

IDEA StatiCa®

Calculate yesterday's estimates

IDEA StatiCa 24.1 Release Webinar

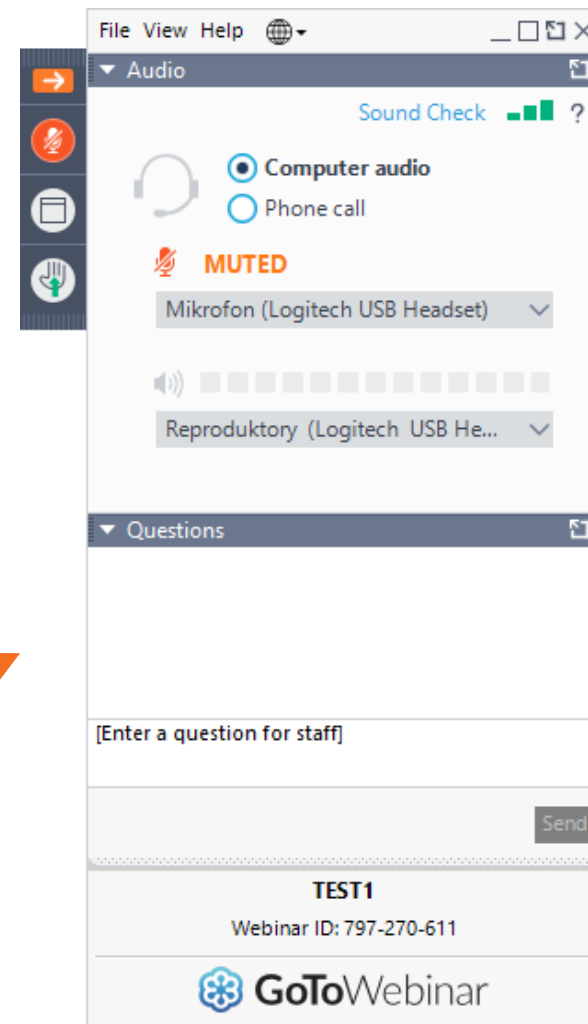
Control Panel

When you first join a session, the Control Panel appears on the right side of your screen. Use the Control Panel to manage your session. To free up space on your desktop, you can collapse the Control Panel and use the Grab Tab to continue to manage your session.

- **Grab Tab:** From the Grab Tab, you can hide the Control Panel, mute yourself (if you have been unmuted by the organizer), view the webinar in full screen and raise your hand.
- **Audio Pane:** Use the Audio pane to switch between Telephone and Mic & Speakers.
- **Questions Pane:** Ask questions for the staff.

QUESTIONS

HANDOUT AVAILABLE



AGENDA

Checkbot

- Nodes dynamic grouping
- Batch design

Connection app

- Templates automation: Parametric design
- Weld capacity estimation (U_{t_c}) AISC
- Measure tool
- Operations multi-select and multi-edit
- Project tab: multiple items in one file
- Default materials
- AISC Cross section database v16.0



LAST EVENT OF THE YEAR: ATLANTA MIXER

Date: Thursday, November 21, 2024

Time: 4–7 PM

Location: [Bold Monk Brewery, 1737 Ellsworth Industrial Blvd NW, Atlanta, GA 30318](#)

Agenda:

3:30 PM – Registration & Networking

4:00 PM – Connection Design with IDEA StatiCa

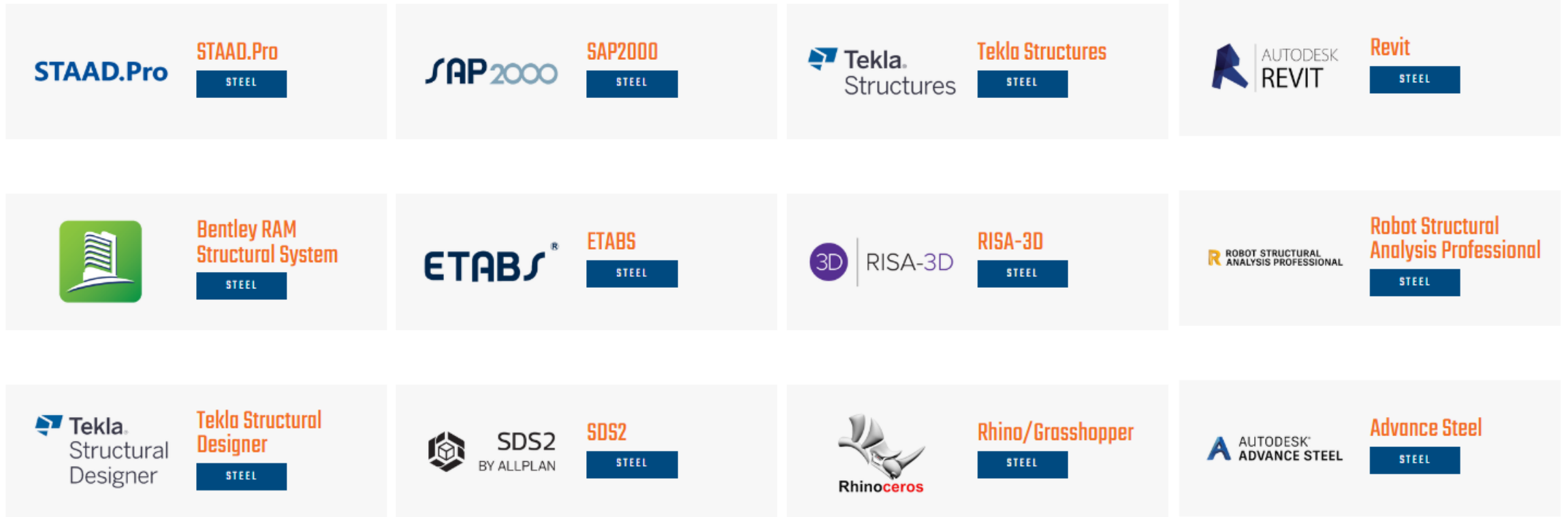
4:45 PM – Local user case study

5:30 PM – Happy Hour networking

Register [here](#)



SUPPORTED INTEGRATIONS CHECKBOT



<https://www.ideastatica.com/bim-integrations>

IDEA StatiCa CHECKBOT

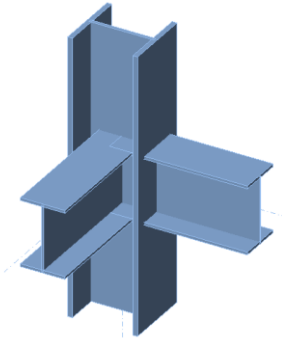
The screenshot displays the IDEA StatiCa CHECKBOT software interface. The main window shows a 3D model of a steel frame structure. The interface includes a top menu bar with tabs for Project, Design, Materials, and Hilti PROFIS. Below the menu bar is a toolbar with various icons for file operations, model manipulation, and analysis. The right-hand side of the interface features a panel titled 'Connections [Connection]' with a sub-section 'Information' containing a table of design results.

Information	
Connections	208
To be designed	84 (40%)
To be checked	1 (0%)
Code-check passed	84 (40%)
Code-check failed	39 (18%)

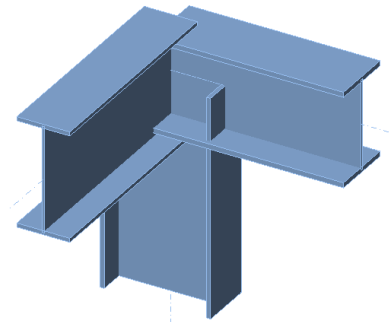
Design code: AISC 360-22 (LRFD)

CHECKBOT Dynamic Grouping

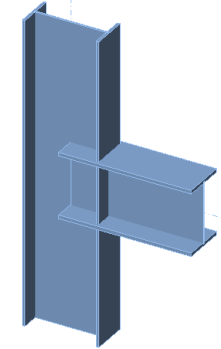
Typology : Number of members and orientation



Typology 1

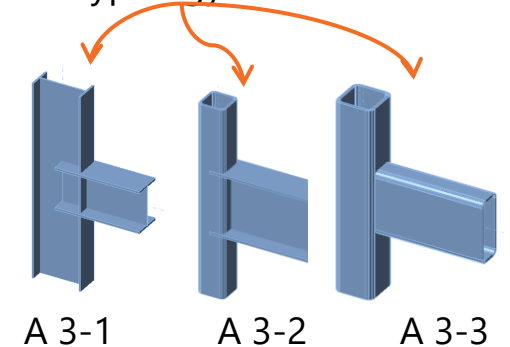
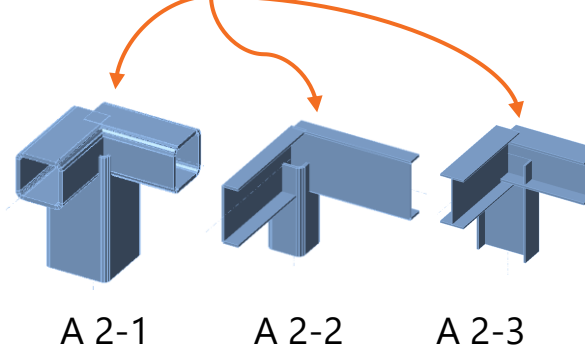
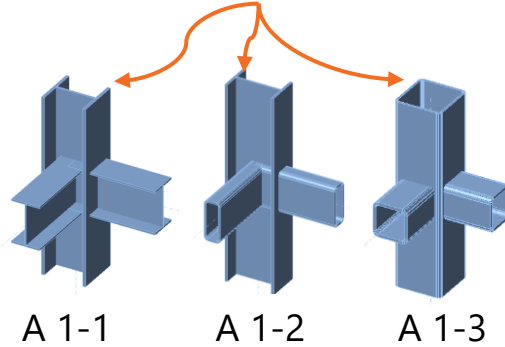


