linear Static Analysis

3

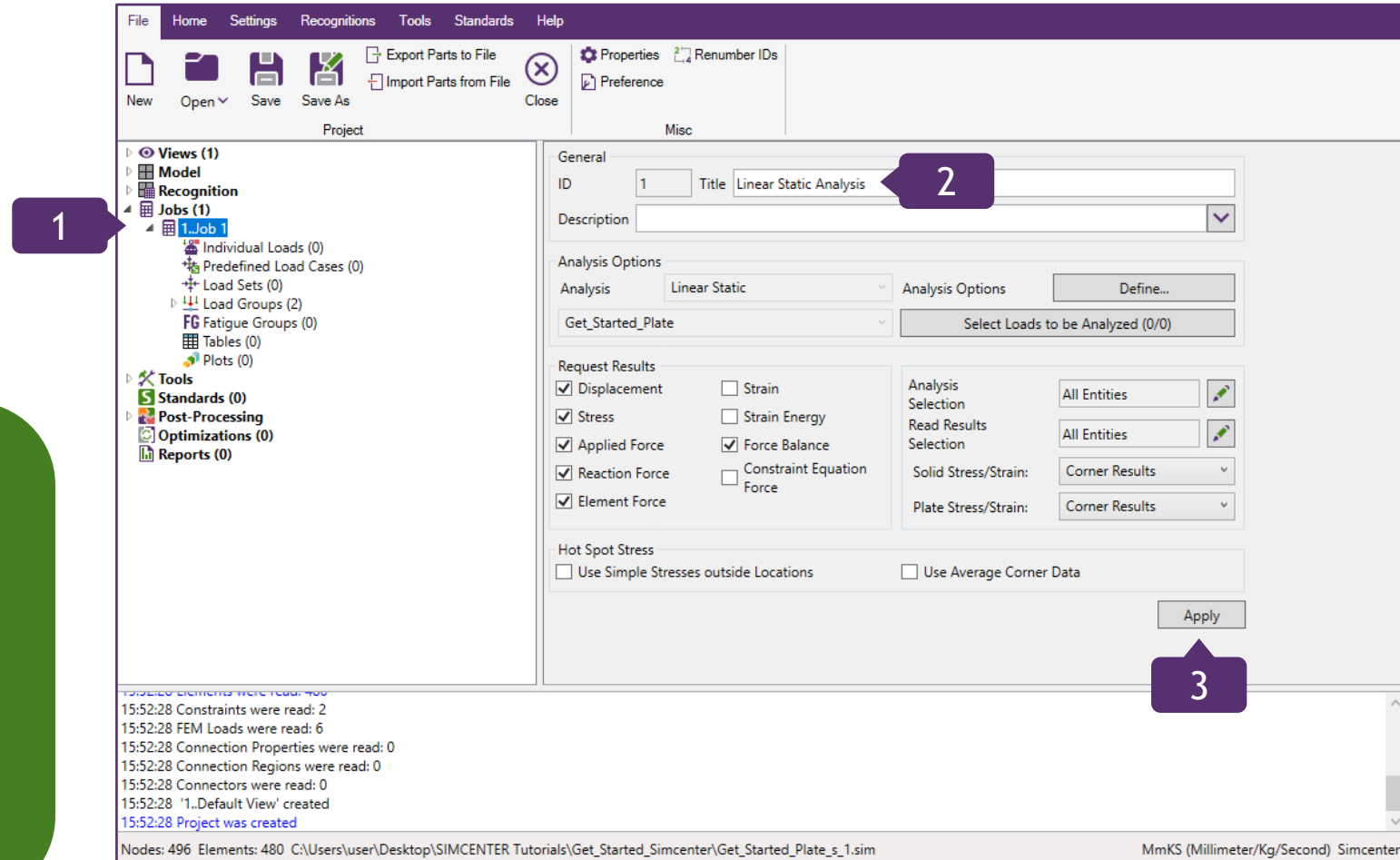
Press *Apply*

Job is a calculation set that contains analysis with options, boundary conditions, load combinations, envelopes and tables/plots.

Individual Loads = FEM load + Constraint.  
Boundary condition + Output Set;

Load Sets - combination of Individual Loads with factors;

Load Groups (envelop - worst results among loads)



FEM Load



Constraint



Individual Load

# Create Individual Loads

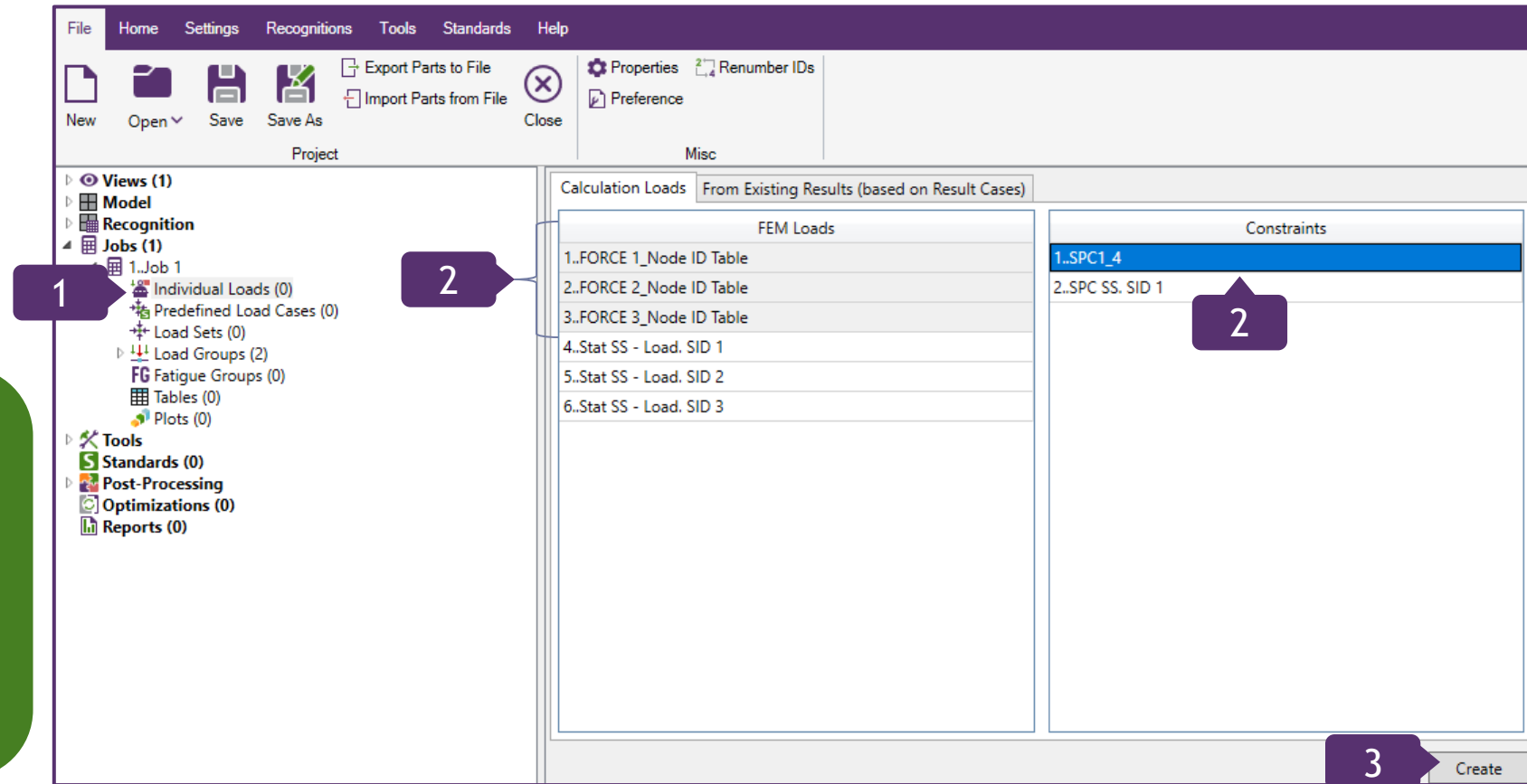
1 In Jobs => 1..Linear Static Analysis, select *Individual Loads*

2 Select *FEM Loads* with IDs 1-3 and *Constraints* with ID 1

3 Press *Create*

Individual Loads will be created automatically from combinations of all selected FEM Loads and Constraints. In our case, 3 Individual loads.

If the model already contains Output Sets it is possible to create Individual Loads based on results without boundary conditions (see next slide).



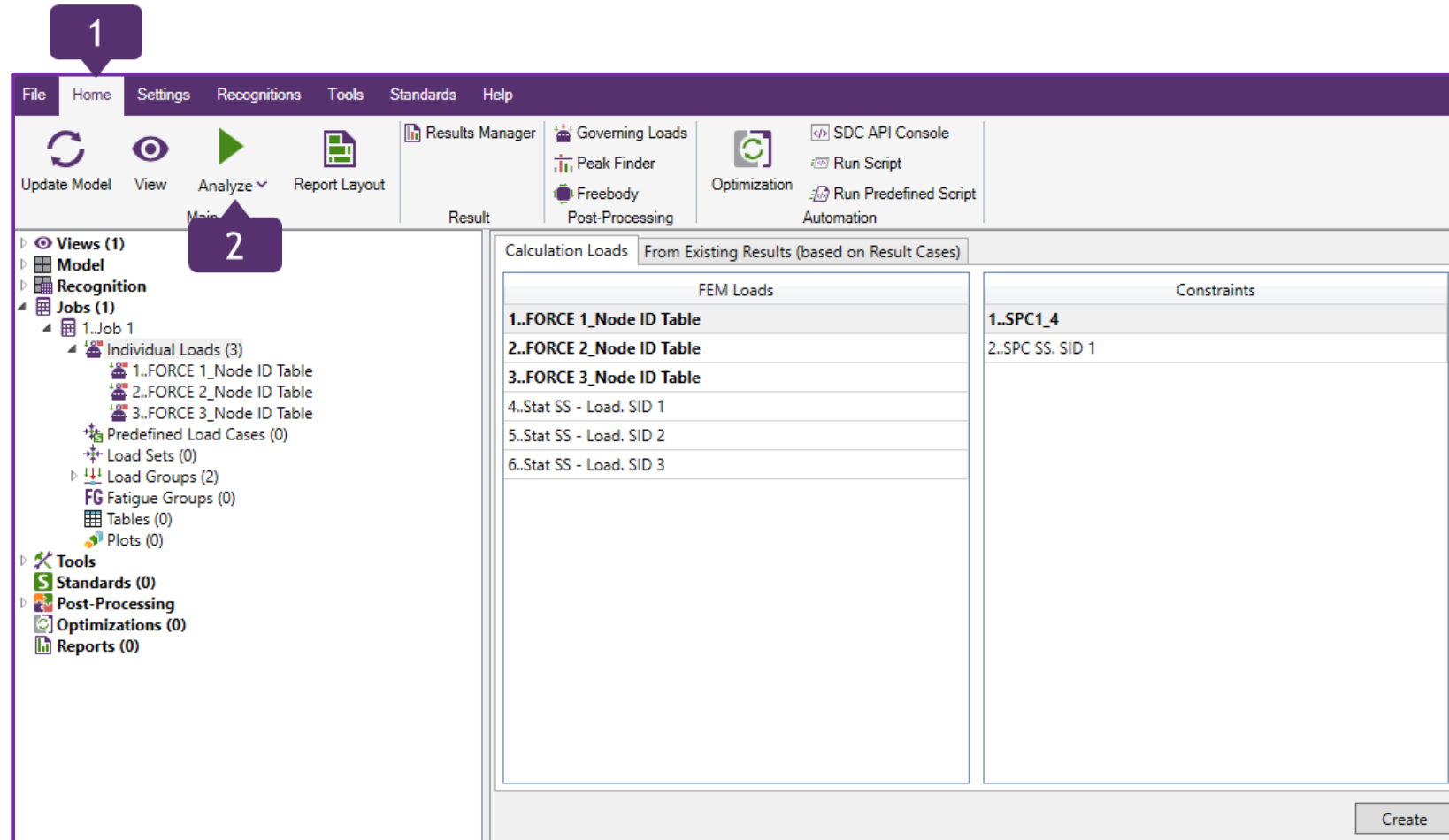
**Note:** Use option “Inertia Relief” to create Individual Loads, based on FEM Loads only (without a constraint).

