

CTC BIM Project SuiteTM User Guide

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Suite Overview

The products from CTC Software offer many utilities for enhancing the productivity of users of Revit[®] software from Autodesk[®]. Revit users typically launch these tools from within the Revit software.

Although written to function correctly with the international community in mind wherever possible, CTC Software products are currently only tested on English USA versions of Revit running on English USA versions of Windows.

Installation and Configuration

The standard workstation installation requires little more than running the setup program. For more information regarding topics such as automating workstation installations and preconfiguring workstation settings, please refer to the *CTC BIM Suites Installation and Configuration Guide* document.

License Activation and Management

The productivity tools provided with light background colors are free tools that run without any special licensing. The productivity tools provided with dark background colors are premium tools which require licensing.

Unless initially preconfigured by the system administrator, the first time any of the licensed tools are launched from the Revit ribbon, the *Product and License Information* dialog will appear which requires acknowledging the licensing requirements by clicking the OK button at the bottom.

C Product and License Information	×
Current Status	
Application: CTC BIM Project Suite	^
License type: Unknown	
Cloud Shared or Free Trial Licensing Either cloud shared or free trial licensing requires your company to have a CTC account, and only allows premium tools to work when you have an Internet connection with at least one license available.	the
If your organization does not have a CTC account, but you want to create an account and begin a trial, clic	<u>:k here.</u>
You must click the OK button below to accept and start using cloud shared or free trial licensing.	
Borrow Sign Out	
ОК	Cancel

CTC Software products support only cloud-shared licensing, and also free trial licenses that use CTC's cloud licensing engine. You must click the OK button to activate the cloud licensing and acknowledge using a CTC cloud account.

The licensing will automatically apply to all of the tools that are included in the suite which require licensing. So once the first tool has configured the licensing, the other premium tools in the suite will automatically use the same configuration.

Once you click the OK button, you may be asked to login, if you aren't already logged in from using another CTC product:

💽 Sign In	_		×
A SYMETRI COMPANY		E	
Welcome			
Sign in with your CTC account			
C Email address			
			J
Castieurs			
Continue			

Either way, once you have logged in, the product will be configured for cloud shared licensing:



and the licensing screen will be updated to show that:

C Product and License Information	×
Current Status	
Application: CTC BIM Project Suite	^
License type: CloudShared - Logged in user: David - This license is currently not borrowed. - Subscription expires on 6/1/2024 6:00:00 PM	
Cloud Shared or Free Trial Licensing Either cloud shared or free trial licensing requires your company to have a CTC account, and only allows the premium tools to work when you have an Internet connection with at least one license available.	
Borrow Sign Out	
Close	se

At this point, you may borrow a license for offline use (if permitted by the administrator). You may also Sign Out from the cloud licensing system in case a different user needs to sign in on this computer.

Changing Licensing at Any Time

Licensing can also be changed at any time using the "Suite Settings" tool, which is discussed below, or by using the "Suite Licensing" menu choice in the licensed add-in tools:

S.	Spreadsheet Link Setting	5		
S	🔹 🐑 New Settings 📗	Recent Saved Settings 👻 🔛 Save Settings 👻 🎇 L	oad Settings ▾ 🗦 Options 🔞 Help	▶ Videos 👲 Support 🕕 About
1	New Settings	V	Parameters	Filters Sorting
2	Load Settings	Selected Categories/Sch	nedules Available	Parameters
:=	Options			
0	Help			
	Videos			
8	Request Feature			
4	Report Bug			
9	Contact Support			
0	About			
2	Suite Licensing 🧲			
Ļ	Exit	=>		
Ca	ble Tray Fittings			

Borrowing a Cloud Shared License

If a license is needed in anticipation of being disconnected from the Internet, borrowing a license can ensure that the CTC tools are available for use when offline.

IMPORTANT: For normal use of the software, where you have a standard Internet connection, you DO NOT need to borrow a license. Borrowing a license is normally only needed when you know you will need to use the software at a

time when you won't have a reliable Internet connection. While you have a license borrowed, that is one less shared license available to all other users.

NOTE: Borrowing is only available for purchased cloud shared licenses. Borrowing is not available for trial licenses.

IMPORTANT: In the event your computer is lost, stolen or damaged (e.g. a hard drive crash) **an administrator CAN NOT recover a borrowed license.** In that case, the license will be unavailable to all users until the borrow period has naturally expired. *As such, you only want to borrow a license for the barest minimum amount of time needed.*

Begin by opening the *Product and License Information* screen from either the main pulldown menu of a premium tool, or from the Suite Settings add-in. From here, click the 'Borrow...' button to begin the process of choosing the length of time to borrow a Cloud Shared license.

C Product and License Information	×
Current Status	
Application: CTC BIM Project Suite License type: CloudShared - Logged in user: David - This license is currently not borrowed. - Subscription expires on 6/1/2024 6:00:00 PM	* *
Cloud Shared or Free Trial Licensing Either cloud shared or free trial licensing requires your company to have a CTC account, and only allows the premium tools to work when you have an Internet connection with at least one license available. Borrow Sign Out	
Clos	e

The date selector should appear:

C Borrow a Cloud License X						
CTC BIM Project Suite						
Borrowing a cloud shared license is NOT required to use the software, as long as you have an Internet connection.						
Borrowing a cloud shared license allows you to continue using this software even when you don't have an Internet connection, but it takes away a shared license available to everyone else until it expires or is manually returned early by you.						
In the event your computer is damaged, an Administrator CAN NOT recover a borrowed license, so only borrow for the minimum time needed.						
Choose within the valid date range						
Thursday, April 27, 2023 - Friday, May 26, 2023						
Sun Mon Tue Wed Thu						
7 8 9 10 11 12 13						
14 15 16 17 18 19 20						
21 22 23 24 25 26						
Today: 4/26/2023						
Borrow this license until this same time on:						
Thursday, May 11, 2023						
To borrow a license, click on a license return date in the calendar and then click the Borrow License button.						
Borrow License Cancel						

Confirm the date selection and click the *Borrow License* button. A success message should appear.

:	×
A license has been successfully borrowed until Thursday, May 11, 2023	
ОК	

Returning a Borrowed Cloud Shared License Early

To return the license early, in the Product and License Information form, find the Return Early... button and click it.

Product and License Information

~
ave a CTC account, and only allows the east one license available.

A prompt will appear confirming that the license should be returned.



Click the Yes button, then you should see:



The license status should now show a 'not borrowed' message.



Common Toolbar and Menu Buttons

Getting Help

In the toolbar, clicking the "Help" button will display this user guide.



Getting More Help: Videos

An alternate source of help is to click on the Videos button, which will display a list of tool-specific videos in your web browser.

S	Spreadsheet Link Setting	js			_	
S	🝷 🎦 New Settings 📗	Recent Saved Settin	igs 👻 🛃 Save Settings 👻 🄀 Load Set	tings 🗸 📜 Options	🎯 Help 📘 Videos 👲 Supp	ort 🕕 About
2	New Settings				Parameters Filters Sorting	
2	Save Settings 🔋 🕨 🕨					
2	Load Settings	^	Selected Categories/Schedules		Available Parameters	
Ξ	Options					
0	Help					
	Videos 🚽 🔤	-				
9	Request Feature					
1	Report Bug					
9	Contact Support					
0	About					
P	Suite Licensing					
	Exit					
0	his Tree Differen	-				

Submitting a Feature Request

If you have an idea for enhancing a feature or would like to see a new feature added to the software, you can either use the "Request Feature" button on the About dialog (seen below) or can access that functionality using the "Request Feature" drop-down menu choice:

	View Setting	js internet	(ecent Saved	Settings +	🔚 Save Settings 👻 🎇 Load		ons 🕜 Hei	p P videos	👳 Support 🕕
] [New Settings			~			Paramete	ers Filters So	rting
	save Settings	-		-					
	.oad Settings	-		^	Selected Categories/Sched	ules	Availab	le Parameters	
0	Options								
ł	Help								
1	/ideos	- 1							
F	Request Feature	.							
F	Report Bug	-							
	Contact Support								
1	About	- 1							
)	Suite Licensing	- 1							

Selecting this option will open the Support page on the CTC web site, which allows you to add a request for a new feature by selecting the Wish List option.

Reporting a Bug

If you encounter what you feel is an issue or incorrect operation in the software, you can report this as a "bug" by either using the "Report Bug" button on the About dialog (seen below) or can access that functionality using the "Report Bug" drop-down menu choice:

S.	Spreadsheet Link Settings	5		
S	🝷 🐑 New Settings 🙍	Recent Saved Settings 👻	🚽 Save Settings 👻 Koad Settings 👻 🗄 Optio	ons 🔞 Help 下 Videos 👲 Support 🕦 About
°1 ⊌	New Settings Save Settings →	~		Parameters Filters Sorting
%	Load Settings 🔹 🕨	^	Selected Categories/Schedules	Available Parameters
Ξ	Options			
0	Help			
	Videos			
9	Request Feature			
<i>4</i>	Report Bug 🚽			
9	Contact Support			
0	About			
P	Suite Licensing			
	Exit			

Selecting this option will open the Support page on the CTC web site, which allows you to submit the information about the issue.

Contacting Technical Support

In the toolbar, clicking the "Support" button will open the Support page on the CTC web site. This button may be hidden by your system administrator.

S _	Spreadsheet Link Setting	s			
S	🝷 🐴 New Settings 📗	Recent Saved Settings	👻 📄 Save Settings 👻 Koad Settin	gs ▾ 🗄 Options	🔞 Help р Videos 👲 Support 🕦 About
	New Settings Save Settings	~			Parameters Filters Sorting
2	Load Settings 🔹 🕨	^	Selected Categories/Schedules		Available Parameters
:=	Options				
0	Help				
	Videos				
9	Request Feature				
4	Report Bug				
9	Contact Support 👍				
0	About				
2	Suite Licensing				
	Exit				

Selecting this option will open the Support page on the CTC web site.

