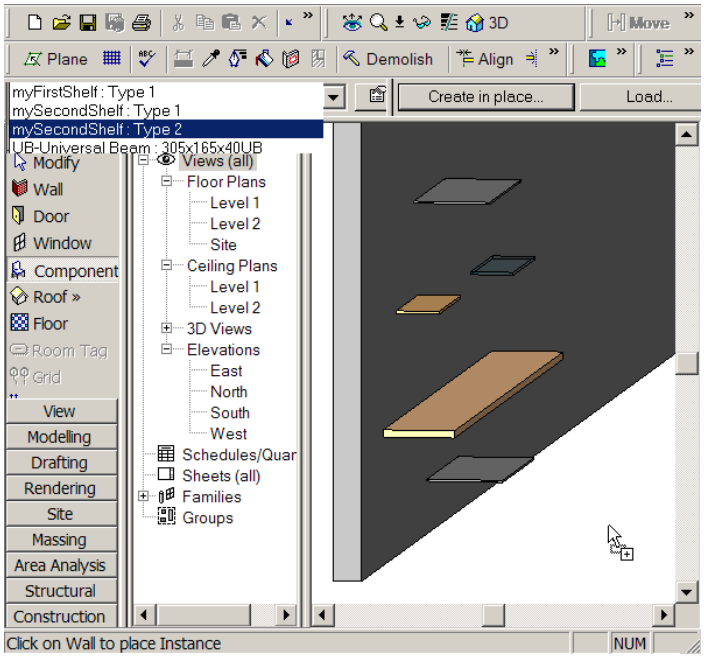
Making your own family-shelf to use as a component in a project

Here is an example showing the result of this tutorial. You learn to make to shelf-families. The first shelf with a formula and the second with two different types.



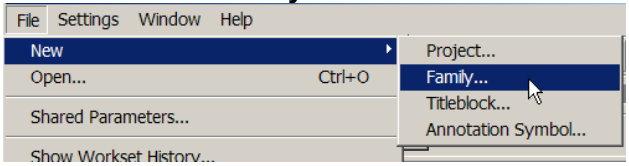
Before we start I hope you are familiar with that you can go to
Settings > Project Units to change to the metric system that is used in this tutorial.

And that you can use
View > Hidden Line and **View > Shading with Edges**
to change between two different looks of your views.

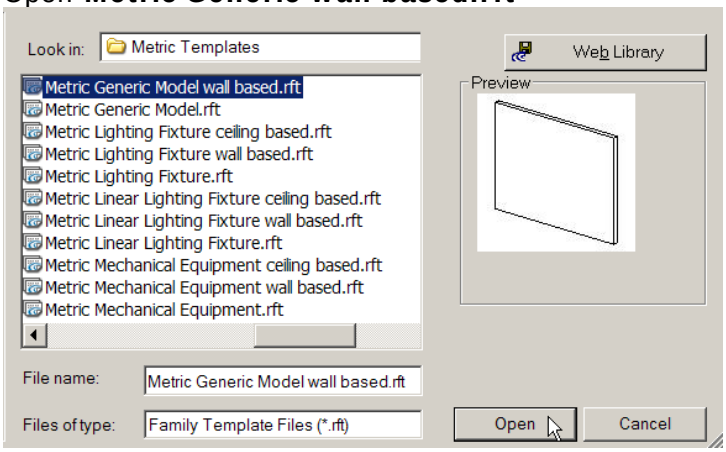
And that you can use function-key **F8** or go to
View > Dynamically Modify View to scroll, zoom and spin a 3D-view.

Start Revit.
You can close any open Project with **File > Close** to make it easier to orient yourself when starting making a family.

On the menu go to
File > New > Family...



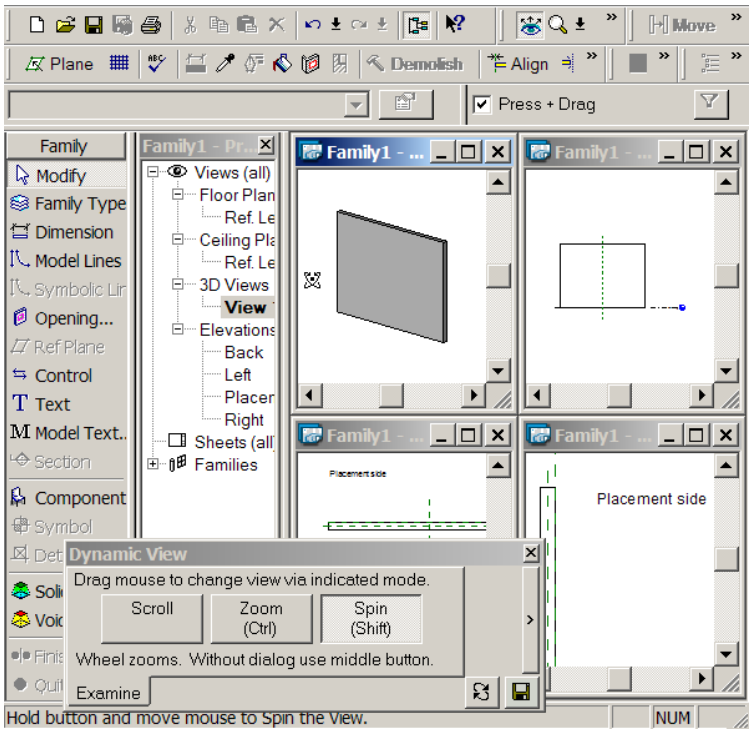
And you will be directed to the **Metric Templates** map.
Open **Metric Generic wall based.rft**



