Up and Running with Advance Steel

Deepak Maini

National Technical Manager – Named Accounts
Cadgroup Australia

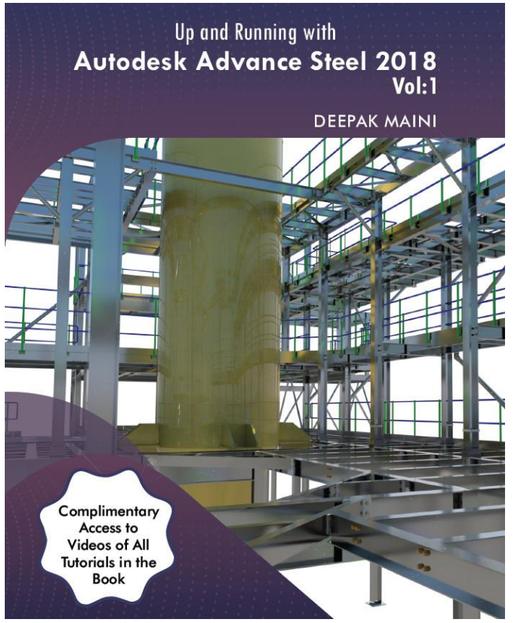
MEP & Structural Fabricators (MSF) Forum at AU Las Vegas 2017

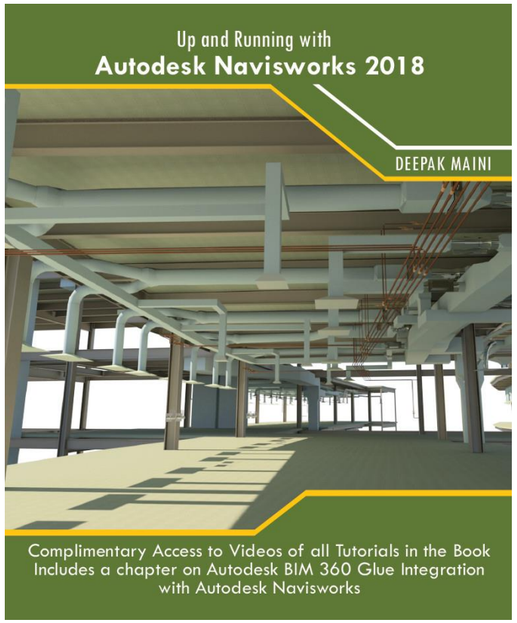
AUTODESK. UNIVERSITY

Welcome to the MSF Conference

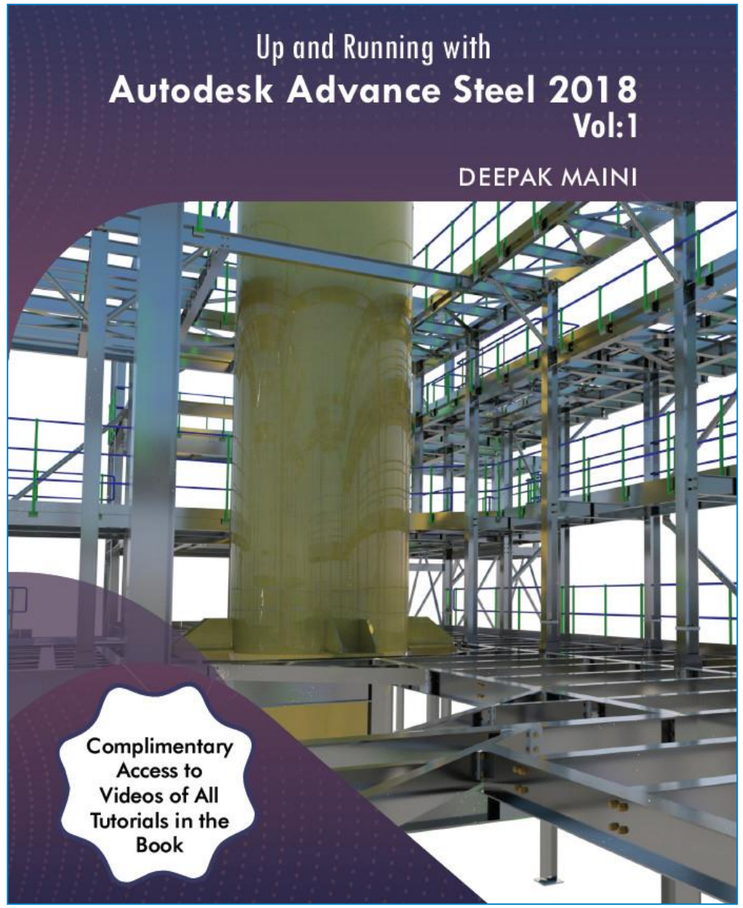
My Introduction

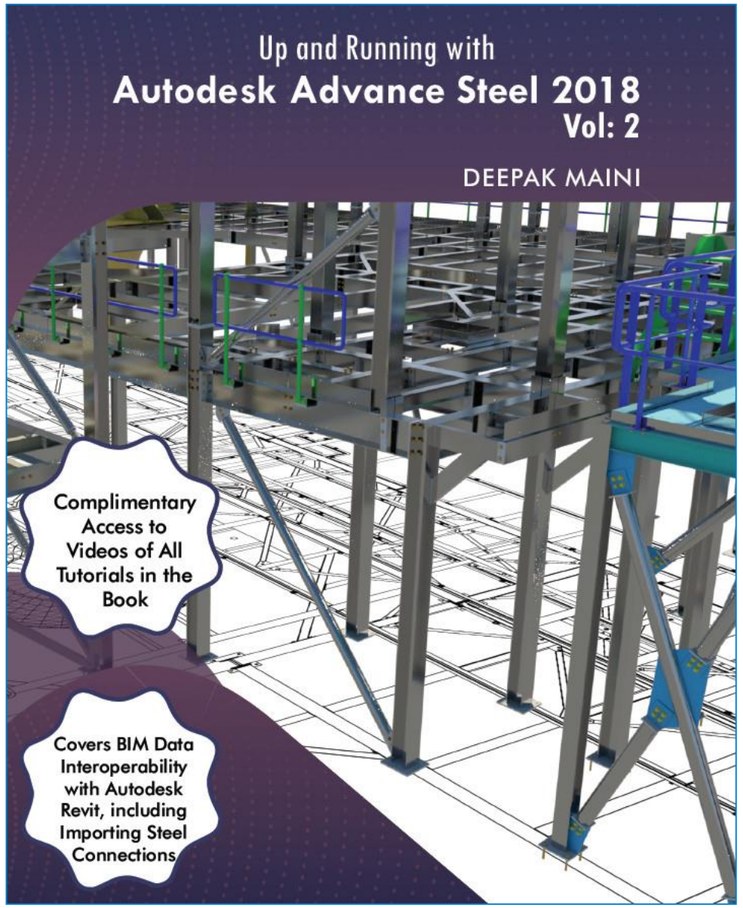
- Qualified Mechanical Engineer
- More than 18 Years of experience in the industry
- Autodesk Expert Elite
- Guest lecturer at the University of Technology Sydney (UTS) and University of New South Wales (UNSW)
- Top rated speaker at Autodesk University in Las Vegas for last 3 years in a row
- Among the Top 3 speakers at BILT ANZ and Top 6 speakers at BILT Asia
- Author of the *Up and Running with Autodesk Advance Steel* and *Up and Running with Autodesk Navisworks* series of books





Give Away 1 Set of the Advance Steel Books



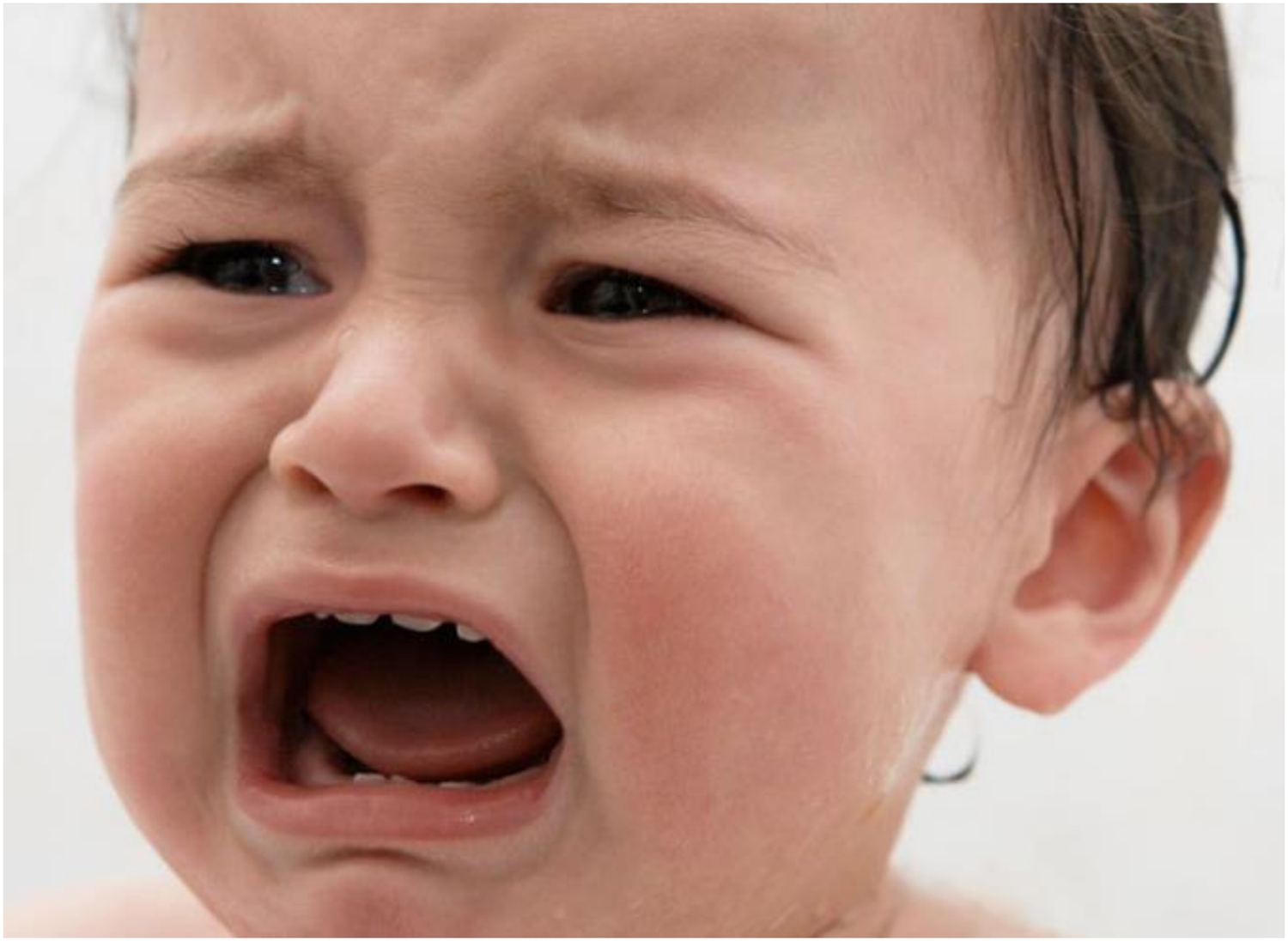


A lot more Goodies…

pluralsight

Let’s Take a Pledge

Please stand up…



Rules of Engagement

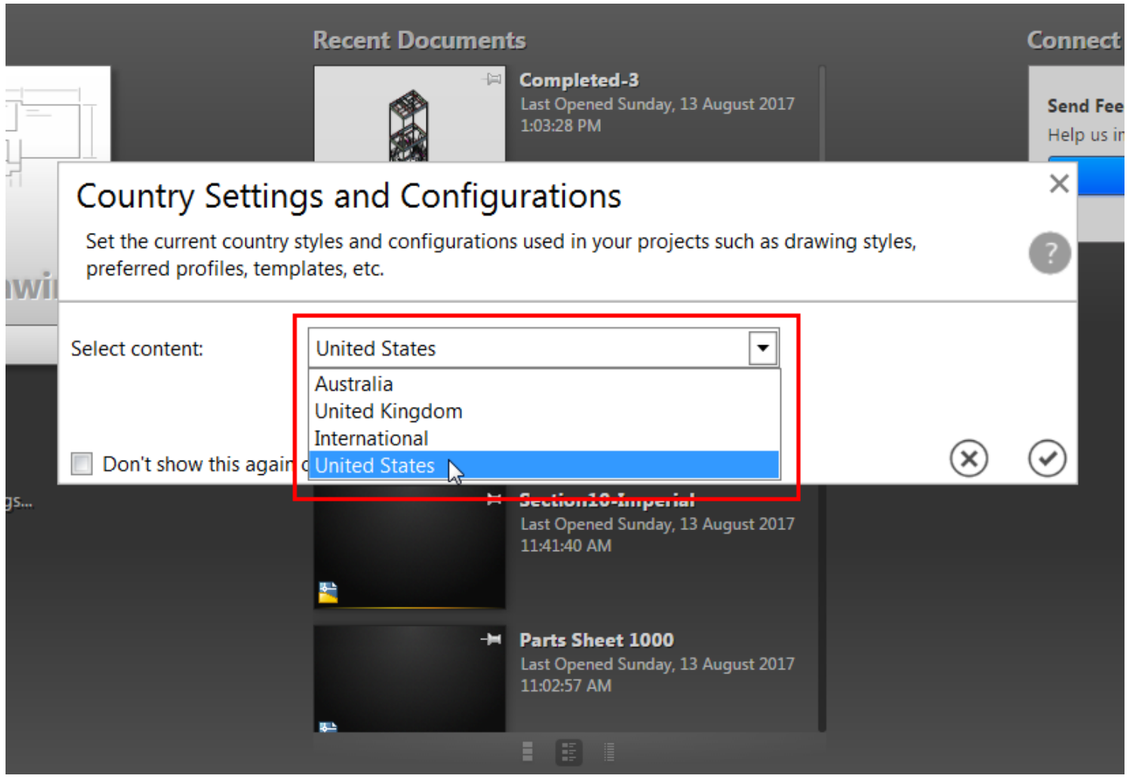
- 11 Sections to be Completed in this lab + 2 Extra Sections (in the Handout)
- Only have 60 Minutes (~50) to Complete All Sections
- I will Show you the Steps in Each Section First and then Let you Work on that Section
- All Required Exercise Files are in the Imperial Units (US Settings) and Metric (Australia Settings) and are saved in a Folder called C:\Dataset\Deepak Maini
- Imperial Handouts under Class Handout and Metric are under Additional Class Material
- Great “Lab Buddies” Here to Help You, if needed (Thank You Guys)

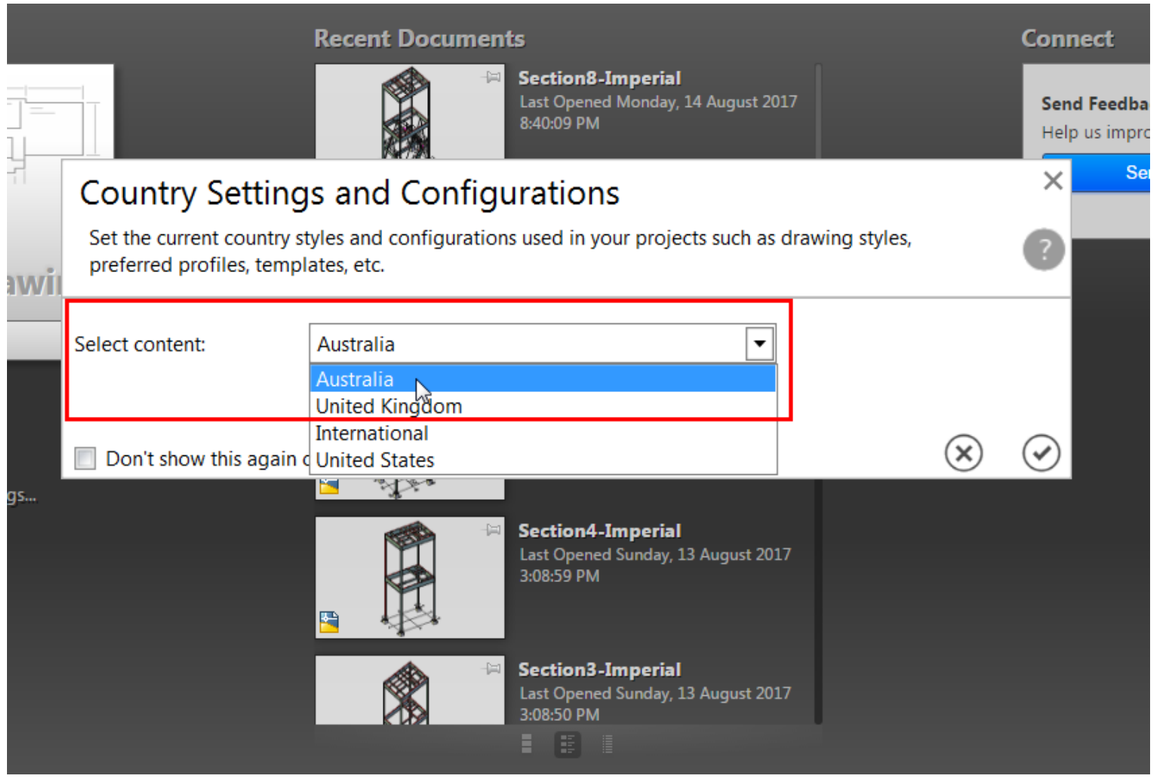
Challenge for You as well as Me

Hence the Pledge…

Section 1: Starting Advance Steel

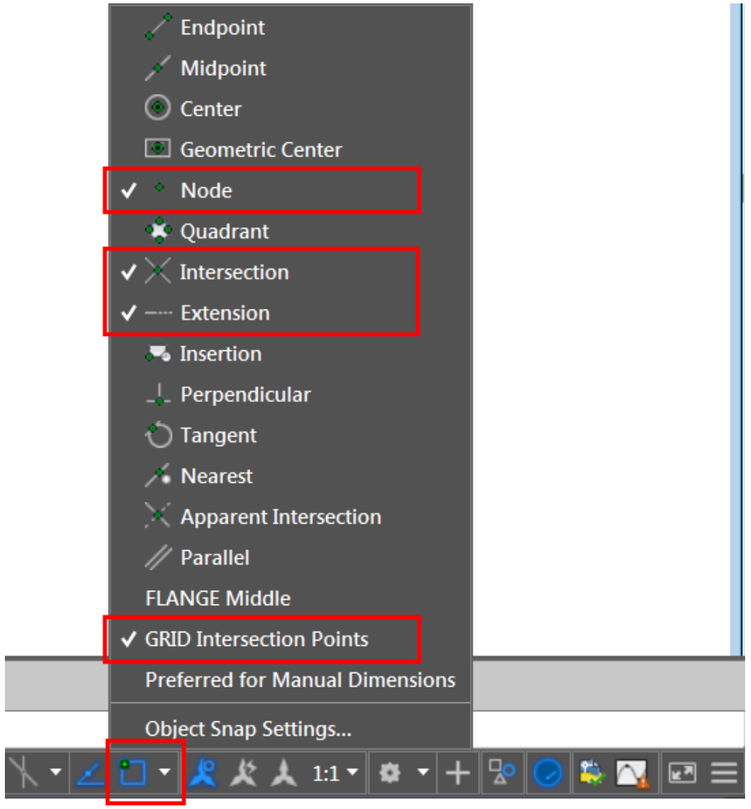
- Selecting the Country Settings to start Advance Steel

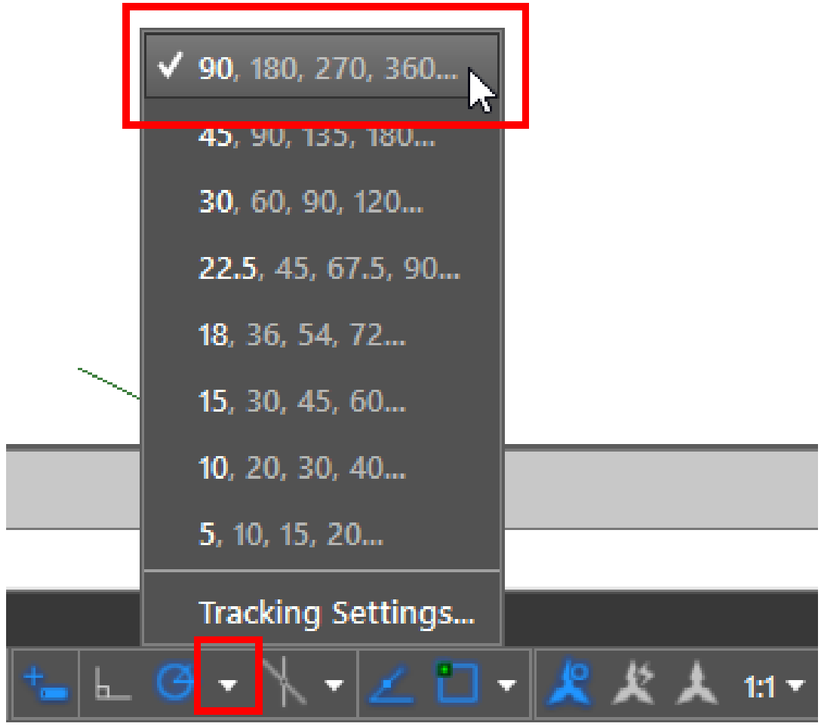




Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Step 1-4 and Stop)*

- Open the Section2-Imperial.dwg or Section2-Metric.dwg file
- Select the following Object Snap Types and configure the Polar Tracking settings

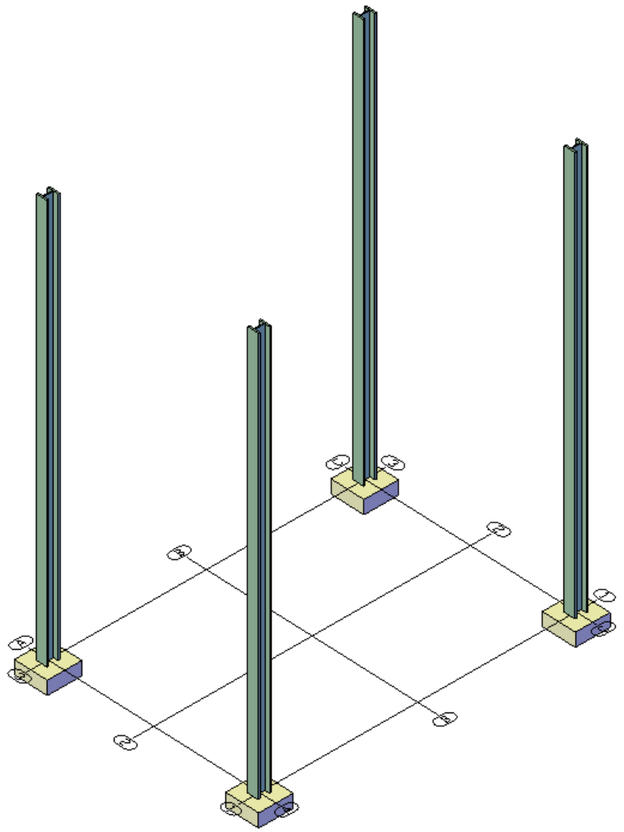


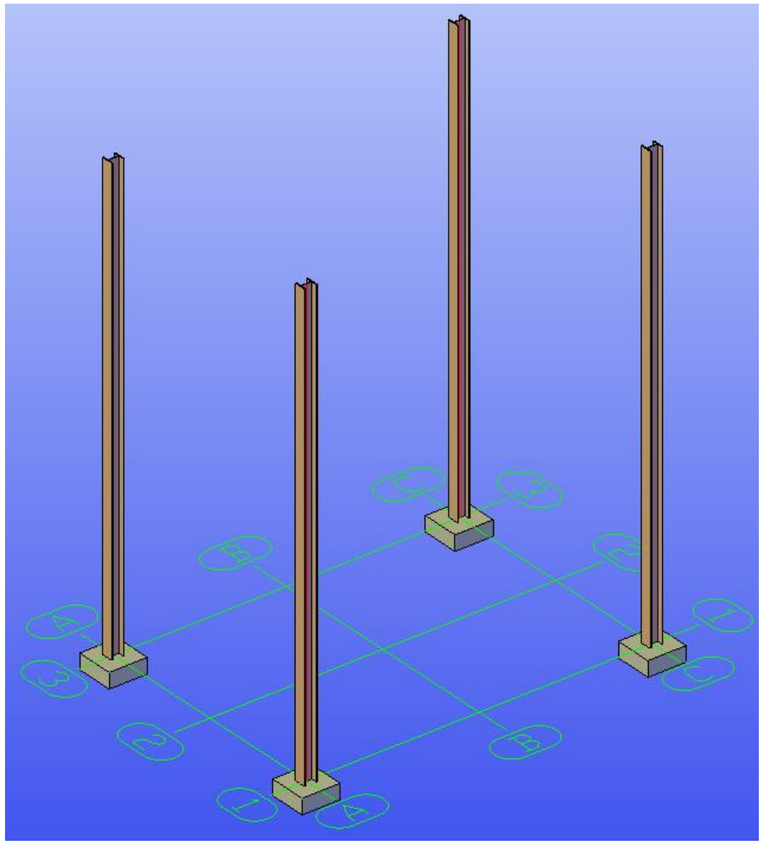


Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Steps 5-14 and Stop)*

- Insert a Rolled I Section at A1 Grid Intersection Point (40’ or 12000mm). Section Type is AISC 14.1 W > W12x210 or Australian Universal Column > 310 UC 158

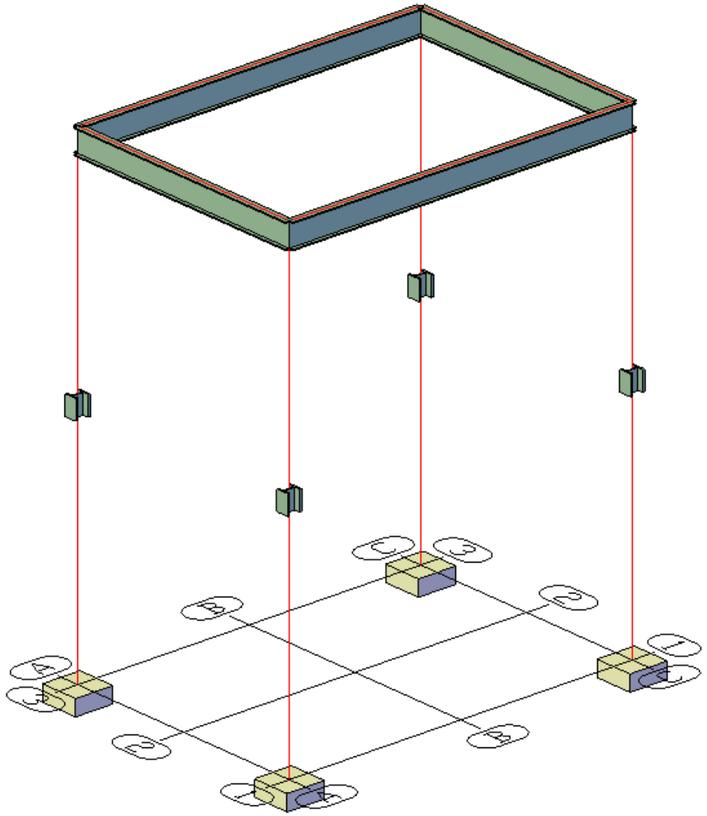
- Copy the section to the A2, C1 and C3 Grid Intersection Points

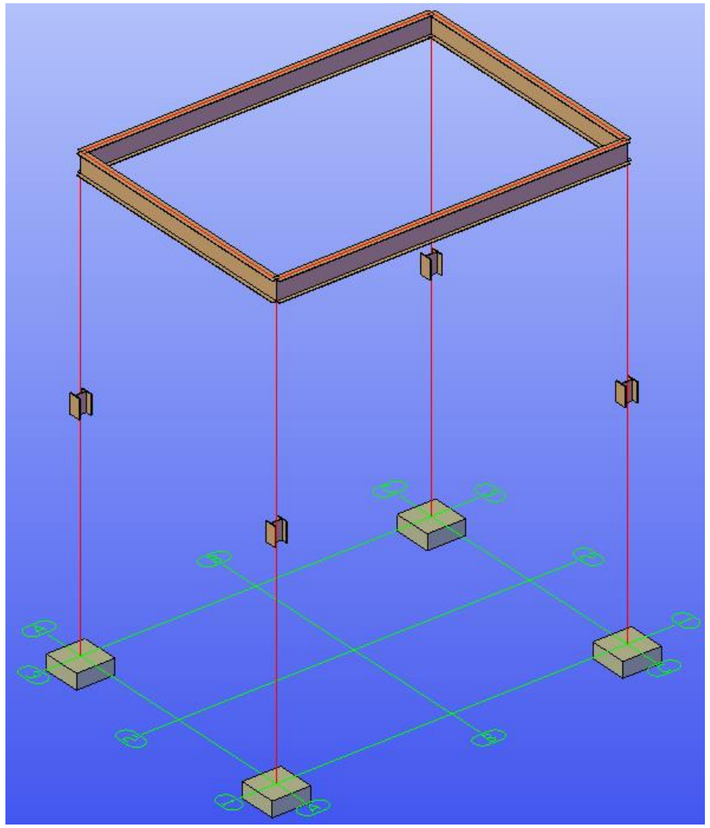




Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Steps 15-30 Only)*

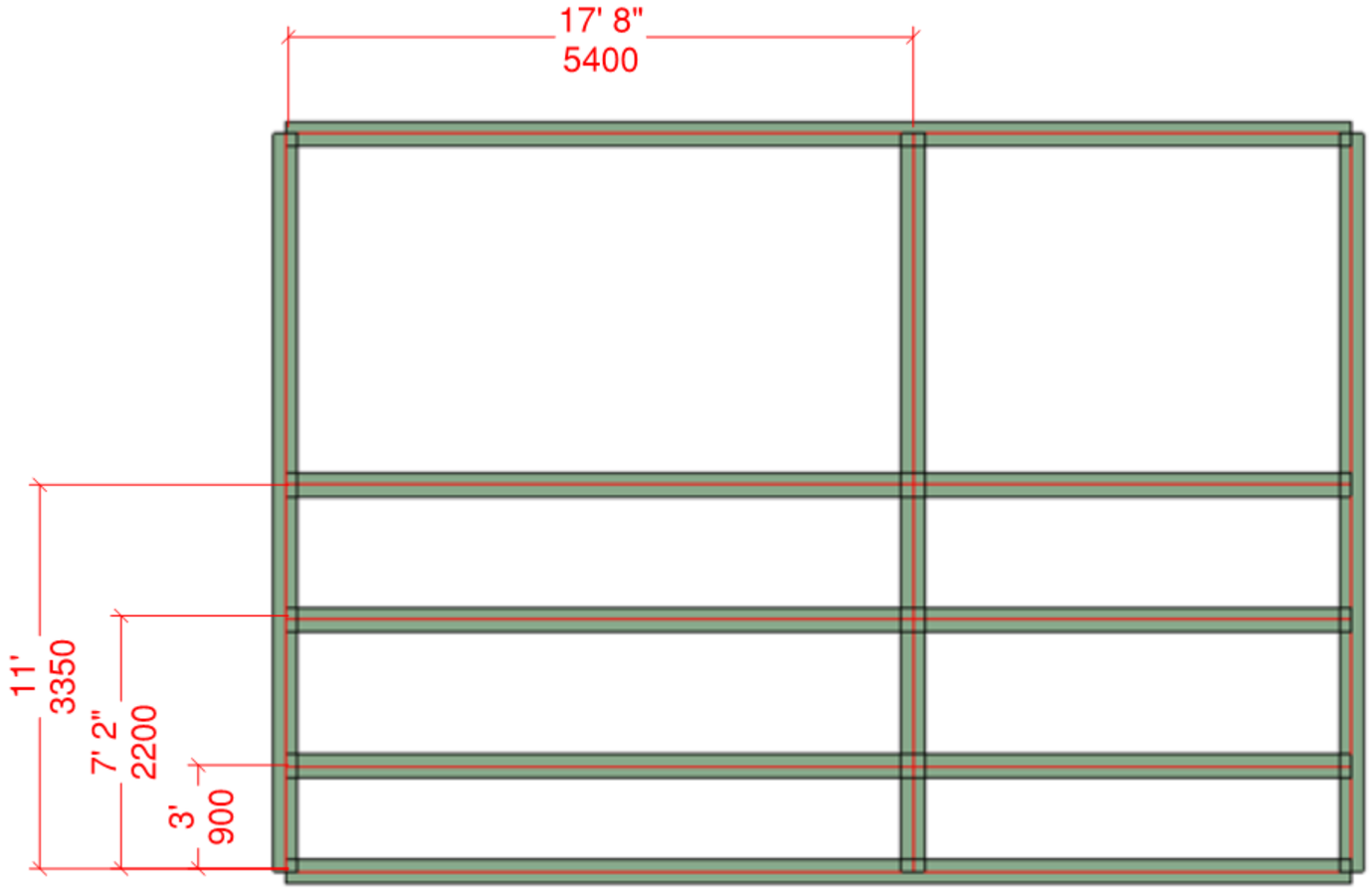
- Change the display of columns to Symbol
- Insert Perimeter Beams. Section Type is AISC 14.1 S > S24X121 or Australian Universal Beam > 530 UB 82.0 with Top Center Positioning





