

# Complex Linetypes in Revit

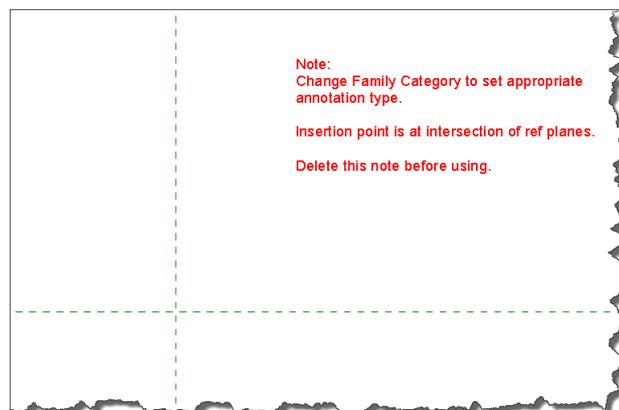
## All Revit Disciplines

In this White Paper we are going to go through how to create a complex linetype in Revit using a nested annotation family into a line-based detail component.

### How to create complex linetype

To create a complex linetype first you need to start a new family using the **Generic Annotation.rft** family template.

1. Go to the **Application Menu** , Select **New > Family**, from the Annotations folder, select **Metric Generic Annotation.rft** and click **Open**.  
The Ribbon will change to family editor tools and a blank annotations family will open.

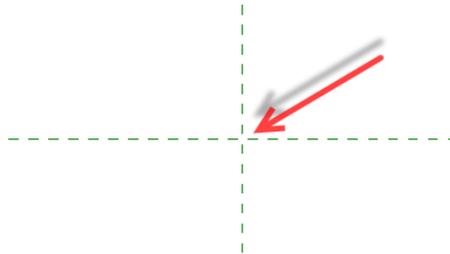


As you can see in the above image it has a note which can be deleted when you create your family. So just select it and select delete.

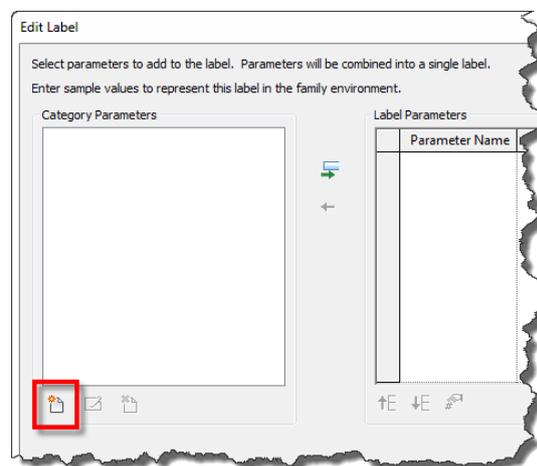
We need to save our family, with the appropriate name.

2. Go to the **Application Menu**  > **Save As > Family**, name it **linetype\_label.rfa**.  
**Note:** This is just the name I am using for the exercise; you can put any name you wish.
3. Next we need to create a label, so from **Create (TAB) > Text > Label** .  
You may need to edit the default size in the properties window.
4. Click **Edit Type** in the properties window, select Rename and type **2.5mm**.  
**Note:** I am using 2.5mm but you can put any size you wish.
5. Change the text size to **2.5mm**. If you need to change any other of the values do so, for example your text format may differ from the default Arial.
6. On the Ribbon **Modify | Place Label (TAB) > Format**, select Align Centre and Centre Middle. This is so the label will be central but you can change to suit your requirements.

- Now click the intersection or as close as you can to the intersection of the reference planes. (As shown in below image).



The Edit Label dialog box will appear on screen and you will notice there aren't any parameters to choose from the Category Parameters box, so are we going need to create a new parameter.



