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Link Details to Multiple Projects in Autodesk® Revit®

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AB2653 Working on campus projects, strip malls, or any type of multi-building project inevitably brings up the discussion of how to manage the details. Often a major driving factor in choosing how to manage the details depends on whether all of the buildings will be included in one set of construction documents or if each building will be a separate set of documents. Based on the project and which of the 2 previously mentioned approaches is selected, there are a number of strategies that can be implemented within Autodesk Revit software to help streamline the construction document process. This class covers a few scenarios of multi-building projects and discusses which approach to detail management may be the most appropriate. In addition, the class reveals and discusses the pros and cons to each approach so that you will be able to apply the most appropriate strategy to your own multi-building projects.

Learning Objectives

At the end of this class, you will be able to:

- Create a separate detail file that can be linked into multiple files
- Use strategies for linking details for separate CD
- Use strategies for linking building for a single set of CD
- Explain the pros and cons of each strategy

About the Speaker

Self-proclaimed as "The Revit Geek", Brian has spent more than 25 years in the AEC industry, about 10 of which have been focused on Revit and BIM. After nearly a decade of working with Architects and Engineers to advance BIM in their companies, Brian started his BIM consulting company in 2011 to focus on custom high-level training and mentoring. Brian has clients all over the US and Canada that generally tolerate his sarcastic nature in exchange for his wide breadth of BIM knowledge. Brian showcases his love of talking about Revit, or maybe just his love talking, in a monthly light-hearted, occasionally irreverent, free Q&A webcast, Revit Radio. Brian is a regular speaker at many conferences, including RTC North America, where he was voted top speaker two years running. Brian and his wife, who met at Autodesk University, just welcomed "BIMbino" Vienna into their family.

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Introduction

A common way to add details into a campus type project is to detail in a single building file and then copy paste those details into the other building files. With this method each detail can be on different sheets and have different detail numbers. The downside to this method is change; when a detail changes in one of the building files, it will have to be recopied and pasted, or the change will have to be made manually in all files.

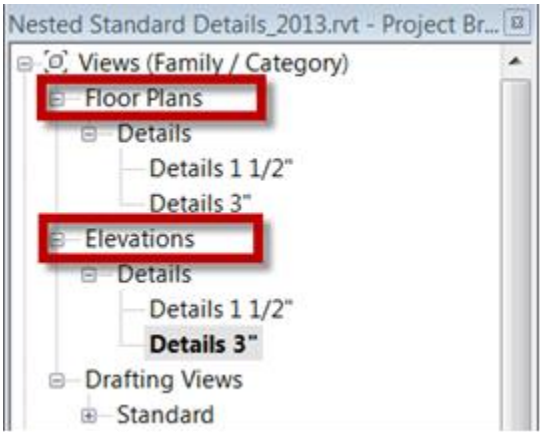
Another method of detailing is to link all building files into a site file and the detail in the site file. All of the details are easily changed, yet must be on the same sheet and have the same detail number. All of the building views, such as floor plans, elevation, etc., must have different sheet numbers etc. Depending on the project type, the file can be too large to work efficiently.

Having all the details in one of the building files and creating dummy sheets, dummy details, and then using those to fill out call out bubbles and sections is another common practice. This is nice because the details exist only once, thus making it easy to update. However if a detail is moved from one sheet to another then all the building files will have to have the dummy view moved as well. Details must have the same sheet and detail number from building to building.

