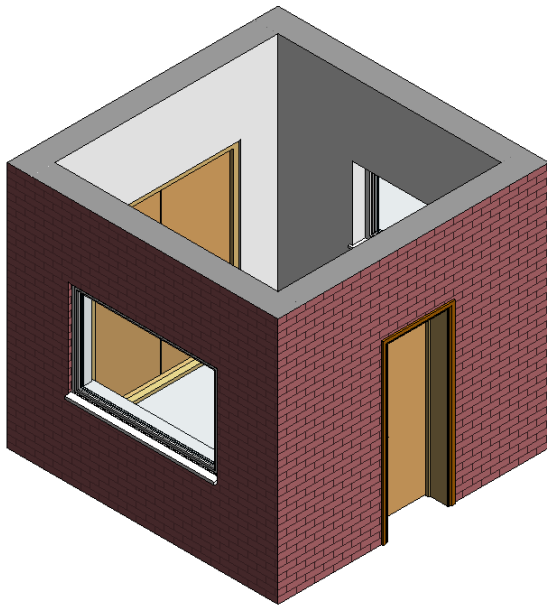


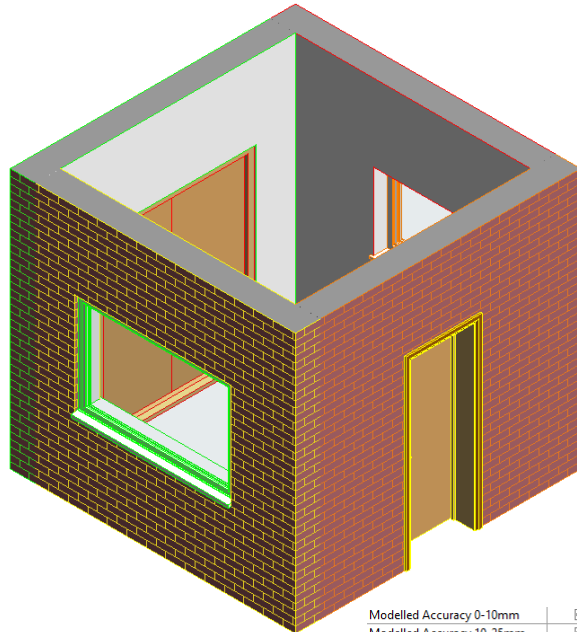


3D View Coloured by Accuracy Parameter Value Tutorial

By following this tutorial you will be able to create a custom 3D view that uses a traffic light system of shading to give an immediate visual indication of the accuracy of modelling of each individual item in the project.



Default 3D View



Modelled Accuracy 0-10mm	<input checked="" type="checkbox"/>	
Modelled Accuracy 10-25mm	<input checked="" type="checkbox"/>	
Modelled Accuracy 25-50mm	<input checked="" type="checkbox"/>	
Modelled Accuracy Over 50mm	<input checked="" type="checkbox"/>	

Custom 3D View based on Modelled Accuracy parameter

Tutorial Video and Revit File Download

This tutorial is also available as a video. Please visit the Revit Training page of our website and scroll down to the Tutorials section. Here you will also find a Revit 2016 .rvt file containing the completed tutorial including the custom 3D view and all the created filters.

<http://www.bonningtonsurveys.co.uk/revit-training.php>

Tutorial Process

Add a custom parameter to your project.

Use this parameter to document how accurately each element is modelled compared to its surveyed position (e.g. maximum deviation from point cloud data).

Create a new 3D view.

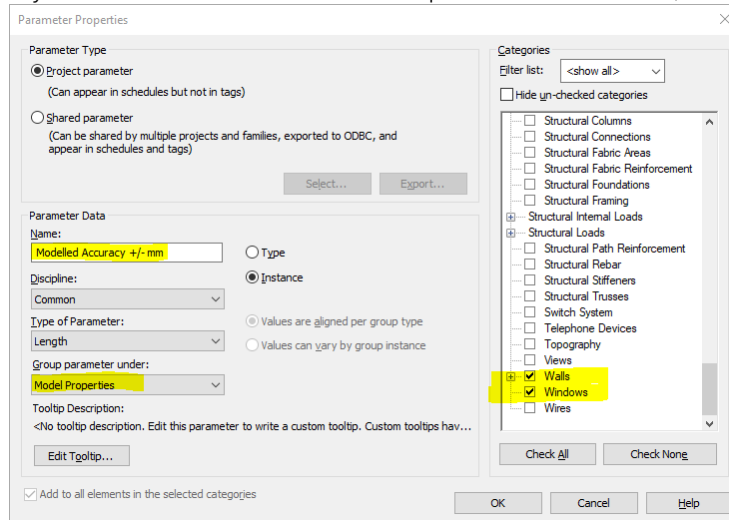
Create rule-based filters based on the parameter values to sort all modelled elements into bands (e.g. 0-10mm, 10-25mm, 25-50mm, over 50mm).

