



Tutorial

Weld Strength Eurocode3, DNV PS-C101 and C201

Updated on: 14 June 2023

Tested with: SDC Verifier 2023R1

Femap 2022.1

This step-by-step tutorial demonstrates how to perform the weld strength check according to Eurocode 3, DNV OS-C101-LRFD, DNV OS-C201-WSD standards in SDC Verifier.

The following steps are covered:

- Weld Finder Tool detailed review;
- Weld Stress calculations;
- Standards creation;
- Report preparation and results.

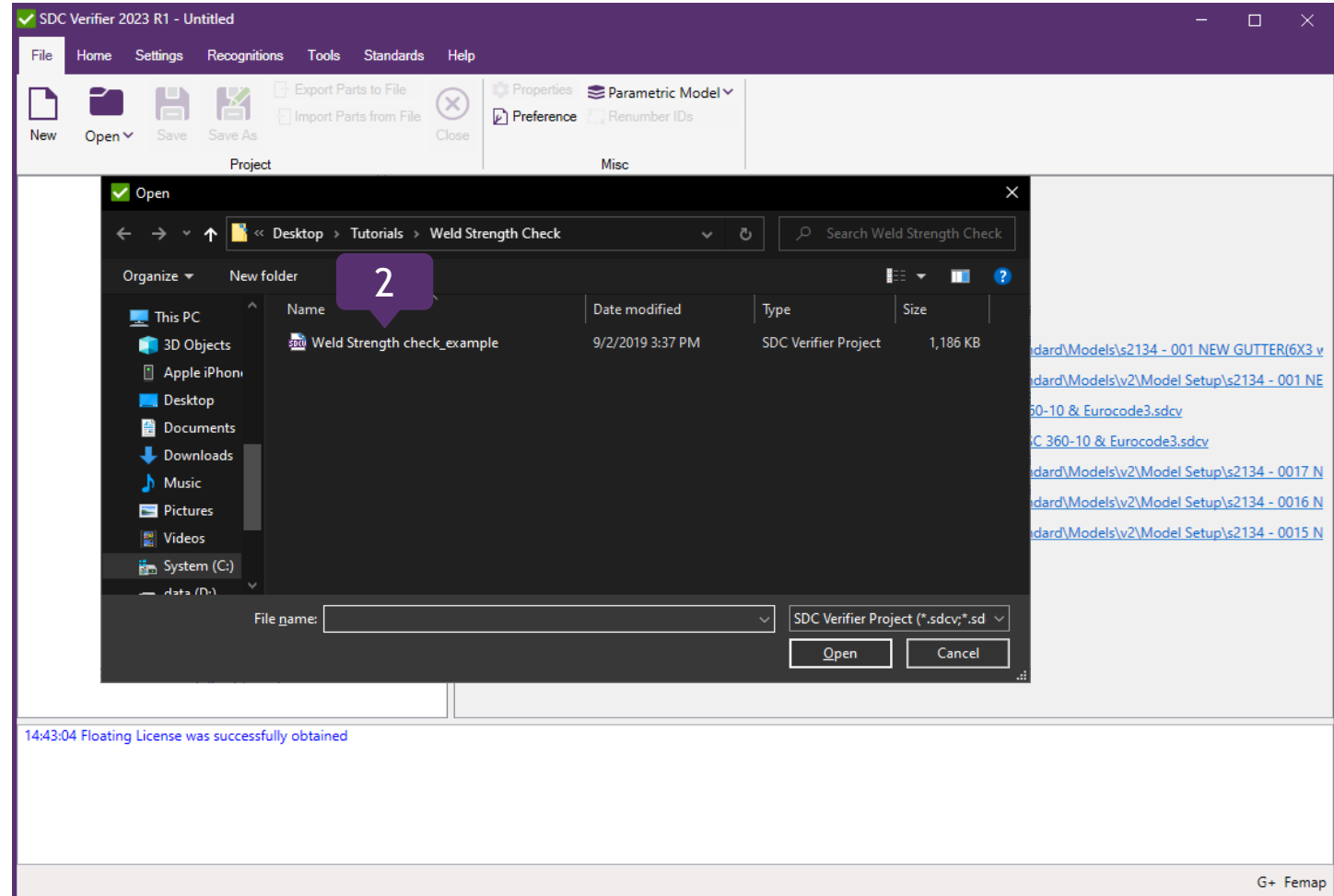
Open Project

1

Launch *SDC Verifier* 

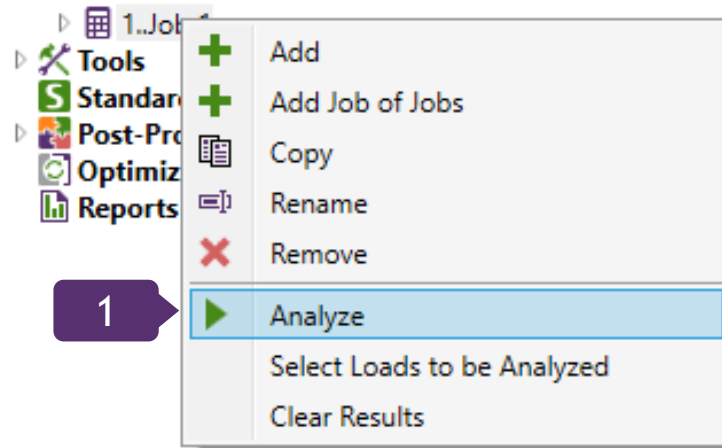
2

Open the project *Weld Strength check_exemple*



1

Execute  **Analyze** from *Job1* context menu



Execute **Recognition** => **Weld Finder** => **Edit**

Plot of selected weld(s) in colors with labels of IDs (drop-drop menu).



Add exception rule for recognition

1 Press **Settings**

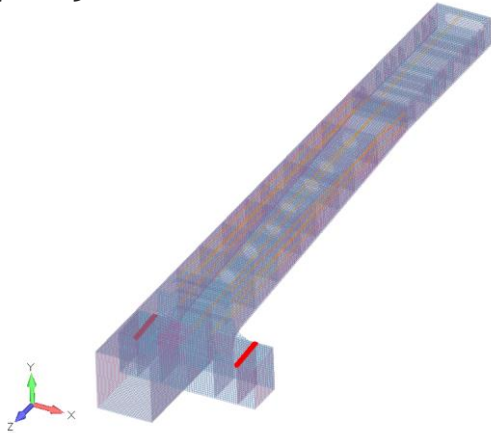
2 Press **Edit** for Not weld properties.

3 Select **property ID4**.

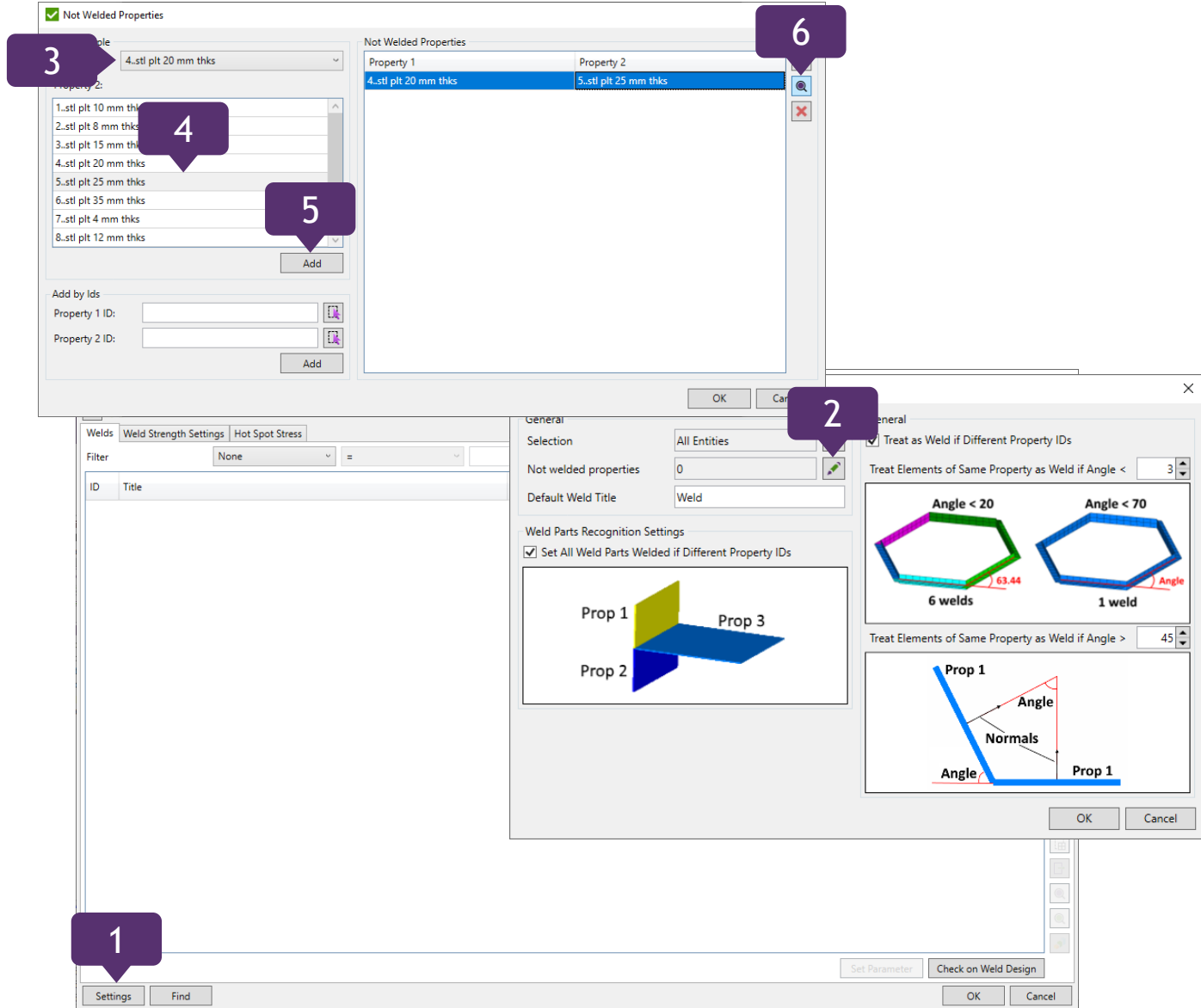
4 Select **property ID5**.

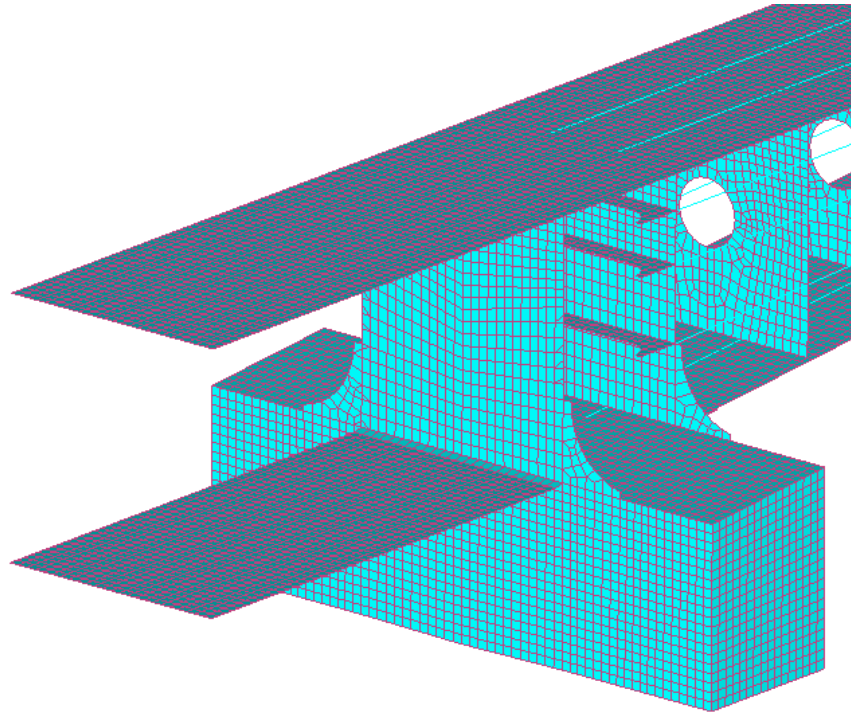
5 Press **Add**.

