



Advanced Modeling Lab

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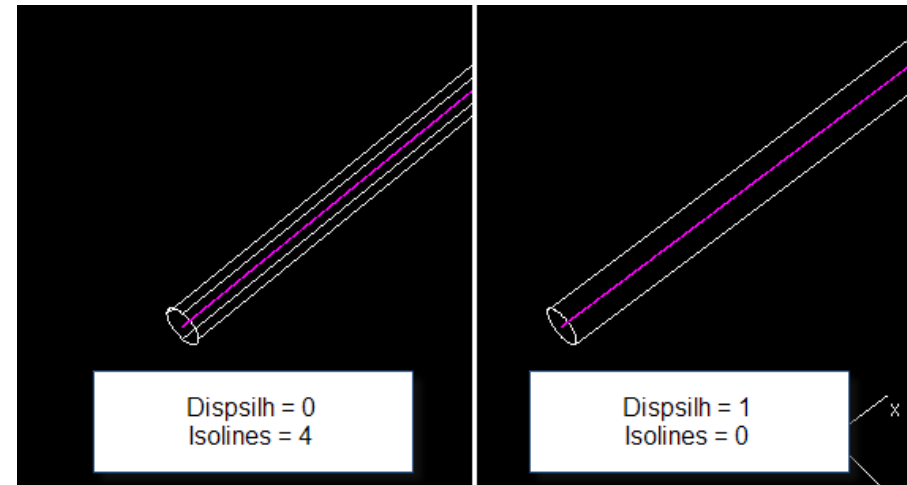


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■ Preliminary Setup:

- Always use a Template.dwt
- DISPSILH = 0
- ISOLINES = 4
- SELECTIONPREVIEW = 0
- VTENABLE = 0
- VIEWRES & FACETRES can be set to be optimised for each workstation.



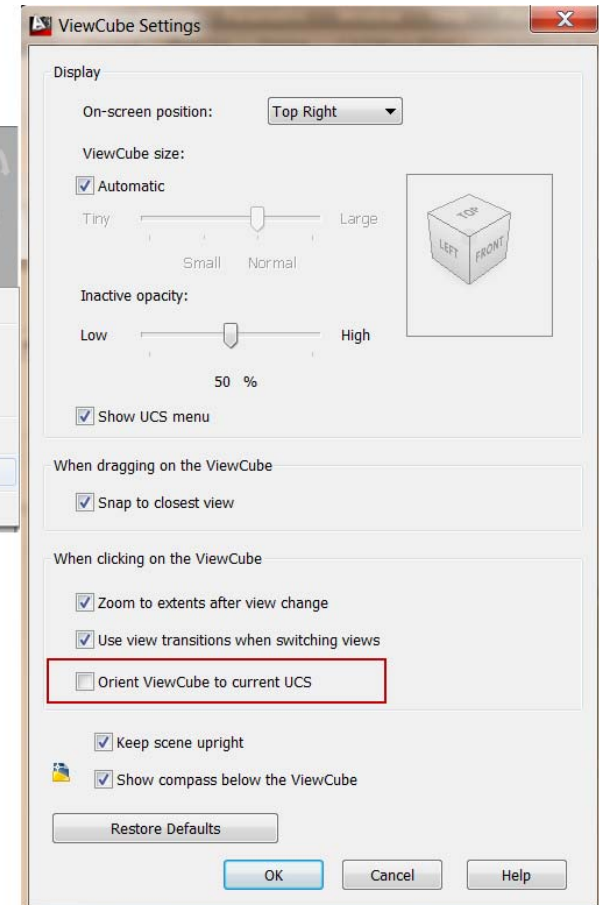
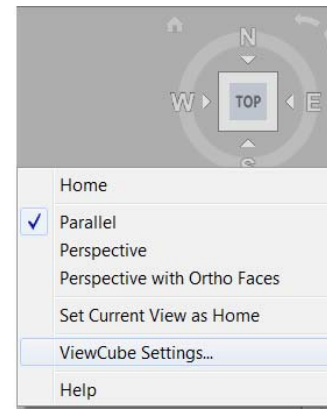
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■ Preliminary Setup Cont.

□ Viewcube

- Right click on Viewcube to Access settings.
- Uncheck Orient Viewcube to Current UCS.
- This will ensure that Top, Front, Left is always oriented in relation to the WCS.

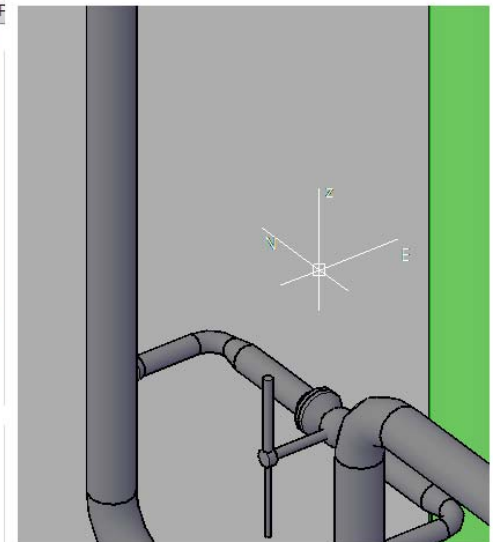
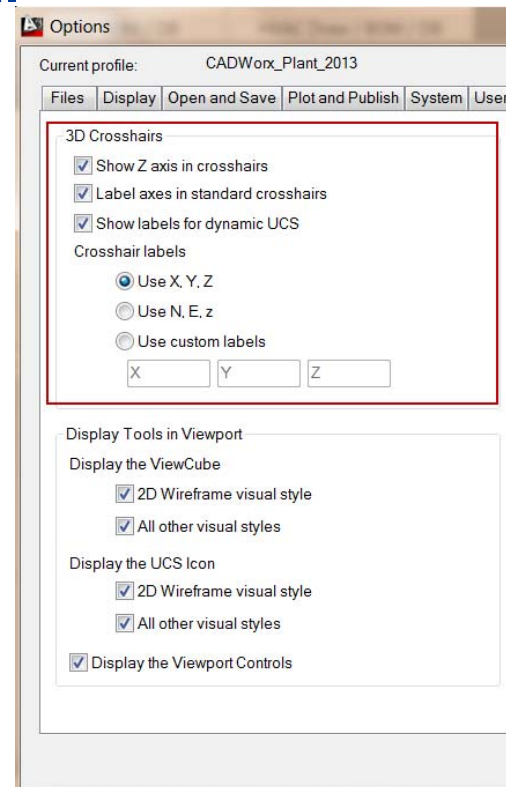




■ Preliminary Setup Cont.

■ Crosshairs

- Options > 3D Modelling
- Show Labels in Crosshairs
- Either XYZ or NEz
- This is a great way to orientate yourself in the model in addition to the UCS



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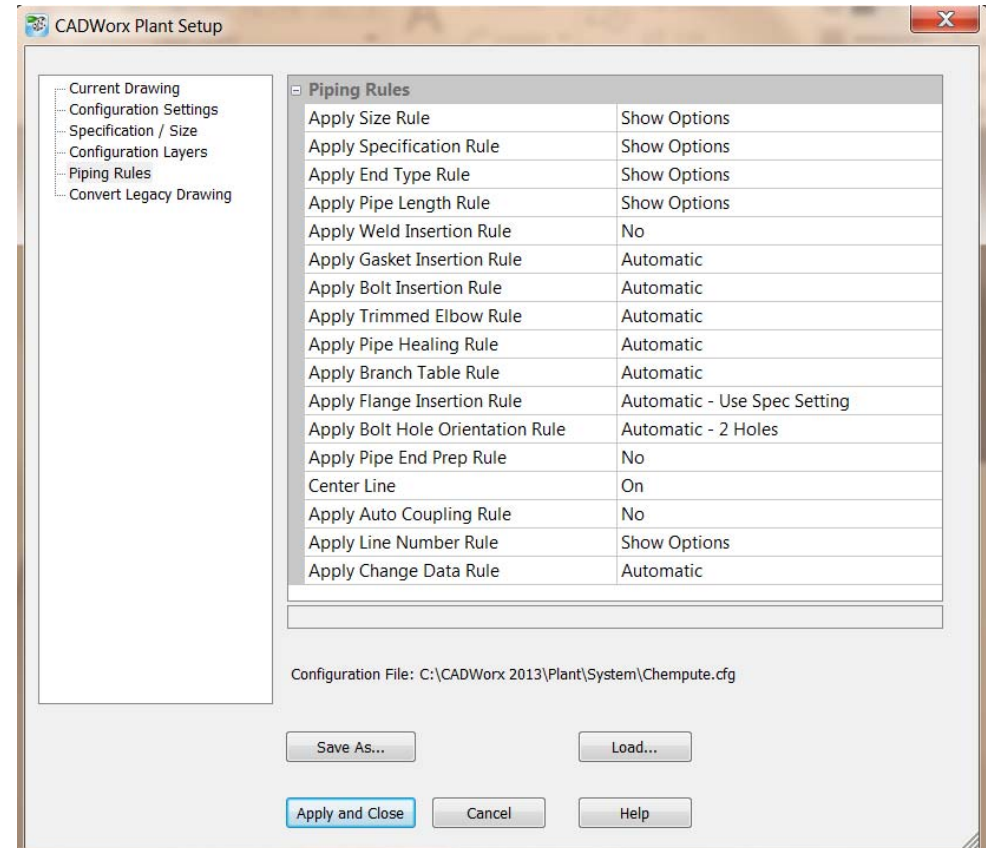
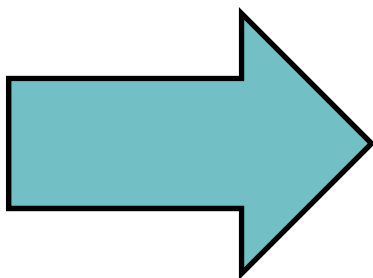
■ Preliminary Setup Cont.