Apply visibility/graphics overrides to 3D view based on these filters to show the model coloured by the accuracy bandings.



Creating a Custom Parameter

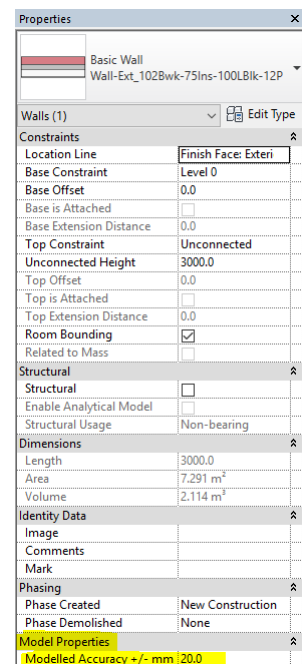
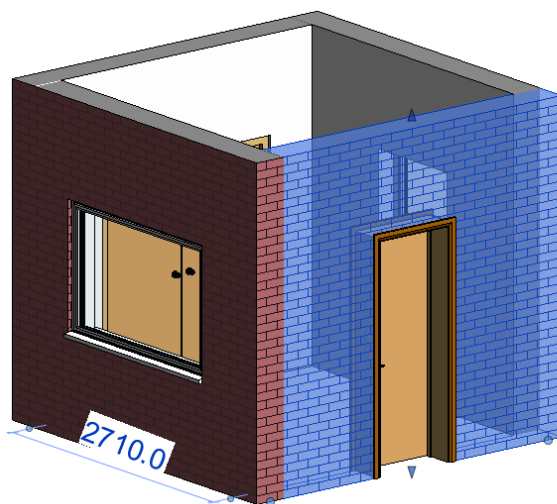
1. Manage -> Project Parameters
2. Click on Add...
3. Enter a name, e.g. 'Modelled Accuracy +/- mm'.
Change the 'Group parameter under:' option to 'Model Properties'.
Tick all the categories you wish to include. For this example I will select Doors, Walls and Windows.



4. Click on OK and the 'Modelled Accuracy +/- mm' parameter we have just created is now shown in the list of available parameters for your project. Click on 'OK' again.

Assigning Values to Custom Parameter to Document Modelled Accuracy

5. Select a Door, Wall or Window in your project.
Look at the Properties for that object. You will see that there is now an extra property, listed under the group 'Model Properties'. This is our newly created parameter 'Modelled Accuracy +/- mm'.

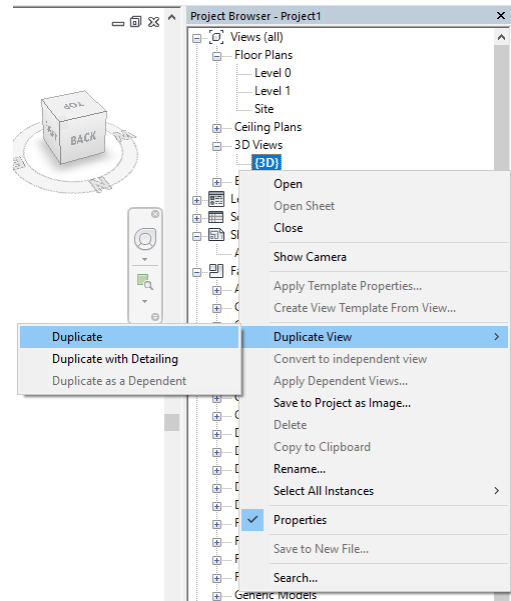
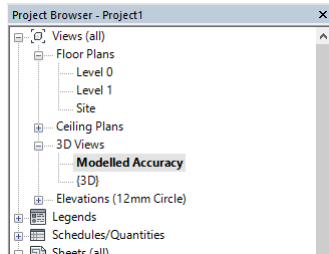


6. You can now assign a value to the 'Modelled Accuracy +/- mm' parameter. This will typically be the maximum deviation of the object from the point cloud data.
7. Repeat this for all Door, Wall and Window elements in your model.



