

## Session 5: Placing Manual Annotations in Drawings

### Objective:

By the end of this session, you will be able to:

- Place a manual annotation in a drawing.

### Prerequisite Sessions:

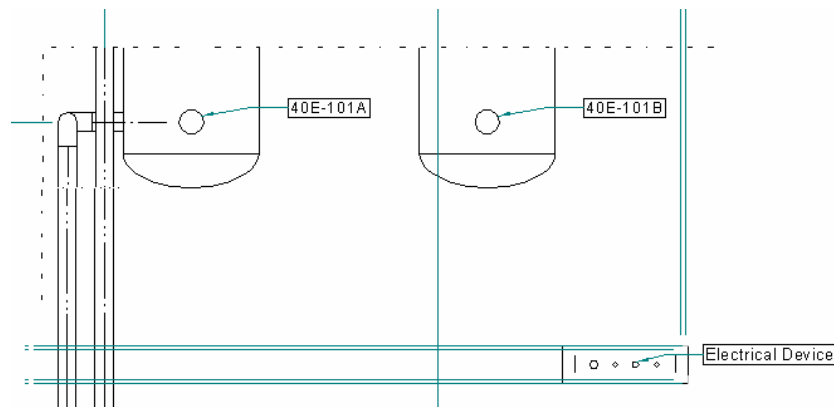
- SP3D Overview
- SP3D Common Sessions
- Drawings and Reports: An Overview
- Creating a Volume Drawing
- Creating a Composed Drawing

### Overview:

An essential part of the drawing process is adding text, graphics, and annotations because they allow you to identify the objects in a drawing easily. Annotations are text and graphics that provide information about a drawing and emphasize certain objects in the drawing view. Annotations eliminate the need to refer to the software or reference data and help you maintain accurate graphic data throughout a project. In SP3D, you can place two types of annotations, labels and dimensions. Several commands are provided to place annotations and customize your drawings within **2D Drawing Editor**. In this session, you will learn how to place labels and dimensions in your drawing.

### Labels:

Labels are associated with an object in a drawing. Labels help to identify objects easily. When you place a label, it appears near the object, as shown in Figure 1. The default position of the label is top center on all objects, except for closed objects, such as a circle or a rectangle. The default position on closed objects is the center of the object. If you move the object, the label moves with it.



*Figure 1: Labels in a Drawing*

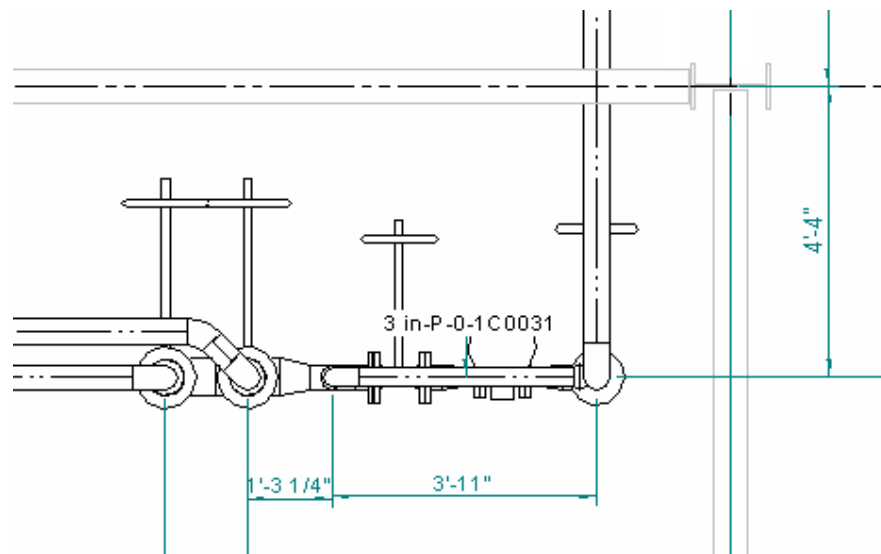
You can place labels on drawings after they have been generated. You can click to place the label at the desired position. When you place a label in a drawing, it appears like a tooltip for the object to be labeled. The commands to place labels are available when you edit a 2D drawing in **2D Drawing Editor**. You place labels either by choosing one of the label rules that are delivered with the software, or you can create your own label rule. These rules control the appearance of labels as well as their automatic placement on drawings. For example, you can create label rules that place labels with or without borders and leader lines. You can use these rules for many purposes. Examples of rules that are available within SP3D are control point labels, grid line labels, name labels, name and part labels, and piping labels.