1 Go to *Home* section on the Ribbon

2 Press  on the toolbar to analyze job.

Solution with 3 cases will be created and run. Result Cases will be automatically linked to analysed Individual Loads after analysis is finished.

Name	C.	Status
CSYS		
Selection Recipes	No recipes	
Groups	8 groups	
Fields		
Modeling Objects		
Regions		
Simulation Object C...		
Constraint Contai...		
Load Container		
FORCE 1_Nod...	Active	
FORCE 2_Nod...	Active	
FORCE 3_Nod...	Active	
Solver Sets		
Stat SS - Load. Sl...		
FORCE 1_...		
Stat SS - Load. Sl...		
FORCE 2_...		
Stat SS - Load. Sl...		
FORCE 3_...		
SPC SS, SID 1		
SPC1_4		
Get_Started_Plate	Active	
Loads		
Simulation O...		
Constraints		
SPC SS, Sl...		
SUBCASE 1		
Loads		
SUBCASE 2		
Loads		
SUBCASE 3		
Loads		
Results		
Structural		



**Note:** If Individual Loads were created based on Output Sets, running analysis is not required.

- ## 7 Press Create



# Edit Multiple Load Sets

1

Execute right click on Load Sets and select *Create/Edit multiple*

2

Select cells for All\_combinations with IDs 1-4 in column IL3

3

Factor: 1.1;  
Press Set

4

Select cells for All\_combinations with IDs 5-8 in column IL3

5

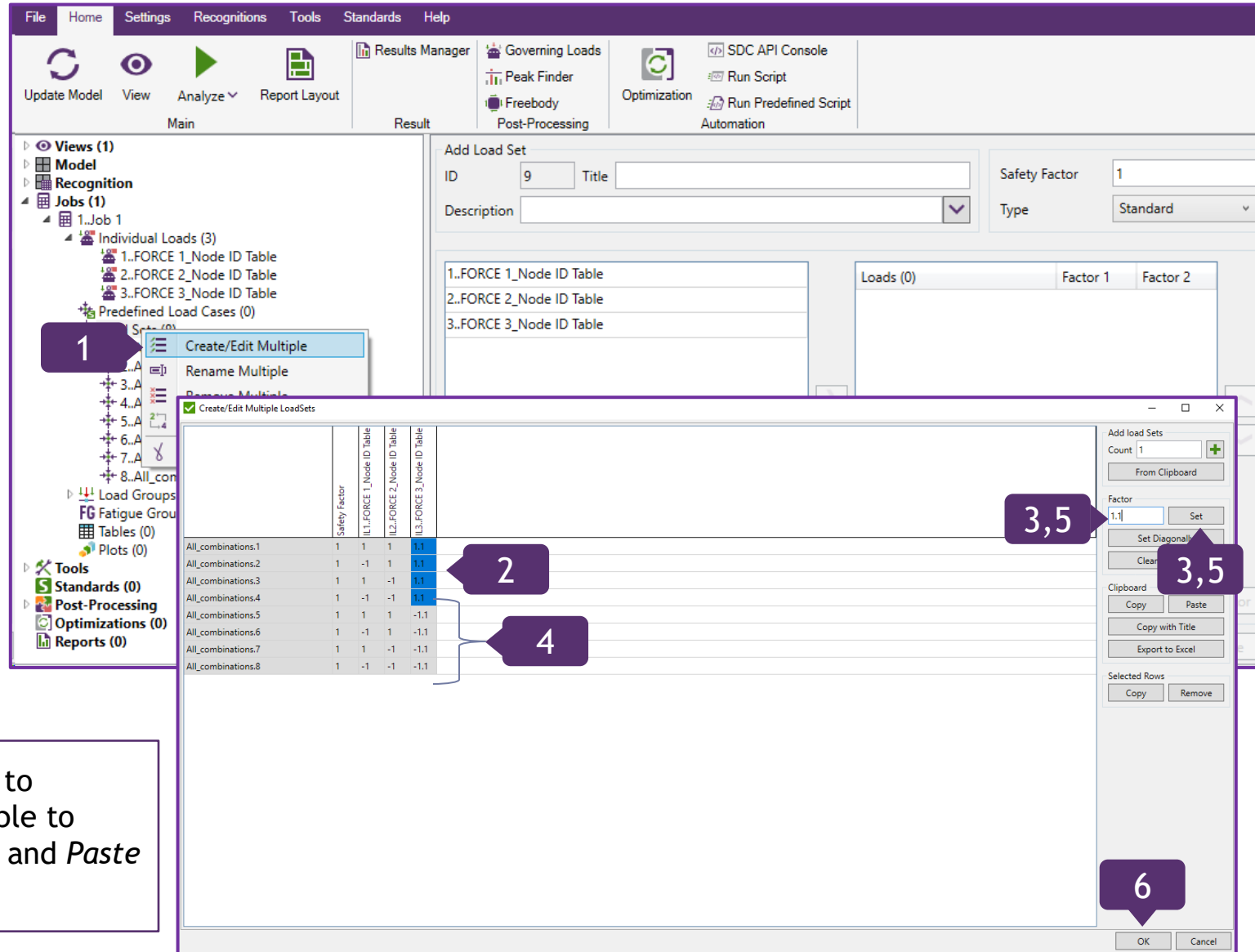
Factor: -1.1;  
Press Set

6

Press OK


	Safety Factor	IL1..FORCE 1_Node ID Table	IL2..FORCE 2_Node ID Table	IL3..FORCE 3_Node ID Table
All_combinations.1	1	1	1	1.1
All_combinations.2	1	-1	1	1.1
All_combinations.3	1	1	-1	1.1
All_combinations.4	1	-1	-1	1.1
All_combinations.5	1	1	1	-1.1
All_combinations.6	1	-1	1	-1.1
All_combinations.7	1	1	-1	-1.1
All_combinations.8	1	-1	-1	-1.1

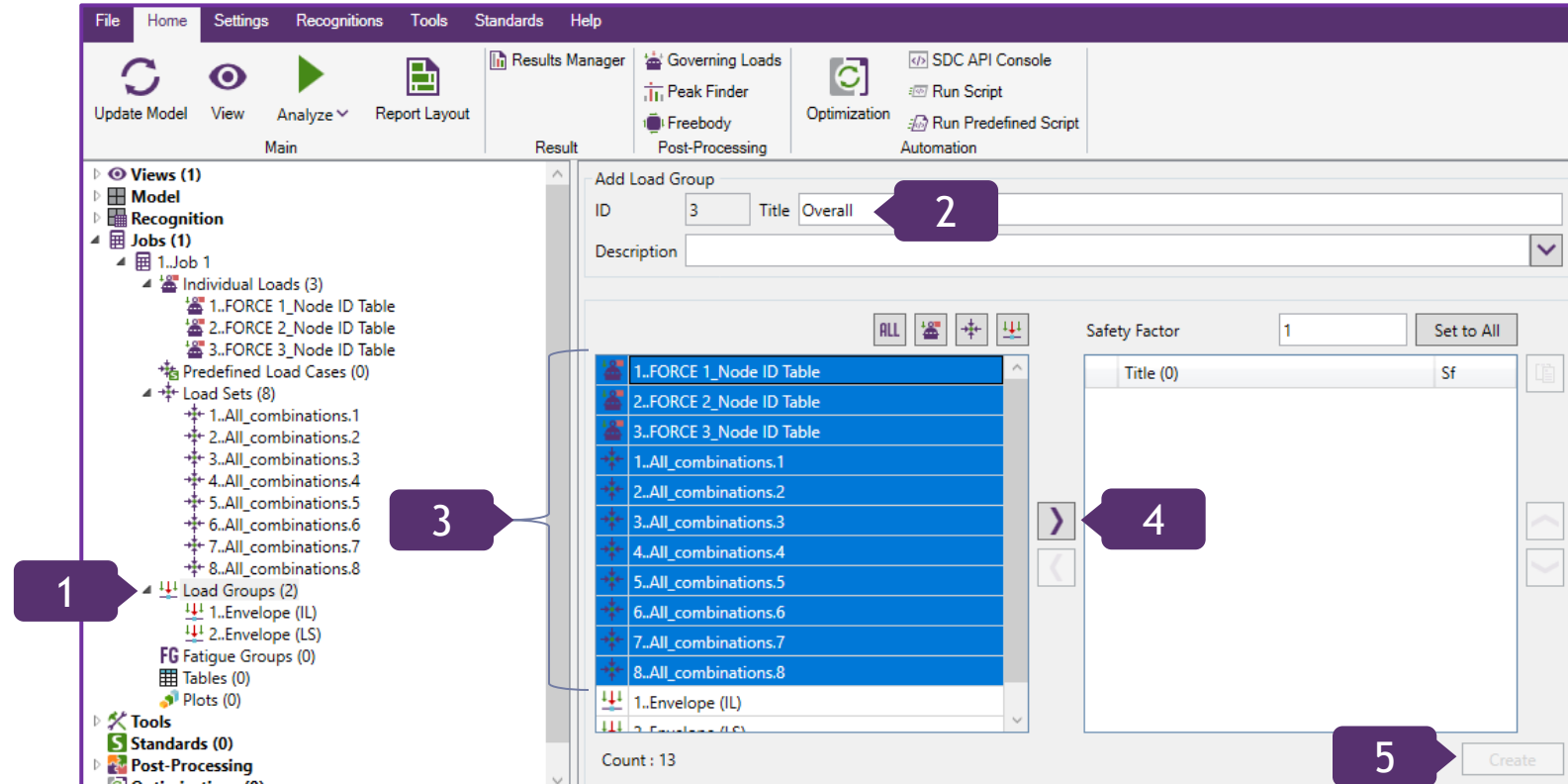
**Tip:** It is possible to export/import table to Excel, using *Copy* and *Paste* buttons.





# Create Load Group (Overall)

- 1 Activate *Load Groups* node in the Model tree
- 2 Title: *Overall*
- 3 Select all Loads from the list of loads, except Envelope (IL) and Envelope (LS)
- 4 Press  to move selected Loads to Load Group
- 5 Press *Create*



Load Group is an envelope for Individual Loads, Load Sets, and other Load Groups. It allows to determine minimum, maximum and absolute values of stresses, displacements, forces, etc.