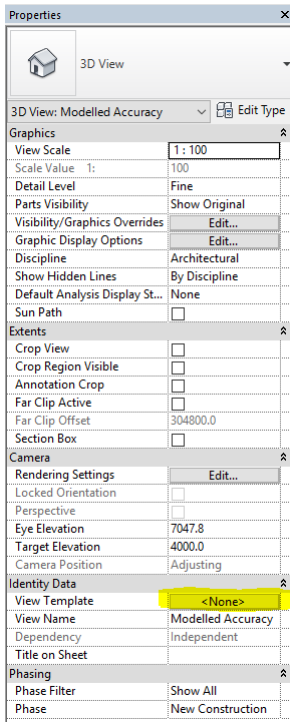
Create a Custom 3D View

- In the Project Browser right-click on the 3D View called {3D} and select Duplicate View -> Duplicate
Right-click on the new view called {3D} Copy 1 -> Rename...
Enter a new name, e.g. 'Modelled Accuracy'

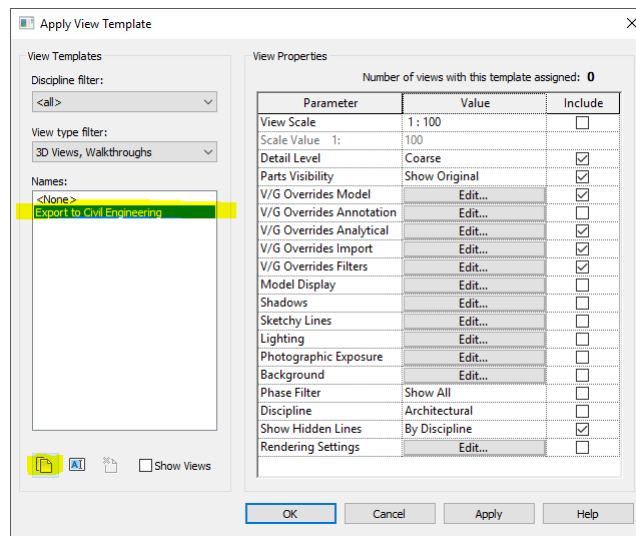


Creating View Filters for 3D View

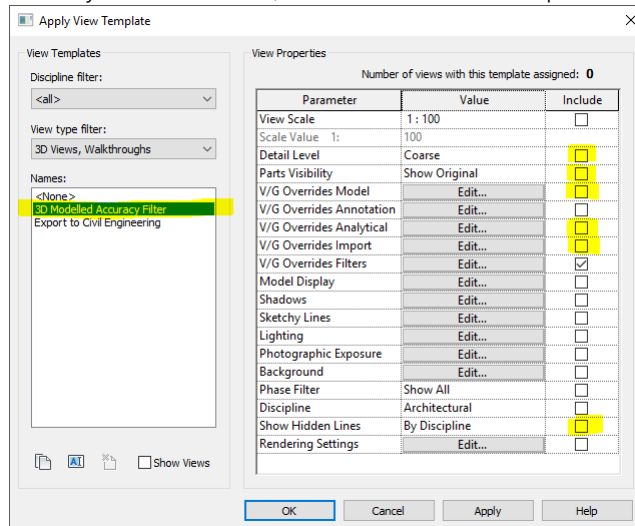
- In the Properties for the 3D View 'Modelled Accuracy' select the View Template button labelled <None>



- Click on 'Export to Civil Engineering'
Click on 'Duplicate'
Enter a new name, e.g. '3D Modelled Accuracy Filter'

