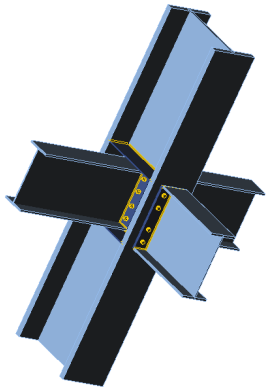
Tutorial - STAAD.Pro link

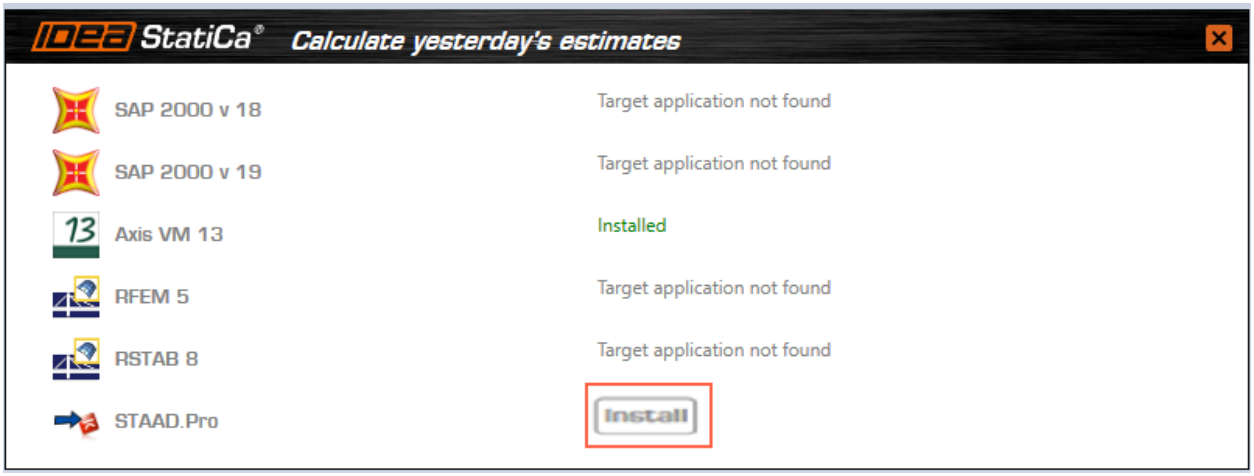
This tutorial will show how to activate and use the link between STAAD.Pro and IDEA StatiCa Steel Connection



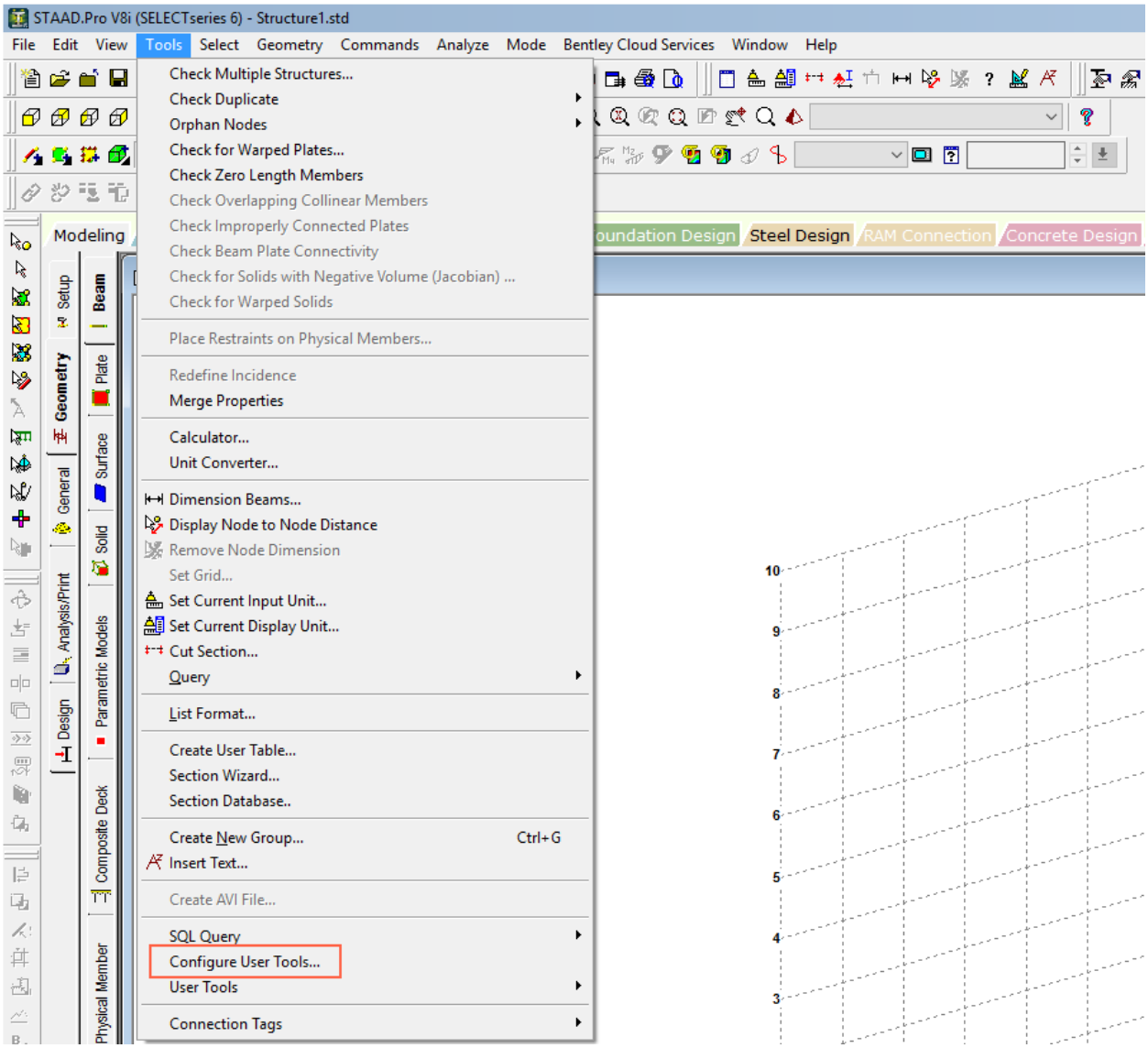
1 How to activate the link

1. STAAD.Pro V8i (version 20.07.11.70 and newer) must be installed on the computer.
2. Download and install the latest version of 32-bit IDEA StatiCa.
   Enhanced edition is required.
   Note: Only the **32 bit** version is linked to STAAD.Pro
3. After installation of both programs, run IDEA StatiCa, select **BIM** and continue with the item **Activate your BIM link** ...

