Drawing Creation Tutorial

Creating Volume Drawings

Version 2014

Friday, June 13, 2014

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SESSION 12

Creating Volume Drawings

NOTE This is an optional exercise. If you anticipate that you will use only composed drawings rather than volume drawings, then you can skip this lab.

Objective

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

- Add a volume drawing component and adjust the scale in the template
- Create drawing volumes using the drawing volume by two points command and 3D pinpoint.

Overview

Volume drawings enable you to document many areas of a model with the same drawing template, eliminating the need to create multiple drawings to cover different areas of the model. A volume drawing component uses a template to create drawings. A Smart 3D administrator needs to create new view styles and templates to use with the drawings, or edit the existing styles and templates. For example, the administrator can place title block labels and reports on templates to reflect your project or company standards.

Once the templates and view styles are created or edited, you can place a view on a template and associate the view with a view style to determine the appearance of the resulting drawing. You can then define the contents of the view by creating a drawing volume, which is associated to single or multiple views, in the template.

Volume drawings do not support automatic resizing of views or placement of section and detail views. The contents of a view in a volume drawing are controlled by the size of the volume and the view style associated with it. You cannot further refine the view contents with associated filters or by explicitly hiding objects. Additionally, graphical edits made to volume drawings are not remembered through updates. For these reasons, composed drawings are generally preferred over volume drawings.

Creation of volume drawings involves the following tasks:

- Adding a volume drawing component: The drawing components are organized into folders, which can be added to the root folder in the Management Console and other folders. Each component has a different icon and right-click menu.
- Placing a drawing volume: Drawing volumes are a critical piece of the volume drawing creation process. Drawing volumes are different from the other drawing components in that they exist in the 3D model as objects. These volumes are placed and associated with the appropriate volume drawing component to create a volume drawing. You can define a drawing volume by using the Place Drawing Volume commands in the Space Management task. You can also specify the size of a volume based on the grid coordinates in the model. Volumes can be placed using the following commands:
  - Place Drawing Volume by View
  - Place Drawing Volume by Selection
  - Place Drawing Volume by Two Points

- Place Drawing Volume by Four Points

Volumes are stored in the Plant database. The software automatically names a volume and places it in the space hierarchy. When a 3D task, such as Piping, is active, you can see the defined volumes on the Space tab of the Workspace Explorer, which makes it easy to locate and manipulate drawing volumes.

The drawings can also be updated either individually or multiple drawings at a time. The drawings may be updated on your client workstation using Update Now or sent to a batch server if one has been setup.

In this session, you will learn how to place drawing volumes and update volume drawings.

Define Workspace

1. Click **Tasks > Space Management**.
2. Click **File > Define Workspace**.

   *The **Define Workspace** dialog box displays.*
3. Select **More** from the **Filter** list.

   *The **Select Filter** dialog box displays.*
4. Select the filter **Drawings Creation Filters\12\U01 & U02 Workspace** on the **Select Filter** dialog box.
5. Click **OK** on the **Select Filter** dialog box.
6. Click **OK** on the **Define Workspace** dialog box.

   The software populates the workspace with modeled objects.
7. Click **Fit**  when the workspace query completes.