Getting Application Information

In the toolbar, clicking the "About" button will display a dialog which shows information about this tool.

s. : Si	Spreadsheet Link Se	ettings as	Recent Saved Setting	is 👻 🔄 Save Setting	as 👻 Load Settings	- E Options	🖗 Help	Videos 🔴 S	Support (1) About
21 	New Settings				,- ~	opinio	Parameters	Filters Sorting	
×	Load Settings	•	^	Selected Cate	gories/Schedules		Available Pa	arameters	
Ξ	Options								
0	Help								
	Videos								
?	Request Feature								
*	Report Bug								
0	Contact Support								
D	About								
P	Suite Licensing								
	Exit			4					

This screen should look like this:

About Spreadsheet Link	×
A SYMETRI COMPANY	Buy Now!
	Request Feature
Spreadsheet Link	Report Bug
This tool exports and imports project data between Revit and a spreadsheet program.	
Website: <u>https://ctcsoftware.com</u>	
Contact Support: https://ctcsoftware.com/support	Installed suite version: 25.3
System Information	Download Latest Suite Installer
Copyright ©2024 CTC Software	ОК

Revit Properties

Unlike the other tools in BIM Project Suite, Revit Properties does not actually run within Revit. Instead, it modifies the Windows Explorer / File Explorer interface to provide access to basic data about Revit project files, family files, project template files and family template files.

Most importantly, **without having to be in Revit** it will tell you what version of Revit last saved the file, but includes other information as well. Knowing what version of Revit last saved the file can help you know which version of Revit to use to open the file.

Further, Revit Properties can open Revit files in a user-selected version of Revit as well, but has the following limitations:

- It cannot open a project "Detached from central"
- It cannot open a project while allowing the user to choose which worksets to open
- It cannot open a workshared project AND overwrite the previous local copy it can only append with date and time
- It cannot open a file with auditing turned on

However, this tool will let you "Create New Local" from a central file in the same manner Revit does.

This is a free tool that does not have licensing requirements.

Starting Revit Properties

In Windows Explorer or File Explorer, navigate to the folder which has the Revit file of interest, right-click on the Revit file and select the "Revit Properties" pop-up menu choice:

🕌 l ⊋ 🚯 = l	C:\Temp						
File Home Share View							
 This PC > OS (C:) > Temp Favorites Links Music Pictures reptool Roaming Saved Games Searches Videos VirtualBox VMs This PC Autodesk 360 Desktop Documents Downloads Music Pictures Videos Uideos Music Pictures Ownloads Music Pictures Videos Music Ois Pictures Videos Music Pictures Videos Music Ois Pictures OS (C:) 9 items 1 item selected 6.58 MB 	•	Name 2013_Family.rfa 2013_Project_Central_File.rvt 2013_Project_Not_Workshared.rvt 2014_Family.rfa 2014_Project_Central_File.rvt 2015_Family.rfa 2015_Froject_Central_File.rvt 2015_Project_Not_Workshared.rvt		Open Revit Properties Edit with Notepad++ Scan with ESET Endpoint An Advanced options Open with Send to Cut Copy Create shortcut Delete Rename Properties	Date 1/17/2012 4: 10/15/2014 1	00 PM 1:02 AM 22 PM 20 PM 1:06 AM 21 PM 1:09 AM 57 PM	Typ Aut Aut Aut Aut Aut Aut

This menu choice will only appear for *.rvt, *.rfa, *.rte and *.rft files.

A resizable dialog like the following will appear:

CTC Revit File Properties	×
File Properties	Preview Image
Filename: C:\Temp\2013_Project_Not_Workshared.rvt Saved with Revit version: 2013 - Terview (Build: 20120113_1515(x64)) Last saved path: E:\LOC_P4\Relaxes\2013\RTM\Content\English\Samples\RAC\Samples \vac_basic_sample_project1rvt Locale when saved: ENU Is Revit LT file: No Worksharing mode: NotEnabled Is central file: No Central model path: User name:	Copy to Clipboard
Open in: Revit 2013 V Copy to Clipboard	
Close	

The Revit version that last saved the file is indicated in the image above.

A central file shows different information:

CTC Revit File Properties	
File Properties	Preview Image
Filename: C:\Temp\2013_Project_Central_File.rvt Saved with Revit version: 2013 Saved with Revit version: 2013 Saved with Revit version: 2013 Build: 20120221_2030(x64)) Last saved path: C:\Temp\2013_Project_Central_File.rvt Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Last saved path: C:\Temp\2013_Project_Central_File.rvt Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Last saved path: C:\Temp\2013_Project_Central_File.rvt Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Last saved path: C:\Temp\2013_Project_Central_File.rvt Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Locale when saved: ENU Last saved: ENU Locale when saved: ENU Locale when saved: ENU Locale when saved: E	
v	Copy to Clipboard
Open in: Revit 2013 V Copy to Clipboard	
Close	
	.::

The list of data available for family files has some information about the last time the file was updated, the family category, and the number of types and the names of the types in the family:

CTC Revit File Properties	
File Properties	Preview Image
Filename: C:\Temp\2013_Family.rfa Saved with Revit version: 2013 Saved with Revit build: Autodesk Revit 2013 - Preview (Build: 20120111_1515(x64)) Last saved path: C:\Users\wangmin\AppData\Local\Temp\LXS_Temp\RAC \rac_basic_sample_family.rfa Locale when saved: ENU	
Last update date and time: 1/31/2013 7:41:57 AM Family category: Furniture	U
Family types: 5 Family type names: 0610 x 0160mm 0762 x 0762mm 0610 x 0915mm	Copy to Clipboard
Open in: Revit 2013 V Copy to Clipboard	
Close	
	.::

This button will copy the information from the list of file properties to the clipboard, as text:

CTC Revit File Properties	
File Properties	Preview Image
Filename: C:\Temp\2013_Family.rfa Saved with Revit version: 2013 Saved with Revit build: Autodesk Revit 2013 - Preview (Build: 20120111_1515(x64)) Last saved path: C:\Users\wangmin\AppData\Local\Temp\LXS_Temp\RAC \vac_basic_sample_family.rfa Locale when saved: ENU Is Revit LT file: No Last update date and time: 1/31/2013 7:41:57 AM Family type names: 0610 x 0160mm 0762 x 0762mm 0610 x 0915mm	Copy to Clipboard
Open in: Revit 2013 Copy to Clipboard Close	
	.::

This button will copy the preview image to the clipboard as a 128 x 128 pixel image:

CTC Revit File Properties	×
File Properties	Preview Image
Filename: C:\Temp\2013_Family.rfa Saved with Revit version: 2013 Saved with Revit build: Autodesk Revit 2013 - Preview (Build: 20120111_1515(x64)) Last saved path: C:\Users\wangmin\AppData\Local\Temp\LXS_Temp\RAC \vac_basic_sample_family.rfa Locale when saved: ENU Is Revit LT file: No Last update date and time: 1/31/2013 7:41:57 AM Family togen: Furniture Family type names: 0610 x 0160mm 0762 x 0762mm 0610 x 0915mm Copy to Clipboard	Copy to Clipboard
Close	
	.::

These buttons provide the ability to open the document in a specific version of Revit:

CTC Revit File Properties	
File Properties	Preview Image
Filename: C:\Temp\2013_Family.fa Saved with Revit version: 2013 Saved with Revit version: 2013 Last saved path: C:\Users\wangmin\AppData\Local\Temp\LXS_Temp\RAC Yac_basic_sample_family.fa Locale when saved: ENU Is Revit LT file: No Last update date and time: 1/31/2013 7:41:57 AM Family topes: 3 Family type names: 0610 x 0160mm 0762 x 0762mm 0610 x 0915mm	Copy to Clipboard
Open in: Revit 2013 Copy to Clipboard Revit 2014 Revit 2015 Close	

If the file was saved in a version of Revit that is later than any version installed (or if no versions of Revit are installed), these buttons will not be visible. Otherwise, the list of choices will show all the versions of Revit that have been detected on this computer.

If only one version of Revit is installed, the list will not be visible and the button will change to say something like "Open in Revit 2019" (as appropriate).

If more than one version of Revit is installed, the list will be visible and the version that most closely matches the version in which the file was last saved will be selected automatically by default. This is true for older versions of Revit as well, which may have contained discipline-specific names such as "Revit Architecture 2018" or "Revit MEP 2019."

For families and non-workshared project files, if a later version of Revit is selected and the "Open in:" button is clicked, a warning like this will appear:



Opening a central file in the same version of Revit in which it was last saved presents some options:



If "Create New Local" is selected, a new local file will be created in the same folder and with the same name that Revit natively does, based on the settings for that version of Revit.

Because project files can be large and take time to copy, the following message is presented:



Then a dialog like this will appear in Revit:



This is normal. Clicking the "Close" button will complete the process, and a new local file will be used.

If instead the "Continue opening the central file" choice is selected, before opening the file directly in Revit this warning is displayed:

	CTC Revit File Properties	
A	WARNING: Working inside the central file can cause loss of data or corruption if being accessed by other users. Are you sure you want to continue opening this central file in Revit?	
	<u>Y</u> es <u>N</u> o	

If creating a new local file is selected again later on the same central file by the same user, a dialog similar to the equivalent one in Revit will appear:



If the timestamp approach is chosen, the existing local file will be renamed with the same time stamp system that Revit uses, and a new local file is created from the central file.

Revit itself will not allow creating a new local file from a central file if the version of Revit that is running is newer than the version that was used to last save the central file. The same is true for this tool if you select to open a central file in a newer version of Revit. In that case you will not get the option to create a new local file, but instead will see this:



Choosing "Yes" will continue with opening the central file directly in the later version of Revit.

Using Revit Properties on an existing local file and having it be opened with this tool will show the following:



Selecting the default "Create New Local" choice will show the subsequent dialog (seen previously):

🖳 Cannot Create Local File	×				
You are trying to create a new local file 'C:\Users\\Documents\2013_Project_Central_Filervt' but a with this name already exists.					
What do you want to do? Overwrite existing file					
Append timestamp to existing filename					
OK Cancel					

Suite Settings

The Suite Settings tool allows suite-level changes to be applied.

NOTE: You may need to restart Revit in order to see any changes made with this tool take effect.

NOTE: Your system administrator may disable some features of this application.

Starting Suite Settings

On the Revit ribbon, click on the "Suite Settings" button.



Depending on ribbon button configuration, the button may be labeled "BIM Project Suite Settings" and be located under the "Free Tools" dropdown button on the CTC BIM Project Suite panel.