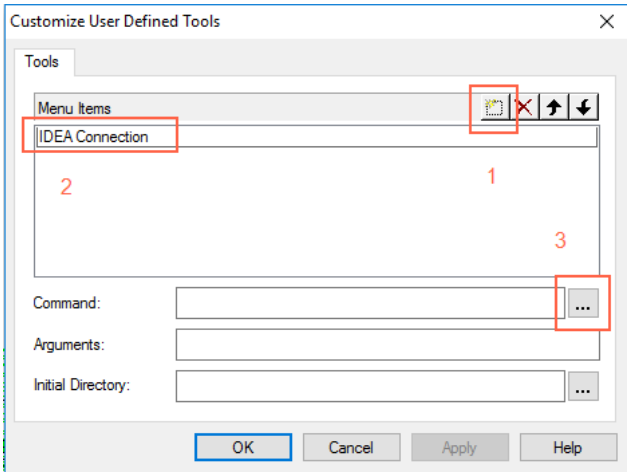
Select STAAD.Pro and click the button Install. The process of integration will start.

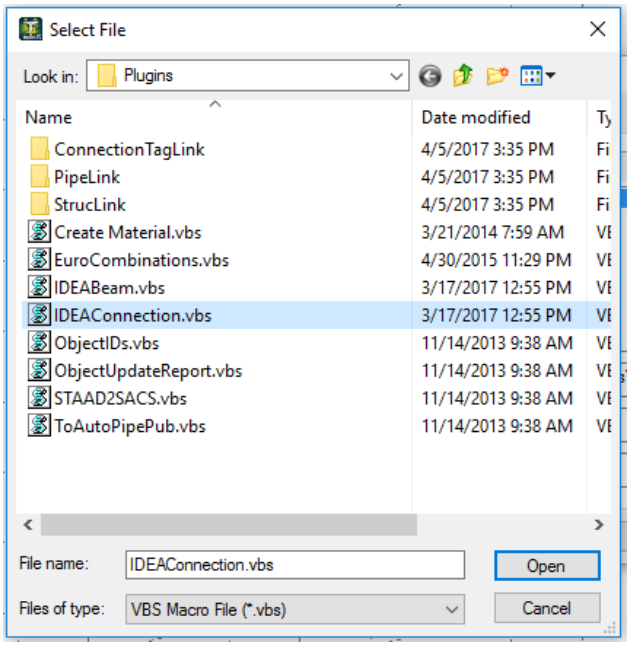


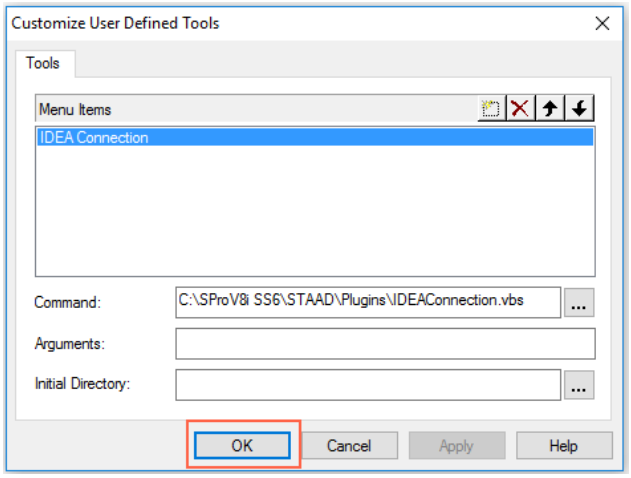
4. Start STAAD.Pro and in the menu **Tools** select the item **Configure User Tools**



5. In the active window, select **New** and enter the name IDEA Connection. You have to add the route to the plugin *IDEAConnection.vbs*, which is placed in the directory *C:\SProV8i SS6\STAAD\Plugins*.