6 Press 



Connections with properties 4 and 5 are not treated as welds





Not Welded Properties

Add Multiple

Property 1: 1..stl plt 10 mm thks

Property 2:

- 1..stl plt 10 mm thks
- 2..stl plt 8 mm thks
- 3..stl plt 15 mm thks
- 4..stl plt 20 mm thks
- 5..stl plt 25 mm thks
- 6..stl plt 35 mm thks
- 7..stl plt 4 mm thks
- 8..stl plt 12 mm thks

Add

Add by Ids

Property 1 ID: 4

Property 2 ID: 5

Add

Not Welded Properties

Property 1	Property 2
4..stl plt 20 mm thks	5..stl plt 25 mm thks

OK Cancel

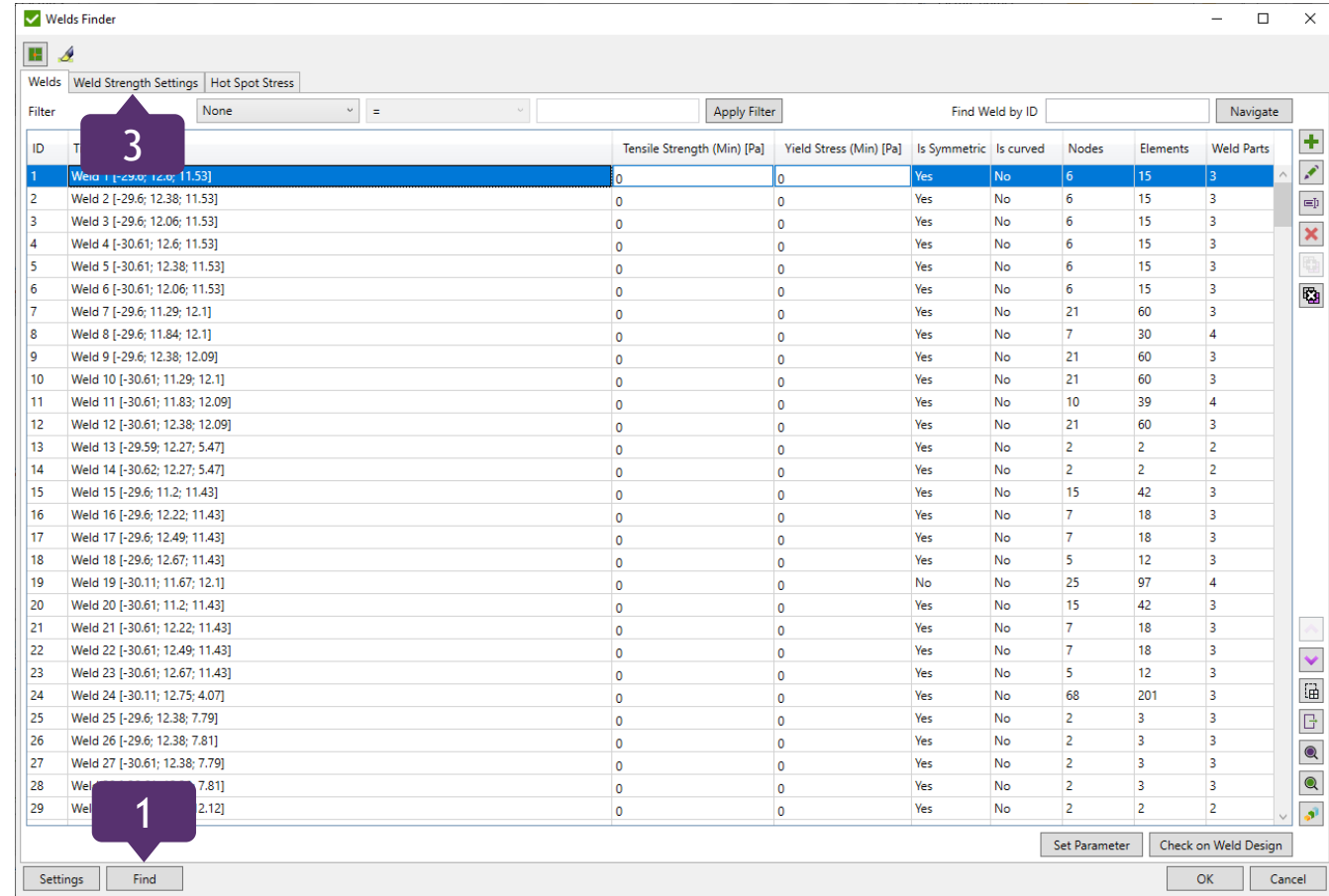
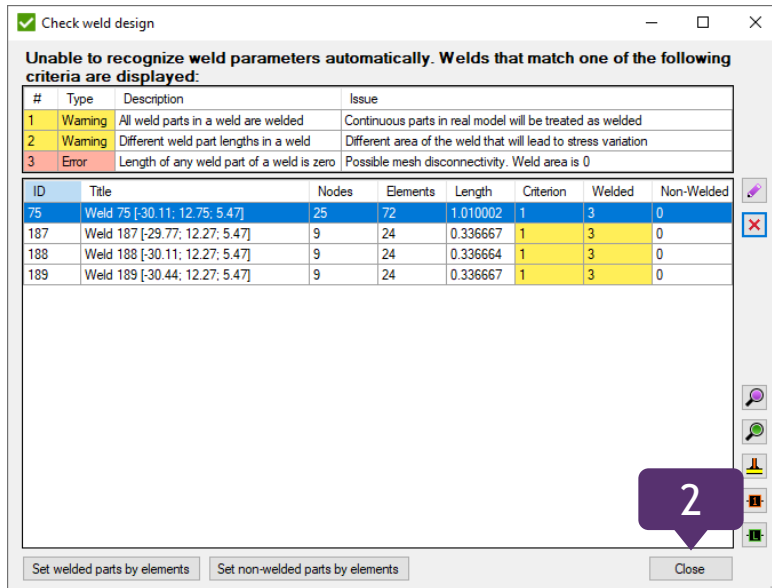
It is possible to select properties manually in Femap by elements to add a not welded combination

Recognize welds

1 Press *Find*.

2 Press *Close*.

3 Press *Weld Strength Settings*.



Selection gives a possibility to select a part of the model (group, component) for making changes.

This filter can be used to search the weld(s) due to different parameters (length, thickness, area, weld only, non weld only etc.).

Navigate option in order to find a weld by ID.

Edit, Combine, Split, Export and Remove Weld(s).

Preview selected weld(s).

Plot of selected weld(s) in colors and with labels of IDs (drop-down menu).

The screenshot shows the 'Welds Finder' window with several annotations in red boxes and blue arrows pointing to green text boxes on the left. The interface includes a 'Selection' dropdown set to 'All Entities', a 'Display Weld Parts' section with 'Welded' selected, a 'Filter Rule' section with 'Show all' and an 'Apply Filter' button, and a 'Find Weld by ID' field with a 'Navigate' button. A table lists weld details with columns: Weld ID, Title, Length [m], Weld Type, Welded, Csys, t [m], Weld Side, r [m], h [m], s [m], Alpha, and Throat Thickness (a) [m]. The table contains 11 rows of data. On the right, a toolbar contains icons for selection, edit, combine, split, export, and remove. A dropdown menu is open, showing options like 'Welded/non-welded parts', 'Weld parts', 'Welds in colors', 'Welds in colors + Labels of IDs', 'Weld parts lengths + Labels of values', 'Weld parts throat thickness + Labels of values', 'Weld types + Labels of values', 'Coordinate systems', 'Weld part throat', and 'Welded/non-welded parts + throat'. At the bottom, there are sections for 'Apply to selected weld parts' and 'Apply to selected weld parts (only for welded parts)' with various input fields and buttons.

Weld ID	Title	Length [m]	Weld Type	Welded	Csys	t [m]	Weld Side	r [m]	h [m]	s [m]	Alpha	Throat Thickness (a) [m]
1	Weld Part 1.1 [-29.61; 12.6; 11.53]	0.205	None	Yes	Rotation [-180; -90; 0]	0.008						
2	Weld Part 2.1 [-29.61; 12.38; 11.53]	0.205	None	Yes	Rotation [-180; -90; 0]	0.008						
3	Weld Part 3.1 [-29.61; 12.06; 11.53]	0.205	None	Yes	Rotation [-180; -90; 0]	0.008						
4	Weld Part 4.1 [-30.6; 12.6; 11.53]	0.205	None	Yes	Rotation [0; 90; 0]	0.008						
5	Weld Part 5.1 [-30.6; 12.38; 11.53]	0.205	None	Yes	Rotation [0; 90; 0]	0.008						
6	Weld Part 6.1 [-30.6; 12.06; 11.53]	0.205	None	Yes	Rotation [0; 90; 0]	0.008						
7	Weld Part 7.3 [-29.6; 11.29; 12.09]	0.757	None	Yes	Rotation [180; 0; 90]	0.012						
8	Weld Part 8.1 [-29.6; 11.84; 12.1]	0.337	None	Yes	Rotation [0; 0; -90]	0.012						
8	Weld Part 8.2 [-29.6; 11.84; 12.09]	0.337	None	Yes	Rotation [-180; 0; 90]	0.012						
9	Weld Part 9.3 [-29.61; 12.38; 12.09]	0.742	None	Yes	Rotation [179.56; -89.95; 90]	0.015						
10	Weld Part 10.3 [-30.61; 11.29; 12.09]	0.757	None	Yes	Rotation [-180; 0; 90]	0.012						
11	Weld Part 11.1 [-30.61; 11.83; 12.09]	0.337	None	Yes	Rotation [-180; 0; 90]	0.012						
11	Weld Part 11.2 [-30.61; 11.83; 12.11]	0.337	None	Yes	Rotation [0; 0; -90]	0.012						

Weld Finder - Set weld parameters

Set Non-welded only - change selected welded parts by selecting elements on the model.

Set Welded only - change selected non-welded parts by selecting elements on the model.

Restore default data if some of them were assigned incorrectly.

Possibility to apply weld type and dimensions of weld to all selected weld(s) parts.

Possibility to modify or change length, thickness, coordinate system and origin to all selected weld(s) parts.

Welds Finder

Welds Weld Strength Settings Hot Spot Stress

Information

Selection Display Weld Parts ☐ All ☒ Welded ☐ Non-Welded

Filter Rule Find Weld by ID

Current Filter: All Entities; Display Welded Weld Parts; Show all

Weld ID	Title	Length [m]	Weld Type	Welded	Csys	t [m]	Weld Side	r [m]	h [m]	s [m]	Alpha	Throat Thickness (a) [m]
1	Weld Part 1.1 [-29.61; 12.6; 11.53]	0.205	None	Yes	Rotation [-180; -90; 0]	0.008						
2	Weld Part 2.1 [-29.61; 12.38; 11.53]	0.205	None	Yes	Rotation [-180; -90; 0]	0.008						
3	Weld Part 3.1 [-29.61; 12.06; 11.53]	0.205	None	Yes	Rotation [-180; -90; 0]	0.008						
4	Weld Part 4.1 [-30.6; 12.6; 11.53]	0.205	None	Yes	Rotation [0; 90; 0]	0.008						
5	Weld Part 5.1 [-30.6; 12.38; 11.53]	0.205	None	Yes	Rotation [0; 90; 0]	0.008						
6	Weld Part 6.1 [-30.6; 12.06; 11.53]	0.205	None	Yes	Rotation [0; 90; 0]	0.008						
7	Weld Part 7.3 [-29.6; 11.29; 12.09]	0.757	None	Yes	Rotation [180; 0; 90]	0.012						
8	Weld Part 8.1 [-29.6; 11.84; 12.1]	0.337	None	Yes	Rotation [0; 0; -90]	0.012						
8	Weld Part 8.2 [-29.6; 11.84; 12.09]	0.337	None	Yes	Rotation [-180; 0; 90]	0.012						
9	Weld Part 9.3 [-29.61; 12.38; 12.09]	0.742	None	Yes	Rotation [179.56; -89.95; 90]	0.015						
10	Weld Part 10.3 [-30.61; 11.29; 12.09]	0.757	None	Yes	Rotation [-180; 0; 90]	0.012						
11	Weld Part 11.1 [-30.61; 11.83; 12.09]	0.337	None	Yes	Rotation [-180; 0; 90]	0.012						
11	Weld Part 11.2 [-30.61; 11.83; 12.1]	0.337	None	Yes	Rotation [0; 0; -90]	0.012						

Restore Default Set Welded Parts by Elements Set Non-Welded Parts by Elements

Apply to selected weld parts

Set Welded / Non-Welded

Length [m]

Weld part thickness (t) [m]

Csys

Origin

Weld Side

Apply to selected weld parts (only for welded parts)

Weld Type

☒ Apply by sizes ☐ Apply by throat thickness (a)

Weld leg horizontal (r) [m] ☒ Throat thickness (a) [m]