# Create Views

1

Locate Model in Simcenter 3D, as shown on pic. Front View

2

Execute right click on *Views* and select *Add* from context menu

3

Title: *Front View*;  
Press *OK*

4

Locate the Model in Simcenter 3D, as shown on pic. Back View

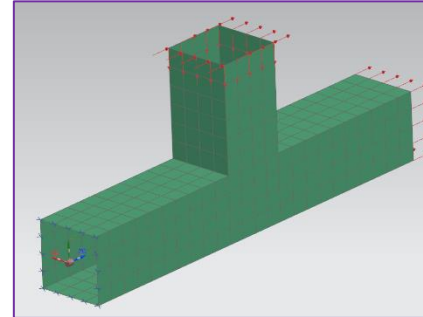
5

Execute right click on *Views* and select *Add* from context menu

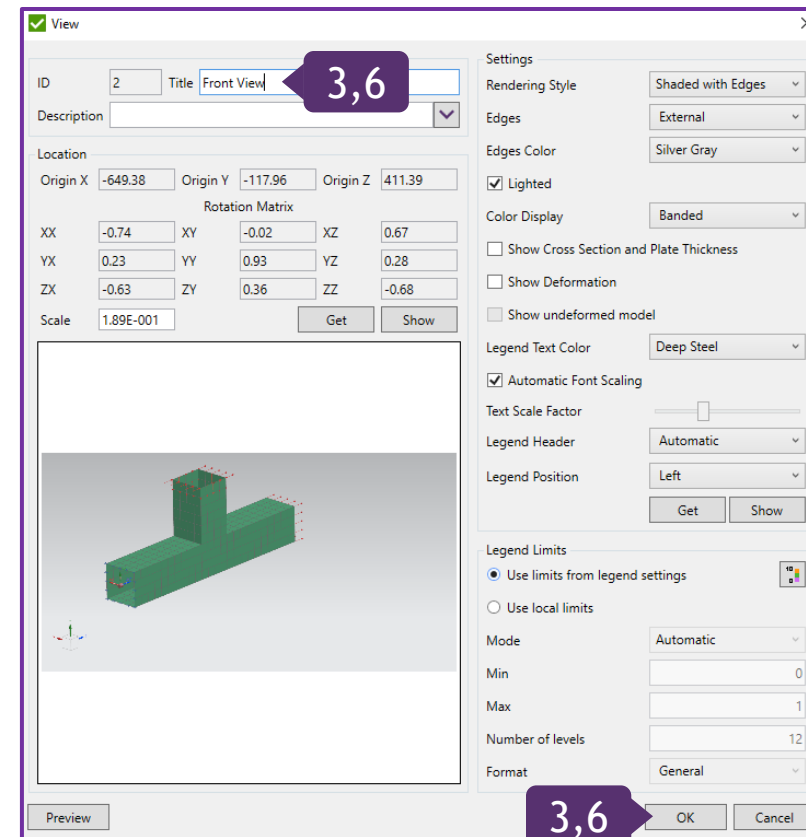
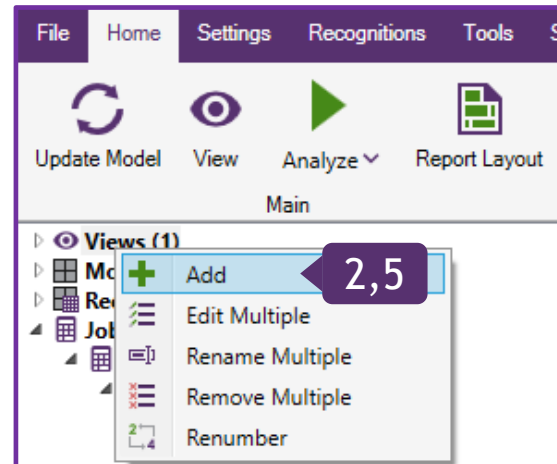
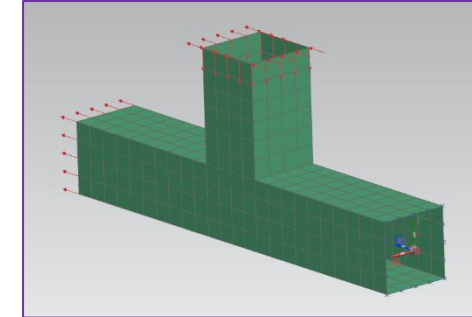
6

Title: *Back View*;  
Press *OK*

Front View



Back View



# Create Detailed Views

1

Locate the Model in Simcenter 3D, as shown on pic. Front Detail

2

Execute right click on *Views* and select *Add* from context menu

3

Title: *Front Detail*;  
Press *OK*

4

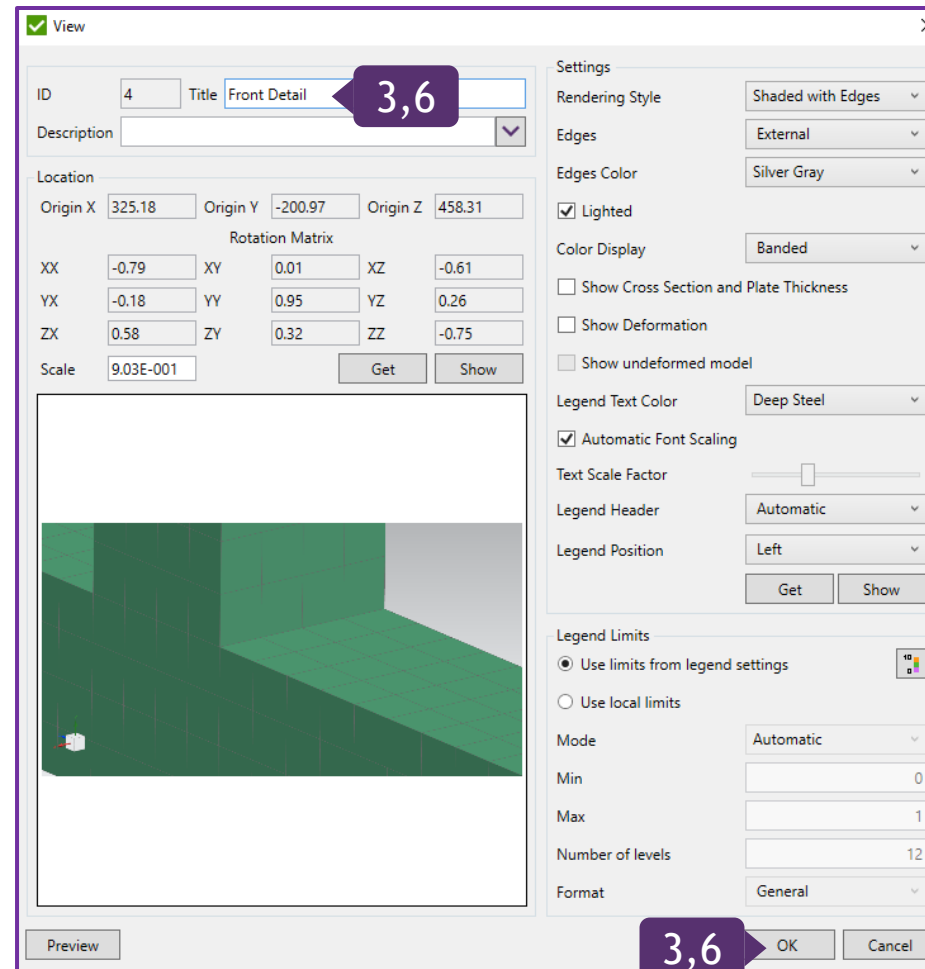
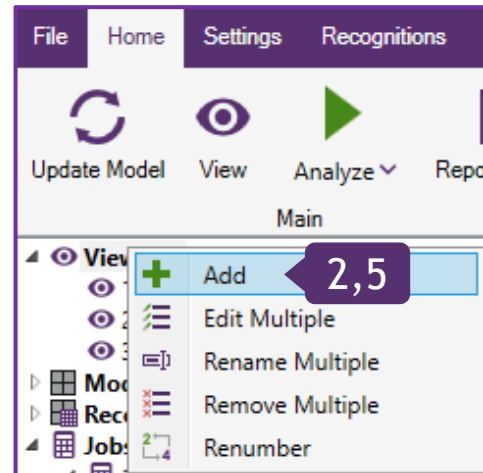
Locate the Model in Simcenter 3D, as shown on pic. Back Detail

5

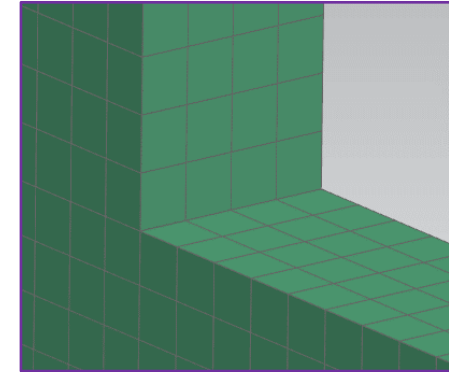
Execute right click on *Views* and select *Add* from context menu

6

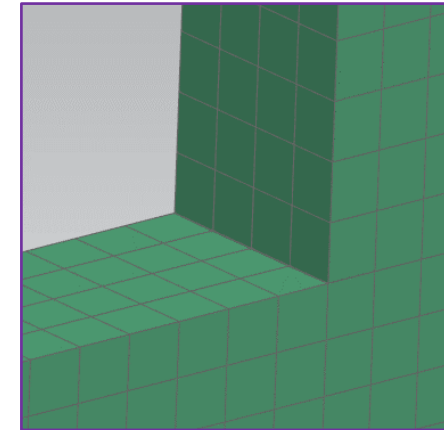
Title: *Back Detail*;  
Press *OK*



Front Detail




Back Detail



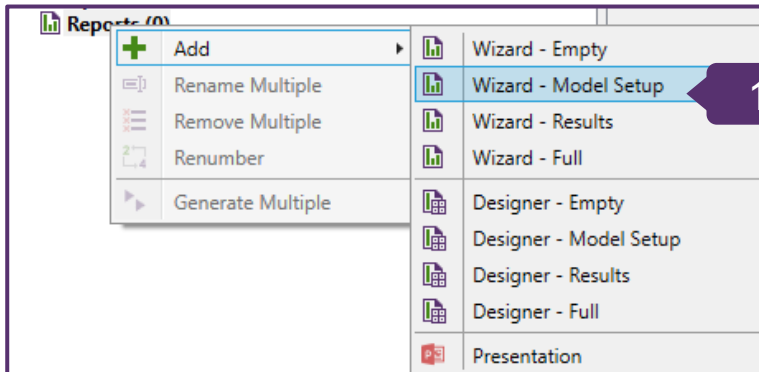
# Report Wizard - Model Setup report

1 From *Reports* in the *Model* tree, execute *Add => Wizard - Model Setup*

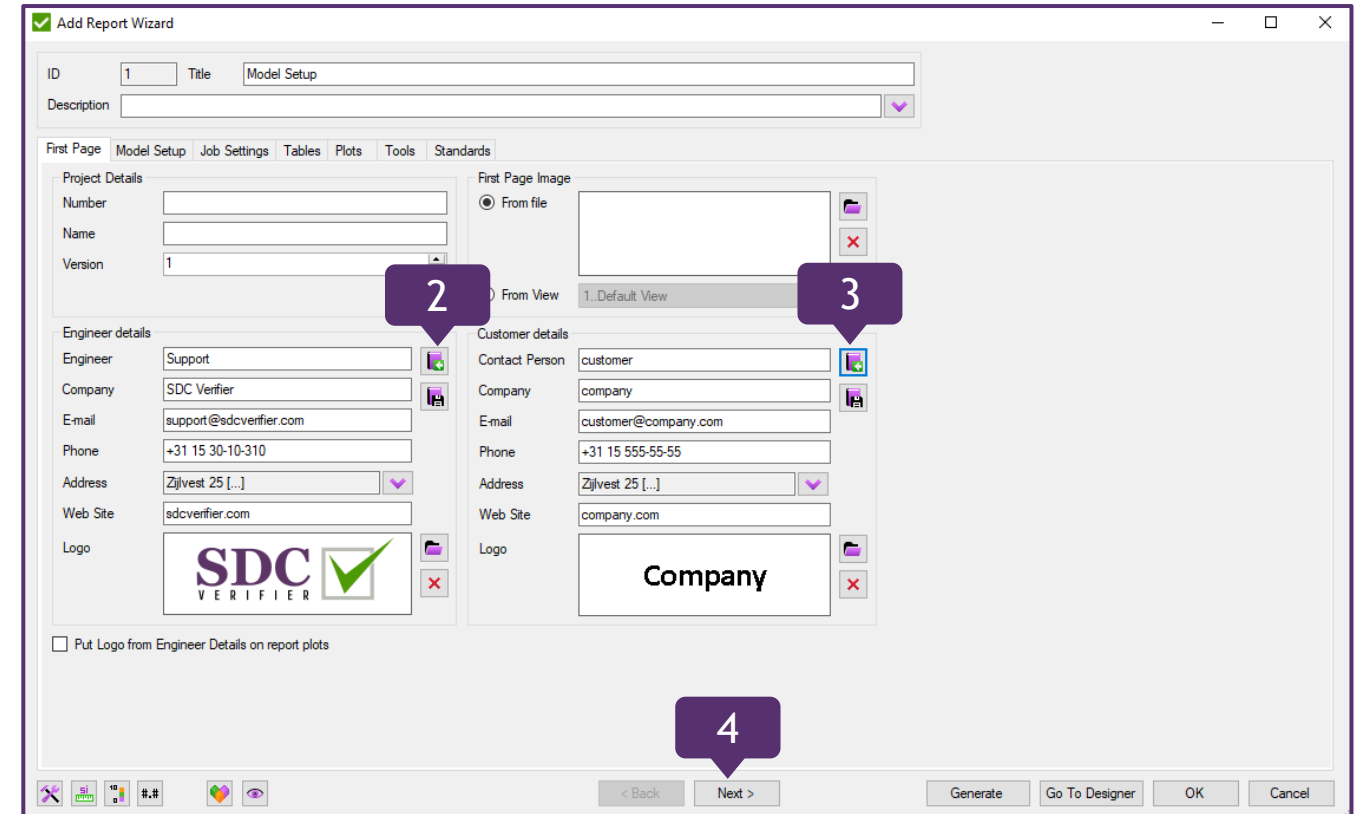
2 Press  and select *Support Engineer* from the library;  
Press *OK*

