AS123243

30 Revit Productivity Enhancements You've Missed!

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Learning Objectives

- Recognize user interface updates that can be used to customize Revit
- Understand how new features can make your workflows more efficient
- Identify new add-ins that can be implemented immediately
- Find new ways to perform old tasks

Description

Over the past few years, there have been two or more releases of Revit each year. There is the main release sometime around April, then beginning in 2015, there were "R2" releases, and then in 2017, it changed to "point" or "dot" releases with 2017.1 and 2017.2. Were you able to sit down and look through all the new features? How are you informed about what the new features are and how they work? In the midst of your busy workday, you may have missed quite a bit of information about all these updates, like how to harness the power of scripting with Dynamo Player! In this session, we will cover 30 of the most recent Revit updates, and you'll learn specifics on how you can use them right away. Join us and make an impact on your day-to-day workflows!

Speakers

Jason Boehning

Jason Boehning is the Building Content Manager for all BIM and architectural CADLearning products from 4D Technologies, driving BIM content and developing on-demand learning material for Autodesk software, including Revit and Dynamo. Jason has a degree in Mechanical Engineering from Texas A&M, and helped a design firm in Houston, TX implement Revit to increase productivity for sustainable design and energy modeling. Since 2012, he has made a career of teaching building professionals how to use building design tools to increase productivity for sustainable design and energy modeling. Jason is also a contributing author to several CADLearning eBooks. Jason is an Autodesk Certified Professional for Revit Architecture, Revit Structure, Revit MEP Mechanical, and Revit MEP Electrical. He also serves as an Autodesk Revit Mentor All-Star for Revit users, and he is a repeat speaker at the Revit Technology Conference, North America and Autodesk University.

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Katie Watton

Katie Watton is a Building Content Specialist for all BIM and architectural CADLearning products from 4D Technologies. She has an Associate's Degree in Applied Science from ITT Technical Institute. Before joining 4D Technologies, Katie worked as a BIM Specialist for a Houston-based BIM consulting firm. During that time, she helped numerous design firms implement Revit. Katie also assisted in the modeling process and trained several staffs on modeling best practices. She has also worked with design firms on multi-disciplinary coordination to help expedite construction. In addition to helping design professionals, Katie has taught a Revit class at the University of Houston.

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Introduction

Are you aware of all the updates that have been implemented in Revit since the 2015 release? There have been hundreds! Some of these updates may not have been covered as much as others. Additionally, most firms are not able to update to the latest release whenever it is first available. When they are finally able to update, they do not always spend the time to learn all the new features for that release. They may be aware of some of the updates, but probably not every single one.

Over time, there are several new features and enhancements that remain unknown to most Revit users. In this session, we will cover 30 new features that you may not have been aware of. The goal is to provide you with at least a few enhancements that you can start using immediately!

In this paper, the new features and enhancements are listed under the Revit release that the feature first became available. Furthermore, all of the updates covered here have persisted in all future releases. In other words, they have not been removed or superseded by newer updates.

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Enhancements You Hopefully Didn't Miss

2015

- Sketchy Lines
- Delete Revisions
- Revision Sketch Tools

2015 R2

- Dynamo
- Reveal Constraints

2016

- Place Rooms Automatically

2016 R2

- Global Parameters

2017

- Text Notes
- Multilevel Lists
- Depth Cueing

2017.1

- Dynamo Player

2018

- File Tab
- Multistory Stairs
- Railings

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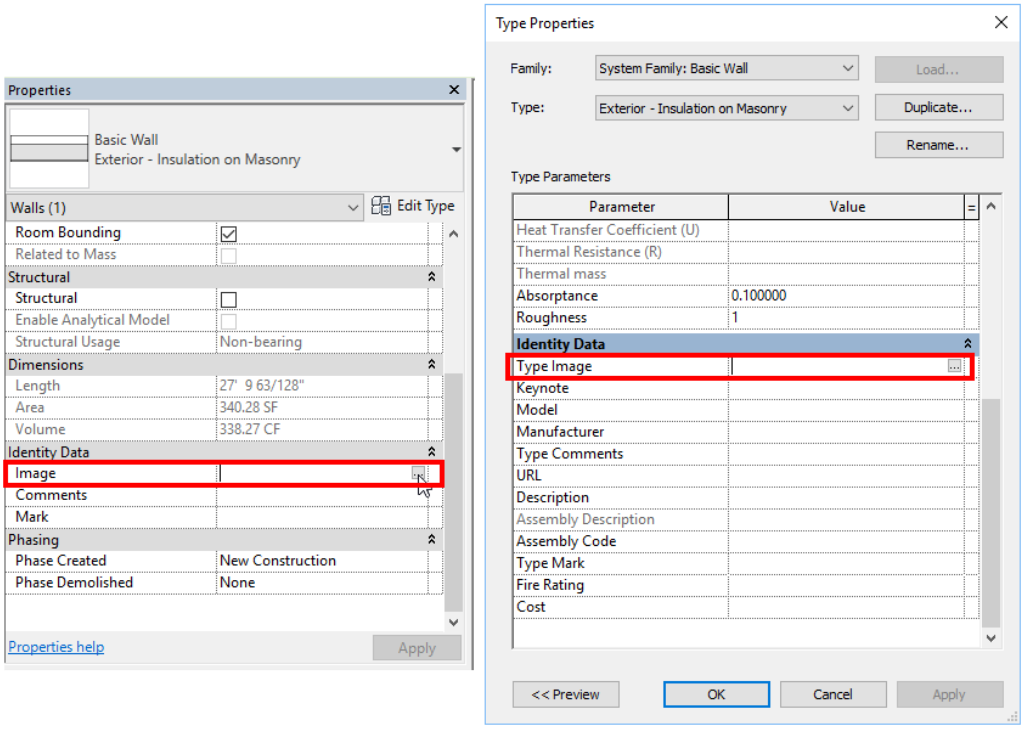
Enhancements You May Have Missed

2015 Updates

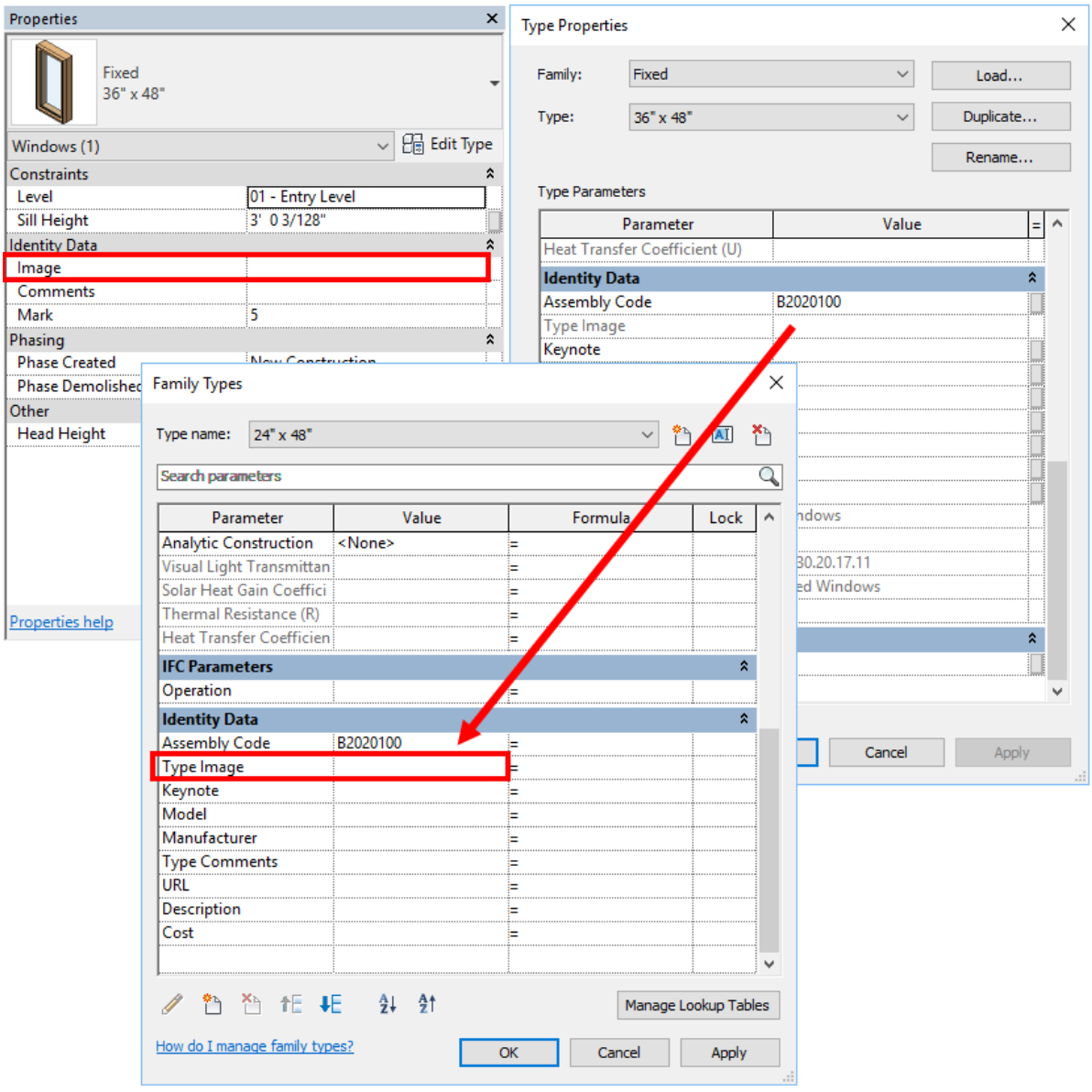
1. Images in Schedules

In addition to being able to add an image to a cell in the schedule title section, model elements have an **Image** instance parameter and a **Type Image** parameter that can be added to schedules. This allows you to use images to show additional detail about the various components in your project. These image parameters can be added to schedules, just like any other parameter. Then when an image is specified, the image will appear in the schedule data.

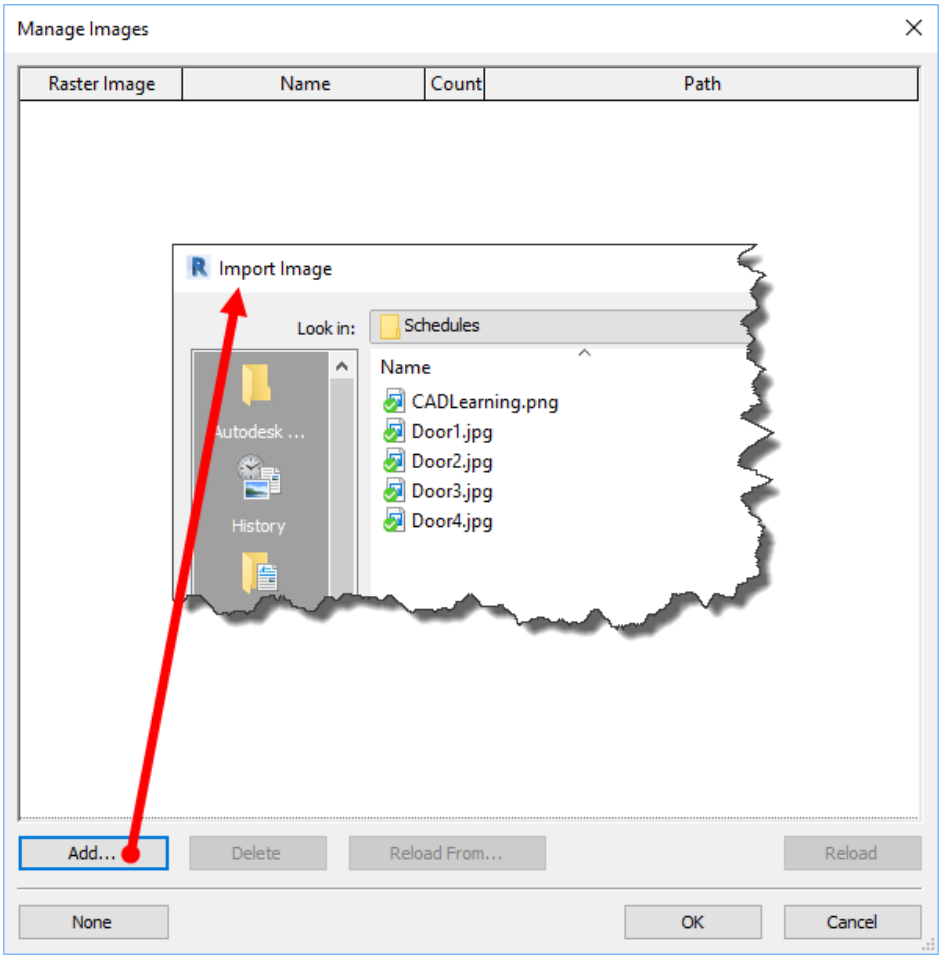
For model elements that are system families, the **Image** parameter can be accessed in the **Properties** palette, while the **Type Image** parameter is available in the **Type Properties** dialog. When you click in this field, you can click the **More** (**…**) button to open the **Manage Images** dialog.



For model elements that are loadable families, the **Image** parameter can be accessed in the **Properties** palette as well. However, the **Type Image** parameter must be accessed in the **Family Types** dialog while in the **Family Editor**. It is read-only in the Type Properties dialog. Once again, you can click in this field and click the **More** (**…**) button to open the **Manage Images** dialog.

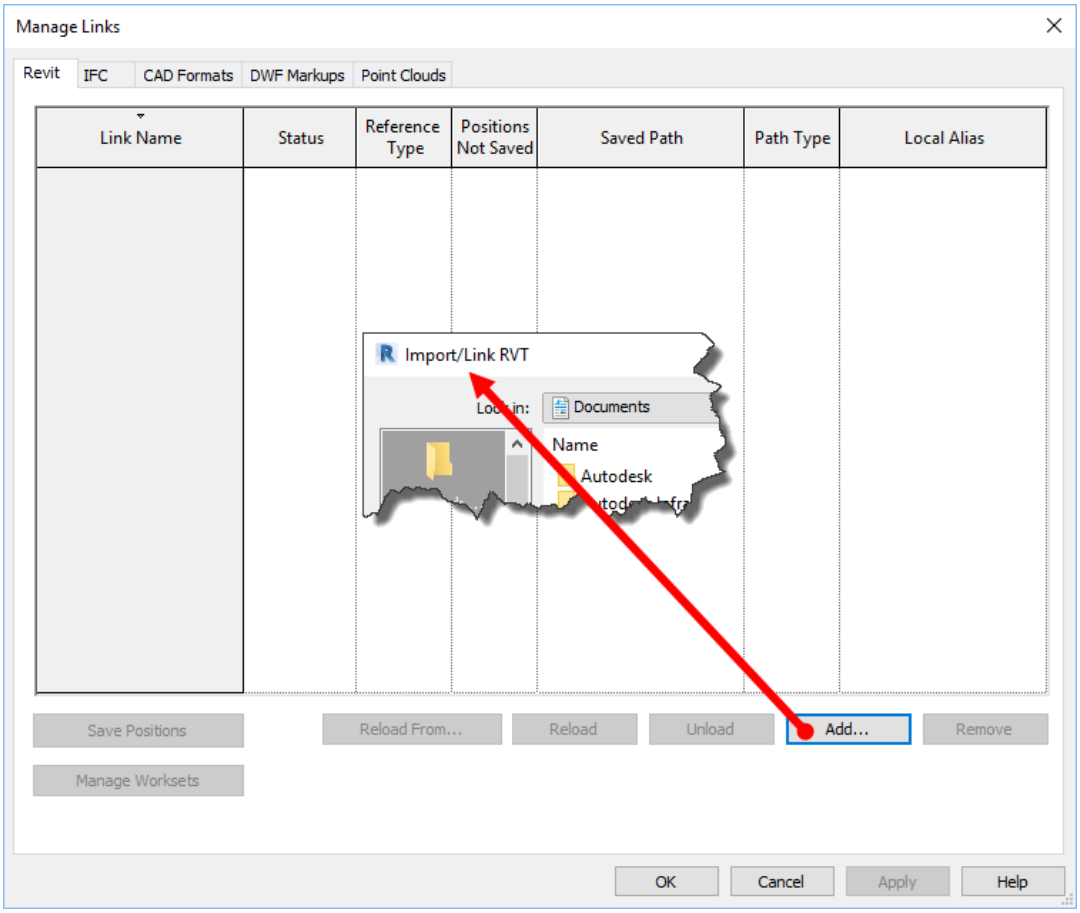


In the **Mange Images** dialog, you can click **Add…** to open the **Import Image** dialog. Here, you can select an image to import. Once imported, the image can be used for the parameter. After that, the image parameter can be added to a schedule. Take note that the image will only appear in the schedule once it is placed on a sheet. Only the image name will appear in the schedule view.



