FAQ for VMS Revit families

Question 1 – File Sizes (part 1)

I have heard, that when it comes to BIM objects, file sizes are of great importance. These look fairly big, will they be too heavy to work with in my model?

Answer

Performance is two things
In shot: Objects will affect the performance of your BIM system, but you will notice 'performance' in two different ways when using families in Revit.

- One factor is how long it takes to load the family when you are using it for the first time. We call this the *'Loading Performance'*
- Another factor is how it behaves when you move your 3D view and orbit around in your model, and generates 2D views/drawings.
  We call this *'View Performance'*

It is not exclusively the file size that matters when you look at how an object (or a family) performs in the model. Small file sizes often perform better, but the performance of larger files can be just as good.

The time it takes to load the family has a relation to how much geometry is in the object, which to some degree is connected to the size of the file. But most of all the load time of an object in Revit is dependent on how many 'types' are inside the family. You will notice this if you load a family that includes a lot of types.

Type Catalogues
There are several reasons for creating these Type Catalogues. One of them is to ensure that all parameters are correct and that for example module sizes and product numbers are consistent. But another reason is to avoid having all the different types placed inside the family itself. If all types are in the family, they will all be loaded with it. When you use the Type Catalogues, the types are actually not created until the moment you load the family, and you will create no more than the ones you need and pick out in the list. If the loading time is long it can of course seem annoying, but remember that you have to do this only once in your project. The next time you are working on your project file, the family and types will already be there.

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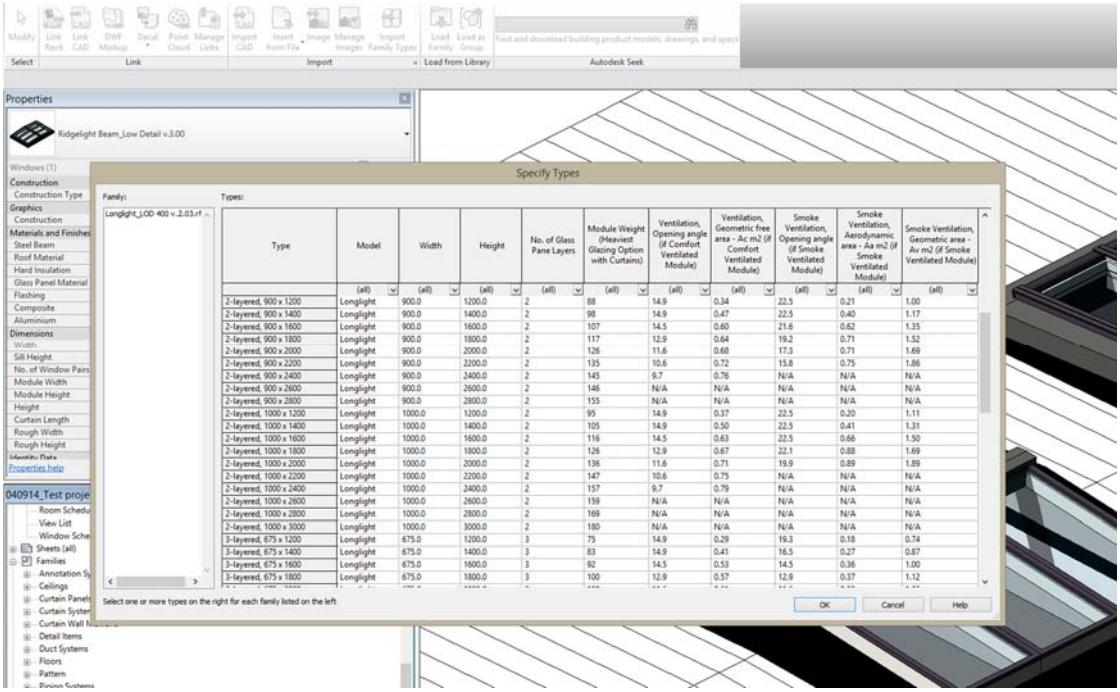

View Performance
View Performance is a significantly more important factor in relation to how your family behaves while you are working on your project. The geometry of the objects shouldn't include too many unnecessary small details and curved faces will make it even worse. The calculation of these is very time and power consuming for your computer, and every time you orbit your model just a little bit, the calculation will be performed again and again. Therefore if you have a large project with many highly detailed objects in it, it might become so heavy that moving around in it is practically impossible.

Low detailed objects with simplified geometry can be very useful when working on large projects, because they allow users to view their model without lagging. High detailed objects are of course necessary to create renderings and close-ups for certain purposes, but most of the time the design phases it will be less important how the product looks in detail. What is important is that the object is present so it can be included in counts and schedules, that is has the correct data and parameters attached, and that fills out the exact correct measures of the real product.