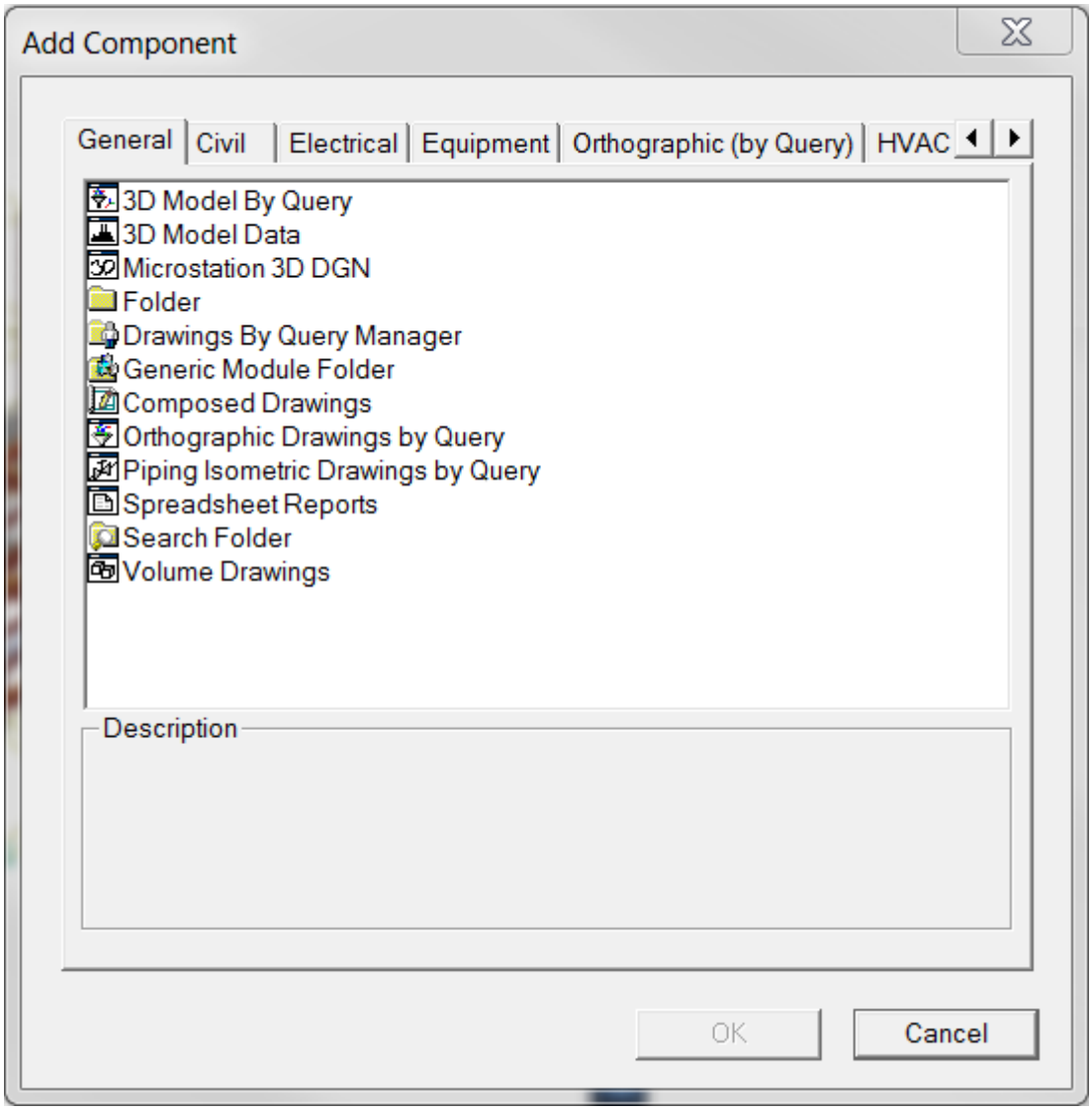
   The software fits all the objects into the graphic view.

Add a Predefined Volume Drawing Component

1. Click **Tools > Drawing Console.**

   *The **Drawing Console** window displays.*
2. Right-click the **Drawings Creation Labs\12** folder on the **Drawing Console**, and select **New**.

