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The Return of the Superb Guide to Easy Revit

Rina Sahay

Fishbeck, Architectural BIM Manager | @rinasahay

Nauman Mysorewala

JGM | @BIMologist

Learning Objectives

- **Learning Objective 1**
Discover quick, easy workflows to expedite repetitive tasks.
- **Learning Objective 2**
Recognize and resolve challenges of the software up to the most current version.
- **Learning Objective 3**
Learn how to boost Revit performance through model optimization and system configuration.
- **Learning Objective 4**
Explore out-of-the-box, in-software, and out-of-software tools to enhance Revit workflows and problem resolution.

Description

The Superb Team is back!

Join us in this much-awaited sequel to the Autodesk University 2021 top-rated session where- during a fast-paced, lively conversation (**spiced with still more true war stories!**)- we'll continue to answer the question:

Can you push the capabilities of Revit software (versions forevermore, especially 2023) to the max?

Our answer still is: **Of course you can!**

With the help of more of our favorite workflows, shortcuts, tips and tricks, plug-ins, and resources, you'll gain the know how to enhance deliverables and dial up your productivity.

What else will you get from this session?

- You'll hear answers to user questions from last year.
- You'll gain the ability to pick and choose the best among the multiple ways Revit offers to achieve an objective.

Above all, our additional tricks for resolving curve balls in model, view, family, and annotation management and creation will help you be fearless in the face of Revit.

About the Speakers



Rina Sahay is an Autodesk Expert Elite; a Revit Certified Professional; and a Revit and AutoCAD Subject Matter Expert. As the Architectural BIM Manager at Fishbeck, she creates and maintains BIM standards; provides project support and troubleshooting; training and onboarding. She is an educator at Kalamazoo Valley Community College; provides support for Revit, AutoCAD, and 3DS Max users via the Autodesk forums and Directly.com; and serves on the Kent Career Technical Center Advisory Board. She has presented (and won awards!) at AU, in Autodesk Community Conversations, and at the BIM Coordinators' Summit as a BIM Hero; is a LinkedIn Learning content creator, and the author of the LinkedIn blog "Rina's Random Revit-isms".



Rina lives in Grand Rapids, Michigan, with her two German Shepherd Dogs, Roscoe and Renzo



Nauman Mysorewala, an Autodesk Expert Elite, has more than 25 years of experience with the Autodesk® family of products including AutoCAD®, AutoCAD Architecture, Revit®, Autodesk Construction Cloud & Navisworks®. He is a Registered Architect, Revit Architecture and AutoCAD Certified Professional, and LEED® AP. Nauman has presented at AU and numerous Autodesk Build your IQ webinars for AutoCAD and Revit in collaboration with Autodesk. He has been an Educator at University of Cincinnati & Mount St. Joseph University teaching design technology applications. He has a wealth of experience troubleshooting complex architectural, computer, connectivity and software issues. He enjoys discovering new products and technologies and implementing them in the built environment.



He loves to garden and has been experimenting with propagating and grafting fruit trees.

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Learning Objective 1

Quickest, Easiest Workflows to Expedite Repetitive tasks

In this section, we will discuss quick and easy workflows at ALL stages of a Revit project. Lets start up with some ways to speed up setting the Groundwork to get started.....

Groundwork – Get Ready to Take Off!

Template Tips

A Template provides a starting point for a Project. **It is not a carry all for anything and everything that will or may be needed in your project!**

Some essential ingredients for a good Template –

- Set up Units (Imperial or Metric) as required for your Project
- Set up Styles
 - Text Styles
 - Line Styles and Patterns
 - Dimension Styles
 - Filled Regions and Patterns
- Set up Annotations
 - Load Families
 - Assign Arrowheads to \Tag Families in their Type Properties.

Set up the bare minimum – enough to get the team started on the Project. Any additional Families, Family Types, System Family types (Walls, Ceilings, etc.), Drafting Views, can be stored in **dedicated Container Files** and added to the Project as needed.

Ideally, it is recommended that the Template be created from a new, blank file of the desired Revit version – at the very least, with every couple of software updates. This avoids needless complications from simply saving the template over and over again, with each update. ***You should NEVER see such a lengthy Document Save History in your Journal file EVER!!***

```
* 7:< Document save history --> :
* 7:< Revit 2013 2013 (2013.000) : 20121003_2115(x64)
* 7:< Revit 2013 2013 (2013.000) : 20120716_1115(x64)
* 7:< Revit 2014 2014 (2014.000) : 20130709_2115(x64)
* 7:< Revit 2016 2016 (2016.000) : 20150220_1215(x64)
* 7:< Revit 2016 2016 (2016.000) : 20150714_1515(x64)
* 7:< Revit 2017 2017 (2017.000) : 20160720_1515(x64)
* 7:< Revit 2019 2019 (2019.000) : 20180518_1600(x64)
* 7:< Revit 2019 2019 (2019.000) : 20180806_1515(x64)
* 7:< Revit 2019 2019 (2019.000) : 20180216_1515(x64)
* 7:< Revit 2019 2019 (2019.000) : 20190808_0900(x64)
```

WARNING! Please please **PLEASE DO NOT EVER** use a Beta version of the software in a production project! Beta versions carry bugs that need to be tested and resolved – they are often incurable.

Remember – a Template Project used instead of a .RTE Template file can help preset Worksets!

A titleblock trick – start with Generic Annotation template, switch to titleblock category to keep the reference planes!

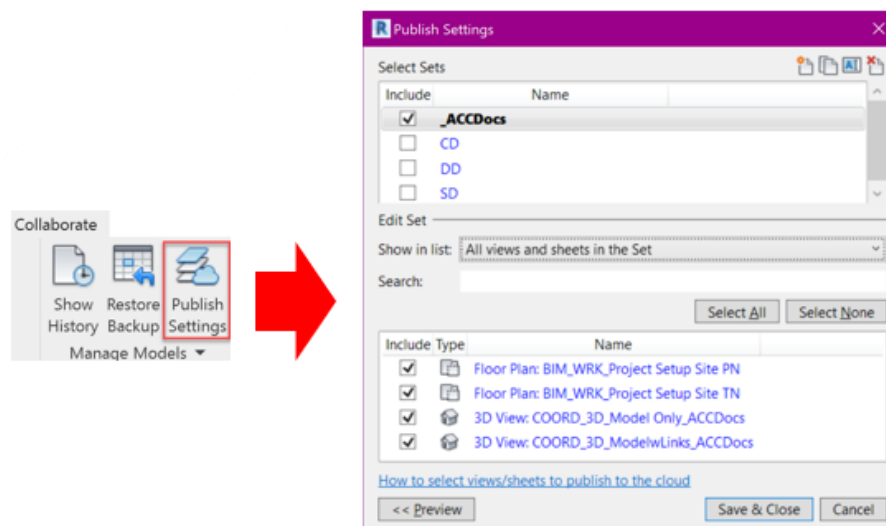


Create Published Sets in the Template

When you publish models, they are visible to external stakeholders. Only publish versions of the model that you want external stakeholders to see. If it is not created, no sheets will be posted to BIM360 to view in Document Management and all you will see will be the default 3D view

You can publish multiple sets at a time!

When published to the cloud, default 3D view and all 2D sheets are published by default. If another user has control over a view or a sheet that you want to save in a set, you can make a request to borrow the view or sheet. You cannot save it in a set of views for the cloud model until the request has been granted and you have loaded the other user's changes to it.



Publishing sets – A Published Set can also be a print set and vice versa.

Examples of Publish Sets it would be a good idea to create –

- Cloud Collaboration views
- Cloud Model views
- ACC Docs Manual Model Uploads

Views that it would be a good idea to include in a Published Set –

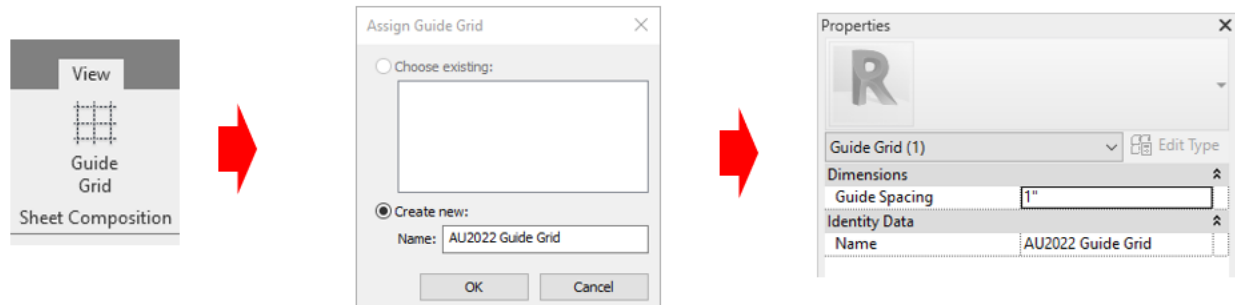
- 3D Views from Autodesk Docs
 - Only Model
 - Model with Links
- Plan Views
 - View with Project North
 - View with True North



Control Model Coordination views with View Templates to show other disciplines / consultants and assign to the Published Set

Try Using a Guide Grid!

Ensuring that views are laid out on sheets in a consistent fashion is a challenge. Creating Guide Grids can be helpful.

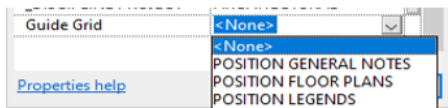


A Guide Grid can have a customized Grid Spacing. They are easily editable and can be dragged to resize. Multiple Guide Grids can be created to align different types of objects.

NOTE – Guide Grids are SQUARE!

NOTE – You cannot snap to a Guide Grid!

In the sheet - you can pick and choose from multiple Guide Grids!

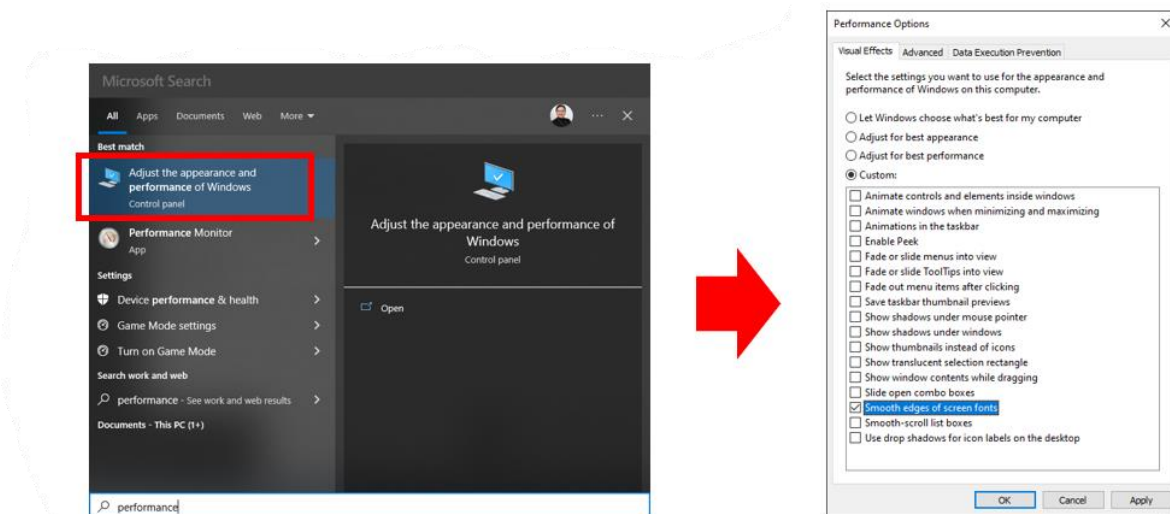


Helpful (FREE) addin – Align



Enhance Revit Performance by Tweaking Windows!

You can adjust Performance Options to enhance the performance of Windows and hence Revit. Unchecking irrelevant options (like Fade or Shadow) can help speed things up.



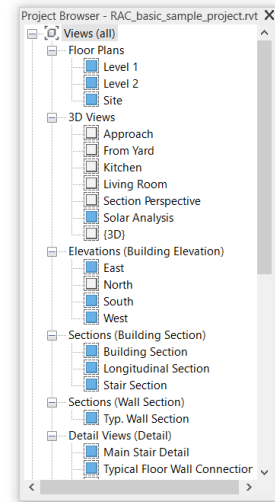
Navigate Around The Project Browser

The Revit 2023 Project Browser

A long awaited development made available in Revit 2023 is the ability to see whether model views are sheeted or not in the Project Browser.

You can see view placement on sheet status icons in the Project Browser itself!

No more creating Sheet Lists to verify whether model views are placed on sheets or not! What a relief!!

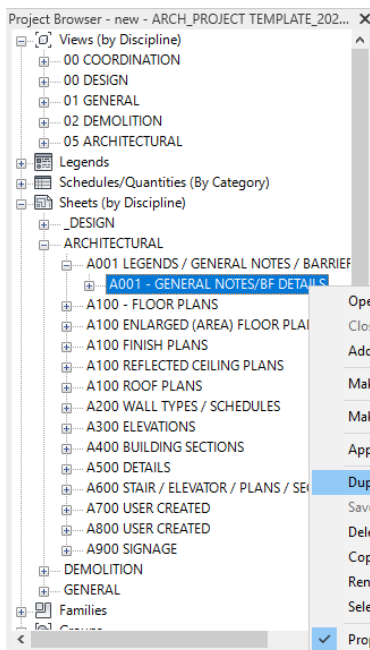


SPEAKER FAVORITE!!

Sheet Tools in the Project Browser

Some more timesavers that made their appearance in Revit 2022 –

Duplicate Sheet options!



Duplicate Empty Sheet

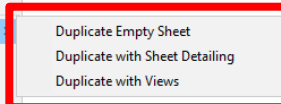
duplicates the Sheet as blank, omitting any 2D content or live views on it

Duplicate with Sheet Detailing

duplicates the Sheet along with any Legends, Schedules, or 2D views on it.

