Up and Running with Autodesk Advance Steel

Deepak Maini

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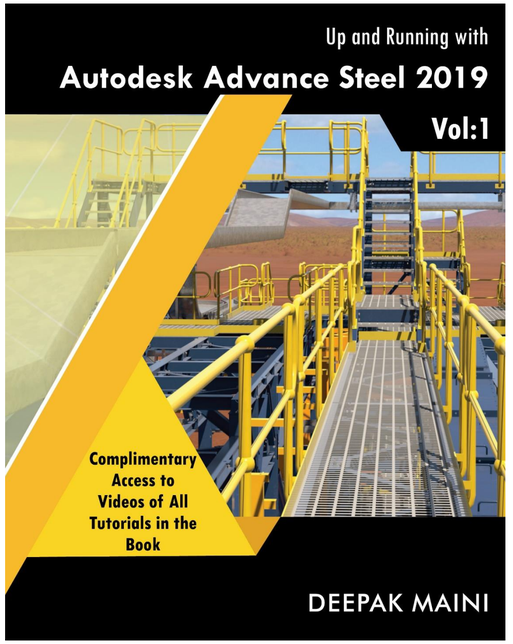
Cadgroup Australia

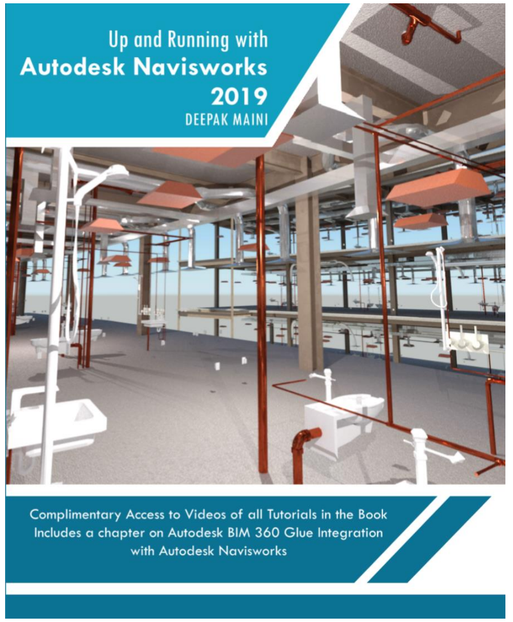
AUTODESK. UNIVERSITY

Welcome to AU2018

My Introduction

- Qualified Mechanical Engineer
- More than 19 Years of experience in the industry
- Autodesk Expert Elite
- Best Speaker at Autodesk University 2017 and Top Rated Speaker for last 5 years in a row
- Among the Top Rated speakers at BILT conferences in ANZ and Asia
- Author of the Up and Running with Autodesk Advance Steel and Up and Running with Autodesk Navisworks series of books
- Guest lecturer at the University of Technology Sydney (UTS) and University of New South Wales (UNSW)





Lab Buddies

Aaron Coats

National BIM/CAD Manager, Bates Smart Australia

Ian Coats

Technical Specialist: Structural BIM, Autodesk Inc.

Catalin Lang

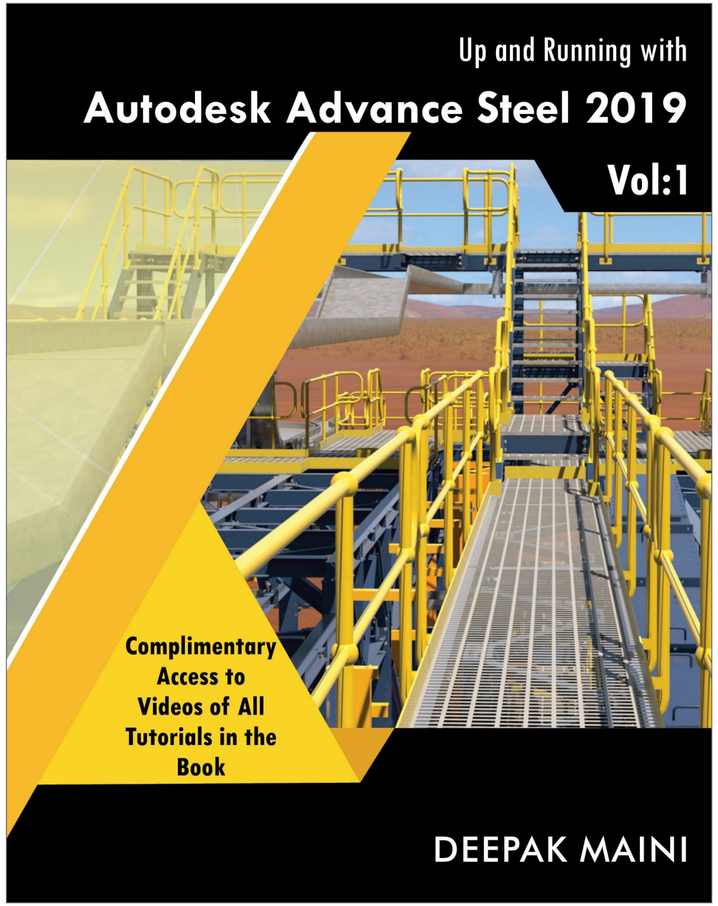
Product Owner, Autodesk, Bucharest, Romania

Swain Johnson

Territory Account Sales Executive, Autodesk Australia

My Aim: Have Lots of Fun as we Learn

(Lots of goodies to give away)



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Acknowledgements

- Patricia Lundberg and Sidney Shaola from the AU Speaker Management Team
- Janice Miller-Kellerman and Adam Sopko from the Content Management Team
- Joël St-Pierre and Autodesk Technical Crew

Rules of Engagement

- 11 Sections to be Completed in this lab + 2 Extra Sections
- Only have 90 Minutes (~75) 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…

Before we start with Advance Steel

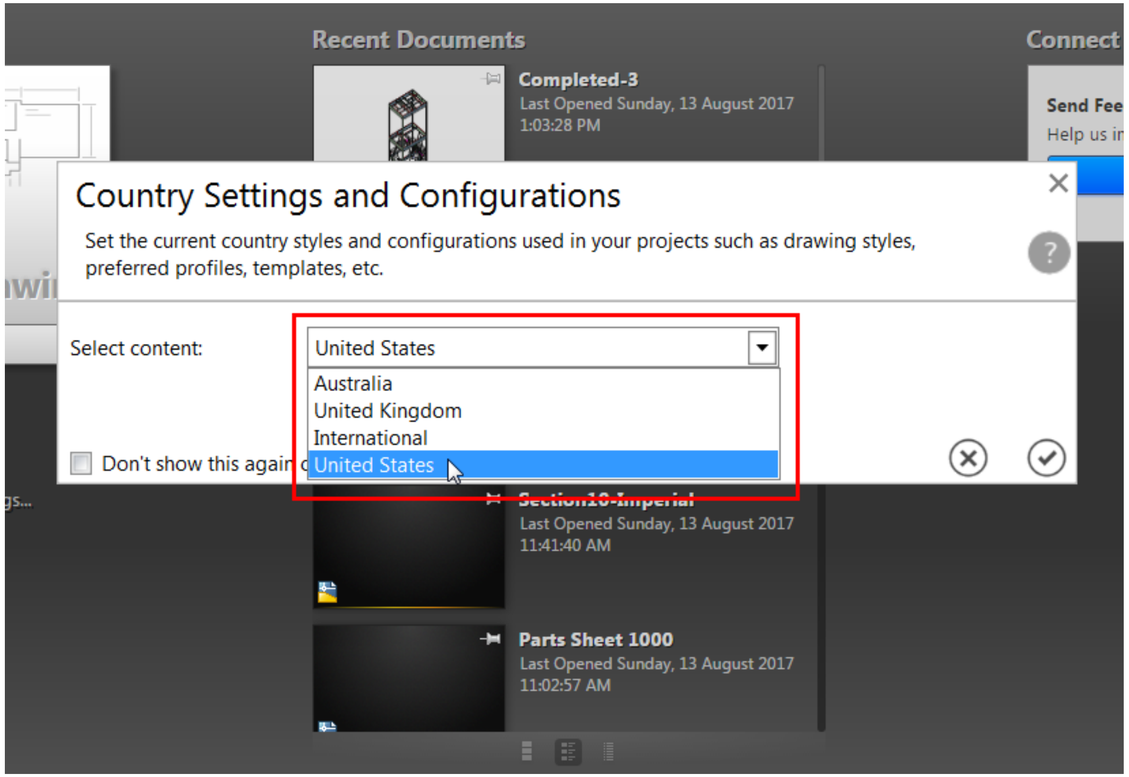
Very Very Very Important Rule to Follow

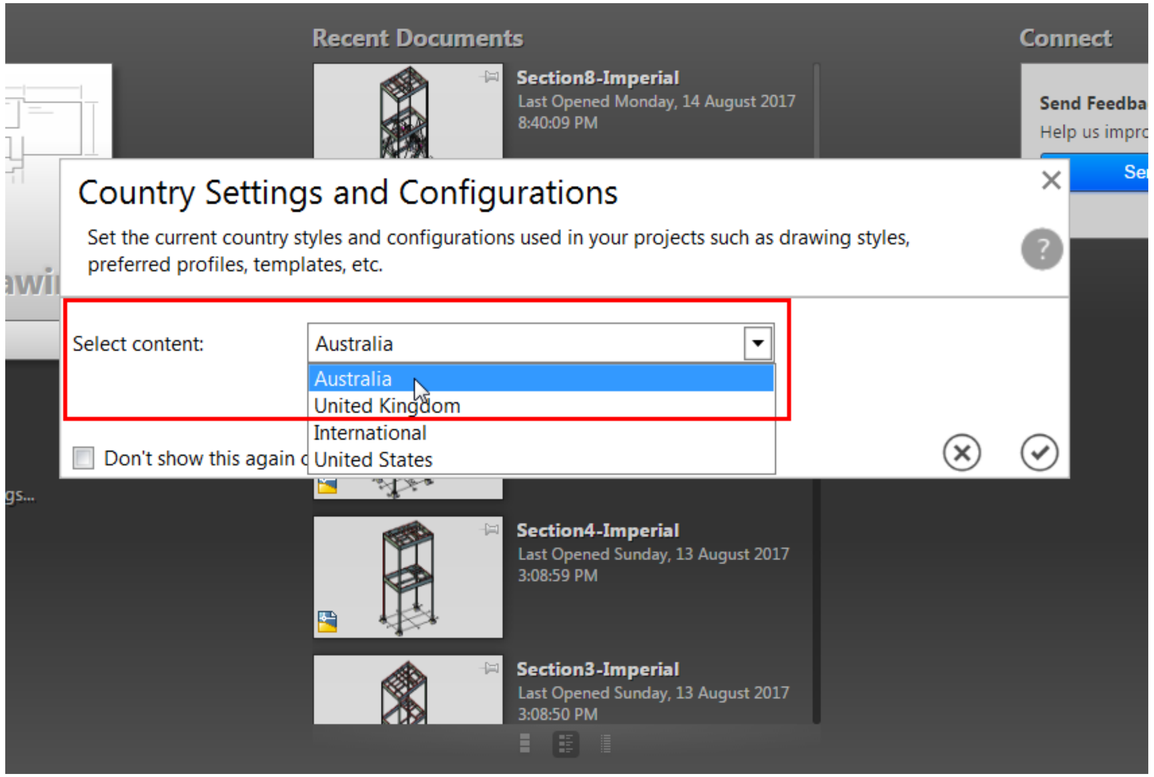
PLEASE PLEASE PLEASE

READ PROMPT SEQUENCES

Section 1: Starting Advance Steel

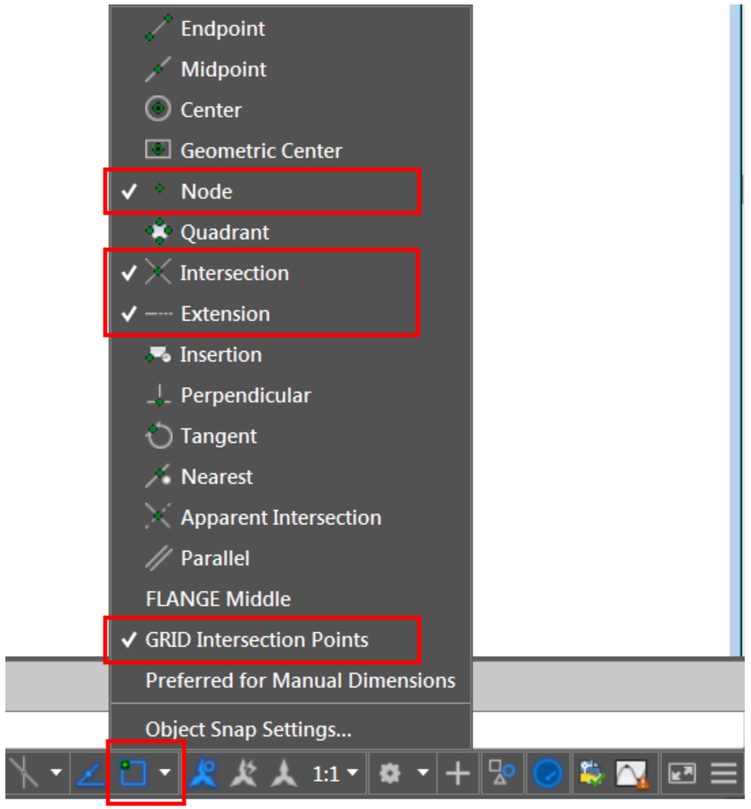
- Selecting the Country Settings to start Advance Steel

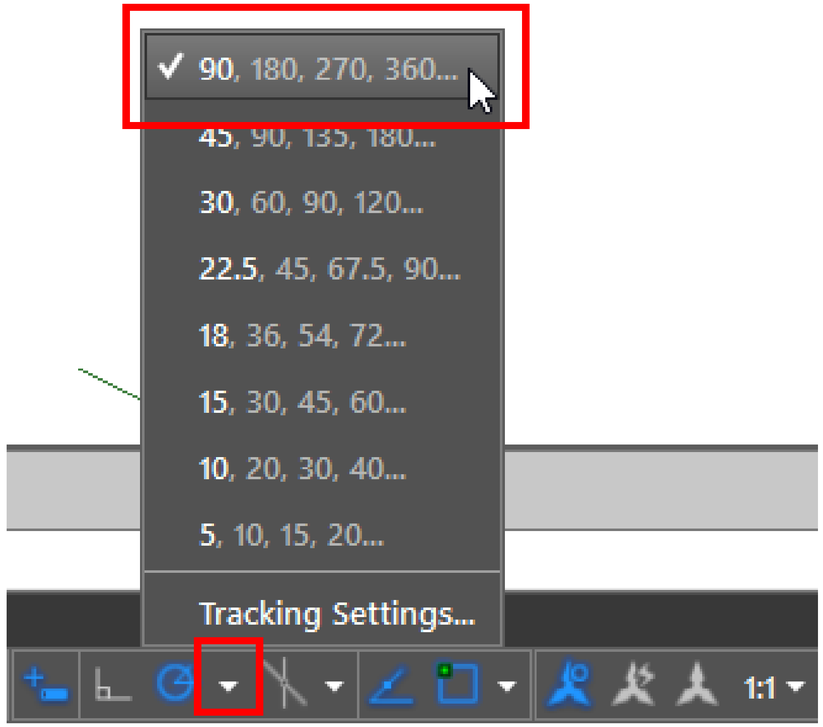




Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Do this with me)*

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

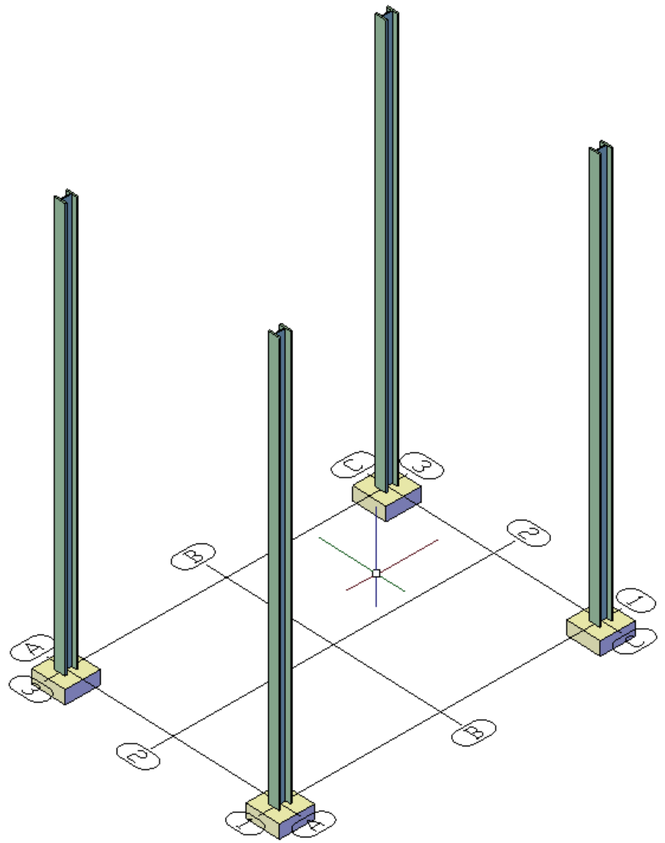




Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Steps 5-14 and Stop)*

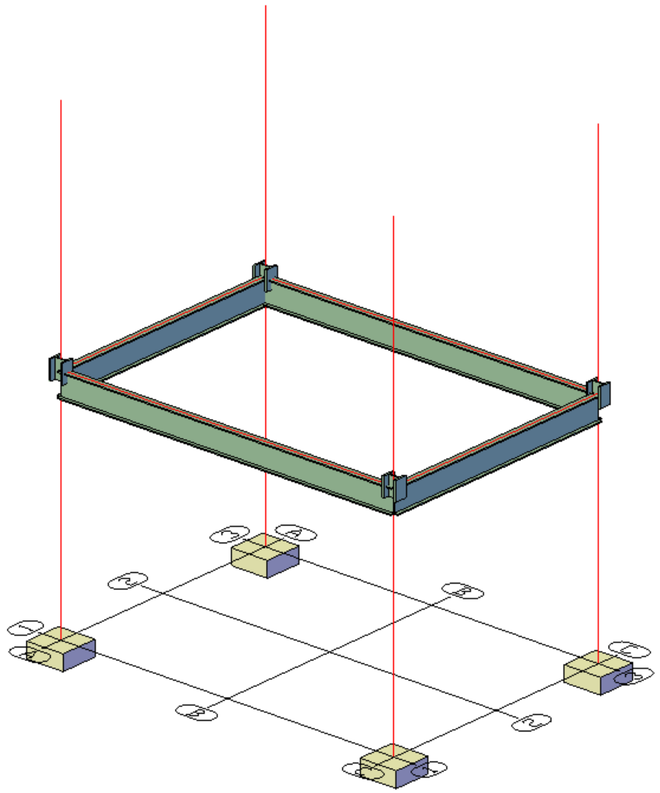
- Insert a Rolled I Section at A1 Grid Intersection Point with the Height of 40’ or 12m. Section Type is AISC 14.1 W > W12x210 or Australian Universal Column > 310 UC 158

- 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)*

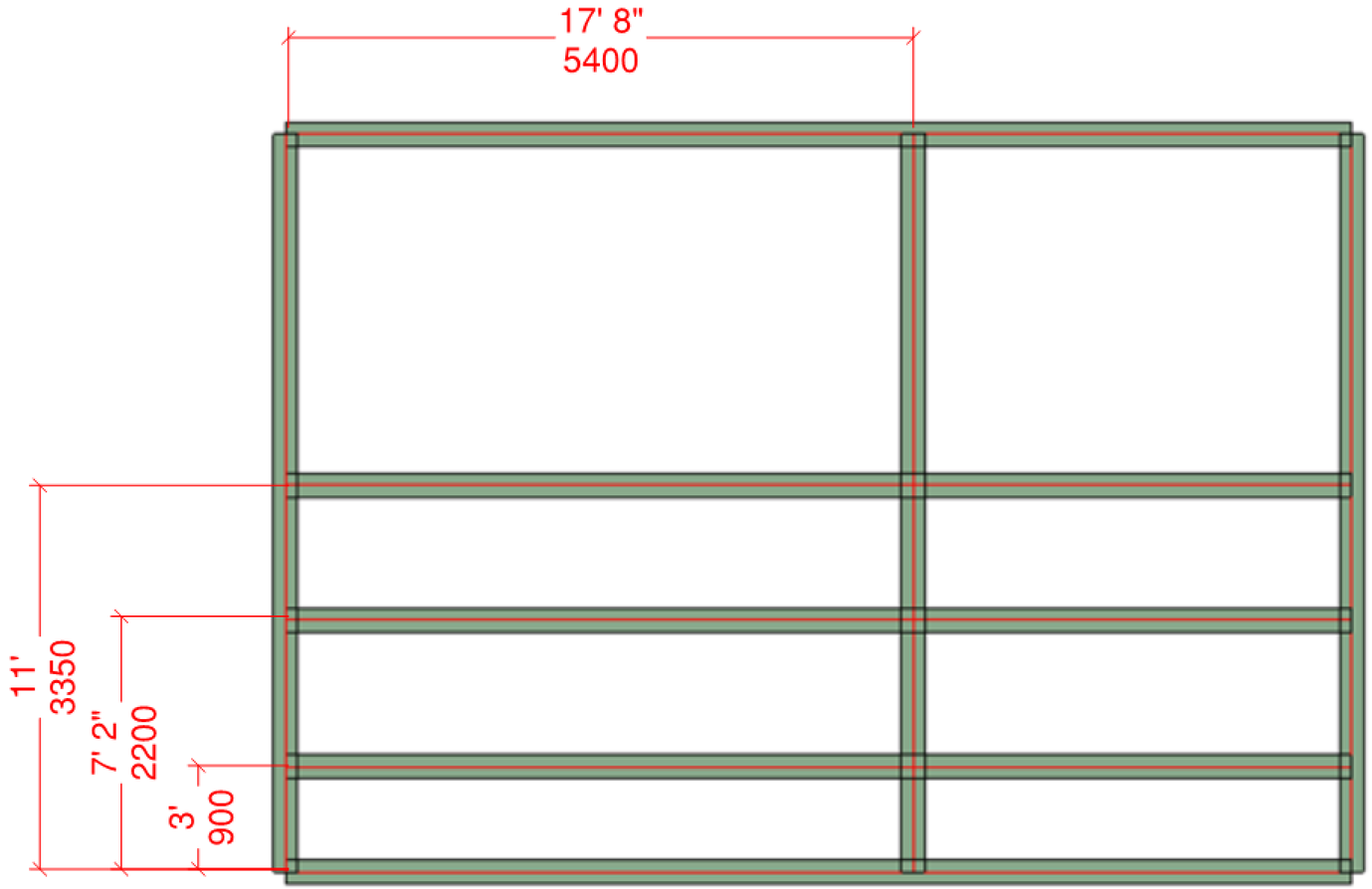
- Change the display of columns to Symbol
- Insert Perimeter Beams at Midpoints. Section Type is AISC 14.1 S > S24X121 or Australian Universal Beam > 530 UB 82.0



Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Steps 31-35 Only)*

- Isolate Beams and Change the view to Top View

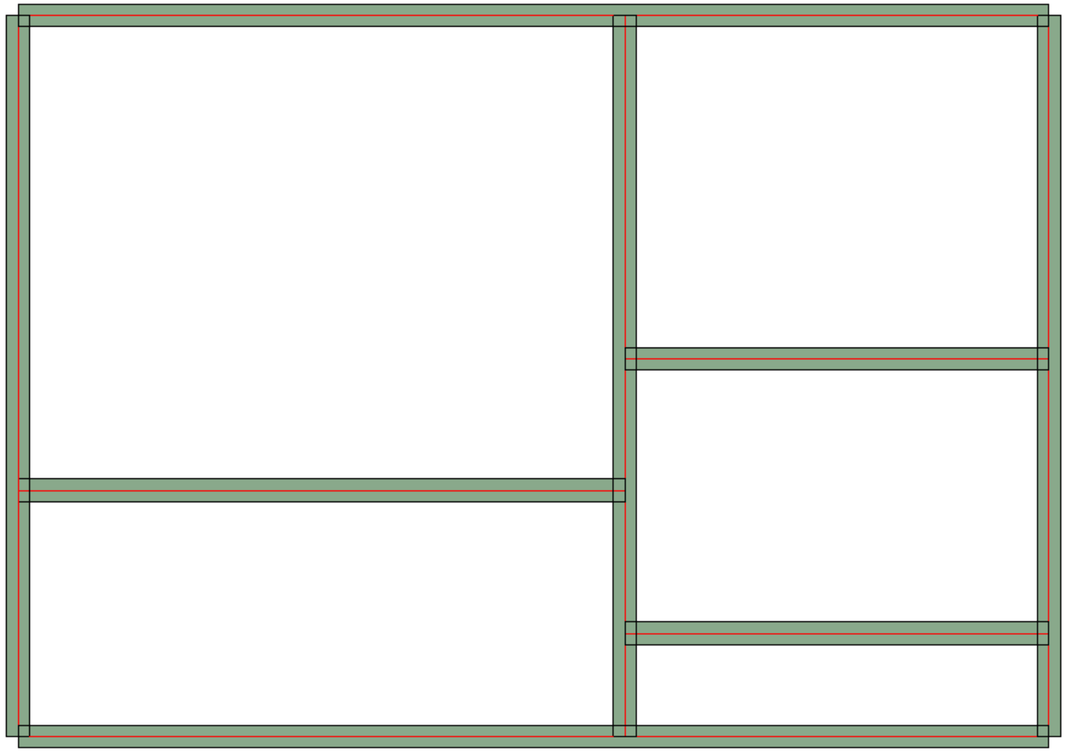
- Copy Perimeter Beams

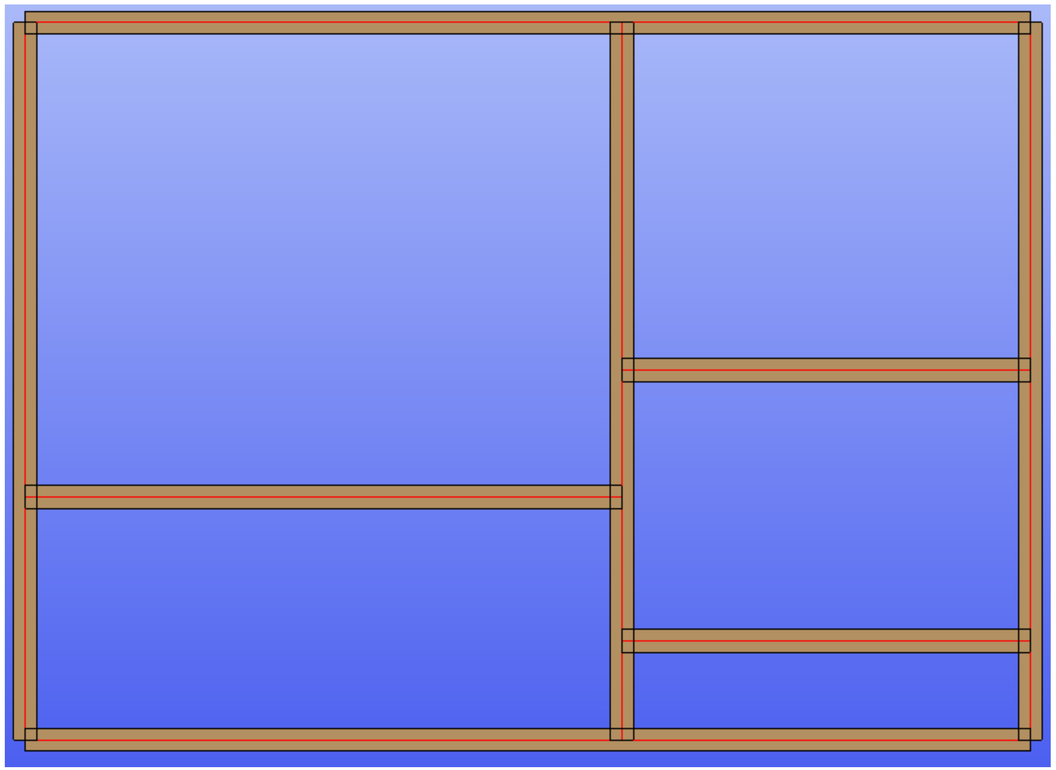


Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Steps 36-43 Only)*

- Split Beams

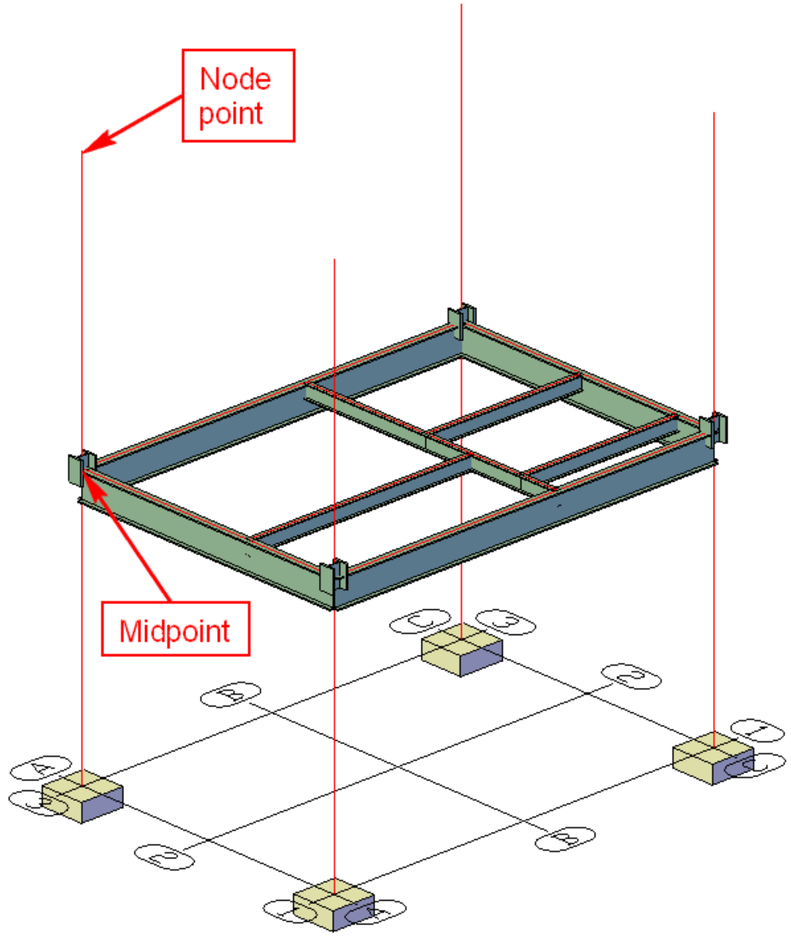
- Change the sizes to AISC 14.1 S > S12X50 or Australian Universal Beam > 250 UB 31.4