This will launch the application, which should look something like this:

S CTC BIM Project Suite Settings	×
SS - 🕡 Help 👲 Support 🕦 About	
Changing settings with this application may require restarting Revit before the char will take effect.	nges
Ribbon Button Visibility Licensing	
The buttons that are checked below will be visible in the Revit ribbon:	
☑ BIM Project Suite Settings ☑ Detail Link ☑ Length Calculator ☑ Quick Select ☑ Renumbering ☑ Fab Sheets ☑ Group free tools under a single ribbon button	~
Group premium tools under a single ribbon button	
Use small icons for ungrouped tools in the Revit ribbon	
Save	
www.ctcsoftware.com	

Changing Which Ribbon Buttons are Visible and how they Appear

The first tab in the Suite Settings tool allows changing which ribbon buttons are available, if this feature has not been disabled by the system administrator. The *CTC Suites Installation and Configuration* document explains how ribbon button availability can be controlled more automatically using either configuration files or Active Directory security group definitions.



For any ribbon buttons that you don't want to have available, simply clear the checkmark by their name and then click the "Save" button at the bottom.

If you turn off the button for this application itself, the following dialog will appear when you try to save that change:



Selecting the grouping checkboxes near the bottom of the dialog will condense the tools into a dropdown button. This is the default behavior when the tools are installed on a new computer:

ast	System	ms	Insert	Annotat	e Analy	ze Massi	ng & Site	Collabora	ate Viev	v Manag	e Add-Ins	CTC Pr	oductivity	CTC Mana	agement	Modify	
	Free	3 Fab	FR Fire			MD Model	OR Occ. Flow	Parameter	R M Revision	RDS Room Data	R-M Boom	SX1	SA	S Spreadsheet		VC	
	Tools Sh	heets I	Rating	Advisor	Compare	Dashboard	Analyzer	Jammer	Manager	Sheets	Family Mgr	XL	Assistant	Link	Link Express	Creator	
	CE cuis	t- C-++						CTC E	BIM Project	t Suite							
	S) Suit	le sell	ings														
	DL Det	tail Lin	k														
	LC Len	ngth Ca	alculato	r													
	Qui Qui	ick Sel	ect														
	R Ren	numbe	ering														
	VA Viev	w Alig	ner														

Note that if only one tool within a group is visible, the button for that tool will be placed directly on the panel. There will be no drop-down button if there would be only one tool to show underneath it.

Either free or premium tools (or both) can be ungrouped. For example, these settings:



results in this:

S 5	DL	LC	05	R	VA	
Suite Settings	Detail Link	Length Calculator	Quick Select	Renumbering	View Aligner	Premium _ Tools
2i y s		CT	C BIM P	roject Suite	, in given	

Selecting the "Use small icons for ungrouped tools in the Revit ribbon" checkbox can save some ribbon space for ungrouped tools. For example, these settings:



💽 Occ. Flow Analyzer

CTC BIM Project Suite

nto Room Data Sheets

Sheet Assistant

View Creator

🗵 Length Calculator

🔽 View Aligner

🚺 Invisibility Advisor

Seeing and Changing License Status

The second tab in the Suite Settings tool allows seeing the current license status and changing the licensing:

S CTC BIM Project Suite Settings	\times
SS 🗸 🕢 Help 👲 Support 🕦 About	
Changing settings with this application may require restarting Revit before the ch will take effect.	anges
Ribbon Button Visibilit Licensing	
Current License Status:	
Application: CTC BIM Project Suite	~
License type: CloudShared - Logged in user: David - This license is currently not borrowed. - Subscription expires on 6/1/2024 6:00:00 PM	
Change Licensing	~
www.ctcsoftware.com	

The top portion of this screen shows how the licensing is currently configured for this suite. Clicking the "Change Licensing..." button will show the *Product and License Information* dialog that allows changing how the suite is licensed, which is discussed above.

C Product and License Information	×
Current Status	
Application: CTC BIM Project Suite	^
License type: CloudShared - Logged in user: David - This license is currently not borrowed. - Subscription expires on 6/1/2024 6:00:00 PM	
Cloud Shared or Free Trial Licensing Either cloud shared or free trial licensing requires your company to have a CTC account, and only allows the premium tools to work when you have an Internet connection with at least one license available.	e
Borrow Sign Out	
	Close

Detail Link

Introduction

Detail Link allows for the automation and mass linking or importing of multiple external AutoCAD DWG detail files. Detail Link can also be used for the automation and mass importing of image files. Each detail or image will be linked or imported and placed into a Drafting view based on options selected.

Starting Detail Link

On the Revit ribbon, click on the "Detail Link" button.



<u>D.</u>	Detail Link		↔ –	
👤 🗸 🞝 Add Detail Files 🛟 Add Image Files	🔞 Help 🕦 About			
Selected DWG Files Selected Image Files				
View Naming Automatically create new Drafting Views Select an existing Drafting View for each file Enter a name for a new Drafting View for each file 	DWG Options Import/Link: Link Positioning: Auto - Center to C Colors: Preserve Layers: All Import Units: Auto-Detect 1.0000	Placement: Placement: Resolution (c	s Center dpi): 9	6
		Import/	/Link	Close

DWG File Selection

To select which DWG files should be linked or imported, click the "Add Detail Files..." button in the toolbar at the top.



The following dialog will appear:

				Select Files				
Parent folder: C:\	Program Files\Autod	esk\AutoCAD 2015\Sample\				Browse	🗹 Search in subfolder	Search Again
96 File(s) Found	96 File(s) Found							
C:\Program Files\A C:\Program Files\A	utodesk\AutoCAD	2015\Sample\ActiveX\ExtAttr 2015\Sample\ActiveX\Sheet		l <mark>y Sample.dwg</mark> Label Block.dwg				^
C:\Program Files\A C:\Program Files\A	utodesk VAutoCAD utodesk VAutoCAD Autodesk VAutoCAD	2015\Sample\ActiveX\Sheet 2015\Sample\ActiveX\Sheet 2015\Sample\ActiveX\Sheet	SetVBA\S SetVBA\S	Sheet1.dwg Sheet2.dwg				
C:\Program Files\A C:\Program Files\A C:\Program Files\A	kutodesk\AutoCAD kutodesk\AutoCAD Autodesk\AutoCAD	2015\Sample\ActiveX\Sheet. 2015\Sample\Database Conr 2015\Sample\en-us\DesignC	SetVBA\S iectivity\F enter\Ana	Sheet3.dwg Floor Plan Sample.dwg alog Integrated Circuits	.dwg			
C:\Program Files\A	utodesk\AutoCAD	2015\Sample\en-us\DesignC	at a lot	CAD Testables and	in the second	es.dwq		¥
Select All	Deselect All		4	Add Selected Files				
5 File(s) Selected								
C:\Program Files\/ C:\Program Files\/ C:\Program Files\/ C:\Program Files\/ C:\Program Files\/	utodesk:\AutoCAD utodesk:\AutoCAD utodesk:\AutoCAD utodesk:\AutoCAD utodesk:\AutoCAD	2015\Sample\en.us\DesignC 2015\Sample\en.us\DesignC 2015\Sample\en.us\DesignC 2015\Sample\en.us\DesignC 2015\Sample\Mechanical Sa	enter\Fas enter\Hor enter\Hou enter\HV mple\Mec	teners - US.dwg me - Space Planner.dw se Designer.dwg AC - Heating Ventilatic chanical - Data Links.d	vg m Air Co dwg	onditioning.dwg		
]		hemov	e pelecte	a nems Remo	we All IC	ems		
							Ok	Cancel

The controls at the top allow specifying in which folder to look for DWG detail files, and whether or not to include subfolders when searching. Clicking the "Search Again" button will search for the DWG files.

Once one or more DWG files have been found, they will appear in the "Files found" list. Click on one or more DWG files and then click the "Add Selected Files" button to add them to the list of DWG files to process in the lower half of the screen.

Clicking the OK button will return the list of files selected to the main dialog:

D	Detail Li	ink	↔		×
🗾 🗸 🛟 Add Detail Files 🛟 Add Image Files 🜘	🗿 Help	out			
Selected DWG Files					
C:\Program Files\Autodesk\AutoCAD 2015\Sample\Mecha C:\Program Files\Autodesk\AutoCAD 2015\Sample\en.us\ C:\Program Files\Autodesk\AutoCAD 2015\Sample\en.us\ C:\Program Files\Autodesk\AutoCAD 2015\Sample\en.us\ C:\Program Files\Autodesk\AutoCAD 2015\Sample\en.us\	anical Sample\Me DesignCenter\Fa DesignCenter\H DesignCenter\H DesignCenter\H	echanical - Data Links.dwg asteners - US.dwg ome - Space Planner.dwg ouse Designer.dwg VAC - Heating Ventilation Air	Conditioning.dwg		
Selected Image Files					
View Naming	DWG Options		Image Options		
Automatically create new Drafting Views	Import/Link:	Link V	-		
Select an existing Drafting View for each file	Positioning:	Auto - Center to Ce \vee	Placement: Cen	ter	~
O Enter a name for a new Drafting View for each file	Colors:	Preserve V	Resolution (dpi):	96	

To remove items from the list, simply select one or more of them and press the Delete key on the keyboard.

Image files can be selected using a similar process to DWGs. Click the "Add Image Files..." button to launch the "Select Files" dialog.