Weld leg vertical (h) [m] ☐ Set a = t / 2

Penetration depth (s) [m] Override type

☒ Side By Weld Part Csys ☐ Side By Direction

Alpha

t

h

r

s

Alpha

Settings Find OK Cancel

Set welded parts by elements

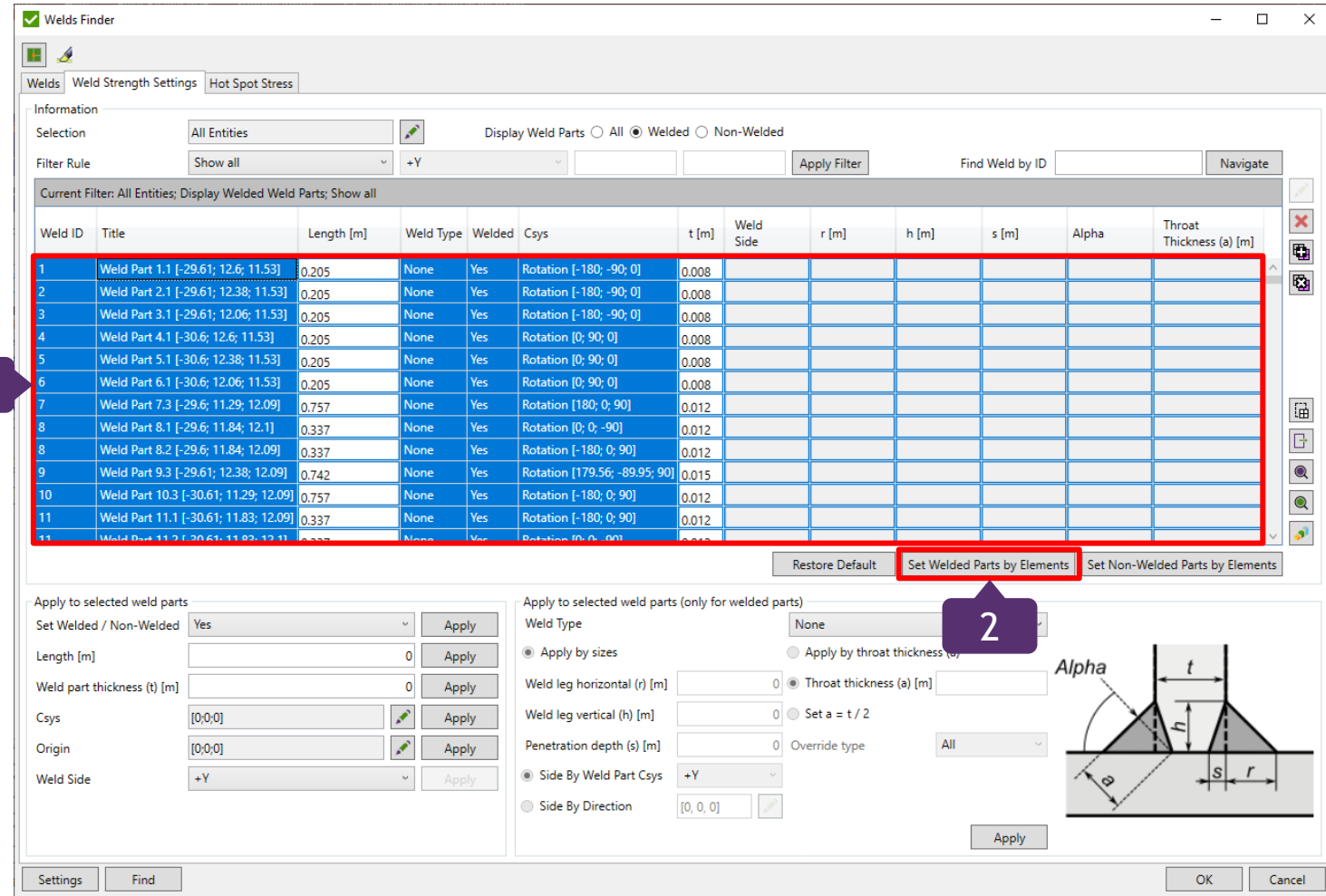
1

Select all welds part by pressing **Ctrl+A** keys combination.

2

Press **Set welded parts by elements** to find weld parts by elements and include them in weld strength calculations (also this command could be performed for few or single weld part).

1



Set weld part type welded (manually)

1

Select **Non-Welded** element(s) which should be changed to **Welded** element(s).

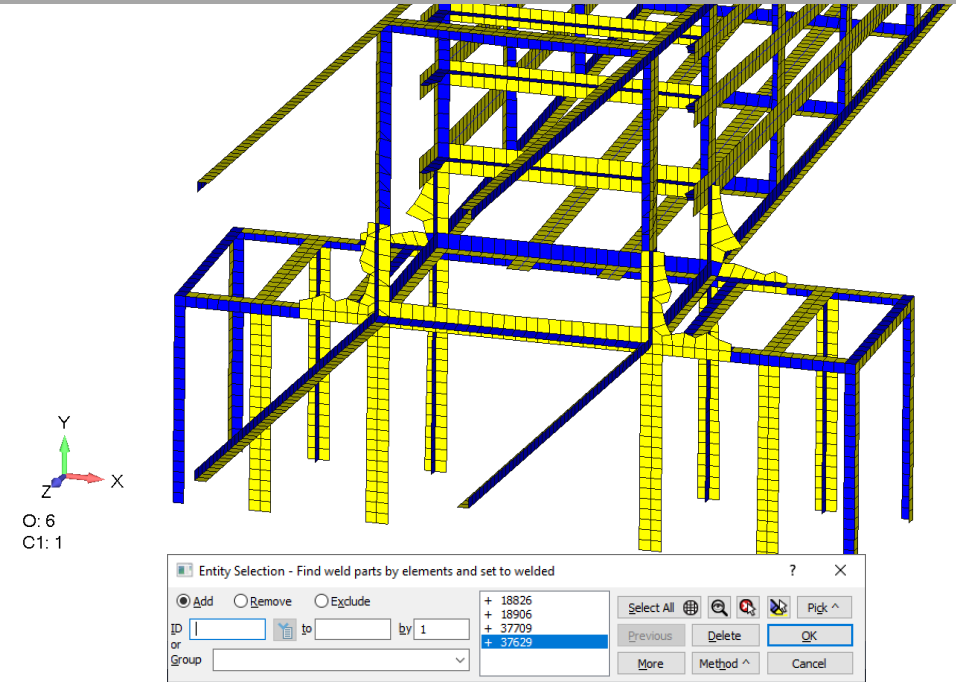
It is sufficient to select only one element from a weld part to pick full part automatically.

2

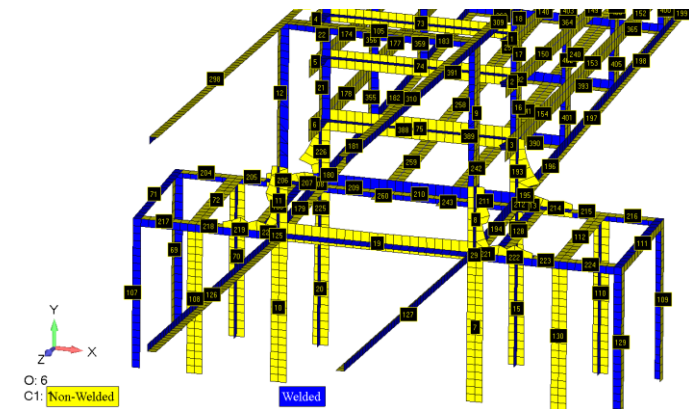
Some text in Trebuchet MS, 14 px in **Bold** or *italic* or ***Bold italic***. Two lines max

3

Some text in Trebuchet MS, 14 px in **Bold** or *italic* or ***Bold italic***. Two lines max



In order to get refreshed plot of the weld(s), select all weld parts by using **Ctrl+A** keys combination and choose command **Welded/non-welded parts**



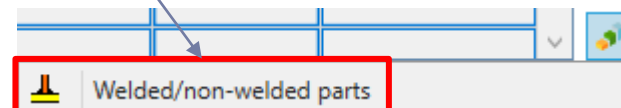
SDC Verifier



4 weld parts modified. OK to refresh plot?

OK

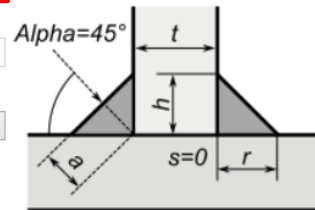
Cancel



- 

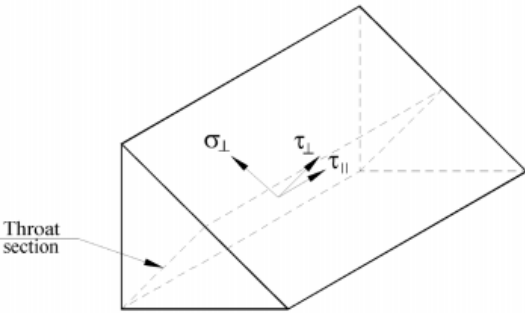
For beams element t is the minimum thickness of shape.
For bars element t is the minimum of height/width.
For plates element t is a plate thickness.

3

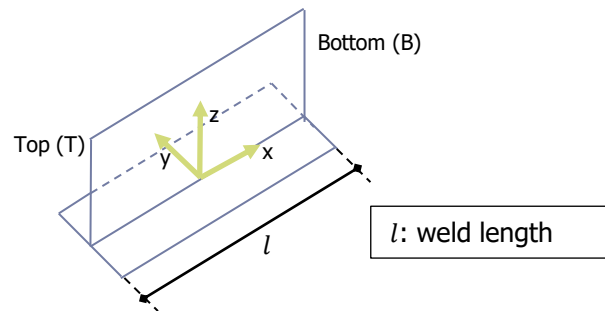


SDC
VERIFIER

- <https://sdcverifier.com>

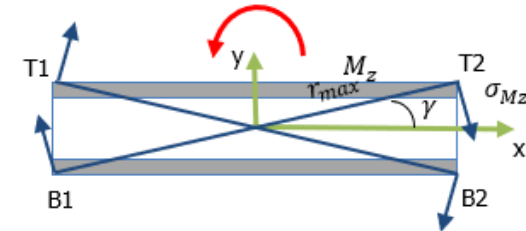


$\tau_{||}$ = shear design stress (in plane of the throat) parallel to the axis of the weld (equal to X direction in the check);
 σ_{\perp} = normal design stress perpendicular to the throat (equal to Y direction of the check);
 τ_{\perp} = shear design stress (in plane of the throat) perpendicular to the axis of the weld (equal to XY direction of the check)



Angles matrix of rotations due to weld throat plane.

Moments depend on the axis in a weld plane and are also included in the weld strength calculations



The stresses $\tau_{||}$, σ_{β} and τ_{β} are evaluated at the points T1, T2, B1 and B2 as follows:

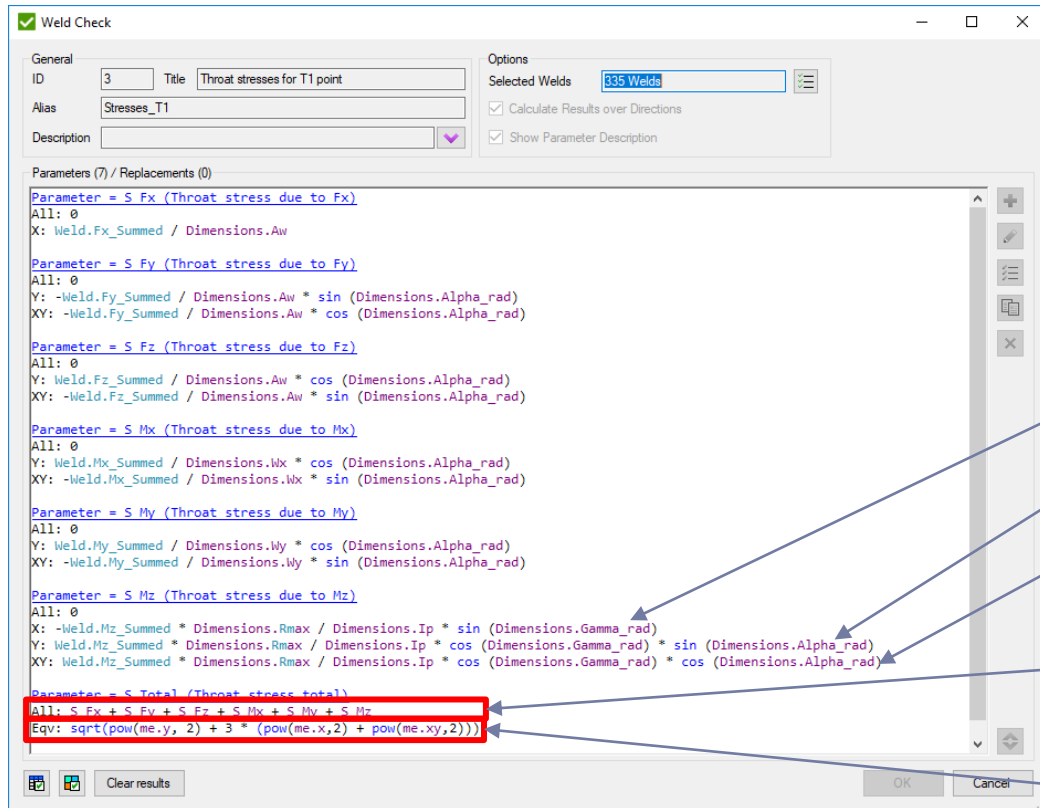
Stress calculations

$\tau_{ ,T1}$	1	0	0	0	0	$-\sin \gamma$
$\sigma_{\beta,T1}$	0	$-\sin \alpha$	$\cos \alpha$	$\cos \alpha$	$\cos \alpha$	$\cos \gamma * \sin \alpha$
$\tau_{\beta,T1}$	0	$-\cos \alpha$	$-\sin \alpha$	$-\sin \alpha$	$-\sin \alpha$	$\cos \gamma * \cos \alpha$
$\tau_{ ,T2}$	1	0	0	0	0	$-\sin \gamma$
$\sigma_{\beta,T2}$	0	$-\sin \alpha$	$\cos \alpha$	$\cos \alpha$	$-\cos \alpha$	$-\cos \gamma * \sin \alpha$
$\tau_{\beta,T2}$	0	$-\cos \alpha$	$-\sin \alpha$	$-\sin \alpha$	$\sin \alpha$	$-\cos \gamma * \cos \alpha$
$\tau_{ ,B1}$	1	0	0	0	0	$\sin \gamma$
$\sigma_{\beta,B1}$	0	$\sin \alpha$	$\cos \alpha$	$-\cos \alpha$	$\cos \alpha$	$-\cos \gamma * \sin \alpha$
$\tau_{\beta,B1}$	0	$\cos \alpha$	$-\sin \alpha$	$\sin \alpha$	$-\sin \alpha$	$-\cos \gamma * \cos \alpha$
$\tau_{ ,B2}$	1	0	0	0	0	$\sin \gamma$
$\sigma_{\beta,B2}$	0	$\sin \alpha$	$\cos \alpha$	$-\cos \alpha$	$-\cos \alpha$	$\cos \gamma * \sin \alpha$
$\tau_{\beta,B2}$	0	$\cos \alpha$	$-\sin \alpha$	$\sin \alpha$	$\sin \alpha$	$\cos \gamma * \cos \alpha$