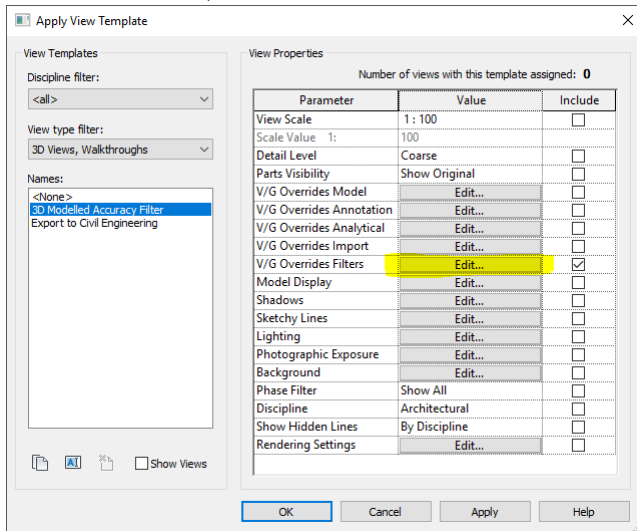


- With '3D Modelled Accuracy Filter' selected, untick all the Include options except 'V/G Overrides Filters'

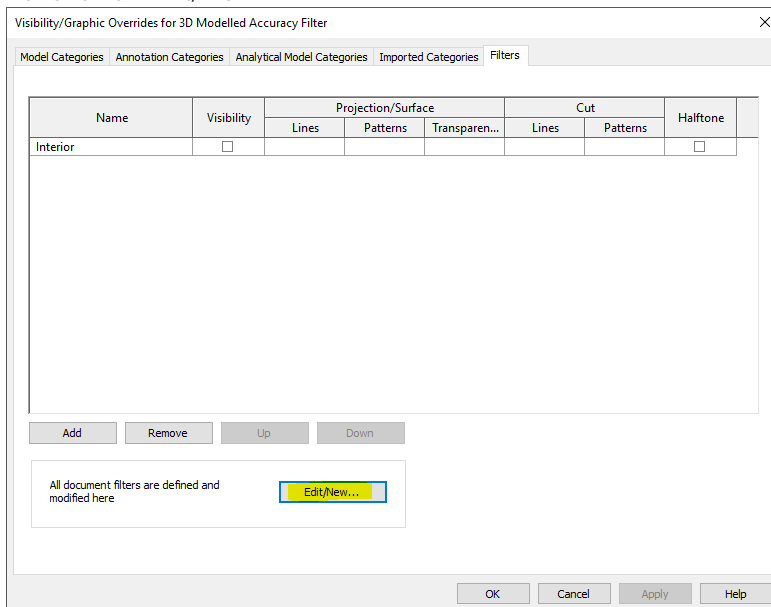




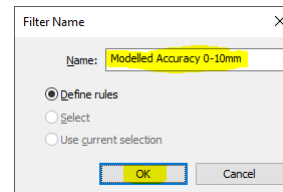
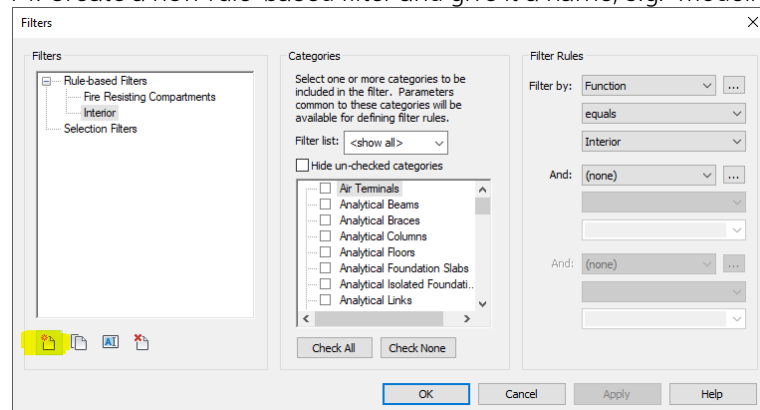
12. Click on the V/G Overrides Filters button labelled Edit...