Detail Li	ink		→ -	. 🗆	>
🕢 Help 🕦 Ab	out				
xhanical Sample\Me us\DesignCenter\Fa us\DesignCenter\Ho us\DesignCenter\Ho us\DesignCenter\H'	echanical - Data Links.dr isteners - US.dwg ome - Space Planner.dw ouse Designer.dwg VAC - Heating Ventilatior	vg g 1 Air Conditioning.dv	/g		
DWG Options Import/Link: Positioning:	Link v Auto - Center to Ce v	Image Options Placement:	Center		~
Colors: Layers:	Preserve V	Resolution (d	lpi):	96	
Import Units:	Auto-Detect 🗸]			
	1.000000				
	Help	Pelp About thanical Sample/Mechanical - Data Links.dv shDesignCenter/Fasteners - US.dvg shDesignCenter/Home - Space Planner.dw shDesignCenter/Home - Space Planner.dw shDesignCenter/Howe Designer.dwg shDesignCenter/Howe Designer.dwg shDesignCenter/HVAC - Heating Ventilation DWG Options Import/Link: Link Positioning: Auto - Center to Ce Colors: Preserve Layers: All Import Units: Auto-Detect 1.000000 1.000000	PHelp () About thanical Sample/Mechanical - Data Links.dwg is/DesignCenter/Fasteners - US.dwg is/DesignCenter/Fasteners - US.dwg is/DesignCenter/Home - Space Planner.dwg is/DesignCenter/HVAC - Heating Ventilation Air Conditioning.dwg Positioning: Link Positioning: Auto - Center to Ce v Colors: Preserve Layers: All Import Units: Auto-Detect 1.000000 1.000000	Weip () About thanical Sample Mechanical - Data Links.dwg is DesignCenter Fasteners - US.dwg is DesignCenter Volume - Space Planner.dwg Positioning: Auto - Center to Ce V Layers: All import Units: Auto-Detect 1.000000 1.000000	Help About About Annical Sample Mechanical - Data Links.dwg Is DesignCenter Vasteners - US.dwg Is DesignCenter Vome - Space Planner.dwg Is DesignCenter VHOXE - Heating Ventilation Air Conditioning.dwg DWG Options Import/Link: Link Positioning: Auto - Center to Ce Layers: All Import Units: Auto-Detect I.000000

Once images have been selected they will appear in the "Selected Image Files" list.

D	Detail L	ink	- 🗆 🗙
🗾 🗸 📲 Add Detail Files 🜓 Add Image Files 🌘	🗿 Help	out	
Selected DWG Files C:\Program Files\Autodesk\AutoCAD 2015\Sample\Mecha C:\Program Files\Autodesk\AutoCAD 2015\Sample\enus\ C:\Program Files\Autodesk\AutoCAD 2015\Sample\enus\ C:\Program Files\Autodesk\AutoCAD 2015\Sample\enus\ C:\Program Files\Autodesk\AutoCAD 2015\Sample\enus\ C:\Program Files\Autodesk\AutoCAD 2015\Sample\enus\ Selected Image Files C:\Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCo C:\Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCo C:\Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCo	inical Sample \M DesignCenter\Fa DesignCenter\H DesignCenter\H DesignCenter\H onnect\Inventor onnect\Inventor onnect\Inventor	echanical - Data Links.dwg ssteners - US.dwg ome - Space Planner.dwg ouse Designer.dwg VAC - Heating Ventilation A Server/Bin/Effects\Texture Server/Bin/Effects\Texture Server/Bin/Effects\Texture	ir Conditioning.dwg ss\Paper_Carbon_Fiber_Black.jpg ss\Paper_Carbon_Fiber_White.jpg ss\Paper_Cotton.jpg ss\Paper_Heavy_Linen.jpg
View Naming	 DWG Options 		Image Options
Automatically create new Drafting Views	Import/Link:	Link 🗸	
Select an existing Drafting View for each file	Positioning:	Auto - Center to Ce 🗸	Placement: Center V
	Colors:	Preserve 🗸	Resolution (dpi): 96
 Enter a name for a new Drafting View for each file 	Layers:	All 🗸	
	Import Units:	Auto-Detect 🗸 🗸	
		1.000000	
			Import/Link Close

View Naming

View naming can be handled using one of three options.

cal - Data Links.dwg s - US.dwg Space Planner.dwg easigner.dwg Heating Ventilation Air Conditioning.dv Bin\Effects\Textures\Paper_Carbon Bin\Effects\Textures\Paper_Carbon Bin\Effects\Textures\Paper_Cotton, Bin\Effects\Textures\Paper_Heavy_	vg _Fiber_Black.jpg _Fiber_White.jpg jpg _Linen.jpg
cal - Data Links.dwg s - US.dwg space Planner.dwg esigner.dwg Heating Ventilation Air Conditioning.dw Bin\Effects\Textures\Paper_Carbon Bin\Effects\Textures\Paper_Corbon, Bin\Effects\Textures\Paper_Cotton, Bin\Effects\Textures\Paper_Heavy.	vg _Fiber_Black.jpg _Fiber_White.jpg jpg _Linen.jpg
cal - Data Links.dwg s - US.dwg ippace Planner.dwg easigner.dwg Heating Ventilation Air Conditioning.dw Bin/Effects\Textures\Paper_Carbon Bin/Effects\Textures\Paper_Carbon Bin/Effects\Textures\Paper_Cotton, Bin/Effects\Textures\Paper_Heavy_	vg _Fiber_Black.jpg _Fiber_White.jpg _Linen.jpg
Bin\Effects\Textures\Paper_Carbon Bin\Effects\Textures\Paper_Carbon Bin\Effects\Textures\Paper_Cotton, Bin\Effects\Textures\Paper_Heavy_	_Fiber_Black.jpg _Fiber_White.jpg jpg _Linen.jpg
Bin\Effects\Textures\Paper_Carbon Bin\Effects\Textures\Paper_Carbon Bin\Effects\Textures\Paper_Cotton, Bin\Effects\Textures\Paper_Heavy_	_Fiber_Black.jpg _Fiber_White.jpg jpg _Linen.jpg
Image Options	3
*	
- Center to Ce 🗸 Placement:	Center V
erve v Resolution (e	dpi): 96
~	
Detect 🗸	
1.000000	
Import/	Link Close
-	Image Options Center to Ce Placement: rve Obtect 1.000000

The "Automatically create new Drafting Views" option will generate and name the drafting view the same as the DWG or image file name, without the file extension.

The "Select an existing Drafting View for each file" option allows selecting an existing drafting view for each DWG or image to be imported/linked into Revit. If an appropriate view does not exist the option to create a new view can be used instead.

Drafting View for Detail Impor	rt 🛛 🕅
Importing C:\ProgramData\Auto Concrete\dwgs\AecDtlLib_Con	odesk\ACA 2013\enu\Details\Details (US)\03 - creteReinforcing.dwg
Select a drafting view name to o	continue.
New View Name:	AecDtlLib_ConcreteReinforcing
Existing View Name:	Drafting 1
	OK Skip Cancel

The *"Enter a name for each new Drafting View for each DWG"* option requires manually entering a name for each new drafting view to be created. If an appropriate view already exists the option to select an existing view can be used instead.

Options

The options area are used to configure the settings to use when importing or linking each file.

	Detail Li	nk		-		×
👤 🗸 🛟 Add Detail Files 🛟 Add Image Files 🌘	🕽 Help 🕕 Abo	out				
Selected DWG Files C:Program Files\Autodesk\AutoCAD 2015\Sample\Mecha C:Program Files\Autodesk\AutoCAD 2015\Sample\en-us\ C:Program Files\Autodesk\AutoCAD 2015\Sample\en-us\ C:Program Files\Autodesk\AutoCAD 2015\Sample\en-us\ C:Program Files\Autodesk\AutoCAD 2015\Sample\en-us\ Selected Image Files C:Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCC C:Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCC C:Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCC C:Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCC C:Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectCC	inical Sample\Me DesignCenter\Fa DesignCenter\Ho DesignCenter\Ho DesignCenter\Hv nnect\Inventor S nnect\Inventor S nnect\Inventor S	chanical - Data Links.dwg steners - US.dwg me - Space Planner.dwg use Designer.dwg /AC - Heating Ventilation Air erver\Bin\Effects\Textures erver\Bin\Effects\Textures erver\Bin\Effects\Textures	Conditioning.dwg \Paper_Carbon_f \Paper_Carbon_f \Paper_Cotton.jp \Paper_Heavy_L	j Fiber_Black, Fiber_White g inen jpg	gqi	
View Naming Automatically create new Drafting Views 	- DWG Options Import/Link:	Link 🗸	- Image Options -			
Select an existing Drafting View for each file	Positioning:	Auto - Center to Ce \vee	Placement:	Center		~
O Enter a name for a new Drafting View for each file	Colors: Layers:	Preserve V All V	Resolution (dp	i): 9	6	-
	Import Units:	Auto-Detect V				
			Import/Li	nk	Close	_

DWGs can either be imported or linked into the project. The Import/Link option controls whether to link or import the CAD detail. CTC recommends as a best practice to **link** CAD files where possible.

The Positioning option controls whether the DWG file is placed "Auto - Center to Center" or "Auto - Origin to Origin" within the Revit environment.

The Colors option controls how to handle layer colors from AutoCAD. The options are to preserve, invert or convert to black and white.

The Layers option controls whether to import or link all layers from the DWG file or only the visible layers.

Import units are typically set in the original DWG file but if the units are unknown, or alternative units are needed, they can be set using the Import Units option.

Image files can only be imported, the image options control how to position the image file and what the resolution of the image should be.
Starting the Import

After all options have been configured, click the "Import/Link" button to import or link the DWG files into Revit.

	Detail Li	ink	•	↔	-		×
🗾 🗸 🛟 Add Detail Files 🛟 Add Image Files 🌘	🕖 Help 🕕 Ab	out					
Selected DWG Files C:\Program Files\Autodesk\AutoCAD 2015\Sample\Mech C:\Program Files\Autodesk\AutoCAD 2015\Sample\en-us C:\Program Files\Autodesk\AutoCAD 2015\Sample\en-us C:\Program Files\Autodesk\AutoCAD 2015\Sample\en-us C:\Program Files\Autodesk\AutoCAD 2015\Sample\en-us Selected Image Files C:\Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectC C:\Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectC C:\Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectC C:\Autodesk\Autodesk_Maya_2015_R1_dlm\x64\DirectC	anical Sample/Me DesignCenter/He DesignCenter/He DesignCenter/He DesignCenter/He onnect/Inventor S onnect/Inventor S onnect/Inventor S	echanical - Data Links.dwg Isteners - US.dwg ome - Space Planner.dwg Duse Designer.dwg VAC - Heating Ventilation Ai Server\Bin\Effects\Textures Server\Bin\Effects\Textures Server\Bin\Effects\Textures	r Conditioning.dv i\Paper_Carbon \Paper_Carbon \Paper_Cotton.j \Paper_Heavy_	vg _Fiber_Bla _Fiber_Wi pg _Linen.jpg	ack jp hite jp	99	
View Naming	DWG Options		Image Options	5			
 Automatically create new Drafting Views Select an existing Drafting View for each file Enter a name for a new Drafting View for each file 	Import/Link: Positioning: Colors: Layers: Import Units:	Link Auto - Center to Ce Preserve All Auto-Detect 1.000000	Placement: Resolution (c	Center dpi):	96		•
			Import/	Link	C	llose	

A progress bar will appear at the bottom of the screen while the drawings are being imported.

