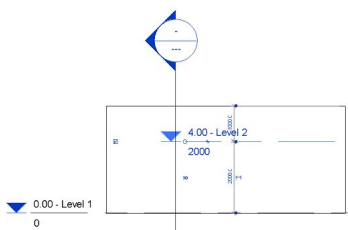


Please Note: If you're new to Revit, you may be interested in my "[Beginner's Guide to Revit Architecture](#)" **84 part video tutorial training course**

. 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](#)

In this article we are going to take a look at how **2D and 3D Extents** work in relation to **Levels**. And you probably know what I'm going to say next! Rather than just repeating the theory, we are going to use a simple building example in order to convey the principle.

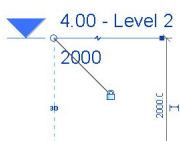


Hopefully by now, you are conversant and comfortable with the general concept of Levels within Revit. If you need a quick refresher on Levels in general, you may wish to read this article first before proceeding.

Let's start a new Revit Project and take a look at the default Levels that are created.....



Now, I have shorted the horizontal lengths of the Levels and moved them closer together vertically- this is just so they fit in to a screen shot a little better. It will make no difference to what we're going to discuss. Now I am going to select the upper Level. Upon doing so, I want you notice some important things....



At the left hand end of the Level line, there is an unfilled circle (it is at the other end of the line connected to the padlock). Also notice the text that says “3D”. In fact the unfilled circle and the text are related. The unfilled circle denotes the end of the “3D Extents”- a bit more about this in a minute.

Let’s take a look at the other end of the Level line.....



Again, another unfilled circle and the text “3D”. As you may have guesses, this is the other end of the 3D Extents. Don’t worry- all will become clear very soon.

What I am now going to do is click on the “3D” text....



How strange! The text changes to “2D” and the circle gets filled in. Yes, you’ve guessed it: A filled circle denotes the end of the 2D Extents. Now I am going to click in the centre of the filled circle and drag it to the left. This is what I am left with....



Now I have both the filled and the unfilled circles on screen at the same time. They were both there all the time- except they were sitting on top of each other. Think of each Level line as being two Level line on top of each other. A “2D Extents” line and a “3D Extents” line.

Let's now explain what the 2D and 3D Extents are. 2D Extents control what portion of the Level line you actually see on screen (and consequently, is printed).

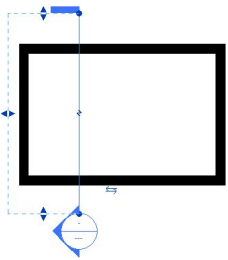
3D Extents is totally different. Think of the each Level as being a horizontal plane in 3D space, which has boundaries (or "Extents"). So what are these boundaries for? Well, they control whether the Level Lines actually appear in other Views.

And it's at this point that we going to go straight to a real example, before we become totally confused!

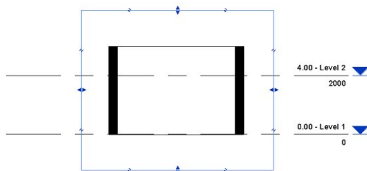
A simple building consisting of 4 walls. That's all we need.....



Two default Levels. Both Levels have there 2D and 3D extents set to the same distance. Now let's create a Section View....

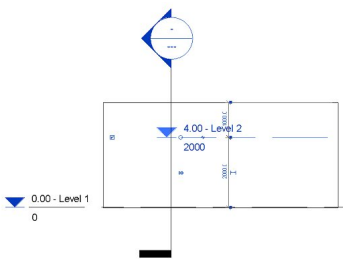


If we actually switch to the Section View, we can see the 2 Levels....

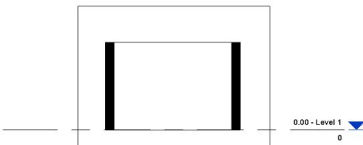


Now here's the crucial part: The ONLY reason that we are seeing the two Level lines in this section view is because the 3D Extents of the Levels intersects the clipping plane of the Section.

Let's go back to our Elevation view and shorten the 3D Extents of the upper Level, so that it is "outside" of the Section Line clipping plane.....



To do this I need to select the upper Level, "unlock" the padlock (which is locking the Extents of each Level together) and drag the 3D Extents over to the right. PLEASE NOTE how the "3D Extents" (the unfilled circle) of the upper Level is to the RIGHT of the Section Line. Let's now switch back to the Section view....

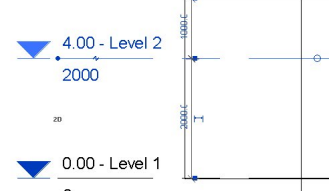


Redesign the 2D Extents in the Section View. OK, let's switch back (at the Section elevation)



For the 2D Extents, the extent aligns with the 2D Extents. As long as we have 3D Extents, 2D Extents are OK, even on

Once the level is filled, I can simply move the extent to the left by



with this 3D Extents, yes Section view will be 2D Extents. Section Level has been moved to the left!!

So to summarise....

The **2D Extents** controls the display of the line itself, while the **3D extents** controls whether the line will appear in other referring views. The same concept (2D and 3D Extents) applies to other datum planes within Revit such as Grids.