**ANNOTATIONSCALE**

There is a number of things that control how Annotationscale functions, we will try to list them here for reference.

1. Model Properties:
   1. Propagate Annotationscale: ON or OFF
   2. LinestyleScale: Annotationscale or Global LineStyle Scale
   3. Annotationscale Value: Can be set in various places.  
      Only one scale per model.
2. Elements:
   1. Apply Annotationscale: lock useannotationscale ON, OFF, or Toggle.  
      The icon appears in many places depending on the active command.
3. Reference files:
   1. Each reference file can have Annotationscale ON or OFF
4. Cells:
   1. Cells can be set to use Annotationscale or not in the Cell Library
   2. Cells that are annotation cells also require the annotationscale to be ON when placed to make them scale correctly

**Items**

There is a few things to be aware of when designing and creating Items.

1. Give a lot of thought to future changes that may be likely before putting the Item into operation, it can be a huge problem updating information across lots of files once the Item has been in operation.
2. If using Expressions, check that they work with all the element types they will be attached to.
3. Keep the information in the Items to the minimum required, use database or Excel reference for large amounts of data.
4. Items can be attached to cells in the cell library so that they already have the Item attached when placed
5. Items can be attached to Element Templates and whenever an element is placed using that template it will have the Item attached.
6. Item Types or Values can be Exported/Imported to/from Excel.
7. There is quite a bit of help available, search for **Item Types** in the Help

**Item Expressions**

Item Expressions have a very implicit syntax and at first for most of us it looks quite complex, and thoughts like how am I going to remember that next week come to mind, but it is fairly easy to find what you need if you know where to look. To find what you need for these Expressions you need to **select an element with the Item attached**, then open the **Named Expressions Dialog**, and click on **Utilities > Report Symbols** on the menu. That will open your browser to **Available Expression Symbols** and that will contain a complete list of Expressions available for the selected file and all its associated components. The syntax to use is the first line shown when you click on a listing, however there are a few quirks. To refer to another property of the same Item Type you just use this.Property and for an Element property use this.GetElement().property.

These Expression examples below are generally for any 2D or 3D elements that have an Area value, for 2D we need to get the EnclosedArea and for 3D we need to get the SurfaceArea. We also need a way to distinguish each element type to apply the correct part of the formula using the IIF(Expression,True value,False value) function. The returned value for area is in UOR’s so we need to divide the value by the UOR’s per Master Unit to get the area value in Master Units.

* **Area of 2D and 3D Elements (two decimal places)**
  + **System.Math.Round(IIf(this.GetElement().Is3DElement,this.GetElement().SurfaceArea/100000000,this.GetElement().EnclosedArea/100000000),2)**
  + **This works if in 2D file referencing both 2D and 3D files, but does not work if in 3D file referencing 2D file.**
* **Quantity Density x Area 2D or 3D to nearest larger whole number**
  + **System.Math.Ceiling(IIf(this.GetElement().Is3DElement,this.Density\*this.GetElement().SurfaceArea /100000000,this.Density\*this.GetElement().EnclosedArea /100000000))**
  + **This works if in both 2D and 3D files referencing both 2D and 3D files**
* **Total Quantities of IsArrayed Items**
  + **this.Plant(1).Qty+this.Plant(2).Qty+this.Plant(3).Qty+this.Plant(4).Qty+this.Plant(5).Qty+this.Plant(6).Qty**
  + **IsArrayed Items get distinguished by their ID number, each time you add another element to the array it gets the next sequential ID number  
    The problem here is that in the Tech Preview there is no way to use a formula in an array that is referencing another element of the same array, as you do not know which array ID to address until they are created by the user. This may be fixed in future releases.**
* **Total Quantities of Fixed Arrayed Items**
  + **this.Plant1.Qty+this.Plant2.Qty+this.Plant3.Qty+this.Plant4.Qty+this.Plant5.Qty+this.Plant6.Qty**

**Reports**

There is lots of videos around to show you what you need to create and use Reports.

Here is a few

<https://communities.bentley.com/products/microstation/w/microstation__wiki/32458/how-to-run-a-report-on-location-of-cells-and-place-as-a-table>

<https://communities.bentley.com/products/microstation/b/microstation_blog/posts/reporting-for-cad-administrators-cell-count-reports>

We will make lots of information like this available through links on our website <https://bugva.org/hints-tips-links/>