Once processing is complete, a report will show the results:

Detail Link Completed	×
The following files were successfully linked/imported into the drafting views shown: C:\Program Files\Autodesk\AutoCAD 2015\Sample\Mechanical Sample\Mechanical - Data Links.dwg has been linked in the view: Mechanical - Data Links C:\Program Files\Autodesk\AutoCAD 2015\Sample\en_us\DesignCenter\Fasteners - US.dwg has been linked in the view: Fasteners - US C:\Program Files\Autodesk\AutoCAD 2015\Sample\en_us\DesignCenter\Home - Space Planner.dwg has been linked in the view: Home - Space Planner C:\Program Files\Autodesk\AutoCAD 2015\Sample\en_us\DesignCenter\House Designer.dwg has been linked in the view: House Designer C:\Program Files\Autodesk\AutoCAD 2015\Sample\en_us\DesignCenter\House Designer.dwg has been linked in the view: House Designer C:\Program Files\Autodesk\AutoCAD 2015\Sample\en_us\DesignCenter\House Designer.dwg has been linked in the view: House Designer C:\Program Files\Autodesk\AutoCAD 2015\Sample\en_us\DesignCenter\HVAC - Heating Ventilation Air Conditioning.dwg has been linked in the view: HVAC - Heating Ventilation Air Conditioning C:\Autodesk\Autodesk\AutoCAD 2015_R1_l_dm\x64\DirectConnect\Inventor Server\Bin\Effects\Textures \Paper_Carbon_Fiber_Black.jpg has been imported into the view: Paper_Carbon_Fiber_Black C:\Autodesk\Autodesk_Maya_2015_R1_dm\x64\DirectConnect\Inventor Server\Bin\Effects\Textures \Paper_Carbon_Fiber_Vintei gig has been imported into the view: Paper_Carbon_Fiber_Black C:\Autodesk\Autodesk_Maya_2015_R1_dm\x64\DirectConnect\Inventor Server\Bin\Effects\Textures Paper_Cotton jpg has been imported into the view: Paper_Carbon_Fiber_Stextures C:\Autodesk\Autodesk_Maya_2015_R1_dm\x64\DirectConnect\Inventor Server\Bin\Effects\Textures\Paper_Cotton jpg has been imported into the view: Paper_Cotton C:\Autodesk\Autodesk_Maya_2015_R1_dm\x64\DirectConnect\Inventor Server\Bin\Effects\Textures\Paper_Heavy_Linen jpg has been imported into the view: Paper_Heavy_Linen jpg has been imported into the view: Paper_Heavy_Linen	<
OK	Ð.

The icon in the lower right corner of the window will let you copy the contents of the window to the clipboard.

If any drawing files failed to link they will show up in a separate section at the bottom of the report.

Length Calculator

Introduction

Length Calculator is a simple add-in designed to assist during the design phase of duct, pipe, conduit or cable tray layout by quickly calculating the length of a run.

Starting Length Calculator

On the Revit ribbon, click on the "Length Calculator" button.



Calculate a Run Length

To calculate a run length, select the elements in the run.



With the elements still selected, launch Length Calculator and click the "Calculate Length" button.

lock 37 🛛 🔀 L1 - I	Block 35 ×		
Length Calculator		>	×
LC - ⋮∃ Options	😧 Help 下 Videos 👲 Support 🕕 About		
Select Pipe, Duct, Cabl	e Tray, or Conduit Objects for Length Calculation	Calculate Length	
Objects:	Total Length (Excluding Fittings):	Segments Count:	
Ducts ~	10' - 1 3/8"	5	11
	Total Length (Including Estimated Fitting Length): 12' - 11 5/16"	Fittings Count:	
	Longest Continuous Run in Selection:	Segments Count:	
	10' - 1 3/8"	5	
	Longest Continuous Run in Selection: Including Estimated Fitting Length	Fittings Count:	-
	12' - 11 5/16"	4	
enoth calculated for d	ucts. (lanored objects in selection: 1)		
· · · ·			

The length of any selected pipe, duct, cable tray or conduit will be calculated in the current project units and displayed in the "Total Length" field. Fittings will be shown calculated as part of the total length including their estimated length (due to their actual linear dimension not being available).

The number of segments of the selected run will also be shown in the "Segments Count" field.



Quick Select

Quick Select facilitates the selection of specific elements by Revit filters or specific categories and parameter values. The elements that match the filter criteria can either be added to, removed from or replace the currently selected elements. In some cases it may be beneficial to run through the Quick Select interface more than once to refine selection results.

Starting Quick Select

On the Revit ribbon, click on the "Quick Select" button

Quick Select				- • ×
Selections CAreas 1 C Ciries 1 C C Stairs 1	Selection Criteri Apply Filter To Filter Category All Family O Parameter Filt Parameter: Operator: Value: Update Selecti Remove frr Replace se		Selection Set	Q - @- M
		Update Selection Set	105 Selected	Export Selection Set OK Cancel

Selections

Quick Select can build a new selection, add to an existing selection, remove items from an existing selection, or replace the current selection altogether. The Selections list shows the selection criteria that have been created. For instance, when choosing Category as the first criteria, an item will appear in the list with 'C' (category).

Selections	Selection Criteria
💼 C <area boundary=""/> 1	Apply Filter To: Project 🗸
💼 C Areas 1	○ Filter
💼 C Lines 1	C Tricer Chones
🗑 F Interior	💼 🖲 Category Ceilings 🗸 🗸 🗸
m C Stairs 1	Parameter Filter (Optional)
m C Ceilings 1	
	Parameter: Room Bounding (Instance) ~
	O

If choosing 'Filter', an 'F' will preced the filter name.

To create more than one criterion for the same category or filter:

- 1. Click on the plus in the list
- 2. Select the same filter or category
- 3. Choose additional or other Parameter Filter options

Selection criteria of the same category or filter will be numbered, like this:

C Areas 1

```
C Areas 2
```

To modify the selection criteria of an item in the selections list, simply select the item and change it's properties.

Selection Criteria

The three options in the "Apply Filter To" dropdown are listed below and determine which elements will be considered in the selection filter:

- Project All elements in the current Revit project
- Active View Only elements in the current Revit view
- Current Selection Only elements in the current selection

In this example, a new selection will be built using the "Project" option.

Selection Criteria		
Apply Filter To:	Project	~
○ Filter	<none></none>	~
Category	Doors	~
◯ All Family Ca	tegories	

The next step is to decide how to build the filter. Quick Select can utilize an existing view filter or to build a filter by category. In this example the category option is used and the "Doors" category has been selected.

Selection Criteria		
Apply Filter To:	Project	~
◯ Filter	<none></none>	~
Category	Doors	~
O All Family Ca	tegories	

HINT: Type the name of the desired category to find it in the list more quickly.

At this point clicking "Select" would add all doors in the project to the selection set, however the filter can be further refined using the parameter filters. In this example the "Level" property will be used to only add doors on level 1 to the selection set.

-Selection Criteria			
Apply Filter To:	Project	\sim	
◯ Filter	<none></none>	\sim	
 Category 	Doors	\sim	
O All Family Ca	tegories		
– Parameter Filter	(Optional)		
Parameter:	Level (Instance)	~	
Operator:	Equal	~	
Value:	L2	~	
	🗌 Match case 👔 🕕		
Update Selection	n Set		
 Add to selection set 			
○ Remove from selection set			
○ Replace selection set			

Once the filter is configured click the "Update selection set" button to add the elements that fall under the filter to the list.

Selection Criteria		
Apply Filter To:	Project	\sim
◯ Filter	<none></none>	~
 Category 	Doors	~
O All Family Ca	ategories	
Parameter Filter	(Optional)	
Parameter:	Level (Instance)	~
Operator:	Equal	~
Value:	L2	\sim
	🗌 Match case 0 🔞	
Update Selection	n Set	
Add to select	tion set	
O Remove from	n selection set	
O Replace sele	ction set	
	Update Selection Set	

The "Selection Set" window will be updated to reflect the results of the filter and the "Selections" list will now include the new criteria.

In this case the doors in the project from Finished Floor are displayed. The doors category has been expanded to show the different families and how many instances of each exist.

Selections	Selection Criteria	Selection Set
💼 C <area boundary=""/> 1	Apply Filter To: Project 🗸 🗸	
m C Areas 1 C Areas 2	○ Filter <none></none>	V . Q. • @ • M
🗑 C Doors 1	Category Doors	Category (36)
1	Parameter Filter (Optional)	
	Parameter: Level (Instance) ~	□ □ □ □ Doors (16) □ □ □ Single-Flush (10)
	Operator: Equal ~	
	Value: Finished Floor ~	Double-Flush-Dbl Acting (1) ⊞- ☑ Curtain Wall Sgl Glass (4)
	🗌 Match case 🛛 🕕	

The tree view of the selection set can be used to further refine the selection. In the example below, unchecking the "Single-Flush" family from the tree view will remove the two instances of that door from the selection set.

Apply Filter To:	Project	~	Selection Set
○ Filter	<none></none>	\checkmark	Search:
Category	Doors	¥	✓ □
Parameter Filte	er (Optional)		Category (7)
Parameter:	Level (Instance)	~	Single-Flush (2)
Operator:	Equal	~	Entrance door (2) Curtain Wall Dbl Glass (2)
Value:	Level 1	~	Image: Image
	Match case	0	

TIP: Refining Selections

It may be desirable to refine a selection with more granularity than can be achieved by a single filter. If additional filtering is desired, create duplicate selections as many times as needed, each time applying the changes to the selection set until the target elements are selected.

Saving and Loading Selection Settings

Quick Select criteria can be saved for later use. The filters and their values are stored in a file with a .qssh extension. After the criteria has be set, click the save button on the toolbar at the top and specify the name and location of the .qssh file.