Duplicate with Views

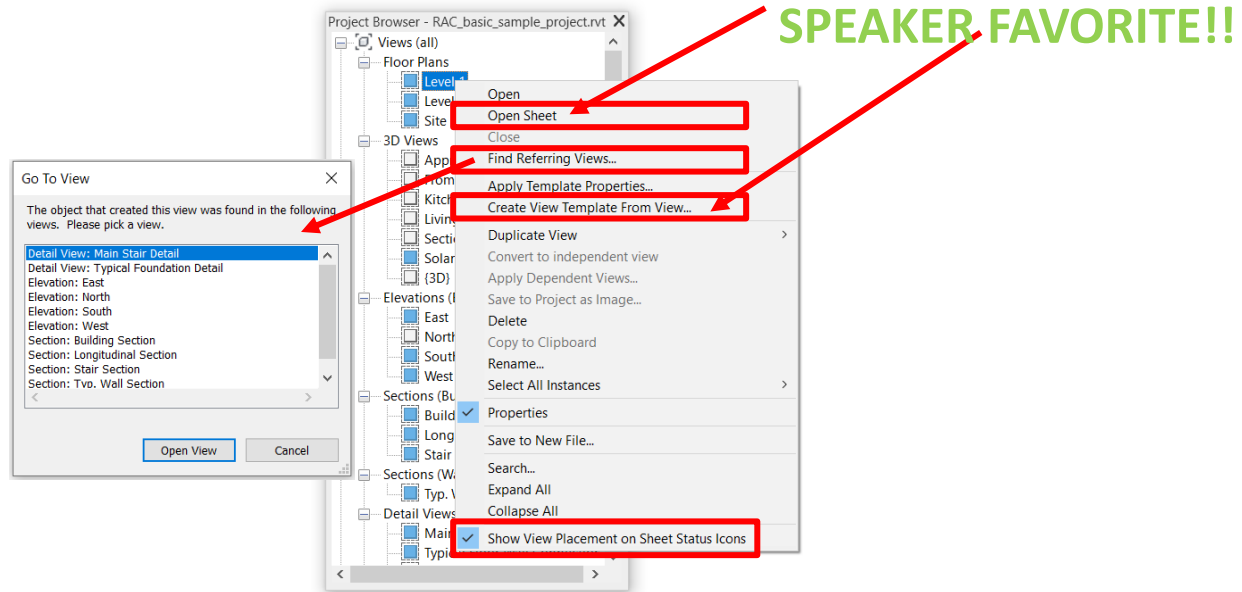
duplicates the sheet with any live views that may be living on it.



Use Duplicate with Views with caution – you may bloat your model with duplicate views!

View Tools in the Project Browser

Some old friends from the Revit Project Browser –



Open Sheet

Will open the sheet that contains the view you have right clicked on

Find Referring Views

Allows you to open any sheet that objects creating this view are found in

Create View Template From View

A quick and easy way to create View Templates from a view already correctly created. No guesswork required. An old and valued friend.

Show View Placement on Sheet Status Icons

Reverts the Revit 2023 Project Browser back to the old Project Browser, with no means to verify placement of views on sheets. Why would you want to do that?

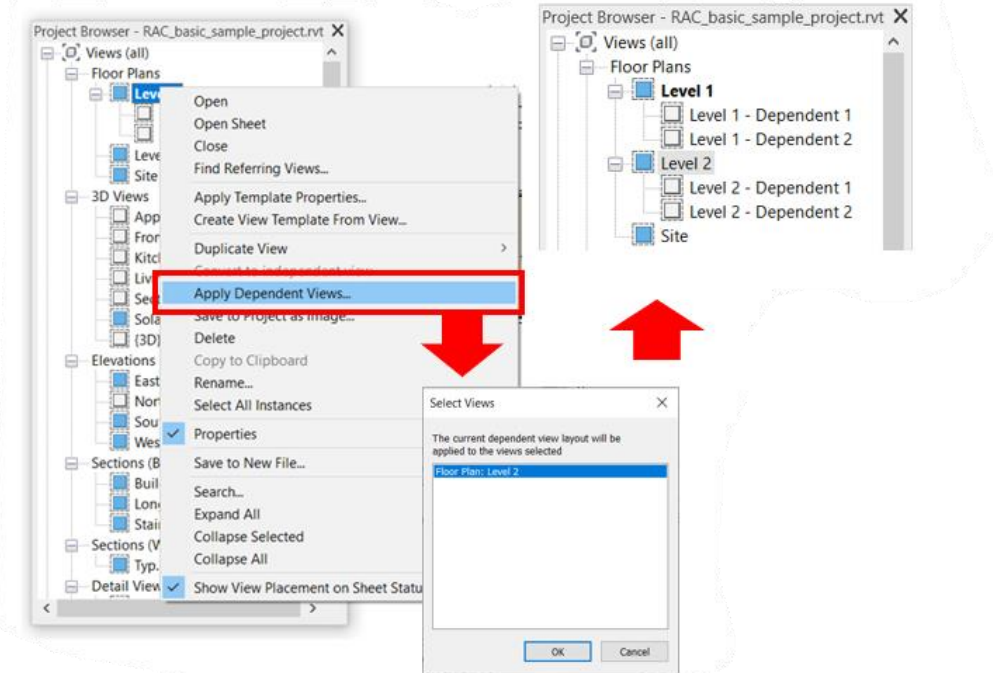


TIME SAVER ALERT!



Apply Dependent Views

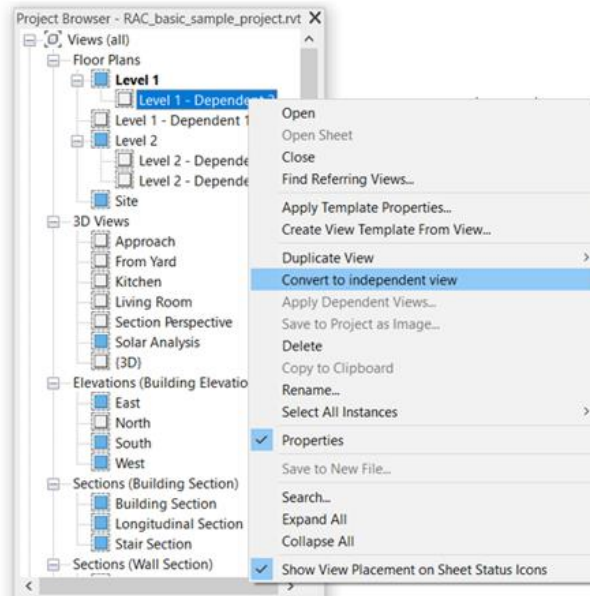
A new friend in the **Revit Project Browser** who emerged with effect from Revit 2022!



This will copy the exact same dependent views to other eligible views – with the same detailing, crop extents, etc. No more recropping, or assigning and reassigning scope boxes to dependent views!

Convert to Independent Views

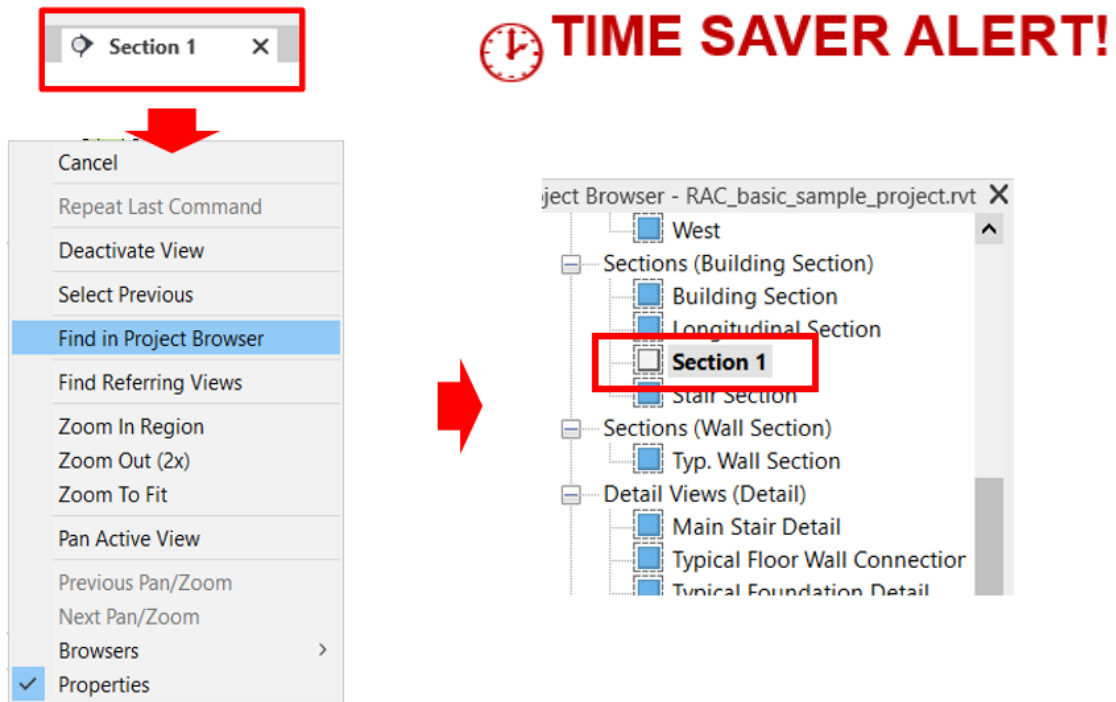
Converts Dependent Views to Independent Views (w.e.f Revit 2022).





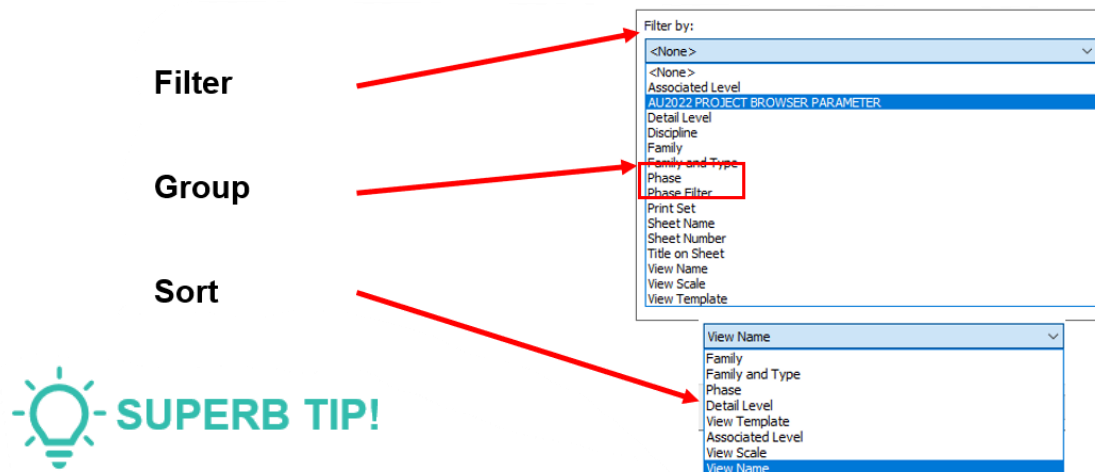
Find in Project Browser

Right click in the active view to locate it in the Project Browser. As a matter of fact, right click on a Family instance – it will show you the Family in the Project Browser! What a timesaver!



Browser Organization Tips

You can Filter, Group, and Sort to organize your Sheets and Views in the Project Browser.

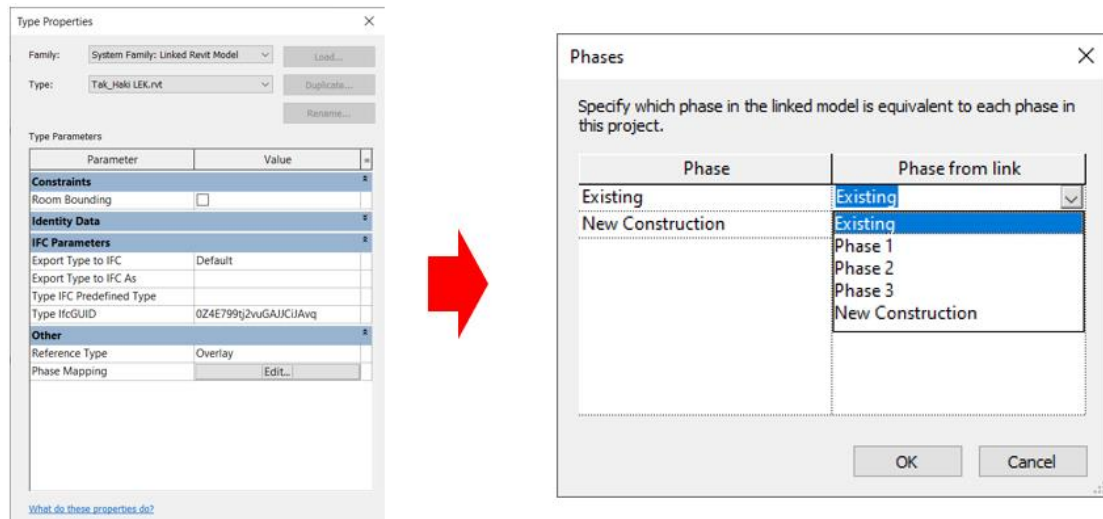


Customize still further by using custom parameters to sort into categories!

All Phase-rs ON!!

Phase Mapping

When linking models it is essential to ensure that phases from linked files match up to phases in the host project.

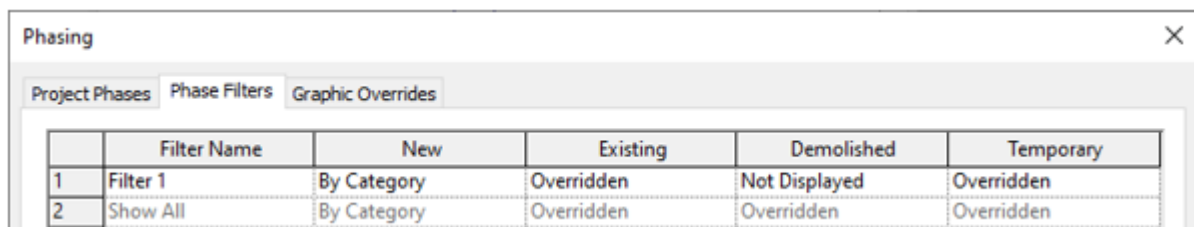


If linking a model with multiple phases that need to be Existing in host model – map the last phase to Existing in the host. All preceding Phases from the link will map to Existing.

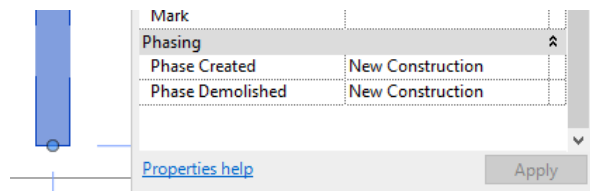


Have You Ever Used Temporary Elements?

Temporary Elements are used to show things like temporary partitions or barriers.



These elements are created and demolished in the same phase.



Use temporary elements to show temporary barriers in a New Construction view! Set up phase filter to Show All. Do NOT set up a phase for Demolition! – it's an activity in the current phase

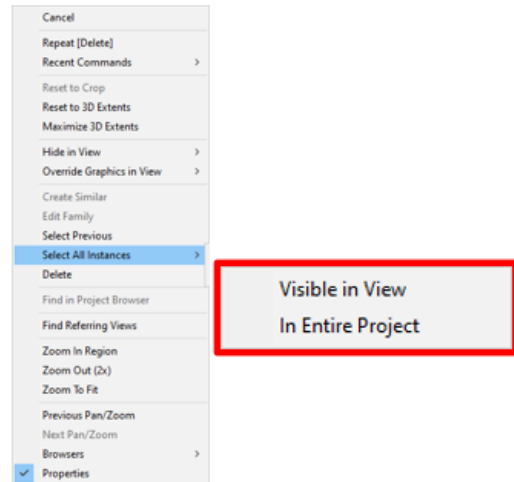


.....and many, many other Revit Things....

