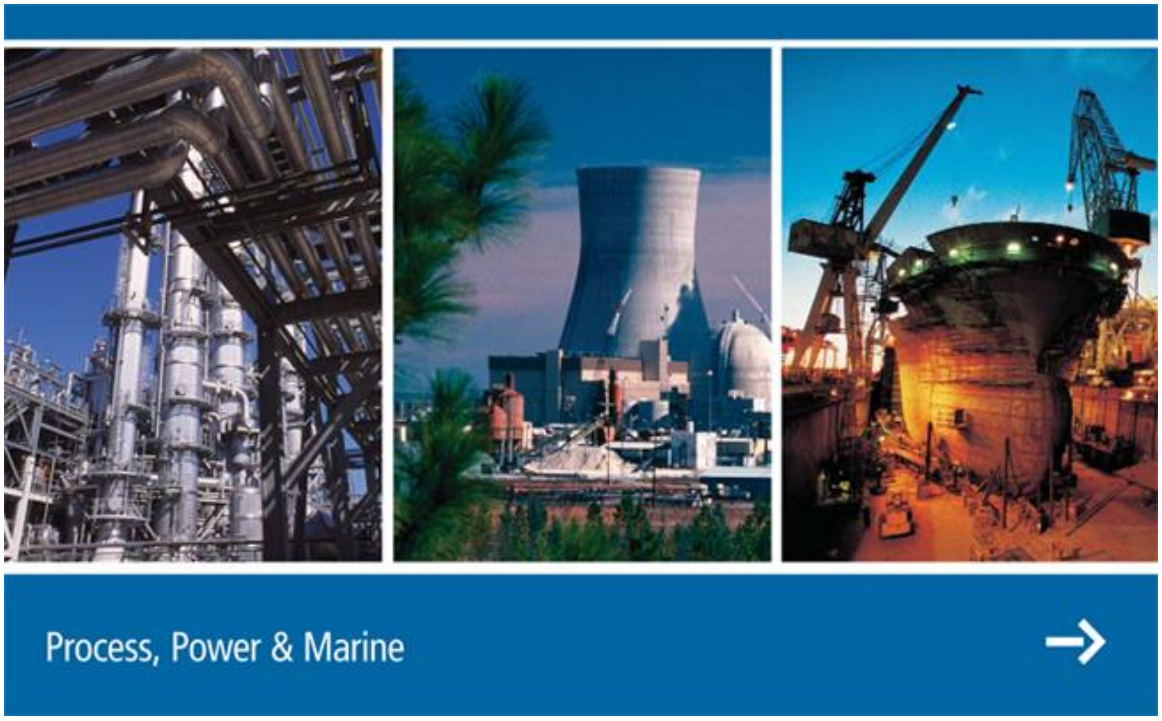
SmartPlant 3D

Drawing Configuration Practice Labs



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Contents

Lab 1 Border and Layout Templates

New Drawing Border Template

Objective

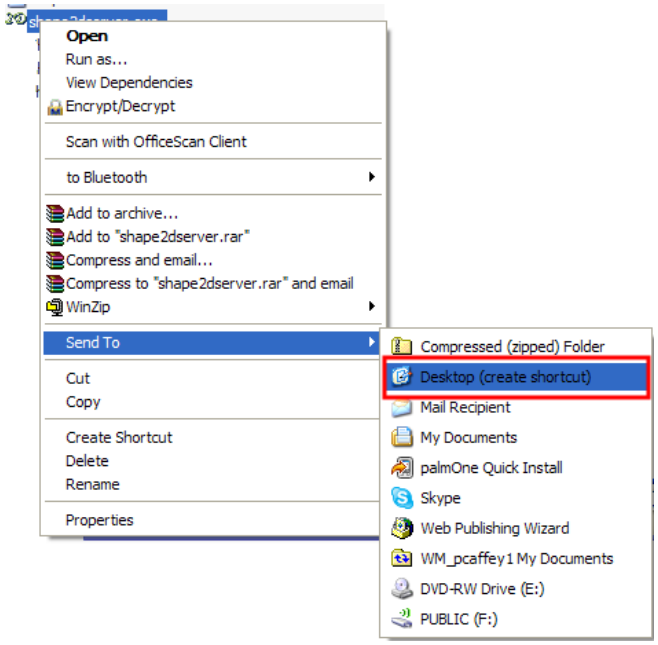
- Create a new drawing border template by importing a MicroStation file
- Add border (title block) labels

Note

Before you start this and following exercises, navigate to your symbols share in Windows Explorer. Select the Drawings folder, uncheck the 'Read Only' box and propagate the changes to all sub folders and files. This will enable you to edit all.

Using a DGN template to seed a Drawing template

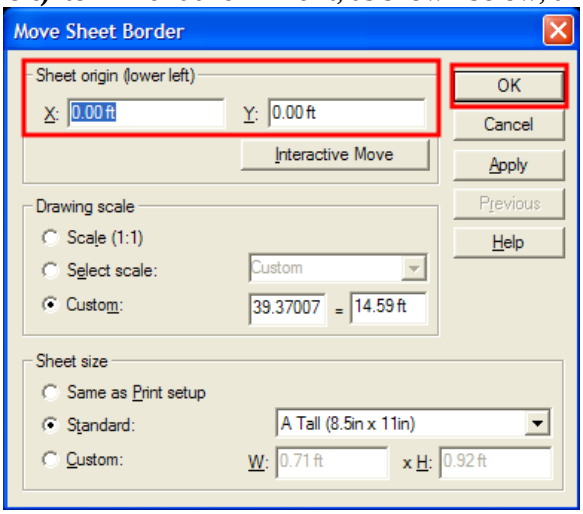
1. This procedure shows you how to import a file so you can edit it in the **Drawings and Reports** task to become a SmartPlant3D border template. The drawing editor used with SmartPlant3D is called the **SmartSketch Drawing Editor** and will accept a DGN or DWG as a seed file to create a border template. The following lab instructs how to import a DGN which can be used as a SP3D drawing template.
2. Start the (SmartSketch) Drawing Editor.
   a. For SP3D2009: Open Windows Explorer and navigate to [Installation Dir]\\Common2D\Shape2D\Bin. Right click on shape2dserver.exe and select "Send to" and on the flyout menu select **Desktop (create shortcut)**, as shown below:



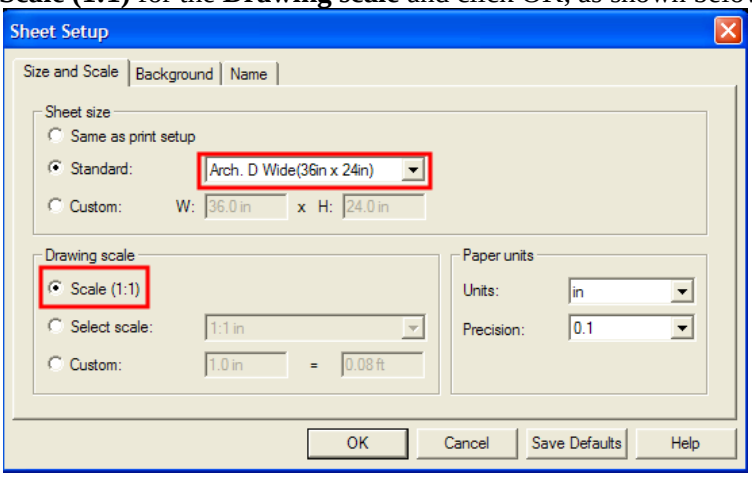
Open Drawing Editor using shortcut.

b. For SP3D2009.1: Open Start → Programs → Intergraph SmartPlant 3D → SmartSketch Drawing Editor.

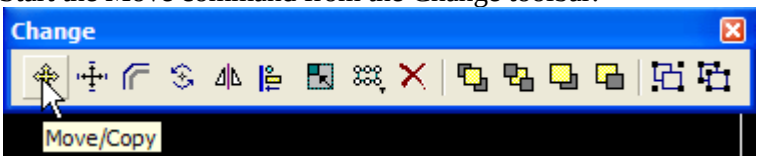
3. Select File – Open from the main menu to open the DGN provided by the instructor, the file contents are automatically converted to SHA format.
4. After the DGN file is open in the **SmartSketch Drawing Editor** application, select File – Move Sheet Border. Change the X and Y values for the **Sheet origin (lower left)** to X = 0 ft and Y = 0 ft, as shown below, and click OK.



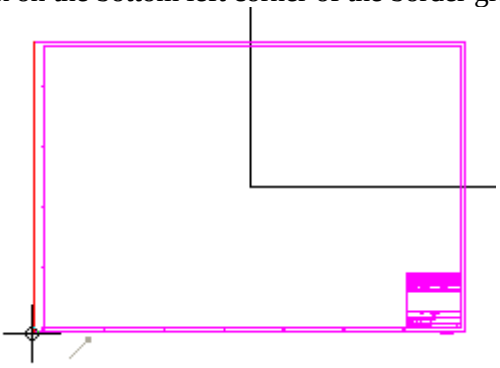
5. Select File → Sheet Setup. On the **Size and Scale** tab change the **Sheet Size** to "Arch. D Wide (36in x 24in)" from the drop down select list. Select the radio button **Scale (1:1)** for the **Drawing scale** and click OK, as shown below:



6. Start PinPoint using menu Tools → PinPoint and press the select command to dismiss the reposition target.
7. Use the keystroke combination **Ctrl + A** to select all graphical objects.
8. Start the Move command from the Change toolbar.



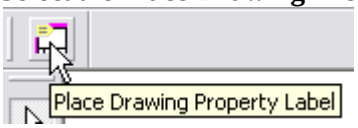
9. Click on the bottom left corner of the border graphics.



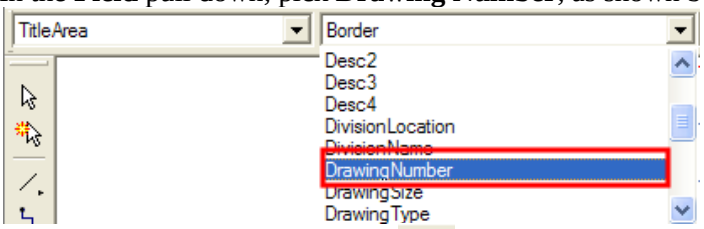
10. Move mouse to X=0, Y = 0 and left click to finish the move.
11. From the main menu, select File – Save As and navigate to the symbol share for the catalog to the following location: \\[Symbol Share]\Drawings\Catalog\templates\Imperial. Save the templates as ArchDWide.sha.
12. Close Drawing Editor.

Adding Drawing Property Labels and Drawing Area

13. Change the Tasks to **Drawings and Reports** task and select **Tools – Edit Border Template** from the main menu.
14. Select "ArchDWide.sha" from the **Imperial** folder and OK the form.
15. Select the **Place Drawing Property Label** command

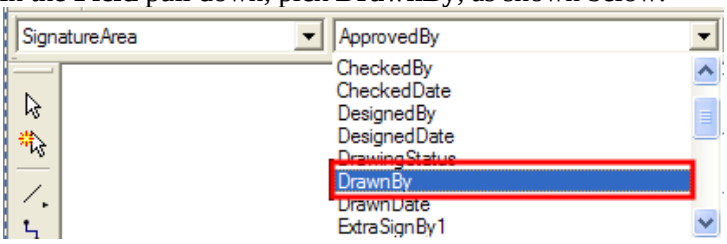


16. In the **Label Set** pull down, pick **Title Area**.
17. In the **Field** pull down, pick **Drawing Number**, as shown below:

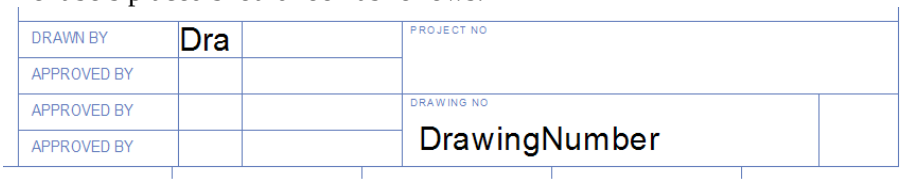


18. Select the **Display Label Names**  located at the far right of the **Place Drawing Property Label** ribbon bar.
19. Zoom into the title block area close to the bottom right corner of the sheet.
20. Click in the rectangle labeled 'DRAWING NO'.
21. Right mouse click to exit the label placement command. Position the label by dragging it and resize the label to the desired width using the handles on the label.
22. Select the **Place Drawing Property Label** command again and select **SignatureArea** from the **Label Set** pull down.

23. In the **Field** pull down, pick **DrawnBy**, as shown below.



24. Click to position the label in the cell provided in the Title area of the document labeled "DRAWN BY". Resize the label to fit the cell provided.
25. The labels placed should look as follows:



26. Click the select command to deselect everything and use the fit command to fit the entire drawing.
27. Next, place a **Drawing Area** in the document by selecting the **Place Drawing Area** button  located in the top left of the document. This will enable us to use **Layout Templates** with this border.
28. With this command active, left click once on the top corner of the document where the ruler starts. Drag your mouse to the bottom corner of the document just above the **Title Area** designation and left click again to finish the command.

29. Close the document and select "Yes" when prompted to save the changes made to the border template.

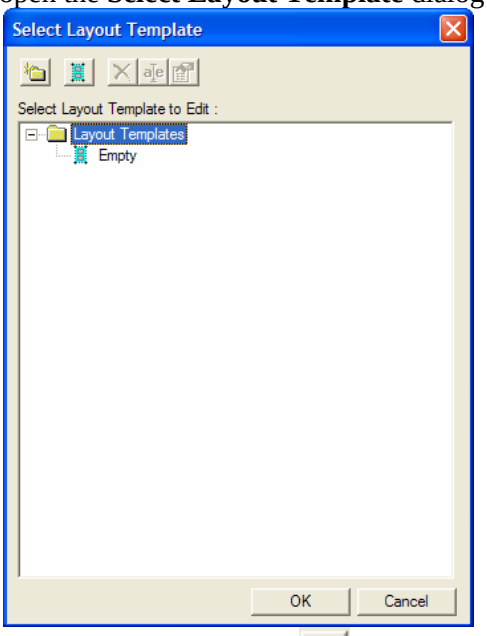
Defining Layout Template

Objective

- Create a new layout template that contains a region and a view to predefine the layout

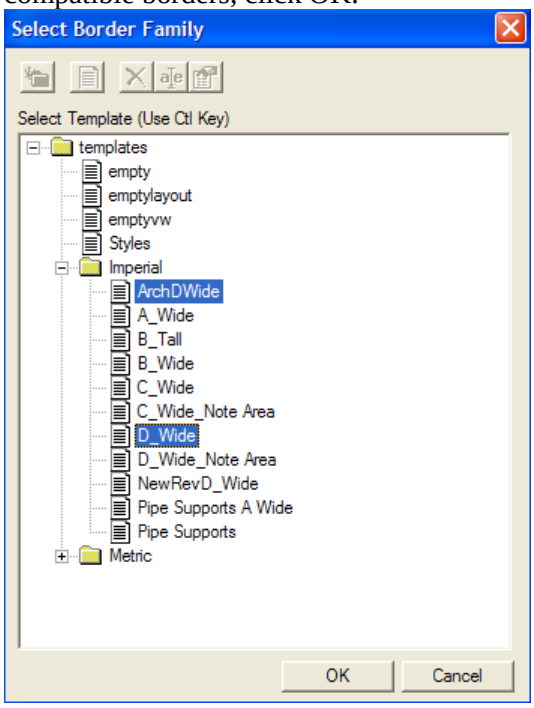
Define the layout template

1. In the **Drawings and Reports** task, select Tools – Edit Layout Template… This will open the **Select Layout Template** dialog as shown below:



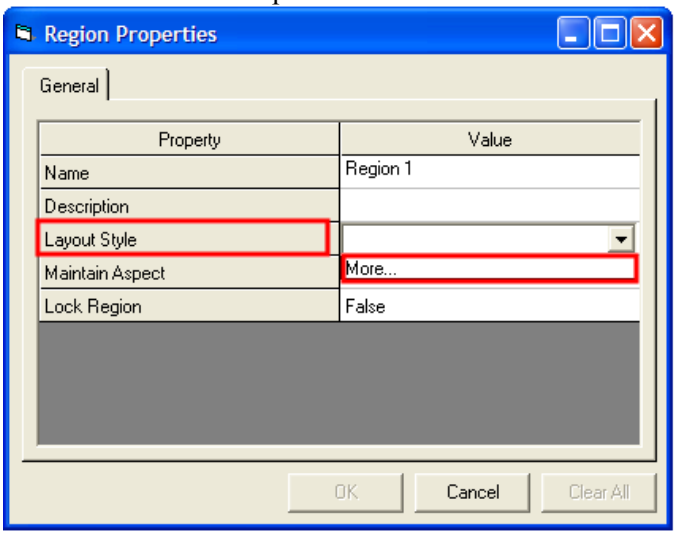
2. Click on the **New** button  which will create a new layout called "New Layout". With this layout selected, change the name of it by selecting the **Rename** button  and type in "Piping Plan 0_25 in = 1 ft".
3. With the new layout highlighted, click OK. This will open the layout template in the **SmartSketch Drawing Editor**.
4. When the document opens you will be prompted with a dialog labeled **Select Border Family**. Expand the **Imperial** folder and select the templates "ArchDWide" and "D_Wide" using the **Ctrl** key while selecting. When you are finished selecting the

compatible borders, click OK.

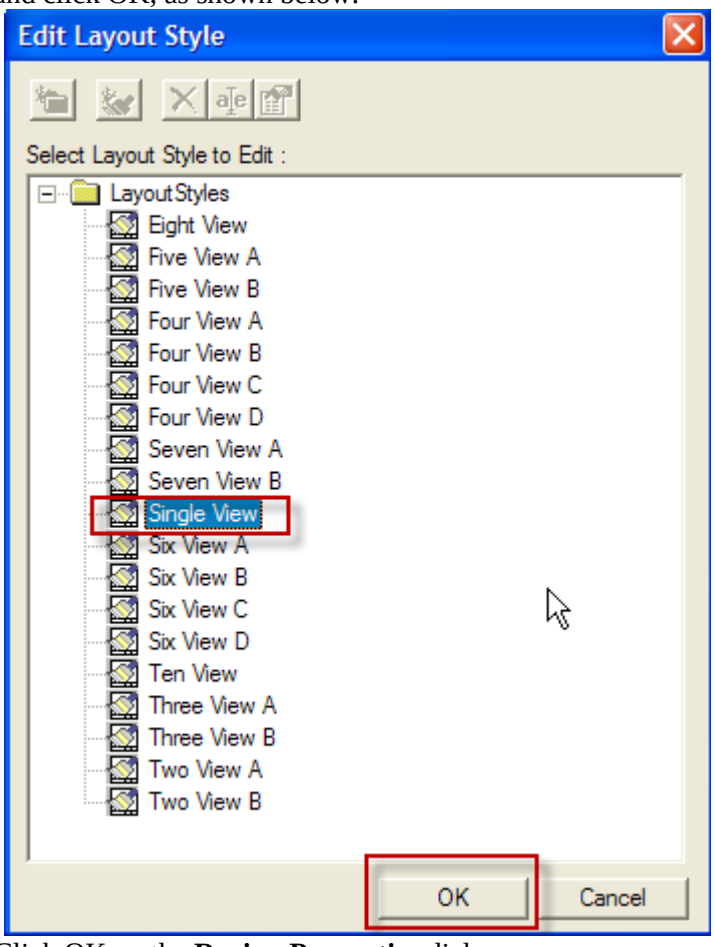


5. On the horizontal toolbar, select the **Place Region** button  and left click once on the top left corner of the magenta view and drag your mouse to the bottom right corner of the magenta view. Left click again to place the region. After this mouse click you will be presented with the **Region Properties** dialog.

6. On the **General** tab of the dialog, click in the **Layout Style** value field and select "More…" from the drop down list.



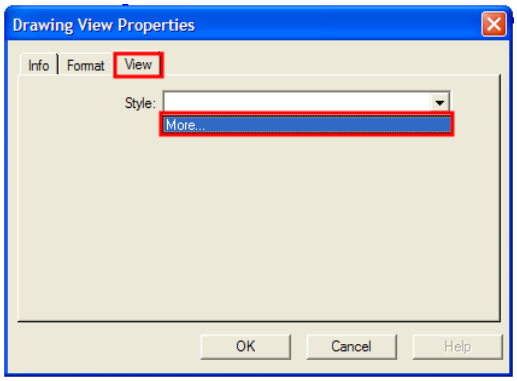
7. This will open the **Edit Layout Style** dialog where you will select "Single View", and click OK, as shown below:



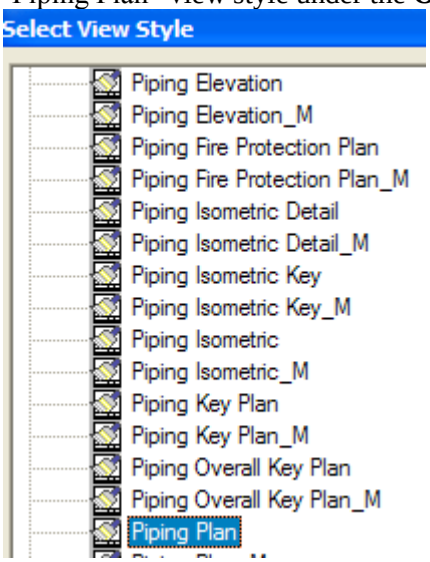
8. Click OK on the **Region Properties** dialog.

9. Select the **Place View** button  , on the horizontal ribbon bar, and left click once in the magenta view. Drag your mouse to create a small square and left click again. This will place a drawing view in the region placed in the previous steps. You will now be presented with the **Drawing View Properties** dialog.

10. On the **View** tab of the dialog, drop down the select list for the **Style** and select "More …".



11. This will present you with the **Select View Style** dialog where you will select the "Piping Plan" view style under the **Orthographic** list.



12. After the style is selected, the dialog box will present more view properties that can be filled in. Fill in the properties as follows, omitting fields in the dialog that are not mentioned below, and click OK:
    Name = Piping Plan
    Scale Family = Architectural Scales
    User Selected Scale = ¼ in = 1 ft
    Look Direction = Looking Plan
    Margin Top = 4.0 in
    Margin Bottom = 4.0 in
    Margin Left = 4.0 in
    Margin Right = 4.0 in
13. Once you click OK on the dialog, notice how the view will automatically reposition itself in the region.
14. Exit the **SmartSketch Drawing Editor** when you have completed the view placement and save the changes made to this document by select "Yes" when prompted.

Lab 2 View Styles, Line Styles and Filters

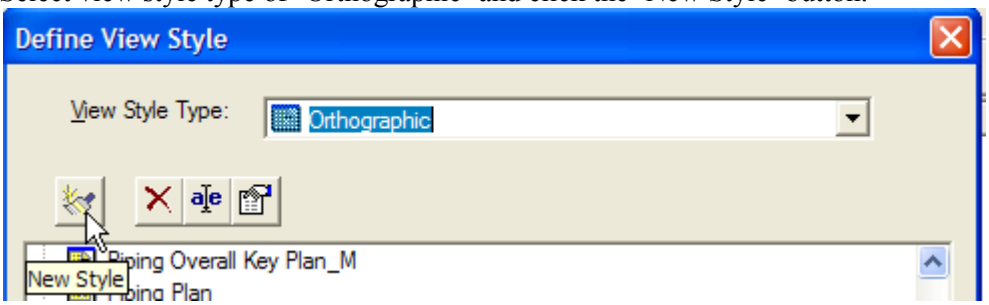
New View Style and Filter Behavior

Objective

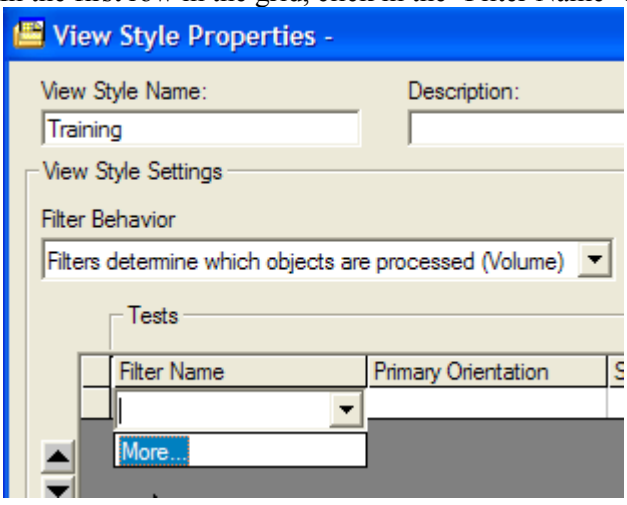
- Create a new view style that includes specific object type in the view
- Create a new graphic rule that uses a specific color/line style to draw the objects
- Modify view style behavior from volume (include) to snapshot (override)
- Modify graphic rule to draw the hidden line style
- Draw the centerlines for a linear object

Create New View Style

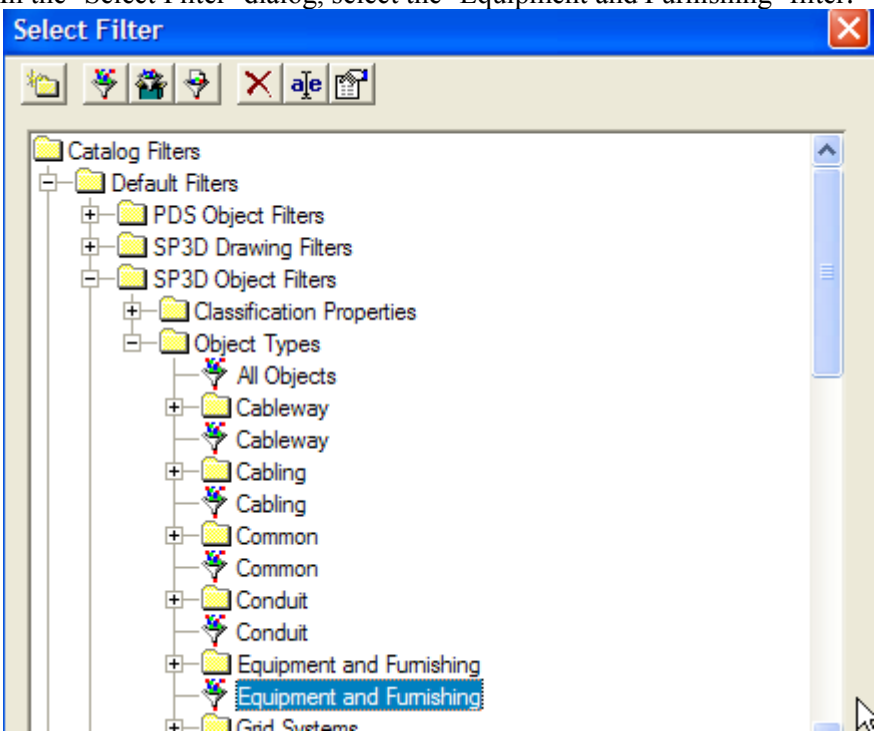
1. Switch to Drawings and Reports task using Tasks → Drawings and Reports.
2. Select menu Tools → Define View Style.
3. Select view style type of 'Orthographic' and click the 'New Style' button.



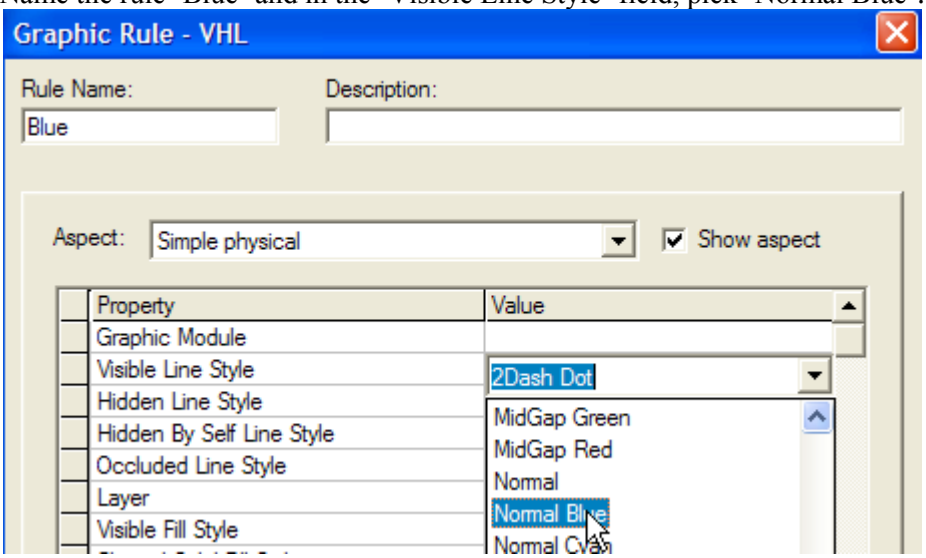
4. Name the newly created style 'Training' and click the Properties button.
5. In the first row in the grid, click in the 'Filter Name' column and select 'More…'.



6. In the ‘Select Filter’ dialog, select the ‘Equipment and Furnishing’ filter.



7. Click in the ‘Graphic Rule’ column and select ‘More…”.
8. In the ‘Select Graphic Rule’ dialog, click the ‘New…’ button.
9. Name the rule ‘Blue’ and in the ‘Visible Line Style’ field, pick ‘Normal Blue’.



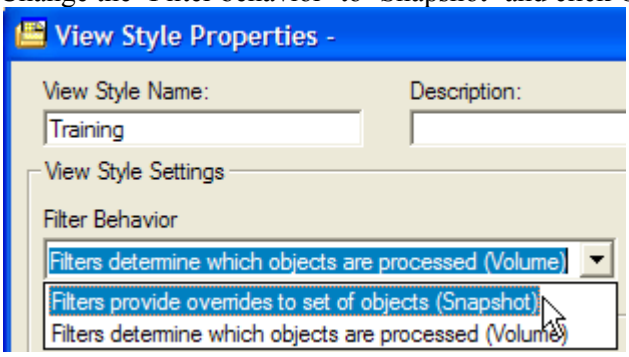
10. Click OK to define the graphic rule.
11. Click OK to use the graphic rule ‘Blue’ to use for the selected row.
12. Click OK to define the view style.
13. Click Close to close the view style form.

Apply View Style

14. Edit the drawing ‘Piping Plan 1’.
15. Select the view, right-mouse click and open properties.
16. In the drawing view properties form, select the ‘Training’ view style and click OK.
17. Right-mouse click the view and update view.
18. Review the output (notice that only equipment is shown in blue) but do not close Drawing Editor.

Change Filter Behavior

19. Select menu Tools → Define View Style.
20. Select the view style ‘Training’ and click Properties button.
21. Change the ‘Filter behavior’ to ‘Snapshot’ and click OK.



22. Switch to Drawing Editor, and update the view. Notice that equipment continues to be shown in blue but other objects are shown in black color.

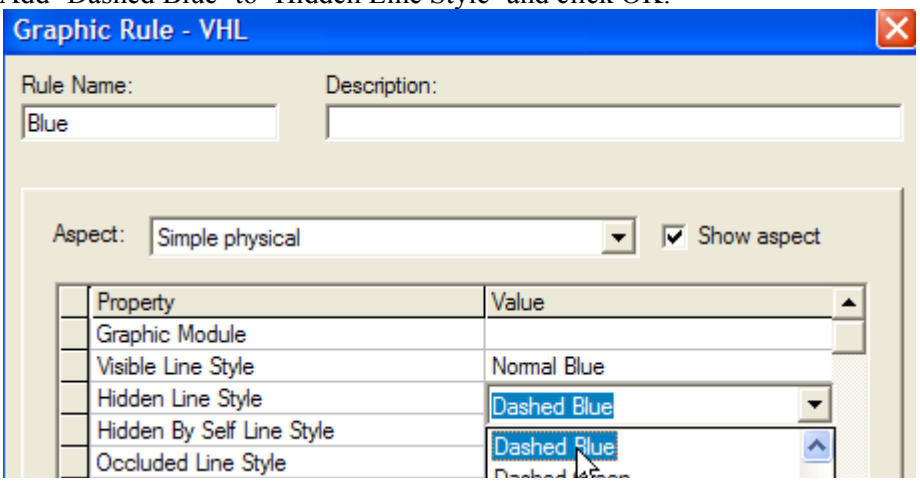
Add Row to View Style

23. Select the view style ‘Training’ and click Properties button.
24. Add a row with filter ‘Piping’ and graphic rule ‘Red’ with visible line style ‘Normal Red’ and click OK.
25. Switch to drawing editor and update view.

Add Hidden Lines to Graphic Rule ‘Blue’

26. Select the view style ‘Training’ and click Properties button.
27. Click in the Graphic Rule field in the first row and select ‘More…’.
28. Select the graphic rule ‘Blue’ and edit properties.

29. Add ‘Dashed Blue’ to ‘Hidden Line Style’ and click OK.



30. Switch to drawing editor and update view. Notice how lines of equipment hidden under other objects are shown dashed.

Add Centerline to Pipes

31. Select the view style ‘Training’ and click Properties button.
32. Click in the Graphic Rule field in the second row and select ‘More…’.
33. Select the graphic rule ‘Red’ and edit properties.
34. Set ‘Show Centerline’ to ‘Yes’.
35. In the ‘Centerline Visible Line Style’ filed select ‘Chain Red’.
36. Click OK to finish graphic rule modification.
37. Switch to drawing editor and update view. Notice how center lines of pipes are shown as chain.
38. Close the drawing editor and close and save the SP3D session.

Creating New Line Styles

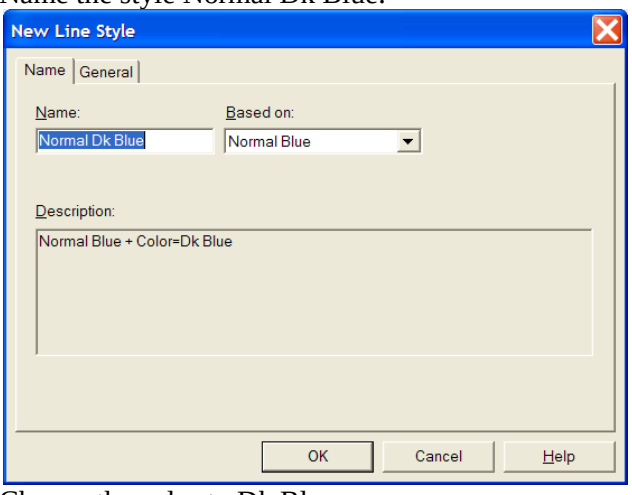
Objective

- Create new line styles in the Styles.sha file
- Use the new line styles in a view style to apply them to different object types

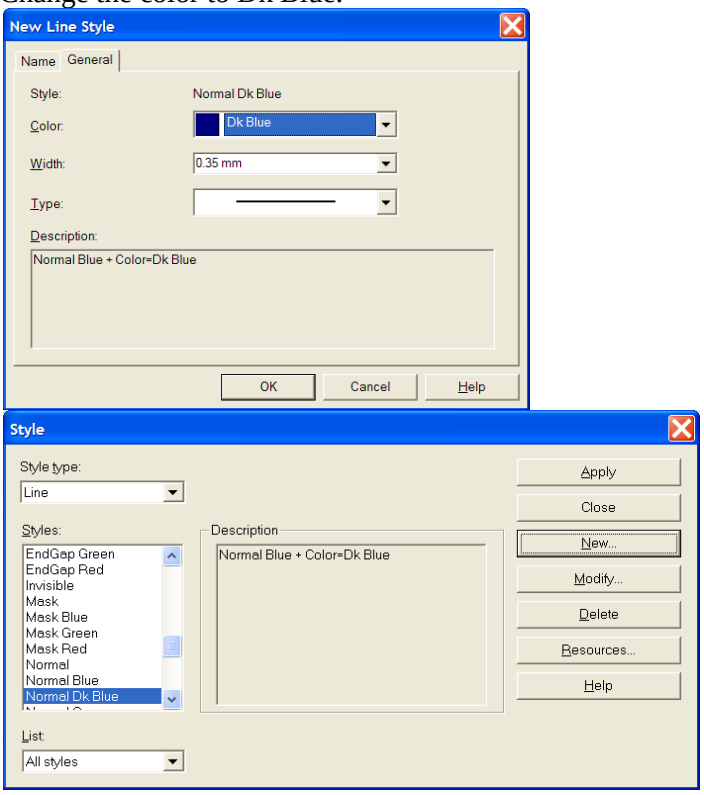
Defining Line Styles

1. Open the file Styles.sha in the [Symbol Share]\Drawings\Catalog\Templates folder.
2. Format – Style and pick the Line option.
3. Select the ‘Normal’ line style and click New.

4. Name the style Normal Dk Blue.



5. Change the color to Dk Blue.



6. Similarly create line styles for ‘Nomal Cyan’ and ‘Normal Magenta’.
7. Close and Save and Exit the Styles.sha file.

Using Line Styles

8. Open the SP3D session and switch to the Drawings and Reports task.
9. Edit the drawing ‘Piping Plan 1’.
10. Tools → Define View Style and edit properties of the ‘Training’ style.
11. Add a row with filter ‘Structure’ and graphic rule ‘Magenta’ with visible line style ‘Normal Magenta’.

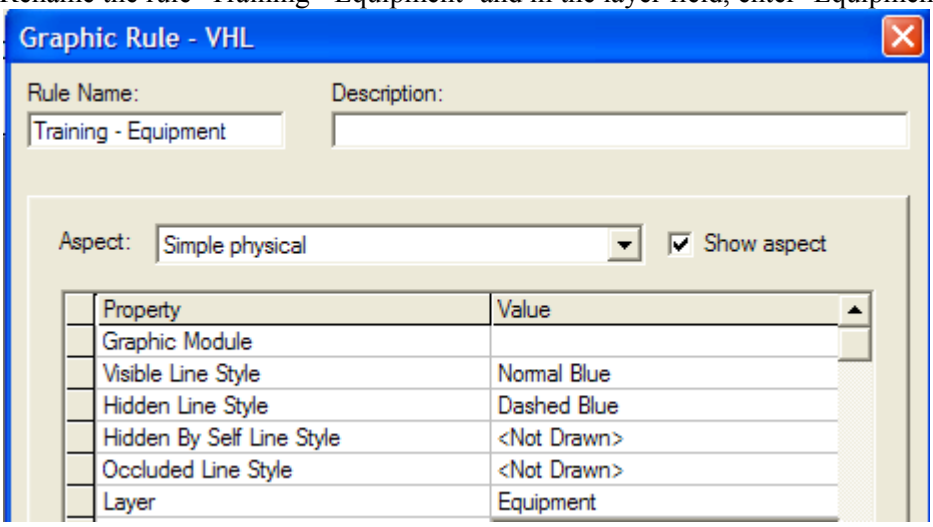
12. Add a row with filter ‘Cableway’ and graphic rule ‘Cyan’ with visible line style ‘Normal Cyan’.
13. Cick OK to save the view style.
14. Switch to drawing editor and update view.