**Note:**

- The label rules are saved in the Symbols share in the `\Drawings\Catalog\Rules\LabelRules` folder. The rules have corresponding templates and symbols under `\Drawings\Catalog\Labels\Templates`.

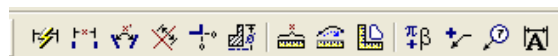
### Dimensions:

Dimensions supply information about the size, location, and orientation of objects in a drawing, such as the length of a line, the distance between points, or the angle of a line. Dimensions are associated with the objects to which they refer, as shown in Figure 2. This enables you to determine and make changes to the plant design.



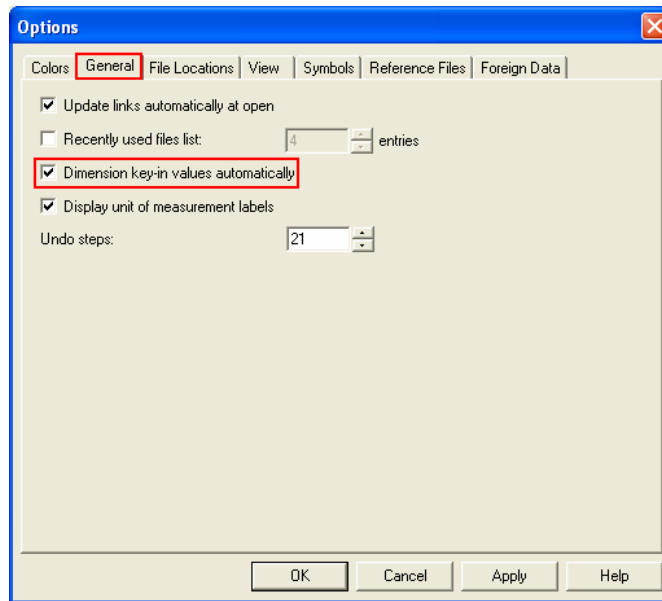
**Figure 2: Dimensions in a Drawing**

To place dimensions, you use the **Dimension** toolbar shown in Figure 3, and then select the elements or keypoints to be dimensioned. The commands on the **Dimension** toolbar from left to right are as follows:



*Figure 3: Dimension Toolbar*

- **Smart Dimension:** Places several different dimensions such as length and angle of a line, radius and diameter of a circle, and length, angle, radius, and diameter of an arc.
- **Distance Between:** Places a linear dimension that measures the distance between elements or key points.
- **Angle Between:** Places a dimension that measures the angle between elements or key points.
- **Axis:** Sets a dimension axis for a drawing. A dimension axis allows you to place dimensions that are perpendicular to or parallel to an element.
- **Coordinate Dimension:** Places a dimension that measures the distance from a common origin to one or more key points or elements.
- **Symmetric Diameter:** Places a dimension that measures the distance between a center line and another element or key point.
- **Measure Distance:** Measures the distance between points in free space or between key points.
- **Measure Distance Along:** Measures the distance along an object based on two points.
- **Measure Area:** Displays the most recently selected area of the boundary in the current units. It also displays the total area of all selected boundaries in the current document units.
- **Character Map:** Inserts a character in a text box by using a different font. You can also insert special characters that do not appear on your keyboard.
- **Leader:** Adds a leader to an annotation or to another leader.
- **Balloon:** Places a balloon containing text. You can use balloons to refer to an element or a point in free space.
- **Dimension Text:** Overrides a driven dimensional value with a text string. A driven dimension is a dimension that is placed as you draw in **2D Drawing Editor**. To place this dimension, you need to select the **Dimension key-in values automatically** option, which is accessed by clicking the **Tools > Options** menu command and then the **General** tab of the **Options** dialog box, as shown in Figure 4.

