

# Revit Family Creation

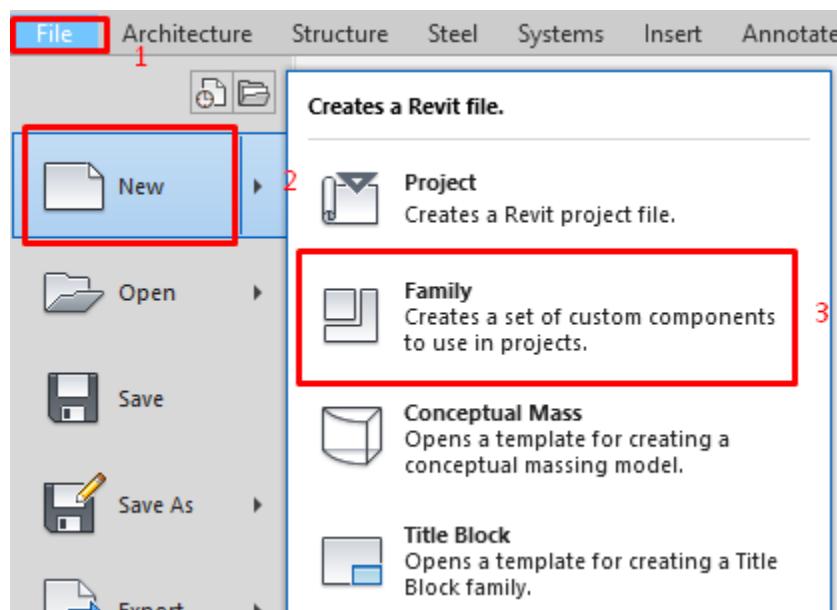
Or

Fighting With Software, a descent into madness

1) To create a new family click File

2) Then new

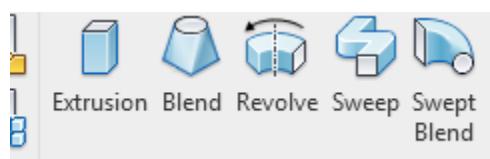
3) Then Family



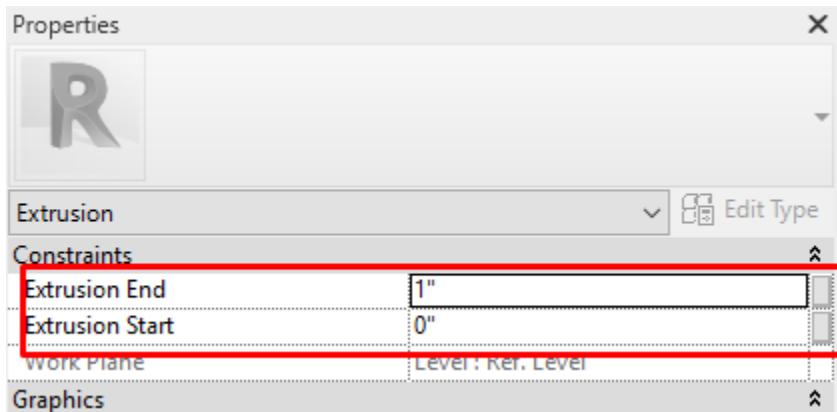
Most families will be made out of the Mechanical Templates folder. If the family you are making does not have a template pick one that is similar. If you need to create new parameters Create them the suite the family. For information on how to create parameters for families refer to Revit Schedules and Families: Family Parameters document.



To create your shapes select a view to draw in. Select the shape creator you want.



Draw the shape you want and pick extrusion start and end.



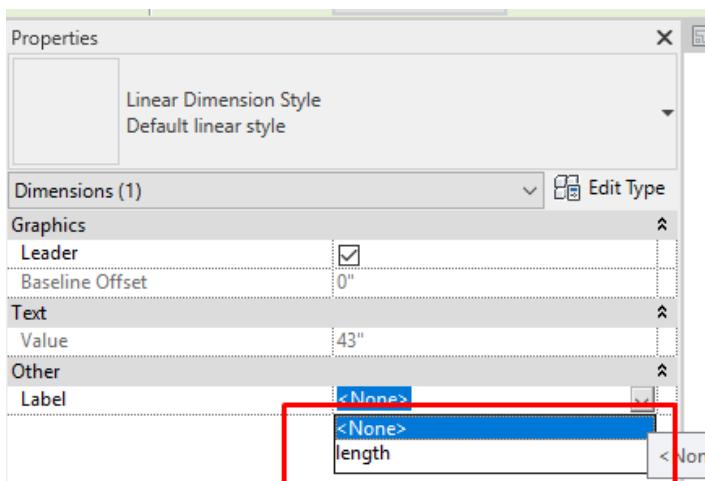
If you want to create dimensions that can be edited from the parameter editor, or make different sized families you need to make family parameters for these dimensions. Make the parameter name whatever corresponds to the spec sheet that you are using. Make the parameter length, or angle depending on what you need.

