HVAC Tutorial

Modify Duct Runs

Version 2014

PART OF HEXAGON

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SESSION 7

Modify HVAC Duct Runs

Objective

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

- Modify the properties of HVAC duct runs in a model.

Before Starting this Procedure

- SP3D Overview
- SP3D Common Sessions
- Route a Duct

Overview

The HVAC task includes several commands that allow you to modify the properties of duct runs to meet particular design needs. You can modify the properties of a duct run by applying insulation or modify its functional capabilities by adding components such as diffusers and dampers. You can also move or delete the duct runs, if required.

In Smart 3D, you select a duct run to display the appropriate ribbon with options such as **Shape**, **Depth**, **Width, Radius**, or **Orientation** that allow you to edit the selected duct run.

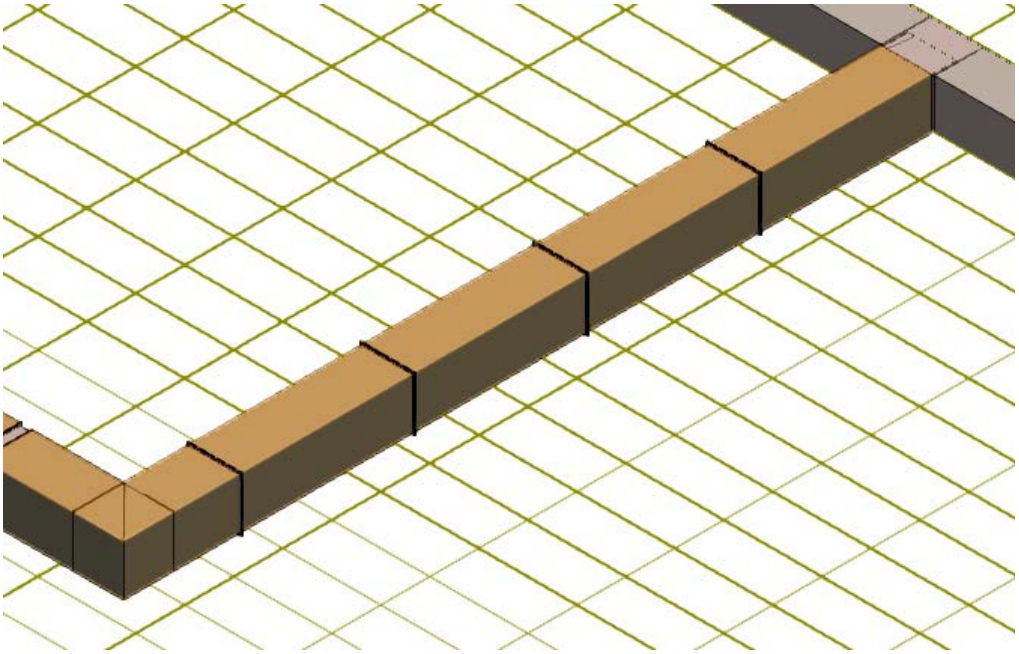
In this session you will learn to modify duct runs by:

- Modifying properties
- Adding diffusers
- Moving duct runs
- Deleting duct runs

Modify the Properties of the Duct Runs

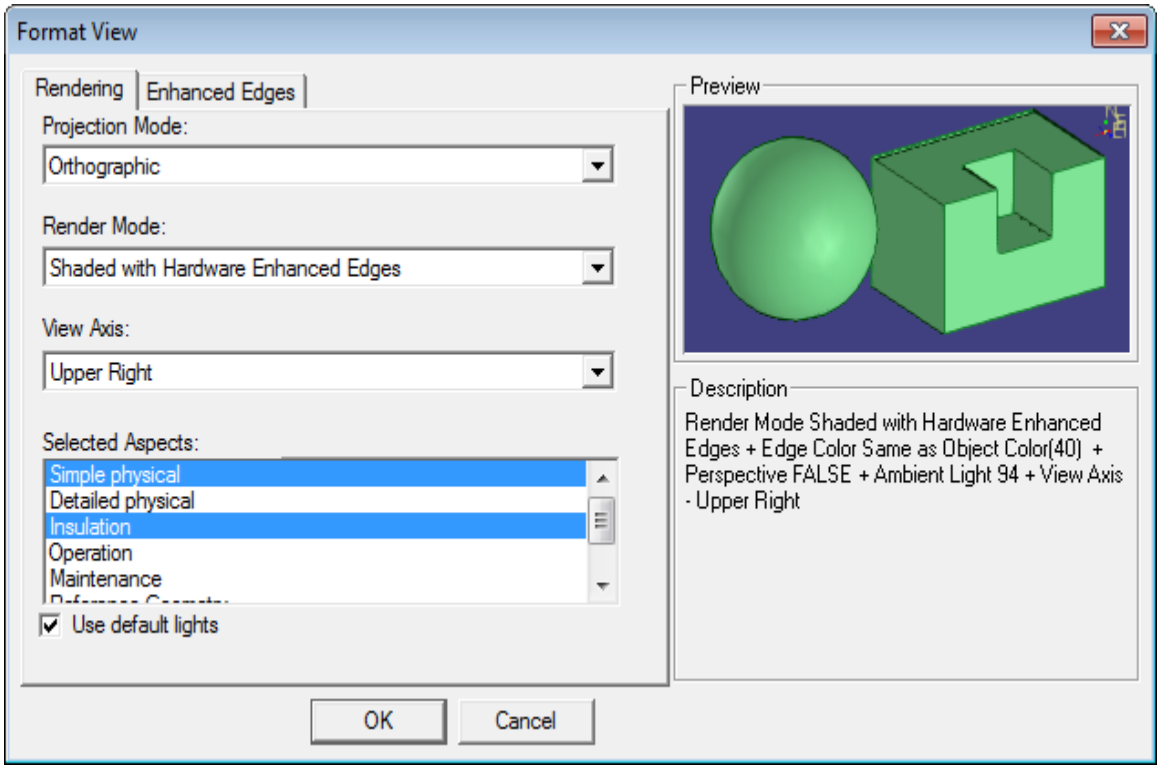
Before modifying the properties of a duct run, ensure that you define the workspace to show Unit **U06**, switch to the HVAC environment, and select **HVAC_CS** as the coordinate system. Activate **PinPoint** and change the **Locate Filter** to **Duct Runs**.

Modify the duct run property by adding a 0.98 in thick polyurethane insulation.