Typology 2



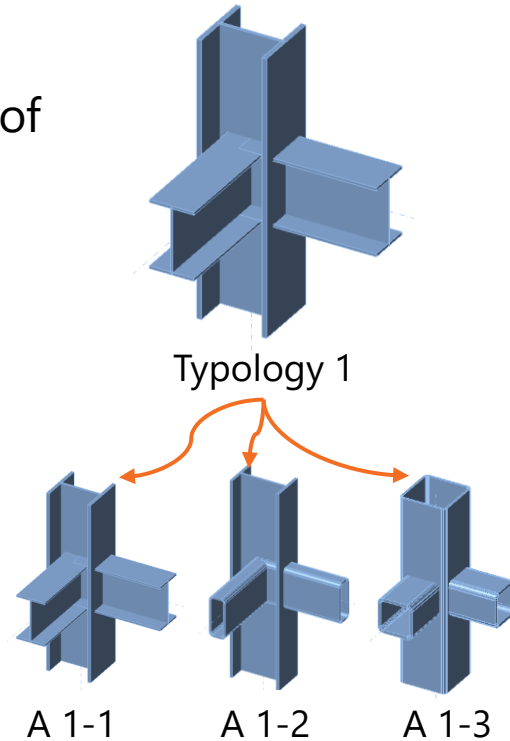
Typology 3

Arrangements:
Cross section

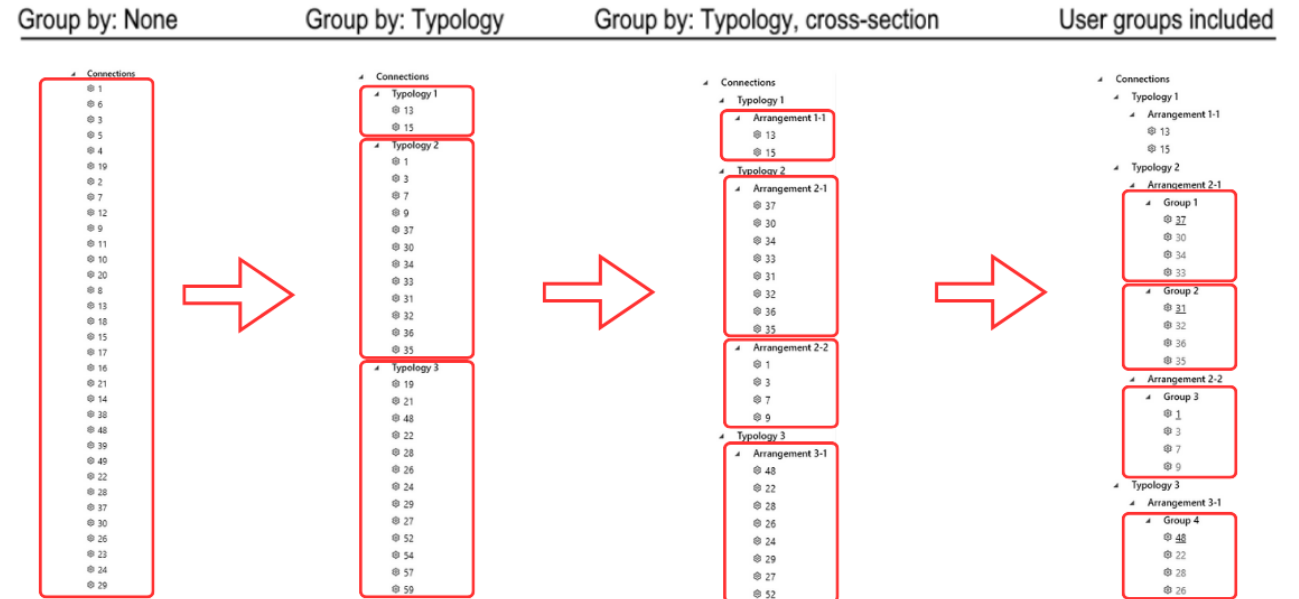


CHECKBOT Dynamic Grouping

Typology : Number of members and orientation



Arrangements:
Cross section



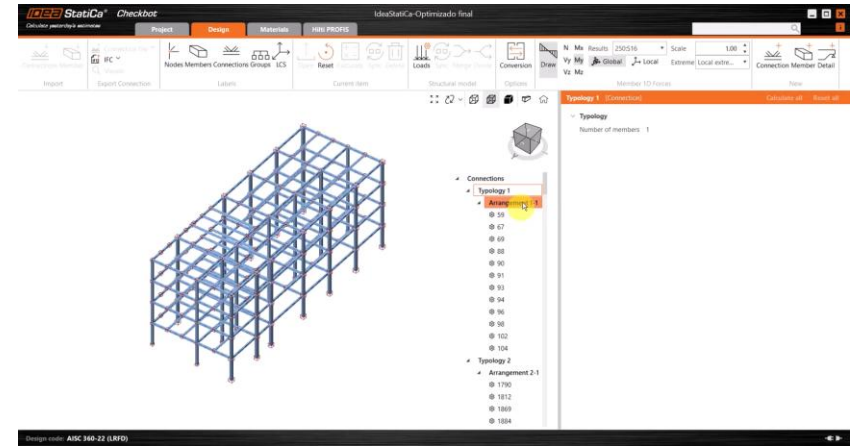
CHECKBOT USER GROUPS

User define the **groups** from arrangements

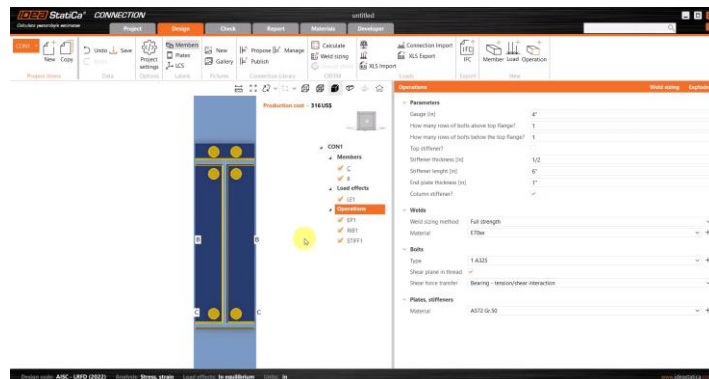
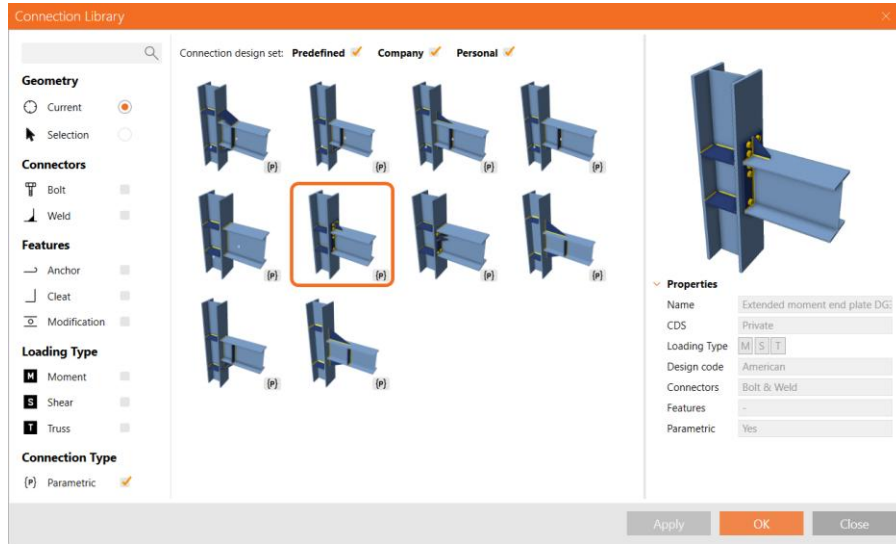
Reference connection is set up for each group