2. Add Links in the Manage Links Dialog

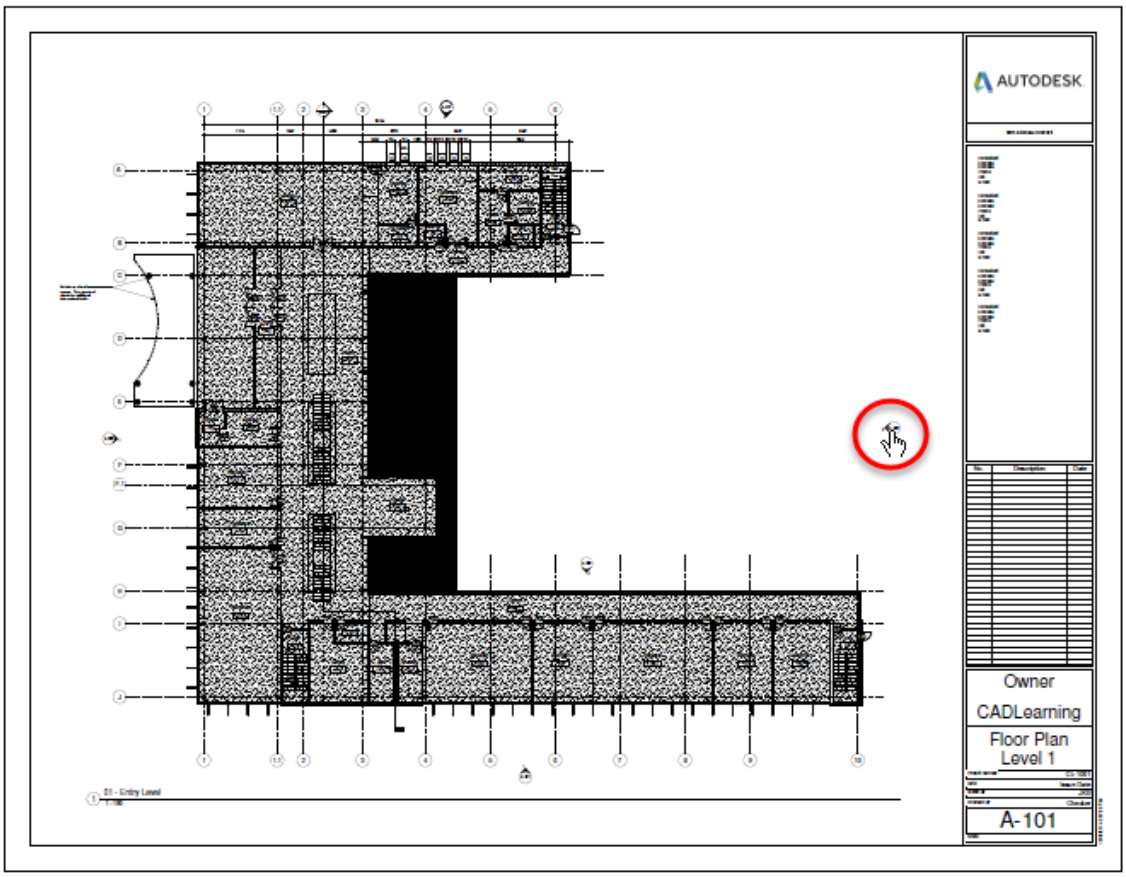
In the **Manage Links** dialog, an **Add…** button is available to link additional Revit models, IFC files, CAD formats, and point clouds. This is beneficial when there are several files that need to be linked. Instead of using the various link tools, you can simply work directly in the **Mange Links** dialog.



3. PDF Export

When you combine multiple views or sheets into a single PDF file, a table of contents is available to help you quickly switch to different views or sheets in the set. Additionally, the view tags are hyperlinks in order to help you expedite the navigation process through the document set.

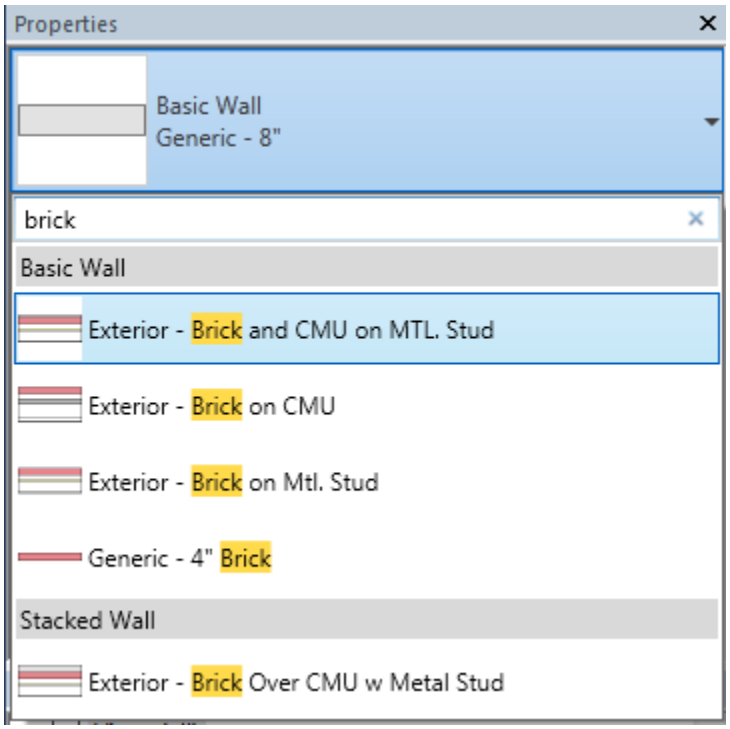
If you choose to print to separate files, the hyperlinks are still created. The only difference is that they will open the file containing the view or sheet, instead of switching to a different page. Just keep in mind that the hyperlinks will only reference other views and sheets printed during the same job.



4. Search Feature for Type Selector and Other Drop-Downs

When you expand the **Type Selector** or other drop-down menus, there is a **Search** field at the top. This is very beneficial when creating elements such as walls, beams, ducts, pipes and light fixtures – essentially any element that could have hundreds (or thousands!) of families and types in the project.

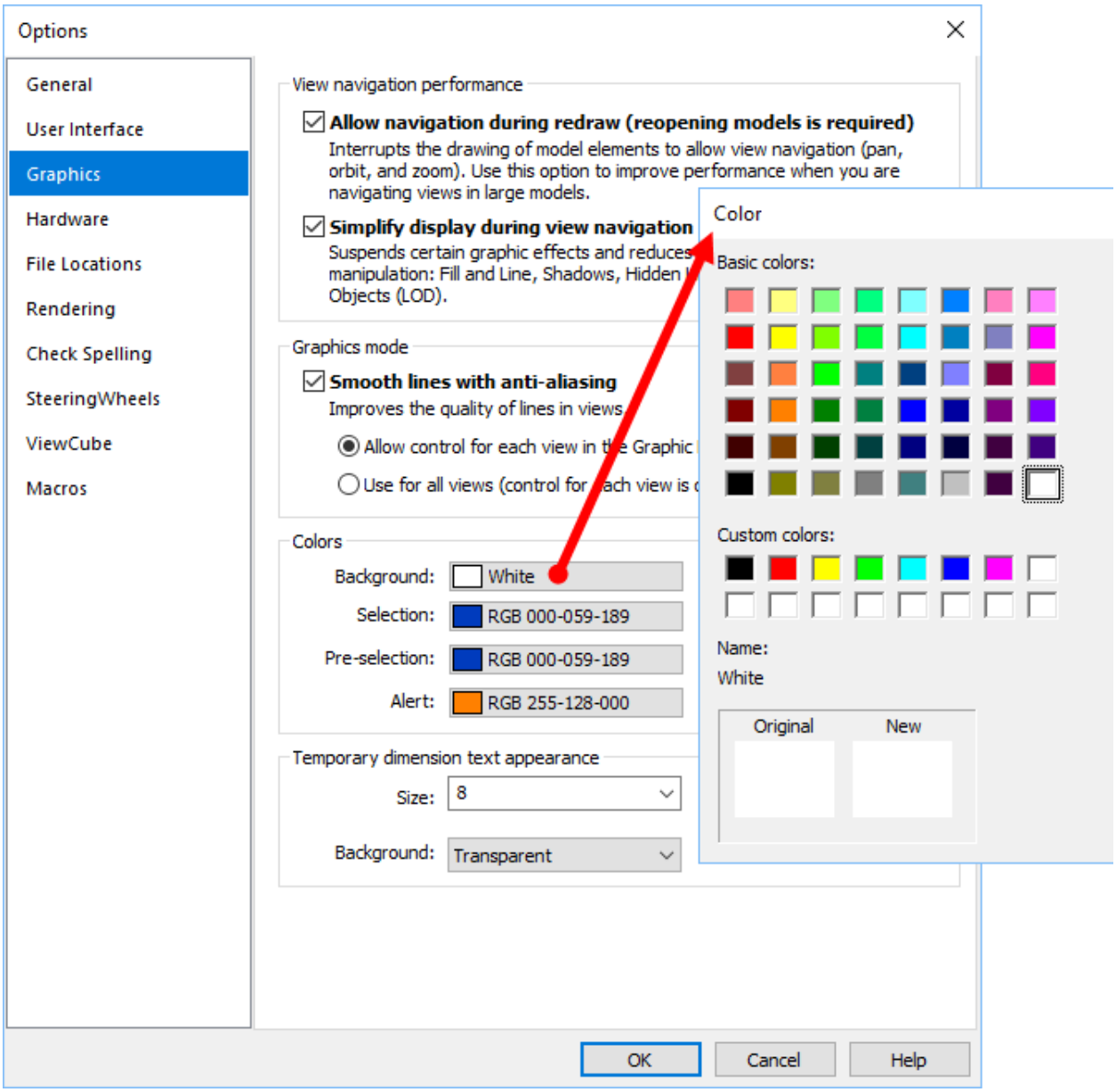
This feature keeps you from having to scroll through the list. You can simply type a keyword in the **Search** field. You actually do not have to enter an entire word. You can enter just a few characters if you wish. As you type, the list is filtered to show just the types containing the string or keyword you entered. The string or keyword you entered is also highlighted in the type name.



At this point, you can select from the filtered list, or you can press TAB to cycle through the list. TAB will move the current selection down the list, while SHIFT+TAB will move it up the list. The up and down arrow keys will do the same thing. Once you have the correct selection, you can press ENTER. In order to return to the full list, click the **X** at the right of the **Search** field.

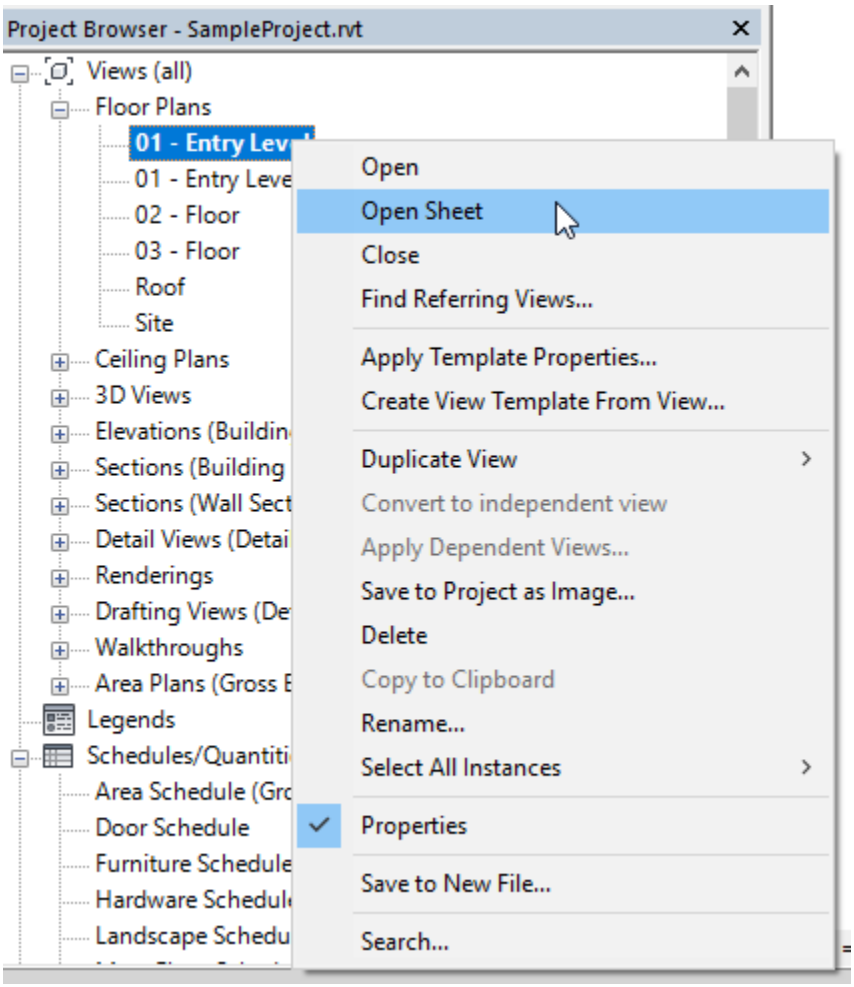
5. Background Color

Since 2015 R2, you have been able to select any color for the background of your drawing area. Hopefully you didn't miss this! The benefit of this is that you can select your favorite color. Then Revit will help brighten your day!



6. Open Sheet Option for Views

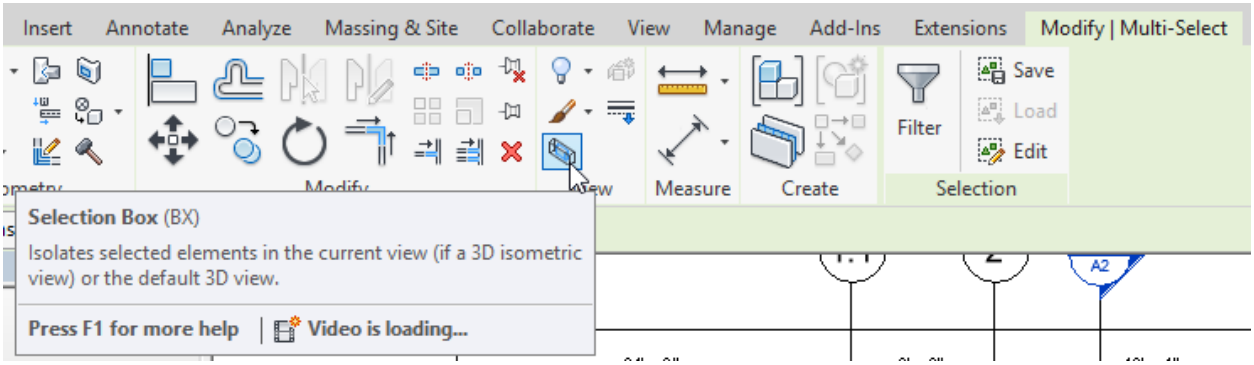
In the **Project Browser**, you can right-click a view and select **Open Sheet** in order to open the sheet that the view has been placed on. This option is only available if the view is placed on a sheet.