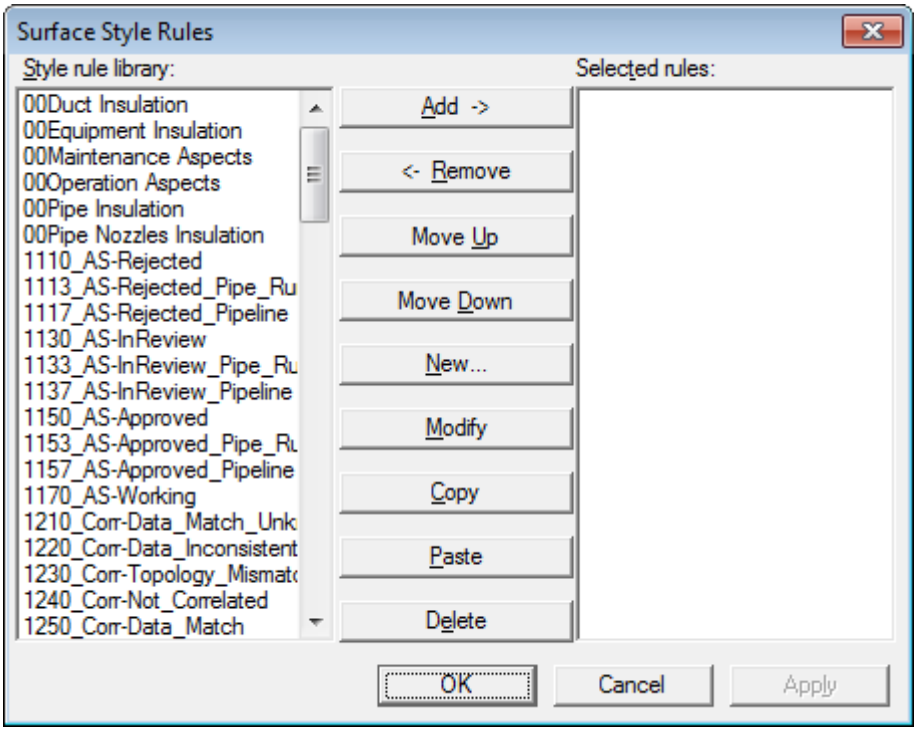
1. Click **Format > View**.
2. In the **Format View** dialog box, select **Insulation** in the **Selected Aspects** category to enable the insulation aspect.

3. Click **OK**.



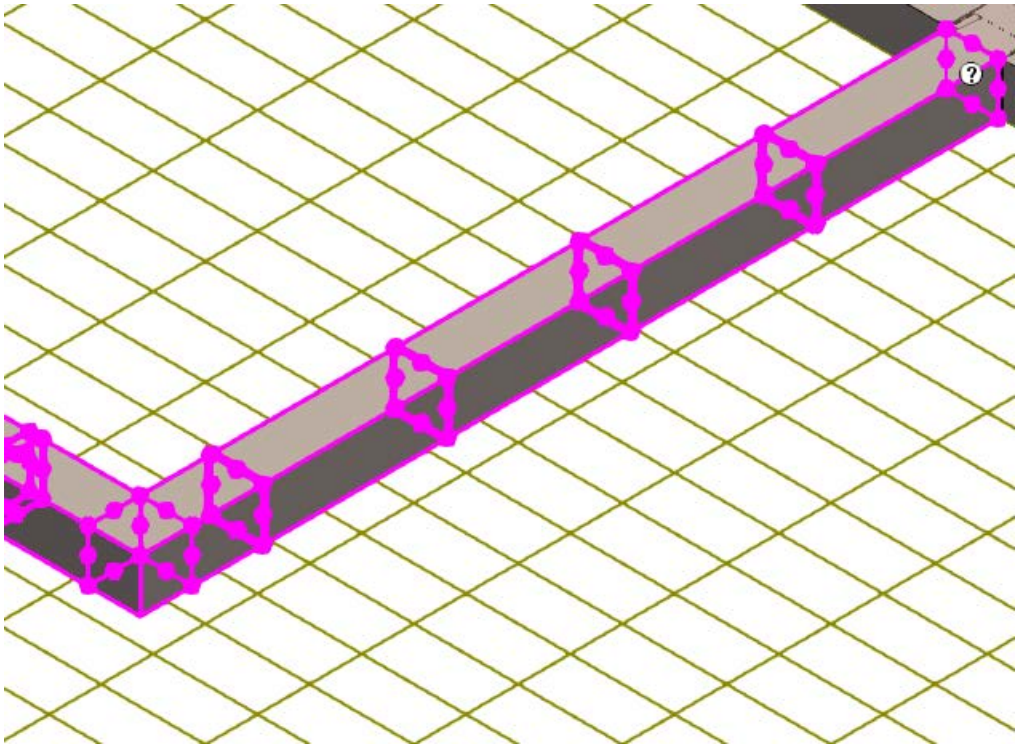
4. Click **Format > Surface Style Rules**.

*The **Surface Style Rules** dialog box displays the **Style rule library**.*



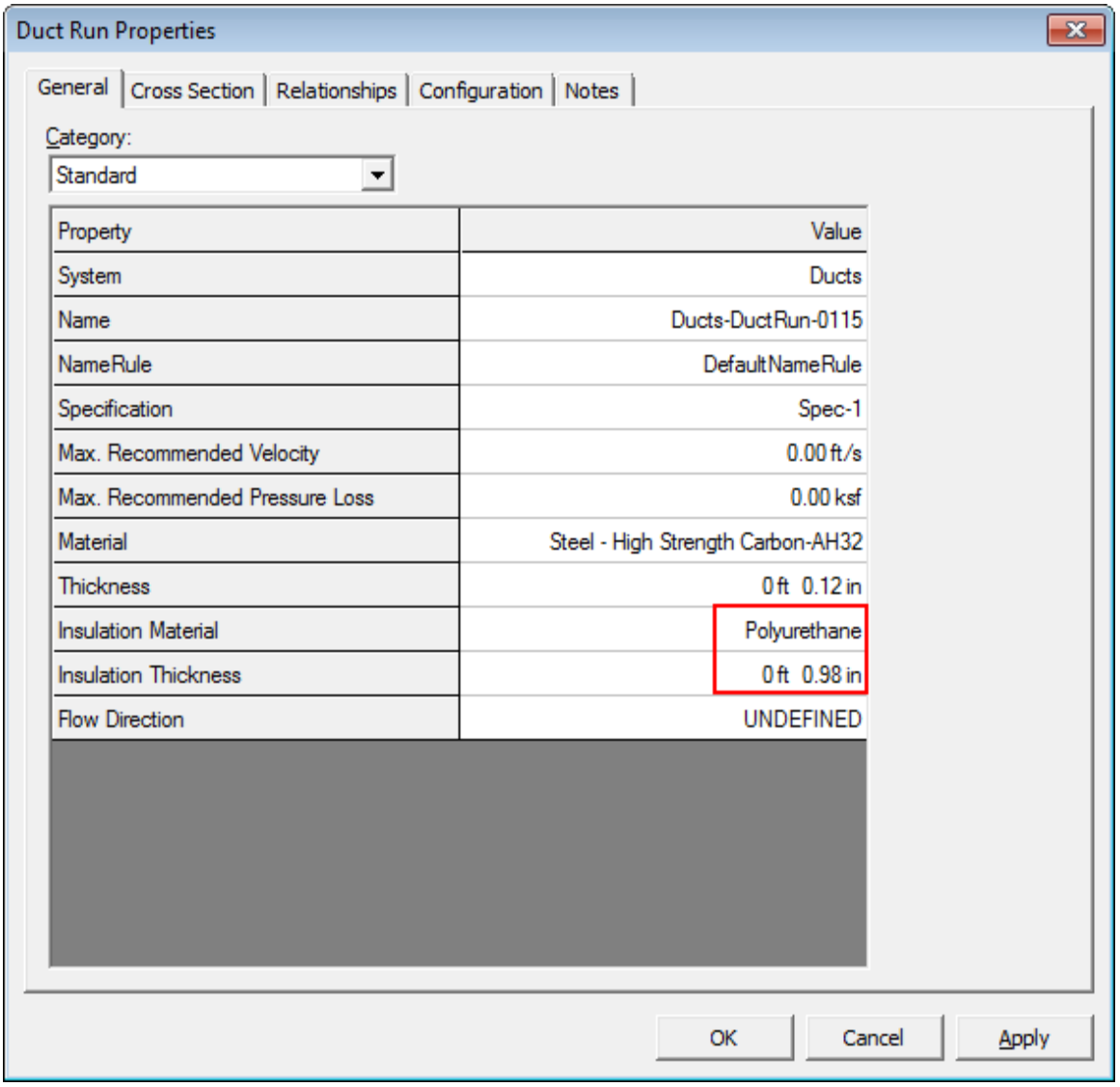
5. Create a style rule with the following parameters in the **Surface Style Rules** dialog box:
   - **Rule name: Duct Insulation for Air System**
   - **Filter: HVAC Parts**
   - **Style applied: Translucent Orange**
   - **Insulation** check box selected. Clear the other aspects
6. Select the required rule, and click **OK** to apply the style rule in your workspace.