*The **Add Component** dialog box displays.*



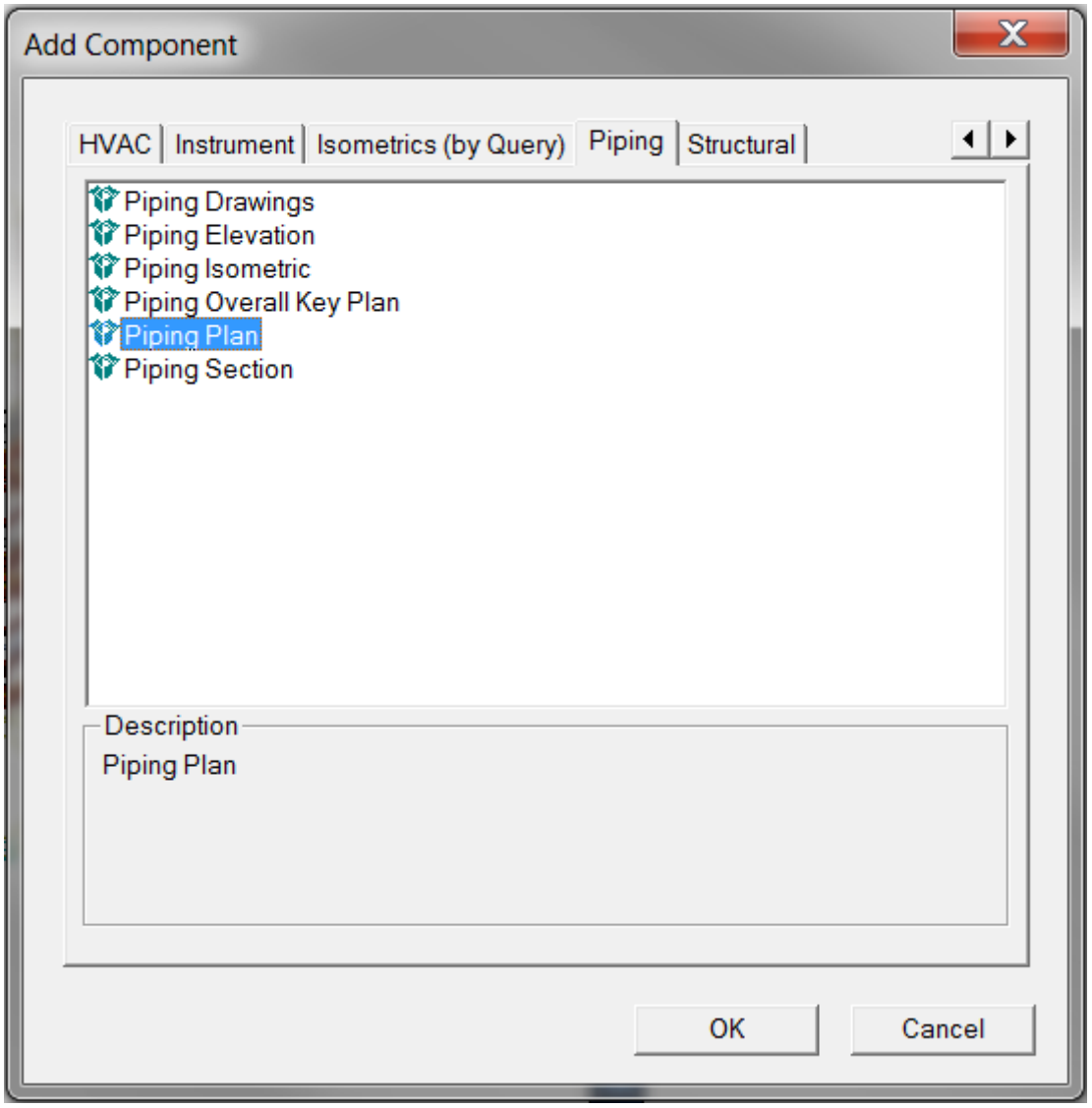
3. Use the arrow buttons near the top right of the **Add Component** dialog box to navigate to the **Piping** tab.
4. Click the **Piping** tab to display the delivered packages containing predefined templates for Volume drawings.

   TIP Packages are files saved on disk (on the symbols share, to be exact) that, among other things, store templates for Volume drawings and Drawings by Query. They are not used, however, for storing Composed drawing templates.

   Packages can be copied from one symbols share to another, making them a convenient way to get template definitions created in one project into another project. Smart 3D delivers several packages containing predefined templates for use in Volume drawings and Drawings by Query.

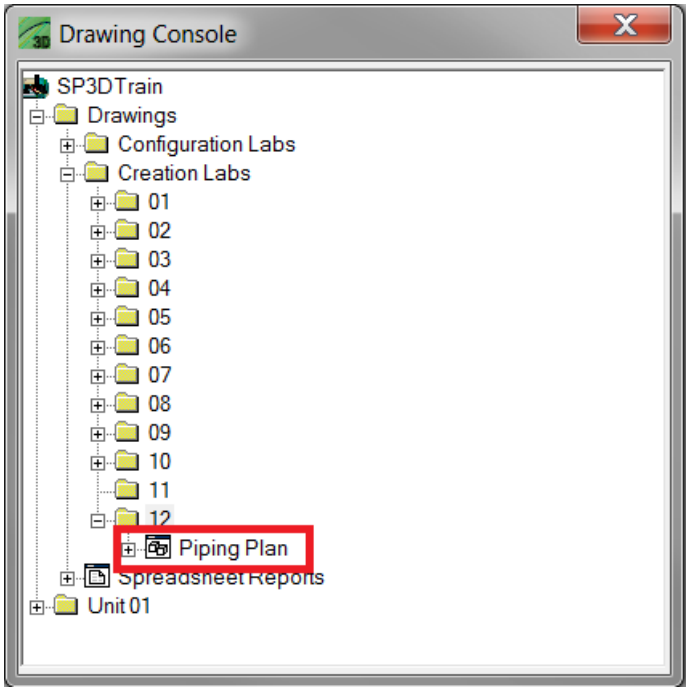
   The creation of packages is covered more thoroughly in the Drawings Configuration class.