=

$\frac{F_x}{A_w}$	
$\frac{F_y}{A_w}$	
$\frac{F_z}{A_w}$	
$\frac{M_x}{I_x} d_y$	
$\frac{M_y}{I_y} d_x$	
$\frac{M_z * r_{max}}{I_p}$	

*



$\tau_{||,Mz}$

$\sigma_{\beta,Mz}$

$\tau_{\beta,Mz}$

$$\begin{aligned}\tau_{||} &= \tau_{||,Fx} + \tau_{||,Fy} + \tau_{||,Fz} + \tau_{||,Mx} + \tau_{||,My} + \tau_{||,Mz} \\ \sigma_{\beta} &= \sigma_{\beta,Fx} + \sigma_{\beta,Fy} + \sigma_{\beta,Fz} + \sigma_{\beta,Mx} + \sigma_{\beta,My} + \sigma_{\beta,Mz} \\ \tau_{\beta} &= \tau_{\beta,Fx} + \tau_{\beta,Fy} + \tau_{\beta,Fz} + \tau_{\beta,Mx} + \tau_{\beta,My} + \tau_{\beta,Mz}\end{aligned}$$

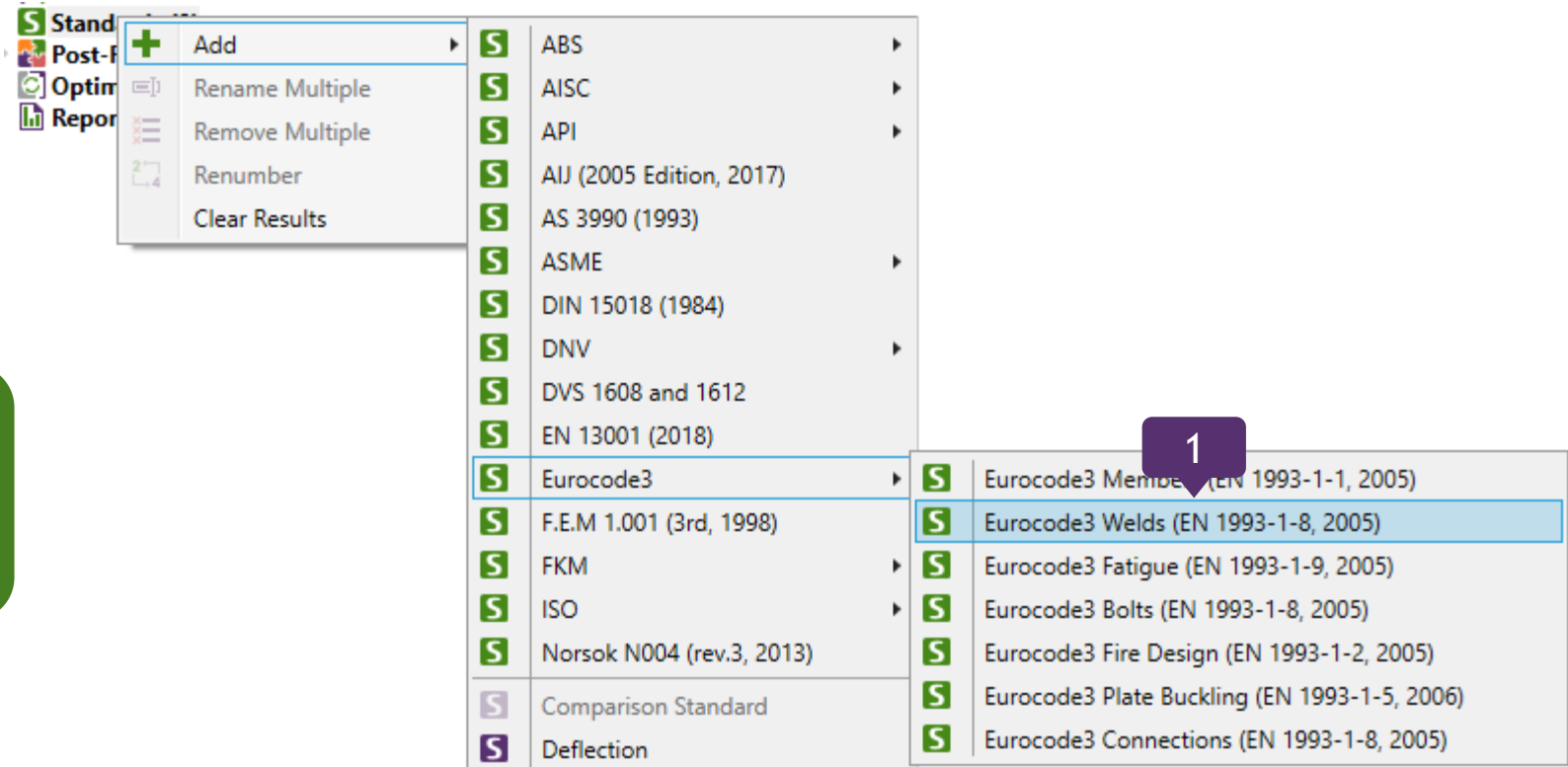
Von Mises stress at certain point.

$$\sigma_{VM} = \sqrt{\sigma_{\perp}^2 + 3 * (\tau_{\perp}^2 + \tau_{||}^2)}$$

1


Execute **Add => Eurocode3 Weld**
(EN 1993-1-8. 2005) in the Standards
context menu.

Eurocode3 Weld (EN 1993-1-8. 2005) Design of joints is implemented to verify the structure stability of each structural member (weld).



Weld Selection gives a possibility to include or exclude weld(s), preview chosen weld(s) or go to weld finder.

1

Press the button  to select the **Correction factor**.

2

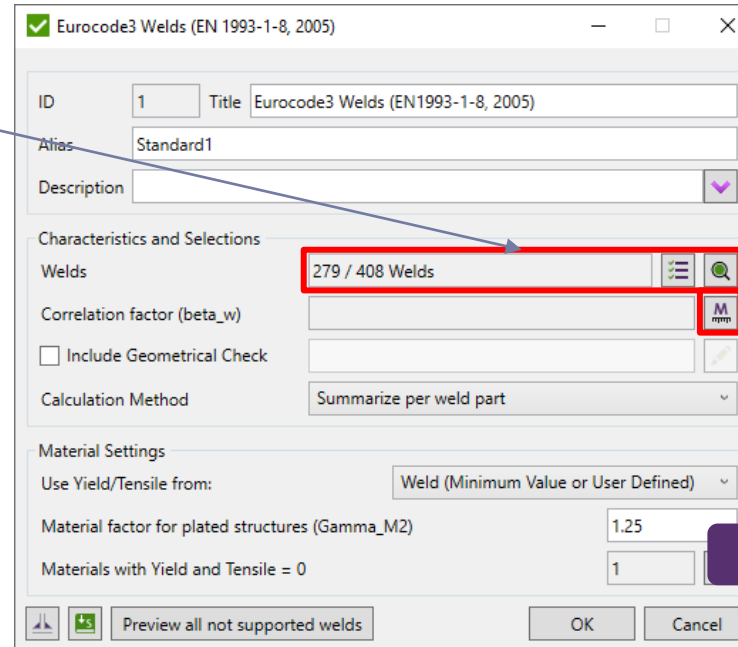
Select the material for which the **Correction factor** will be applied.

3

Input value of the **Correction factor** according to the table 4.1, and press **Apply to selected**.

4

Press **OK**.



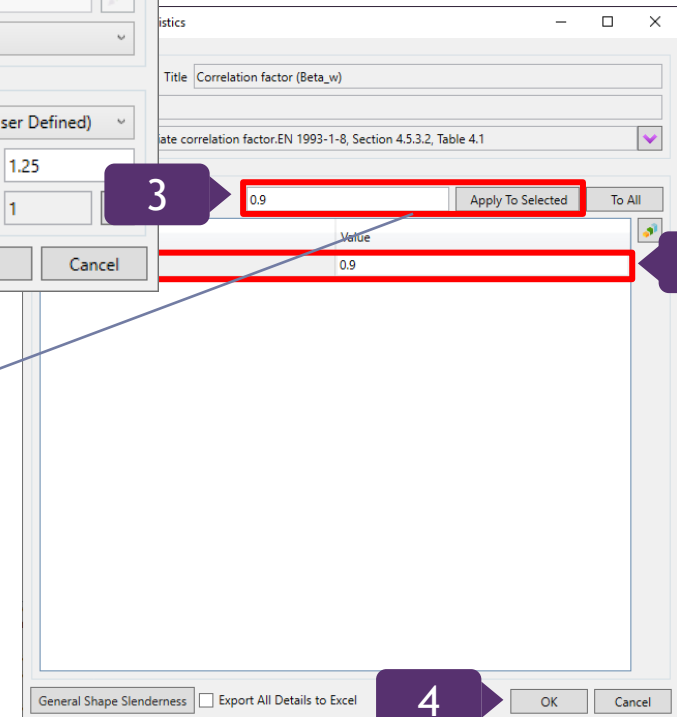
1

3

2

Table 4.1: Correlation factor β_w for fillet welds

Standard and steel grade			Correlation factor β_w
EN 10025	EN 10210	EN 10219	
S 235 S 235 W	S 235 H	S 235 H	0,8
S 275 S 275 N/NL S 275 M/ML	S 275 H S 275 NH/NLH	S 275 H S 275 NH/NLH S 275 MH/MLH	0,85
S 355 S 355 N/NL S 355 M/ML S 355 W	S 355 H S 355 NH/NLH	S 355 H S 355 NH/NLH S 355 MH/MLH	0,9
S 420 N/NL S 420 M/ML		S 420 MH/MLH	1,0
S 460 N/NL S 460 M/ML S 460 Q/QL/QL1	S 460 NH/NLH	S 460 NH/NLH S 460 MH/MLH	1,0



4

1

Press the button  to apply **Material Yield and Tensile** parameters.

2

Select the material for which the **Properties** will be applied.

3

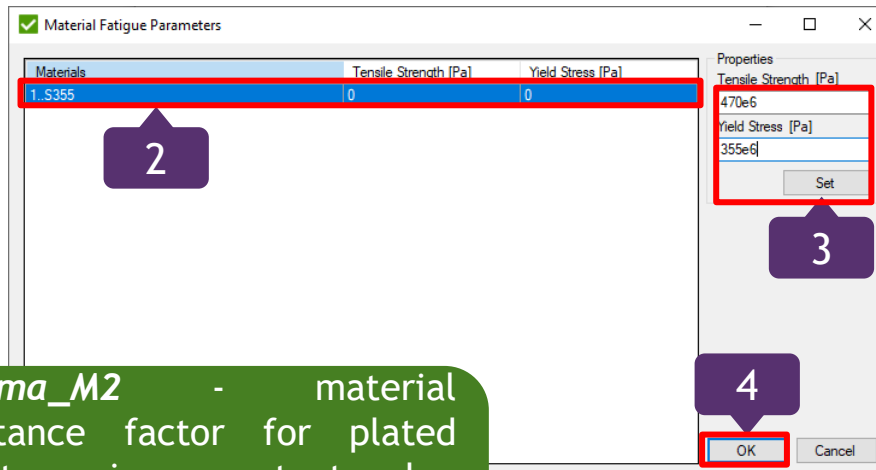
Input value of the **Material Yield and Tensile** parameters, and press *Set*.

4

Press *OK*.

5

Press *OK*.



The dialog box 'Material Fatigue Parameters' contains a table with columns 'Materials', 'Tensile Strength [Pa]', and 'Yield Stress [Pa]'. The first row is highlighted in red and contains the values '1.S355', '0', and '0'. To the right of the table is a 'Properties' section with 'Tensile Strength [Pa]' set to '470e6' and 'Yield Stress [Pa]' set to '355e6'. A red box highlights these two input fields and the 'Set' button below them. At the bottom of the dialog, the 'OK' button is highlighted with a red box.