7. Select the duct run to be modified.



8. Click **Properties** .
9. Select **More** from the **Insulation Material** list.
10. Expand **Insulation Materials > PU** in the **Select Insulation Material** dialog box, and select **Polyurethane** as the **Insulation Material**.

11. Select **0.98 in** from the **Insulation Thickness** list.



12. Click **OK**.

    Smart 3D adds the insulation to the duct run.

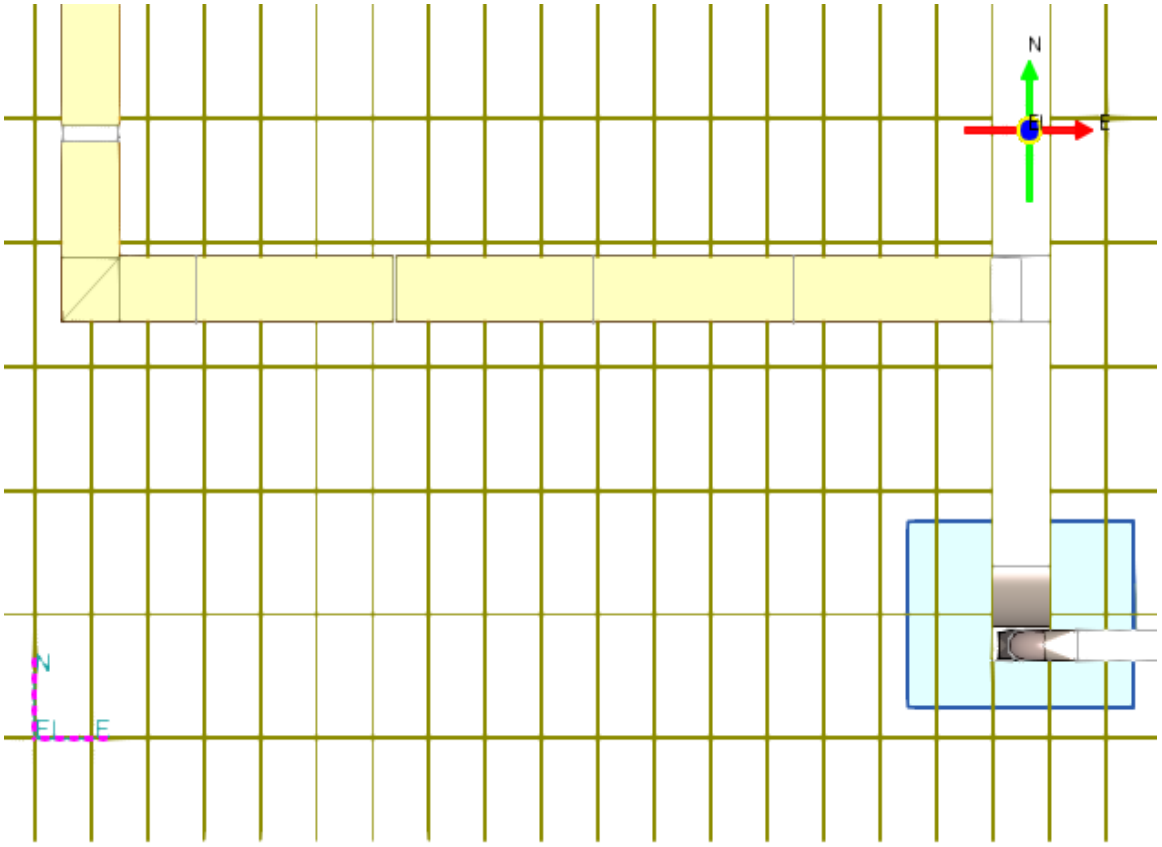
Add Diffusers to the Duct Run

Place a round diffuser, **D24X24RND8**, by selecting it from the catalog. Then, add it to the main line duct run by routing a duct run to join the main line and diffuser.

For routing the duct use the following specifications:

- **Parameters: Values**
- **Component Part: SMRoundBranch1**
- **Mount Reference: Bottom Center**
- **Specification: Spec-1**
- **Material: Steel-Carbon A36**
- **Insulation Material: Non-insulated**

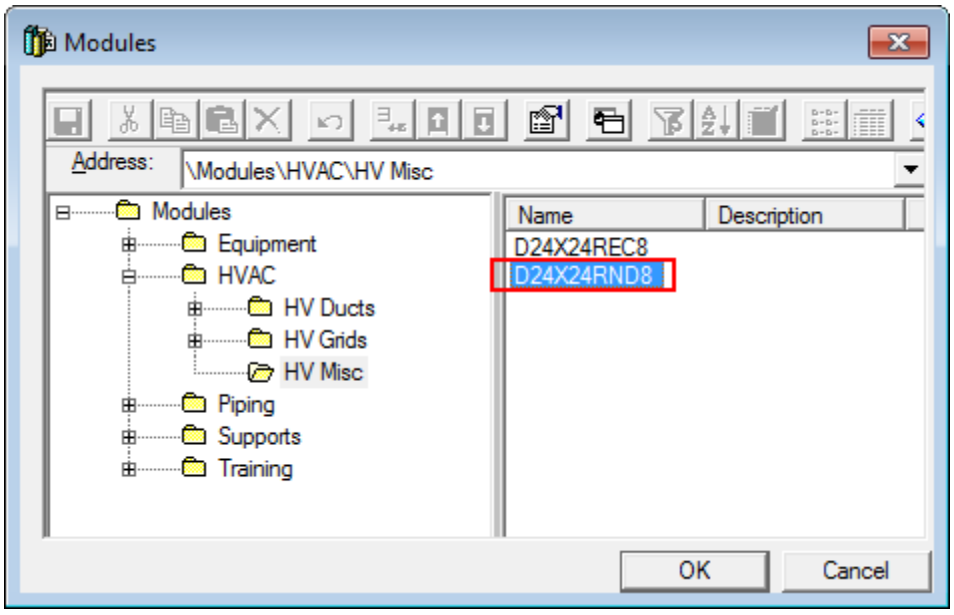
1. Click **Tools > Show all** to display all grid lines of Unit **U06**.
2. Change the common view to **Looking Plan** view.