■ Piping Rules

Use them to boost productivity.

Suggested Optimal Setup

For most users and applications



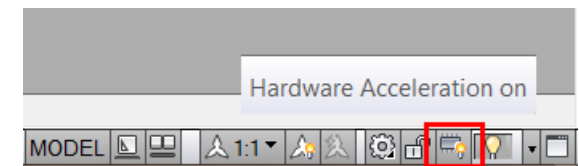
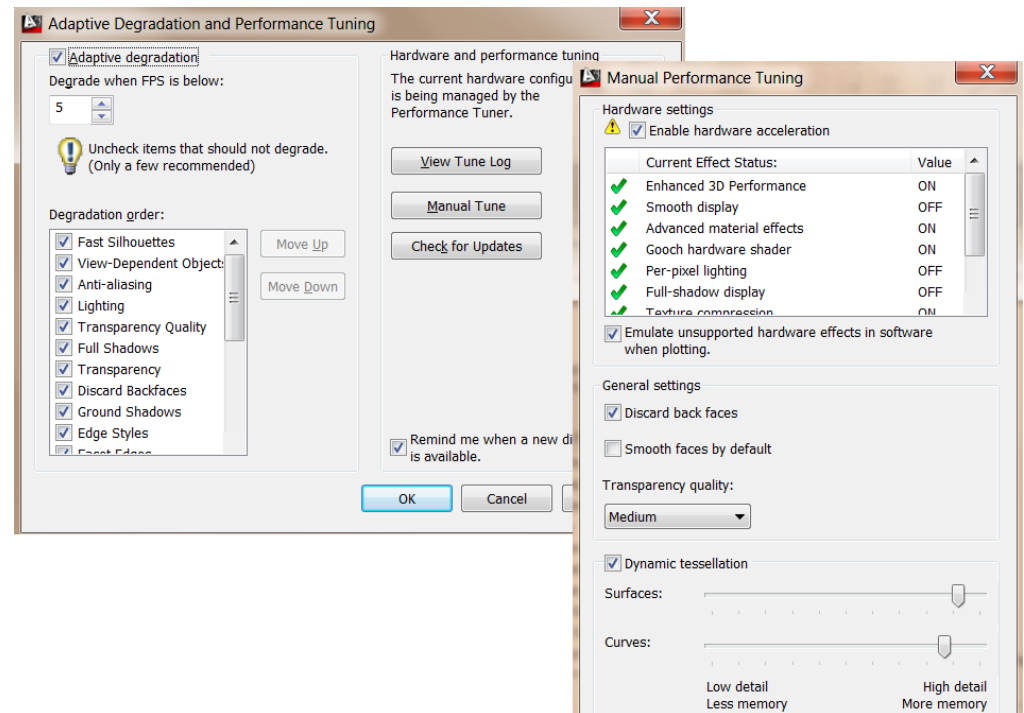
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■ Preliminary Setup Cont.

❑ Hardware Acceleration.

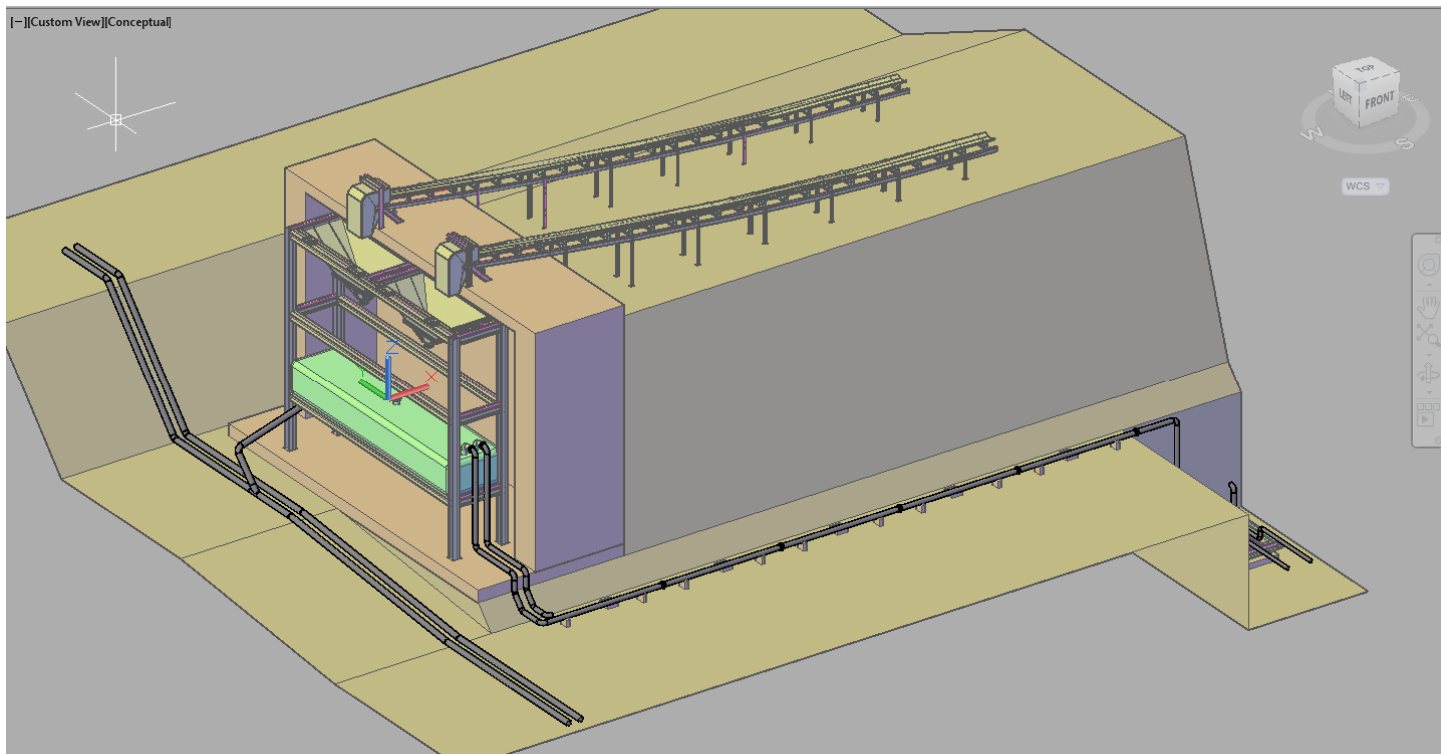
- Always turned on.
- User Configurable to optimize per workstation based on hardware configuration.
- AutoCAD Tray/Status bar shows if turned on/off



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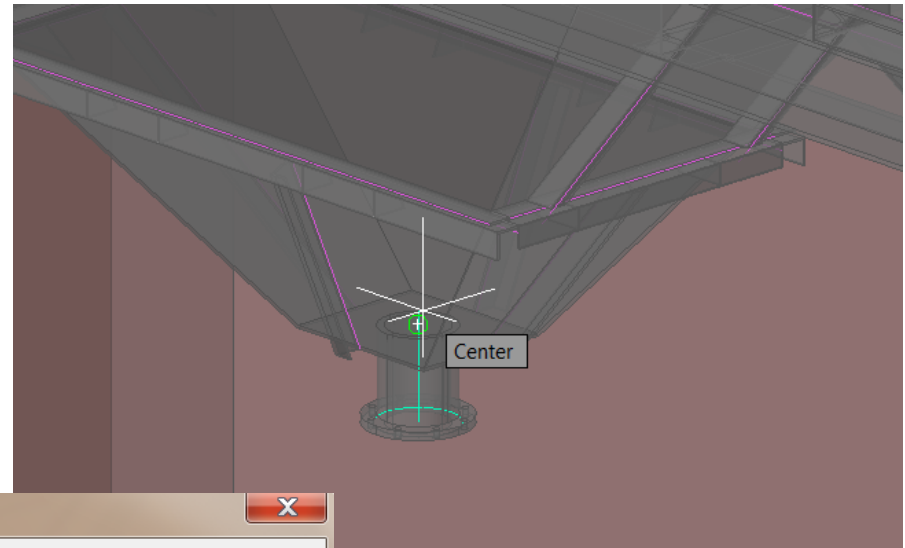
■ Lets Model !