1) Make the value what you need.

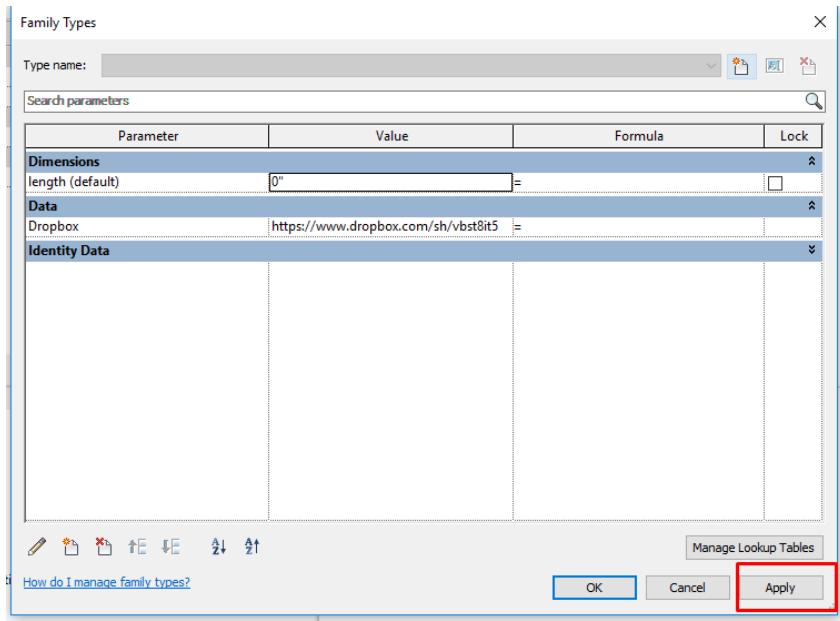
2) Lock the parameter so it stays what you set it as.

Parameter	Value	Formula	Lock
Dimensions			
length (default)	0"	= 1	2

Select your dimension, and click the Label dropdown, and select your parameter.



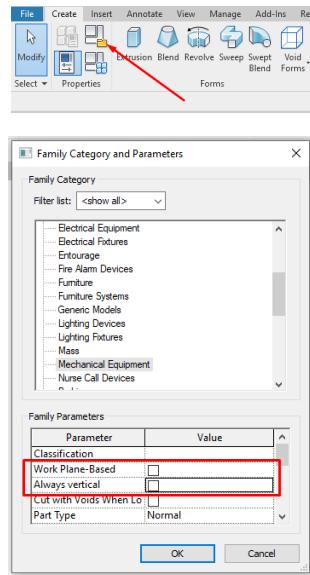
The parameter may not change the dimension immediately got into your parameter editor, and press apply.



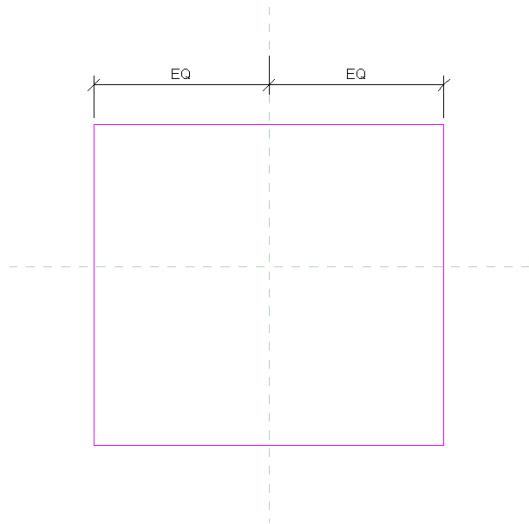
For information on creating parameters reference Revit Schedules and Families: Family Parameters document.

## Tips And Tricks

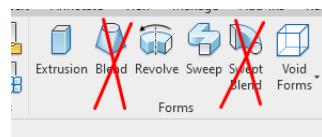
First, when creating a new family, make sure that always vertical and work plane based boxes are NOT checked. If they are checked and you start drawing, even if you uncheck them they will NEVER go back. Doing this gives the model more flexibility to rotate in 3D space and keeps things from blowing up if wall locations change.



When creating a new family think about where the insertion point should be, this is how the party will line up with the cursor on the screen. It is best practice to use as much symmetry as possibly unless you know that the family is always going to be fixed to a wall or something similar. To do this, draw your shape around the origin and use the dimension tool to add in an equal constraint. Please note that the origin coordinate axis are only visible in plan views (not 3D)



Revit has many tools for creating 3D objects, but in typical Revit fashion most of them don't really work. If you can't create whatever you need to make with extrusions, revolves and sweeps I would advise you to simplify your geometry. Most people who make families for Revit do not do so inside of Revit, they use Inventor or 3DS.