Selecting Multiple Categories of Elements

With effect from Revit 2022.1, the capabilities of the Select All Instances tool have been expanded to include more element categories –

- Rooms
- Spaces
- Room Separation Lines
- Space Separation Lines
- Insulation Lines
- Matchlines
- Reference Planes



These Categories are limited to Select All Instances >> Visible in View Only –

- Revision Clouds
- Property Lines

For Model and Detail Lines, the functionality is filtered by the type of line, and then by Line Style.

Copy Legends Between Projects – NO PLUG-IN REQUIRED!

Being able to copy Legends between Projects has long been a challenge. Try these steps –

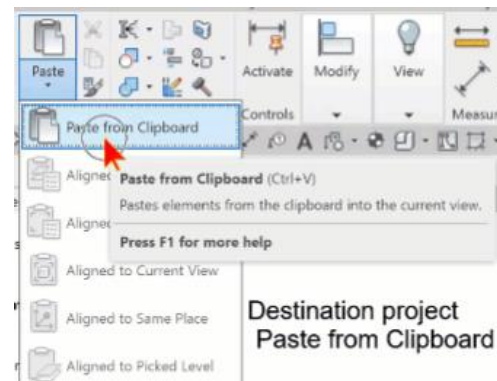
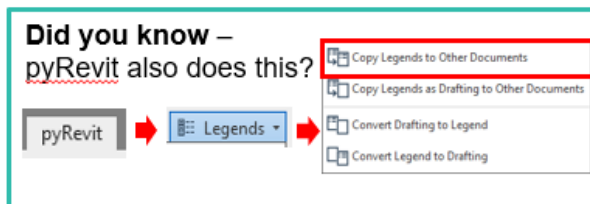
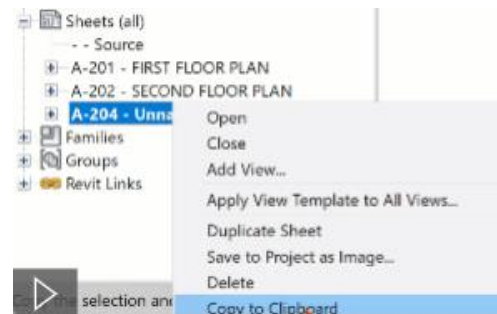
In the Source Project

- Create a new Sheet
- Add desired Legends to the Sheet
- Right-click on the Sheet name in the Project Browser (this is important!)
- Copy to Clipboard

In the destination Project

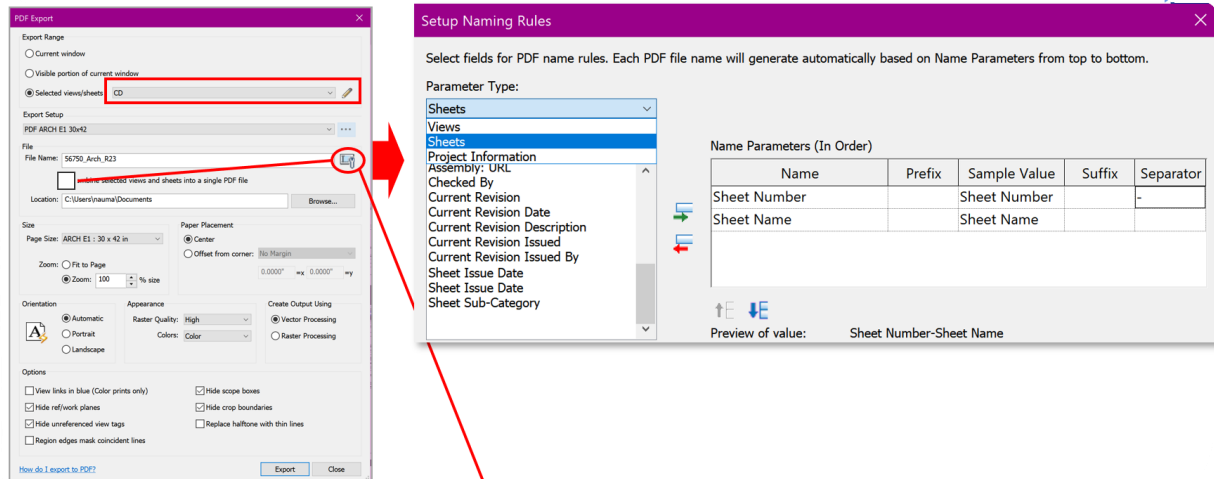
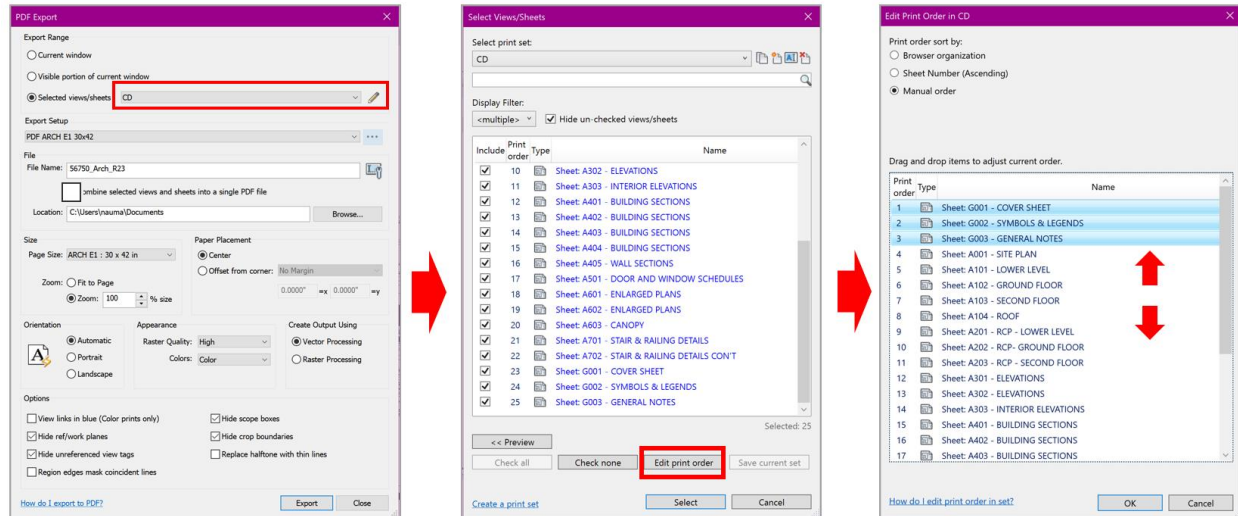
- Paste from Clipboard

For explanatory video – click [HERE](#).

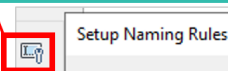


Customize Print Order in PDF Exported Sets

A favorite from Revit 2023! You can create Publish Sets, and click and drag sheets to reorder them.



You can bulk rename exported PDFs per standards by **Setup Naming Rules!**



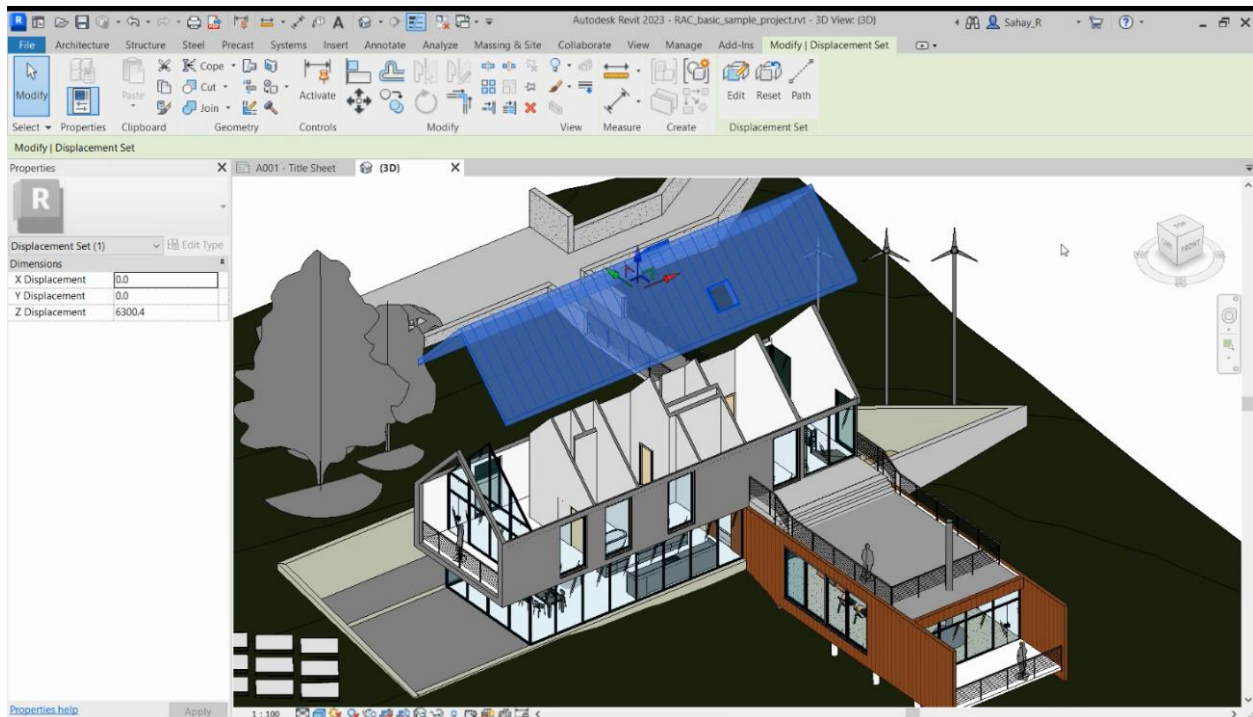
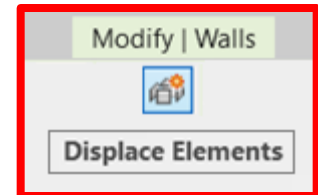
SUPERB TIP!

Only See What You Want....

Exploded (Displaced! Views in Revit?

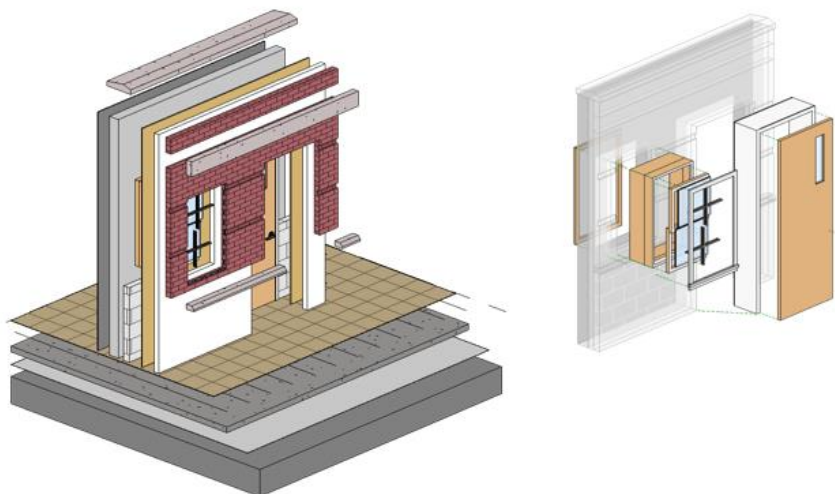
What a cool tool! It allows you to create an exploded view of your model to create a cool visual.

Introduced in Revit 2014, this has been a much overlooked tool. You can select an element in a locked 3D view and drag it out (or be precise and enter exact X, Y, and Z values) to show how parts of the model go together.

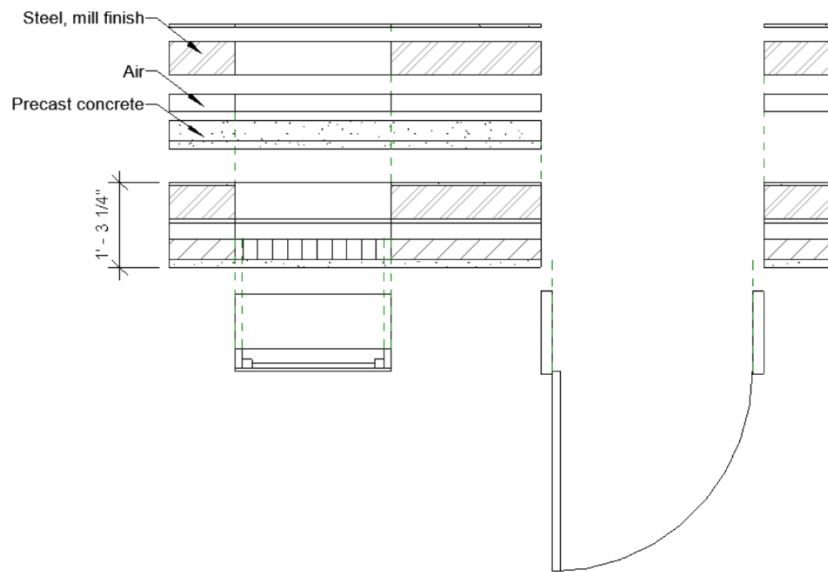


For the explanatory video, click [HERE](#).

Now in Revit 2023, you can displace Parts!



You can even explode views in 2D!!

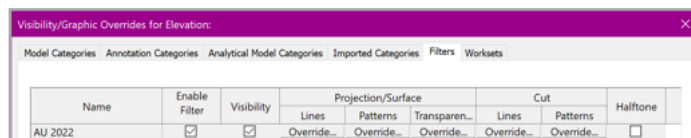
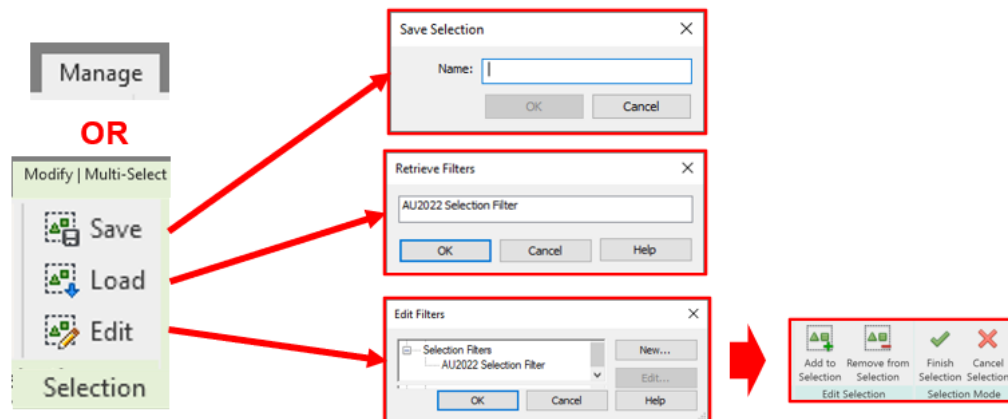


Elements can be tagged by using **Annotate > Tag All!** When a tagged element is moved in a Displaced View – the tags will also move along with it!