Design reference connection

Calculate all: Connection is copied to all the group items and analyze



PARAMETRIC TEMPLATES



Operations

Weld sizing **Explode**

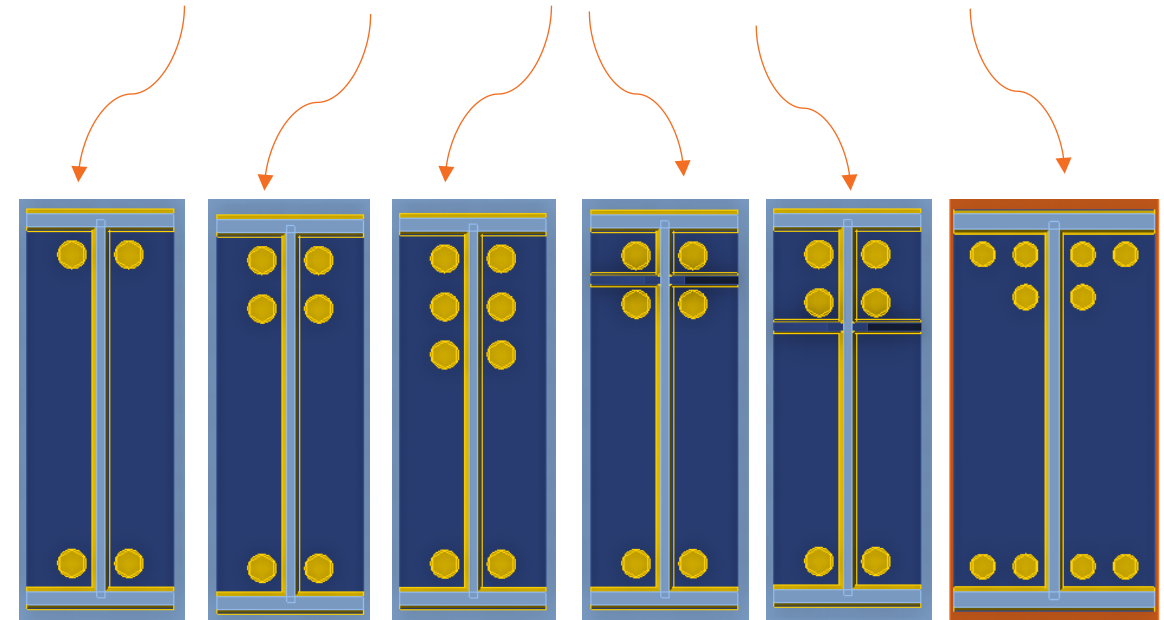
Parameters

1. Gage (g) [in]
2. Type 0 for two bolts; Type 1 for four bolts; type 2 for six bolts
3. Stiffener between tension bolt rows?
4. Stiffener below tension bolt rows?
5. Stiffener thickness [in]
6. Column stiffener?
7. Four wide bolts?