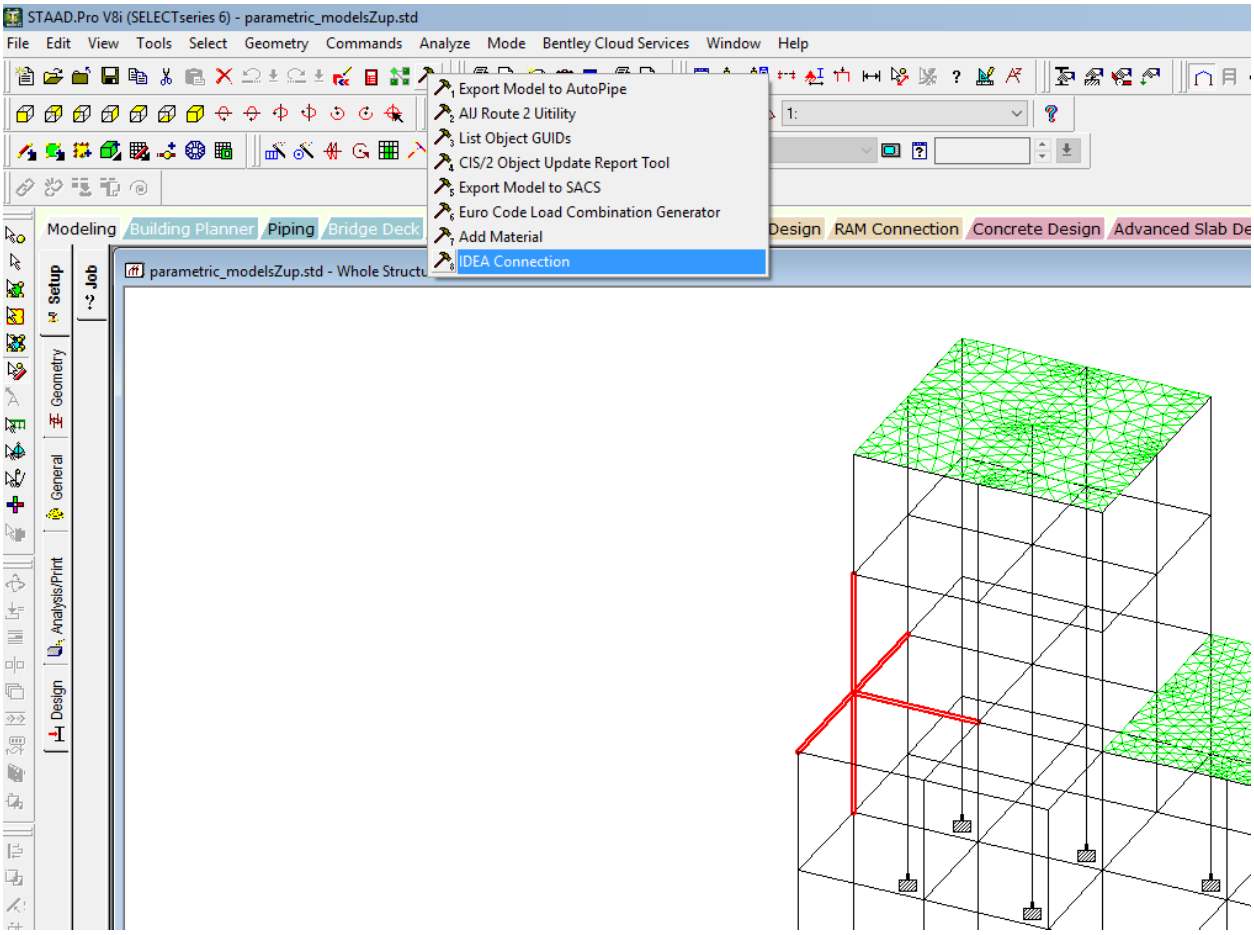





Customize User Defined Tools
Tools
Menu Items
IDEA Connection
Command:
C:\SProV8i SS6\STAAD\Plugins\IDEAConnection.vbs
Arguments:
Initial Directory:
OK
Cancel
Apply
Help

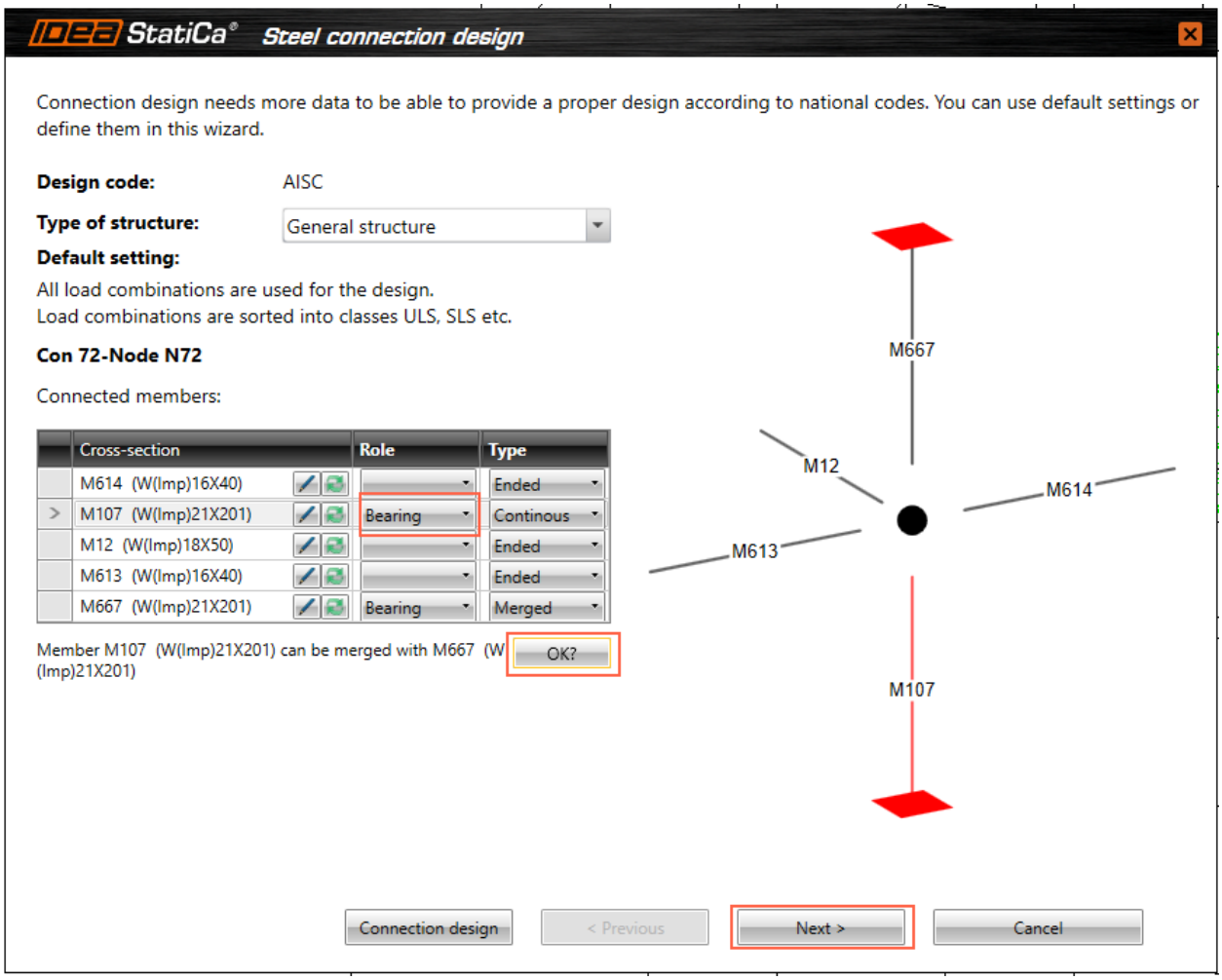
2 How to use the link

1. Open attached project in STAAD.Pro and run analysis.
2. Mark the node "**72**" and connecting members. In the menu bar select **Tools - User Tools** and click **IDEA Connection**