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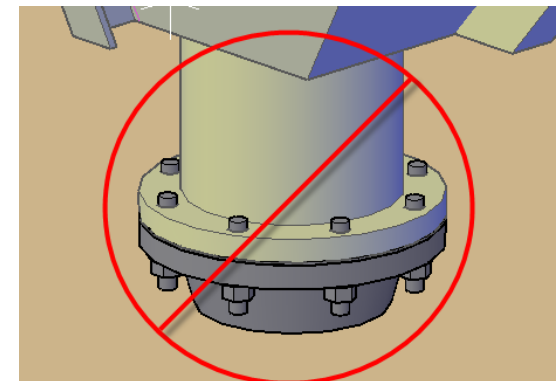
- Use the ENGGENERIC command to place a Nozzle on the Underpan
- Fill out the details for the Nozzle and the Equipment.
- Ensure you fill out the flange thickness. This is used for the bolt calculation.



Nozzle Generic Attach (Edit)

Description:	N1	Nozzle insertion point	
Equipment Name:	PAN B55	Face end	
Size:	8"	Specify On-screen	
Flange Rating:	150	X:	5016.46
Flange Thickness:	28.0000	Y:	9022.80
Flange Type:	RFWN	Z:	-617.75
Layer:	Equip		
Color:	ByLayer		

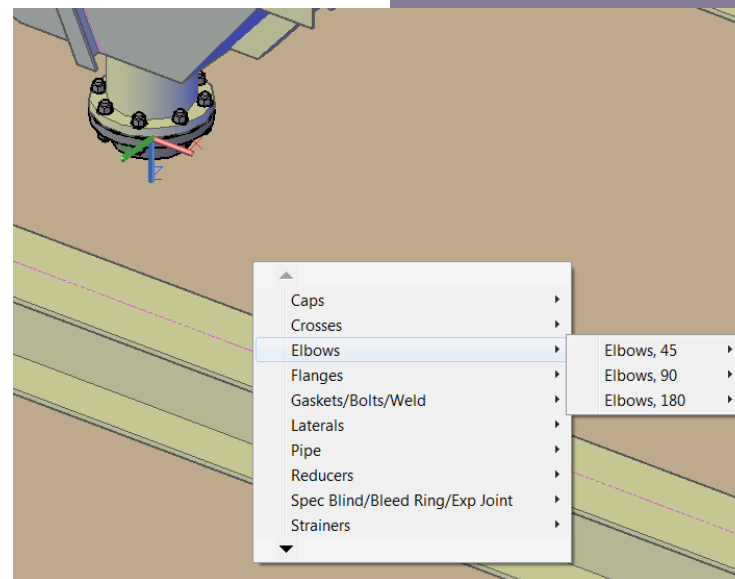
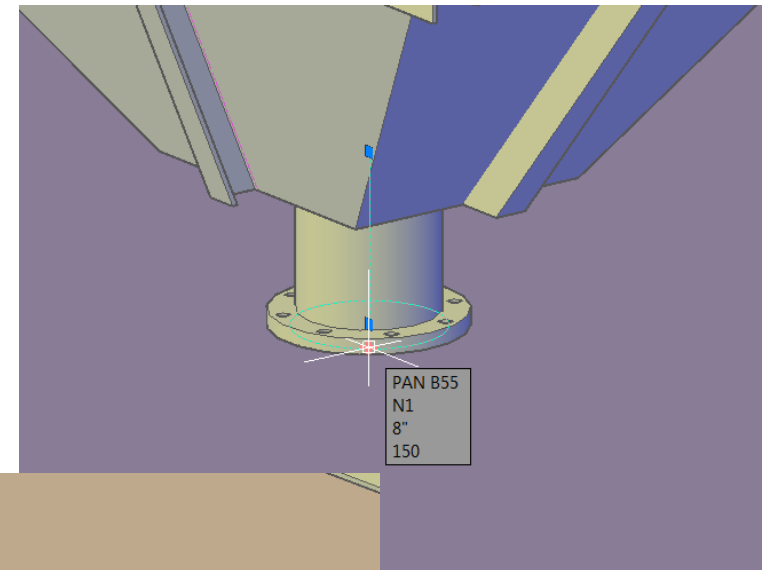
OK Remove Cancel Help



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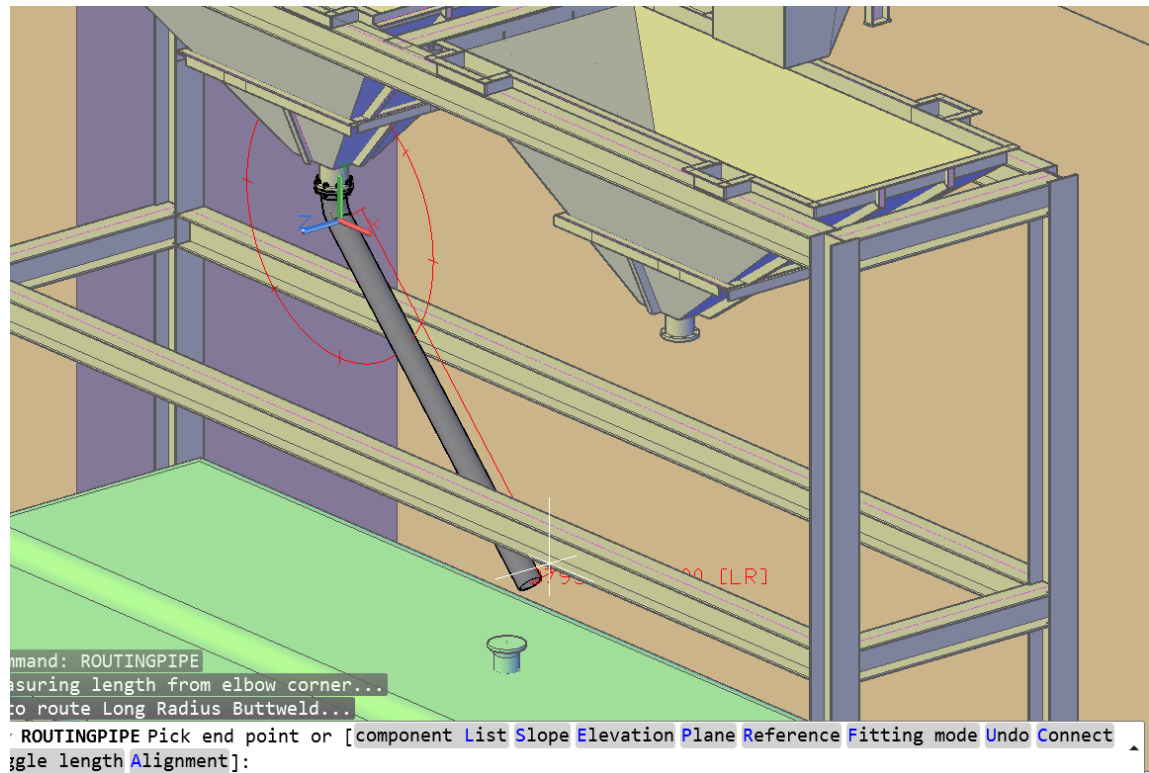
- Make sure the polar snap settings are set to 15° or 45°.
- Route directly from the “+” reactor, the flange rule will automatically append a flange.
- Use the List option from the Auto Router command to place a 45° elbow.