Creating extrusions at weird angles.

If you need to create an extrusion at an angle other than those orthogonal to the coordinate axis you can use a reference plane. It is important to note that reverence planes can not be moved with parameters, Revit wants them to be in a constant fixed location.

#### **Parameters:**

There are 2 types of parameters you can create, type and instance based. Type parameters are driven by the values you give them when creating the family, they can not be changed from within the project. Instance parameters can be edited from within the project. Instance parameters are useful for creating visibility options.

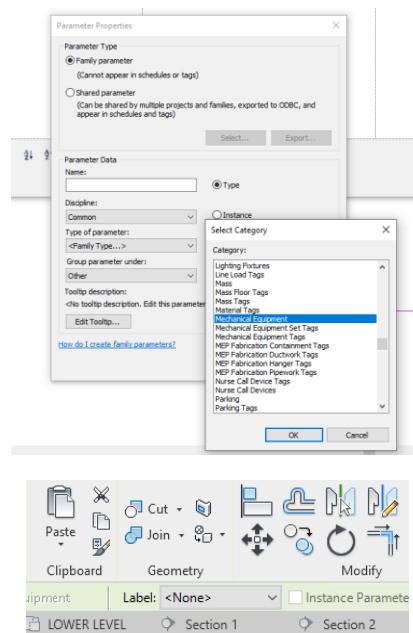
To create a visibility option, the type of parameter needs to be yes/no and the group needs to be visibility. This gives you a checkbox that you can use to turn on and off extrusions and clearance zones. Please note that you can not use this to turn off connector elements. They cant ever be turned off.

When adding shared parameters to a family there are two ways to go about it. You can add them in one by one by going through the menus, or you can do it in a batch process using parameter jammer, but

parameter jammer needs one family to exist in the project that is already configured with the parameters you want to copy.

## Nested Families

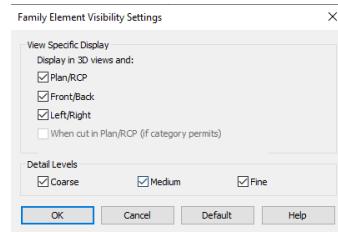
Families can also be placed in families to create assemblies with multiple components. You can also configure a parameter to specify which family to loaded in. To do this you need to create a parameter with the type of parameter being <Family Type...>. Make sure to select the correct category of the of the sub family your using. You will not be able to pull from it if you've got it as mechanical equipment and its actually set up as a plumbing fixture. After doing all that place the family in the main family, align it and mate it however you need. You need to give it a label so Revit knows which parameter your using to change the family that is loaded in. Revit is really picky about mating families with different sizes, it doesn't really want them to change location even if their mating surfaces have changed. One thing you can do to get around this is to create a length parameter from a common fixed point, such as the origin, and specify what that spacing needs to be. Also, very important to note that connector elements in sub families will not propagate into the main family. You'll need to manually go in and recreate all those connectors in the main family.



## Somethings Broke

Parts not displaying correctly in plan or some other view

Highlight all the surfaces and make sure the visibility overrides are set up correctly



If that doesn't work check for masked regions. A masked region is like a sticker that is applied over the surface of the model and can be a nightmare to troubleshoot if they are done incorrectly. Try clicking on one of the surfaces and tabbing through to see if a masked region exists. If it does, delete it.

If you tried all that and the problem still exists check if a nested family has a masked region. Sometimes you need to go 3 or 4 families deep to find that masking region.

You can't rotate a part or Revit deletes it if you try to

The part was set up as wall based or always vertical. You can not undo this. There are two options, either redraw the part from scratch or nest it inside an adaptive model. An adaptive model essentially gives the family a coordinate space that is separate from the rest of the project. It lets you rotate things that are not supposed to be rotated and do any number of things but in general it is more trouble than it is worth. If you can recreate the family easily, do so.

I found a model online but it's giving me all sorts of weird issues.

Just redraw it. It might seem counterintuitive but trying to fight with a family that was poorly drawn is going to take more time. Nine times out of ten starting with a blank slate is going to be your best option.

GRD flow parameter is not displaying correctly or is grayed out

GRD flow is a flow parameter, which Revit can use to auto size ducts and is dictated by the duct connector element. Click on the connector, under mechanical flow link that to grd air flow and it should work (MAKE SURE GRD AIRFLOW PARAMETER IS SET TO INSTANCE BASED IN THE FAMILY)

The direction of a connector element is not the direction of fluid flow. It is used for the auto sizing feature. It is the direction of data flow. For a duct system it needs to start with the register then into the duct, then into the air handler. In this way Revit knows how much air is going out each register, going through each branch and trunk.