7. Selection Boxes

You can use selection boxes to quickly isolate selected elements in a 3D view. This is different from isolating an element using **Temporary Hide/Isolate** mode. When you use the **Selection Box** tool, it applies a section box to a 3D view that surrounds the selected element or elements. When working in a 3D view, the section box is applied to that view. When working in a two-dimensional view, the section box is applied to the default 3D view in order to isolate the selected elements.

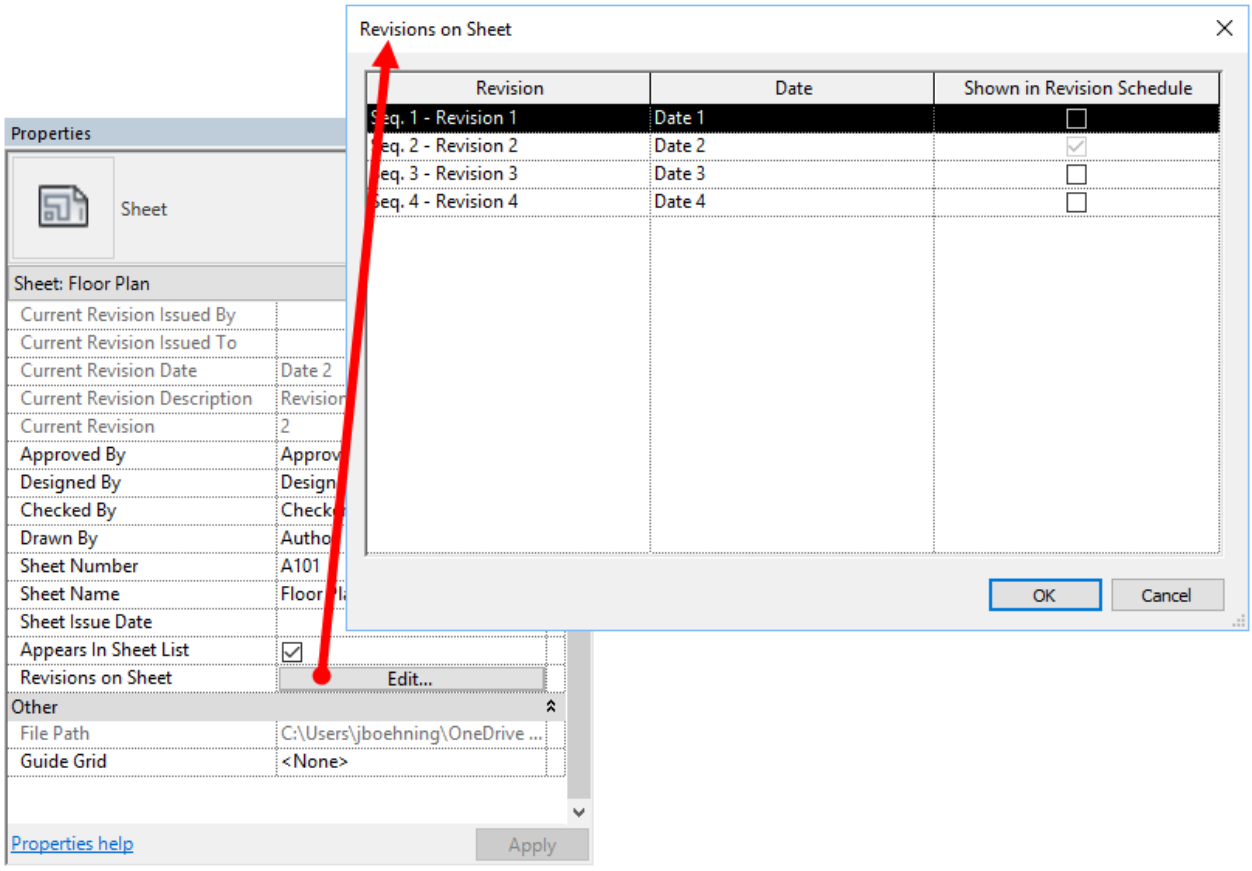
To use this tool, select the elements that you want to isolate in a 3D view. Then, on the contextual ribbon, in the **View** panel, click **Selection Box**.



8. Revision on Sheet Dialog

When you have multiple revisions created in a project, you can control which ones appear in the revision schedule on a sheet. When a revision cloud appears on a sheet, the revision that the cloud is assigned to will appear in the revision schedule. You can add additional revisions to the revision schedule as needed.

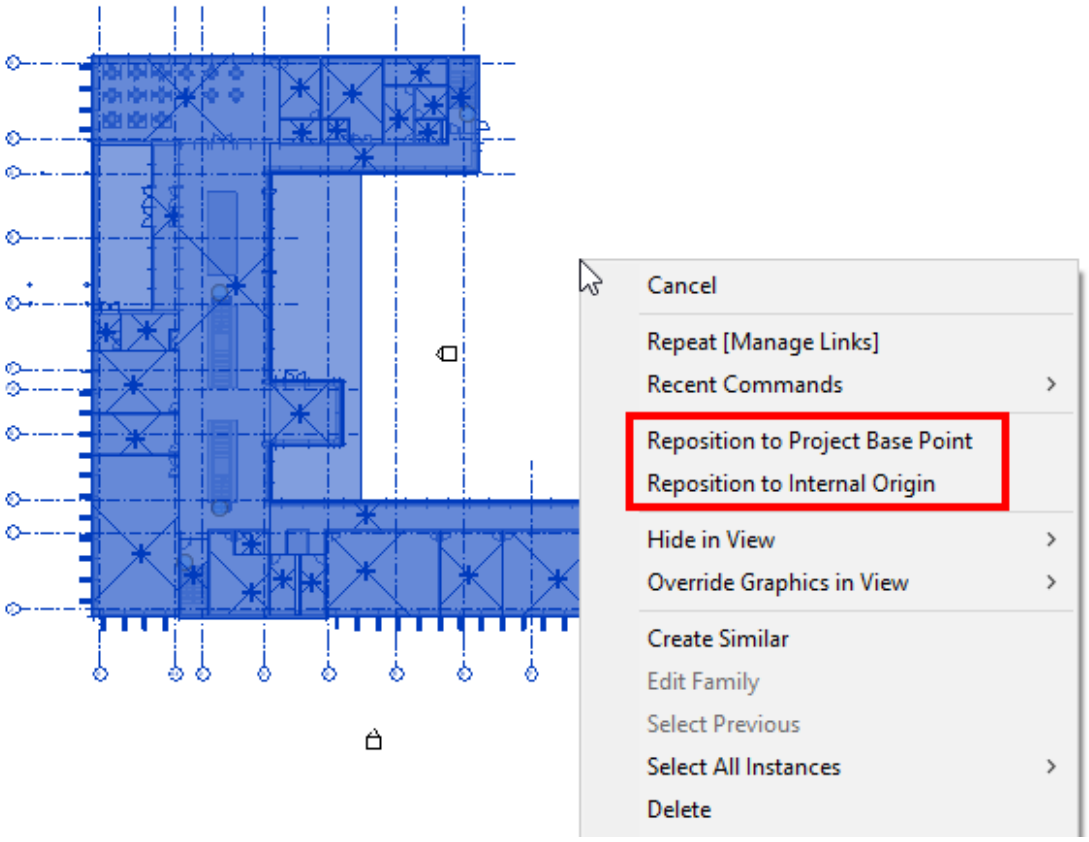
To add additional revisions to the revision schedule, scroll down in the **Properties** palette to **Revisions on Sheet**. Click **Edit…** to open the **Revisions on Sheet** dialog. This dialog shows all the revisions in the project. You can determine whether or not a revision is shown in the revision schedule by selecting the checkbox in the **Shown in Revision Schedule** column.



9. Reposition Revit Links

Once you link a Revit model to another model, you can reposition the link. To reposition a linked Revit model, select it in the drawing area and then right-click. Two reposition options are available in the shortcut menu: **Reposition to Project Base Point** and **Reposition to Internal Origin**.

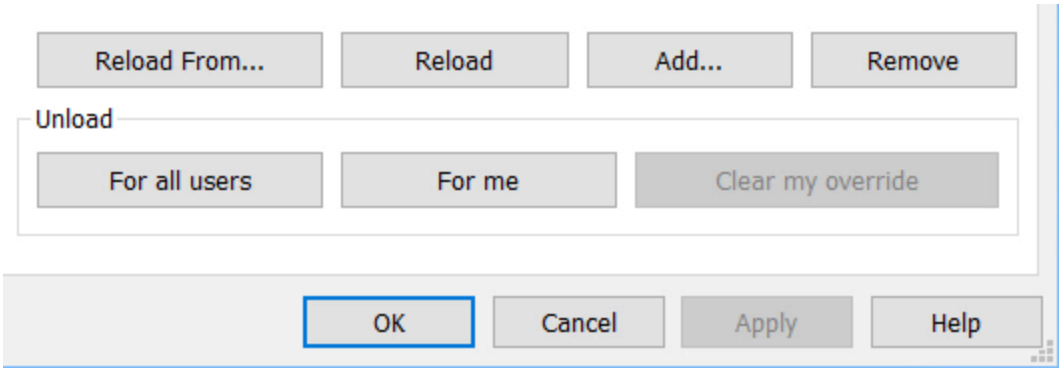
In order to reposition the link so that the project base points align, choose **Reposition to Project Base Point**. This would be the result of using the **Auto – Project Base Point to Project Base Point** positioning option when initially linking the Revit model. To reposition the link so that the internal origins are aligned, choose **Reposition to Internal Origin**.



10. Unloading Links in Workshared Projects

When working on a workshared project that includes one or more linked Revit models, you can unload a link for all users or just for your local copy. Unloading links from a local copy can improve the performance for that user. For projects that contain multiple links, some actions, such as opening views, take longer. Also, some users may wish to unload a link so that they can focus on a specific area of the model without a link being in the way.

To unload a link, on the **Manage** ribbon, in the **Manage Project** panel, click **Manage Links**. This opens the **Manage Links** dialog. When the project is a workshared project, there is an **Unload** area on the **Revit** tab. There are two options to unload a linked Revit model. When you select a link, you can use either the **For all users** or **For me** option to unload the link.

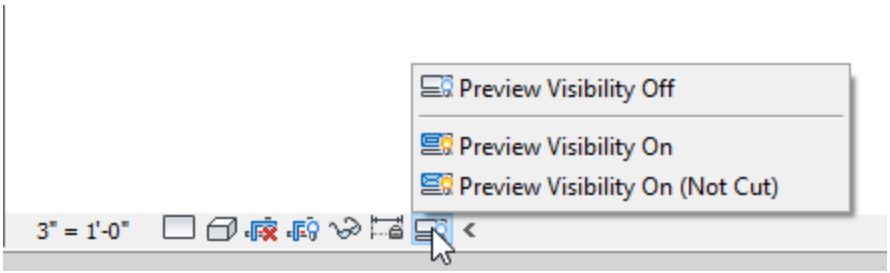


For all users will unload the link from the project, which in turn unloads the link for all users accessing the central model. **Reload** or **Reload From...** can be used to restore a link for the project. **For me** will unload the link from the local copy. This option works like an override and is set for the current user for that Revit link.

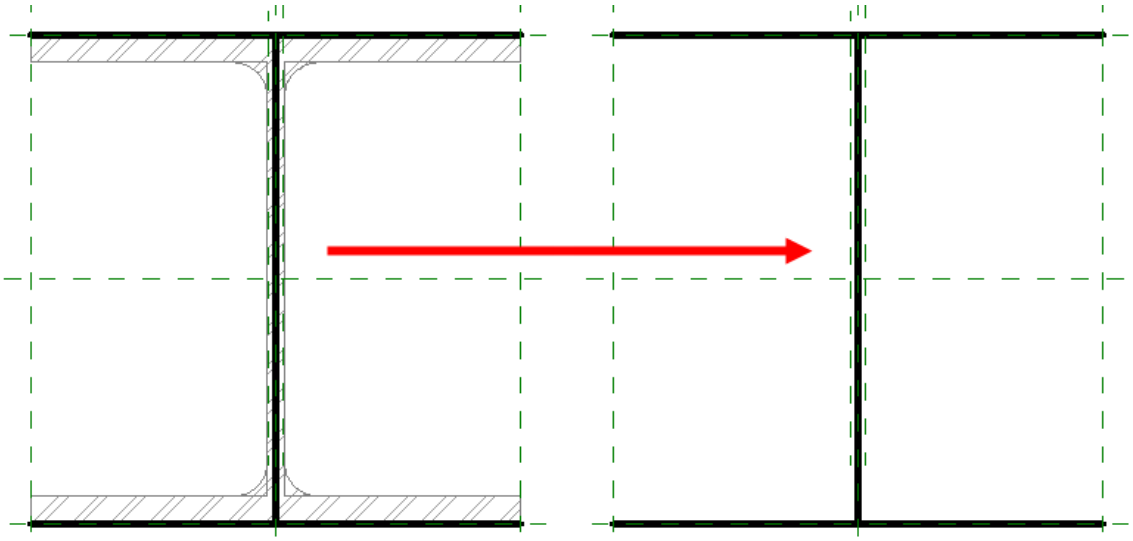
When you unload the link for your local copy, **Clear my override** becomes available. This option restores the Revit link to the global status. As long as the link is still loaded into the central model, then the link will be reloaded into the local copy. If the link was unloaded by another user using the **For all users** option, the link will remain unloaded.

11. Family Visibility Preview

When working in the **Family Editor**, there are view controls for the drawing area, as well as controls to specify how geometry will appear in the project environment. Typically, the **Visual Style** is set to **Wireframe** in the **View Control** bar. This allows you to see all the geometry, but it also makes it difficult to see how the family will appear when loaded into a project.



You can use the **Preview Visibility** setting in the **View Control** bar to view the geometry as it will appear in a project. Click **Preview Visibility** in the **View Control** bar to see the available options. **Preview Visibility Off** is the traditional **Family Editor** viewing method. **Preview Visibility On** is a temporary view mode that allows you to review how forms and annotations display in certain view types, levels of detail, and visibility settings.

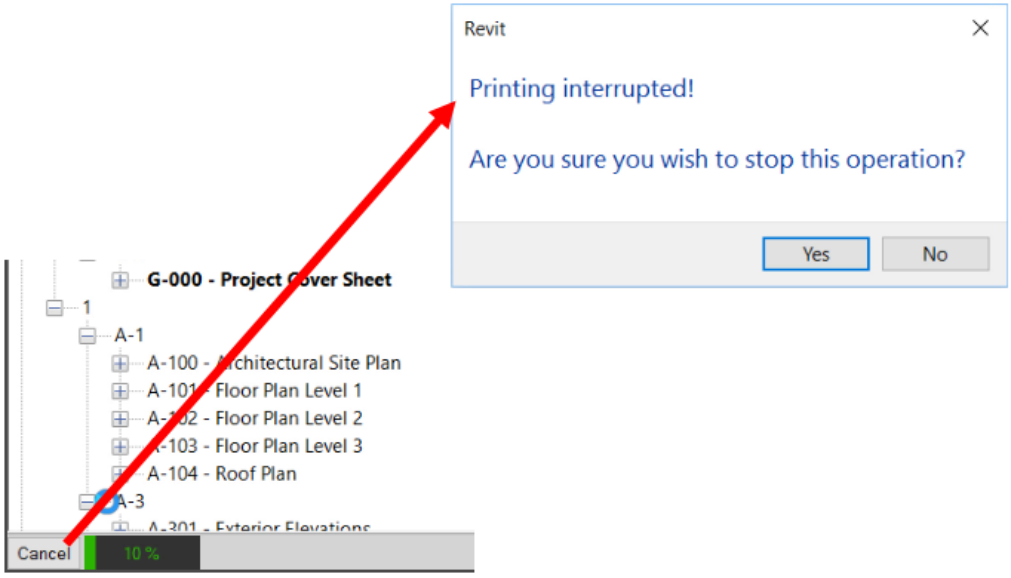


Be aware that dimensions, levels, reference lines, and reference planes that are specific to the **Family Editor** are not affected by this viewing mode, as they will not appear in the project. You can use the **Visibility/Graphic Overrides** dialog to control the visibility of these elements.