To load the settings, choose either 'Load with Values' or 'without'. When loading with values, the chosen value from the parameter filter will be set. When loading without values, the values are ignored and will require a selection to apply.

💽 🔹 🐒 New 🚽 Save 🚰 Load 🗸 🗄 Options 🔞 He	Ip 🕨 Videos 👲 Support 🕕 About	
Selections	Selection Criteria	Selection Set
C Rooms 1	Apply Filter To Active View \sim	Search:
C Rooms 2	◯ Filter <none> ∨</none>	V
-	Category Rooms	E Category (0)
	O All Family Categories	
	Parameter Filter (Optional)	
	Parameter: Name (Instance) ~	
	Operator: Contains ~	
	Value: Office ~	
	🗌 Match case 👔 🕕	

Settings Load Options

In options, the default is to prompt the user to choose each time settings are loaded whether to include values. The options can alternatively be set to default to one method and never prompt:

Options	×	
 Remember the size and position of the main window Zoom to fit after elements are selected. Note: This option can potentially slow the selection process 		🖸 ValueOptionsForm - 🗆 🗙
 Prompt when loading settings Load settings with value selections Load settings without value selections 		Do you want to load settings with value selections?
Ok Cancel		Don't show this message again

Exporting Selections

The list of selected elements can be exported as a spreadsheet if desired. To do this, make the selections and click the "Export Selection Set".

Selection Set	
Search:	
	Q • @• #
🖃 🔽 Category (105)	
🖻 🔽 Areas (101)	
🕀 🔽 Lines (1)	
🕀 🔽 Stairs (3)	
Ceilings (0)	
105 Selected	Export Selection Set
	OK Cancel

Renumbering

Starting Renumbering

On the Revit ribbon, cick on the "Renumbering" button.



renambering

There are several tabs to allow renumbering elements, rooms, doors, grids and detail numbers.

ooms							
	Areas	Space	Doors	Grids	Detail Nun	nbers General	
		Prefix:					
Start :	sequence	with:				Increment:	1 📫
	Sepa	arator:				2	
		Suffix:					
🗌 In	crement s	equenci	e numbe	r with co	nstant suffi	x	
🗌 Aı	ito swap	room nu	mber				
				Renur	nber		

Sequences can be alphanumeric and in most cases, increments will follow some common patterns. For example, a "Start sequence with" value such as 001 will increment using that pattern up to 009 then subsequently shift to a single place zero (010, 011, etc.). This convention does not apply to a specified Prefix value.

Renumbering Rooms, Areas and Spaces

To renumber areas select the "Areas" tab. Enter a value in the "Start sequence with" textbox.

Rooms	Areas	Space	Doors	Grids	Detail Numbers	General		
		Prefix:						
Start :	sequence	e with:				Increment:	1	*
	Sep	arator:						
		Suffix:						
🗌 In	crement	sequence	e numbe	r with co	nstant suffix			
	ito swap	room nu	mber					

The "Prefix" and "Suffix" textbox is optional and can be used to pre/append values to the sequence number. The separator is also optional and defines additional characters to use as a separation between the sequence number and the suffix.

R - E	∃ Options (😧 Help 下 Videos 👲 Support 🕦 About
Rooms A	reas Space	Doors Grids Detail Numbers General
	Prefix:	
Start see	quence with:	Increment: 1
	Separator:	
	Suffix:	
	ement sequenc	ce number with constant suffix

Specify the 'Start sequence with:' to begin numbering with that value. Choose the 'Increment' value to increase subsequent numbers by that increment.

Start sequence with: Increment: 1	Sequence Numbering	
	Start sequence with:	constant suffix Increment:

If the "Increment sequence number with constant suffix" checkbox is checked, all subsequently renumbered areas will receive the specified suffix value. With this option disabled, the suffix value will increment for each area with a constant number; for example, if the first area's suffix is "1" the suffix shown next will be "2". In the example below, deselecting this option would increment "M" to "N".

]				
Suffix: M					
Increment sequence number with constant suffix					
Auto swap room number					

If the "Auto swap area number" checkbox is checked, the number will be swapped automatically to avoid duplicates.



Once the number format is set, click on the "Renumber" button to start selecting areas from the active document.



The order in which the areas are numbered depends on the user selection. While selecting objects, the Renumbering tool will display the next area number in the sequence.

Press the Escape (Esc) key, located on the upper left corner of the keyboard, to discontinue the selection prompt.

Renumbering Doors

To renumber doors, select the "Door" tab.

Two methods can be used to renumber doors: sequential numbering (similar to the room renumbering) or the To Room/From Room property.

The "Start sequence with" textbox is used to set the starting sequence value and can optionally be combined with the Separator and Suffix fields below.

Rooms Areas Space Doors Grids Detail Numbers General					
Prefix:					
Sequence Numbering					
Start sequence with:					
Increment sequence with constant suffix Increment:					
O Room-based Numbering					
Select: O To Room C From Room					
Room Phase: New Construction					
Separator:					
Suffix:					
Auto swap door number					
Renumber					
Press ESC to exit selection mode.					

Once the values have been supplied, click the "Renumber" button to begin renumbering doors. Press the **Escape (Esc)** key, located on the upper left corner of the keyboard, to discontinue the selection prompt.

The other option is to renumber doors based on "To Room" and "From Room" property of a door. To use this method select the "Room-based Numbering" option.

Prefix:					
O Sequence Numbering					
Start sequence with:					
O Room-based Numbering					
Select: • To Room From Room Room Phase: New Construction					
Separator:					
Suffix:					
Auto swap door number					
Renumber Press ESC to exit selection mode.					

This function works by pulling the "From Room" or "To Room" property from the door. Select the desired property and which phase the rooms exist in.

Prefix:					
O Sequence Numbering					
Start sequence with:					
Room-based Numbering					
Select: • To Room · From Room Room Phase: New Construction ·					
Separator:					
Suffix:					
Auto swap door number					
Renumber					
Press ESC to exit selection mode.					

The "Separator" and "Suffix" options will be used a room contains more than one door, all the doors in that room will be marked with the room number followed with the separator, if entered, and the suffix. If a room has only one door it will be marked with the room number only.

Once the options have been selected click the "Renumber" button to begin renumbering doors. Once each door is numbered in the desired order, press the **Escape (Esc)** key, located on the upper left corner of the keyboard, to discontinue the selection prompt.

Important: The tool won't number the door correctly if the door has been flipped. To resolve this issue, please change the "From Room" and "To Room" properties of the door.

Renumbering Grids and Detail Numbers

The grid and detail number renumbering functions the same as the Room renumbering. Supply the configuration options as desired and click the "Renumber" button. Once each element is numbered in the desired order, press the **Escape (Esc)** key, located on the upper left corner of the keyboard, to discontinue the selection prompt.

Renumbering General Elements

The "General" tab, unlike any of the previous tabs, has the ability to renumber elements from any category with the selected parameter (Mark by default). It is important to remember that it is possible to renumber elements from multiple categories, so be sure to click on only the elements intended to be renumbered.

Special Notes

While renumbering elements, the change to its number is instantaneous. If you need to undo an action, exit the object selection by pressing **Escape (Esc)** key, located at the upper left corner in the keyboard, and click the undo button in the Revit.

View Aligner

Using View Aligner

View Aligner helps users with the placement of views on sheets. Use this tool to align views with other views by common edges and levels.

Starting View Aligner

View Aligner is a floating toolbar which can be present even while using other tools and Revit commands.

On the Revit ribbon, click on the "View Aligner" button.



The View Aligner toolbar will open. The toolbar is shown below with the common menu expanded.

V A	×
Γ.	┇ 🖶 🗖 🗖 🗖 🗖 🛱 👬
\odot	View Aligner
Ξ	Options
?	Help
	Videos
9	Request Feature
欲	Report Bug
9	Contact Support
0	About
×	Exit

Alignment Methods

Each method described below begins by clicking the toolbutton, selecting the view to align by, then selecting subsequent views to align.

The alignment method ends by pressing the escape (ESC) key.

NOTE: Edges of views are defined by their crop boundary.

Align Horizontally by Top Edge



Pick the view to align to (1) then the views to align (2). Press escape when all of the views have been aligned.

Align Horizontally by Center Line



Pick the view to align to (1) then the views to align (2). Press escape when all of the views have been aligned.

Align Horizontally by Bottom Edge



Pick the view to align to (1) then the views to align (2). Press escape when all of the views have been aligned.



Align Vertically by Left Edge

Pick the view to align to (1) then the views to align (2). Press escape when all of the views have been aligned.

Align Vertically by Center Line



Pick the view to align to (1) then the views to align (2). Press escape when all of the views have been aligned.



Align Vertically by Right Edge

Pick the view to align to (1) then the views to align (2). Press escape when all of the views have been aligned.

Align by Levels

NOTE: Views must be of the same scale.



Pick the view to align to (1) then the views to align (2). Press escape when all of the views have been aligned.

Align by Grid



Aligns views by the same grid. Vertical aligns to vertical, horizontal to horizontal. Views must be oriented in the same direction.

Choose a grid from the list that is presented.

Align by Intersection



Aligns views by the same grids that intersect. Views must be oriented in the same direction.

Choose a horizontal and vertical grid in the list that is presented.



Fab Sheets

Introduction

Fab Sheets provides tools to group elements by parameter values, create scope boxes for each group of elements, then produce views & sheets based on the scope boxes. While this tool is geared towards a fabrication workflow it may be applied anywhere multiple views are required for a group of elements.

Starting Fab Sheets

On the Revit ribbon, click on the "Fab Sheets" button.



Settings

The first tab in Fab Sheets is used to set up all the graphics settings that will be used for view and sheet creation.

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Settings Sequence Management View Creation	
Sequence Parameter Data Sequence Project Parameter (will be used to host sequence information):	Create Parameter
Jequeixe	
Sequence and Increment Format: Sequence Separator:	Hadata Saguanaan
Sequence (separator) increment	Opuale Sequences
Plan View Properties Elevation View Properties Template: Template: Architectural Elevation Architectural Elevation Scale: 12" = 1' • 0"	Section View Properties Template: Architectural Elevation Scale: 12" = 1' - 0" V
3D View Properties Material Take-off Properties Template: Source Material Take-off Schedule: Architectural Elevation Structural Foundation Material Tak Scale: 12" = 1' - 0"	Sheet Properties Titleblock Type: E1 30x42 Horizontal ~ Viewport Type: Viewport 1 ~
Sequence Graphic Overrides	Load Save As
Ready.	.:

In the "Sequence Parameter Data" area, a project parameter must be specified to host the grouping values for elements. An existing parameter can be selected, or a new parameter can be created using the "Create Parameter" button. While any name can be provided, the default name for this parameter is "Sequence."