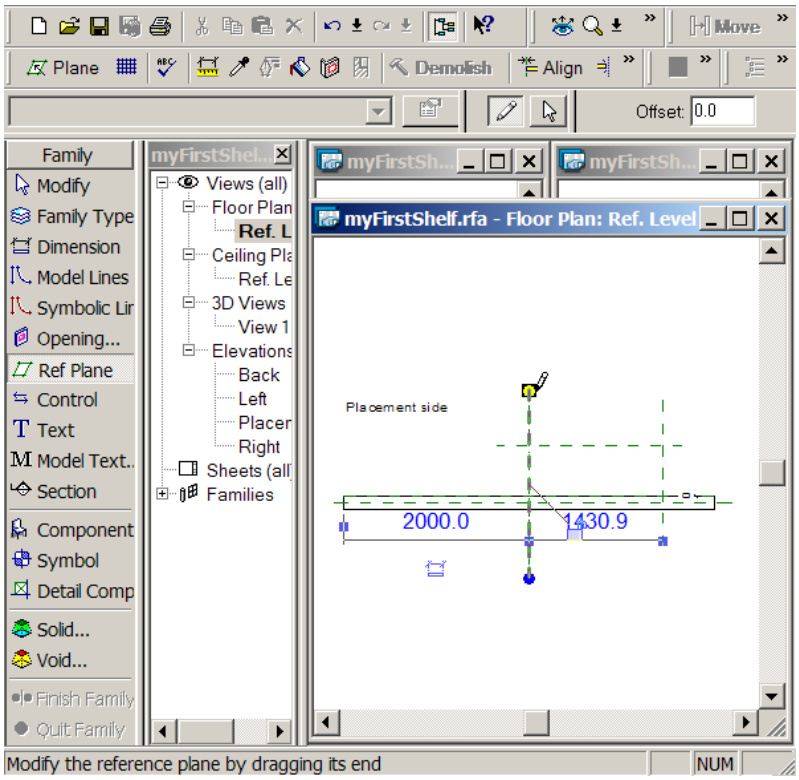
Use **Window > Tile** so you can take a look on the four views you get.
Expand the **Views(all)** in the **Project Browser** to take a look on what you have got of Floor Plans, Ceiling Plans, 3D Views and Elevations.

With **F8** bring up the menu to Scroll, Zoom and Spin the views to see that there is an empty **Placement Side**

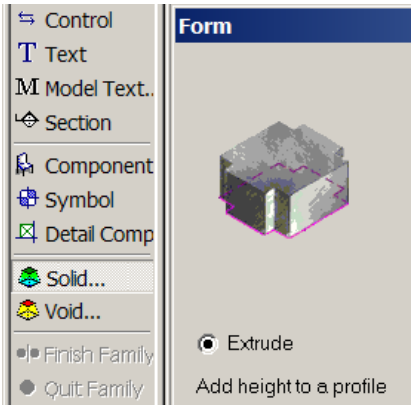
Go to **File > Save** to save the family-file as myFirstShelf.rfa or with some name that suits you. You can save it any map but to have a little law and order you can use the **Furniture** map you find in the **Metric Library** map. If you do not find the Metric Library map you can do a search for files with .rfa-extension. All family files have the .rfa extension. (Project files have a .rvt-extension)



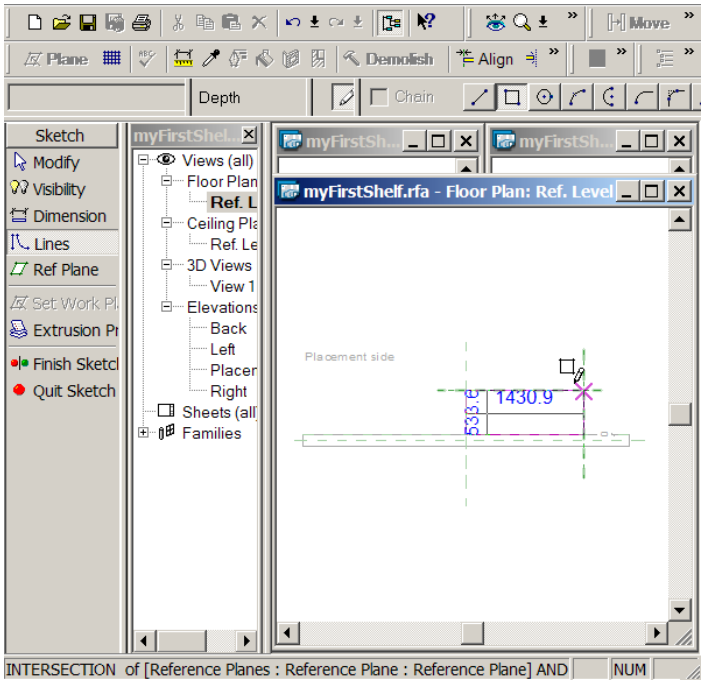
Expand the view **Floor Plan: Ref. Level**
Click the **Ref Plane** button on the **Design Bar**
Make three Ref Planes. Place the horizontal Ref Plane on the Placement Side.



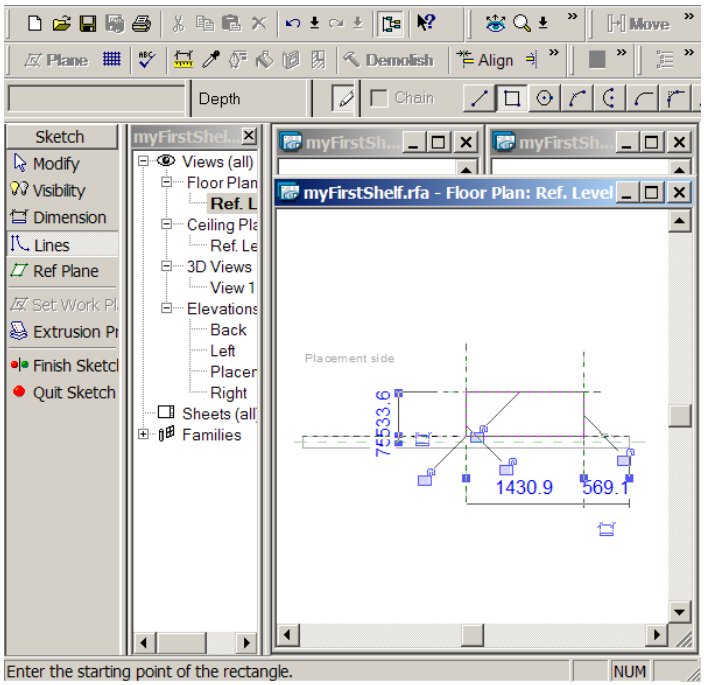
Click **Solid** on the Design Bar and choose **Extrude**