Using Layers

Objective

- Add layers to graphic rules to draw objects on named layers
- Copy graphic rules by renaming existing rules
- Turn display of specific named layers on and off using the display manager

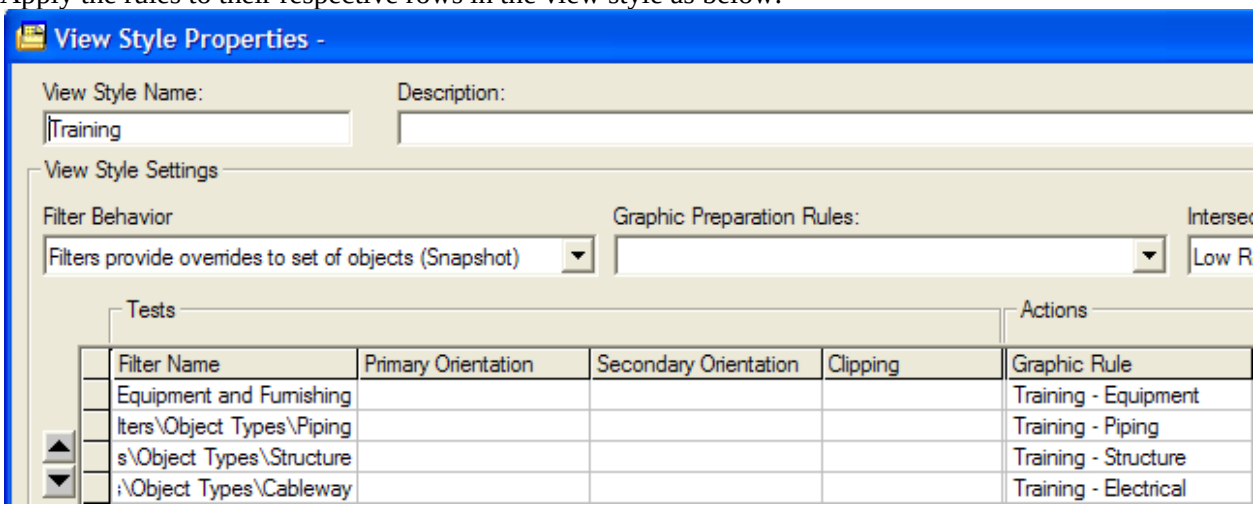
1. Edit the properties of the ‘Training’ view style.
2. Click in the Graphic Rule field in the first row and select ‘More…’.
3. Select the graphic rule ‘Blue’ and edit properties.
4. Rename the rule ‘Training - Equipment’ and in the layer field, enter ‘Equipment’.



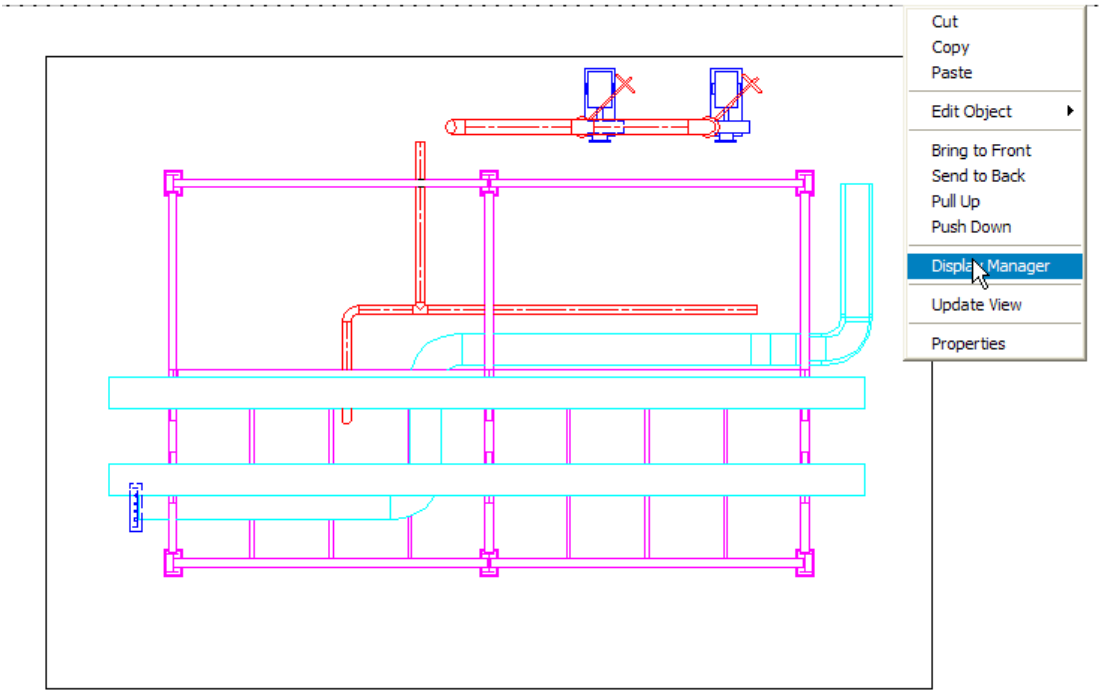
5. Click OK and answer ‘Yes’ to the prompt to create a new rule.
6. Similarly edit the other three graphic rules and create new rules as below.

Old Rule Name	**New Rule Name**	**Layer**
Red	Training – Piping	Piping
Magenta	Training – Structure	Structure
Cyan	Training – Electrical	Electrical

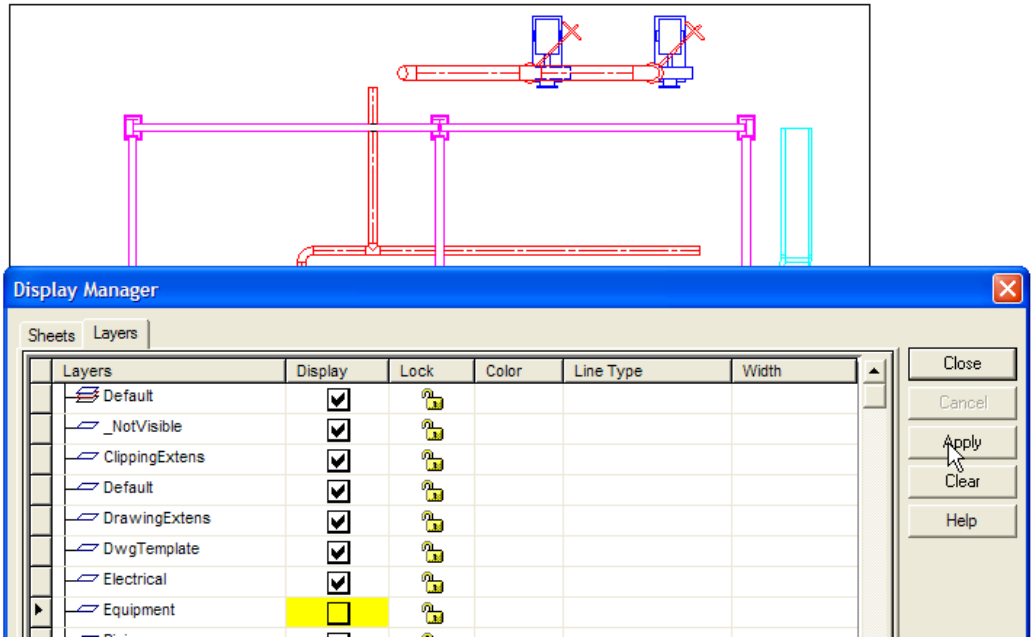
7. Apply the rules to their respective rows in the view style as below.



8. Switch to the drawing editor and update the view. Notice that there is no visible graphical impact.
9. Right mouse click on the view and select 'Display Manager'.



10. Switch to the ‘Layers’ tab to notice additional layers. Uncheck the box next to the ‘Equipment’ layer and click Apply. The equipment is no longer displayed.



11. Remember to turn on the layers before exiting the drawing since this setting is remembered when you close and reopen the drawing editor.

Refining view style with additional filters

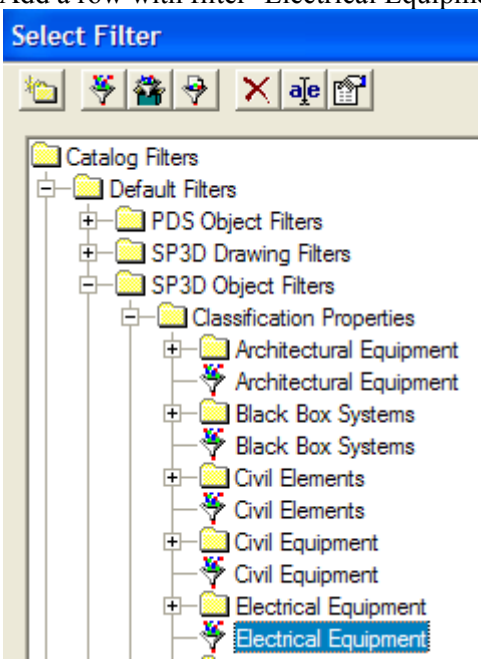
Objective

- Use predefined classification filters to change output of “typed” equipment objects
- Use more specific object type filters to override generic filters used earlier in the view style

Using Classification Filters

1. Edit the properties of the ‘Training’ view style.

2. Add a row with filter ‘Electrical Equipment’ and use graphic rule ‘Training – Electrical’.

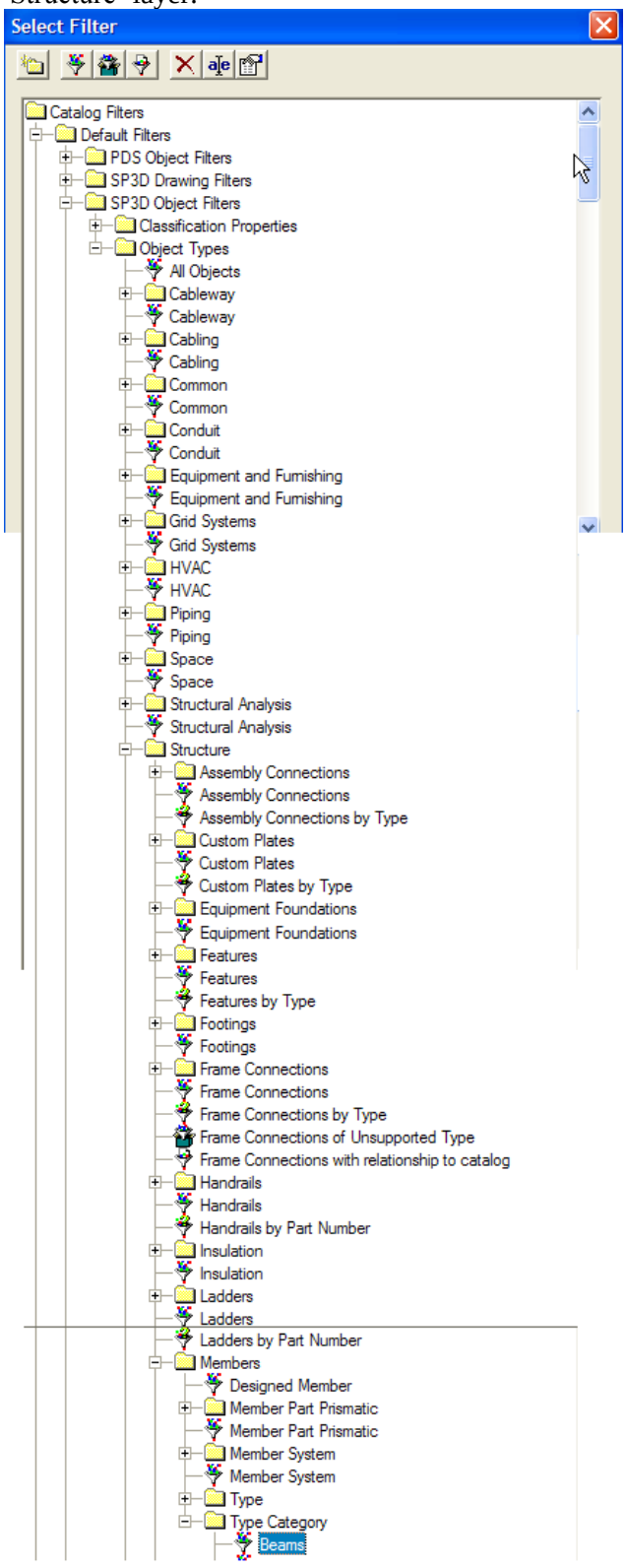


3. Click OK to save the view style.
4. Switch to Drawing Editor and update the view. Notice that the new filter overrides the ‘Equipment and Furnishing’ filter in the first row and the electrical device is shown in Cyan.

Using Object Type Filters

5. Edit the properties of the ‘Training’ view style.
6. Add a row with the filter ‘Beams’ and create a new graphic rule named ‘Training – Beams’ that uses the ‘Normal Dk Blue’ line style created earlier. Continue to use the

'Structure' layer.



7. Save the view style.
8. Switch to Drawing Editor and update the view.

Lab 3 Graphic Rules

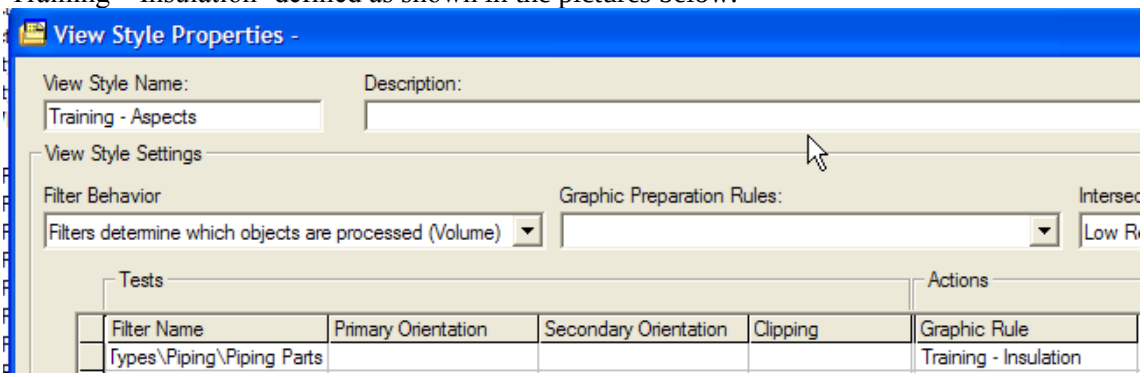
Aspects

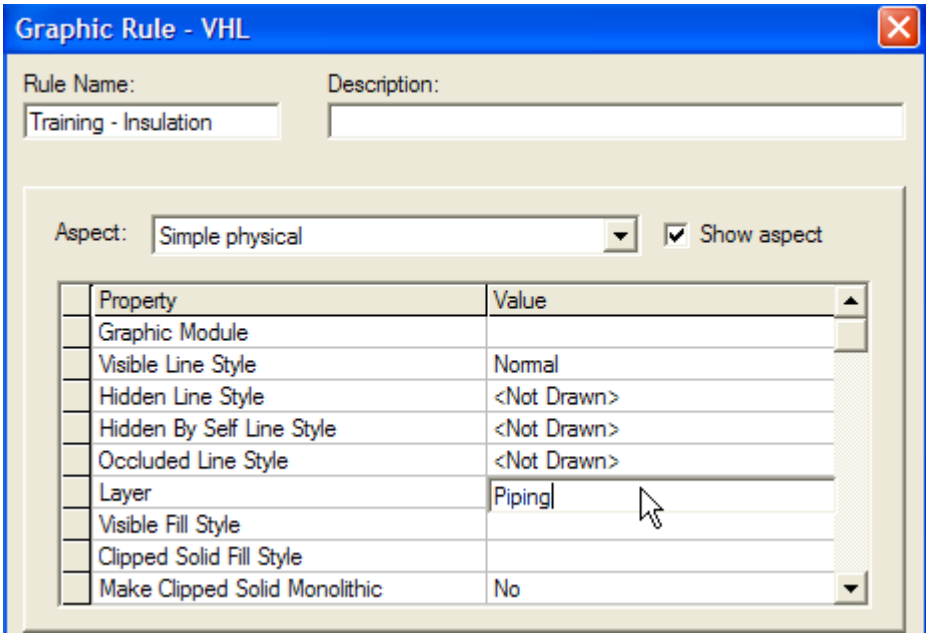
Objective

- Create graphic rule to draw different aspects using different line style
- Use the 'Make transparent for other aspects of object' property of a graphic rule to draw both physical and insulation aspects of piping

Defining View Style

1. Create a new view style named 'Training - Aspects'.
2. Define the view style to include a row for piping parts and a graphic rule named 'Training – Insulation' defined as shown in the pictures below.





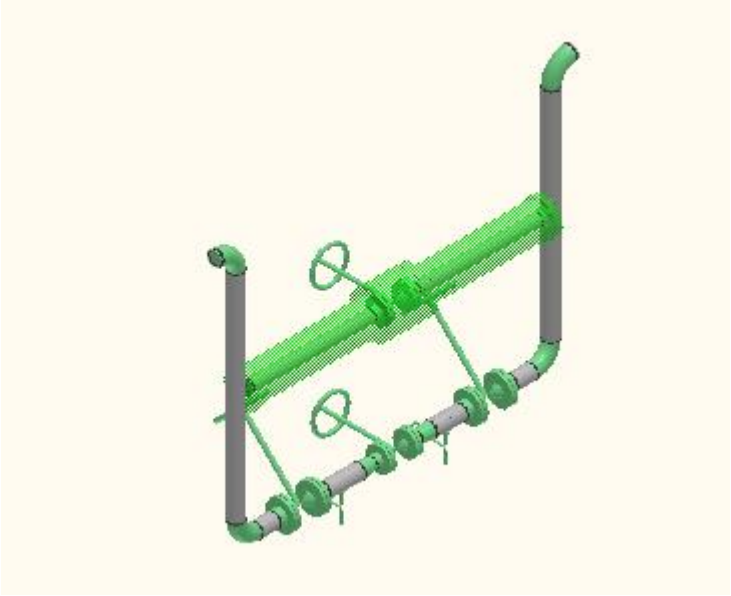
3. In the Aspect drop-down list, select “Insulation” and set the properties as displayed below:
   Visible Line Style: Dotted Green
   Make Transparent: For other aspects of the same object

4. Click OK to save the rule.
5. Click OK to select the rule for the row in the view style.
6. Click OK to save the view style and click Close to close the view style dialog.

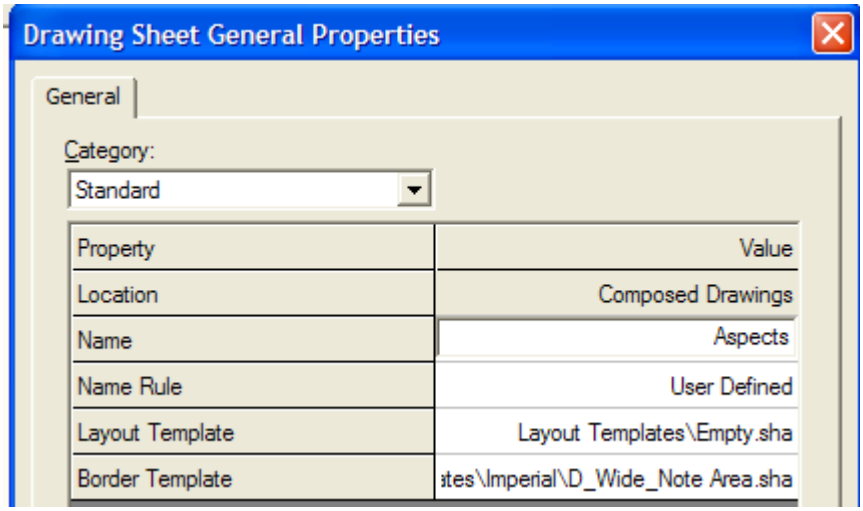
Create New Drawing

7. Switch to Space Management task.
8. Define workspace using filter Plant Filters – Training Filter – U04.
9. Format – View and turn on insulation aspect.
10. Format – Surface Style Rules and add the ‘Piping Insulation – Delivered’ rule to the workspace.

11. Zoom and clip into pipeline 402-P roughly as shown by drawing a fence around the piping and clipping the view.

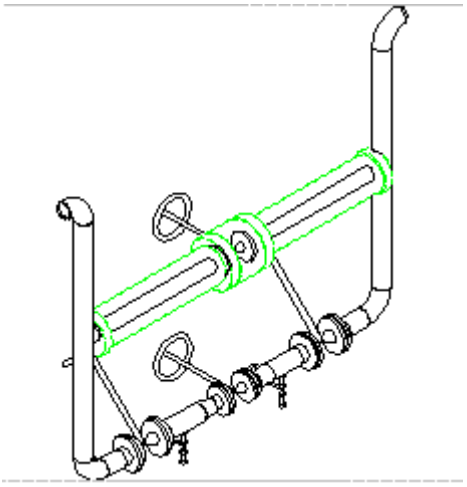


12. Use Tools → Snapshot View to snapshot the screen. Put it in the 'Composed Drawings' folder, and use the 'Training – Aspects' view style. Use the space folder 'Drawings'.
13. Create a new drawing named 'Aspects' in the 'Composed Drawings' folder.



14. Place the snapshot view on the sheet.

15. Update the view, see the results as below.



Make Transparent and Fill Styles

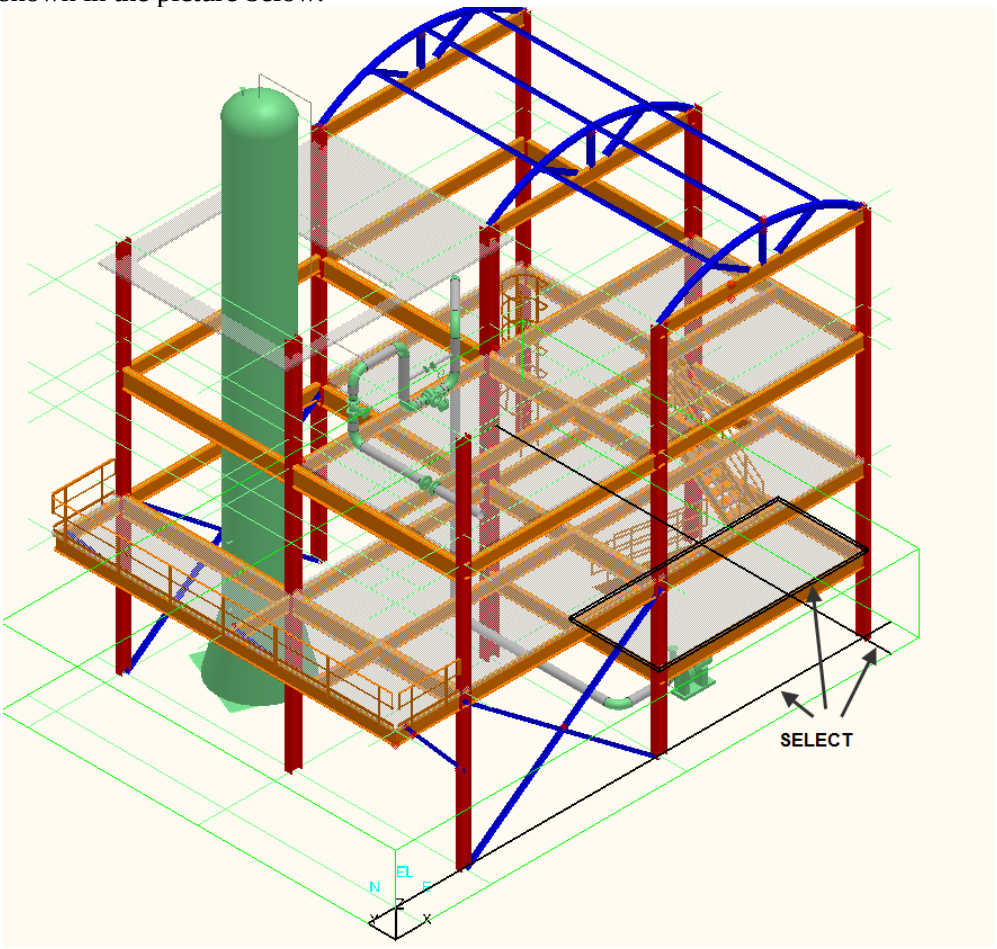
Objective

- Use ‘Make transparent for all objects in view’ property in graphic rule to draw an object in wireframe mode
- Use a visible fill style to fill the visible portion of objects with a predefined pattern
- Copy a fill style in Styles.sha and edit its properties and then use the modified fill style in a graphic rule

Create New Drawing

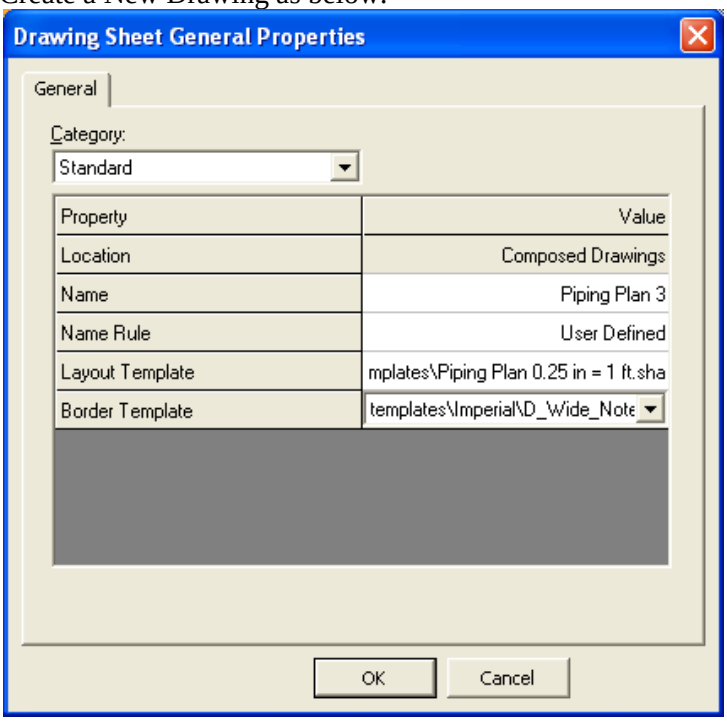
1. Switch to the Space Management task.
2. Define Workspace using the filter Plant Filters – Training Filters – U03.

3. Define a volume by selection set and select the gridlines at elevation 0 and the slab as shown in the picture below.



4. Name the volume ‘U03 Ground Floor’.

5. Create a New Drawing as below.

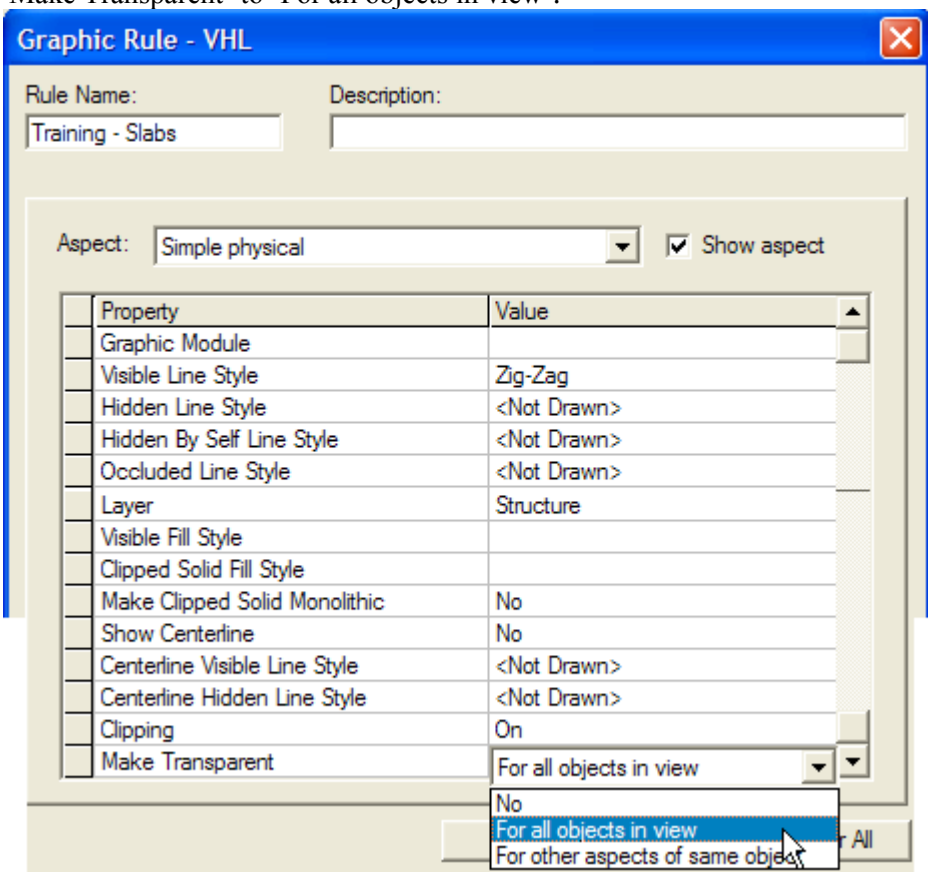


6. Associate the view in the drawing to the newly placed volume and the U03 filter.
7. Edit properties on the view and use the 'Training' view style.
8. You may also change the scale to 'Fit to Scale' to ensure everything in the volume in included in the view.
9. Update the view.
10. Notice that the pump is shown in a dashed blue line style (indicating that its hidden).
11. Close the drawing.

Make Slabs Transparent

12. Switch to the 'Drawings and Reports' task.
13. Edit the view style 'Training' and add a row that selects the 'Slabs' filter.

14. Add a new graphic rule ‘Training – Slabs’ that uses the ‘Zig-Zag’ line style and set ‘Make Transparent’ to ‘For all objects in view’.

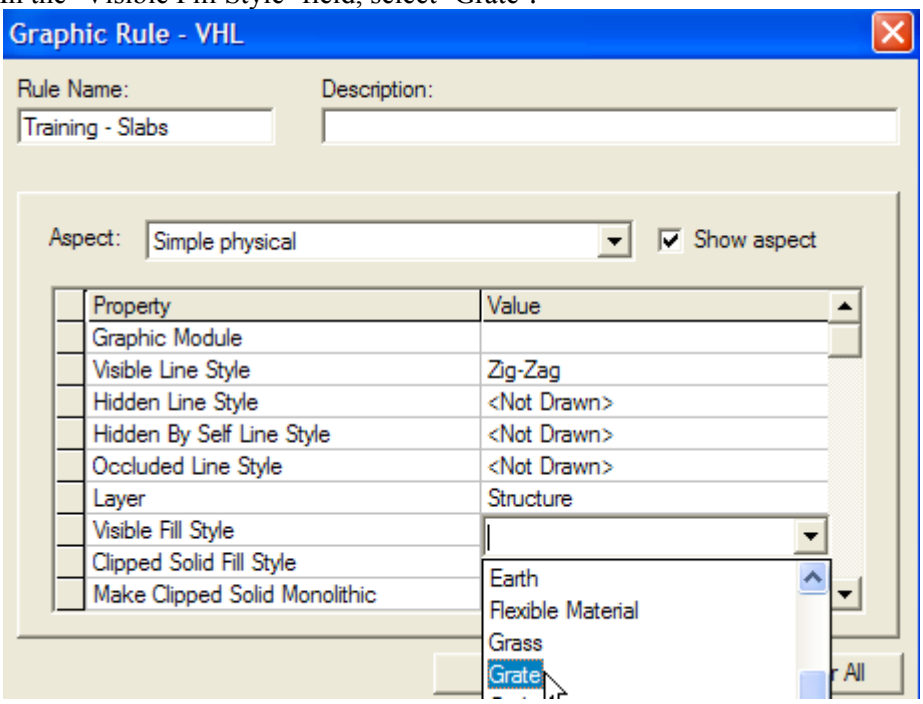


15. Save and close the view style.
16. Edit the drawing ‘Piping Plan 3’ and update the view. Notice that the pump under the slab is no longer shown hidden. Additionally pipe is also seen.

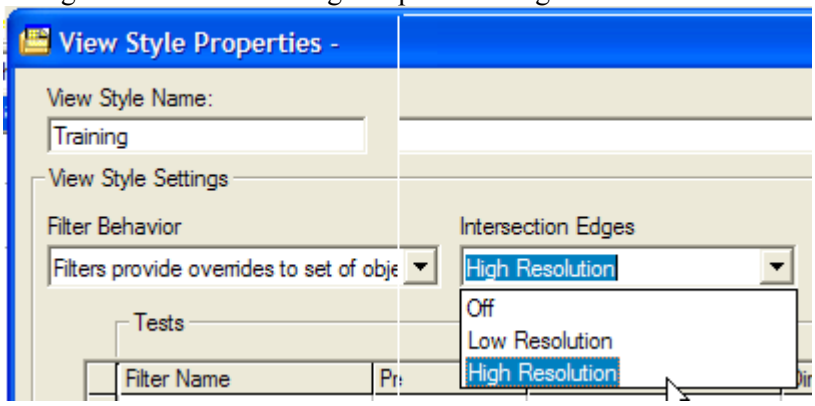
Add a fill style

17. Edit the view style ‘Training’ and edit the graphic rule ‘Training – Slabs’.

18. In the 'Visible Fill Style' field, select 'Grate'.



19. Click OK to save the graphic rule.
20. Click OK to accept the graphic rule.
21. Change the 'Intersection Edges' option to 'High Resolution'.

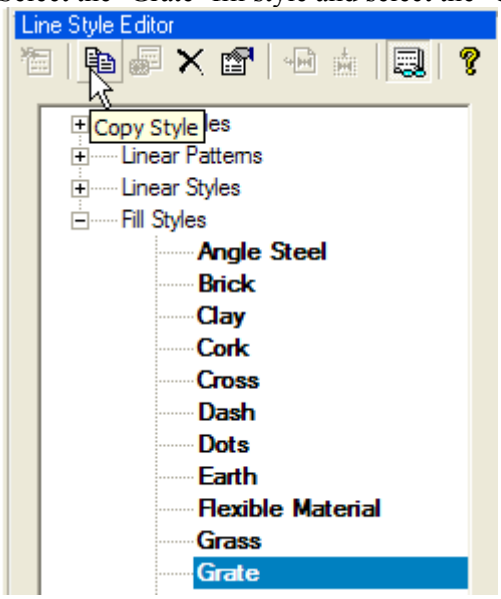


22. Click OK to save the view style.
23. Switch to Drawing Editor and update the view.
24. Close the drawing and exit the SP3D session.

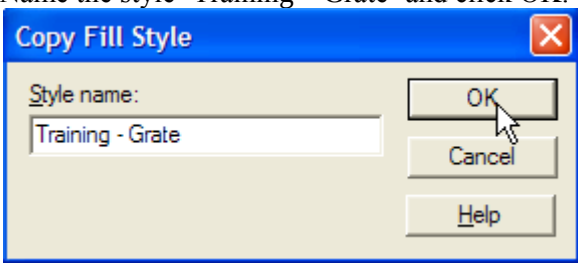
Create New Fill Style

25. Open the file Styles.sha in the [Symbol Share]\Drawings\Catalog\Templates folder
26. Select menu Tools → Line Style Editor. NOTE: Sometimes you have to run this twice to get the editor to appear.

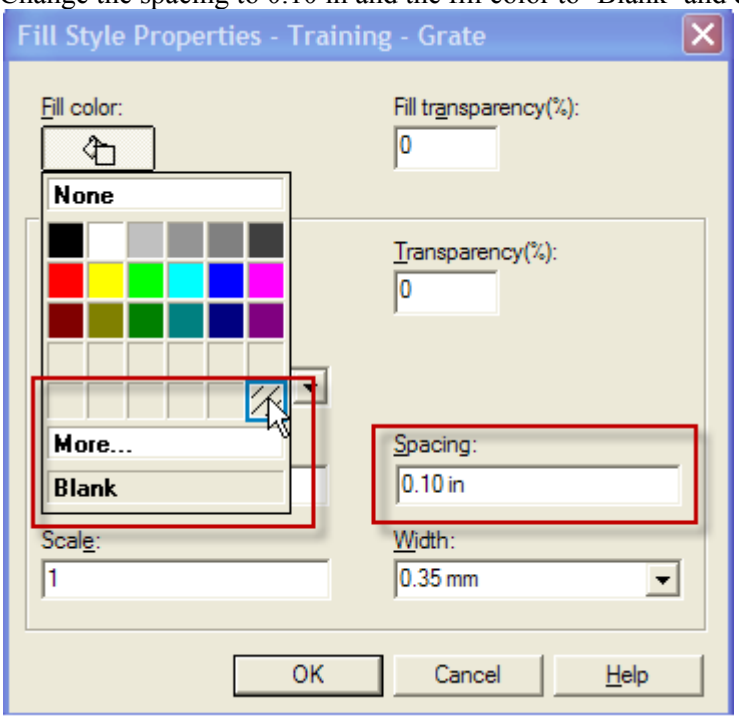
27. Select the ‘Grate’ fill style and select the ‘Copy Style’ button.



28. Name the style ‘Training – Grate’ and click OK.



29. Change the spacing to 0.10 in and the fill color to ‘Blank’ and click OK.



30. Save and exit the styles.sha file.

Apply New Fill Style

31. Open SP3D session and edit the properties of the ‘Training’ view style and ‘Training – Slabs’ graphic rule.
32. Select the new fill style ‘Training – Grate’ and make sure the “Make Transparent” value is set to “No”. Save the graphic rule and the view style.
33. Edit ‘Piping Plan 3’ and update the view.