3 Press  and select *Customer* from the library;  
Press *OK*

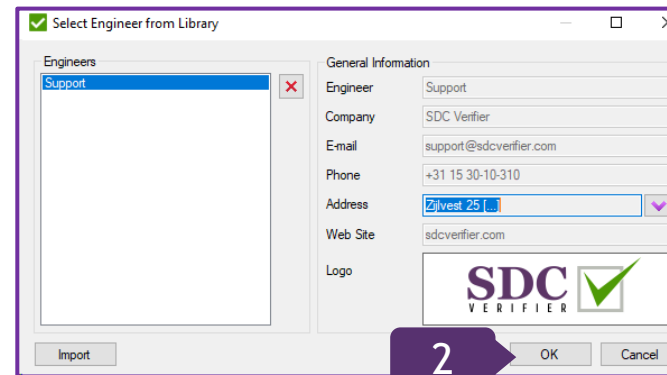
4 Press *Next*



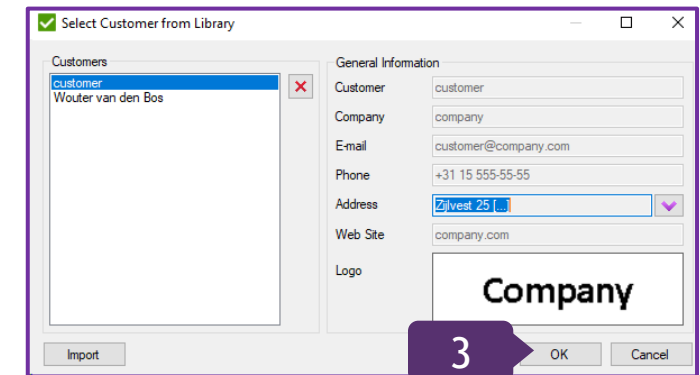
**Note:** Engineer and customer information is used on the report's first page and in footer (company name and logo).



The 'Add Report Wizard' dialog box is shown with the 'Model Setup' tab selected. It contains fields for Project Details (ID, Title, Description), Engineer details (Name, Version, Email, Phone, Address, Web Site, Logo), and Customer details (Contact Person, Company, Email, Phone, Address, Web Site, Logo). The 'First Page Image' section has a 'From File' button (callout '2') and a 'From View' button (callout '3'). The 'Next >' button is highlighted with a callout '4'. The 'Put Logo from Engineer Details on report plots' checkbox is unchecked.



The 'Select Engineer from Library' dialog box is shown. The 'Engineers' list on the left contains 'Support'. The 'General Information' section on the right displays details for 'Support', including Company (SDC Verifier), Email (support@sdcsverifier.com), Phone (+31 15 30-10-310), Address (Zijvest 25 [...]), Web Site (sdcsverifier.com), and Logo (SDC Verifier logo). The 'Import' button is highlighted with a callout '2'.



The 'Select Customer from Library' dialog box is shown. The 'Customers' list on the left contains 'customer' and 'Wouter van den Bos'. The 'General Information' section on the right displays details for 'customer', including Company (company), Email (customer@company.com), Phone (+31 15 555-55-55), Address (Zijvest 25 [...]), Web Site (company.com), and Logo (Company logo). The 'Import' button is highlighted with a callout '3'.

# Report Wizard - Plot Options

1

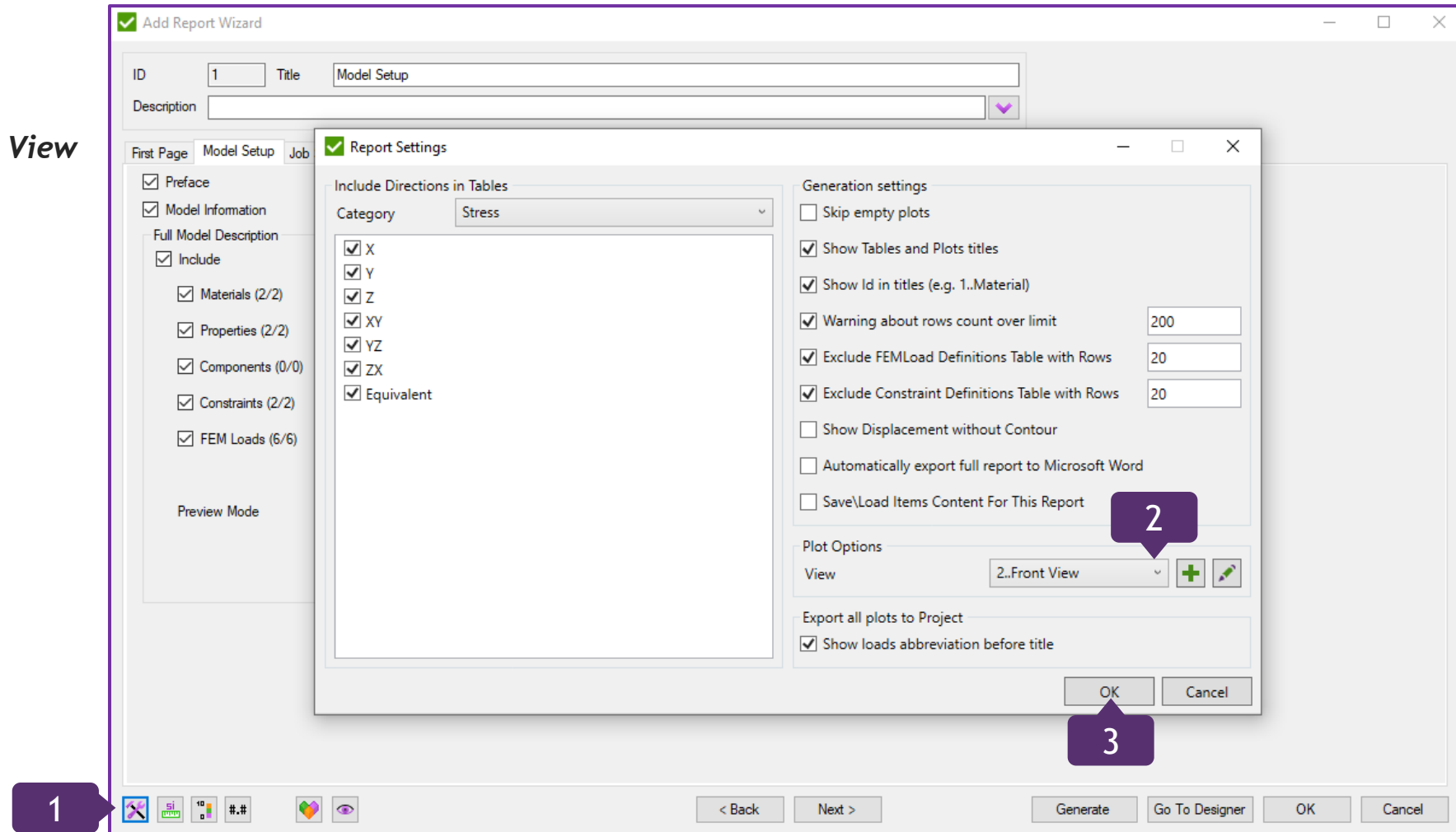
Press  Report Settings

2

In Plot Options, select 2..Front View

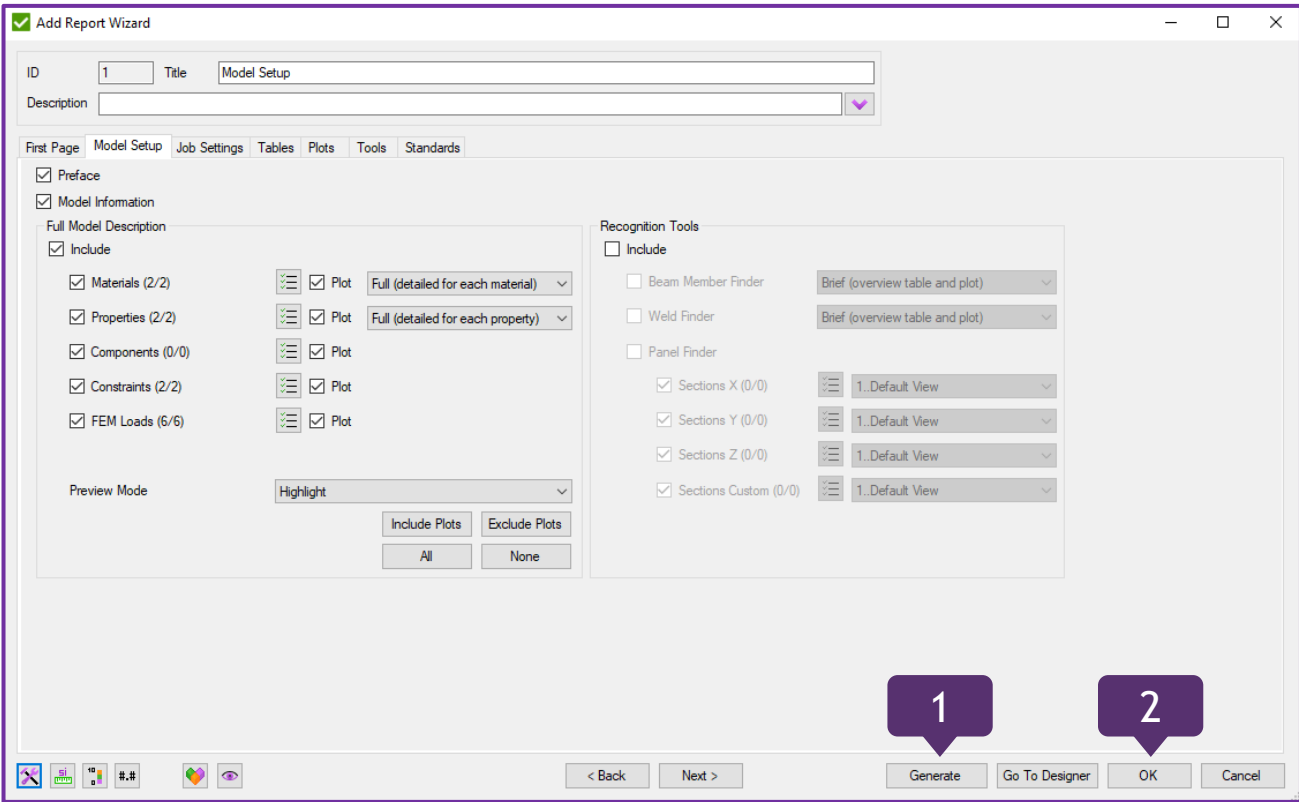
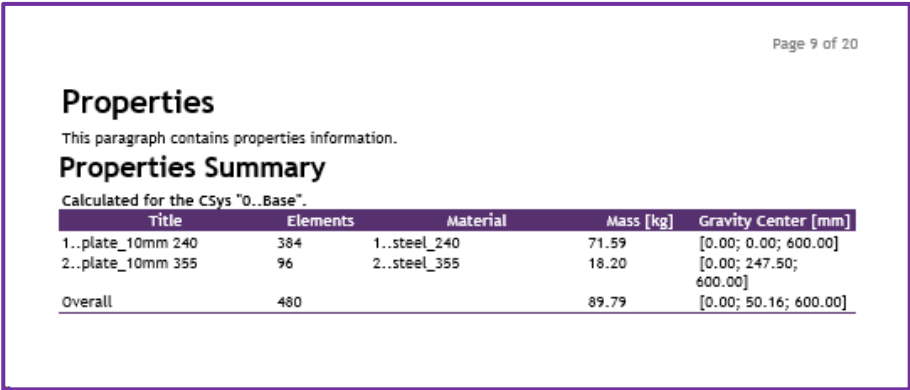
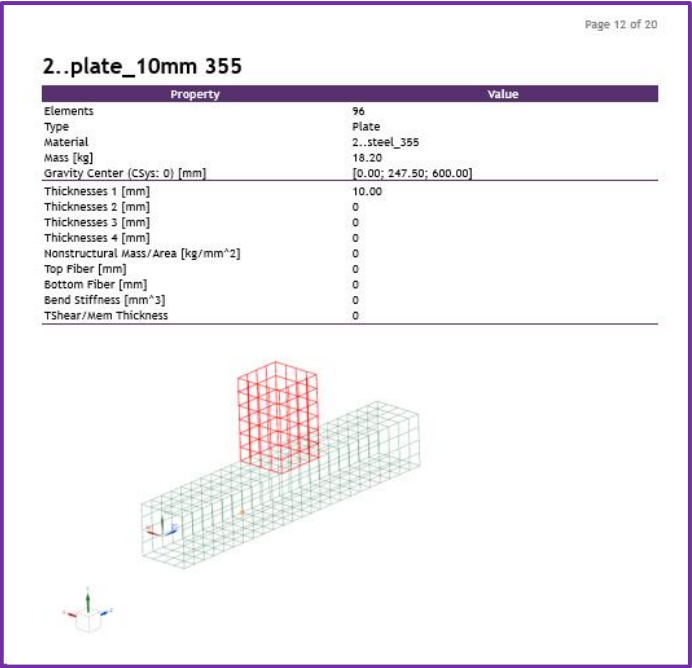
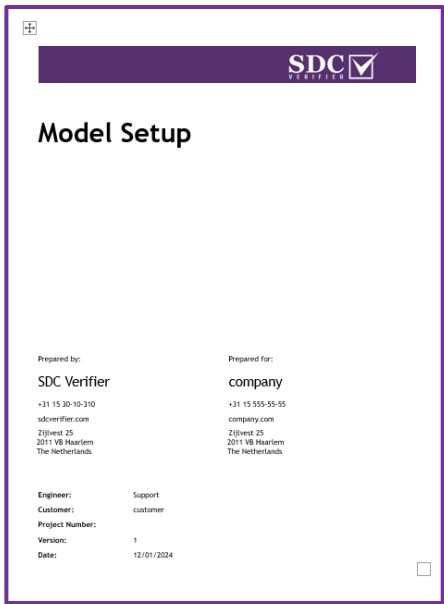
3