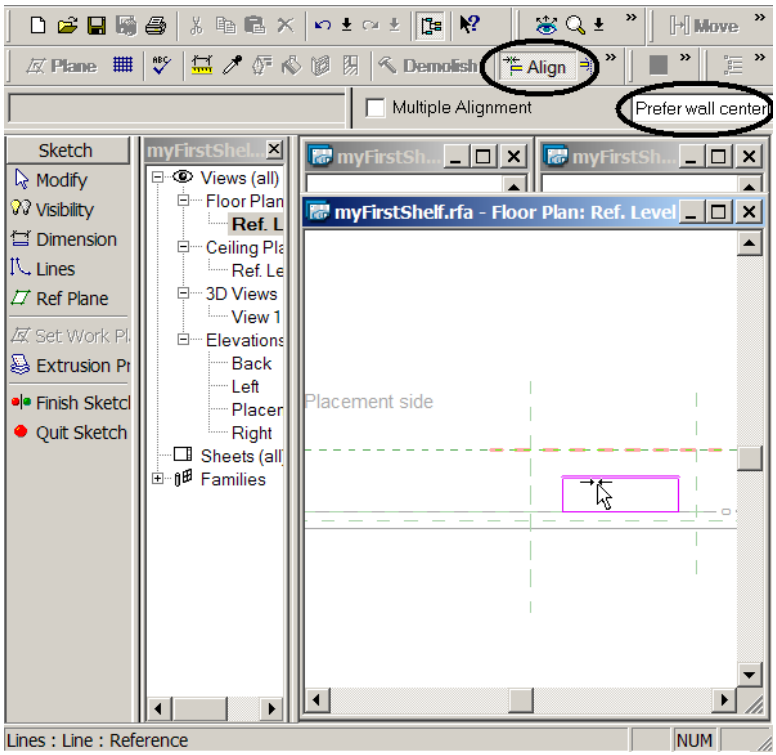
Use **Lines** on the Design Bar and the **rectangle** button to draw a rectangle resembling a shelf seen from the top.



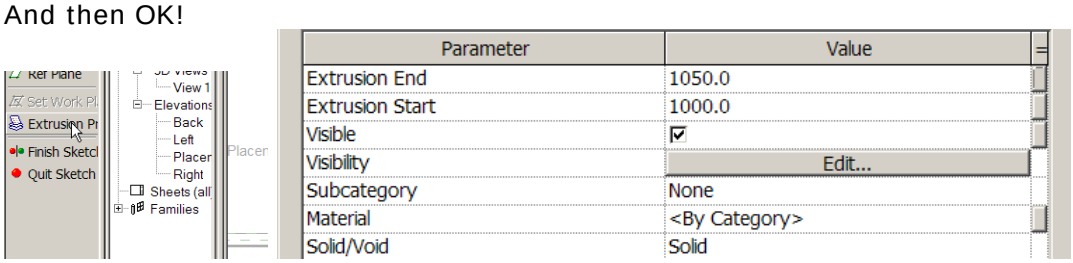
If you are lucky after drawing the rectangle you get four **locks** you have to click on to **close**.



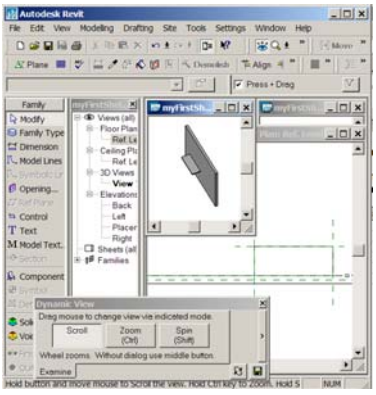
If you are not so lucky you have to use the **Align**-tool to **first click a Ref Plane** and **then a side of the rectangle**. That will bring up a lock that you can click on to close. It is important that you really lock all the four locks!
You have to choose Prefer wall center to align the line nearest the wall.



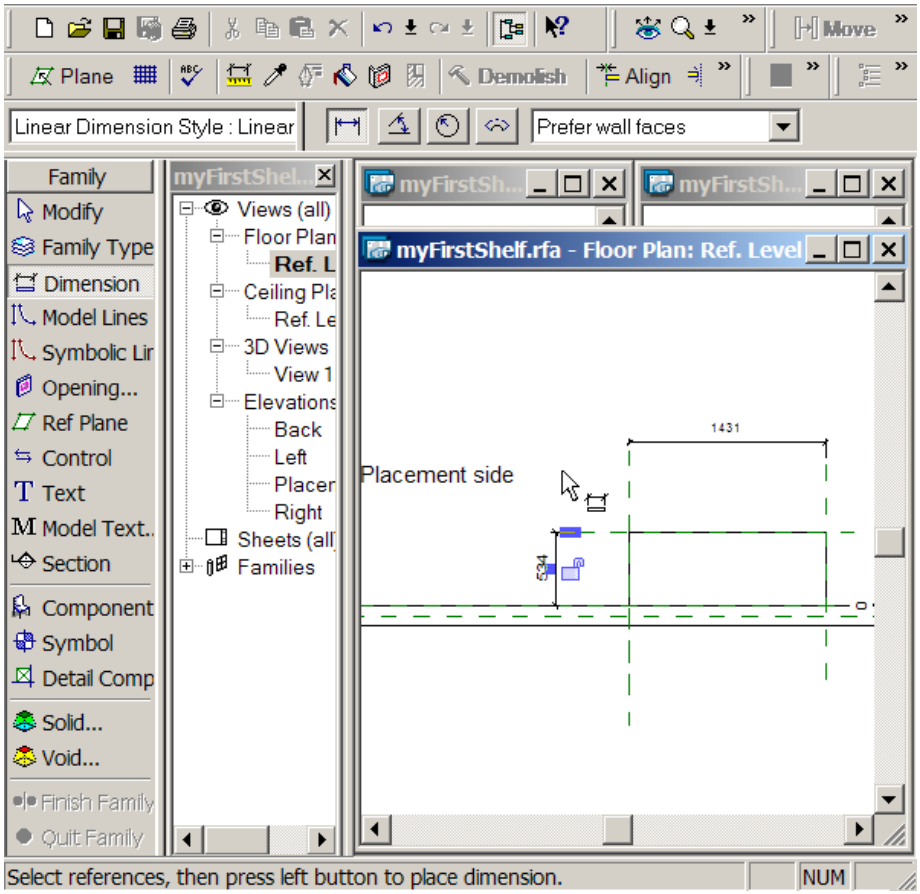
Click the button **Extrusion Properties** on the Design Bar to bring up the menu **Element Properties**
If you want to make a shelf beginning 1000 mm over the floor and being 50 mm thick you use the values **Extrusion Start**: 1000 and **Extrusion End**: 1050
And then OK!