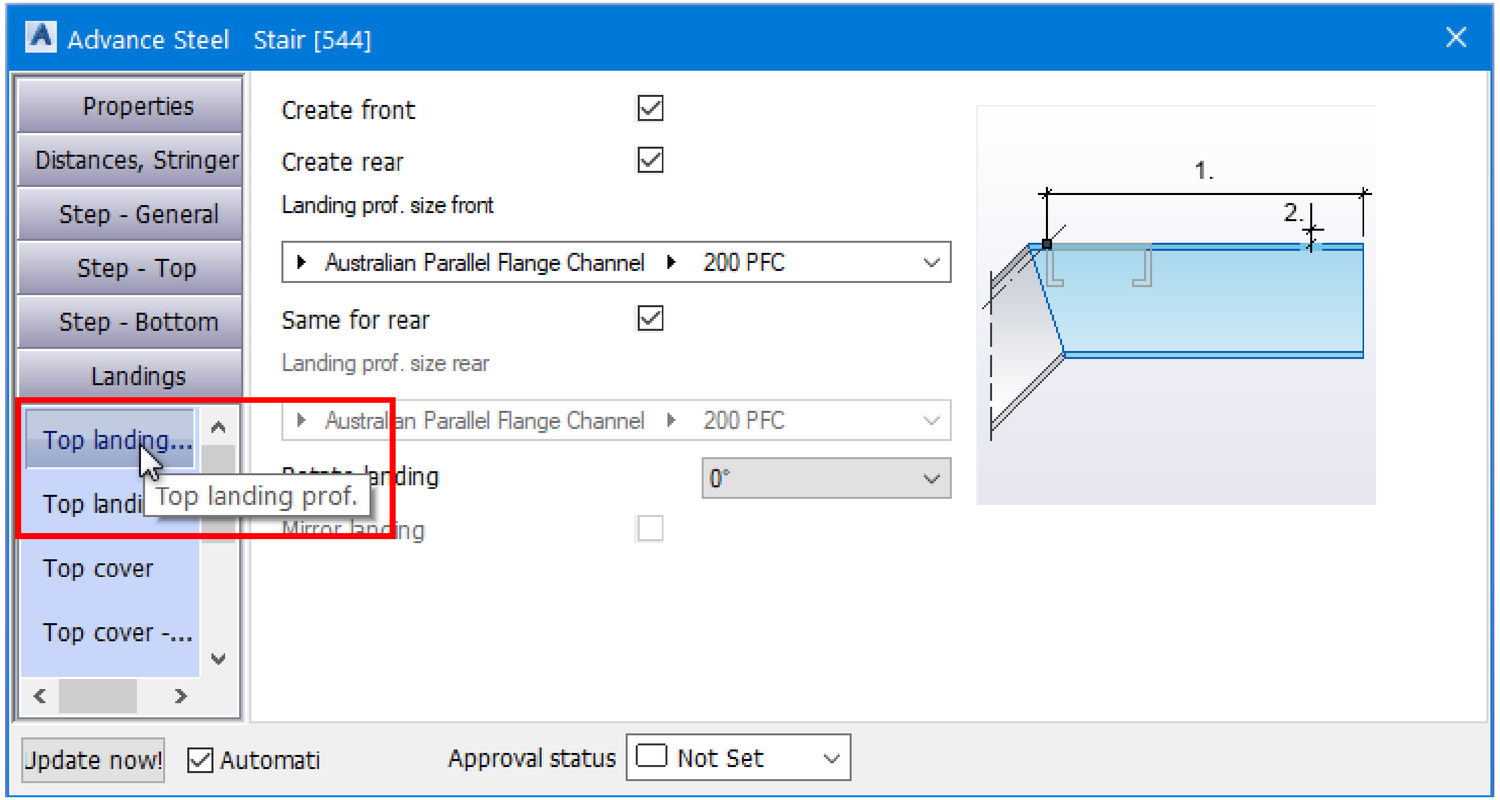
Section 2: Inserting and Copying Columns, Peripheral Beams and Filter Beams *(Remaining Steps)*

- Unisolate All Objects
- Copy all Beams



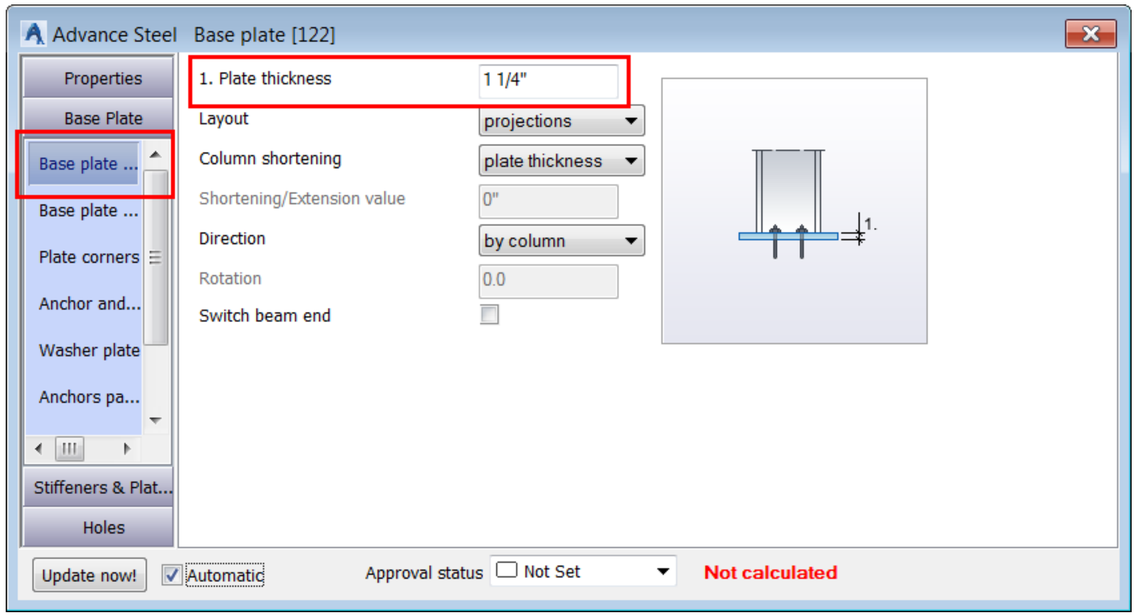
Section 3: Inserting and Copying the Base Plate Joints *(Important thing about the Dialog box Tab Names)*

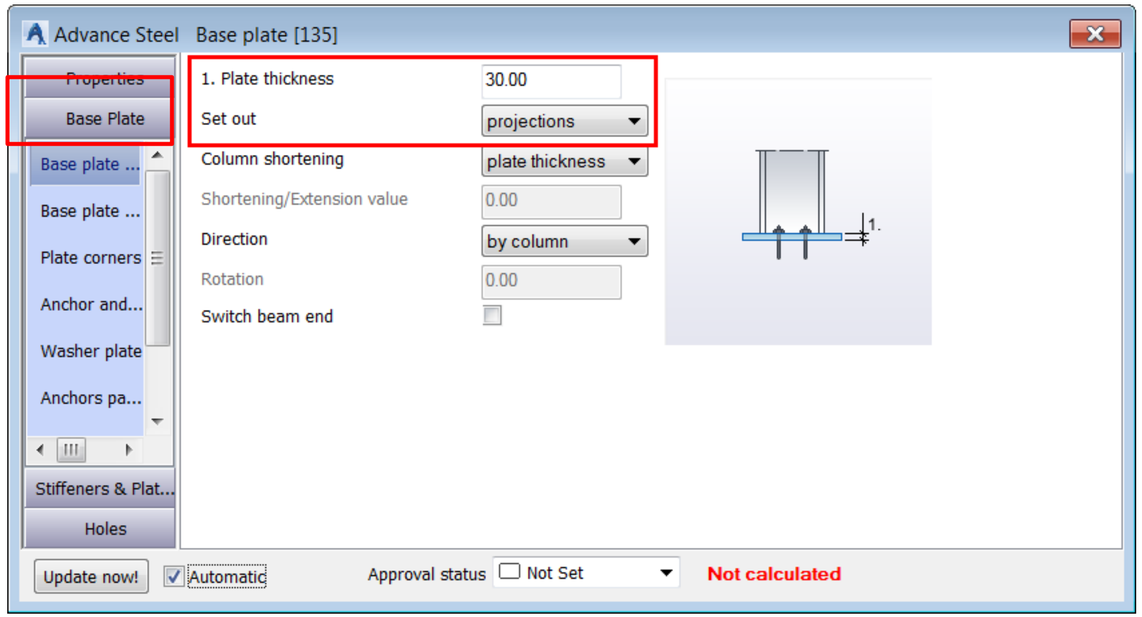
- Hover the cursor over the tab name to display the full name of the tab



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

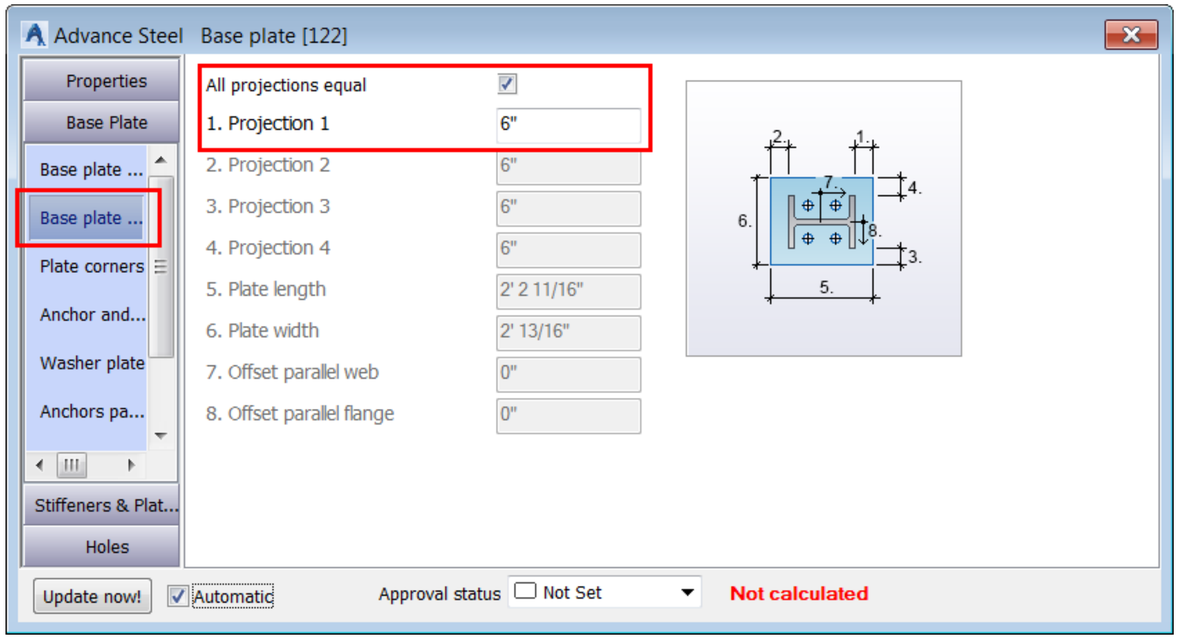
- Open the Section3-Imperial.dwg or Section3-Metric.dwg file
- Turn on Connection vault
- Invoke the Base plate Joint and select the column at A1 grid intersection point
- Base Plate > Base plate layout tab:

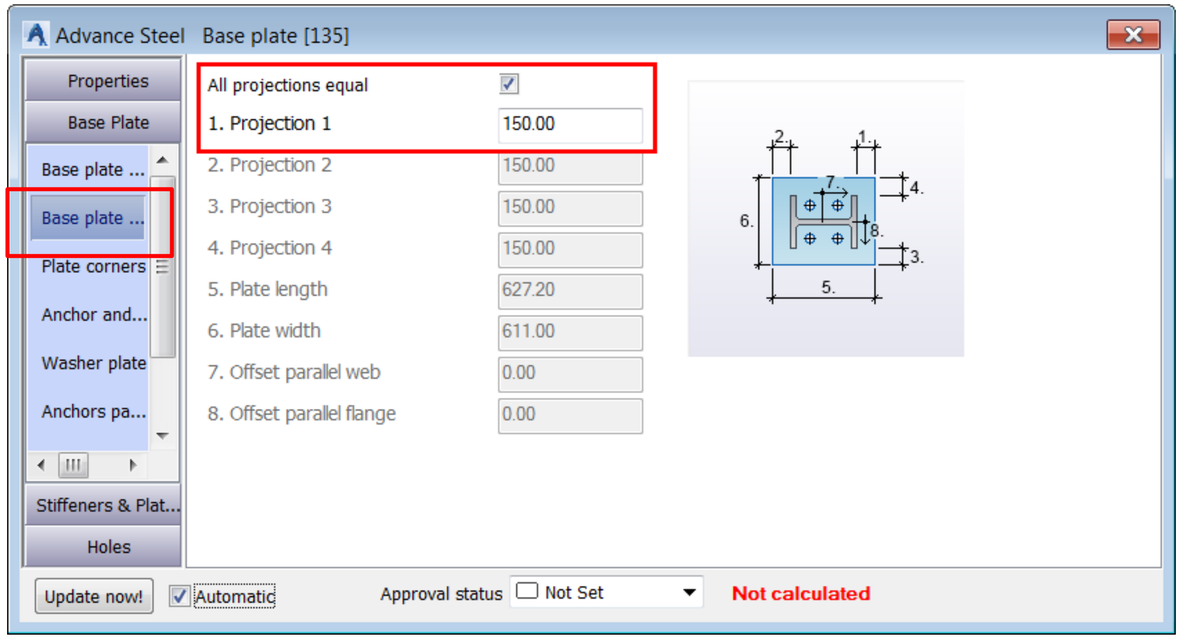




Section 3: Inserting and Copying the Base Plate Joints

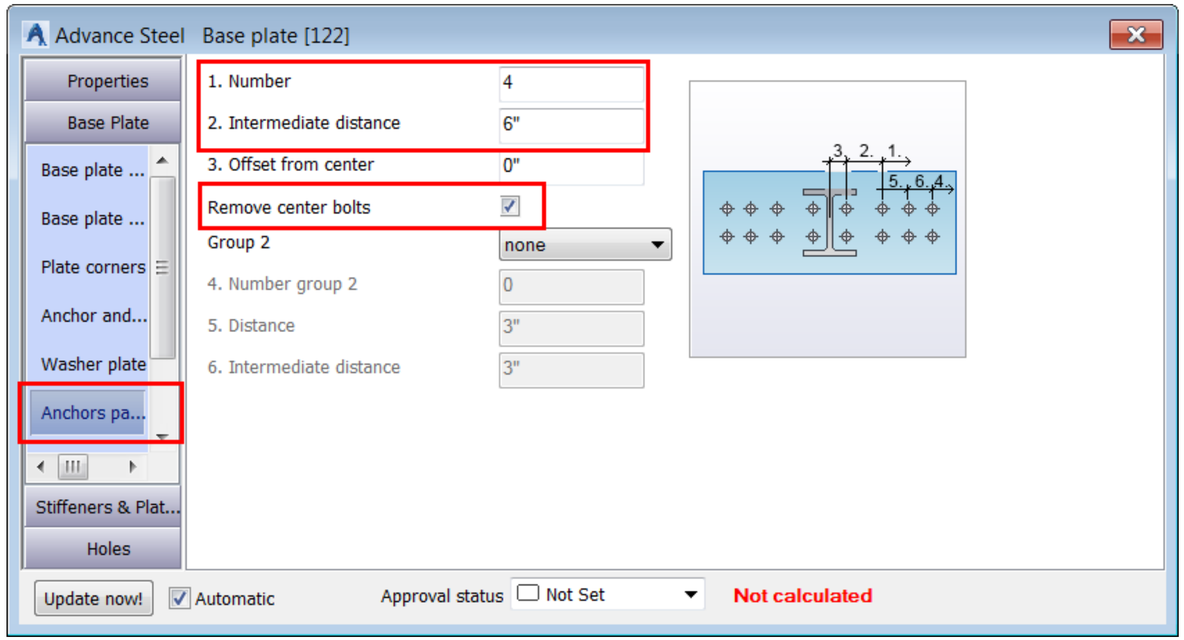
- Base Plate > Base plate dimensions tab:

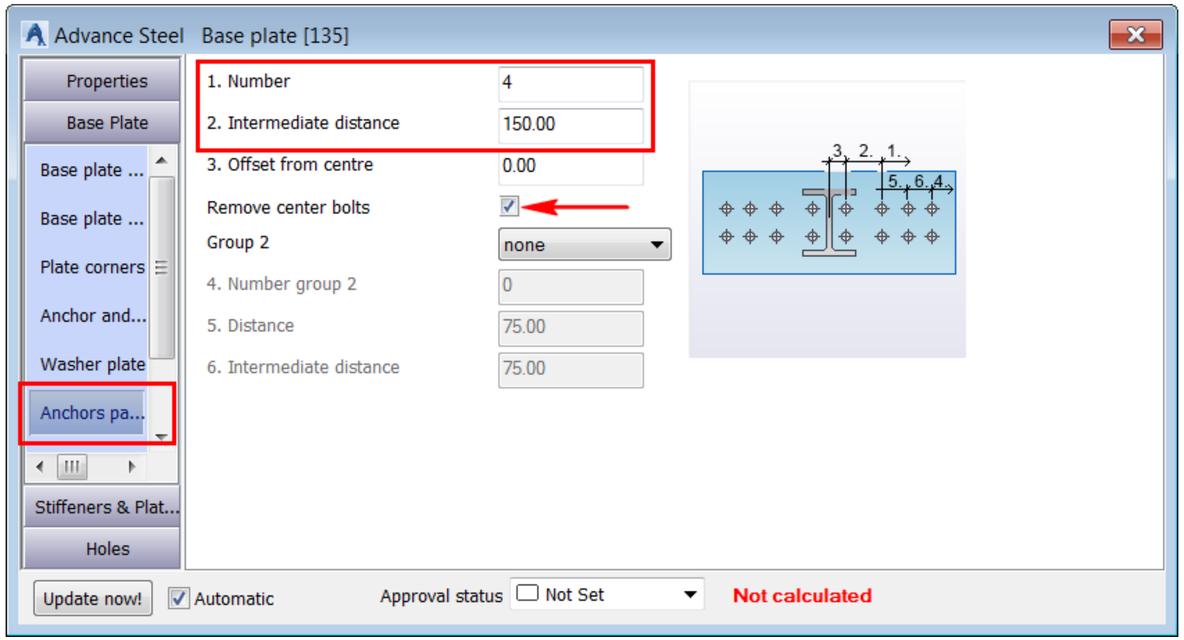




Section 3: Inserting and Copying the Base Plate Joints

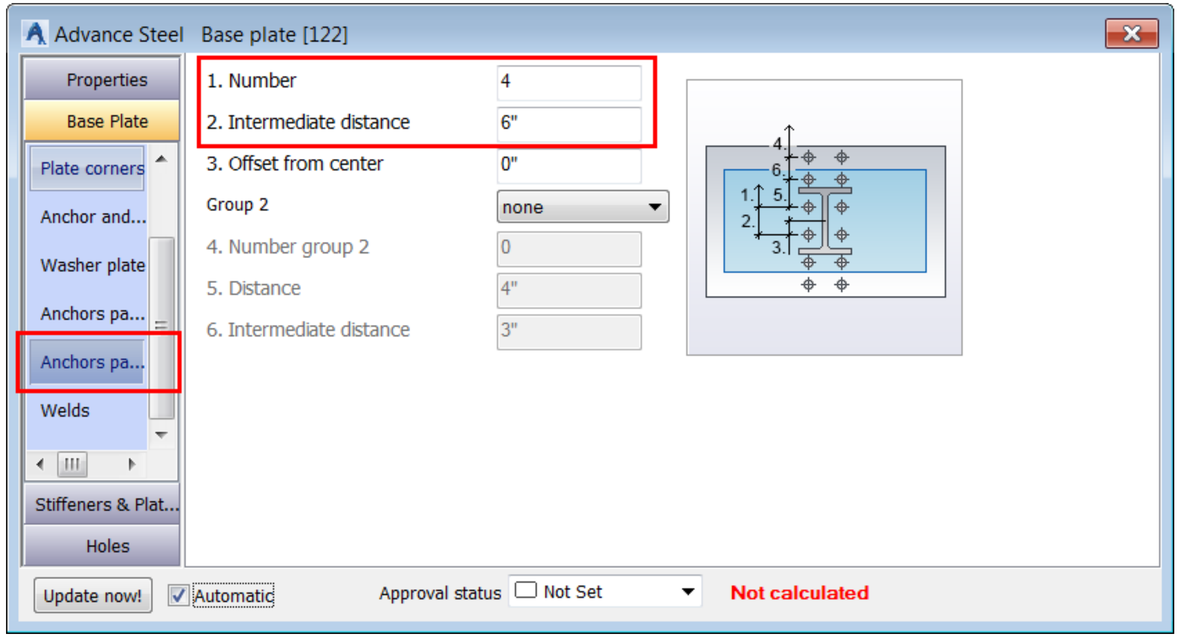
- Base Plate > Anchor parallel web tab:

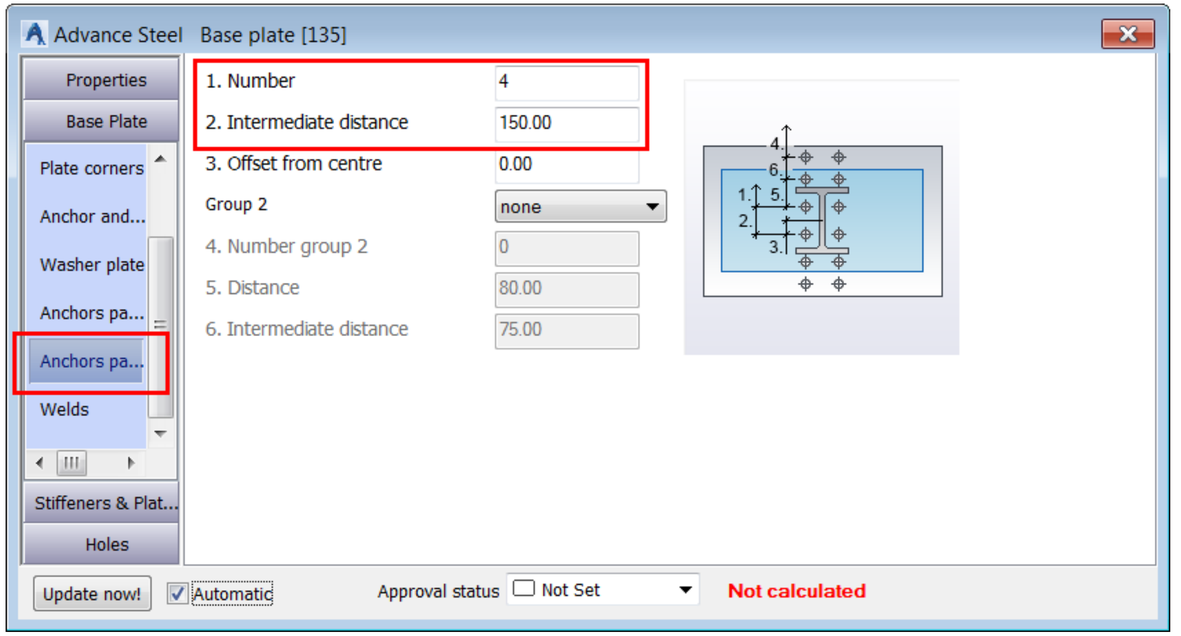




Section 3: Inserting and Copying the Base Plate Joints

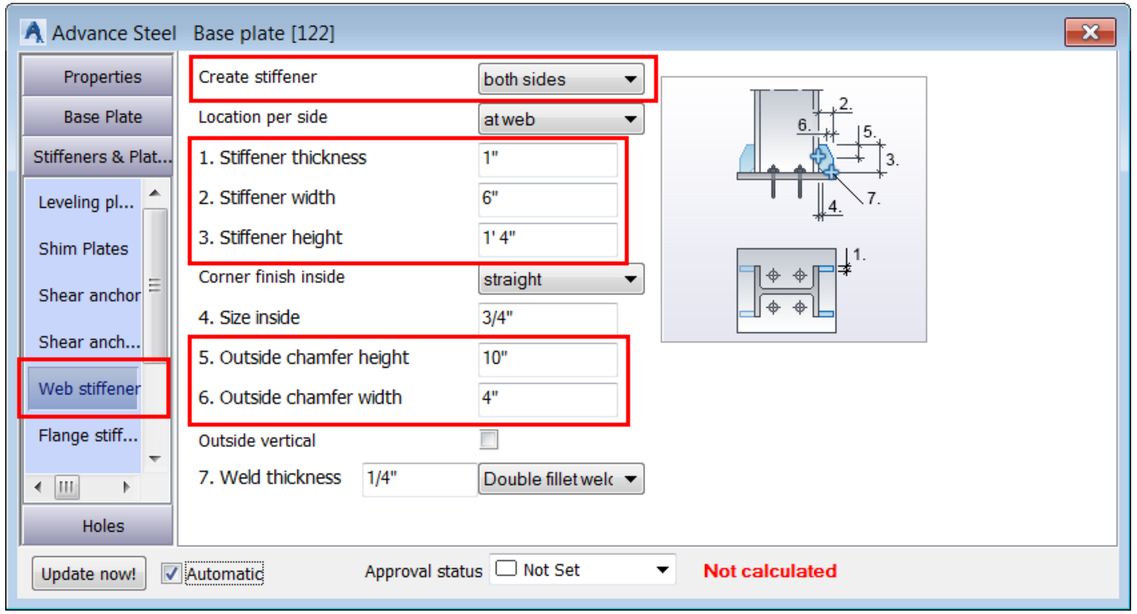
- Base Plate > Anchor parallel flange tab:

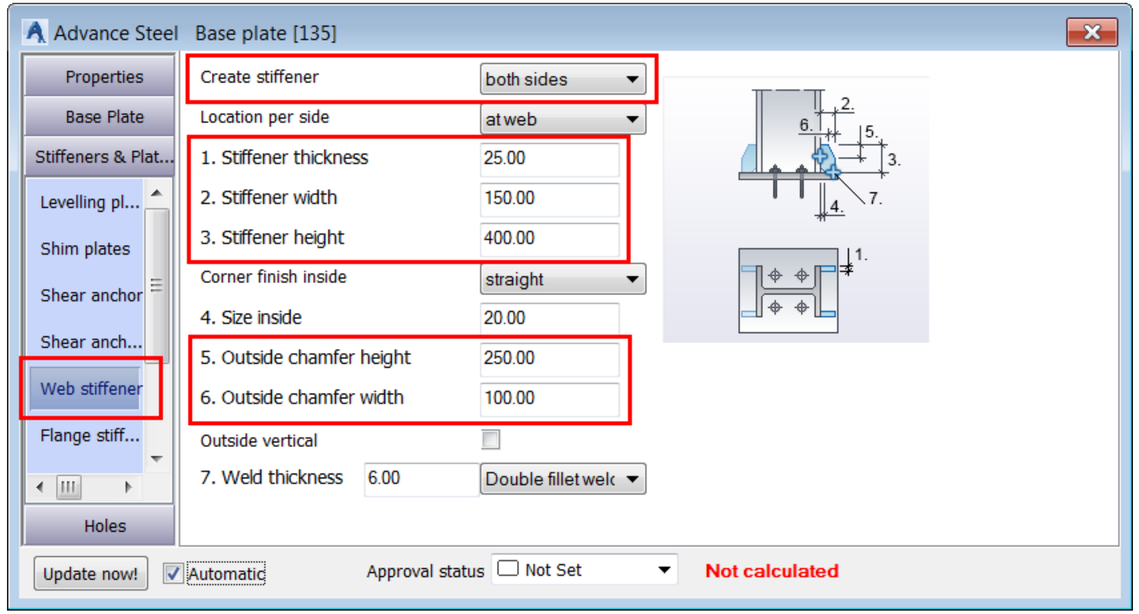




Section 3: Inserting and Copying the Base Plate Joints

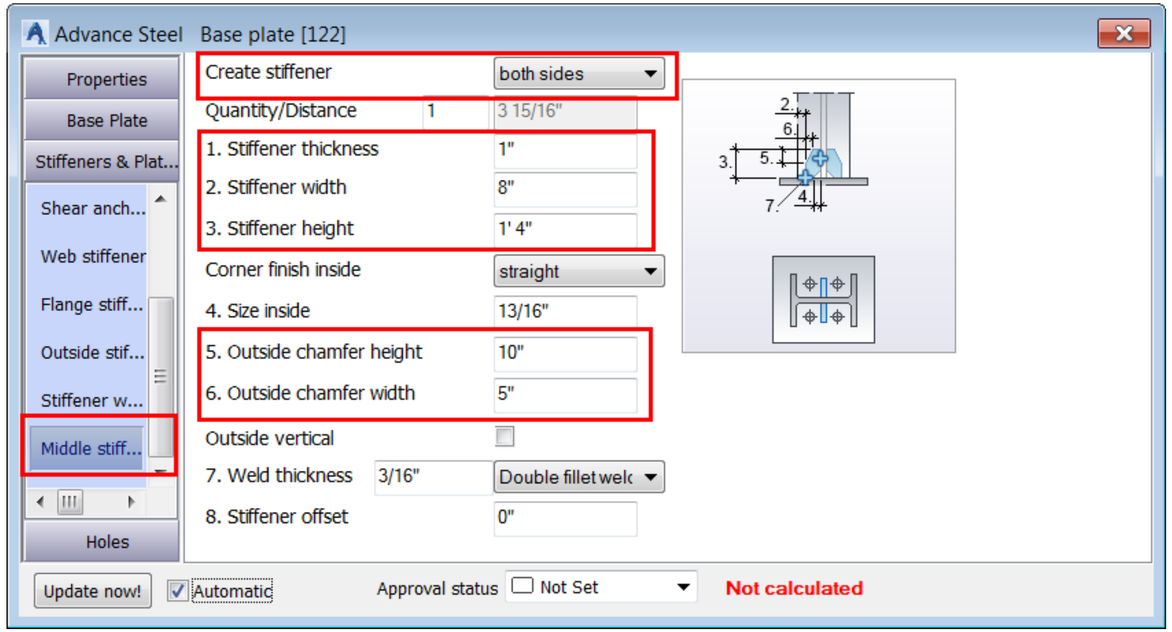
- Stiffeners & Plates > Web stiffener tab:

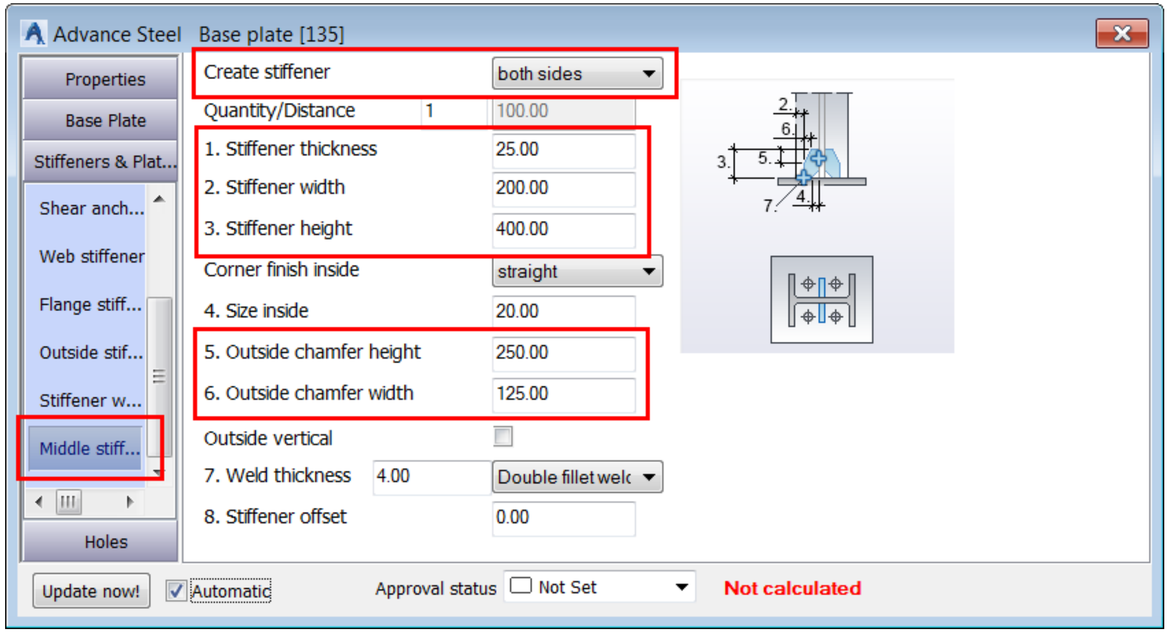




Section 3: Inserting and Copying the Base Plate Joints

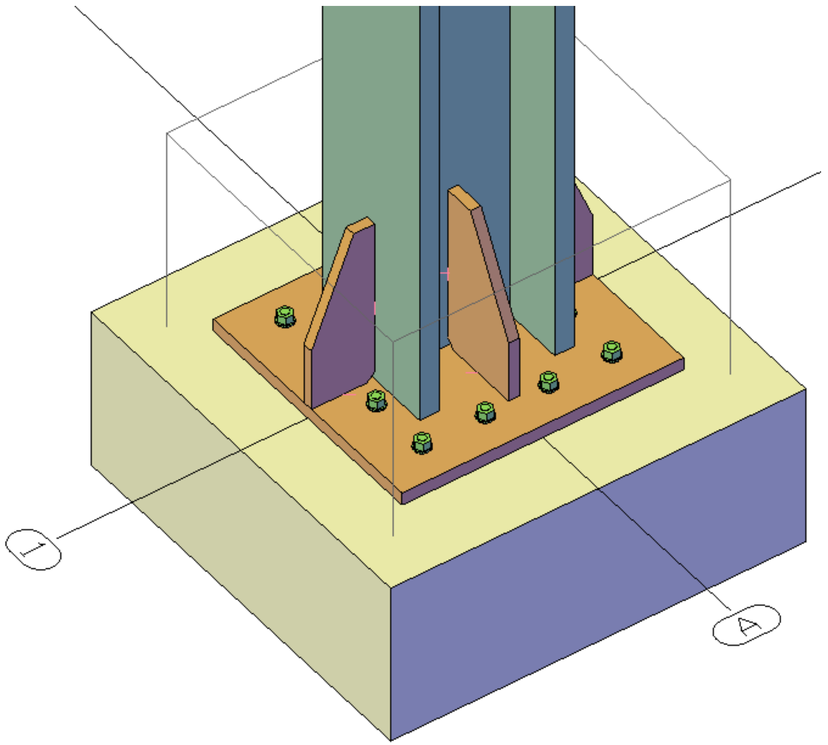
- Stiffeners & Plates > Middle stiffener tab:

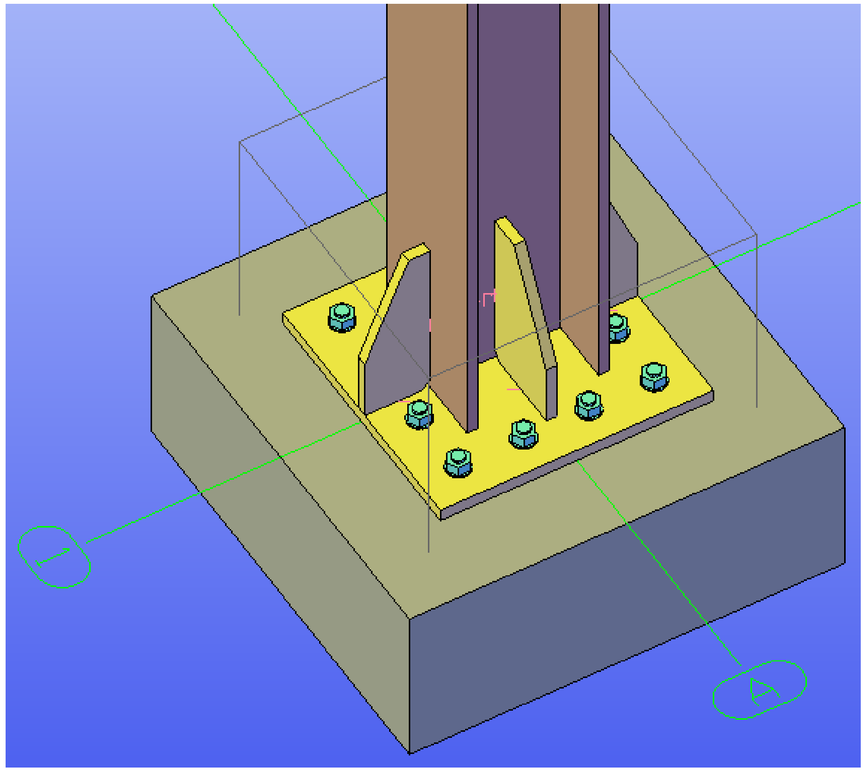




Section 3: Inserting and Copying the Base Plate Joints

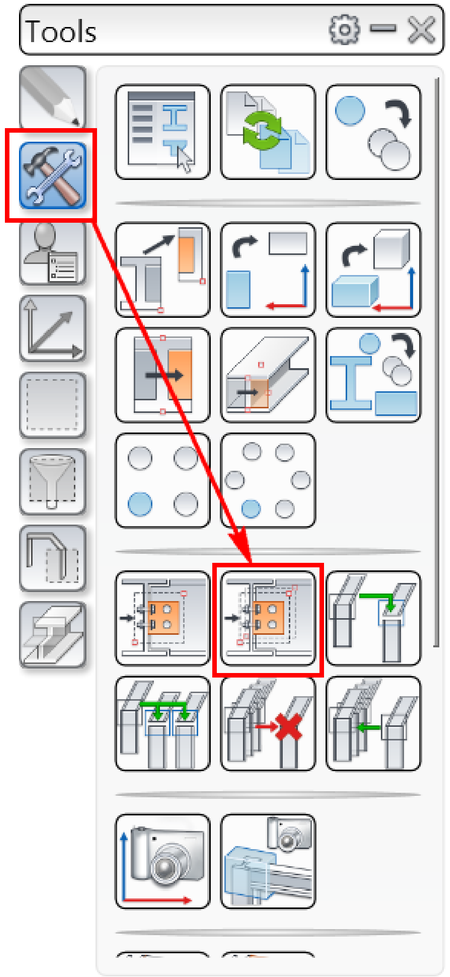
- Close the dialog box.





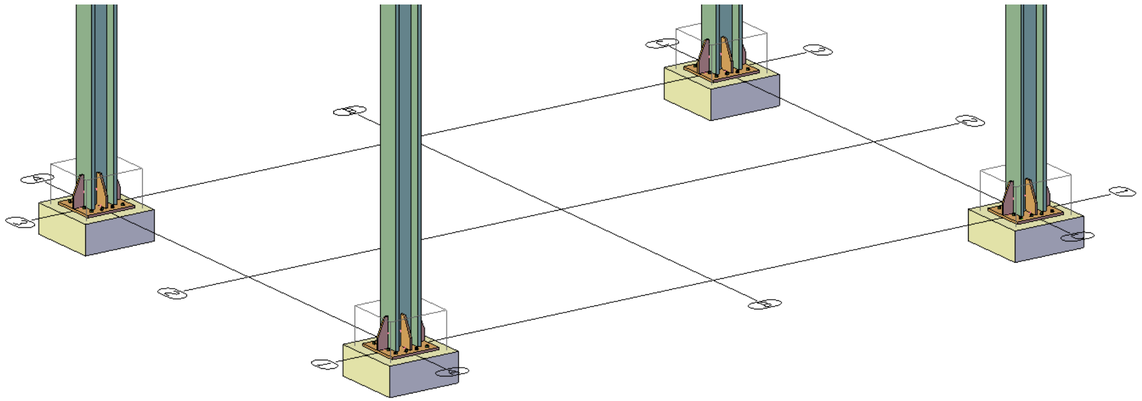
Section 3: Inserting and Copying the Base Plate Joints

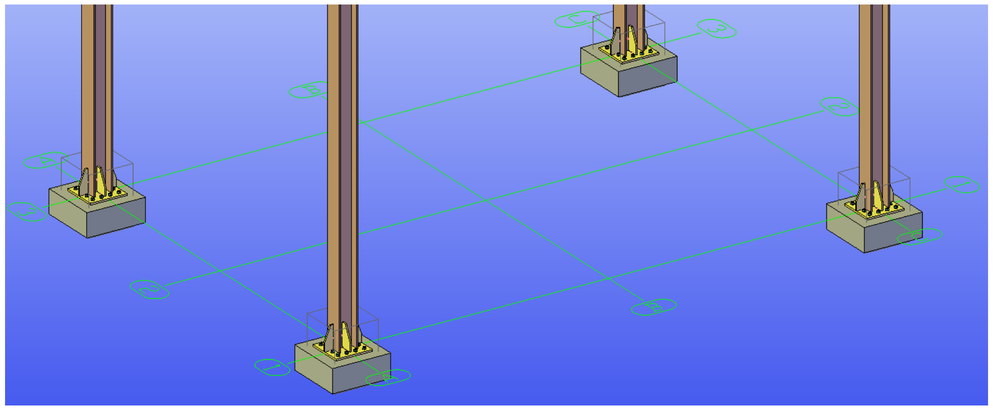
- From the Advance Steel Palette > Tools tab, invoke the Create by template, multiple tool.



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

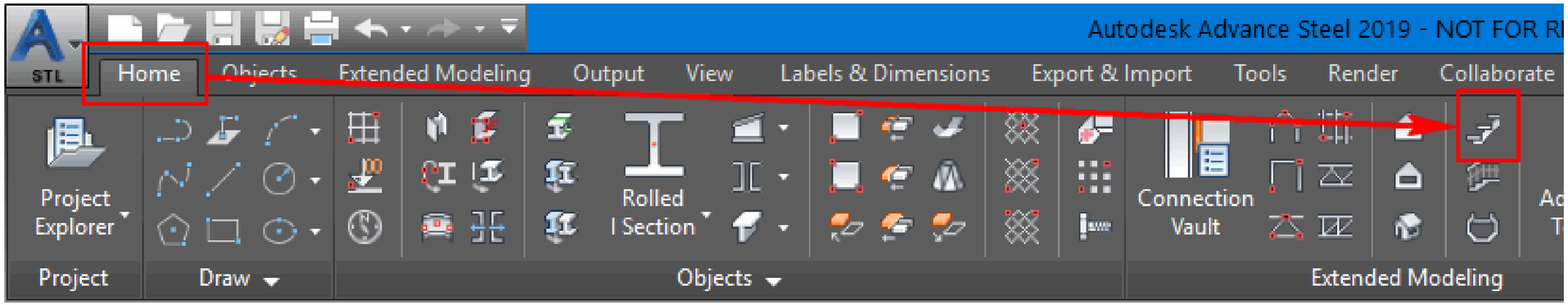
- Copy the joint to the remaining columns.





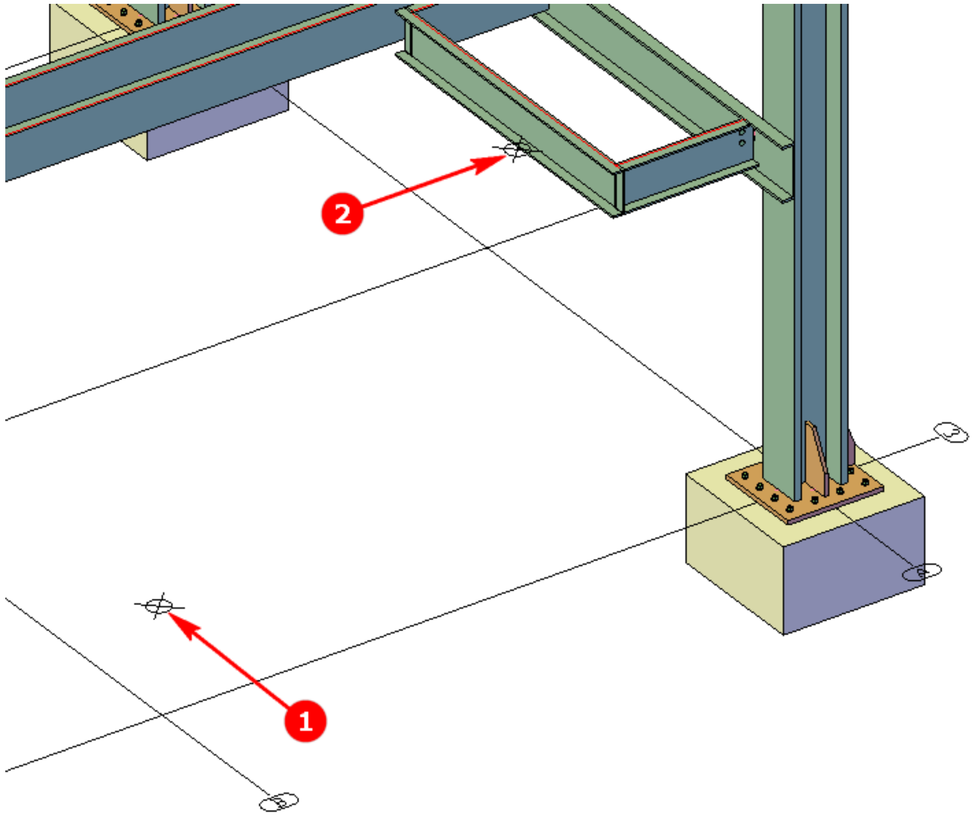
Section 4: Inserting Stairs *(Do initial steps with me)*

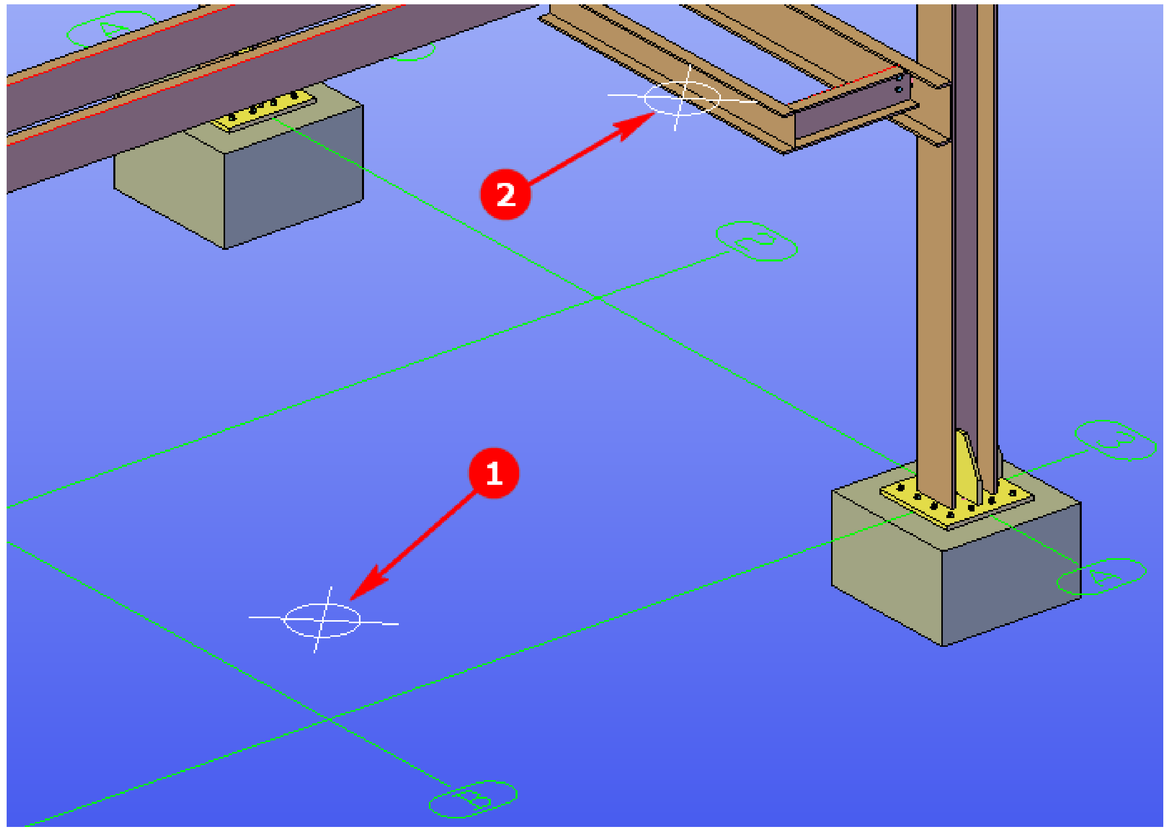
- Open the Section4-Imperial.dwg or Section4-Metric.dwg file
- Invoke the Straight stairs tool



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

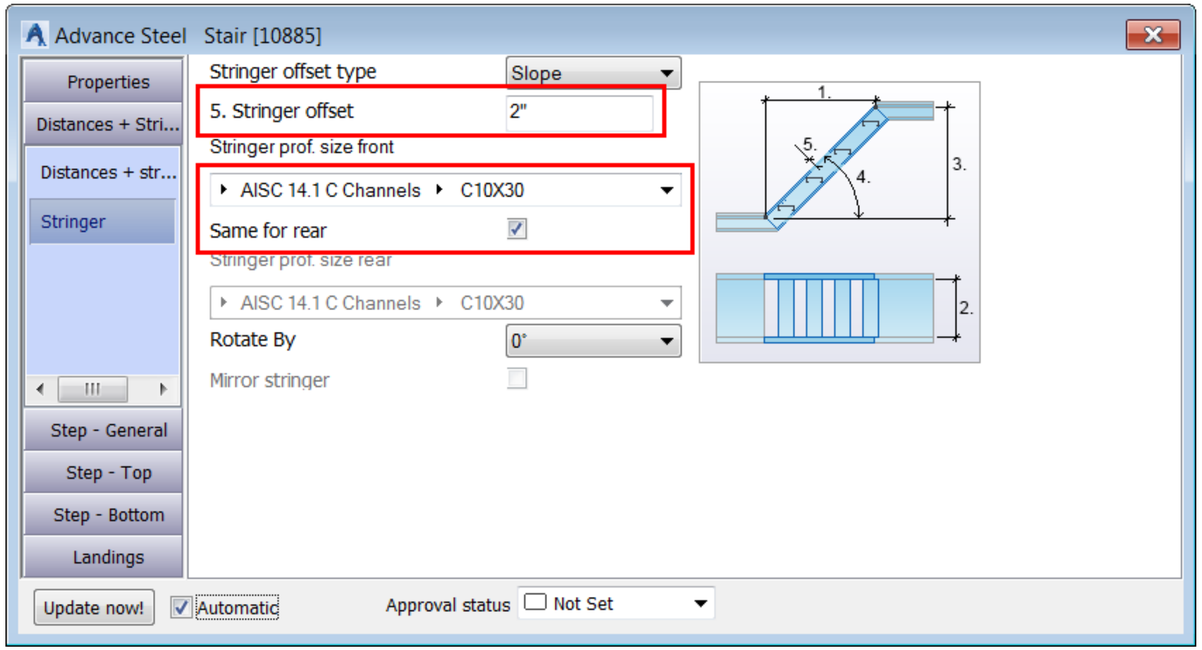
- Press ENTER and click the following two points.
- Press ENTER again.

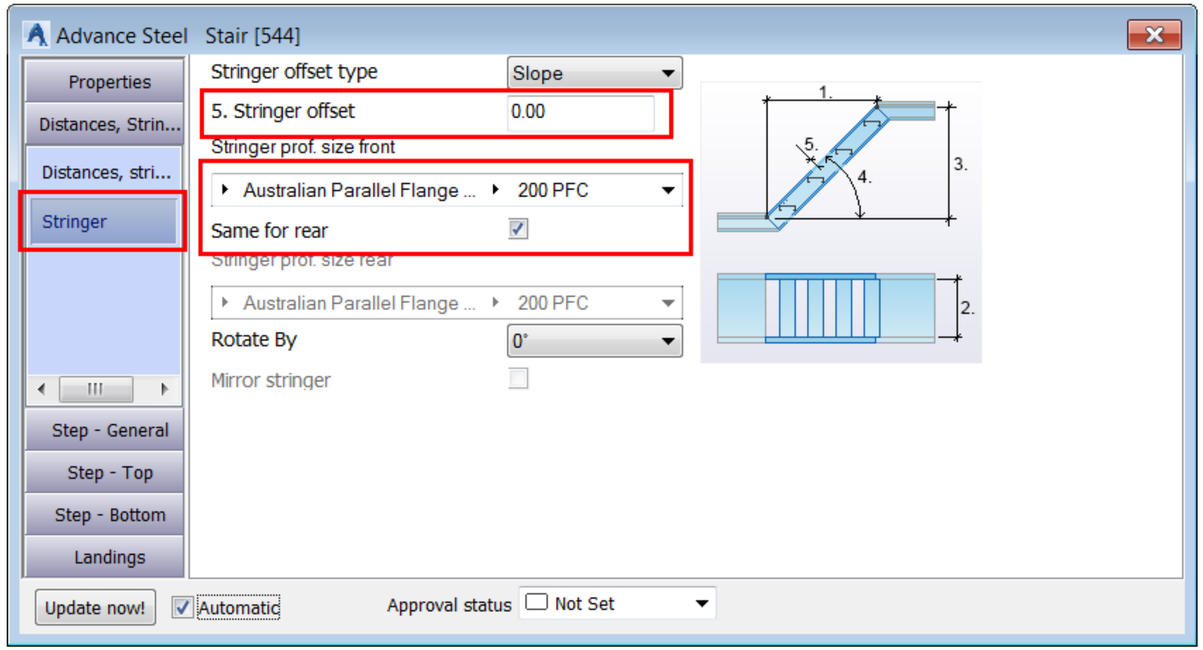




Section 4: Inserting Stairs *(Step 8 Onwards)*

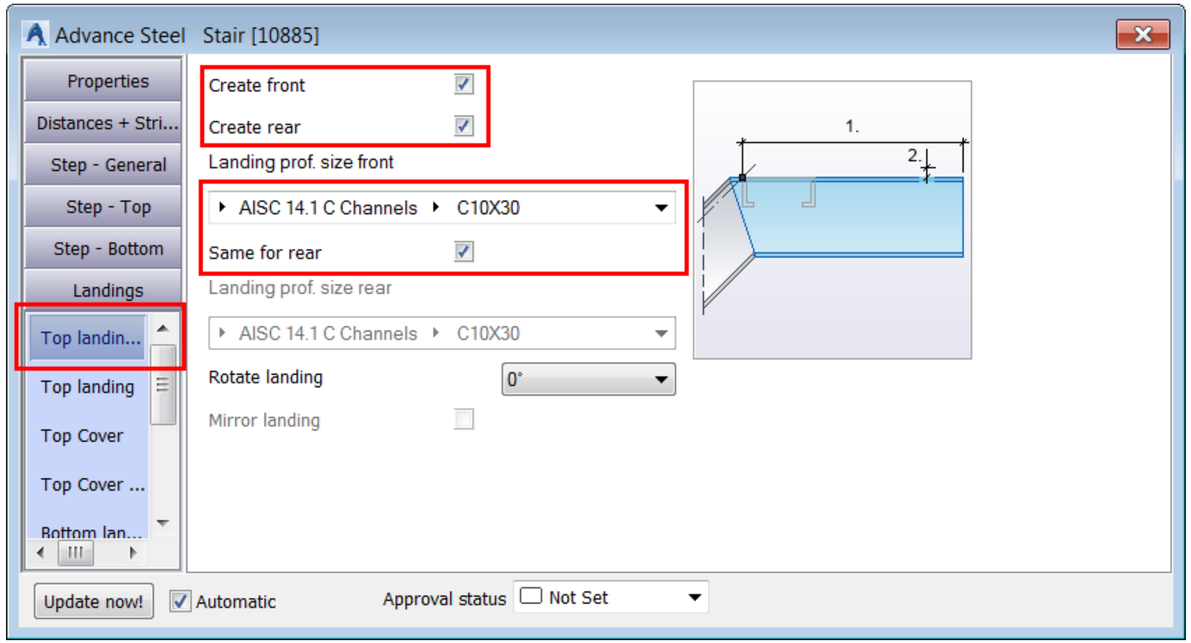
- Distances + Stringer > Stringer tab:

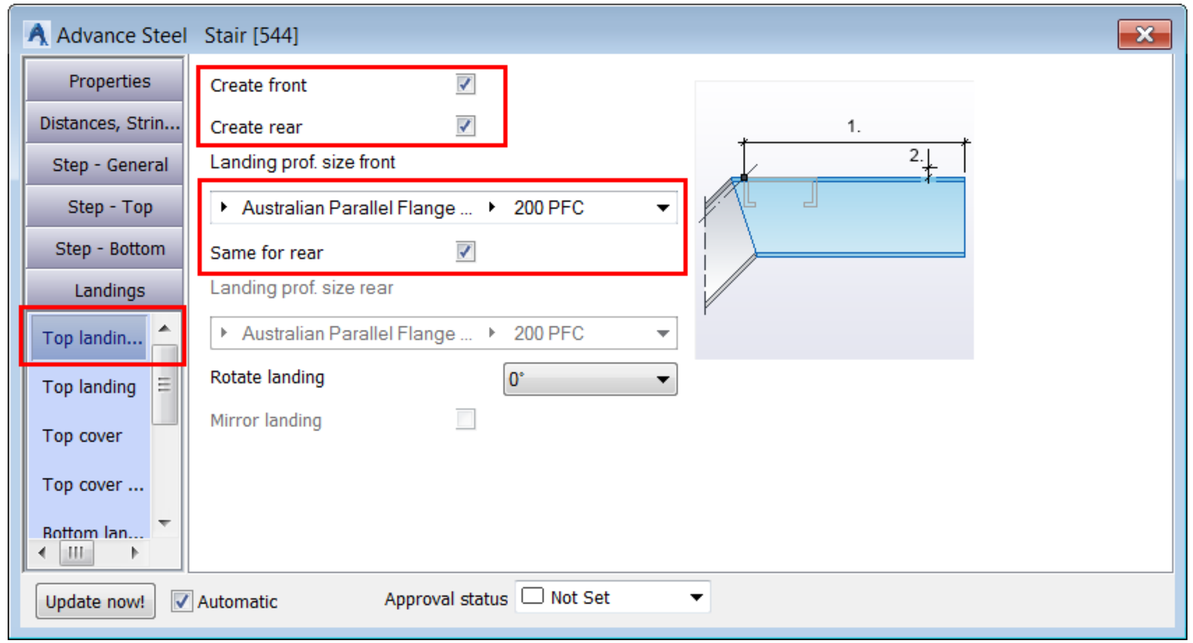




Section 4: Inserting Stairs

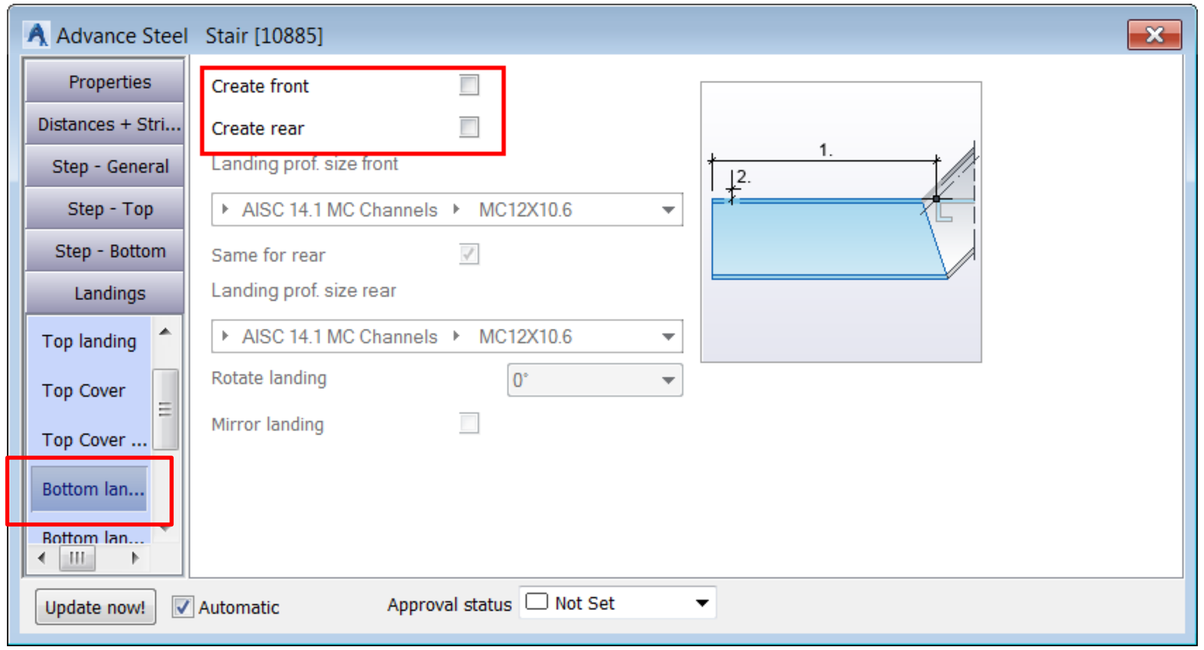
- Landings > Top landing prof. tab:

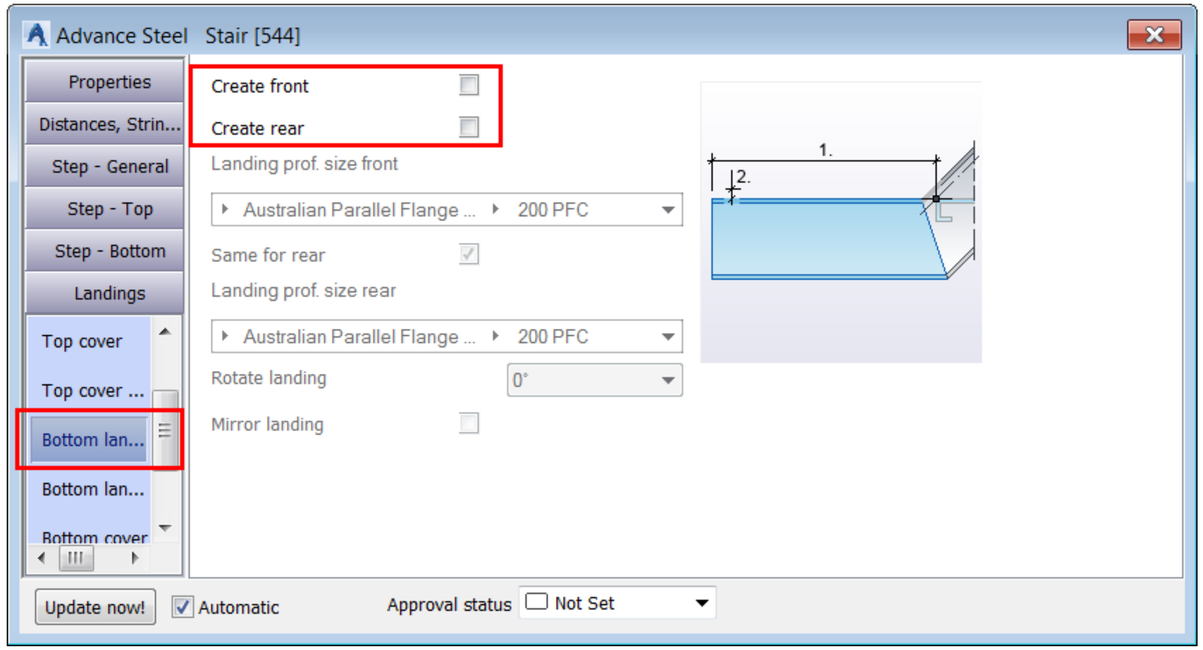




Section 4: Inserting Stairs

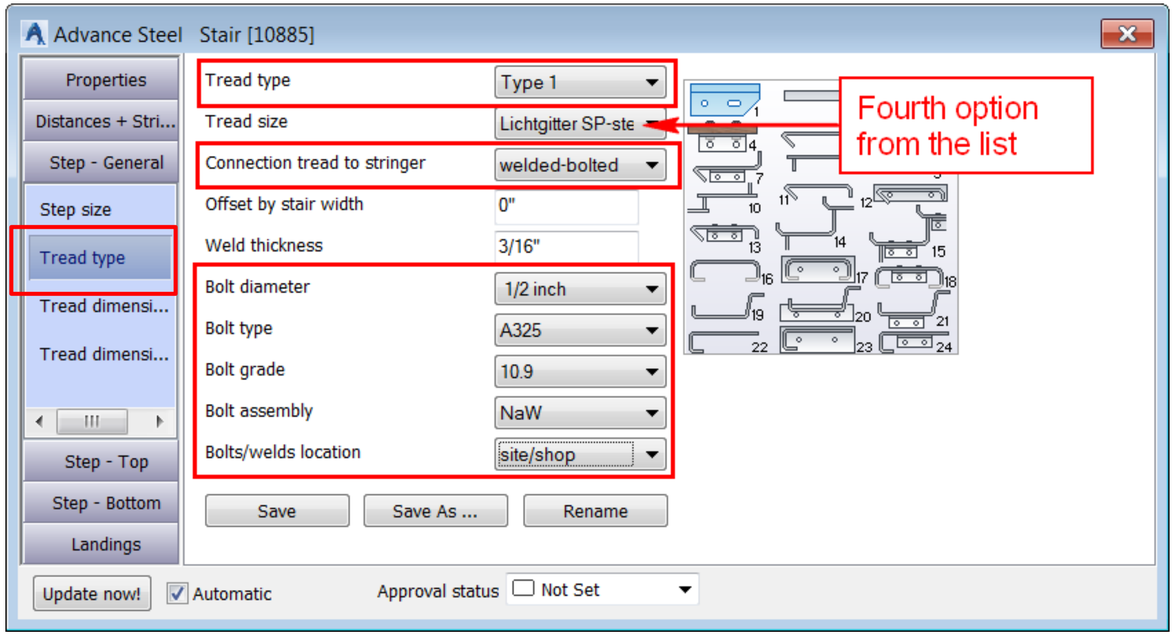
- Landings > Bottom landing prof. tab:

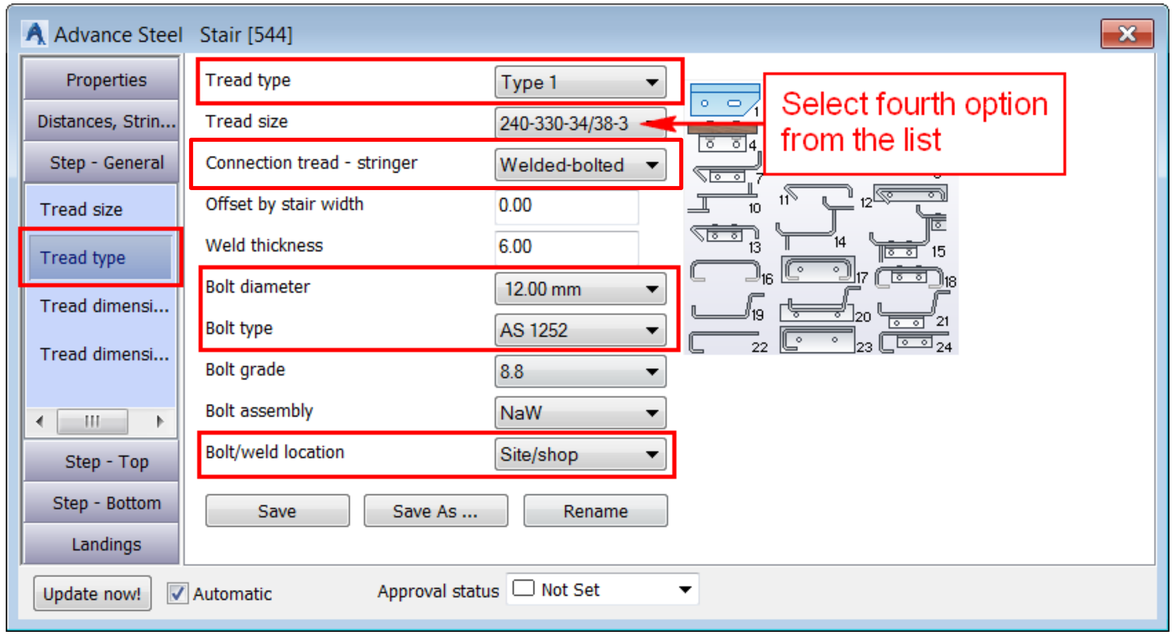




Section 4: Inserting Stairs

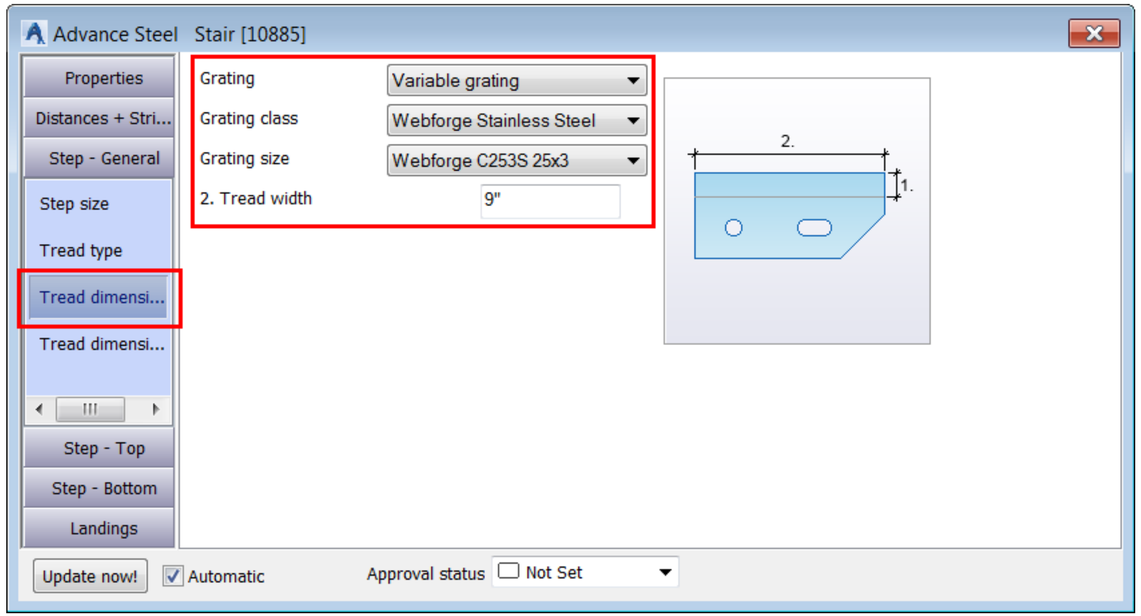
- Step - General > Tread type tab:

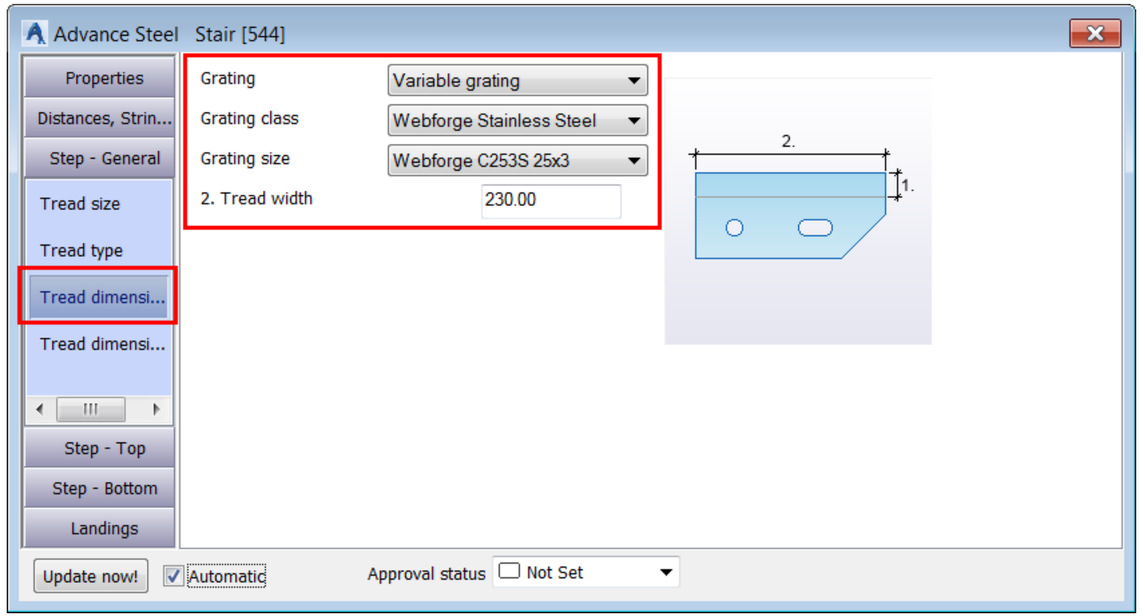




Section 4: Inserting Stairs

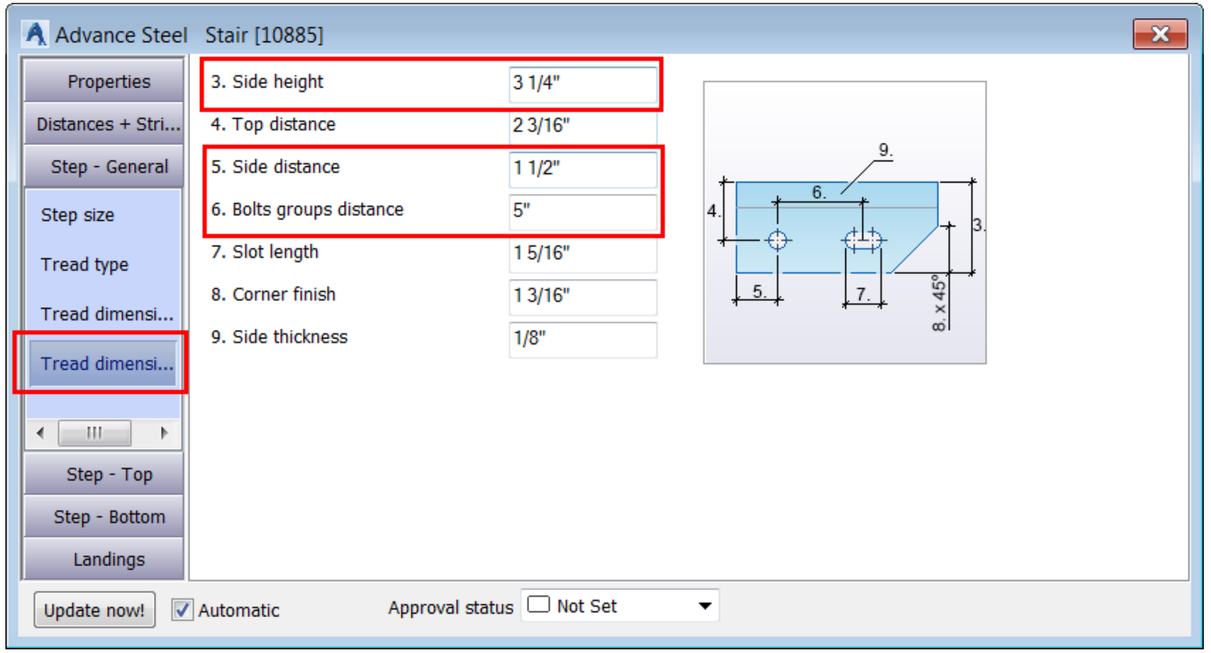
- Step - General > Tread dimensions 1 tab:

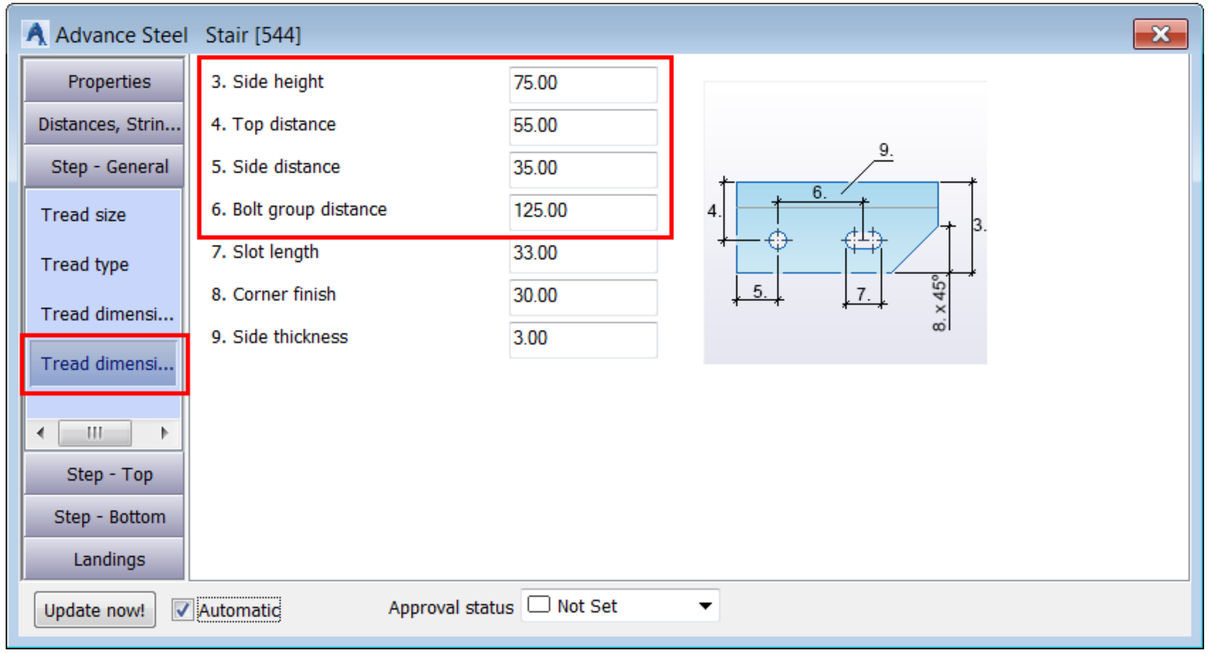




Section 4: Inserting Stairs

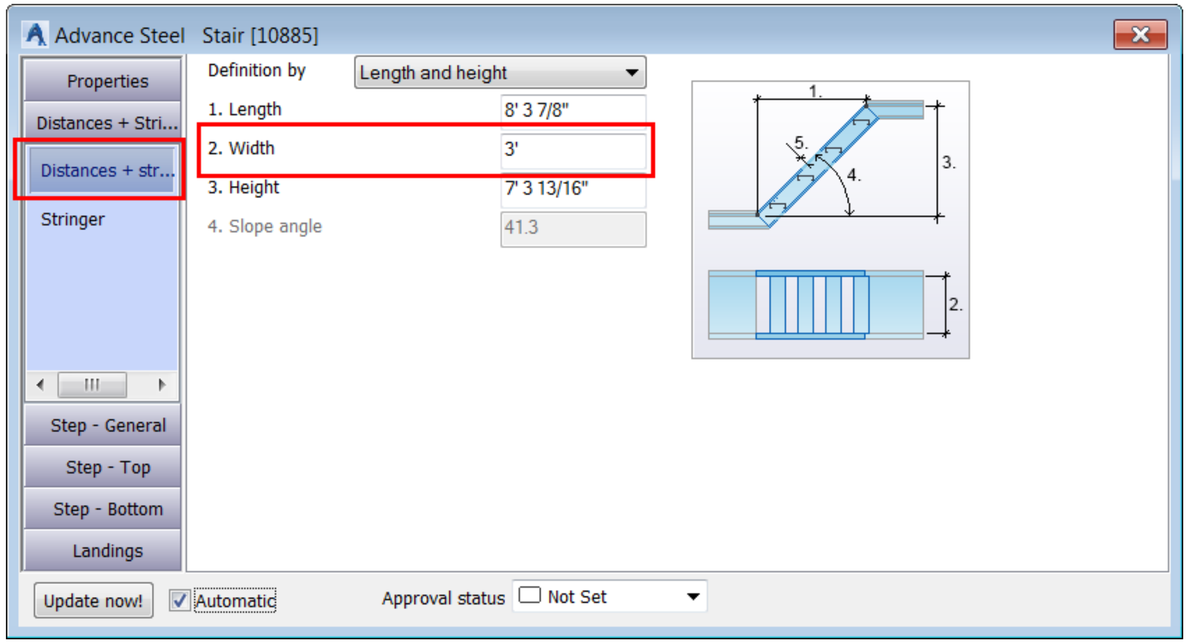
- Step - General > Tread dimensions 2 tab:

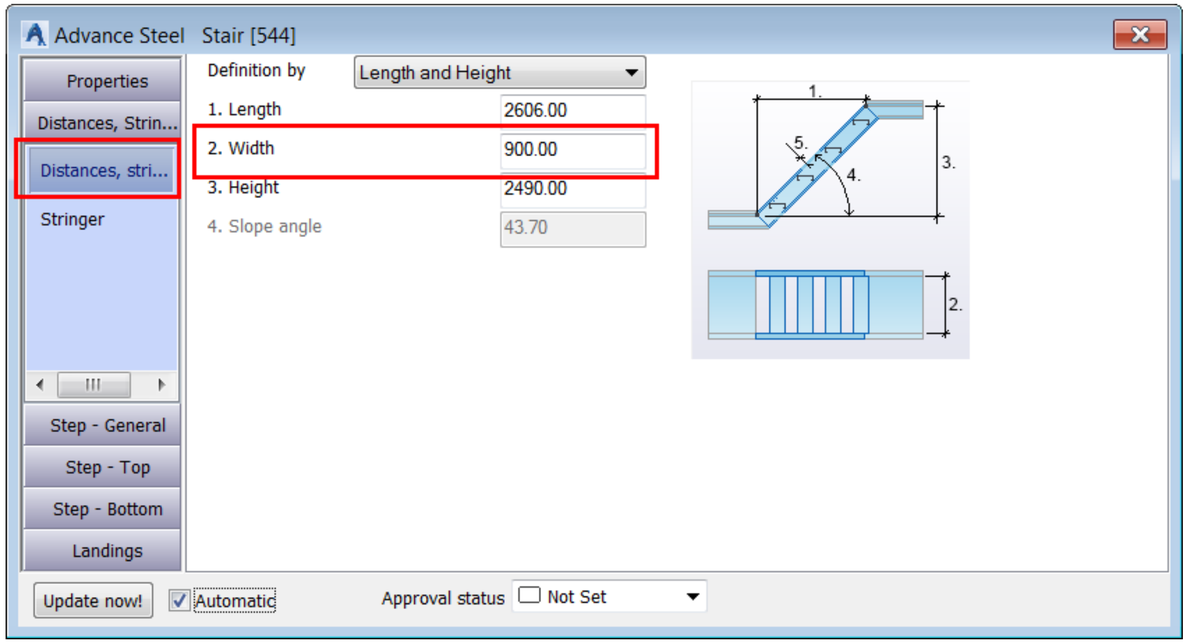




Section 4: Inserting Stairs

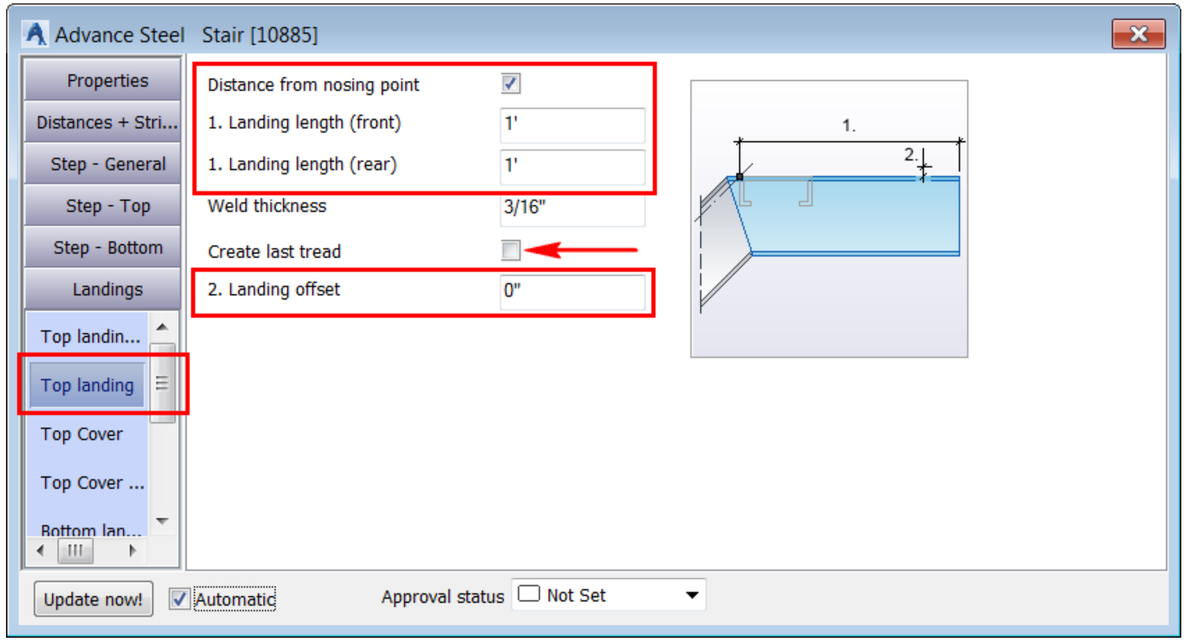
- Distances + Stringer > Distances + stringer tab:

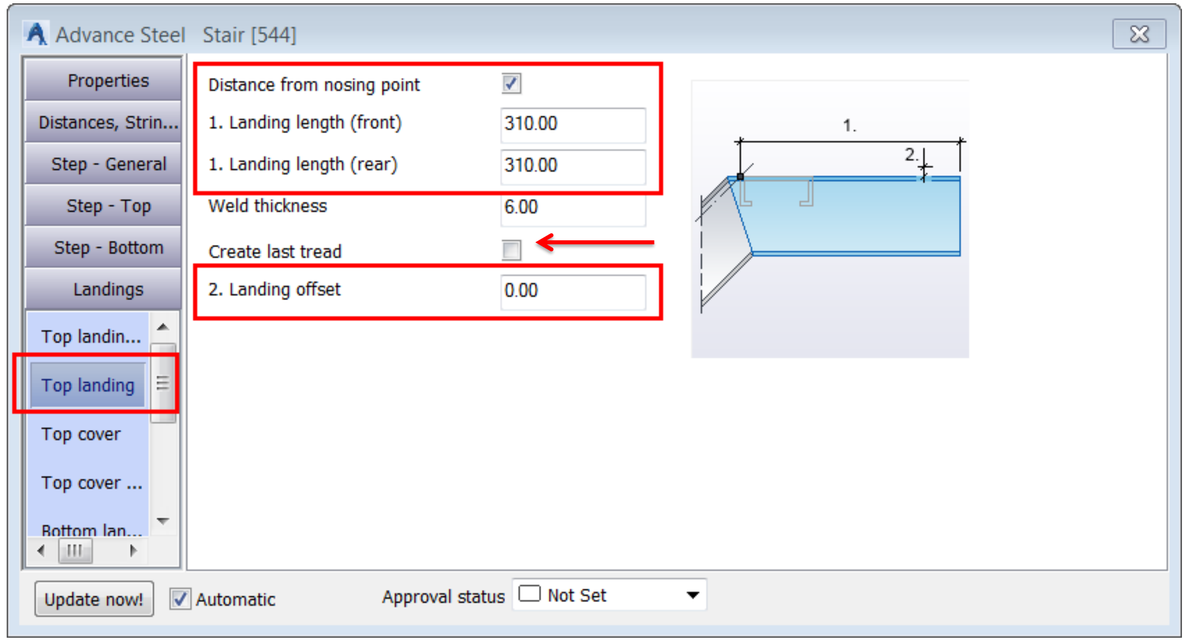




Section 4: Inserting Stairs

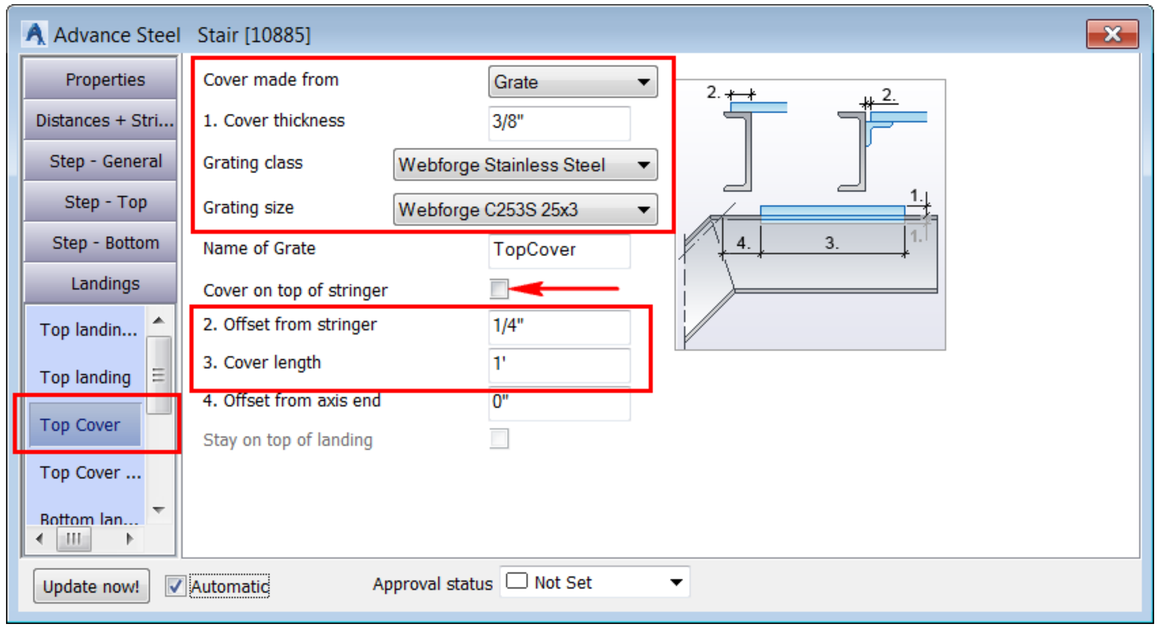
- Landings > Top landing tab:

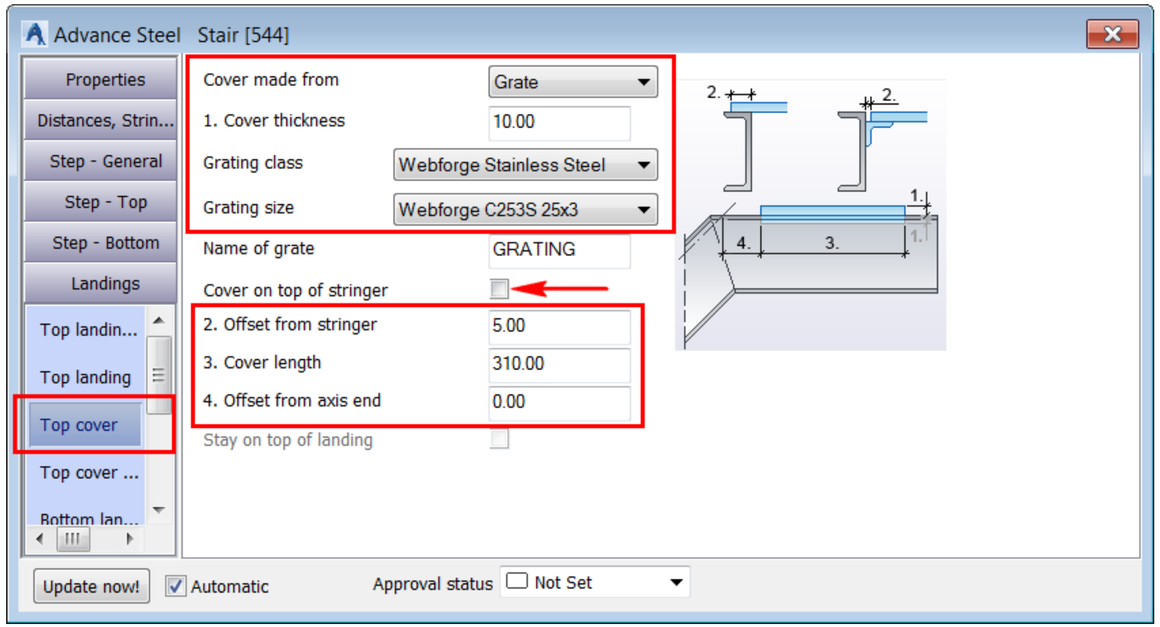




Section 4: Inserting Stairs

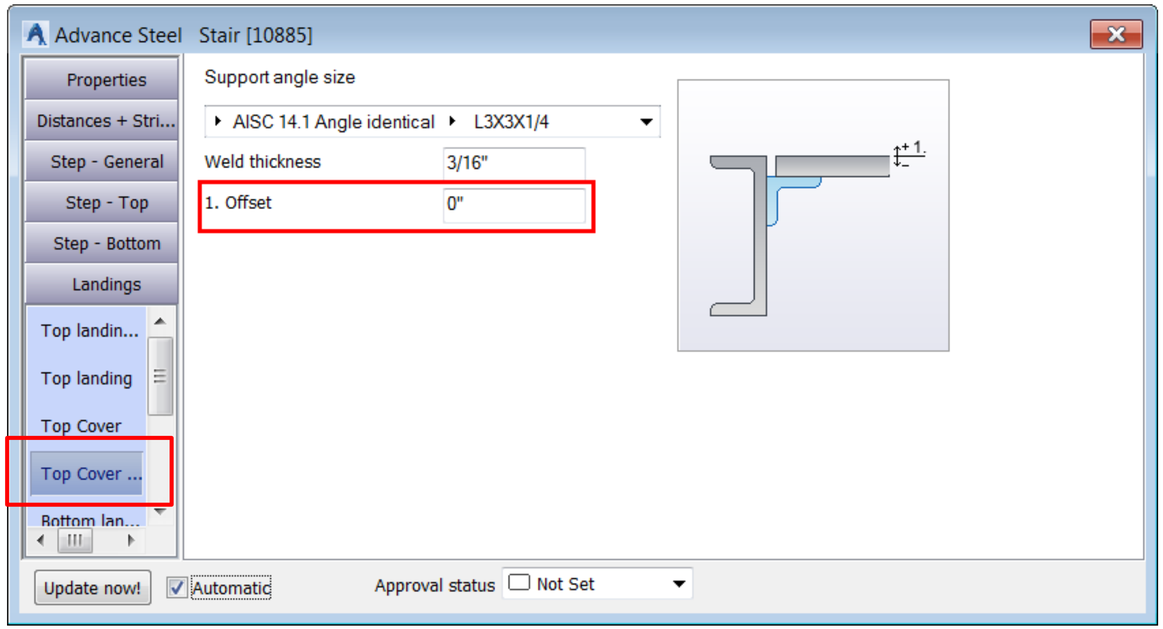
- Landings > Top Cover tab:

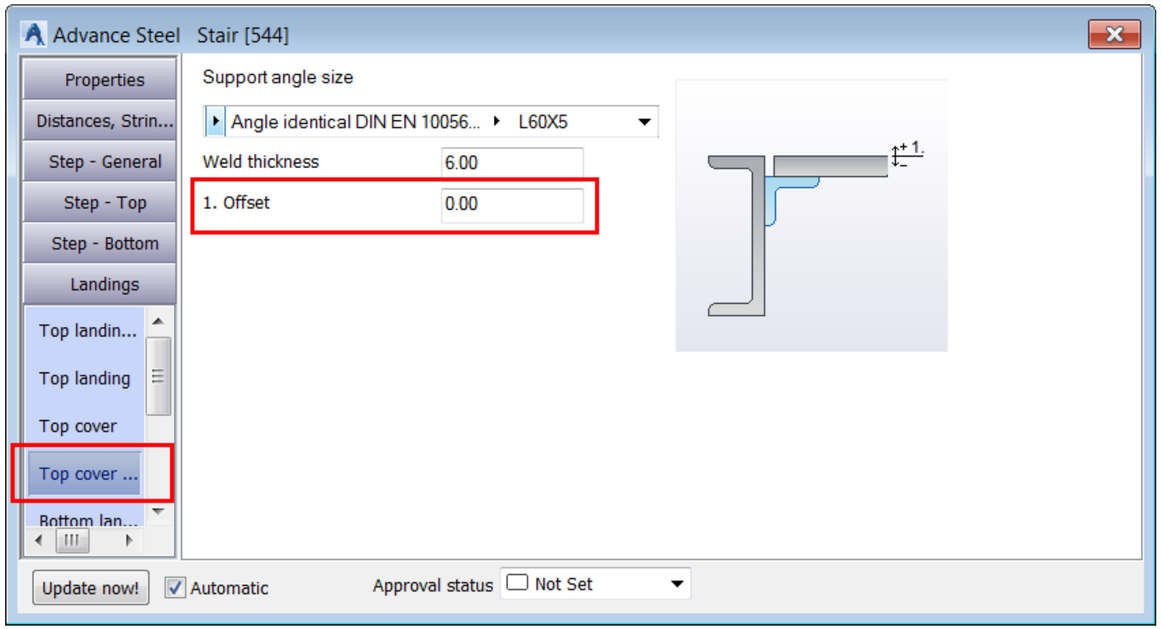




Section 4: Inserting Stairs

- Landings > Top Cover - Angle tab:

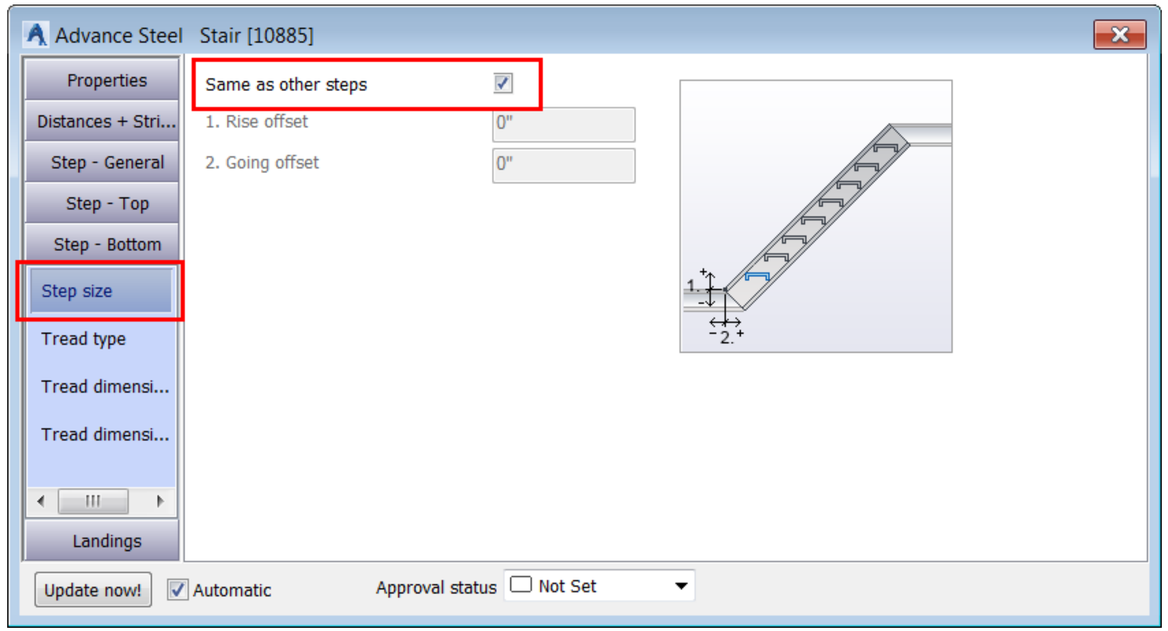


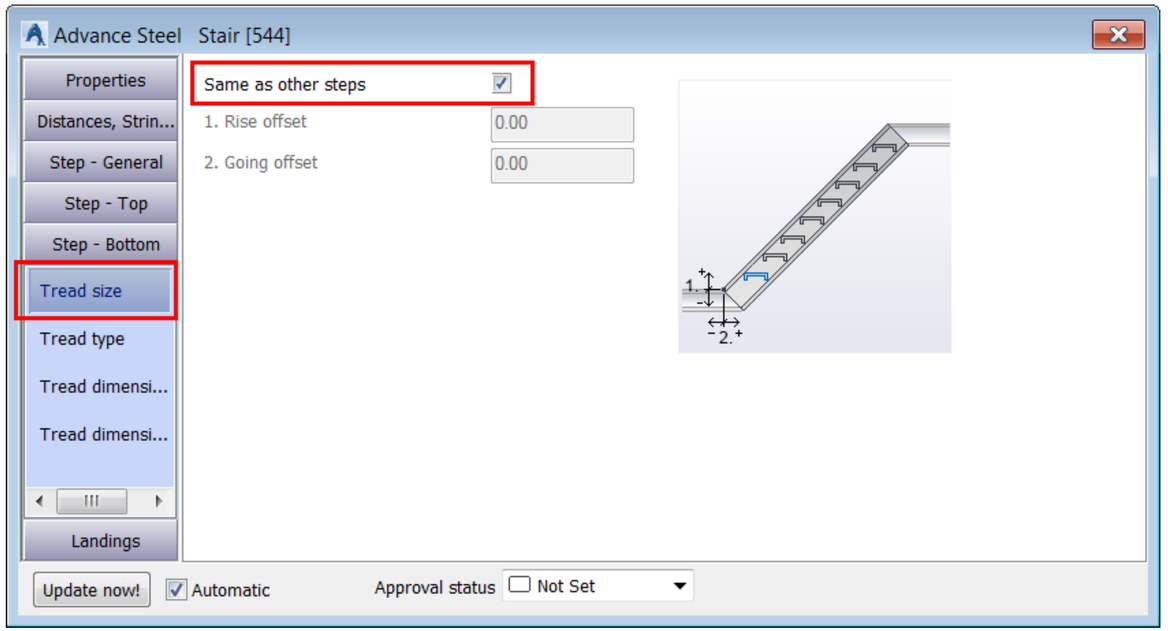


Section 4: Inserting Stairs

- Step - Bottom > Step size tab:

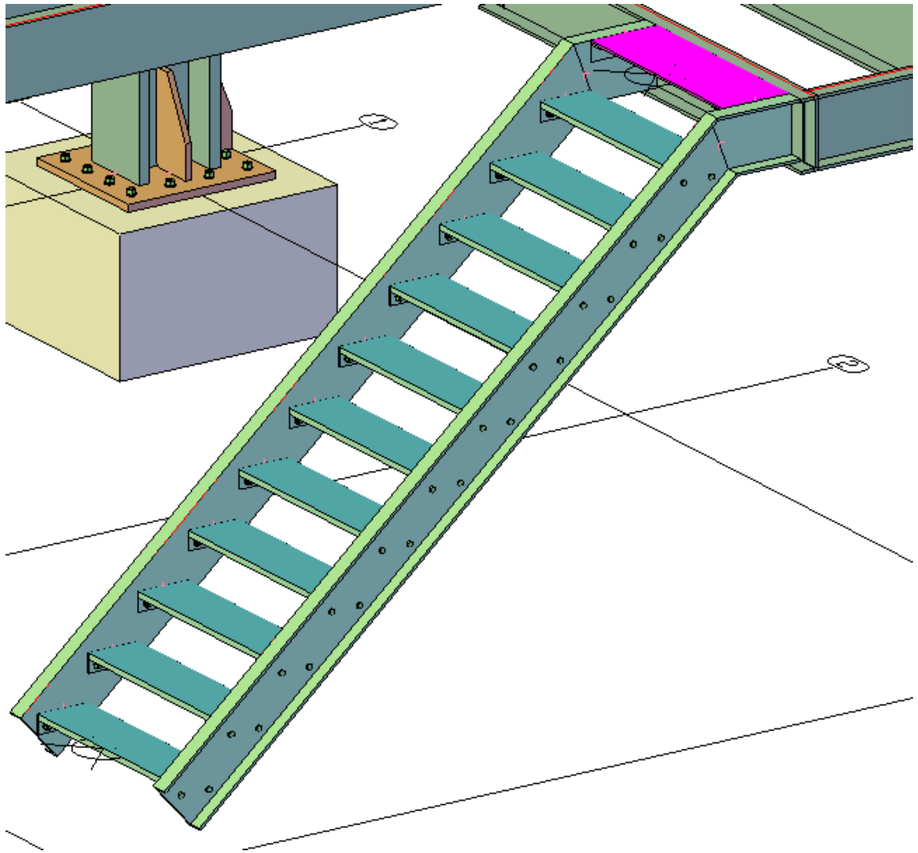
- Navigate to the bottom of the stairs

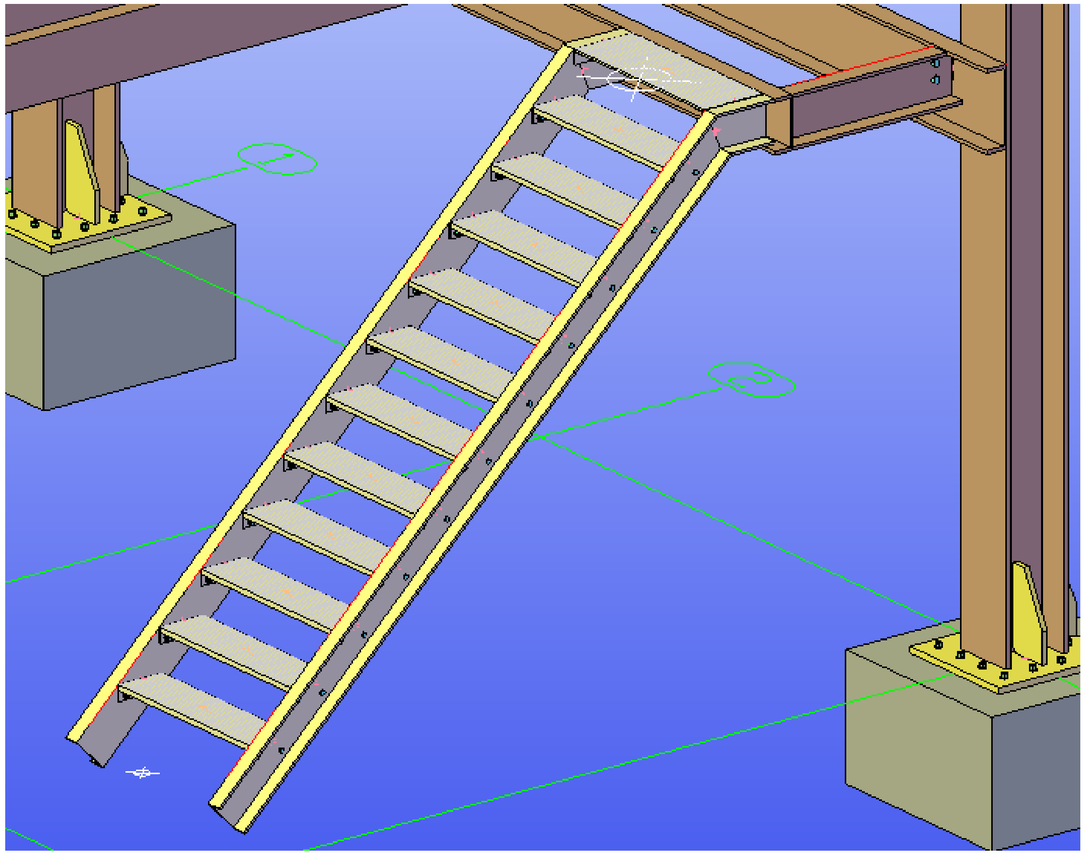




Section 4: Inserting Stairs

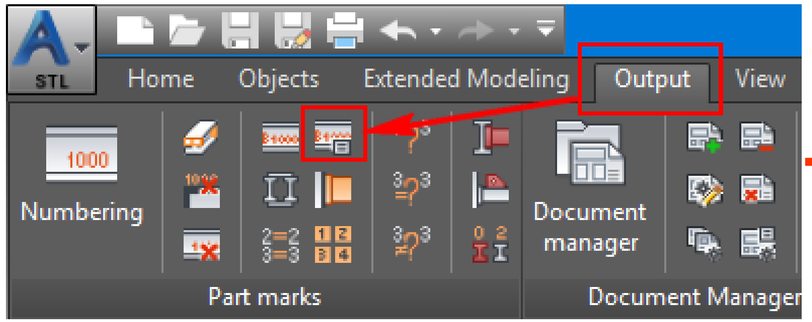
- Close the dialog box

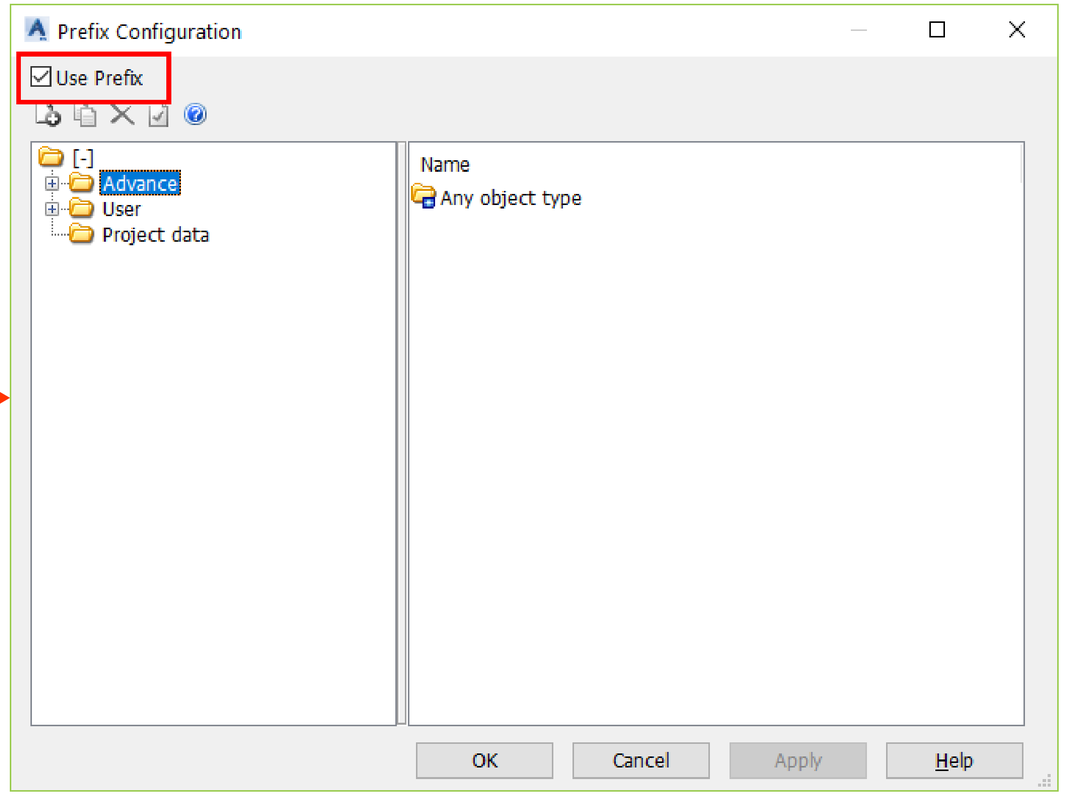




Section 5: Numbering Single Parts and Assemblies *(Do with me)*

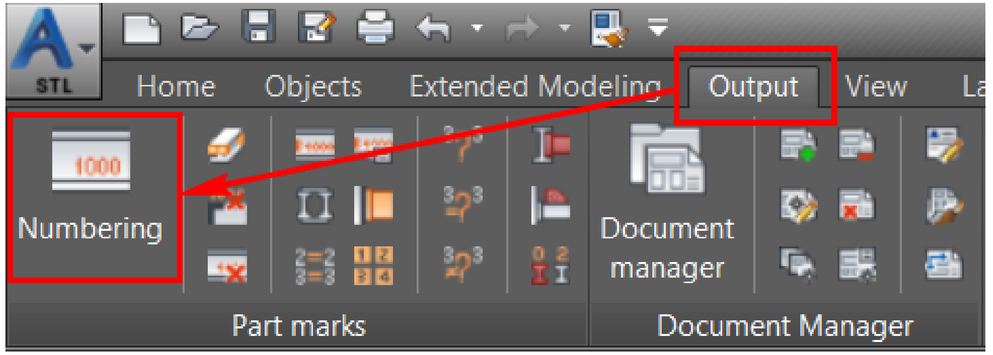
- Open the Section5-Imperial.dwg or Section5-Metric.dwg file
- In METRIC Settings only





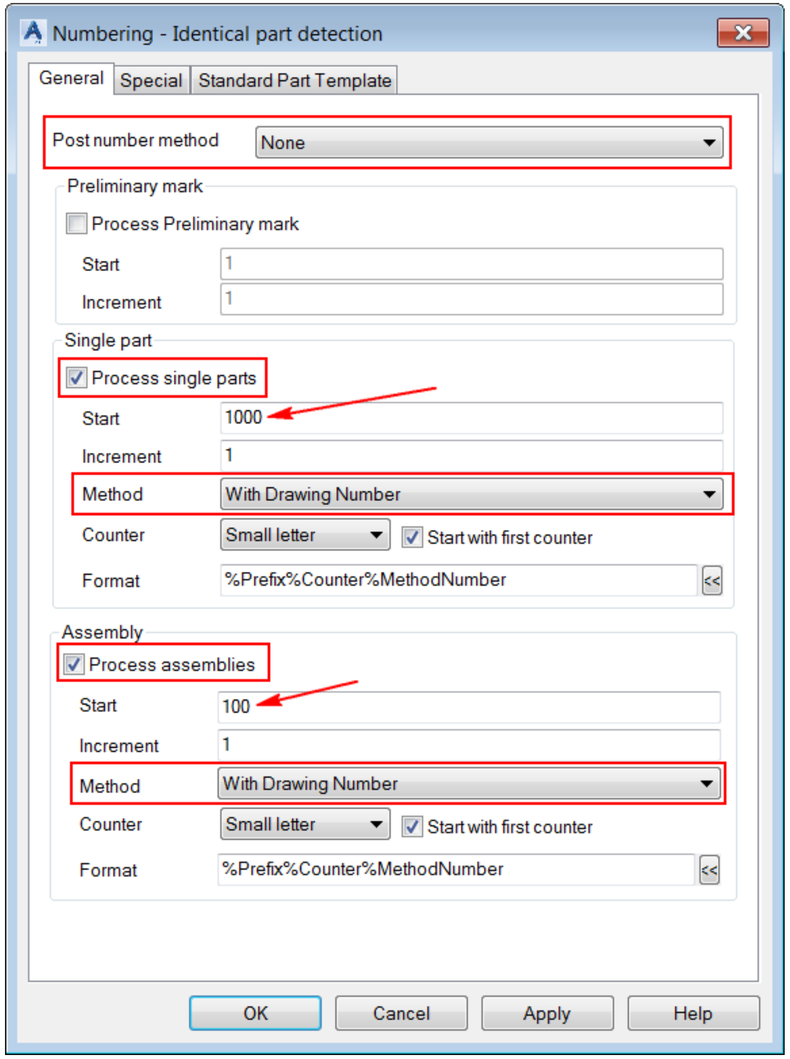
Section 5: Numbering Single Parts and Assemblies

- Invoke the Numbering tool



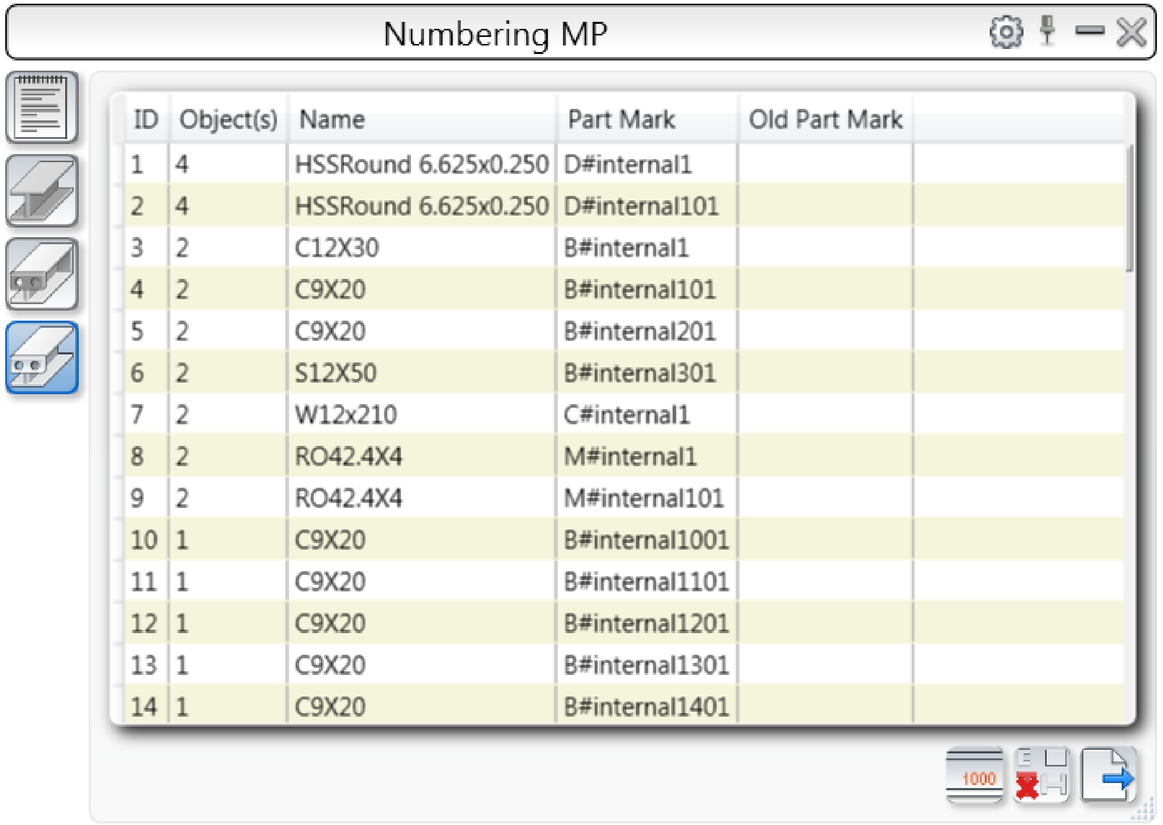
Section 5: Numbering Single Parts and Assemblies

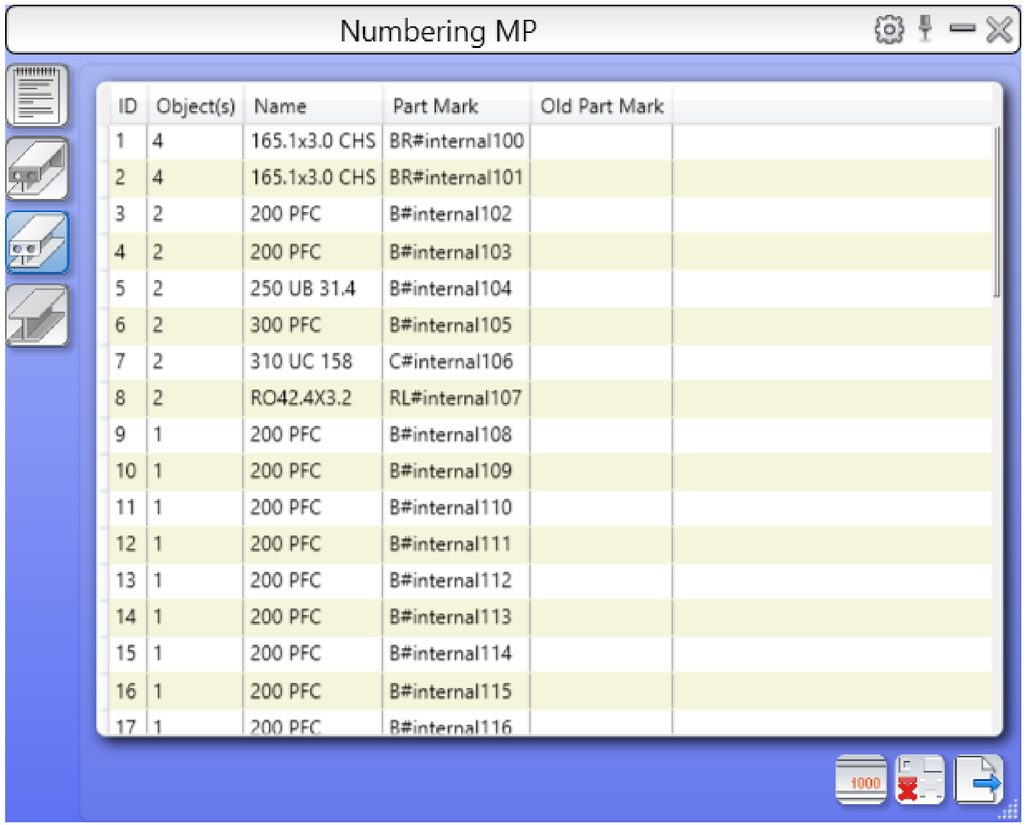
- Configure the settings in the dialog box, as shown below:



Section 5: Numbering Single Parts and Assemblies *(All Steps)*

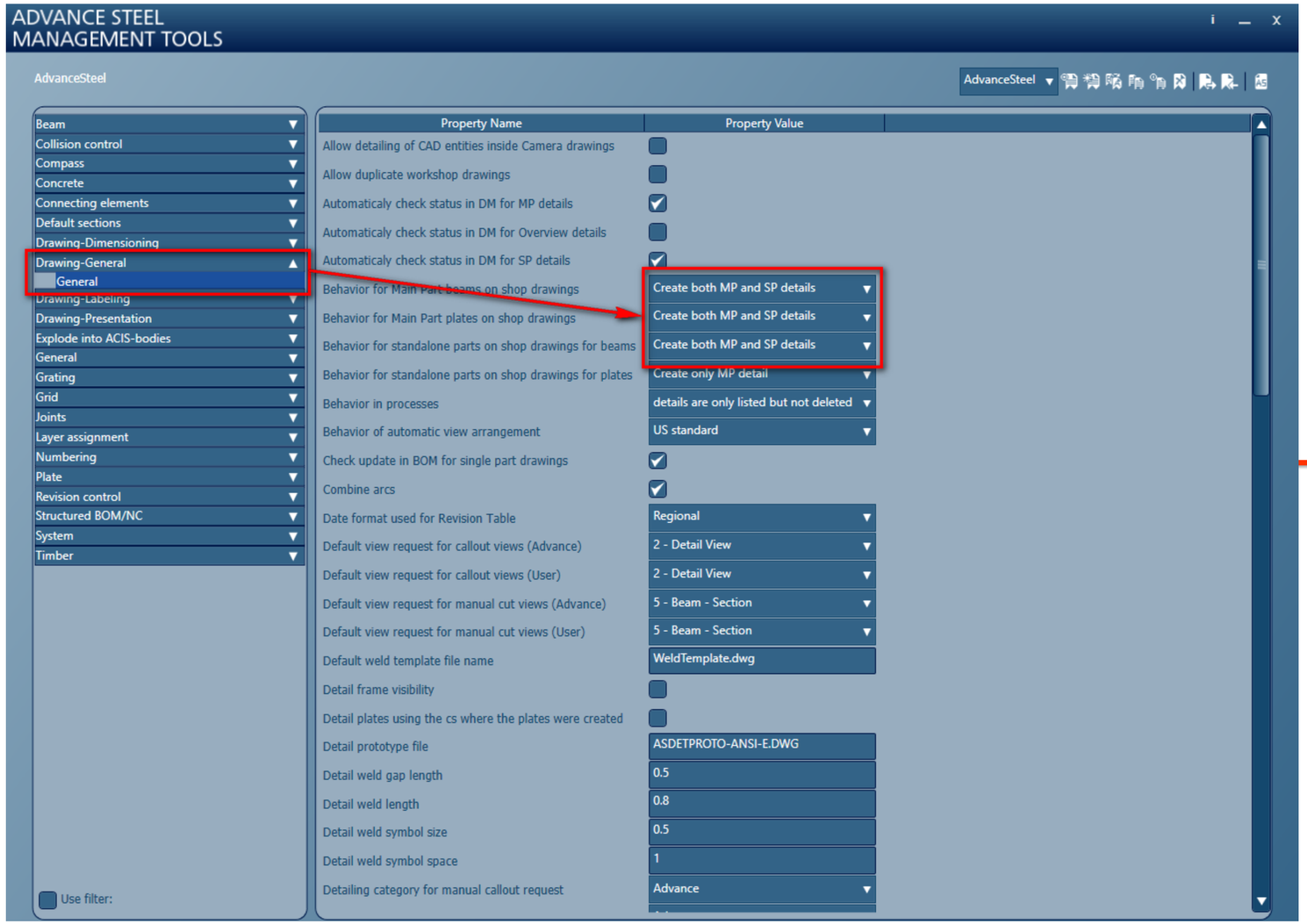
- Click OK in the dialog box

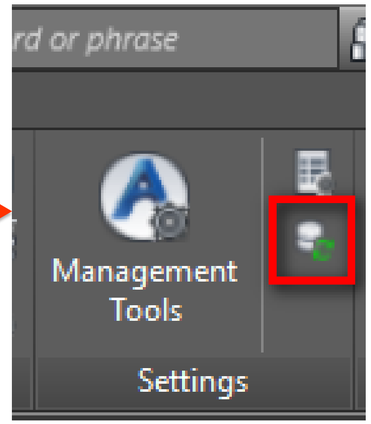




Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Do with me)*

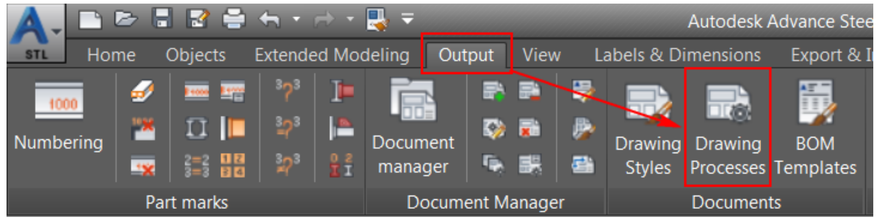
- For IMPERIAL ONLY



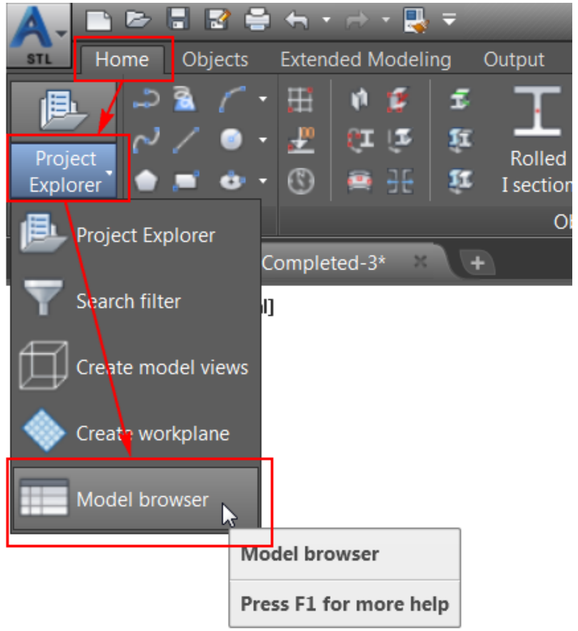


Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Do with me)*

- Invoke the Drawing Processes tool

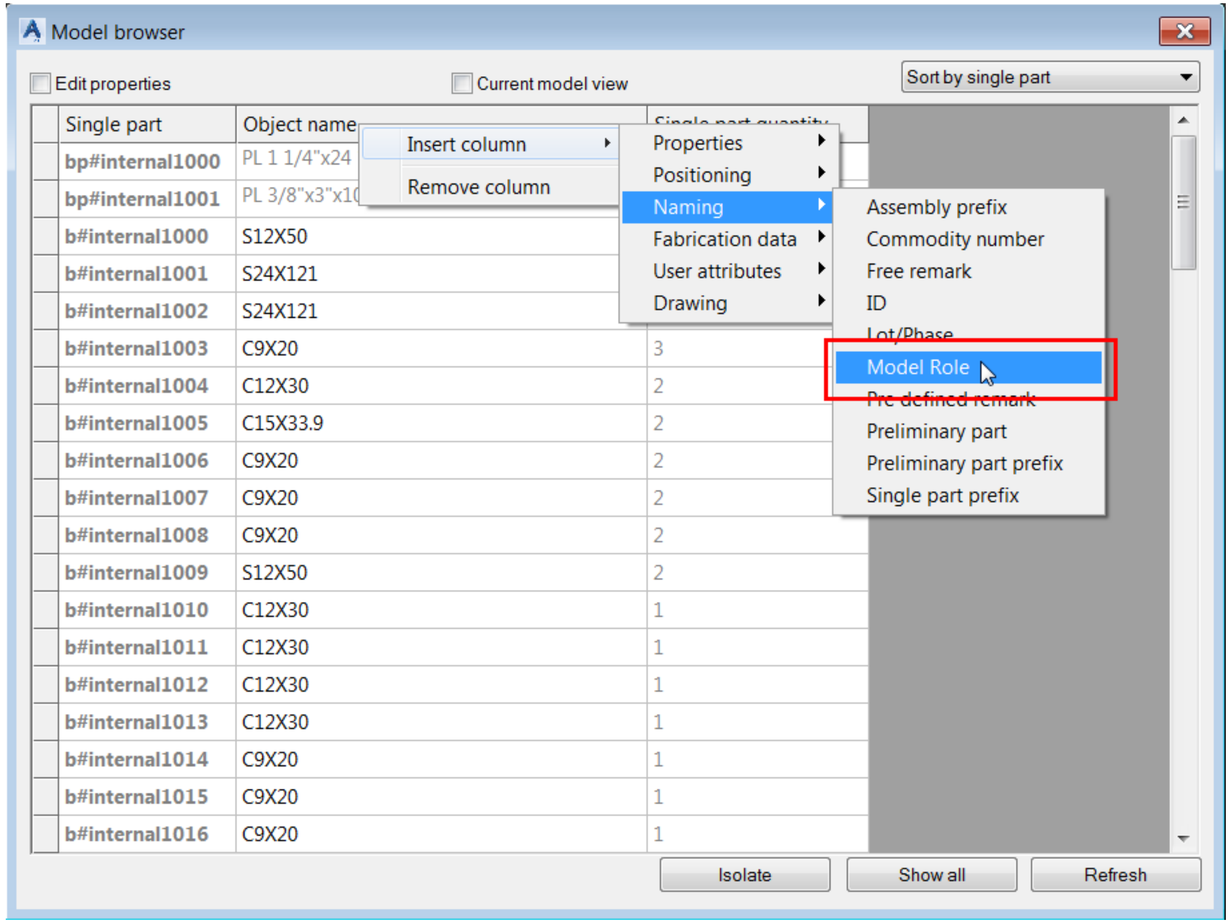


- Select Model browser, as shown below



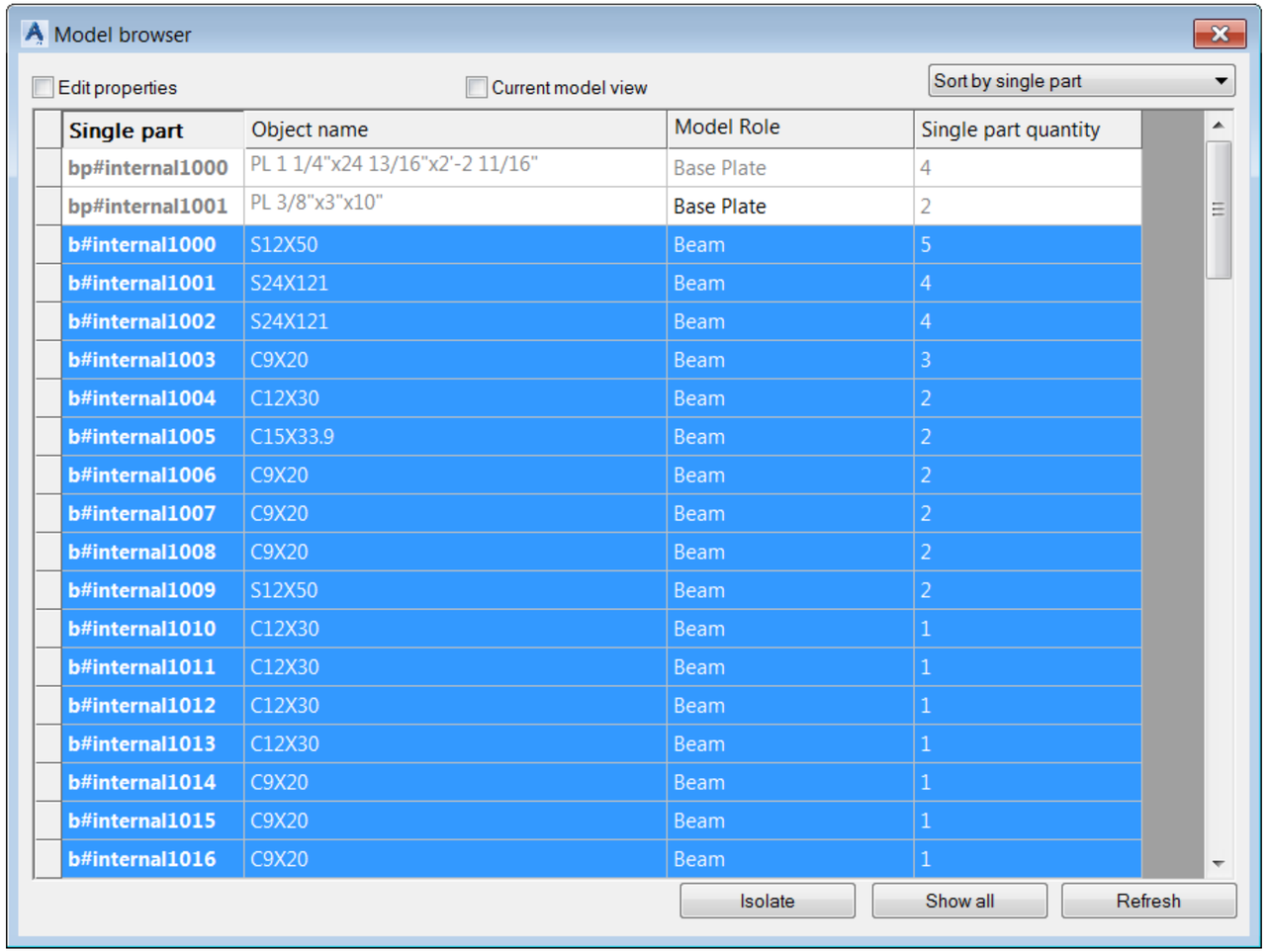
Section 6: Generating Single Part Drawings Using the Default Drawing Processes

- Display the Model Role column:



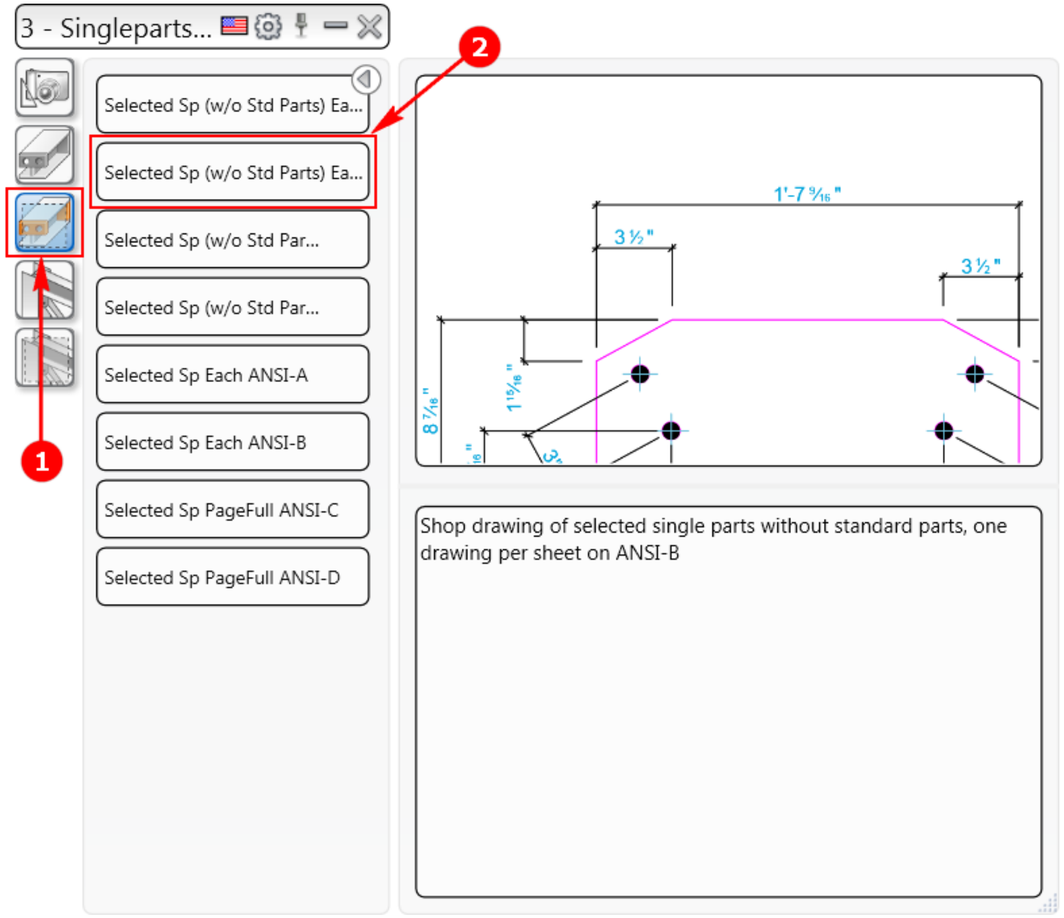
Section 6: Generating Single Part Drawings Using the Default Drawing Processes

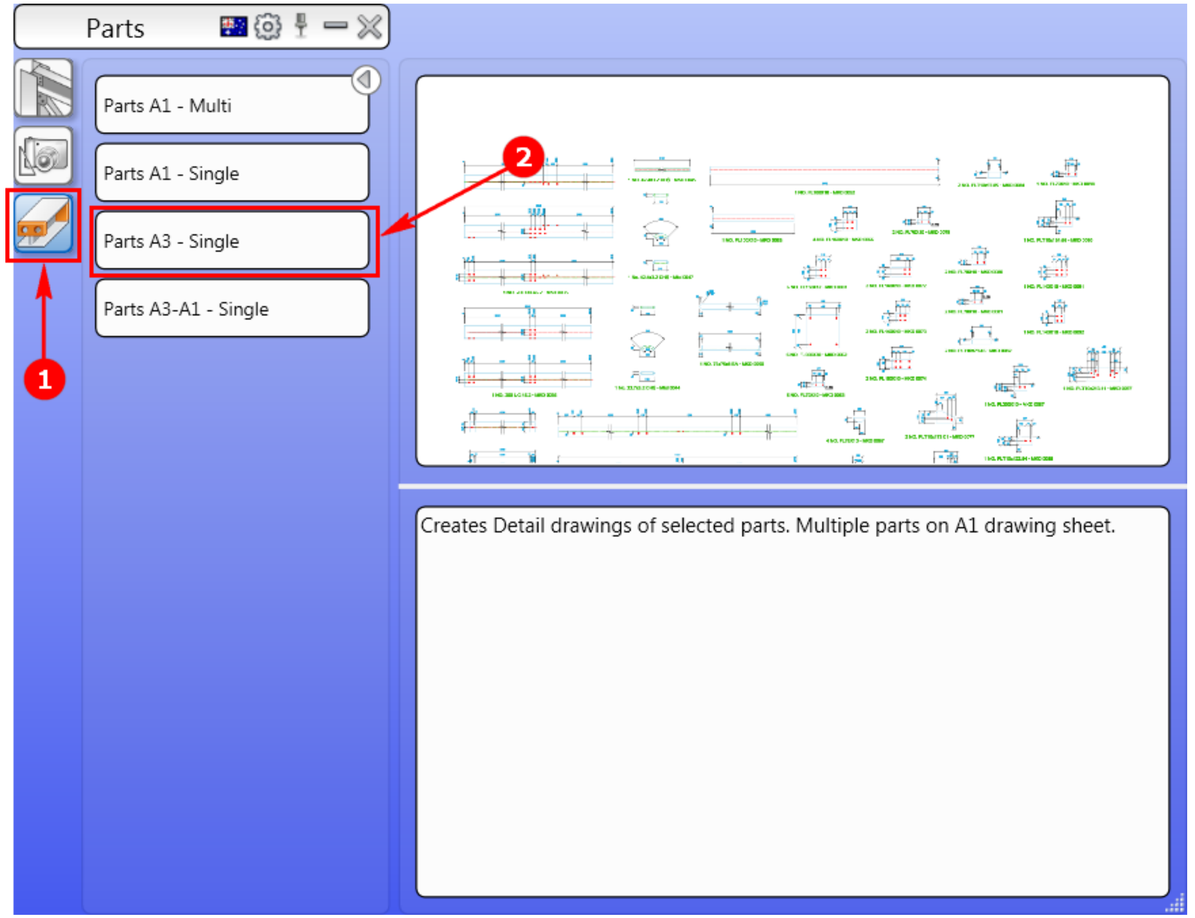
- Sort by Model Role and select all Beams and close Model browser



Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Imperial - Steps 12-14, Metric - 7-9 Only)*

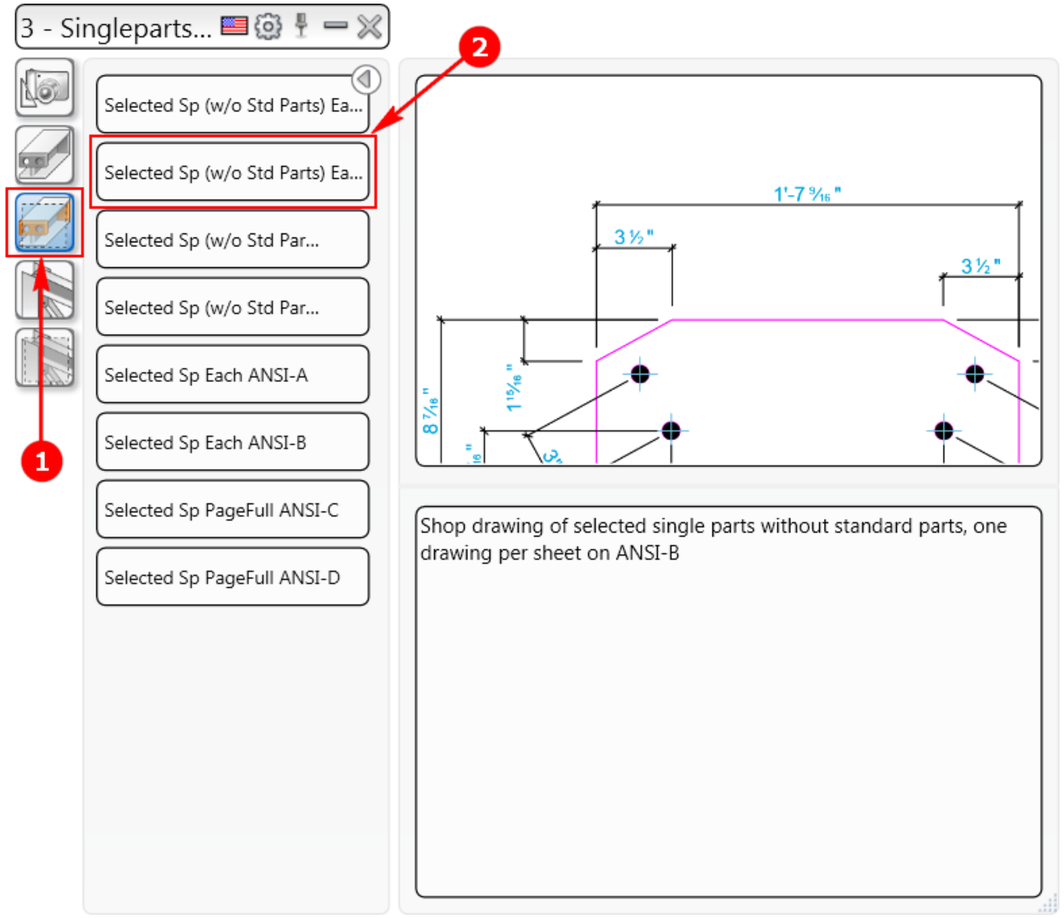
- Select the tool to generate single part drawings

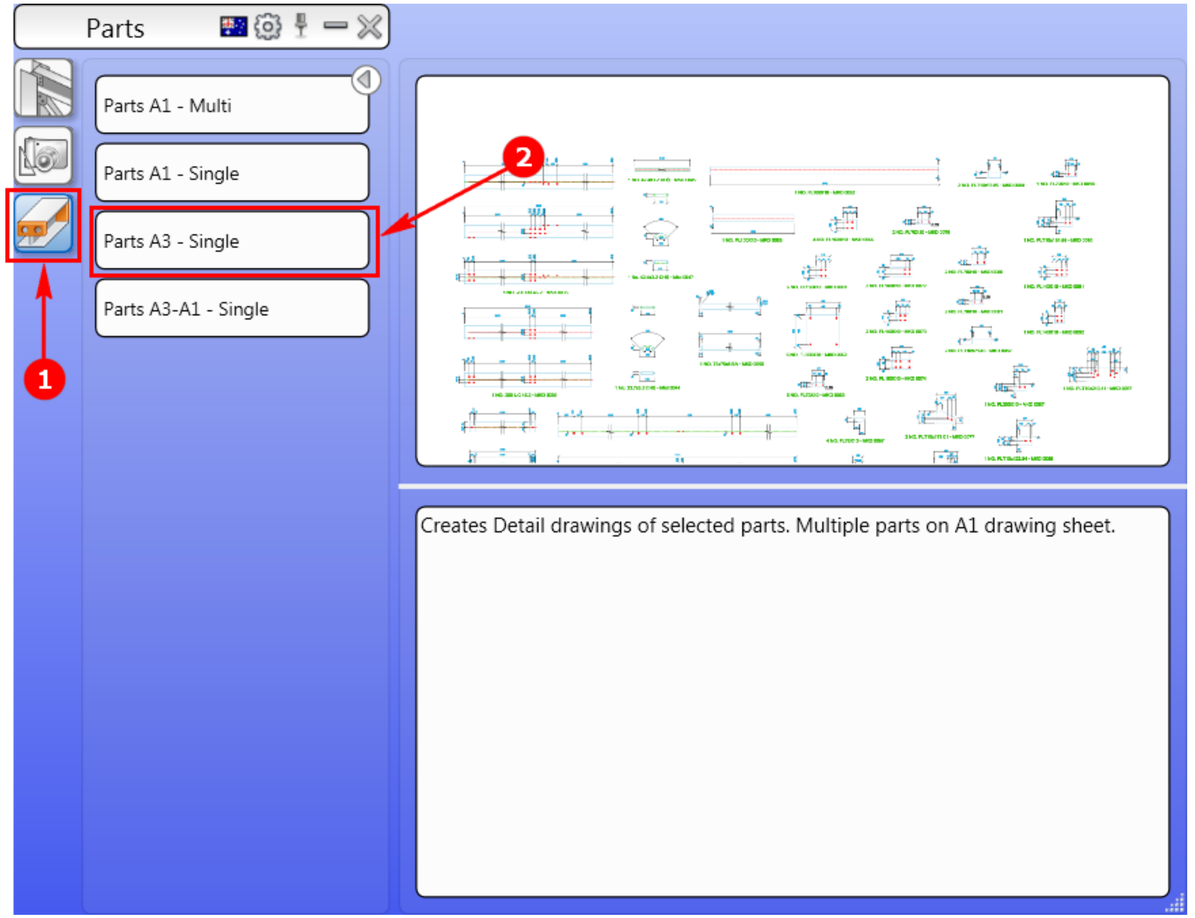




Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Imperial - Steps 15-17, Metric - 10-12)*

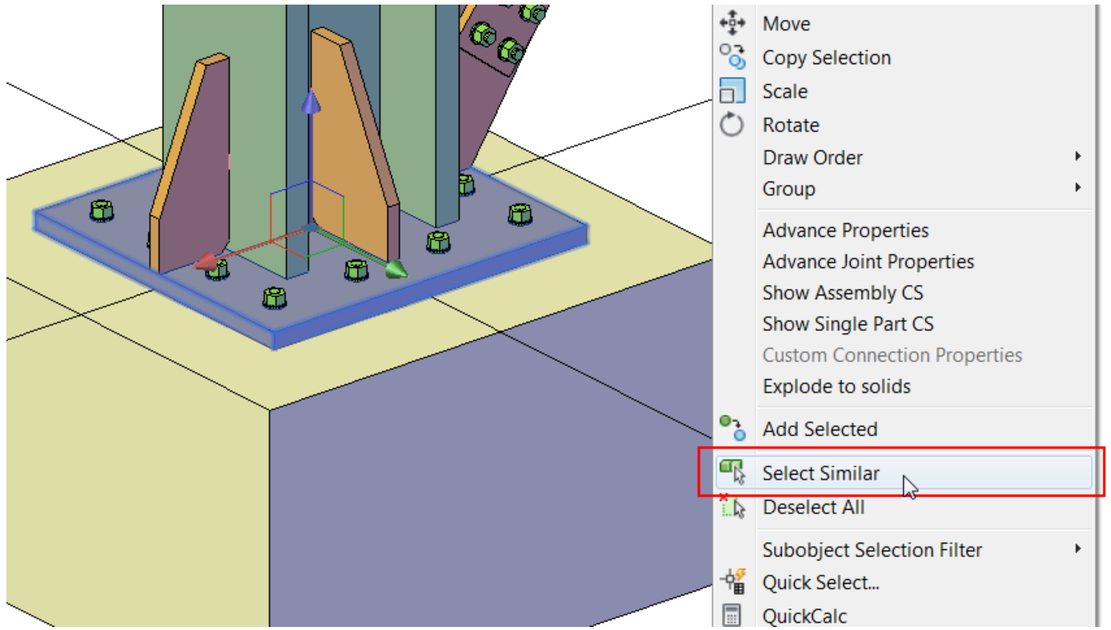
- Select the Four Columns and then select the tool to generate column drawings

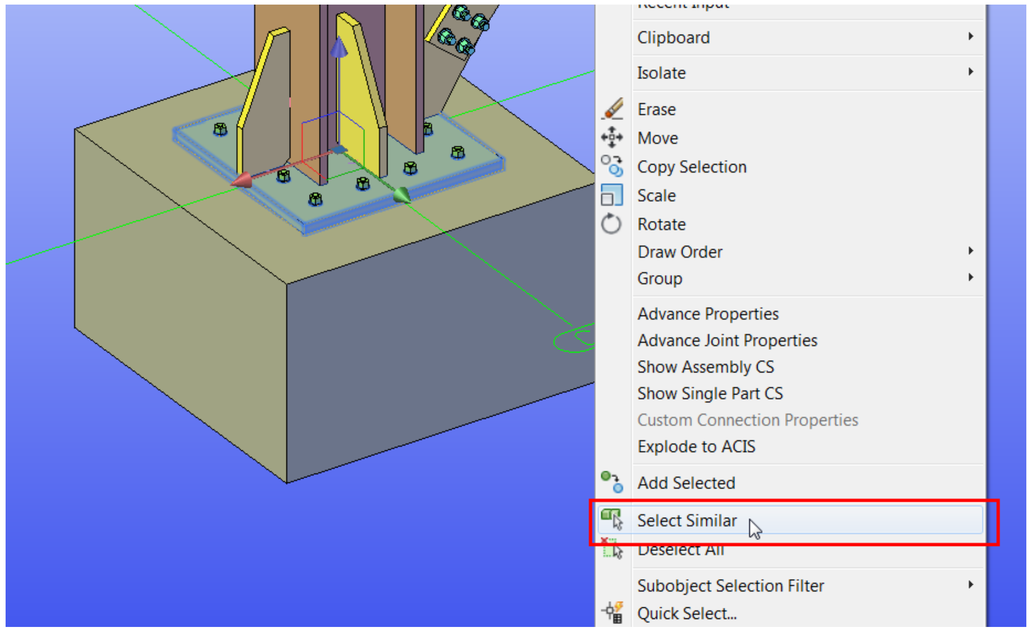




Section 6: Generating Single Part Drawings Using the Default Drawing Processes

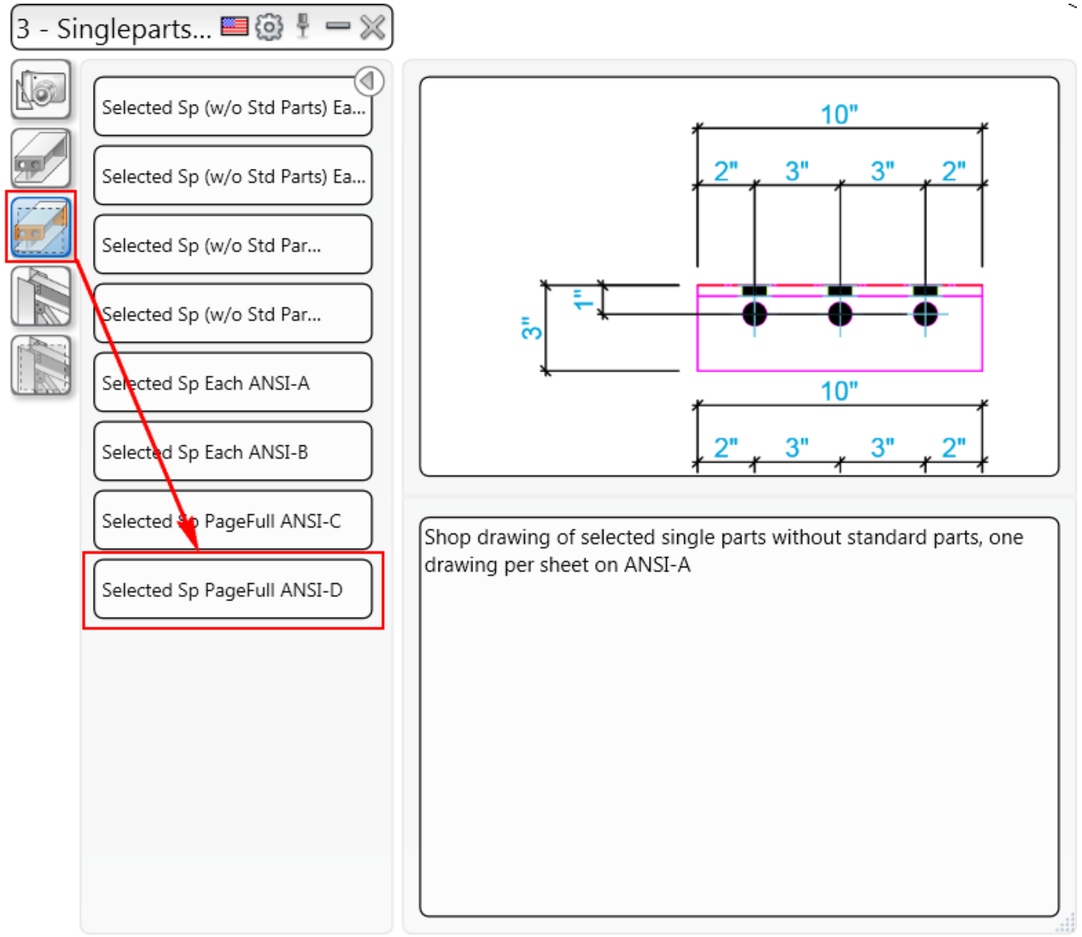
- Select one of the plates of the base plate joint and then select similar

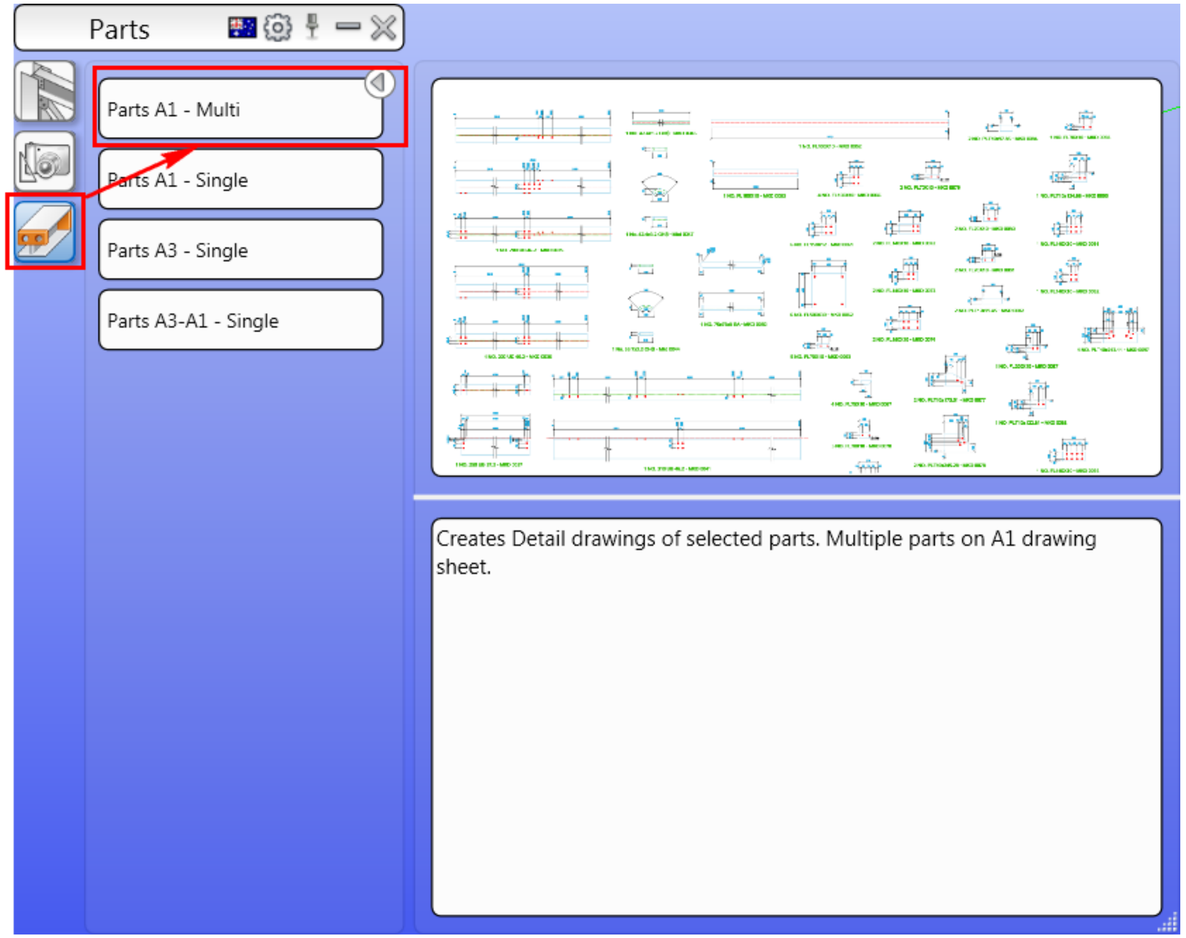




Section 6: Generating Single Part Drawings Using the Default Drawing Processes *(Remaining Steps)*

