

**Please Note:** If you're new to Revit, you may be interested in my "[Beginner's Guide to Revit Architecture](#)" **84 part**

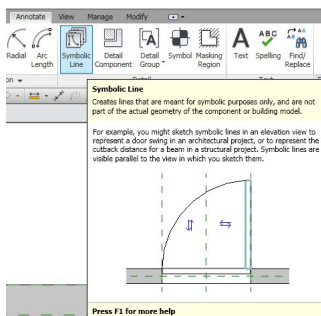
## video tutorial training course

. The course is 100% free with no catches or exclusions. You don't even need to sign-up. Just enjoy the course and drop me line if you found it useful. The [full course itinerary can be viewed here](#)

Welcome to the **fourth** part in this series of articles in which we explain how to create your own **Door Family**

using the Family Editor, in Revit Architecture. If you have missed the previous parts in this series,

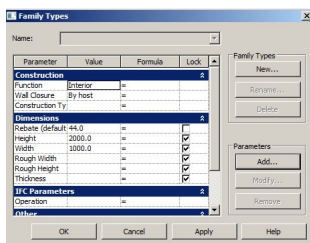
[you may wish to start here](#)



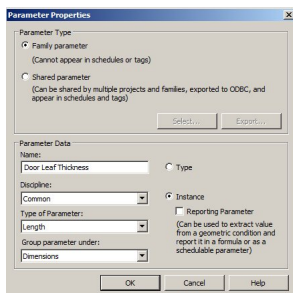
In the last few articles we looked at which family template to use, set up reference planes and dimensions in order to control our door and also formed a basic frame and architraves.

In this article we are going to create a door leaf and also introduce the concept of Symbolic Lines. We will also take a look at how you control the visibility of your 3D geometry- so that it displays correctly when you use it in a Project Environment.

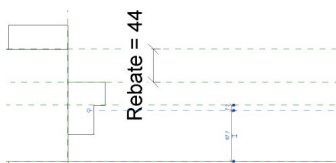
So let's crack on and create our door leaf. Just like the door frame, we are going to use a parameter to control the thickness of the door leaf. Let's go back in to the "Family Types" control panel and choose "Add" in the parameters section.....



I'm going to call this parameter "Door Leaf Thickness"- makes sense, doesn't it?! Again, it needs to be an "Instance" parameter- this is so that it can hold a different value on a door-by-door basis. Here is our "Parameter Properties" panel, for our new parameter.....

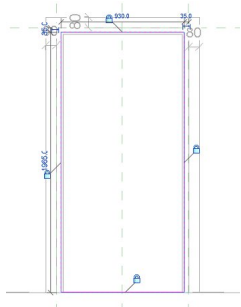


So let's go ahead and create our door leaf. We are going to make it using the "Extrusion" command. First of all, we need to define a new Reference Plane, which will control the placement of the extrusion. Go ahead and form a new Reference plane and name it "Face of Door Leaf".....



In the image above, you can see the new Reference Plane- and you will note that it's set back slightly from the face of the door stop. Again, if you wanted to you can easily add parameters and constraints to control exactly where this plan lies- for example- you may wish it to "always" be 3mm back from the face of the door stop- wherever that happens to lie.

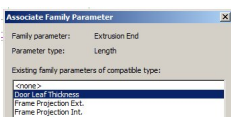
I'm now going to change to an Interior elevation view, change my Work Plane to the newly-created "Face of Door Leaf". I'm now ready to sketch the profile of the door leaf and form the geometry from an extrusion.....



Remember to **LOCK** your sketch lines onto the frame geometry. This will ensure that your door leaf automatically changes size, to match the width of the door opening. I cannot stress this enough: When you create a "parametric" component- you need to carefully consider the relationship between all the individual parts- and ensure that when one part changes, related parts do so as well.

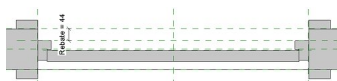
When you come to define the thickness of your Extrusion- remember that we want to control this “parametrically”- so go ahead and click on the little grey box at the end of the row marked “**Extrusion End**”.

You can now associate a parameter.....



If you get an Error Message stating that “the Extrusion cannot be created”, it is probably because the parameter “Door Leaf Thickness” has a value of **0**. Go ahead and set it to a non-zero value and try again- it should work this time.

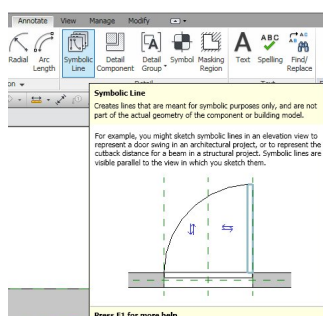
Going back to a plan view, you should now see your completed door leaf.....



You will note that I've switched to a "Shaded with Edges" view, so that you can see the various geometry more clearly.