Clipped Solid Fill (Optional)

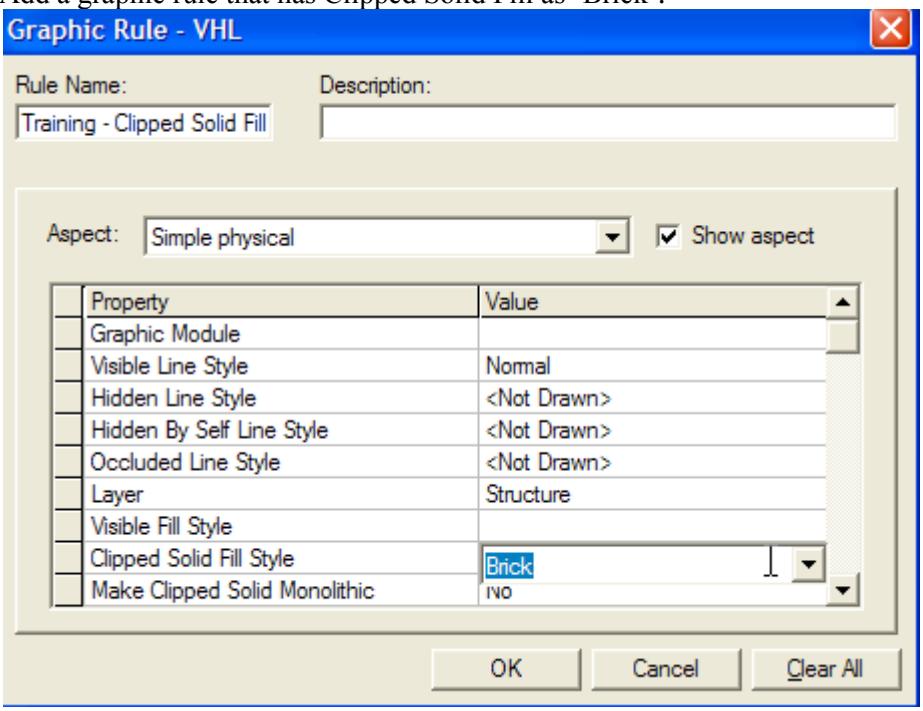
Objective

- Use ‘Clipped Solid Fill’ property in a graphic rule to fill the clipped portions of true solids such as walls and slabs
- Use ‘Make Clipped Solid Monolithic’ property to remove lines between clipped portions of solids in the drawing

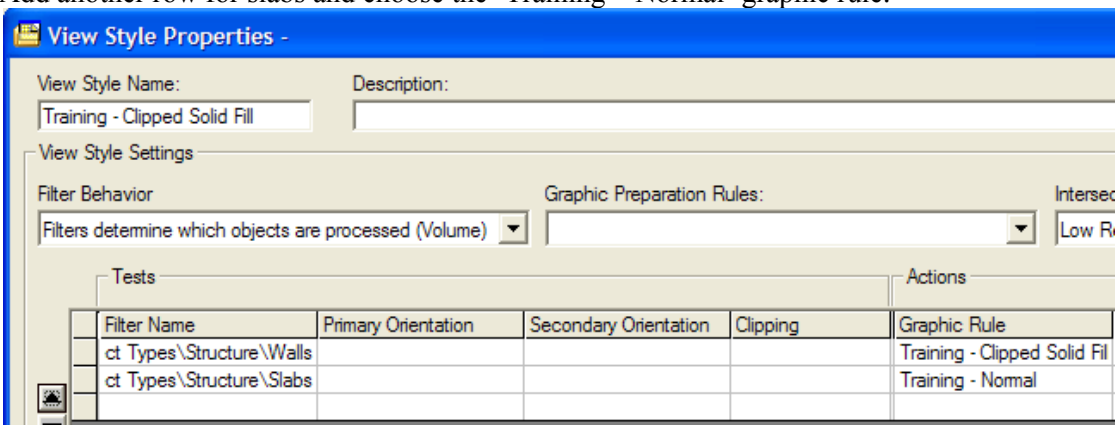
View Style

1. Define a view style named ‘Training - Clipped Solid Fill’.
2. Add a row and choose the Walls filter.

3. Add a graphic rule that has Clipped Solid Fill as ‘Brick’.



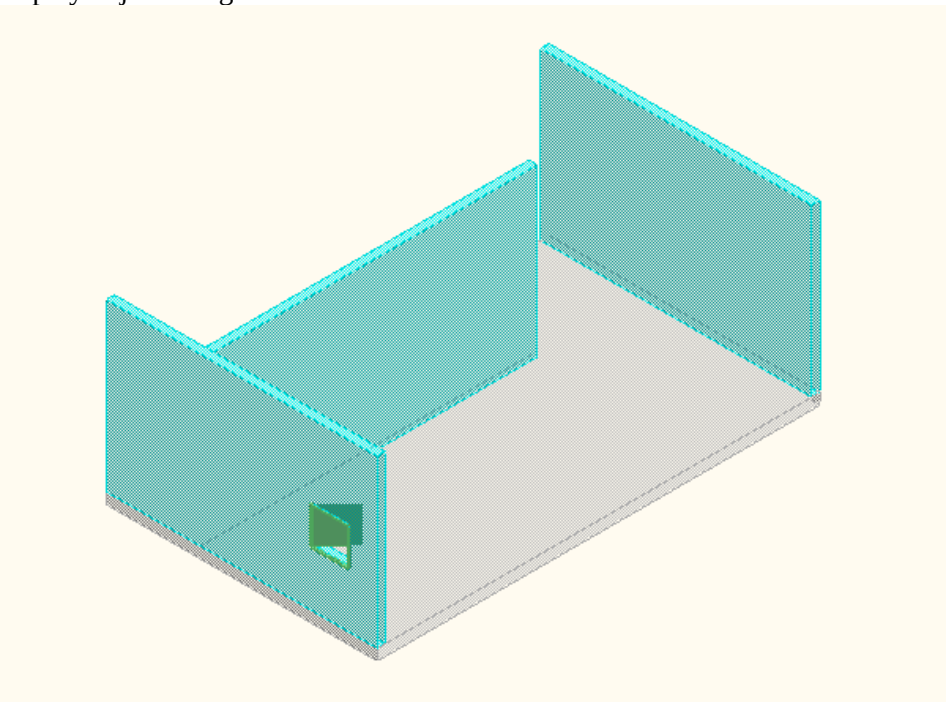
4. Add another row for slabs and choose the ‘Training – Normal’ graphic rule.



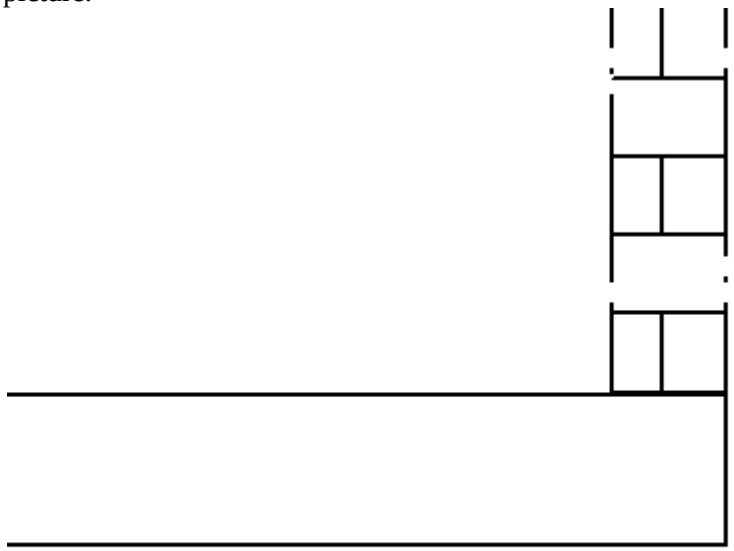
Test View Style

5. Switch to Space Management task.
6. Define a workspace using Plant Filters – Training Filters– U05.
7. Format – View and choose mode shaded with enhanced edges.
8. Define volume by 2 points from (-35, -105, 0) to (5, -85, 16).

9. Clip by object using the volume defined and hide the volume.

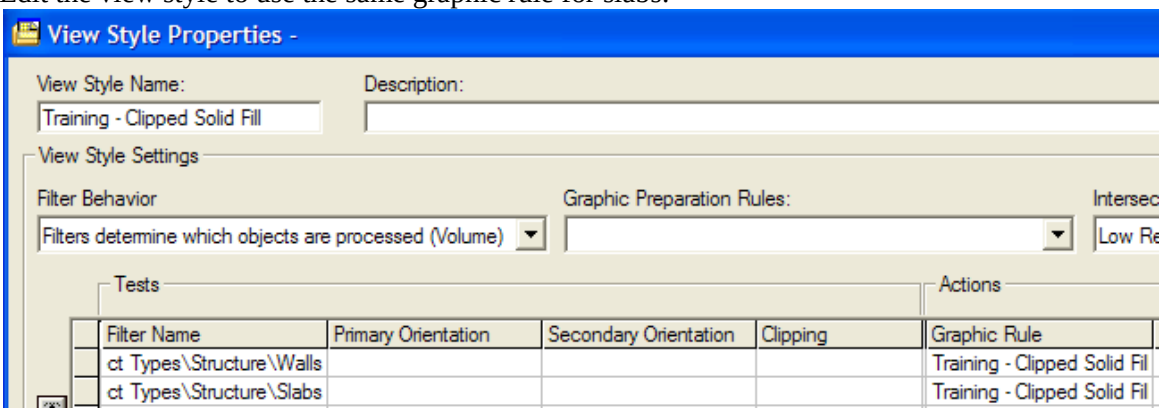


10. Set view to north and snapshot a view using the Clipped Solid Fill view style defined above.
11. Place the view on a drawing and update the view to see a result like shown in the picture.

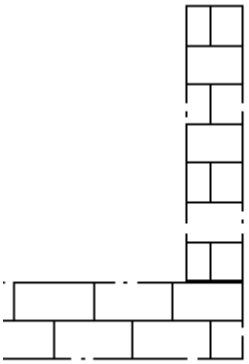


Update View Style

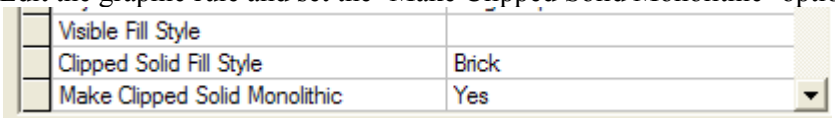
12. Edit the view style to use the same graphic rule for slabs.



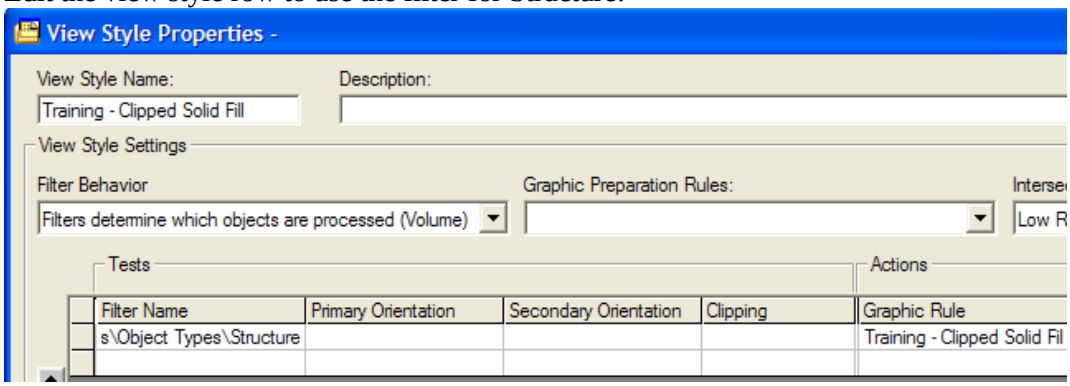
13. Update the view and notice the result showing a thick solid line at the boundary of the wall and the slab.



14. Edit the graphic rule and set the 'Make Clipped Solid Monolithic' option to Yes.

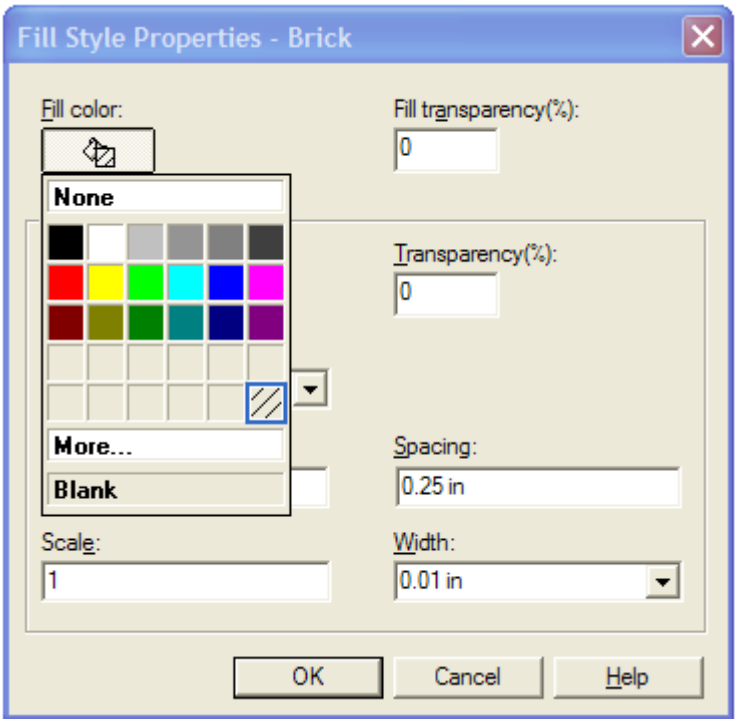


15. Edit the view style row to use the filter for Structure.

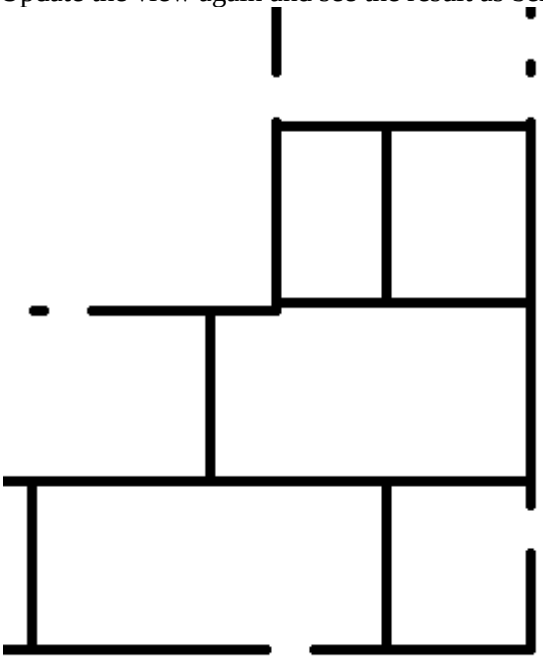


16. Open the Styles.sha and start the Line Style Editor.
17. Select the Brick fill style and edit properties.

18. Set the fill color to Blank as shown.



19. Update the view again and see the result as below – the line is gone.



Equipment Centerlines

Objective

- Adjust equipment and nozzle centreline extension values

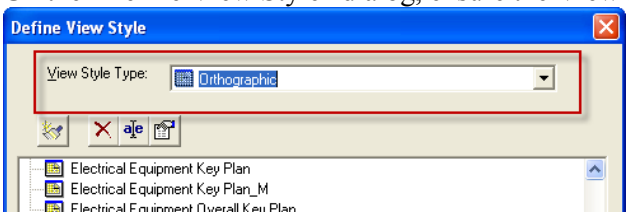
Note

The VHL processor makes centerlines only when the equipment's 3D graphics consist of the following cases.

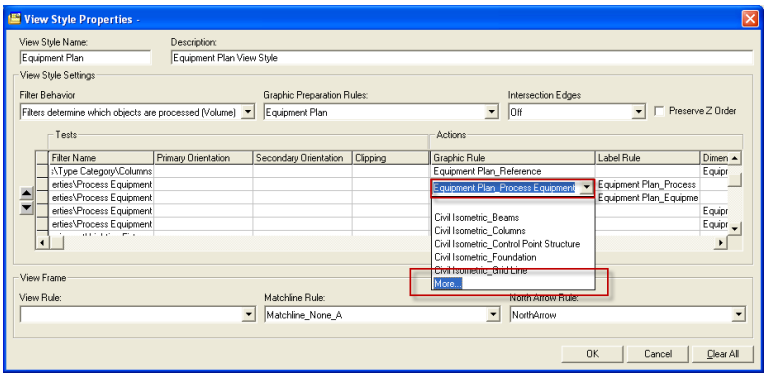
Type	Detail (Curve Type)
Revolution	Line String Ellipse Arc Complex string (line, arc)
Torus	Boundaries are only two ellipse (complex string)
Projection	Ellipse Complex String (line, arc)
Cone	All
Ruled	Top and base curve should be ellipse

Centerline Extensions

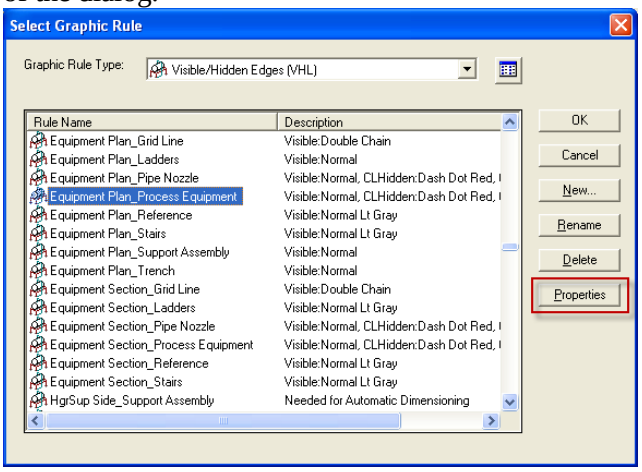
1. Change to the "Drawings and Reports" task and select Tools > Define View Style…
2. On the "Define View Style" dialog, ensure the View Style Type: is set to "Orthographic".



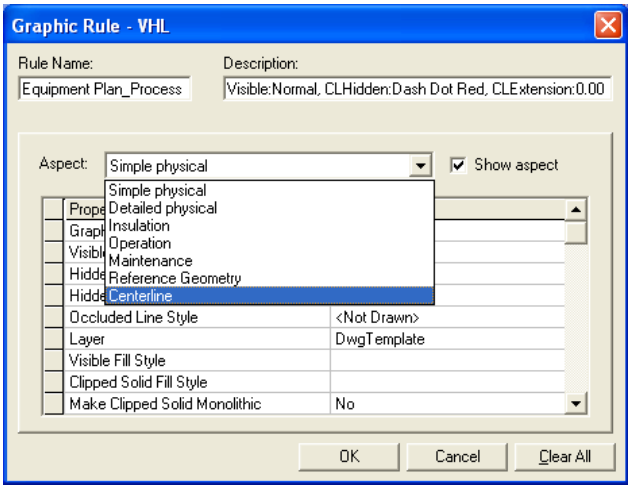
3. Select the "Equipment Plan" view style from the list and click the "Properties" button  from the top of the dialog.
4. In the "View Style Properties" dialog locate the first cell that contains the graphic rule "Equipment Plan_Process Equipment" and drop down the select list in this cell. Select the "More…" option from the drop down list.



5. From the "Select Graphic Rule" dialog, scroll down and click on the "Equipment Plan_Process Equipment" graphic rule and select the "Properties" button on the right side of the dialog.

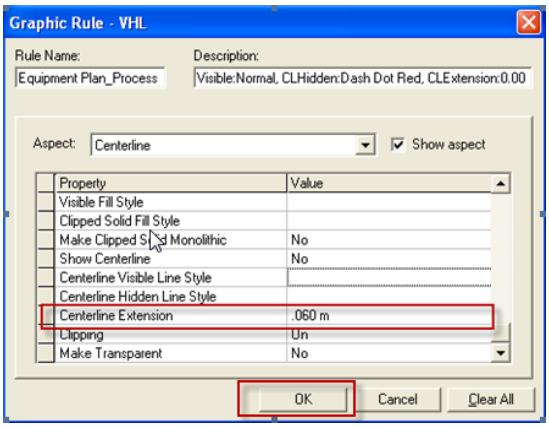


6. On the "Graphic Rule – VHL" dialog, drop down the select list for "Aspect" and select "Centerline".

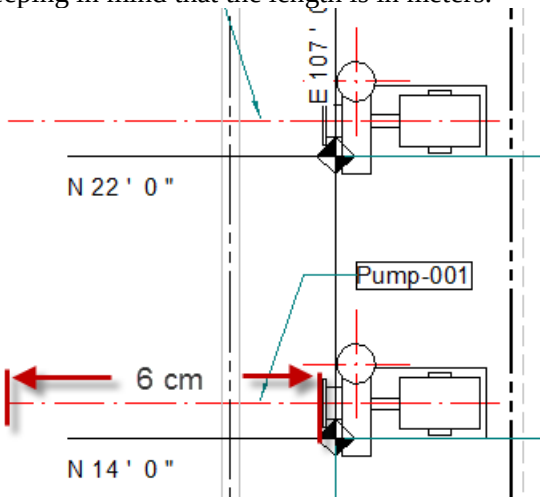


7. While on the "Centerline" aspect, scroll down to the bottom of the graphic rule and locate the "Centerline Extension" option. Change the "Value" to ".060 m" and select the OK

button.



8. Select OK on the "Select Graphic Rule" dialog and on the "View Style Properties" dialog and select Close on the "Define View Style" dialog.
9. Right mouse click on the drawing 'Drawings > Composed Drawings > Equipment Plan 1' and select "Edit" from the menu.
10. In SmartSketch Drawing Editor locate the plan view and right mouse click on the edge of the view and select "Update View" from the menu.
11. After the view updates, notice that the centerline extension length is 6 cm beyond the edge of the equipment. Repeat the steps above to set the distance to the desired length, keeping in mind that the length is in meters.



Lab 4 Advanced Graphic Rules

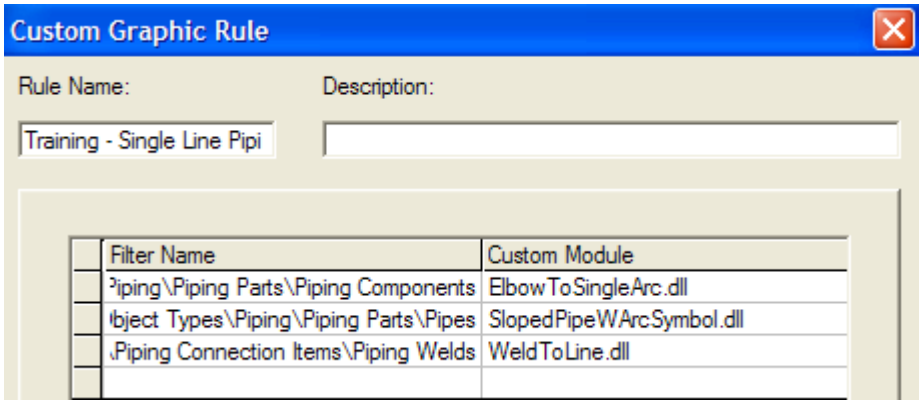
Single Line Piping

Objective

- Use graphic preparation rules to change the 3D graphics that are sent into VHL process
- Draw elbows as arcs
- Draw welds as lines to effectively eliminate them from the view

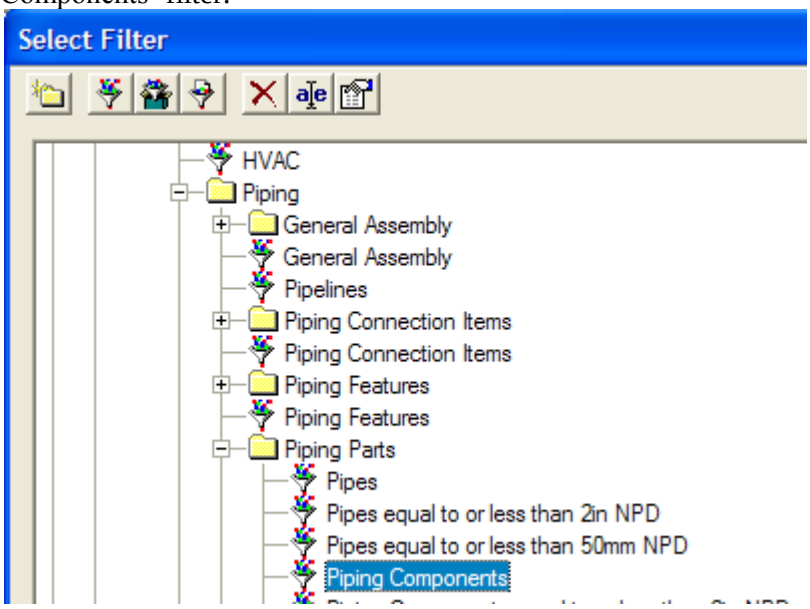
Define View Style

1. Switch to the 'Drawings and Reports' task.
2. Select menu Tools → Define View Style.
3. Create 'New Style'.
4. Name the style 'Training – Single Line Piping' and edit Properties.
5. In the 'Graphic Preparation Rule' field, select More…
6. Click 'New …' to create a new custom graphic rule.
7. Select filters and custom modules as shown below.

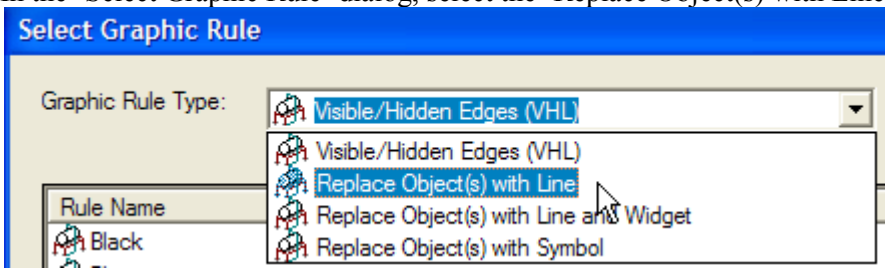


8. Click OK to define the rule.
9. Click OK to select the rule.

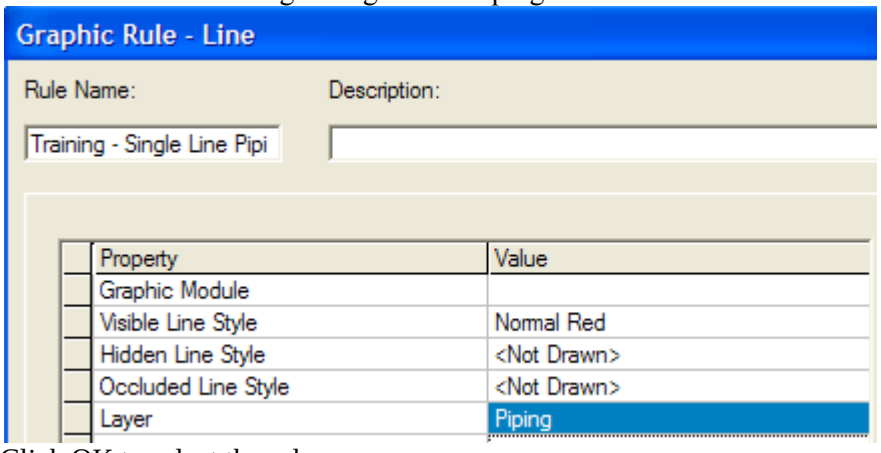
10. In the first row click in the 'Filter Name' field, select More… and then select the 'Piping Components' filter.



11. Click in the graphic rule field, select 'More…', select the 'Training – Piping' graphic rule and click OK.
12. Click in the 'Filter Name' field in the second row and add the 'Pipes' filter
13. Click in the graphic rule field, select 'More…'
14. In the 'Select Graphic Rule' dialog, select the 'Replace Object(s) with Line' option.



15. Click 'New…' to create a new rule.
16. Define the rule 'Training – Single Line Piping' as shown and click OK.



17. Click OK to select the rule.

Test View Style

18. Edit the 'Piping Plan 1' drawing.
19. Select the view and right mouse click, the select Properties.
20. Select the 'Training – Single Line Piping' view style and click OK.
21. Update the view to see that all pipes and elbows are now single line.

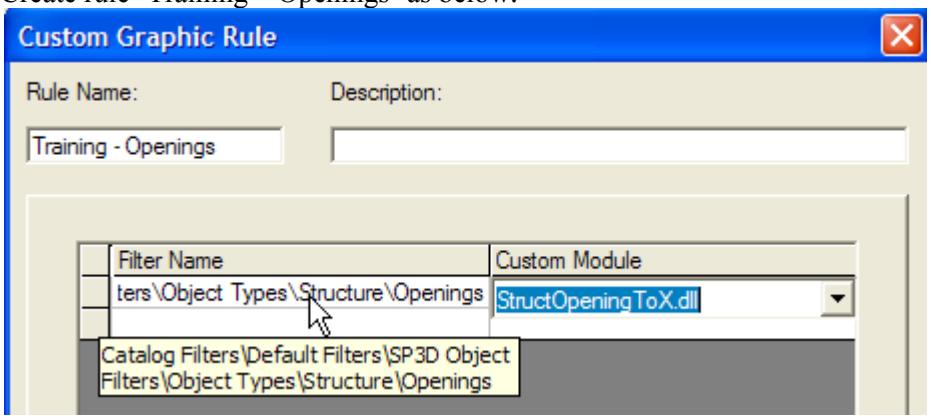
Resymbolizing Structure Openings

Objective

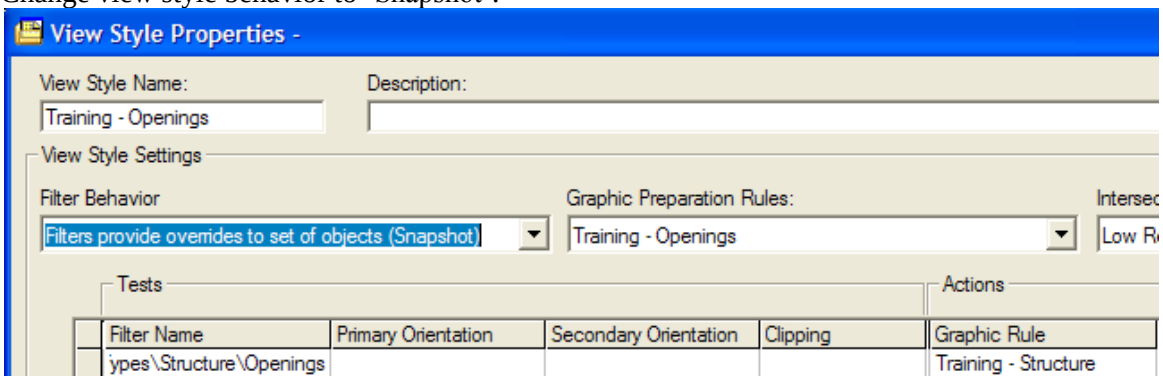
- Use graphic preparation rule to resymbolize structure openings

Define View Style

1. Select Tools → Define View Style.
2. Create a new style named 'Training – Openings'.
3. Edit the new style properties.
4. Click in the 'Graphic preparation rule' field and select 'More…'.
5. Click 'New…'.
6. Create rule 'Training – Openings' as below.



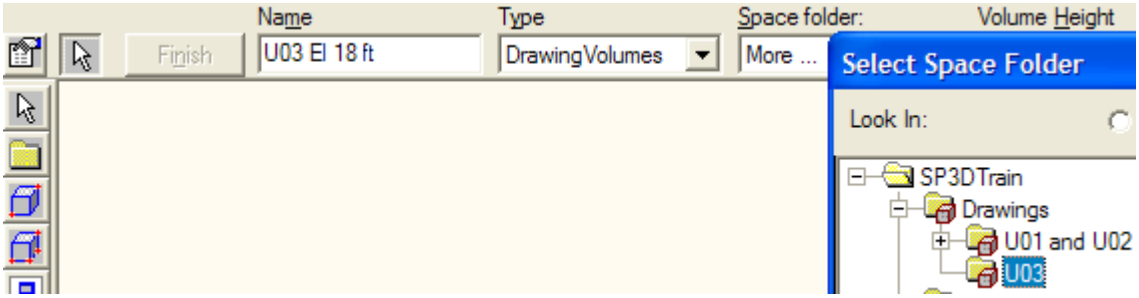
7. Click in the 'Filter Name' field in the first row in the view style and pick the Openings filter selected above.
8. Pick the 'Training – Structure' graphic rule.
9. Change view style behavior to 'Snapshot'.



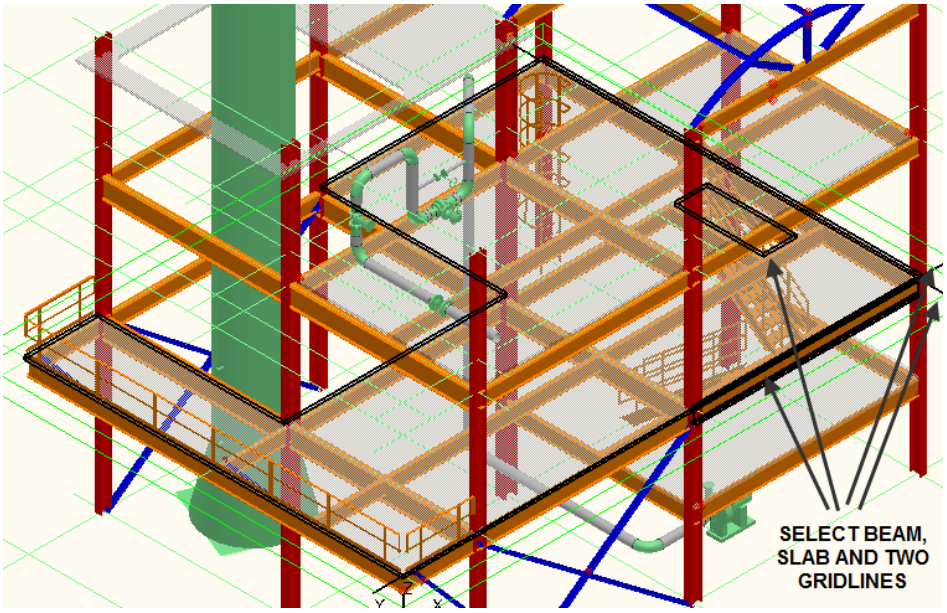
10. Click Ok to save view style.

Test View Style

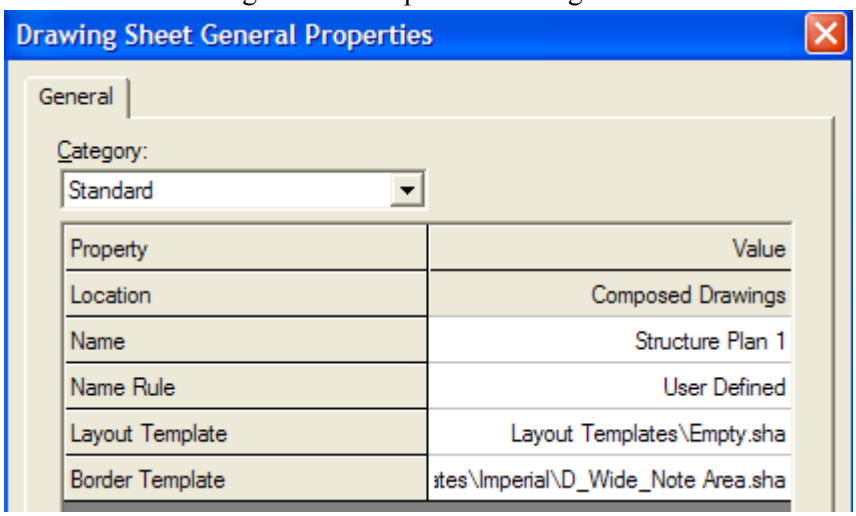
11. Switch to Space Management task.
12. Define a workspace using Plant Filters – Training Filters – U03.
13. Start ‘Place Volume by Selection’ command.
14. Name the volume ‘U03 El 18 ft’ and put it in the space folder ‘U03’.



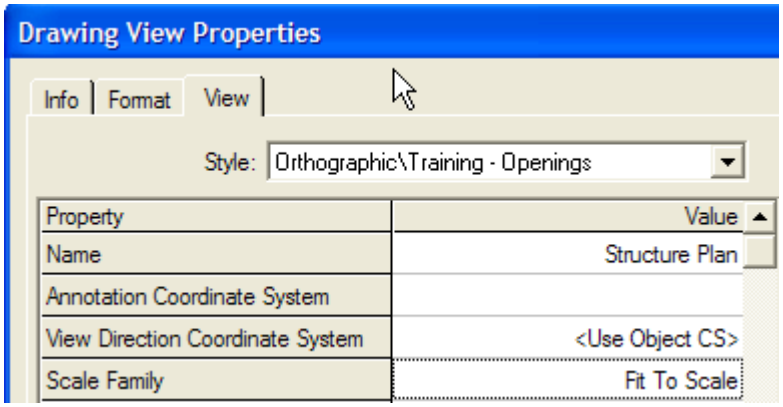
15. Select the beam at the south side and two neighboring gridlines and the slab as shown and click ‘Finish’ to place the volume.