F Fab Sheets	-		\times
🕞 - 🌫 Refresh 🗄 Options 🕡 Help 🔁 Videos 🕕 About			
Settings Sequence Management View Creation			
Sequence Parameter Data Sequence Project Parameter (will be used to host sequence information):			
Sequence V	Create Parar	neter	
Sequence and Increment Format: Sequence Separator:			
Sequence <separator>Increment ~</separator>	Update Sequ	ences	

The "Sequence and Increment Format" is used to adjust how the sequence and increment values are assigned to each element when grouping them together. The default setting is "Sequence<separator>Increment" but can be reversed if desired. The "Sequence Separator" field can be modified to adjust how the sequence and increment values will be separated.

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FS ▼ ≈ Refresh 🗄 Options 🔞 Help р Videos 🕦 About		
Settings Sequence Management View Creation		
Sequence Parameter Data Sequence Project Parameter (will be used to host sequence information):		
Sequence ~	Create Parameter	
Sequence and Increment Format: Sequence Separator: Sequence <separator>Increment -</separator>	Update Sequences	
Sequence <separator>Increment <</separator>	Update Sequences	

NOTE: It is important to choose a separator that will not conflict with the names and values of element parameters. In addition, it is best practice to edit the element parameter values using the Fab Sheets tools to ensure they match the names of the Sequences and Increment. If the values don't match, Fab Sheets will not be able to determine the sequence group of the elements. In the following example, the walls have a value with too many separators.



If any of these options are changed after initial setup, the "Update Sequences" button will parse through the project to update any affected elements.

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🕞 🗸 🌫 Refresh 🗄 Options 🕢 Help 🔁 Videos 🕦 About				
Settings Sequence Management View Creation				
Sequence Parameter Data Sequence Project Parameter (will be used to host sequence information):				
Sequence ~		Create Para	meter	
Sequence and Increment Format: Sequence Separator:				-
Sequence <separator>Increment ~ -</separator>		Jpdate Sequ	ences	
Sequence <separator>Increment ~ -</separator>	l	Jpdate Sequ	ences	

Helpful hint: When creating new sequence parameters, ensure that appropriate categories are associated. This can be managed using Revit's project parameters tool in the Manage tab.

Default view template dropdowns control the view templates that will be applied to views created by the tool. The scale option only takes effect if scale is not included in the view template.

			~
Pab Sheets	—		~
FS - ♂ Refresh 🗄 Options @ Help 🕨 Videos (1) About			
Settings Sequence Management View Creation			
Sequence Parameter Data			
Sequence Project Parameter (will be used to host sequence information):			
Sequence \vee	Create Par	ameter	
Sequence and Increment Format: Sequence Separator:			
Sequence <separator>Increment ~ -</separator>	Update Sec	uences	
Plan View Properties Elevation View Properties Section Template: Template: Template:	n View Properties — nplate:		
Architectural Elevation \checkmark Architectural Elevation \checkmark Arc	hitectural Elevation	~	/
Scale: 12" = 1' - 0" Scale: 12" = 1' - 0" Scale:	le: 12" = 1'	- 0'' ~	-
3D View Properties Material Take-off Properties	Properties		
Template: Source Material Take-off Schedule: Title	eblock Type:		
Architectural Elevation \sim Structural Foundation Material Tak \sim E1	30x42 Horizontal	~	1
Vie	wport Type:		
Scale: 12" = 1' - 0" Viet	wport 1	~	1
Sequence Graphic Overrides	Load	Save As	
Ready.			.::

The "Sheet Properties" are used to set the titleblock and viewport to be used when creating sheets and placing views.

Fab Sheets		- 🗆	×
FS ▼ 🕏 Refresh 🗄 Options 🔞 Help	▶ Videos 🕕 About		
Settings Sequence Management View Creation			
Sequence Parameter Data			
Sequence Project Parameter (will be used to	b host sequence information):		
Sequence			
Sequence and Increment Format:	Sequence Separato	pr:	
Sequence <separator>Increment</separator>	~ -	Update Sequences	
Plan View Properties Template: Architectural Elevation	Elevation View Properties Template: Architectural Elevation	Section View Properties Template: Architectural Elevation	
Scale: 12" = 1' - 0" ~	Scale: 12" = 1' - 0" ~	Scale: 12" = 1' - 0" ~	
3D View Properties Template: Architectural Bevation	Material Take-off Properties Source Material Take-off Schedule: Structural Foundation Material Tak ~	Sheet Properties Titleblock Type: E1 30x42 Horizontal ~	
Scale: 12" = 1' - 0" ~		Viewport 1 ~]

In some Fab Sheets workflows, such as concrete pour sequencing, it is desireable to be able to adjust graphic display options for elements depending on their sequence values. Click the "Sequence Graphic Overrides" button to access the "Sequence Graphic Overrides" dialog. Once any desired changes have been made click the "OK" button to save the configuration and continue.

Sequence	Graphic Overrides					×
Preceding	a Increment:		Projection Lines:		Cut Lines:	
🗹 Visib	le	Pattern:	Long dash	\sim	<no override=""></no>	\sim
		Weight:	5	\sim	4	\sim
Current Ir	ncrement:					
	Patterns:		Projection Lines:		Cut Lines:	
Surface:	Sand \checkmark	Pattern:	Triple dash	\sim	<no override=""></no>	\sim
Cut:	Concrete ~	Weight:	7	\sim	10	\sim
Following	Increment:		Projection Lines:		Cut Lines:	
🗸 Visib	le	Pattern:	Double Dash 3/8"	\sim	<no override=""></no>	\sim
		Weight:	3	\sim	4	\sim
					OF	(

Sequence Management

The "Sequence Management" tab is used to build the sequence/increment structure, create selection views and assign elements to increments. Sequences are used to organize increments, and increments are assigned to elements to build groupings. To create a new sequence, click the "Add Sequence" Button.

F Fab Sheets	– 🗆 X
🕞 🗸 🕫 Refresh 🗄 Options 🔞 Help 🔁 Videos 🕦 About	
Settings Sequence Management View Creation	
Sequences	
	Add Sequence
	Add Increment
	Assign Random Colors
	Assign Color
	Remove Color Assignment
	Edit
	Remove
	Sequence Views
	Increment Views
	Create/Update Selection Views
	Create/Update Color Legend
	Show Elements
	Batch Assignment Mode
	»
	Assign to Elements
Ready.	.:

In the "Create New Sequence" dialog type are the name(s) of the sequence(s) to be created. Multiple sequences can be entered at the same time, separated by pressing the "Enter" key. Sequence names can also be generated in a Microsoft[®] Excel[®] table, then copy/pasted into this dialog. Click "OK" to create the sequences.

FS	Create New Sequence	-	
Enter name(s)	or the new Sequence(s), each on a single line:		
Sequence 01 Sequence 02 Sequence 03 Sequence 04			
	ОК	C	ancel

To add increments, select the desired sequence from the list and click the "Add Increment..." button.

🖻 Fab Sheets	– 🗆 X
FS ▼ ≉ Refresh 🗄 Options 🔞 Help р Videos 🕕 About	
Settings Sequence Management View Creation	
Sequence 01 Sequence 02 Sequence 03 Sequence 04	Add Sequence Add Increment Assign Random Colors Assign Color Remove Color Assignment Edit Remove
	Sequence Views Increment Views Create/Update Selection Views
	Show Elements Batch Assignment Mode Sequence 01 >> Assign to Elements
Ready.	.:

In the "Create New Increments" dialog, type in the name(s) of the increment(s) to be created. Multiple increments can be entered at the same time, separated by pressing the "Enter" key. Increment names can also be generated in an Excel table, then copy/pasted into this dialog. Click "OK" to create the increment(s).

P5	Create New Increment	-		x
Enter name(s) fo Increment 01 Increment 02 Increment 03 Increment 04 Increment 05 Increment 07 Increment 08 Increment 09 Increment 10	or the new Increment(s), each on a single line:			
	OK	C	Cancel	

If a sequence name or sequence/increment name combination that already exists is specified, a duplicate name resolution dialog will appear. Select the desired action to handle the duplicate and click the "OK" button.

🖻 Duplicate Name					
The specified sequence or increment name already exists. Please choose how to resolve this conflict:					
Specify another name:					
Increment 01					
Change the existing name to: Increment 01					
Skip creating this sequence/increment.					
[OK	Cancel			

It may be helpful to assign colors to the increments to help identify elements belonging to that increment. Select an increment and click the "Assign Color" button.



A color selection dialog will appear, select a color and click the "Ok" button. The selected color will be associated with the increment.

Б	Fab Sheets	- 🗆 🗙
FS - 🕏 Refresh 🗄 Options 🔞 Help 🕦 About		
Settings Sequence Management View Creation		
Sequences		
En S <mark>aquence 81</mark>		Add Sequence
Increment 01		Add Increment
Increment 03 Increment 04		Assign Random Colors
──Increment 05 ──Increment 06		Assign Color
Increment 07		Remove Color Assignment
Increment 09		Edit
B Sequence 02		Remove

The "Assign Random Colors" button can be used to apply colors to multiple increments at the same time using Shift or Ctrl keys.



If some of the randomly assigned colors are not desirable, or are too close to their neighboring colors in appearance, select the increment and use the "Assign Color" function to specify a different color.

Fab Sheets	- 🗆 🗙
FS - 2 Refresh 🗄 Options 🕡 Help 🕦 About	
Settings Sequence Management View Creation	
Sequences	
⊡- Sequence 01	Add Sequence
Increment U1	Add Increment
Increment 03	Assign Random Colors
Increment 06	Assign Color
Increment 07	Remove Color Assignment
- Increment 09	Edit
Sequence 02	Remove

To assist with assigning elements an increment/sequence combination, Fab Sheets can create "Selection Views" which are created with color filters that match the color assignment. To create or update the selection views, such as after changing a color assignment or name, click the "Create/Update Selection Views" button.