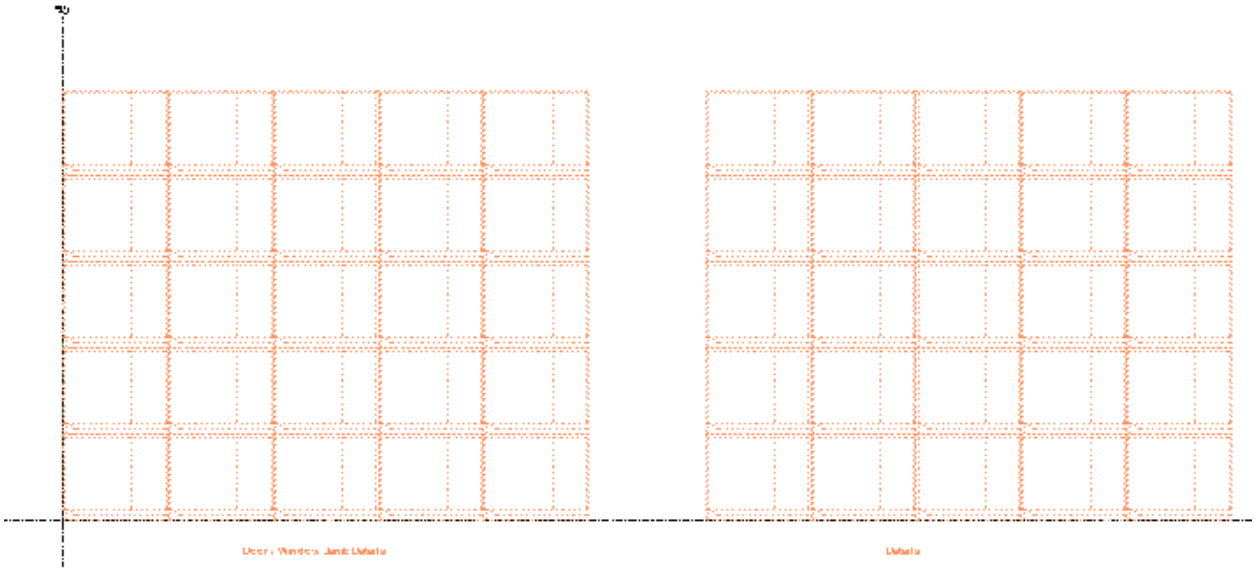
Linking details between separate Revit files on a multi- building project is a lesser known/utilized process than some, but if done correctly, it is a process that can work well. In order for this to process to work, a detail file - that contains only details - is required. The key to this is to draft the details on plans and elevations rather than in drafting views. It is also recommended to create different views for each scale, which will help in the file organization. Once the detail file is created, it will be linked into the building files, then when details are created within the individual projects, those file's views will be set to display the Linked view instead of the host view. By doing this it will be possible to cut details and have them point to a view in the model which displays the nested details. All changes to details will have to be carried out in the detail file, then updates will be pulled through to all of the building models. This process will also allow an individual to create details outside of the project and manipulate them without affecting the building file. This process is the most flexible for view location and numbering but requires a great deal of upfront set up.

Detail File

Setting up the detail file is the most critical step in making this process successful. Creating the detail file in the proper manner can be somewhat tedious, but the initial effort pays off in the end. If the project will require plan details, then these details MUST be created in a floor plan view. If the details will be in a vertical view (elevations/building sections), then they MUST be created as a section or elevation view. Also take into consideration the scale of the views, this is important so text and dimensions will display properly once in the host model. In the detail file, there will be separate plan and elevation views for each potential detail scale, and all details of the corresponding type and scale will exist on one view. Since all of the details of the same type and scale will exist together on the same view, it is also beneficial to add reference planes to make it easier to locate the details once linked into the host files.

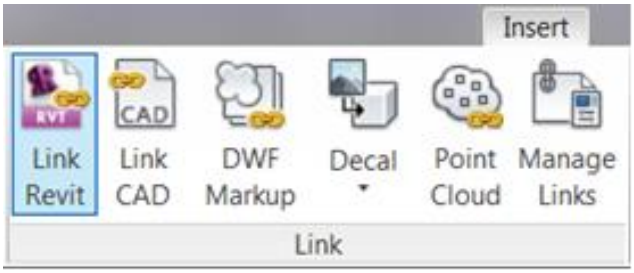


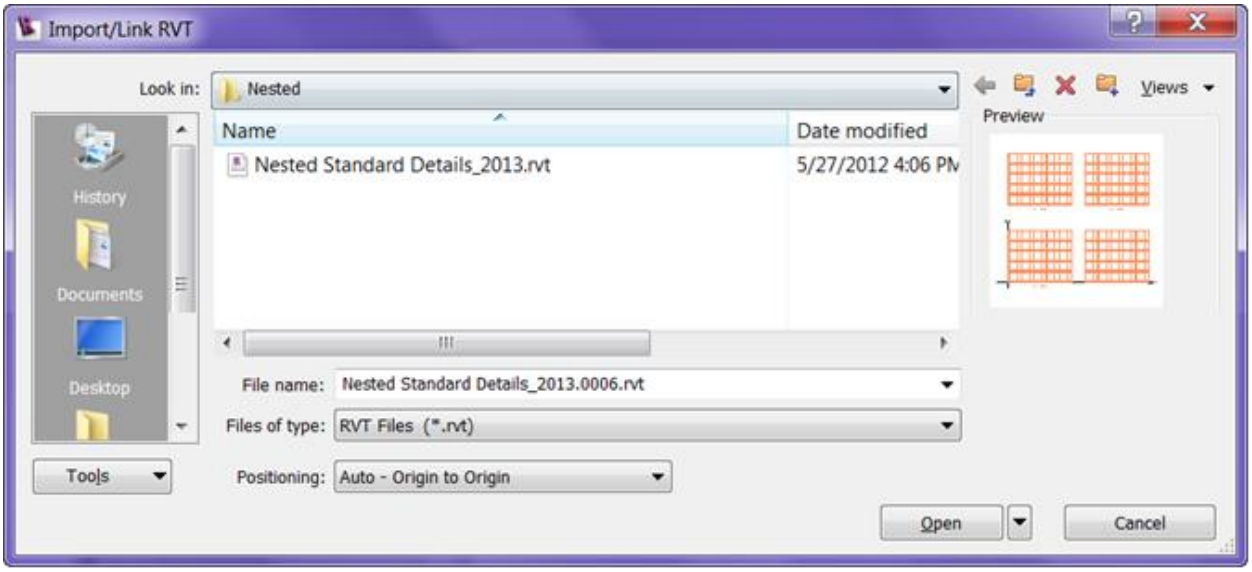
In each of the views it is good practice to use a guide to understand the required size and location of the detail. This guide is usually a symbolic line which will need to be addressed once the detail file is linked into a building file.