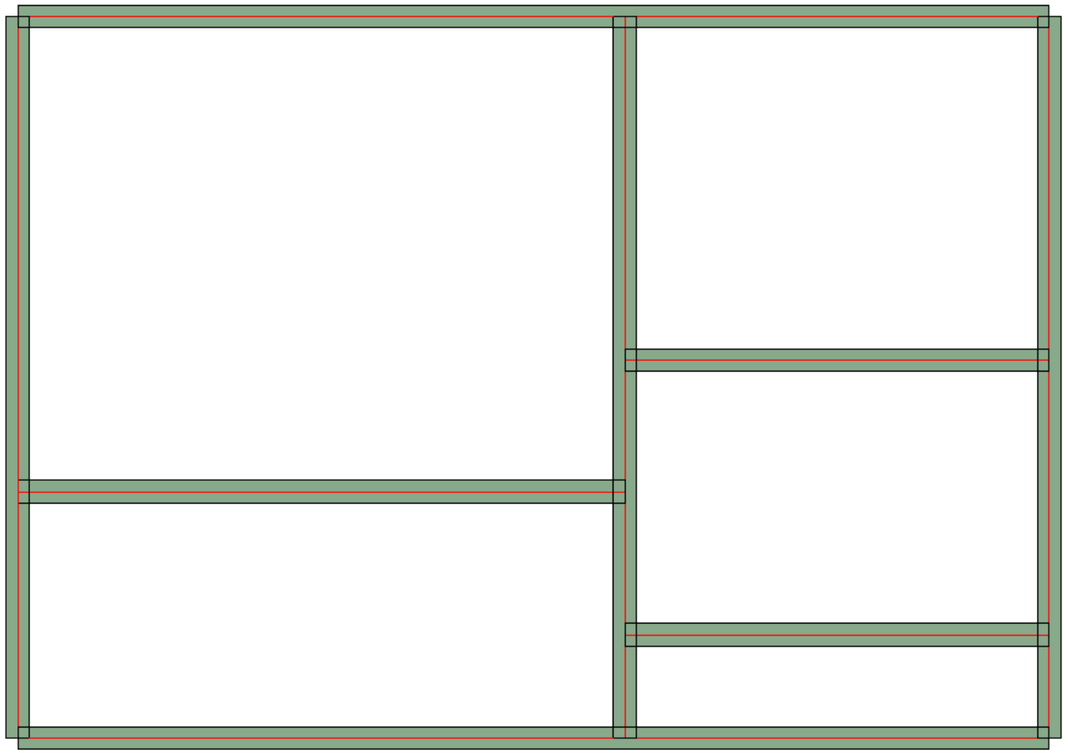
Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams

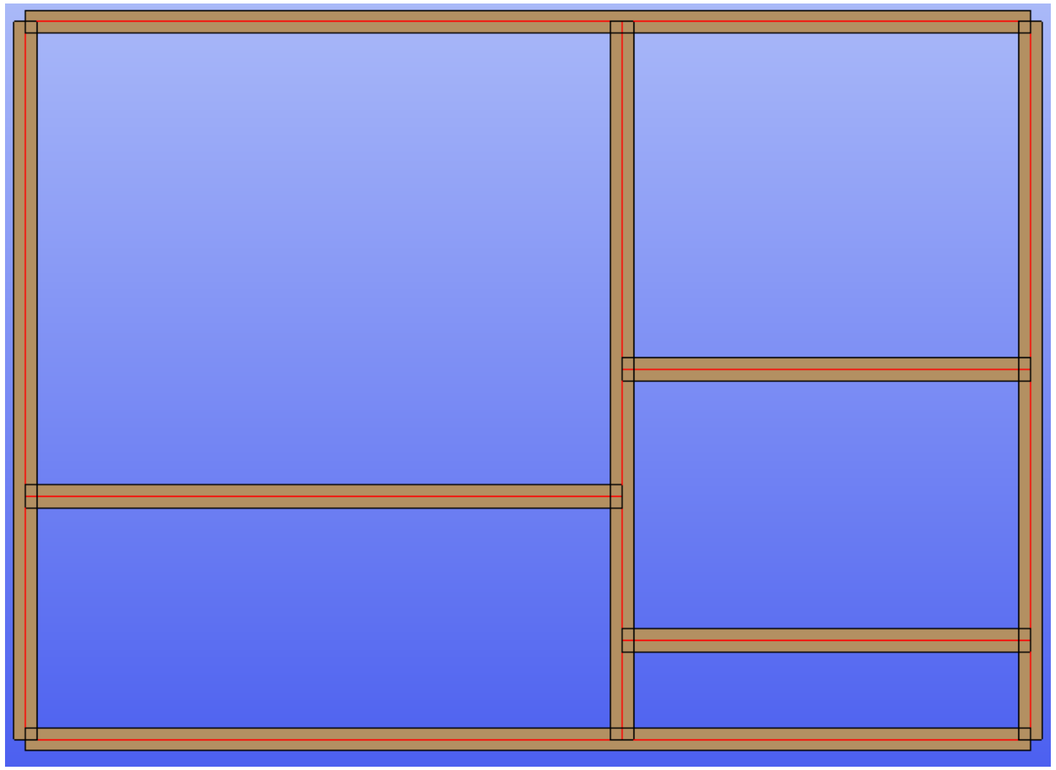
- Isolate Beams and Change the view to Top View
- Copy Perimeter Beams



Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams

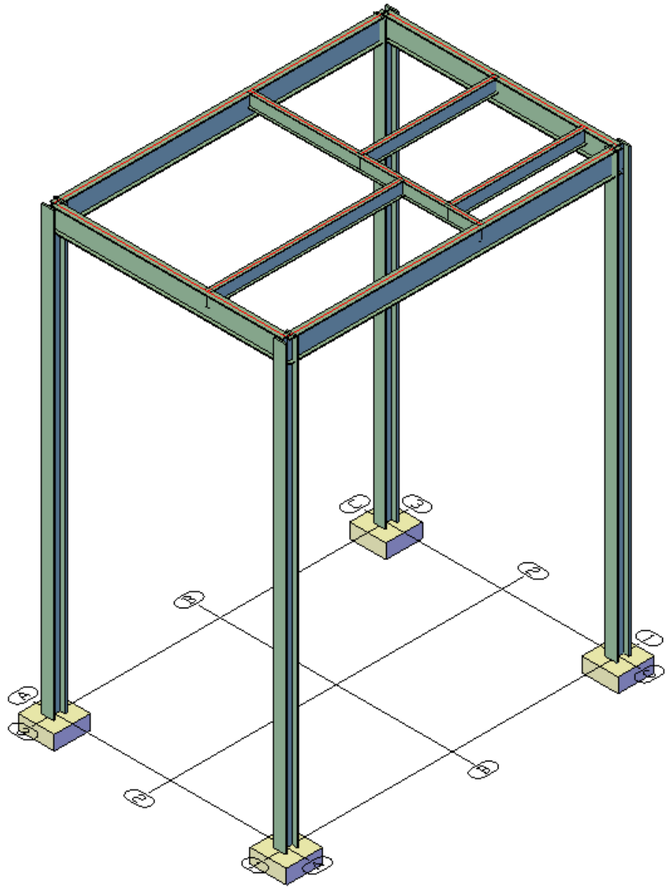
- Split Beams
- Change the sizes to AISC 14.1 S > S12X50 or Australian Universal Beam > 250 UB 31.4

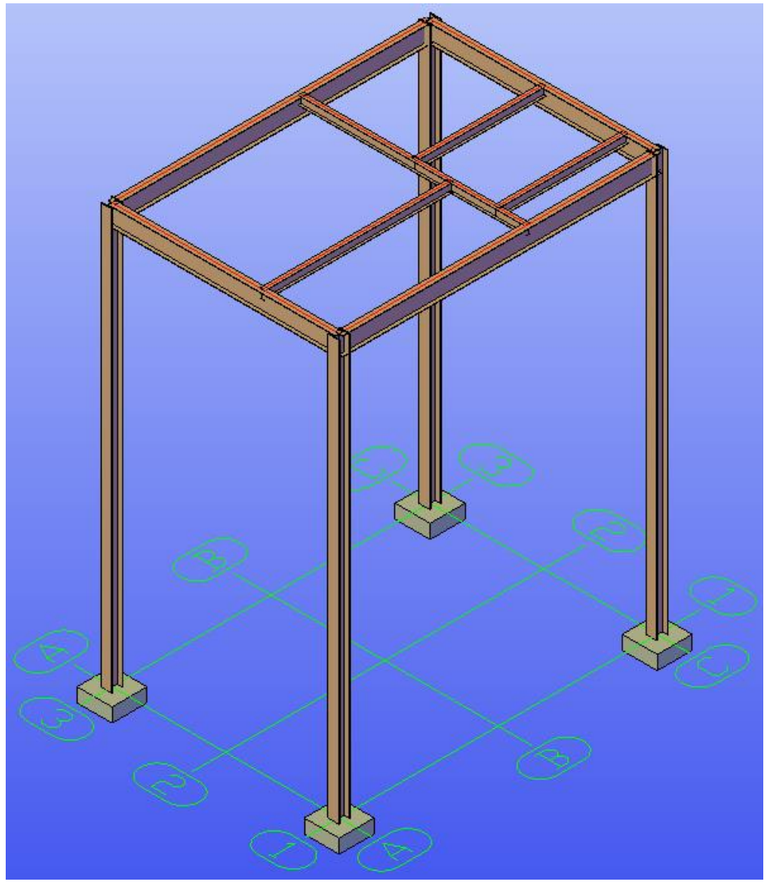




Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Remaining Steps)*

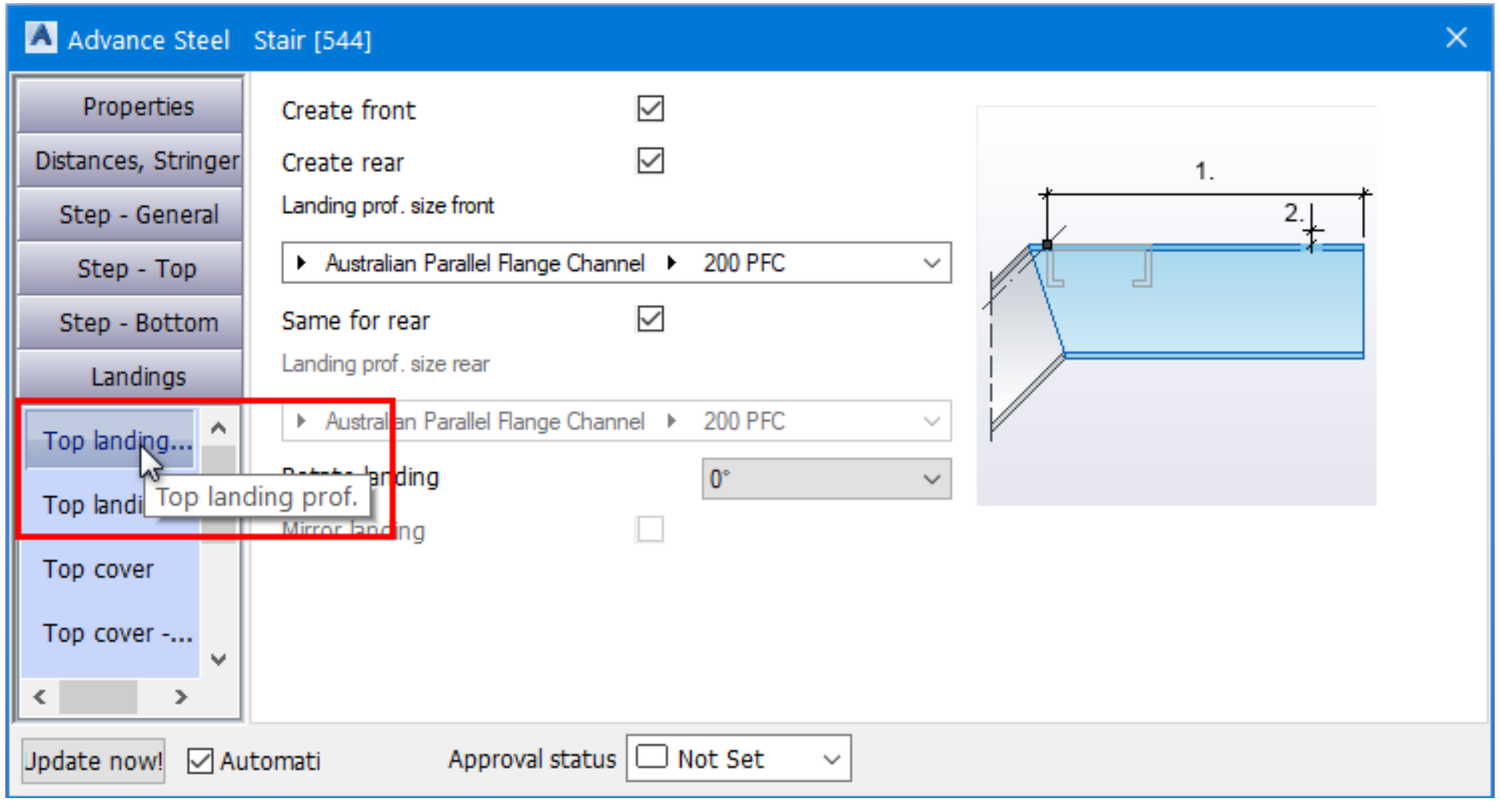
- Change the view to Home view with Parallel Projection
- Unisolate all objects





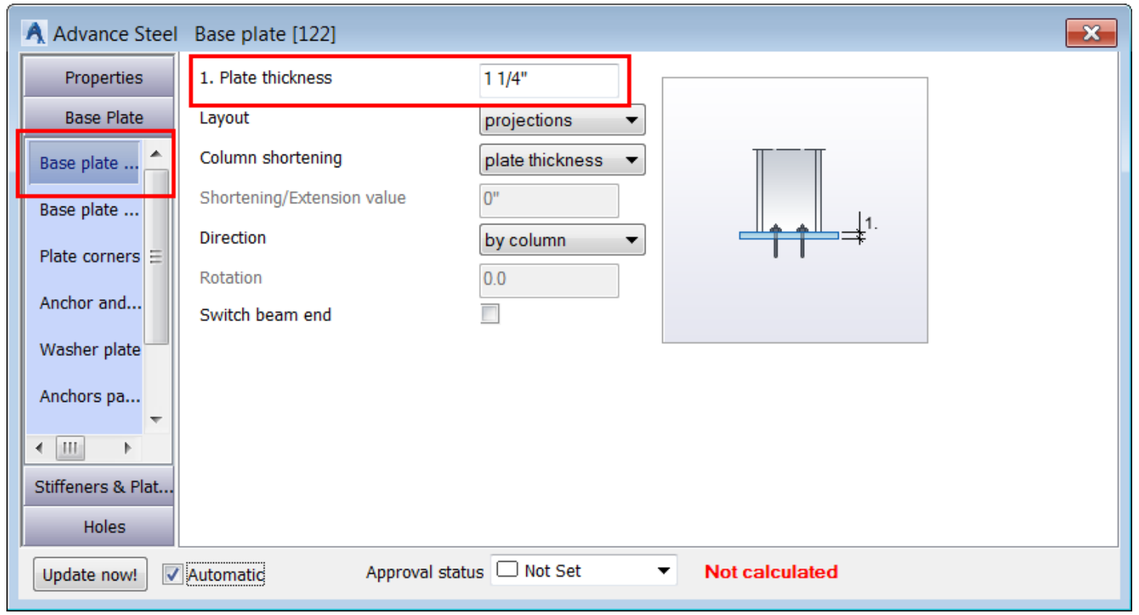
Section 3: Inserting and Copying the Base Plate Joints *(Important thing about the Dialog box Tab Names)*

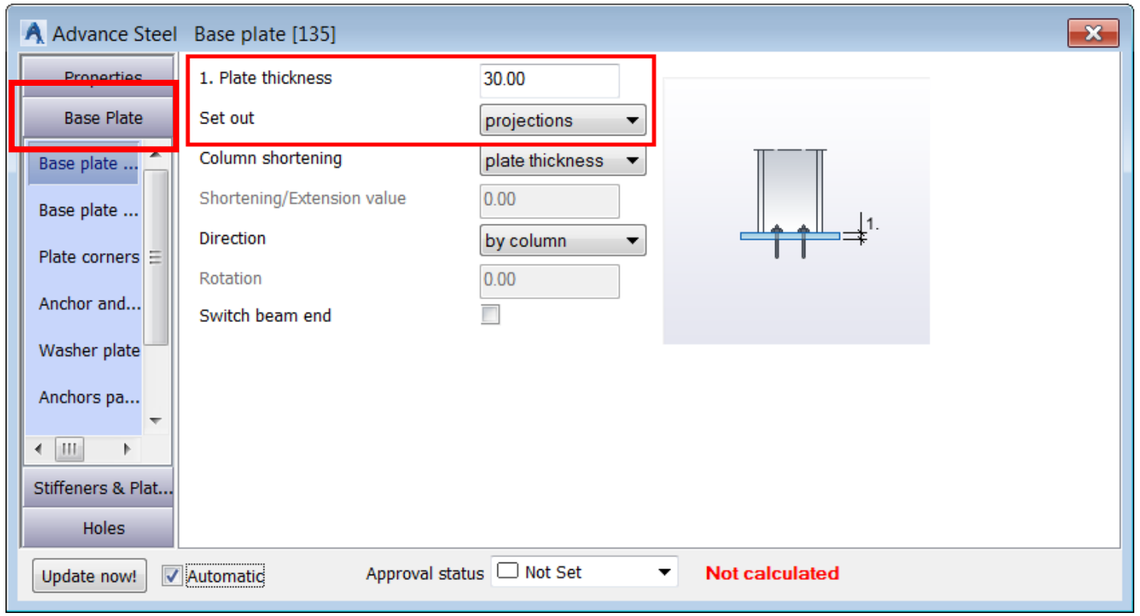
- Hover the cursor over the tab name to display the full name of the tab



Section 3: Inserting and Copying the Base Plate Joints
(Steps 1-23 Only)

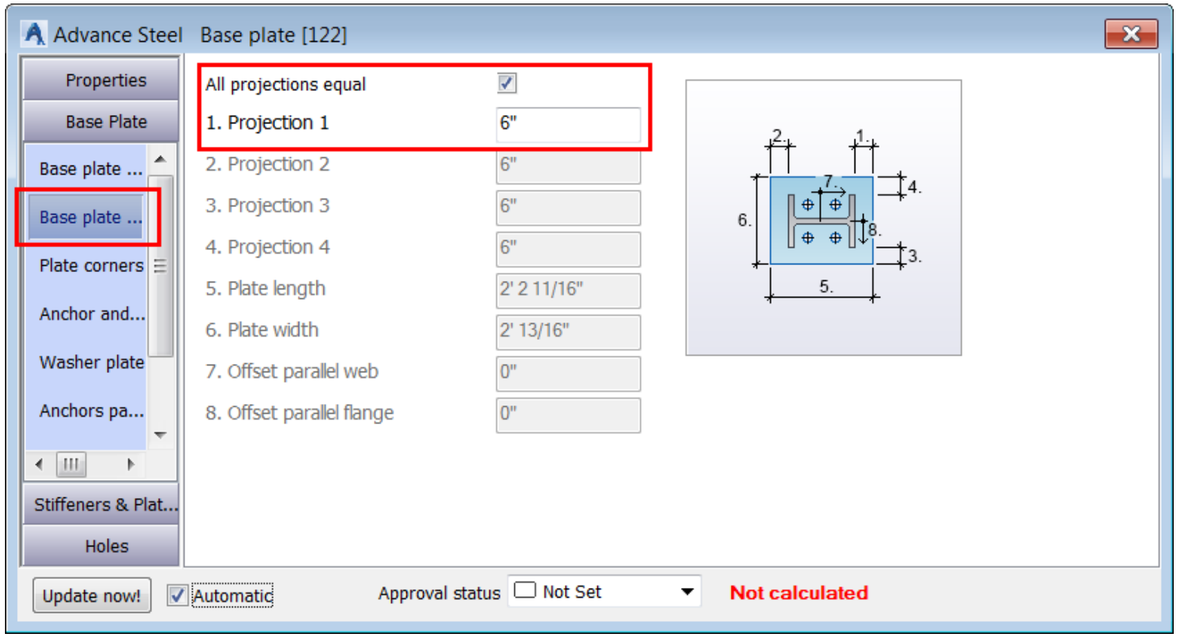
- Open the Section3-Imperial.dwg or Section3-Metric.dwg file
- Turn on Connection vault
- Invoke the Base plate Joint and select the column at A1 grid intersection point
- Base Plate > Base plate layout tab:

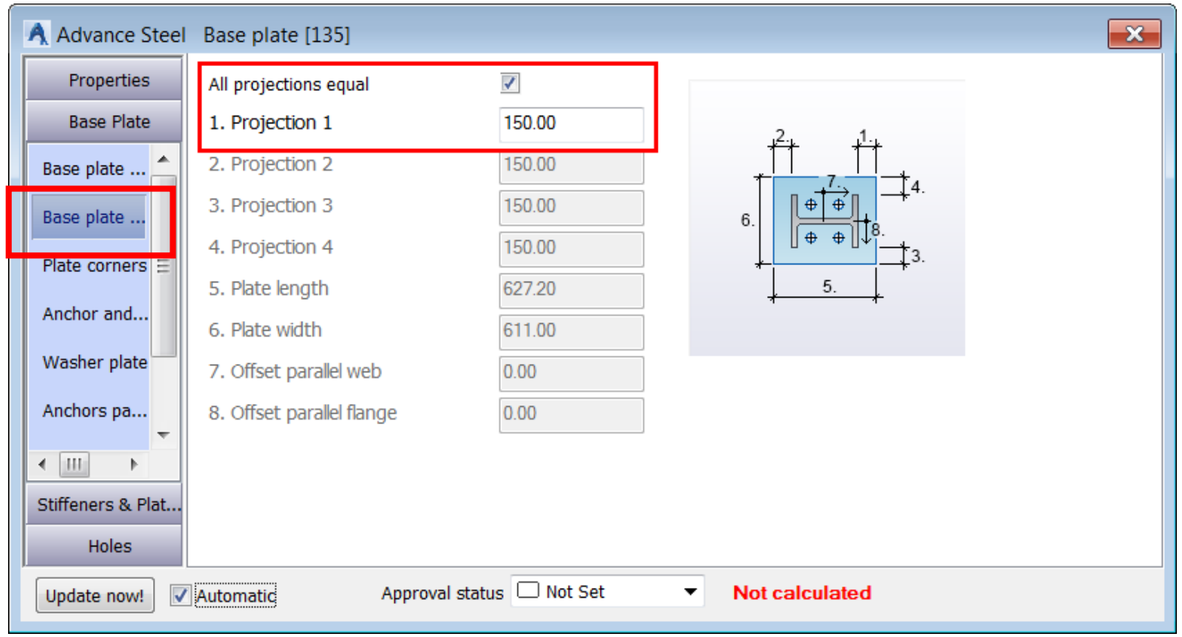




Section 3: Inserting and Copying the Base Plate Joints

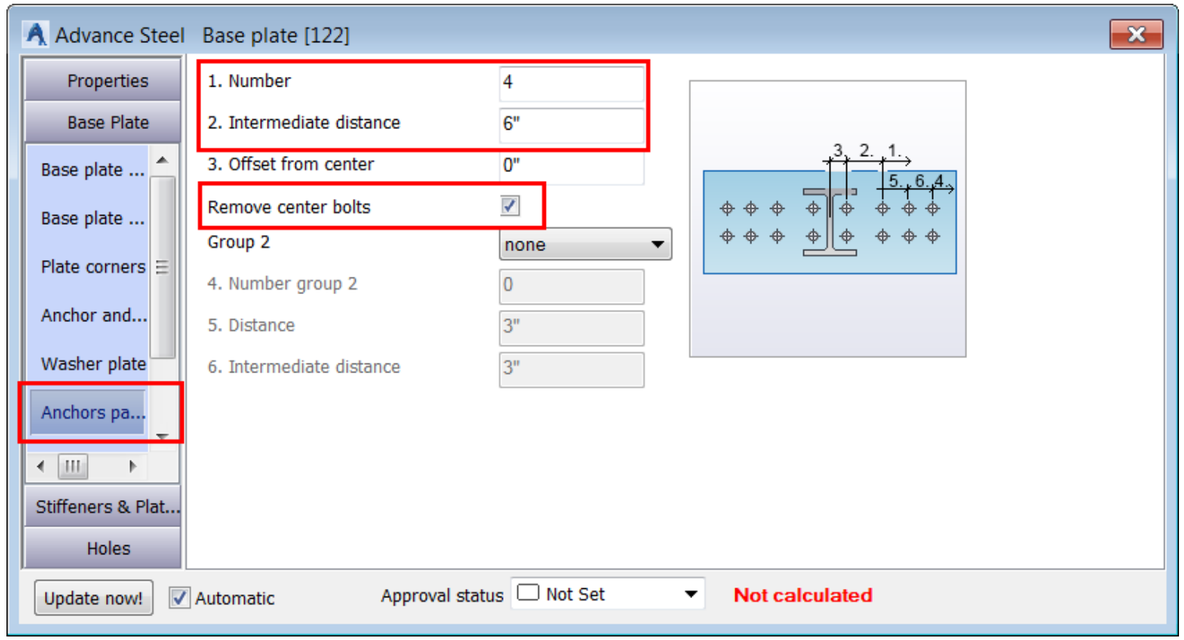
- Base Plate > Base plate dimensions tab:

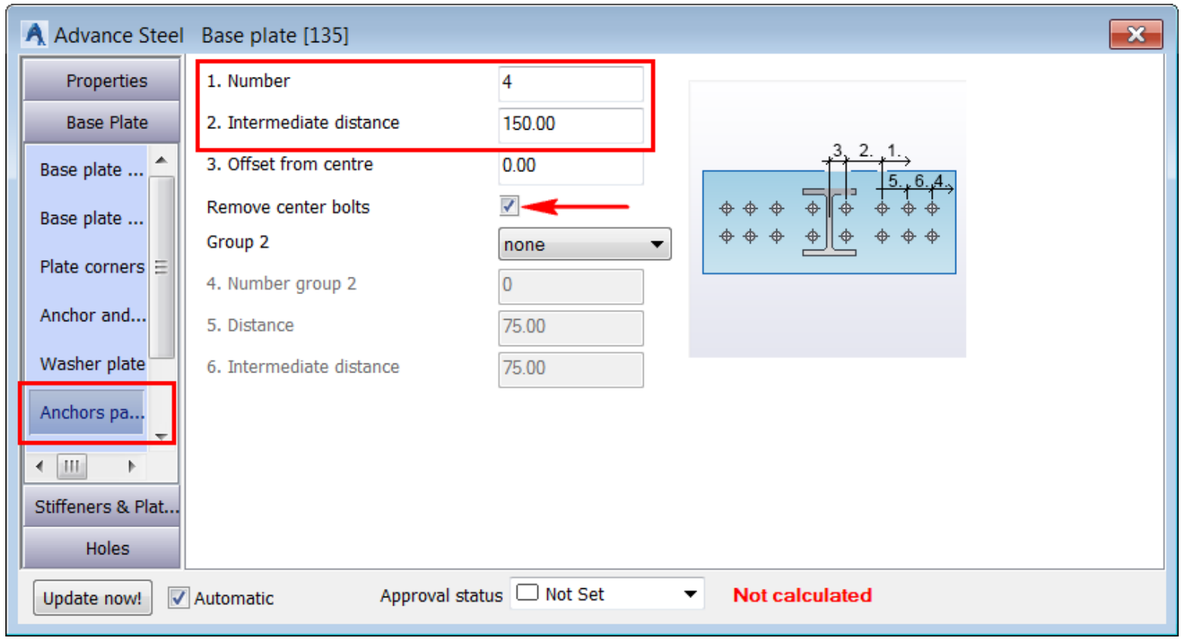




Section 3: Inserting and Copying the Base Plate Joints

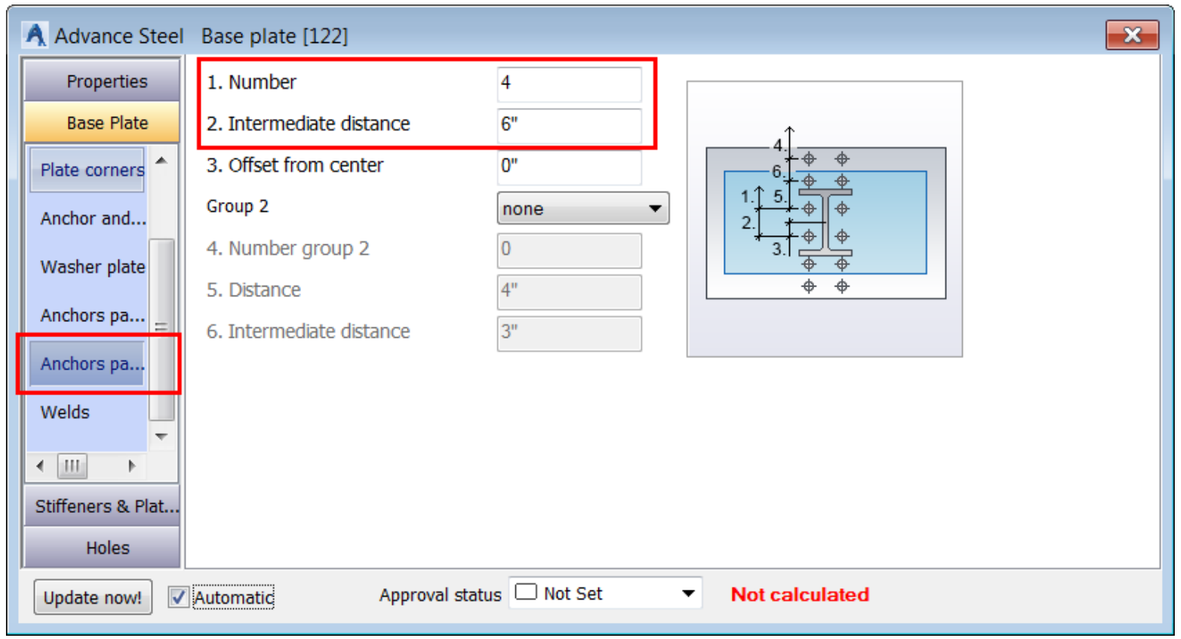
- Base Plate > Anchor parallel web tab:

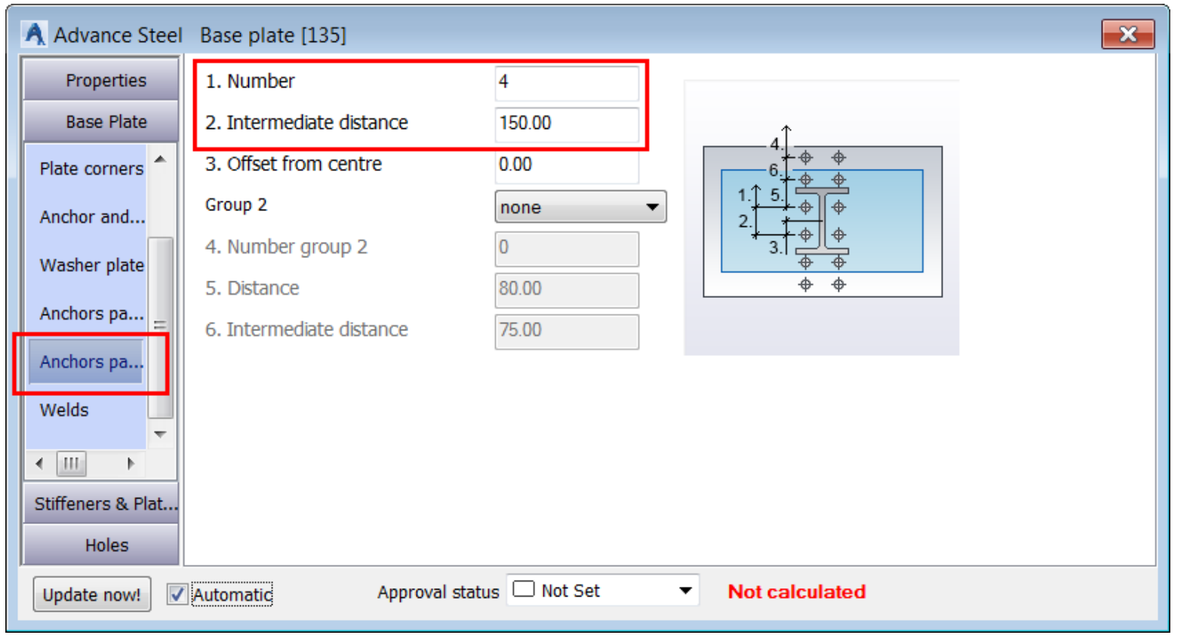




Section 3: Inserting and Copying the Base Plate Joints

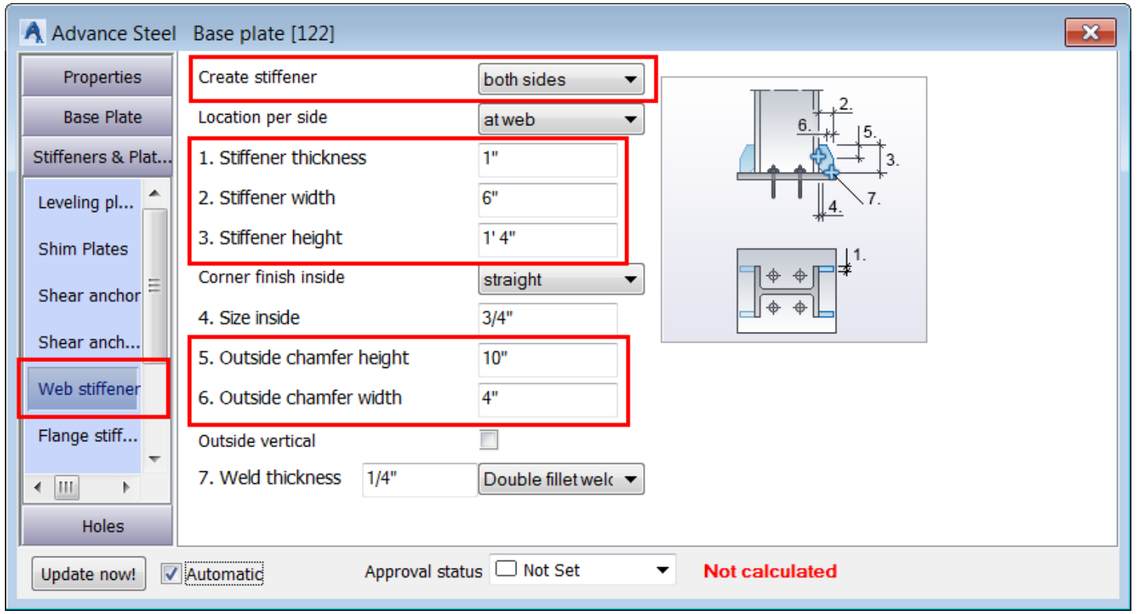
- Base Plate > Anchor parallel flange tab:

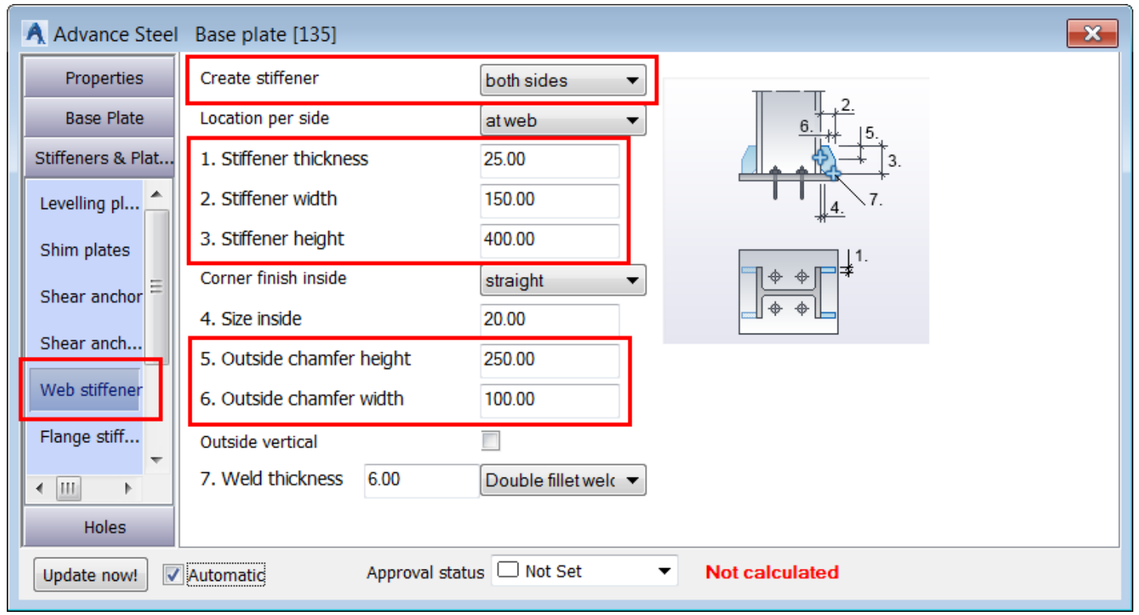




Section 3: Inserting and Copying the Base Plate Joints

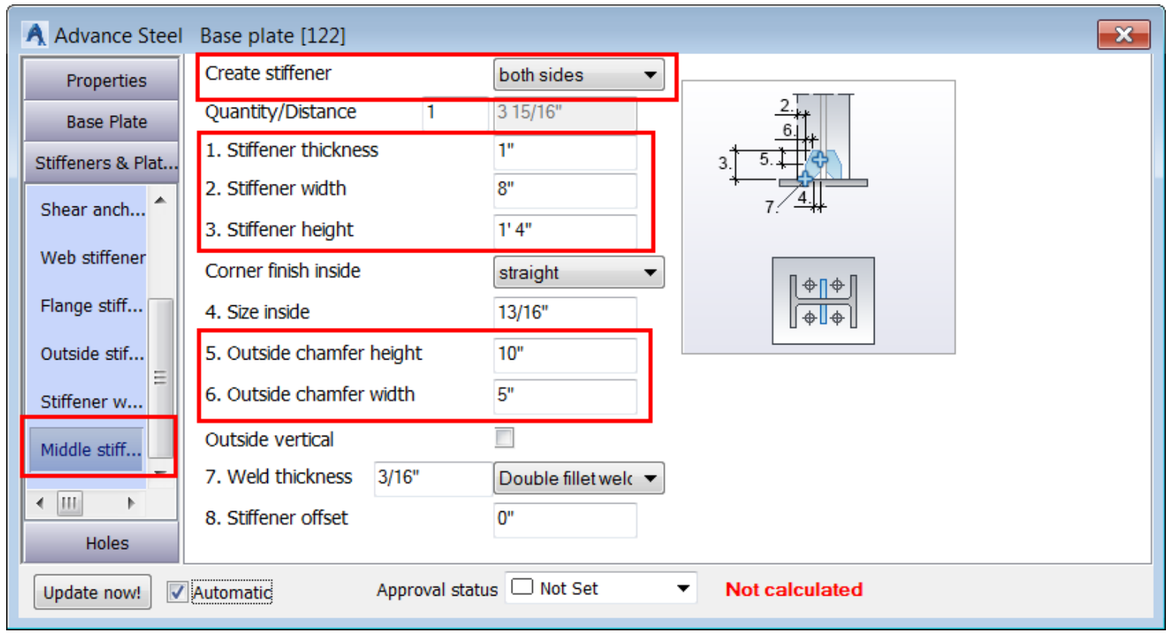
- Stiffeners & Plates > Web stiffener tab:

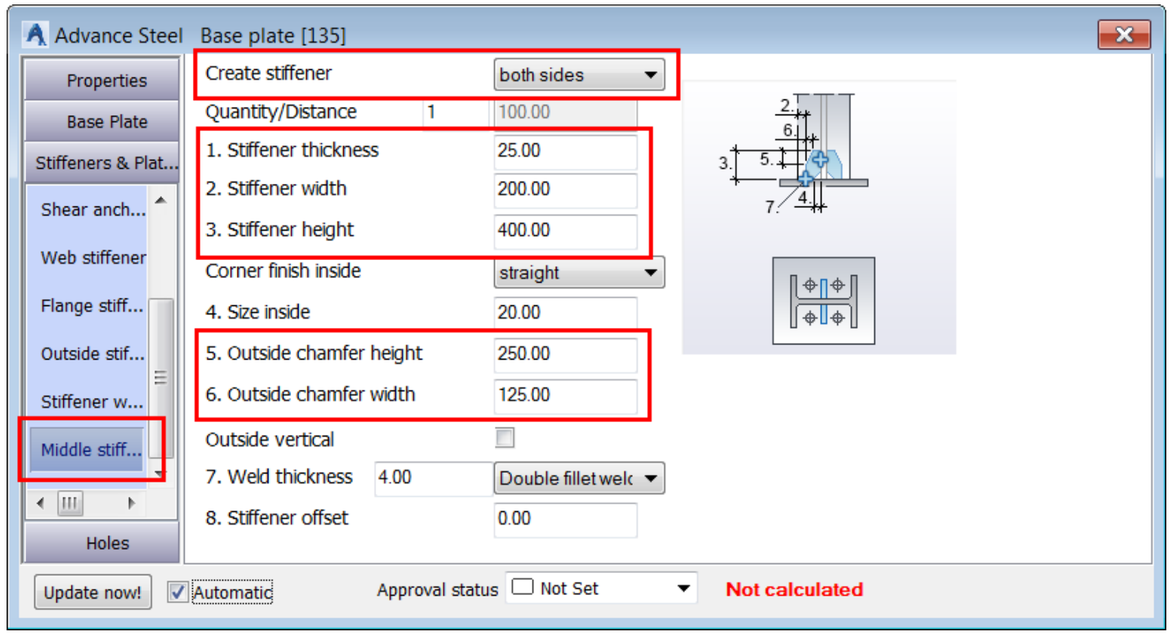




Section 3: Inserting and Copying the Base Plate Joints

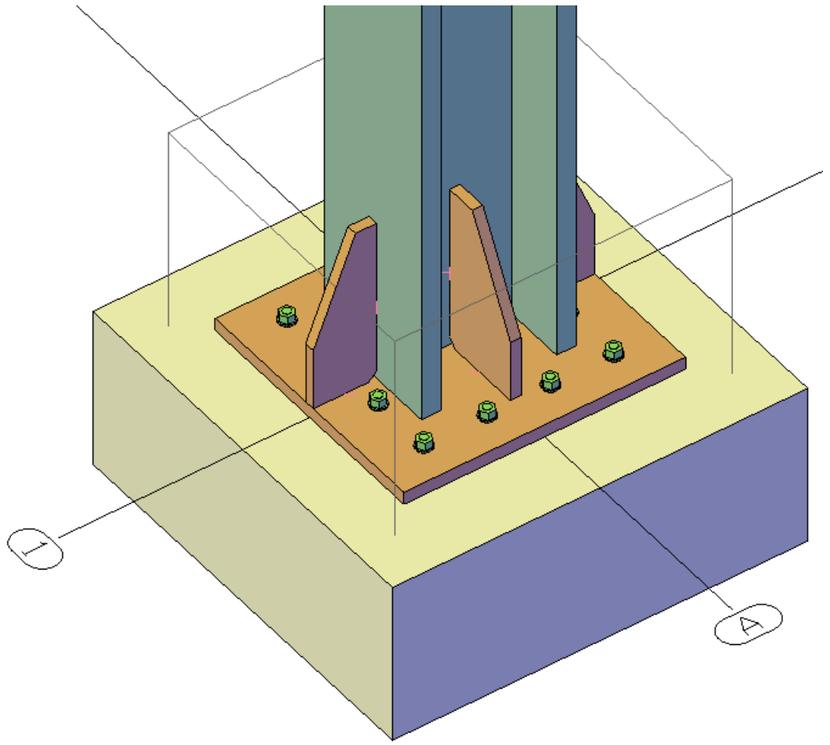
- Stiffeners & Plates > Middle stiffener tab:

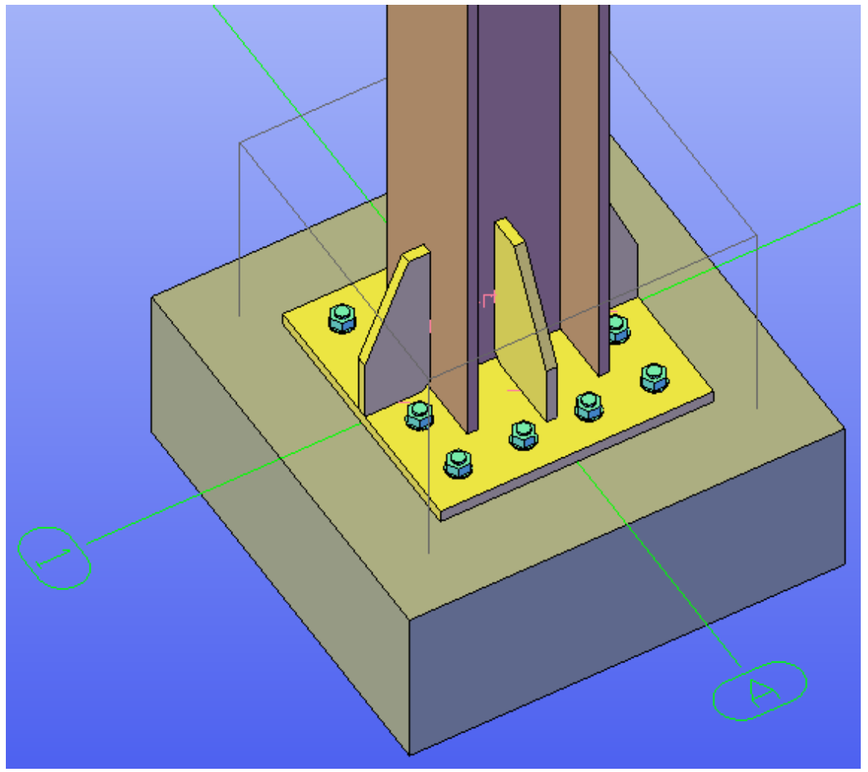




Section 3: Inserting and Copying the Base Plate Joints

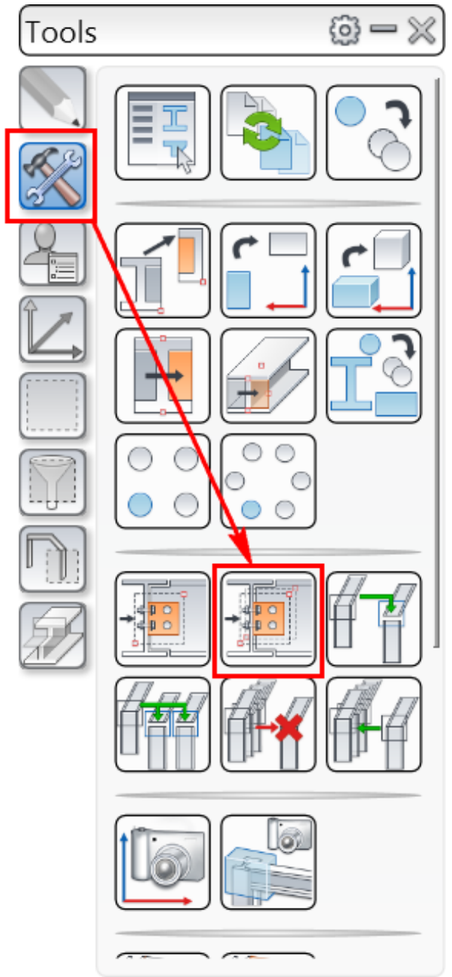
- Close the dialog box.





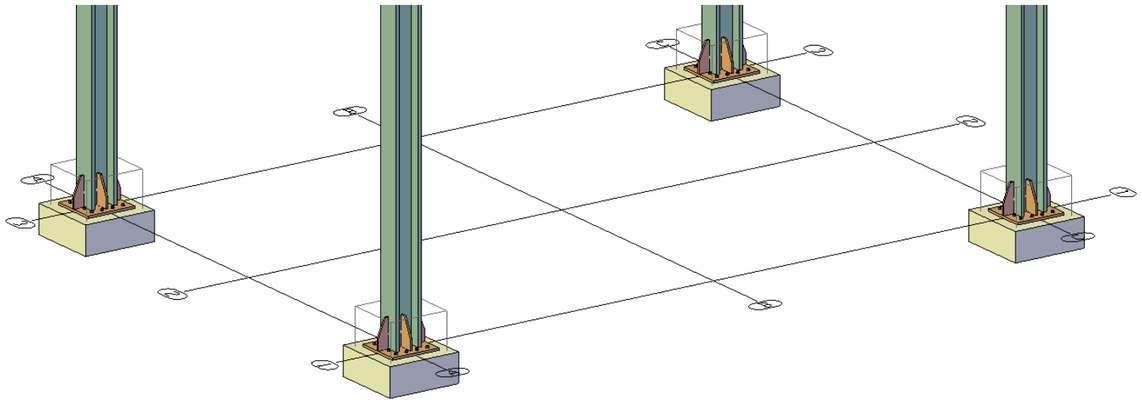
Section 3: Inserting and Copying the Base Plate Joints

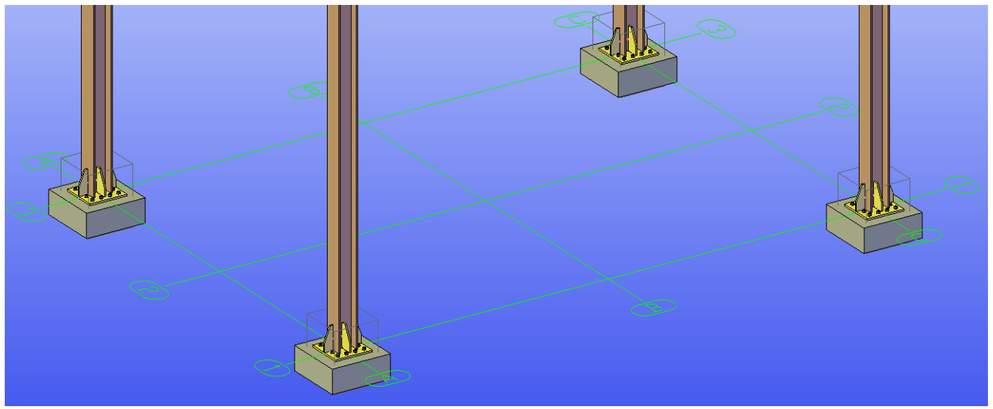
- From the Advance Steel Palette > Tools tab, invoke the Create by template, multiple tool.



Section 3: Inserting and Copying the Base Plate Joints *(Remaining Steps)*

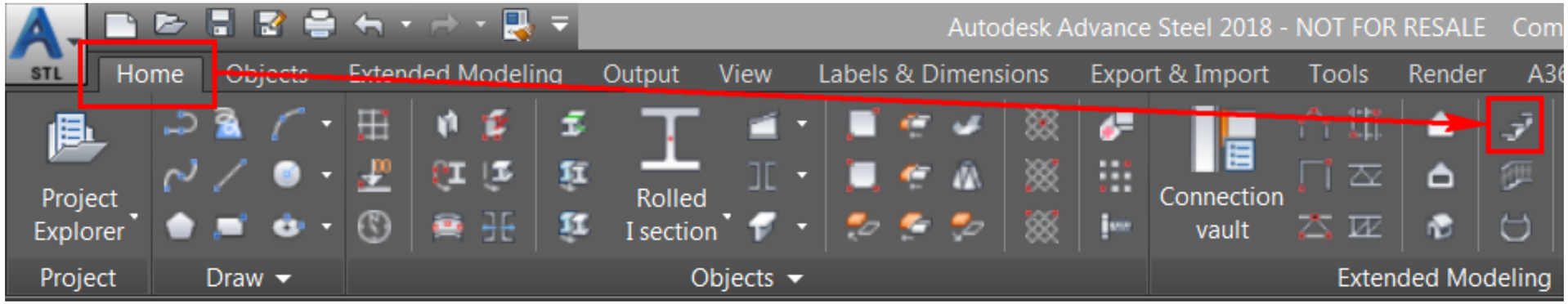
- Copy the joint to the remaining columns.





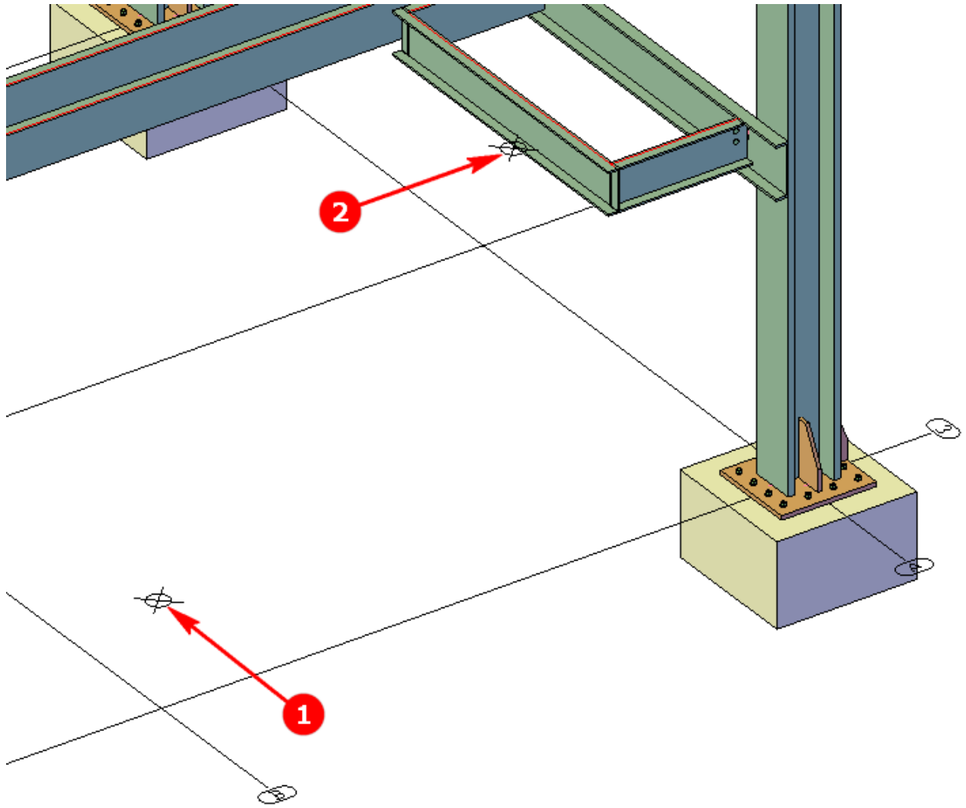
Section 4: Inserting Stairs *(Do with me)*

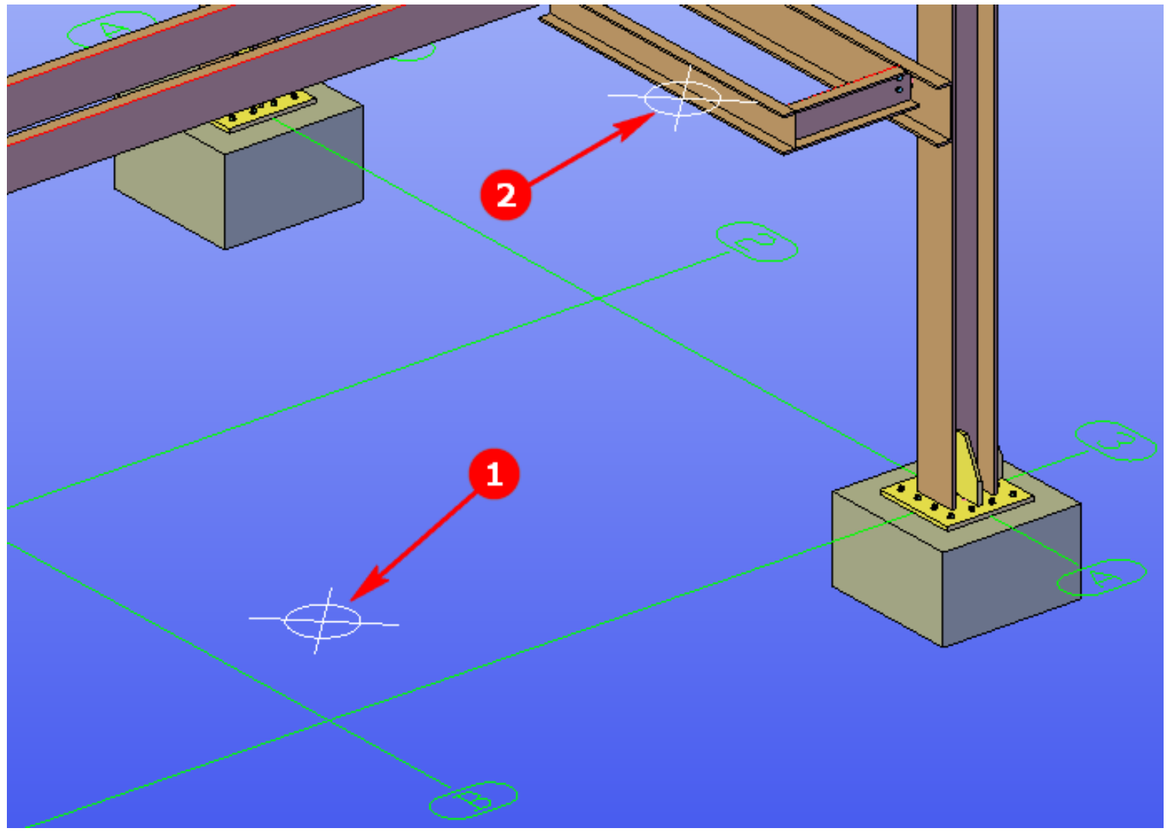
- Open the Section4-Imperial.dwg or Section4-Metric.dwg file
- Invoke the Straight stairs tool



Section 4: Inserting Stairs *(Do with me)*

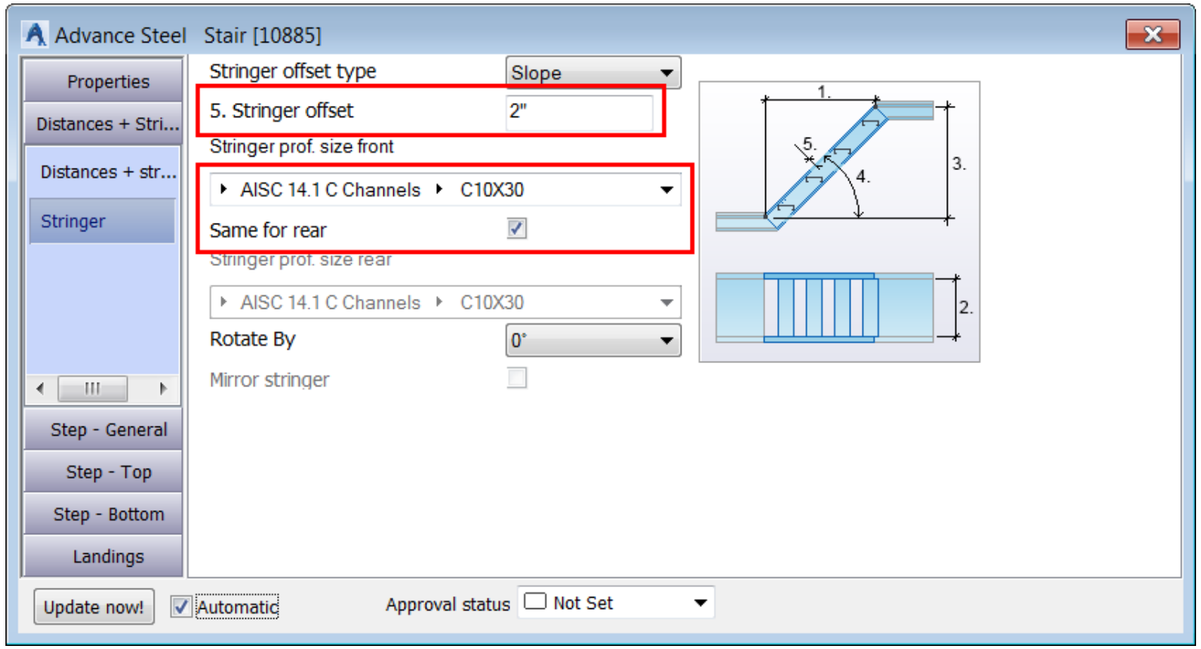
- Press ENTER and click the following two points.
- Press ENTER again.