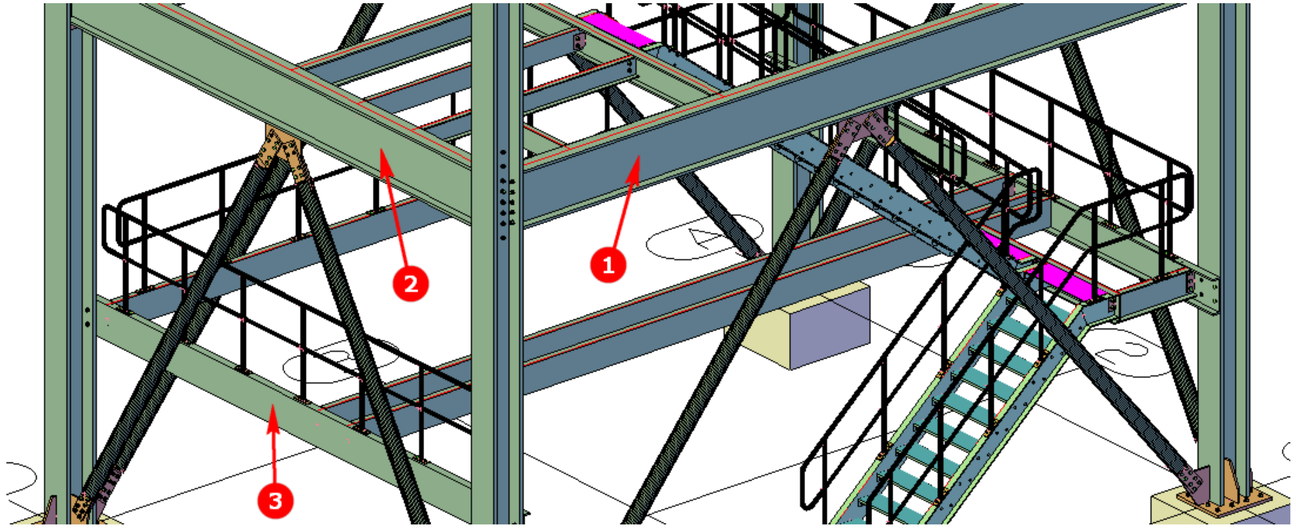
- Select the tool to generate Plate drawings on a single sheet

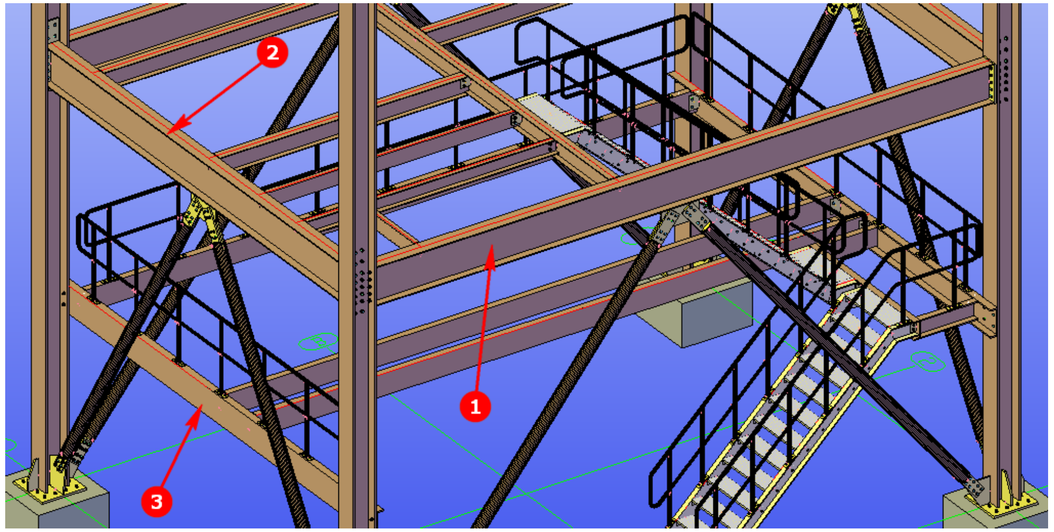




Section 7: Generating Assembly Drawings Using the Default Drawing Processes

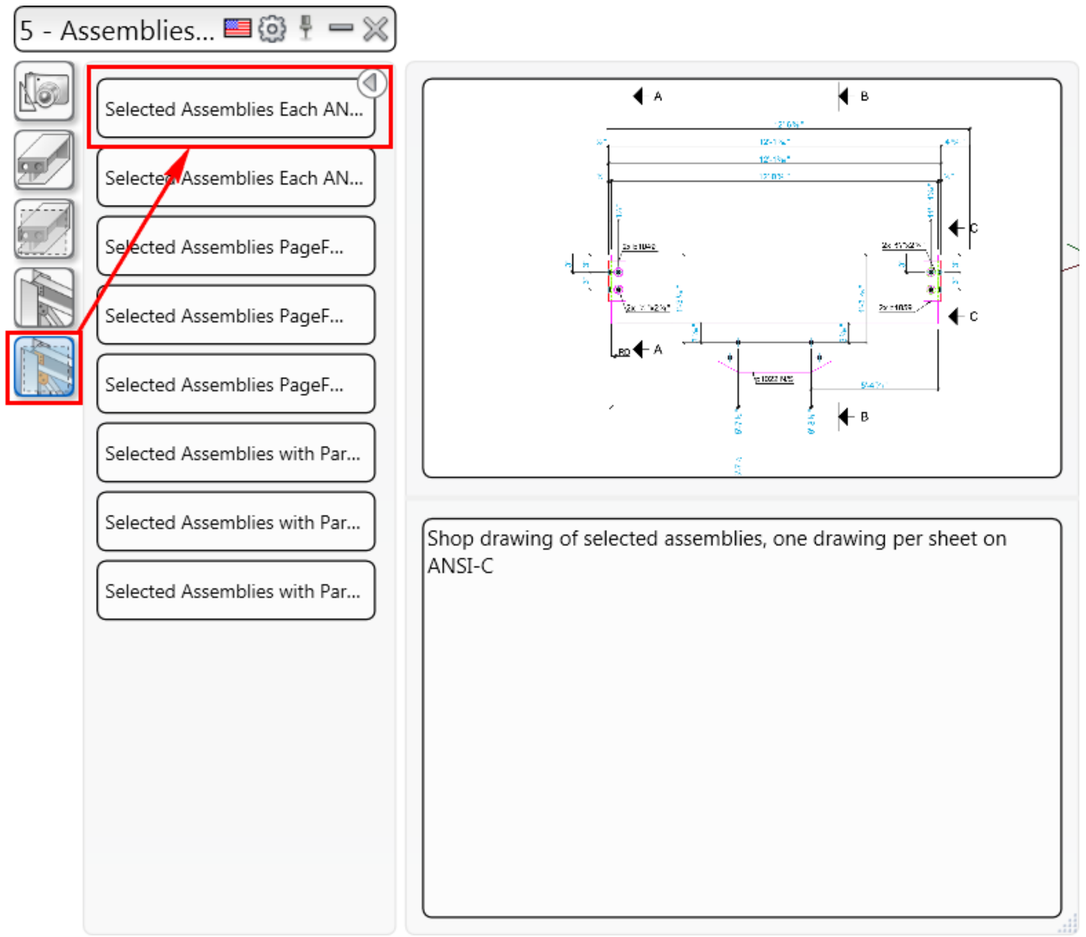
- Select the sections labelled as 1, 2, and 3

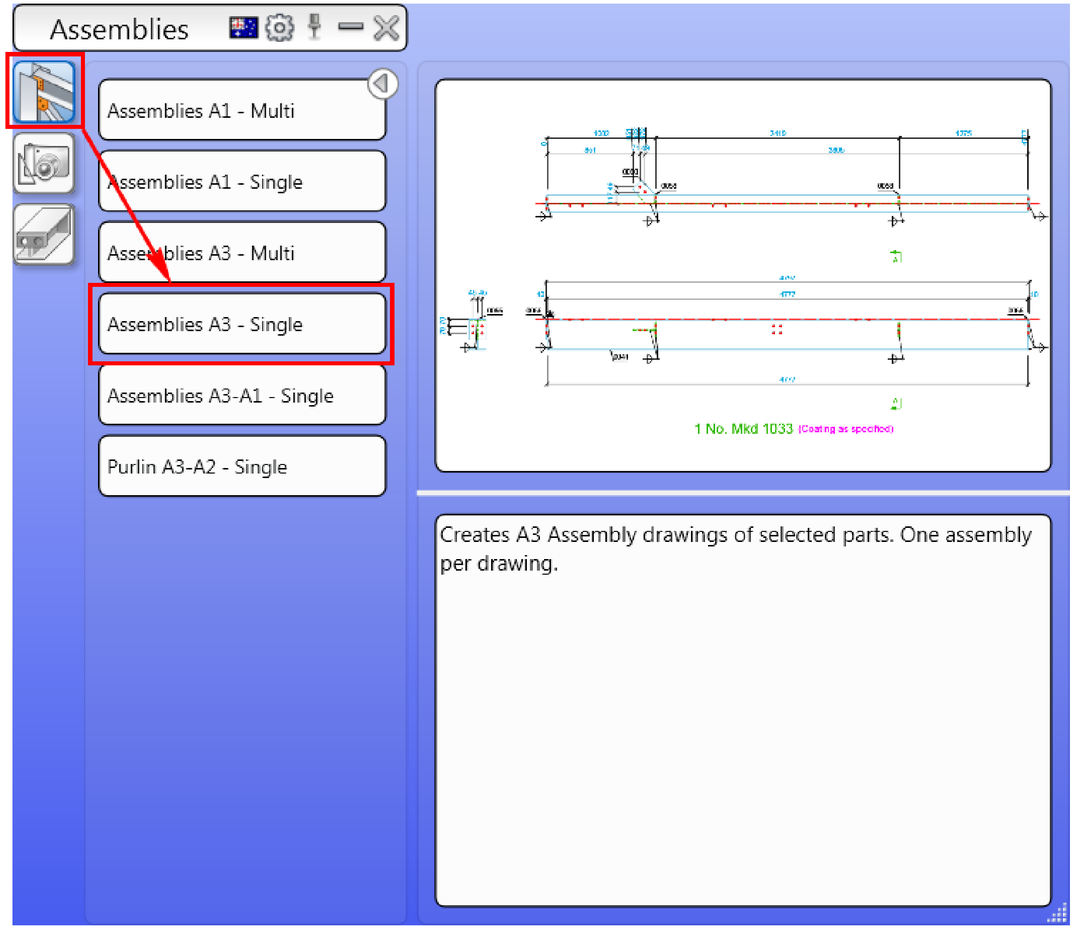




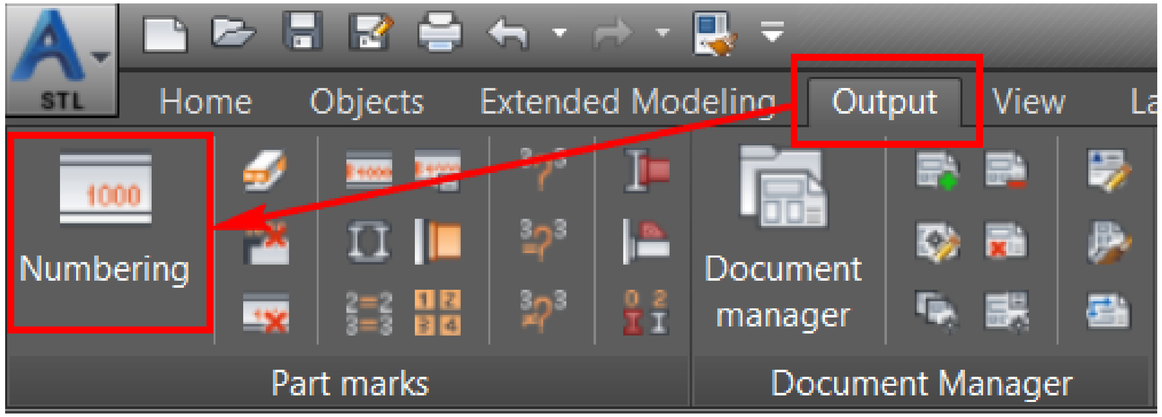
Section 7: Generating Assembly Drawings Using the Default Drawing Processes *(All Steps)*

- Select the tool to generate Assembly drawings



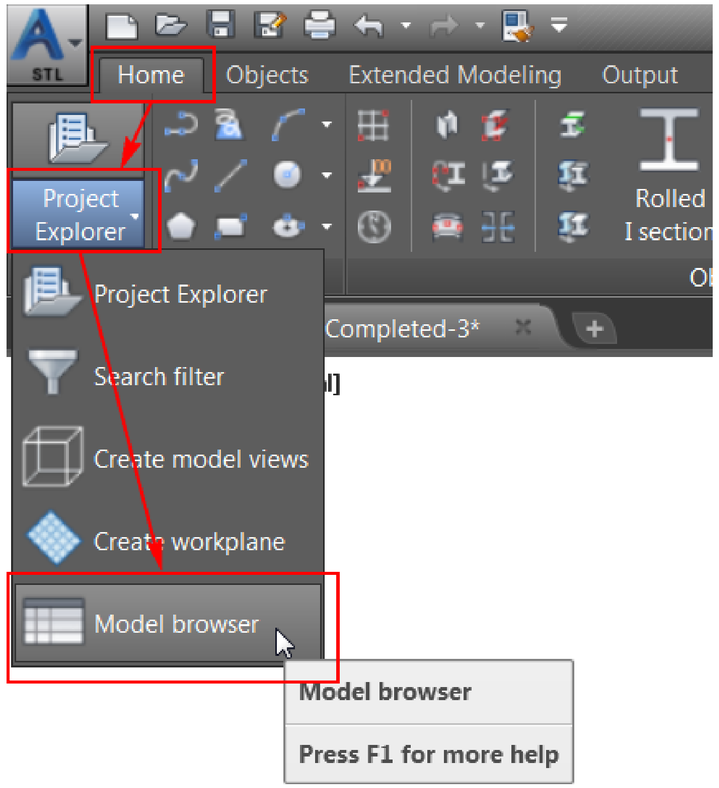


Section 8: Running the Numbering Again *(All Steps)*



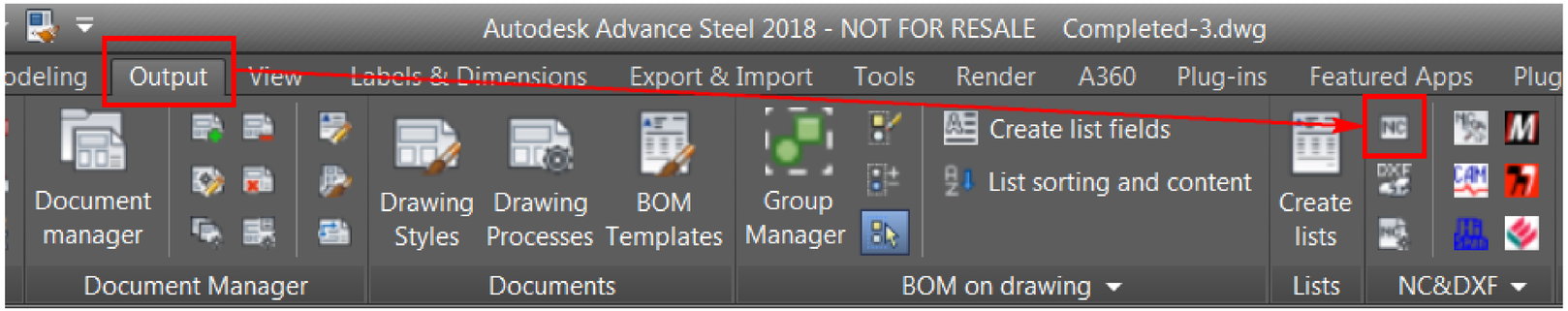
Section 9: Generating NC Files for Beams and DXF Files for Plates

- Invoke Model browser



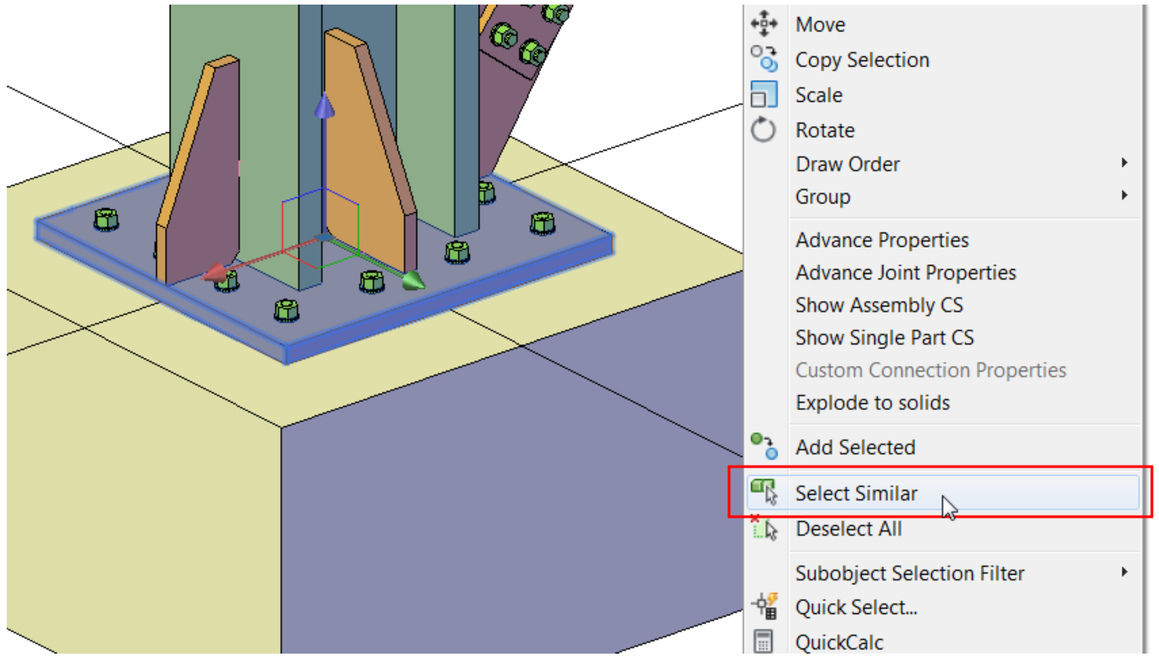
Section 9: Generating NC Files for Beams and DXF Files for Plates *(Steps 1-4)*

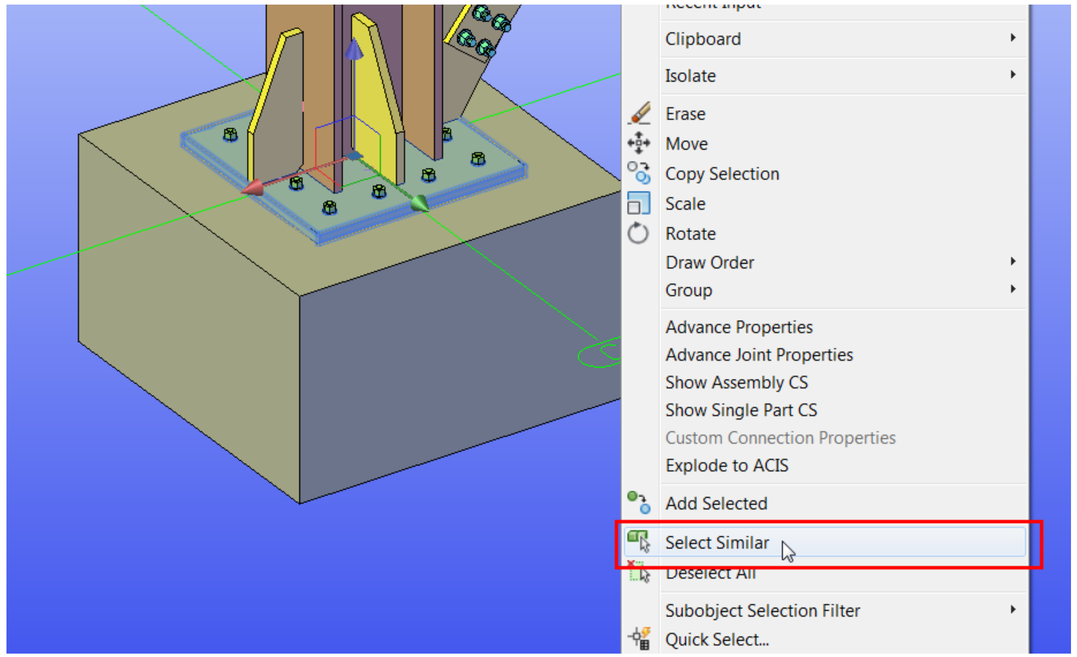
- Select all Beams
- Select the NC tool



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

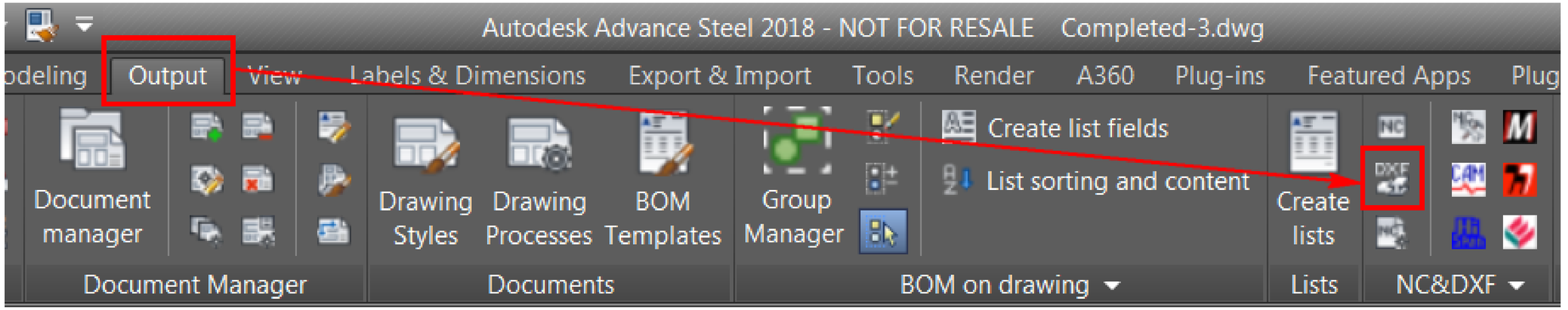
- Press ESC to deselect everything
- Right-click on the base plate of one of the base plate joints and click Select Similar from the shortcut menu





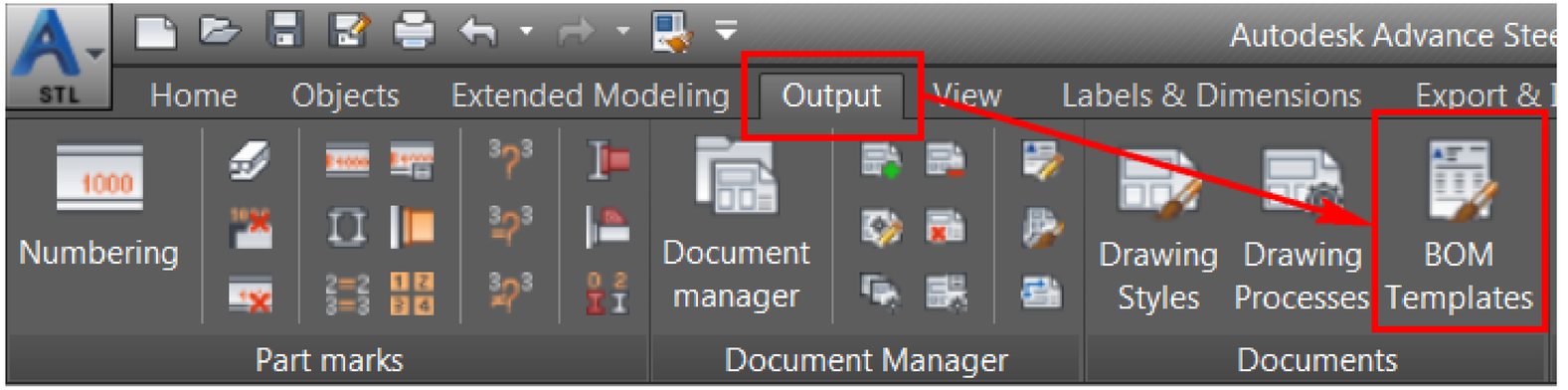
Section 9: Generating NC Files for Beams and DXF Files for Plates *(Steps 5 to the End)*

- Invoke the DXF tool



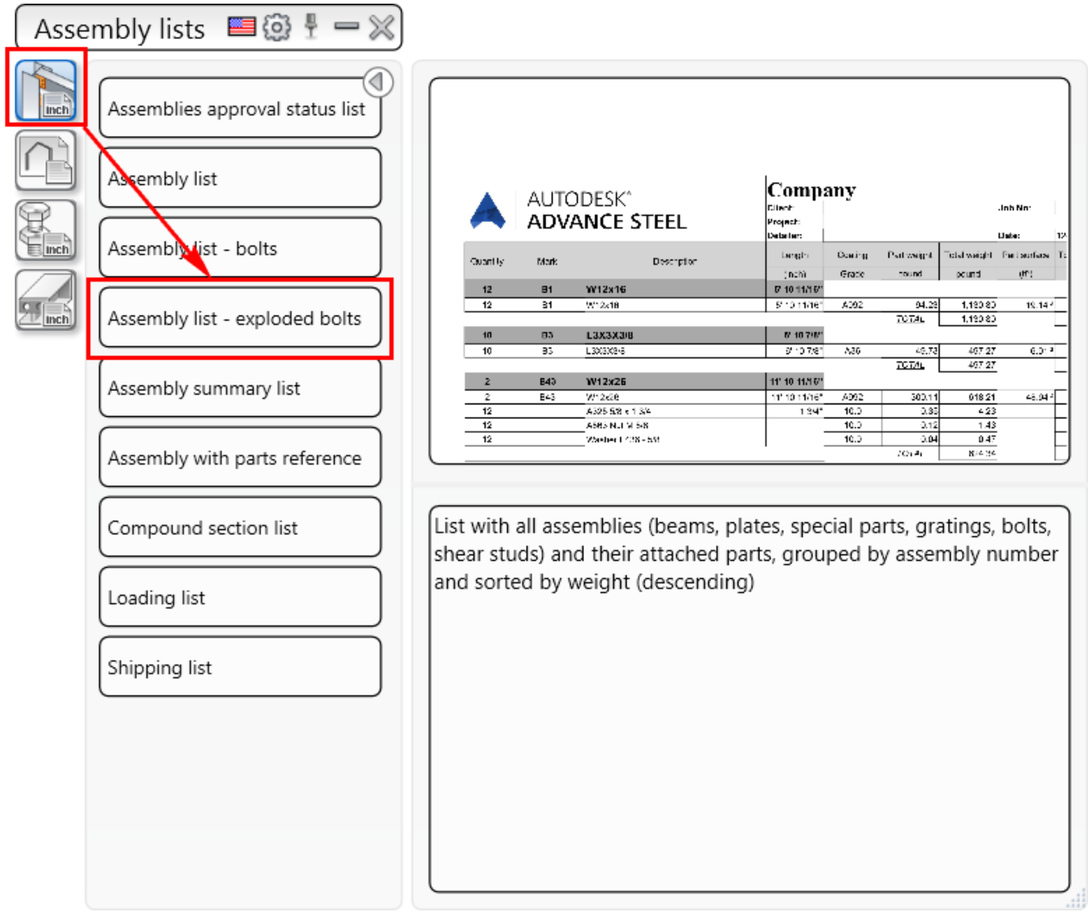
Section 10: Generating Bill of Materials (BOMs)

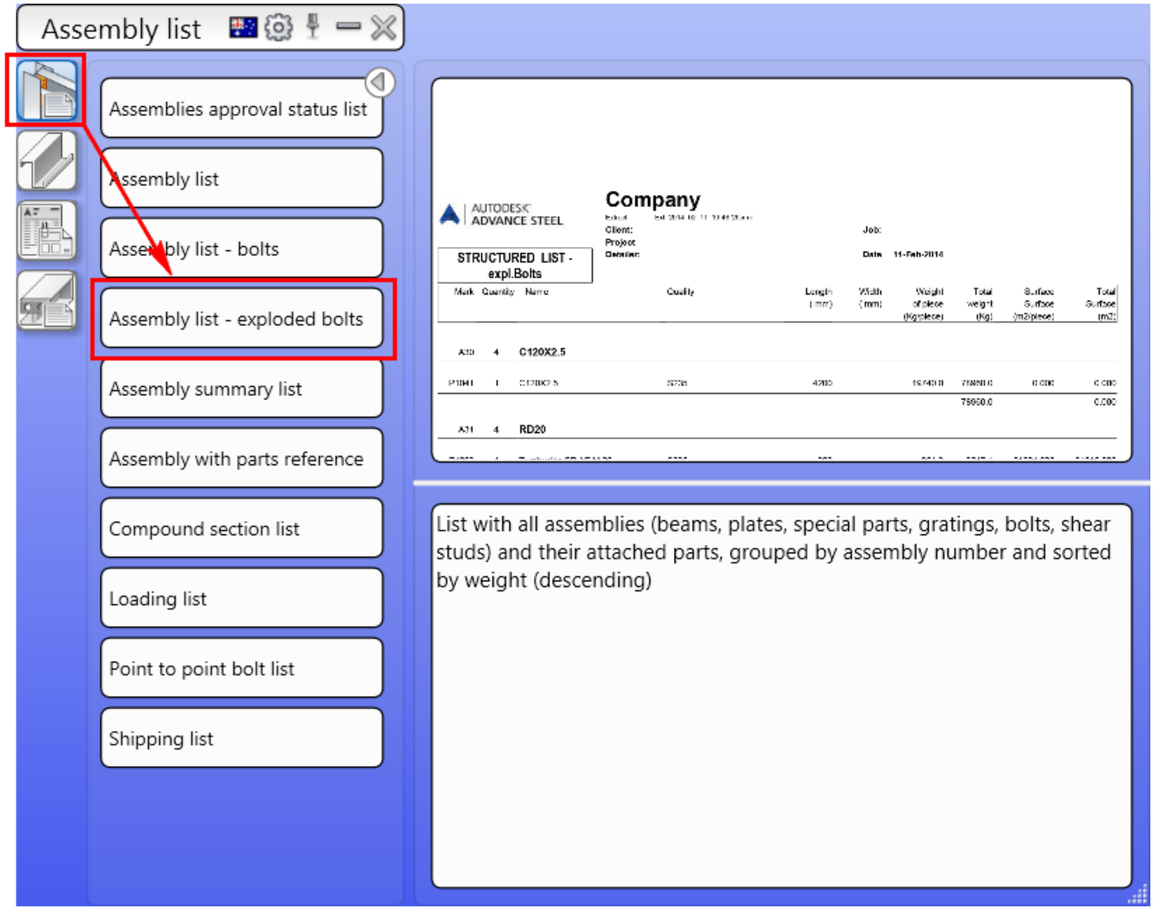
- Invoke the BOM Templates tool



Section 10: Generating Bill of Materials (BOMs)