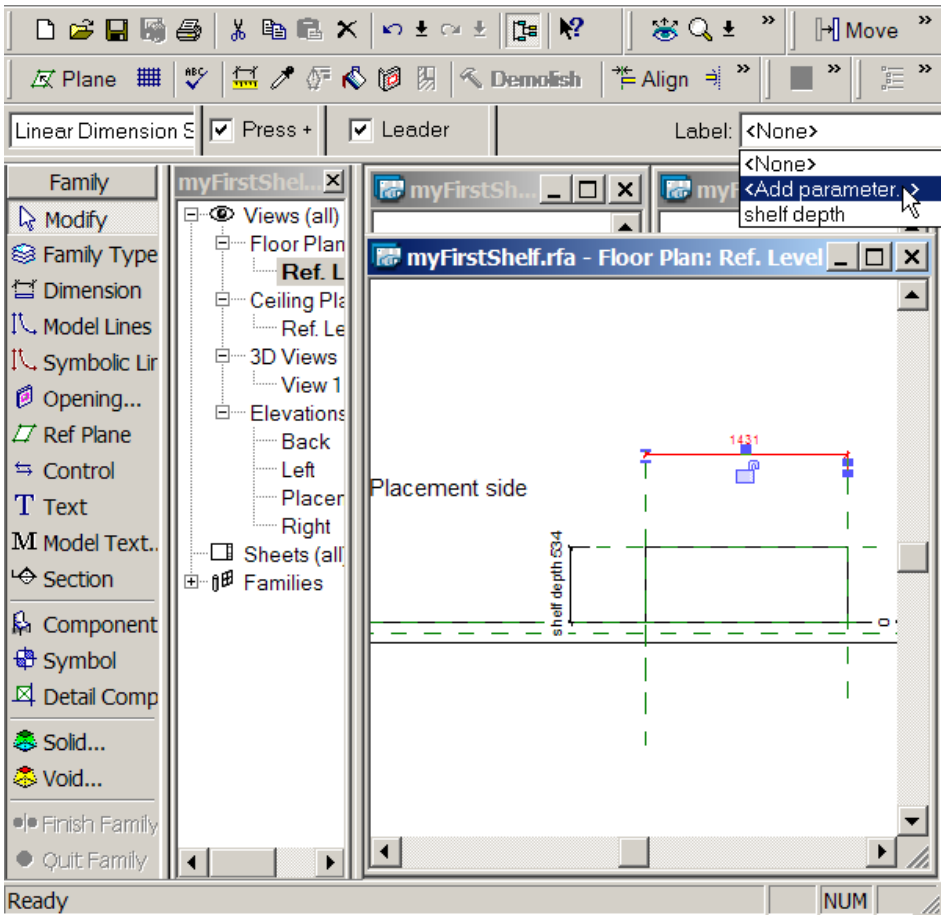
Click the **Finish Family** button. And take a look on the shelf in the 3D view



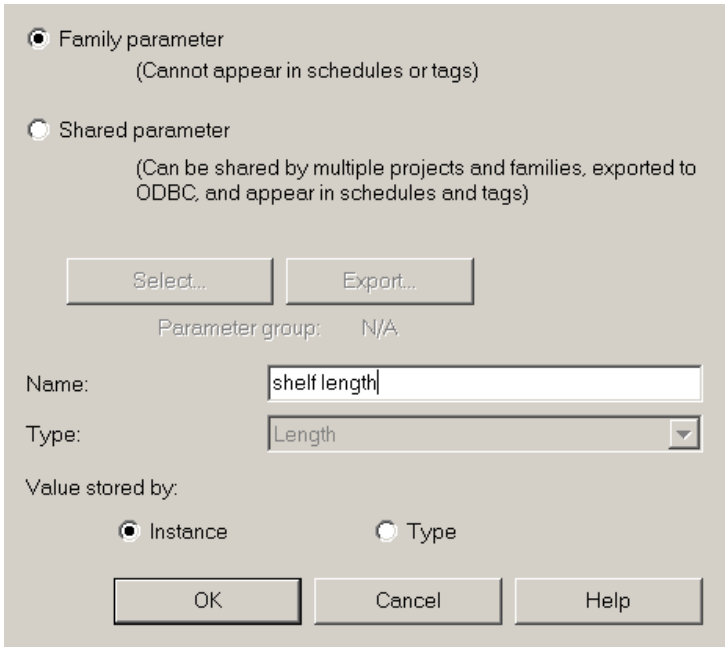
Use the **Dimension** button on the Design Bar to place the dimensions of the length and depth of the shelf. You have to choose **Prefer wall faces** to make the depth dimension. Do not lock the dimensions!



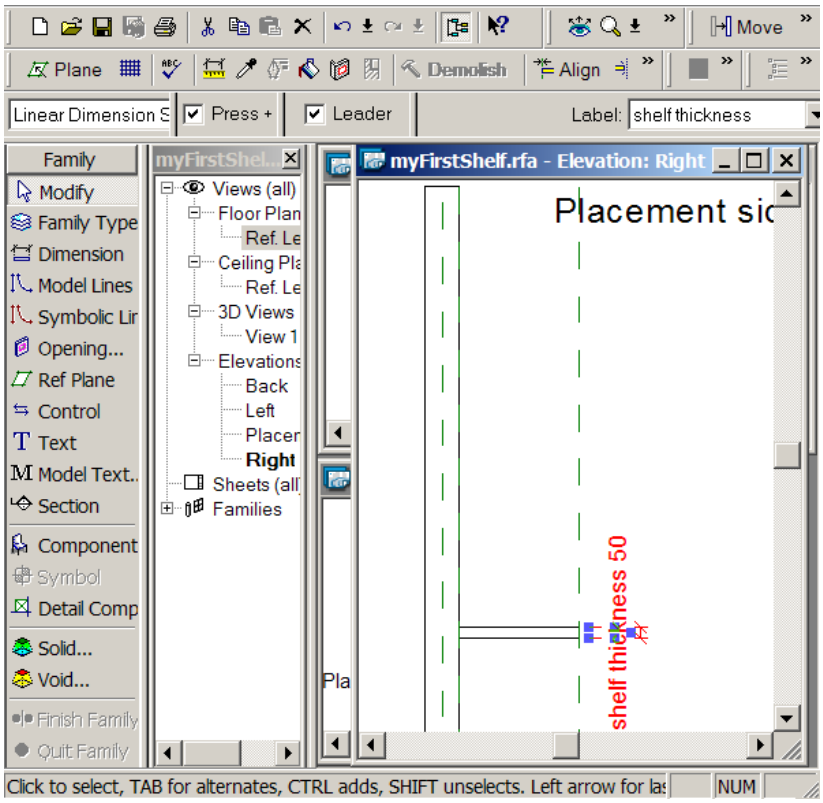
Use the **Modify** button on the Design Bar to select a dimension and then select **<Add parameter>**



Give the parameter some describing **name** and choose **Instance**.
I used **shelf length** for the length and **shelf depth** for the depth. Perhaps it is easier to use just length and depth.