3"1/2

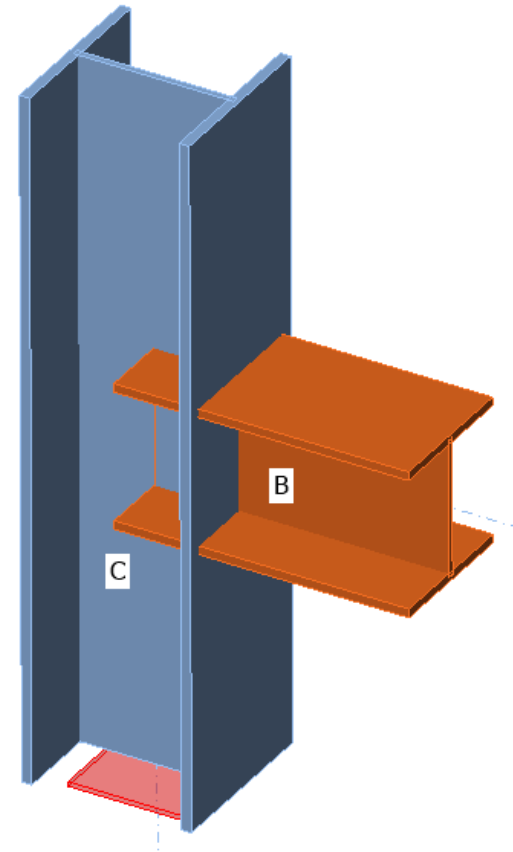
1

1/2



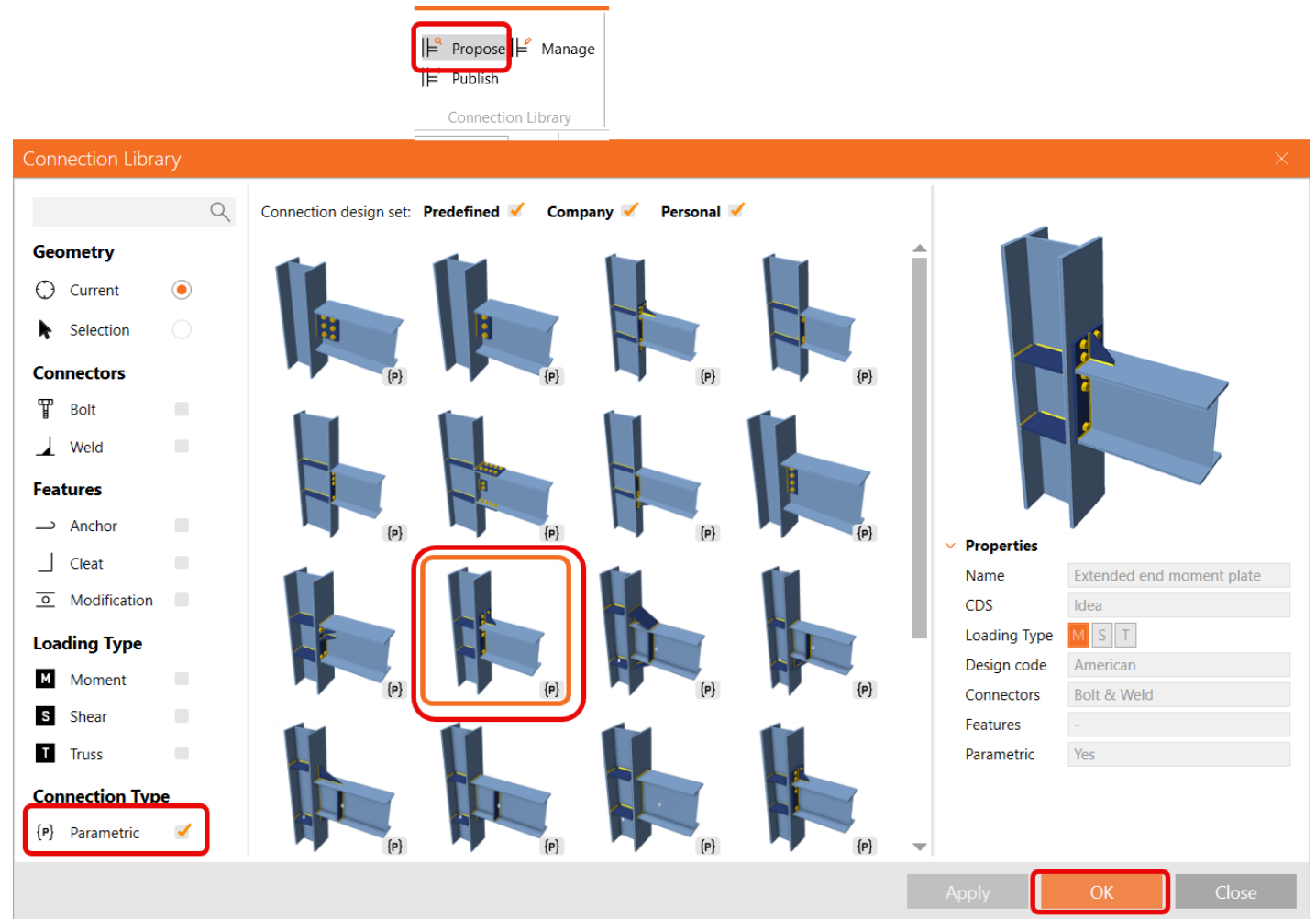
PARAMETRIC TEMPLATES – How to use them?

1. Set up a blank geometry



PARAMETRIC TEMPLATES – How to use them?

2. Click Propose
3. Select Parametric filter
4. Select the template
5. Click OK



PARAMETRIC TEMPLATES – How to use them?

6. Select Operations line

7. Input Parameters

Production cost - 252 US\$

CON1

- Members
 - C
 - B
- Load effects
 - LE1
- Operations [P]**
- EP1
- RIB1
- STIFF1

Operations Weld sizing Explode

Parameters

Gauge [in]	4"
How many rows of bolts above top flange?	1