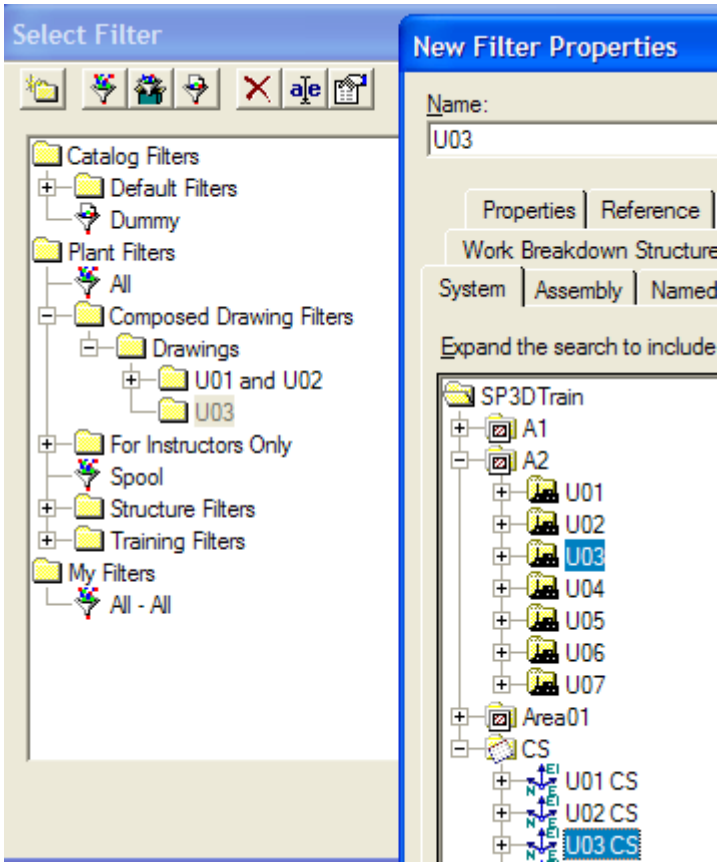
16. Create a new drawing in the ‘Composed Drawings’ folder as shown



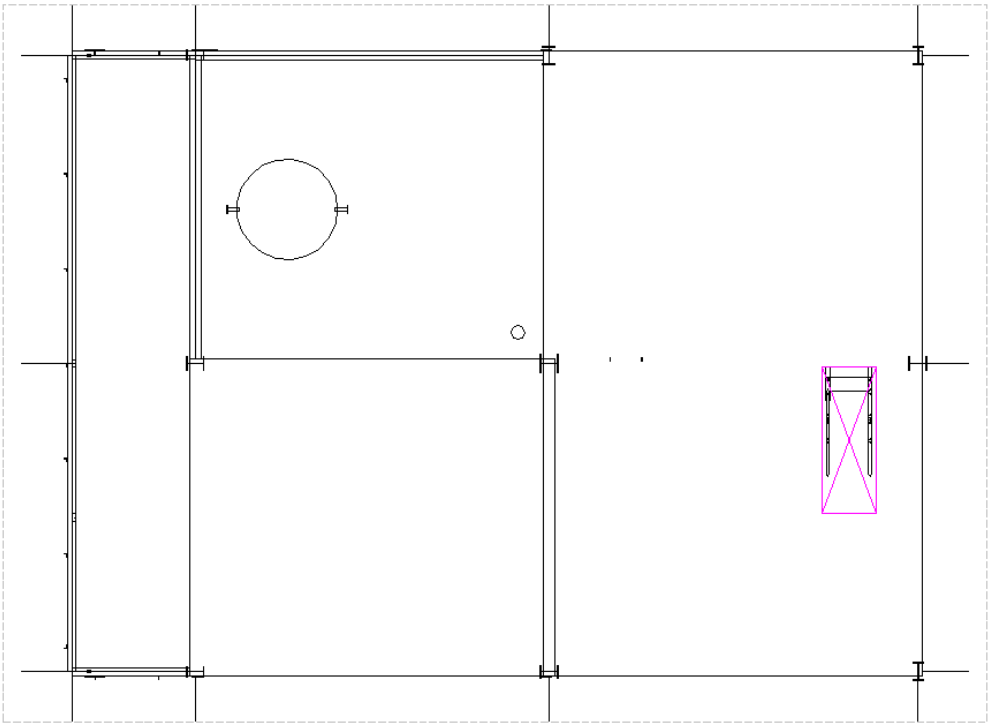
17. Place a graphic view that uses the ‘Training – Openings’ view style, fit to scale, looking plan.



18. Associate view to volume ‘U03 El 18 ft’ and define a new filter ‘Plant Filters – Composed Drawing Filters – U03 – U03’.



19. Update view and see results as below.



Turning Clipping Off

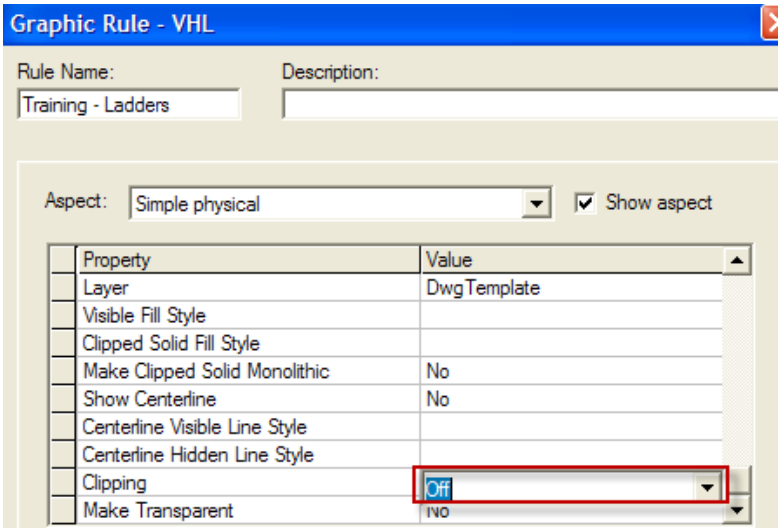
Objective

- Use the ‘Clipping’ property to draw clipped objects as if they were not clipped

Define View Style

1. Switch to ‘Drawings and Reports’ task.
2. Select Tools → Define View Style.
3. Edit properties for the style named ‘Training – Openings’.
4. Click in the ‘Filter’ field in the first row and select More… and select the ‘Catalog Filters\Default Filters\SP3D Object Types\Structure\Ladders’ filter.
5. Click in the ‘Graphic Rule’ field and select ‘More…’.
6. Select the ‘Training – Structure’ graphic rule and click Properties.

7. Change the name of the rule to be ‘Training – Ladders’.
8. Scroll down to the bottom of the rule and set ‘Clipping’ = ‘Off’.

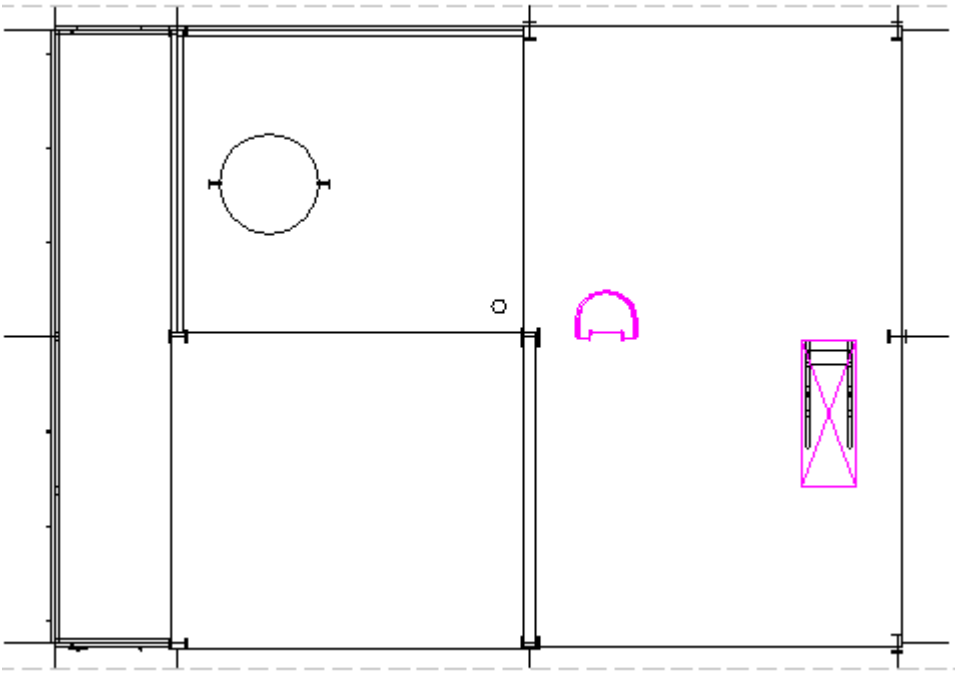


9. Click ‘OK’ to save the rule, click ‘Yes’ to create a new rule.
10. Click ‘OK’ to apply the new graphic rule to the style.
11. Click ‘OK’ to save the view style.

Test View Style

12. Edit the ‘Structure Plan’ drawing and update the view.

Notice that the ladder is now shown in full even though only part of it was in the original view.



Lab 5 View, KeyPlan, Matchline and North Arrow Rules

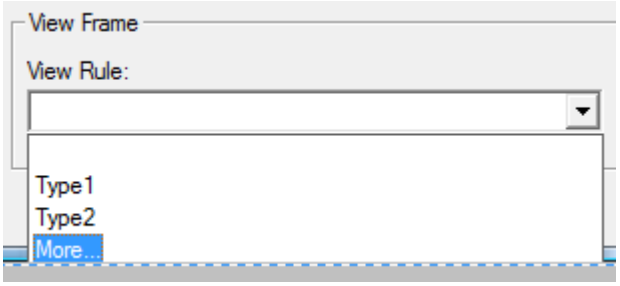
View Rules

Objective

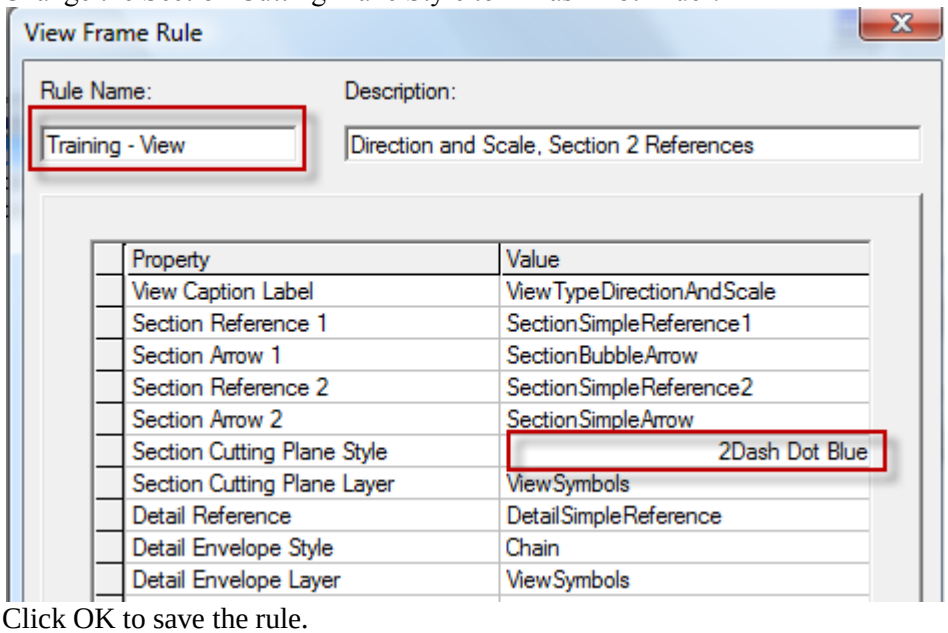
- Copy delivered view rule
- Modify the view rule to change line symbology for cutting planes

Edit View Style

1. Tools → Define View Style.
2. Edit the 'Training' view style.
3. In the View Rule field, select 'More…'.



4. Select the 'Type1' rule and edit properties.
5. Name the rule 'Training – View'.
6. Change the Section Cutting Plane Style to '2Dash Dot Blue'.

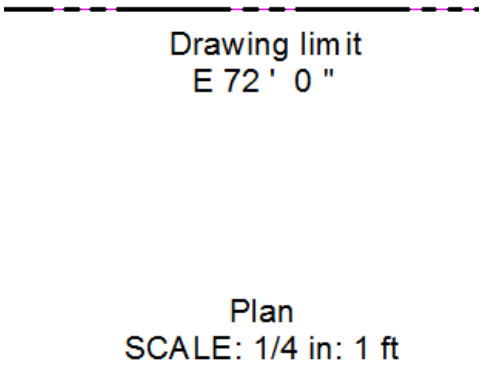


7. Click OK to save the rule.

8. Click ‘Yes’ to create a new rule.
9. Click OK to select the rule for the view style.
10. Click OK to save the view style.

Test View Style

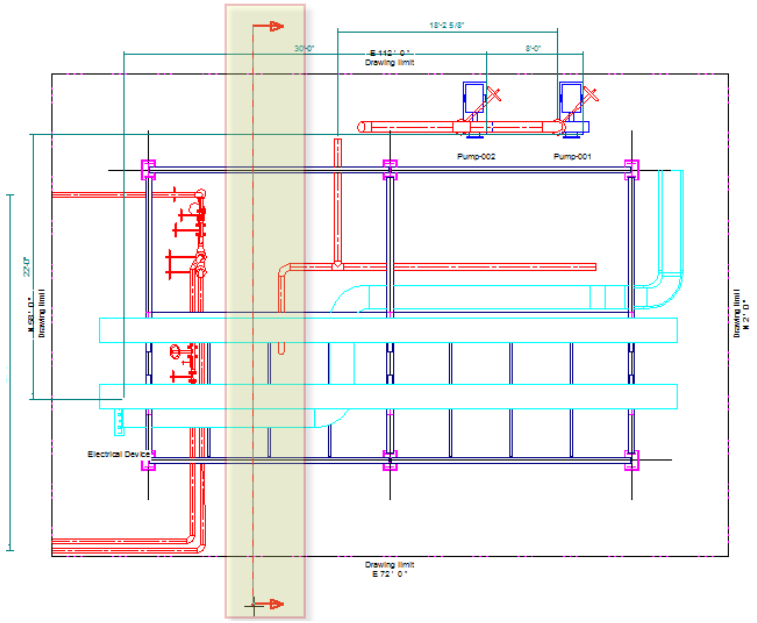
11. Edit the ‘Piping Plan 1’ drawing.
12. Edit properties on the view and ensure it uses the view style ‘Training’
13. Update View.
14. Notice that a view label has now appeared below the view showing the view orientation and the scale.



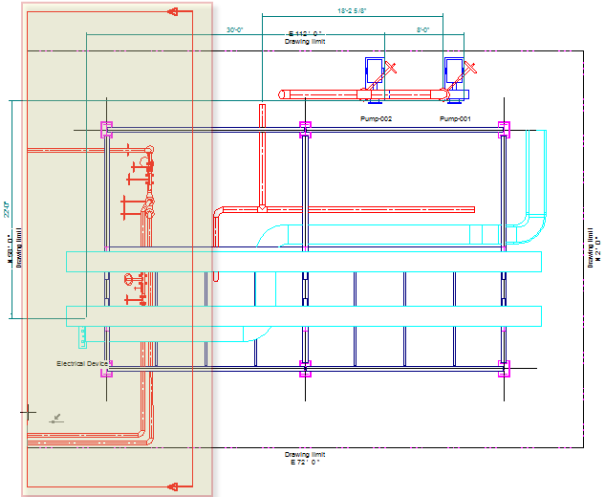
15. Start the ‘Cutting Plane’ command.
16. Enter B for reference 1 and 2.

17. Select the view boundary.

18. Draw a cutting plane roughly between the pipes from U01 and the pipes from U04 as shown (left click two times, right click once).

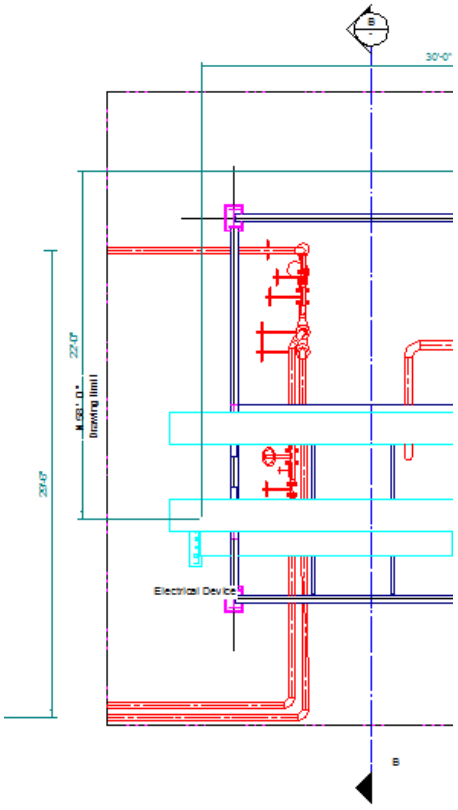


19. Move mouse to the left side and locate the matchline. Click once to place the cutting plane.



20. Check the Update Section box in the ribbon bar.

21. A view appears on your cursor, place the view somewhere in an empty area of the sheet by clicking once. The view will begin to update.
22. After the view completes updating, right mouse click the plan view and update it. The section mark is shown in 2Dash Dot Blue line style along with arrows.



Key Plan Rules

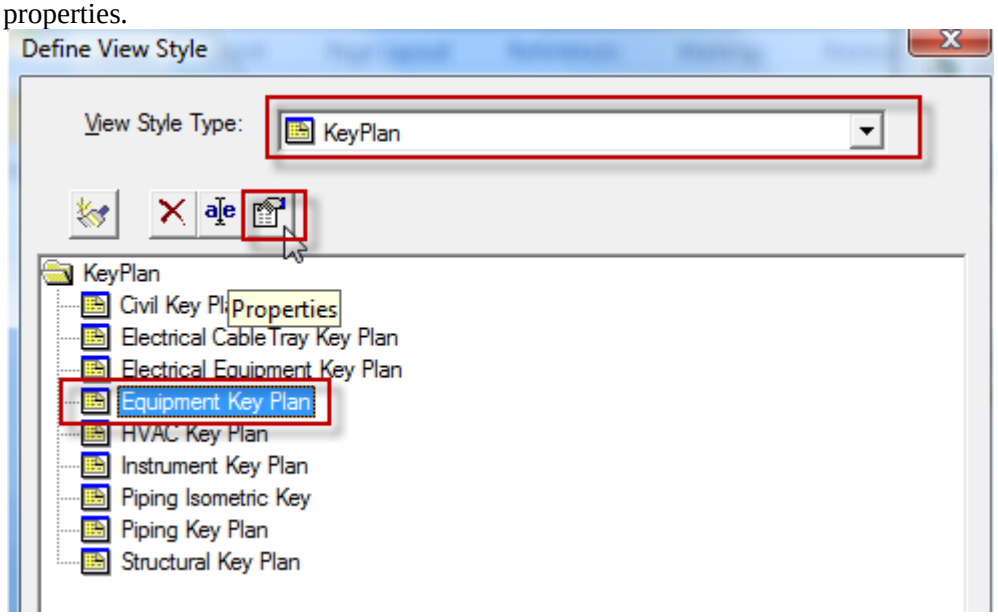
Objective

- Create key plan view style of the type ‘One Volume with Plant View’
- Create key plans of different orientation and content

Define View Style

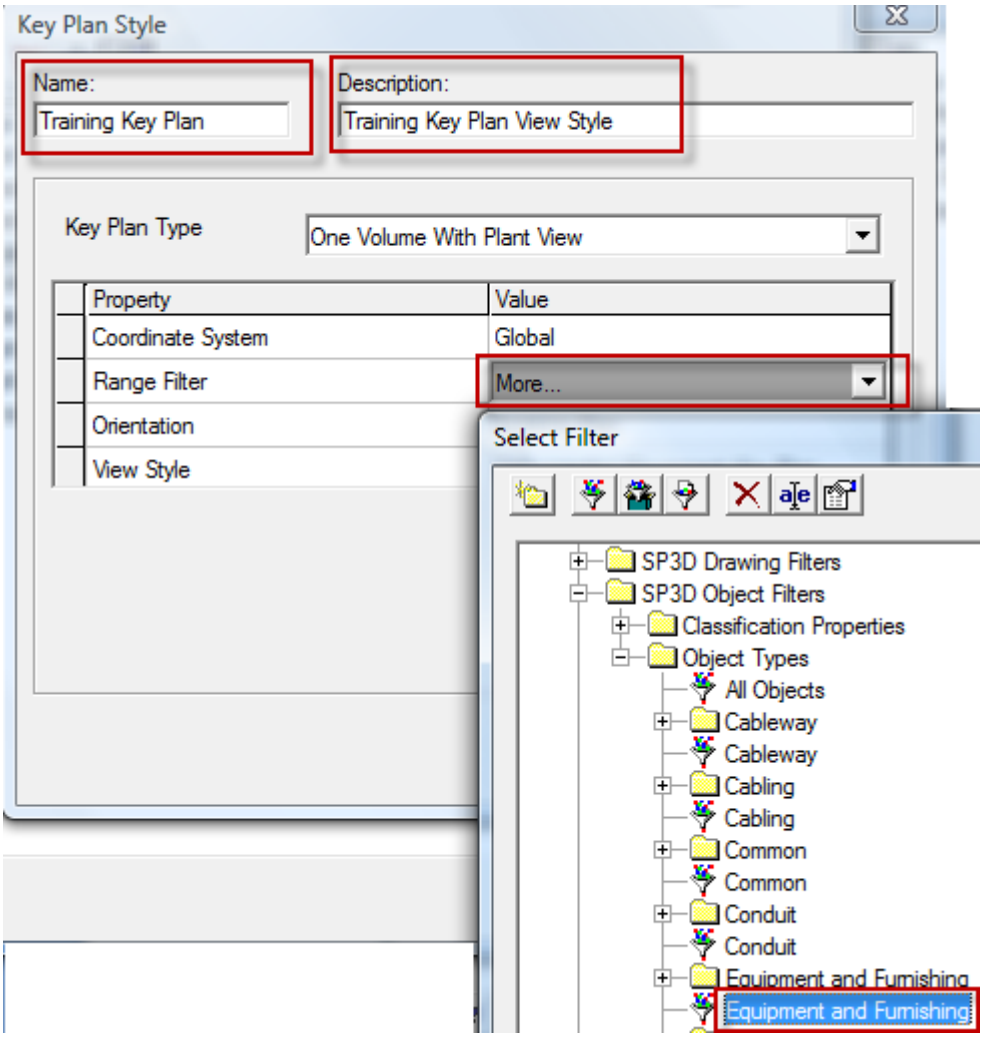
1. Tools → Define View Style.

2. Change ‘View Style Type’ to ‘Key Plan’, select the ‘Equipment Key Plan’ style and edit properties.



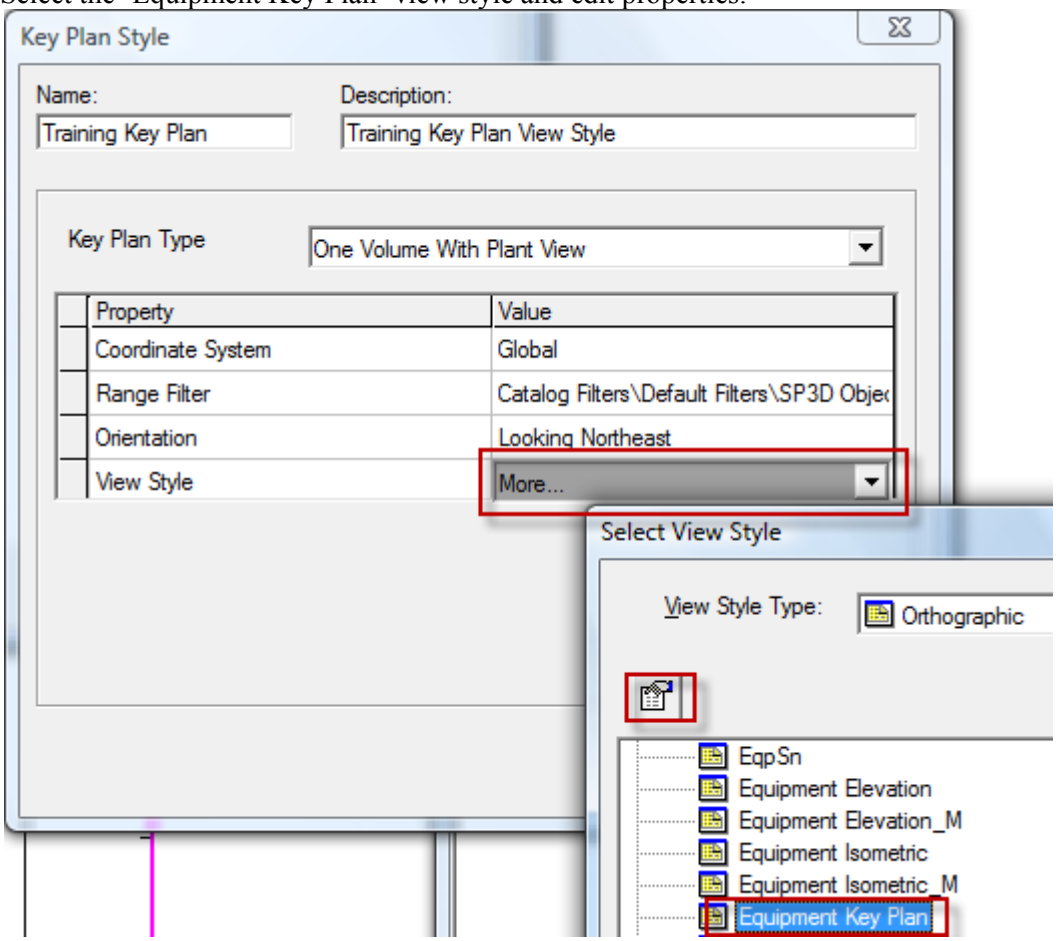
3. Change the name to ‘Training Key Plan’ and the description to ‘Training Key Plan View Style’.
4. In the ‘Range Filter’ field, select ‘More…’.
5. In the select filter dialog, select the ‘Catalog Filters\Default Filters\SP3D Object Filters\Object Types\Equipment and Furnishing’ filter.

6. Click OK.

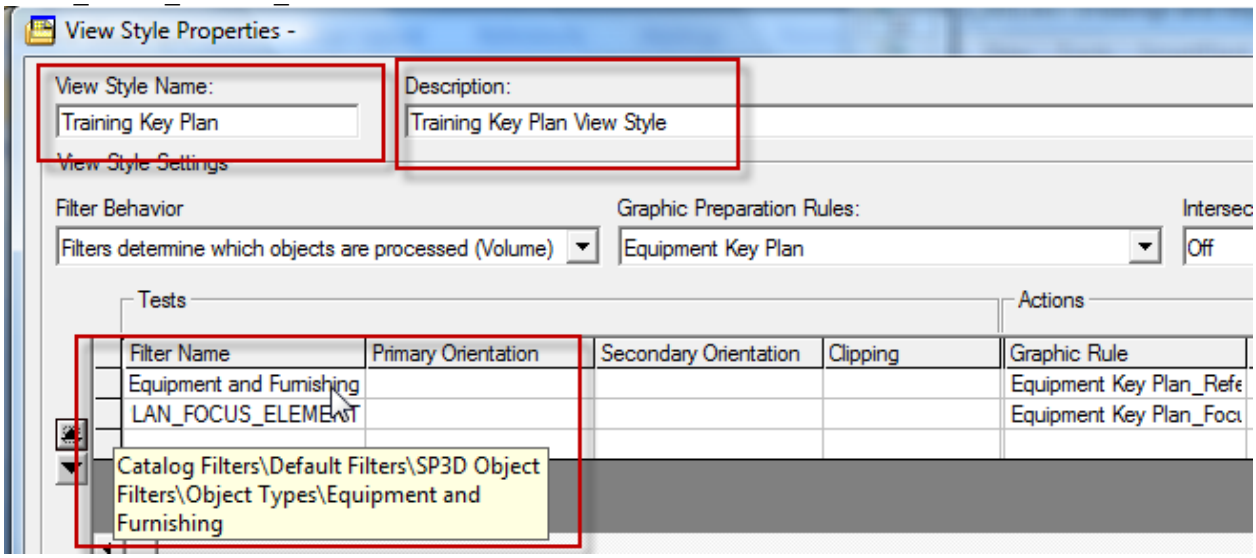


7. Change Orientation to ‘Looking Northeast’.
8. In the ‘View Style’ field, select ‘More…’.

9. Select the 'Equipment Key Plan' view style and edit properties.



10. Change the view style name and description and select the 'Equipment and Furnishing' filter in the first row of the view style. The second row is a pseudo filter called "KEY_PLAN_FOCUS_ELEMENT".

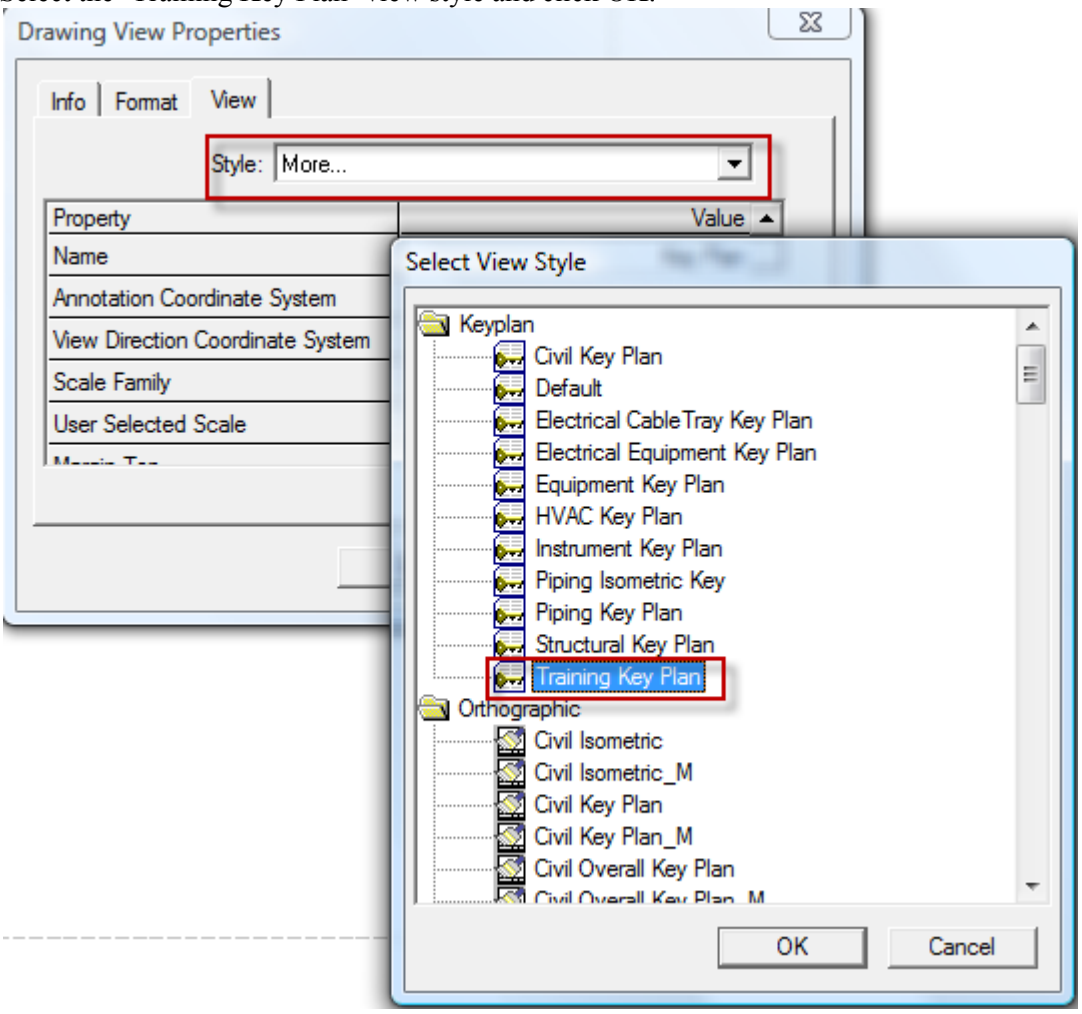


11. Click OK to save the (orthographic) view style.

12. Click ‘Yes’ to create a new (orthographic) view style.
13. Select the newly created ‘Orthographic\Training Key Plan view style’.
14. Click OK to select the newly created orthographic view style for use in the key plan view style.
15. Click OK to save the (key plan) view style.
16. Click Yes to create a new (key plan) view style.

Test View Style

17. Edit the ‘Equipment Plan 1’ drawing.
18. Right mouse click on the key plan view and edit properties.
19. In the ‘Drawing View Properties’ dialog, select More… in the Style field.
20. Select the ‘Training Key Plan’ view style and click OK.



21. Right mouse click and update the key plan view. View should resemble picture below.

Matchline Rules

Objective

- Copy a delivered matchline rule to create a new matchline rule
- Modify the gap tolerance to allow for non-adjacent volumes to be considered for match

Copy Matchline Rule

1. Navigate to [SharedContent]\Drawings\Catalog\Rules\MatchlineRules
2. Copy the file Matchline_None_A.xml and paste it
3. Rename the pasted file to Training_Matchline.xml
4. Edit the Training_Matchline.xml file
5. Find and replace Matchline_None_A with Training_Matchline
6. Find and replace all occurrences of ‘Double Chain Black Matchline’ with ‘Dashed Red’
7. Find and replace ‘DwgTemplate’ with ‘MatchlineLayer’
8. Save the file and exit

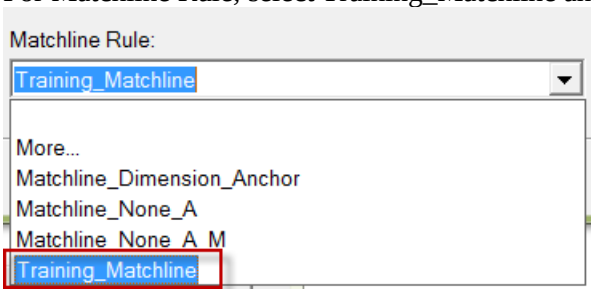
Copy Matchline Label

1. Navigate to [SharedContent]\Drawings\Catalog\Labels\Templates\Matchline
2. Copy and paste the files Matchline_None_A.xml and Matchline_None_A.sym and rename them to Training_Matchline.xml and Training_Matchline.sym

Modify View Style to use Matchline Label

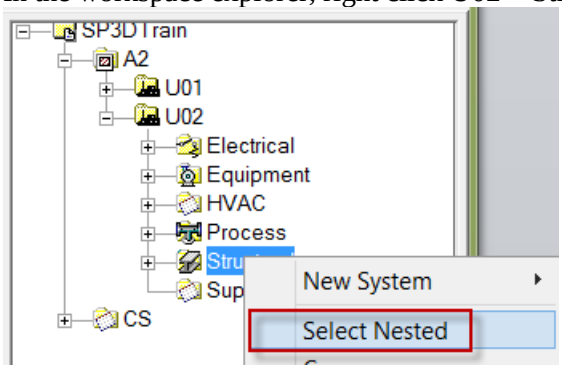
1. Tools → Define View Style
2. Edit the properties of the Training view style

3. For Matchline Rule, select Training_Matchline and click OK.

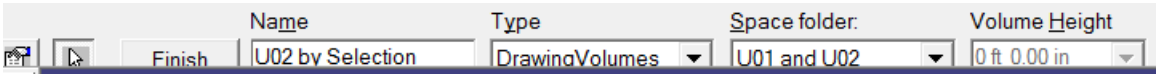


Create New Volume

1. Switch to the Space Management task.
2. Define Workspace using the filter Plant Filters – Training Filters – U02
3. In the workspace explorer, right click U02 > Structural and Select Nested



4. Click the Place Volume by Selection button on the vertical toolbar and create a drawing volume

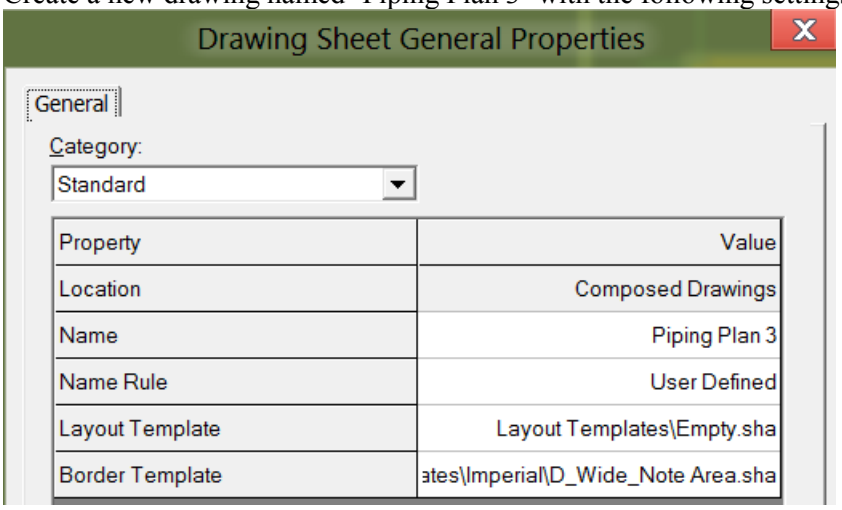


Name: U02 by Selection
Type: Drawing Volumes
Space Folder: U01 and U02

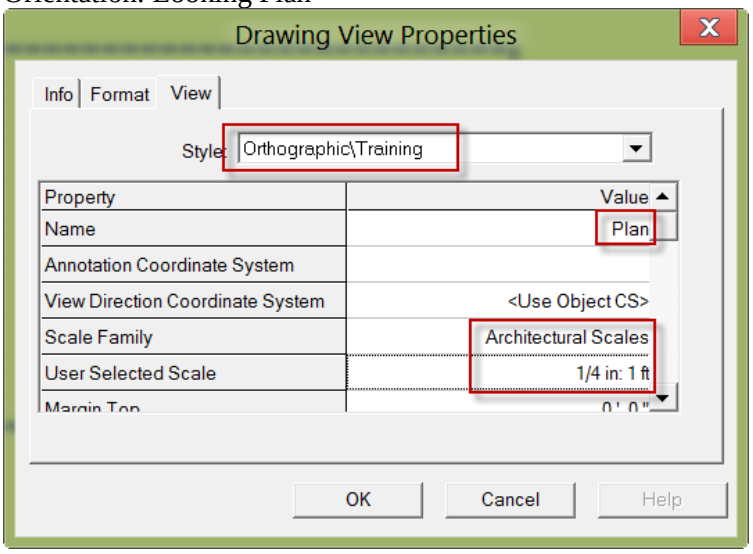
Create New Drawing

1. Tools → Drawing Console

2. Create a new drawing named ‘Piping Plan 3’ with the following settings

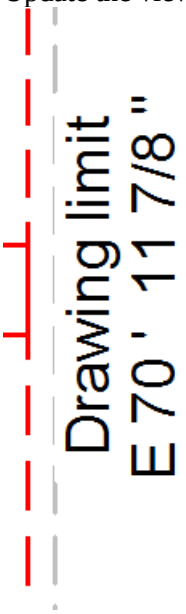


3. Place a view with the following settings:
   View Style: Orthographic\Training
   Scale Family: Architectural Scales
   User Selected Scale: ¼” = 1’
   Orientation: Looking Plan



4. Associate the view to the newly placed volume and the U02 filter

5. Update the view, look at the matchline on the right side, it is Dashed Red



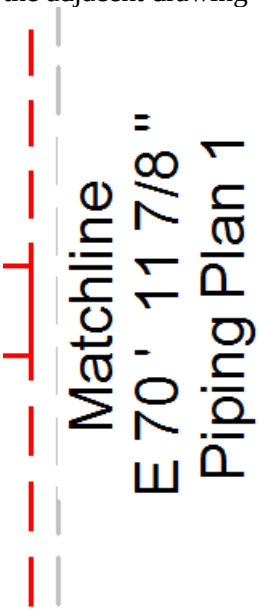
Edit Gap Tolerance

1. Navigate to [SharedContent]\Drawings\Catalog\Labels\Templates\Matchline and edit the file Training_Matchline.xml
2. Uncomment the line 17 and change its value to 0.5

```
16          -->       BEFORE
17          <!--<gapTolerance>0.001</gapTolerance>--
18
```

```
16          -->
17          <gapTolerance>0.5</gapTolerance>
18              AFTER
```

3. Update the view again, notice that now the matchline on the right side shows the name of the adjacent drawing



North Arrow Rule Type 1

Objective

- Position a north arrow on the sheet relative to a single view

Copy North Arrow Rule

1. Navigate to [Symbol Share]\Drawings\Catalog\Rules\NorthArrowRules.
2. Copy the NorthArrow.xml and paste it.
3. Rename the pasted file to FixedNorthArrow.xml.
4. Edit the file and change the <name> tag to NorthArrows\FixedNorthArrow.

```
<?xml version="1.0" encoding="utf-8"?>
<RULE>
   <ACTION>
      <CATEGORY>AddLabel</CATEGORY>

      <VALUE
       type="string">
         <labels>
            <label>
               <name>NorthArrows\FixedNorthArrow</name>
            </label>
         </labels>
      </VALUE>
   </ACTION>
</RULE>
```

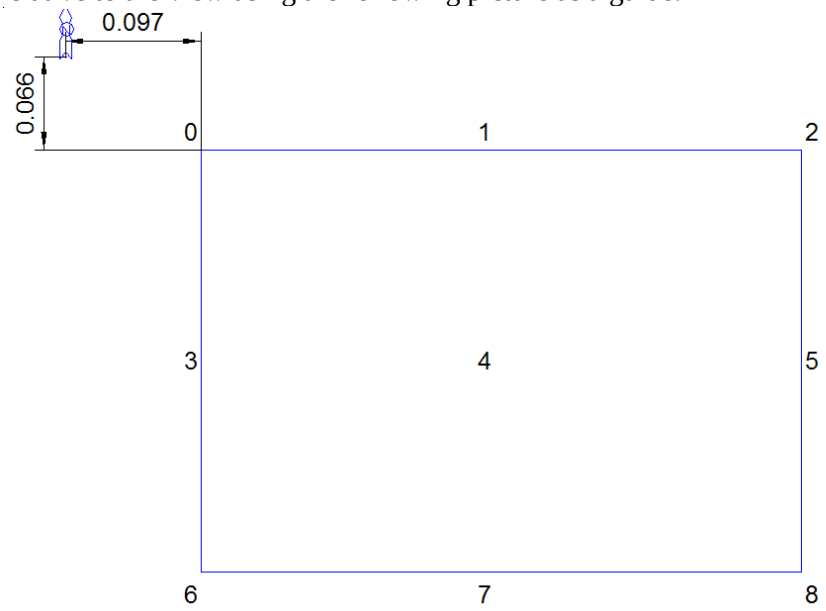
5. Save the file and exit

Copy North Arrow Label

6. Navigate to [Symbol Share]\Drawings\Catalog\Labels\Templates\NorthArrows.
7. Copy and paste the files NorthArrow.xml and NorthArrow.sym.
8. Rename the files to FixedNorthArrow.xml and FixedNorthArrow.sym respectively.
9. Edit the FixedNorthArrow.xml and remove the first four posModule entries.

```
<posModules>
    <posModule value="DrawingQuadOne">
        <connectPoint>6</connectPoint>
        <positioningPoint>6</positioningPoint>
    </posModule>
    <posModule value="DrawingQuadTwo">
        <connectPoint>8</connectPoint>
        <positioningPoint>8</positioningPoint>
    </posModule>
    <posModule value="DrawingQuadThree">
        <connectPoint>2</connectPoint>
        <positioningPoint>2</positioningPoint>
    </posModule>
    <posModule value="DrawingQuadFour">
        <connectPoint>0</connectPoint>
        <positioningPoint>0</positioningPoint>
    </posModule>
    <posModule value="DrawingAbsolute">
        <connectPoint>0</connectPoint>
        <vOffset>0.04</vOffset>
        <hOffset>-0.04</hOffset>
    </posModule>
</posModules>
```

1. Adjust the values for the connectPoint, vOffset and hOffset to move the North Arrow relative to the view using the following picture as a guide.