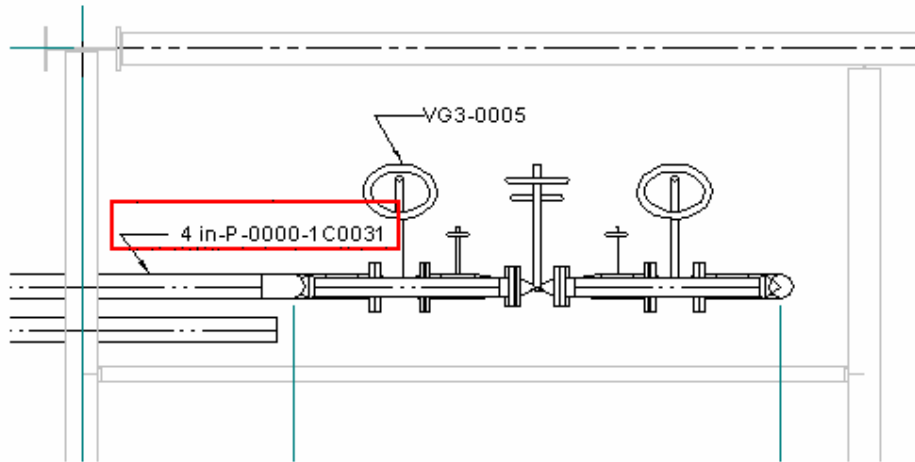


*Figure 4: Options Dialog Box*

There are two methods you can use to place dimensions in drawings, automatic dimensioning and manual dimensioning. In automatic dimensioning, the view style controls whether or not dimensions are placed in the drawing. However, in manual dimensioning, the view style and the dimension rules do not apply for display or placement. When you use manual dimensioning, you edit an existing drawing and place dimensions manually. In this session, the steps to place manual dimensions are covered.

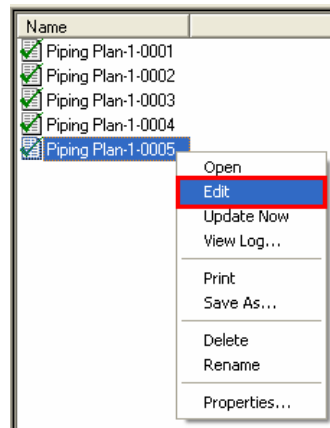
### Steps for Placing a Manual Label on a Drawing:

Place a label in the drawing **Piping Plan-1-0005** that you created in *SP3D Drawings and Reports Session: Creating a Volume Drawing* by using the **Manually Place Labels** command. Apply the **Piping Plan\_LineNumber\_Longest\_Segment** label rule to label the pipeline in the drawing. The label should appear in the drawing, as shown in Figure 5.



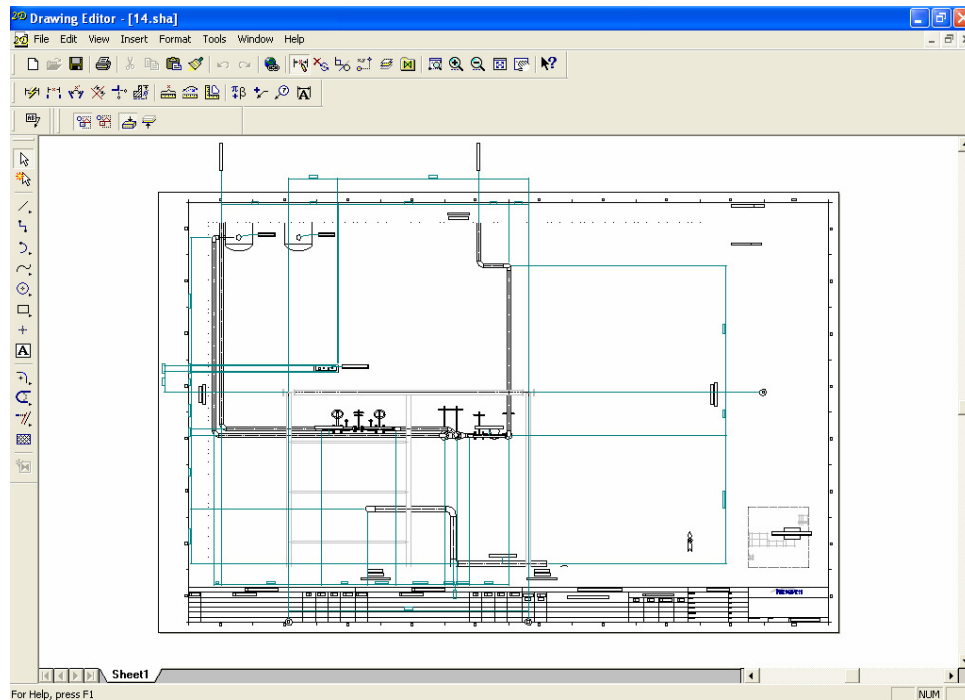
*Figure 5: Output - After Placing a Label in the Drawing Template*