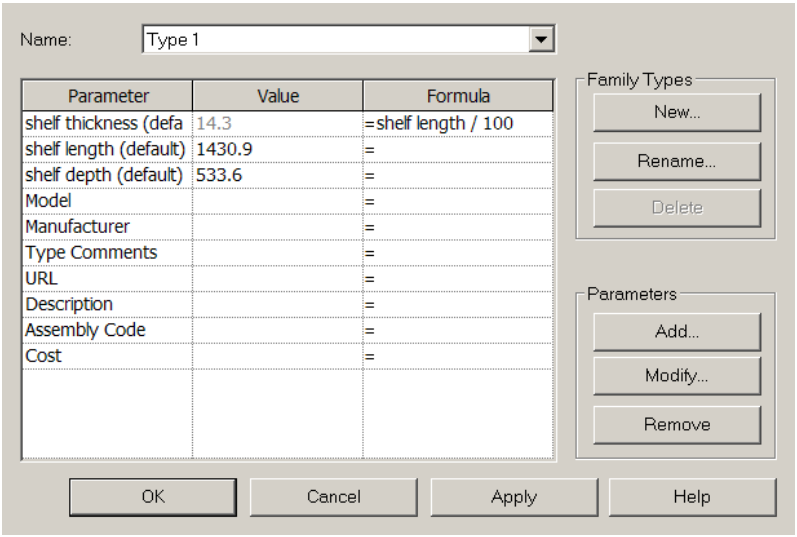


Bring up the Right view to dimension and to give the dimension a parameter eg. **shelf thickness**.

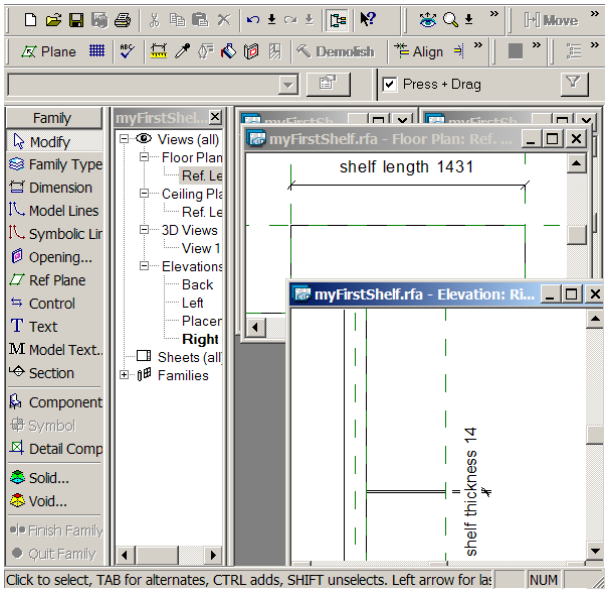


Click the **Family Type** button on the Design Bar and you will get a menu there you can write **shelf length / 100** to give the parameter **shelf thickness** a value depending on the length of the shelf.

The **parameter names are case sensitive** so if you have used some other name for the length of the shelf eg. LENGTH you have to use LENGTH written with capitals then you write the formula.



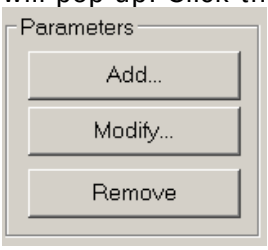
Click OK! to see the result.
This shelf had a length of 1431 mm, which resulted in a thickness of 14 mm.
1431 / 100 = 14 so that was correct.



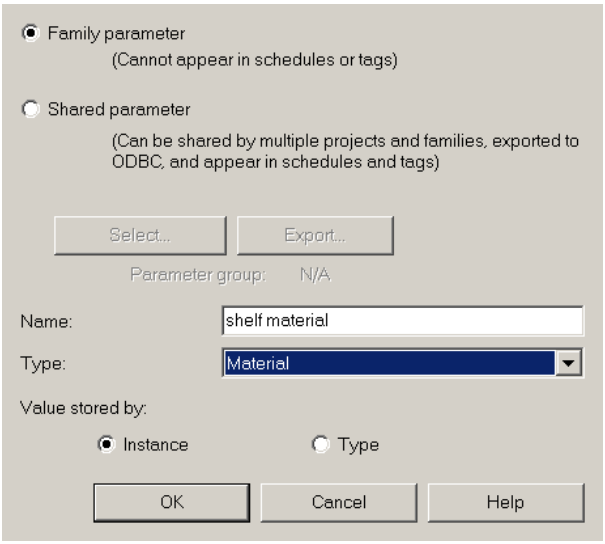
You can use other formulas eg. = 15 + shelf length / 100
Which will result in a shelf with a thickness that is nether less than 15 mm.

You can also use conditional formulas for the thickness eg.
If(shelf length < 1000, 22, 33)
which will result in a shelf 22 mm thick if the length is less than 1000 mm and 33 mm thick if the length of the shelf is 1000 mm or more.

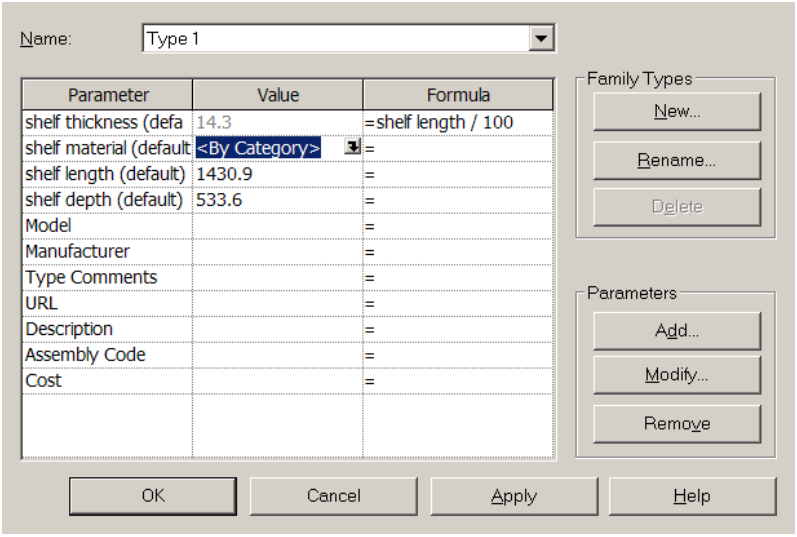
Now it is time to add a parameter for the material.
Click the **Family Type** button on the Design Bar and the menu for parameters will pop up. Click the button **Add...** under Parameters.