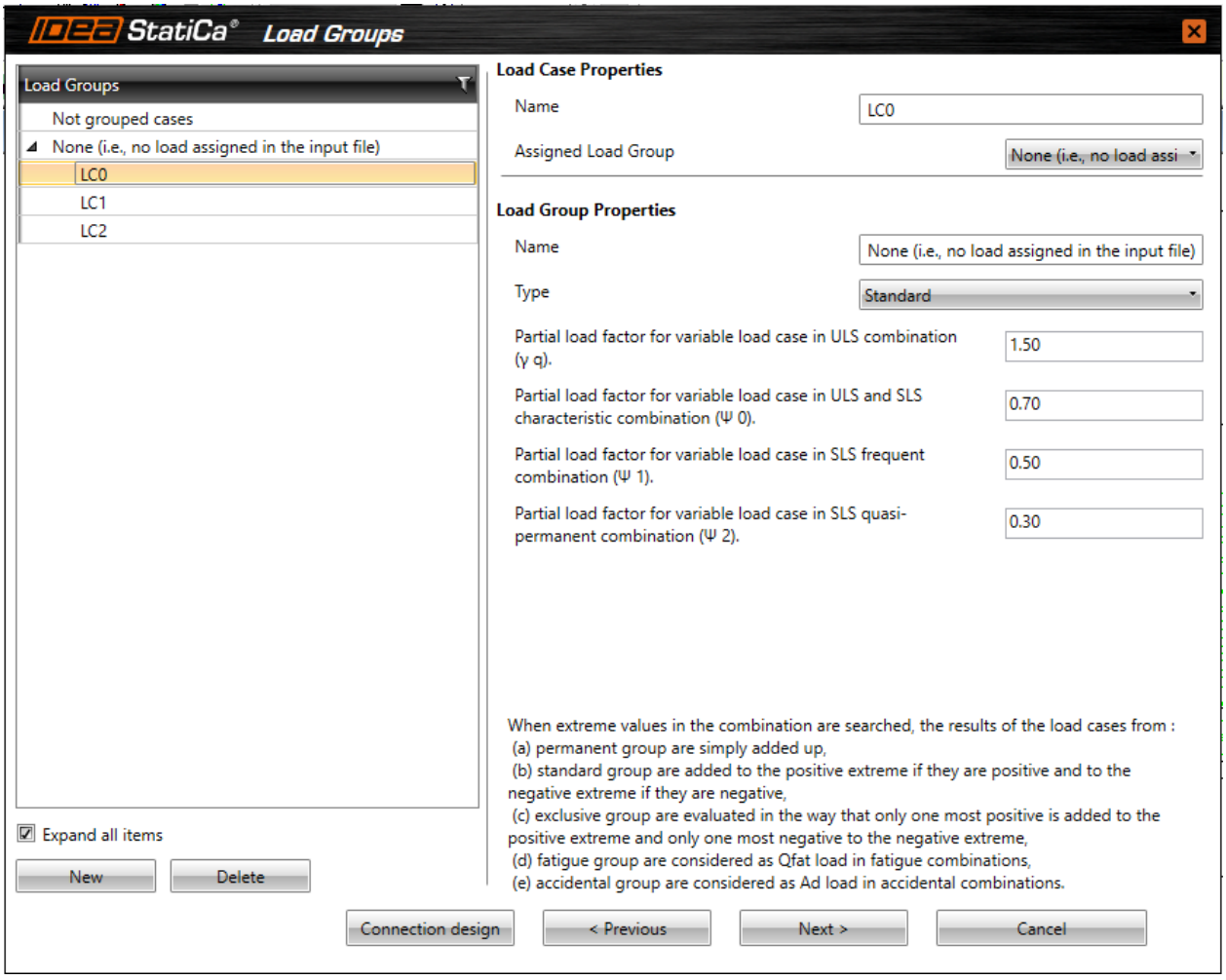


3. IDEA StatiCa joint import wizard is launched. Set *Design code* to **AISC**, file name and path of IDEA StatiCa Connection project to save and click button "**Next**".

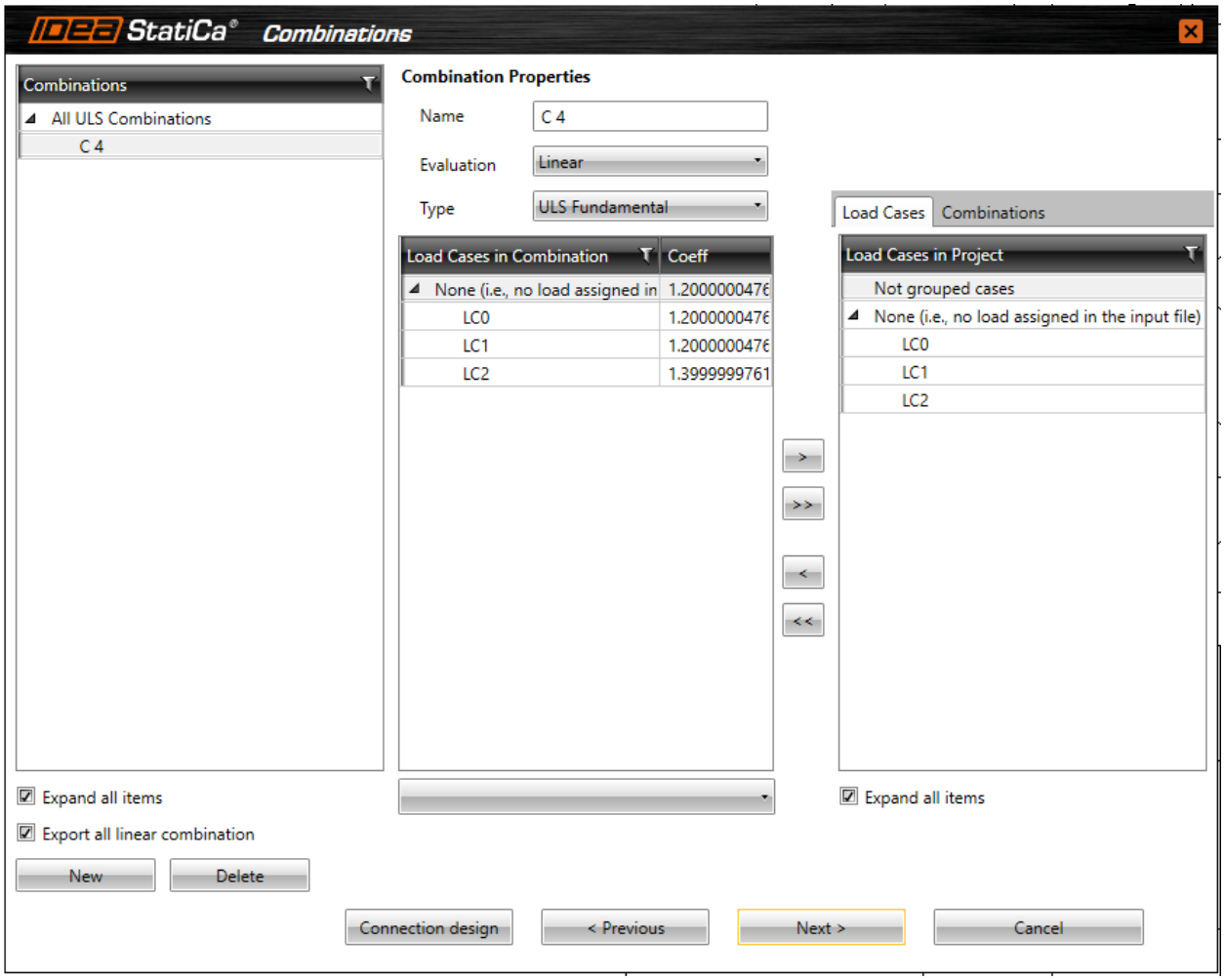
4. Select beam member "**107**" and set it as Bearing. Click **OK** to merge members "**107**" and "**667**". Continue with the button "**Next**".