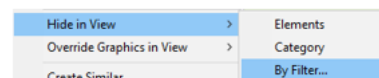


View Filters and Overrides Using Selection Sets!

You can filter elements by selection set without the need to concern yourselves with parameters and categories. The Set and filter can be edited by adding or removing elements to be flexible and accommodate changing needs.

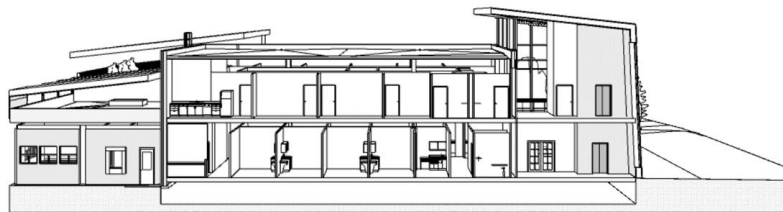
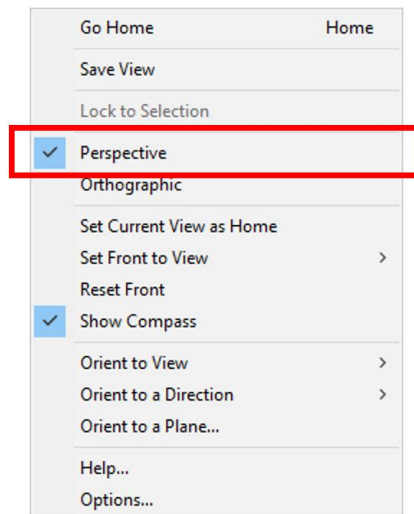


OR



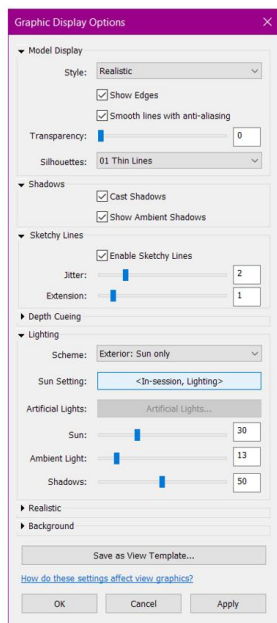
Do You Want To Create One Of Those Cool 3D Cutaway Views?

Heres a tip to create a cool visual. Start with a 3D view. Activate the Section Box to cut the model where you want it to. Lock and save the view. Right click on the View Cube to toggle between Orthographic and Perspective views.



Hidden Line Perspective

Set the Render Mode to the desired level of detail.



Realistic view with Shadows & Sketchy Lines Edges



Why Is This Elevation Tag Upside Down?

In my experience, something like this happens when

The Scope Box is rotated

OR

The model has been rotated after annotations have been placed

Hard solutions –

Recreate the affected Elevation view – this may involve a lot of work for a fully noted view

OR

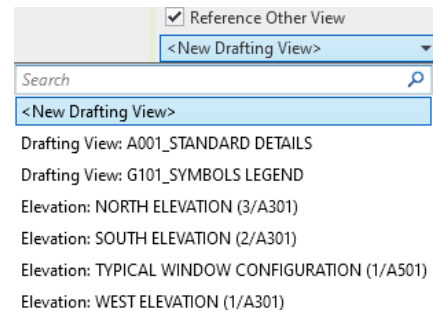
Create a new Elevation type associated with an upside down Tag family

Both solutions may involve much too much effort.

Here's a **quick solution** –

Elevation >> Reference Other View >> select original View

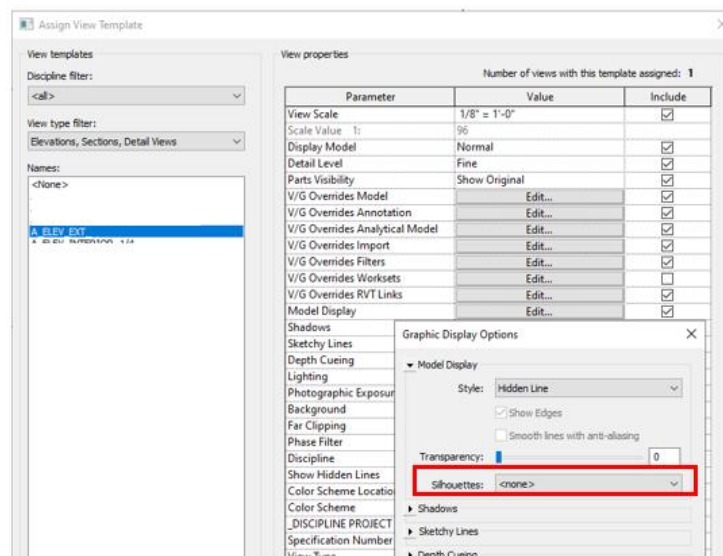
Hide the original tag



Why Can't I Halftone Existing Elements In A New Construction Elevation View?

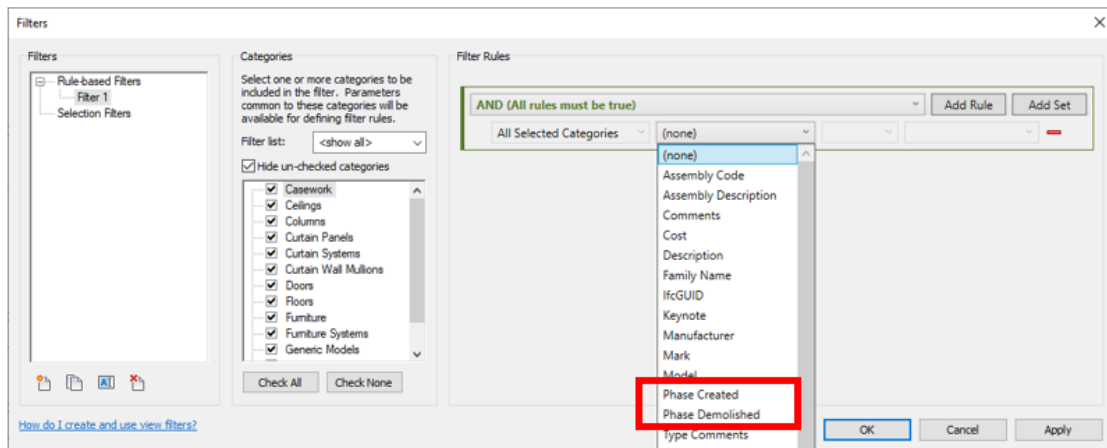
This issue may take place because of an unintentional and unauthorized edit and save in the project template – the more reason to strictly restrict saving rights to the template folder.

Check Model Display in the View Template – ensure that Silhouettes are not turned on.



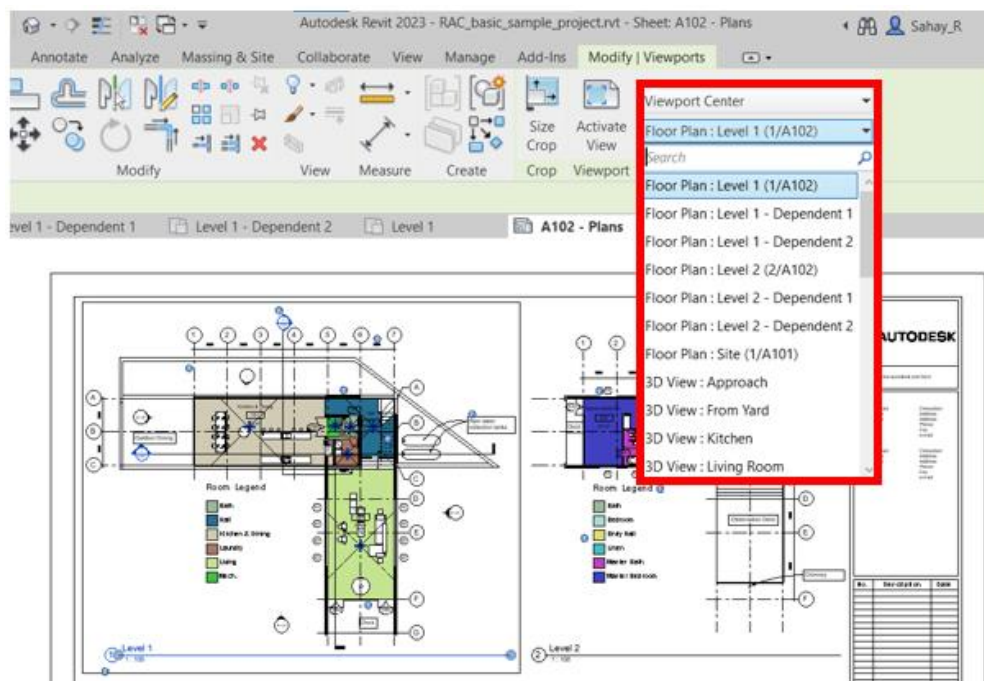
Great News! In Revit 2023, Now We Can Filter Elements By Phase!

Finally – a long held wish list item has been granted!



More Great News! In Revit 2023, Now We Swap Views On The Sheet!

To do so – click or select the view on the sheet. You will see the Viewport Center drop down. Select the desired view to swap out. Voila! No more removing, re-adding, repositioning views again! What a timesaver!!



Learning Objective 2

Discover challenges of the software up to the most current version

Lets take a look at some Workarounds!

Superbly Sneaky Workarounds!

Filter Schedules by Sheet!

Another wish-list item fulfilled in Revit 2023!

Schedule Properties

Fields Filter Sorting/Grouping Formatting Appearance

Filter by: (none)

And: (none)

And: (none)

And: (none)

And: (none)

And: (none)

And: (none)

☐ Filter by sheet

A BIM Manager / Project Coordinator's best friend!

Did you know that View Lists can allow you to control and edit multiple views without the need to open each and every one of them?

| <View List> | | | | | | | | | | | |
|------------------|------------------|-------------|--------------------|----------------------|---------------|---------------|------------------|--------------|-------------|-------------|----------------|
| A | B | C | D | E | F | G | H | I | J | K | L |
| Associated Level | Parts Visibility | Family | Type | View Name | View Template | Discipline | Phase | Phase Filter | Scale Value | Scope Box | Title on Sheet |
| | Show Original | 3D View | 3D View | Kitchen | None | Architectural | Working Drawings | Show All | | None | |
| | Show Original | 3D View | 3D View | From Yard | None | Architectural | Working Drawings | Show All | | None | |
| | Show Original | 3D View | 3D View | Living Room | None | Architectural | Working Drawings | Show All | | None | |
| | Show Original | 3D View | 3D View | Approach | None | Architectural | Working Drawings | Show All | | None | |
| | Show Original | 3D View | 3D View | Section Perspective | None | Architectural | Working Drawings | Show All | | None | |
| | Show Original | 3D View | 3D View | Solar Analysis | None | Coordination | Working Drawings | Show All | 100 | None | |
| | Show Original | 3D View | 3D View | [D] | None | Architectural | Working Drawings | Show All | 100 | None | |
| | Show Original | Detail View | Detail | Typical Wall Roof C | None | Architectural | Working Drawings | Show All | 10 | None | |
| | Show Original | Detail View | Detail | Typical Floor Wall C | None | Architectural | Working Drawings | Show All | 10 | None | |
| | Show Original | Detail View | Detail | Main Stair Detail | None | Architectural | Working Drawings | Show All | 20 | None | |
| | Show Original | Elevation | Building Elevation | North | None | Architectural | Working Drawings | Show All | 100 | None | |
| | Show Original | Elevation | Building Elevation | East | None | Architectural | Working Drawings | Show All | 100 | None | |
| | Show Original | Elevation | Building Elevation | West | None | Architectural | Working Drawings | Show All | 100 | None | |
| | Show Original | Elevation | Building Elevation | South | None | Architectural | Working Drawings | Show All | 100 | None | |
| Level 1 | Show Original | Floor Plan | Floor Plan | Level 1 | None | Architectural | Working Drawings | Show All | 100 | Scope Box 1 | SUPERB VIEW! |
| Level 1 | Show Original | Floor Plan | Floor Plan | Site | None | Architectural | Working Drawings | Show All | 200 | None | |
| Level 2 | Show Original | Floor Plan | Floor Plan | Level 2 | None | Architectural | Working Drawings | Show All | 100 | None | |
| Level 1 | Show Original | Floor Plan | Floor Plan | Level 1 - Dependent | None | Architectural | Working Drawings | Show All | 100 | None | |
| Level 1 | Show Original | Floor Plan | Floor Plan | Level 1 - Dependent | None | Architectural | Working Drawings | Show All | 100 | None | |
| | | | | Annex | None | | | | | | |



This is a great one-stop shop to control views in the model!

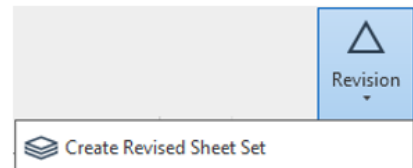
And So Can Sheet Lists!

| <Sheet List> | | | | | | | | | | |
|--------------|----------------------|------------------|------------------|-----------------------|------------------------------|------------|-------------|----------|------------|--|
| A | B | C | D | E | F | G | H | I | J | |
| Sheet Number | Sheet Name | Sheet Issue Date | Current Revision | Current Revision Date | Current Revision Description | Checked By | Designed By | Drawn By | Guide Grid | |
| A001 | Title Sheet | 11/16/12 | | | | JLH | XYZ | SM | <None> | |
| A101 | Site Plan | 11/16/12 | | | | JLH | Designer | SM | <None> | |
| A102 | Plans | 07/24/12 | | | | JLH | XYZ | SM | <None> | |
| A103 | Elevations/Sections | 11/15/12 | | | | JLH | Designer | SM | <None> | |
| A104 | Elev./Sec./Det. | 07/30/12 | | | | JLH | Designer | SM | <None> | |
| A105 | Elev./ Stair Section | 11/15/12 | | | | JLH | Designer | SM | <None> | |

The only fields that you cannot edit in the Sheet List are the ones related to Revisions. These fields are driven by the existence (or not) of Revisions on the sheet. Once they appear, you can filter them to generate a Sheet List for sheets in that particular revision!



pyRevit will compile a
Revised Sheet Set!



In A Schedule, You Can Edit Multiple Elements At Once!

Do you find it tedious to click in each Schedule field to edit the values? Not any more!