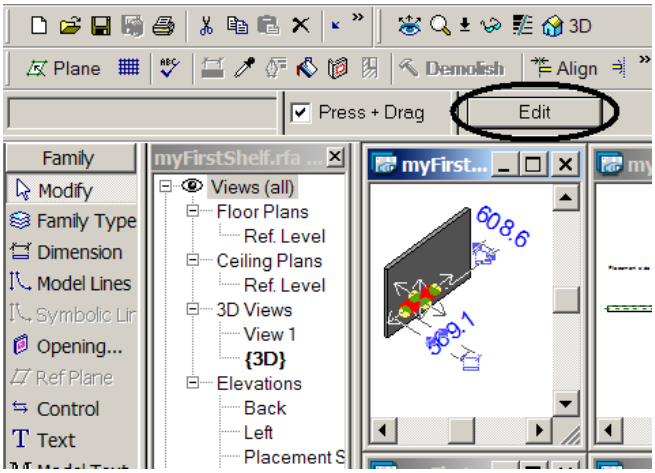
Choose **Instance**. And you can choose **Material** and write some **name** for the parameter eg. **shelf material**. Then OK!



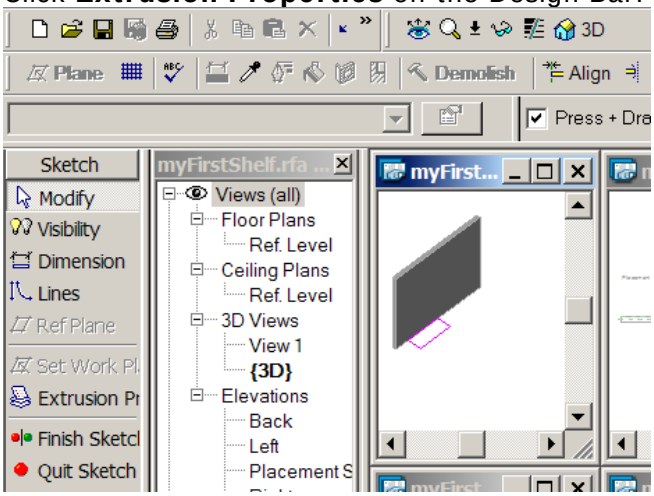
You will find a new parameter. If you like to you can add a default material by clicking the button to the right of <By Category>
Then OK!



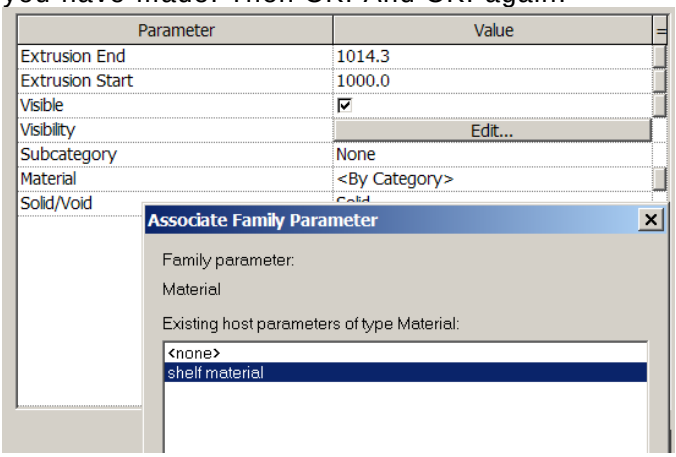
Select the shelf and click the **Edit** button.



Click **Extrusion Properties** on the Design Bar.

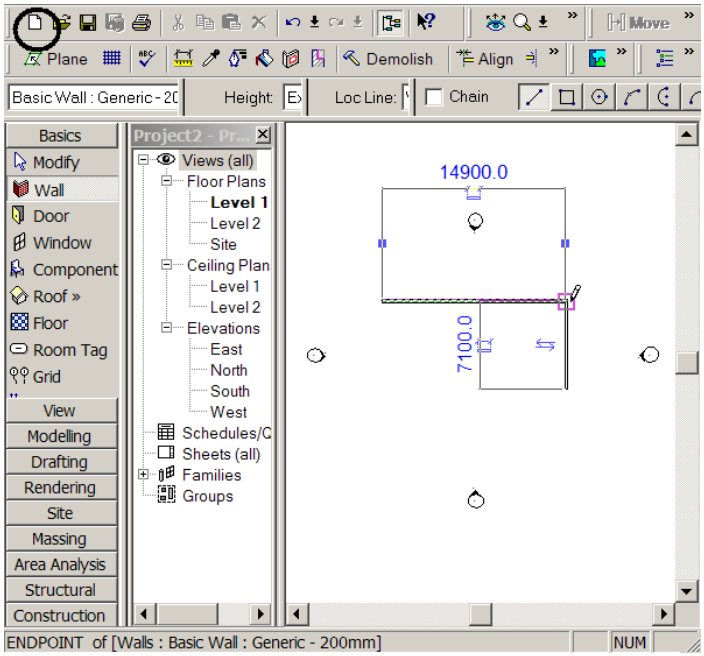


On the Element Properties menu click **the tiny button** to the right of Material <By Category>. And you can choose the name of the Material parameter you have made. Then OK! And OK! again.

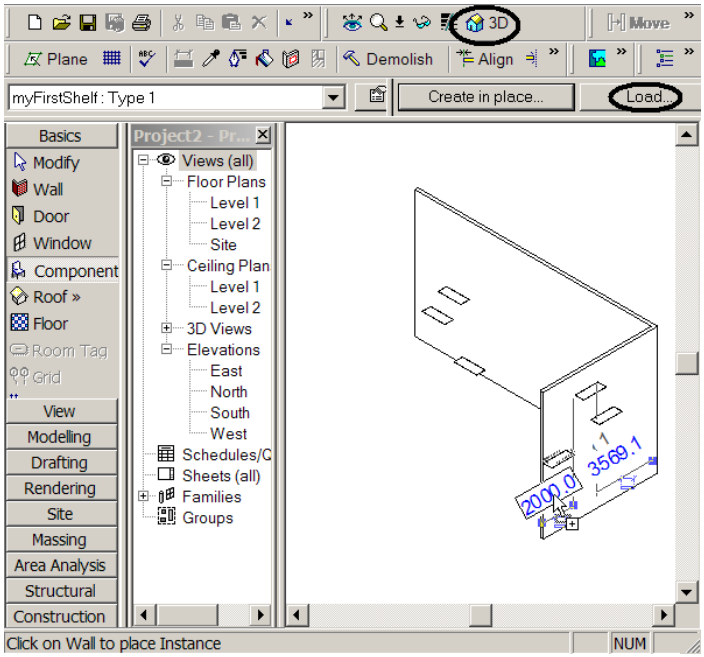


Now you are ready to test your new family. You have made a template for shelves of different lengths, depths and with a formula for the thickness and the possibility to give the shelves different materials; so now its time to go to **File > Save** and if you like to **File > Close**.