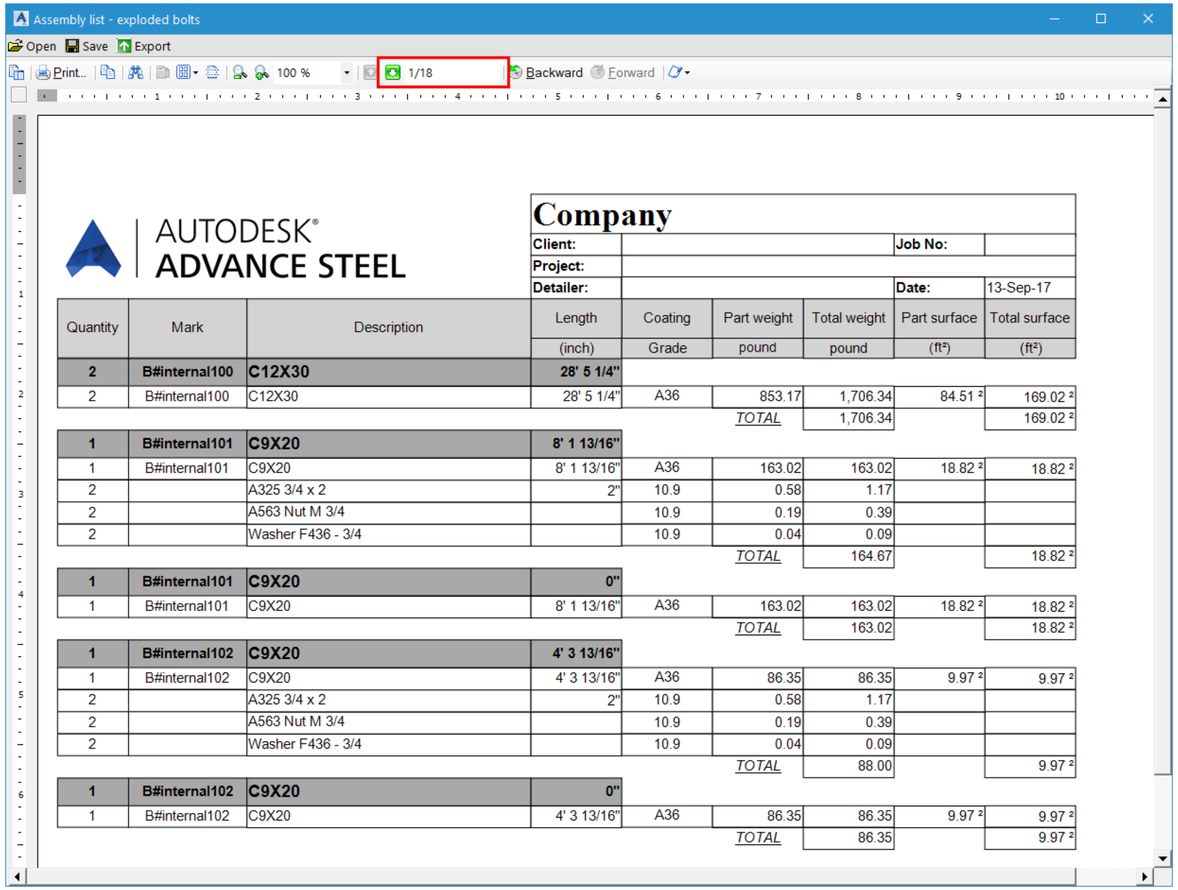
- Select Assembly list – exploded bolts



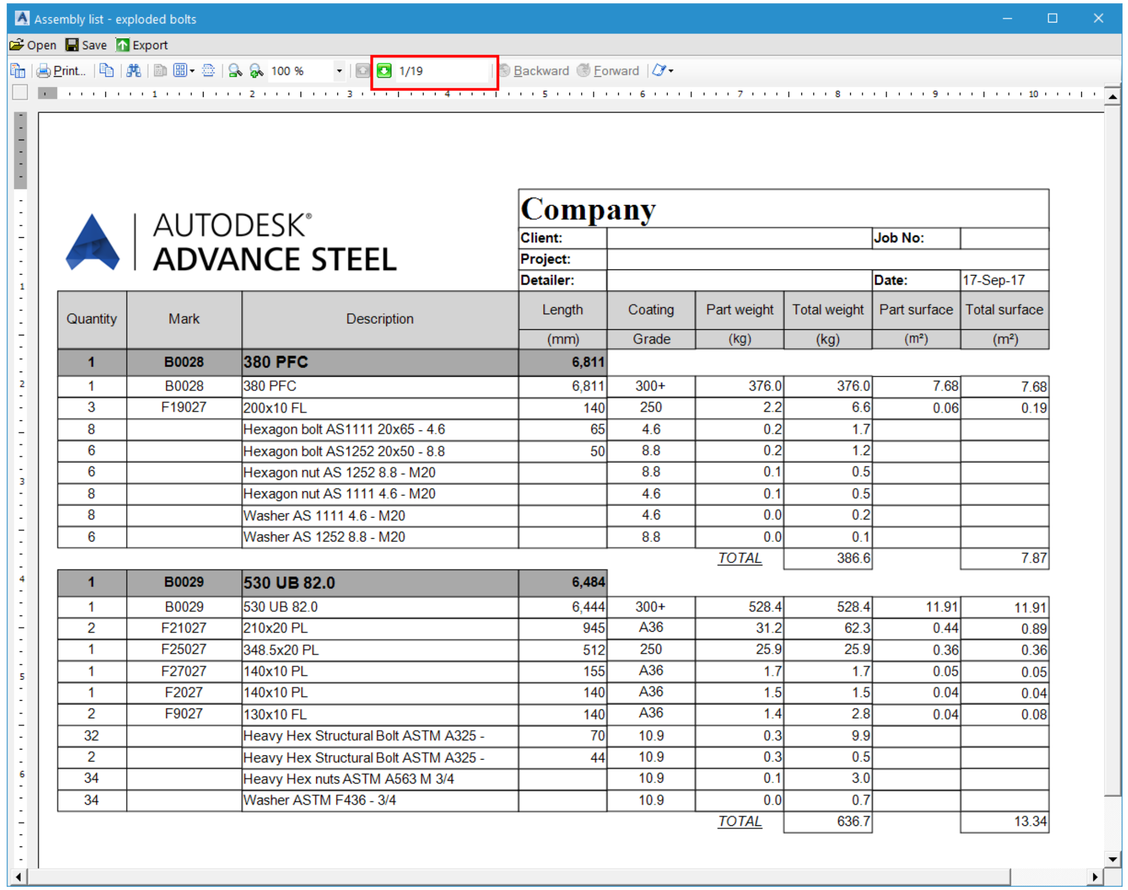


Section 10: Generating Bill of Materials (BOMs)

- Save the BOM



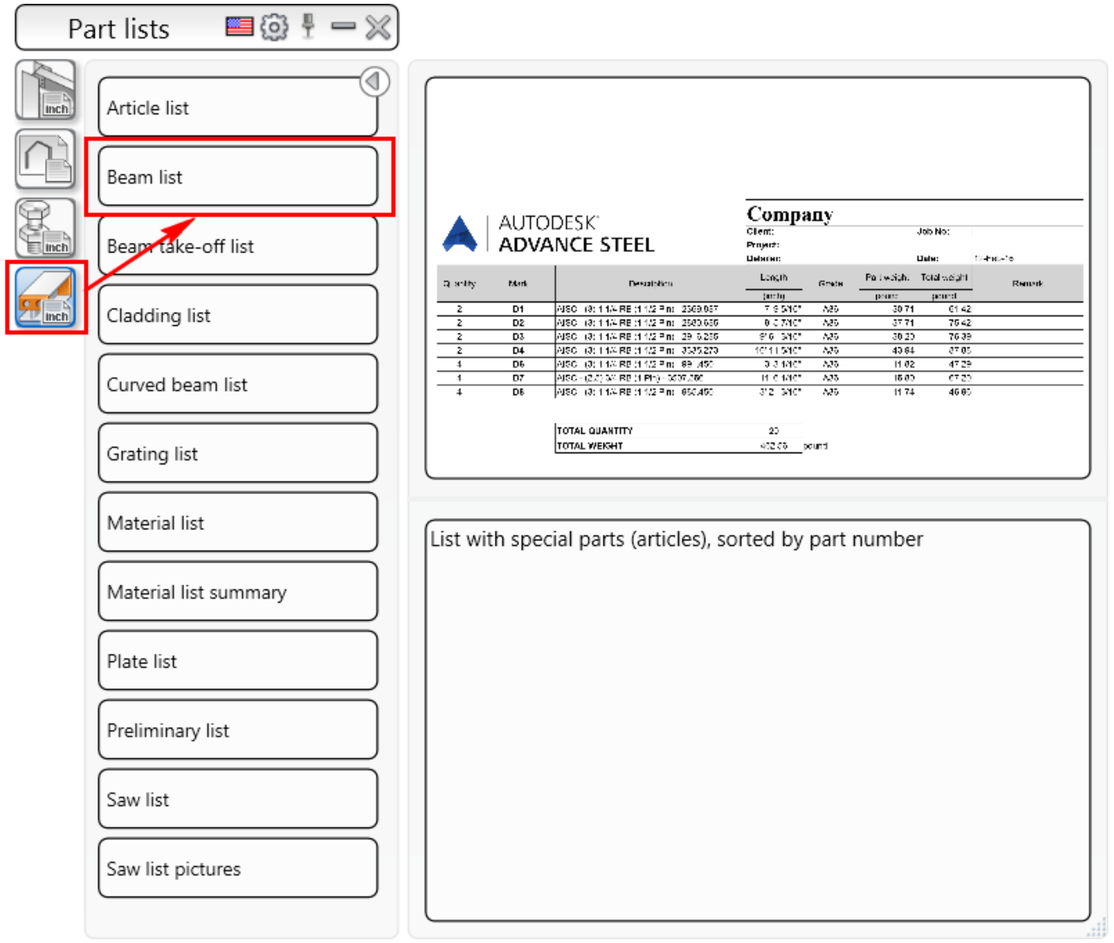
Quantity	Mark	Description	Length	Coating	Part weight	Total weight	Part surface	Total surface
			(inch)	Grade	pound	pound	(ft²)	(ft²)
2	**B#internal100**	**C12X30**	**28' 5 1/4"**					
2	B#internal100	C12X30	28' 5 1/4"	A36	853.17	1,706.34	84.51 ²	169.02 ²
					TOTAL	1,706.34		169.02 ²
1	**B#internal101**	**C9X20**	**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#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#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		
2		A563 Nut M 3/4		10.9	0.19	0.39		
2		Washer F436 - 3/4		10.9	0.04	0.09		
					TOTAL	88.00		9.97 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

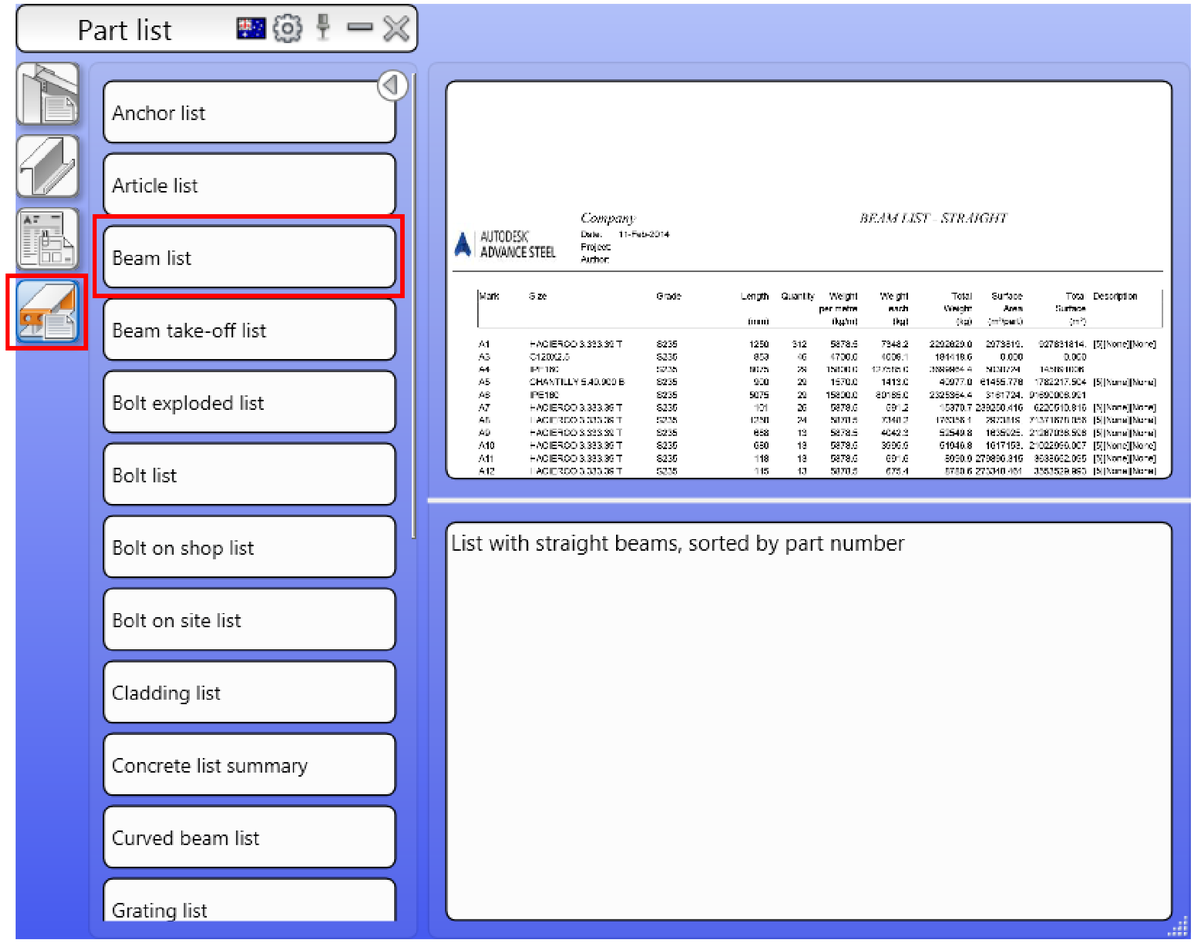


Quantity	Mark	Description	Length	Coating	Part weight	Total weight	Part surface	Total surface
			(mm)	Grade	(kg)	(kg)	(m²)	(m²)
1	**B0028**	**380 PFC**	**6,811**					
1	B0028	380 PFC	6,811	300+	376.0	376.0	7.68	7.68
3	F19027	200x10 FL	140	250	2.2	6.6	0.06	0.19
8		Hexagon bolt AS1111 20x65 - 4.6	65	4.6	0.2	1.7		
6		Hexagon bolt AS1252 20x50 - 8.8	50	8.8	0.2	1.2		
6		Hexagon nut AS 1252 8.8 - M20		8.8	0.1	0.5		
8		Hexagon nut AS 1111 4.6 - M20		4.6	0.1	0.5		
8		Washer AS 1111 4.6 - M20		4.6	0.0	0.2		
6		Washer AS 1252 8.8 - M20		8.8	0.0	0.1		
						TOTAL		7.87
1	**B0029**	**530 UB 82.0**	**6,484**					
1	B0029	530 UB 82.0	6,444	300+	528.4	528.4	11.91	11.91
2	F21027	210x20 PL	945	A36	31.2	62.3	0.44	0.89
1	F25027	348.5x20 PL	512	250	25.9	25.9	0.36	0.36
1	F27027	140x10 PL	155	A36	1.7	1.7	0.05	0.05
1	F2027	140x10 PL	140	A36	1.5	1.5	0.04	0.04
2	F9027	130x10 FL	140	A36	1.4	2.8	0.04	0.08
32		Heavy Hex Structural Bolt ASTM A325 -	70	10.9	0.3	9.9		
2		Heavy Hex Structural Bolt ASTM A325 -	44	10.9	0.3	0.5		
34		Heavy Hex nuts ASTM A563 M 3/4		10.9	0.1	3.0		
34		Washer ASTM F436 - 3/4		10.9	0.0	0.7		
						TOTAL		13.34

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

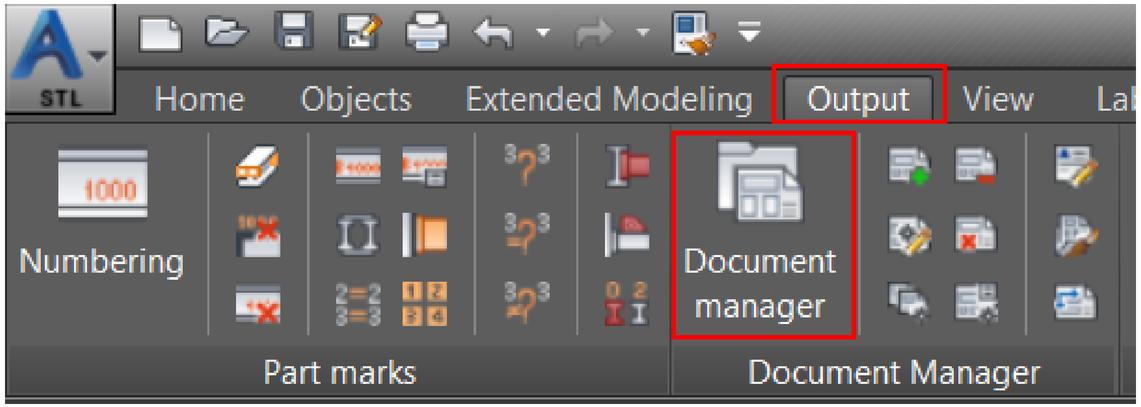
- Select Parts list > Beam list and then save the BOM





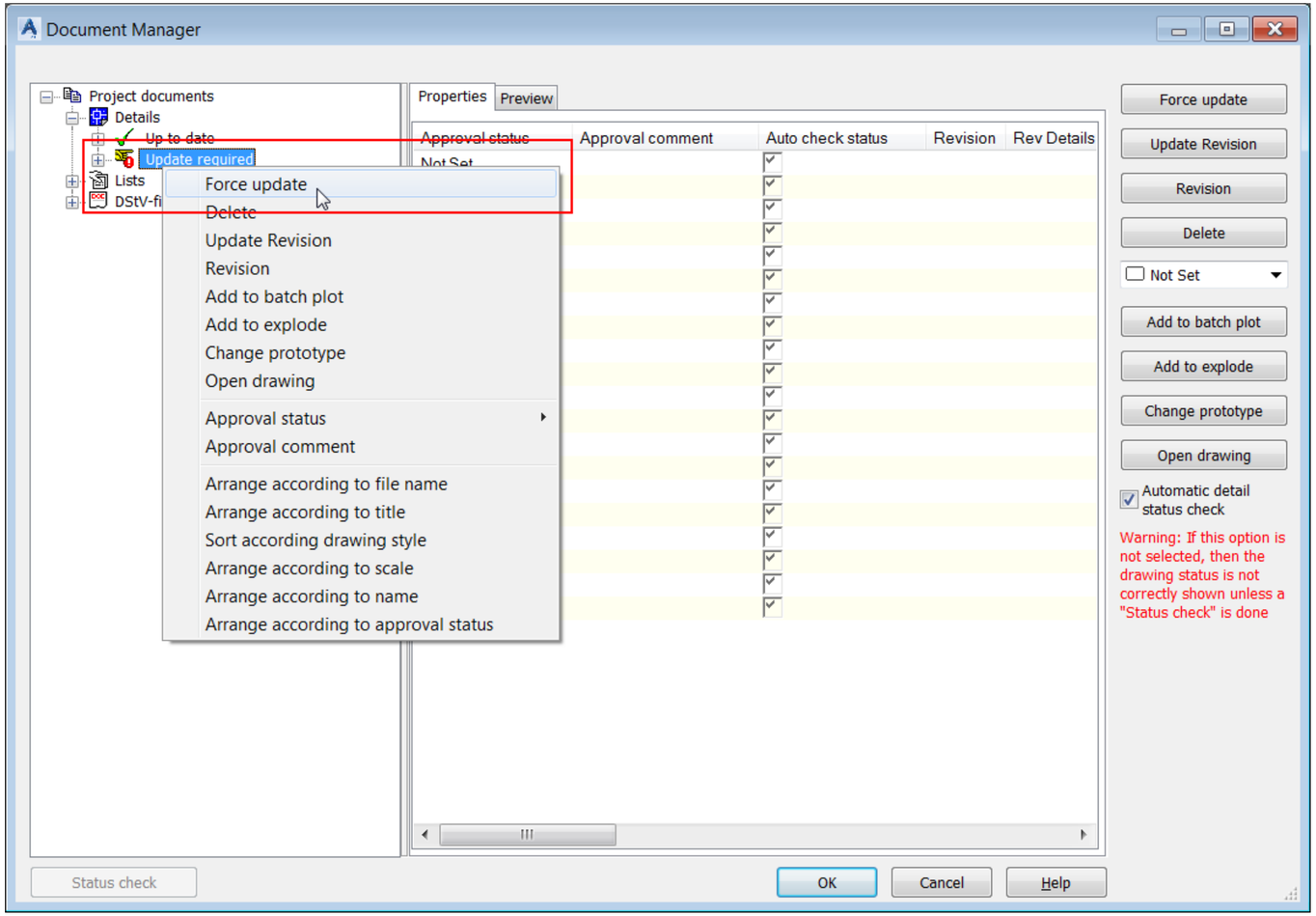
Section 11: Reviewing the Generated Documentation

- Invoke the Document manager tool



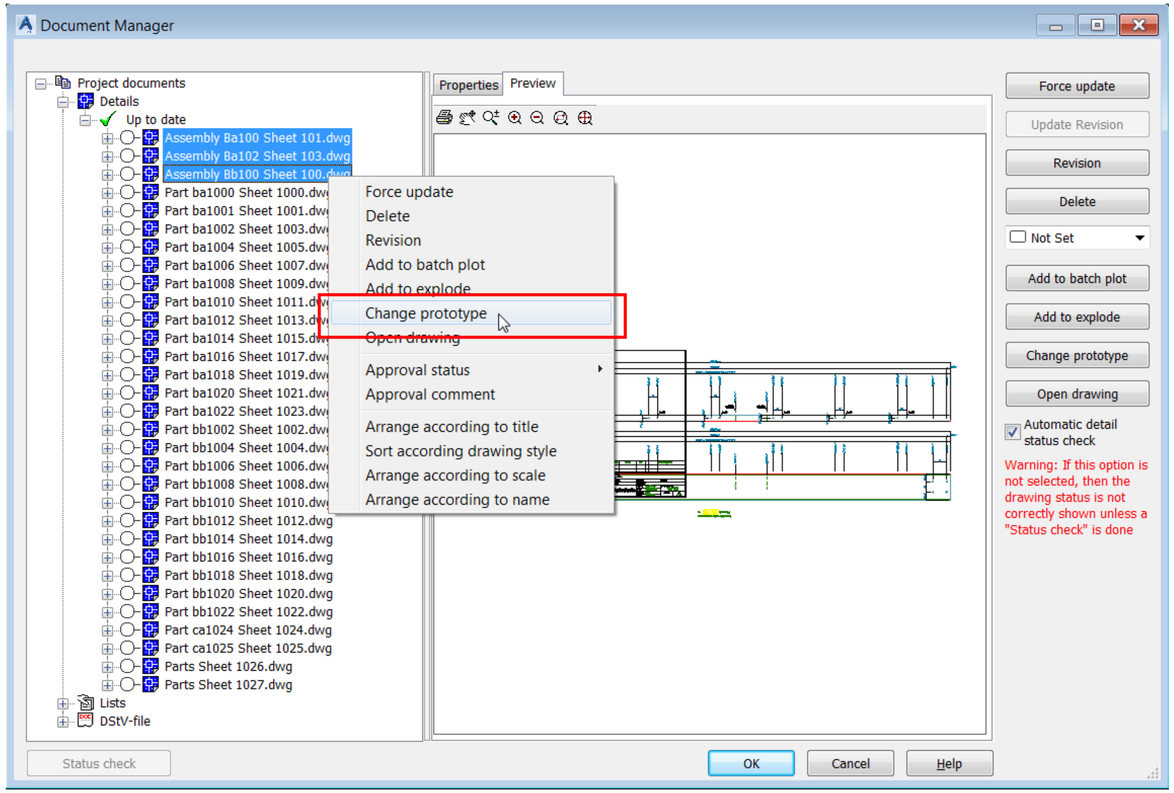
Section 11: Reviewing the Generated Documentation *(Steps 1-3)*

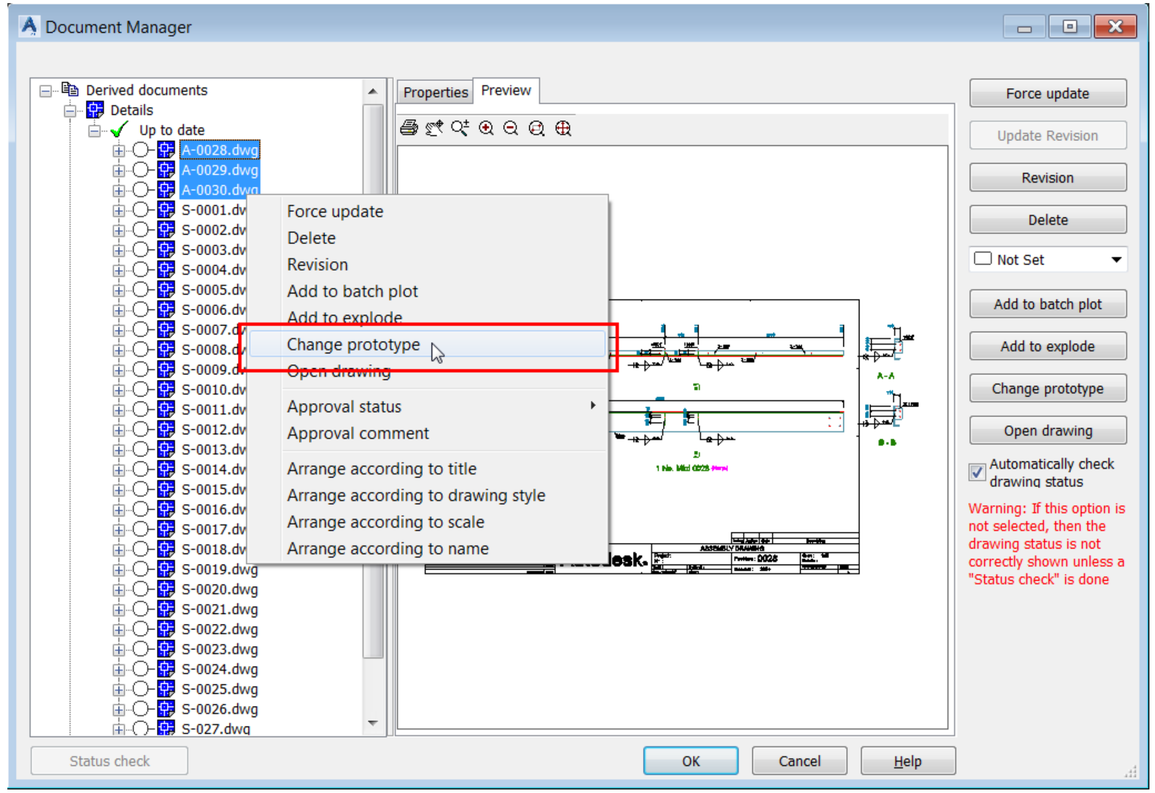
- Right-click on the Update required category and select Force update from the shortcut menu, as shown below:



Section 11: Reviewing the Generated Documentation *(Steps 4-9)*

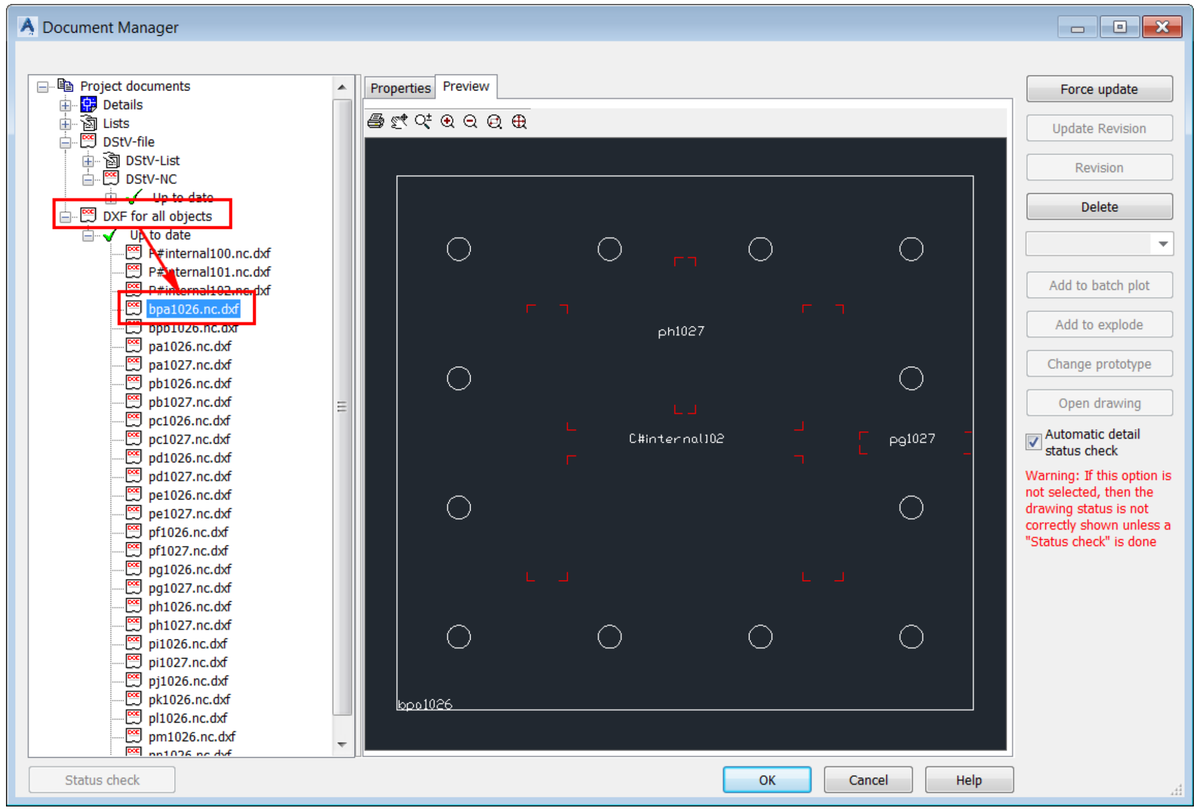
- Change the prototype of the assembly drawings to ASDETPROTO-Assembly-ANSI-E.dwg or ASDETPROTO-ASSEMBLY-A1.dwg

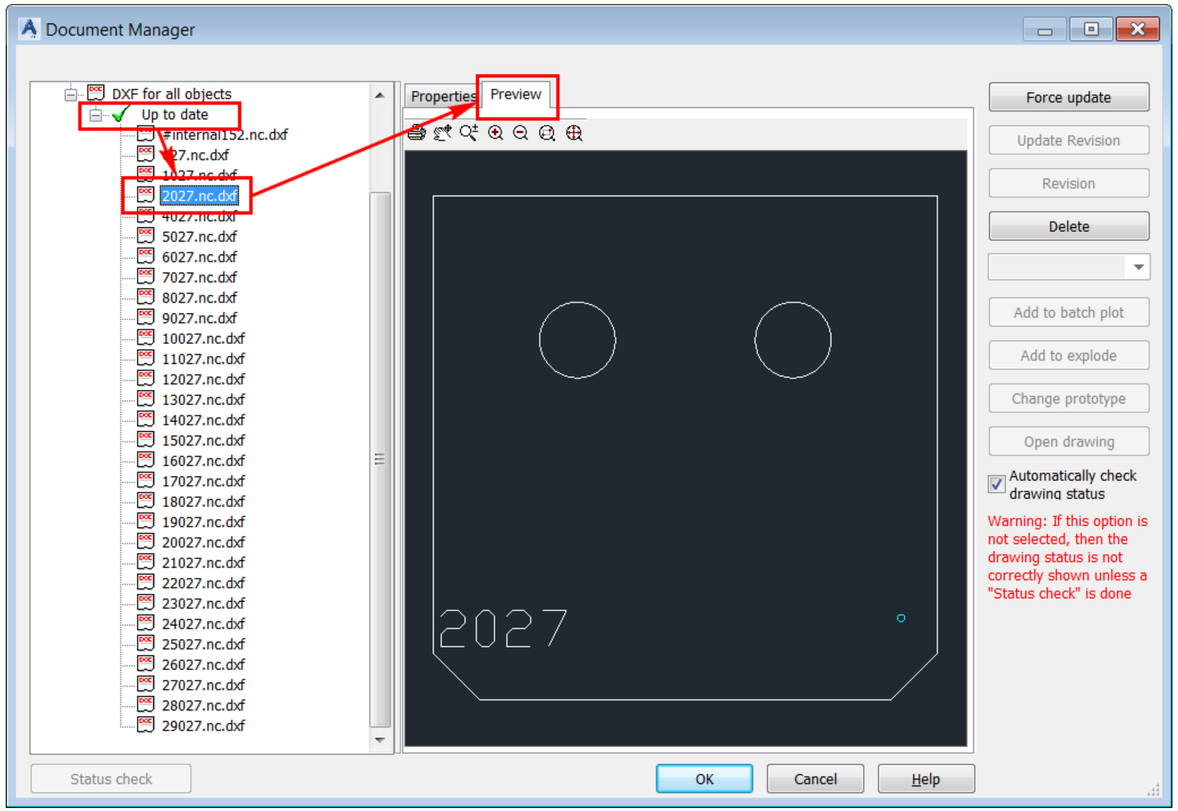




Section 11: Reviewing the Generated Documentation *(All Steps)*

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





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