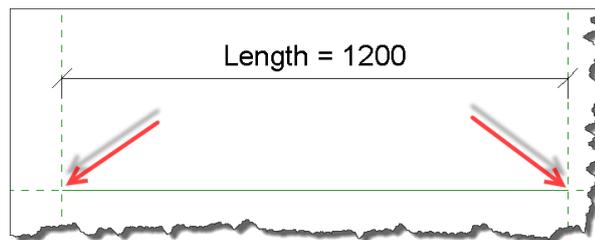
- Select the **Add Parameter icon** . The Parameter Type dialog will appear on screen. Fill out the details as follows:
  - ❖ **Name:** *Linetype Text*
  - ❖ **Discipline:** *Common*
  - ❖ **Type of Parameter:** *Text*
  - ❖ **Group parameter under:** *Text*
  - ❖ **Type or Instance:** *Type*
- Now click **OK**.
- Add the parameter to the Label Parameter by clicking  **Add parameter(s) to label**. Under the Sample Value change the heading to **XXX**, click **OK**.  
To position your label as close to the intersection of the reference planes, you can use the arrow keys to nudge the label left and right or up and down.
- Now select **Save** .

We have now set up the linetype label family which we are going to load into a Detail component family we need to create next.

Leave the linetype family open so we can switch back to it when you need it. We are now going to create a detail component using the **Detail Component line based.rft** family template.

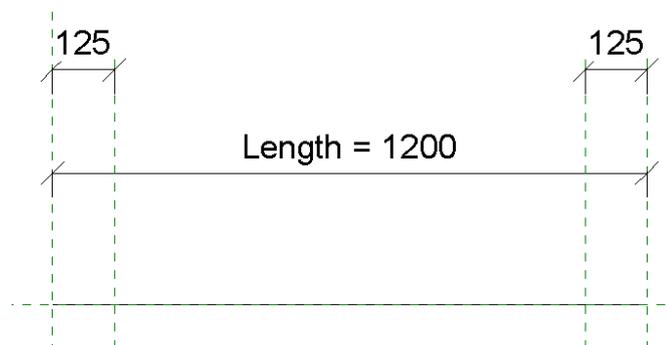
1. Go to the **Application Menu** , Select **New > Family**, select **Detail Component line based.rft** and click **Open**. Same as we did before we need to save our family, with the appropriate name.
2. Go to the **Application Menu**  > **Save As > Family**, name it **linetype\_w\_text.rfa**.  
**Note:** This is just the name I am using for the exercise; you can put any name you wish.

Firstly we are going to draw a line between the between the two vertical reference planes.



3. Select **Create (TAB) > Detail > Line**  <sup>Line</sup>, select the intersection of the left vertical and horizontal reference plane, now drawing a line along green reference line across to the right vertical and horizontal reference plane (As shown in above image).

Before we load in our linetype label family we need to set up some reference planes so we can attach our label to. This will allow us to add an array parameter into the family so we can adjust the number of labels added to the linetype.