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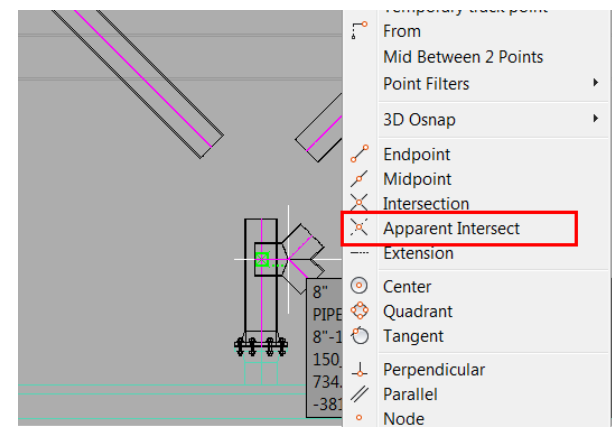
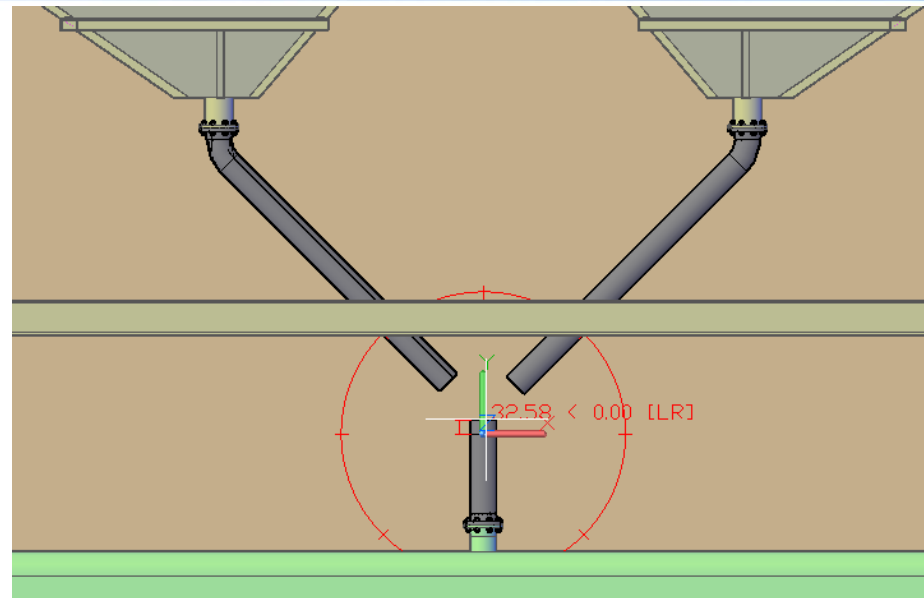
- Model the pipeline in a 45° angle towards the equipment nozzle
- Repeat for the other Underpan



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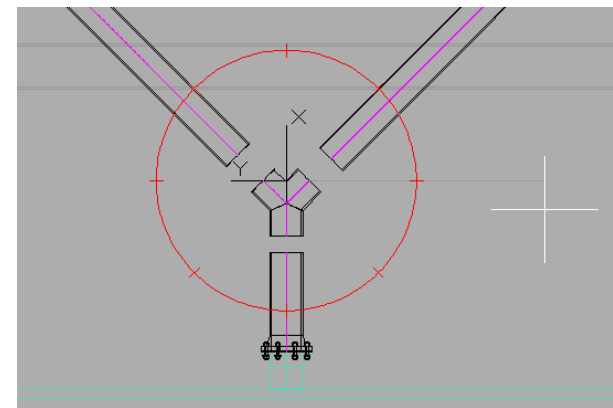
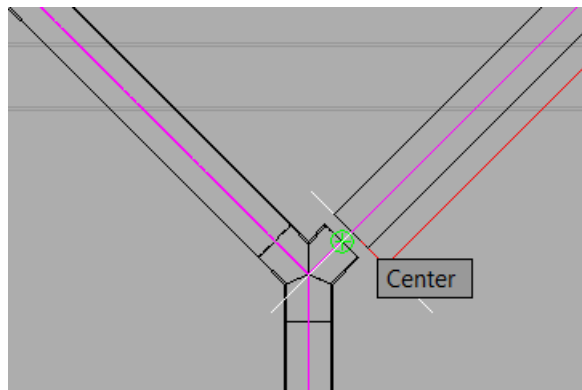
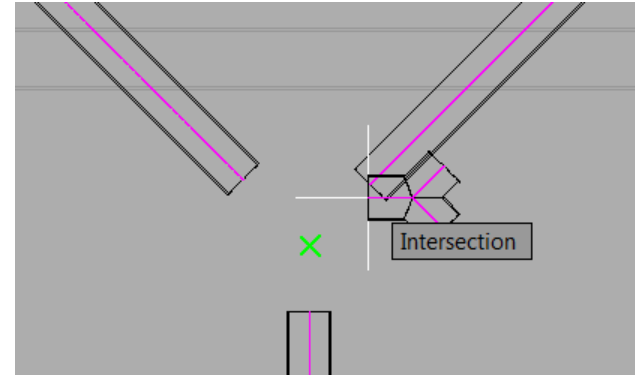
- AutoRoute from the Equipment nozzle.
- Stretch the piping components so they do not intersect.
- Change to Wireframe and a LEFT view before placing the WYE component.
- Place the WYE component from the Specview palette by using the middle insertion and Apparent Intersection Osnap options.



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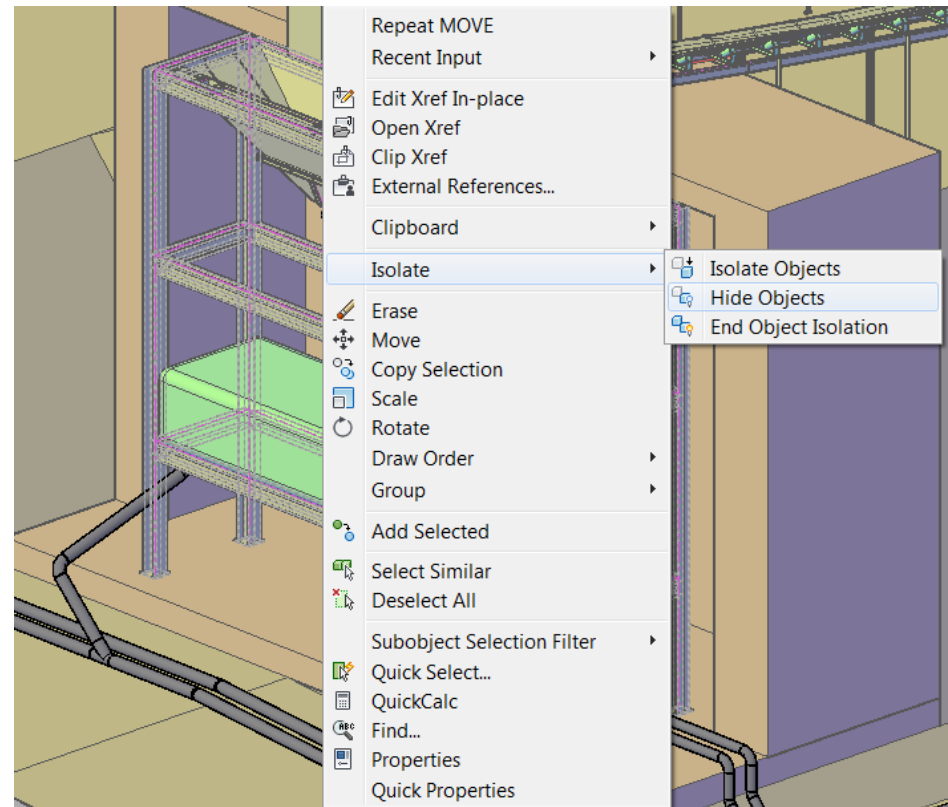
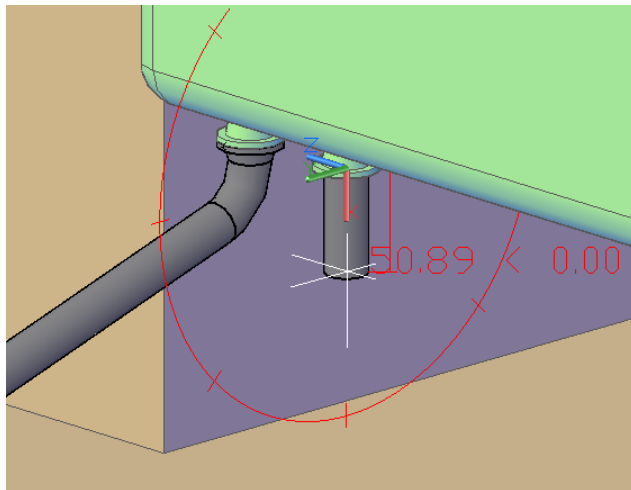
- Complete the placement of the WYE and orientate it correctly using the compass as a guide
- Connect the piping to the WYE by using the grip stretch.



