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 **final** part in this series of articles in which we have explained 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 this article we are going to take a very quick overview of all the **key concepts** that we have covered in the previous 6 parts. I'm not going to go in to detail here, as we did that in the respective sections. What I would like you to take away from this article is a thorough understanding of the

key concepts
, the
thought processes
and
overall workflow

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In this particular series we have focused on creating a Door family. But the process and concepts can be applied (and "should" be) to virtually any type of family that you wish to create within Revit. With that in mind, I am going to keep the rest of the article fairly general.

So let's attempt to define a systematic process for creating a 3D component family using the Family Editor, in Revit:-

Picking the correct family template.

Revit Architecture comes with a vast array of family template files. It is crucial that you pick the correct one based on:-

a) The proposed category of element that you are wish to create. For example: If you are creating a new wall   cupboard family, you will probably want to use the "Casement" family template

b) Make sure you consider how your component needs to relate to it's surroundings. For example: Does it need to be wall-based, floor-based, face-based, ceiling-based, work-plane based, etc, etc. This will have a bearing on your choice of template.
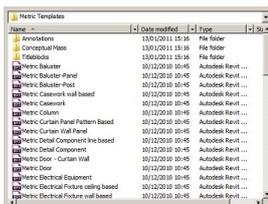

The image above shows you just some of the vast range of family templates you have to choose from. Remember too that most templates have appropriate symbolic lines styles and sub-categories already pre-defined. This saves you a lot of time and work.

Decide on what you need the component to do

Will your component be used in photo-realistic renderings? Do you require it for scheduling purposes? Does it "need" to be 3D or will a 2D symbol be sufficient. The answers to these questions (and more) will dictate how you go about creating your component. Remember the Golden Rule: You should keep the component as simple as possible- whilst also performing the function it needs to do. It may be very tempting to do a highly detailed 3D model of a desk- when in reality all you need to do is see it's footprint on plan and have it appear in a schedule.

Planning your "parametric strategy"

If you are creating a "fixed" component (i.e. it is one size and will always remain exactly the same) then this step is not so important to you. However, if you are creating a parametric component (c'mon- parametric is the future!), then I would strongly suggest that you create a "plan" or "Strategy" for your component "BEFORE" you start modelling. If you don't you may find you get yourself tied up in knots, when the model does not flex as you would expect. Taking a look at some of the parameters used in a door family that ships with Revit……..
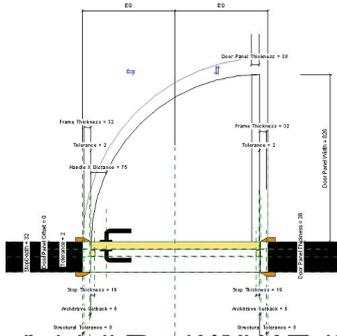
Place your key Reference Planes and labelled dimensions first

This point is closely tied in with the previous one. Try to form a "parametric skeleton" first BEFORE you start adding your solid geometry. As you get more experienced in creating component families, you will quickly learn that the "order" in which you create things, is just as important as the objects themselves.

Use the correct tools for the job!

Think about the geometry you are going to create. There is often more than one way to produce (what looks like) the same solid. Should you use an Extrusion or a Sweep, for example?

Depending on which method you choose, will influence where your Reference Planes need to be and what parameters (and / or formulas) you will need.

Type or Instance parameters

Give plenty of thought as to whether each parameter you create, needs to be a "Type parameter" or an "Instance parameter". In making these decisions, you will need to ask yourself "Do I need to vary the value of this parameter on an as-Instance basis; or would it be more beneficial to change the value once and have all Instances of the component change. The choice is yours!

## Assign Materials to your new geometry as you go along

It can be quite a pain to go back and edit every extrusion, sweep, revolve, etc; just so that you can assign materials to them. It is much better to assign material names as you create each piece of geometry.
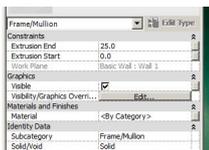
What "material control" you need over your finished component should be part of you "parametric strategy" that we talked about earlier. PLEASE NOTE: If you think there is a remote possibility that you may need to vary the material of an element once it is in the "project environment", make sure you create a parameter to store the material "value".

Break your components down into a number of smaller, logical parts

Where a component is comprised on a number of distinct sub-components; it is often a good idea to model these individually and load them into a "host" component. When doing so, think about whether you will need to "schedule" these sub-components from within the project environment. This will then influence whether you enable their "Shared" parameter.
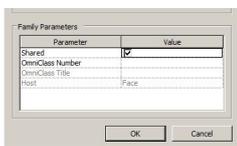
Remember: If you don't enable "Shared" before you nest your component into it's host and you subsequently wish to enable the "Shared" parameter; you will need to DELETE the sub-component from the Host file, enable the parameter and THEN load it back into the Host file. This can be a laborious process, so better to get it right first time!

Define Types

Save time for yourself and everyone who uses your components by pre-defining Types. This is obviously only applicable to real world components that come in a range of standard sizes-doors and windows are a prime example.

Flex your geometry

Parametric geometry can behave in unpredictable ways when pushed to extremes. Consequently, it is highly advisable that you "flex" (or "test") your geometry with realistic parametric values to see if you get the results you expect. For example if you create a parametric door family, how does it behave if you set it's width to 5mm, 1,000mm or 100,000mm? In reality, there will be a range of values that you would use for the door width-make sure the family behaves correctly for both ends of that range.

Conclusion

And that concludes our series of articles on creating your own custom door families. As you will have observed from the information in this last part, many of the key concepts and decisions that we have discussed are applicable to most other types of components that you may wish to create. Using the Family Editor and creating 2D and 3D components from scratch can seem a daunting and complicated process at first. But like anything, it gets easier and quicker with practise.