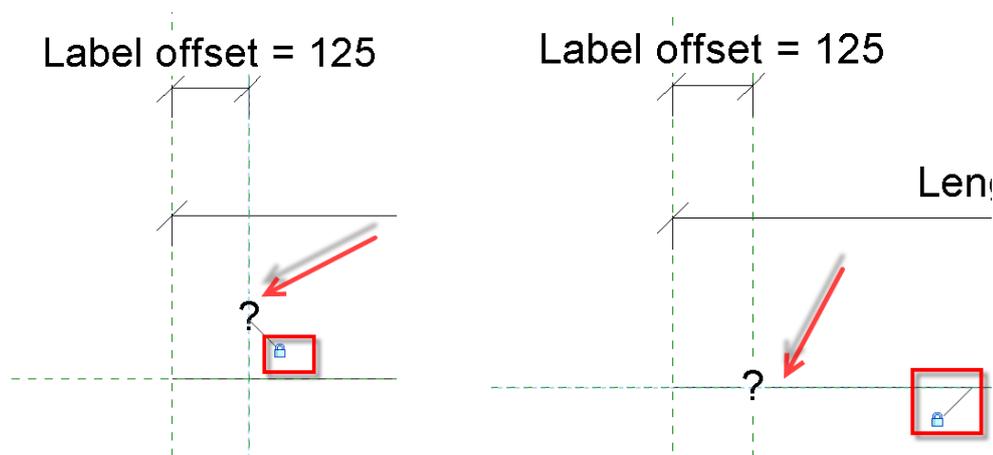


4. Select **Create (TAB) > Datum > Reference Plane**  <sup>Reference Plane</sup>, draw a vertical reference plane inside the left vertical and then do the same right vertical reference plane (As shown in above image).
5. Now dimension the new reference planes to the existing reference planes (As shown in above image).
6. Select one of the dimension you have just added, and from the Options bar Label, select the drop down menu, select **<Add parameter>**, fill out the details as follows:
  - ❖ **Name:** *Label offset*
  - ❖ **Discipline:** *Note these field is filled out automatically*
  - ❖ **Type of Parameter:** *Note these field is filled out automatically*
  - ❖ **Group parameter under:** *Dimensions*
  - ❖ **Type or Instance:** *Instance*
7. Now click **OK**.
8. It's a good point to save, so select **Save** .

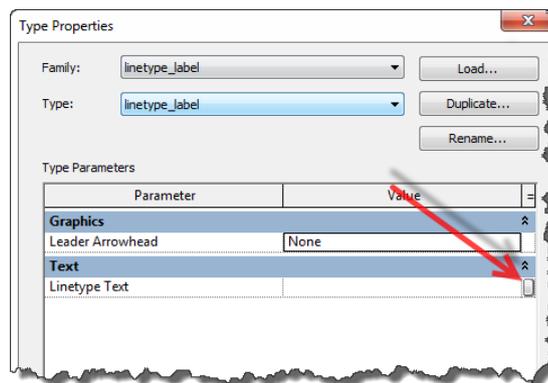
- Select the dimension on the other side and from the Options bar Label, select the drop down menu, select **Label offset**.  
If you grab on of the internal vertical reference planes and move it both should update with the same value.

Now we can load in the linetype label family we created earlier.

- Switch back into the linetype label family and select **Load into Project** from any of the Ribbons. Place the family near the left inner reference plane, and then press **Esc** twice. We are going to align this to both the vertical and horizontal reference planes.



- Now select the linetype label and using the **Align** from the Ribbon. Make sure you lock the label to the reference plane by clicking the padlock.
- If the linetype label isn't still select, select it again and click **Edit Type** from the Properties window.
- In the Type properties window select the little icon at the end of the Linetype Text row (As shown in below image).

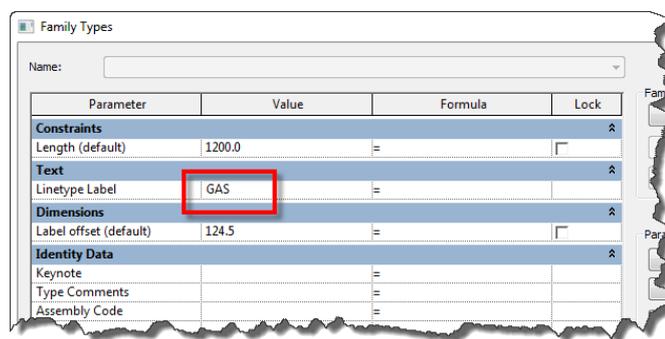


The Associate Family Parameter dialog box will appear on screen, we don't currently have a parameter set up so we need to click the Add parameter... icon.