Materials	Tensile Strength [Pa]	Yield Stress [Pa]
1.S355	0	0

Properties

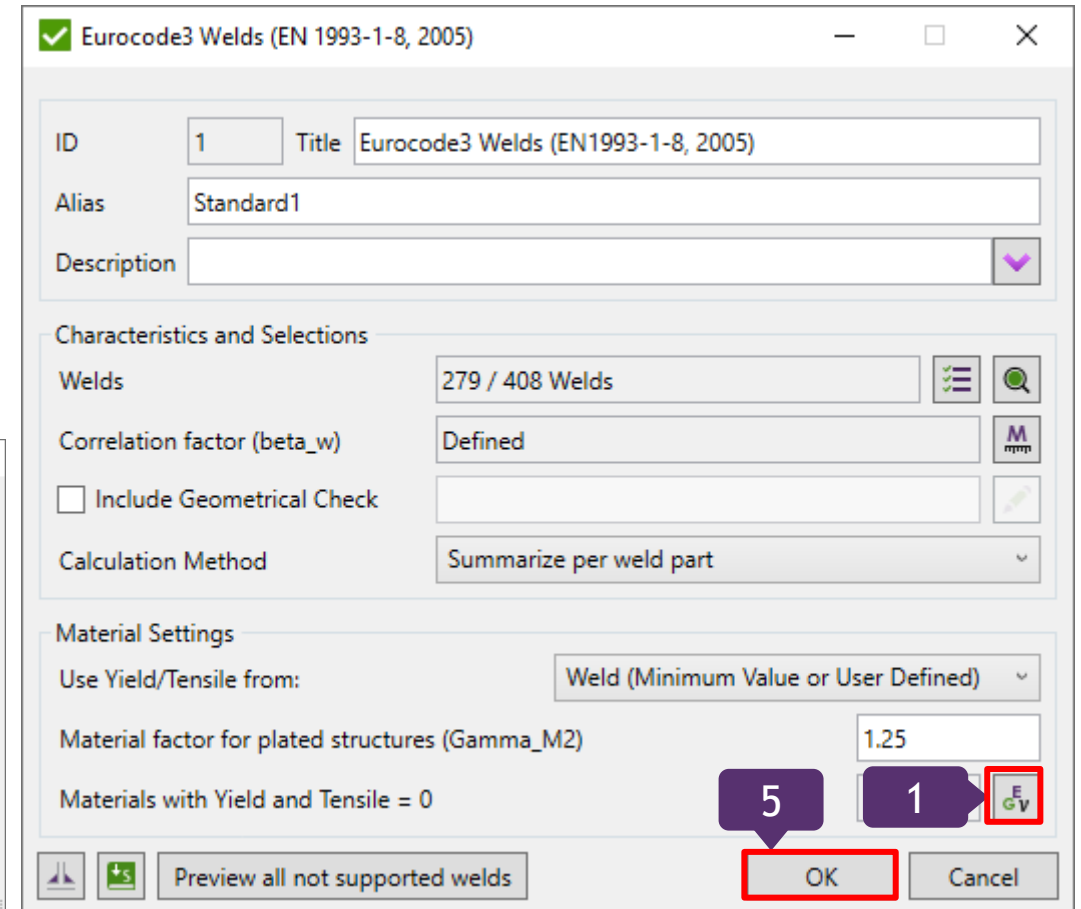
Tensile Strength [Pa] 470e6

Yield Stress [Pa] 355e6

Set

OK Cancel

Gamma_M2 - material resistance factor for plated structures is a constant value (=1.25) and used in calculations to check a base material strength.



The dialog box 'Eurocode3 Welds (EN 1993-1-8, 2005)' contains several sections. The 'Characteristics and Selections' section has 'Welds' set to '279 / 408 Welds', 'Correlation factor (beta_w)' set to 'Defined', and 'Calculation Method' set to 'Summarize per weld part'. The 'Material Settings' section has 'Use Yield/Tensile from:' set to 'Weld (Minimum Value or User Defined)', 'Material factor for plated structures (Gamma_M2)' set to '1.25', and 'Materials with Yield and Tensile = 0'. At the bottom right, there is a button with the 'E V' icon, which is highlighted with a red box. The 'OK' button at the bottom center is also highlighted with a red box.

ID 1 Title Eurocode3 Welds (EN1993-1-8, 2005)

Alias Standard1

Description

Characteristics and Selections

Welds 279 / 408 Welds

Correlation factor (beta_w) Defined

☐ Include Geometrical Check

Calculation Method Summarize per weld part

Material Settings

Use Yield/Tensile from: Weld (Minimum Value or User Defined)

Material factor for plated structures (Gamma_M2) 1.25

Materials with Yield and Tensile = 0


OK Cancel

Create extreme table

1

Execute **Extreme Table** in the **Weld Check Total** context menu.

2

Press the  button and select **Load Group 1**

3

Press **OK**.

4

Selection: **All Entities**.

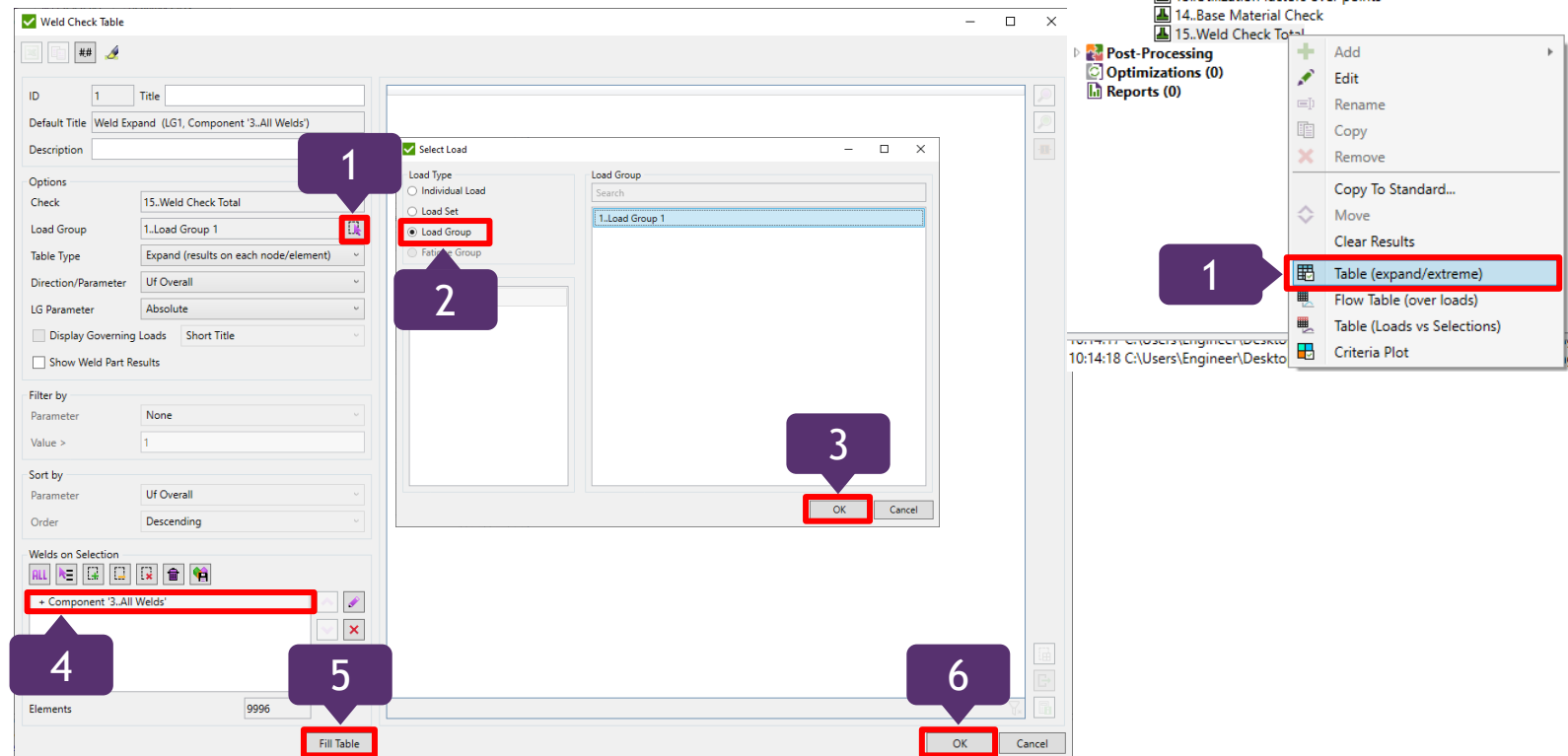
5

Press **Fill Table**.

6

Press **OK**.

Extreme table for '1..Load Group 1' can be added to DNV OS-C101 and DNV OS-C201 standards respectively.



Create criteria plot

1 Execute **Criteria Plot** in the **Weld Strength Check** context menu

2 Load: **Load Group 1**;
Parameter: **UF Overall**.

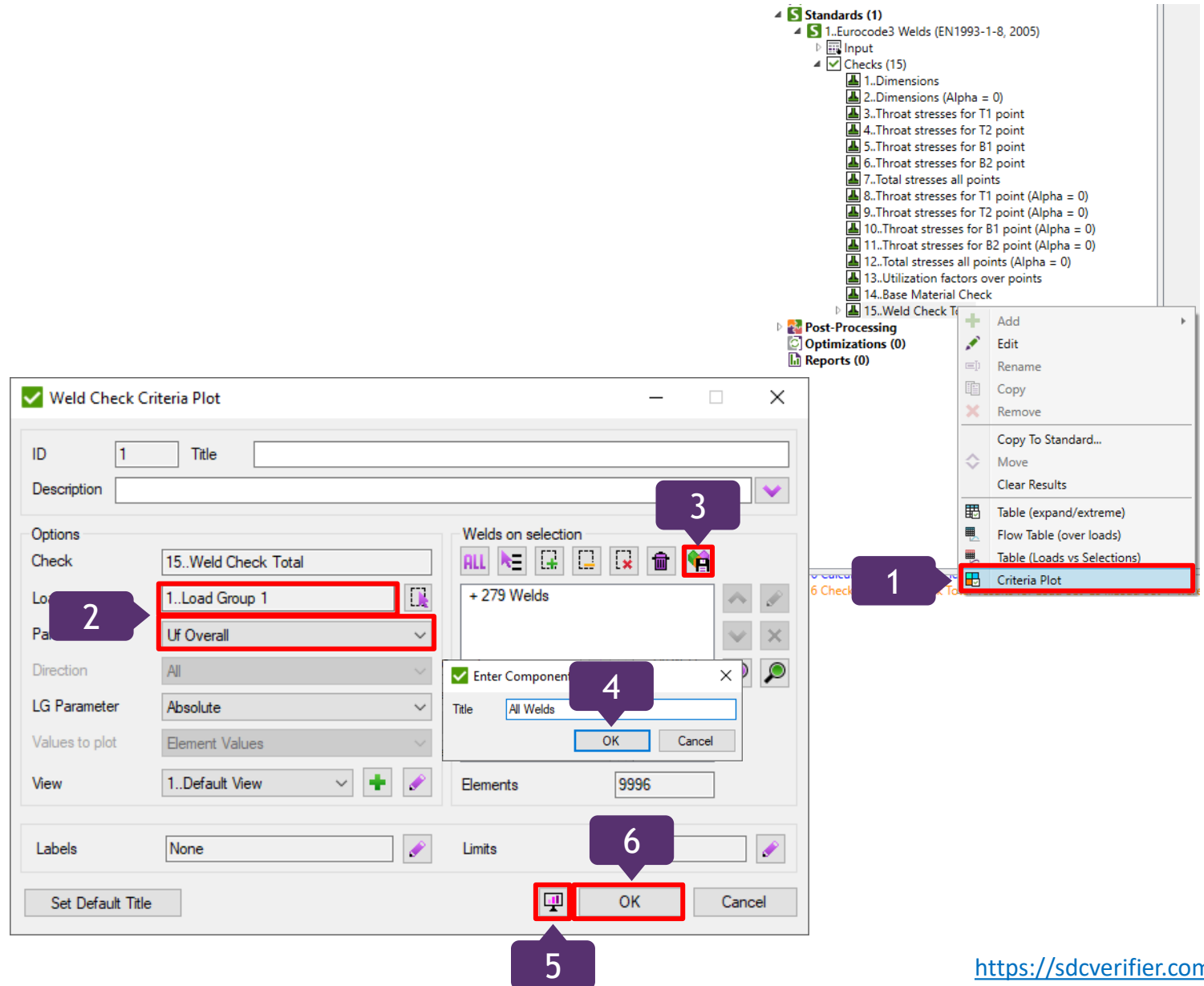
3 Press **Save as component**.