To move the north arrow to the upper left corner of the drawing, enter the values.

```
<posModule value="DrawingAbsolute">
    <connectPoint>0</connectPoint>
    <vOffset>0.066</vOffset>
    <hOffset>-0.097</hOffset>
</posModule>
```

Lab 6 Label Rules

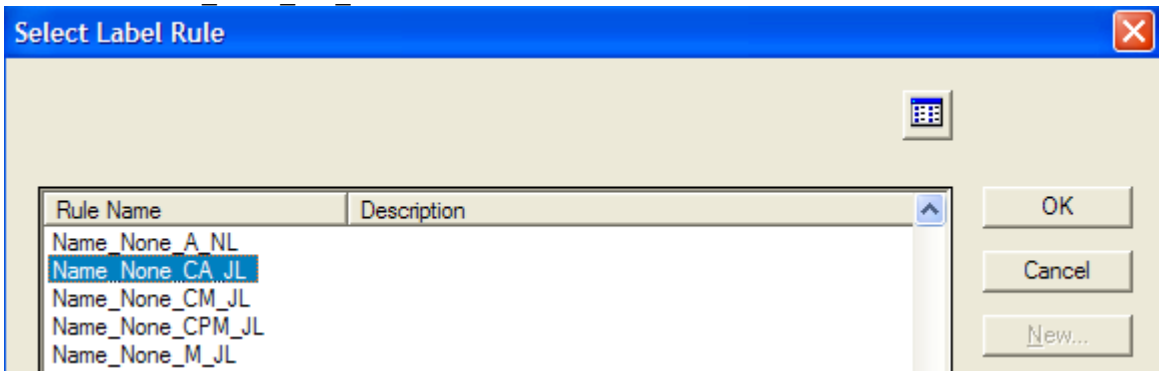
Using Label Rules

Objective

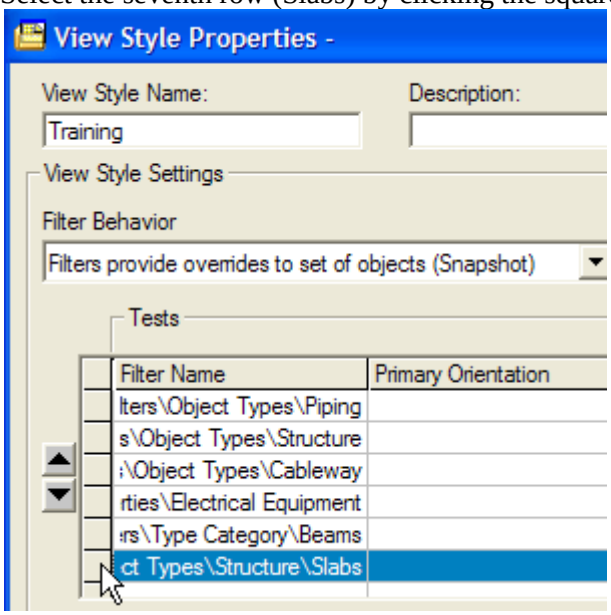
- Label objects automatically using a delivered label rules in a view style
- Copy label rule and associated label template using copy tool and use copied label rule in the view style
- Modify a label template to change the position of the label relative to the object

Add Label Rule to View Style

1. Select Tools → Define View Style.
2. Switch to the view style type ‘Orthographic’.
3. Select the ‘Training’ view style and edit properties.
4. In the first row (Equipment), click in the ‘Label Rule’ field and select ‘More…’.
5. Select the ‘Name_None_CA_JL’ rule and click OK.



6. Select the seventh row (Slabs) by clicking the square to the left of the row.



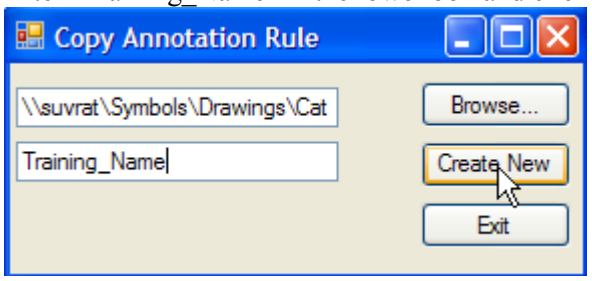
7. Press the 'Delete' key on the keyboard to delete the row.(to avoid slabs getting a fill).
8. Click OK to save the view style.

Test the View Style

9. Edit the 'Piping Plan 1'drawing.
10. Select the view and right mouse click, then select Properties.
11. Select the 'Training' view style and click OK.
12. Update the view.

Copy Label Rule

13. Run the 'Copy Annotation Rule' application using the shortcut on the desktop.
14. Click the Browse.. button and browse to the [Symbols Share]\Drawings\Catalog\Rules\LabelRules folder.
15. Select the 'Name_None_A_NL' rule and click 'Open'.
16. Enter 'Training_Name' in the lower box and click 'Create New'.

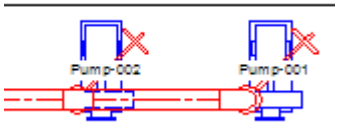


17. Click 'OK' on any prompts shown.
18. Click 'Exit' to exit the copy rule application.

Use new label rule

19. Tools → Define View Style and edit the 'Training' view style.

20. Replace the ‘Name_None_CA_JL’ label rule by the ‘Training_Name’ label rule and click OK.
21. Switch to Drawing Editor.
22. Update View to see labels positioned right on top of the equipment.



Edit label rule

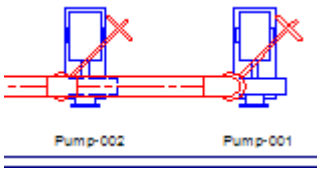
23. Open Windows Explorer and browse to [Symbols Share]\Drawing\Catalog\Labels\Templates folder.
24. Locate the ‘Training_Name.xml’ file and open it using a text editor.
25. Locate the <connectpoint> tag using a search function or by scrolling through the file.

```
<connectPoint>4</connectPoint>
<!--Determine the X and Y offsets for the label relative an objects
        key point or control point.-->
<posModules>
  <posModule value="DrawingAbsolute">
    <hoffset>0</hoffset>
    <voffset>0</voffset>
  </posModule>
</posModules>
```

26. Change the connectpoint to 7 (BottomMiddle) and the voffset to -0.01 (1 cm below).

```
<connectPoint>7</connectPoint>
<!--Determine the X and Y offsets for the label relative an objects
        key point or control point.-->
<posModules>
  <posModule value="DrawingAbsolute">
    <hoffset>0</hoffset>
    <voffset>-0.01</voffset>
  </posModule>
</posModules>
```

27. Switch to Drawing Editor.
28. Update View to see labels positioned 1 cm below the equipment. (Note: if this does not work, exit the session and re-enter and re-update the view).



29. Close the drawing and exit drawing editor.

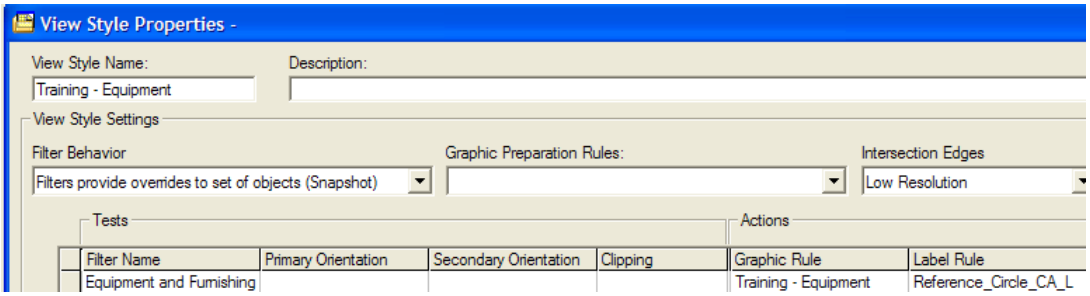
Reference Labels

Objective

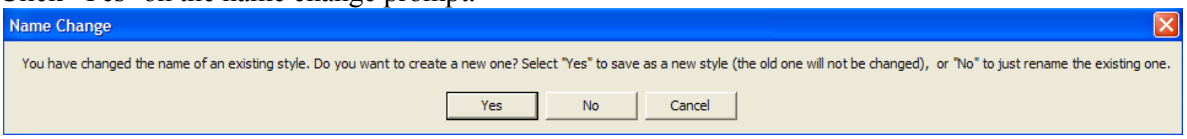
- Use a delivered label to label objects with item numbers from a report associated to the drawing view

Define View Style

1. Tools → Define View Style.
2. Select the view style ‘Training’ and edit properties.
3. Rename the style ‘Training – Equipment’.
4. Select the label rule ‘Reference_Circle_CA_L’ instead of the currently selected label rule.

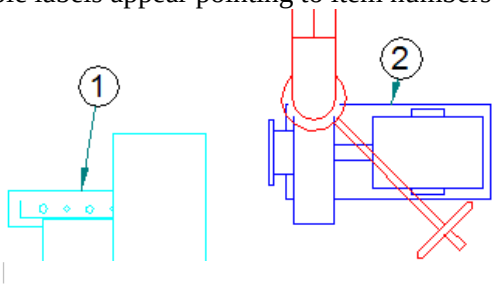


5. Click OK to save the view style.
6. Click ‘Yes’ on the name change prompt.



Test View Style

7. Edit the ‘Equipment Plan 1’ drawing.
8. Select the view, edit properties and select the ‘Training - Equipment’ view style and click OK.
9. Save the drawing and exit drawing editor.
10. Right mouse click the drawing ‘Equipment Plan 1’ and update now.
11. Edit the drawing to view. Notice that instead of the labels appearing on the drawing, now bubble labels appear pointing to item numbers in the associated report.



Item Number	Qty	Part Number
1	1	BA106E 42369-1-E
2	2	PUMP 001A-E

12. Close drawing and exit drawing editor.

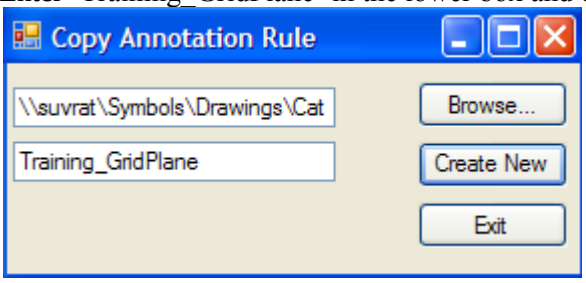
Grid Labels for Elevation Views

Objective

- Use a graphic preparation rule to resymbolize grid planes as vertical gridlines
- Edit label template XML to position the labels relative to the gridplanes
- Edit label template SYM to modify the look and feel of the label

Copy Label Rule

1. Run the 'Copy Annotation Rule' application using the shortcut on the desktop.
2. Click the Browse.. button and browse to the [Symbols Share]\Drawings\Catalog\Rules\LabelRules folder.
3. Select the 'Name_Circle_CA_L' rule and click 'Open'.
4. Enter 'Training_GridPlane' in the lower box and click 'Create New'.

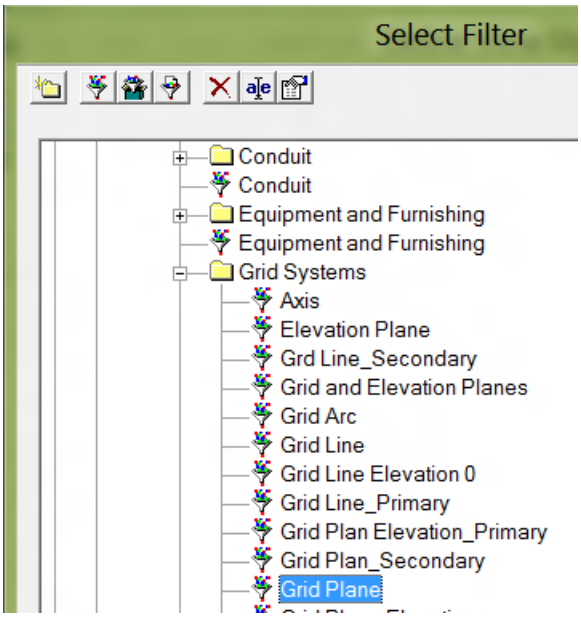


5. Click 'OK' on any prompts shown.
6. Click 'Exit' to exit the copy rule application.

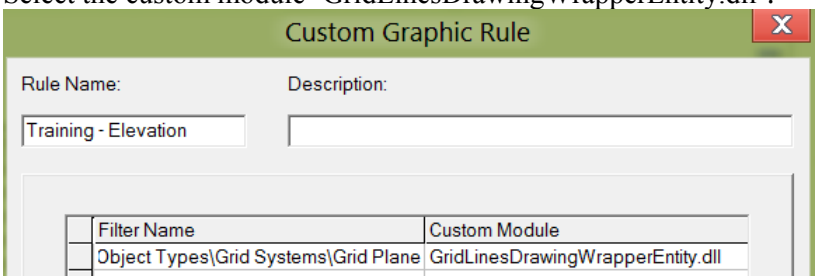
Define View Style

7. Select Tools → Define View Style.
8. Select the 'Training' view style and edit properties.
9. Rename the style 'Training – Elevation'.
10. In the 'Graphic Preparation Rule' field, select 'More…'.
11. Click 'New …' to create a new custom graphic rule.
12. Name the rule 'Training – Elevation'.

13. Click in the ‘Filter Name’ field in the first row and select the ‘Grid Plane’ filter as shown below.

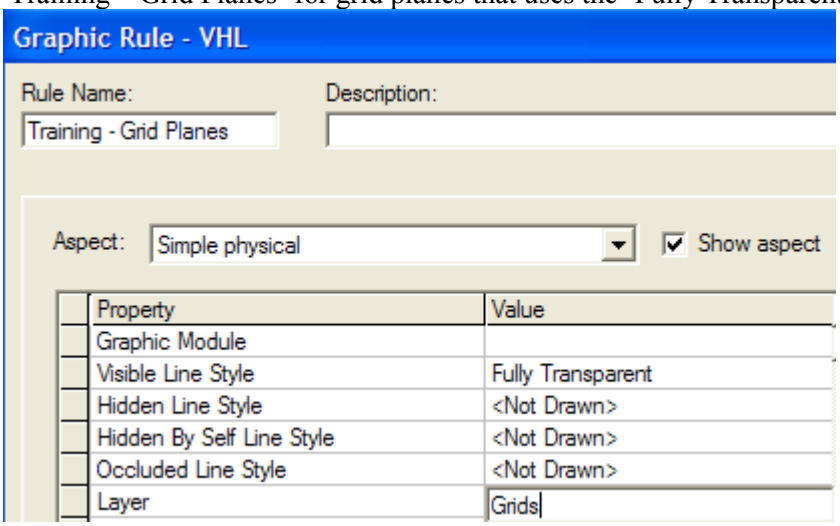


14. Select the custom module ‘GridLinesDrawingWrapperEntity.dll’.



15. Click OK to define the rule.
16. Click OK to select the rule to use in the view style.
17. In the last row in the view style, add the ‘Grid Plane’ filter.

18. Click in the graphic rule field, select ‘More…’ and define a new graphic rule named ‘Training – Grid Planes’ for grid planes that uses the ‘Fully Transparent’ line style.



19. Click OK to save the new Graphic Rule and then hit OK to add it to the View Style.
20. Click in the label rule field, select ‘More…’ and select the ‘Training_GridPlane’ label rule.
21. Click OK to save the view style and answer ‘Yes’ to create a new view style on the dialog shown.

Edit Label Rule

22. Open Windows Explorer and browse to [Symbols Share]\Drawing\Catalog\Labels\Templates folder.
23. Locate the ‘Training_GridPlane.xml’ file and open it using a text editor.
24. Locate the <connectpoint> tag using a search function or by scrolling through the file.

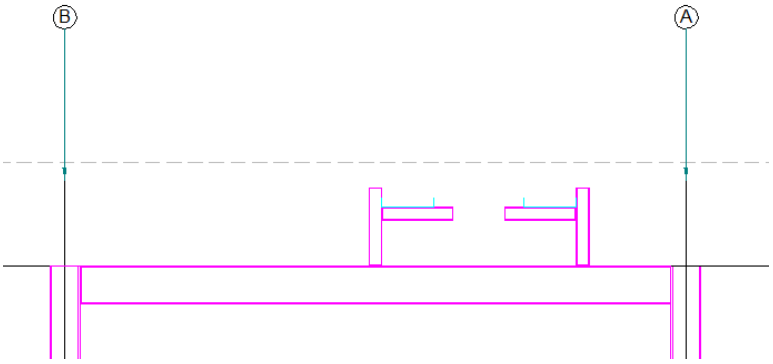
```
<connectPoint>4</connectPoint>
<!--Position of the search quadrant relative to an objects range.-->
<positioningPoint>4</positioningPoint>
<!--Placement priority preferences for label positioning.  Quadrant one
        is in the upper right and others are clockwise. Rules are executed in the
        order they are listed.-->
<posModules>
  <posModule value="DrawingQuadOne" />
  <posModule value="DrawingQuadTwo" />
  <posModule value="DrawingQuadThree" />
  <posModule value="DrawingQuadFour" />
  <posModule value="DrawingAbsolute">
    <!--Determine the X and Y offsets for the label relative an objects
            key point or control point.-->
    <hoffset>.02</hoffset>
    <voffset>.02</voffset>
  </posModule>
</posModules>
```

25. Change connectpoint to 1, positioningpoint to 1, delete the rows with DrawingQuadxxx posmodules, and change hoffset to 0 and voffset to 0.04.

```
<connectPoint>1</connectPoint>
<!--Position of the search quadrant relative to an objects range.-->
<positioningPoint>1</positioningPoint>
<!--Placement priority preferences for label positioning.  Quadrant one
        is in the upper right and others are clockwise. Rules are executed in the
        order they are listed.-->
<posModules>
  <posModule value="DrawingAbsolute">
    <!--Determine the X and Y offsets for the label relative an objects
            key point or control point.-->
    <hoffset>0</hoffset>
    <voffset>.04</voffset>
  </posModule>
</posModules>
```

Test View Style

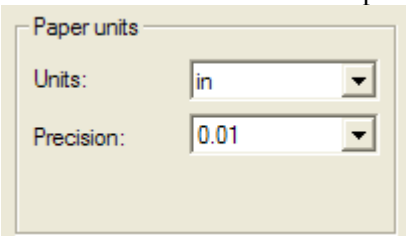
26. Edit the 'Piping Plan 1' drawing.
27. Select the section view and edit properties.
28. Change the view style to 'Training – Elevation'
29. Update the view. Notice the grid bubbles are above the view.



30. Close the drawing and exit drawing editor.

Edit label symbol

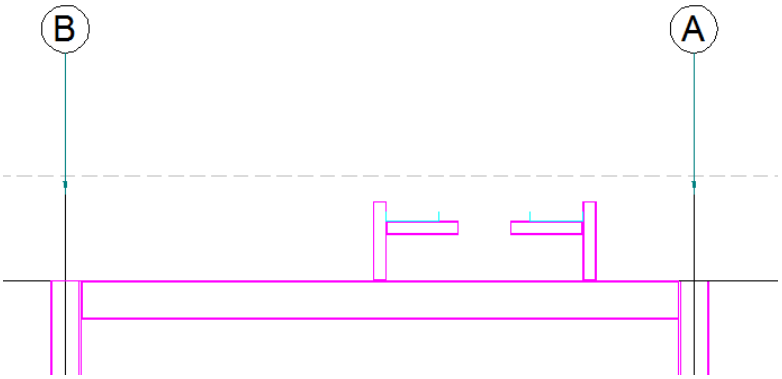
31. In Windows Explorer, double-click the Training_GridPlane.sym file to open it.
32. Select menu File → Sheet Setup and change paper units precision to 0.01.



33. Select the text box in the sym file and change the text size to 0.25 in using the ribbon bar.

34. Save the sym file and exit drawing editor.
35. Edit the 'Piping Plan 1' drawing and update view.

36. Notice that grid bubbles now reflect the new size.



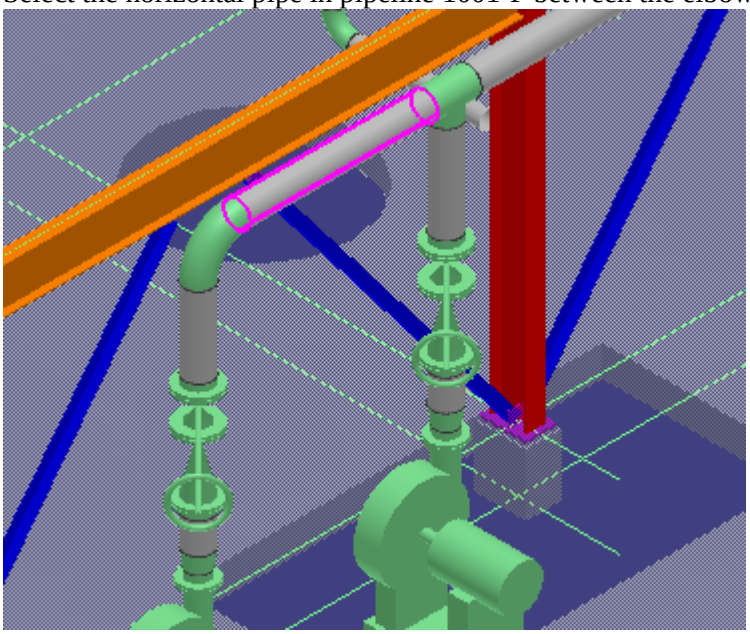
Control Point Coordinate Labels

Objective

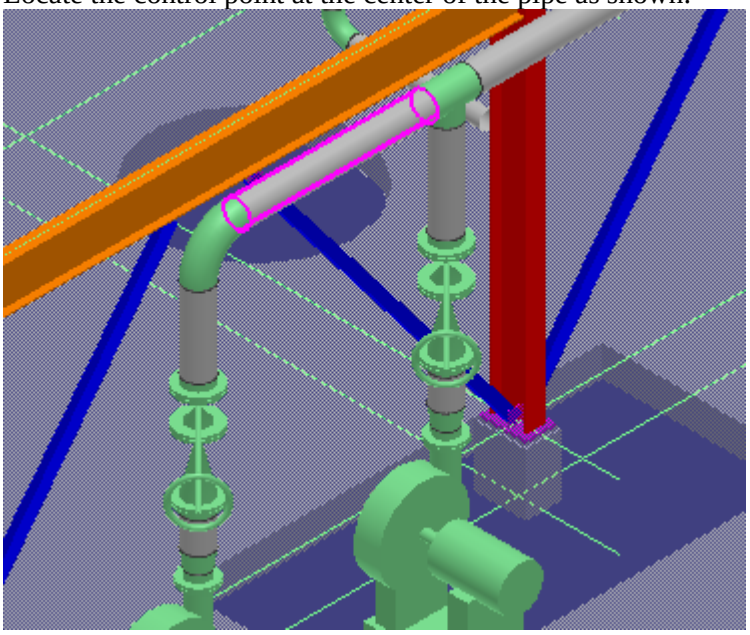
- Use a graphic preparation rule to draw reference objects that are normally not drawable into the drawing view
- Copy a coordinate label and modify it to use the desired point generator, geometric analyzer and positioning modules
- Modify label template XML to add a jog to the leader line
- Modify label rfm file to show all three coordinates for the control point

Insert Control Point

1. Switch to Piping task.
2. Change your locate filter to ‘Piping Parts’.
3. Select the horizontal pipe in pipeline 1001-P between the elbow and the tee as shown.



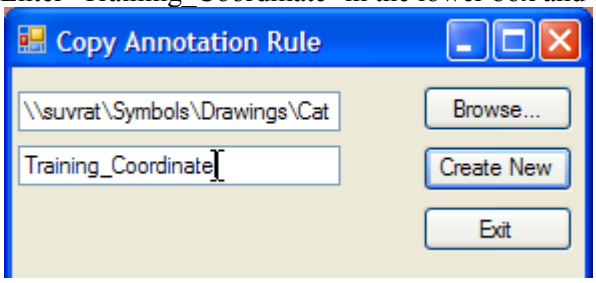
4. Insert → Control Point.
5. Locate the control point at the center of the pipe as shown.



6. Name the control point TP-001 and change its type to 'Elevation Callout'.

Copy Label Rule

1. Run the 'Copy Annotation Rule' application using the shortcut on the desktop.
2. Click the Browse.. button and browse to the [Symbols Share]\Drawings\Catalog\Rules\LabelRules folder.
3. Select the 'SP3DCoordinate_CA_JL' rule and click 'Open'.
4. Enter 'Training_Coordinate' in the lower box and click 'Create New'.



5. Click 'OK' on any prompts shown.
6. Click 'Exit' to exit the copy rule application.

Edit Label Rule

7. Open Windows Explorer and browse to [Symbols Share]\Drawing\Catalog\Labels\Templates folder.
8. Locate the 'Training_Coordinate.xml' file and open it using a text editor.

9. Locate the line <pgmodule>DrawingPGPipeSegments</pgmodule> and comment it out. NOTE: Each row should be commented out individually with "<!--" at the beginning and "-->" at the end. If you are using CookTop, you can highlight the row and hit F11 or run "XML=>Comment".

```
<pgModule>DrawingPGPipeSegments</pgModule>
<!--This module will place a label point on an obje
<!--If there is no control point then no point will
<!--<pgModule>DrawingPGCPThenNone</pgModule>-->
<!--This module will place a label point on an obje
<!--If there is no control point then the objects o
<!--there is no origin its center of range is used.
<!--<pgModule>DrawingPGControlPoint</pgModule>-->
```

10. Uncomment the line <!--<pgmodule>DrawingPGControlPoint</pgmodule>-->.

```
<!--<pgModule>DrawingPGPipeSegments</pgModule>-->
<!--This module will place a label point on an obj
<!--If there is no control point then no point wil
<!--<pgModule>DrawingPGCPThenNone</pgModule>-->
<!--This module will place a label point on an obj
<!--If there is no control point then the objects
<!--there is no origin its center of range is usec
<pgModule>DrawingPGControlPoint</pgModule>
```

11. Uncomment the line.

```
<!--<gaModule>DefaultLabelGeometricAnalyzer</gaModule>-->
```

12. Comment out the lines.

```
<gaModule>DrawingGALongestSegment</gaModule>
<equivalenceLabel>SP3DCoordinate.rtp</equivelenceLabel>
```

13. Uncomment the (tagged) lines as shown.

```
<!--<posModule value="DrawingAbsolute">-->
<!--<hOffset>0.02</hOffset>-->
<!--<vOffset>0.02</vOffset>-->
<!--The angle value is in radians.-->
<!--<angle>0</angle>-->
<!--</posModule>-->
```

```
<posModule value="DrawingAbsolute">
<hOffset>0.02</hOffset>
<vOffset>0.02</vOffset>
<!--The angle value is in radians.-->
<angle>0</angle>
</posModule>
```

14. Comment out the line.

```
<posModule value="DrawingCenterThenAbove"></posModule>
```

15. Comment out the lines.

```
<posModule value="DwgLinearAbsPos">
  <percentageOffset>0.50</percentageOffset>
  <offsetFromMember>0.01</offsetFromMember>
</posModule>
```

16. Edit <breakline> to be -1.

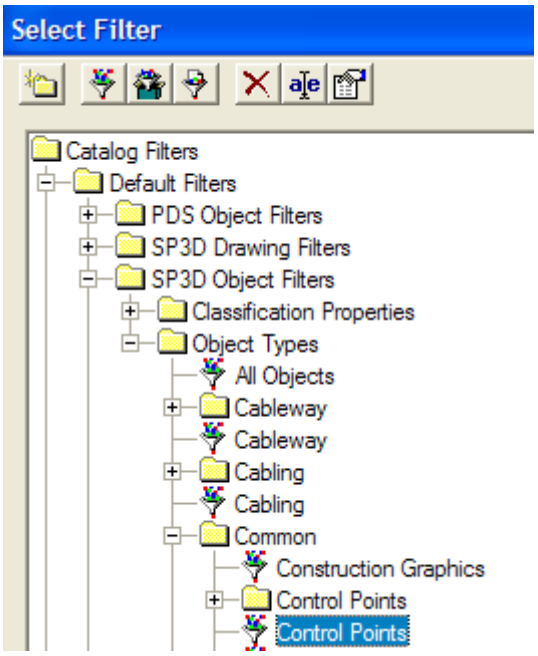
```
<breakline>-1</breakline>
```

17. Save the XML file.

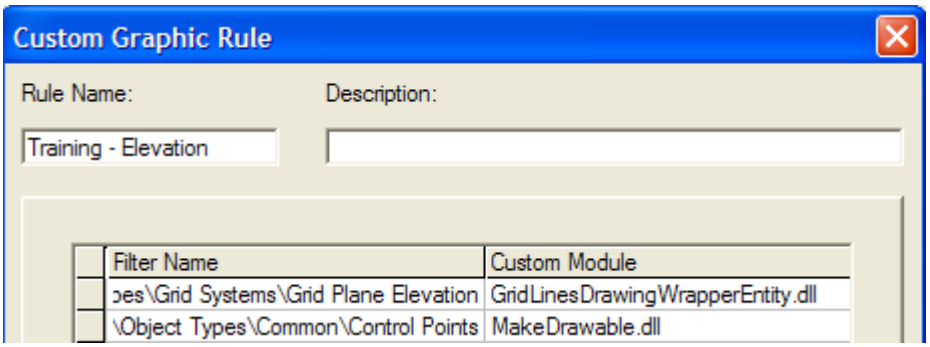
Edit View Style

18. Tools → Define View Style.
19. Edit the 'Training – Elevation' view style.
20. Edit the 'Training – Elevation' graphic preparation rule.

21. Add the ‘Control Points’ filter.

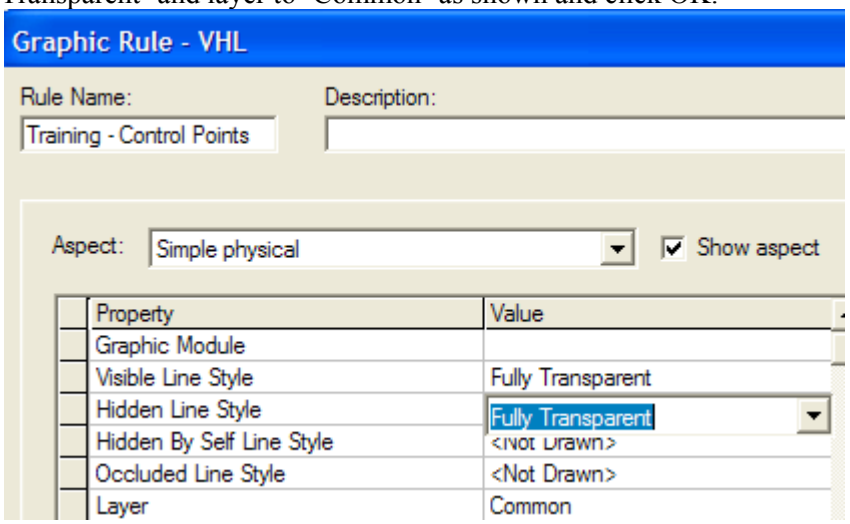


22. Select the ‘MakeDrawable.dll’ custom module.

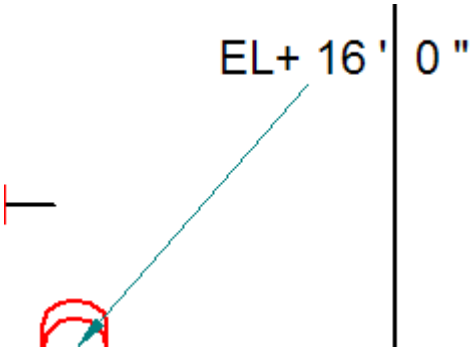


23. Click OK to save the rule.
24. Click OK to select the rule.
25. In the last row in the view style add the ‘Control Points’ filter.
26. Select the graphic rule field, click ‘More…’.
27. Select the ‘Training – Grid Planes’ graphic rule and edit properties.

28. Change rule name to ‘Training – Control Points’, Hidden Line Style to ‘Fully Transparent’ and layer to ‘Common’ as shown and click OK.



29. Click ‘Yes’ to create a new rule.
30. Click OK to select the rule.
31. In the ‘Label Rule’ field, click ‘More..’.
32. Select the ‘Training_Coordinate’ label rule and click OK.
33. Click OK to save the view style.
34. Test View Style.
35. Edit the ‘Piping Plan 1’ drawing.
36. Update the view.
37. Notice that elevation is shown for control point.



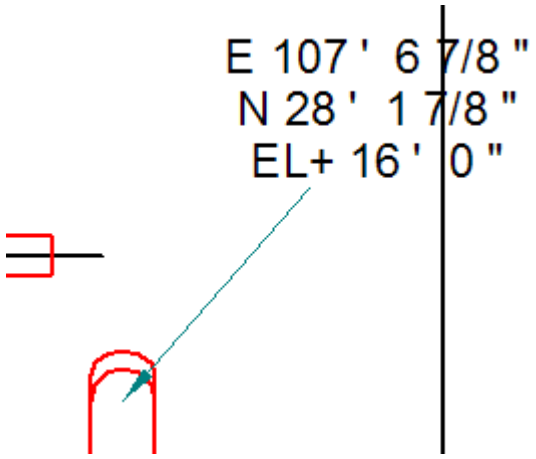
Edit label content

38. Locate the ‘Training_Coordinate.rfm’ file and open it using a text editor.
39. Change the Visible=”No” to Visible=”Yes” on the following lines.

```
<POSITION Axis="X" Point="BopLocation" Visible="Yes" />
<TEXT Value=" \par " ToParse="no" Visible="Yes" />
<POSITION Axis="Y" Point="BopLocation" Visible="Yes" />
<TEXT Value=" \par " ToParse="no" Visible="Yes" />
```

40. Save the rfm file.

41. Switch to drawing editor and update the view. Notice that all three coordinates are now shown.



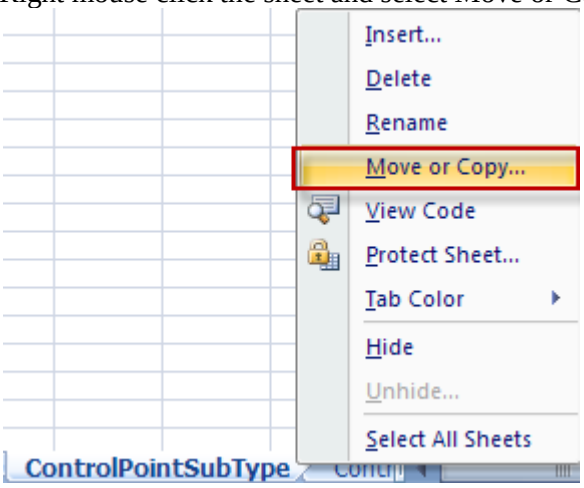
Grating Symbol Label

Objective

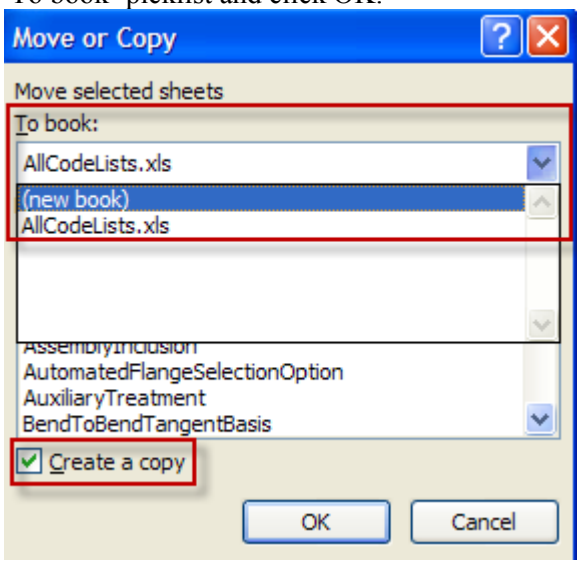
- Bulkload new control point subtypes for a grating symbol on a drawing
- Create a label that only places desired graphics in the drawing and uses it in a view style

Bulkload New Control Point Subtypes

1. Exit SmartPlant 3D session if you have one open.
2. Open [SmartPlant 3D]\CatalogData\Bulkload\DataFiles\AllCodelists.xls.
3. Find the ControlPointSubType sheet.
4. Right mouse click the sheet and select Move or Copy.