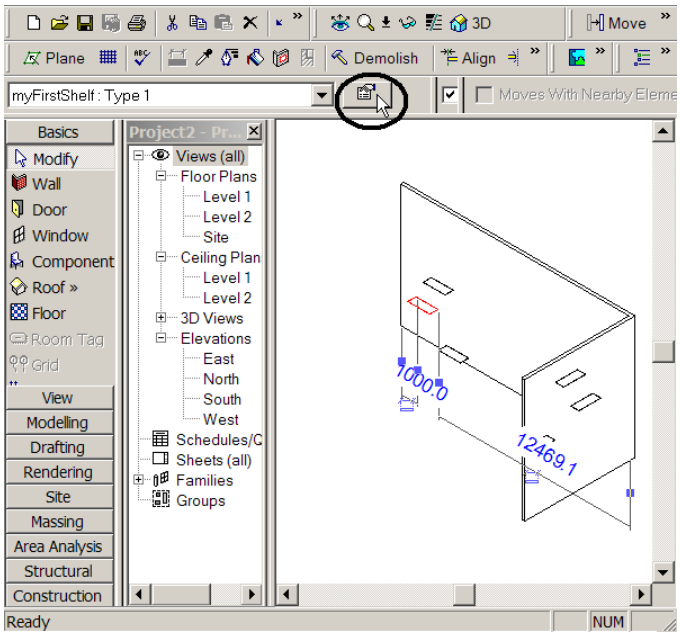
Click the button in the upper right corner under the menu to get a **new Project file(.rvt-file)**. Or go to File > New > Project and choose to make a new Project. **Save** the file as myShelfTest01.rvt or with some other describing name that suits you.
Click the **Wall Button** on the Design Bar you find under the **Basic-tab**. Make some walls.



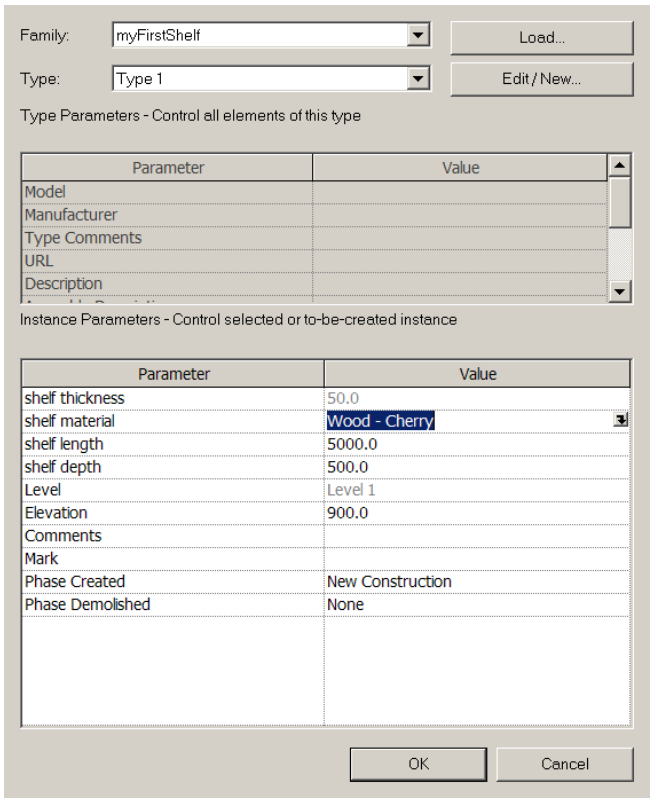
Click the **3D** button to bring up the 3D-view.
Click the **Component** button on the Design Bar and then the **Load** button.
And try to find the map with the family file - the .rfa-file with the your homemade shelf. And open it. Place some shelves on the wall to test.



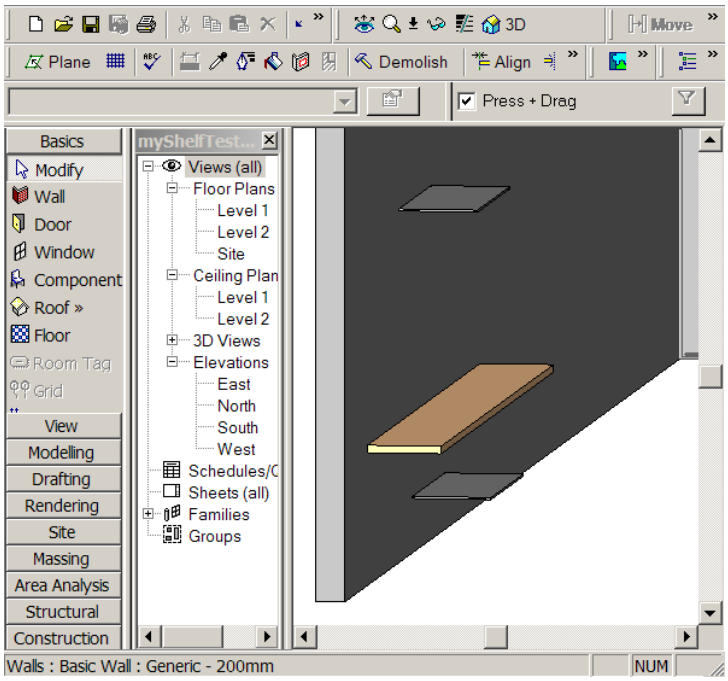
Select a shelf and click the **Properties** button or you can right-click the shelf and choose Properties.



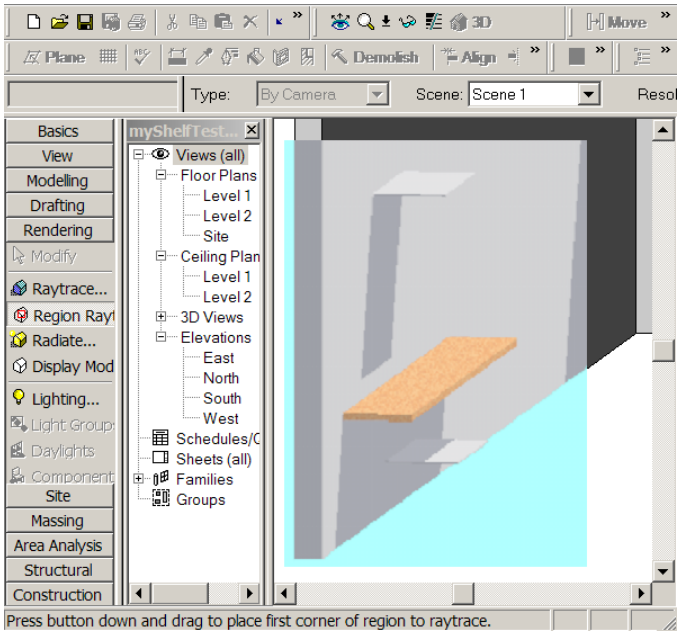
Choose some material for the shelf and some length and depth. Then OK!