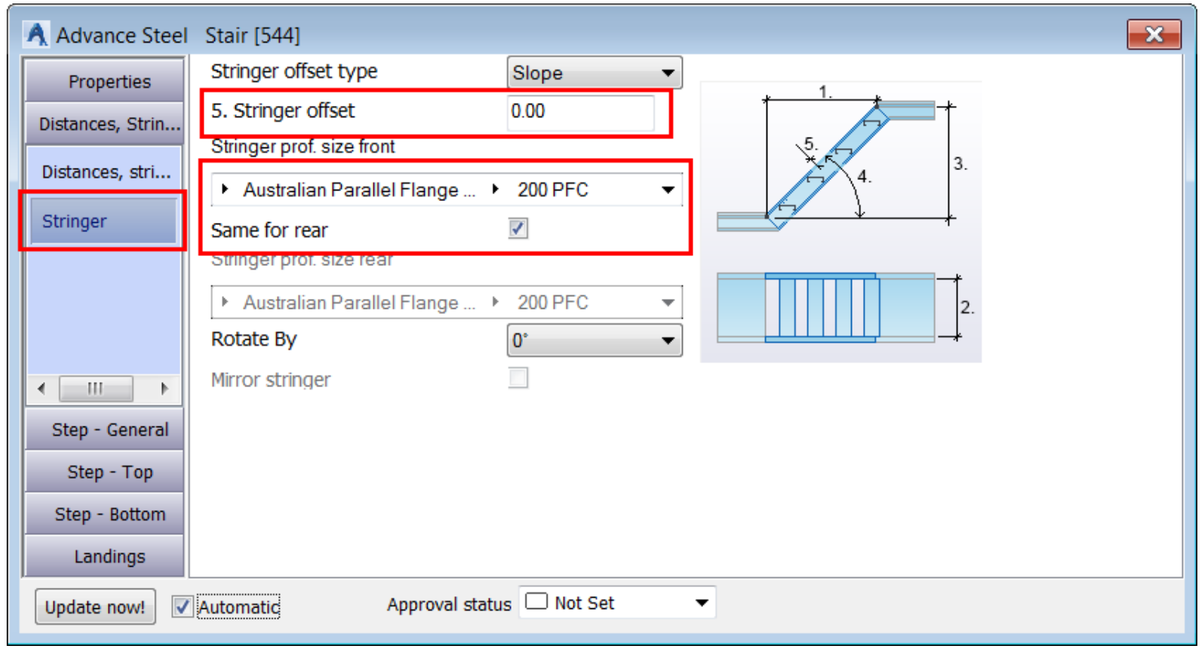




Section 4: Inserting Stairs *(Step 8 Onwards)*

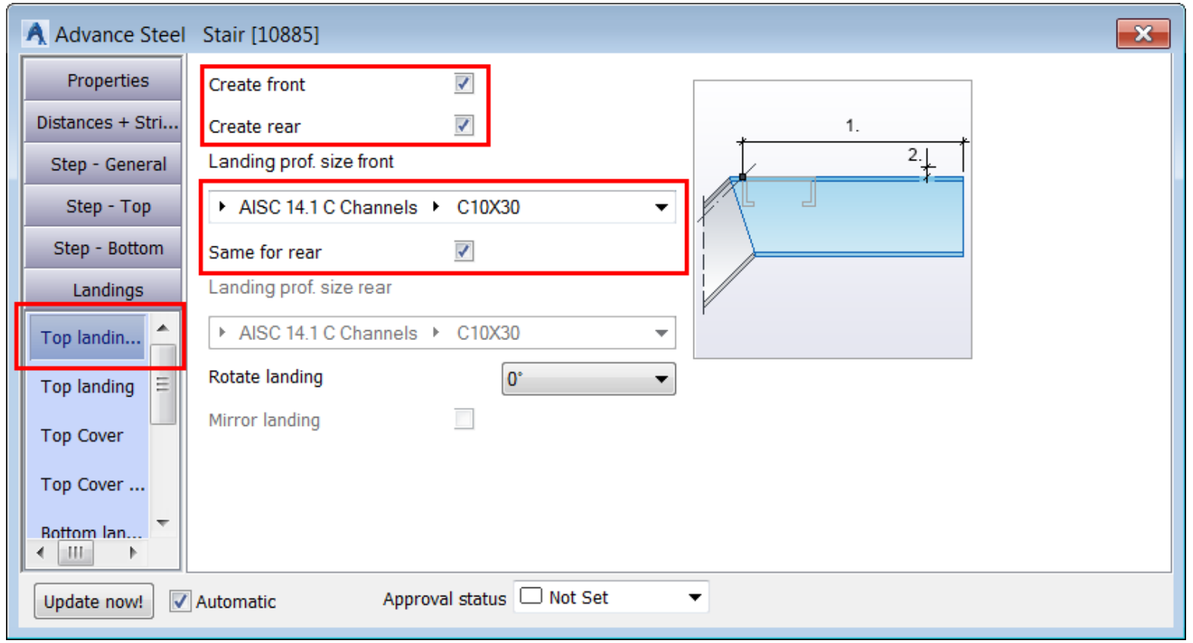
- Distances + Stringer > Stringer tab:

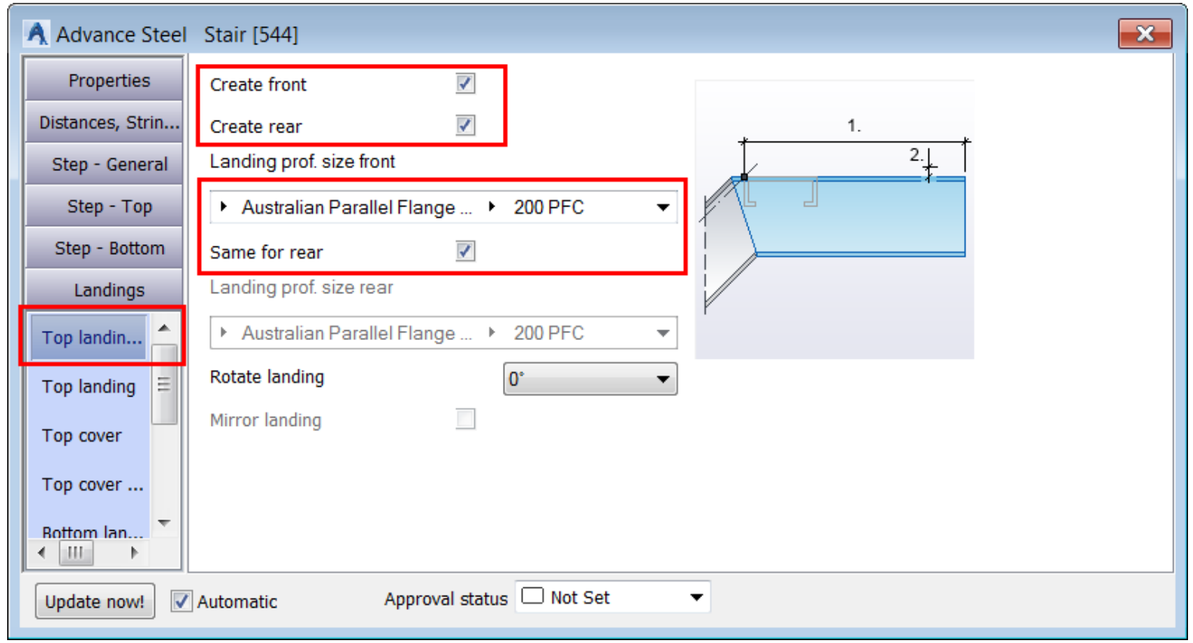




Section 4: Inserting Stairs

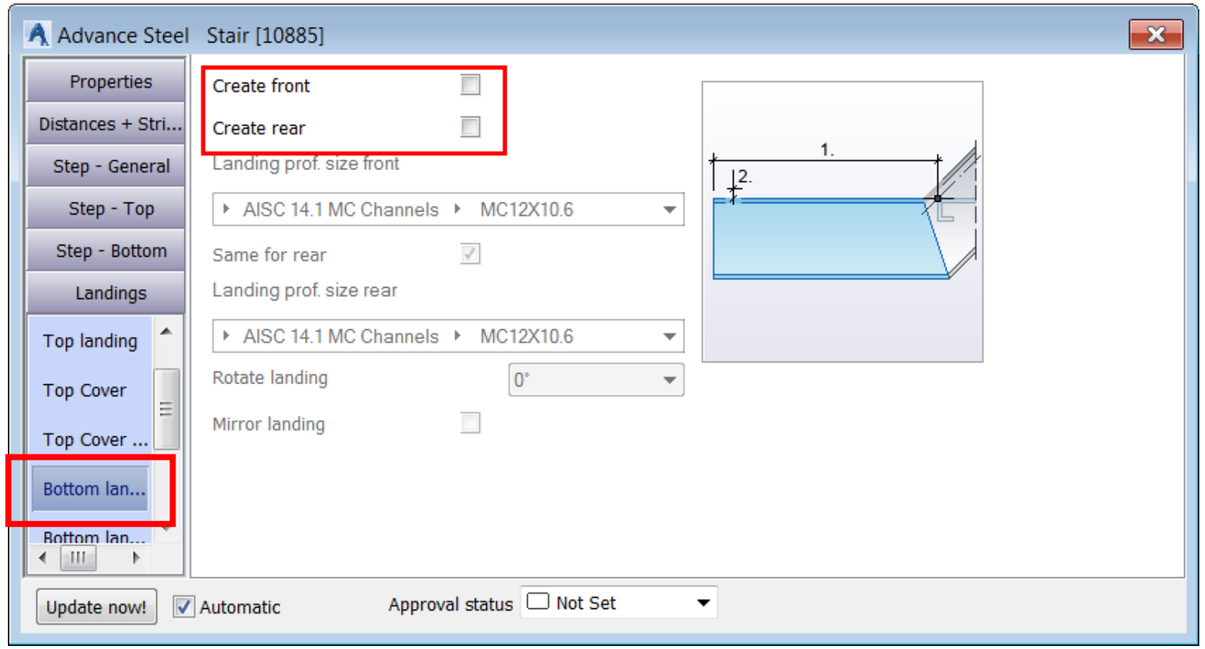
- Landings > Top landing prof. tab:

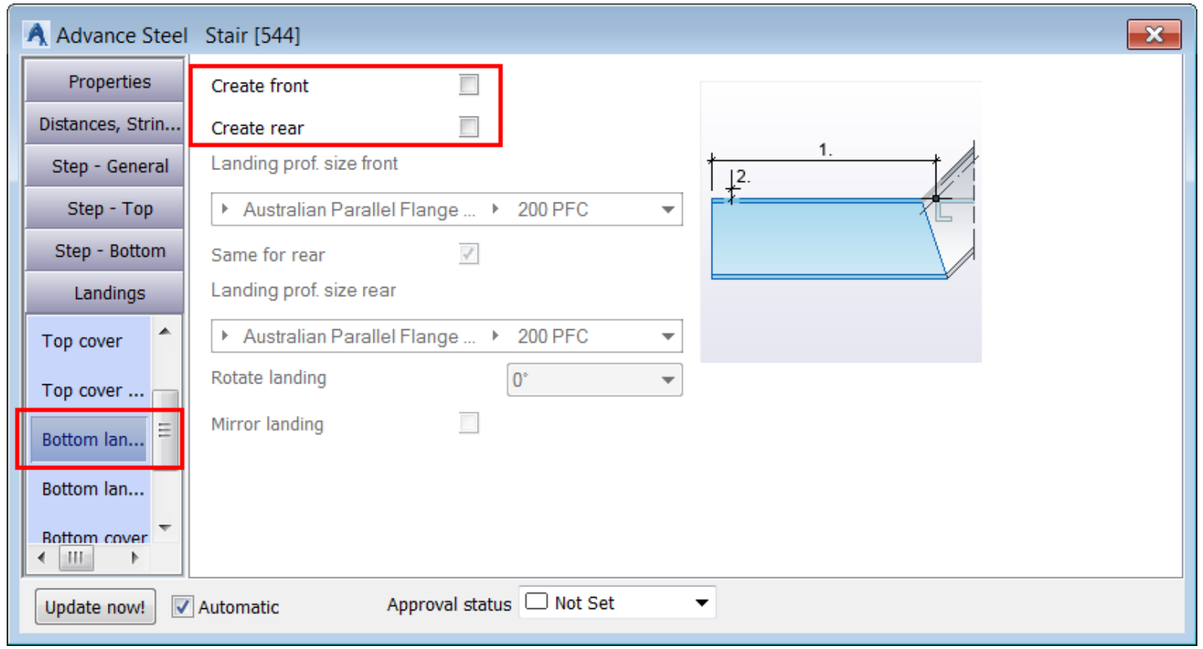




Section 4: Inserting Stairs

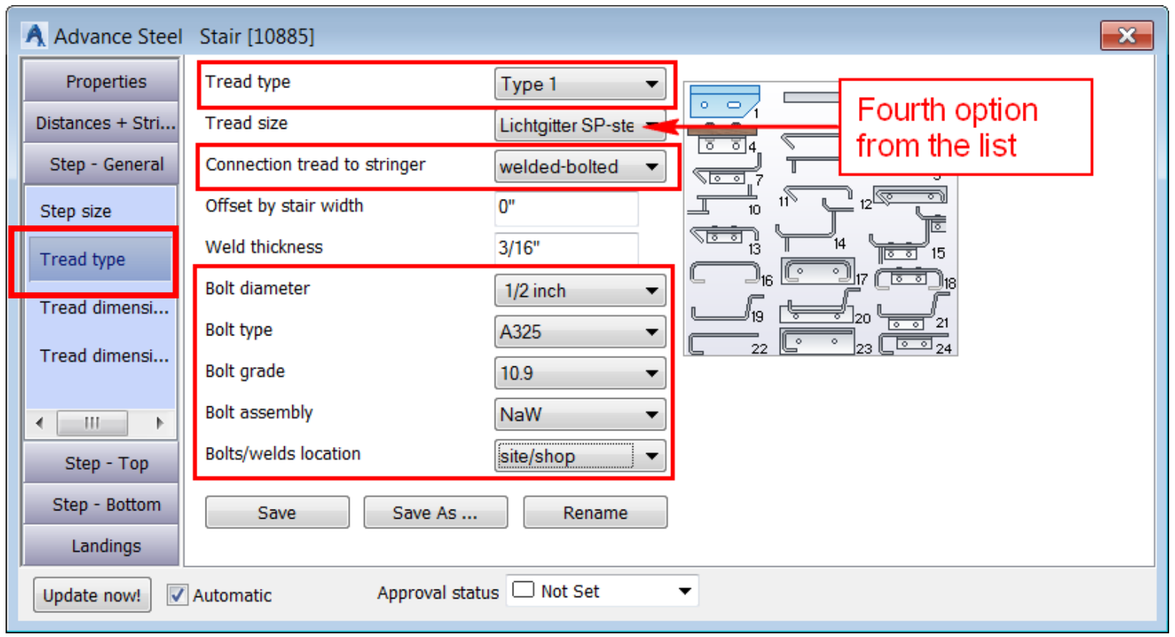
- Landings > Bottom landing prof. tab:

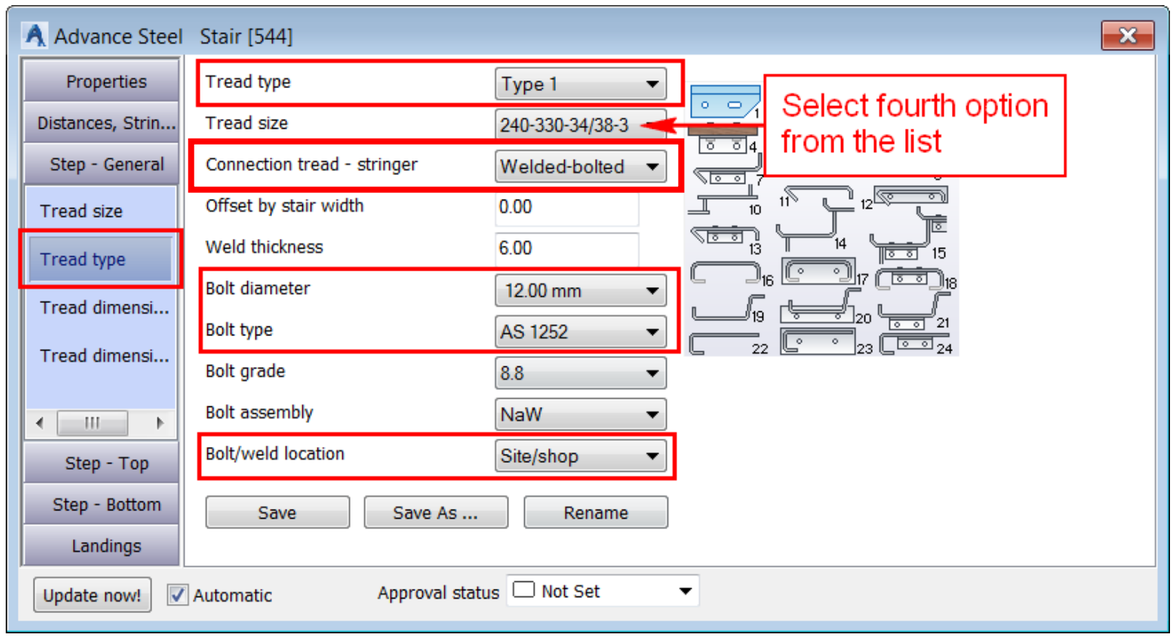




Section 4: Inserting Stairs

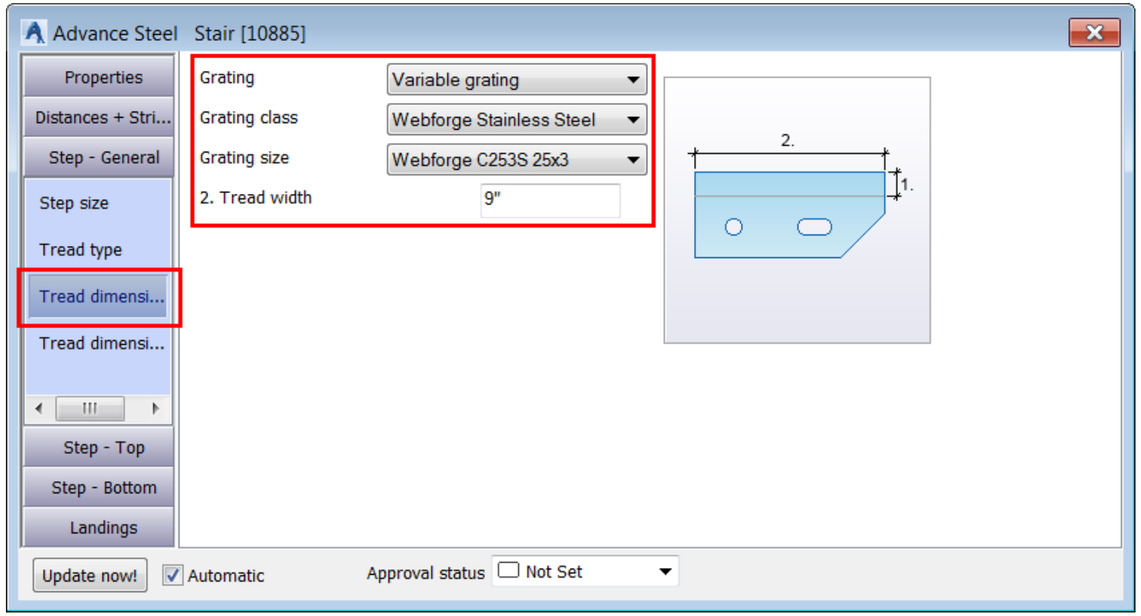
- Step - General > Tread type tab:

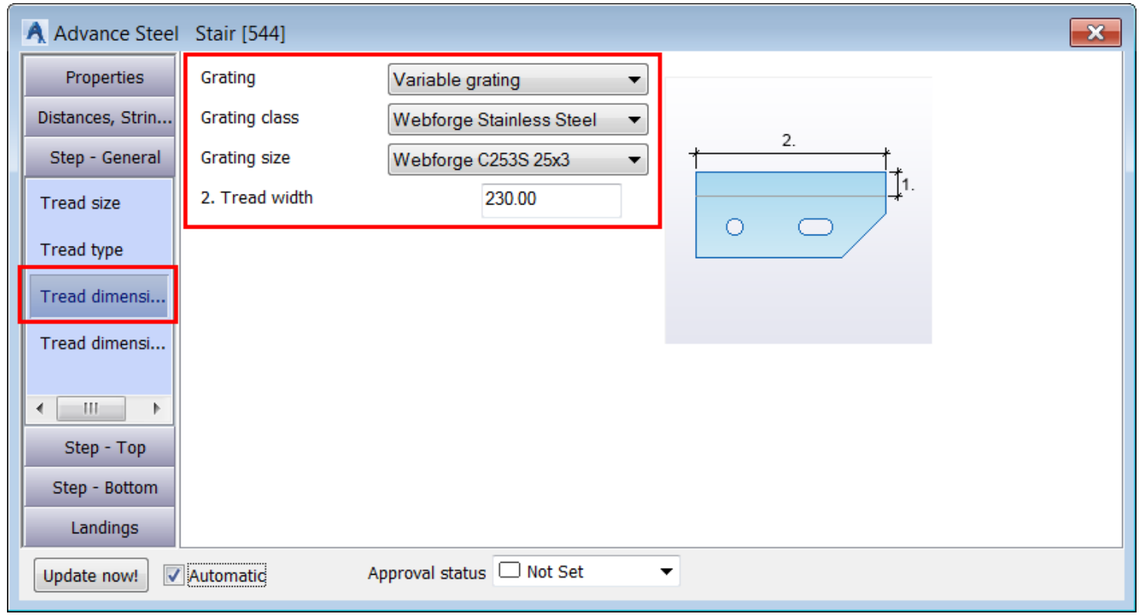




Section 4: Inserting Stairs

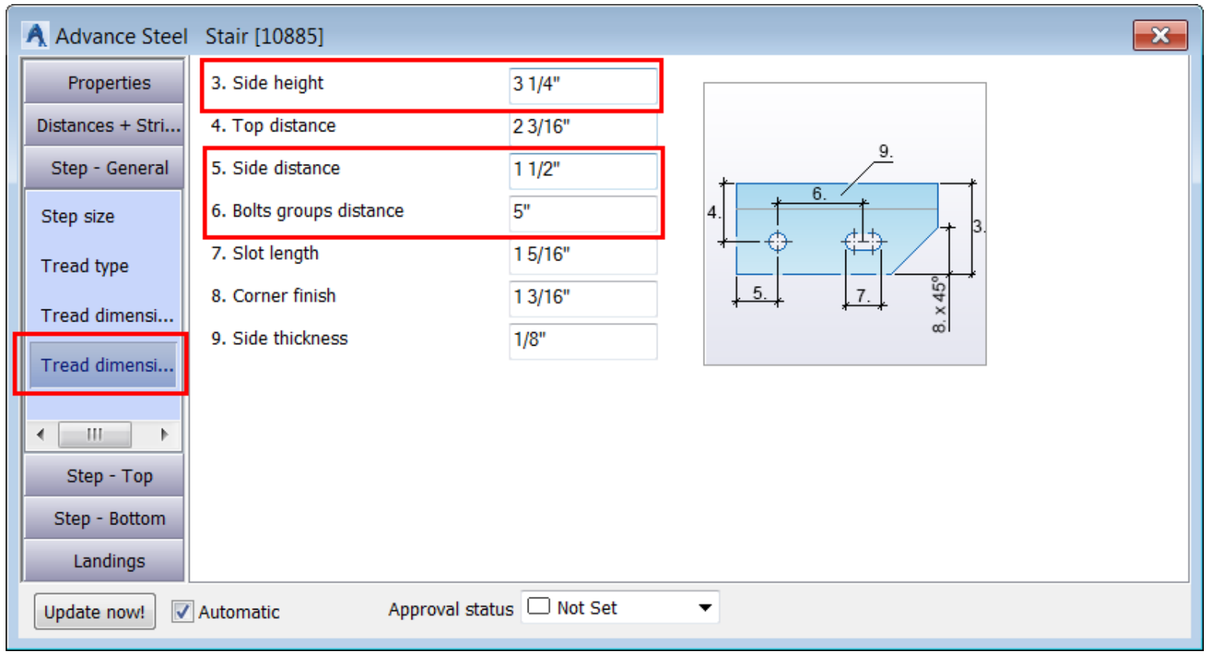
- Step - General > Tread dimensions 1 tab:

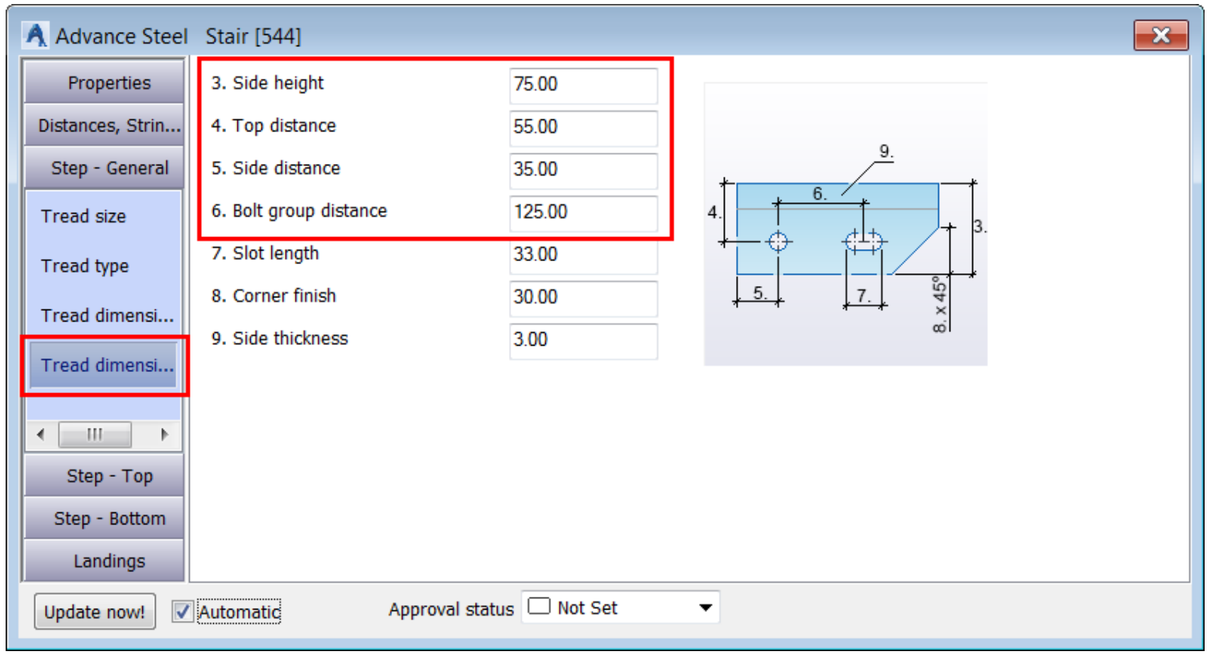




Section 4: Inserting Stairs

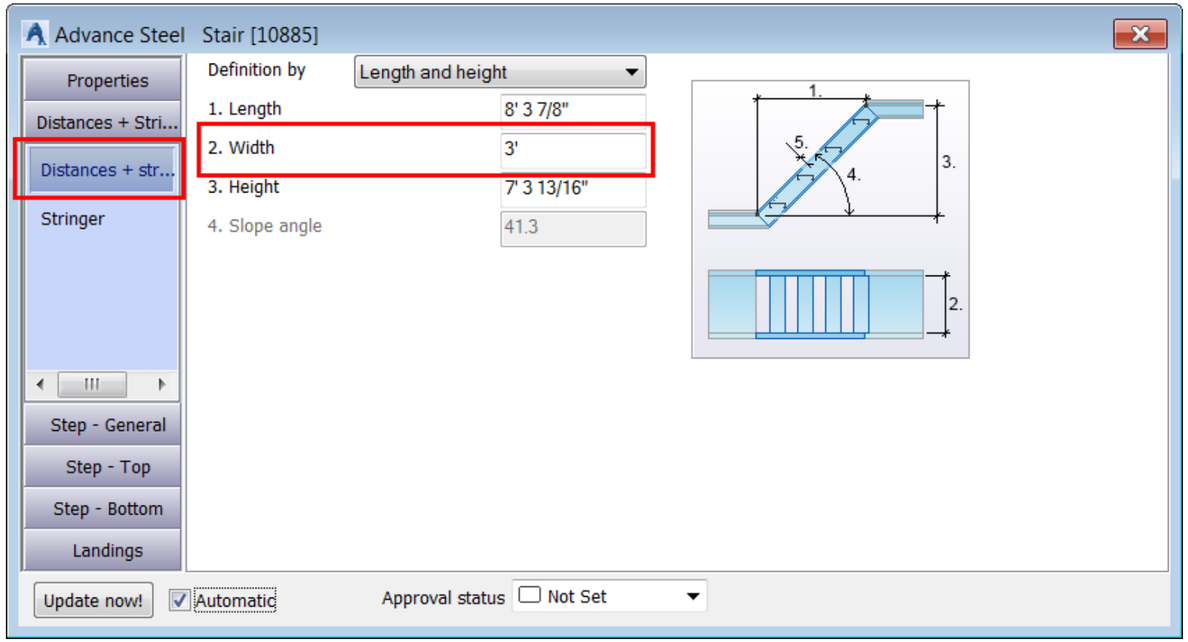
- Step - General > Tread dimensions 2 tab:

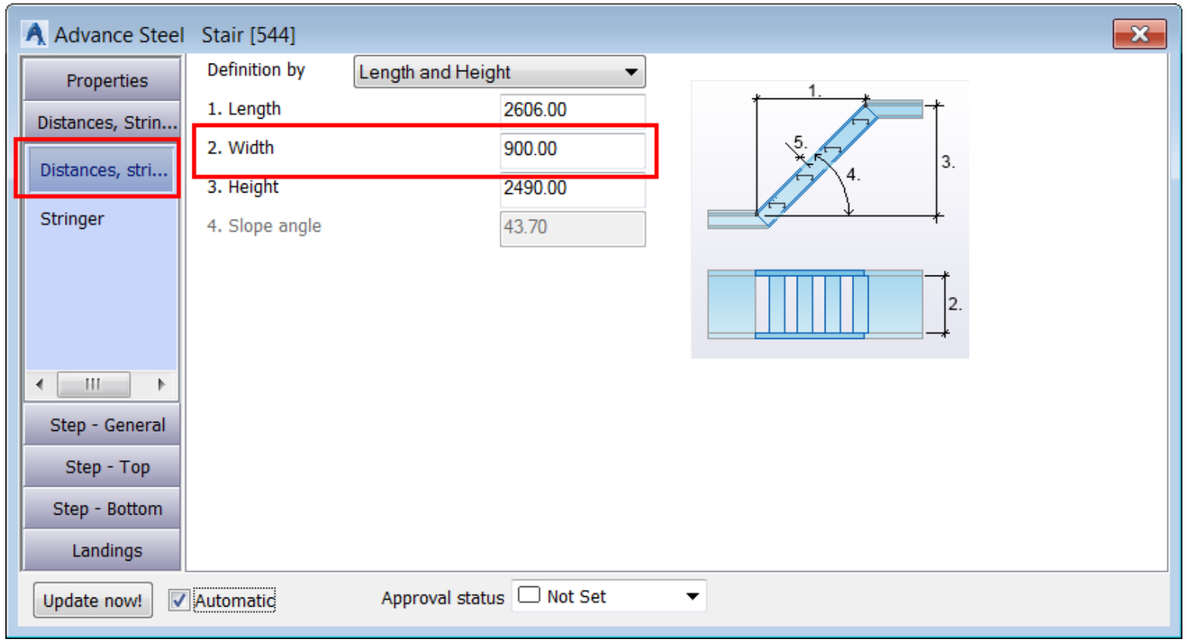




Section 4: Inserting Stairs

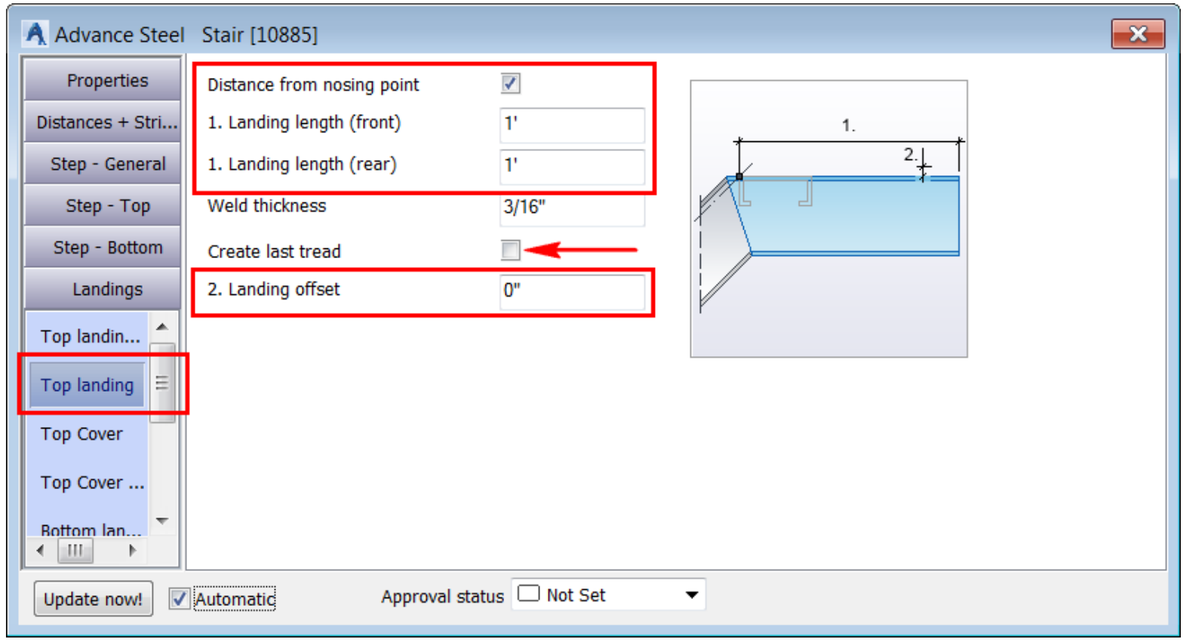
- Distances + Stringer > Distances + stringer tab:

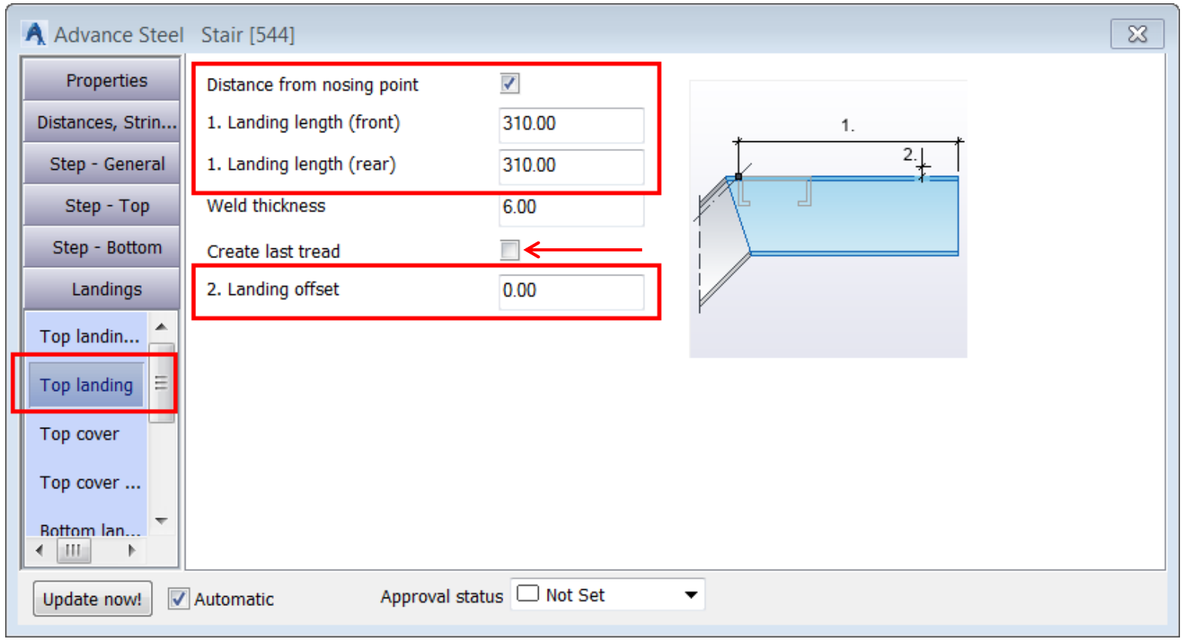




Section 4: Inserting Stairs

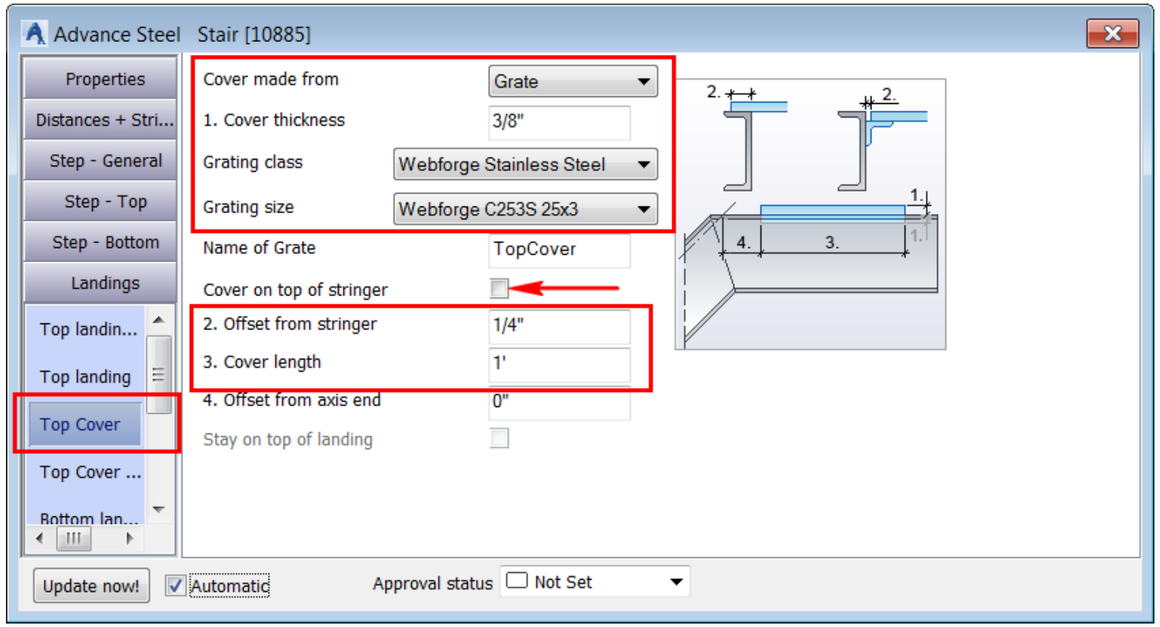
- Landings > Top landing tab:

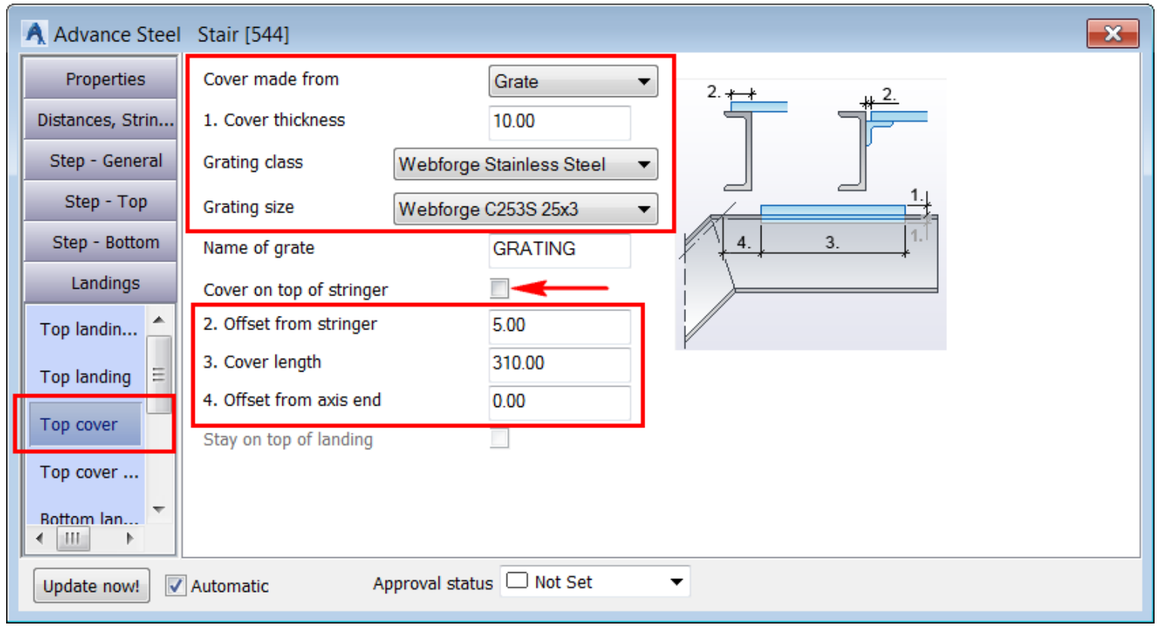




Section 4: Inserting Stairs

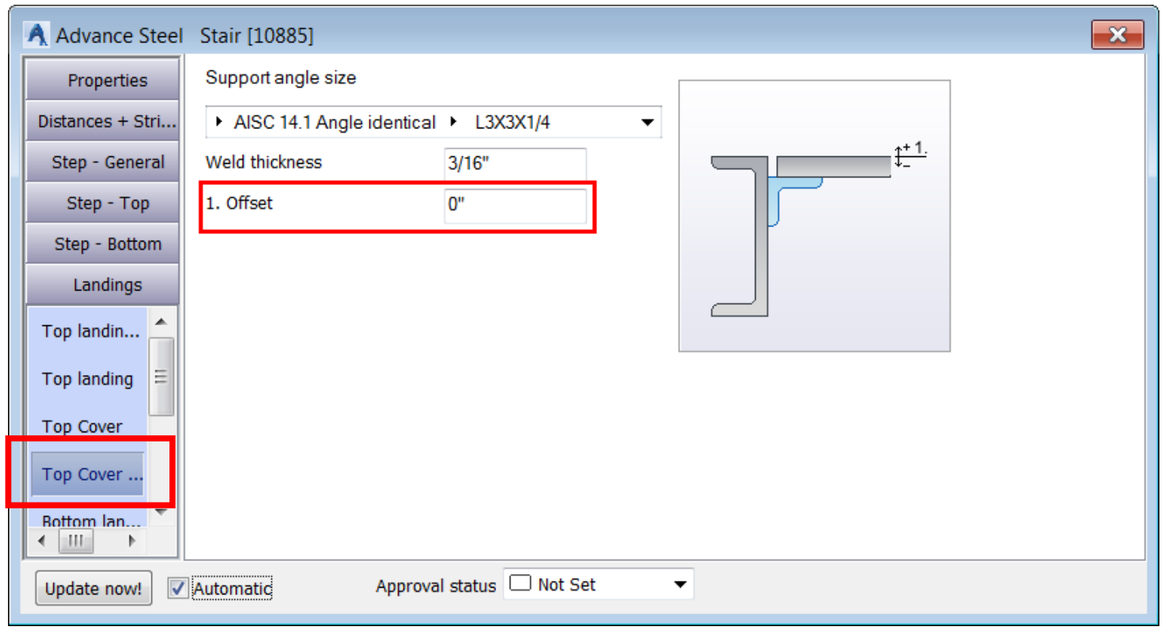
- Landings > Top Cover tab:

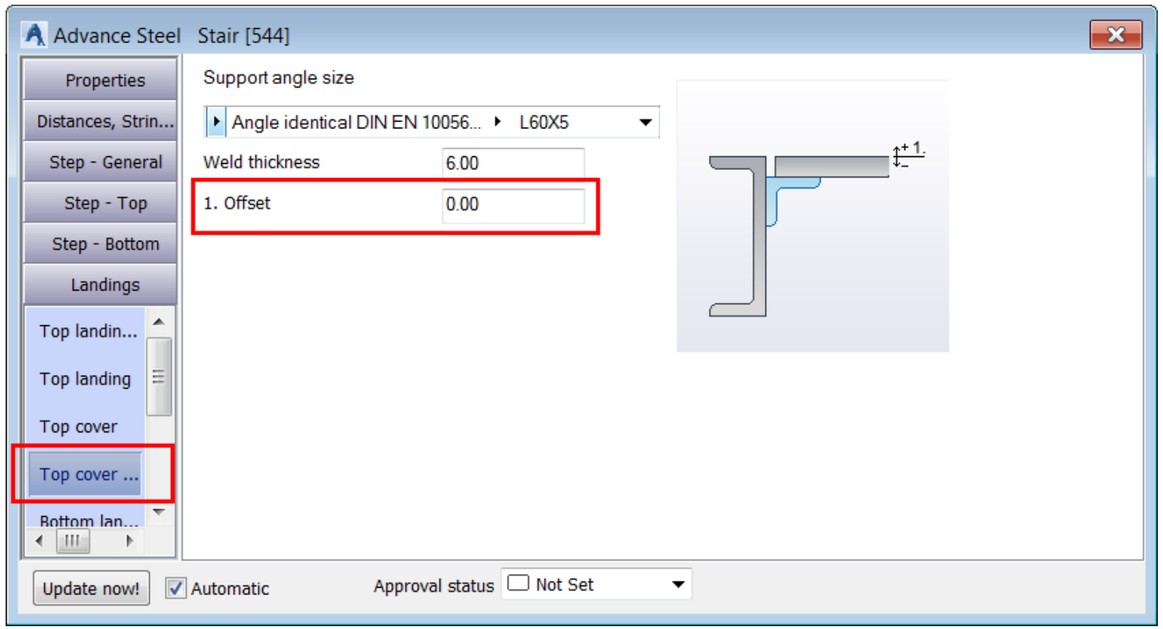




Section 4: Inserting Stairs

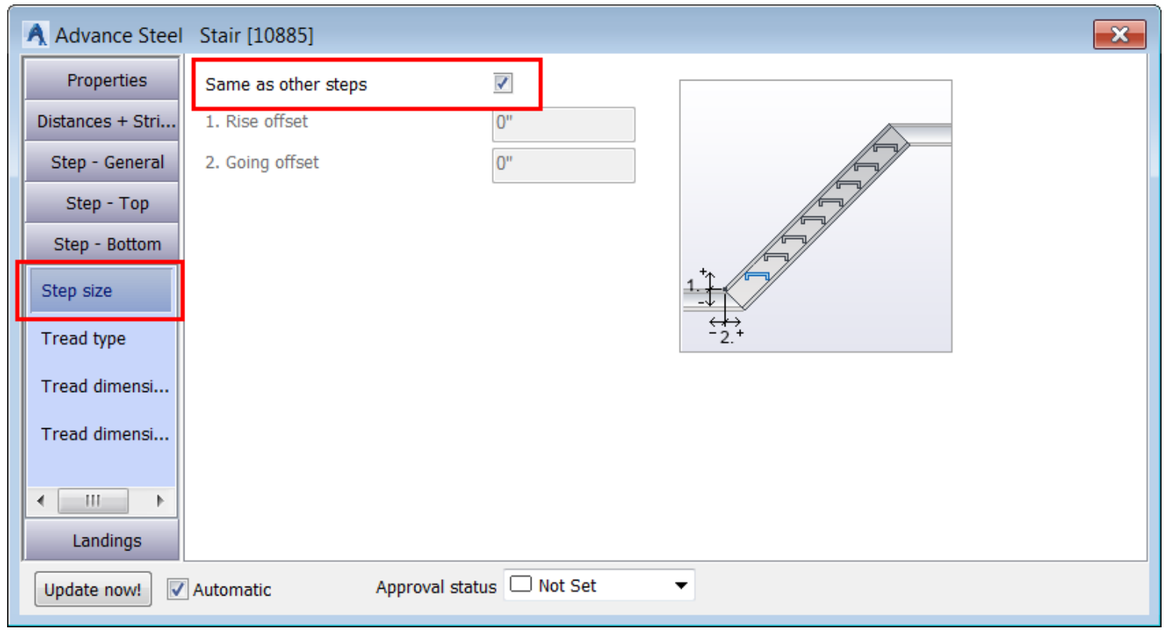
- Landings > Top Cover - Angle tab:

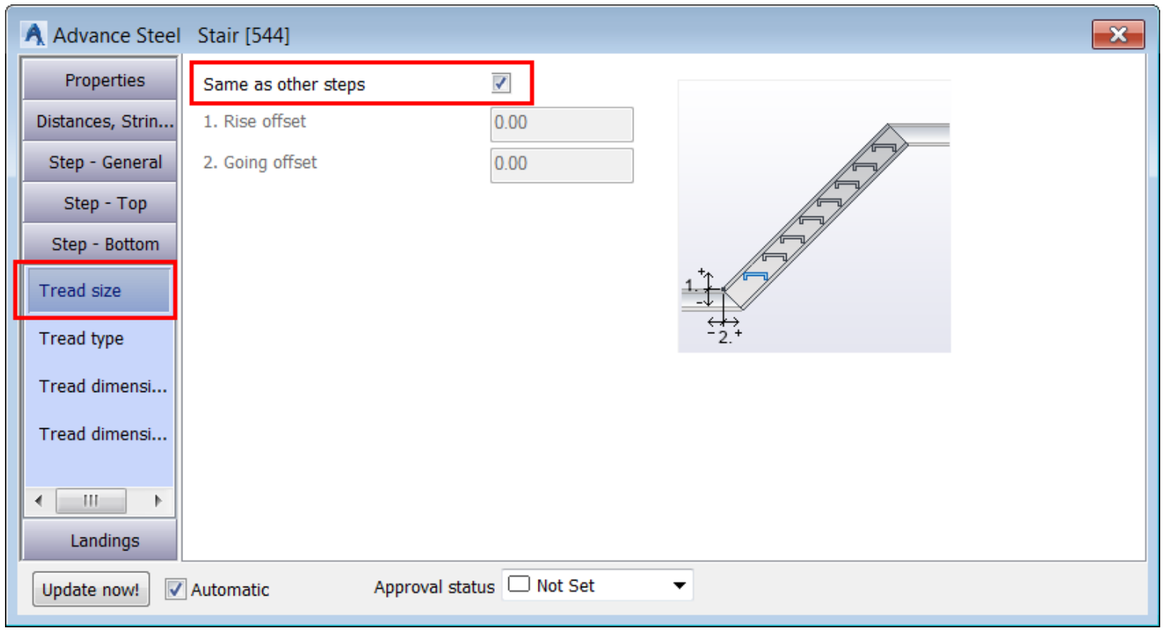




Section 4: Inserting Stairs

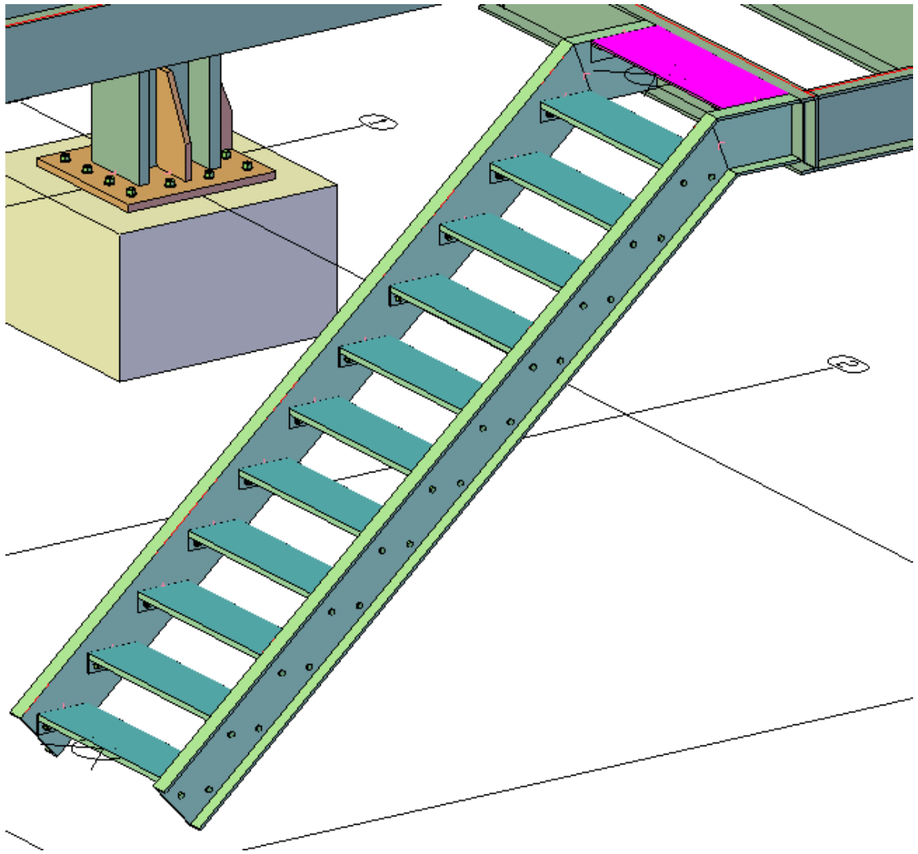
- Step - Bottom > Step size tab:
- Navigate to the bottom of the stairs

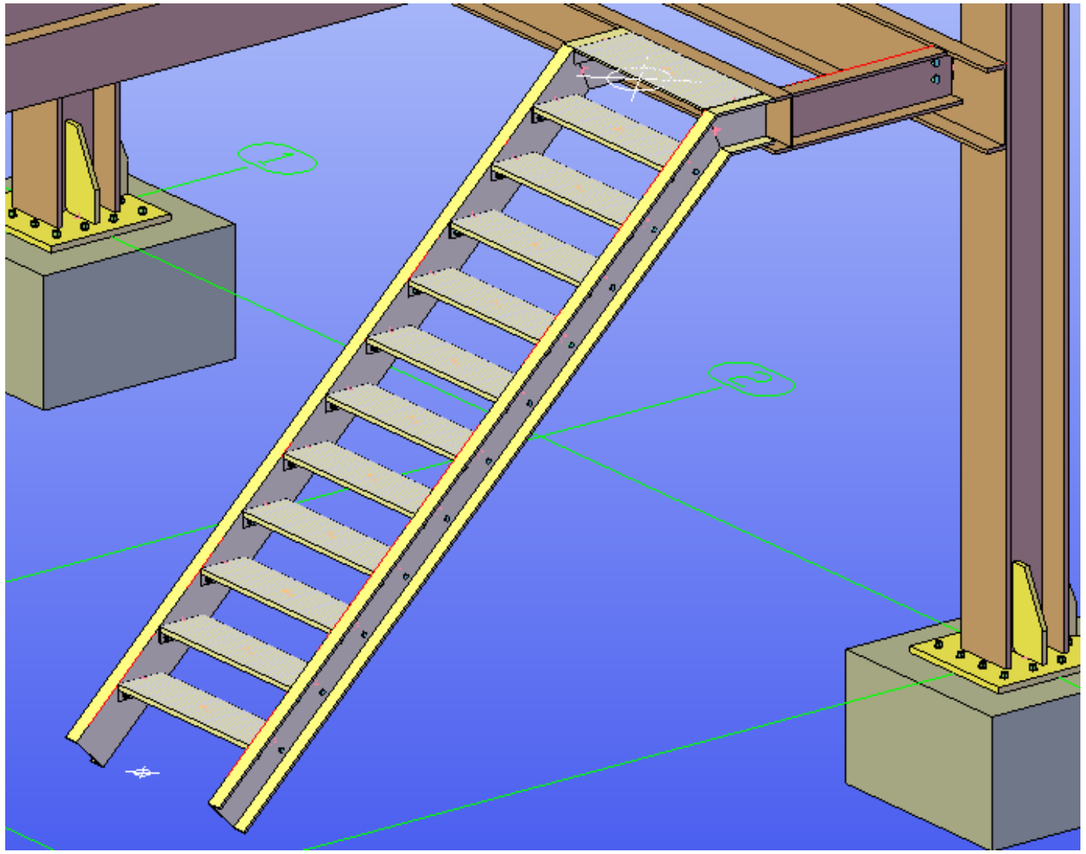




Section 4: Inserting Stairs

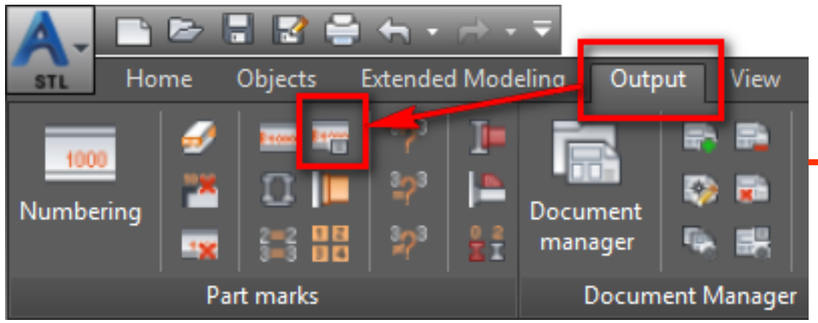
- Close the dialog box

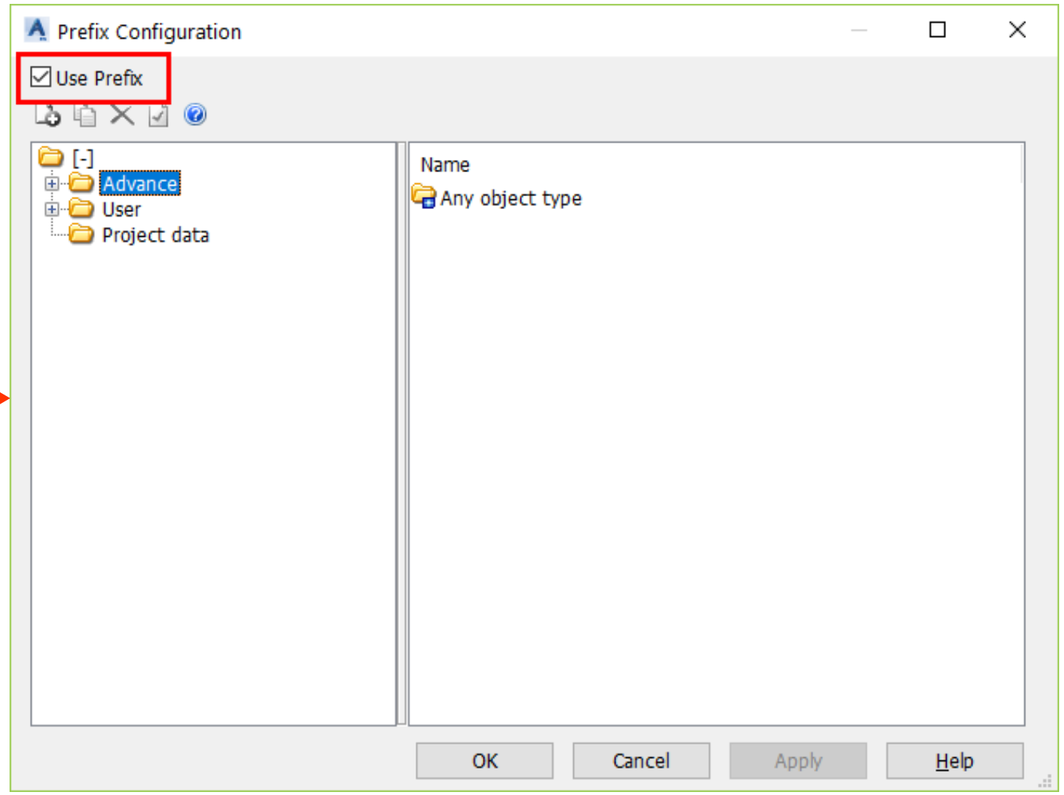




Section 5: Numbering Single Parts and Assemblies *(Work with me)*

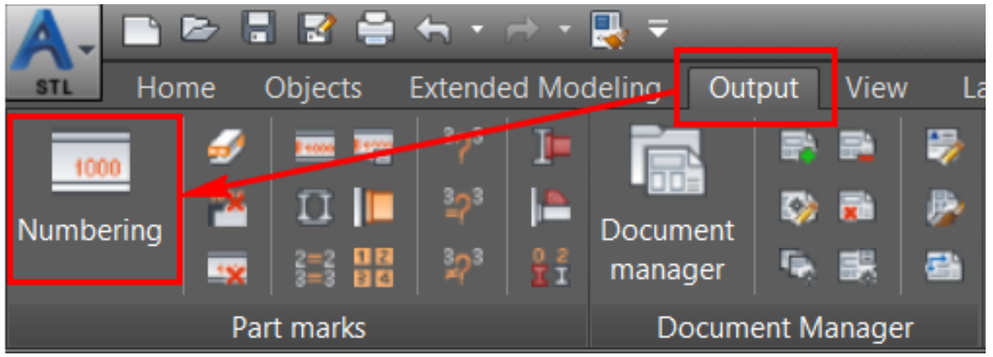
- Open the Section5-Imperial.dwg or Section5-Metric.dwg file
- In METRIC Settings only





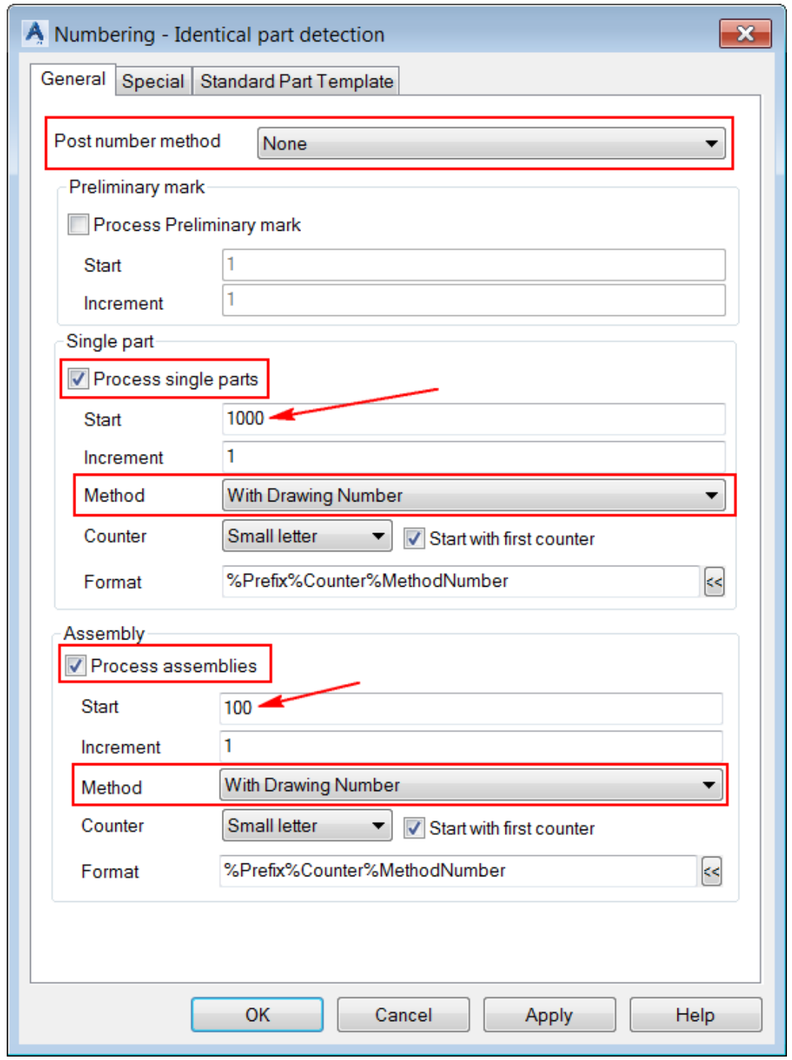
Section 5: Numbering Single Parts and Assemblies

- Invoke the Numbering tool



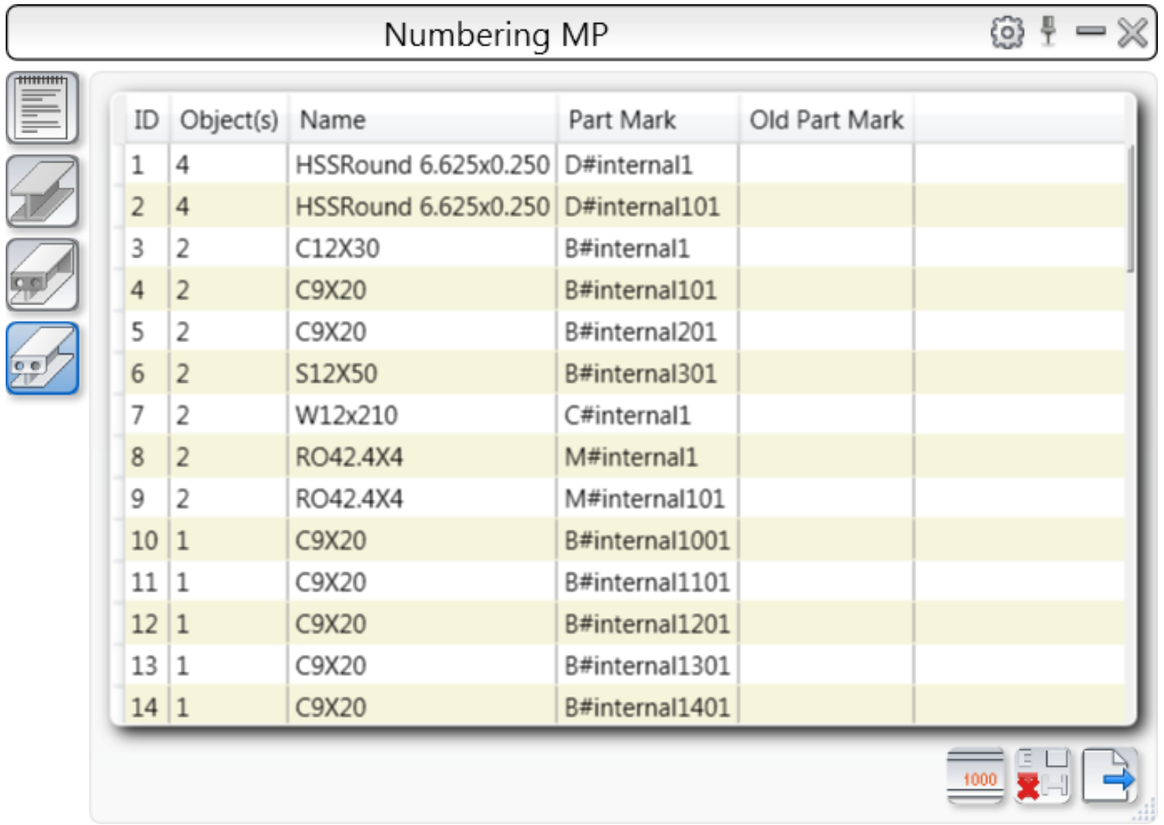
Section 5: Numbering Single Parts and Assemblies

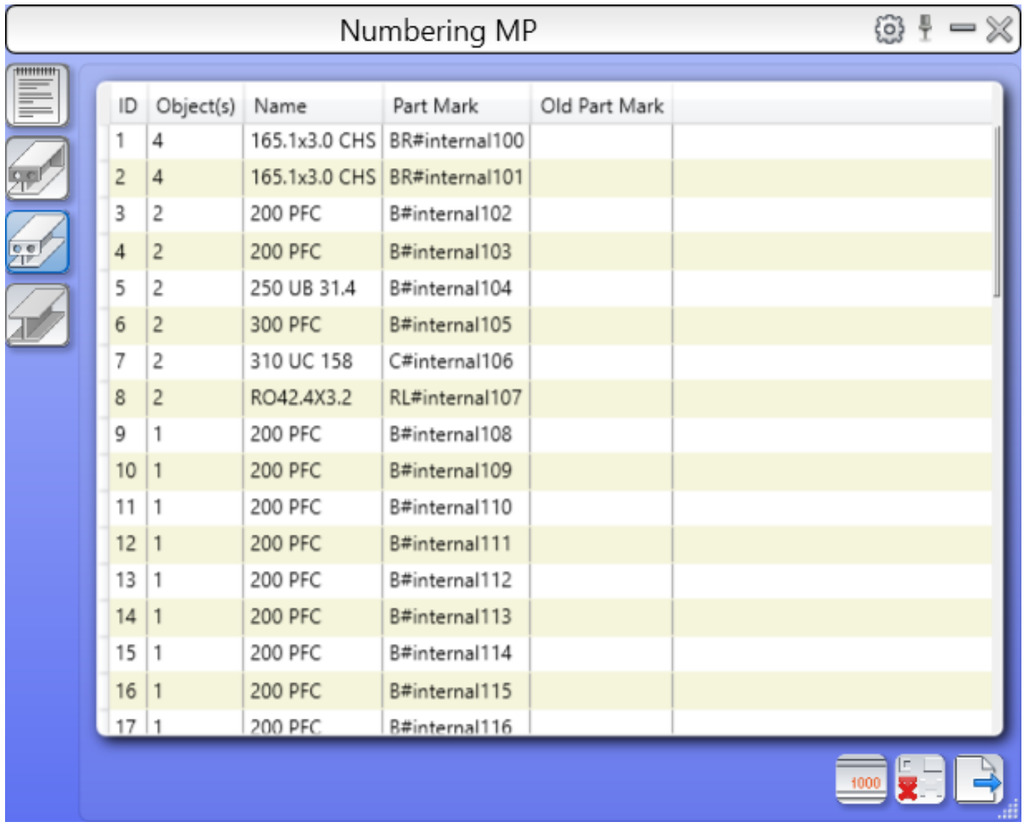
- Configure the settings in the dialog box, as shown below:



Section 5: Numbering Single Parts and Assemblies

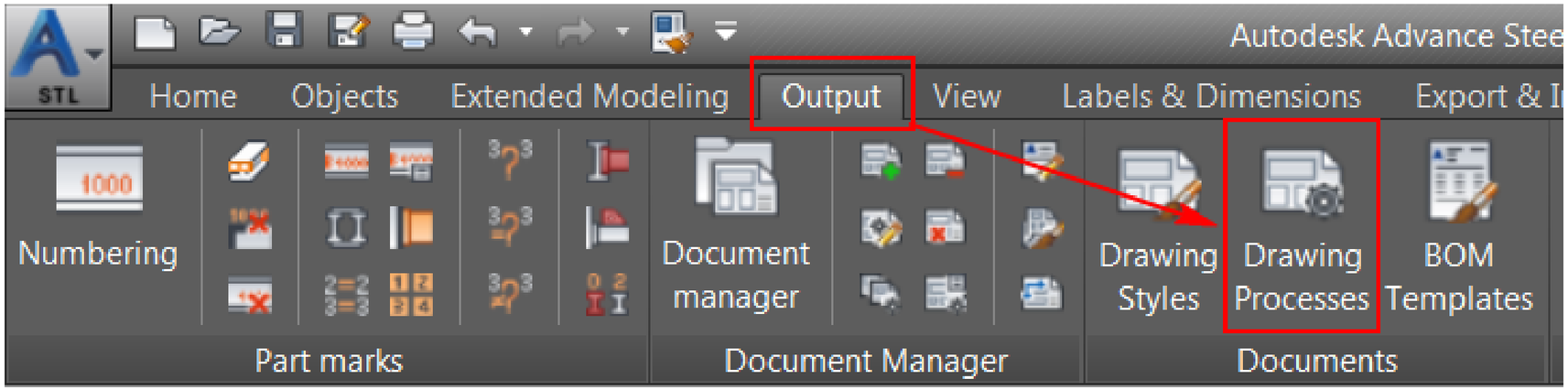
- Click OK in the dialog box





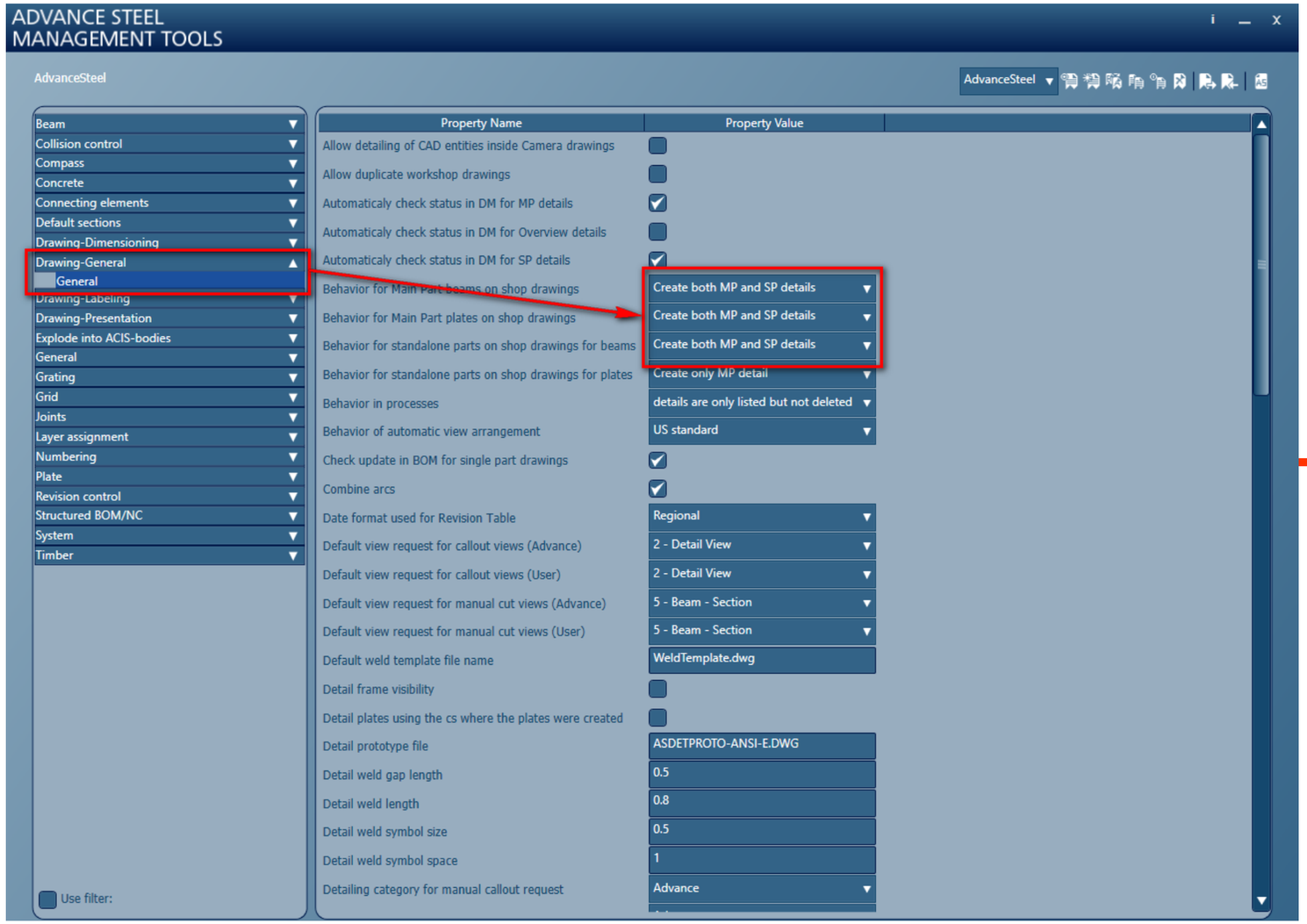
Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Do with me)*

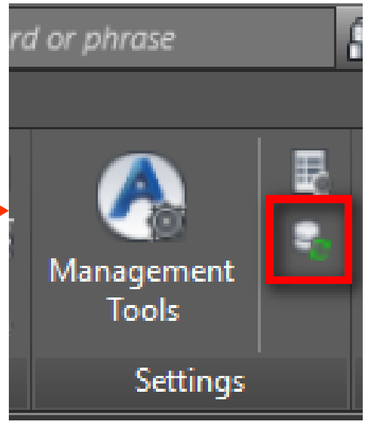
- Invoke the Drawing Processes tool



Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Stop here)*

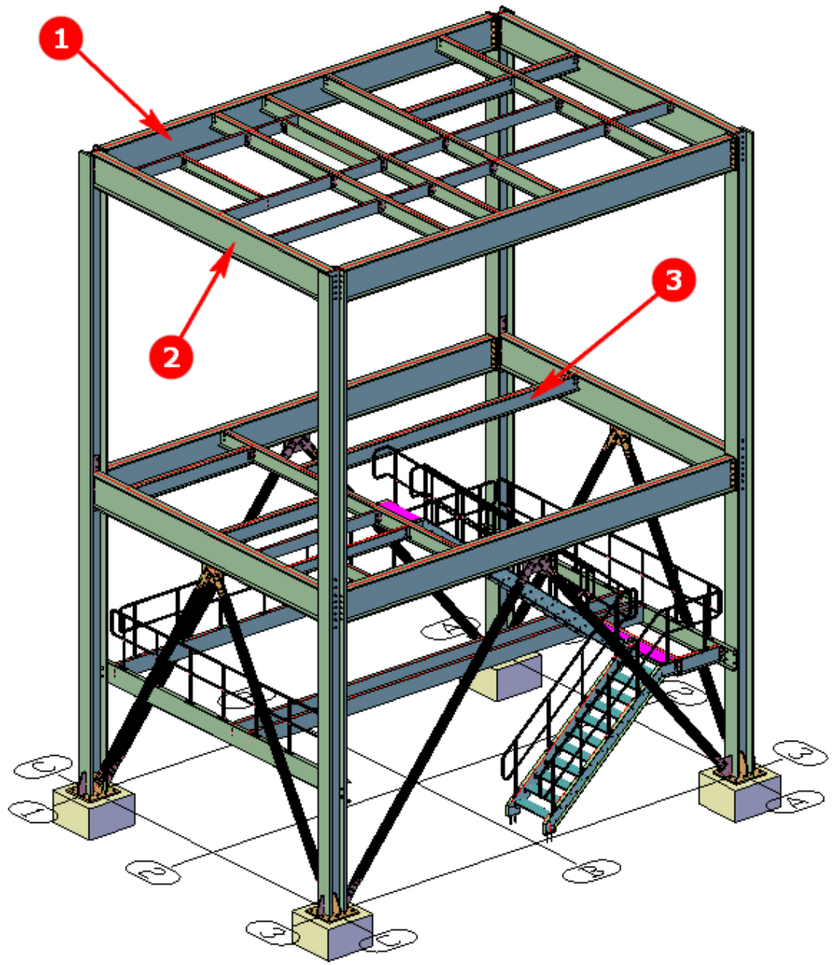
- For IMPERIAL ONLY





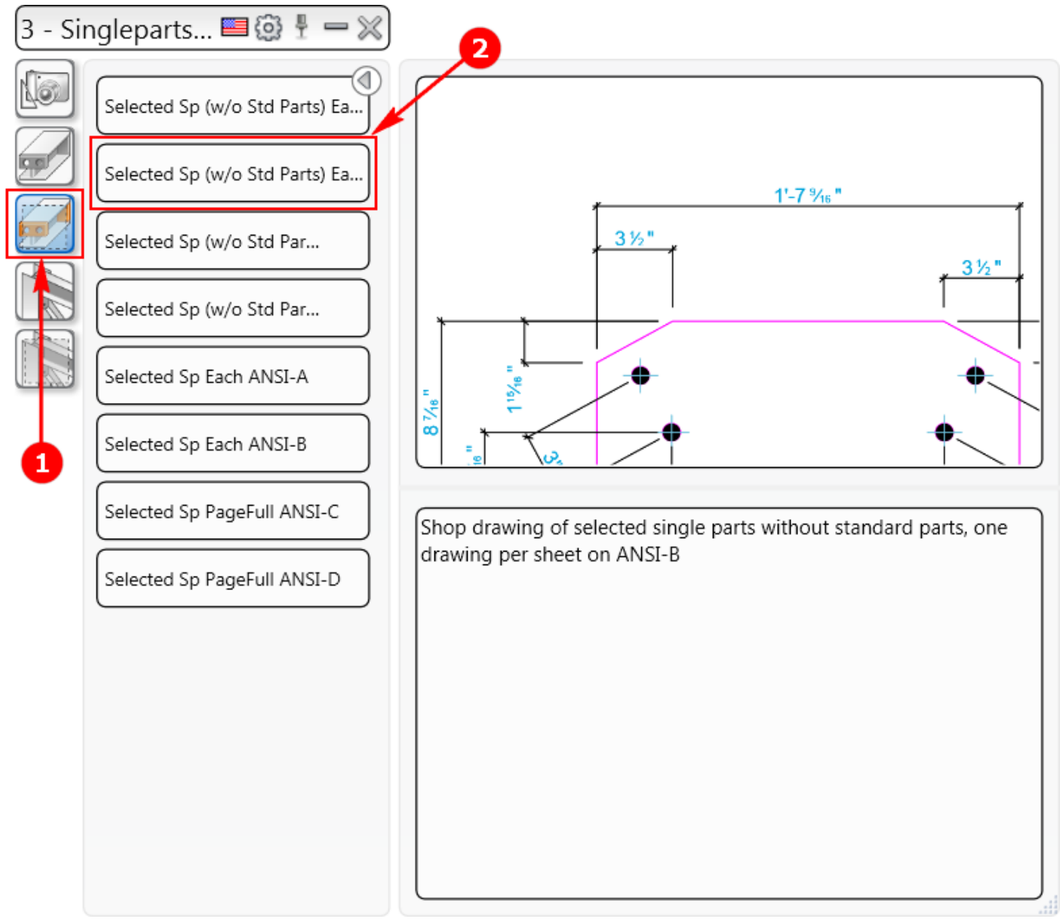
Section 6: Generating Single Part Drawings Using the Default Drawing Processes

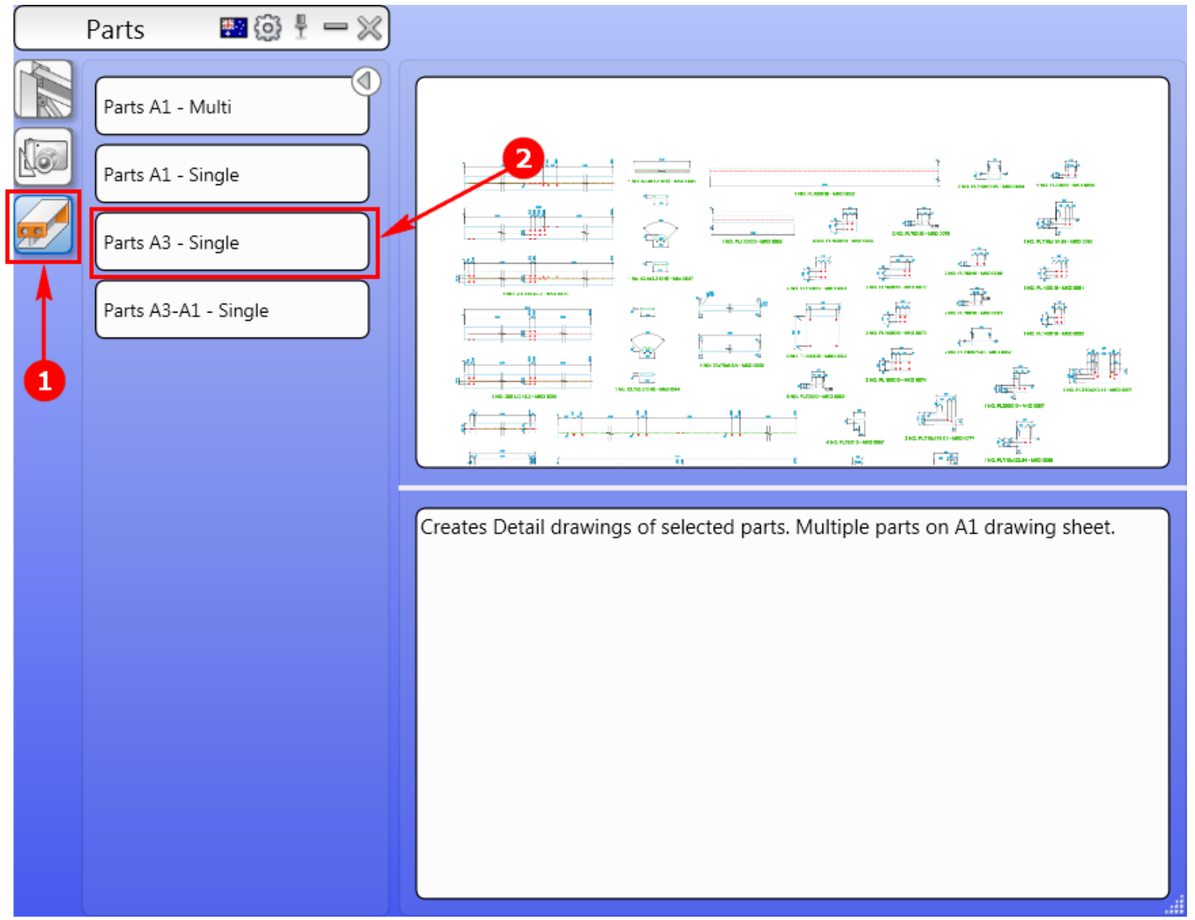
- Select the sections labeled as 1, 2, and 3 in the figure below



Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Steps 7-10 Imperial or 2-5 Metric)*

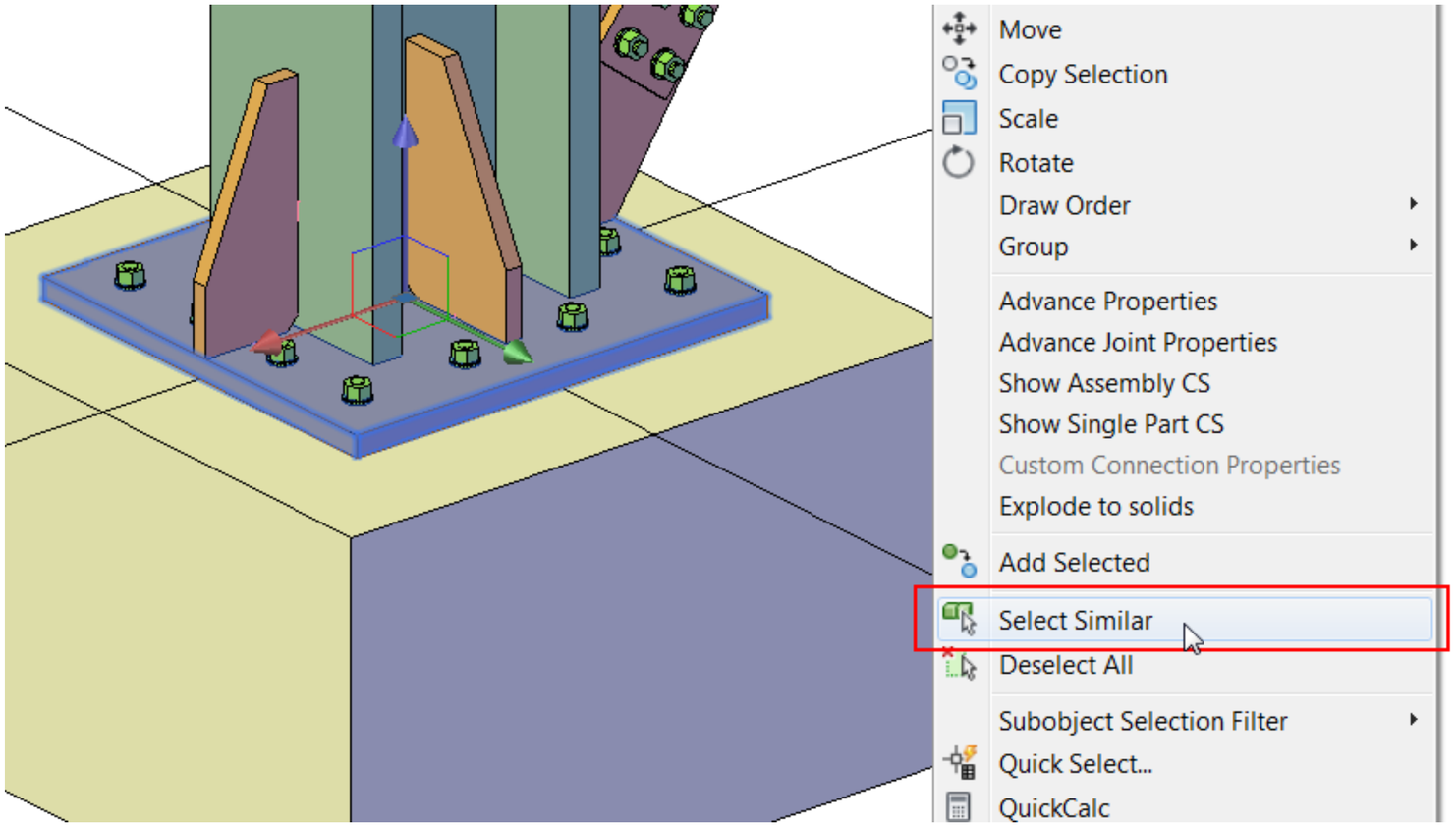
- Select the tool to generate single part drawings





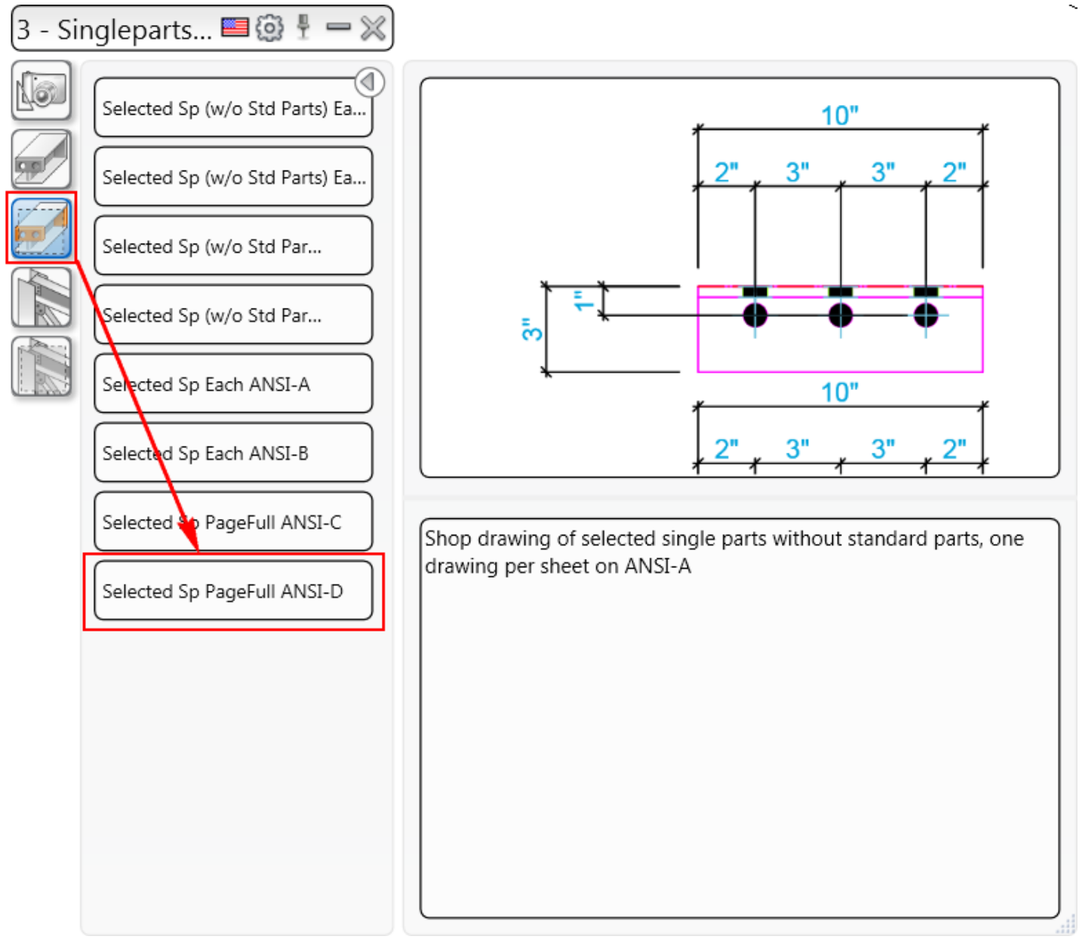
Section 6: Generating Single Part Drawings Using the Default Drawing Processes

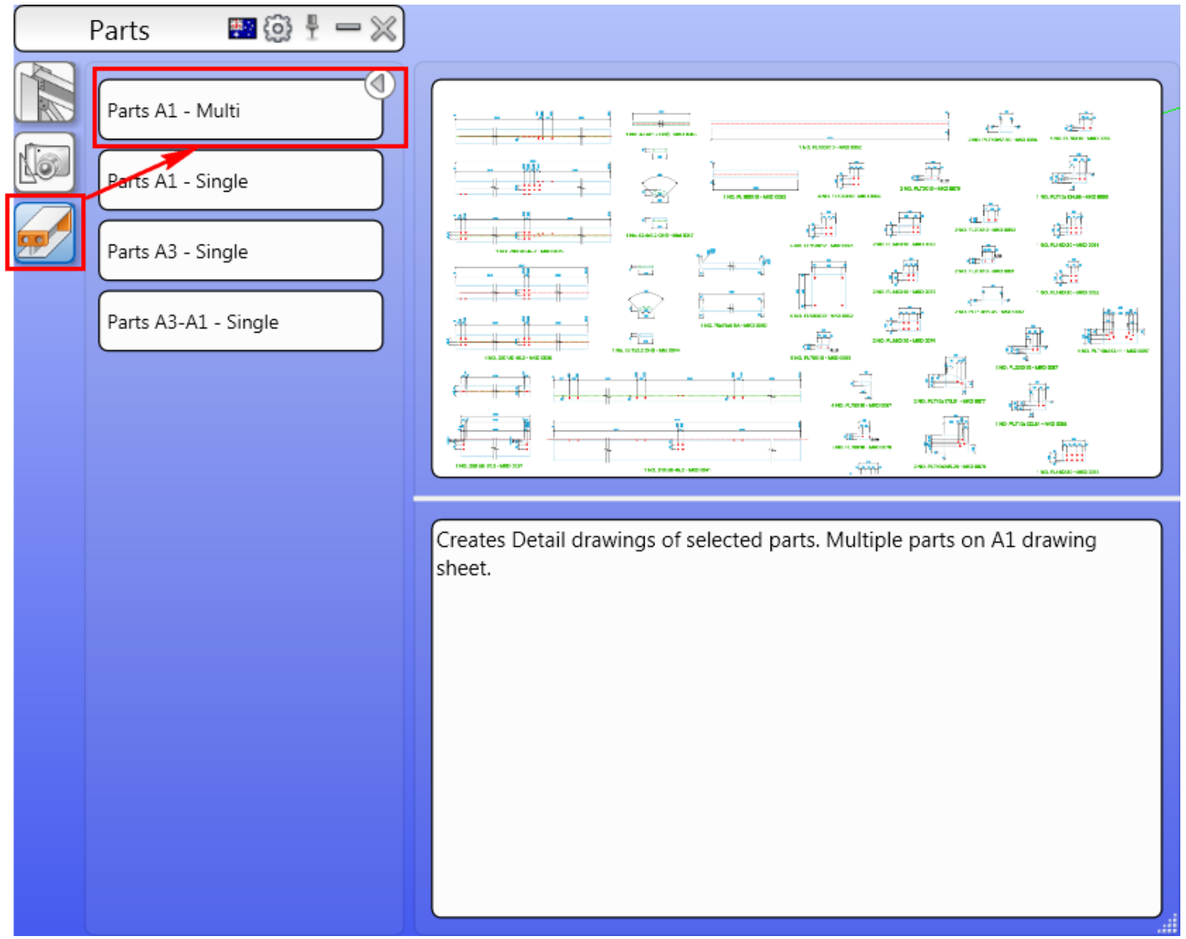
- Select one of the plates of the base plate joint and then select similar



Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Remaining Steps)*

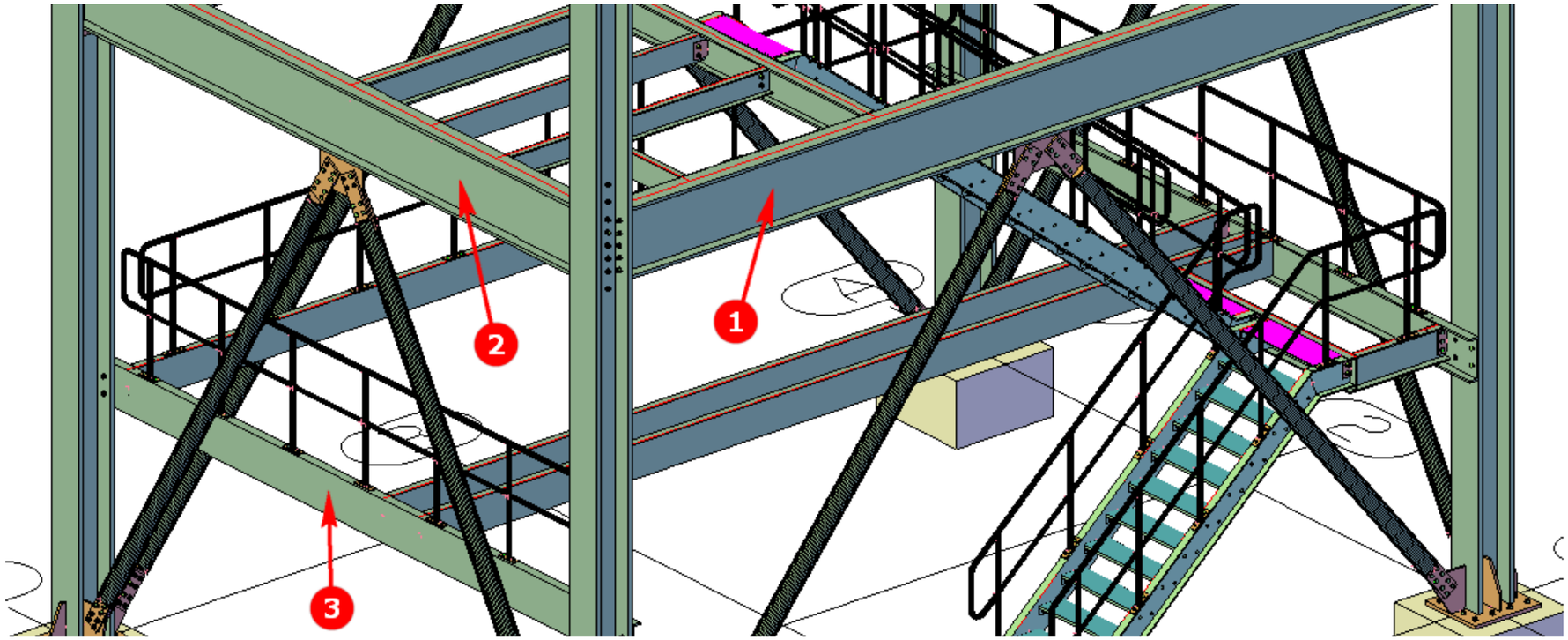
- Select the tool to generate Plate drawings on a single sheet





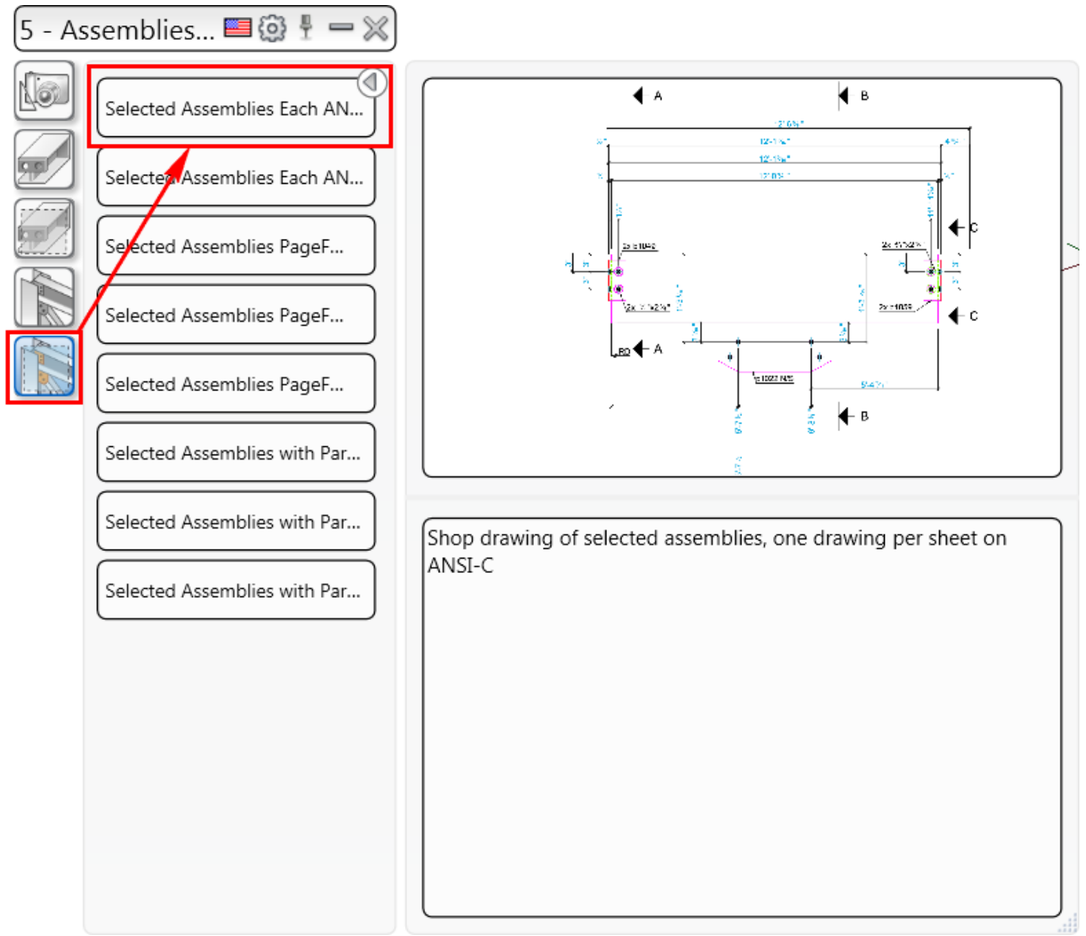
Section 7: Generating Assembly Drawings Using the Default Drawing Processes