Press OK



1 Press *Generate*

2 Press *OK*



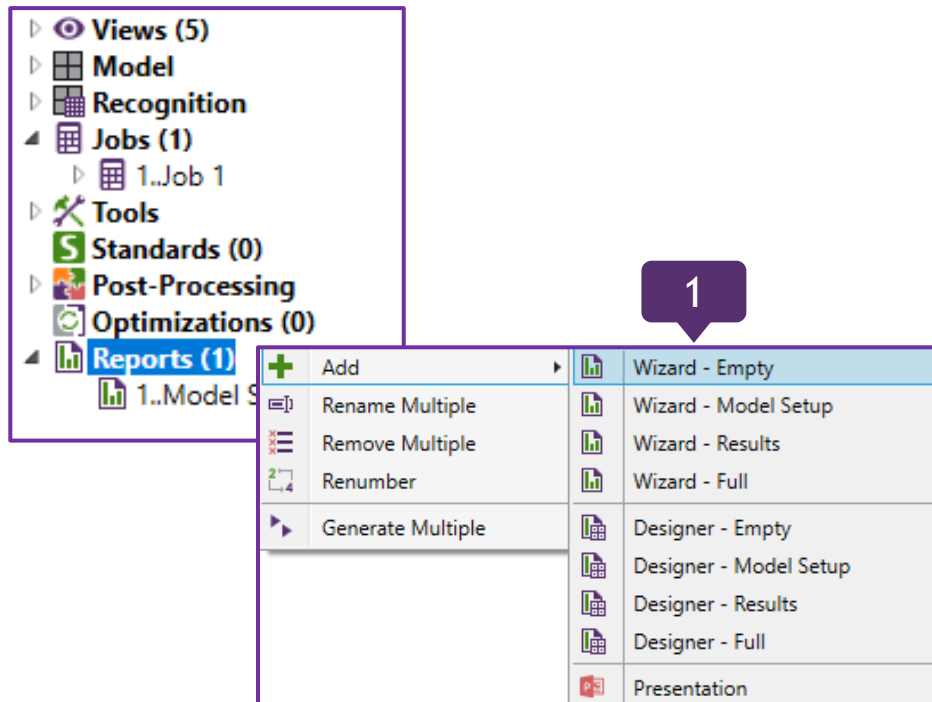
Model setup report has been generated and opened in MS Word.

Using the *Report Designer*, you can print out the report without any text editor installed.

# Create Calculation Report

1 Execute right click on *Reports*, and select *Add -> Wizard - Empty*

2 Press *Next* twice



The 'Add Report Wizard' dialog box is shown. It has a title bar with a green checkmark and the text 'Add Report Wizard'. The dialog is divided into several sections: 'Project Details' (ID: 2, Title: Report, Description:), 'First Page' (selected), 'Model Setup', 'Job Settings', 'Tables', 'Plots', 'Tools', and 'Standards'. The 'First Page' section contains 'Project Details' (Number, Name, Version: 1), 'First Page Image' (From file, From View: 1.Default View), 'Engineer details' (Support, SDC Verifier, support@sdcsverifier.com, +31 15 30-10-310, Zijlvest 25 [...], sdcverifier.com), and 'Customer details' (customer, company, customer@company.com, +31 15 555-55-55, Zijlvest 25 [...], company.com). There are also fields for 'Logo' and a checkbox 'Put Logo from Engineer Details on report plots'. At the bottom, there are buttons for '< Back', 'Next >', 'Generate', 'Go To Designer', 'OK', and 'Cancel'. A callout bubble with the number '2' points to the 'Next >' button.

1

Include Jobs: *ON*

2

Plot Individual Load: *ON*

3

Include Sum of Forces: *ON*

4

Press *Next*

**Add Report Wizard**

ID: 2 Title: Report Description: [ ]

First Page Model Setup **Job Settings** Tables Plots Tools Standards

**1** ☒ Include Jobs

1..Job 1

**2** ☐ Job Description ☒ Plot Individual Load ☐ Modes Table for Individual Loads and Load Sets ☐ Include Contents

☐ Individual Loads Content ☐ Load Sets Content ☐ Load Groups Content ☐ Fatigue Groups Content

☐ Automatically sort tables and plots by result category

**3** **Advanced Tables (Overall)**

☒ Include Sum of Forces ☐ Absolute Maximum Displacement ☐ Absolute Maximum Stresses

☒ Individual Loads Applied Forces ☐ Individual Load ☐ Individual Load

☒ Individual Loads Reaction Forces ☐ Load Set ☐ Load Set

☒ Load Sets Applied Forces ☐ Load Group ☐ Load Group

☒ Load Sets Reaction Forces

**Advanced Tables (For Each Load)**

☐ Include Sum Of Forces ☐ Stress Over All Properties ☐ Stress Over All Components

☒ Individual Load Reaction Forces ☐ Individual Load ☐ Individual Load

☒ Load Set Reaction Forces ☐ Load Set ☐ Load Set

☐ Load Group ☐ Load Group

[ All ] [ None ]

[ < Back ] **Next >** [ Generate ] [ Go To Designer ] [ OK ] [ Cancel ]