How many rows of bolts below the top flange?	1
Top stiffener?	<input checked="" type="checkbox"/>
Stiffener thickness [in]	1/2
Stiffener length [in]	6"
End plate thickness [in]	7/8
Column stiffener?	<input checked="" type="checkbox"/>

Welds

Weld sizing method	Full strength
Material	E70xx

Bolts

Type	1 A325
Shear plane in thread	<input checked="" type="checkbox"/>
Shear force transfer	Bearing - tension/shear interaction

Plates of manufacturing operations

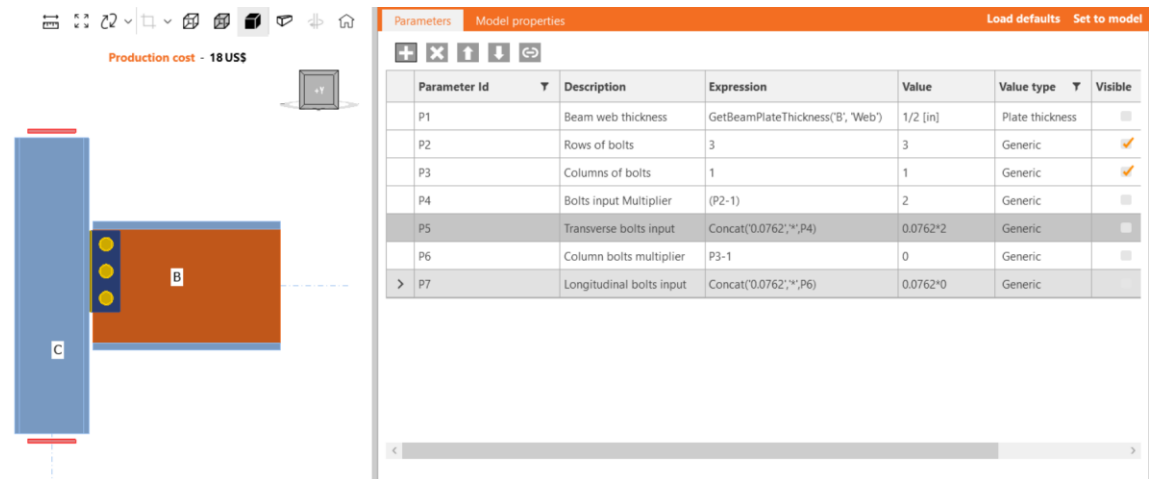
Material	A572 Gr.50
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PARAMETRIC TEMPLATES – How to build them?