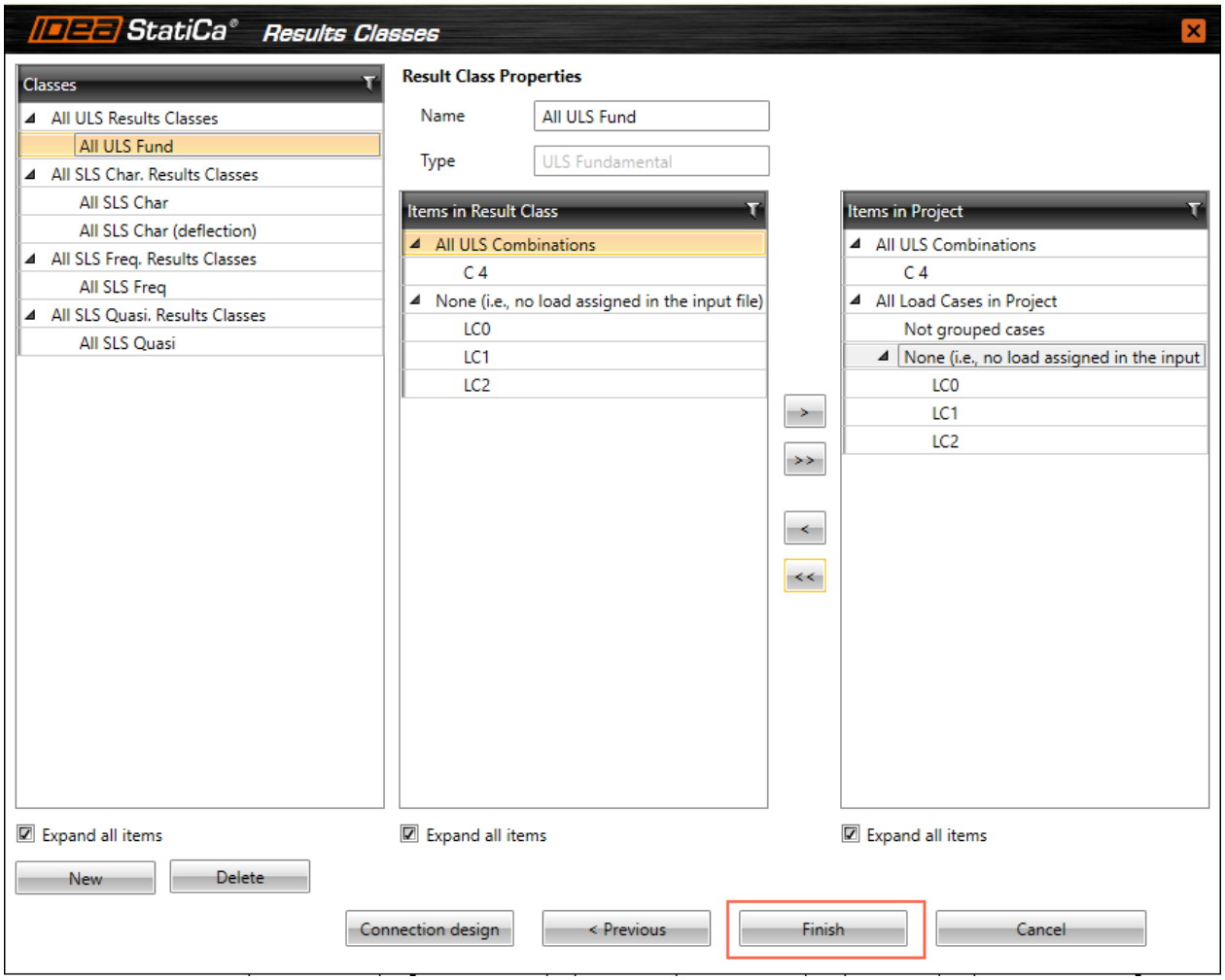
5. In the "*Load Groups*" continue with button "**Next**".



6. In the "Combinations" continue with button "Next"

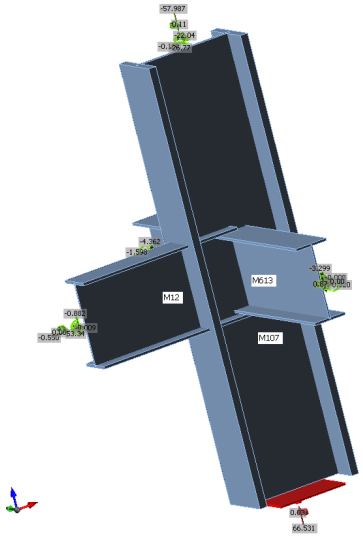


In the "*Result Classes*" continue with button "**Finish**".



