**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

The term "**flat roof**" can be a bit of an anomaly- because the majority of flat roofs are not quite flat. They are either built–up off an inclined sub-structure (ie the roof joists are slightly inclined, or firing pieces are added to them) or the insulation layer is tapered, to provide a slight fall (ie as with tapered cork insulation).
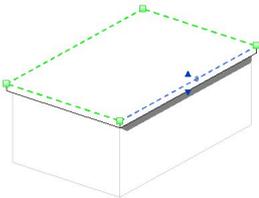

So how does all this relate to Revit? As you probably well know, Revit has the ability to define a flat roof element, comprised of different material layers. By default, each layer in this "sandwich" is of a uniform thickness. Consequently, the whole assembly has a completely horizontal top and bottom surface.

So how do we go about modelling a flat roof (which has a slight fall to it) in Revit. We could I suppose, just use standard roof element and add a slope to it- but the problem with that solution is that it slopes the entire assembly. We would like to be able to just taper a single layer in our sandwich.

Well we are in luck! Because Revit has the ability to make one or more layers in our sandwich "variable". This lets us create a tapered layer, thus forming the slight fall to the roof we require.

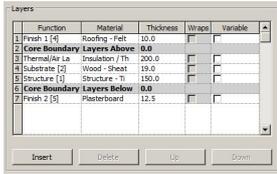In the image below, you can see the "**Edit Assembly**" for a basic flat room component…..
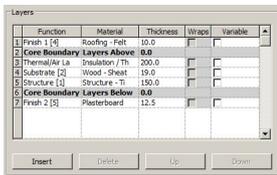
You will see the various layers that have been defined, which make up my roof element. Here is a graphical preview of that "sandwich"…..
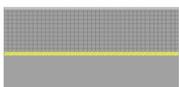
Please remember that this article is about how to model a flat roof with a fall to it- not a debate about the ideal composition of a flat roof construction! (Although I am more than happy to debate that subject in our "Other Topics" forum)
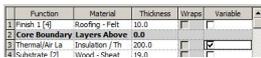
Now where were we? Ah, yes- how do we taper one of these layers. The answer is "very easily". Going back to the "**Edit Assembly**" panel……

You note the last column is headed "Variable"- and has a check box for each layer. Quite simply, if we wish to have a layer that is of non-uniform thickness, we just need to make that layer "variable" by checking its corresponding check-box. I'm going to go ahead and check the "Insulation" layer…
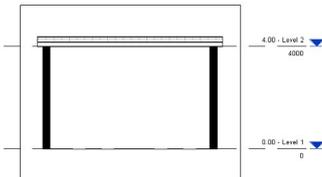

And that's all we need to do at this stage. We form the actual taper, once we placed defined the roof in the model. In the image below you will see that I have created a flat roof on top of a simple rectangular building…..
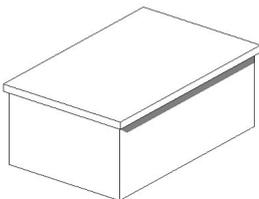
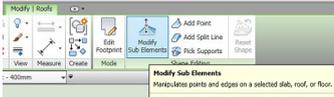If we take a look at a detailed section through the roof, we can clearly see our uniform layers…

So how exactly do we go about making the insulation layer tapered? Well, first of all switch to a 3D View. Then select the roof….
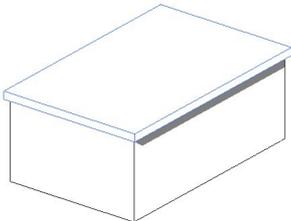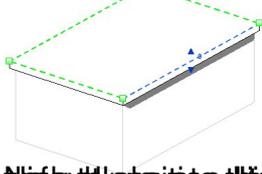

Now whilst the roof is selected, go ahead and click on "Modify Sub Elements" on the "Shape Editing" panel….

Edit and select one of the top edges. This should now be differentiated by a green …

Now for the vital edit, change the Elevation in the vertical "Distance Bar" that we …

If we now modify it to a section view, you will indeed see that it is the insulation layer that has …

And there we have it! We have successfully (and easily) modelled a flat roof with a tapered insulation layer.