There is also a **Preview Visibility On (Not Cut)** option in plan views that can be used to see the family represented as a projection. However, for some families, this option is the same as the other if the geometry is not cut by the viewing plane.

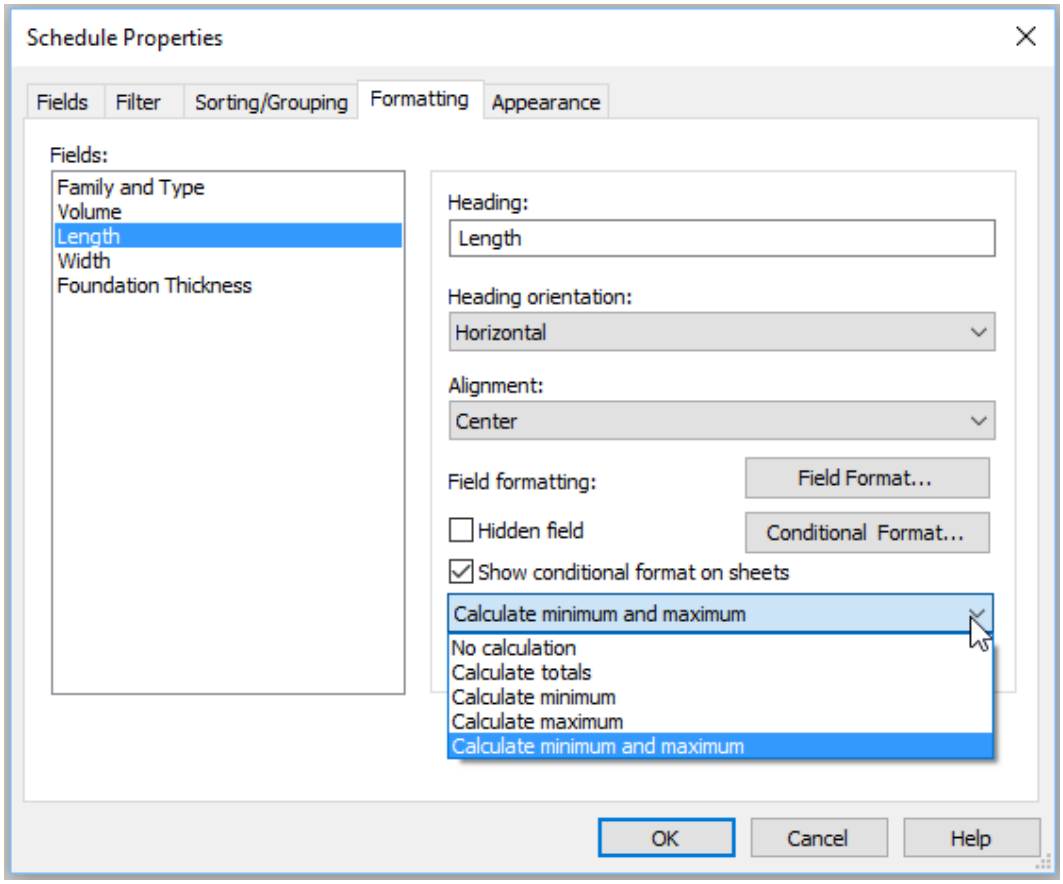
12. Cancel Print/Export

When printing or exporting multiple views and sheets, you can click **Cancel** in the bottom-left of the Revit window to cancel the entire operation. Before 2016 R2, the **Cancel** button would only cancel the individual view or sheet that was currently being printed or exported. For that reason, it seemed like it did not work! If you were printing or exporting several sheets, the task of canceling them all would be difficult and frustrating.



13. Calculate Options for Schedule Columns

In a schedule column, you can choose to report the minimum value, the maximum value, or both the minimum and maximum values for numerical fields. When working in a schedule, you can open the **Schedule Properties** dialog and switch to the **Formatting** tab. When you select a numerical field, you can expand the drop-down at the bottom to select a calculate option.



In addition to calculating totals, you can report the minimum value, maximum value, or both. This can only be seen in schedules that do not itemize every instance. In other words, when scheduling object types, you can report the minimum value for a numerical parameter, the maximum value for a numerical parameter, or both the minimum and maximum.

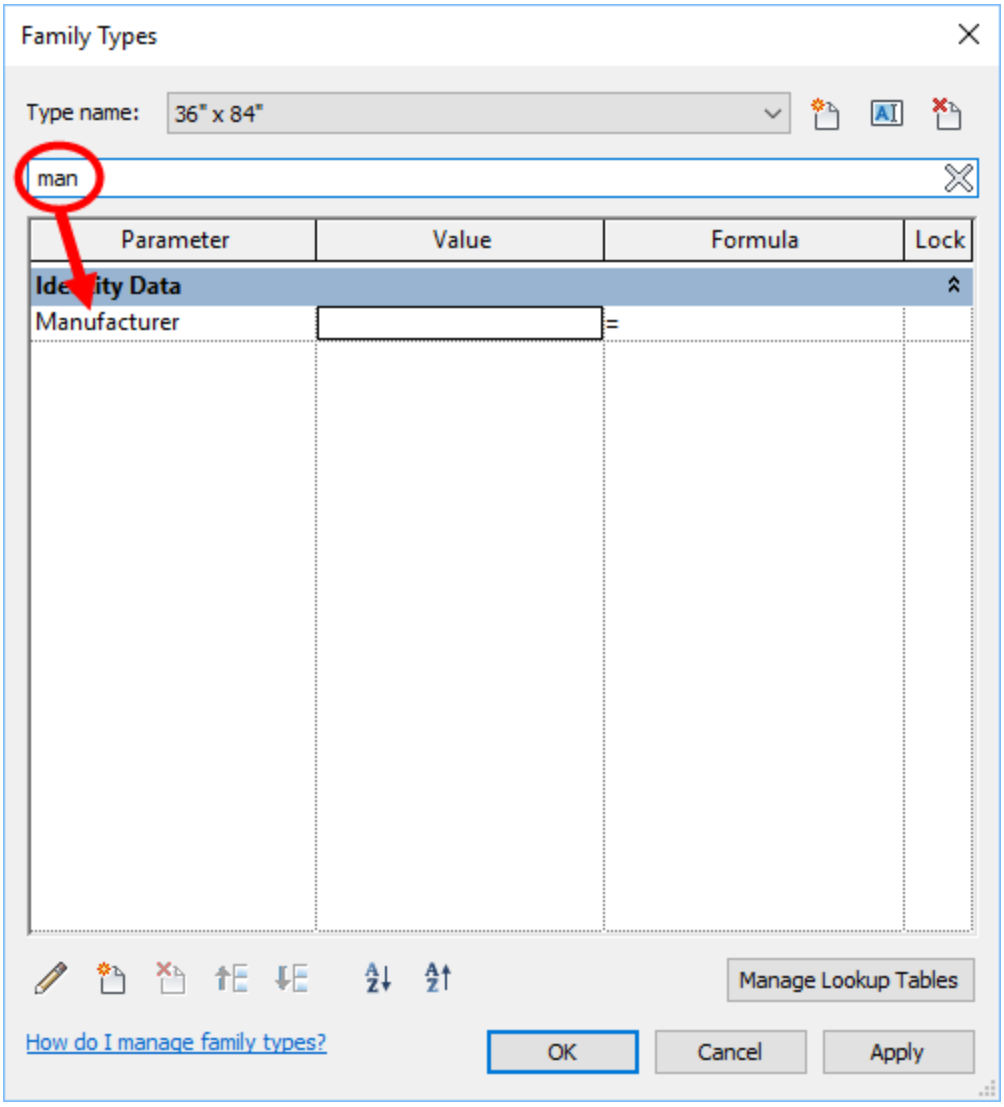
<Structural Foundation Type Schedule>

A	B	C	D	E
Family and Type	Volume	Length	Width	Foundation Thickness
Foundation Slab: 6" Foundation Slab	576.00 CF	12' - 0" ... 15' - 0"	12' - 0" ... 30' - 0"	0' - 6"
Foundation Slab: 12" Foundation Slab	1140.00 CF	12' - 0" ... 15' - 0"	12' - 0" ... 38' - 0"	1' - 0"

4. Search Feature for Family Types Dialog

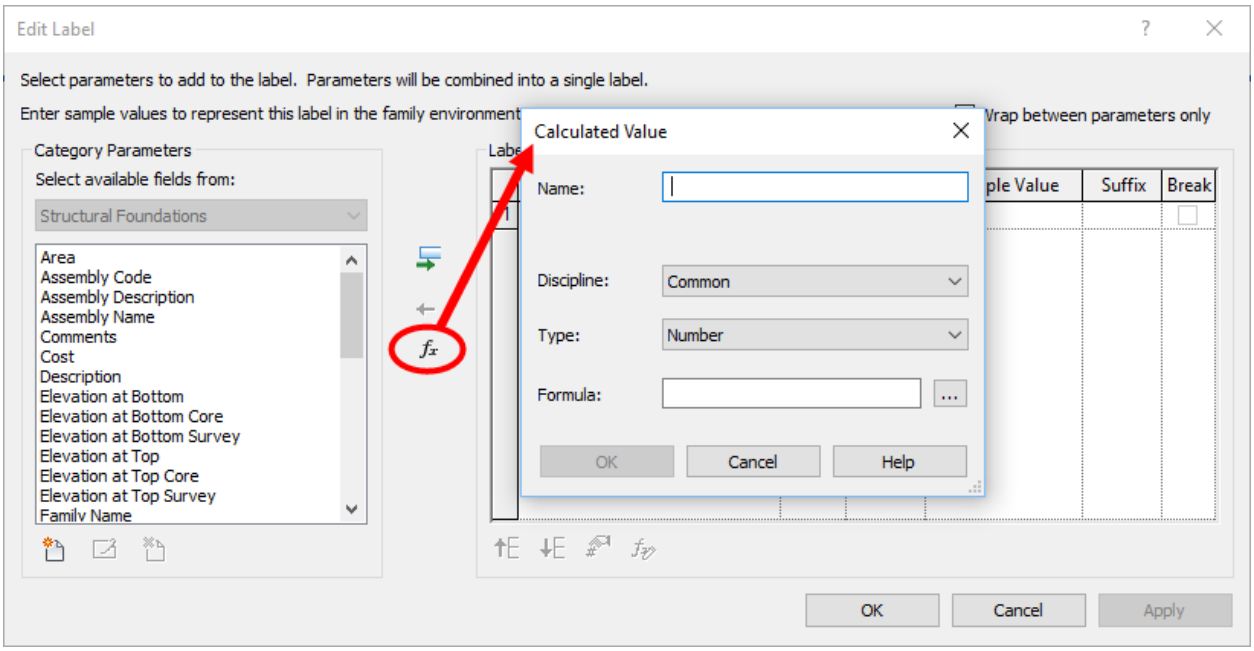
No, this isn't a miss-numbering gaffe. We just wanted to throw in another search update without you feeling like you got gipped on one of the 30!

During this release, the Family Types dialog was updated to include a Search parameters field. This is great when you have families that have hundreds of parameters. You can simply search for the parameter you want to modify. And you can search based on a string of characters. As you type, the list of parameters is filtered.



14. Calculated Values in Tags

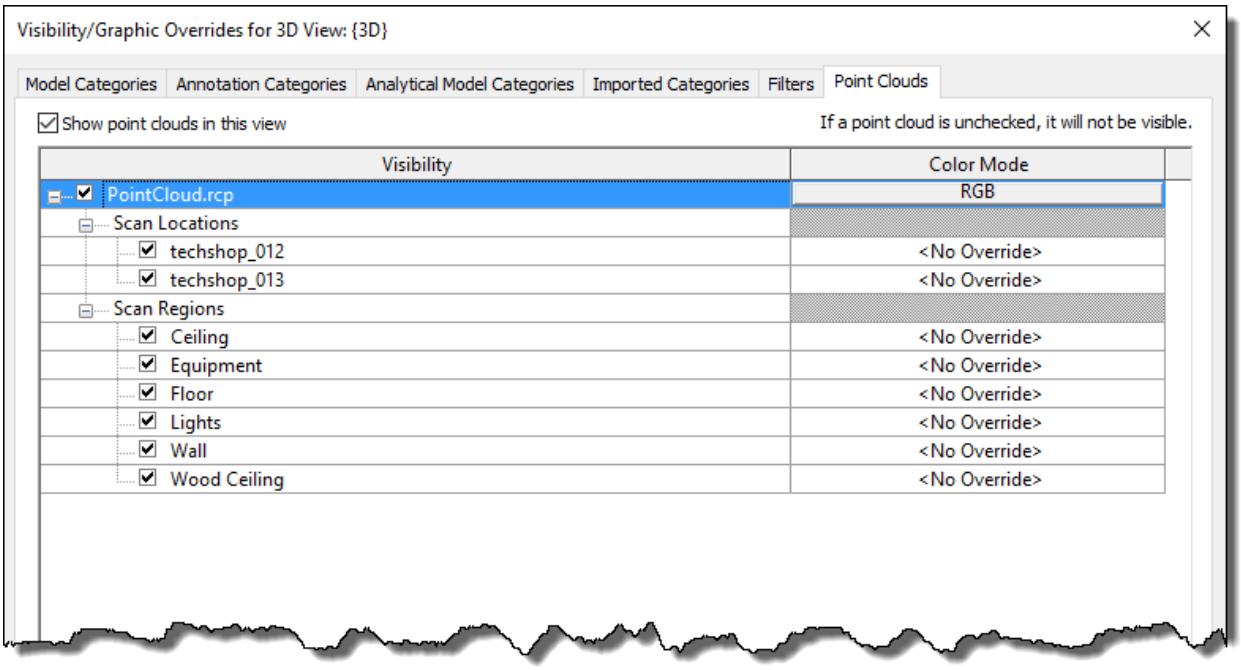
Formulas can be added to tags. This is awesome because you can add formulas to tags! To accomplish this, in a tag family, select the label you want to add a calculated value to and then click **Edit Label** in the contextual ribbon. In the **Edit Label** dialog, there is an **Add calculated parameter to label** button. You can click this button to open the **Calculated Value** dialog. Here, you can create a **Formula:** for the tag, just like you can in a schedule.



15. Visibility of Point Clouds

When you have an indexed point cloud linked to Revit, you can control the visibility of the entire point cloud, or of individual scan locations and scan regions. Scan locations are supported by most laser scanners. They are based on the locations of individual scanners. Scan regions, on the other hand, are unique to Autodesk ReCap. They can be manually created, and they allow you to control the visibility of element categories within a point cloud file.