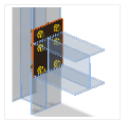
3 IDEA StatiCa Connection

Automatic data transfer is started and IDEA StatiCa Steel Connection with generated project is launched. All members and load effects were added automatically.



4 Design

We will define a set of manufacturing operations to model connections between members. A new operation can be added by button.



End plate

Manufacturing operations

Delete all | Calculate | Editor

	Name
>	EP1

End plate

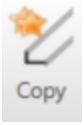
Member 1	M613
Member 2	M614
Type of 'Connected to'	Member
Connected to	M107
Material	< default >
Thickness [in]	5/8"
Connection type	Bolted
Dimensions	To profile symmetrical
T - Top [in]	-0.250
L - Left [in]	0.000
Notch	☐

Bolts

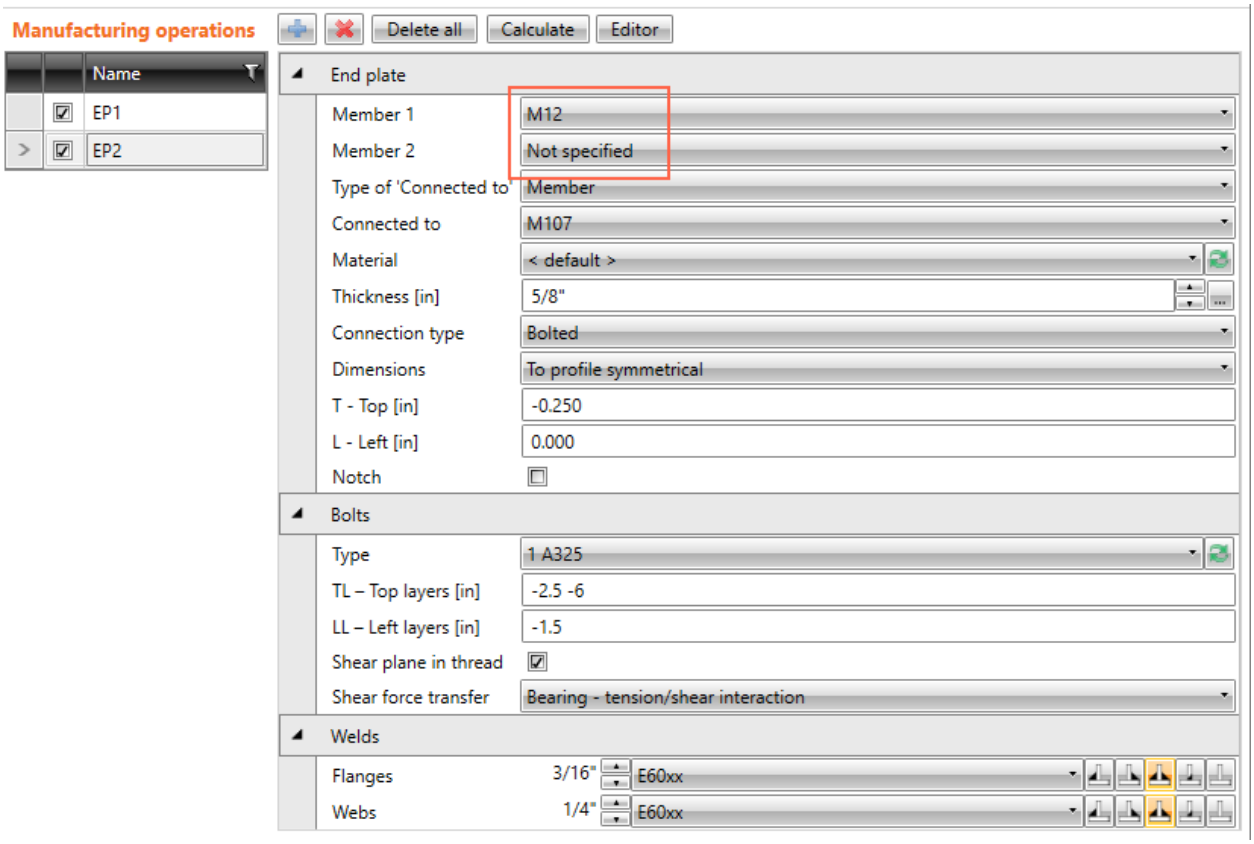
Type	1 A325
TL – Top layers [in]	-2.5 -6
LL – Left layers [in]	-1.5
Shear plane in thread	☑
Shear force transfer	Bearing - tension/shear interaction