SHIFT-CLICK TO SELECT MULTIPLES

| A | |
|--------|--|
| Name | |
| Room 1 | |
| Room 2 | |
| Room 3 | |
| Room 4 | |
| Room 5 | |
| Room 6 | |
| Room 7 | |
| Room 8 | |
| Room 9 | |



Properties

Multiple Families Selected

Rooms (9)

Edit Type

| | |
|----------------|---------|
| Base Finish | BASE |
| Ceiling Finish | CEILING |
| Wall Finish | WALL |
| Floor Finish | FLOOR |



| <Room Schedule> | | | | |
|-----------------|--------------|-------------|----------------|-------------|
| A | B | C | D | E |
| Name | Floor Finish | Wall Finish | Ceiling Finish | Base Finish |
| Room 1 | FLOOR | WALL | CEILING | BASE |
| Room 2 | FLOOR | WALL | CEILING | BASE |
| Room 3 | FLOOR | WALL | CEILING | BASE |
| Room 4 | FLOOR | WALL | CEILING | BASE |
| Room 5 | FLOOR | WALL | CEILING | BASE |
| Room 6 | FLOOR | WALL | CEILING | BASE |
| Room 7 | FLOOR | WALL | CEILING | BASE |
| Room 8 | FLOOR | WALL | CEILING | BASE |
| Room 9 | FLOOR | WALL | CEILING | BASE |



You can change the custom value to say "Varies", which addresses multiple sizes in a schedule (including MEP schedules!)
Superb Tip courtesy Dave Butts

Multiple Values Indication

When a set of elements contains a parameter with multiple values:

☐ Display as <varies>

☒ Display custom text:

What is Multiple Values Indication?

OK Cancel

Calculated Values In Schedules And Tags Using Key Schedules

TAGS

SCHEDULES

CA 2019-Maximum Floor Area Allowances per Occupant- Table 1004.5 (Areas) Key Schedule

| A | B | C | D | E |
|---|-------------|-----------|-------------|------------------|
| Code Occupancy Function | Code Occpan | Code Occu | COLF Unit_J | COLF Unit Actual |
| ASSEMBLY WITH FIXED SEATS | A-1 | 50 | ACTUAL | |
| ASSEMBLY WITHOUT FIXED SEATS: CONCENTRATED (CHAI) | A-2 | 7 | NET | |
| ASSEMBLY WITHOUT FIXED SEATS: STANDING SPACE | A-2 | 5 | NET | |
| ASSEMBLY WITHOUT FIXED SEATS: UNCONCENTRATED (T) | A-2 | 15 | NET | |

OFFICE
3600 SF
100 | 37

OFFICE
3600 SF / 100 GROSS =
37 OCCUPANTS

Area Code Occupancy Analysis

| A | B | C | D | E | F | G | H | I | J |
|---------------------|---------------------|---------------------|---------------|-----------|--------|------|---------|-----------|----------|
| Name | Area | Occ Function KeySch | OccLoadFactor | Occupants | Actual | Unit | Code | Width Req | No Exits |
| CONFERENCE 1025 SF | ASSEMBLY WITHOUT FI | 5 | 205 | No | NET | A-2 | 41" | 2 | |
| CONFERENCE 501 SF | ASSEMBLY WITHOUT FI | 15 | 34 | No | NET | A-2 | 7" | 1 | |
| OPEN OFFICE 4619 SF | BUSINESS AREAS | 100 | 47 | No | GROSS | B | 9 1/2" | 1 | |
| OPEN OFFICE 5160 SF | BUSINESS AREAS | 100 | 52 | No | GROSS | B | 10 1/2" | 2 | |
| Area | 1958 SF | (none) | | | | | | | |



To format units in a field – use the Formatting tab

To neutralize the Inconsistent Units error in formulas, multiply or divide by 1 (roundup(Area / 1 SF / Length))

Finally – Shared Parameters in Key Schedules!

A long standing wishlist item has now been granted in Revit 2023! This will now allow values from Key Schedules to populate schedules (as they have always been doing) AND tags as well with calculated values. A particularly effective application of this is Code Analysis and tagging of Life Safety plans. To see the explanatory video – please click [HERE!](#)

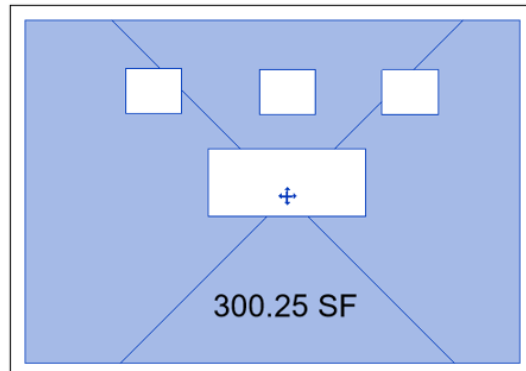
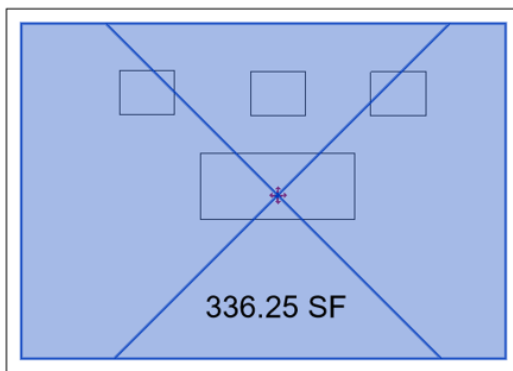
Superb Family Tricks!

Calculate Net Room Area!

There are some situations where net floor area would need to be reported on the sheet – billiard rooms and laboratories being a couple of examples that come to mind. The hard way to resolve this would be to place Room Separation lines around each piece of furniture. Tedious and timeconsuming.



A non-traditional way to resolve this would be to convert the Furniture and Casework families to a category that is Room Bounding. In this example, Furniture and Casework families have been converted to the Column category. As a result, the Room Tag now calculates net area of the room. Its cool to see the value of the Area change as you add and remove Family instances!

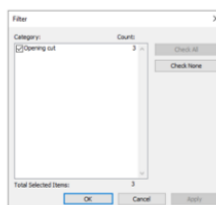
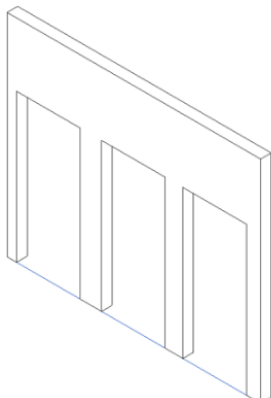


Place an extrusion equal to the overall footprint of the element on the level. Hide it in all views for correct calculations.



A Completely Random Tip About Opening Cuts!

This tip was the result of a Door Family that was created with nested door and transom Generic Model families which also needed the ability to have a type without the transom. Rather than deal with an if/then formula to control the size of the Opening Cut and yes/no parameters, a second Opening Cut was copied and pasted into the family. The door will still schedule correctly as one!



| <Door Schedule> | |
|-----------------|-------|
| A | B |
| Family | Count |
| Door-Opening | 1 |

It will still schedule as one!



Opening Cuts can also be made opaque!

Modify | Opening cut Transparent in: ☒ 3D ☒ Elevation

Avoid Family Drama!

Some tips to flex and satisfy constraints.....

Start with the *correct template*

Place reference planes (“bones”) and dimensions (“muscles”) before adding model elements (“skin”)

Never constrain geometry to geometry. Always constrain to reference planes. Avoid dimensional constraints inside the sketch.

Named Reference planes are your friend

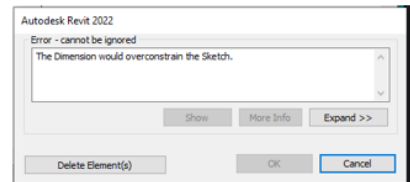
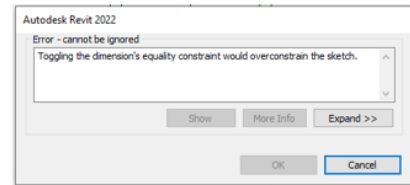
Avoid imported DWGs in Families *except as a reference* when modeling

Use Type values for dimensions that differ between Types

ONLY model features that *are visible!*



For ceiling hosted families, create the reference planes from right to left so that the positive faces down.



If Revit gives any of these errors, cut and paste the geometry in the same place to remove the constraints.



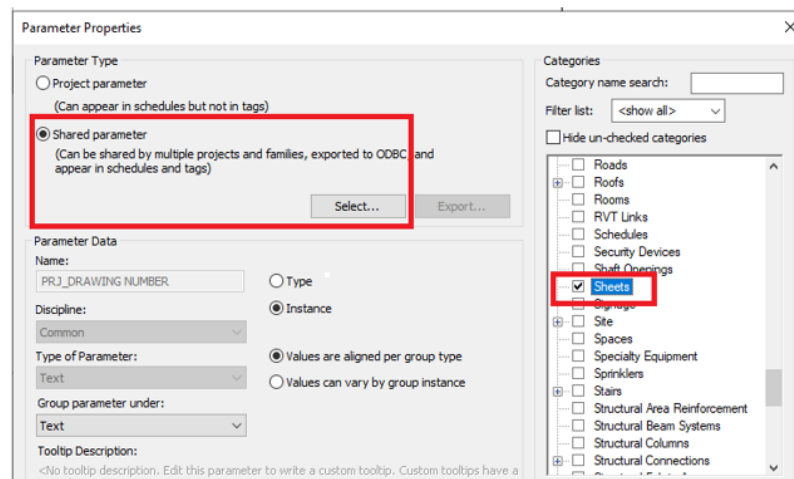
Parameter Magic!

Why Are My Titleblock Labels NOT EDITABLE?

To make a titleblock label editable in the Project –

It must be based on an instance based Shared Parameter

The Shared Parameter must be added to Project Parameters



If the Shared Parameter from the Titleblock family is not available in your Shared Parameter file, then open the Titleblock Family and edit the label and the parameter. If you see an active Export button when you edit the parameter, then click it to add the parameter to your file.

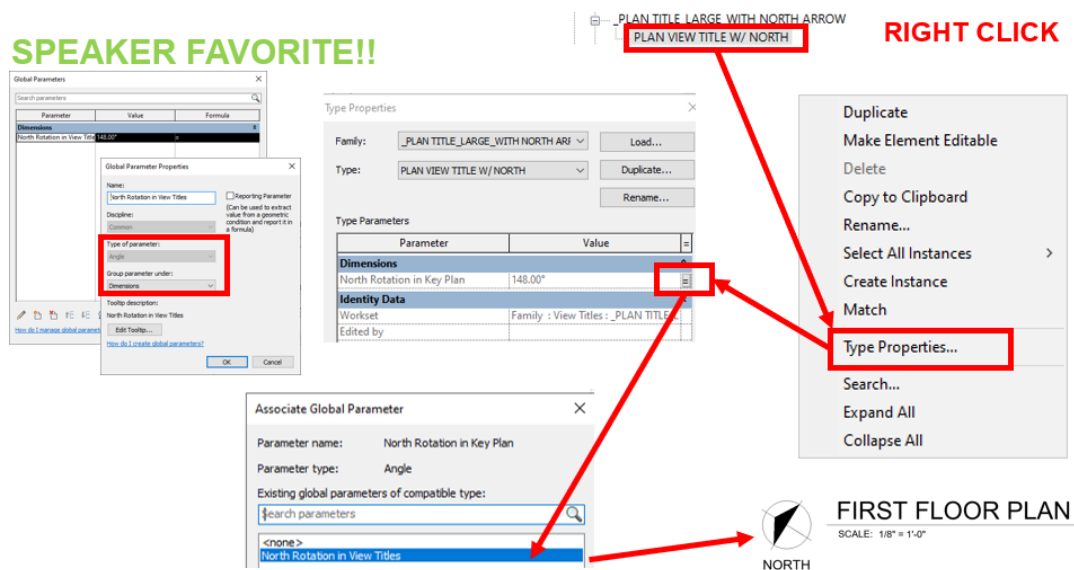
Associate the parameter with Project Information to globally edit it on all sheets. Associate with Sheets for individual edits on each sheet **OR** Associate Parameter with Global Parameter



Using Global Parameters

One of my favorite things to do is to use a Global Parameter to control the direction in which the North Arrow points in a plan view title. To do this, a North arrow family is created with a rotation parameter and nested into the View Title family. A Global Parameter is then associated with the rotation parameter and can then globally control all the plan view titles in the project!

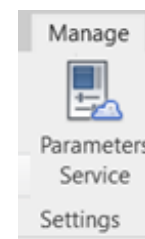
SPEAKER FAVORITE!!



Revit 2023 Tech Preview – the Parameters Service on Autodesk Construction Cloud

Starting with Revit 2023, you can manage your parameters library through Autodesk Construction Cloud.

- You can create, search, load Parameters in bulk in your model
- Leverage your Shared Parameters file
- May upload parameters from an active Revit file
- May upload an existing shared parameters file to the cloud



Parameters >
Edit Parameter Collection

| Parameter Name | Data Type | Status | Category | Type or Instance | Date Modified |
|--------------------|-----------|--------|----------|------------------|------------------------|
| Win_SashHeightUnit | Length | | Windows | Instance | March 17, 2022 3:17 PM |



PARAMETERS SERVICE

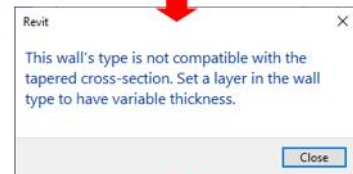
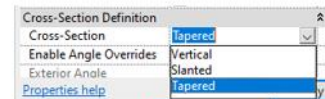
In ACC - Account administrator >> Library >> Parameters
To initiate a first time setup – select Create Parameter Collection



Supermodels!

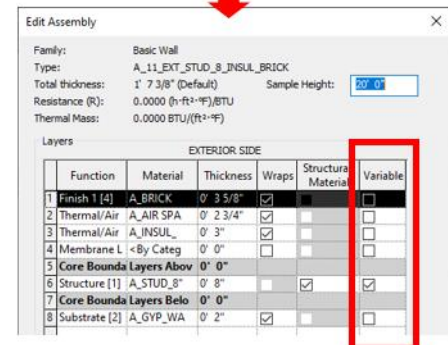
Tapered Walls!