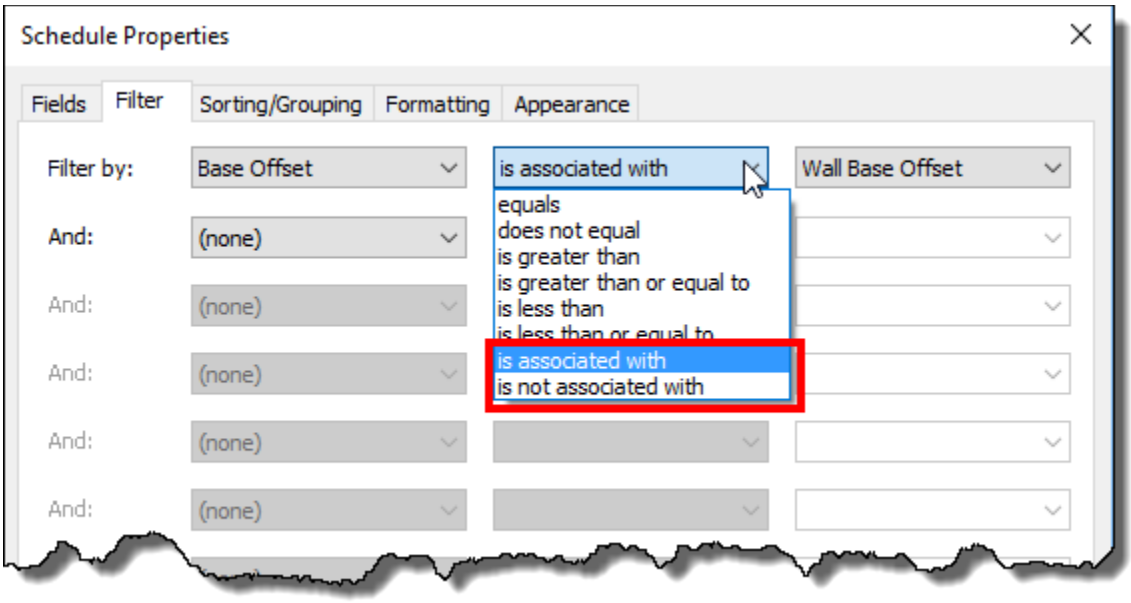
In the **Visibility/Graphic Overrides** dialog, there is a **Point Clouds** tab when a point cloud is linked to the project. On this tab, you can control the **Visibility** and **Color Mode** of linked point clouds. Also, when you expand the listing for a linked file, you can see **Scan Locations** and **Scan Regions**, if they are available in the linked point cloud. You can expand these listings to see the locations and regions available. You can control the **Visibility** of these individual locations and regions. When the adjacent checkbox is selected, then that point cloud or portion of the point cloud will be visible.



16. Filtering Schedules with Global Parameters

When scheduling elements that have parameters that are associated to global parameters, you can filter the schedule based on the association. You can filter the schedule based on the parameters that are associated to a global parameter or those that are not associated to a global parameter. This can help you identify instances that should or should not have an association.

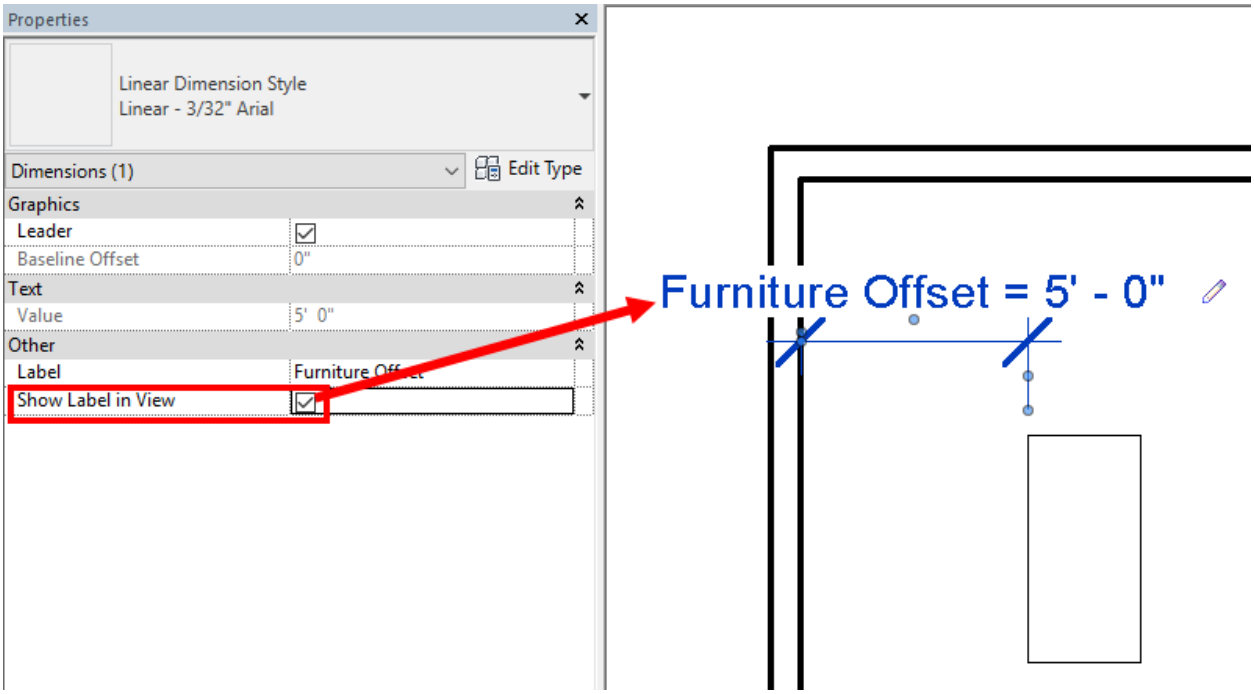
Once a schedule is created, in the **Schedule Properties** dialog, switch to the **Filter** tab. When you **Filter by:** a parameter that can be associated to a global parameter, you can select **is associated with** or **is not associated with** in the drop-down. Then you can expand the adjacent drop-down and select the global parameter.



16. Show Global Parameter Label for Dimensions

When a dimension has been labeled with a global parameter, the global parameter drives that dimension. Any changes to the global parameter will in turn update the labeled dimensions. This allows you to control multiple dimensions with a single global parameter.

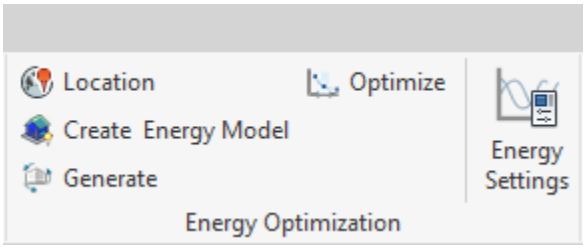
To help identify the global parameters that are driving dimensions, you can select a dimension and then select **Show Label in View** in the **Properties** palette. When this instance parameter is enabled, the global parameter that has been assigned to the dimension will appear in the drawing area next to the dimension value.



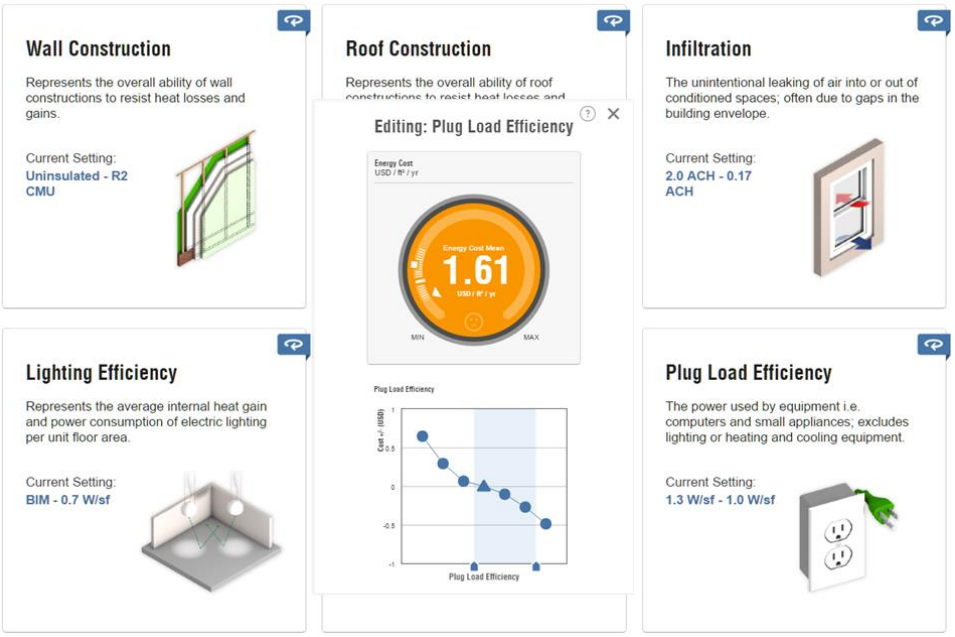
17. Insight Integration into Revit for Energy Analysis

Each release of Revit seems to have some kind of update to the energy analysis features. For 2017.1, that update was the integration of the Autodesk Insight service for energy analysis. With Insight, anyone can take a look “under the hood” of the design to see how it is performing in terms of energy usage. Insight is great for helping you to understand what factors will influence the energy consumption the most, as well as how the various design options affect the energy usage.

On the **Analyze** ribbon, in the **Energy Optimization** panel, the **Generate** tool will send the model to Insight and insights will be generated. Then you can use the **Optimize** tool to view the results, or you can use a web browser to navigate to the online interface to view the results.



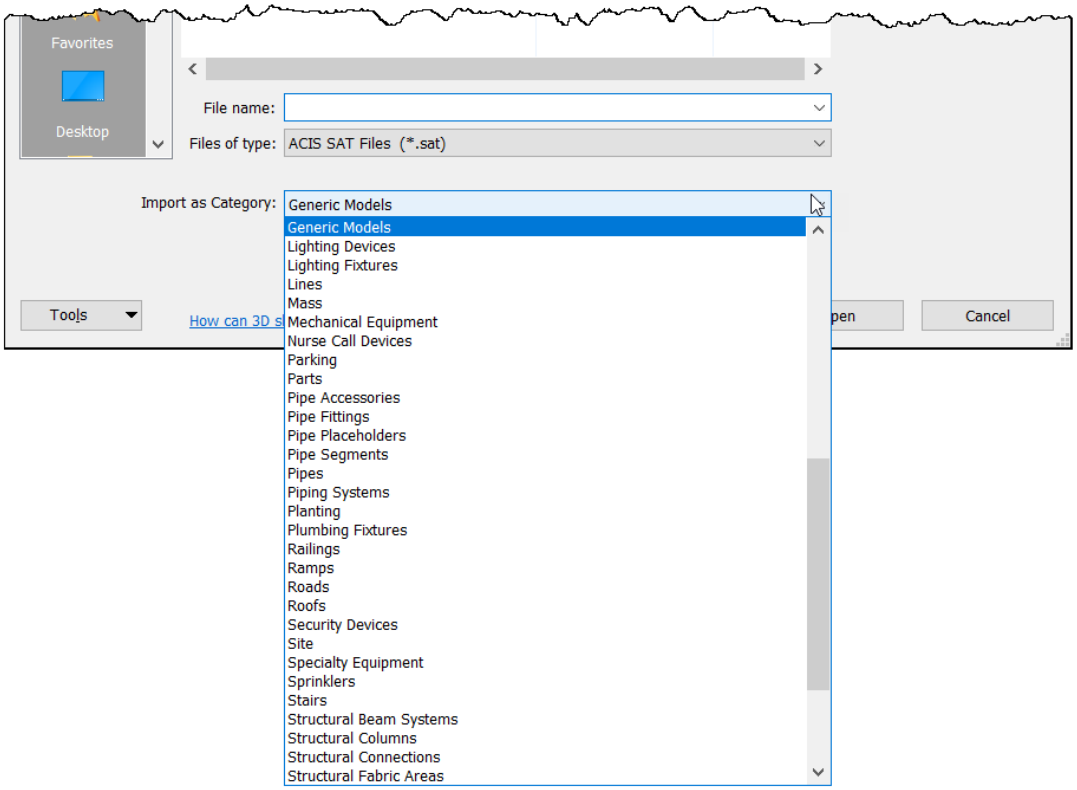
Insight focuses on the energy use intensity, or EUI. There are several factors that affect the EUI, such as HVAC systems, lighting power density, glazing properties, and many more. The EUI is a key metric in benchmarking buildings. It is essentially a building’s annual energy use divided by the total area. The resulting calculation gives you the energy use per area per year. Depending on the building type, the EUI should be within a certain range. This is where the benchmarking comes in. Insight compares your building model’s EUI to the ASHRAE 90.1 and Architecture 2030 benchmarks.



18. Import 3D Shapes

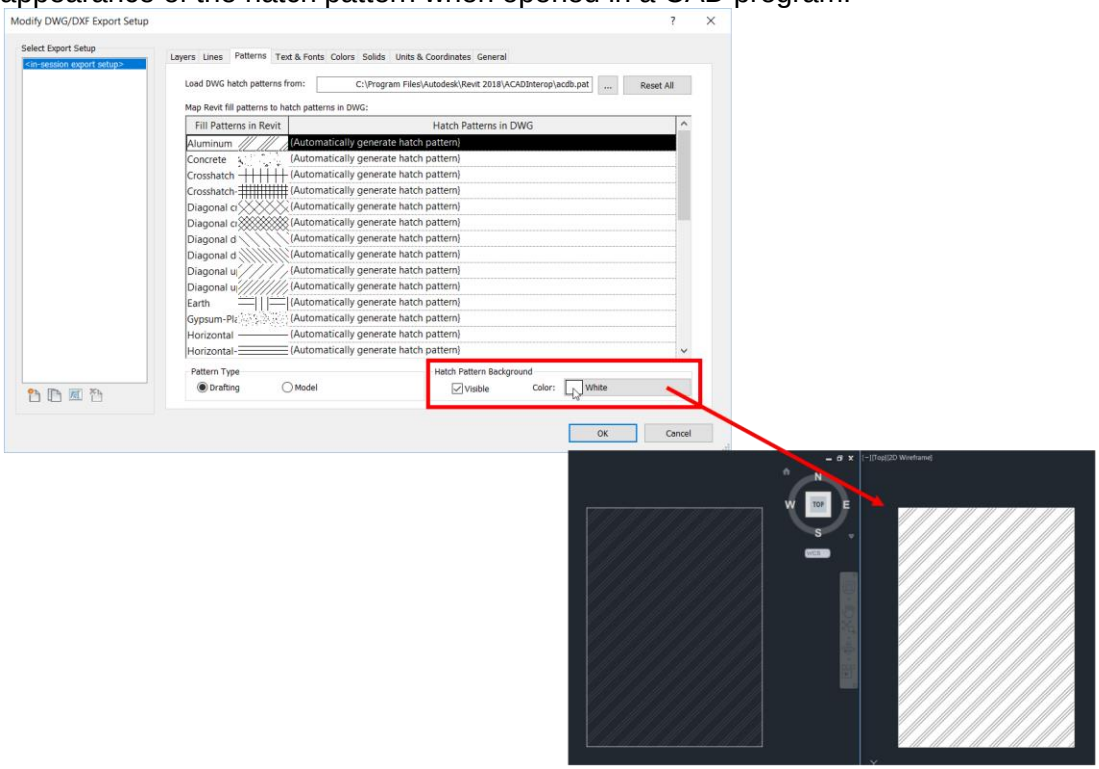
In addition to importing SAT files, Rhino files can be imported. This allows designers to import SAT and Rhino files during the preliminary phase of the design. Users can also assign a category to the imported geometry.