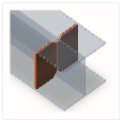
Welds

Flanges	3/16"	E60xx
Webs	1/4"	E60xx

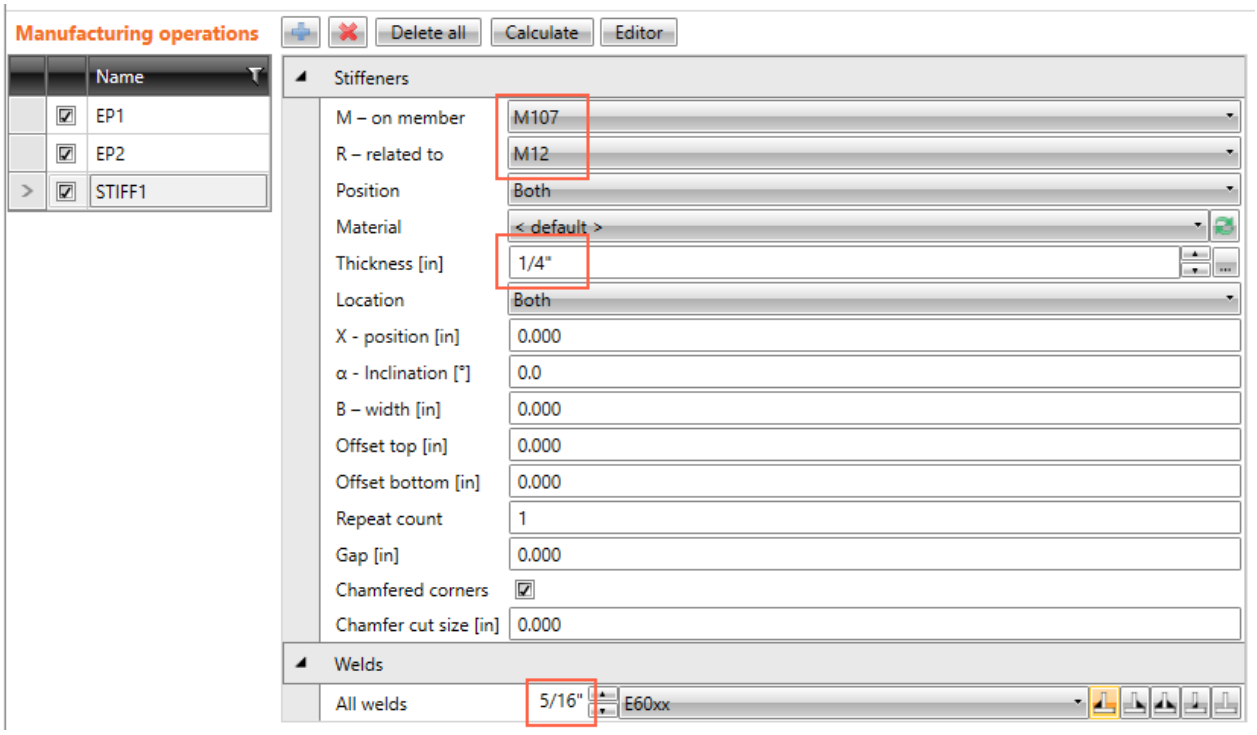
Copy operation EP1 by 

button from the ribbon and set the *Member 1* to **M12**.

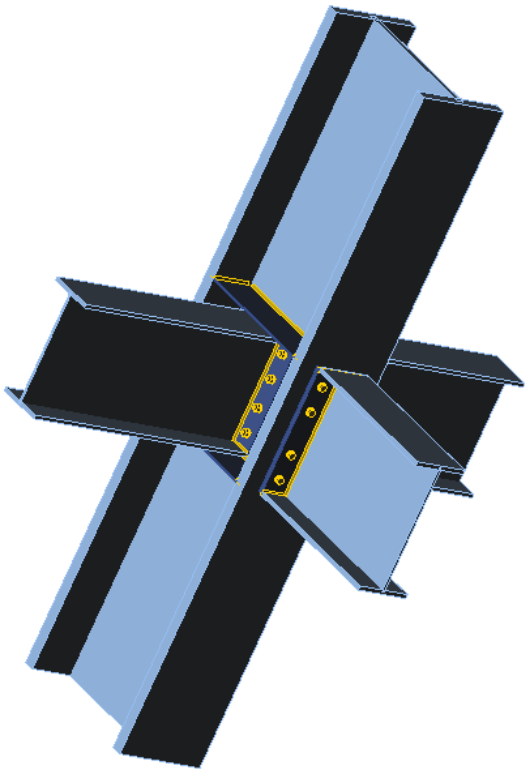




Stiffener


Manufacturing operations
Delete all
Calculate
Editor
Name
EP1
EP2
STIFF1
Stiffeners
M – on member
M107
R – related to
M12
Position
Both
Material
< default >
Thickness [in]
1/4"
Location
Both
X - position [in]
0.000
α - Inclination [°]
0.0
B – width [in]
0.000
Offset top [in]
0.000
Offset bottom [in]
0.000
Repeat count
1
Gap [in]
0.000
Chamfered corners
Chamfer cut size [in]
0.000
Welds
All welds
5/16"
E60xx

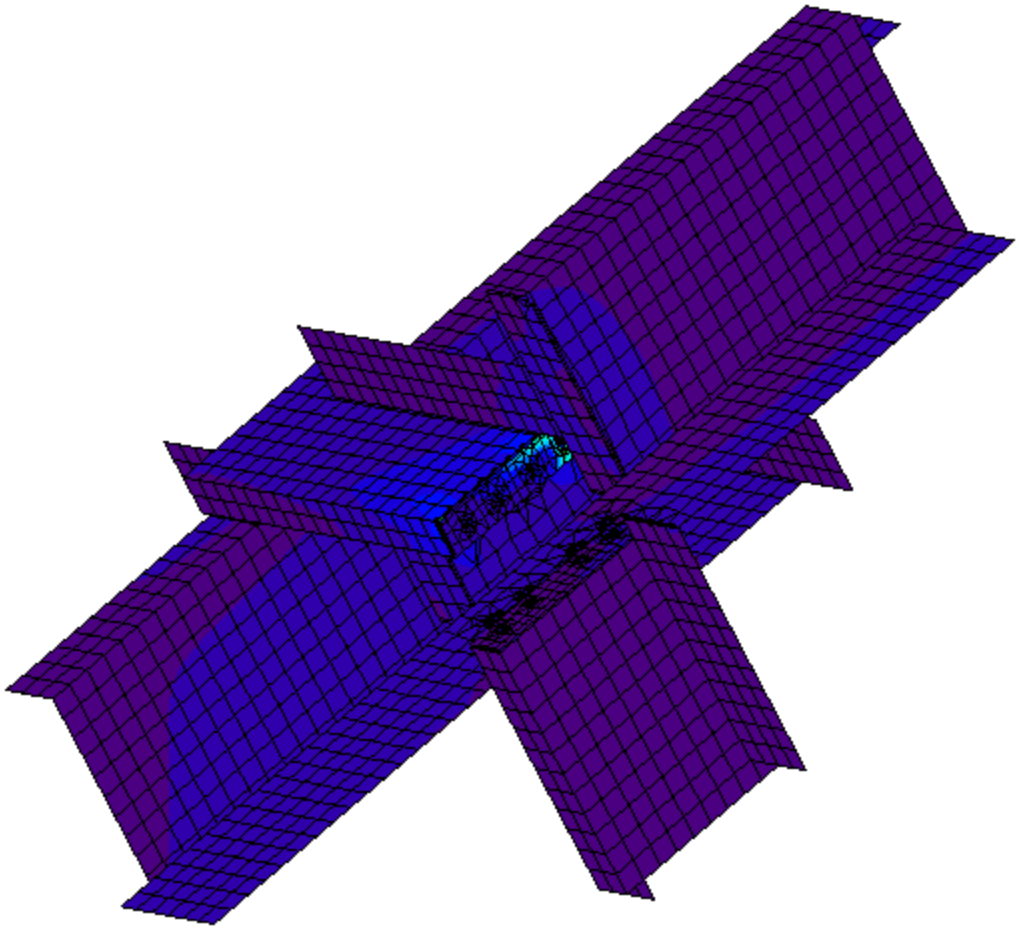
Let's check defined operations of the joint.