Linking Detail File

Once the detail file has been created it will then be nested into each of the building files for the multi-building project. If the detail file is placed on a workset, then the visibility of that workset can be set to be not visible in all views. This way the building files don't display unintended information from the detail file. If a central model isn't being used then this can also be accomplished with phasing, design options, or simply with view templates.



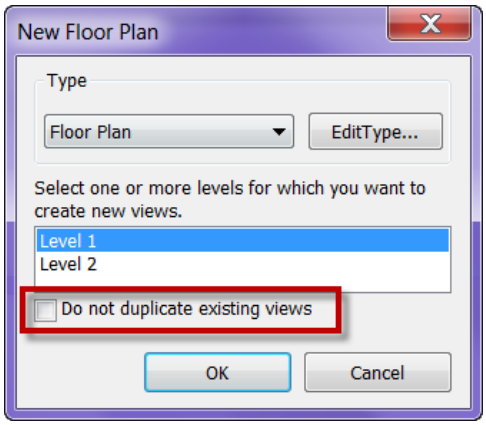


Creating Views for the Detail

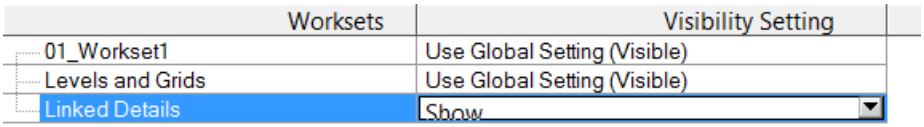
Once the linked file has been loaded into the project, views have to be created, then those views need to be set such that they pull through the details from the linked detail file. The counterintuitive part in this step is that all of the detail views will not be drafting views, they will have to be plan or elevation views since those views are the only types that can show linked files. One way to carry this out in an organized fashion (so there aren't hundreds of plan and elevation views in the project) is to duplicate plan and elevation views as dependents. One final thing to consider is to change all the elevation views such that their elevation markers will not appear everywhere in the project. To do this, adjust the "Hide at Scales Coarser Than" setting in the elevation views.

Steps

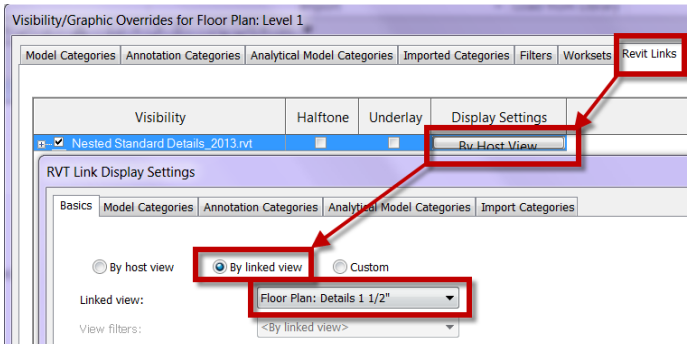
1. In the building file create a new floor plan for Level 1
    a. On the View Tab >> Create Panel >> Plan Views drop down >> select Floor Plan
    b. In the "New Plan" dialog un-check "Do not duplicate existing views", then select Level 1
    c. Set the scale to 1 1/2"
    d. Select OK
    e. Rename the view to Plan Details 1 1/2"



2. Open up the Visibility/Graphics Dialog
    a. Go to the Worksets tab
        i. Change the Visibility Settings to "Show" for Linked Details workset



    b. Go to the Revit Links Tab
        i. Click on the button in the Display column labelled By Host View
        ii. Set the Radio button on the top to By Linked View
        iii. In the linked view property change it to Floor Plan: 1 1/2" Details
        iv. Select OK