3. Click **Edit > Paste from Catalog** to add diffusers from the displayed list in the catalog. The list shows the diffusers that you added during some of the previous activities.

   *The **Modules** dialog box displays*

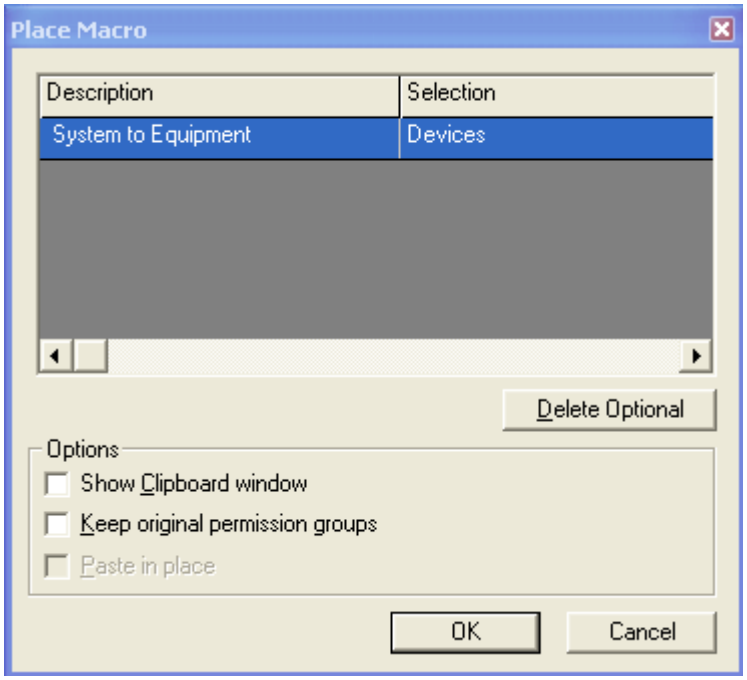
4. Expand **Modules > HVAC > HV Misc** and select the round diffuser **D24X24RND8** from the list of HVAC equipment.



5. Click **OK** to close the **Modules** dialog box.

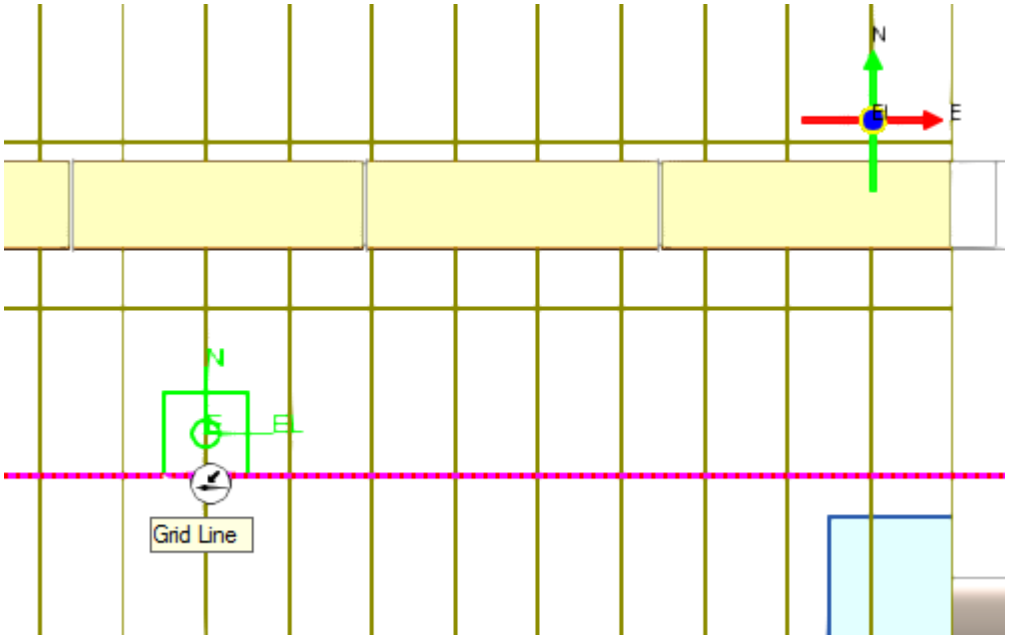
   *The **Place Macro** dialog box displays.*