With the Revit 2017.1 update, all the options that were in the **Import CAD Formats** dialog have been replaced with the **Import as Category:** option. The imported geometry will behave like the category it is assigned to and contains several standard system properties, which can be useful when scheduling. If the shape is assigned to a cuttable category, you can create sections through the geometry. The imported geometry will be positioned origin to origin.

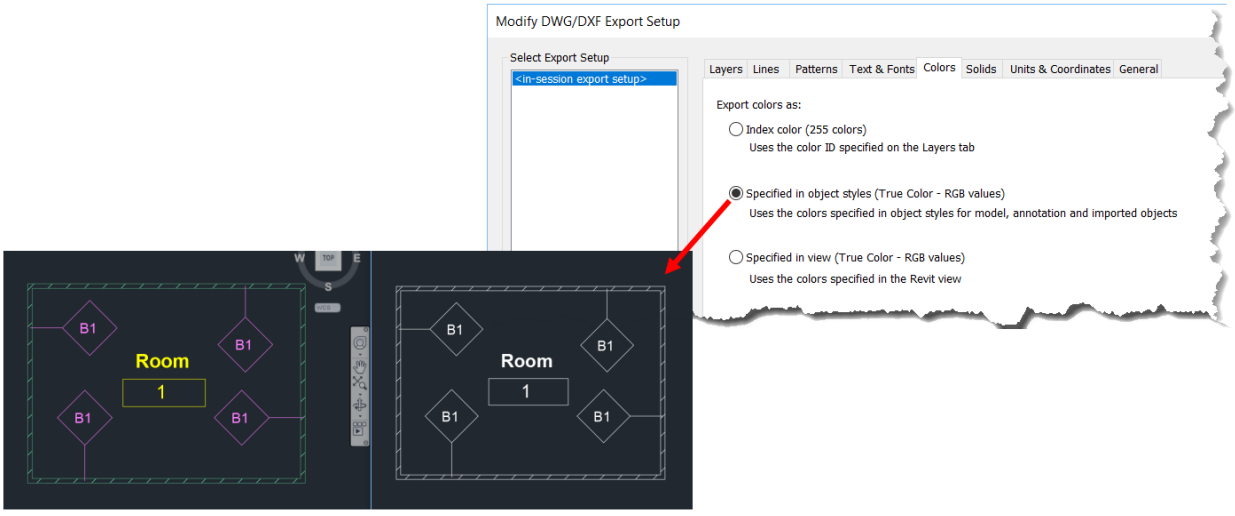


19. Export Hatch Patterns/Material Colors

In addition to mapping Revit fill patterns to DWG hatch patterns, you can specify a solid background for the hatch patterns being exported to DWG/DXF. This can help with the appearance of the hatch pattern when opened in a CAD program.



RGB values of assigned material colors can be specified for DWG/DXF and DGN exports. This allows you to maintain the material colors of the element surface patterns specified in either the **Object Styles** or in the Revit view.

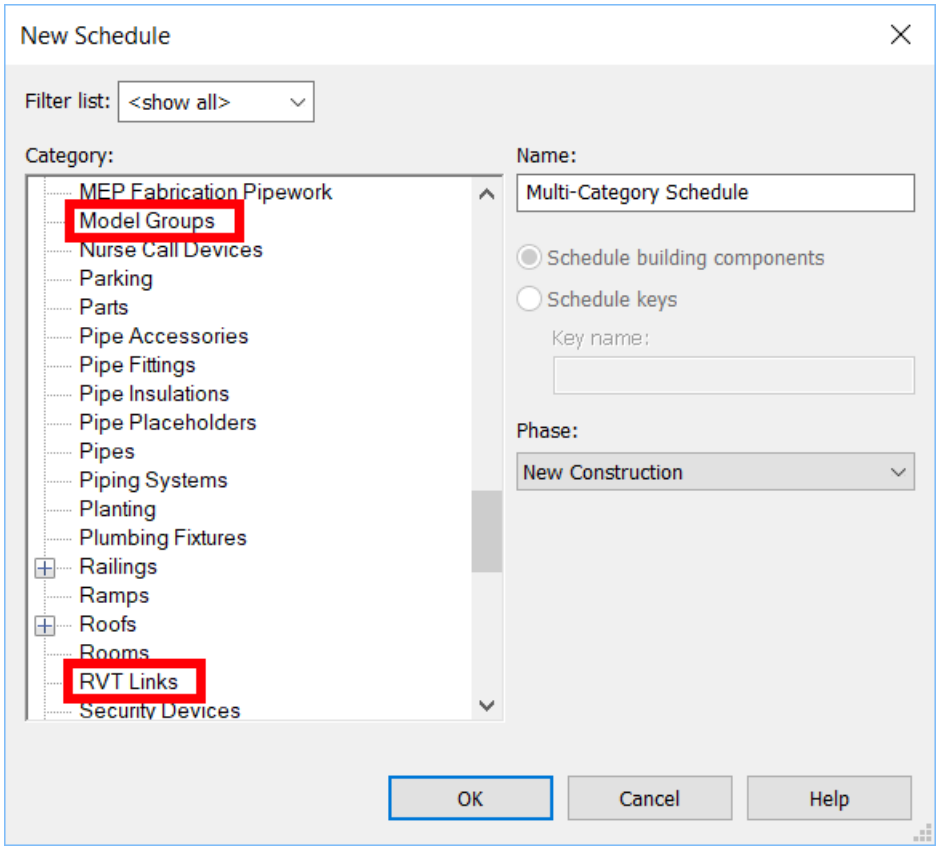


2018 Updates

20. Schedule Model Groups/RVT Links

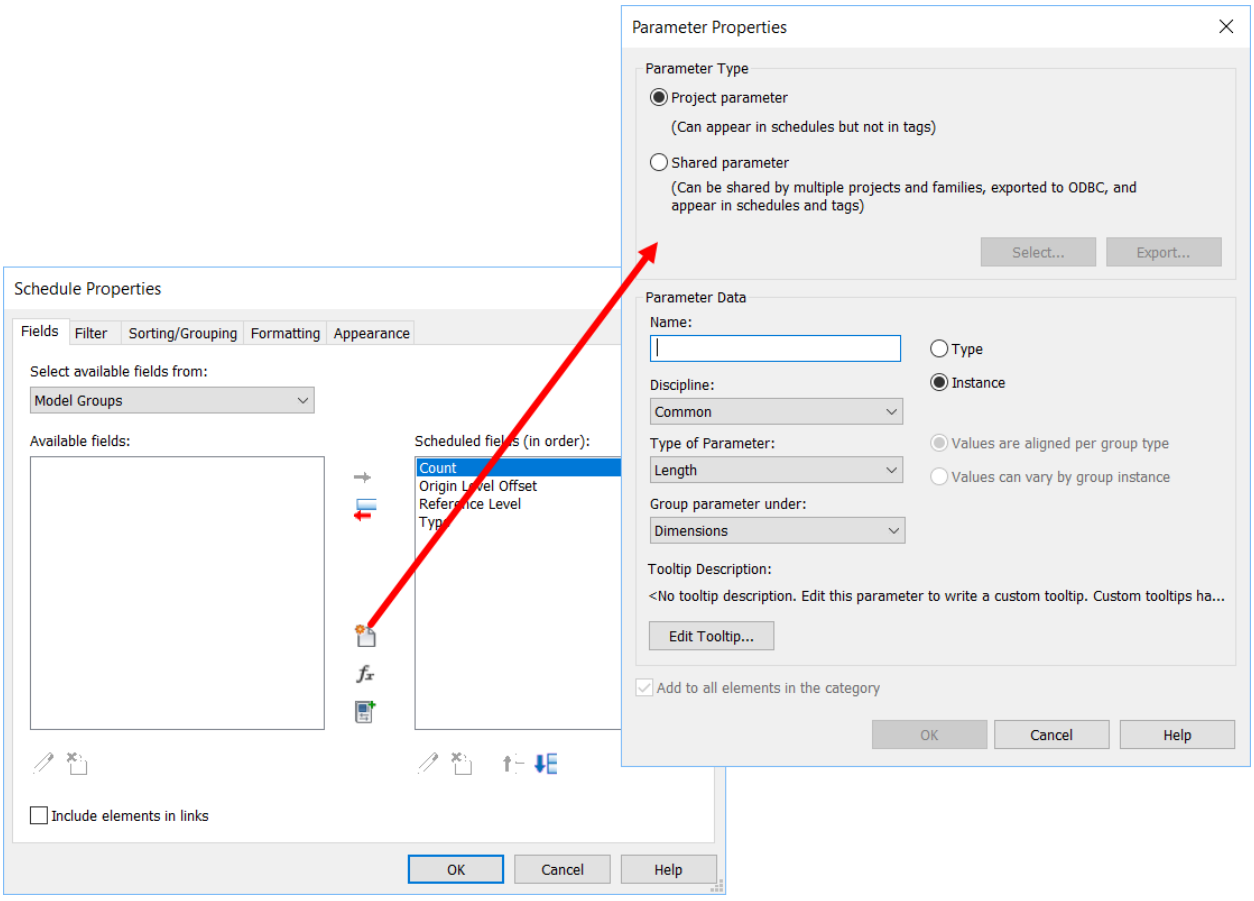
Model groups and Revit links can be scheduled. This is helpful for large projects where there can be numerous model groups and Revit links. You can create schedules to help keep track of these items or for documentation purposes.

The process to schedule a model group or Revit link is the same as creating any other schedule. In the **New Schedule** dialog, under **Category:**, you can select **Model Groups** or **RVT Links**.



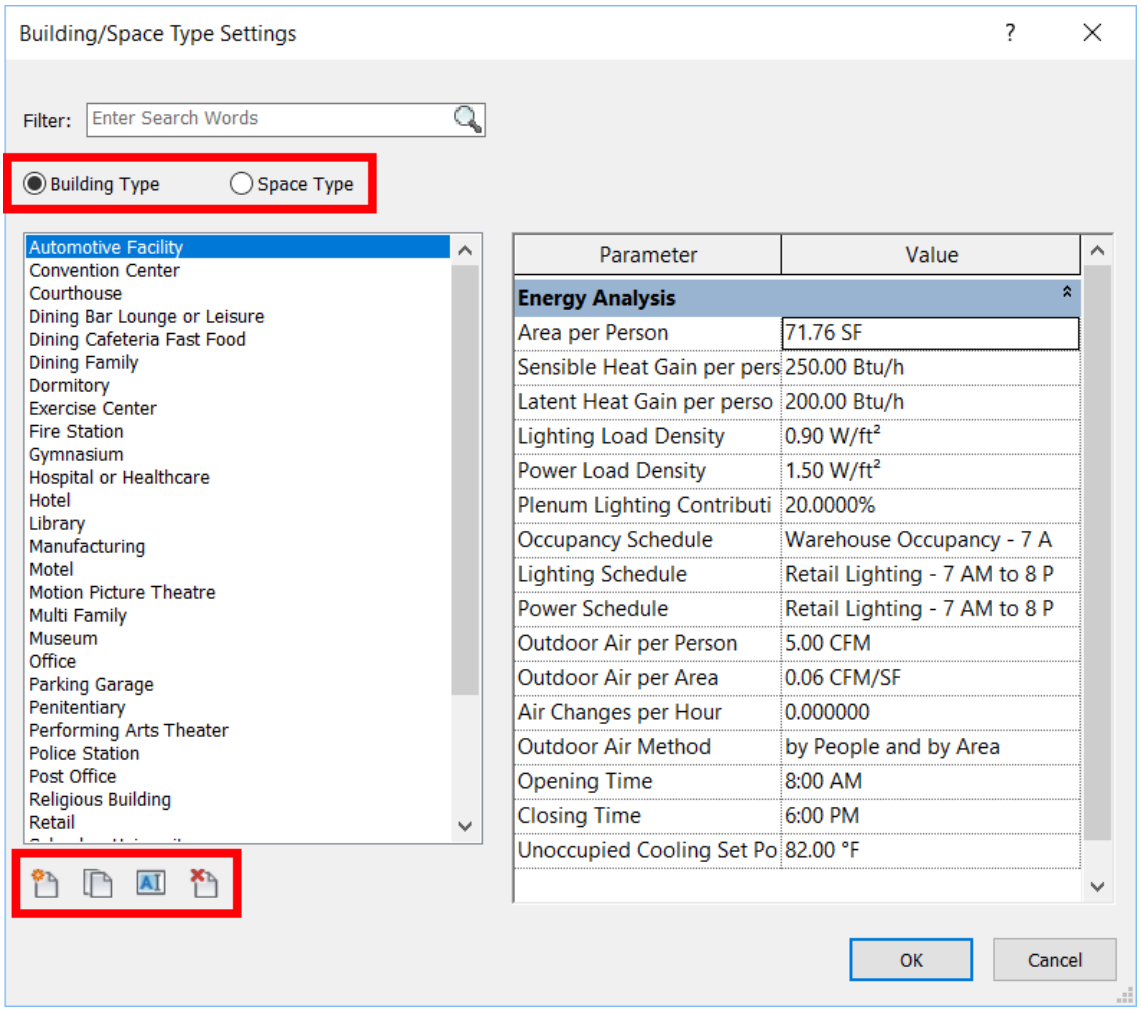
20. Add Parameters to Model Groups/RVT Links

In addition to being able to schedule model groups and Revit links, you can add custom parameters to these categories. This is helpful if you are using schedules for project management, or if you are documenting these items.



21. User Definable Building/Space Types

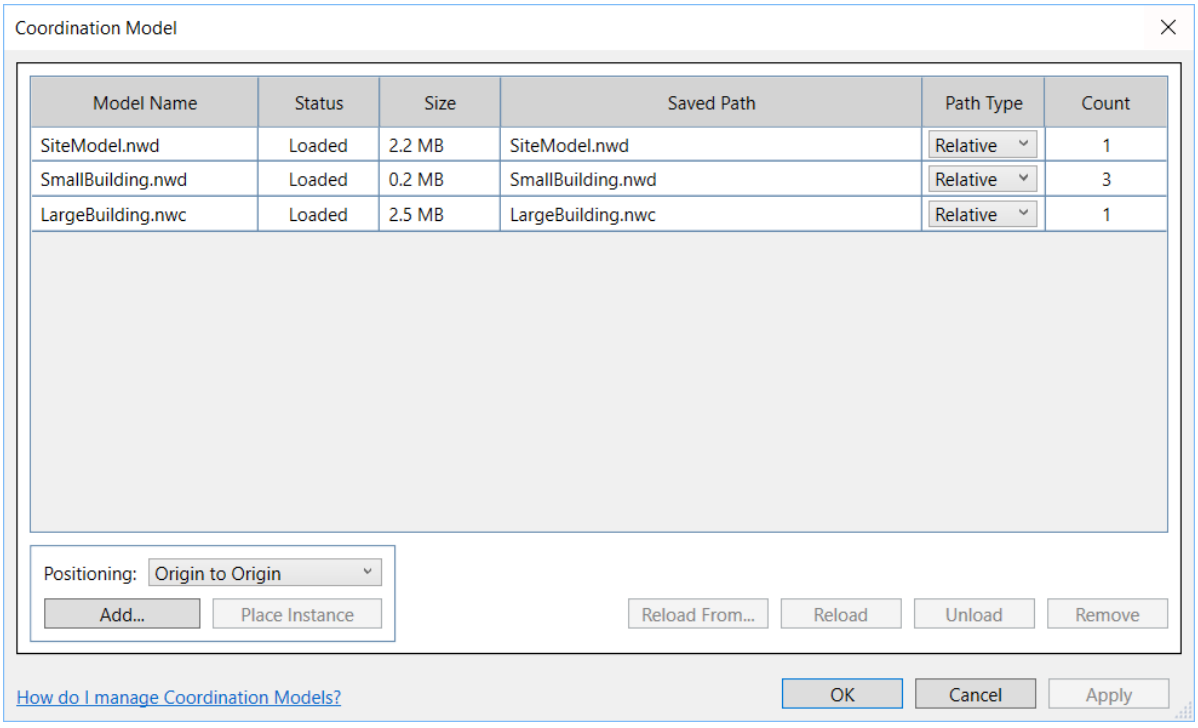
Starting in 2018, you can create custom building types and space types to meet the needs of your project. Before this release, you could only select the default types. Having the ability to create unique types allows users to expand beyond the default types provided. In the **Building/Space Type Settings** dialog, you can create a new type based on an existing type, rename a type, duplicate an existing type, and delete a type.