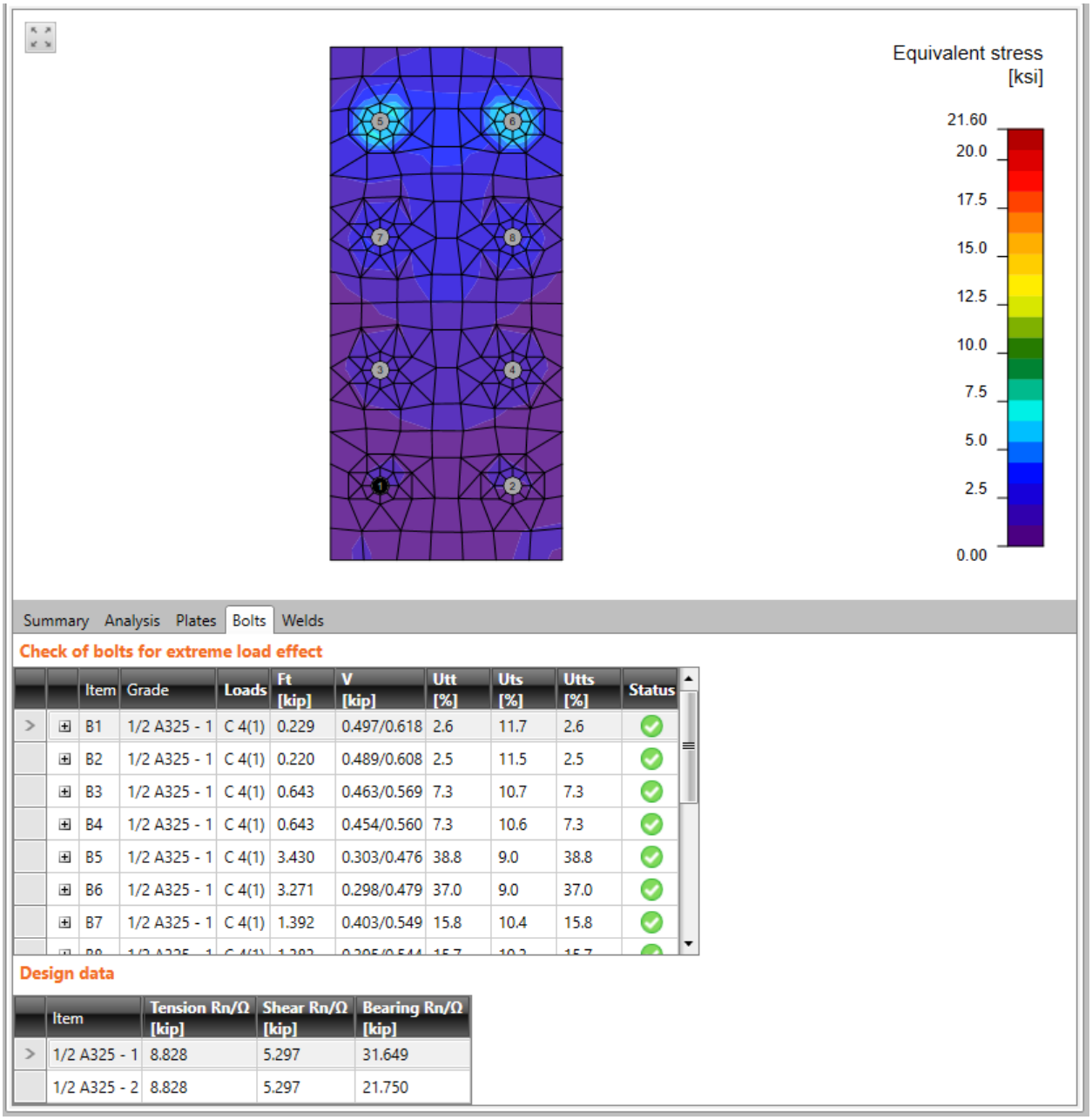
5 Check of a structural steel joint

Analysis model is automatically generated, calculation is performed and we can check results.

Activate Strain check, Mesh and Deformed from the ribbon to get a full picture of what is happening in the joint. Everything is displayed in the 3D window.



All values can be reviewed in detailed in the tables and 2D window. For example to display check of bolts select tab Bolts tab.


Equivalent stress
[ksi]
21.60
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.00
Summary
Analysis
Plates
Bolts
Welds
Check of bolts for extreme load effect
Item | Grade | Loads | Ft [kip] | V [kip] | Utt [%] | Uts [%] | Utts [%] | Status
B1 | 1/2 A325 - 1 | C 4(1) | 0.229 | 0.497/0.618 | 2.6 | 11.7 | 2.6
B2 | 1/2 A325 - 1 | C 4(1) | 0.220 | 0.489/0.608 | 2.5 | 11.5 | 2.5
B3 | 1/2 A325 - 1 | C 4(1) | 0.643 | 0.463/0.569 | 7.3 | 10.7 | 7.3
B4 | 1/2 A325 - 1 | C 4(1) | 0.643 | 0.454/0.560 | 7.3 | 10.6 | 7.3
B5 | 1/2 A325 - 1 | C 4(1) | 3.430 | 0.303/0.476 | 38.8 | 9.0 | 38.8
B6 | 1/2 A325 - 1 | C 4(1) | 3.271 | 0.298/0.479 | 37.0 | 9.0 | 37.0
B7 | 1/2 A325 - 1 | C 4(1) | 1.392 | 0.403/0.549 | 15.8 | 10.4 | 15.8
Design data
Item | Tension Rn/Ω [kip] | Shear Rn/Ω [kip] | Bearing Rn/Ω [kip]
1/2 A325 - 1 | 8.828 | 5.297 | 31.649
1/2 A325 - 2 | 8.828 | 5.297 | 21.750

6 Report

IDEA StatiCa offers three types of output reports – one line, 1 page and detailed.

7 Structural steel joint was modeled, designed and checked