5. Click **Piping Plan** on the **Add Component** dialog box.



6. Click **OK** on the **Add Component** dialog box.

*The software adds the **Piping Plan** component under the **12** folder.*



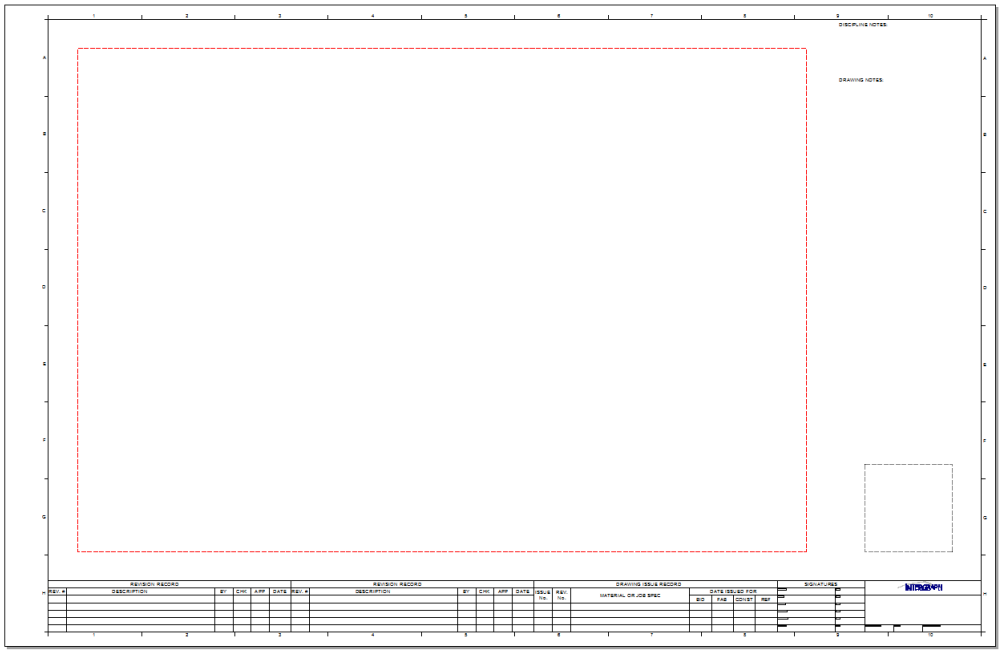
Edit the Template

1. Right-click the **Piping Plan** component, and select **Edit Template**.

   *The software opens the template in a **SmartSketch Drawing Editor** window.*

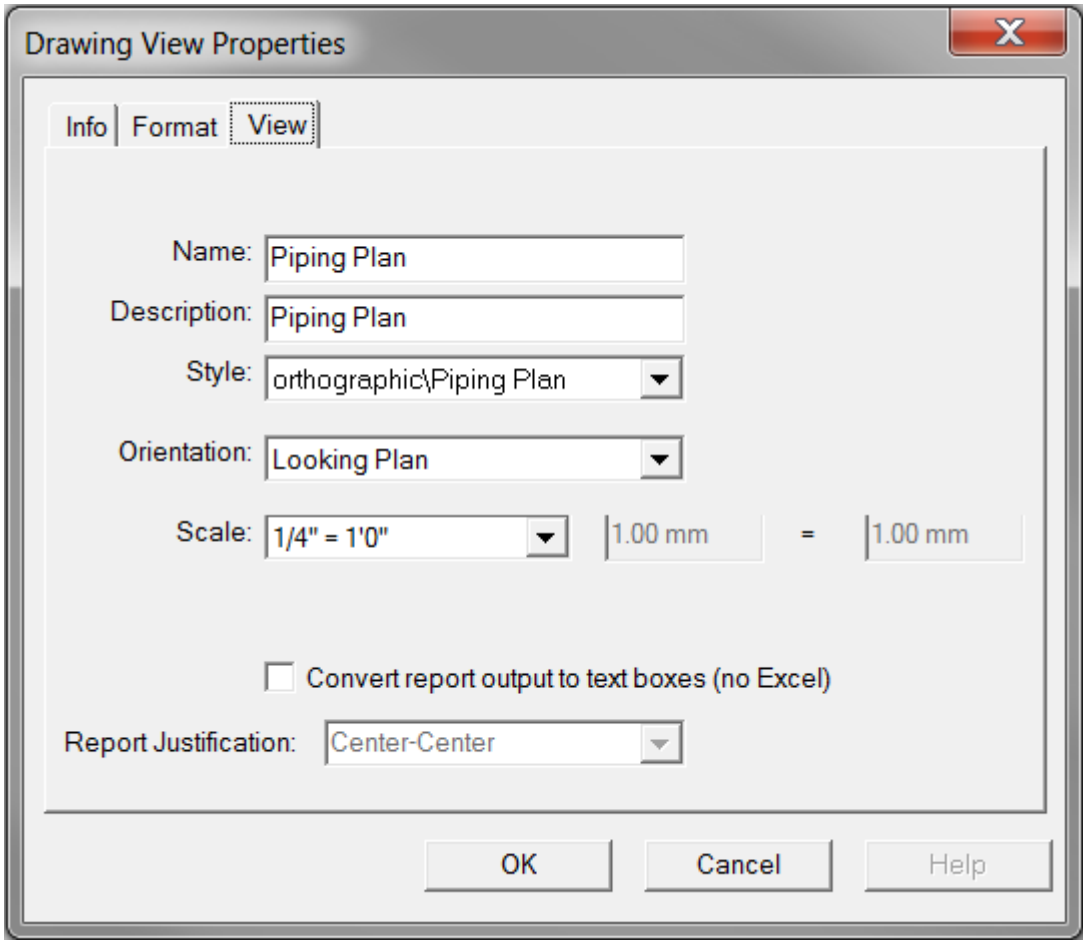
2. Maximize the drawing window in **SmartSketch Drawing Editor**.
3. Click **Fit** .

4. Because the view is hidden, move the cursor slowly across the drawing from left to right until the view highlights.



5. Right-click the view boundary, and select **Properties**.

*The **Drawing View Properties** dialog box displays.*



The properties for this template that originated from a package are already predefined.

6. Select **1/2" = 1’0"** from the **Scale** list on the **Drawing View Properties** dialog box.

   The software changes the scale of the template view.

7. Click **OK** on the **Drawing View Properties** dialog box.
8. Click **Save** .

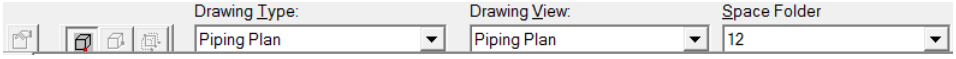
   The software saves the template changes.

9. Click **File > Exit** to exit **SmartSketch Drawing Editor**.

Place Drawing Volumes

1. Click **Place Drawing Volume by View** .

   *The **Place Drawing Volume by View** ribbon displays.*

   TIP The green-colored buttons at the bottom of the vertical toolbar in the **Space Management** task are for the placement of volumes for use with the Volume component. The volumes placed with these commands are of type Drawing Volume with no option to change them to a different type.

   Composed drawing views can be associated to volumes drawn with these commands.

   The **Place Drawing Volume by View** command places a volume whose cross-section matches the scaled size of the view in the template. The two points to define the volume determine the depth of the volume.

   *The software automatically populates the **Drawing Type** list with **Piping Plan** on the **Place Drawing Volume by View** ribbon because it is the only eligible Volume type template in the model.*

   A volume cross-section is attached to the cursor.

   *The software automatically populates the **Drawing View** list with **Piping Plan** on the **Place Drawing Volume by View** ribbon because it is the only eligible view in the template.*

2. Select **More** from the **Space Folder** list on the **Place Drawing Volume by View**. Then, select **Drawing Creation Labs\12**.