Quick example: **Shear tab** template

- Shear tab thickness= Beam web thickness
- User input: # Bolt rows
- User input: # Bolt columns
- Default values:
- Top offset= 1in
- Gap= 0.5 in
- Bolts spacing = 3 in= 0.0762 meters

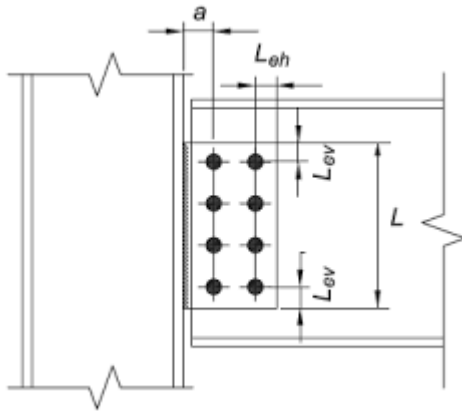
[Tutorial: Parametric design in IDEA StatiCa Connection - Flush moment end plate connections](#)



The screenshot displays the IDEA StatiCa software interface. On the left, a 3D model of a shear tab connection is shown, with a blue beam web (labeled 'C') and a brown end plate (labeled 'B'). The end plate has three bolts arranged in a single row. Above the model, the text 'Production cost - 18 US\$' is visible. On the right, the 'Parameters' table is shown, which lists various parameters used in the model's parametric design.

Parameter Id	Description	Expression	Value	Value type	Visible
P1	Beam web thickness	GetBeamPlateThickness('B', 'Web')	1/2 [in]	Plate thickness	<input type="checkbox"/>
P2	Rows of bolts	3	3	Generic	<input checked="" type="checkbox"/>
P3	Columns of bolts	1	1	Generic	<input checked="" type="checkbox"/>
P4	Bolts input Multiplier	(P2-1)	2	Generic	<input type="checkbox"/>
P5	Transverse bolts input	Concat("0.0762";"*";P4)	0.0762*2	Generic	<input type="checkbox"/>
P6	Column bolts multiplier	P3-1	0	Generic	<input type="checkbox"/>
P7	Longitudinal bolts input	Concat("0.0762";"*";P6)	0.0762*0	Generic	<input type="checkbox"/>

WHY TO BUILD PARAMETRIC TEMPLATES?



Parameter ID	Parameter Name	Expression	Value	Unit	Category	Checkmark
P3	Beam width	GetValue('B', 'CrossSection.Bounds.Width')	7.50	[in]	Length: Cross-se	<input type="checkbox"/>
P4	Beam web thickness	GetBeamPlateThickness('B', 'Web')	3/8	[in]	Length: Compor	<input type="checkbox"/>
P5	Beam top flange thickness	GetBeamPlateThickness('B', 'TopFlange')	0.014478		Generic	<input type="checkbox"/>
P6	Gauge	0.127	5"	[in]	Length: Compor	<input checked="" type="checkbox"/>
P7	How many rows of bolts above top flange?	2	2		Generic	<input checked="" type="checkbox"/>
P8	How many rows of bolts below the top flange?	2	2		Generic	<input checked="" type="checkbox"/>
P9	Top stiffener?	True	True		Generic	<input checked="" type="checkbox"/>
P10	Stiffener thickness	0.0127	1/2	[in]	Length: Compor	<input checked="" type="checkbox"/>
P20	Stiffener lenght	0.1524	6"	[in]	Length: Compor	<input checked="" type="checkbox"/>
P11	End plate thickness	2	9/16	[in]	Length: Compor	<input checked="" type="checkbox"/>
P12	Column stiffener?	True	True		Generic	<input checked="" type="checkbox"/>
P13	Wide configuration?	True	True		Generic	<input type="checkbox"/>
P14	Right/left offset for EP1	-((P3-P6)/2)	-1.25	[in]	Length: Cross-se	<input type="checkbox"/>
P15	Vertical offset	-(P5+Length(1.75,"in"))	-2.32	[in]	Length: Cross-se	<input type="checkbox"/>
P16	Input for layers Above top flange	P7-1	1		Generic	<input type="checkbox"/>