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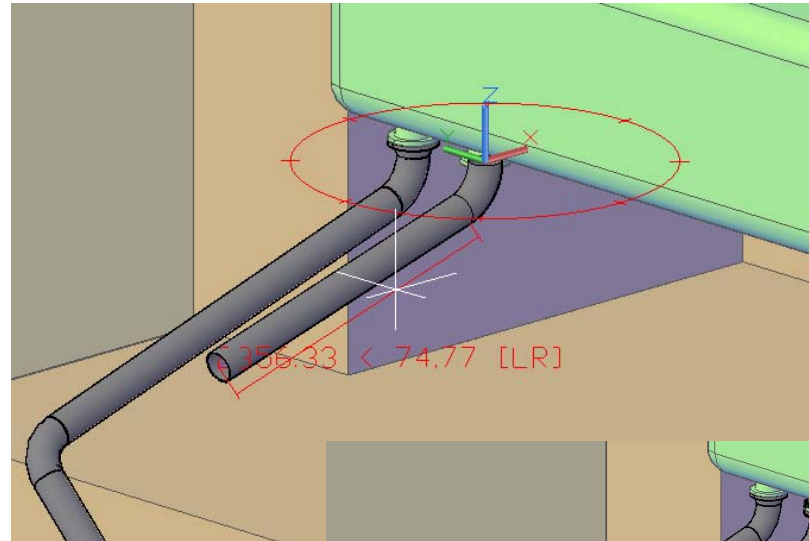
- Hide the structural steelwork with right click >> Hide Objects command.
- This makes it easier to locate the nozzle at the bottom of the equipment in the next exercise.





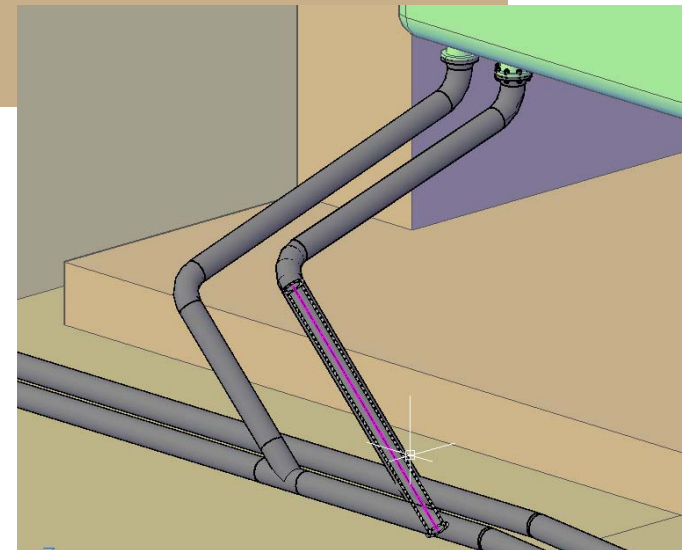
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- Start routing from the nozzle and use the slope -20 degrees option.
- Use point filters to line the pipe up with the 2nd main delivery pipe in the model.
- Then slope again at 45° towards the header. Let the pipes intersect.



Point Filter Tips:

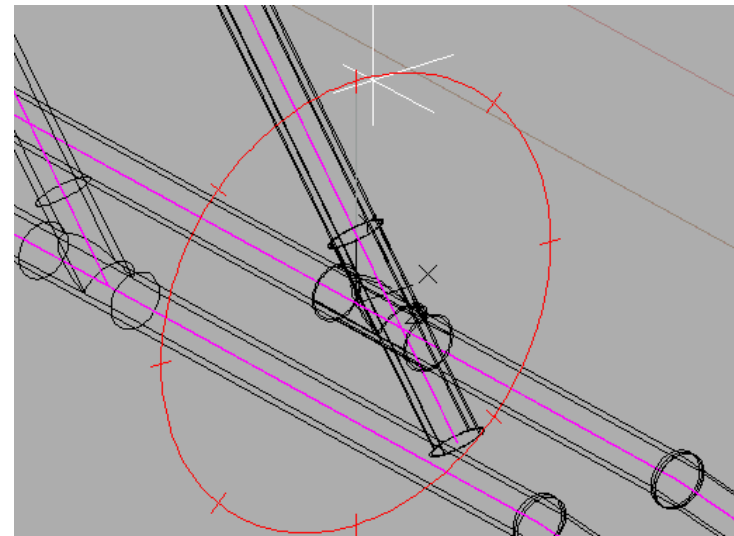
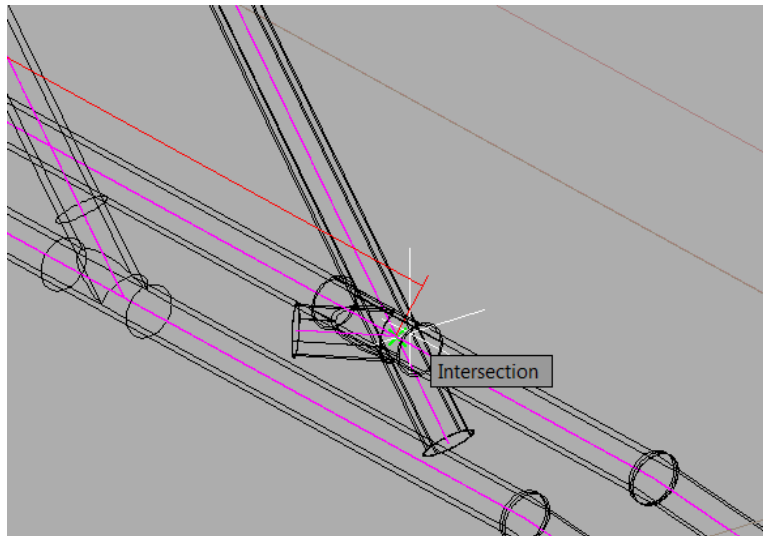
1. Look at the UCS to determine the direction; X or Y or Z or a combination.
2. Always filter out all coordinates not needed. So if routing in X; filter out YZ, if routing in Y; filter out XZ
3. Use the @ command, disable dynamic input with F12 if needed



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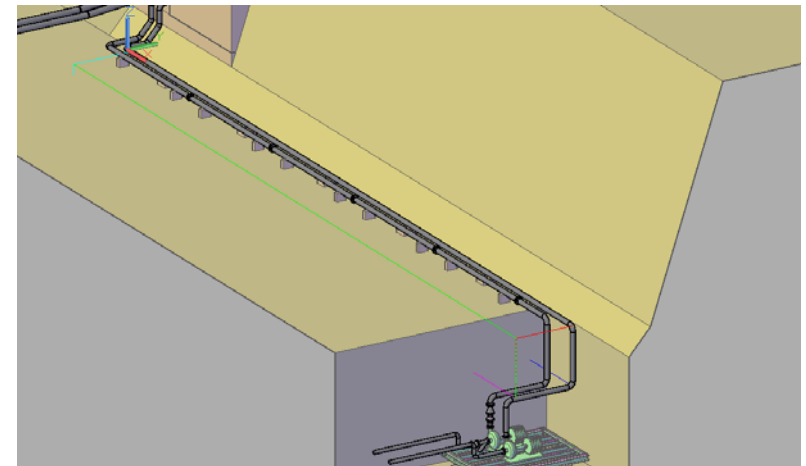
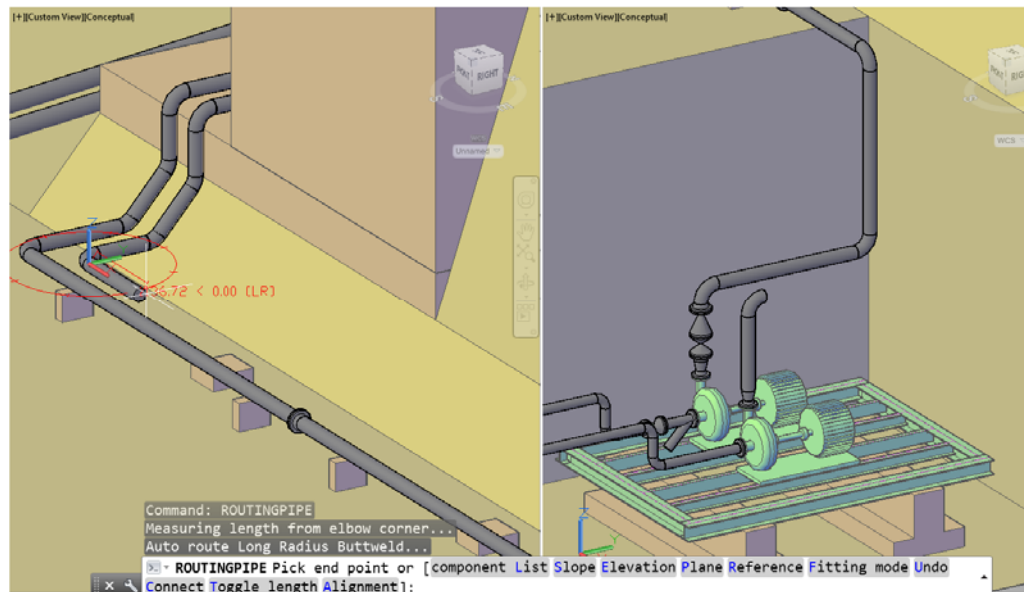
- Change to Wireframe and insert a lateral from the Specview Palette
- Use the Justification and Flip option to correctly orientate the lateral with the sloped piping and use the intersect snap point to position.
- Use the compass to orientate the leg of the lateral in the correct position
- Use the grip stretch to shorten the piping.