# Add Displacements Plots

1 Click on *Plots* in the Navigation list

2 Select All loads from the list

3 Press  to add *Contour Plot*

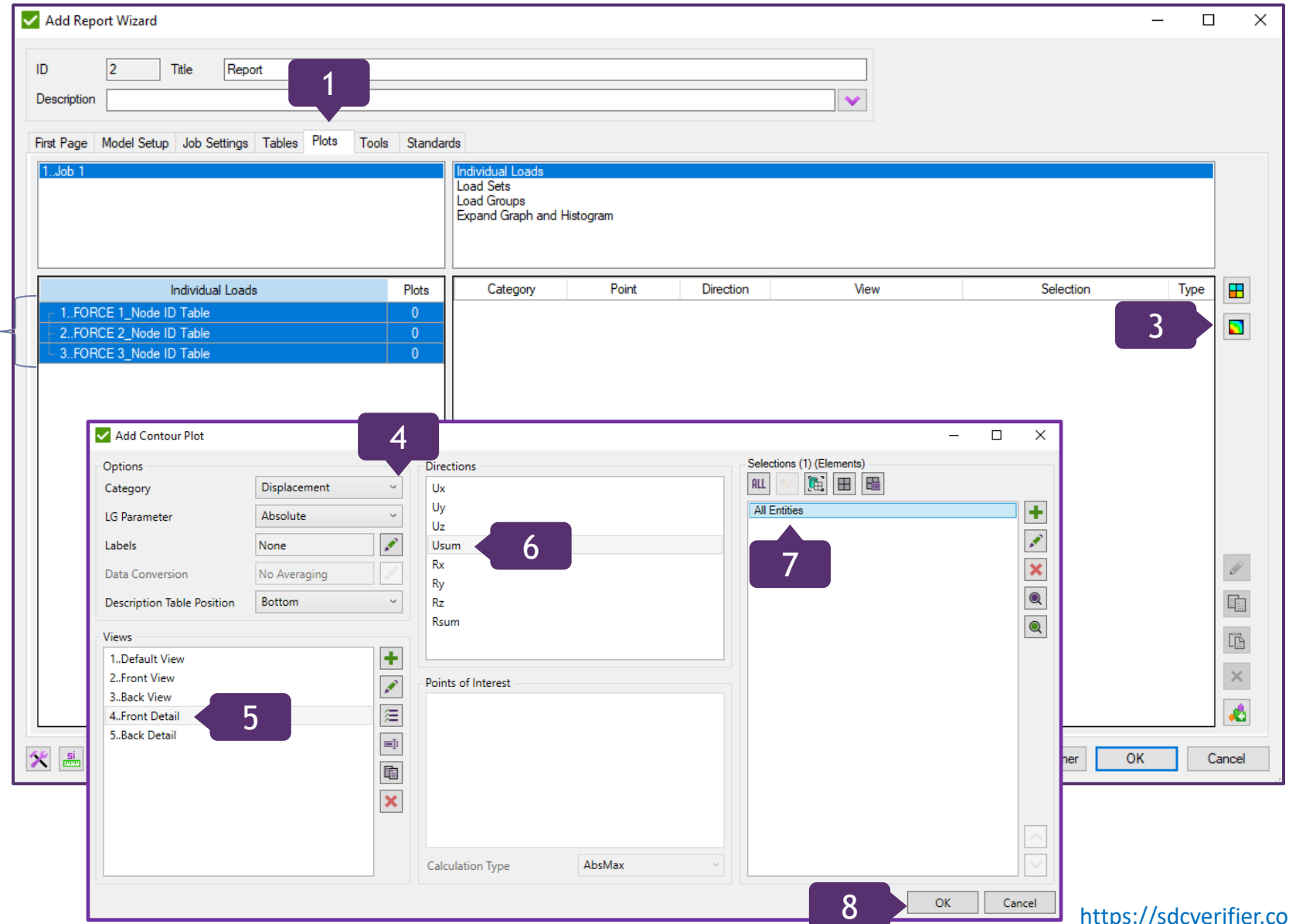
4 Category: *Displacement*

5 Views: *Front Detail*

6 Direction: *Usum*

7 Selection: *All Entities*

8 Press *OK*



# Add Stress Plots

1

Press  to add *Criteria Plot*

2

Category: *Stress*

3

Select 4 created Views from 2 to 5

4

Direction: *Equivalent*

5

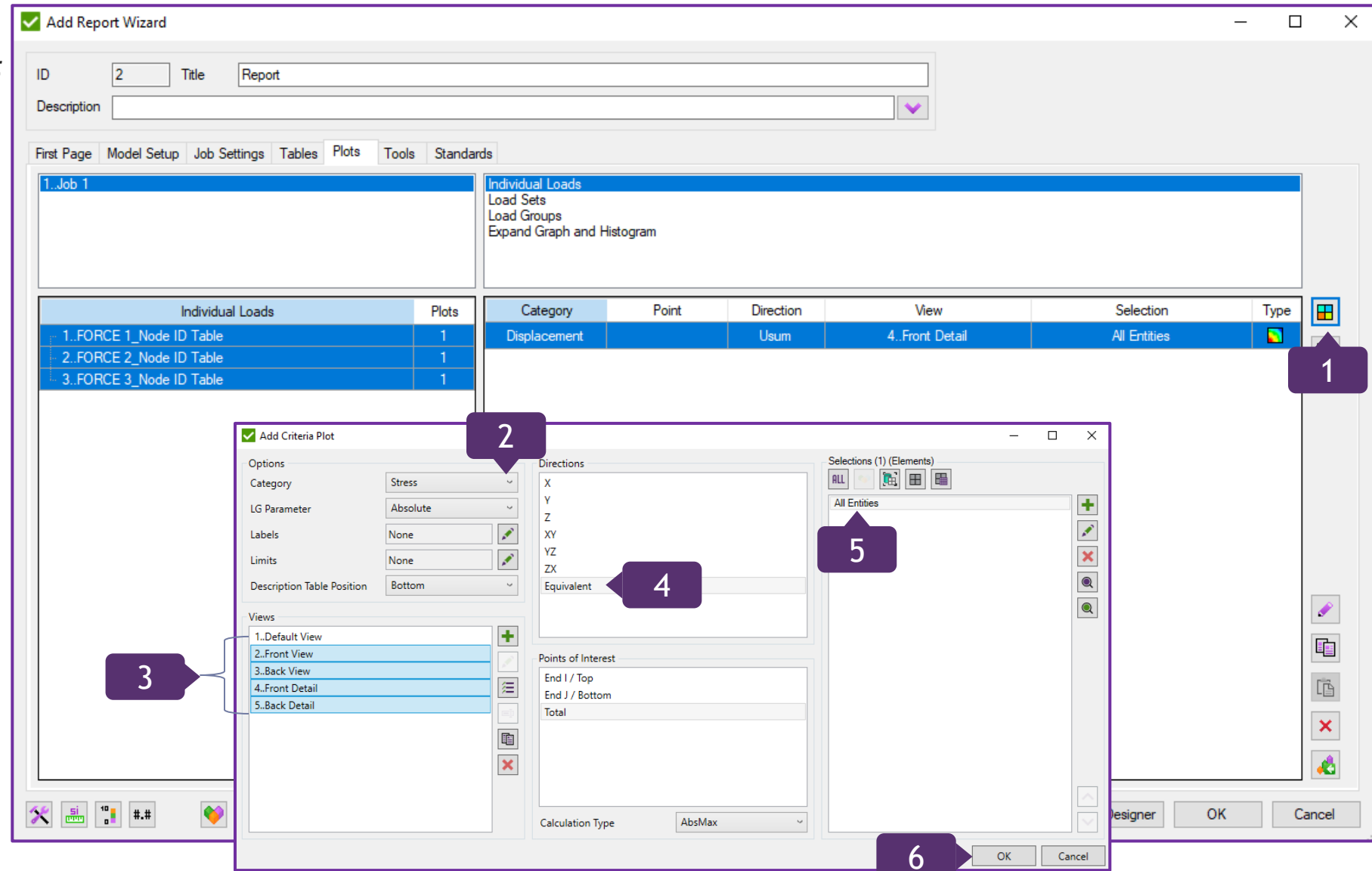
Points of Interest: *Total*

6

Selection: *All Entities*

7

Press *OK*



**SDC**  
VERIFIER

- 5** Press  to paste

<https://sdcverifier.com>

# Copy Plots to Load Sets and Load Groups (Continuation)

6


Plot Type: *Load Groups*


7

Select 3..*Overall* Load Group

8

Press  to paste

 Add Report Wizard

ID: 2 Title: Report Description: 

First Page Model Setup Job Settings Tables Plots Tools Standards






1..Job 1

Individual Loads  
Load Sets  
Load Groups  
Expand Graph and


6

Load Groups	Plots
1..Envelope (IL)	0
2..Envelope (LS)	0
3..Overall	5

7

Category	Point	Parameter	Direction	View	Selection	Type
Displacement		Absolute	Usum	4..Front Detail	All Entities	
Stress	Total(AbsMax)	Absolute	Equivalent	2..Front View	All Entities	
Stress	Total(AbsMax)	Absolute	Equivalent	3..Back View	All Entities	
Stress	Total(AbsMax)	Absolute	Equivalent	4..Front Detail	All Entities	
Stress	Total(AbsMax)	Absolute	Equivalent	5..Back Detail	All Entities	

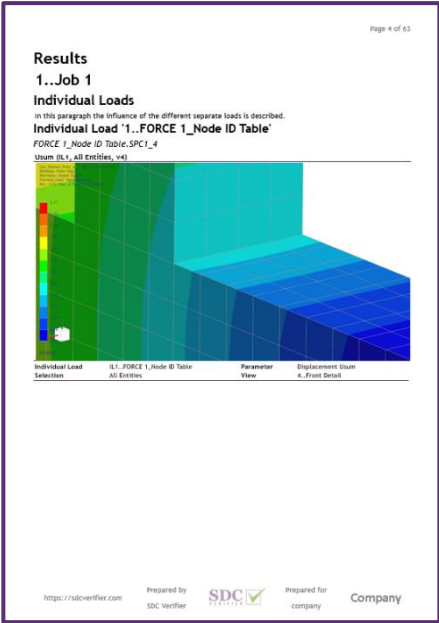
8



< Back Next > Generate Go To Designer OK Cancel

1 Press *Generate*

2 Press *OK*



Add Report Wizard

ID: 2 Title: Report Description: [dropdown]

First Page | Model Setup | Job Settings | Tables | Plots | Tools | Standards

1..Job 1

Individual Loads  
Load Sets  
Load Groups  
Expand Graph and Histogram

Load Groups	Plots
1..Envelope (IL)	0
2..Envelope (LS)	0
3..Overall	5

Category	Point	Parameter	Direction	View	Selection	Type
Displacement	Total(AbsMax)	Absolute	Usun	4..Front Detail	All Entities	[icon]
Stress	Total(AbsMax)	Absolute	Equivalent	2..Front View	All Entities	[icon]
Stress	Total(AbsMax)	Absolute	Equivalent	3..Back View	All Entities	[icon]
Stress	Total(AbsMax)	Absolute	Equivalent	4..Front Detail	All Entities	[icon]
Stress	Total(AbsMax)	Absolute	Equivalent	5..Back Detail	All Entities	[icon]