4 Name **All Welds**.

5 Press the  to preview Plot in Femap

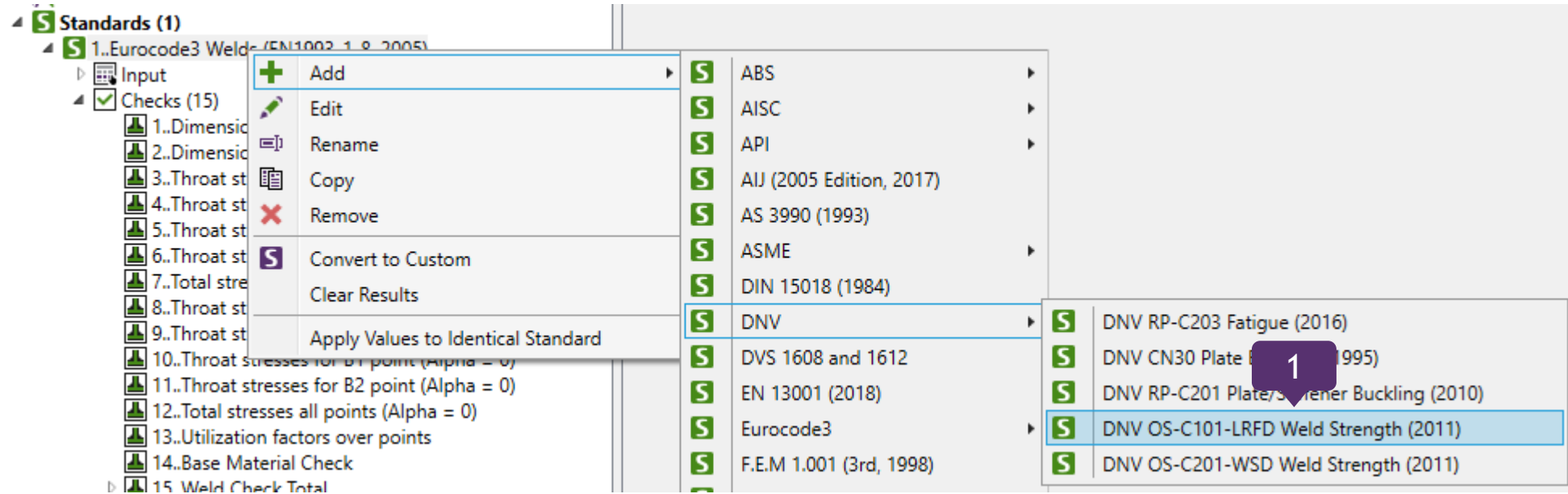
6 Press **OK**.

Criteria plot for '1..Load Group 1' can be added to DNV OS-C101 and DNV OS-C201 standards respectively.



1

Execute *Criteria Plot* in the *Weld Strength Check* context menu



The offshore standard *DNV OS-C101 (released in April, 2011)* verifies structural stability for each structural member (weld).

Weld Selection gives a possibility to include or exclude weld(s), preview chosen weld(s) or go to weld finder.

1

Press the button  to select **Correction factor**.

2

Select the material for which the **Correction factor** will be applied.

3

Input value of the **Correction factor** according to the table, and press *Apply to selected*.

4

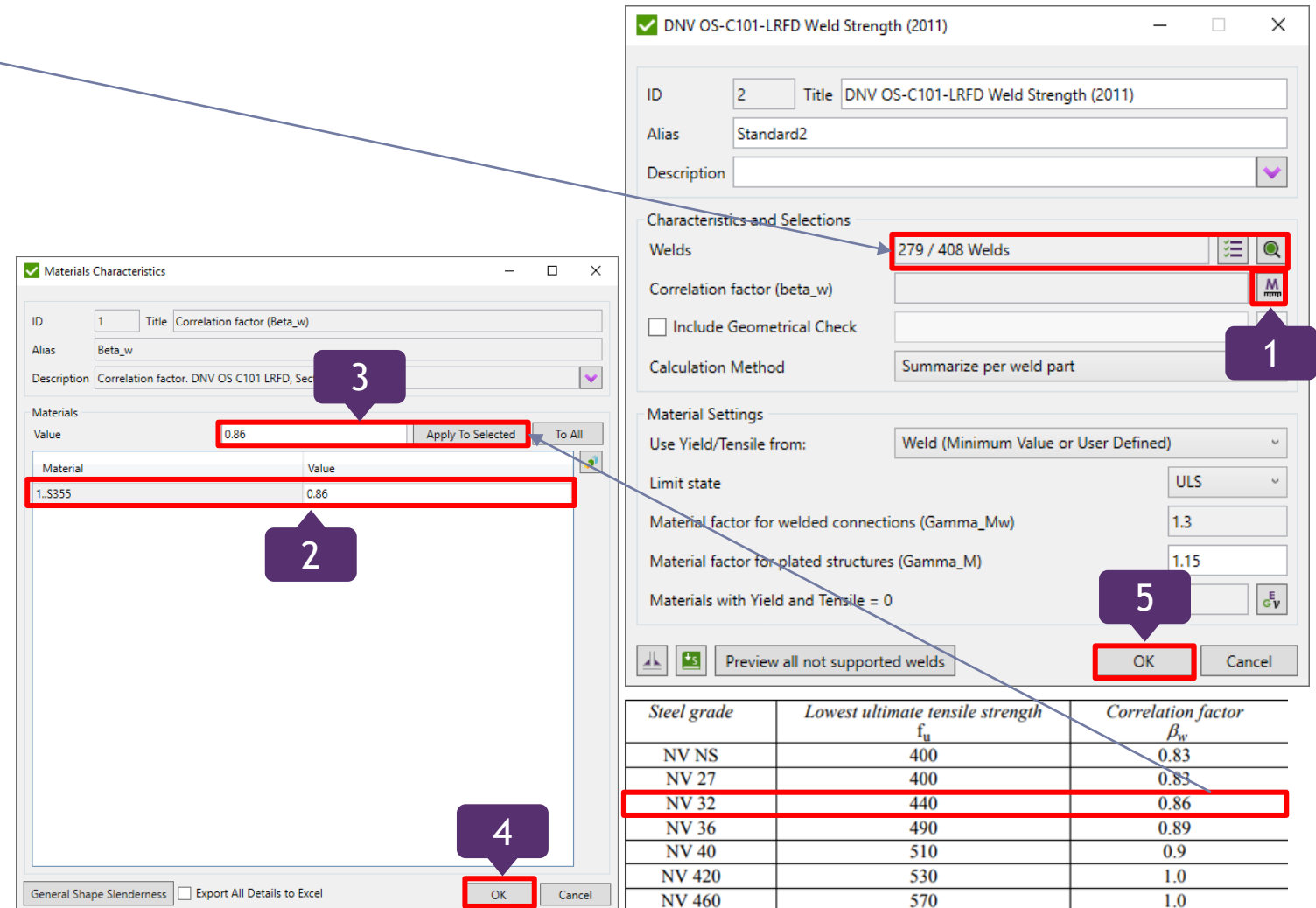
Press **OK**.

5

Press **OK**.

6

Make same action as in slide 20-21 for **DNV OS-C101-LRFD Weld Strength (2011)**



Materials Characteristics

ID: 1 Title: Correlation factor (Beta_w)

Alias: Beta_w

Description: Correlation factor, DNV OS C101 LRFD, Sec

Materials

Value: 0.86 Apply To Selected To All

Material	Value
1.S355	0.86

DNV OS-C101-LRFD Weld Strength (2011)

ID: 2 Title: DNV OS-C101-LRFD Weld Strength (2011)

Alias: Standard2

Description:

Characteristics and Selections

Welds: 279 / 408 Welds

Correlation factor (beta_w): 0.86

☐ Include Geometrical Check

Calculation Method: Summarize per weld part

Material Settings

Use Yield/Tensile from: Weld (Minimum Value or User Defined)

Limit state: ULS

Material factor for welded connections (Gamma_Mw): 1.3

Material factor for plated structures (Gamma_M): 1.15

Materials with Yield and Tensile = 0

Preview all not supported welds

OK Cancel

Steel grade	Lowest ultimate tensile strength f_u	Correlation factor β_w
NV NS	400	0.83
NV 27	400	0.83
NV 32	440	0.86
NV 36	490	0.89
NV 40	510	0.9
NV 420	530	1.0
NV 460	570	1.0

✓ DNV OS-C101-LRFD Weld Strength (2011)

ID: 2 Title: DNV OS-C101-LRFD Weld Strength (2011)

Alias: Standard2

Description:

Characteristics and Selections

Welds: 279 / 408 Welds

Correlation factor (beta_w): Defined

☐ Include Geometrical Check

Calculation Method: Summarize per weld part

Material Settings

Use Yield/Tensile from: Weld (Minimum Value or User Defined)

Limit state: ULS

Material factor for welded connections (Gamma_Mw): 1.3

Material factor for plated structures (Gamma_M): 1.15

Materials with Yield and Tensile = 0

OK Cancel

Gamma_Mw - material factor that is used for DNV OS C 101 calculation can be found in Table C1, section 9 of the standard.

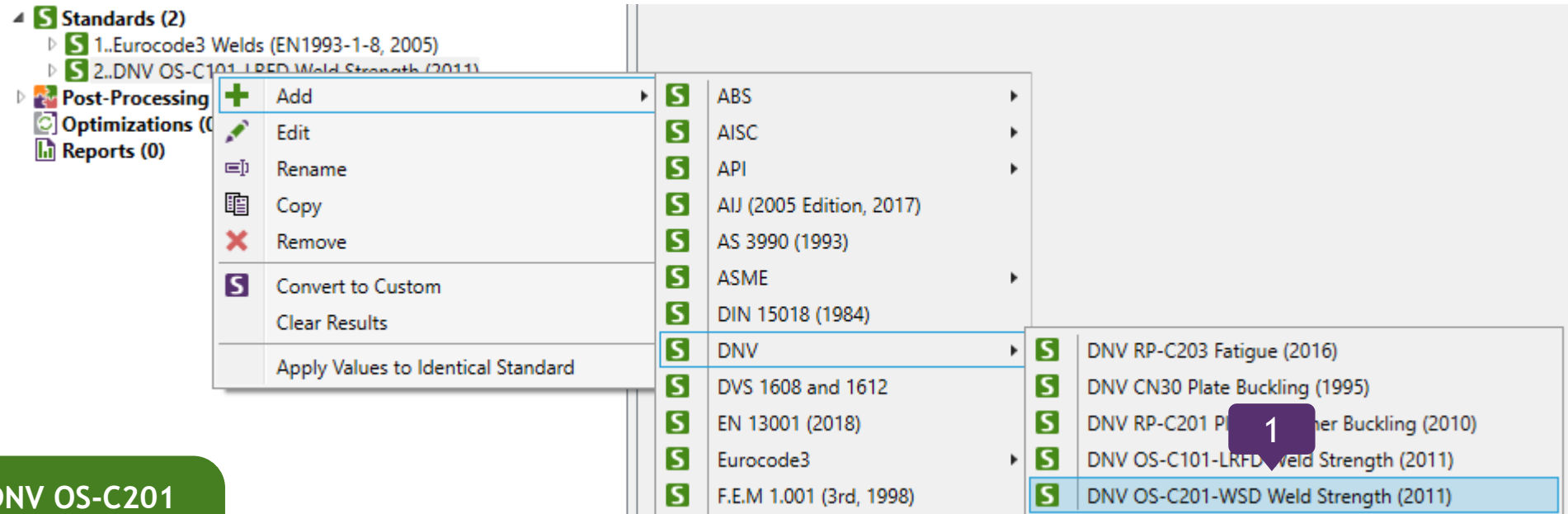
101 The material factors γ_{Mw} for welded connections are given in Table C1.

Table C1 Material factors γ_{Mw} for welded connections	
Limit states	Material factor
ULS	1.3
ALS	1.0

Gamma_M - material resistance factor for plated structures is a constant value (=1.15) and used in calculations to check base material strength.

1

Execute Add => DNV OS-C201 WSD Weld Strength (2011) in the Standards context menu.



The offshore standard DNV OS-C201 (released in April, 2011) verifies structural stability for each structural member (weld)

Weld Selection gives a possibility to include or exclude weld(s), preview chosen weld(s) or go to weld finder.

1

Press the button  to select **Correction factor**.

2

Select the material for which the **Correction factor** will be applied.

3

Input value of the **Correction factor** according to the table, and press *Apply to selected*.

4

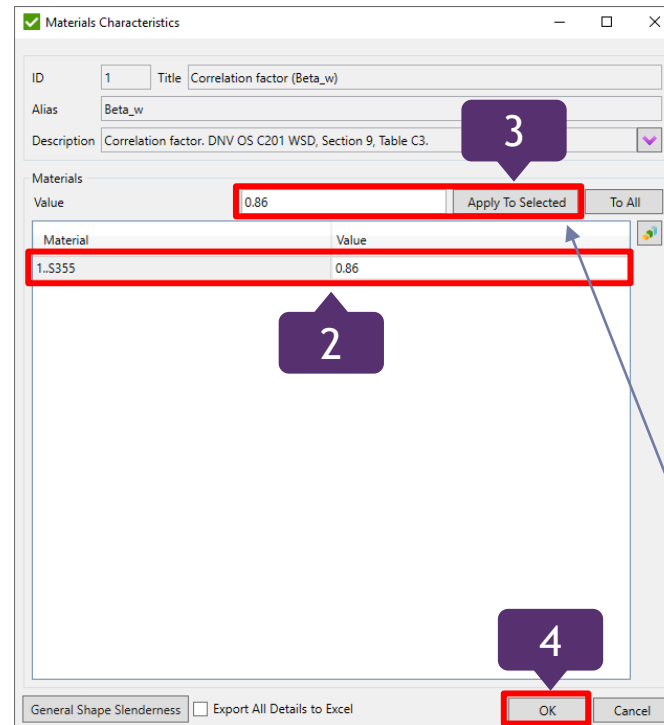
Press **OK**.