3. Type **72** in the **E** field on the **PinPoint** ribbon. Press TAB.

   *The field displays **72 ft 0.00 in** and is locked.*

4. Type **-2** in the **N** field on the **PinPoint** ribbon. Press TAB.

   *The field displays **-2 ft 0.00 in** and is locked..*

5. Type **-3** in the **El** field on the **PinPoint** ribbon. Press TAB.

   *The field displays **-3 ft 0.00 in** and is locked..*

6. Click anywhere in the graphic view to complete placement of the first point of the drawing volume.

7. Type **33** In the **El** field on the **PinPoint** ribbon. Press TAB.

   *The field displays **33 ft 0.00 in** and is locked.*

8. Click anywhere in the graphic view to complete placement of the first drawing volume.

   A volume cross-section is attached to the cursor to place the next drawing volume.

9. Type **72** In the **E** field on the **PinPoint** ribbon. Press TAB.

   *The field displays **72 ft 0.00 in** and is locked..*

10. Type **32 6** in the **N** field on the **PinPoint** ribbon. Press TAB.

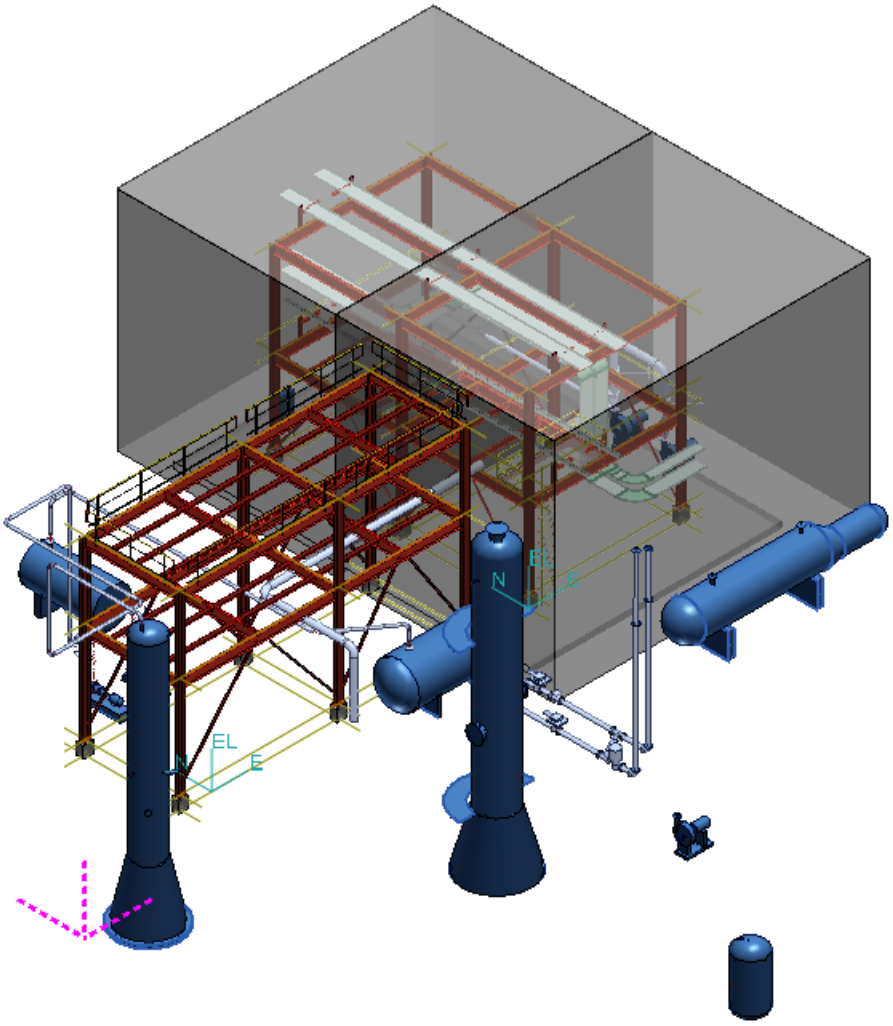
    *The field displays **32 ft 6.00 in** and is locked.*

11. Type **-3** in the **El** field on the **PinPoint** ribbon. Press TAB.

*The field displays **-3 ft 0.00 in** and is locked.*

12. Click anywhere in the graphic view to complete placement of the first point of the drawing volume.
13. Type **33** in the **El** field on the **PinPoint** ribbon. Press TAB.