1. Right-click the drawing **Piping Plan-1-0005** and click the **Edit** menu option to open the drawing in the edit mode, as shown in Figure 6.



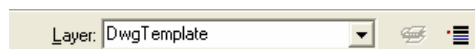
*Figure 6: Edit Command*

The drawing opens for editing in the **2D Drawing Editor** window, as shown in Figure 7.



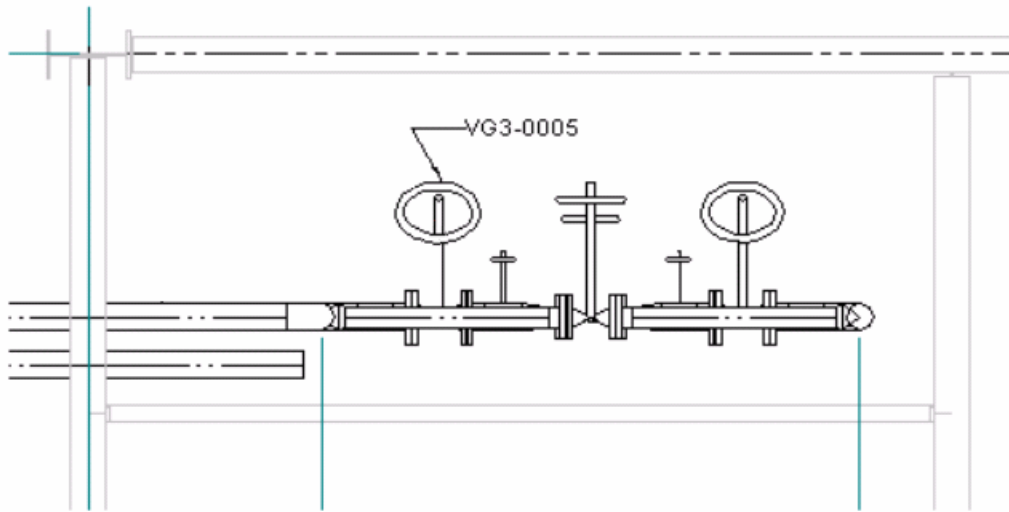
*Figure 7: 2D Drawing Editor Window*

2. You need to select the **DwgTemplate** layer so that the software saves the labels that you place in the drawing template when you update the drawing. In the **2D Drawing Editor** window, click the **Tools > Layers** command to change the layer of the drawing.
3. In the **Layer** ribbon, select the **DwgTemplate**, in the **Layer** drop-down list, as shown in Figure 8.



*Figure 8: Layer Ribbon*

4. On the **Common** toolbar, click the **Zoom Area** button to zoom into the area where you want to place the label, as shown in Figure 9.