5. In the ‘Move or Copy’ box check the ‘Create a copy’ box and select (new book) from the ‘To book’ picklist and click OK.

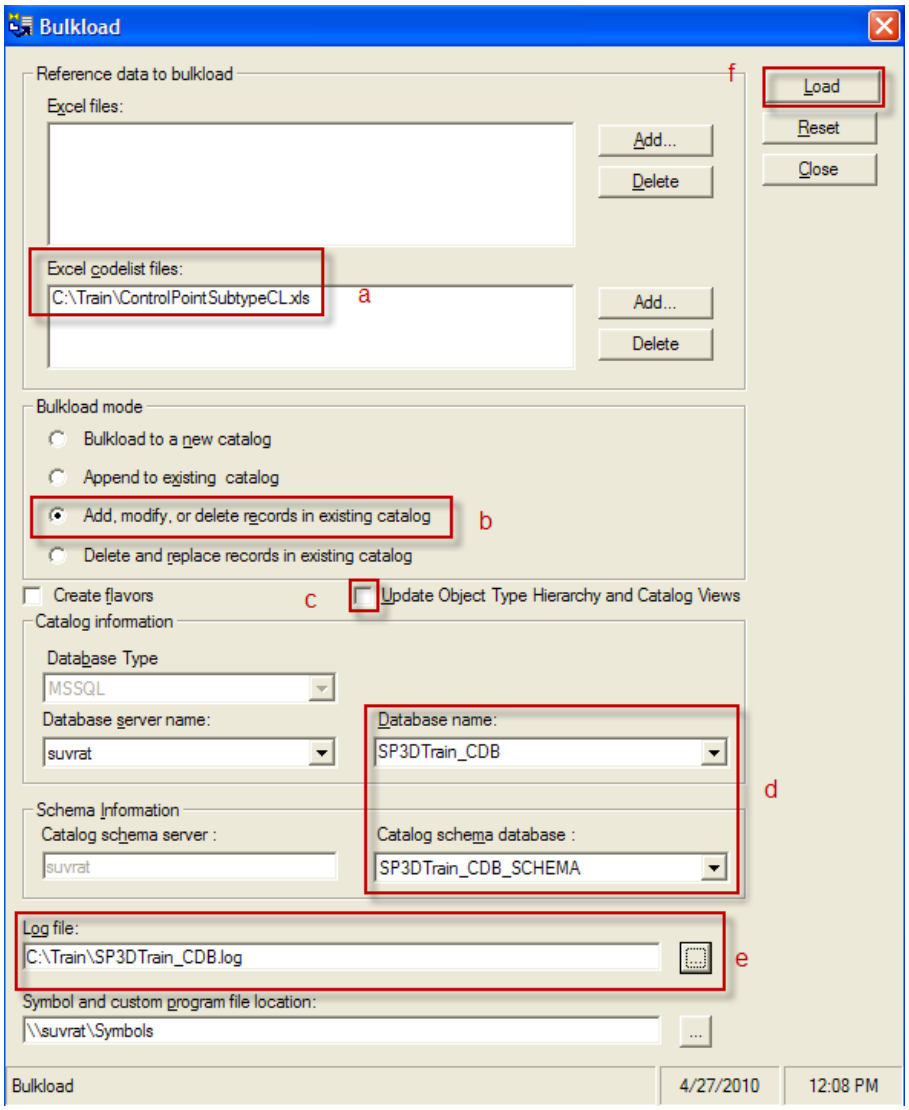


6. Modify the rows containing code list numbers 41 through 44 as shown below and save the book on your disk. Name the workbook ‘ControlPointSubTypeCL.xls’.

49	a	Grating Symbol Bottom Left		41
50	a	Grating Symbol Top Left		42
51	a	Grating Symbol Top Right		43
52	a	Grating Symbol Bottom Right		44

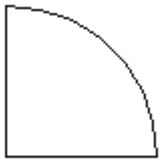
7. Start the Bulkload Reference Data command. Make the following selections:
   a. Select the workbook ControlPointSubType.xls in the Excel codelist files section.
   b. Select ‘Add, modify or delete’ as the bulkload mode.
   c. Uncheck the ‘Update object type hierarchy and catalog views’ checkbox.
   d. Pick your server and database names in the catalog information section.
   e. Enter a log file name.

f. Click the ‘Load’ button.

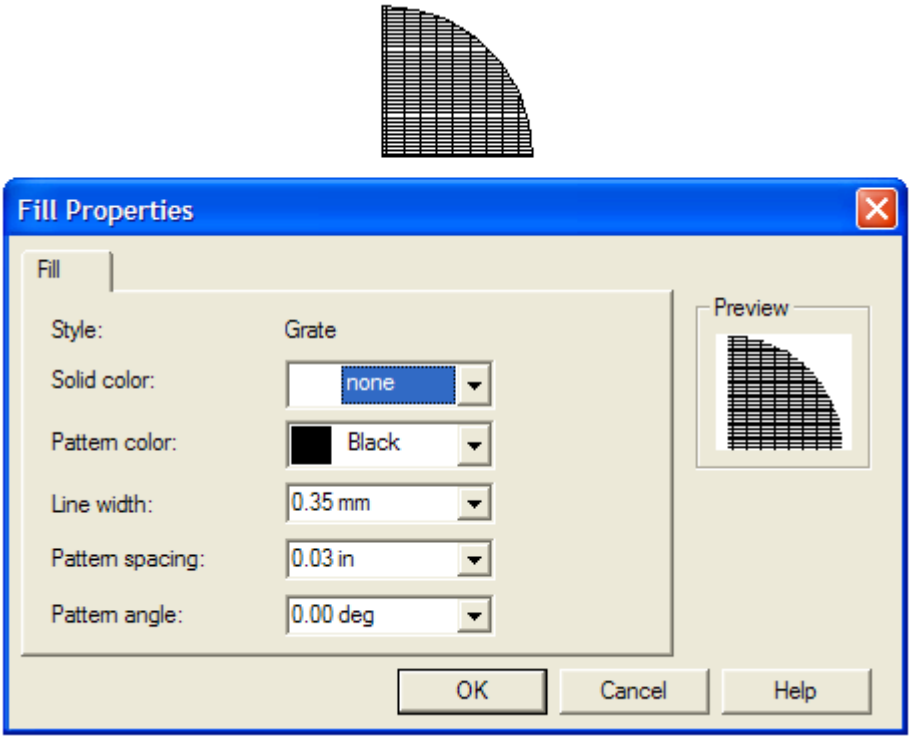


Create Grating Symbol

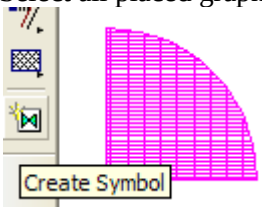
8. Open SmartSketch Drawing Editor using the Start Menu shortcut.
9. Using the place arc command, place an arc with radius 1 in and sweep angle 90 deg.
10. Using the place line command, draw vertical and horizontal lines connecting the center of the arc to its ends, to get a pie shape. (Use the trim command if necessary to get a single closed shape).



11. Use the fill command to fill the shape using the ‘Grate’ pattern.



12. Select all placed graphics and use the create symbol command to create a symbol.



13. Click at the center of the arc to place the symbol origin.
14. Save the symbol in [Symbol Share]\Drawings\Catalog\Labels\Templates as Grating_Bottom_Left.sym.
15. Save your document (if desired) and exit SmartSketch Drawing Editor.

Copy Label XML

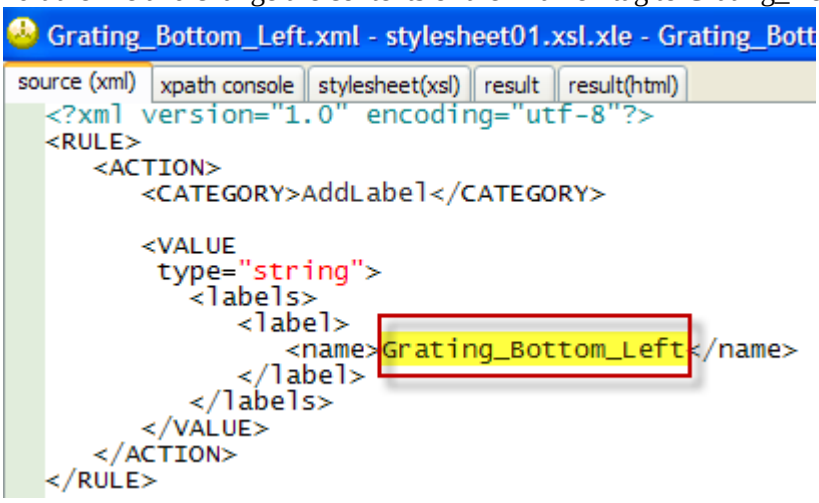
16. Using Windows Explorer, navigate to [Symbol Share]\Drawings\Catalog\Label\Templates.
17. Copy and paste the file CtrlPtOnlyCoordSym_None_A_NL.xml.
18. Rename the pasted XML file as Grating_Bottom_Left.xml.
19. Edit the file and change the <pgModule> to DrawingPGControlPoint.

```
<pgModule>DrawingPGControlPoint</pgModule>
```

20. Save the file and exit XML editor.

Copy Label Rule

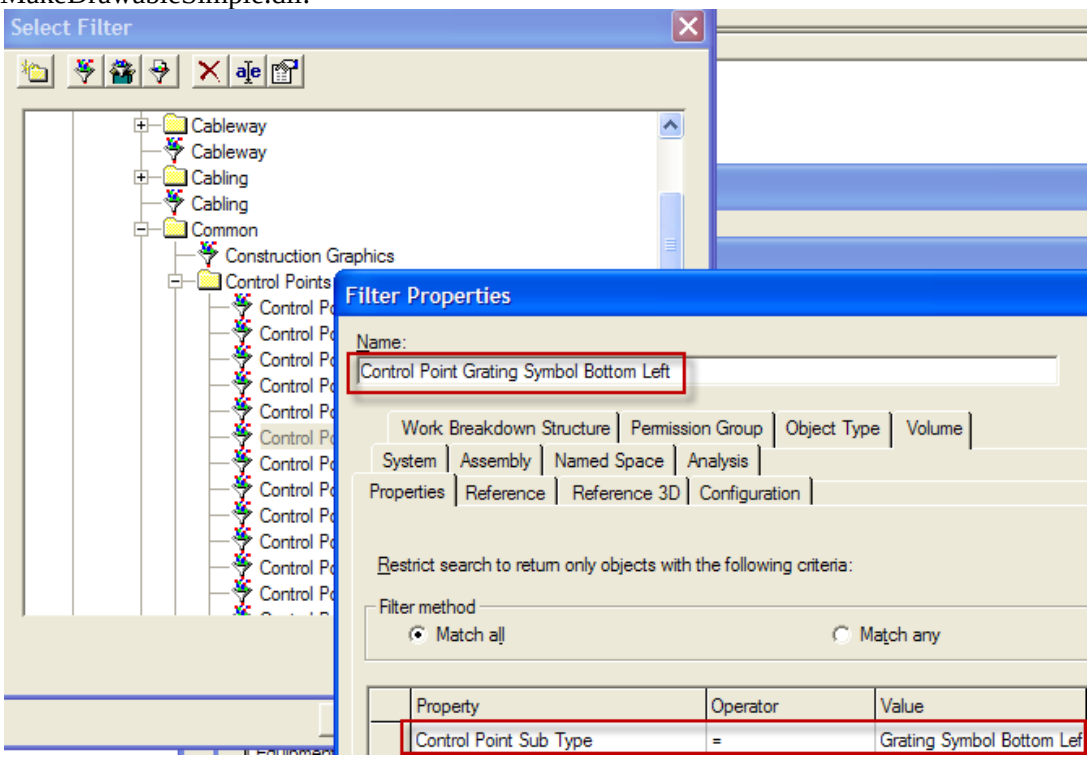
1. Using Windows Explorer, navigate to [Symbol Share]\Drawings\Catalog\Rules\LabelRules.
2. Copy and paste the file Name_None_A_NL.xml.
3. Rename the pasted file Grating_Bottom_Left.xml.
4. Edit the file and change the contents of the <name> tag to Grating_Bottom_Left.



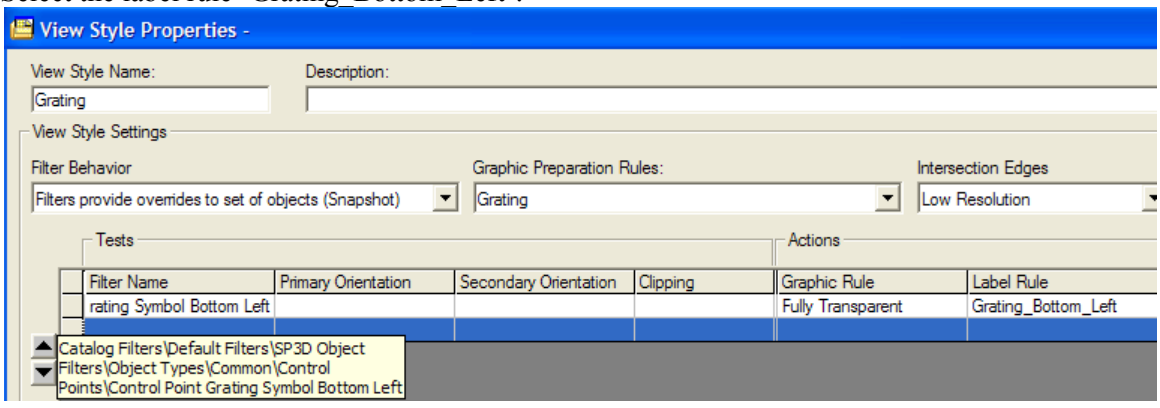
Create View Style

5. Tools → Define View Style.
6. Create a new view style named ‘Grating’ and edit properties.
7. Change the view style behaviour to ‘Snapshot’.
8. Add a new graphic preparation rule named ‘Grating’ and edit properties.
9. While in the graphic preparation rule propreties, create a filter for control points of the subtype ‘Grating Bottom Left’ and make them drawable using the

MakeDrawableSimple.dll.



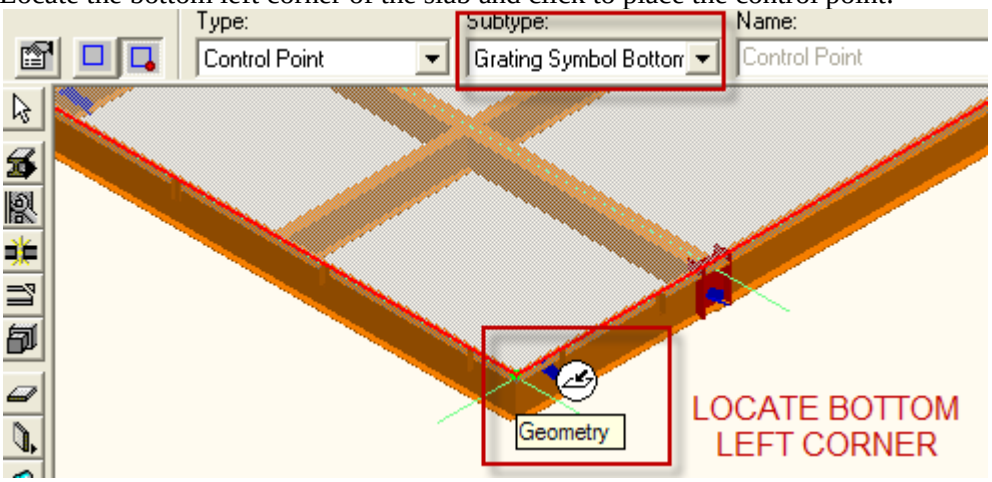
10. Click OK to save the graphic preparation rule.
11. Click OK to select the rule.
12. In the first row in the view style, select the same filter created above ‘Catalog Filters\Default Filters\SP3D Object Filters\Object Types\Common\Control Points\Control Grating Symbol Bottom Left’.
13. Select a graphic rule ‘Fully Transparent’.
14. Select the label rule ‘Grating_Bottom_Left’.



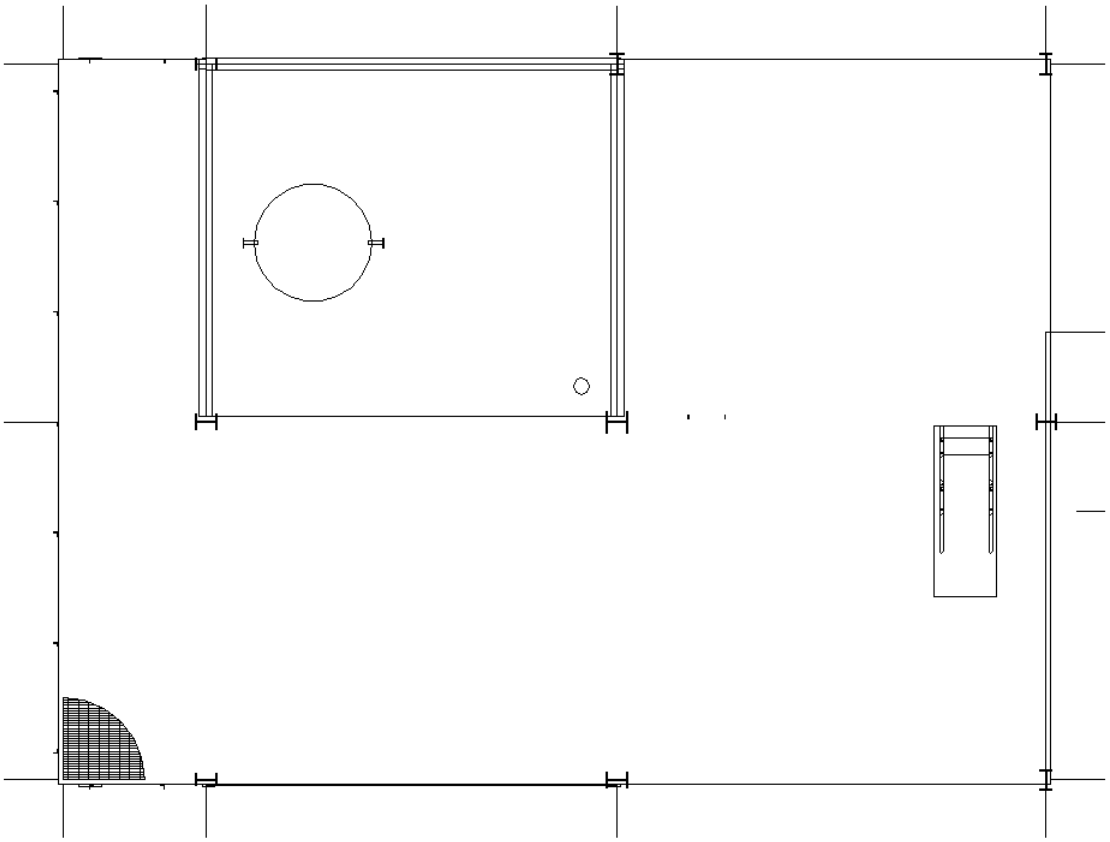
Test View Style

15. Switch to the Structure task and define workspace using Plant Filters – Training Filters – U03.
16. Locate the slab at elevation 18 ft and clip your view so that you can clearly see the slab.

17. Select the slab and Insert → Control Point.
18. Locate the bottom left corner of the slab and click to place the control point.



19. Open the Composed Drawings - Structure Plan 1 drawing.
20. Edit the view properties to use the 'Grating' view style.
21. Update the view. You should see the grating symbol label in the bottom left corner of the view.



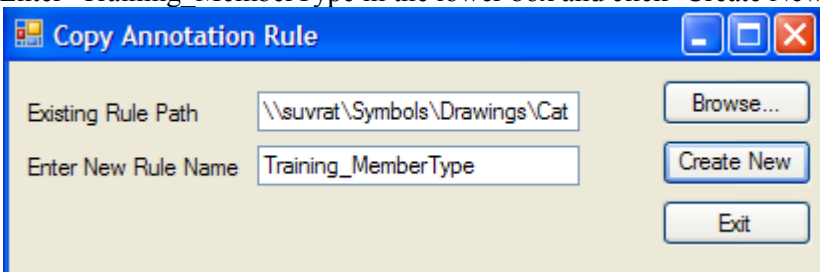
Creating New Label for Structural Member

Objective

- Create a new label in the catalog task to decide the data portion of a drawing label
- Modify the SYM file of a label template to change the look and feel of the label

Copy Label Rule

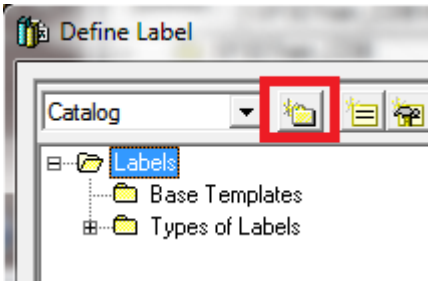
1. Run the 'Copy Annotation Rule' application using the shortcut on the desktop.
2. Click the Browse.. button and browse to the [Symbols Share]\Drawings\Catalog\Rules\LabelRules folder.
3. Select the 'SectionSize_None_APO_NL' rule and click 'Open'.
4. Enter 'Training_MemberType in the lower box and click 'Create New'.



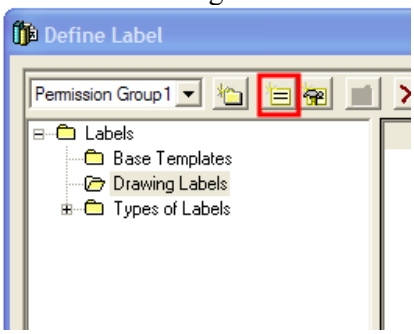
5. Click 'OK' on any prompts shown.
6. Click 'Exit' to exit the copy rule application.

Label Template

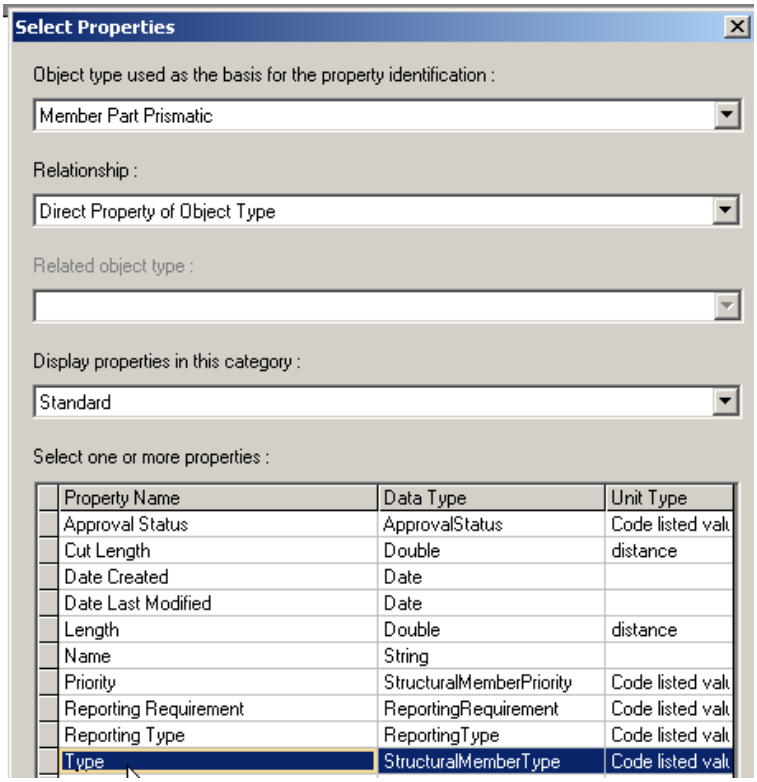
7. Switch to the Catalog task.
8. Select Tools – Define Label from the main menu.
9. Select the Labels folder and create a new folder named 'Drawing Labels'.



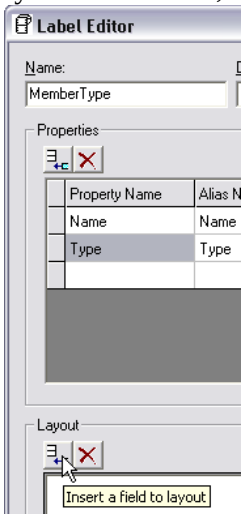
10. Select the Drawing Labels folder and pick the "New COM Label" button.



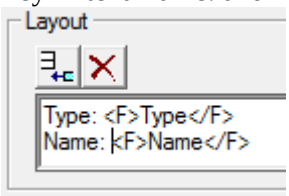
11. This will open the Label Editor dialog. Name the label. “Training_MemberType” by typing in the name in the Name field.
12. In the Properties section of the dialog, click on the Add button  to add an attribute to the selection. This will open the Select Properties dialog.
13. Add a property ‘Type’ to the label from the Member Part Prismatic in Catalog Filters, and click OK to close the dialog, as shown below:



14. Select the “Type” property and insert it to the layout by selecting the Insert a field to layout button  , as shown below:



15. With the blinking cursor in the Layout text box, strike the RETURN/ENTER key to go to the next line. Similar to inserting the "Type" property to the layout, insert the "Name" property.
16. Key-in text Name: and Type: before the property fields.

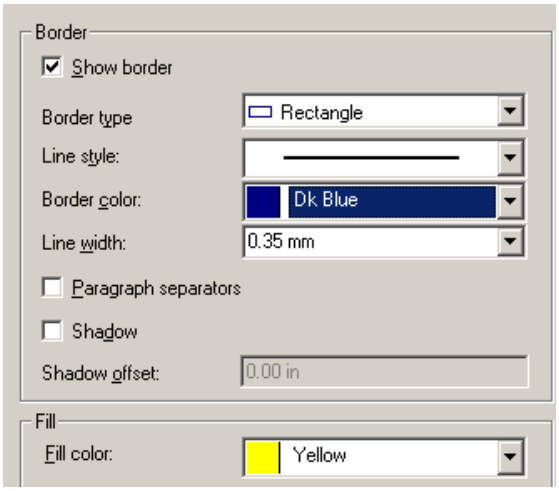


17. Click OK on the Label Editor dialog to save the label.
18. Using Windows Explorer, browse to [Symbols Share]\Labels\Drawing Labels\Training_MemberType and copy all the files.
19. Browse to [Symbols Share]\Drawings\Catalog\Labels\Templates and paste the files. Overwrite existing files if prompted.

Label Symbol File

20. In [Symbol Share]\Labels\Drawing\Catalog\Labels\Templates (should already be in this location from the previous step),double-click "Training_MemberType.sym" to open it.
21. Double-click the word "SectionSize" until it highlights with a yellow background and then type word "Training_MemberType". (This is for your information only, software does not care what text you put here.).
22. Right-click the word "Training_MemberType" and select **Properties,** as shown below:

23. You can change the **Border and Fill** attributes as desired, e.g. choose **Border** color as Dk Blue and **Fill** color as Yellow.



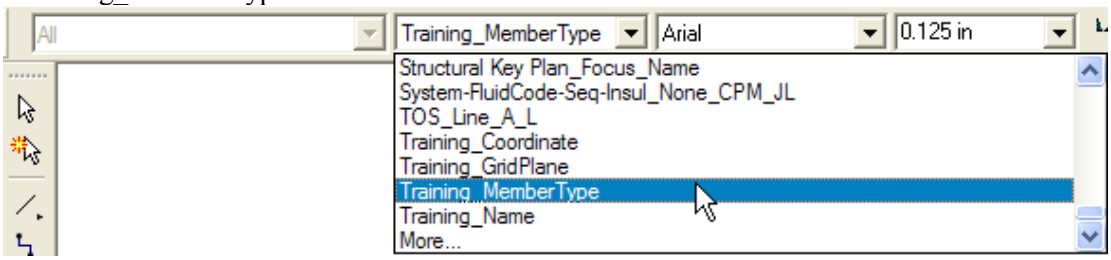
24. Click OK and then save the symbol and exit.

Label XML File

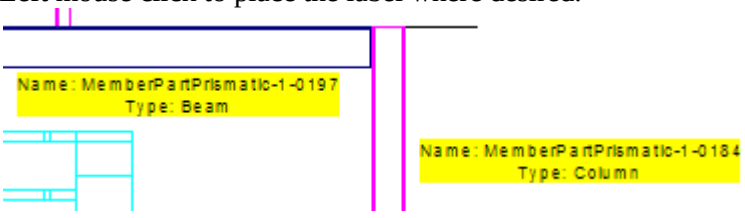
25. Open the ”Training_MemberType.xml” using NotePad, CookTop or other text editor.
26. Search for the tag <content>, note that the proper rtp file for the report label is already being referred.

```
<content>
  <contentModule value="DrawingLabelHelper" />
  <!--This value is linked by a custom attribute on the text box in a s
      the same name as this rule.-->
  <ID attributeName="Training_MemberType">Training_MemberType.rtp</ID>
</content>
```

27. In SmartPlant3D, in the Drawings and Reports task, edit the drawing ‘Piping Plan 1’.
28. In the Drawing Editor, click on the ‘Place a Label’ button  located on the horizontal toolbar.
29. On the horizontal ribbon bar, drop down the select list and select the “Training_MemberType” labels as shown below:



30. With the mouse pointer, select a structural member.
31. Left mouse click to place the label where desired.



Lab 7 Dimension Rules

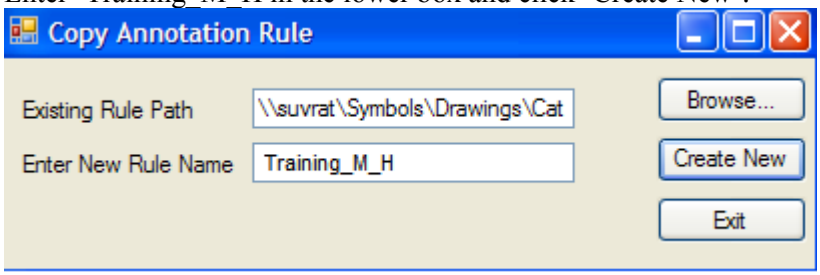
Dimension Rule for Equipment

Objective

- Copy dimension rule and its template using a tool
- Modify the dimension template XML tags to decide which dimensions are to be drawn
- Use the new dimension rule in a view style to dimension equipment to each other

Copy Dimension Rule

1. Run the 'Copy Annotation Rule' application using the shortcut on the desktop.
2. Click the Browse.. button and browse to the [Symbols Share]\Drawings\Catalog\Rules\DimensionRules folder.
3. Select the 'Linear_M_HV' rule and click 'Open'.
4. Enter 'Training_M_H in the lower box and click 'Create New'.



5. Click 'OK' on any prompts shown.
6. Enter 'Training_M_V' in the lower box and click 'Create New'.
7. Click 'OK' on any prompts shown.
8. Click 'Exit' to exit the copy rule application.

Edit Dimension Rule

9. Open Windows Explorer and browse to [Symbols Share]\Drawing\Catalog\Dimensions\Templates folder.
10. Locate the 'Training_M_H.xml' file and open it using a text editor.
11. Locate the <vert> tag and set it to 0.

```
<horiz>-1</horiz>
<vert>0</vert>
```

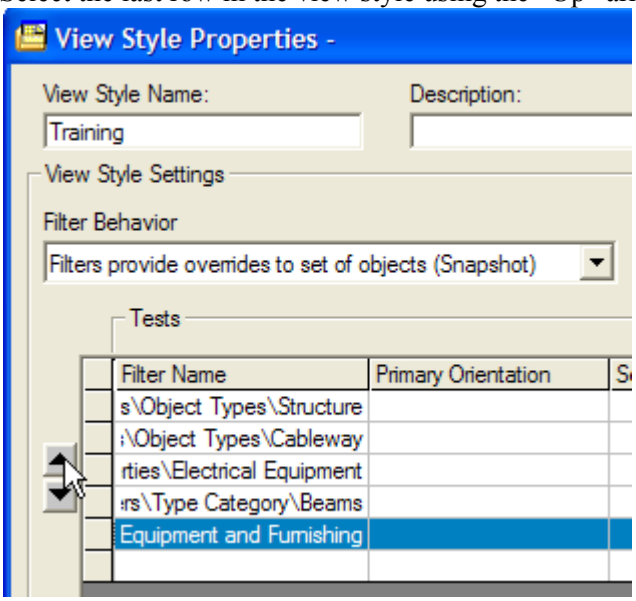
12. Save the file.
13. Locate the 'Training_M_V.xml' file and open it using a text editor.
14. Locate the <horiz> tag and set it to 0.

```
<horiz>0</horiz>
<vert>-1</vert>
```

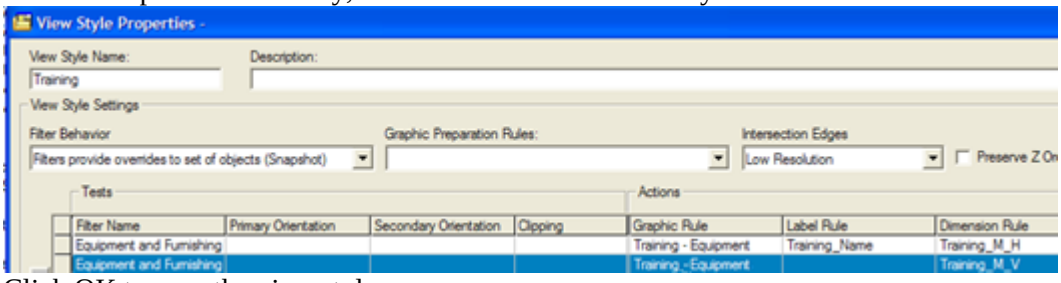
15. Save the file.

Edit view style

16. Tools → Define View Style.
17. Edit the 'Training' view style.
18. In the first row, click in the 'Dimension Rule' field, select 'More…'.
19. Select the 'Training_M_H' dimension rule and click OK.
20. Add a row below the last row.
21. Click in the 'Filter Name' field and add the Equipment filter (hint: you can copy and paste the filter name from the first row).
22. At the end of the last row in the view style, click in the 'Dimension Rule' field, and select 'More…'.
23. Select the 'Training_M_V' dimension rule and click OK.
24. Select the last row in the view style using the "Up" arrow square to the left.



25. Repeatedly click the upwards triangle until it is just below the first row. While this does not impact functionality, it makes for a clearer view style.



26. Click OK to save the view style.

Test View Style

27. Edit the 'Piping Plan 1' drawing.
28. Select view and edit properties.
29. Change to use view style 'Training' and Look Direction 'Looking Plan' and click OK.

30. Update View. You should see the equipment dimensioned both horizontally and vertically.

Dimension Rule for Piping

Objective

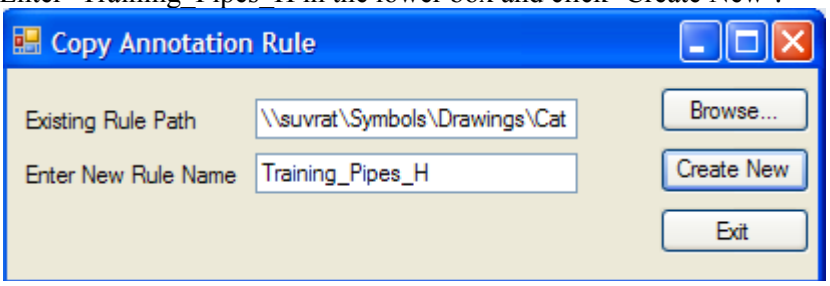
- Modify the filter its associated with a composed drawing view
- Use the orientation tests in a view style to dimension pipes
- Modify dimension rule to dimension objects close to the margin in the margin using the "range" feature and turn off internal dimensioning
- Modify dimension rule to consume small dimensions within larger neighbouring dimensions
- Modify dimension rule to trim witness lines at the margin

Modify Piping Plan 1 to use U01 and U04

1. Switch to the 'Space Management' task.
2. Tools → Drawing Console.
3. Edit the 'Piping Plan 1' drawing.
4. Select the view and click the 'Associate Objects to View' command.
5. Switch to the 3D environment and the ribbon bar, select the 'Plant Filters – Training Filters – U01 and U04' filter.

Copy Dimension Rule

6. Run the 'Copy Annotation Rule' application using the shortcut on the desktop.
7. Click the Browse.. button and browse to the [Symbols Share]\Drawings\Catalog\Rules\DimensionRules folder.
8. Select the 'Piping Plan_Pipes_Horizontal' rule and click 'Open'.
9. Enter 'Training_Pipes_H in the lower box and click 'Create New'.



10. Click 'OK' on any prompts shown.
11. Click Browse… button.
12. Select the 'Piping Plan_Pipes_Vertical' rule and click 'Open'.
13. Enter 'Training_Pipes_V' in the lower box and click 'Create New'.
14. Click 'OK' on any prompts shown.
15. Click 'Exit' to exit the copy rule application.

Edit View Style To Add Dimension Rules to Parallel Pipe

16. Switch to the Drawings and Reports task.

17. Tools → Define View Style.
18. Edit the 'Training' view style.
19. Click in the last empty row and select the 'Catalog Filters\Default Filters\SP3D Object Filters\Object Types\Piping\Piping Parts\Pipes' filter.
20. Click in the Primary Orientation column and select 'Parallel, Horizontal'.
21. Click in the Dimension Rule column ad select 'More…'.
22. Select the 'Training_Pipes_V' rule and click OK.
23. Click in the last empty row and select the 'Catalog Filters\Default Filters\SP3D Object Filters\Object Types\Piping\Piping Parts\Pipes' filter.
24. Click in the Primary Orientation column and select 'Parallel, Vertical'.
25. Click in the Dimension Rule column ad select 'More…'.
26. Select the 'Training_Pipes_H' rule and click OK.