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- Change to a SE IsoView and continue routing to complete the line to the pump.
- Use the router connect option and choose an option that runs parallel to the existing completed line.
- Multiple Viewports may make the selection of connection points easier.



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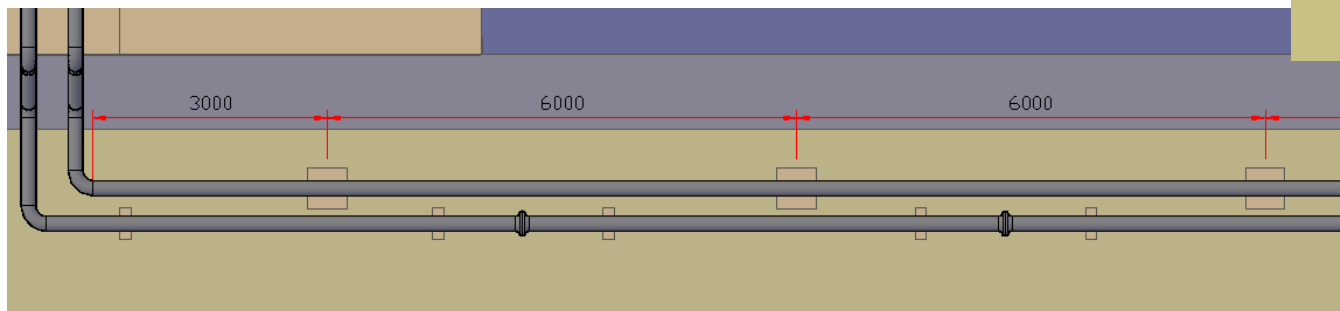
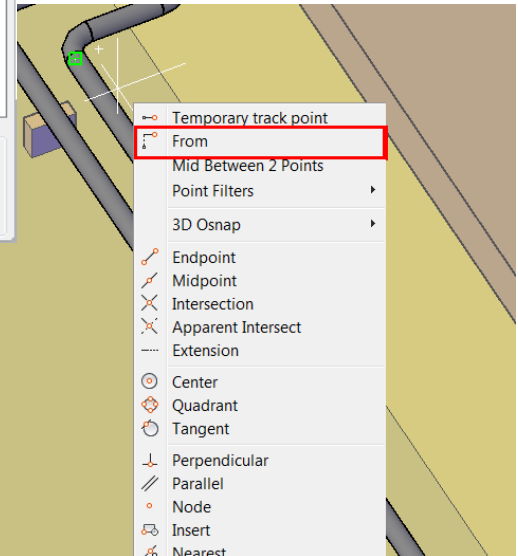
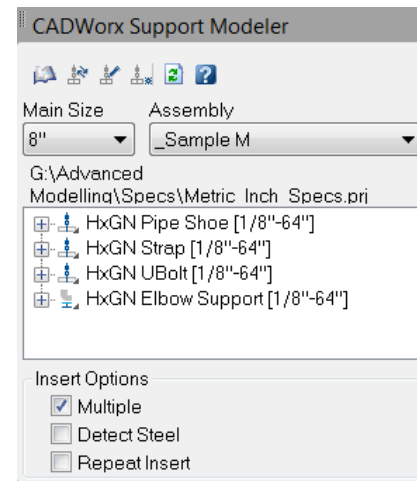
- Start the Pipe Support modeler, make sure multiple insertion is selected and choose the HxGN Pipe Shoe.
- Use the FROM osnap to position the first shoe 3000 from the weld of the elbow.
- Click on the pipe endpoint and confirm the spacing as 6000.

Pick insertion point:_from Base point:

<Offset>: @3000,0

Specify end point:

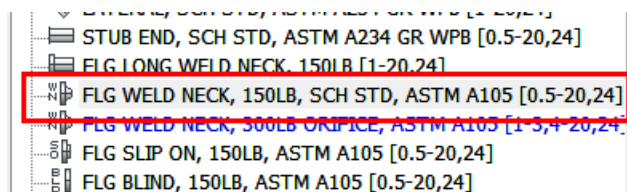
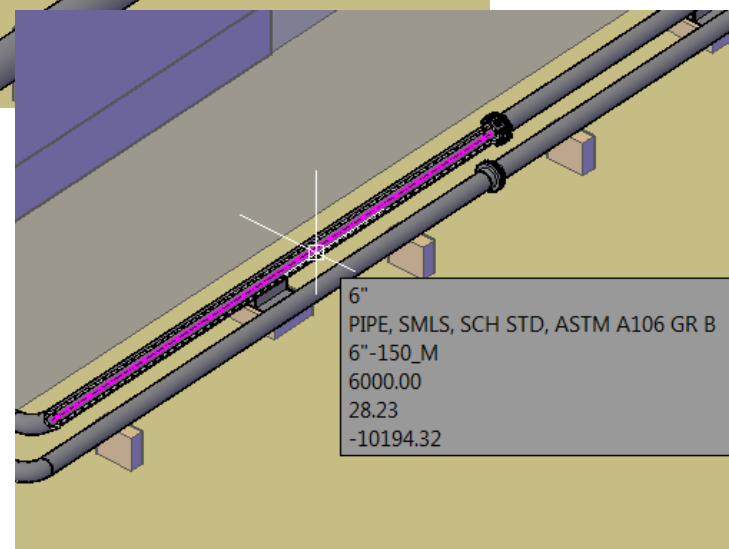
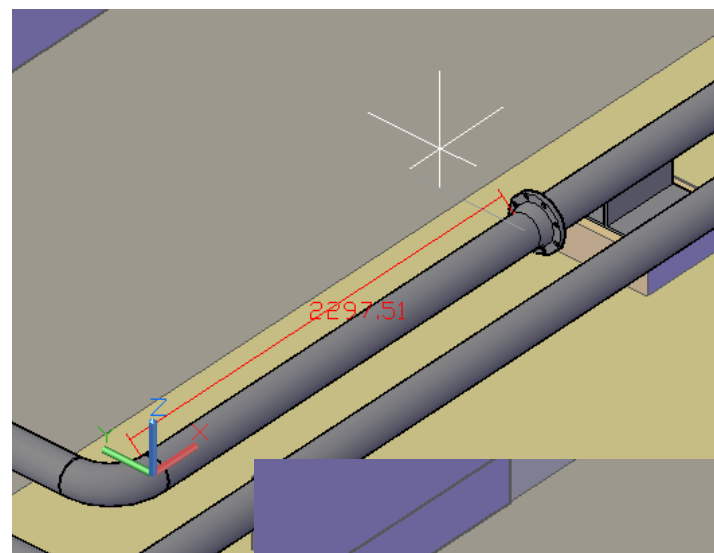
Specify support spacing: 6000





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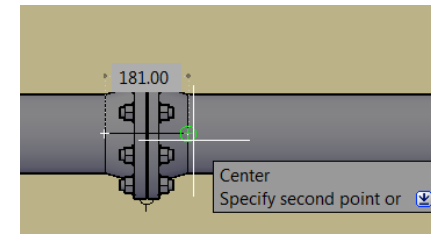
- Complete the pipeline with flanges.
- Set the size to 6" to match the pipe
- Place a weld neck flange with the BW end.
- Specify a weld to weld dimension of 6000
- Use tooltips or DIST command to check the length is 6000.