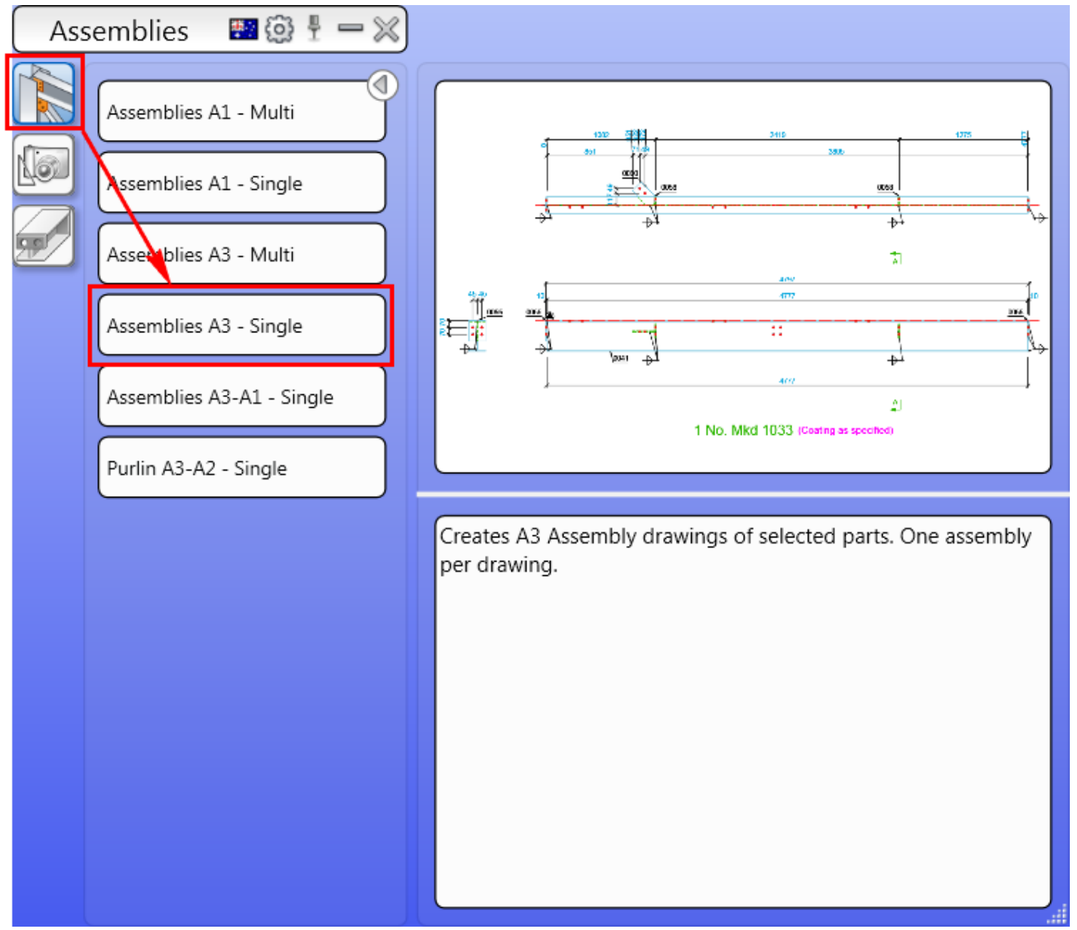
- Select the sections labelled as 1, 2, and 3



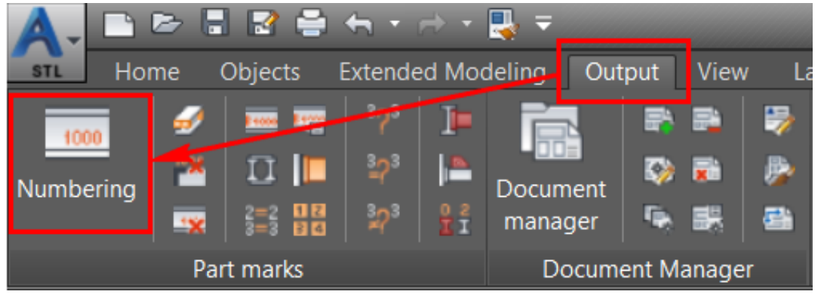
Section 7: Generating Assembly Drawings Using the Default Drawing Processes *(All Steps)*

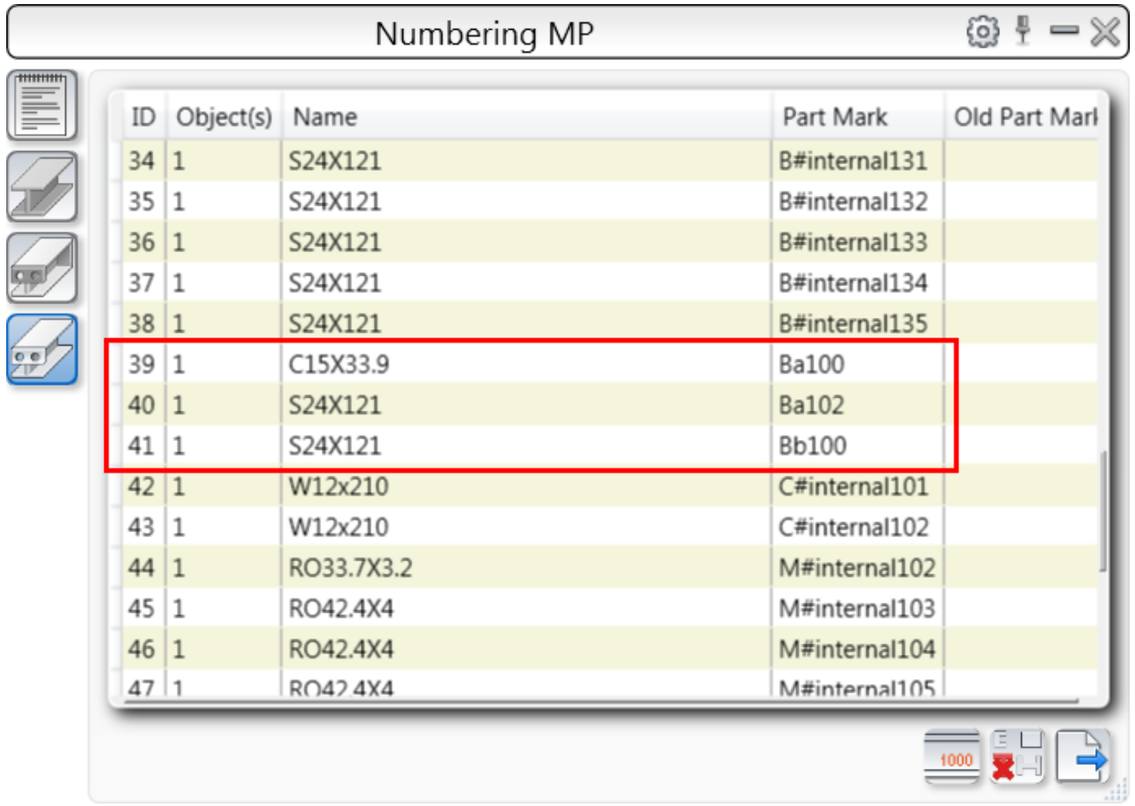
- Select the tool to generate Assembly drawings



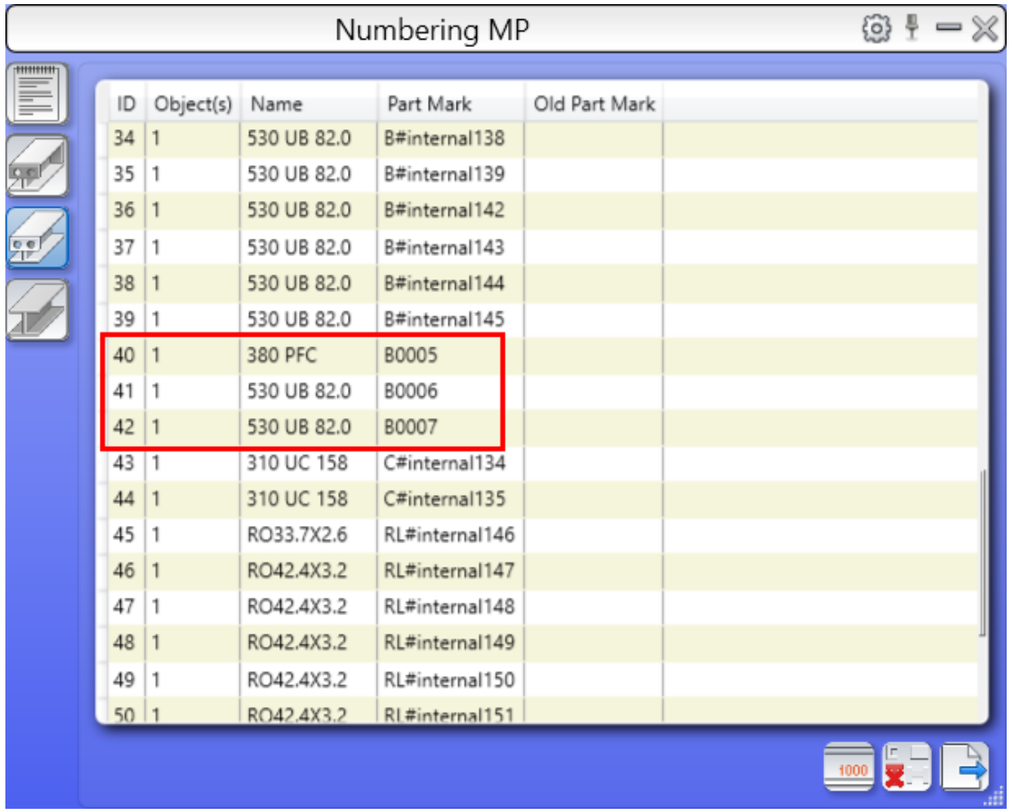


Section 8: Running the Numbering Again





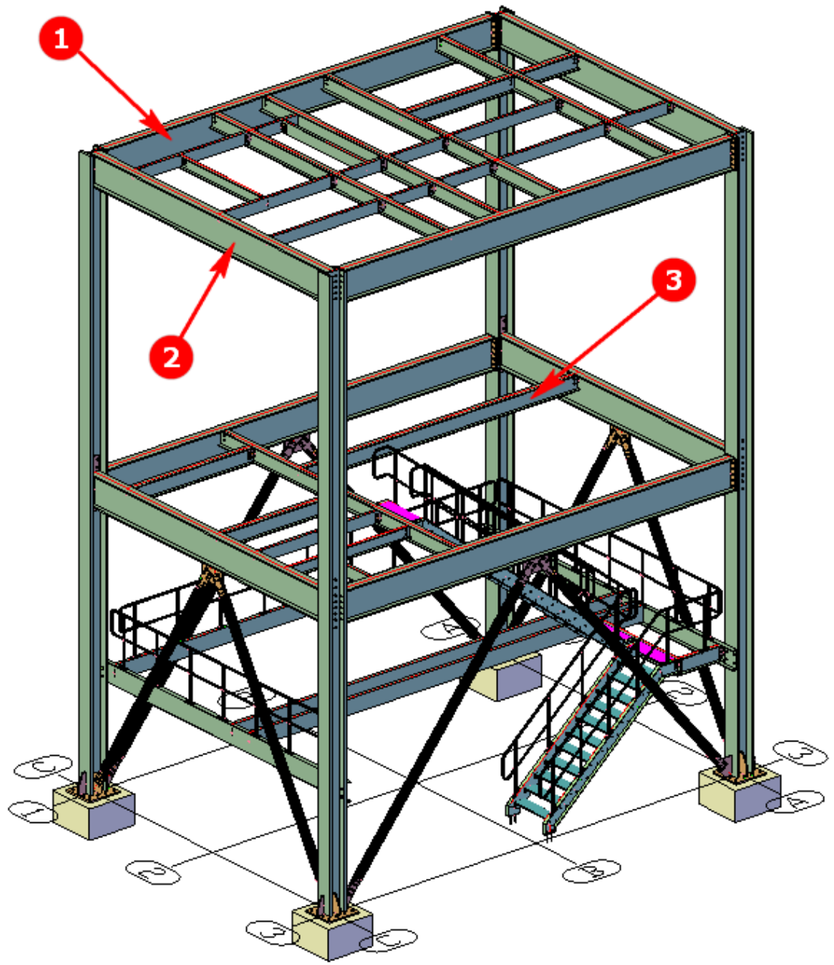
ID	Object(s)	Name	Part Mark	Old Part Mark
34	1	S24X121	B#internal131	
35	1	S24X121	B#internal132	
36	1	S24X121	B#internal133	
37	1	S24X121	B#internal134	
38	1	S24X121	B#internal135	
39	1	C15X33.9	Ba100	
40	1	S24X121	Ba102	
41	1	S24X121	Bb100	
42	1	W12x210	C#internal101	
43	1	W12x210	C#internal102	
44	1	RO33.7X3.2	M#internal102	
45	1	RO42.4X4	M#internal103	
46	1	RO42.4X4	M#internal104	
47	1	RO42.4X4	M#internal105	



ID	Object(s)	Name	Part Mark	Old Part Mark
34	1	530 UB 82.0	B#internal138	
35	1	530 UB 82.0	B#internal139	
36	1	530 UB 82.0	B#internal142	
37	1	530 UB 82.0	B#internal143	
38	1	530 UB 82.0	B#internal144	
39	1	530 UB 82.0	B#internal145	
40	1	380 PFC	B0005	
41	1	530 UB 82.0	B0006	
42	1	530 UB 82.0	B0007	
43	1	310 UC 158	C#internal134	
44	1	310 UC 158	C#internal135	
45	1	RO33.7X2.6	RL#internal146	
46	1	RO42.4X3.2	RL#internal147	
47	1	RO42.4X3.2	RL#internal148	
48	1	RO42.4X3.2	RL#internal149	
49	1	RO42.4X3.2	RL#internal150	
50	1	RO42.4X3.2	RL#internal151	

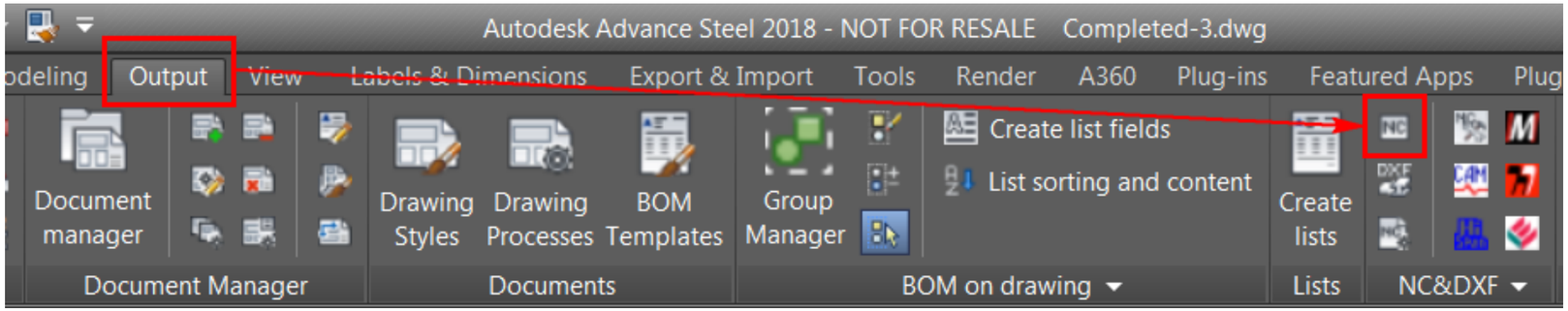
Section 9: Generating NC Files for Beams and DXF Files for Plates

- Select the sections labeled as 1, 2, and 3 in the figure below



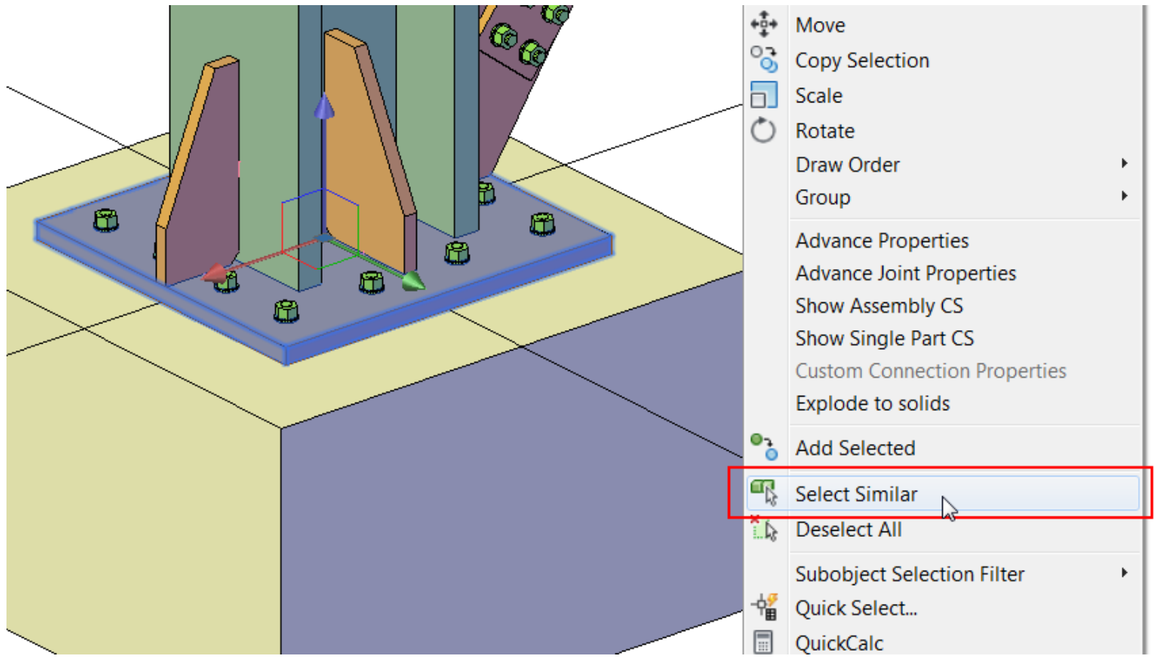
Section 9: Generating NC Files for Beams and DXF Files for Plates *(Up to Step 3)*

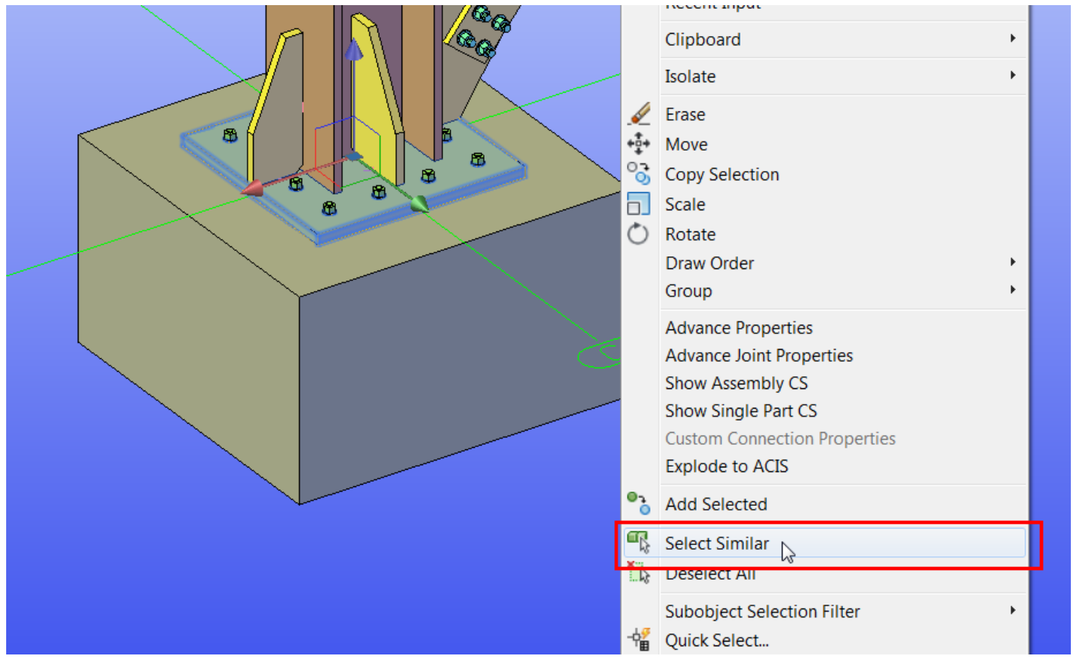
- Select the NC tool



Section 9: Generating NC Files for Beams and DXF Files for Plates

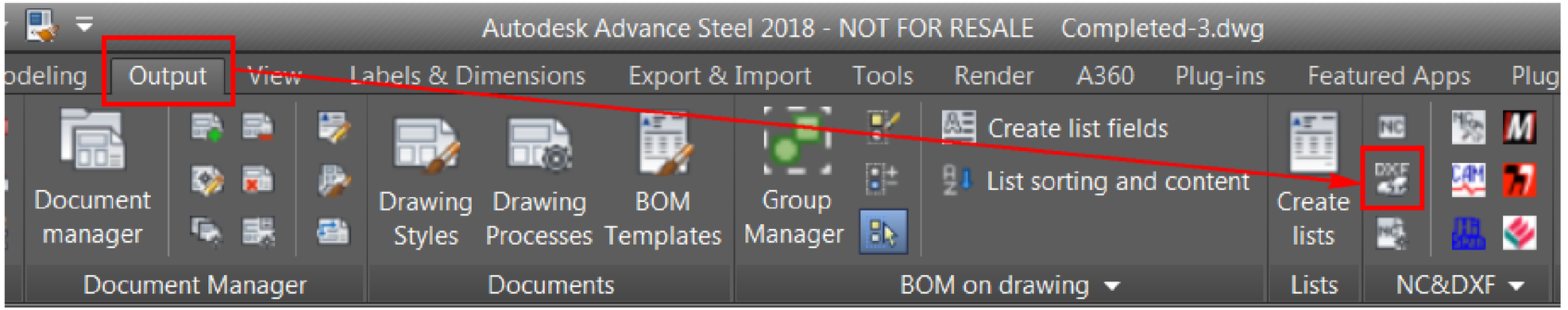
- Press ESC to deselect everything
- Right-click on the base plate of one of the base plate joints and click Select Similar from the shortcut menu





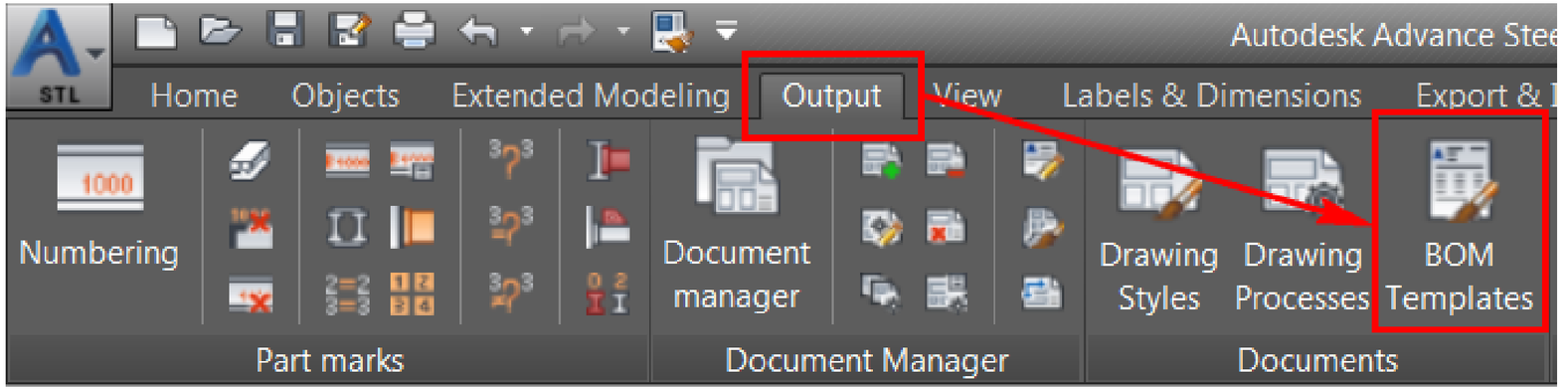
Section 9: Generating NC Files for Beams and DXF Files for Plates *(Remaining Steps)*

- Invoke the DXF tool



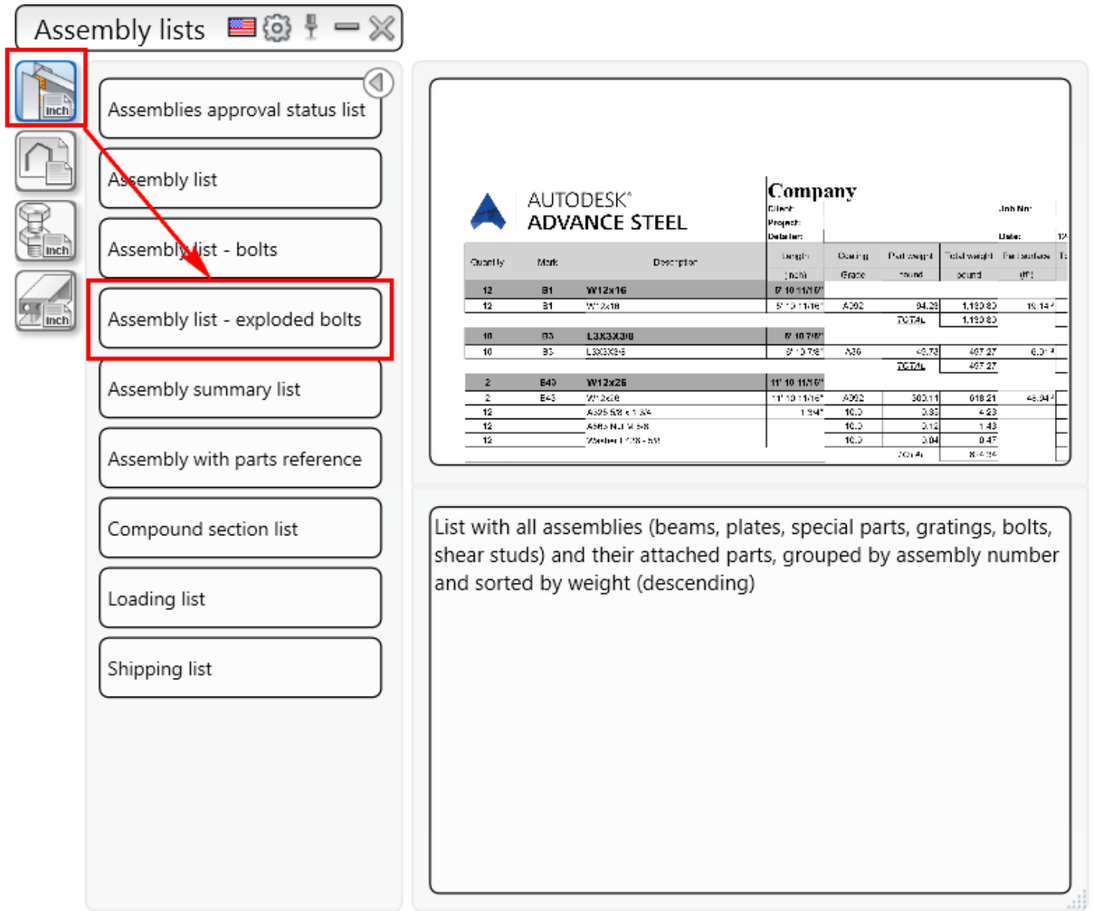
Section 10: Generating Bill of Materials (BOMs)

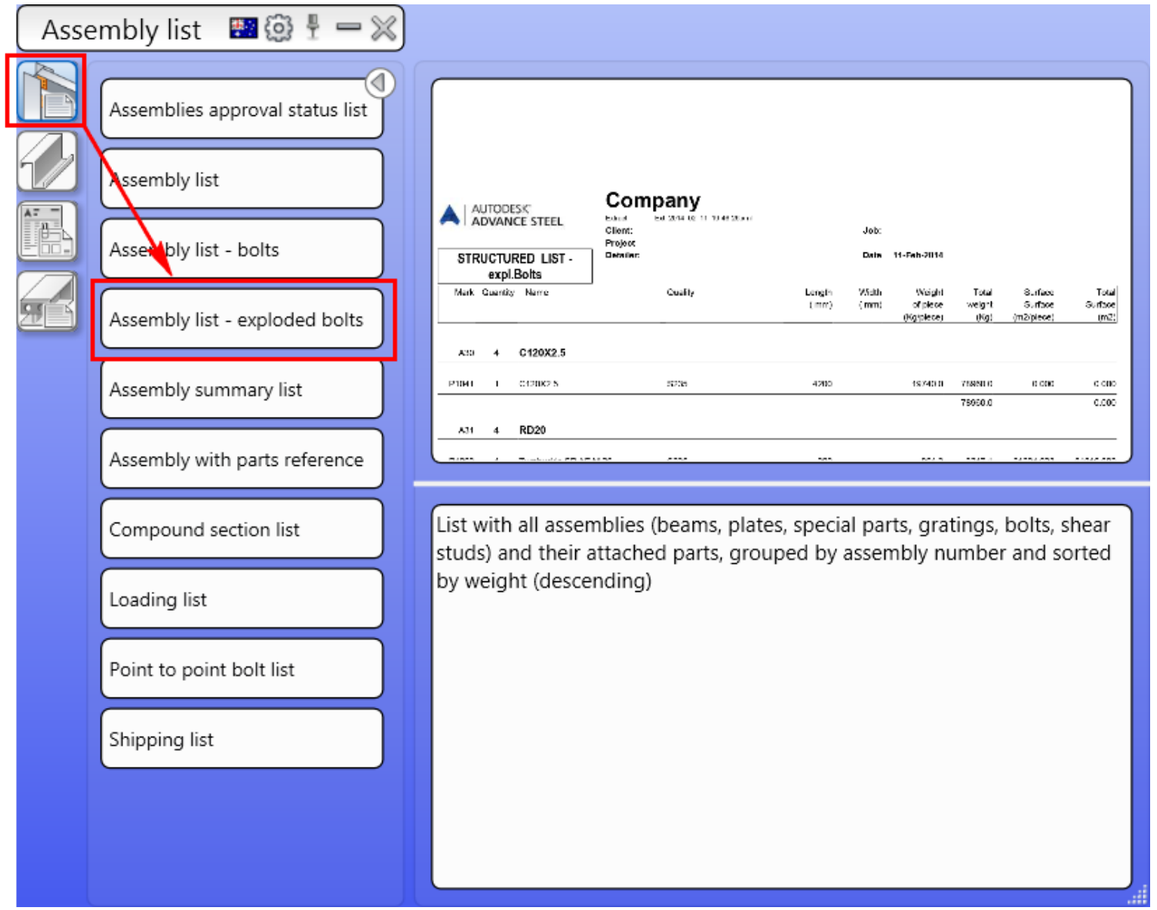
- Invoke the BOM Templates tool



Section 10: Generating Bill of Materials (BOMs)

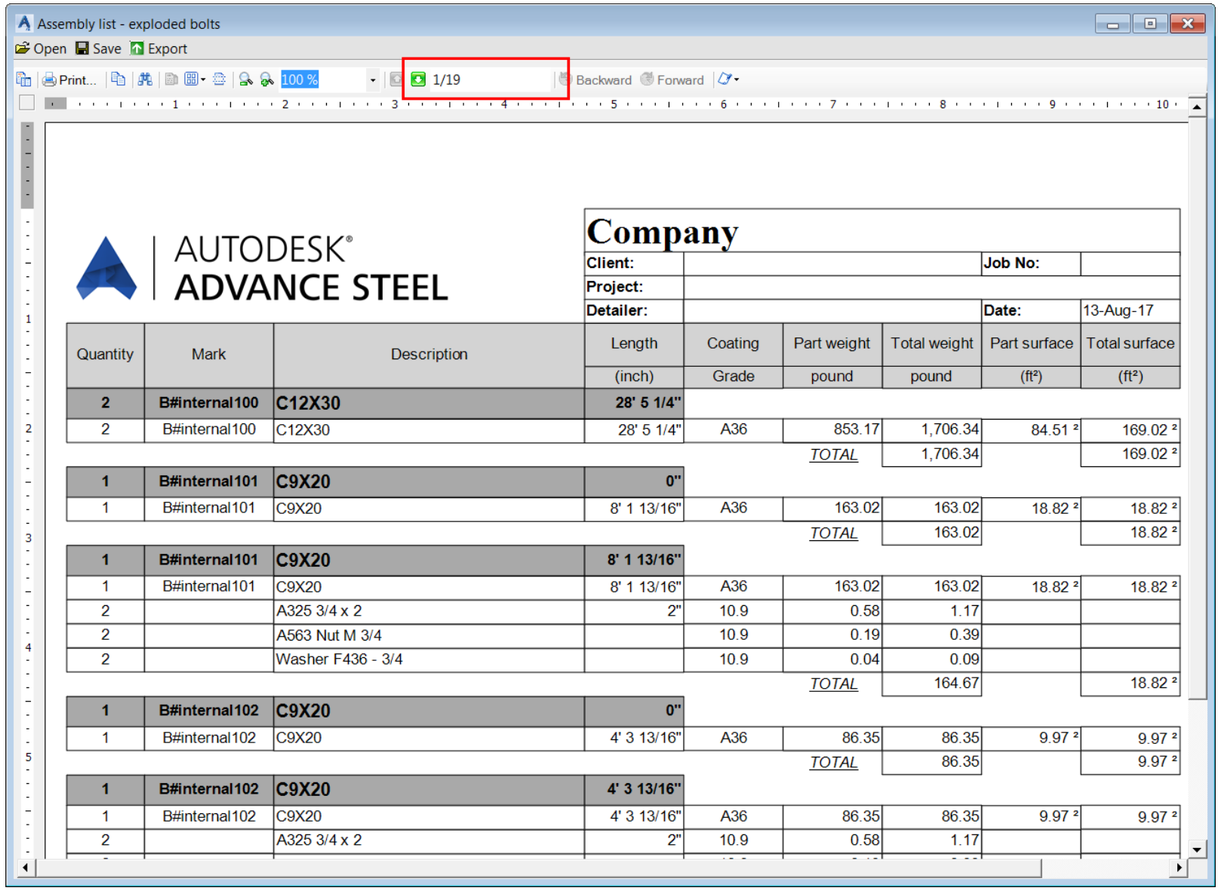
- Press ESC to deselect everything
- Select Assembly list – exploded bolts