Integrated Level of Detail (LOD) family versions
For these reasons VMS Revit families have been created with different levels of detail (LOD) integrated. We have used the three display functions 'Coarse, Medium and Fine' to differentiate the geometry of the objects.

Coarse level shows only the very basic geometry and gives you a faster 'View Performance', Medium level introduces some more details to have a better product resemblance in general, and Fine level includes all details and the full product representation. Using the Fine display may affect View Performance and make your computer work harder. The advantage of working with these LOD integrated families is that you can easily switch between different levels according to your workspace and scale needs.

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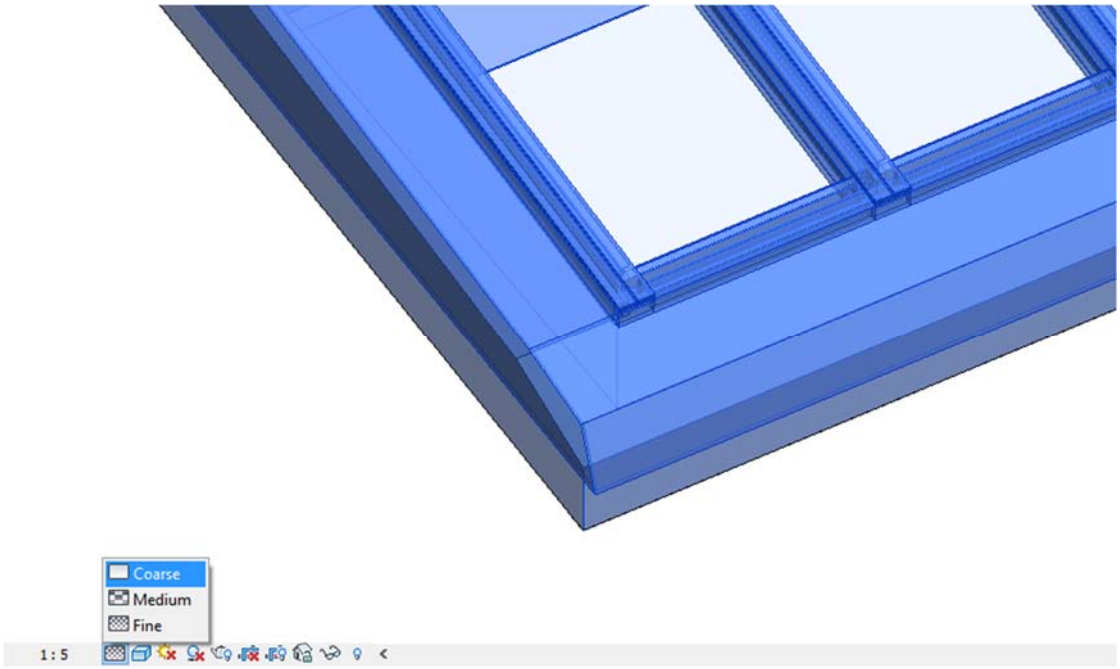
Left: Coarse View display – Right: Fine View display

Most designers would properly start out using the Coarse view with low detailing. But imagine that you are working on perhaps a smaller area of a large building and would like a good quality in product resemblance, then you would switch to the highly detailed version displayed in Fine. The families allows you to easily switch between the different displays without it affecting your model build-up.



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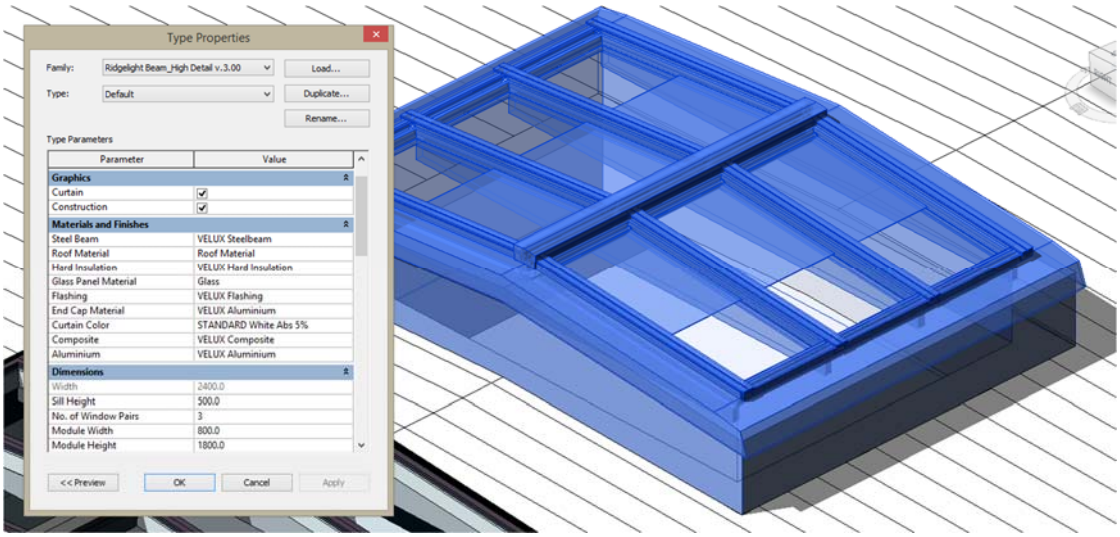
Question 2 – File Sizes (part 2)