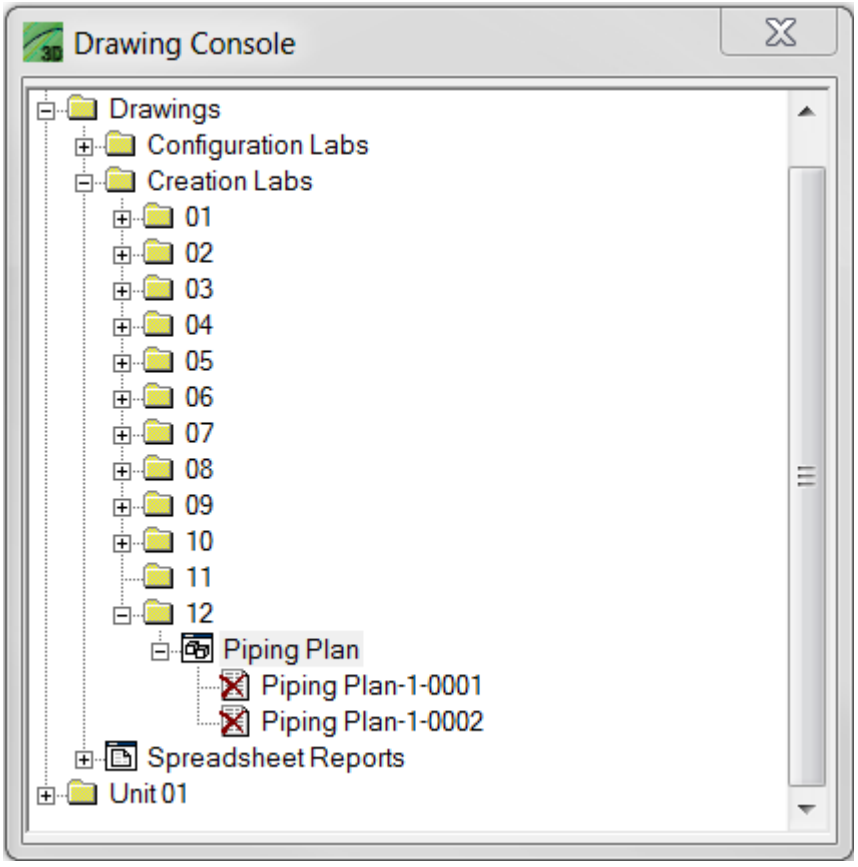
    *The field displays **33 ft 0.00 in** and is locked.*
14. Click anywhere in the graphic view to complete placement of the second drawing volume.
15. Right-click in the graphic window to end **Place Drawing Volume by View**.



Update the Drawings

1. Switch to the **Drawing Console** window.
2. Right-click **Piping Plan,** and select **Create Drawing(s)**.

   The software creates the two drawings based on the two volumes previously placed.