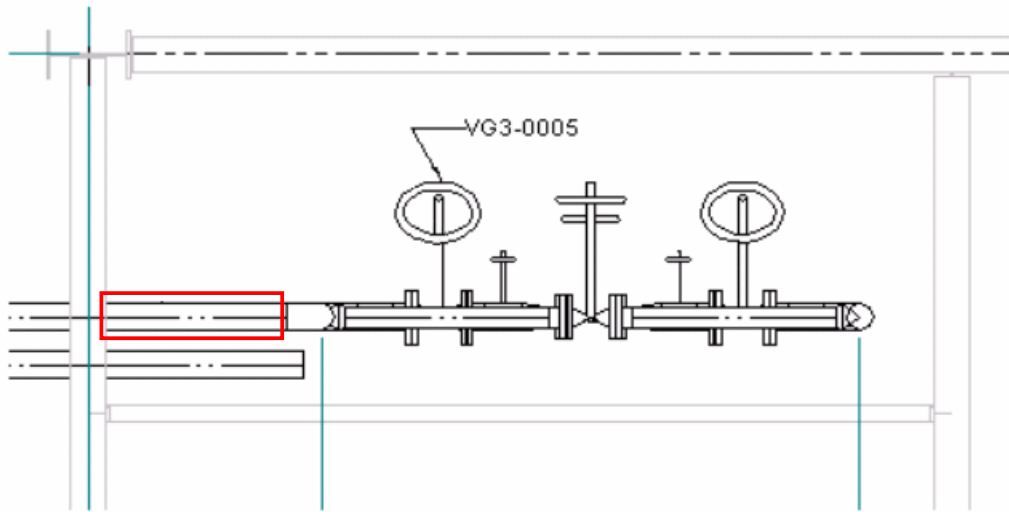
*Figure 9: Zoomed Area in the Drawing*

5. Click the **Manually Place Labels** option to access the options for placing labels, as shown in Figure 10.



*Figure 10: Manually Place Labels Option and Manually Place Labels Ribbon*

6. Select the pipeline to be labeled in the drawing view, as shown in Figure 11.



*Figure 11: Selecting the Object*

7. In the **Label Specification** drop-down list of the **Manually Place Labels** ribbon, select the **Piping Plan\_LineNumber\_Longest\_Segment** label rule.

The label rule naming codes are as follows:

- a. The first part of the label rule represents the property name or names, which is the prefix of the label rule name.
- b. The second part of the label rule name represents the shape of the label. There are various shapes defined in the catalog, such as:

Capsule  
 Circle  
 Cloud  
 Diamond  
 DTri: Down Triangle  
 UTri: Up Triangle  
 Ellipse  
 Vellisp: Variable Ellipse  
 Hexagon  
 Hexr: Rotated Hexagon  
 Hexf: Flat Hexagon  
 Octagon  
 Octf: Flat Octagon  
 Flag: Left and right flag  
 Offpage: Left and right offpage  
 Line: Over and under line  
 Pent: Pentagon



Rect: Rectangle  
 Rrect: Rounded Rectangle  
 Square: Square  
 Rsquare: Rounded Square  
 None

- c. The third part of the label rule name represents the positioning of the label. Following are some of the positioning rules defined in the catalog:
  - A: Absolute X and Y location relative to an object.
  - APO: Absolute X and Y location, parallel, and offset relative to an object.
  - AV: Absolute X and Y location relative to a vector from the center of the view, and aligned to the object.
  - CA: Positioned in Clear space by quadrant priority, or positioned in an Absolute X and Y location relative to an object if no clear space is found.
  - CP: Positioned in Clear space and aligned Linear to the coordinate system.
  - CM: Positioned in Clear space by quadrant priority, or positioned outside the view in the Margin if no clear space is found.
  - M: Positioned outside the view in the Margin.
- d. The last part of the label rule name determines if a leader will be placed on the label or not. Following options determine the placement of leader:
  - L: Leader with no jog
  - JL: Jogged Leader
  - NL: No Leader

8. If you select the **As Drawn** option, the label definition is determined by the label rule. You cannot set the font, text size, text color, and other format options for the label. However, if you want to set the properties for the label, then make sure that the **As Drawn** option is not selected.

Press the **As Drawn** button in the **Manually Place Labels** ribbon, as shown in Figure 12, so that the label definition reflects the label rule. That way, you will not have to format the label.