6. Ensure that **Devices** in the **HVAC > Supply** folder in the **Workspace Explorer** is selected



7. Click **OK** to close the **Place Macro** dialog box.

8. Use the gridlines to place the new diffuser.

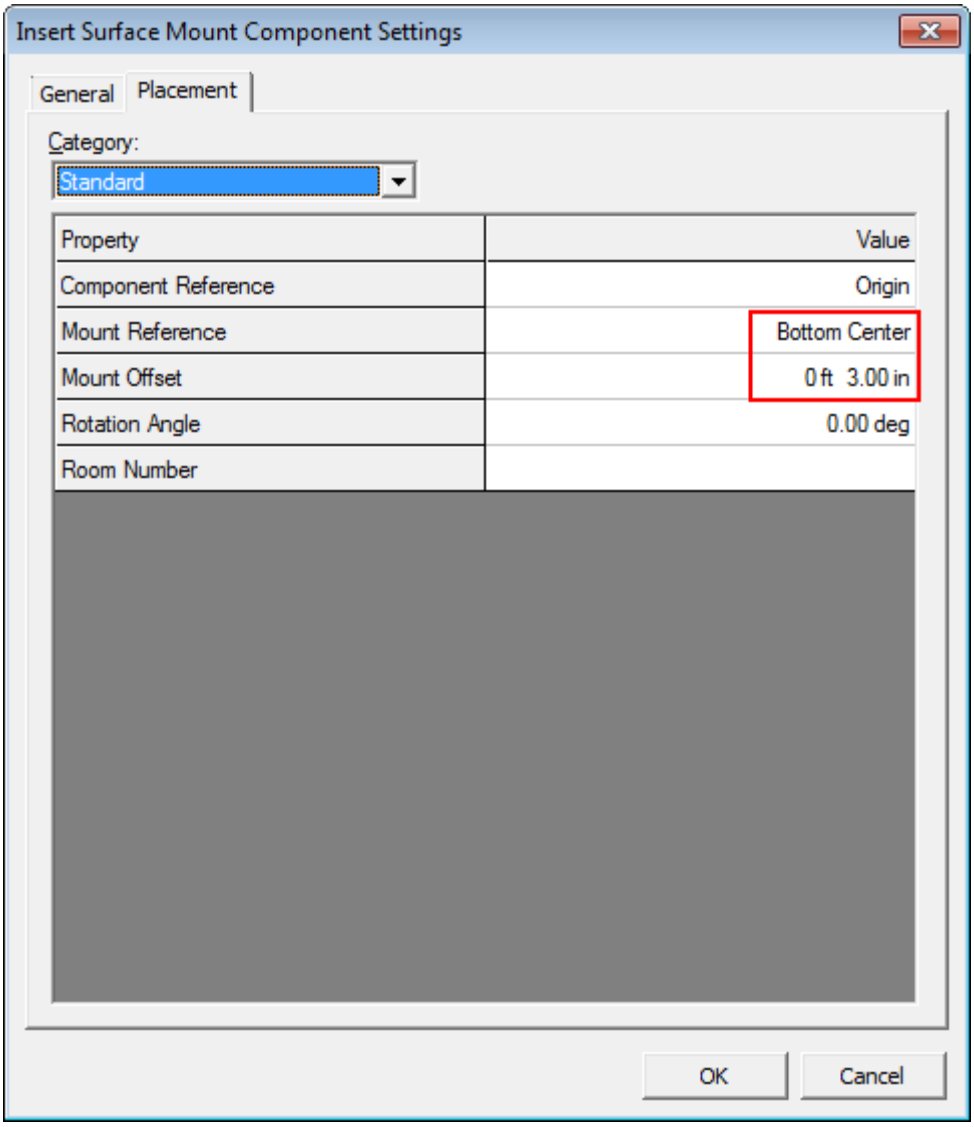


To add this diffuser to the main duct run, you route an additional duct run. This additional duct run connects the diffuser to the main duct run.

9. Select **Duct Runs** in the **Locate Filter** list, and reposition target to the port of the diffuser. This sets the target for routing a duct run from the main duct run to the diffuser.
10. Click **Insert Surface Mount Component** on the vertical toolbar to insert a duct run in the main line.
11. Select the duct straight feature to which you want to connect the diffuser, and select **More** from the **Component part** list on the **Insert Surface Mount Component** ribbon.

    *The **Select Part** dialog box displays.*
12. Expand **Surface > SMRoundBranch**, and select **SMRoundBranch1** on the **Select Part** dialog box.
13. Click **Properties** to open the **Insert Surface Mount Component Settings** dialog box.
14. Click the **Placement** tab, and select **Bottom Center** from the **Mount Reference** list to specify the location.

15. Type **3in** in the **Mount Offset** box, and click **OK**.



16. Click **Enter Insertion Point** on the **Insert Surface Mount Component** ribbon.
17. Type **0 ft** for **E** on the **PinPoint** ribbon, and click in the graphic view.
18. Click **Finish** button to place the branch port.
19. Select **Duct Parts** from the **Locate Filter** list, and select the duct part.
20. Click **Edit > Properties** to display the **Duct Component Properties** dialog box.
21. Change the **Branch Width** to **8 in,** and click **OK**.

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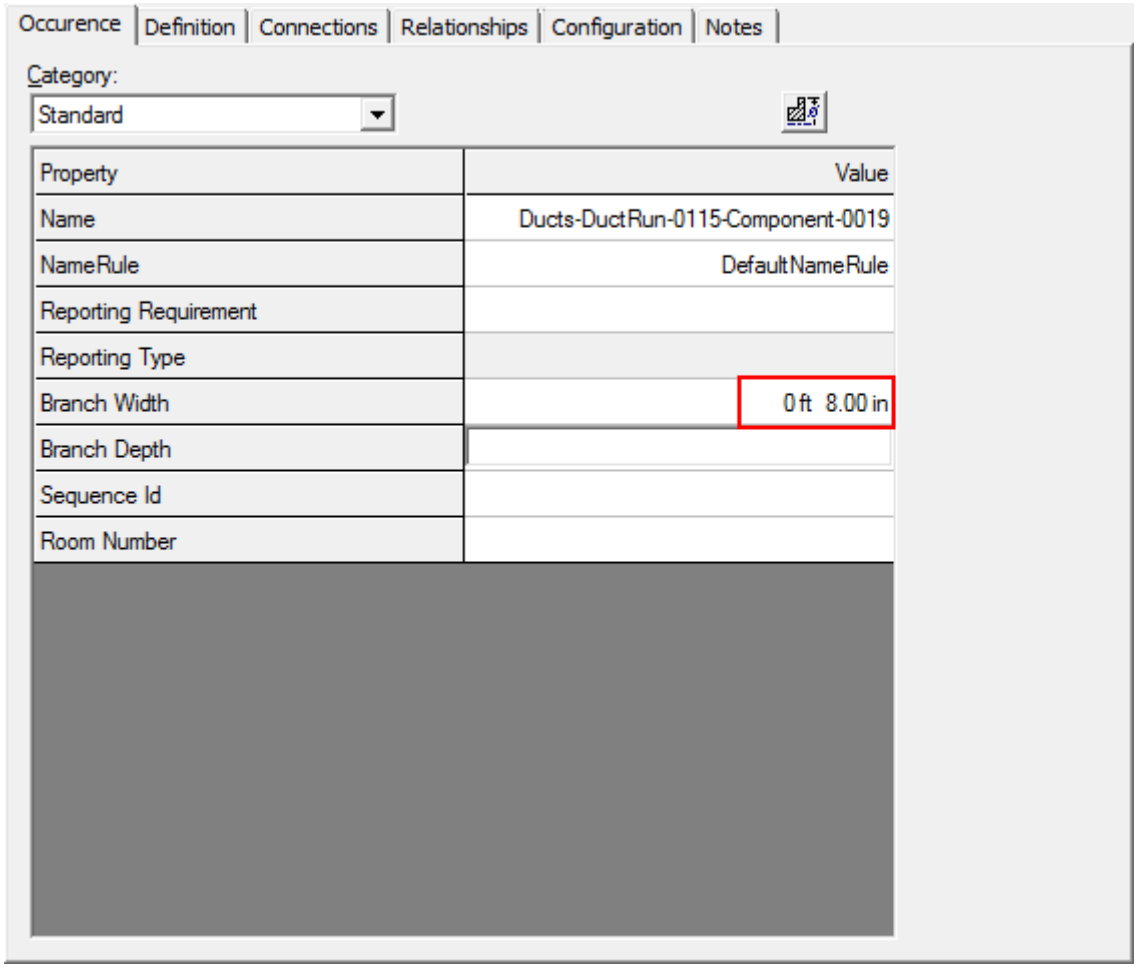
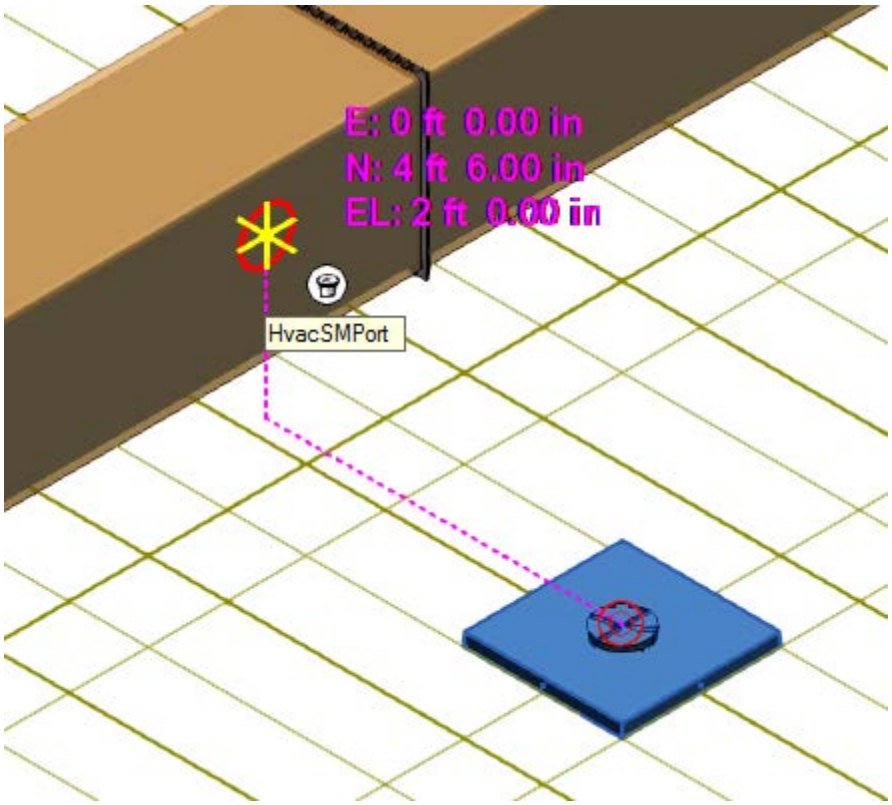