Filter Name	Primary Orientation	Secondary Orientation	Label Rule	Dimension Rule
Piping\Piping Parts\Pipes	Parallel, horizontal			Training_Pipes_V
Piping\Piping Parts\Pipes	Parallel, vertical			Training_Pipes_H

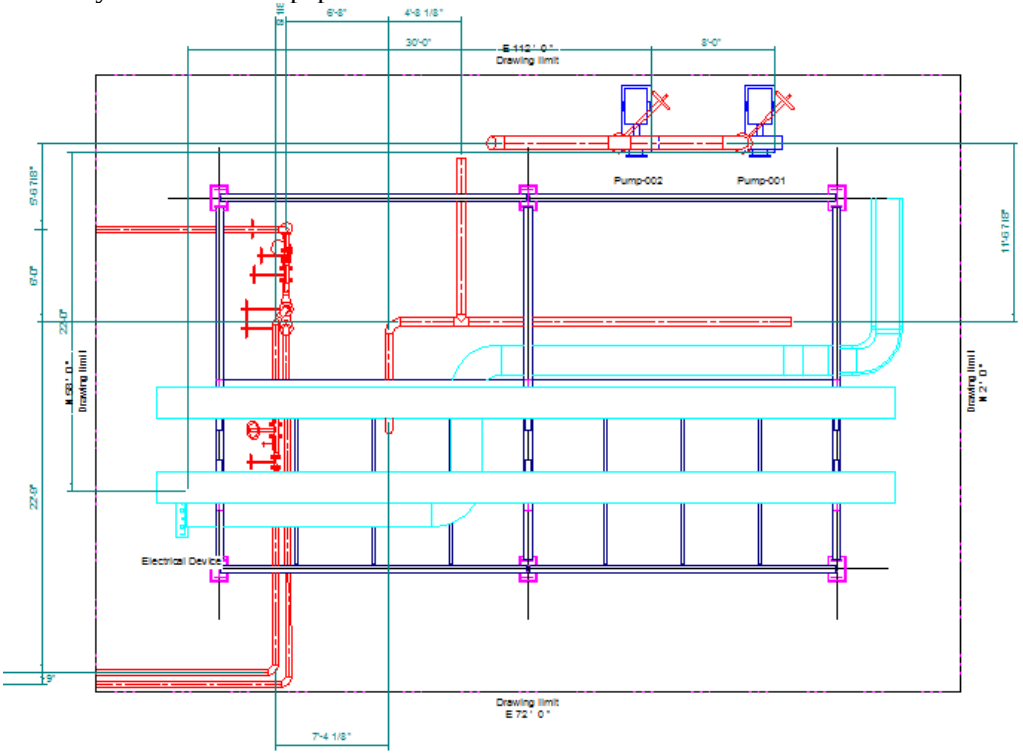
27. Click in the Matchline Rule field and select the 'Matchline_None_A' rule.

28. Click OK to save the view style.

Test View Style

29. Edit the 'Piping Plan 1' drawing.
30. Update View.

31. Notice that there are dimensions on all the pipes that are oriented horizontally and vertically in the sheet of paper.



Edit View Style To Add Dimension Rules To Normal Pipe

32. Tools → Define View Style.
33. Edit the 'Training' view style.
34. Click in the last empty row and select the 'Catalog Filters\Default Filters\SP3D Object Filters\Object Types\Piping\Piping Parts\Pipes' filter.
35. Click in the Primary Orientation column and select 'Normal'.
36. Click in the Dimension Rule column ad select 'More…'.
37. Select the 'Training_Pipes_V' rule and click OK.
38. Click in the last empty row and select the 'Catalog Filters\Default Filters\SP3D Object Filters\Object Types\Piping\Piping Parts\Pipes' filter.
39. Click in the Primary Orientation column and select 'Normal'.
40. Click in the Dimension Rule column ad select 'More…'.
41. Select the 'Training_Pipes_H' rule and click OK.

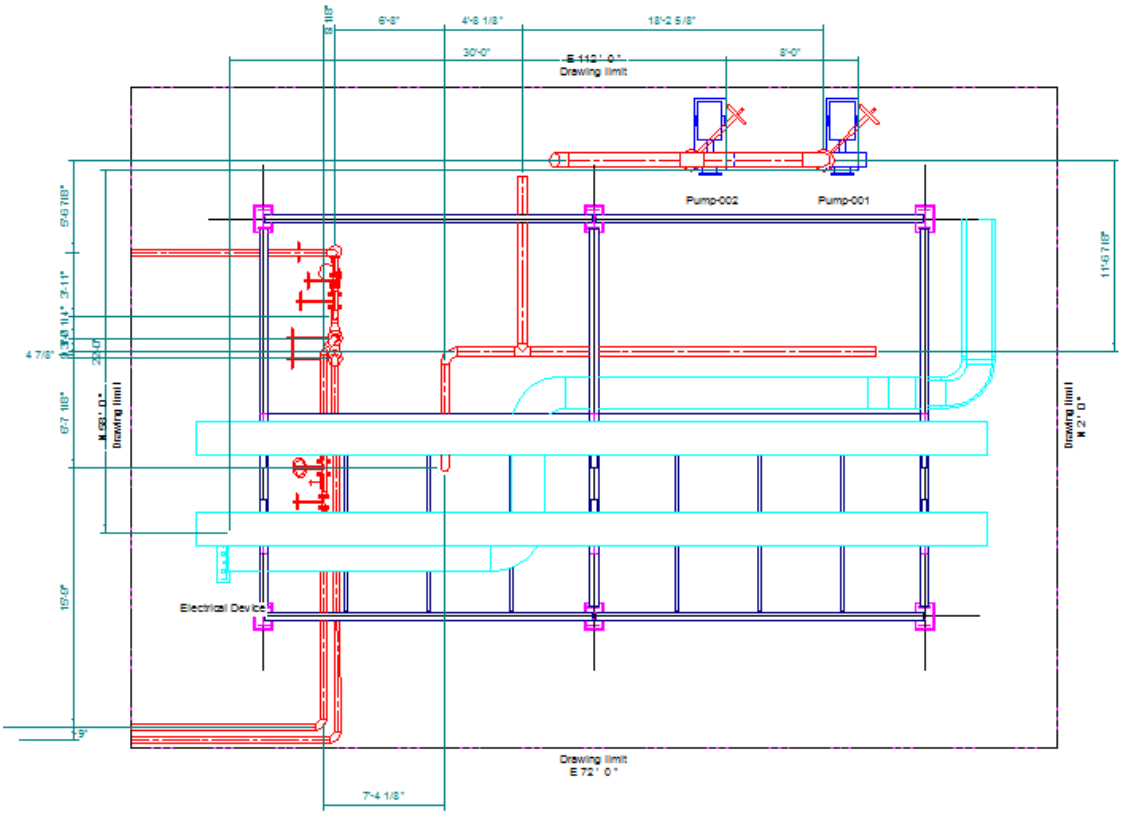
Filter Name	Primary Orientation	Secondary Orientation	Label Rule	Dimension Rule
Piping\Piping Parts\Pipes	Parallel, horizontal			Training_Pipes_V
Piping\Piping Parts\Pipes	Parallel, vertical			Training_Pipes_H
Piping\Piping Parts\Pipes	Normal			Training_Pipes_V
Piping\Piping Parts\Pipes	Normal			Training_Pipes_H

42. Click OK to save the view style.

Test View Style

43. Edit the 'Piping Plan 1' drawing.
44. Update View.

45. Notice that there are dimensions on all the pipes that are oriented horizontally and vertically in the sheet as well as those oriented normal to the sheet of paper.
    .



Edit Dimension Rule To Add the Range Functionality

46. Open Windows Explorer and browse to [Symbols Share]\Drawing\Catalog\Dimensions\Templates folder.
47. Locate the 'Training_Pipes_H.xml' file and open it using a text editor.
48. Locate the <range> tag and set it to -1, set the rangeOffset to 0.05 and internalDimension to 0.

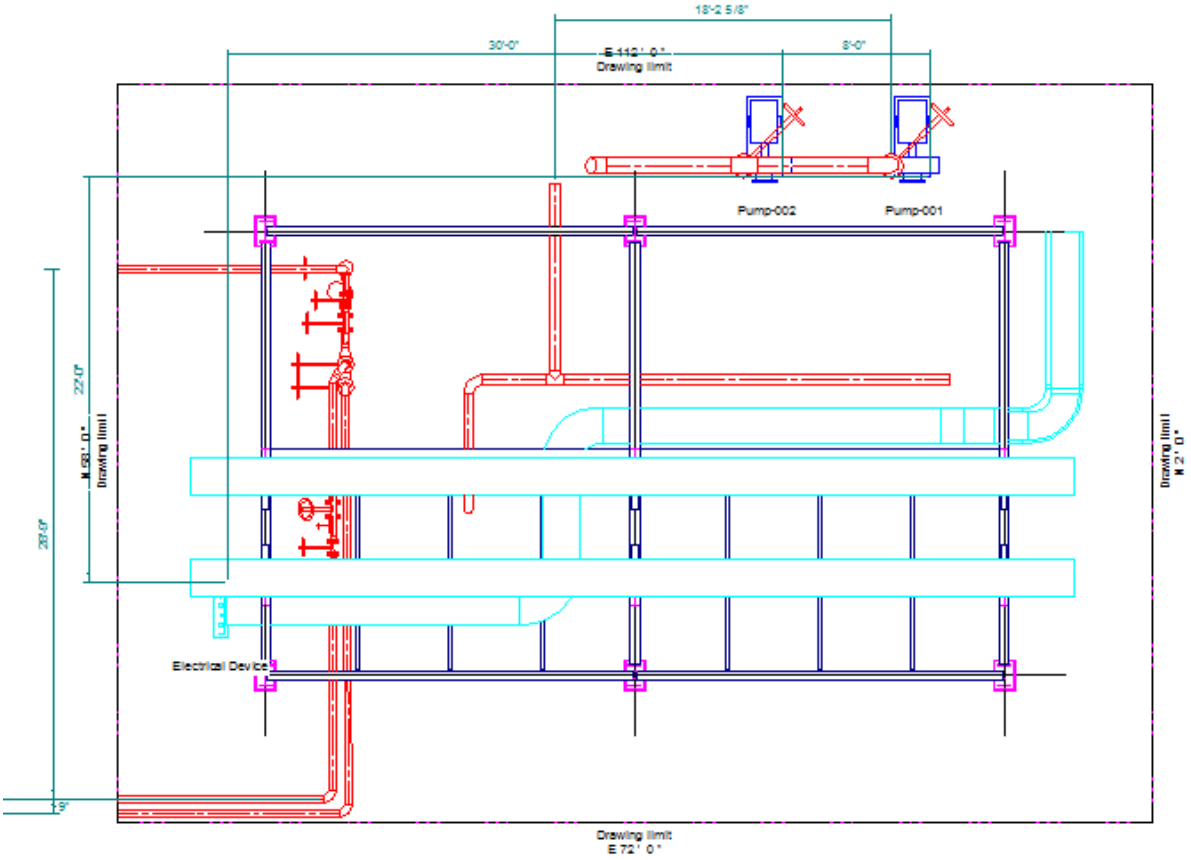
```
<range>-1</range>
<!--This option only use when range option is set true -->
<!--This option determines the distance from the matchline. unit of this option-->
<!--is paper unit.-->
<rangeOffset>0.05</rangeOffset>
<!--This option determines whether internal dimensions are placed. Settings: -1 for-->
<!--true, 0 for false. if the value for range is 0, then this option is not work.-->
<!--If this option is true then do not recommend to use positioning module-->
<!--"DrawingDimMarginPos" or "DrawingDimAbsolutePos".-->
<internalDimension>0</internalDimension>
<!--This option determines whether external dimensions are placed. Settings: -1 for-->
<!--true, 0 for false. if the value for range is 0, then this option is not work.-->
<!--If this option is true, external dimension is enforced using positioning module -->
<!--"DrawingDimMarginPos".-->
<externalDimension>-1</externalDimension>
<!--This option determines minimum distance of dimension. if dimension distance is-->
<!--not same and upward this option, that dimension is not placed.-->
<minimumDimension>0.0</minimumDimension>
```

49. Save the file.
50. Locate the 'Training_Pipes_V.xml' file and open it using a text editor.

51. Make the same changes as above.
52. Save the file.

Test View Style

53. Edit the ‘Piping Plan 1’ drawing.
54. Update View.
55. Notice that the number of dimensions is vastly reduced because only the pipes within 50 mm of the matchline are now being dimensioned.



56.

Edit Dimension Rule To Eliminate Small Dimensions

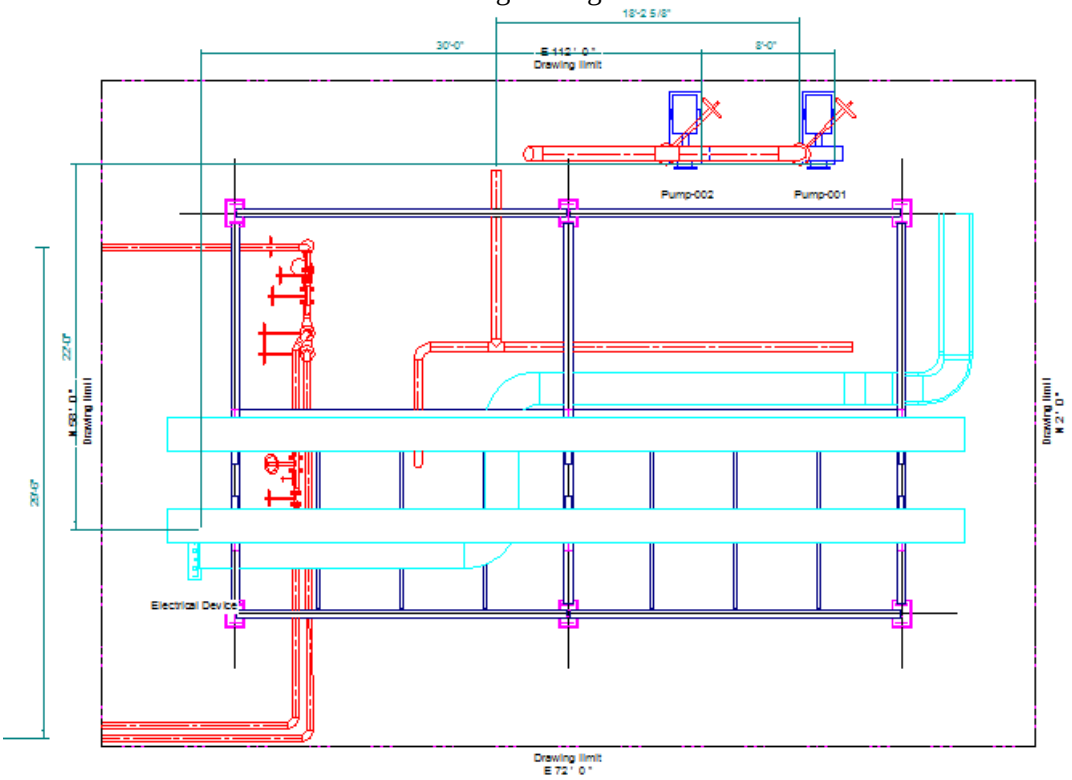
57. Open Windows Explorer and browse to [Symbols Share]\Drawing\Catalog\Dimensions\Templates folder.
58. Locate the ‘Training_Pipes_H.xml’ file and open it using a text editor.
59. Locate the <minimumDimension> tag and set it to 0.25.

```
<minimumDimension>0.25</minimumDimension>
```

60. Save the file.
61. Locate the ‘Training_Pipes_V.xml’ file and open it using a text editor.
62. Make the same changes as above.
63. Save the file.

Test View Style

64. Edit the ‘Piping Plan 1’ drawing.
65. Update View.
66. Notice that the number of dimensions is further reduced because dimensions smaller than 10” are now included within their neighboring dimensions.



Edit Dimension Rule To Trim Witness Lines

67. Open Windows Explorer and browse to [Symbols Share]\Drawing\Catalog\Dimensions\Templates folder.
68. Locate the ‘Training_Pipes_H.xml’ file and open it using a text editor.
69. Locate the <trimWitness> tag and set it to -1.

```
<trimWitness>-1</trimWitness>
```

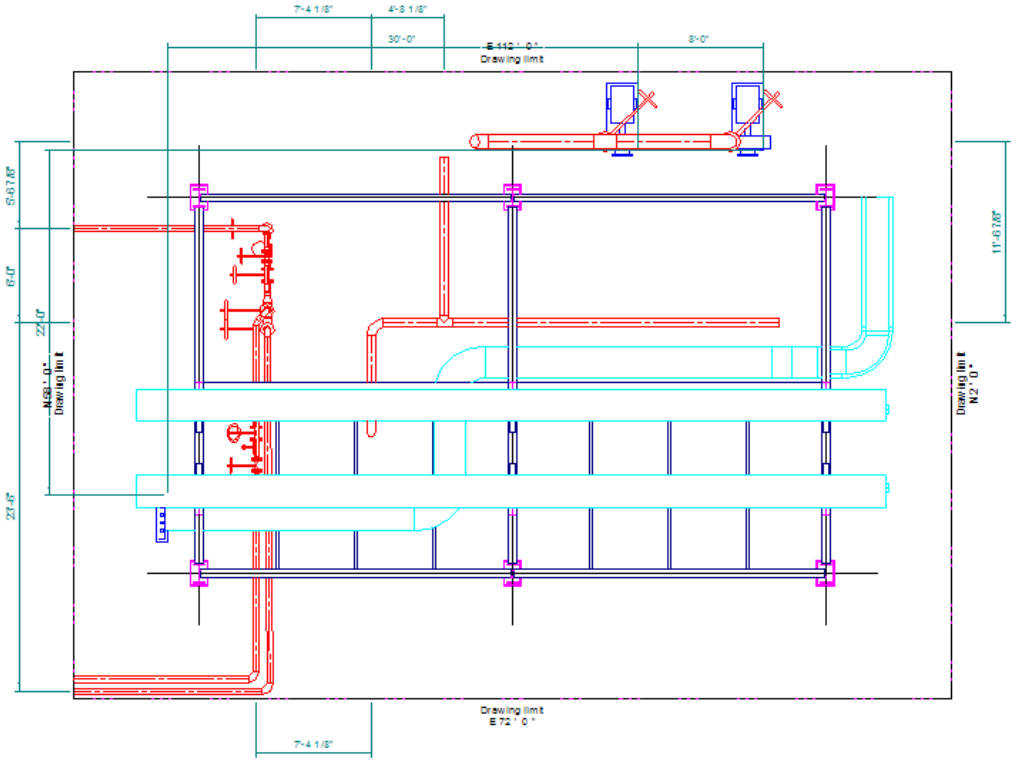
70. Change the <rangeOffset> tag value to 0.5.

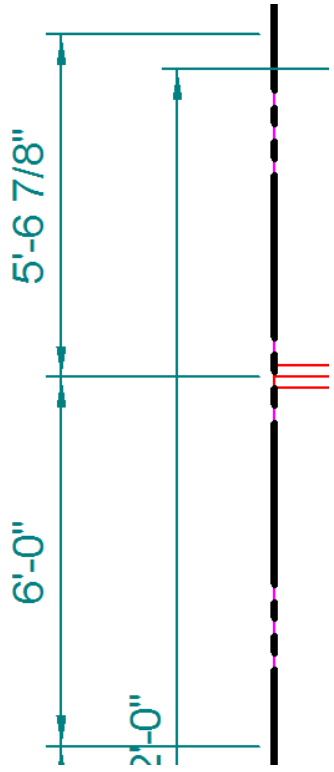
```
<rangeOffset>0.5</rangeOffset>
```

71. Save the file.
72. Locate the ‘Training_Pipes_V.xml’ file and open it using a text editor.
73. Make the same changes as above.
74. Save the file.

Test View Style

75. Edit the ‘Piping Plan 1’ drawing.
76. Update View.
77. Notice that the number of dimensions is now much larger. Also notice that the dimension witness lines now stop at the view matchline.


7'-4 1/8"
4'-8 1/8"
30'-0"
8'-0"
Drawing limit
5'-6 7/8"
6'-0"
22'-0"
23'-6"
11'-6 7/8"
Drawing limit
Drawing limit
7'-4 1/8"


5'-6 7/8"
6'-0"
2'-0"

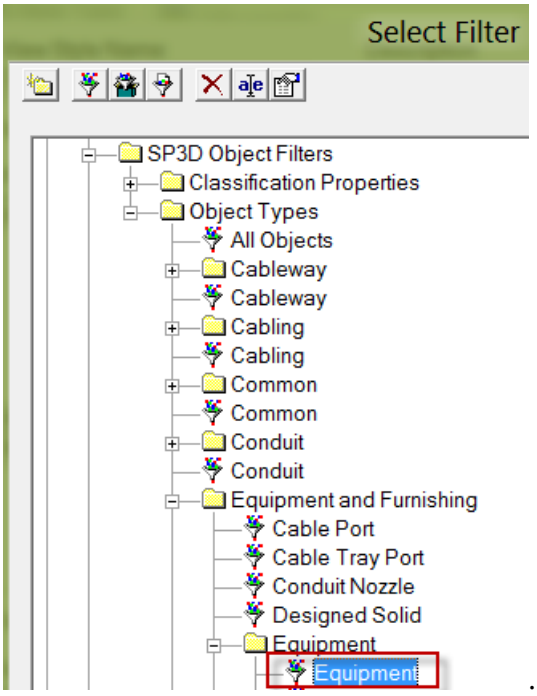
Lab 8 Drawing by Query Package

Objective

- Create an orthographic drawing by query package to document equipment

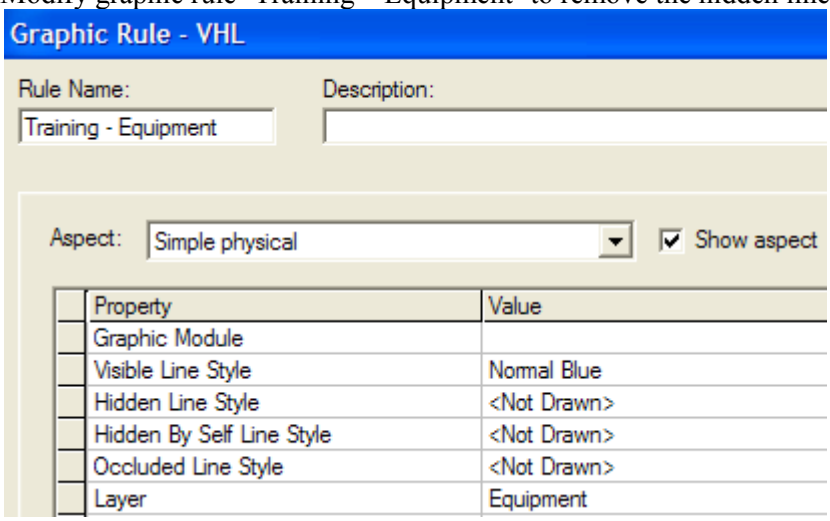
Define View Style

1. Tools → Define View Style.
2. Create New Style named ‘Training – Nozzles’.
3. Select style and Edit Properties.
4. Click in the ‘Filter Name’ field in the first row in the view style and pick the Equipment filter

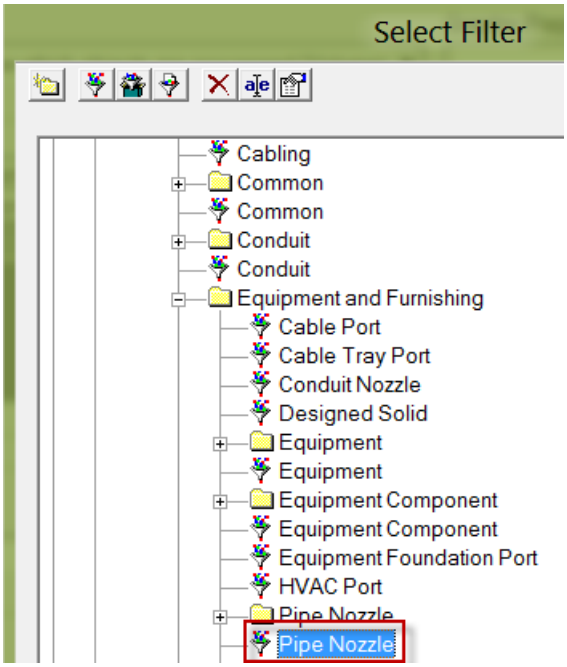


5. Click in ‘Graphic Rule’ field and select ‘More..’.

6. Modify graphic rule ‘Training – Equipment’ to remove the hidden line style.

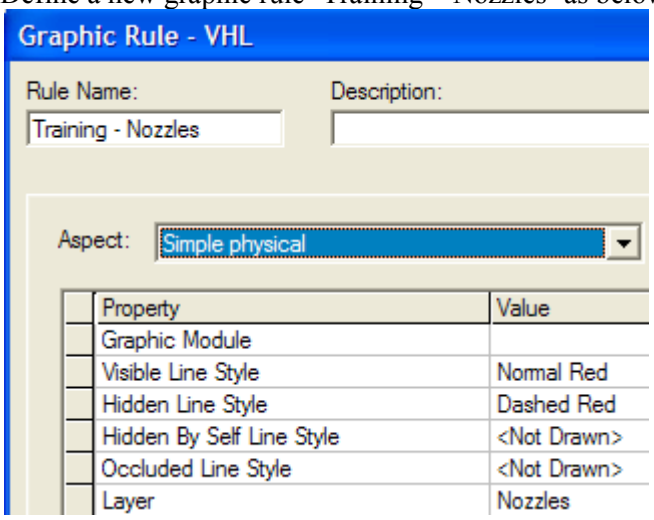


7. Click OK to select graphic rule.
8. Click in the ‘Filter Name’ field in the second row and pick the ‘Pipe Nozzle’ filter as below.

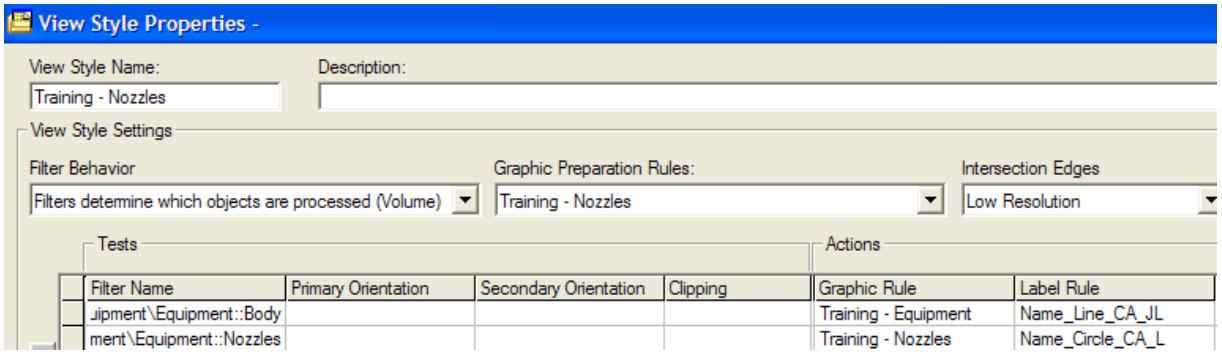


9. Click in ‘Graphic Rule’ field and select ‘More…’.

10. Define a new graphic rule ‘Training – Nozzles’ as below.



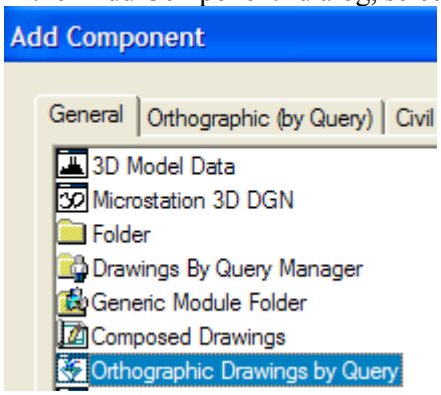
11. Select the label rule ‘Name_Line_CA_JL’ for the first row and ‘Name_Circle_CA_L’ for the second row as shown below.



12. Click OK to save the view style.
13. Click Close to close the ‘Define View Style’ dialog.

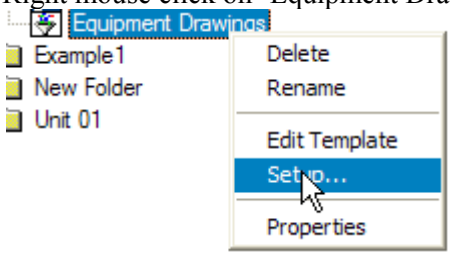
Define Template

14. In the Management Console select the ‘Drawings’ folder, right mouse click and select ‘New…’.
15. In the ‘Add Component’ dialog, select ‘Orthographic Drawings by Query’ and click OK.

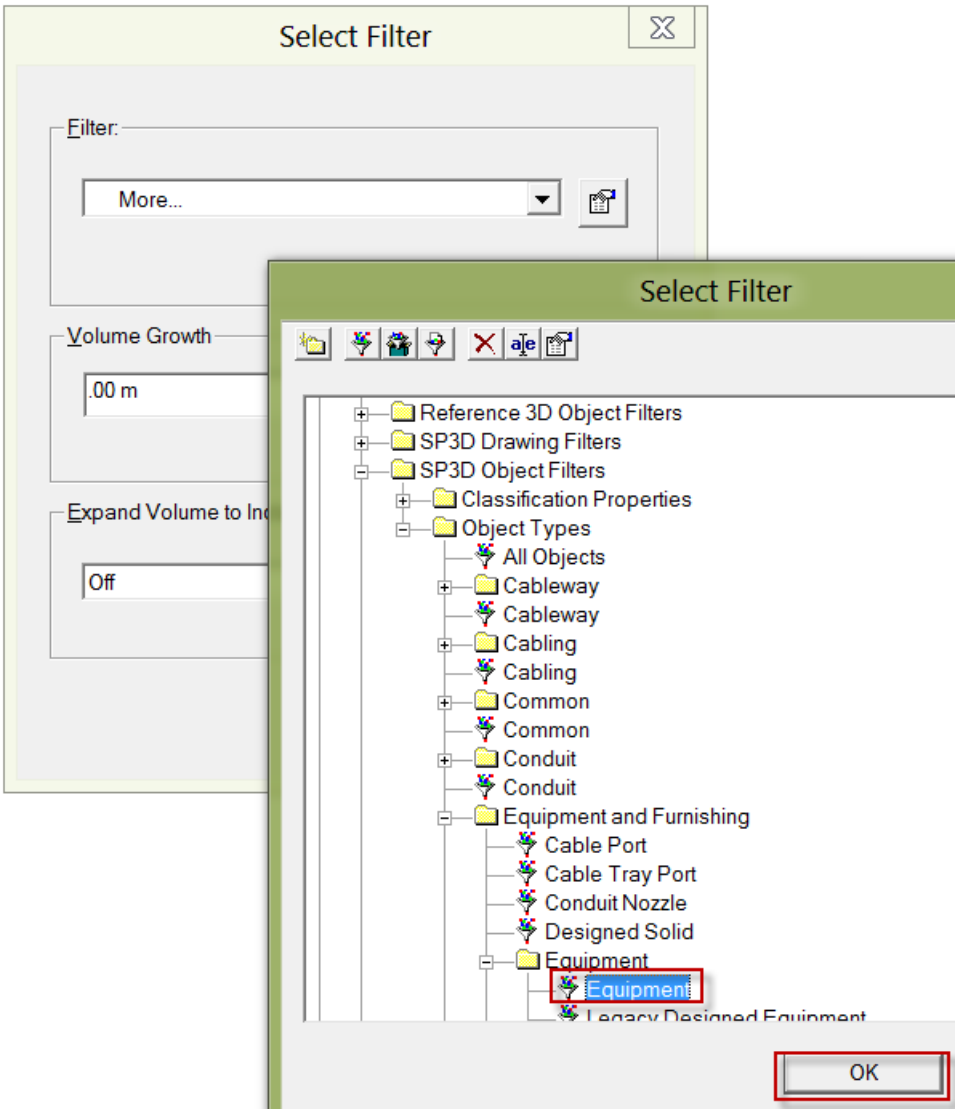


16. Select ‘Orthographic Drawings’ and rename to ‘Equipment Drawings’.

17. Right mouse click on ‘Equipment Drawings’ and click ‘Setup…’.

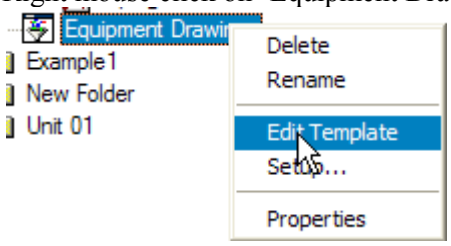


18. In the ‘Select Filter’ dialog, click ‘More..’ in the ‘Filter’ field and select the ‘Equipment’ filter.

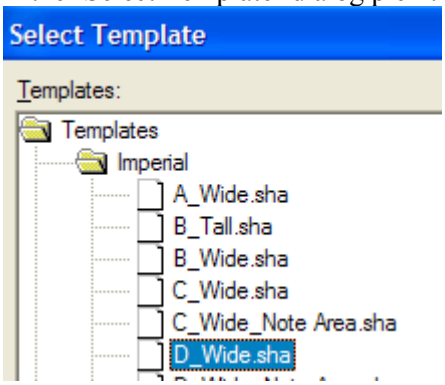


19. Click ‘OK’.

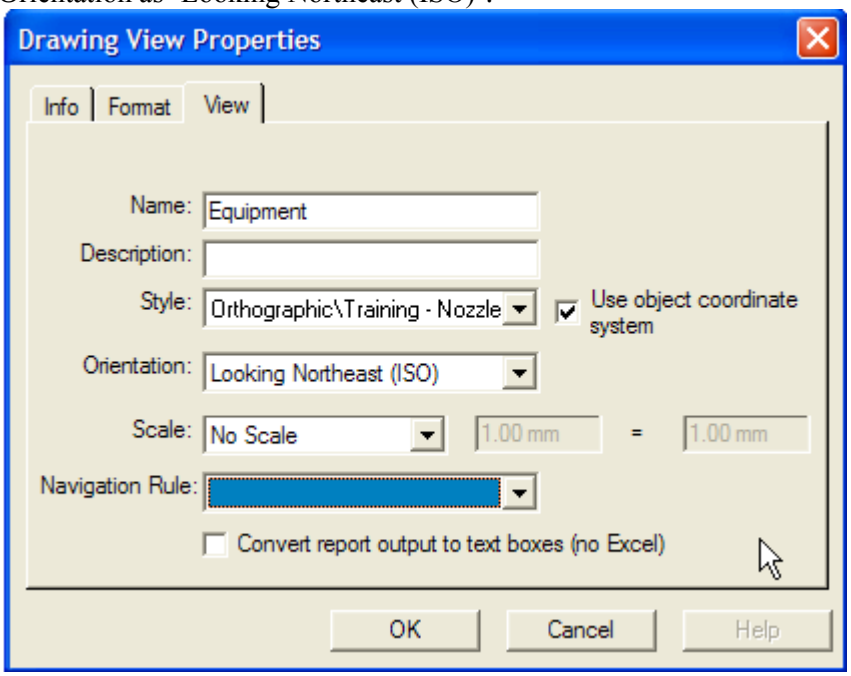
20. Right mouse click on ‘Equipment Drawings’ and click ‘Edit Template’.



21. In the ‘Select Template’ dialog pick the ‘D_Wide’ template and click OK.

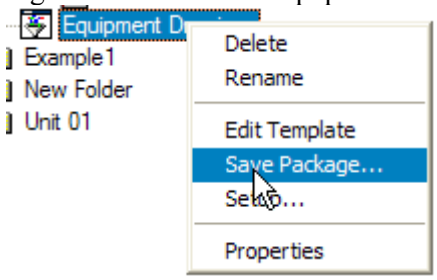


22. Place a drawing view from X = 0’ 5”, Y = 1’7” to X = 2’ 6”, Y = 0’ 5”
23. Enter values as shown in the ‘Drawing View Properties’ and click OK. Be sure to select Orientation as ‘Looking Northeast (ISO)’.

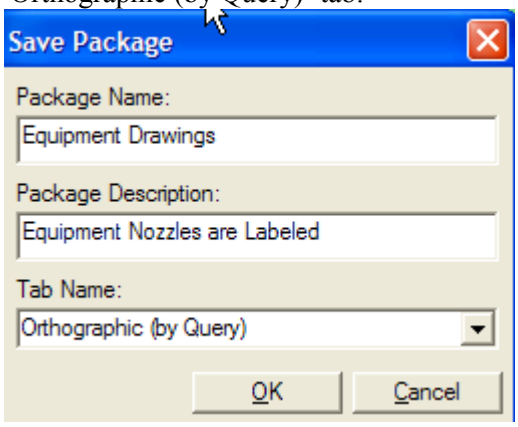


24. Close drawing editor and say ‘Yes’ when prompted.

25. Right mouse click on ‘Equipment Drawings’ and click ‘Save Package…’.



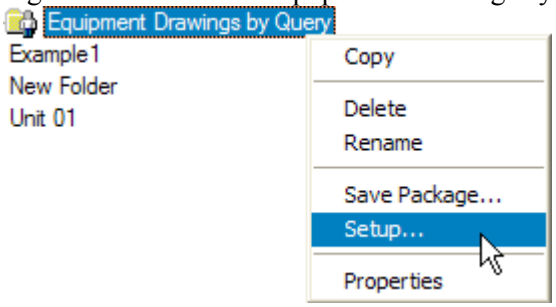
26. In the ‘Save Package’ dialog, enter name and description as shown and select the ‘Orthographic (by Query)’ tab.



27. Click OK to save package.

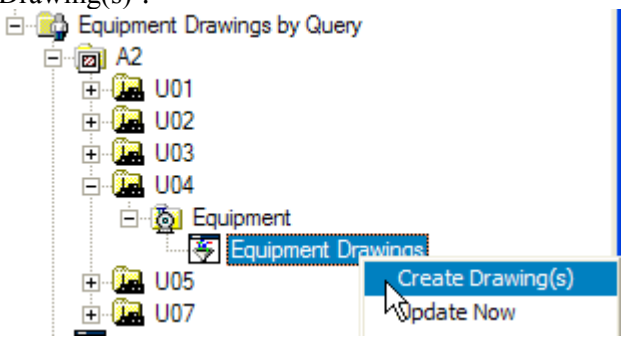
Test Package

28. Right mouse click on the ‘Drawings’ folder and click ‘New…’.
29. In the ‘Add Component’ dialog, select ‘Drawings By Query Manager’ and click OK.
30. Rename the newly created component to ‘Equipment Drawings by Query’.
31. Right mouse click on ‘Equipment Drawings by Query’ and click ‘Setup…’.