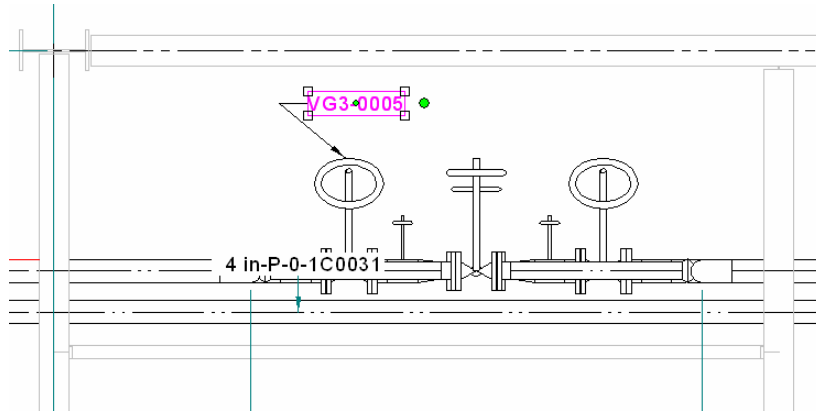


*Figure 12: Manually Place Labels Ribbon*

9. A label appears on the cursor. Click the drawing to place the label in the desired position.
10. Right-click the drawing to terminate the **Manually Place Labels** command.

### Tip:

- To move a label after it has been placed, click and drag the label by its origin point, which is defined by the green circle in the middle of the label, as shown in Figure 13.

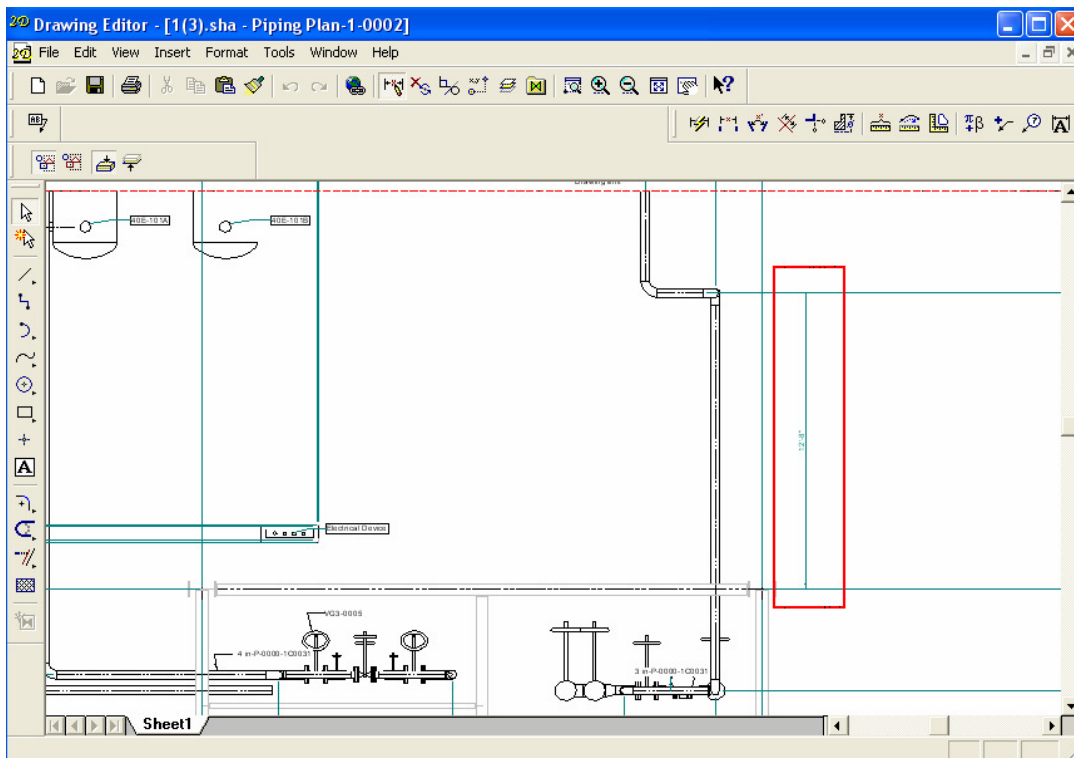


**Figure 13: Moving a Label**

11. Save your changes to the drawing before exiting the **2D Drawing Editor** window.

### Steps for Placing a Dimension in a Drawing:

Place a dimension in the drawing **Piping Plan-1-0005** that you created in *SP3D Drawings and Reports Session: Creating a Volume Drawing* by using the **Dimension** command. The dimension should appear in the drawing, as shown in Figure 14.