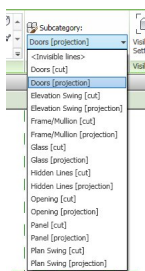
Right, it's all starting to take shape! We have an opening, a door frame, architraves both sides and a door leaf. At this point we're going to take a break from the 3D Geometry and talk about Symbolic Lines.

**Symbolic Lines** are lines that are used to depict conventions- such as door swings, etc. They need to be included in the Family element, but are not part of the solid geometry. It's going to be much easier to explain this by means of a demonstration rather than reams of theory. Let's go ahead and use Symbolic Lines to show door swing in Plan and Elevation. Let's start off with the Plan View first. Symbolic Lines can be found under the "Annotate" tab.....



There's only two things to remember about **Symbolic Lines**:-

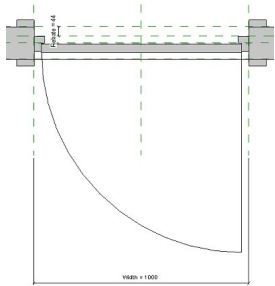
a) Remember to choose the right line type for the job. Most Family Templates have a number of Line Types already set up- that are appropriate for the category of element. For example, if we look at the type of Symbolic Lines that are pre-defined in the Door Template, we see the following:-



b) Make sure you set the appropriate Work Plane that you wish to place these lines upon. This is not so important in Plan Views, but does need consideration when you are working in

elevation.

OK. We are in a Plan View, let's choose **Symbolic Lines**, select "Plan Swing (cut)" as the subcategory and draw on the door swing. Here is my completed effort!



Now, the great thing about **Symbolic Lines** is that they only show up in the views that they were created in. So for example, when we use this door family in a live project, we will only see the Cut Plan Swing (we have just drawn) when we view the door in a “

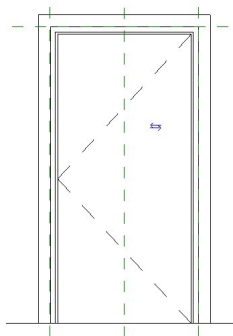
**cut plan**

”. Let's go ahead and add the Elevation Swings. As you may guess, we use the “Elevation Swing (Projection)” subcategory of lines for this.

Now what was the second thing I said you need to remember about **Symbolic Lines**??? That's



right, make sure you have the correct Work Plane set. So when you switch to your elevation view, go ahead and ensure the Work Plane is set to Exterior (if you picked the Exterior elevation)....



You can see in the above image that I've added my **Elevation Swings**. These lines should be visible from either side of the door.

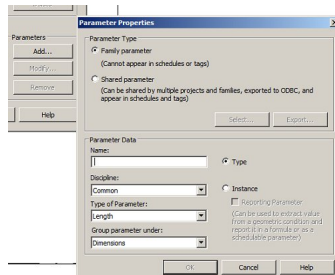
One last thing we're going to do in this article is add material parameters for the door frame, architraves and door leaf. In reality, you would do this as you create each element. But for the purposes of this tutorial, it's easier to deal with it as a separate concept. Defining material parameters is easy! You don't need to worry what the material is actually like when you are creating the family- you just need to make sure that every component that you need to have material control over, has a unique material parameter associated with it. So let's go into our "**F**

### amily Types

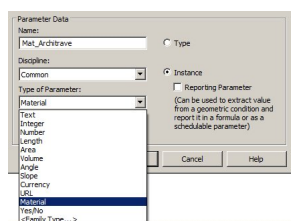
" control panel and select "

### Add

..." in the parameters sub-section.....

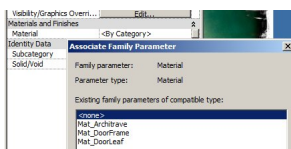


First of all I'm going to create a parameter to control the material used for the architraves. So I give it a name ("**Mat\_Architrave**"), I change the parameter from "Type" to "Instance" (and by now you should know why- if not, join our Forums and we can start discussing it!). And finally we need to change the actual parameter type to "Material"- choose this from the drop-down list.....



Repeat the above to create two more parameters called “**Mat\_DoorFrame**” and “**Mat\_DoorLeaf**”. Now all we need to do is click on each of the respective geometrical elements and associate it with its respective parameter. Let’s do the door leaf first. Select the door leaf and then take a look at its Element Properties...

Under the “Materials and Finishes” heading, you will see the Material selection box. Click the grey button at the end of the row to tell Revit that you wish to assign a parameter to it. Upon clicking the button you will be presented with a list of available parameters which may be associated....



Go ahead and choose “**Mat\_Doorleaf**”. Go ahead and do the same for the door frame and architraves. Remember, there are 2 architrave elements- one each side of the wall. You will need to assign “**Mat\_Architraves**” to both elements.

OK. We've covered quite a lot in this article. I hope it's all sinking in. If not, **PLEASE** ask- that's what we're here for. In the next article we will add a door handle- this will allow us to talk about the concept of nested components.