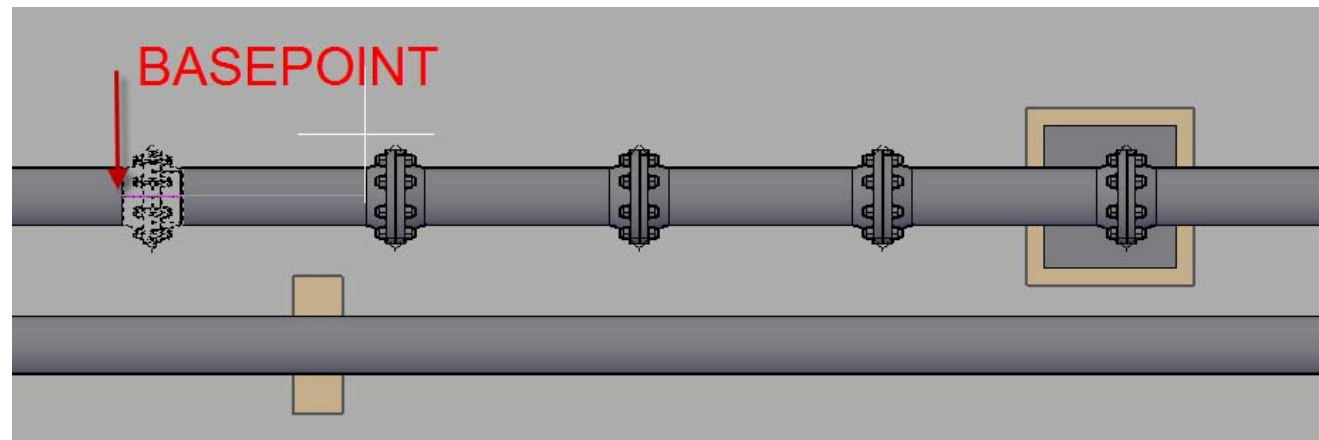
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- Measure the overall flange set dimension.
- Use the copy command and select the flange set.
- Choose the weld of the flange as base point for the copy.
- Choose the Array option and specify the direction as +X
- Enter the dimension : 6181



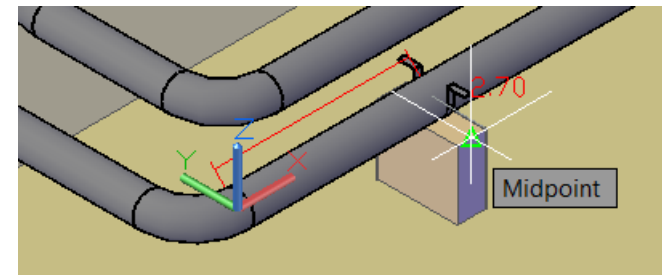
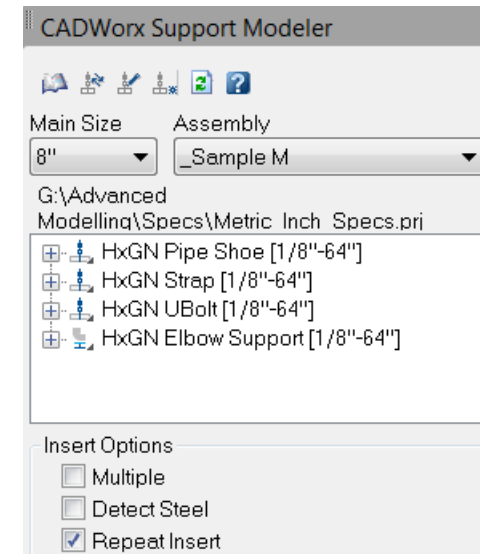
```
Command: COPY
Select objects: Specify opposite corner: 4 found, 4 groups
Select objects:
Current settings: Copy mode = Multiple
Specify base point or [Displacement/mOde] <Displacement>:
Specify second point or [Array] <use first point as displacement>: a
Enter number of items to array: 5
Specify second point or [Fit]: 6181
Specify second point or [Array/Exit/Undo] <Exit>:
Breaking pipe into two pipes...
```



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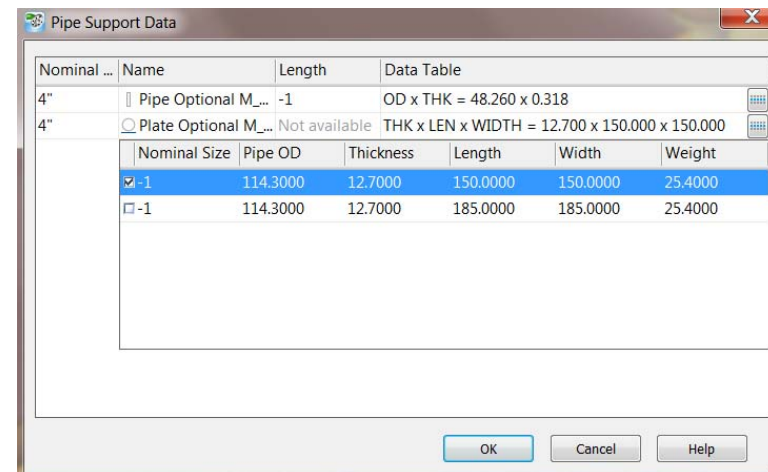
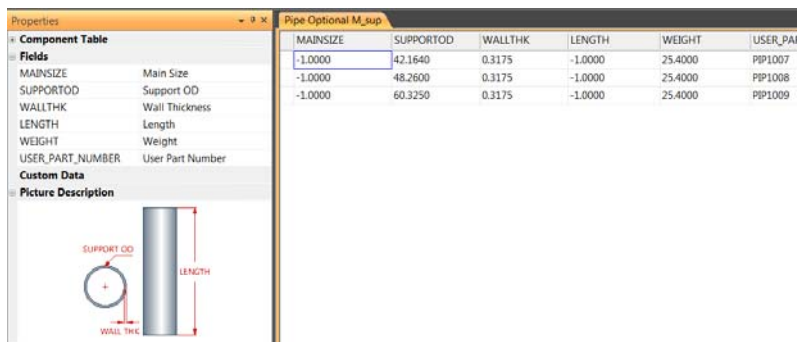
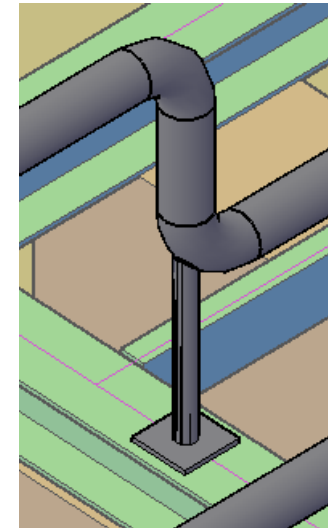
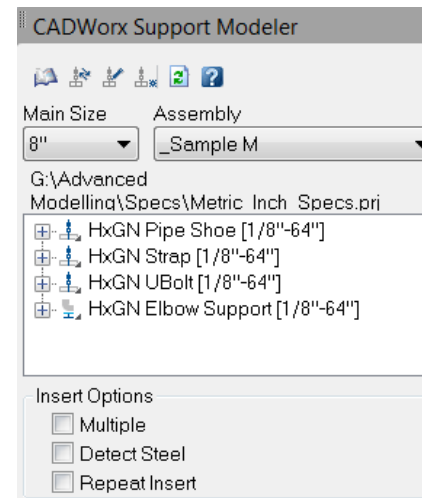
- Continue with pipe supports on the 2nd delivery line.
- Select the repeat insert option from the PipeSupport Modeler.
- Choose the HxGN Strap and snap on the midpoint of the civil support and choose the direction as down.
- Note how the prompt for insertion continues for next placement until the user cancels.
- Repeat for the other support locations.