5

Press **OK**.

6

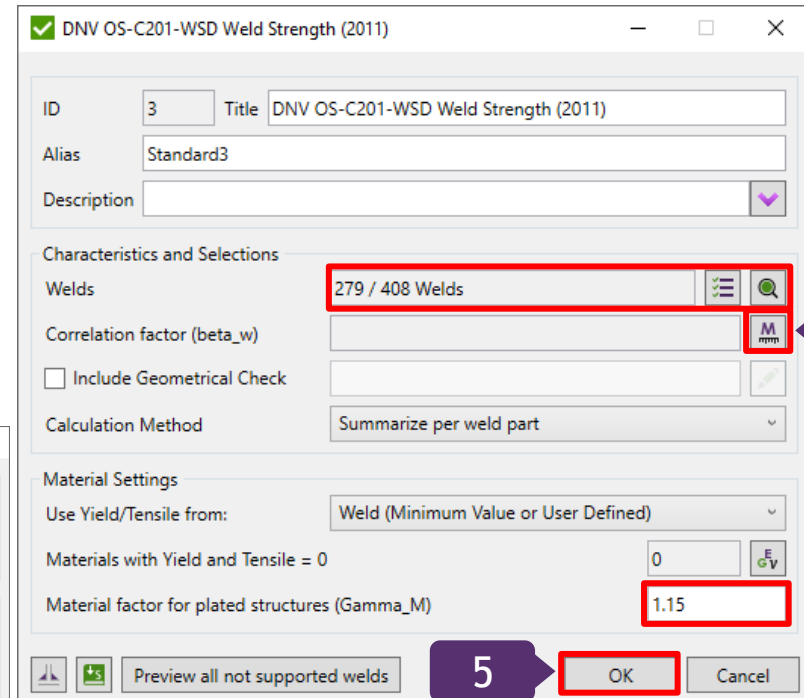
Make same action as in slide 20-21 for **DNV OS-C201-WSD Weld Strength (2011)**



The dialog box 'Materials Characteristics' shows the following details:

- ID: 1, Title: Correlation factor (Beta_w)
- Alias: Beta_w
- Description: Correlation factor. DNV OS C201 WSD, Section 9, Table C3.
- Materials table:

Material	Value
1.S355	0.86
- Buttons: 'Apply To Selected' (highlighted with a red box and arrow 3), 'OK' (highlighted with a red box and arrow 4), 'Cancel'.



The dialog box 'DNV OS-C201-WSD Weld Strength (2011)' shows the following details:

- ID: 3, Title: DNV OS-C201-WSD Weld Strength (2011)
- Alias: Standard3
- Description: (empty)
- Characteristics and Selections:
 - Welds: 279 / 408 Welds (highlighted with a red box)
 - Correlation factor (beta_w): (empty)
 - Include Geometrical Check: ☐
 - Calculation Method: Summarize per weld part
- Material Settings:
 - Use Yield/Tensile from: Weld (Minimum Value or User Defined)
 - Materials with Yield and Tensile = 0: 0
 - Material factor for plated structures (Gamma_M): 1.15 (highlighted with a red box)
- Buttons: 'Preview all not supported welds', 'OK' (highlighted with a red box and arrow 5), 'Cancel'.

Gamma_M - material resistance factor for plated structures is a constant value (=1.15) and used in calculations to check base material strength.

Steel grade	Lowest ultimate tensile strength f_u	Correlation factor β_w
NV NS	400	0.83
NV 27	400	0.83
NV 32	440	0.86
NV 36	490	0.89
NV 40	510	0.9
NV 420	530	1.0
NV 460	570	1.0

Add Governing Load

1 Post Processing => Governing Loads => Add

2 Result: from Check;

3 Standard: Eurocode 3 Weld.

4 Check: Weld Check Total.

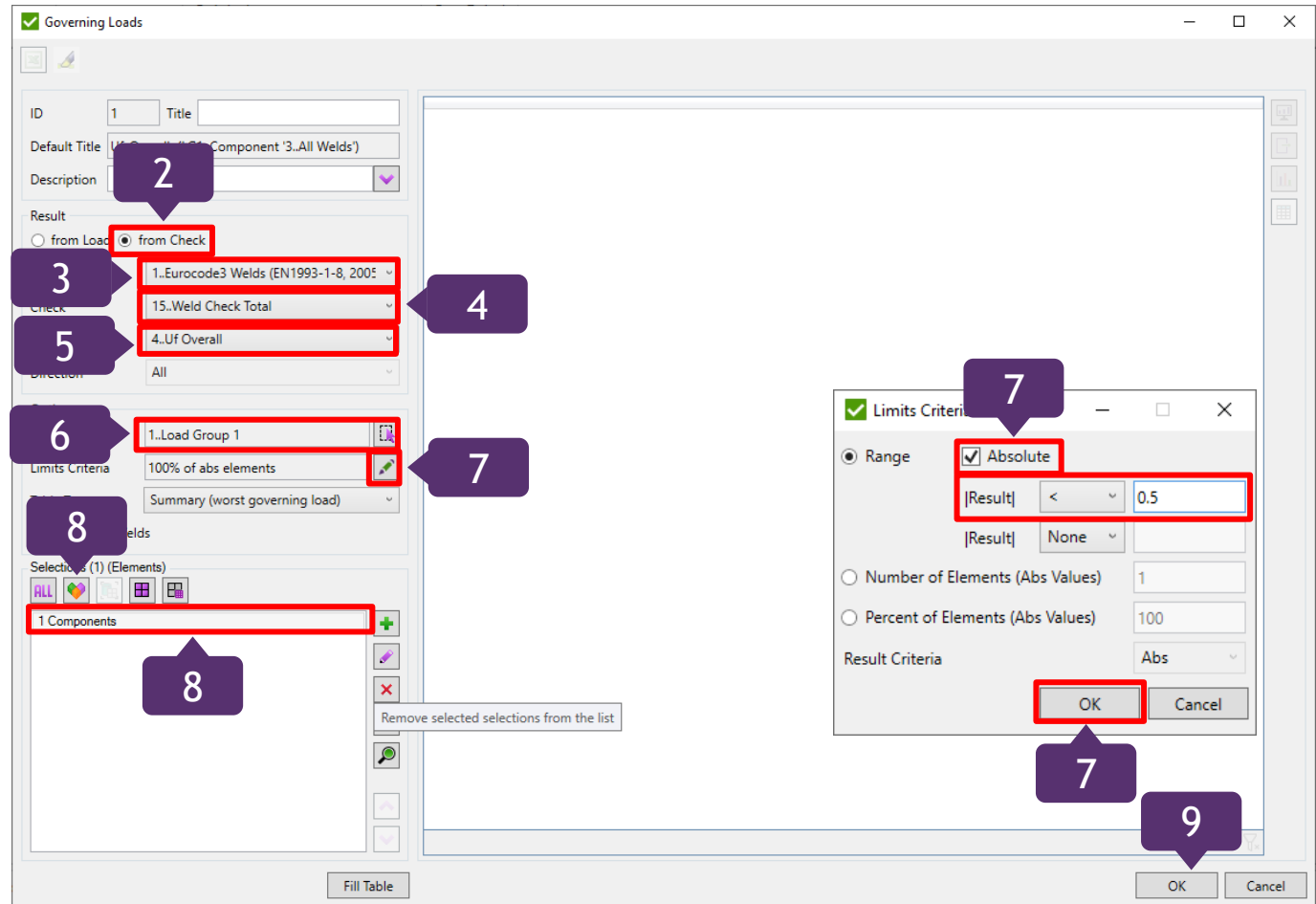
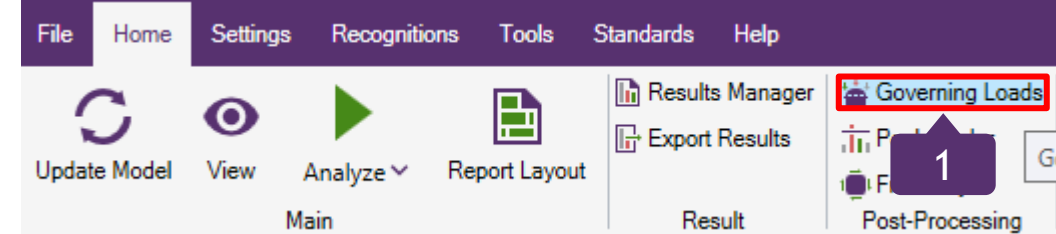
5 Parameter: Uf Overall.

6 Load Group: Load Group 1.

7 Press **Absolute** in Limits Criteria => **Absolute**; **Result** < 0.5 => OK

8 Selection: **Components** => **All Loads**

9 Press **OK**.



Add Governing Load

1

Make the action as in 27 slide for DNV OS-C101-LRFD Weld Strength (2011)

2

Make the action as in 27 slide for DNV OS-C201-WSD Weld Strength (2011)

▲ S Standards (3)

▷ S 1..Eurocode3 Welds (EN1993-1-8, 2005)

1

▷ S 2..DNV OS-C101-LRFD Weld Strength (2011)

▷ S 3..DNV OS-C201-WSD Weld Strength (2011)

2

1 Execute Reports => Add => Designer - Results

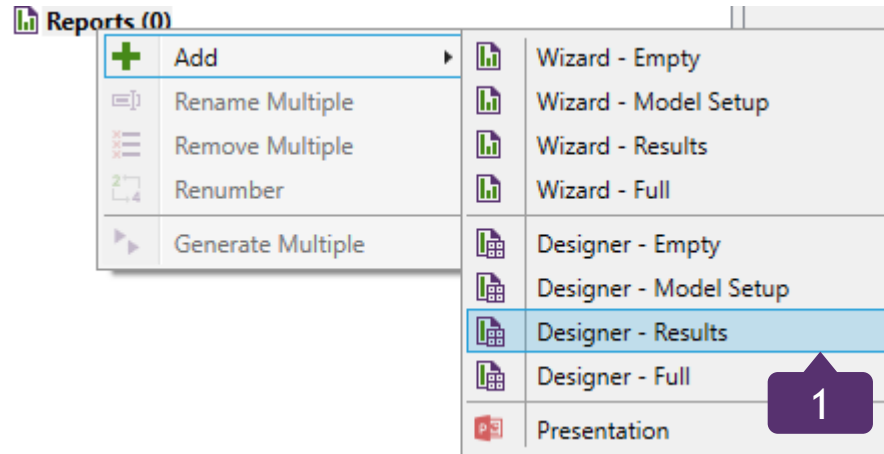
There are 4 templates of the reports:

Empty - only first page and preface items are included;

Model Setup - description of the 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. In addition all standards are included with a set of tables/plots created in the project;

Full - Model Setup + Results + all tables/plots created in jobs.



1

Post Processing => Governing Loads => Import

2

Select Governing Loads(LG1) => OK

3

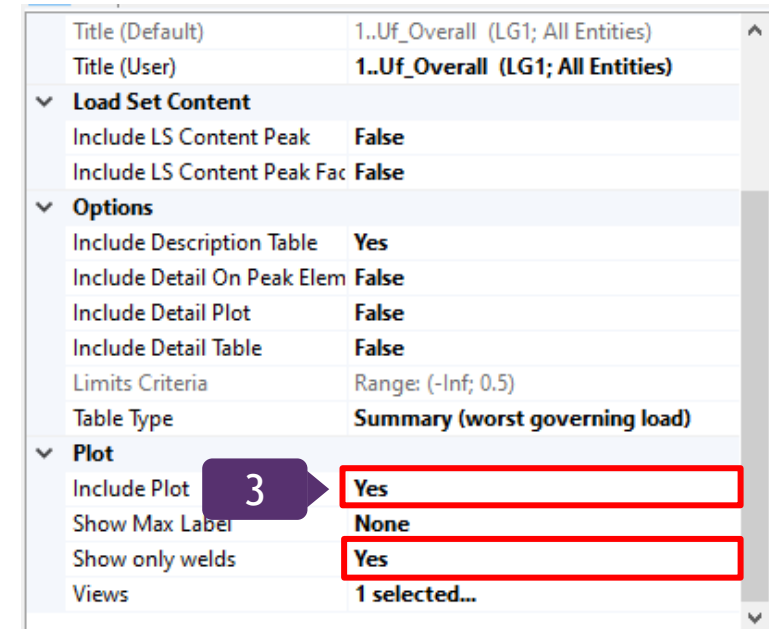
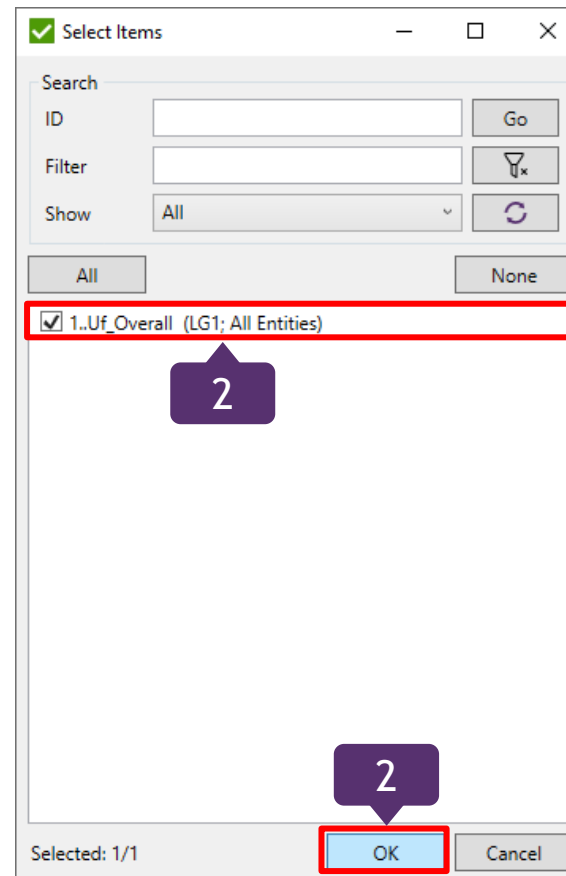
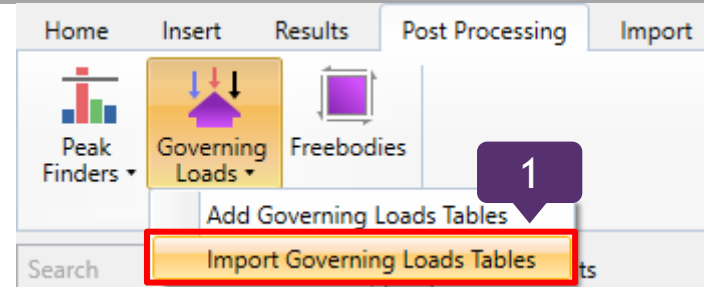
Include Plot: Yes.
Show only welds: Yes.