14. In the Parameter Properties dialog. Fill out the details as follows:
  - ❖ **Name:** *Linetype Label*
  - ❖ **Discipline:** *Note these field is filled out automatically*
  - ❖ **Type of Parameter:** *Note these field is filled out automatically*
  - ❖ **Group parameter under:** *Text*
  - ❖ **Type or Instance:** *Type*

15. Now click **OK**, in each dialog box.

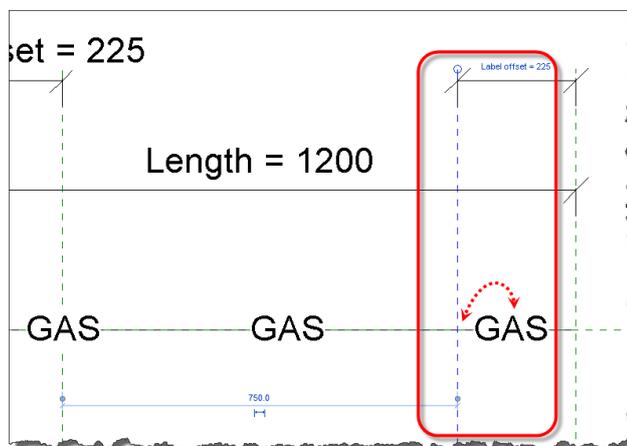
16. Select **Create (TAB) > Properties > Family Types** , the parameter will be noted under Text. Type **GAS** in the value field.



17. Click **OK**, and the label should automatically update.

18. It's a good point to save, so select **Save** . We are nearly finished just need to add an array command into the family and we will be done.

19. Select the linetype label and click **Array**  on the Ribbon.
20. On the options bar leave *Group and Associate* ticked, change the *Number* from **2** to **3**, and *Move To:* **Last**. Now select the left inner reference plane and then the right inner reference plane. You should now see **GAS** has been arrayed 3 times.  
If you select the right inner reference plane you may notice that the end **GAS** doesn't currently move with reference plane (As shown in below image).



21. Select the right hand label (GAS), following the same step 11. To select the label you will need to use the Tab key to cycle through, and then select the linetype label and using the **Align**  from the Ribbon.

**Note:** Don't forget to lock  the padlock.

Just before we test the new linetype we have created in a project we need to add one more parameter so we can control the number of text labels in the family otherwise we will only have 3 no matter how long we draw the line.

22. Select one of the linetype labels (GAS) the array lines should now appear on screen, pick one of the lines and from the Options bar Label, select the drop down menu, select **<Add parameter>**, fill out the details as follows:
  - ❖ **Name:** *No. of Label Instances*
  - ❖ **Discipline:** *Note these field is filled out automatically*
  - ❖ **Type of Parameter:** *Note these field is filled out automatically*
  - ❖ **Group parameter under:** *Other*
  - ❖ **Type or Instance:** *Instance*

23. Now click **OK**.

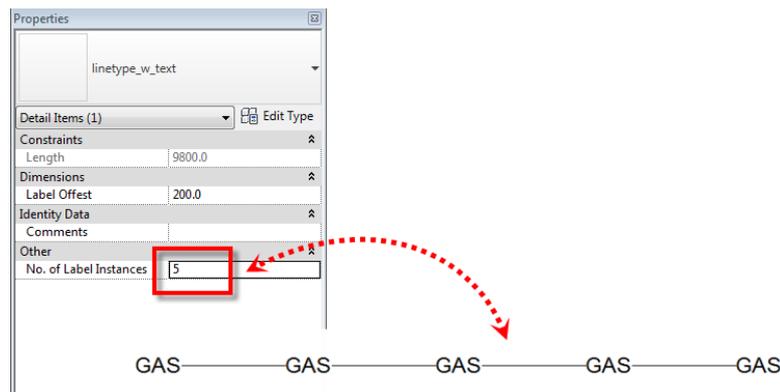
So if you select **Create (TAB) > Properties > Family Types** , the parameter will appear in the dialog box. If you change the value the number of labels should automatically update.

24. Now we are done so save your family, so select **Save** .

25. Open a blank project and test out your family by load in. Select **Load into Project**  from any of the Ribbons.



You will notice that it's only drawn 3 labels but you can change that in the properties window.



Another option would be to create a Formula which would adjust the number on labels automatically to the length of the line length.

If you need to set up different types then you can simply go into the Family **Types**  and add different types so you can select which ever linetype you need.

**Note:** This linetype family is only going to work for a straight line ONLY.