13. Click on Edit/New...

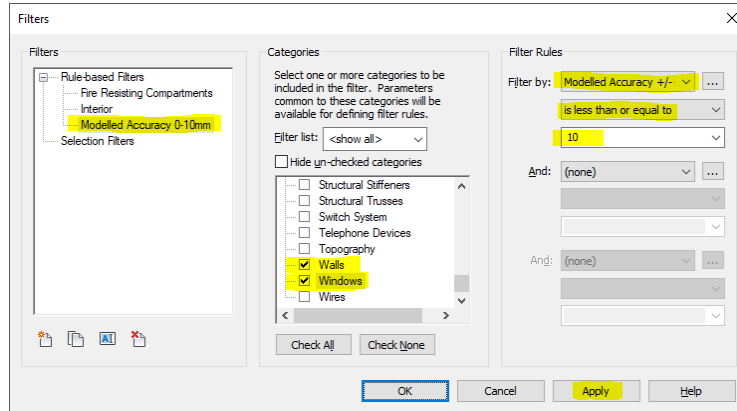


14. Create a new rule-based filter and give it a name, e.g. 'Modelled Accuracy 0-10mm'.



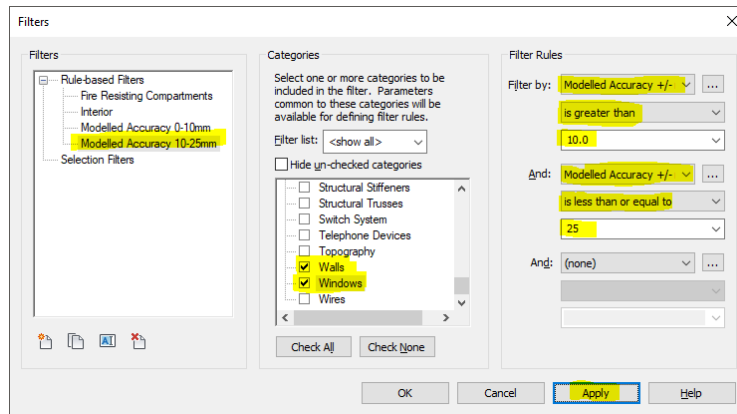


15. Select 'Modelled Accuracy 0-10mm' on the Filters list
 Tick the Doors, Walls and Windows items on the Categories list
 In the Filter Rules section, select 'Modelled Accuracy +/- mm' from the 'Filter by:' drop down list
 then choose 'is less than or equal to' from the next drop down list
 and then enter '10' in the text box underneath
 Click 'Apply'

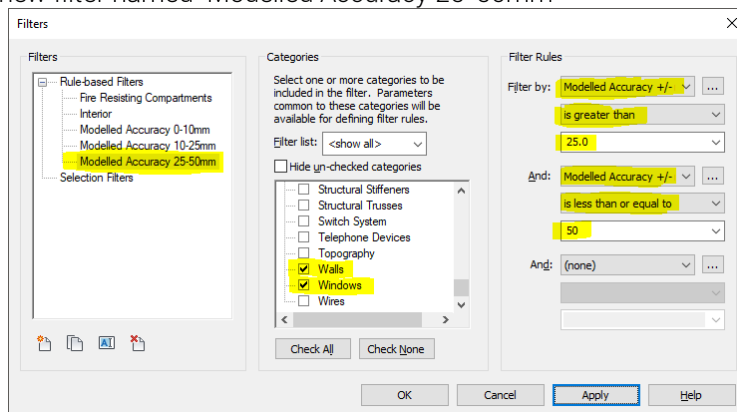


NB. If the 'Modelled Accuracy +/- mm' does not appear in the 'Filter by:' list it is because you have selected a category (e.g. door, wall, window) in Step 15 that was not ticked in step 3. The 'Filter by:' list will only include those parameters available to all the selected categories.

16. Repeat steps 14 and 15 to create a new filter named 'Modelled Accuracy 10-25mm':
 Select Doors, Walls and Windows on the categories list
 In the Filter Rules section, select 'Modelled Accuracy +/- mm' from the 'Filter by:' drop down list
 then choose 'is greater than' from the next drop down list
 and then enter '10' in the text box underneath
 Then choose 'Modelled Accuracy +/- mm' from the 'And:' drop down list
 then choose 'is less than or equal to' from the next drop down list
 and then enter '25' in the text box underneath
 Click 'Apply'