< Back Next > Generate Go To Designer OK Cancel

1

2

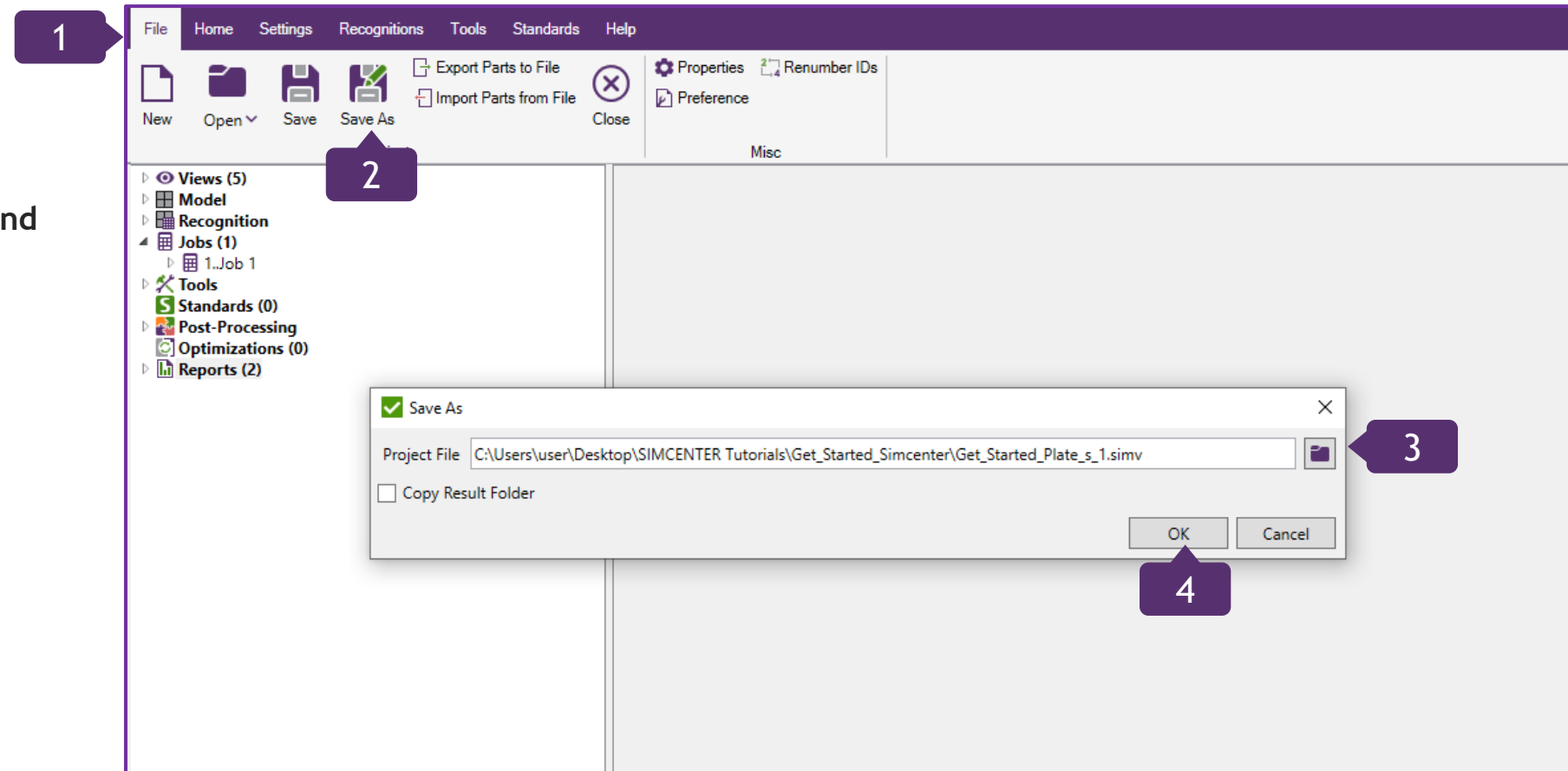
# Save SDC Verifier Project

1 Go to *File* section

2 Press *Save As*

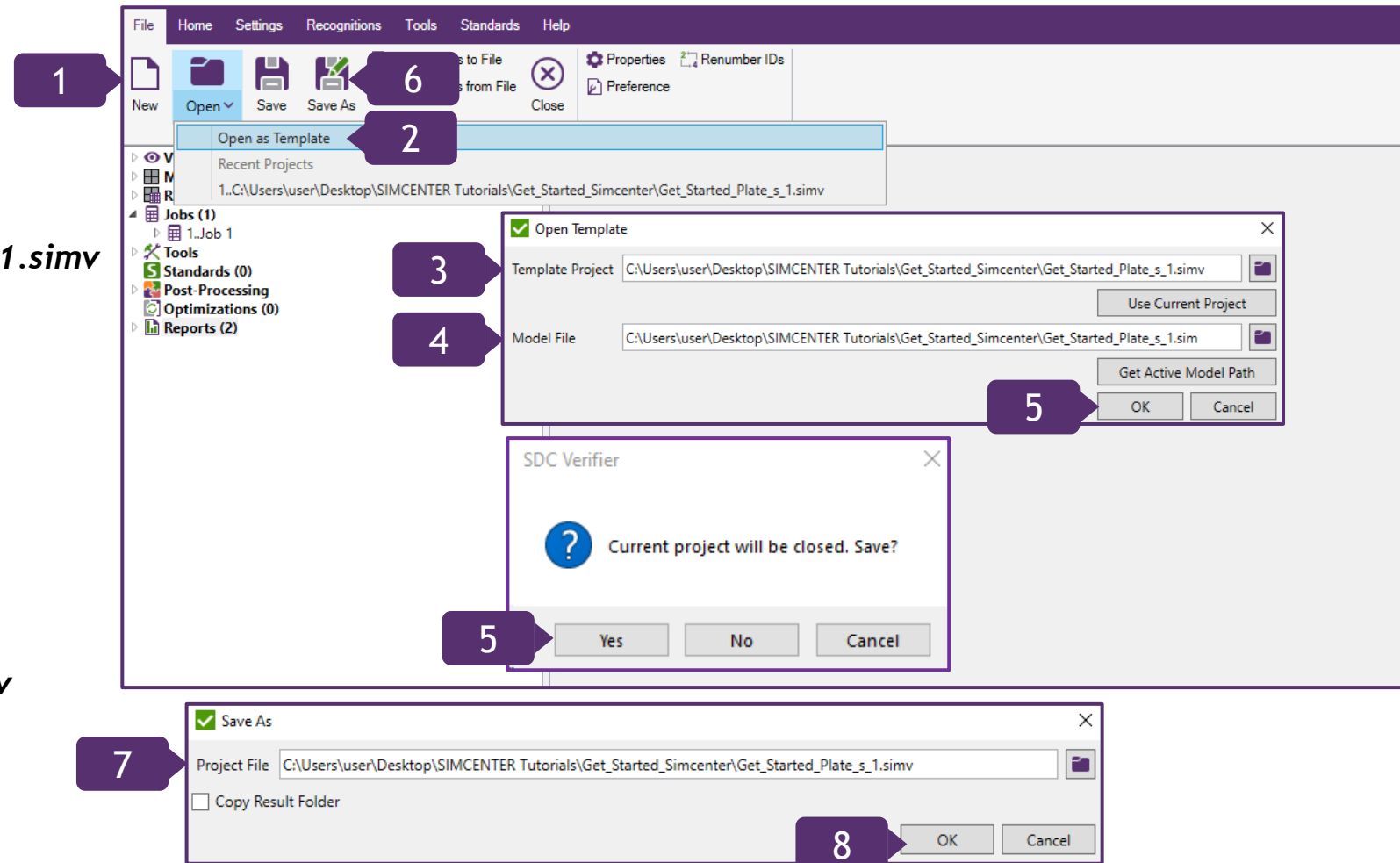
3 Press  to browse location and define the filename

4 Press *OK*



Open As Template feature allows to reuse project for similar Femap model. In our case, a solid model with same boundary conditions.

- 1 Go to *File* section
- 2 In *Open* folder execute *Open As Template*
- 3 Template Project: *Get\_Started\_plate\_s\_1.simv*
- 4 Model File: *Get\_Started\_plate\_s\_1.sim*
- 5 Press *OK* and then press *Yes*
- 6 In *File* section, execute *Save As*
- 7 Project File: *Get\_Started\_plate\_s\_1.simv*
- 8 Press *OK*

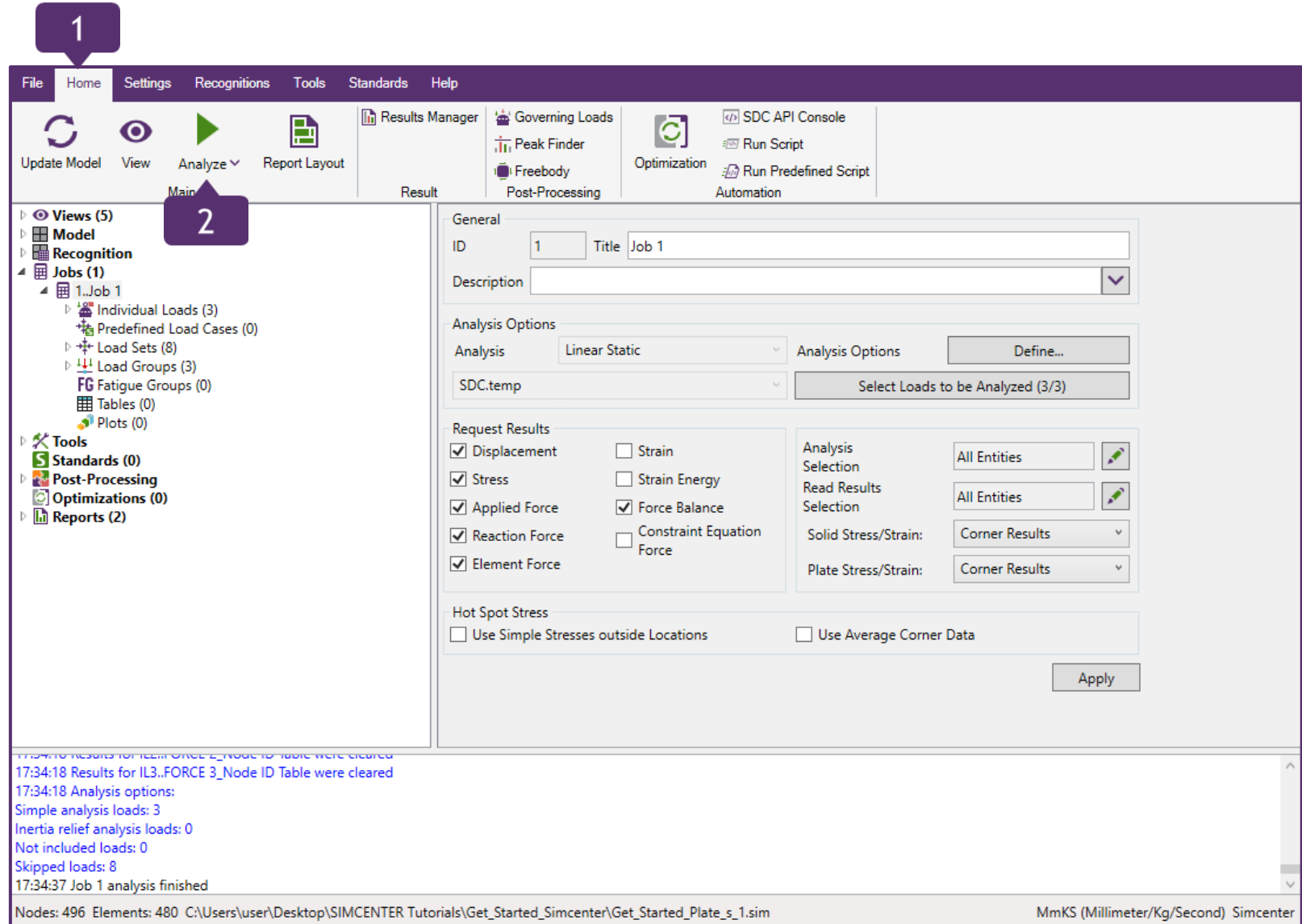


1

Go to *Home* section on the Ribbon

2

Press  on the toolbar to analyze job



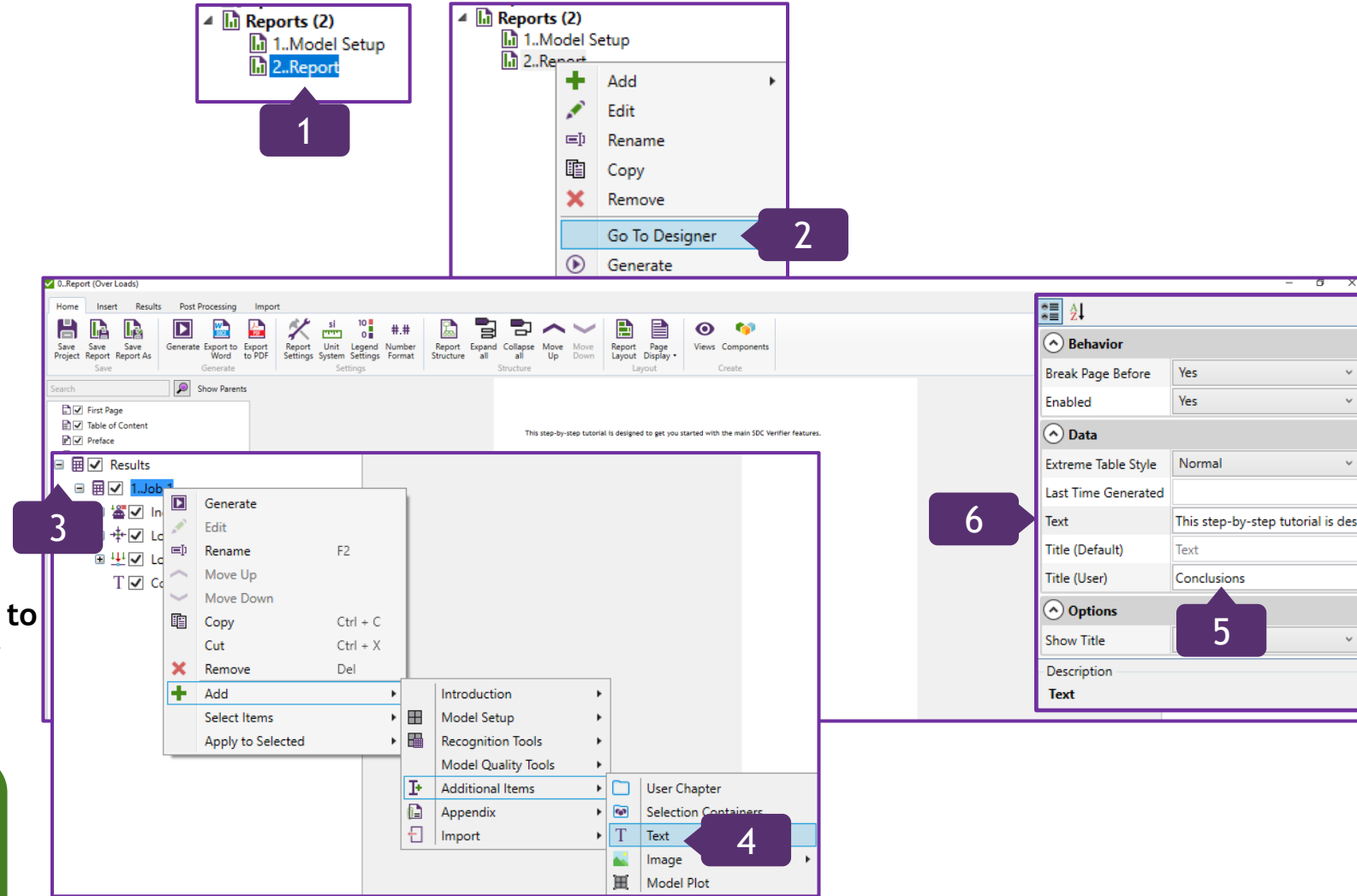


# Generate a Report for a Solid Model

- 1 Select *2..Report* in the *Model* tree
- 2 Execute right click and select *Go To Designer* from the context menu
- 3 Expand *Results* => *1..Job 1*
- 4 Execute right click on *1..Job 1* and select *Add* => *Additional Items* => *Text*
- 5 Title (User): *Conclusions*
- 6 Text: This step-by-step tutorial is designed to *get you started* with the main SDC Verifier Features. Press *Enter*

Report Wizard guides you through the steps of building and running the report.

Whereas the Report Designer gives added ability to design your own reports.