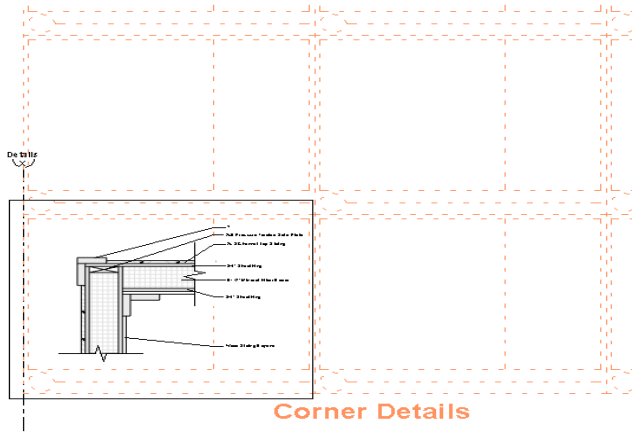
    c. Switch to the Model Categories tab and uncheck everything except Detail Items *(Hint: the select all can be used to speed up this process)*
3. Click OK

This process will only allow a floor plan to show a linked view from another floor plan. Since most projects also have vertical details, we will need to repeat the above processes for section and elevation views. One minor issue when creating vertical type detail views is that they will have a marker show for every detail view created. There are several ways this issue can be resolved such as Phasing, View Filters or Hide at scales, just to name a few.

Steps

1. Create a new section view
    a. On the View Tab >> Create Panel >> select Section
    b. Click on the screen to place a section (this must be below Grid A, and looking up, since this is where the details were placed in the linked model)
2. Go to the properties Dialog box
    a. Rename the view to Details Section 1 1/2"
    b. Change the Hide at scales coarser than value to 12" = 1' - 0"
    c. In the View Template property set the value to Details 1 1/2"
3. Right click on the view Details Section 1 1/2" (the view created above)
    a. Select Duplicate View >> Duplicate as dependent
    b. Right click on the new view, select rename change it to match a detail name
    c. Adjust the crop region to fit the detail view
4. Repeat this process for as many details needed

When the views are created, text or generic annotation families from the linked detail file will either be displayed in full, or will disappear completely. When this occurs, “annotative crop” is the property that will need to be addressed. With annotative crop turned on, the generic annotations and text will only display if it is entirely in the annotative crop region, so with this option toggled off, all of the generic annotation families will be displayed.

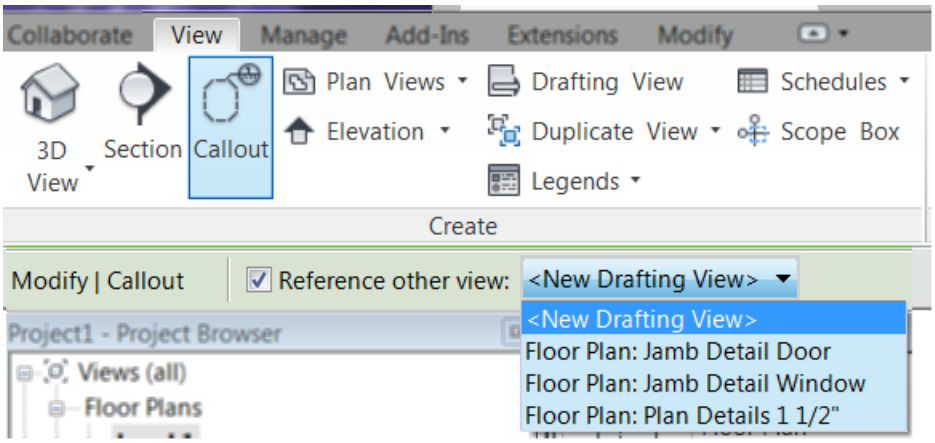


Place Reference View

Once created, the detail views can be referenced throughout the project, as well as placed on sheets. This process is called "reference other view" and is similar to placing normal views, with one exception: instead of creating a new view, a new section or callout will reference an existing view.

Steps

1. Create a linked plan callout
    a. Open a floor plan
    b. View Tab >> Callout
        i. Verify Plan View is selected in the type selector
        ii. Click Reference other view: in the options bar
        iii. In the drop down select the appropriate view
        iv. Draw the size of the callout on plan
2. Create a linked elevation or section callout
    a. Open an elevation or section view
    b. View Tab >> Callout
        i. Click Reference other view: in the options bar
        ii. In the drop down select the appropriate view
        iii. Draw the size of the callout in elevation



Changing the Detail

Now that all of the buildings have the detail file linked into them, the benefits will be more apparent. If the details change in the detail file, once that file is either reloaded into a building file, or when the building files are opened, the details will update, hence duplicated details in multiple buildings will all update at the same time, and instances of the same detail will be consistent with one another. This saves the user from needing to update the detail in each building file. Furthermore, each building file can use the same detail, but the sheet on which the detail is placed, as well as the detail number assigned, can be different from one building to the next.

Conclusion

This session introduced a way of using details in Revit for a multi-building project. This process allows details to update in many building files without having to copy them from project to project, and also maintains linked callout bubbles that are live and intelligent. Although there is some amount of initial work involved, for large campus-type projects, there is great potential for this type of process.