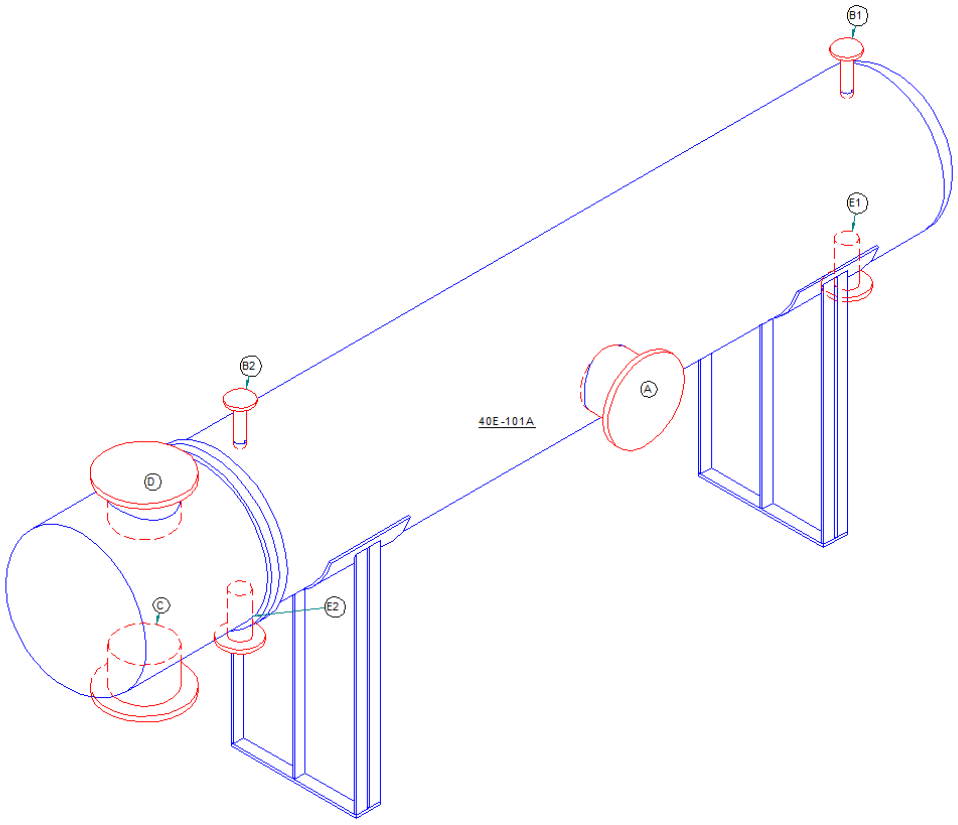


32. In the ‘Filter’ field, select the ‘Plant Filters – All’ filter.
33. In the ‘Package’ field, select the ‘Equipment Drawings’ package.
34. Click OK.
35. Right mouse click on ‘Equipment Drawings by Query’ and click ‘Run Query’.

36. Expand hierarchy ‘A2 – U04 – Equipment – Equipment Drawings’ and click ‘Create Drawing(s)’.



37. Right mouse click ‘40E-101A’ and select ‘Update Now’. You view should resembled the picture shown below.



Lab 9 WBS Project based View Style

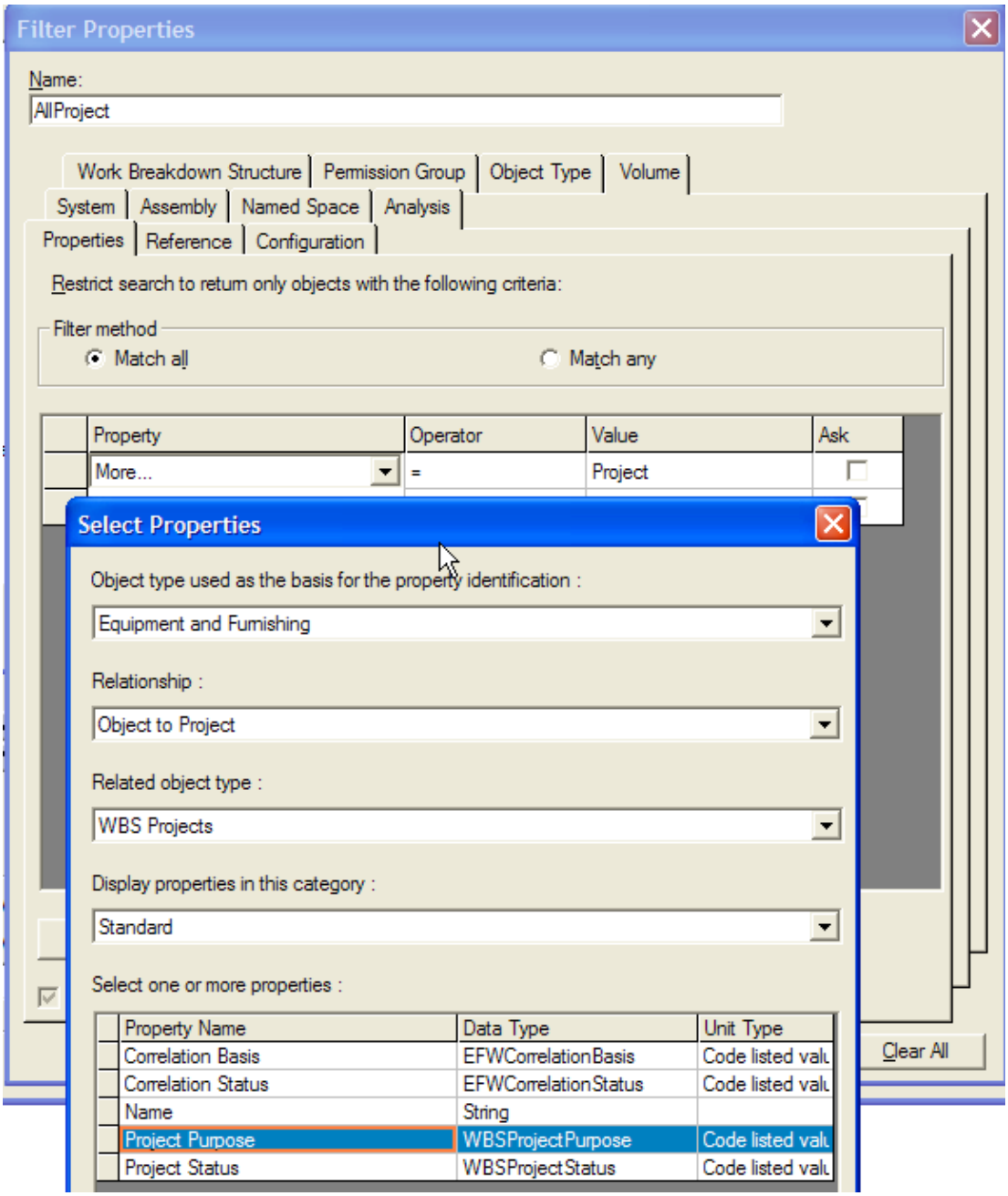
Objective

- Use ‘Asking’ filter in a view style, the answers to the parameters are WBS project names

Define View Style

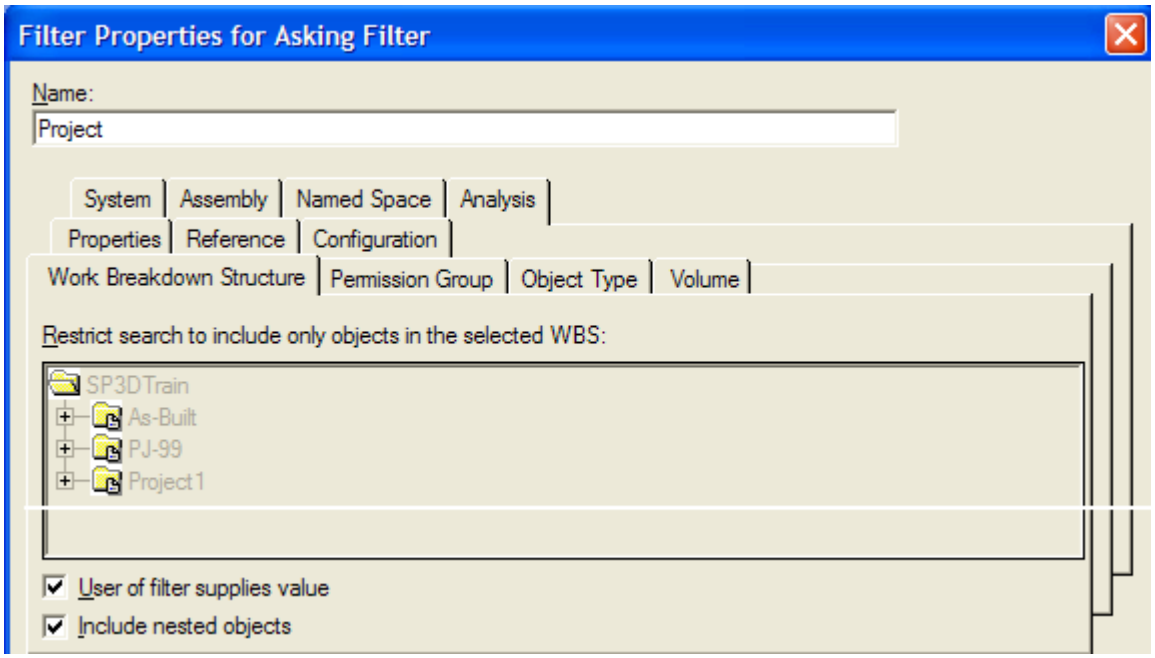
1. Select Tools → Define View Style.
2. Create a new style named ‘Training – WBS Project’.

3. Add a filter in the first row named ‘AllProject’ (based on Project Purpose = Project) defined as follows.

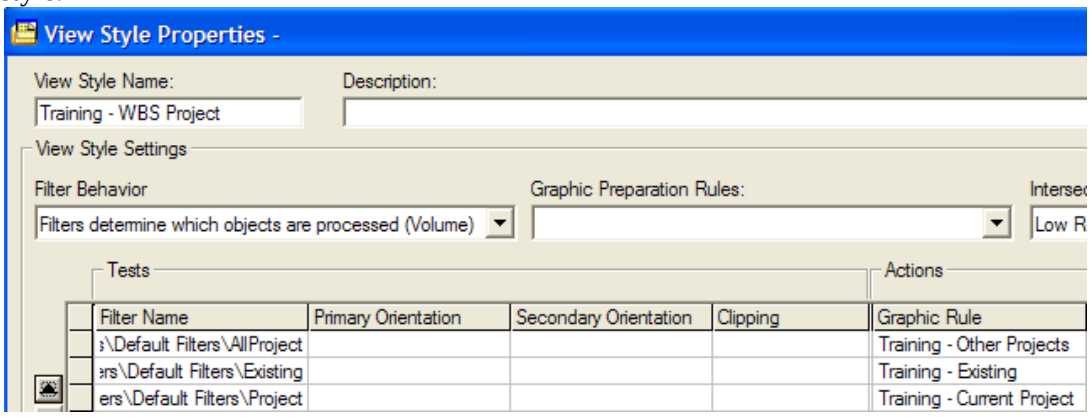


4. Use a graphic rule named ‘Training – Other Projects’ that uses the ‘Normal Green’ line style.
5. Add a filter in the second row named ‘Existing’ (based on Project Purpose = As-Built) similar to the filter above.
6. Use a graphic rule named ‘Training – Existing’ that uses ‘Normal Lt Gray’ as the line style.

7. Add a filter in the third row named ‘Project’ defined by selecting ‘User of filter supplies value’ check box on the ‘Work Breakdown Structure’ tab of the filter.



8. Use a graphic rule named ‘Training – Current Project’ that uses ‘Normal Blue’ as the line style.



9. Note that the order of the lines in the view style is important and that current project must appear in the view style after the other projects.

Test View Style

10. Switch to ‘Space Management’ task.
11. Define workspace using Plant Filters – Training Filters – U03.
12. Define a volume that includes all objects from U03 and name it ‘U03 Volume’.
13. Switch to ‘Structure’ task.
14. Set locate filter to ‘Member Parts’.
15. Select all beams on the first floor.
16. Set ‘Active Project’ to ‘Project1’.
17. Select menu Project → Claim.

18. Select all beams on the second floor.
19. Set ‘Active Project’ to ‘PJ-99’.
20. Select menu Project → Claim.
21. Select all objects in workspace.
22. Set ‘Active Project’ to ‘As-Built’.
23. Select menu Project → Claim.
24. A warning is shown, OK the warning.
25. Create a new composed drawing named ‘WBS Test’ in the Drawings\Composed Drawings folder.
26. Place a view in the drawing that uses the ‘Training – WBS Projects’ view style, scale family ‘Fit to Scale’ and look direction ‘Looking Northeast (Down)’.
27. Associate view to volume ‘U03 Volume’ and filter ‘U03’.
28. Close drawing editor.
29. Open drawing console.
30. Right mouse click on ‘WBS Test’, switch to Style tab, in the WBS Project field, pick ‘Project1’ and click OK.
31. Right mouse click on ‘WBS Test’ and ‘Update Now’.
32. Review the drawing. Note that object in Project1 are blue while those in PJ-99 are green.
33. Right mouse click on ‘WBS Test’, switch to Style tab, in the WBS Project field, pick ‘PJ-99’ and click OK.
34. Right mouse click on ‘WBS Test’ and ‘Update Now’.
35. Review the drawing. Note that object in Project1 are green while those in PJ-99 are blue.

Lab 10 MicroStation 3D DGN Output

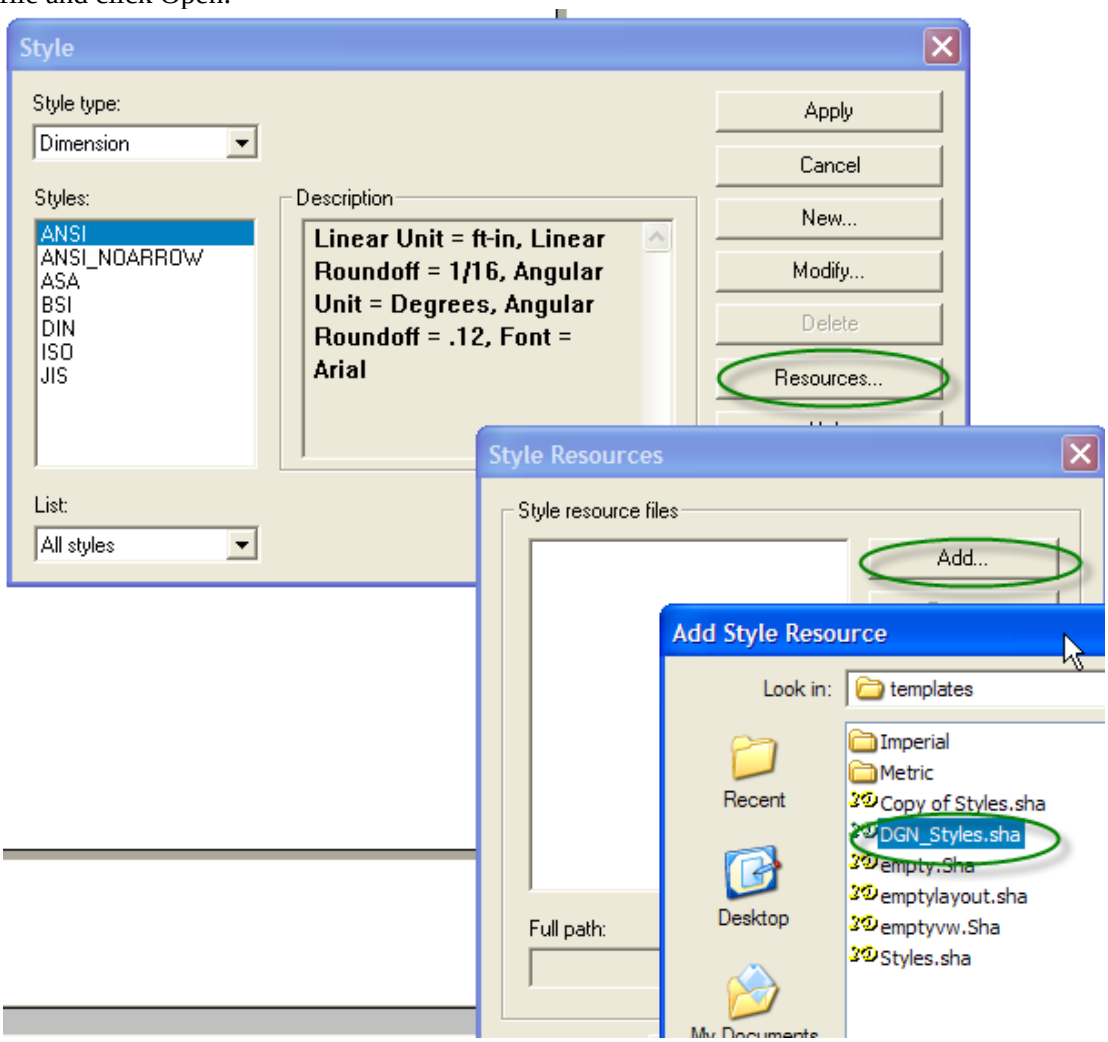
Objective

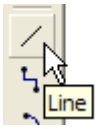
- Copy line styles from resource file into Styles.sha
- Create 3D MicroStation output graphics from SP3D objects

Define Style

1. Unzip the file DGN_ViewStyle.zip into your Symbols share.
2. Open the file Styles.sha in the [Symbol Share]\Drawings\Catalog\Templates folder.
3. Select menu Format → Style.
4. Click the ‘Resources’ button.
5. Click the ‘Add’ button.

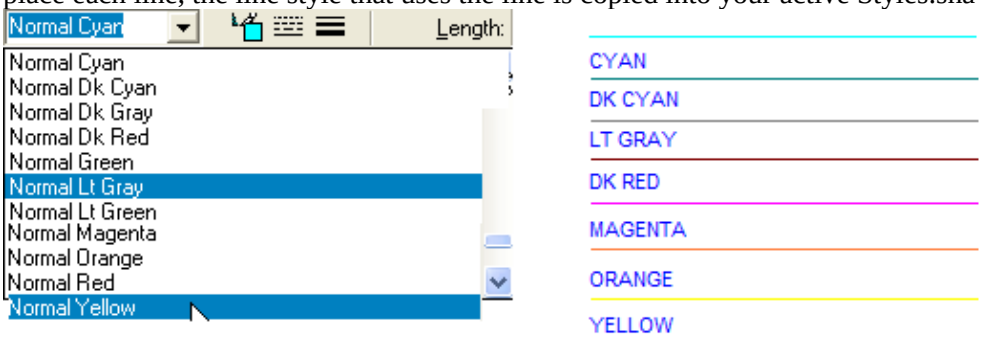
6. Navigate to [Symbol Share]\Drawings\Catalog\Templates and pick the DGN_Styles.sha file and click Open.



7. Click OK.
8. Click Close.
9. Start the 'Line' command from vertical toolbar. 

10. Pick the 'Normal Cyan' style and place a line.

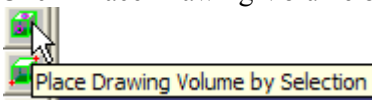
11. Similarly pick each of the colors shown in the picture below and place a line. As you place each line, the line style that uses the line is copied into your active Styles.sha file.



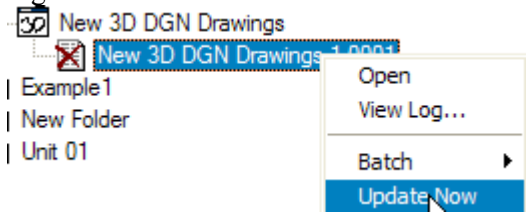
12. Select all lines and delete them.
13. Save file and exit.

Create DGN Output

14. Switch to 'Space Management' task
15. Define workspace using Plant Filters – All
16. Select menu Tools → Drawing Console
17. Right mouse click on the 'Drawings' folder and click 'New...'.
18. From the 'Add Component' dialog, select 'MicroStation 3D DGN' and click OK.
19. Right mouse click on 'New 3D DGN Drawings' and click 'Setup…'.
20. Select the 'DGN_Export' view style and click OK.
21. Click OK again to finish Setup.
22. Select all objects in the plant using fence select.
23. Click 'Place Drawing Volume by Selection' command.



24. Select the 'New 3D DGN Drawings' as 'Drawing Type' and 'SP3DTrain' as the 'Space Folder' and click 'Finish'.
25. Select menu Tools → Drawing Console.
26. Right mouse click on 'New 3D DGN Drawings' and click 'Create Drawing(s)'.
27. Right mouse click on 'New 3D DGN Drawings-1-0001' and click 'Update Now'.



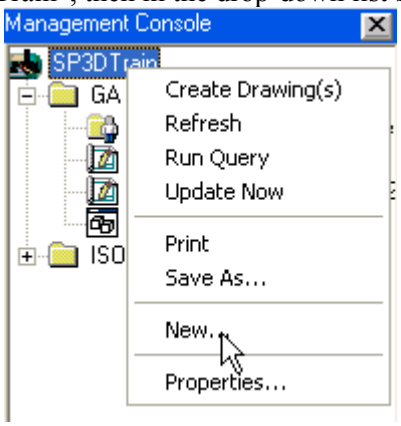
28. When the output completes, double-click to open the DGN.

Lab 11 Search Folder

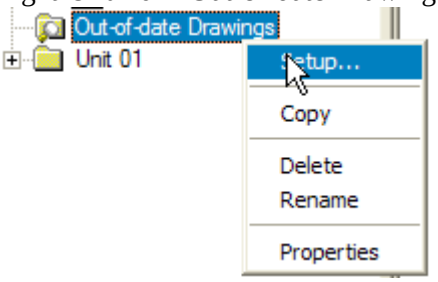
Objective

- The “Search Folder” component allows you to search for documents based on common properties such as out-of-date status, approval, or documents that have been published to a certain contract in integrated environments. You can create a Search Folder component in any folder in the Management Console. After running the query defined for a Search Folder, you can perform such tasks as Update or Publish as if you were working from the actual owning component location for the documents

1. While in the Drawings and Reports Task, Right-Click on the root component “SP3D Train”, then in the drop-down list Select “New”.

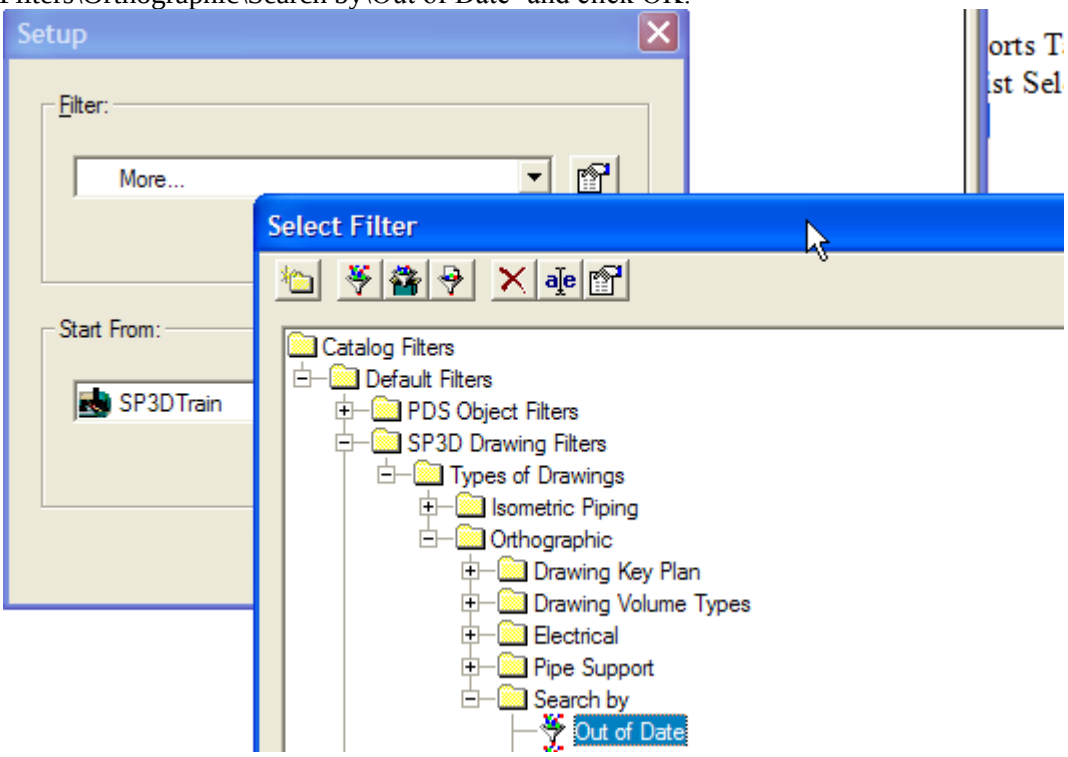


2. From the “Add Component” dialog, on the General Tab, Select “Search Folder”, and Click OK.
3. This will add a component called “New Search Folder” into the Drawings and Reports hierarchy.
4. Rename ‘New Search Folder’ to ‘Out-of-date Drawings’.
5. Right-Click on “Out-of-date Drawings” and Select “Setup”.

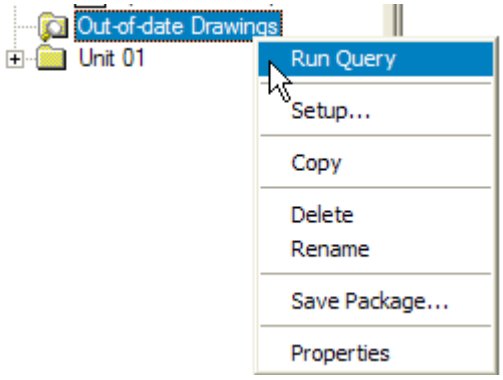


6. In the Setup dialog, for the “Filter” property, drop down the select list and choose “More…”.

7. Pick the filter ‘Catalog Filters\Default Filters\SP3D Drawing Filters\Orthographic\Search by\Out of Date’ and click OK.



8. On the Setup dialog, set the “Start From:” property to “SP3DTrain”. Click OK to save and exit this dialog.
9. In the Management Console, right click on the “Out-of-date Drawings” and select “Run Query”. This will return the drawings that meet the criteria in the filter definition.



10. Select one of the drawings with a red X and click ‘Update Now’. The drawing updates with a green check mark.
11. Run query again on the ‘Out-of-date Drawings’ folder, notice that the updated drawing falls off the list.

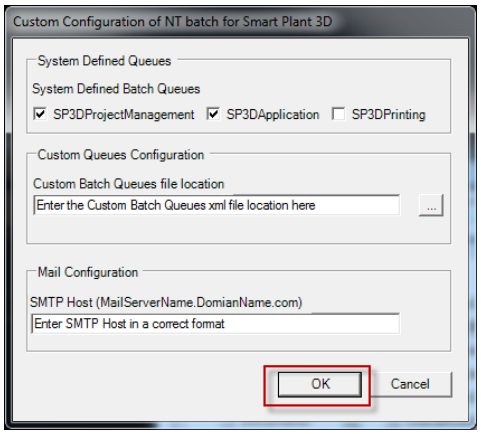
Lab 12 Batch Management

Objective

- Setup a batch server and submit and review batch jobs

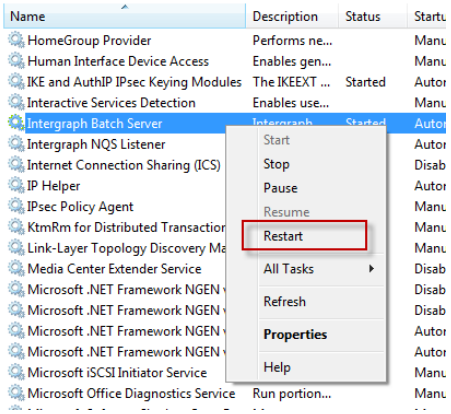
Setting Up the Batch Queues

1. In Windows Explorer, navigate to [SP3D Installation]\ProjectMgmt\tools\bin and execute the "ConfigureSP3DBatchQueue.exe".
2. On the "Custom Configuration of NT batch for Smart Plant 3D", accept all the defaults and select OK.

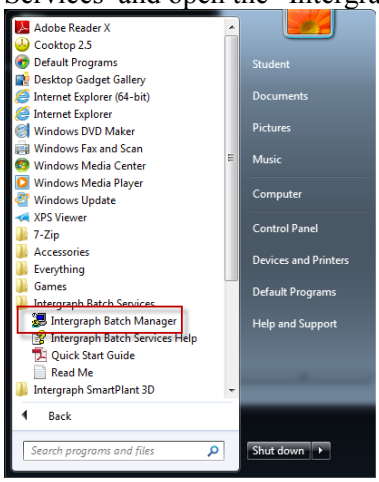


3. The "Configure Smart Plant Batch Queues" confirmation dialog is presented indicating that the queues have been created. Select OK. The Intergraph Batch Services must be stopped and restarted.
4. Press the Windows Key + R to start the Run command.
5. Type "Services.msc". and press Enter.

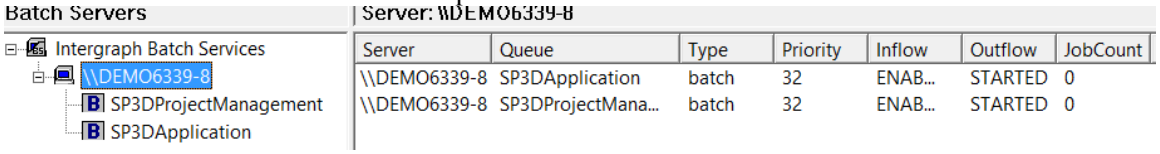
6. In the "Services" dialog, locate the "Intergraph Batch Server" service, right mouse click on the service and select "Restart" in the menu.



7. Select the Windows Start menu and navigate to All Programs > Intergraph Batch Services and open the “Intergraph Batch Manager”.

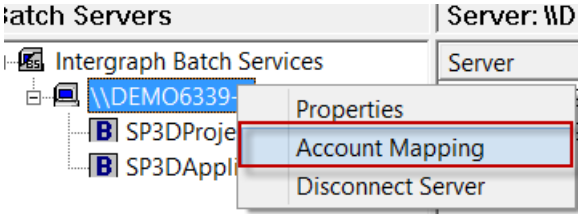


8. In the “Intergraph Batch Manager” dialog, click on the “\\MACHINENAME” node under “Batch Servers” and notice the queues have been created.



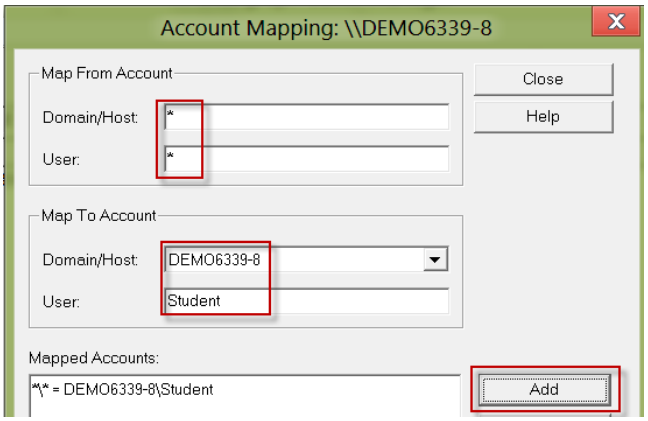
User Account Mapping

1. In the “Intergraph Batch Manager” dialog, right mouse click on the “MACHINENAME” node in the Batch Servers pane and select “Account Mapping” from the menu.

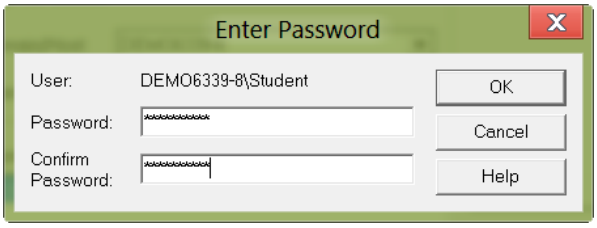


2. On the “Account Mapping: \\MACHINENAME” dialog, under Map From Account section, in “Domain/Host:” text box type the domain, which is “MACHINENAME”. In the “User:” text box, type in “Student”.
Under the Map To Account section, drop down the “Domain/Host:” list and select the server (MACHINENAME) and in the “User:” text box, type in “Student”. Then

select Add.



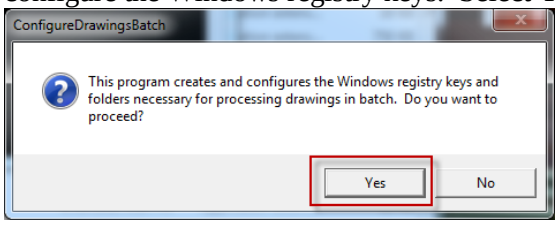
3. On the "Enter Password" dialog, type the password in both the "Password:" and "Confirm Password" text boxes and select OK.



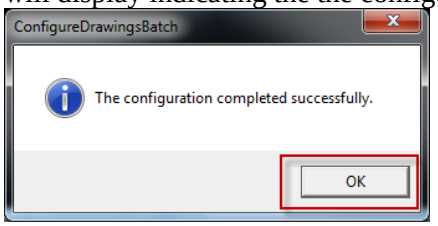
4. This creates a new mapped account in the Mapped Accounts: section of this dialog. Select Close to exit.
5. Minimize the "Intergraph Batch Manager" dialog to the task bar.

Configure Drawings Batch

1. To create the registry keys and folders, open Windows Explorer and navigate to C:\Program Files (x86)\SmartPlant\3D\Core\Container\Bin\Assemblies\Release and execute the "ConfigureDrawingsBatch.exe".
2. A "ConfigureDrawingsBatch" dialog will display indicating that this executable will configure the Windows registry keys. Select Yes to proceed.

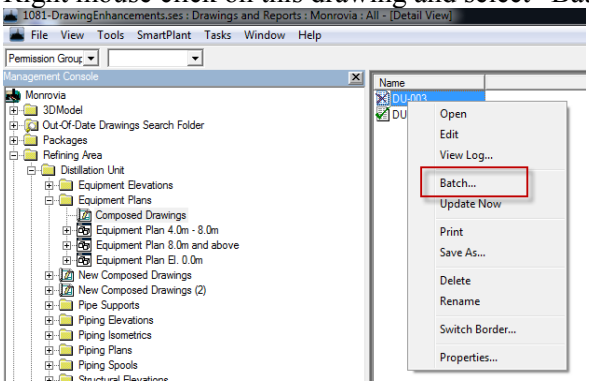


3. When the registry settings have been created, the "ConfigureDrawingsBatch" dialog will display indicating the the configuration is complete. Select OK on this dialog.

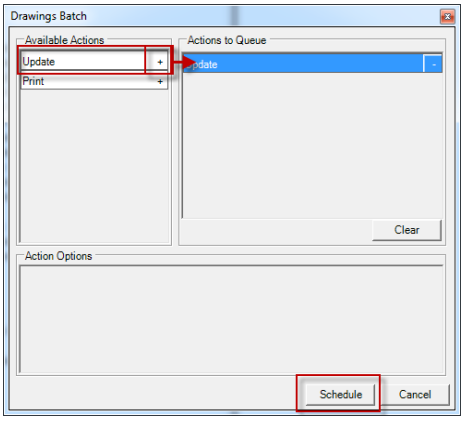


Update Drawing Using IBS

1. In the S3D application, change tasks to the “Drawings and Reports” task.
2. Locate the “Piping Plan 1” drawing, located at Drawings > Composed Drawings. Right mouse click on this drawing and select “Batch…” from the menu.

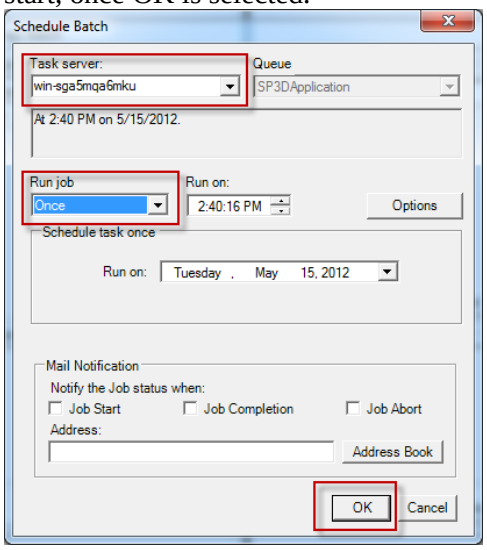


3. This presents the “Drawings Batch” dialog. Under “Available Actions”, select the “+” to the right of “Update”. This will add this action to the “Actions to Queue”. Select Schedule.

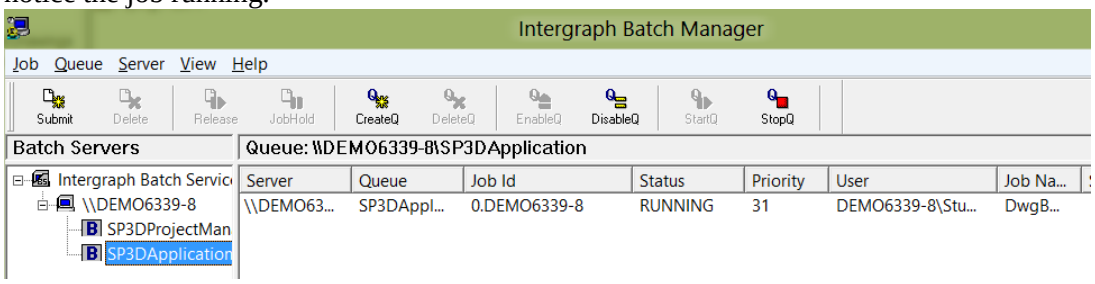


4. On the “Schedule Batch” dialog, under “Task Server:”, drop down the list and select the server from the list. With “Run job” set to Once, the batch job will immediately

start, once OK is selected.



5. Maximize the "Intergraph Batch Manager" dialog, which should be on the task bar, and select the "SP3DApplication" queue under the server "\\MACHINENAME" and notice the job running.



6. Close out of the "Intergraph Batch Manager".