22. Link Coordination Models

Navisworks supports various file formats. Once data is imported into Navisworks, it can then be directly linked to Revit. This helps unify members of a team that use different software platforms to better illustrate design intent. After a Navisworks model is linked, you can control the visibility and graphic overrides, place multiple instances of a coordination model, and manage the links within Revit.

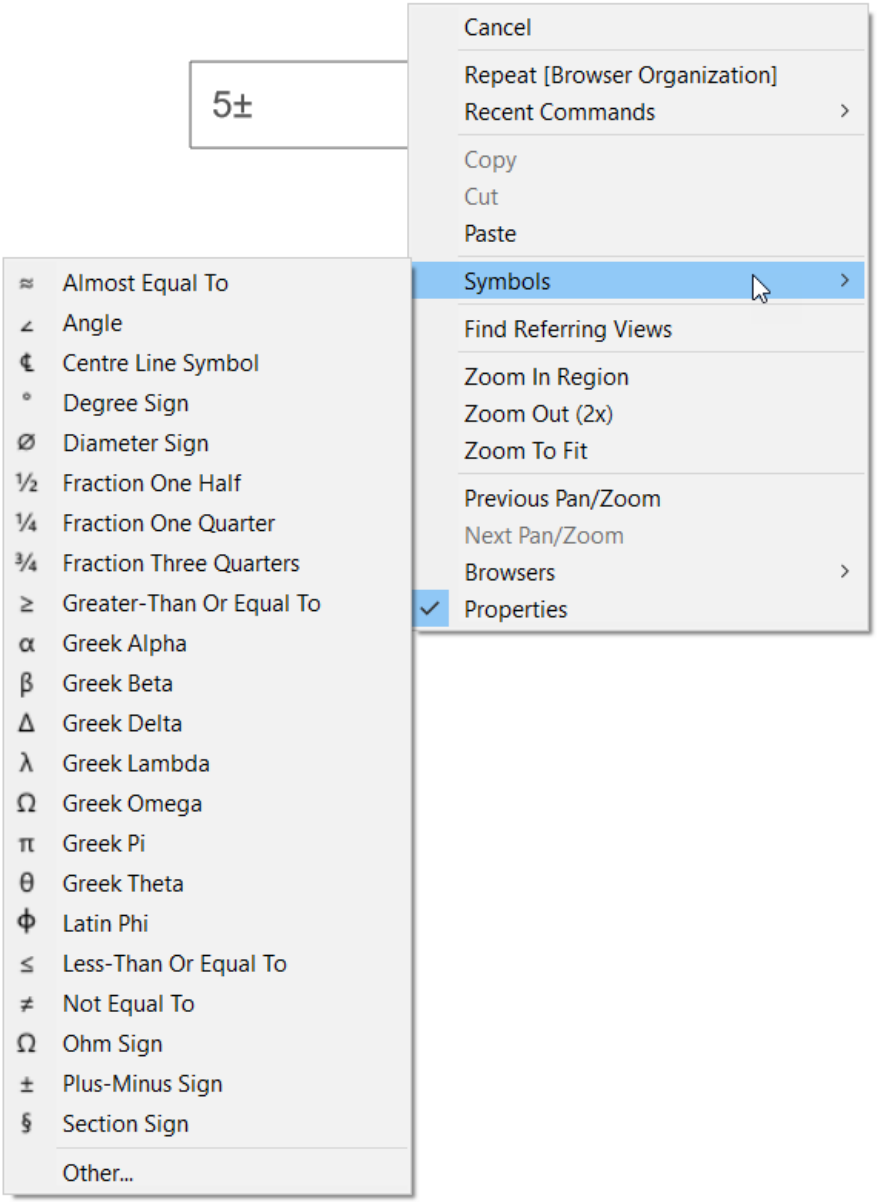
To link a coordination model, on the **Insert** ribbon, click **Coordination Model**. You can then manage linked coordination models or add new ones within the **Coordination Model** dialog.



23. Symbols in Text Notes

Prior to 2018, to add a symbol to a text note, you had to use the **Character Map** or a keyboard shortcut. With this update, you can add symbols in your text notes by using a shortcut menu. This speeds up the process of adding symbols, and you don't have to memorize keyboard shortcuts.

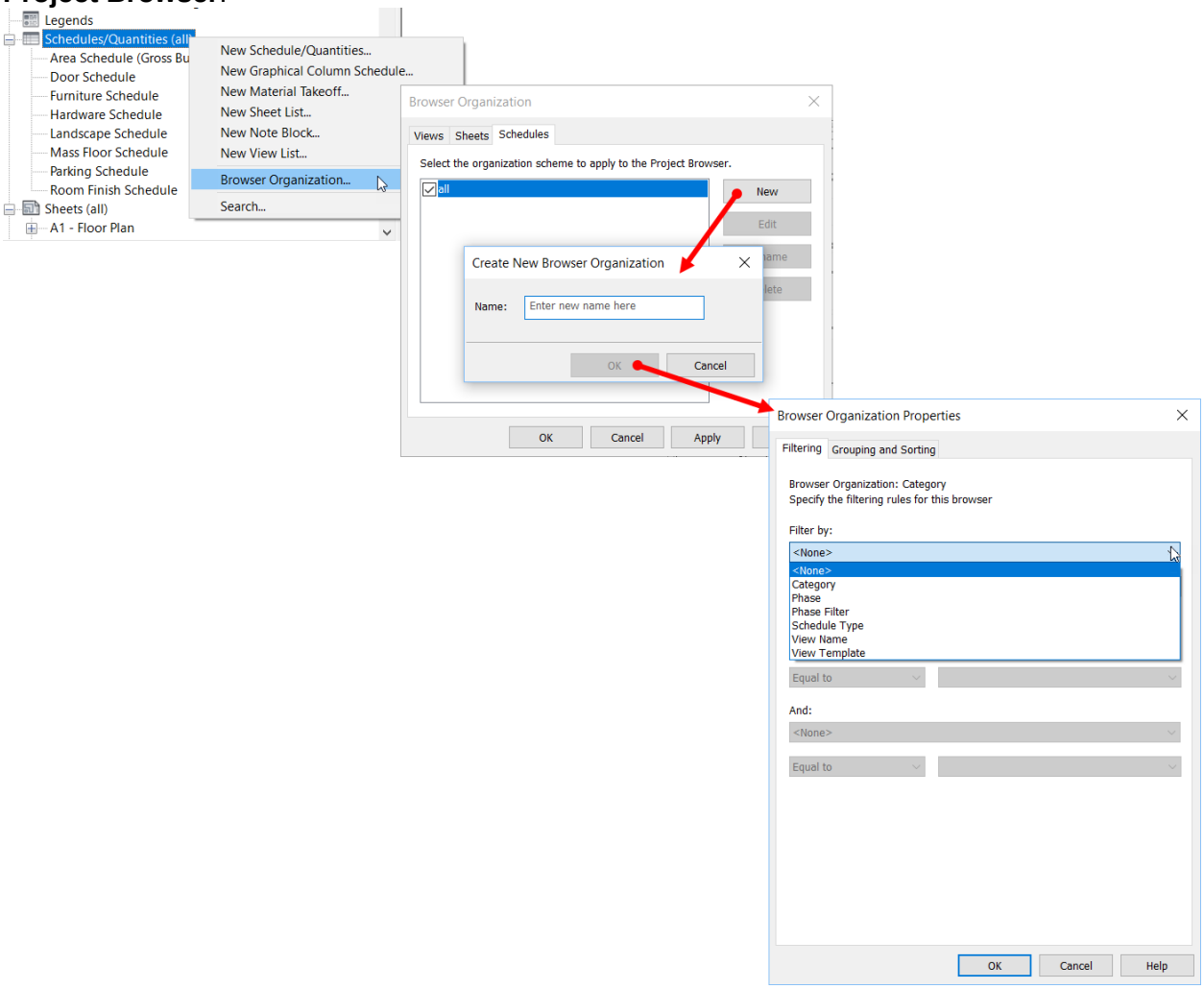
While in **Edit Text** mode, simply right-click to display a shortcut menu. When you point to **Symbols,** another menu appears with commonly used symbols. If the symbol you need is not available, you can click **Other…** to open the **Character Map**.



2018.1 Updates

24. Browser Organization for Schedules

You can filter, group, and sort schedules in the **Project Browser**. There are several ways to organize schedules that will help improve efficiency and reduce clutter within the **Project Browser**.

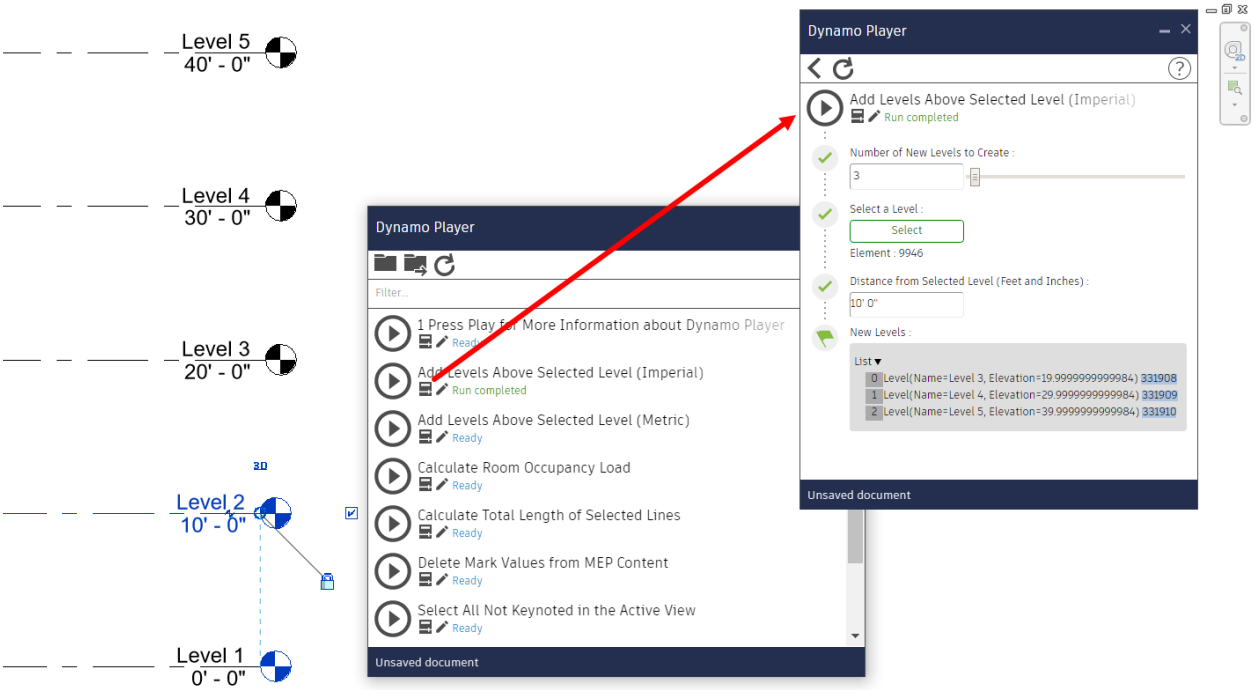


25. Dynamo Player Inputs for Scripts

Dynamo has been around for a few years now. If you don't know what Dynamo is, where have you been?! Dynamo has revolutionized the Revit world! Stop reading this paper and go find out what Dynamo is!

Autodesk released the first version of Dynamo player in Revit 2017.1. The idea behind Dynamo Player is that someone doesn't have to know Dynamo. They can simply point Dynamo Player to the location where Dynamo graphs are saved, and then they can run the graphs using Dynamo Player. The issue with the initial release of Dynamo Player was that a user could not provide necessary inputs for the graphs that needed them.

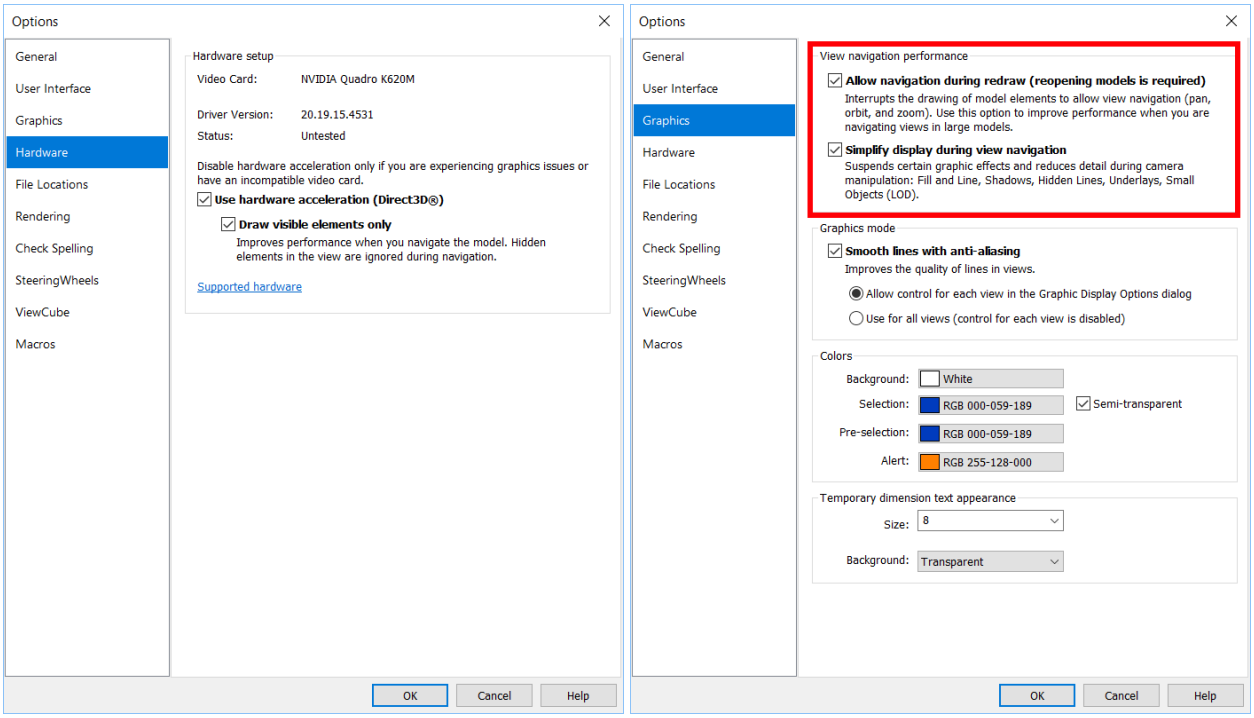
For the release of Revit 2018.1, Dynamo Player was updated. Dynamo Player now has an easy-to-use UI that allows Revit users to change input values for a graph directly in the player. This allows users to run graphs in Dynamo Player that require inputs, further increasing the usefulness of this functionality.