And what are the special functionalities in the VMS Revit families that cause these file sizes?

Answer

In Revit families you often make use of ‘nested’ families in the final families, i.e. the use of sub-families inside the main family. Nesting families is used for several purposes, such as ensuring that various dynamic parametric functions are working and that updating the geometry in the families is easier. Nesting often result in file sizes increases and should be used with this in mind. When we use nesting it is to ensure improved usability for both the users and for the manufacturer updates.



To create optimised usability in the VMS families we have made it simple to add or remove window modules, easy to change the size of the modules as well as the size of the overall solution. This ensures a high flexibility in the design phase - where you can try out different solutions in a fraction of the time it would take you to build a complete system with individual module objects. In the high detail versions we have also created visual features that makes it possible to turn curtains on and off and adjust their length.

The bottom construction for the entire window system is also included and has adjustable height, even though it is actually not included in the VELUX product. But including the construction makes it easy to design the entire system and the basic construction can be turned off for the use of individual design solutions instead. The bottom construction automatically fits itself to any change in module size or number that you may want.

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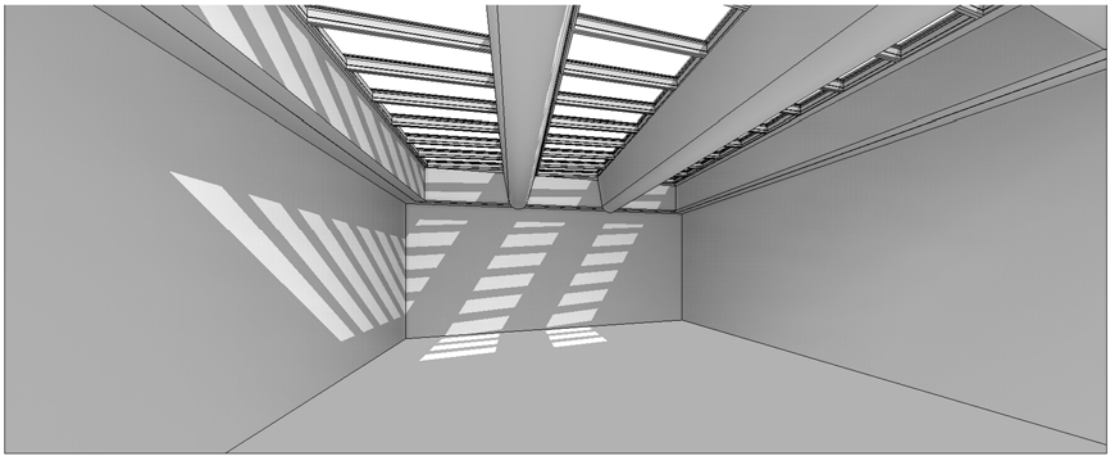
Question 3 – Atrium solutions

Why doesn't the Atrium versions of the VMS products come as Revit families, when they are included in the ArchiCAD object?

How can I use the current families instead?

Answer

The reason why Atrium solutions are included in the ArchiCAD objects and not in the Revit families is due to the difference in the way you create objects for the two types of software. ArchiCAD objects are programmed and this makes it easier to add additional rows of modules without affecting the file size and performance of the object.



In Revit the only way to solve this is using the ‘Array’ function inside the families. Unfortunately arrays often result in bad performance similar to nesting. In the VMS families an array is already used for adding modules in the length direction of the window system. If we were to add an array in a second direction, the file size would become too large, and at the same time it would not be possible to solve all connecting details properly in Revit. Also notice that beams and other construction elements between the window rows usually are individual design solutions from project to project, and they are not included in the VELUX product. Creating a family that can adjust to all options is unfortunately not possible.

However, a simple way to make an Atrium solution is to A) adjust the lining angle of Skylight row and the B) copy the skylight row with a desired distance to achieve an Atrium skylight roof.