**Figure 14: Output - After Placing the Dimension**

1. On the **Common** toolbar, click the **Dimension** button to view the commands for placing a dimension in the drawing, as shown in Figure 15.



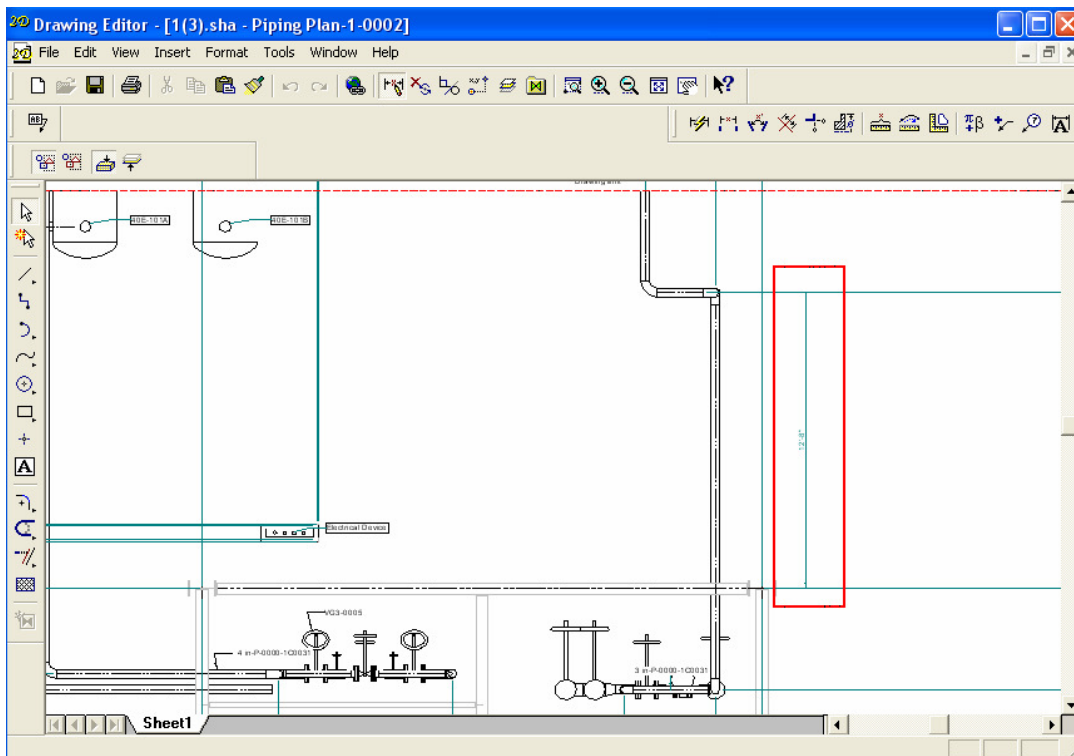
*Figure 15: Dimension Button on the Common Toolbar*

2. The **Dimension** toolbar appears. Select the **Distance Between** button to place a dimension between centerline of the pipeline and gridline, as shown in Figure 16.



*Figure 16: Dimension Between Button on the Dimension Toolbar*

Select the centerline of the pipe and the grid line in the drawing where you want to place the dimension by clicking them in succession, as shown in Figure 17. A dimension appears on your cursor.



*Figure 17: Selecting the Centerline of the Pipe and the Grid Line*



4. Click the drawing to place the dimension where desired.

After placing the labels and dimensions in your drawing, you can update it to the Batch Server to save the changes that you made to the drawing. When you update the drawing, the software recalls the changes that you made in the previous copy of the drawing and recreates them. To update the drawing, you use the **Update Now** command, which is accessed by right-clicking the drawing in the **Detail View**. You can update one or more drawings at a time.

For the steps to update a drawing, refer to the *SP3D Drawings and Reports Session: Creating a Composed Drawing*.

For more information related to editing a drawing, refer to the following topics of the user guide *DrawingsandReportsUsersGuide.pdf*:

- *Dimensions: An Overview*
- *Placing a Manual Label on a Drawing*
- *Updating Documents: An Overview*