26. Updated Graphics and Hardware Options

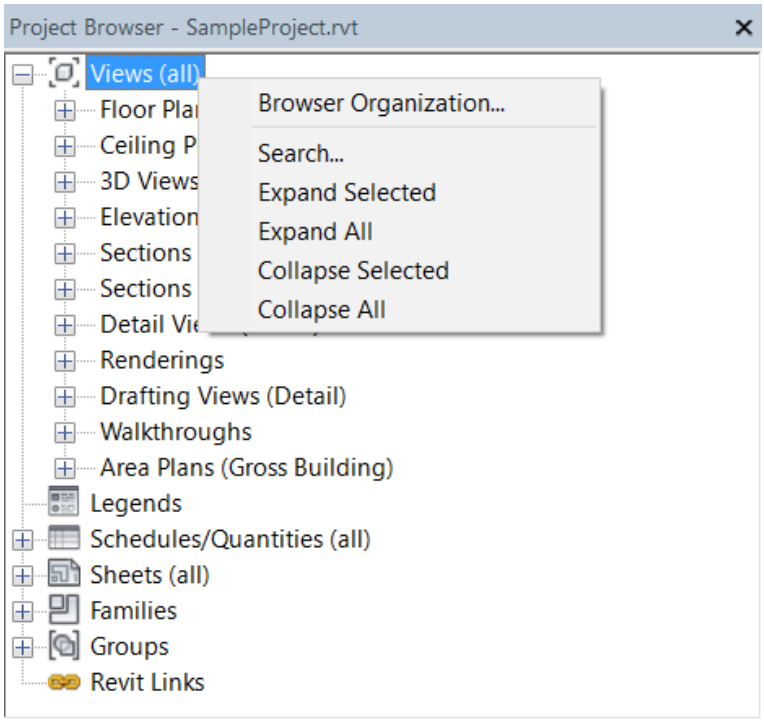
A new **Hardware** tab has been added to the **Options** dialog. Information about the graphics card, which was located on the **Graphics** tab in previous release, has now been moved to the **Hardware** tab. The **Graphics** tab now contains a new area called **View Navigation Performance** with an option to **Simplify display during view navigation**.

Simplify display during view navigation allows you to improve performance by simplifying the graphic effects and detail shown while using the view navigation tools. When a navigation tool is not in use, the graphic effects are restored.



27. Expand and Collapse the Project Browser

When you right-click in the **Project Browser**, additional options are available: **Expand Selected**, **Expand All**, **Collapse Selected**, and **Collapse All**. Depending on whether the branch you right-click is expanded or collapsed determines which of these options appear. This enhancement increases your productivity by allowing you to quickly navigate through views, sheets, schedules, and other items in the **Project Browser**.

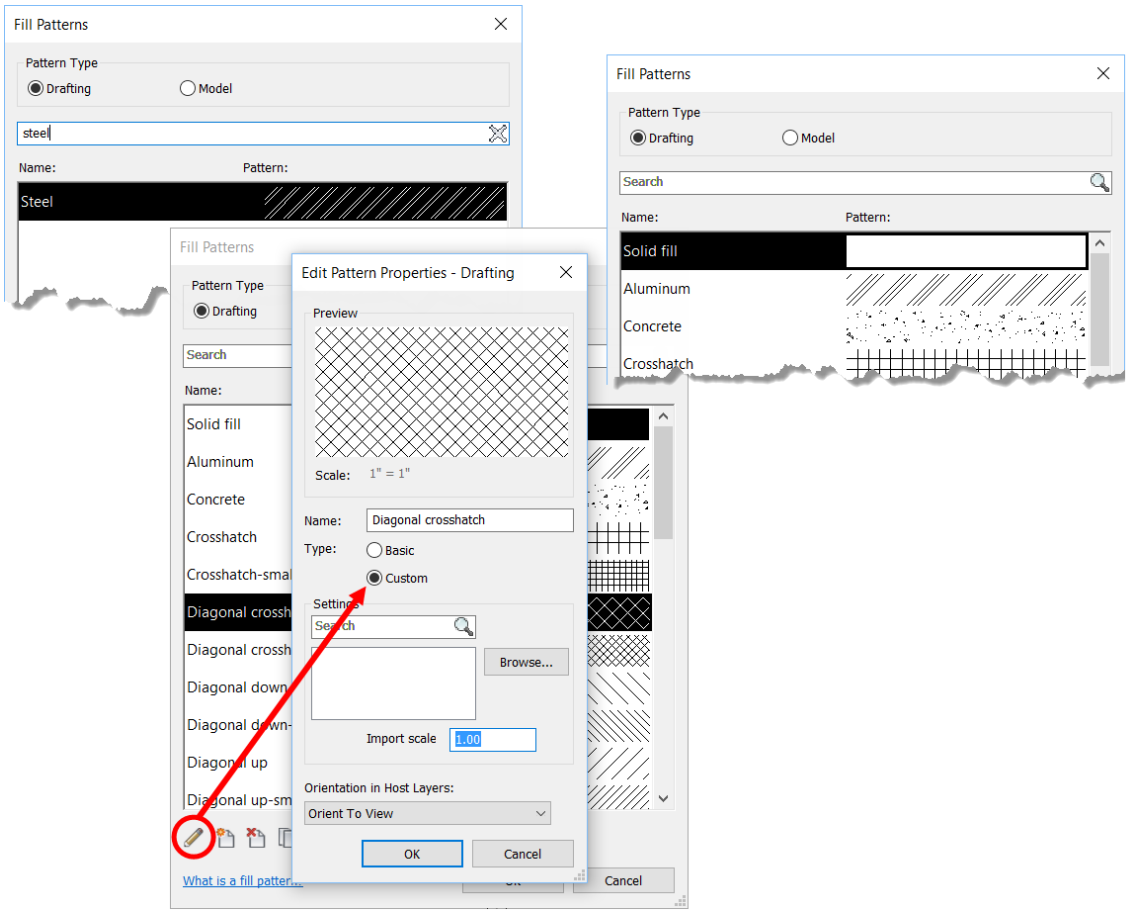


28. Updates to the Fill Patterns Dialog

Revit 2018.2 has several improvements for the **Fill Patterns** dialog:

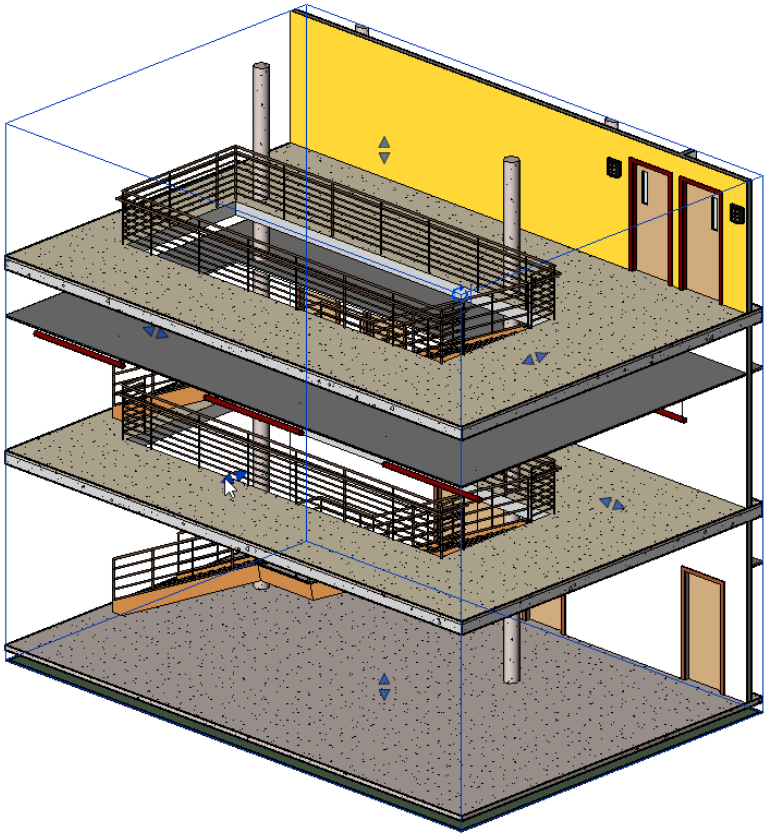
- You can select and delete multiple patterns at once.
- Custom fill patterns can be rescaled without a .pat file.
- The **Solid fill** pattern is located at the top to the dialog.
- A search bar is available.

These features have been requested for quite some time. They allow users to spend less time in the **Fill Patterns** dialog and reduce some workarounds that were needed before. The search functionality is consistent with those in update #5. As you type, the list is filtered based on the keyword you entered. In order to return to the full list of fill patterns, click the **X** at the right of the **Search** field.



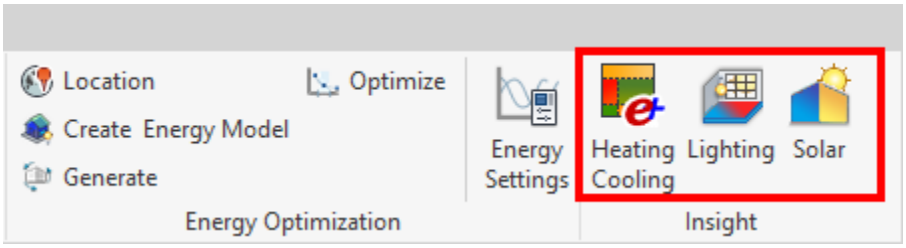
29. Improved Section Box Controls

When a section box is selected, the controls are improved so that you can more reliably adjust the section box. The cursor will snap to the controls when it's close, instead of the element that exists directly next to it. This allows you better control when adjusting the section box.

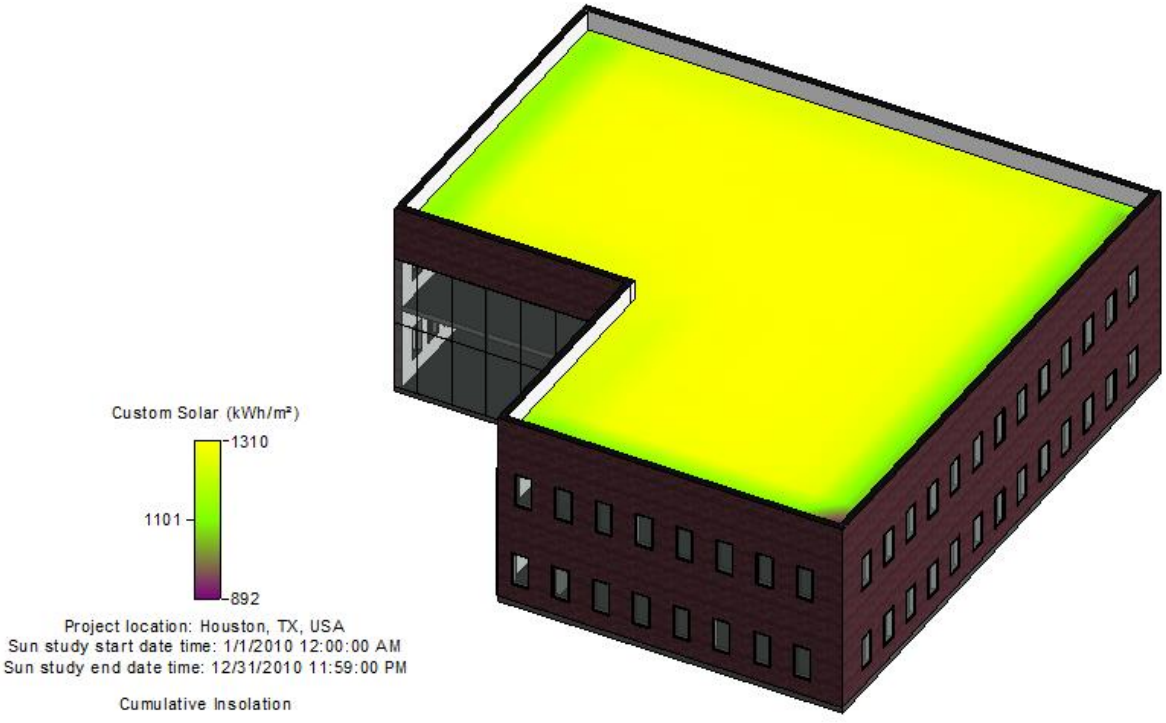


30. Insight

While the Insight energy analysis tools are now integrated into Revit, there is also an Insight plug-in that provides access to additional tools. With the Insight plug-in, you have access to the heating and cooling loads tool, the daylighting analysis tool, and the solar analysis tool.

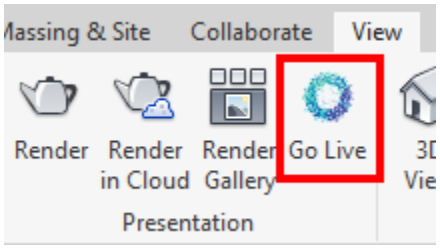


The solar analysis tool can help you determine the amount of solar radiation on the surfaces in your model, as well as calculate potential solar energy production. The daylighting analysis tool can help you determine how much natural sunlight will enter the spaces in your design. The heating and cooling loads tool allows you to view reports and visualize areas with higher loads. With these tools, you can gain insights into how you can harness the power of the sun.

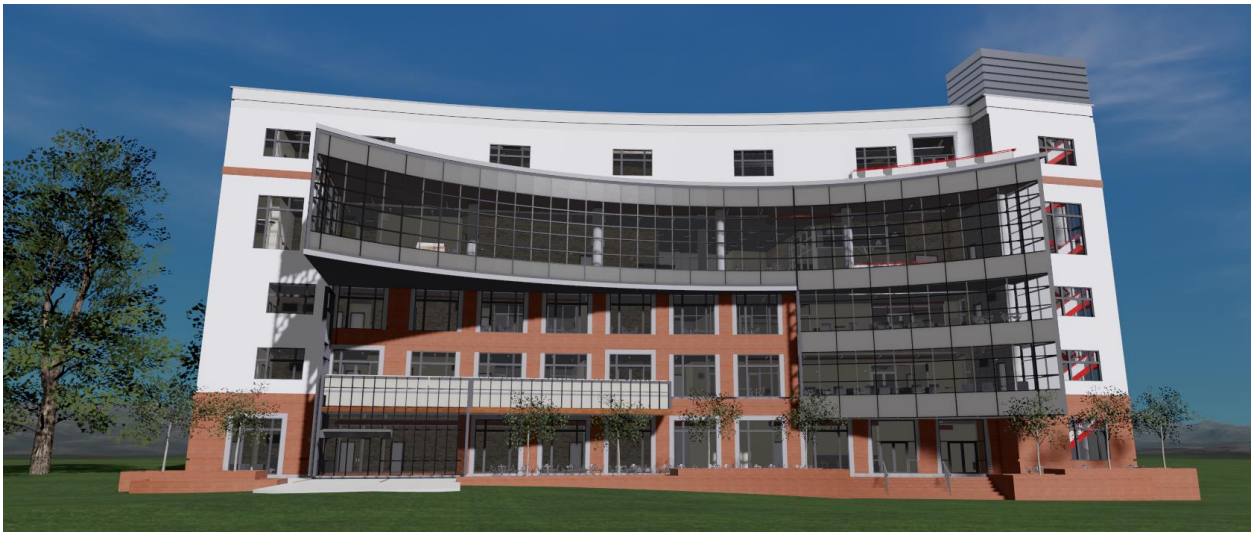


31. Revit Live

Autodesk Revit Live is essentially a real-time rendering program. It is a cloud-based service that allows Revit users to immerse themselves in their models. This helps designers to better understand and explore their building models. And now, Revit Live is included in the Autodesk AEC collection.



Once you have a model that you want to visualize, on the **View** ribbon, in the **Presentation** panel, click **Go Live**. (This button is available after you install the plug-in.) After you do, the model is uploaded to the cloud. Once it is available, you can orbit around the model or walk through the model to better visualize the design.

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