Some features to make the most of Revit Tapered Walls –



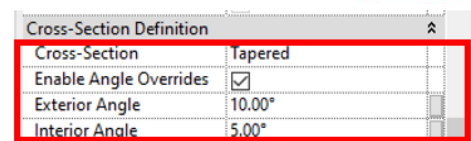
ERROR

At least ONE layer in the Wall Type needs to be pre-set to be Variable

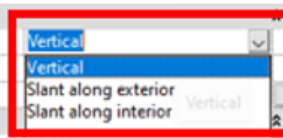


Slope angles can be specified for interior and exterior surfaces

Type slope properties can be overridden at the Instance level



When placing openings –
select the correct option

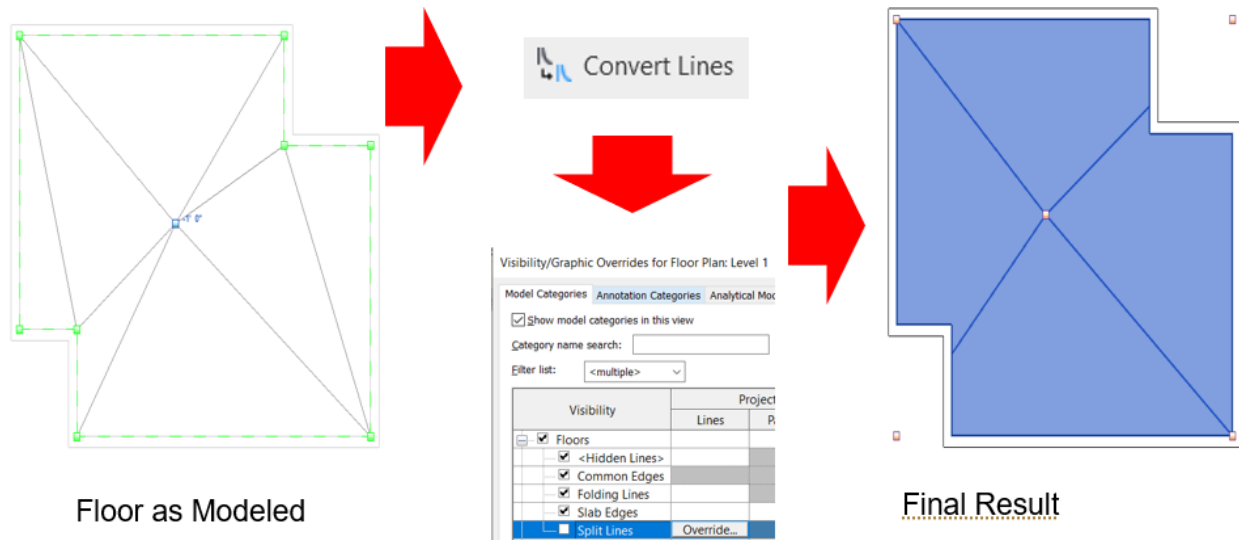


How To Hide Unwanted Folding Lines From Shape Edited Floors?



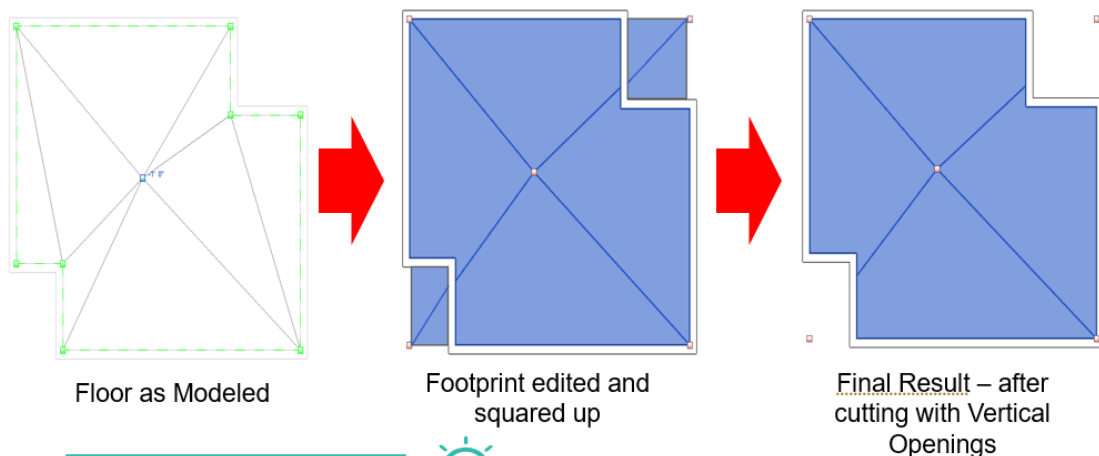
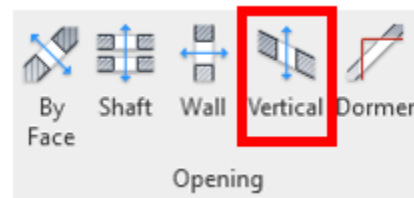
Prior to Revit 2023, Shape Edited floors with irregular boundaries would show a web of unnecessary fold lines. The solution to that was to use the Modify >> Linework tool, and go over the unnecessary fold lines with invisible lines.

Revit 2023 introduces a **new subcategory** in the Floors category called **Split Lines**. There is also a **new tool** called **Convert Lines**. Both of these tools contribute to a much more streamlined workflow to create graphically correct Shape Edited floors.



What About Unwanted Folding Lines From Shape Edited Roofs?

Contrary to what you might expect, the same does not apply to Shape Edited Roofs in Revit. To resolve that, let's take a look at this Out Of The Box tip, where fold lines have been cleaned up using the Vertical Opening tool. Surprised? Well, read on....



Superb Tip courtesy Paul Aubin

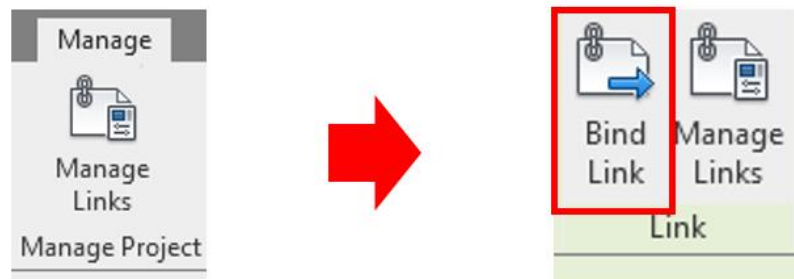


Want To Use A New Template For An Older Project File?

There are times when an old project – possibly from an older version of Revit or in an older iteration of the template - needs to be resurrected. For simpler projects, a simple cut and paste of elements into an Existing Phase view would be the solution. But what about larger, more complex models? What would be a quicker and easier way to accomplish this?

Here is a workflow that has worked for me –

Link the old model into an Existing plan view in the new file
Click Bind Link (**Tip** – in a 3D view, ascertain that levels from the link match the levels in the destination file. Match levels of the destination file to the link if needed.)



Use Insert From File to bring in 2D views, schedules, and sheets. This will NOT bring in live views or sheets with live views!



Once bound, the **link will now be converted into a Group**
Ungroup the model

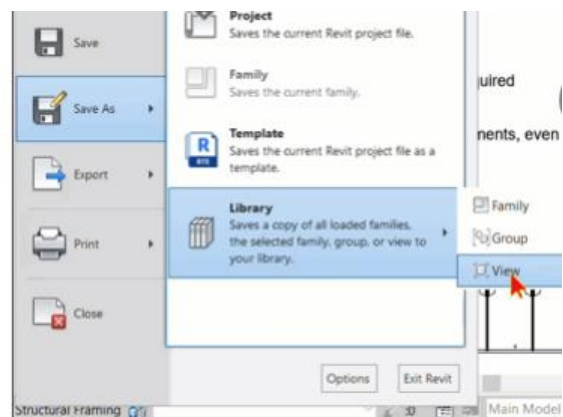
To finish the process, use Insert From File, possibly Transfer Project Standards, to transfer sheets, system families, and settings as needed.

How To Export Only Visible Model Elements To A New Model File?

Using this tip, it is possible to save required parts of a model to an independent Revit file.

An annotative element is required in the model view.

Visible as well as attached or joined elements will be exported.



SPEAKER FAVORITE!!

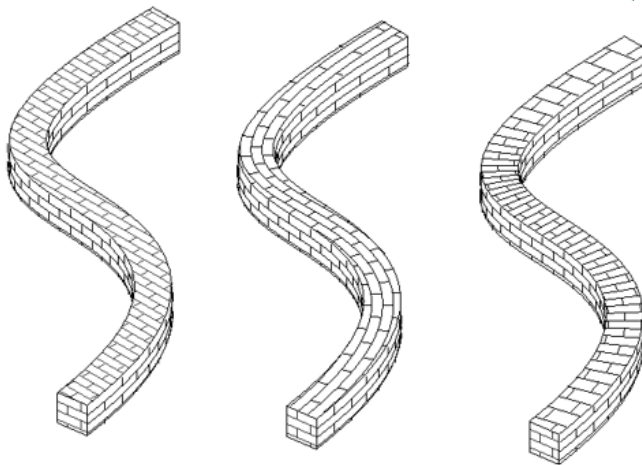
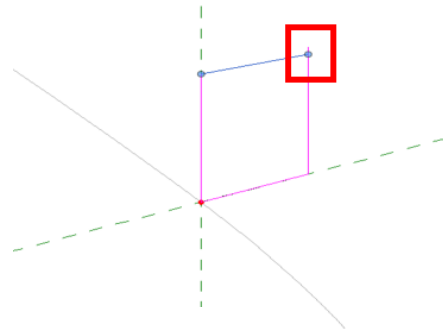
Mapping Surface Patterns To A Curved Sweep!

Revit does map textures to surfaces, but lacks the comprehensive UVW Mapping capabilities of 3DS Max, which may be sorely missed on occasion. Take a look at this tip which forces Revit to map a Surface Pattern to a curved Sweep –



Edit the profile of the Sweep. That's all it takes. Seriously.

Just a 1/32" deformation in the profile can create the effect that you will see in the following illustration –



Superb Tip courtesy The Revit Kid



Essential To Create Supermodels – The Revit Famous Five!

- Don't over-model!
- Be mindful of the Revit 20-mile limit!
- Divid, link, and conquer!
- Limit Model-in-place components!
- Load families into the project only as-needed!



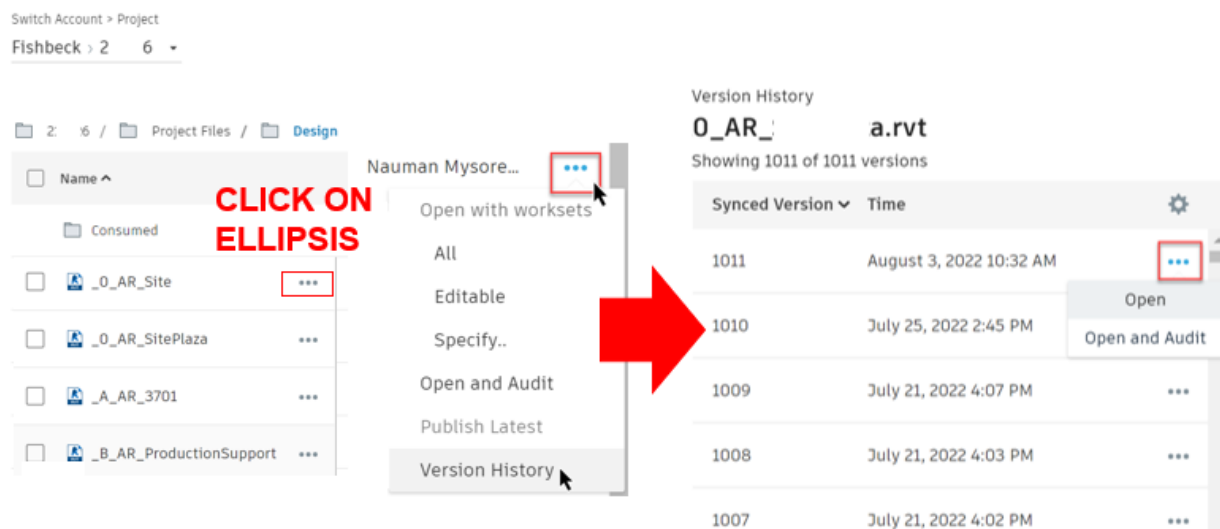
Learning Objective 3

Boost Revit / Cloud Collaboration Performance

Superb Collaboration!

How To Access The Version History From The Revit Home Page

With effect from Revit 2022, now you don't need to go to the BIM360 / ACC website, or to the Collaborate tab in Revit - it is possible to access the model Version History from the Revit Home Page.



In addition, it is now possible to open different versions of the same model in the same Revit session for comparison purposes! And you don't need to revert back to an older version, losing the new ones in the process! Or got to the model history in BIM360 / ACC!

Autodesk Revit 2022.1 - 2022_A_2 .rvt - Sheet: XXXX - PROJECT HOME PAGE

Autodesk Revit 2022.1 - 2022_A_2 _version_44_5Apr2022_1445_detached.rvt - Sheet: XXXX - PROJECT HOME PAGE

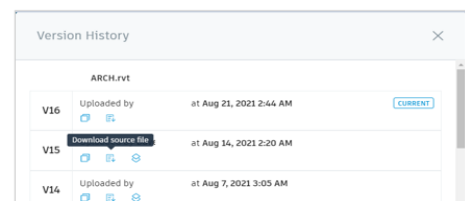
Do You Need To Dig Out Something From An Older Version Of The Model?

In addition to the previous methods of retrieving older versions of the model, here are some lifesavers that would be helpful with older versions of Revit –

For Cloud Collaborated Models

Look for Version History under Manage Models
OR
Published versions on Autodesk Docs
OR Plan B

V16



Look for the local file at this location

%localappdata%\Autodesk\Revit\Autodesk Revit 20xx\..\CollaborationCache\..\CentralCache

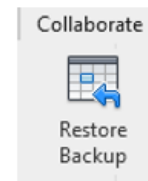
For File-Based Workshared Models

Use the **Collaborate >> Restore Backup** tool.

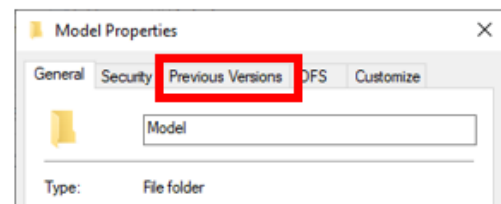
OR Plan B

Having the Previous Version feature activated in

Windows



can be a

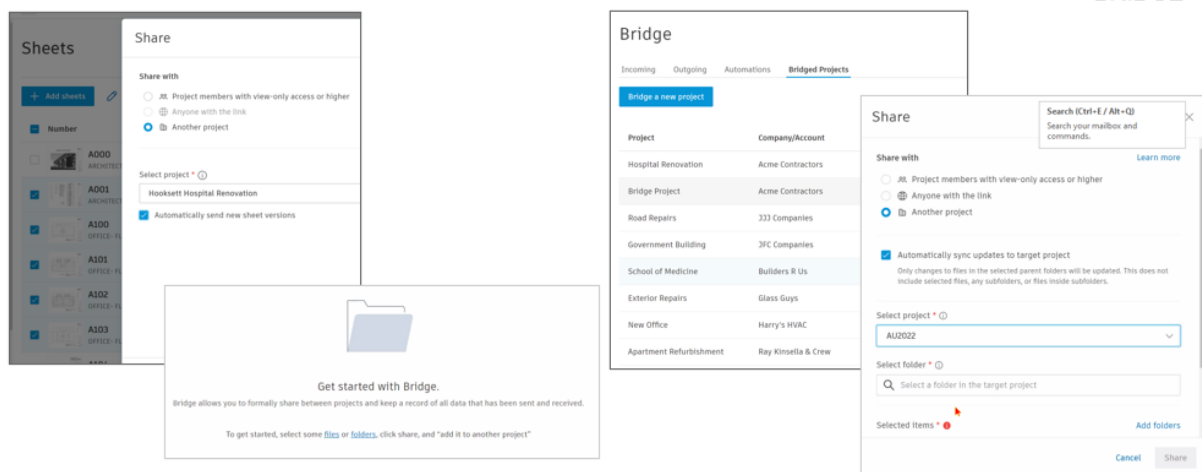


In cloud shared models – at least PUBLISH AT MILESTONES!!
This tip will only work if the file is Published!
For Standalone files on the network – check the Journals folder



Break Out The Red Carpet – Here Comes Autodesk Bridge!