View > Shading with Edges and you get some colour in the 3D-view. The shelf with the new Properties has got a different look than the other ones. You can see that the thickness of the shelf depends on its length.

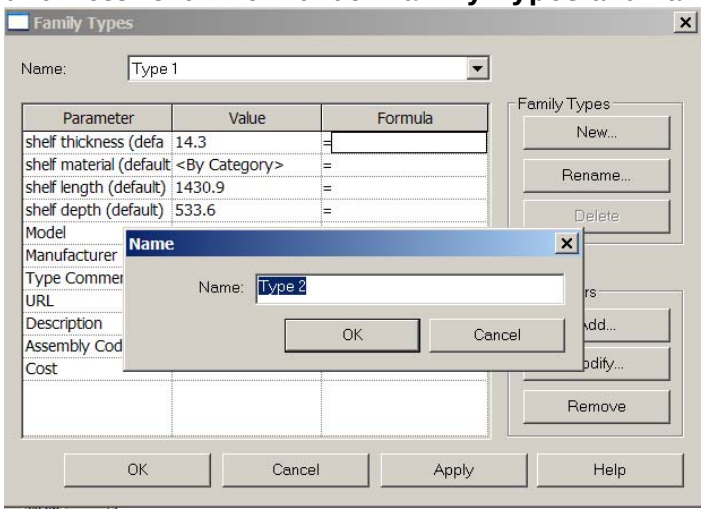


Region Raytrace on the **Rendering-tab** and you can see the new material on the shelf a little better. Click **Display Model** and you can go on experimenting.

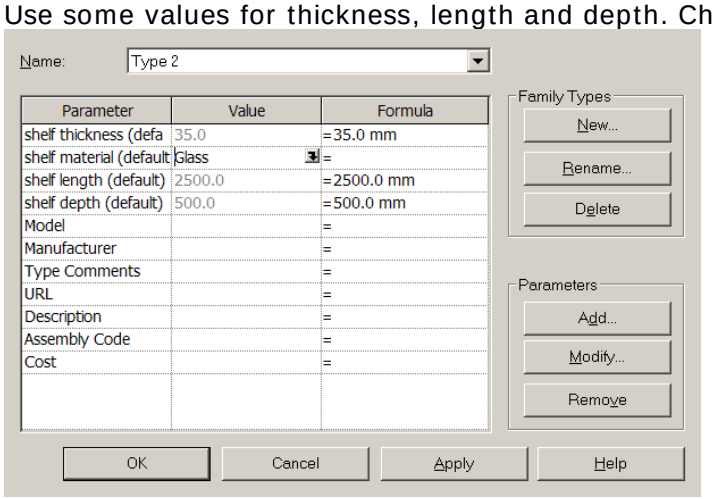


Now you have learnt to do an own family and use it as a component in a project. Hopefully you have understood that a family is a template for the different instances of it you use in a project.

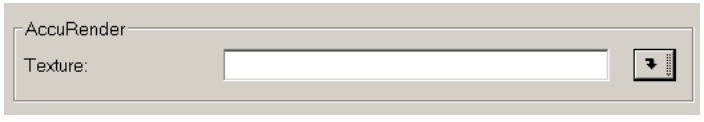
Let us not use a formula - instead let us create two different types of shelves. Open your first family file and **File > Save As...** and save it with a new name eg. mySecondShelf.rfa
Click the **Family Type** button on the Design Bar. **Delete the formula** for the thickness. Click **New** under **Family Types** and name the new type eg Type 2.



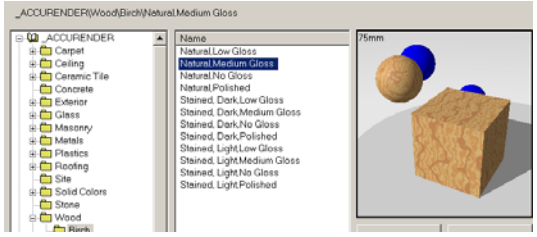
Use some values for thickness, length and depth. Choose Glass as material.



Choose Type 1 and give it other values for thickness, length and depth. And you can create a new material. Instead of using Glass as material click the Duplicate button on the Material menu. Then click the button for AccuRender Texture.

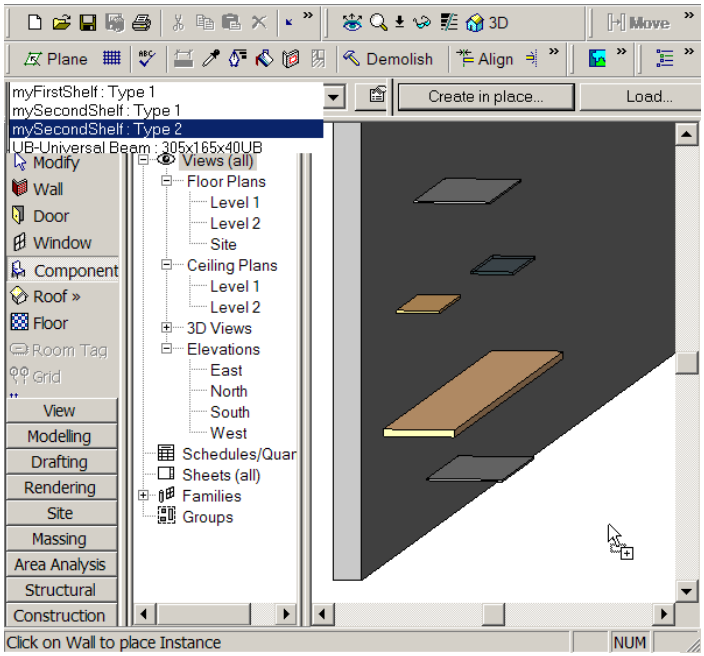


Choose some material from the Accurender library.



Then OK! And OK! and then **File > Save**.

Now you can load your new shelf Family as a component in a project file. And choose between Type 1 and Type 2 then placing the shelves on the walls.



There is a lot more to learn about Families. But now you know the basics. You can find more under **Help > Tutorial** in Revit Creating Families.

You can also find how to do a more complicated shelf under Creating Families > Working in the Family Editor > Adding Conditional Formulas to Control Family Parameters.