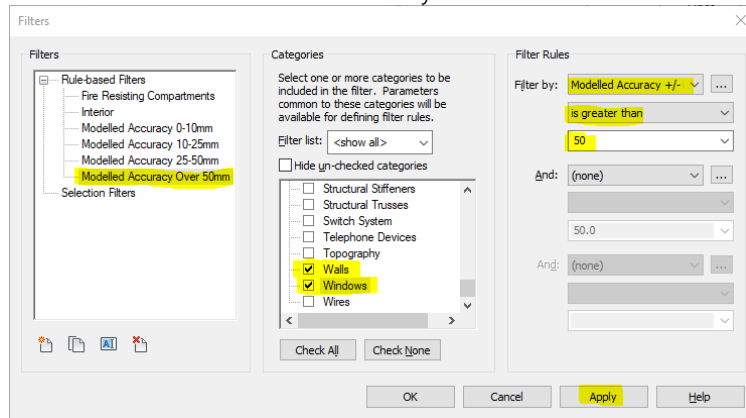


17. Repeat to create a new filter named 'Modelled Accuracy 25-50mm'



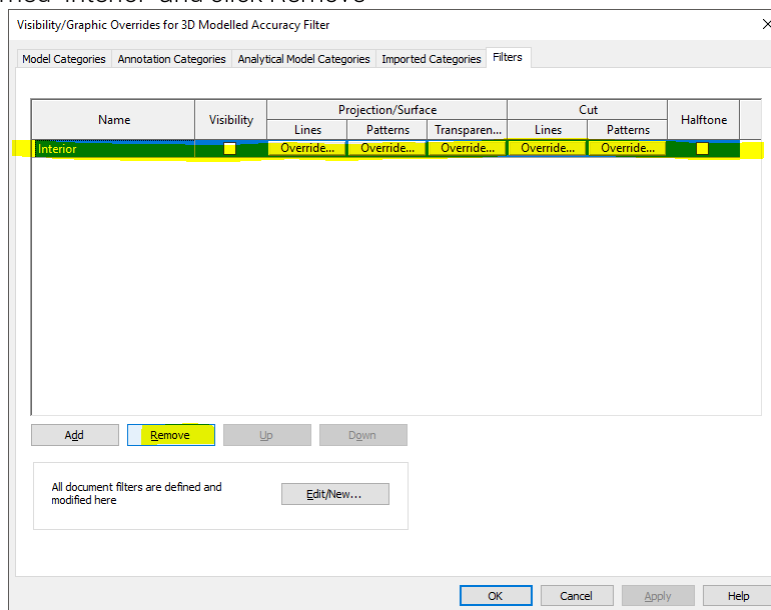


18. Repeat to create a new filter named 'Modelled Accuracy Over 50mm'

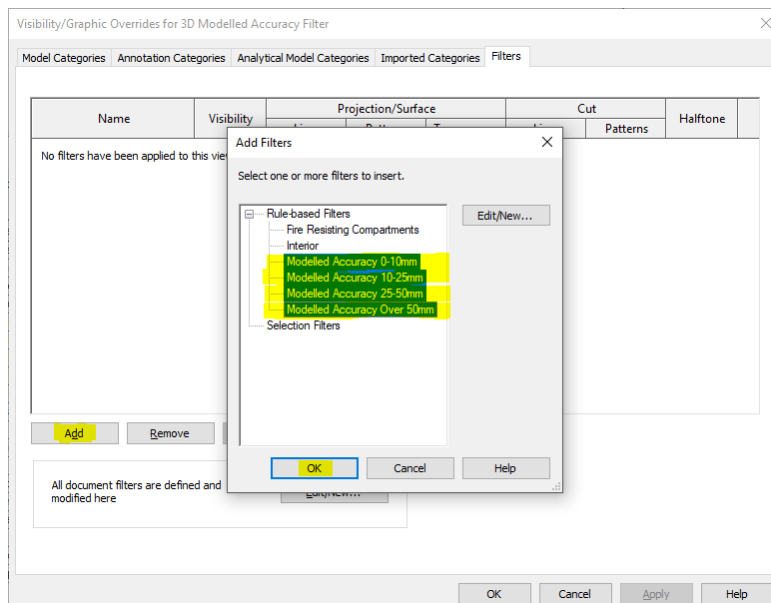


19. Once you have added all the required filters, click OK to return to the V/G Overrides for the 3D view

20. Select the row named 'Interior' and click Remove

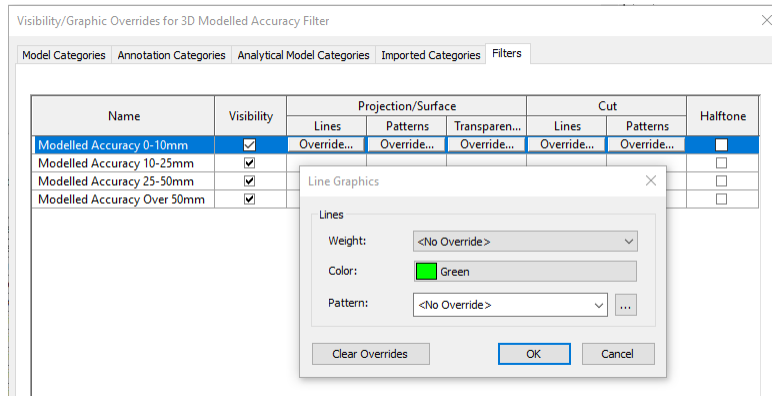


21. Click the Add button and select all of the Modelled Accuracy filters you created in Steps 14-17
 (Tip: hold down the Ctrl key while clicking to select more than one at a time)
 Click OK