Previously BIM360 would not allow links between two different projects. Let me rephrase – it was possible through the Autodesk Desktop Connector but not supported due to permissions, publishing, and syncing issues. You would have needed to copy the model to the other project to be able to link it in.



▪ Shares information across projects

▪ Shares information across accounts

Not any more. Clear the way for Autodesk Bridge, which will allow you to link across projects! Its main strength lies in the extended pathing that it supports. It is built on the latest Unified platform, which allows linking between projects as well as compiling sheets.

The ACC Secret Seven!

- 1) Empty the TEMP folder
This will be the first question that will be asked at the time of troubleshooting!
- 2) Purge the Collaboration Cache
- 3) Empty the Desktop Connector Cache
- 4) Make sure that the team has the latest updates to authoring software, Desktop Connector, and Revit
- 5) Frequently publish models to create a backup trail!
Recommended frequency – daily. At the very least – publish at project milestones. Issue dates would be a good idea,
- 6) Never link from a local drive to a cloud shared project!
This includes ANYTHING – RVT, DWG included!
- 7) Most project access problems can be resolved by removing and re-adding team members, checking entitlements and permissions

In addition – do not link from another cloud service like OneDrive, Sharepoint, Dropbox. OneDrive is cloud storage that syncs updates in the background and corrupts Revit files. This is a known issue that can corrupt a project and result in lost data and should be avoided.



Keep It Clean!

The Ever-Ballooning TEMP Folder

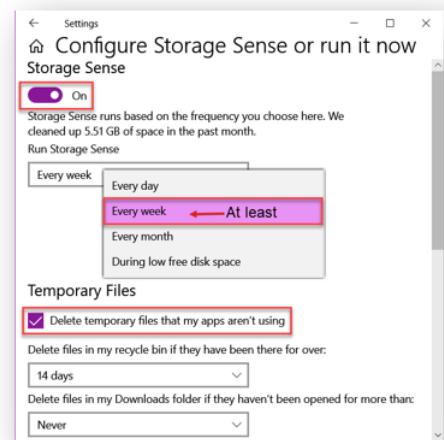
Empty the TEMP folder regularly. Make this task a part of regular housekeeping. Tech Support's favorite line after "Did you restart?" is "Did you empty your TEMP folder?"

<http://autode.sk/2xZB9Gh>



STORAGE SENSE

Starting with Windows 10 - TEMP folder cleaning utility built in. Enable **Storage Sense** and have it run **Weekly** to clean out TEMP folder.



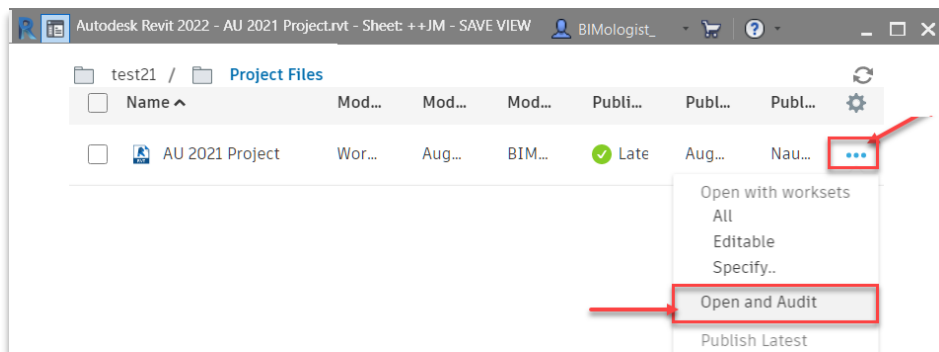
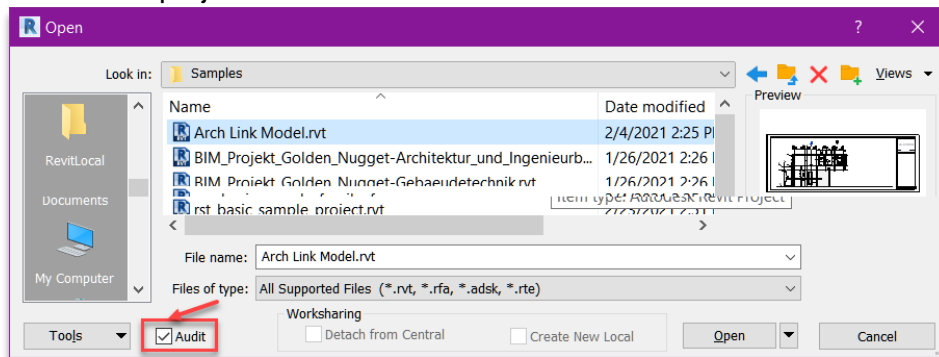
Keeping It Clean – The Trifecta of Model Maintenance – Audit, Purge, Compact

Daily

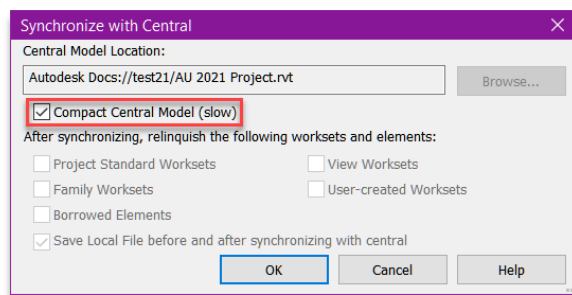
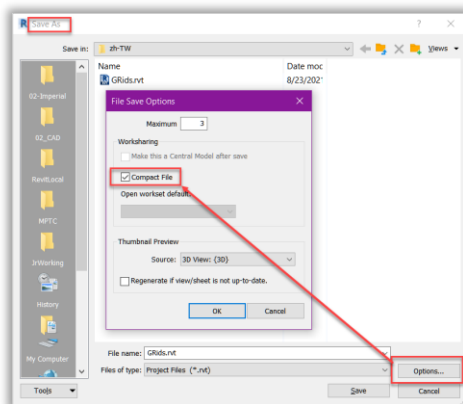
- Create new locals for fileshared models
- Publish Revit Cloud models

Weekly

Audit all project files



Selectively Purge the model (especially Groups and loadable Model families)
Compact. Following a Sync, compact 2-3 times to rewrite the database



Review and resolve warnings to keep them to a minimum

Other things to scan for – IMPORT Line Patterns, Corrupt Families. Use **pyRevit's FamilyQuickCheck** to scan for corrupt families

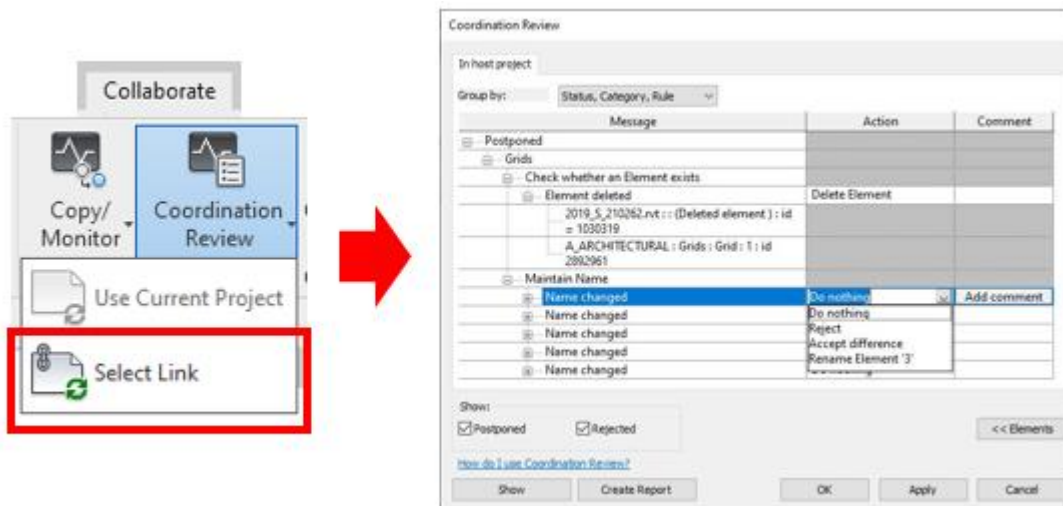


Some of our “Favorite” Errors

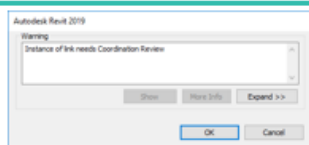
Copy Monitored Elements From Links Not Updating?

Has it happened that even when the link is reloaded, elements that have been Copy/Monitored do not update – much to your chagrin (and embarrassment) when the error is redmarked during QC reviews?

You would need to perform an actual Coordination Review!



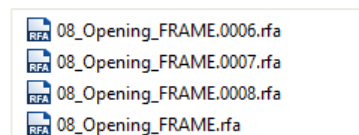
Clicking OK on this warning will only allow you to continue working on the file and will not resolve any existing Coordination issues.



Did You Overwrite A Family With A New Version?

It happens to the best of us – you start editing a Family, hit save, and only too late – you discover that you have overwritten the Library family with a newer version of Revit. Oops. Now no one else can use that family any more.....

This is easily fixed. Start by looking for backups in the Family folder. You can set the number of backups to save ahead of time by going to the Options button in the SaveAs dialog box – setting them to 0 is possible, but not recommended, also setting it to 10 may not be advisable for the state of health of your hard drive.



You might find some surprises in the Journals folder!
C:\Users\username\AppData\Local\Autodesk\Revit\Autodesk Revit 20xx\Journals

| | |
|--|-------------------|
| 12_Desk Cube_20220728-182348-995.rfa | 7/28/2022 2:23 PM |
| 12_Desk Cube_20220728-182047-108.rfa | 7/28/2022 2:20 PM |
| 10_Closet Shelf and Pole_20220728-175811-693.rfa | 7/28/2022 1:58 PM |
| 10_Closet Shelf and Pole_20220728-175811-693.rfa | 7/28/2022 1:58 PM |
| 10_Closet Shelf and Pole_20220728-174044-481.rfa | 7/28/2022 1:40 PM |
| Residential_Sample_Project_20220801-223800-231.rvt | 8/1/2022 6:37 PM |
| Residential_Sample_Project_20220801-223714-107.rvt | 8/1/2022 6:37 PM |

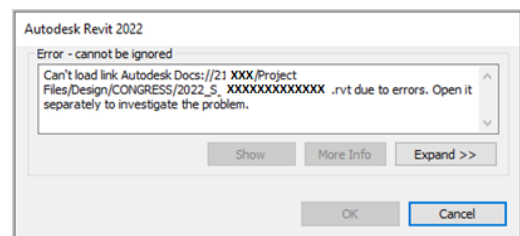


A Sad CAD Story....

Has this ever happened to you that you are unable to load a Revit linked file?

There are many reasons for this. One of the reasons may be a CAD file linked from a local drive.

The solution to this is to upload the CAD file to the Cloudshared project and then link it.

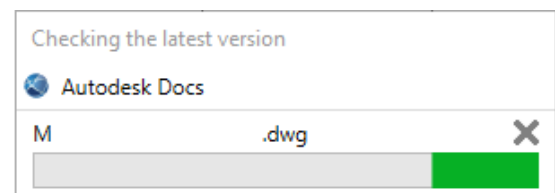


Clean up the CAD file first!
PURGE All
Audit (Y to fix)
OVERKILL All
Proxygraphics (change value to 1)



Another Sad CAD Story....

However, sometimes even a CAD file linked from the cloud can show you this message with a seemingly endlessly scrolling green bar. This isn't an indication of anything wrong, just Autodesk Docs checking to ensure that this is the latest version. It is really annoying and slows you down!



The simple solution is to publish the model after linking the CAD file!

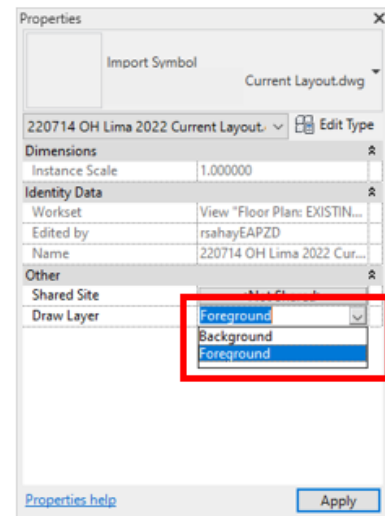
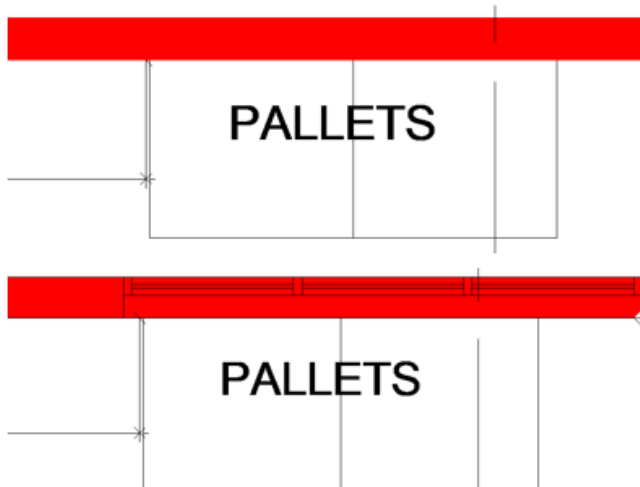
Learning Objective 4

Explore Out-Of-The-Box, In-Software, And Out-Of-Software Tools To Enhance Revit Workflows And Problem Resolution

Interoperability

Can't You See Your Linked CAD Underlay Clearly?

All that you need to do is to select the link and in its Properties, with the Draw Layer from Background to Foreground.



Always link CAD files! If you must import, import them with care!!