Occurence
Definition
Connections
Relationships
Configuration
Notes
Category:
Standard
Property
Value
Name
Ducts-DuctRun-0115-Component-0019
NameRule
DefaultNameRule
Reporting Requirement
Reporting Type
Branch Width
0 ft 8.00 in
Branch Depth
Sequence Id
Room Number

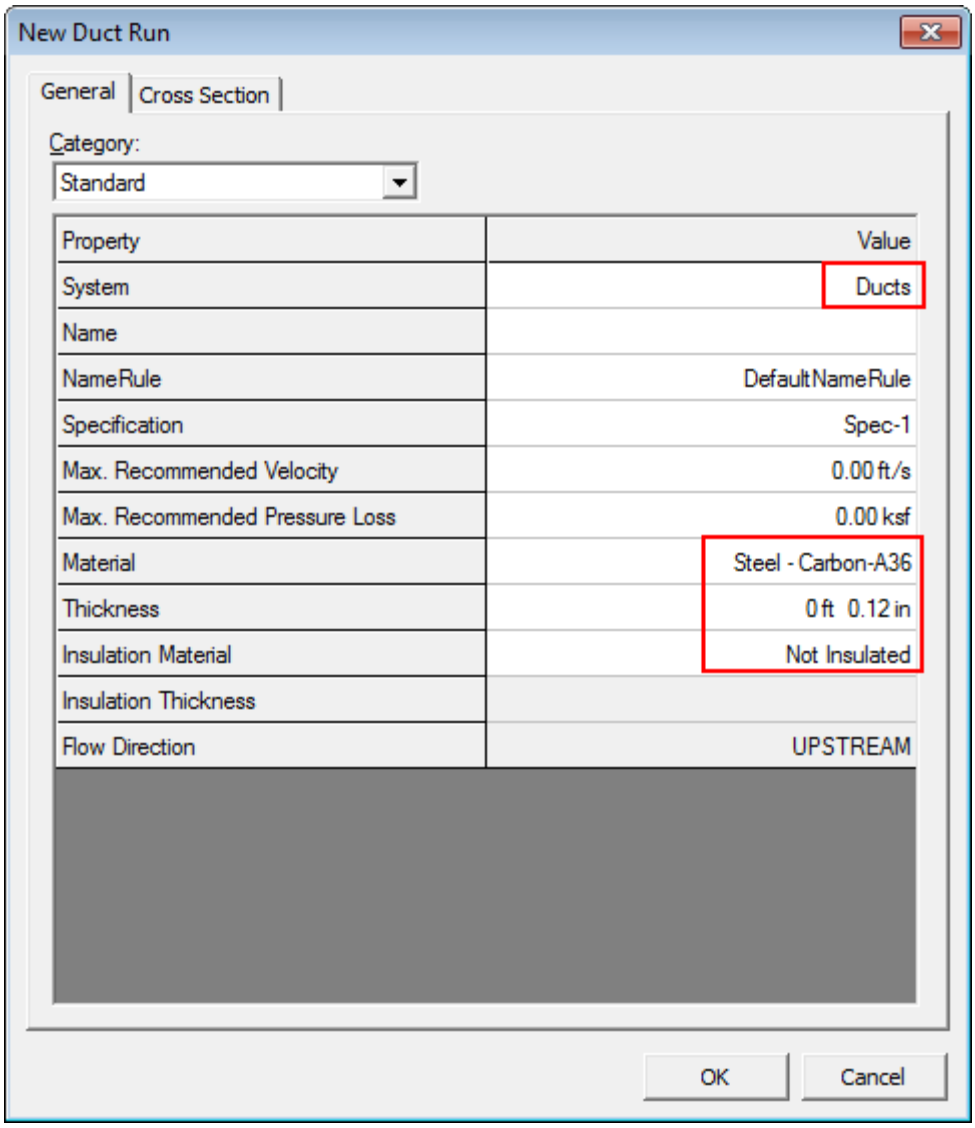
22. Click **Route Duct** on the vertical toolbar, and select the branch port.