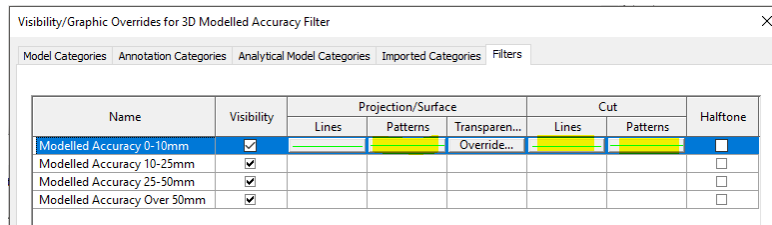




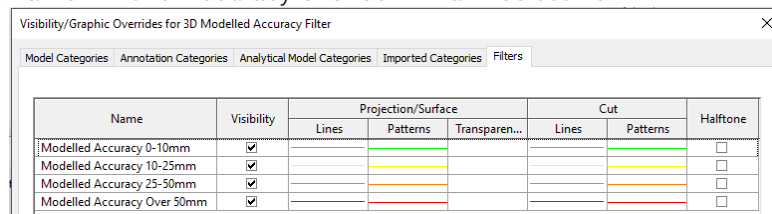
22. Select the row named 'Model Accuracy 0-10mm'
Click on the Override... button in the Projection/Surface Lines column and select Green
Click OK



23. Still on the row named 'Model Accuracy 0-10mm':
Click on the Override... button in the Projection/Surface Patterns column and select Green
Click on the Override... button in the Cut Lines and Cut Patterns column colour button and select Green

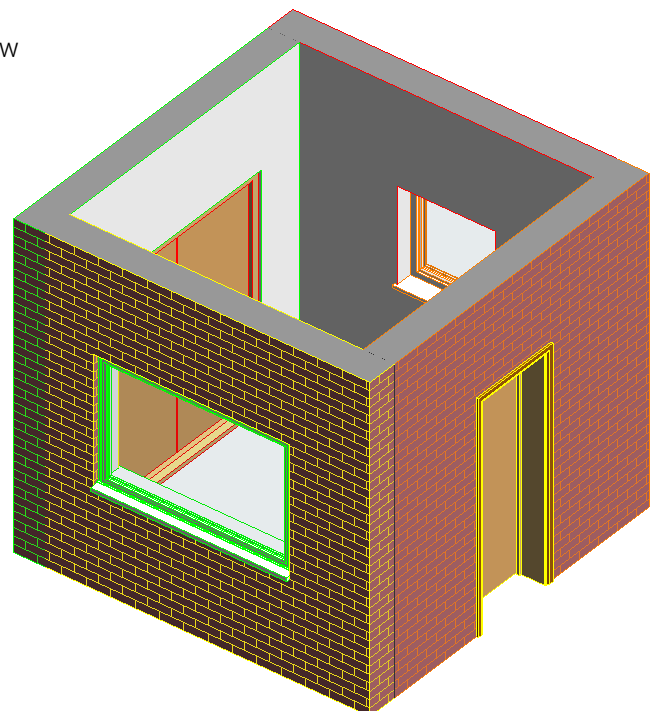


24. Repeat Steps 21 and 22 for the line named 'Model Accuracy 10-25mm' and select Yellow
Repeat for the line named 'Model Accuracy 25-50mm' and select Orange
Repeat for the line named 'Model Accuracy Over 50mm' and select Red



25. Click OK to close the V/G Overrides window
Click OK to close the Apply View Template window

Your 3D view called 'Modelled Accuracy' now displays your model with each of the modelled elements shaded based on the value that entered for its 'Modelled Accuracy +/- mm' parameter





Revit Training

Bonnington Surveys offer an expert-led, hands-on Revit training course specifically focusing on modelling the as-built environment from point cloud data. See our website for more details.