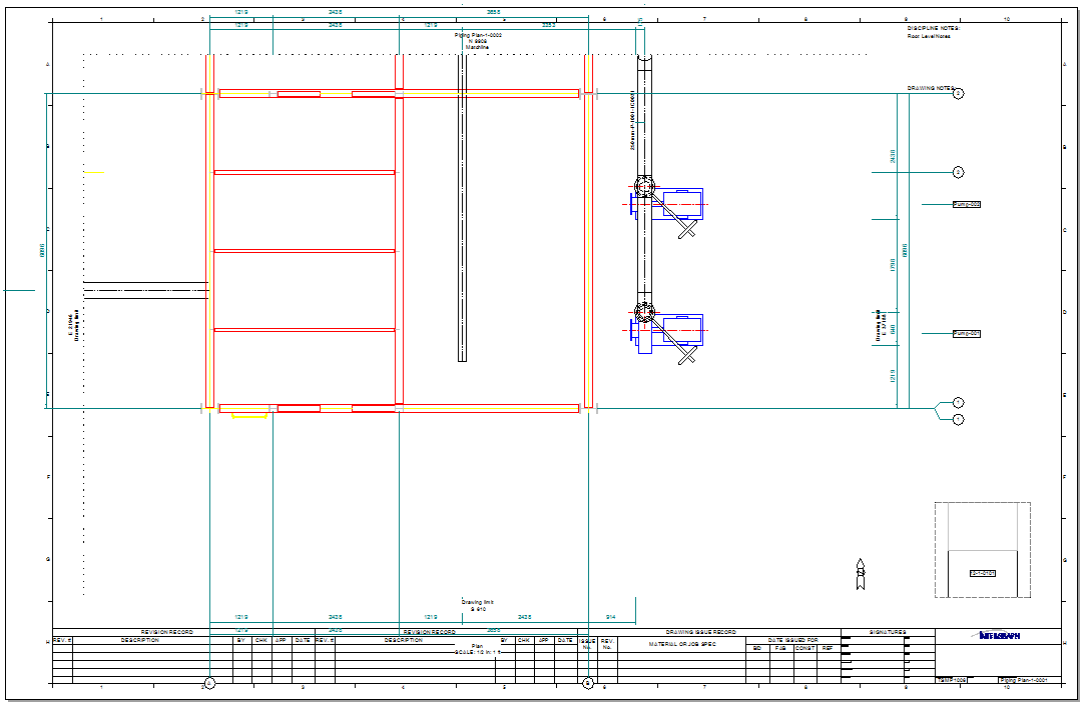


3. Right-click **Piping Plan,** and select **Update Now**.

   The software generates the contents of both drawings.
4. After the update completes, right-click on the topmost drawing, and select **Edit**.

   *The **SmartSketch Drawing Editor** window displays.*
5. Maximize the drawing window in **SmartSketch Drawing Editor**.
6. Click **Fit** .

The drawing contents should look similar to the picture below:

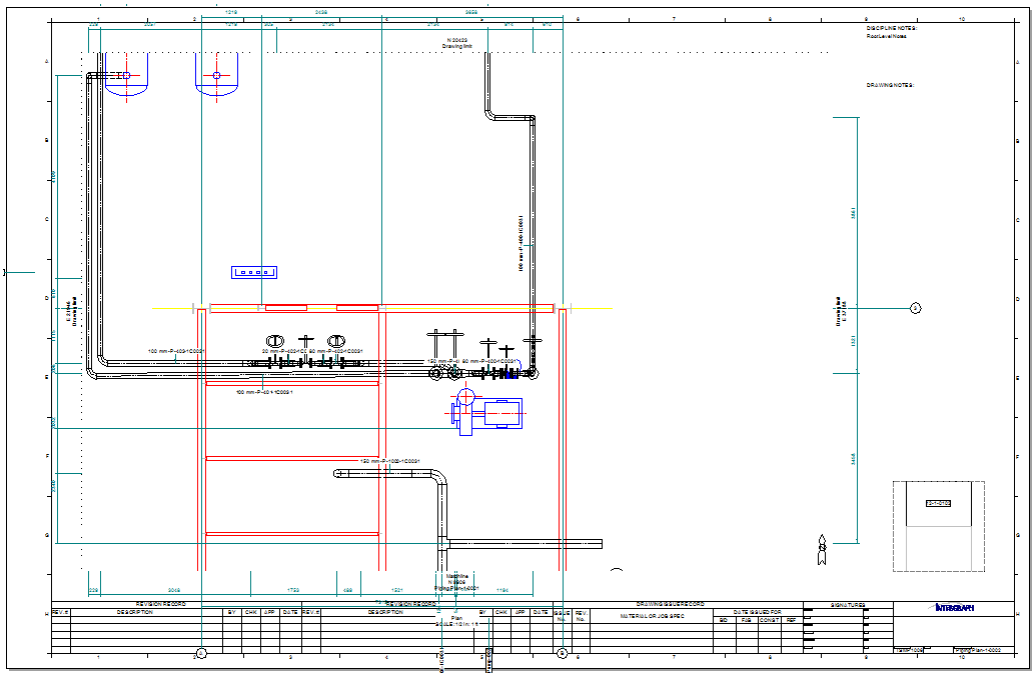


The drawing contains a main view and a key plan view. Both of these were predefined in the template which in turn was saved in a package.

7. Click **File > Exit** to exit **SmartSketch Drawing Editor**. You do not need to save the drawing because you did not change it.
8. Switch to the **Drawing Console** window.
9. In the **Drawing Console** window, right-click on the other **Volume** drawing, and select **Edit**.

   *The **SmartSketch Drawing Editor** window displays.*
10. Maximize the drawing window in **SmartSketch Drawing Editor**.
11. Click **Fit** .

The drawing contents should look similar to the picture below:



The drawing contains a main view and a key plan view like the previous drawing.

12. Click **File > Exit** to exit **SmartSketch Drawing Editor**. You do not need to save the drawing because you did not change it.