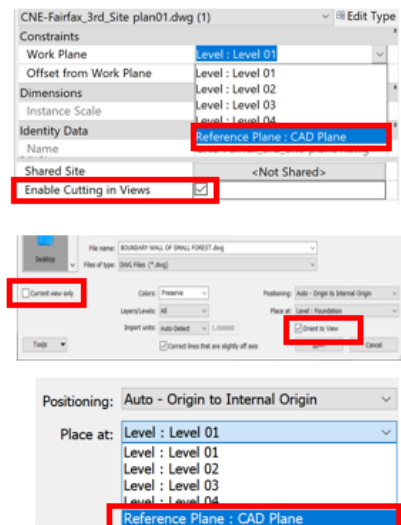


Interesting CAD Developments....

3D CAD is now cuttable in Revit 2023! No family workarounds are required!

Additionally, you place them in vertical (Elevation / Section) view.

And you can host CAD links on named Reference Planes as well as Levels.

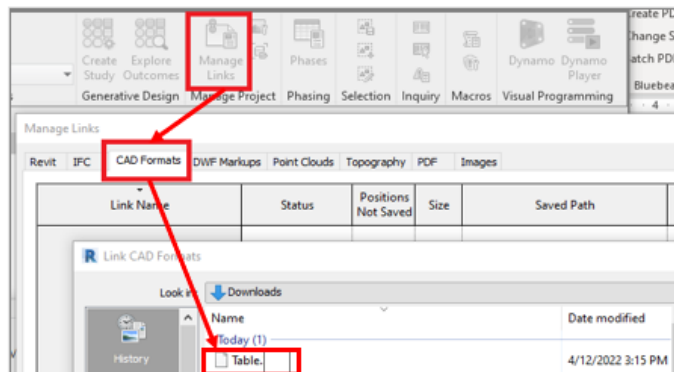


The CAD File Manifesto....

- Avoid importing CAD in projects and families
- Avoid importing AND exploding CAD in projects and families. Always use an interim file to convert CAD linework into Revit elements
- Linked CAD files should be cleaned up (especially Civil 3D files). Purged, audited, and PROXYGRAPHICS set to 1
- Create a specific Workset for CAD Links (in addition Current View only)
- Unload / Remove any unneeded CAD files
- Break-up in sections linked 3D CAD / Rhino / Sketchup files

Interoperability with Rhino

An exciting possibility to enhance the potential to incorporate complex geometry into a Revit model arrived with Revit 2022. Rhino files (3DM) can be linked as a **CAD Format** under **Manage Links**. Rhino layers are preserved and controlled via **Visibility/Graphics Overrides**. Links can be scaled at the time of linking. You can even snap to links in projection views.



| 3DM/OBJ/SAT | Link | Import |
|-----------------|-------------------|-----------------|
| Cuttable | ✓ / Instance | Category Based |
| Scalable | ✓ | ✗ During Import |
| Assign Category | ✗ | ✓ |
| Scheduled | As Link | By Category |
| Tagged | ✗ | ✓ |
| Materials | ✓ | ✓ |
| Material Tag | Limited | ✗ |
| Visibility | Imported Category | By Category |

When imported, Rhino files will show layers like a regular DWG. The most exciting aspect of importing Rhino 3DM files is that they can be imported into a Revit category. They can be tagged and scheduled per that category. Most importantly, they do not behave as an imported DWG and do not show up as a CAD import or clutter up the Project Browser.

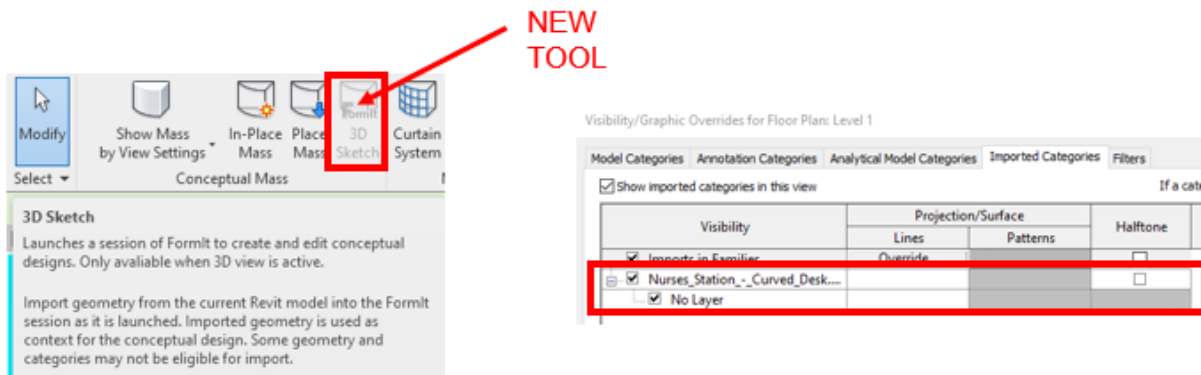
When bringing in Rhino geometry make sure there are no naked edges. It should be a watertight volume.



Interoperability with FormIt

Revit 2022 introduces expanded functionalities that better integrate Revit with FormIt Pro. You can continue exploring and tweaking your design using the fluid, intuitive modeling capabilities of FormIt.

The FormIt converter plug-in has been superseded with new built-in, high-performance functionality. You can now send FormIt geometry directly into Revit, where their layers can be seen like regular CAD files in **VG >> Imported Categories**.



Some more salient features -

You can translate Revit elements seamlessly into a FormIt Pro session using the new 3D Sketch functionality.

You can import AXM files with preserved materials, layers, and group definitions.

FormIt materials are preserved seamlessly as Revit materials. The materials properties from FormIt are transferred to Revit and grouped under a new filter category in the Material Library.

FormIt layers are preserved and controlled via Visibility/Graphics.

If Levels are present in the FormIt model, they will translate as Revit Levels.

Interoperability with ReCap

Point cloud scans may be would come in as ReCap (RCP or RCS), Edgewise (PTX or E57) files and may run into dozens of gigabytes in size! They have become an important form of field input that would run hand in hand with virtual walkthroughs (Matterport, being an example) to provide a seamless stream of information which can be viewed and sliced in both Revit and AutoCAD.

Owing to the sheer size of the files, here are some tips to trim them down to make it easier to model from –



Decimate the file – to the optimum point density. The sweet spot would be 25mm.

Clean up raw scans – remove trees, people, furniture, cars – anything that is superfluous to the model.

Supporting Images – its always helpful to have a virtual walkthrough – for example, Matterport - to give you a better visual of what it is that you are modeling.

Required file format – I guess that it depends upon your level of comfort in working with point cloud file formats – for me, a unified RCS gives me a snappable base with the most ease in modeling.

Storage of a referred point cloud – since they are so huge, what has worked for me is to store the point cloud on my local drive OR place it on a flash drive and link the file to my model from there.

It's BACK!! In ReCap 2022 - Scan To Mesh

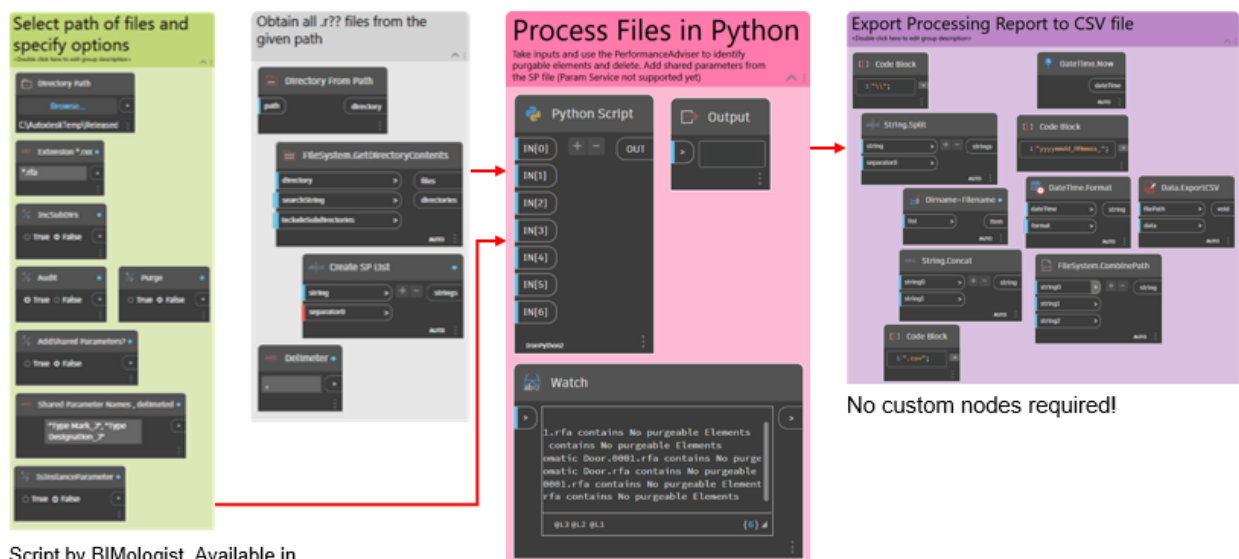


Tool Box Recommendations!

Some Of Our Favorite Apps!

Dynamo

Dynamo is a one stop shop for quick solutions to perform repetitive tasks. Take a look at this example to **Upgrade, Cleanup, and Add Shared Parameters to a Family or Project** – and no custom nodes were required!



DiRootsOne

The DiRoots family of (**FREE!!**) applications has attained great credibility as a very helpful set of tools for the Revit user. DiRootsOne is a single application that includes 8 free Autodesk Revit plugins.

| DiRootsOne | | | | | | | | | | |
|---|---|---|---|---|---|--|---|---|---|---|
|  |  |  |  |  |  |  |  |  |  |  |
| SheetLink | PanelLink | TableGen | SheetGen | View Manager | FamilyReviser | ParaManager | OneFilter | Selections Manager | ReOrdering | Select Points |
| Data IO | | | Views and Sheets | | Manage | | Find | | Utility | Point Cloud |

Some of our favorites –

SheetLink – exports / imports Revit model data to and from Excel and Google Sheets.

TableGen – imports spreadsheets as Legends, Schedules, or Drafting Views.

ParaManager – create / modify existing parameters, export / import parameters to / from Excel or the Shared Parameters file.

PointKit – allows you to select / isolate / export by region portions of point clouds.



DIRROOTS ONE

pyRevit

This section would be completely incomplete without a mention of this admirable suite of (**FREE!!**) tools. pyRevit has become a go-to aid to performing challenging tasks not available natively in Revit and monitoring model health. Some examples of the tasks that pyRevit can do for us are to scan for corrupt families, create views, batch create sheets, rename and reorder sheets, open, pin or rename views.

pyRevit Top Of The Pops –

Out of the **Wipe** set of tools –

Look for - **Unpurgeable Viewport Types**

Out of the **Views** set of tools –

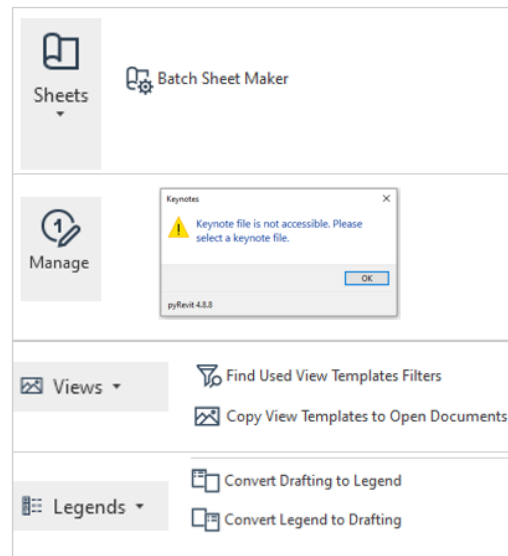
Look for **Copy View Templates to Open Documents**

Out of the **Team** set of tools –

Look for **Who did that?**

Out of the **Preflight Checks** set of tools –

Look for **Model Checker** and **RVTLinks warnings**



Did you know about pyRevit Extensions?

Heres' more pyRevit firepower for you! In addition to more helpful tools (that include MEP specific tools!), there are also tutorials! Some of these extensions only need to be enabled to start doing all that good stuff. Some do need to be downloaded.

Search
Spy
Reload
pyRevit

Extensions

pyRevit Extension Manager

List of Registered Extension Packages:

| Name | Type | Author | Built-in | Rocket-Mode | Installed | Status | Last Commit |
|--------------|--------------------|--------------------------|----------|-------------|-----------|----------|-------------|
| pyRevitTags | Revit UI Tools | Ehsan Iran-Nejad | True | True | Yes | Enabled | |
| pyRevitTools | Revit UI Tools | Ehsan Iran-Nejad | True | True | Yes | Enabled | |
| pyRevitTutor | Revit UI Tools | Ehsan Iran-Nejad | True | False | Yes | Disabled | |
| PyRevitPlus | Revit UI Tools | Gui Talarico | False | False | No | -- | -- |
| PyRevitMEP | Revit UI Tools | Cyril Waechter | False | True | No | -- | -- |
| pyApex | Revit UI Tools | Aleksey Melnikov | False | True | No | -- | -- |
| Revitron | IronPython Library | Marc Anton Dahmen | False | True | No | -- | -- |
| Revitron UI | Revit UI Tools | Marc Anton Dahmen | False | True | No | -- | -- |
| pyStructure | Revit UI Tools | Shahabaz Sha | False | True | No | -- | -- |
| MEPDesign | Revit UI Tools | André Rodrigues da Silva | False | True | No | -- | -- |

PyRevitPlus
Extensions for PyRevit (<https://github.com/gtalarico/pyrevitplus>)
Developed by: Gui Talarico
Repository: <https://github.com/gtalarico/pyrevitplus.git>

Extension Package Settings:

☐ Git Repository is Private (Provide Account Credentials)

Username: Password (or Access Token):

Update Extension Settings Install Extension

pyRevitPlus

pyRevitPlus

Make Make Plan Floors Views Crop Image Cycle Type Open in Excel Select Mirrored Doors Select Mirrored Windows Set Underlay Distribute Horizontal Vertical Align Tags Horizontally Align Tags Vertically Match Orientation BatchPasteVP CopyVP PasteVP Viewport Grids Levels

Ef tools for pyRevit

Create Sheets WIP: Place views on new sheets Align Viewports Duplicate Sheets Revisions Create Worksheet Views Duplicate views Graphics Overviews ViewFilters Legend Select Super Select: all in the model (SA) Super Select: all in the view (SS) B/W/G Background List All Levels Shorten Ribbon names Elements Rotate Regions: Change Linestyle WallMatch AttachedGroups Rooms Rename Renumber Text: Transform DWG: open selected Save/Relink DWGs

RIP **Project Sweeper**
(no more updates after 2021)
We wish you would come back!



Resources

Click [HERE](#) to access videos and resources used in this presentation