4


Make the same action for DNV OS-C101-LRFD Weld Strength (2011)

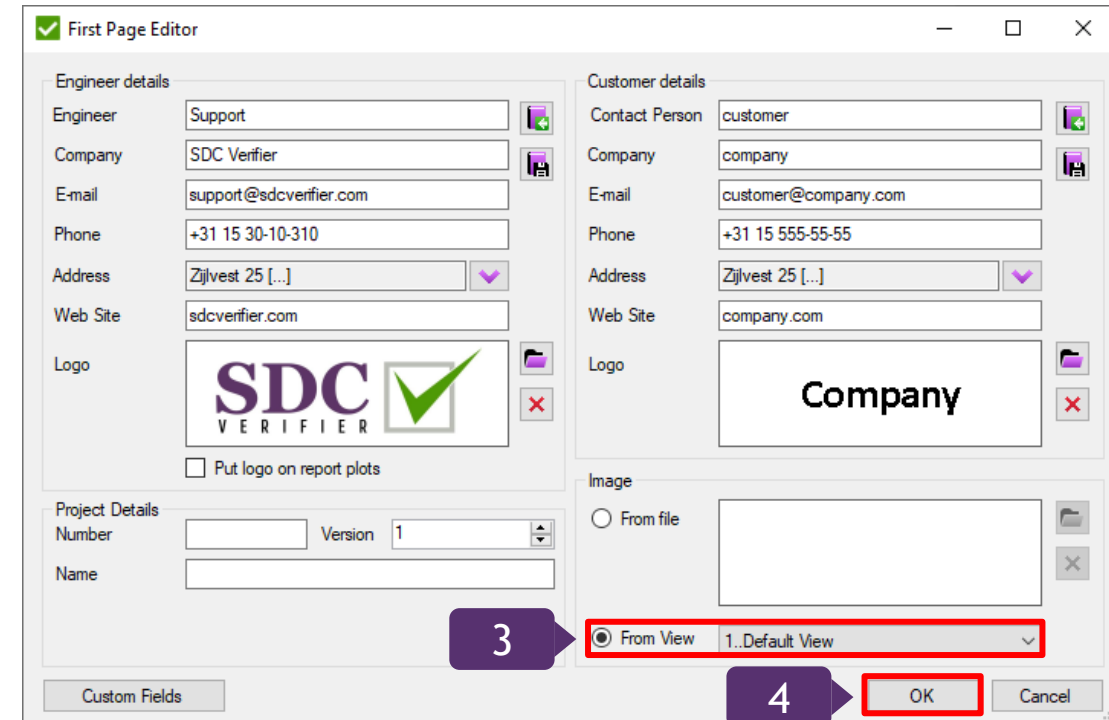
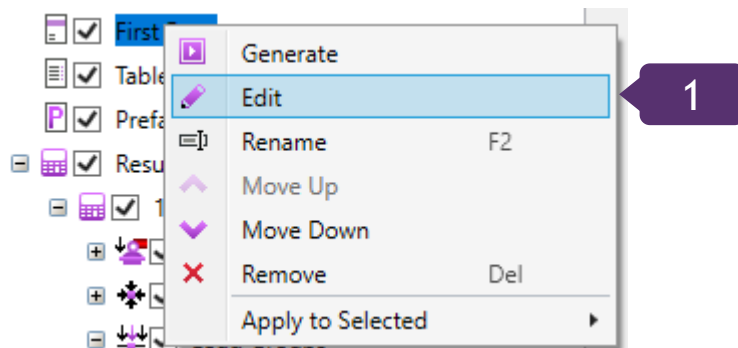
5

Make the same action for DNV OS-C201-WSD Weld Strength (2011)

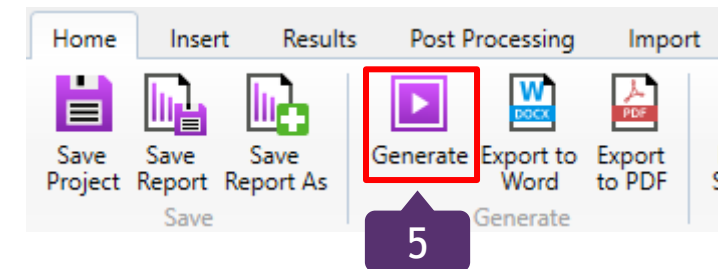


Report - First Page

- 1 Right click on *First Page* => **Edit**.
- 2 Fill in information about project.
- 3 Select Image *From View* and pick.
- 4 Press **OK**.
- 5 Press button  to generate report.



A screenshot of the 'First Page Editor' dialog box. It contains two main sections: 'Engineer details' and 'Customer details'. The 'Engineer details' section includes fields for Engineer (Support), Company (SDC Verifier), E-mail (support@sdcverifier.com), Phone (+31 15 30-10-310), Address (Zijvest 25 [...]), Web Site (sdcverifier.com), and a logo field showing the SDC Verifier logo. The 'Customer details' section includes fields for Contact Person (customer), Company (company), E-mail (customer@company.com), Phone (+31 15 555-55-55), Address (Zijvest 25 [...]), Web Site (company.com), and a logo field showing the word 'Company'. There is also a 'Project Details' section with fields for Number and Name, and a 'Version' dropdown set to '1'. At the bottom, there is a 'Custom Fields' button. A red box highlights the 'From View' radio button and the '1..Default View' dropdown menu, with a purple circle '3' pointing to it. Another red box highlights the 'OK' button, with a purple circle '4' pointing to it.



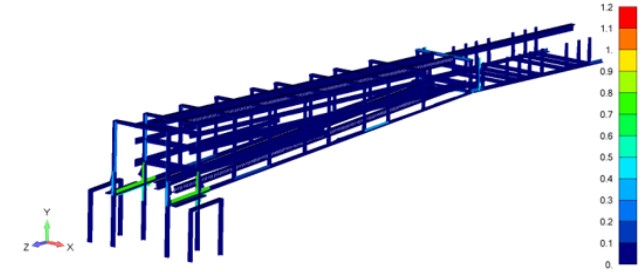
Eurocode3

Load Group '1..Load Group 1'

1..Eurocode3 Welds (EN1993-1-8, 2005)

Weld Extreme (LG1, All Entities)			
Standard	1..Eurocode3 Welds (EN1993-1-8, 2005)	Check Selection	[S1] 15..Weld Check Total
Load Group	LG1..Load Group 1		All Entities
Extreme		All	
Minimum			0.00
Maximum			0.79
Absolute			0.79

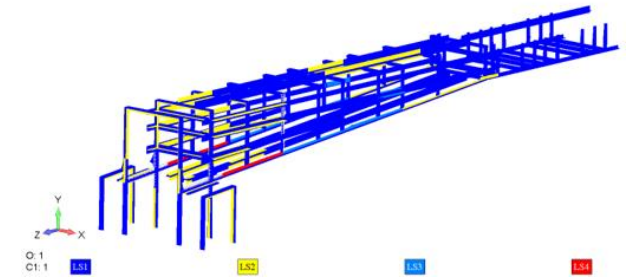
1..Abs Uf Overall (LG1, Component '3..All Welds', v1)



Check Parameter View	[S1] 15..Weld Check Total Absolute Uf Overall 1..Default View	Load Group Selection	LG1..Load Group 1 Component '3..All Welds'
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1..Uf Overall (LG1; Component '3..All Welds')

Standard Check Criteria	1. Eurocode3 Welds (EN1993-1-8, 2005) 15. Weld Check Total Range: (-Inf; 0.5)	Direction Parameter	All 4. Uf Overall		
	Selection	Elements Count	Peak Entity Id	Peak Value	Load
Component '3. All Welds'	9996 / 9996	5849	0.44	LS1. Load Set 1	

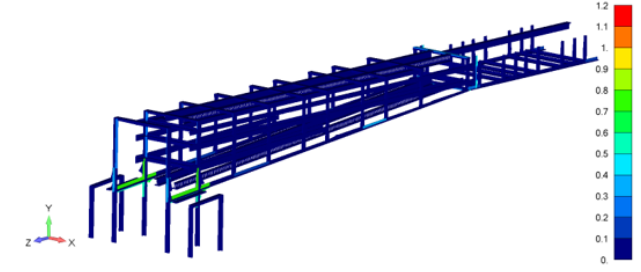


DNV OS-C101

2..DNV OS-C101-LRFD Weld Strength (2011)

Weld Extreme (LG1, Component '3..All Welds')			
Standard	2..DNV OS-C101-LRFD Weld Strength (2011)	Check Selection	[S2] 15..Weld Check Total
Load Group	LG1..Load Group 1		Component '3..All Welds'
Extreme		All	
Minimum			0.00
Maximum			0.79
Absolute			0.79

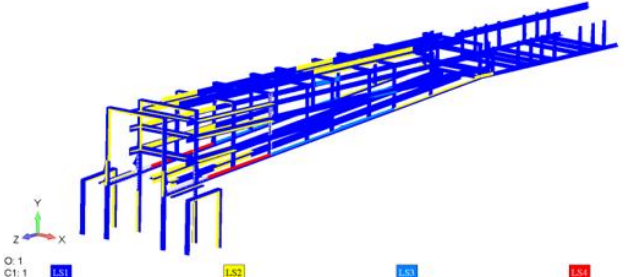
1..Abs Uf Overall (LG1, 279 Welds, v1)



Check Parameter View	[S2] 15..Weld Check Total Absolute Uf Overall 1..Default View	Load Group Selection	LG1..Load Group 1 279 Welds
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2..Uf Overall (LG1; Component '3..All Welds')

Standard Check Criteria	2..DNV OS-C101-LRFD Weld Strength (2011) Direction Parameter		All 4..Uf Overall	
15..Weld Check Total Range: (-Inf; 0.5)				
Selection	Elements Count	Peak Entity Id	Peak Value	Load
Component '3..All Welds'	9996 / 9996	5849	0.44	LS1..Load Set 1

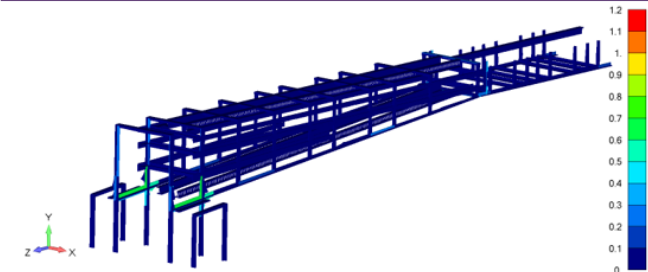


DNV OS-C201

3..DNV OS-C201-WSD Weld Strength (2011)

Weld Extreme (LG1, Component '3..All Welds')			
Standard	3..DNV OS-C201-WSD Weld Strength (2011)	Check Selection	[S3] 15..Weld Check Total
Load Group	LG1..Load Group 1		Component '3..All Welds'
Extreme		All	
Minimum			0.00
Maximum			0.64
Absolute			0.64

1..Abs Uf Overall (LG1, Component '3..All Welds', v1)



Check Parameter View	[S3] 15..Weld Check Total Absolute Uf Overall 1..Default View	Load Group Selection	LG1..Load Group 1 Component '3..All Welds'
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3..Uf Overall (LG1; Component '3..All Welds')

Standard Check Criteria	3..DNV OS-C201-WSD Weld Strength (2011) 15..Weld Check Total Range: (-Inf; 0.5)		Direction Parameter	All 4..Uf Overall	
Selection		Elements Count	Peak Entity Id	Peak Value	Load
Component '3..All Welds'		9996 / 9996	236	0.49	LS2..Load Set 2