# Generate a Report for a Solid Model

1

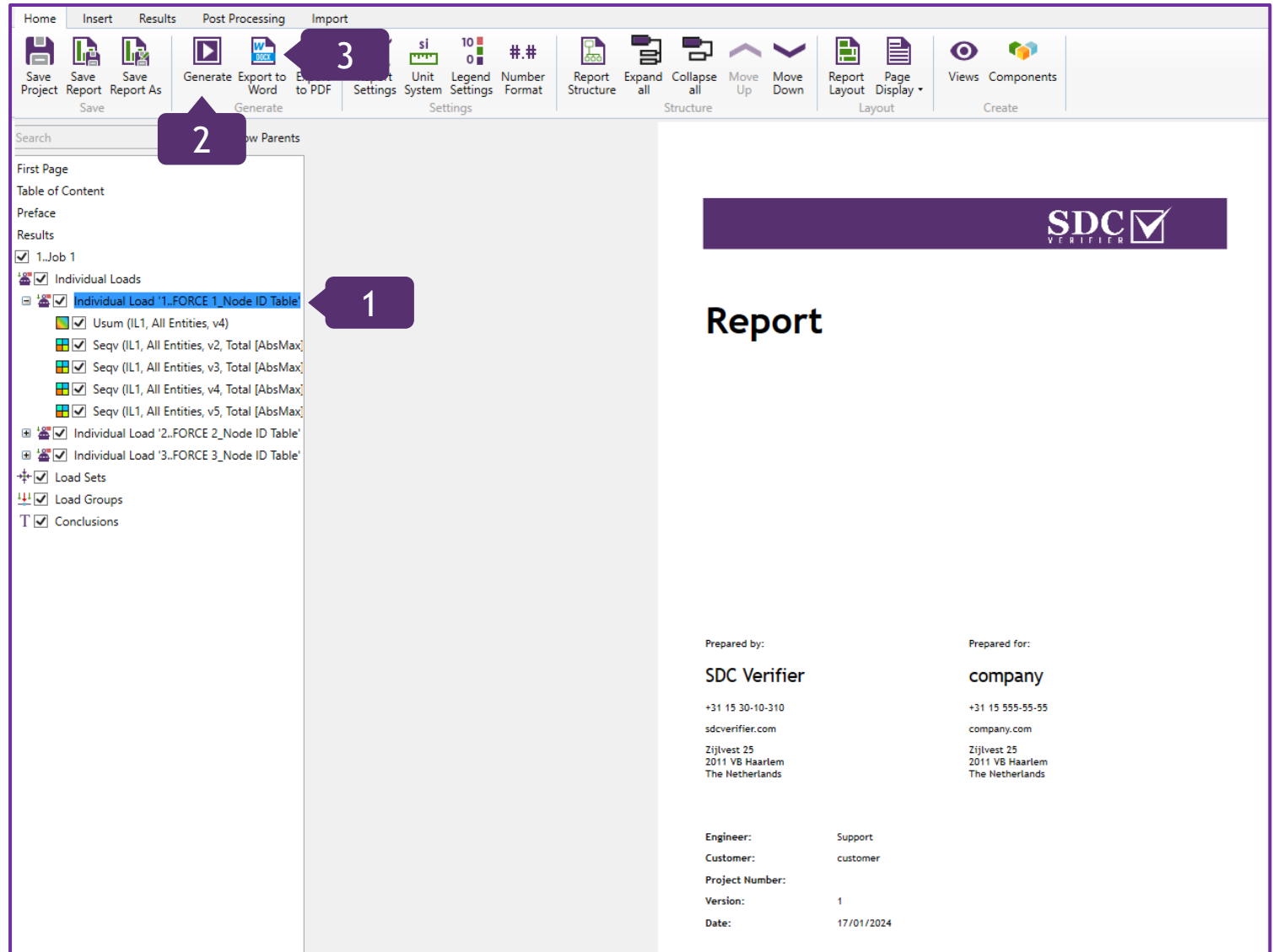
Expand Individual Loads and select  
*Individual Load '1..FORCE 1\_Node ID Table'*

2

Press  to generate report

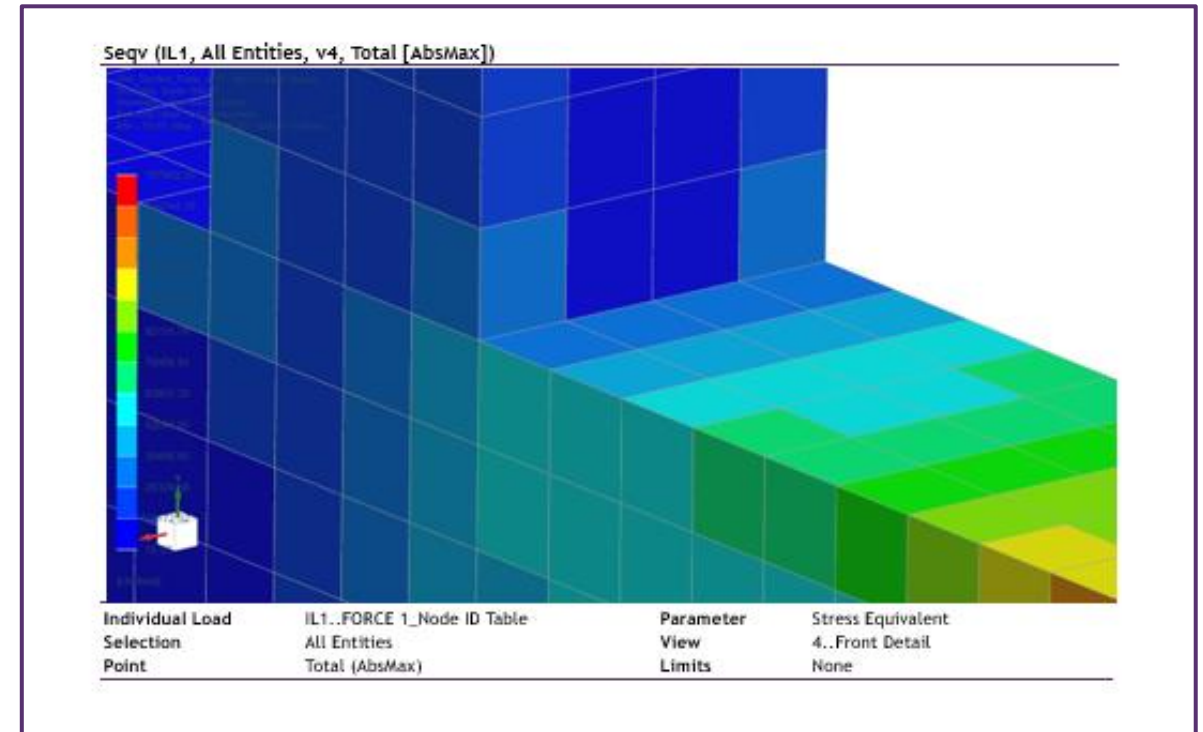
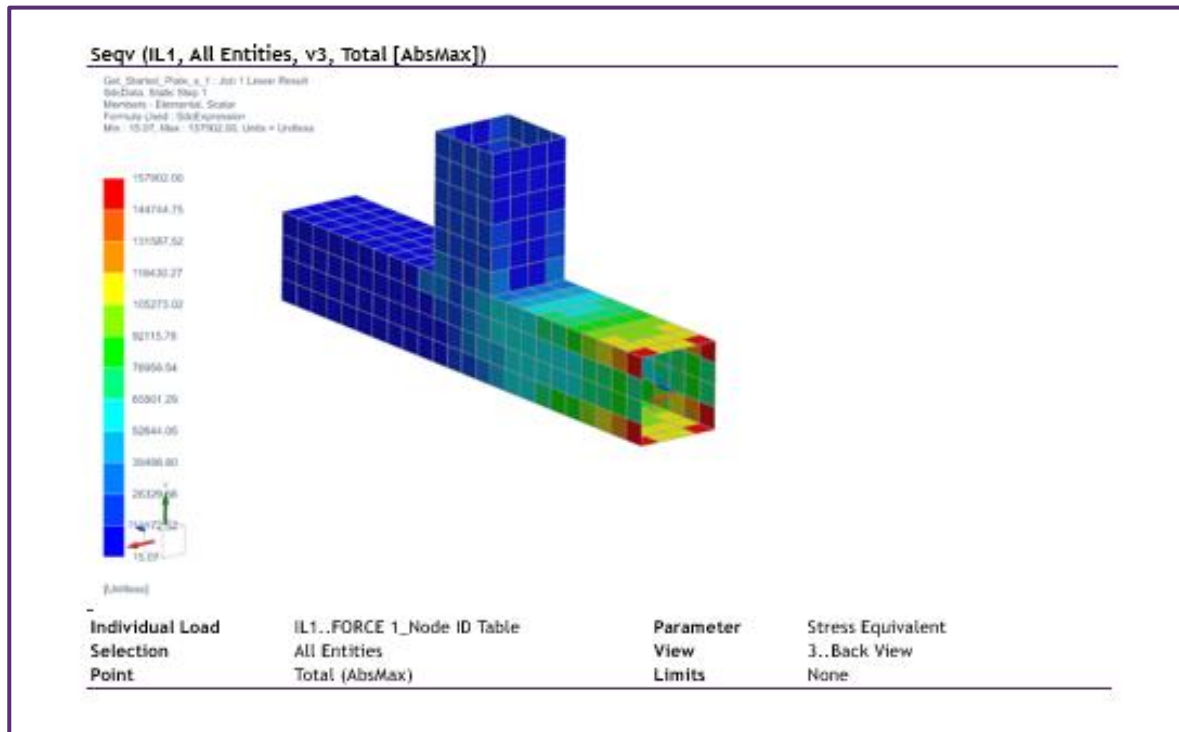
3

After generation is finished, press  to export generated report to Word



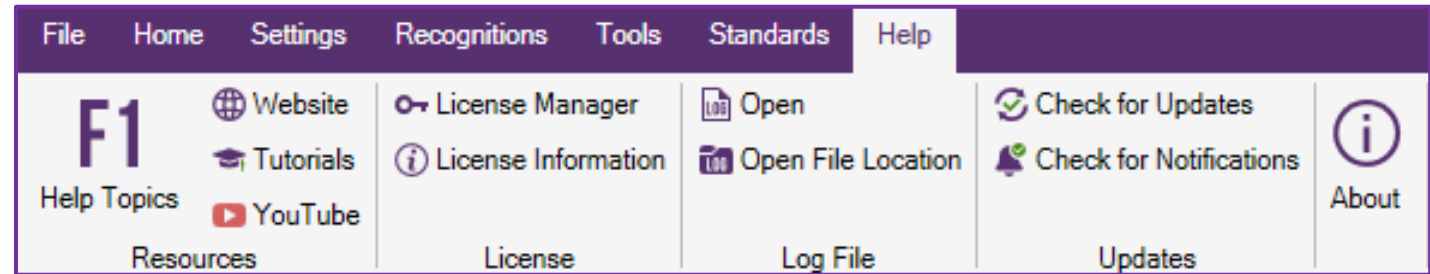
The screenshot displays the SDC Verifier software interface. The top menu bar includes Home, Insert, Results, Post Processing, and Import. The ribbon contains various icons for file operations, report generation, and settings. A purple box labeled '2' highlights the 'Generate Report' icon in the ribbon. The left sidebar shows a tree view of the project structure, with 'Individual Load '1..FORCE 1\_Node ID Table'' selected and highlighted by a purple box labeled '1'. The main area displays the 'Report' page, which includes the SDC Verifier logo, the title 'Report', and contact information for SDC Verifier and the user 'company'. The contact information includes phone numbers, email addresses, and physical addresses in Haarlem, The Netherlands. The bottom of the report shows fields for Engineer, Customer, Project Number, Version, and Date.

Equivalent Stress plots are automatically displayed for solid model.



1

On the Ribbon, go to *Help* section, where informational resources, tutorials, License Information, Checks for Updates etc. can be found.



In order to clarify any queries or resolve issues that might arise throughout SDC Verifier usage, customers can contact our Support Team by the following communication channels:

Skype: sdcverifier\_helpdesk;  
phone: +31 15 30-10-310;  
email: [support@sdcverifier.com](mailto:support@sdcverifier.com)

Additionally, if the screen demonstration is required, we offer a possibility to schedule a Teams meeting call with our Engineering or Development Team. In this case, we will need the customer's email address to agree on the date and time, and send the customer a meeting invitation.