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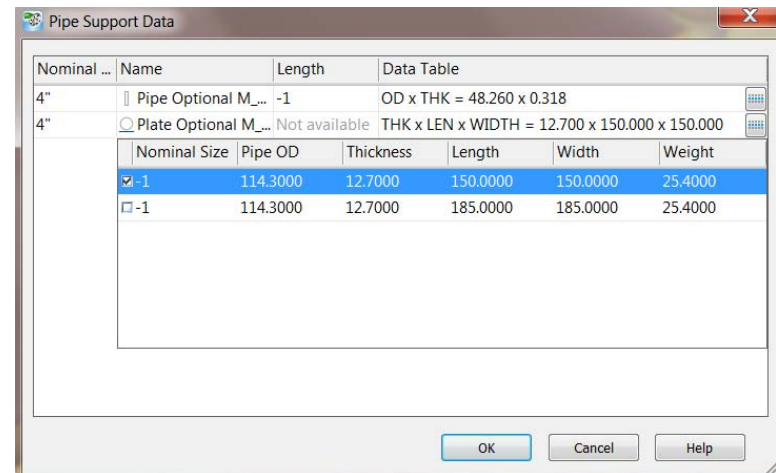
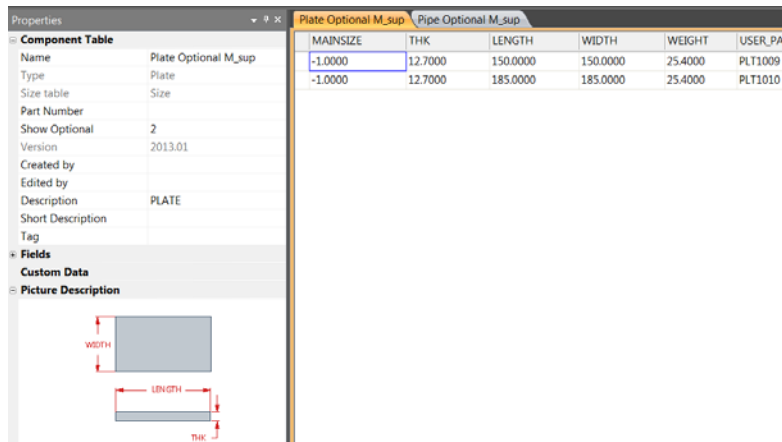
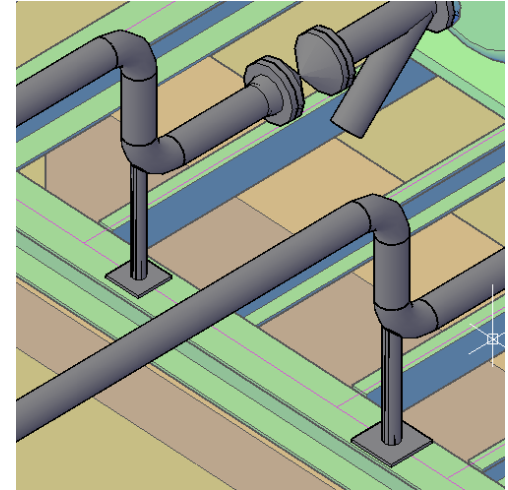
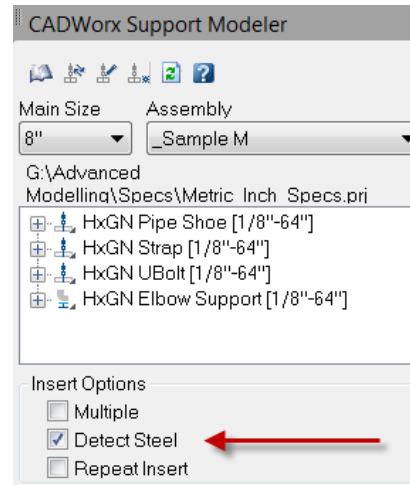
- Zoom to the PumpStation
- Place the HxGN Elbow Support on the 1st suction line
- Choose a 42od pipe and 150x150 plate.
- Notice the A;B;C;D;E;F options, seen better in wireframe visual style.
- Use point filters to snap the support to the structural steel.



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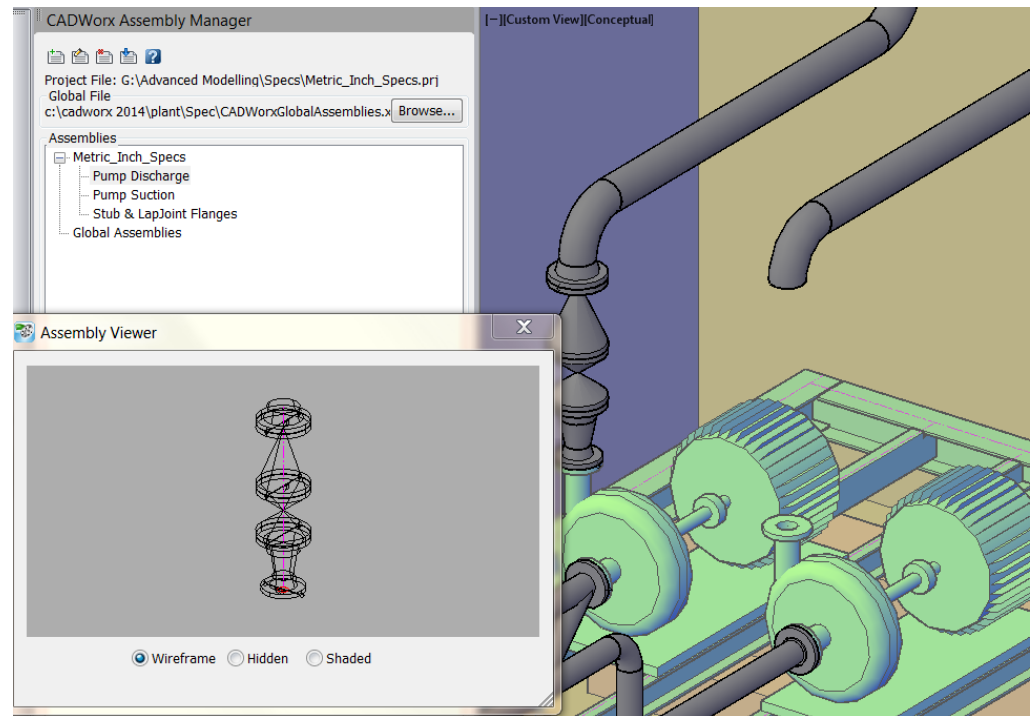
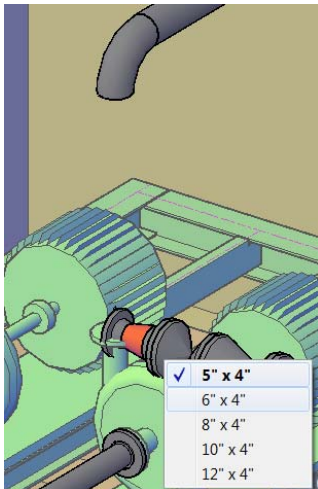
- Do the same for the 2nd delivery line and set the detect steel option.
- Place the HxGN Elbow Support on the 2nd suction line
- Choose a 60od pipe and 185 x 185 plate
- Notice how the support snaps to the structural steel automatically.



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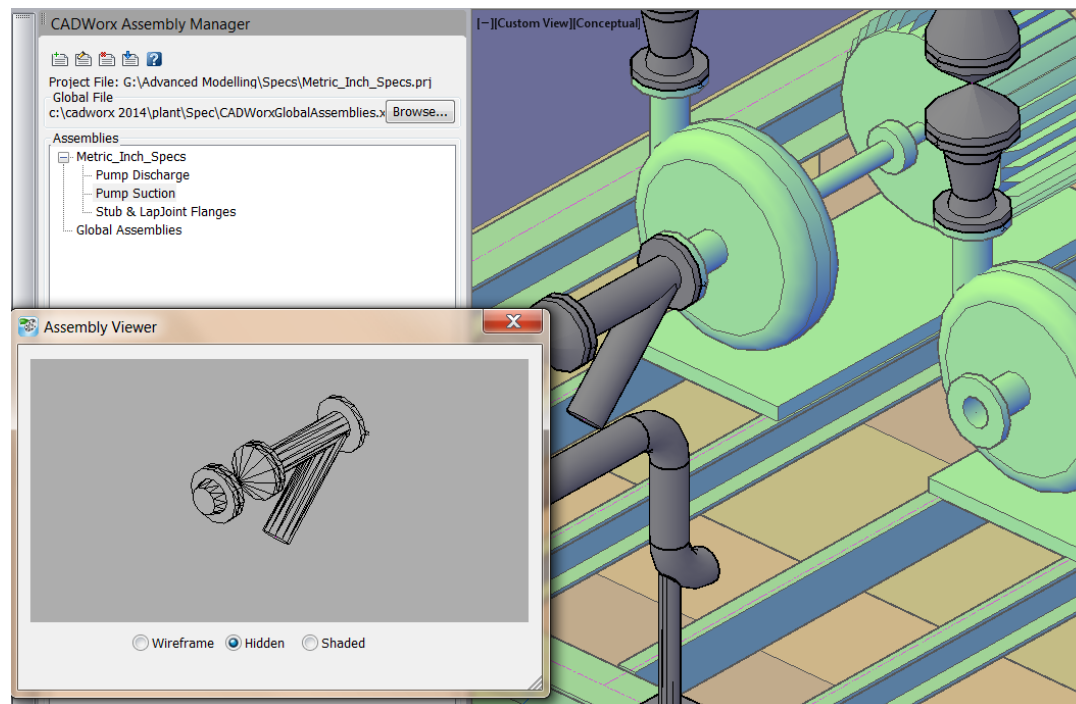
- Delete the pipe from the 2nd pump discharge
- Open the AssemblyView palette
- Set the size to 4" and insert the Pump Discharge from the palette.
- If the size was not set correctly the software may prompt for a reducer size confirmation.
- Choose 6"x4"





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- Delete the pipes from the 2nd pump suction
- Make sure the size is set to 4". (it may have changed after the previous.
- Place the Pump Suction from the palette.



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■ Questions ?