*The **New Duct Run** dialog box displays.*

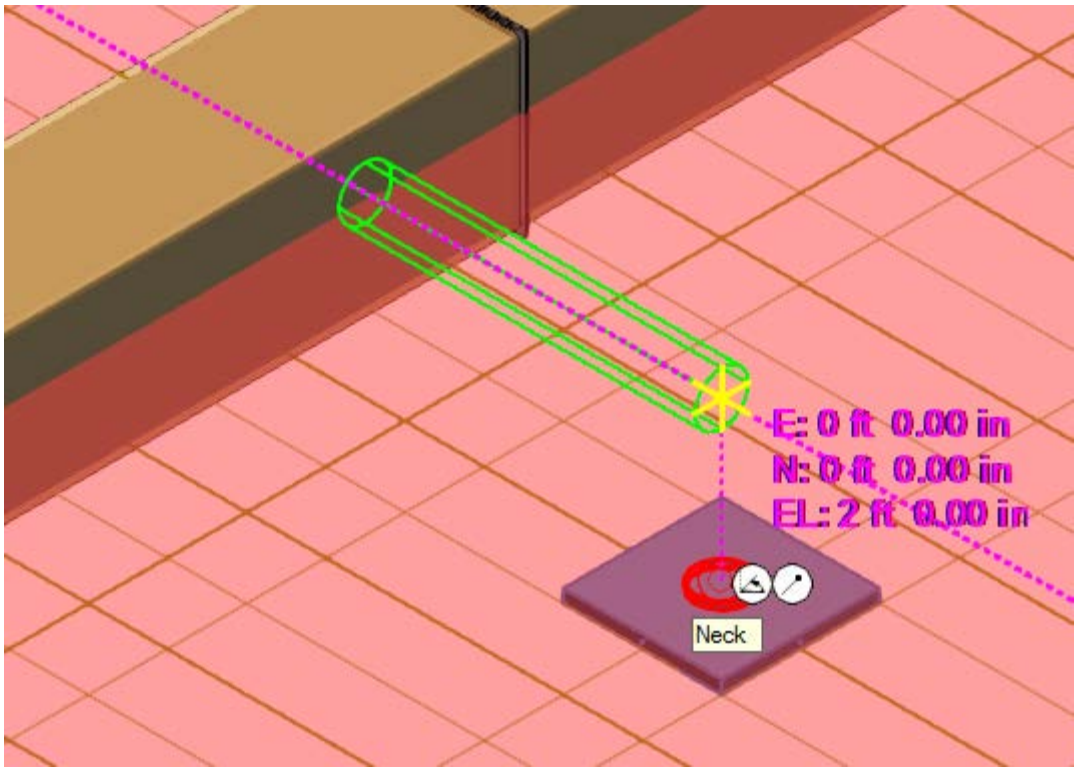
23. Change the value of **Specification** to **Spec-1**, **Material** to **Steel – Carbon-A36**, and **Insulation Material** to **Non Insulated**.

24. Select **More** from, the **System** list, and expand **A2 > U06 > HVAC > Supply > Ducts** to select **Ducts** as the value of **System**.

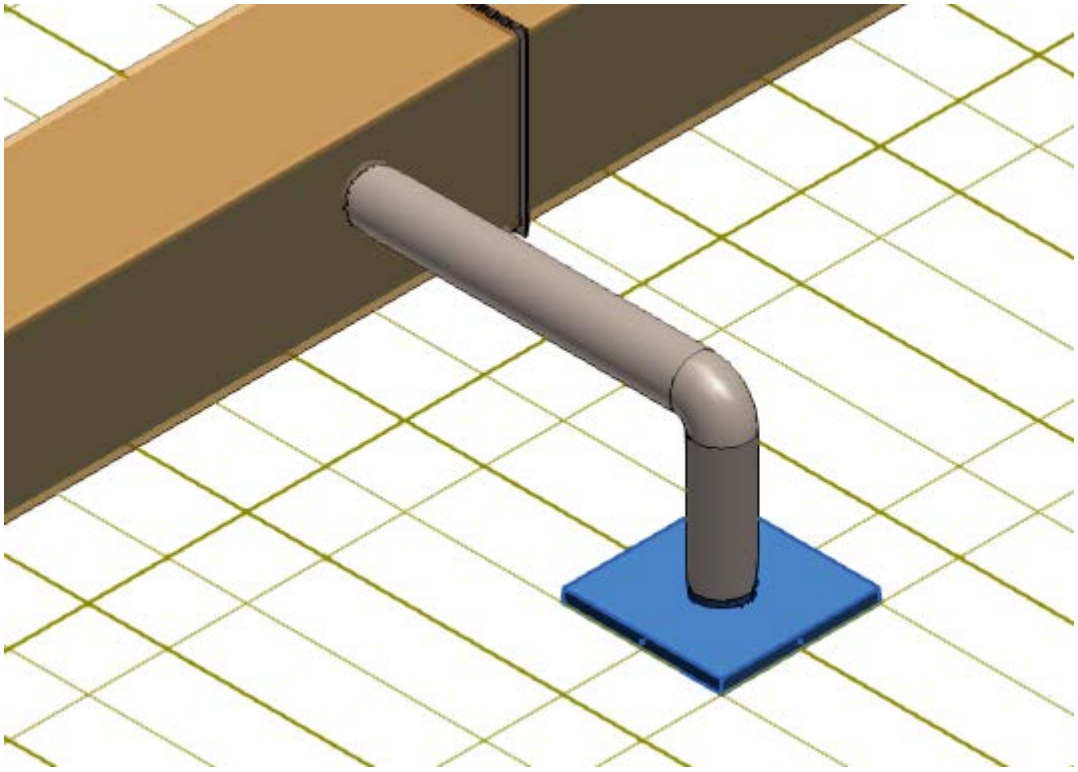


25. Click **OK**.

26. Use the SmartSketch option to locate the position for placement, and click in the graphic view to place the duct run connected to the main line.



27. Continue routing to the port of the diffuser, and click to place the duct run.



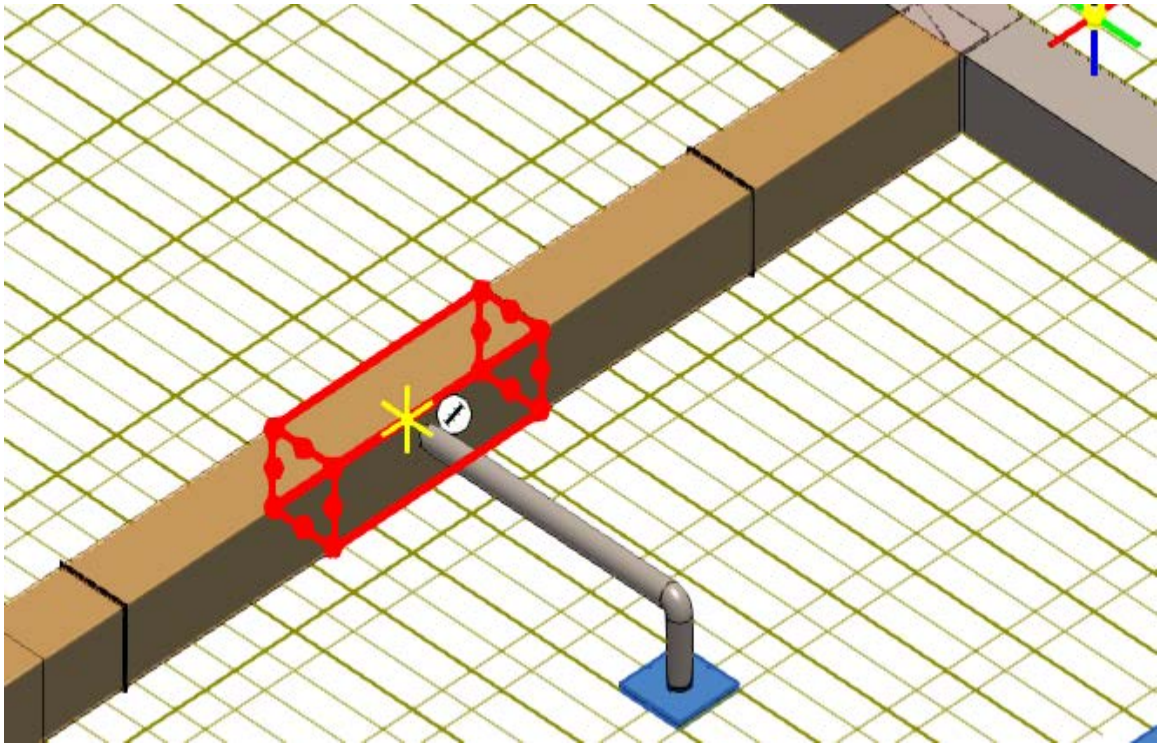
The HVAC task provides the precise level of control that you need to create a complex HVAC system. After creating a duct run, you can move its features to alter the layout of the duct runs, connection points, or component placement. You can also edit the feature properties.