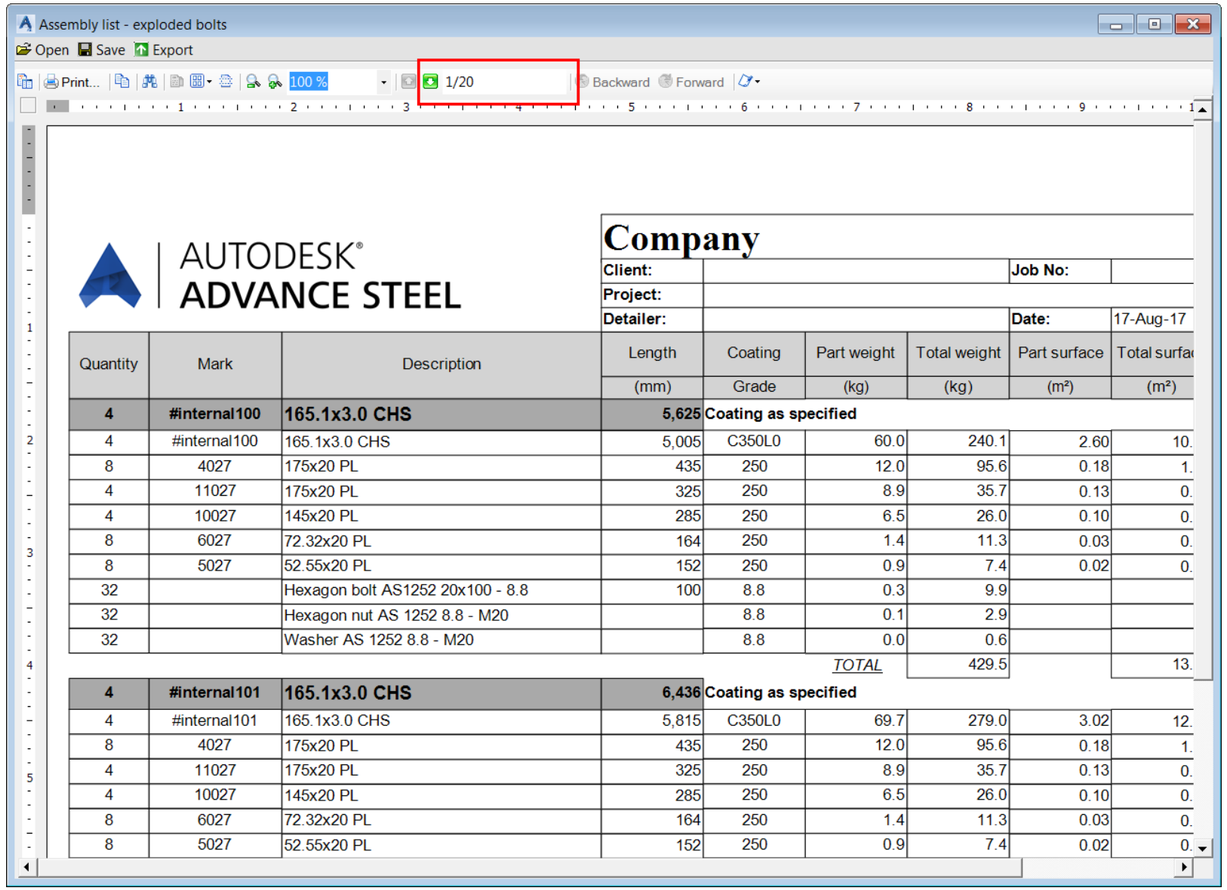


Section 10: Generating Bill of Materials (BOMs)

- Save the BOM



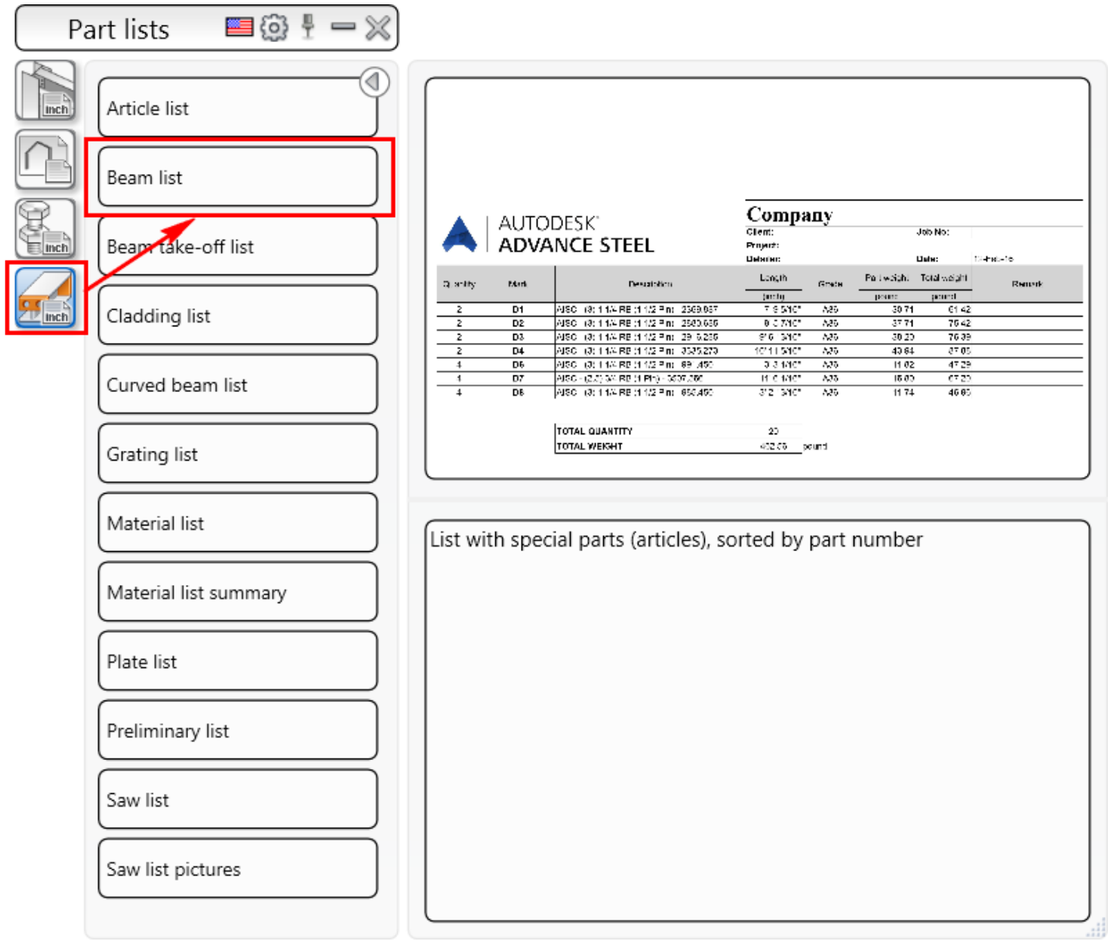
Quantity	Mark	Description	Length (inch)	Coating Grade	Part weight pound	Total weight pound	Part surface (ft²)	Total surface (ft²)
2	**B#internal100**	**C12X30**	**28' 5 1/4"**					
2	B#internal100	C12X30	28' 5 1/4"	A36	853.17	1,706.34	84.51 ²	169.02 ²
					TOTAL	1,706.34		169.02 ²
1	**B#internal101**	**C9X20**	**0"**					
1	B#internal101	C9X20	8' 1 13/16"	A36	163.02	163.02	18.82 ²	18.82 ²
					TOTAL	163.02		18.82 ²
1	**B#internal101**	**C9X20**	**8' 1 13/16"**					
1	B#internal101	C9X20	8' 1 13/16"	A36	163.02	163.02	18.82 ²	18.82 ²
2		A325 3/4 x 2	2"	10.9	0.58	1.17		
2		A563 Nut M 3/4		10.9	0.19	0.39		
2		Washer F436 - 3/4		10.9	0.04	0.09		
					TOTAL	164.67		18.82 ²
1	**B#internal102**	**C9X20**	**0"**					
1	B#internal102	C9X20	4' 3 13/16"	A36	86.35	86.35	9.97 ²	9.97 ²
					TOTAL	86.35		9.97 ²
1	**B#internal102**	**C9X20**	**4' 3 13/16"**					
1	B#internal102	C9X20	4' 3 13/16"	A36	86.35	86.35	9.97 ²	9.97 ²
2		A325 3/4 x 2	2"	10.9	0.58	1.17		

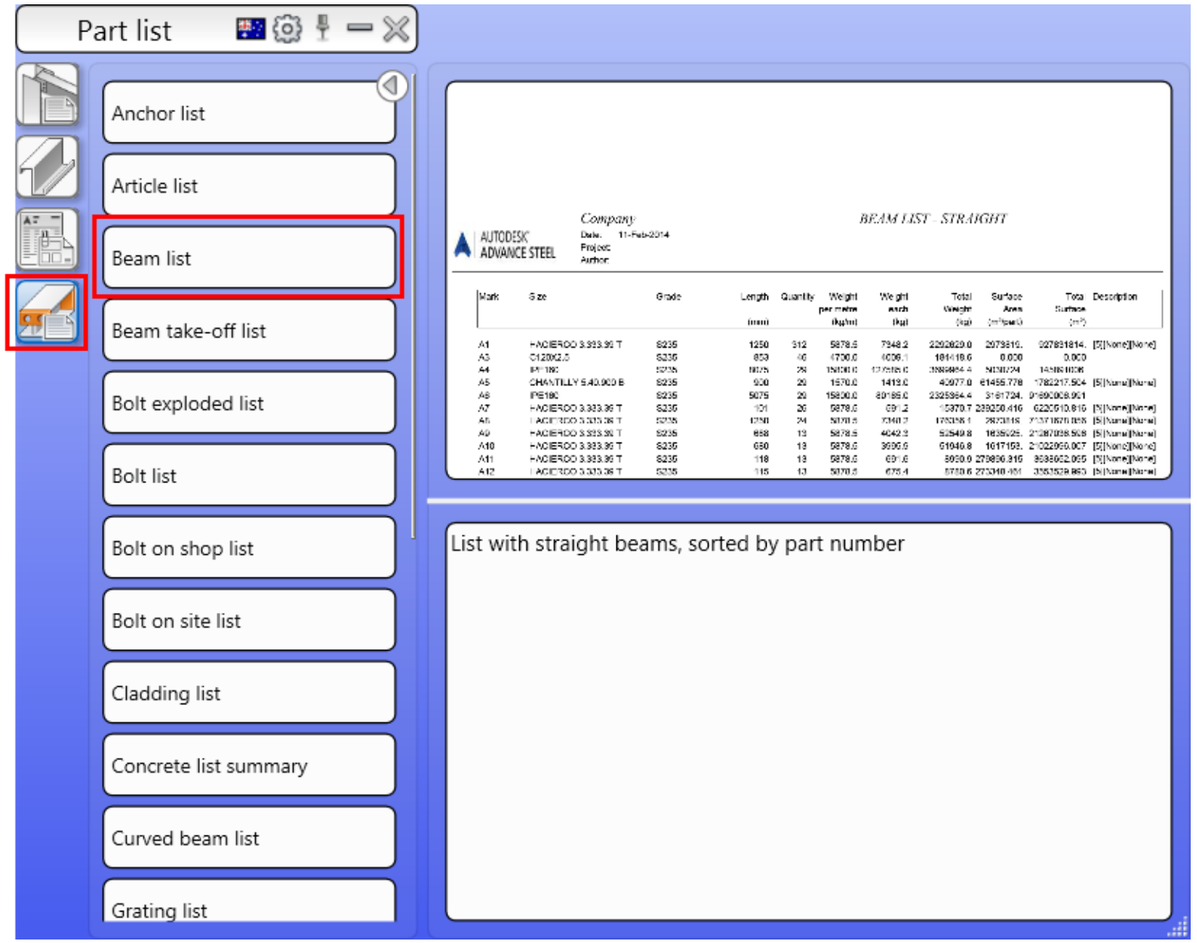


Quantity	Mark	Description	Length (mm)	Coating Grade	Part weight (kg)	Total weight (kg)	Part surface (m²)	Total surfa (m²)
4	**#internal100**	**165.1x3.0 CHS**	**5,625**	**Coating as specified**				
4	#internal100	165.1x3.0 CHS	5,005	C350L0	60.0	240.1	2.60	10.
8	4027	175x20 PL	435	250	12.0	95.6	0.18	1.
4	11027	175x20 PL	325	250	8.9	35.7	0.13	0.
4	10027	145x20 PL	285	250	6.5	26.0	0.10	0.
8	6027	72.32x20 PL	164	250	1.4	11.3	0.03	0.
8	5027	52.55x20 PL	152	250	0.9	7.4	0.02	0.
32		Hexagon bolt AS1252 20x100 - 8.8	100	8.8	0.3	9.9		
32		Hexagon nut AS 1252 8.8 - M20		8.8	0.1	2.9		
32		Washer AS 1252 8.8 - M20		8.8	0.0	0.6		
					TOTAL	429.5		13.
4	**#internal101**	**165.1x3.0 CHS**	**6,436**	**Coating as specified**				
4	#internal101	165.1x3.0 CHS	5,815	C350L0	69.7	279.0	3.02	12.
8	4027	175x20 PL	435	250	12.0	95.6	0.18	1.
4	11027	175x20 PL	325	250	8.9	35.7	0.13	0.
4	10027	145x20 PL	285	250	6.5	26.0	0.10	0.
8	6027	72.32x20 PL	164	250	1.4	11.3	0.03	0.
8	5027	52.55x20 PL	152	250	0.9	7.4	0.02	0.

Section 10: Generating Bill of Materials (BOMs) *(All Steps)*

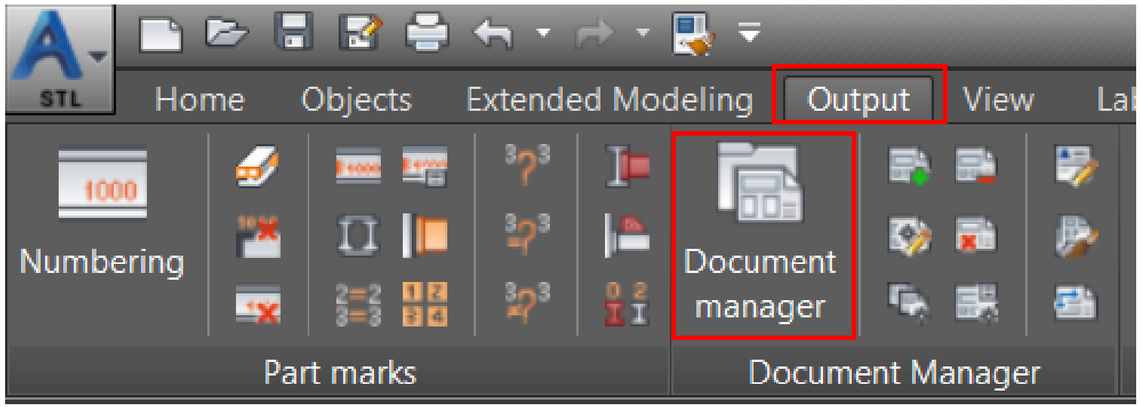
- Select Parts list > Beam list and then save the BOM





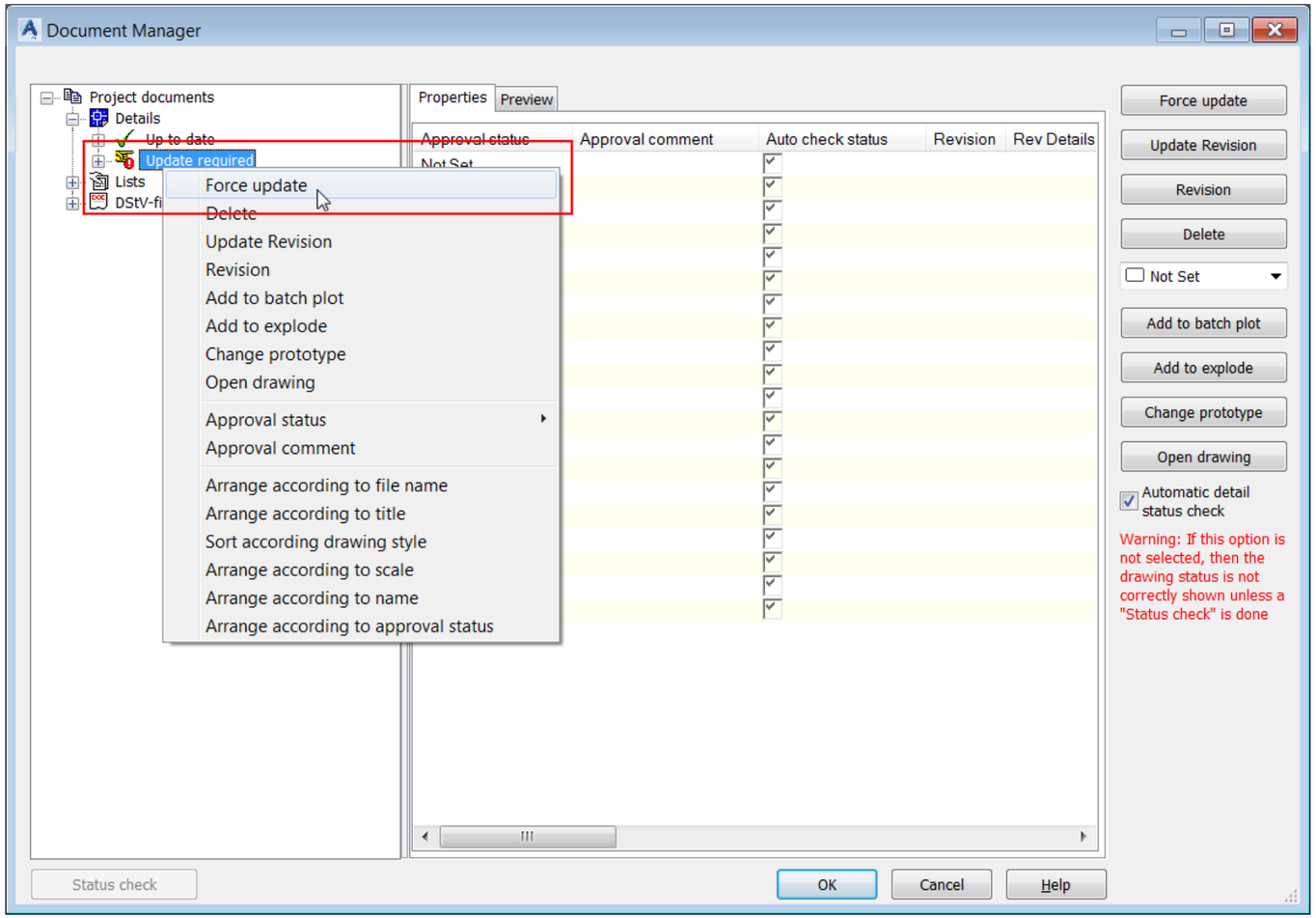
Section 11: Reviewing the Generated Documentation *(Do with me)*

- Invoke the Document manager tool



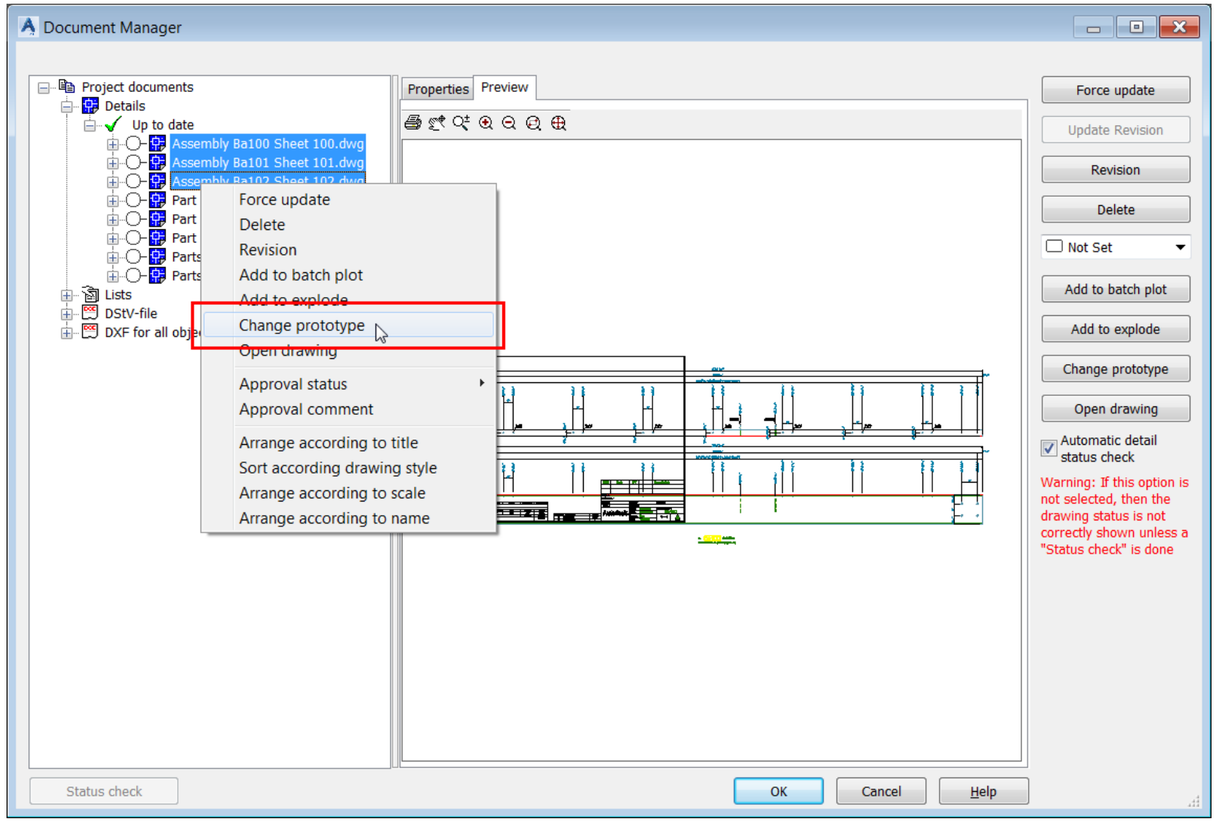
Section 11: Reviewing the Generated Documentation *(Do with me)*

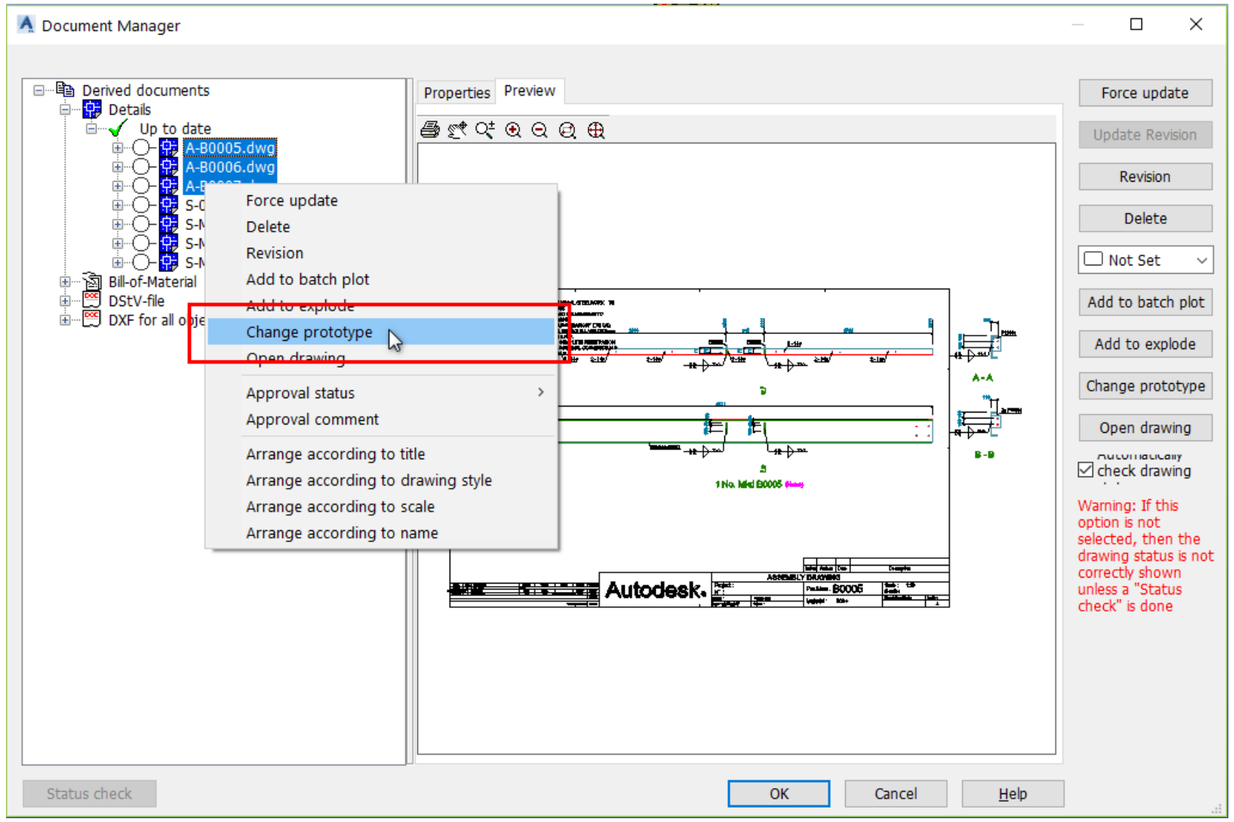
- Right-click on the Update required category and select Force update from the shortcut menu, as shown below:



Section 11: Reviewing the Generated Documentation

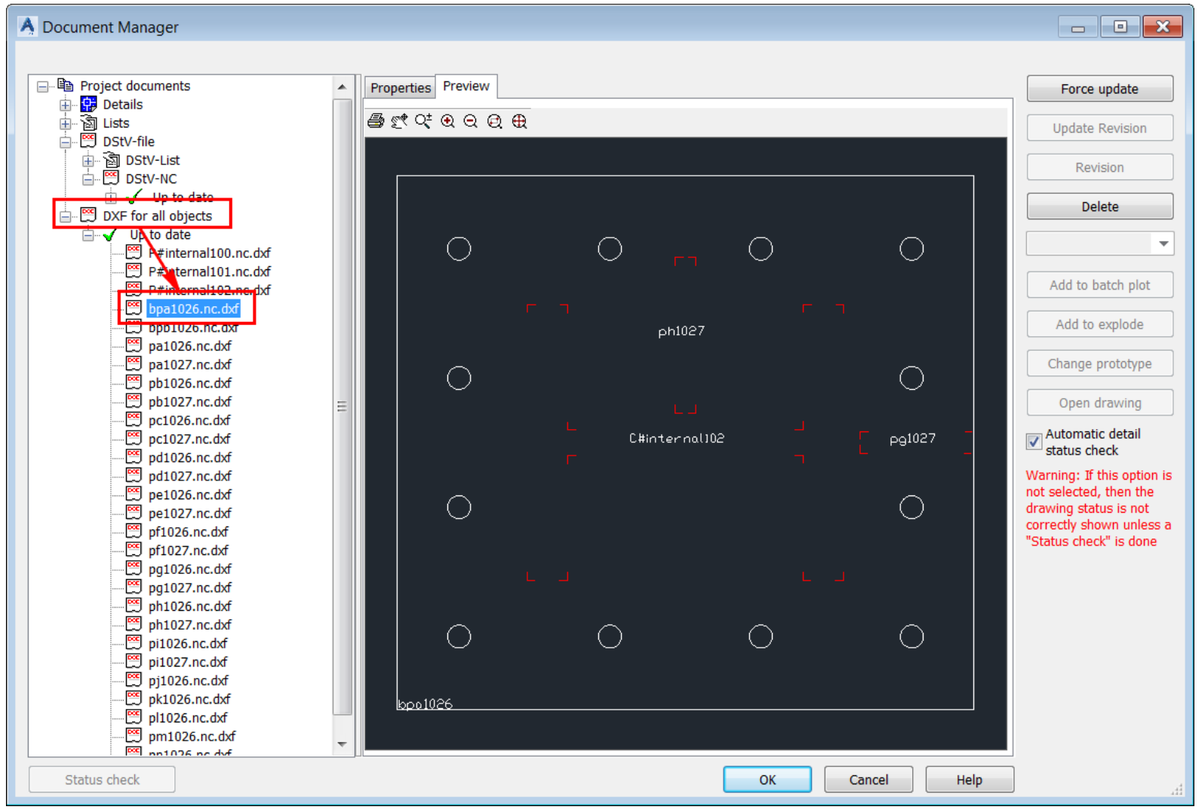
- Change the prototype of the assembly drawings to ASDETPROTO-Assembly-ANSI-E.dwg or ASDETPROTO-ASSEMBLY-A1.dwg

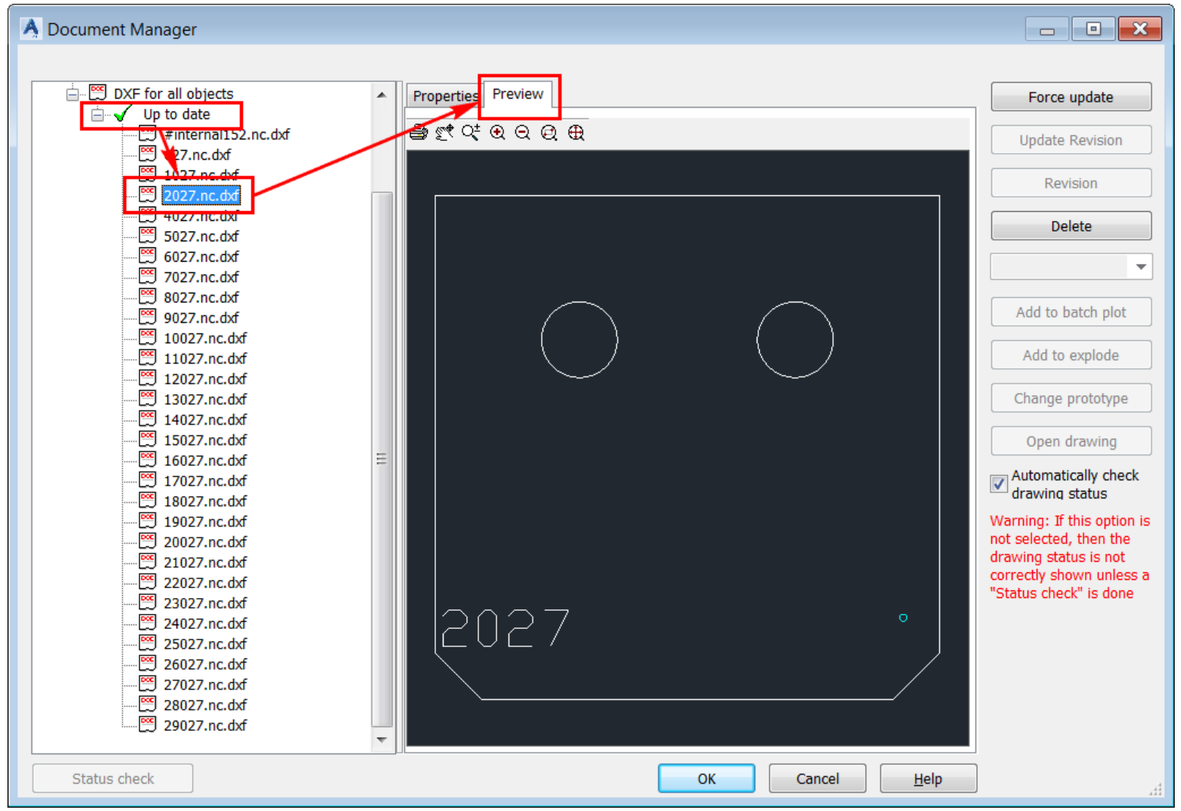




Section 11: Reviewing the Generated Documentation *(Step 4 to the end)*

- Review other drawings, BOMs, NC files, and DXF files





AUTODESK®

Make anything.