Operations: Weld sizing, Explode

Parameters

- Gauge [in]:
- How many rows of bolts above top flange?:
- How many rows of bolts below the top flange?:
- Top stiffener?:
- Stiffener thickness [in]:
- Stiffener lenght [in]:
- End plate thickness [in]:
- Column stiffener?:

Custom company connections

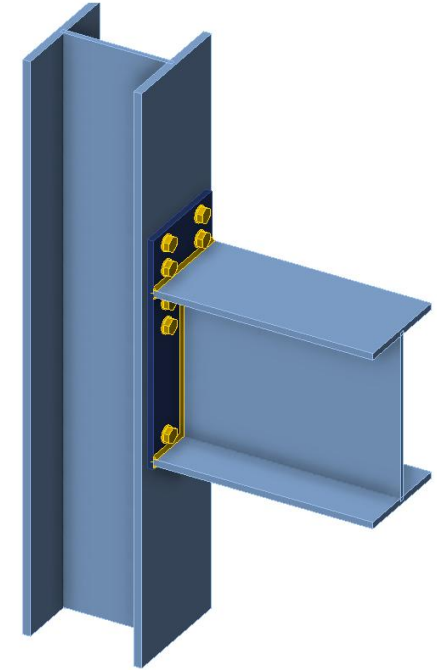
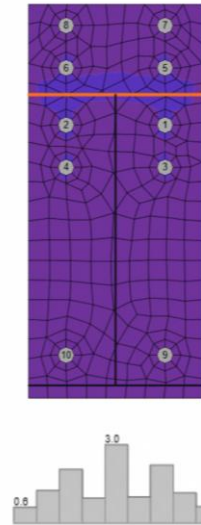
Common company details

Smart templates

Avoid learning curve for simple connections

WELD CAPACITY ESTIMATION (U_{t_c}) AISC

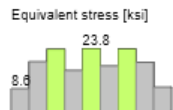
- Insight to low weld load levels
- Capacity of entire weld length
- Machine learning estimation



1

Check of welds for extreme load effect

	Status	Item	Edge	X_u	t_w [in]	w [in]	L [in]	L_c [in]	Loads	F_n [kip]	ϕR_n [kip]	U_t [%]	U_{t_c} [%]	Detailing
+ ✓				E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	12.96	17.07	75.9	52.1	✓
> + ✓	EP1	B-tfl 1	E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	12.90	17.07	75.6	50.6	✓	
+ ✓	EP1	B-bfl 1	E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	12.86	17.06	75.4	57.5	✓	
+ ✓				E70xx	▲ 1/4	▲ 5/16	1'-8"9/16	1"3/8	LE1	9.68	13.98	69.2	37.0	✓
+ ✓	EP1	B-w 1	E70xx	▲ 1/4	▲ 5/16	1'-8"9/16	1"3/8	LE1	9.32	13.99	66.6	35.3	✓	
+ ✓				E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	8.05	16.63	48.4	27.7	✓

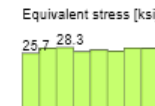


Utilization Check - 75.6%
Weld Capacity Estimation - 50.6%

2

Check of welds for extreme load effect

	Status	Item	Edge	X_u	t_w [in]	w [in]	L [in]	L_c [in]	Loads	F_n [kip]	ϕR_n [kip]	U_t [%]	U_{t_c} [%]	Detailing
+ ✓				E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	16.83	17.07	98.6	98.6	✓
> + ✓	EP1	B-tfl 1	E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	15.30	17.01	90.0	90.0	✓	
+ ✓	EP1	B-bfl 1	E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	15.16	17.07	88.8	87.2	✓	
+ ✓	EP1	B-w 1	E70xx	▲ 1/4	▲ 5/16	1'-8"9/16	1"3/8	LE1	12.53	14.27	87.8	85.9	✓	
+ ✓				E70xx	▲ 1/4	▲ 5/16	1'-8"9/16	1"3/8	LE1	12.52	14.27	87.8	86.5	✓
+ ✓				E70xx	▲ 1/4	▲ 3/8	1'-0"1/4	1"3/8	LE1	13.56	17.07	79.4	70.2	✓



Utilization Check - 90%
Weld Capacity Estimation - 90%

LIVE DEMO

- Measure tool
- Operations multi-select and multi-edit
- Project tab: multiple items in one file
- Default materials
- AISC Cross section database v16.0



IDEA StatiCa®

Calculate yesterday's estimates

Q&A



USEFUL LINKS



[Dynamic grouping and batch design process](#)



[Parametric templates](#)



[Balance Safety and Cost in Weld Design | IDEA StatiCa](#)



[24.1 Release notes](#)