Move an HVAC Duct

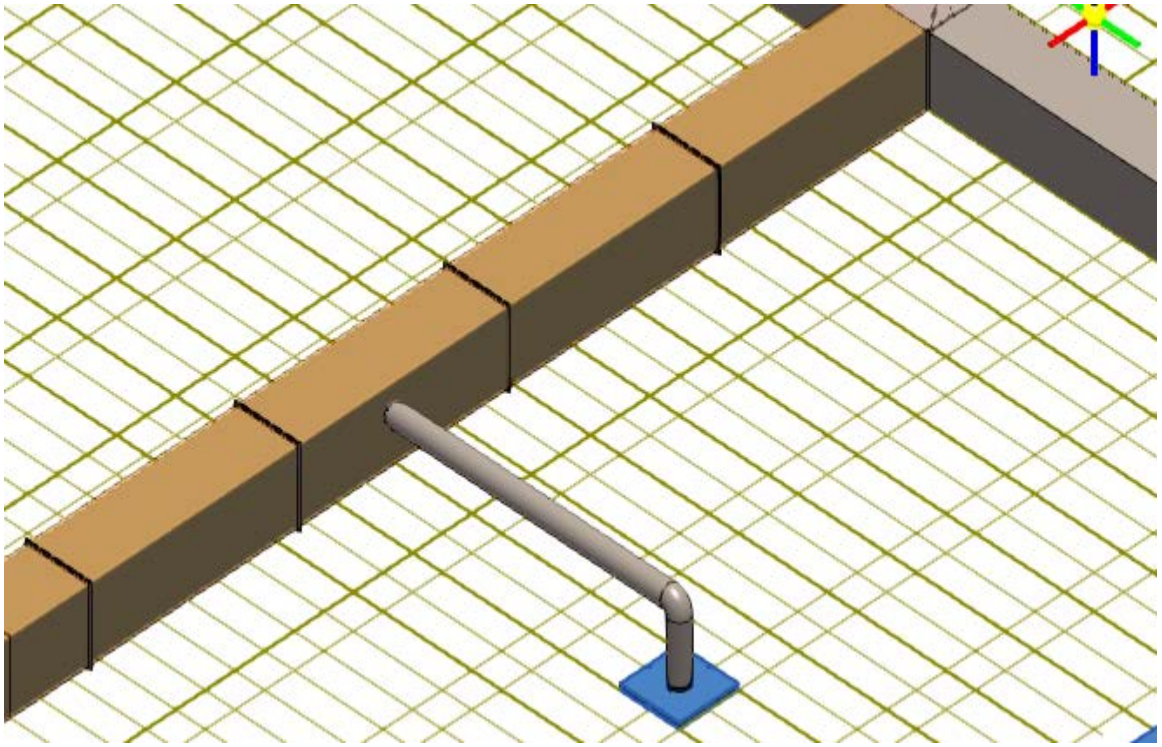
Move a duct run using **Move to** or **Move from** .

1. Click **Select** on the vertical toolbar.
2. Select **Duct Features** from the **Locate Filter** list.

3. Select the duct feature to move.



4. Click **Edit > Move**. Use **Move from** and **Move to** to reposition the features.



Delete an HVAC Duct Feature

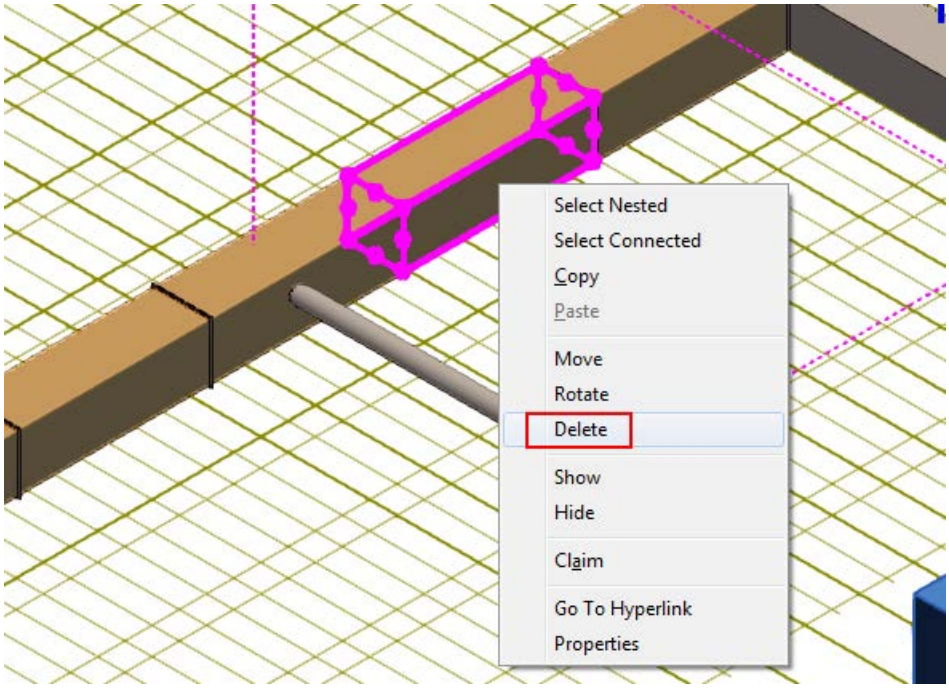
The software deletes the associated duct parts and connections when you delete a feature.

Because a duct run is a connected system, the software preserves connections and points that you entered for the route. For example, when you delete a split feature, a branch feature, or an inline component that connects two straight features, the software automatically closes the gap to form one straight feature. This action requires that the two straight features have the same specification.

If you delete a turn feature, the software extends the connected straight features to the turn point.

Delete a duct feature using **Delete**.

1. Click **Select** on the vertical toolbar.
2. Select **Duct Features** from the **Locate Filter** list.
3. Select the feature to delete.
4. Right-click, and select **Delete**.



For more information on manipulating features, see the **HVAC UsersGuide.pdf** file.