Fab Sheets	- 🗆 X
► 🗲 Refresh 🗄 Options 🔞 Help 🕨 Videos 🕦 About	
Settings Sequence Management View Creation	
Sequences	
□ Sequence 01	Add Sequence
Increment 01	Add Increment
Increment 03 Increment 04	Assign Random Colors
Increment 05 Increment 06	Assign Color
- Increment 07 Increment 08	Remove Color Assignment
Increment 09	Edit
- Sequence 02	Remove
Sequence 04	Sequence Views
	Increment Views
	Create/Update Selection Views
	Create/Update Color Legend
	Show Elements
	Batch Assignment Mode
	Sequence 04
	Assign to Elements
Ready.	

Floor plan views named "Sequence Selection Plan – Level #" will be added for each level of the building. 3D views named "Selection 3D View – <*sequence*>" will be added for each sequence, as well as an overall "Sequence Selection 3D View" view.



Fab Sheets can create views for both Sequences (shows all increments of the sequence) and Increments (just the elements associated to an increment) by checking the boxes above the Create/Update Selection Views button.

Fab Sheets	- 🗆 X
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Settings Sequence Management View Creation	
Sequences	
Green Sequence 01	Add Sequence
Increment 01 Increment 02	Add Increment
Increment 03 Increment 04 Incre	Assign Random Colors
- Increment 05 Increment 06	Assign Color
- Increment 07	Remove Color Assignment
- Increment 09	Edit
··· Sequence 02	Remove
Sequence 03	
Sequence 04	Sequence Views
	Increment Views
	Create/Update Selection Views
	Create/Update Color Legend

These views are generated with filters to help identify elements that have been assigned to a sequence/increment combo. If changes are made to the sequence/increment structure or names, or if a color is modified, the views can be updated by clicking the "Create/Update Selection Views" button again.

		Pr	ojection/Surfa	ace	(Cut	
Name	Visibility	Lines	Patterns	Transparen	Lines	Patterns	Halftone
Sequence 01 - Increment 01	v						
Sequence 01 - Increment 02	v						
Sequence 01 - Increment 03	 Image: A start of the start of						
Sequence 01 - Increment 04							
Sequence 01 - Increment 05	✓						
Sequence 01 - Increment 06	\checkmark						
Sequence 01 - Increment 07	✓						
Sequence 01 - Increment 08	✓						
Sequence 01 - Increment 09	✓						
Sequence 01 - Increment 10	✓						
Add Remove Up Down All document filters are defined and modified here Edit/New							

To assign an element to a sequence/increment, select the desired increment and click the "Assign to Elements" button.



Revit will go into a "selection mode" allowing the selection of multiple elements by clicking on them. Window and crossing selections can also be used in the selection mode. Once all desired elements have been selected, click the "Finish" button from the options bar to assign the elements to that increment/sequence.



The elements will be color coded based on their sequence/increment color:

8	Fab Sheets	- 🗆 ×
🕞 🗸 🍣 Refresh 🗄 Options 🔞 Help 🕦 About		
Settings Sequence Management View Creation		
Sequences		
S Succession 01 Increment 01 Increment 03 Increment 05 Increment 05 Increment 06	Ai A Assig	dd Sequence dd Increment gn Random Colors Assign Color
 Increment 07 Increment 08 Increment 03 Increment 10 Sequence 02 	Remov	ve Color Assignment Edit Remove

Once elements have been assigned to sequence/increments, views can be created. On the "View Creation" tab each sequence/increment that has elements assigned to it will appear in the list

E	F	ab Sheets	- 🗆 ×
► Coptions Refresh	About		
Settings Sequence Management View Creation			
Sequences			Scope Box Creation
Sequence	Scope Box	Views	Make sure at least one
Sequence 01 - Increment 01			current project. Create Scope Boxes
Sequence 01 - Increment 02			
Sequence 01 - Increment 03			View Creation
Sequence 01 - Increment 04			✓ Create Plan View
Sequence 01 - Increment 05			Create Elevation View
Sequence 01 - Increment 06			
Sequence 01 - Increment 07			North: 1 South: 1 East: 1 West: 1
Sequence 01 - Increment 08			
Cogueres 01 Incomment 00			

Select sequence/increment(s) from the list and click "Create Scope Boxes" to generate a scope box for each sequence/increment. In this example, scope boxes will be created for Increment 01 – Increment 05

To generate views without scope boxes, skip this step. Fab Sheets will attempt to define the view crop area based on the extents of the geometry to be displayed.

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FS - ⋧ Refresh ⋮Ξ Options ⑧ Help ⑧ About						
Settings Sequence Management View Creation						
Sequences			Scope Box Creation			
Sequence	Scope Box	Views	Make sure at least one			
Sequence 01 - Increment 01			scope box exists in the current project.			
Sequence 01 - Increment 02						
Sequence 01 - Increment 03			View Creation			
Sequence 01 - Increment 04			✓ Create Plan View			
Sequence 01 - Increment 05			Create Elevation View			
Sequence 01 Increment 00						
Sequence 01 - Increment 07			North 1 South 1 Fast 1 West 1			
Sequence 01 - Increment 08						

The new scope boxes will be centered around the centroid of the elements for each sequence/increment. At this point it may be desirable to resize the scope box to achieve a better fit around the elements.



Once the scope boxes have been resized as needed, the last step is to create views. Select sequence(s)/increment(s) from the list and then check the boxes next to each view type to be created in the "View Creation" area

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ttings Sequence Management View Creation			
Dequences			Scope Box Creation
Sequence	Scope Box	Views	Make sure at least one
Sequence 01 - Increment 08			current project. Create Scope Boxes
Sequence 01 - Increment 06			
Sequence 01 - Increment 01			- View Creation
Sequence 01 - Increment 02	Image: A start of the start		Create Plan View Create Structural Plan View
Sequence 01 - Increment 03			Create Elevation View
Sequence 01 - Increment 04			
Sequence 01 - Increment 05			North: 1 South: 1 East: 1 West: 1
Sequence 01 - Increment 07			Create Section Views
			VS. I EW: I
			Create Increment Isometric 3D View
			Create Material Take-off Schedule
			Create Schedule
			Create Sheet
			 Duplicate and Apply Filters to Templates
Show Elements Selec	t None	Select All	Create/Update Views
4.			

The view type selections will be applied to all sequence/increment(s) selected. Click the "Create/Update Views" button to generate the views.

Fab Sheets 5 → 🌮 Refresh 🗄 Options 🔞 He	elp 下 Videos 🧕	Support 🕕 A	- D)
ttings Sequence Management View Crea	ation		
equences			Scope Box Creation
Sequence	Scope Box	Views	Make sure at least one
Sequence 01 - Increment 08			current project. Create Scope Boxes
Sequence 01 - Increment 06			Manu Caratian
Sequence 01 - Increment 01			View Creation
Sequence 01 - Increment 02			Create Plan View Create Structural Plan View
Sequence 01 - Increment 03			Create Elevation View
Sequence 01 - Increment 04			North 1 South 1 East 1 Martin 1
Sequence 01 - Increment 05			North. 1 300th. 1 East. 1 West. 1
Sequence 01 - Increment 07			Create Section Views
			Create Sequence Isometric 3D View
			Create Increment Isometric 3D View
			Create Material Take-off Schedule
			Create Schedule
			Create Sheet
			Duplicate and Apply Filters to Templates
Show Elements S	elect None	Select All	Create/Update Views
dv			

A view will be created and named for each sequence/increment and each view option selected. The default naming convention of "Sequence – Increment – View Type" can be adjusted on the settings tab by changing the "Sequence and Increment Format" order. In this example some of the plan views generated are shown:



If the "Create Sheet" option was selected, a sheet will be created for the sequence/increment and all of the views for that sequence/increment will be added to the sheet automatically.



Fire Rating

Introduction

Fire Rating is designed to assist in the creation of life safety plans. The add-in has tools to assign values to the fire rating property, map line types to each fire rating value and generate graphics for plan views.

Starting Fire Rating

On the Revit ribbon, click on the "Fire Rating" button.



Setting Fire Ratings

The "Fire Ratings" tab can be used to set the native Revit fire rating property of walls. The fire rating property can also be configured manually by editing the type properties of walls. Manually configured ratings can still be used with the rest of the Fire Rating utility's functions. Fire Rating also supports generating graphics based on fire rating values hosted in a custom text based project parameter assigned to the walls category. Configuring the custom parameter will be covered below.

The Fire Ratings tab will display a list of wall types in the project. By default the list is filtered to show only the wall types that have instances placed in the project. To display all wall types in the project toggle the "Show All Types" button.



To configure the out of box fire rating property for a wall using this tool, find the desired wall type from the list and click on it to select it. Selected items will have a blue background.

Multiple wall types can be selected by holding down the CTRL key. Additionally the "Select All" or "Select Unrated" buttons can be used to make selections.

Once the selection set has been made, click the "Set Wall Ratings..." button.

R		Fire Rating		↔	_ [×
FR	🗸 🗸 🍣 Refresh 🖾 Options 🞯	Help 🔚 About				
Fire	Ratings Mappings Graphics					
Sho	ow All Types Select All Clear Selec	tion Select Unrated 🖉 Set Wall Ratings Custom Paran	neter:		•	
	Family Name	Type Name	Count	Fire Rating		
	Curtain Wall	Exterior Curtain Wall	18			
	Curtain Wall	Storefront	13			
	Curtain Wall	Pavillion Curtain Wall	3			
	Basic Wall	Interior - 138mm Partition (1-hr)	122			
Þ	Basic Wall	Generic - 200mm	4			
	Basic Wall	Generic - 225mm Concrete	4			
	Basic Wall	Parapet Wall	8			
	Basic Wall	Exterior - Insulation on Masonry	8			

In the new "Set Fire Rating" dialog that will appear, enter the desired fire rating value to apply to the wall(s). The options control whether the value should be applied to the current type or if a new type should be generated.

🕫 Set Fire Rating	X
Fire Rating:	
1 HR	
Type Option Update Fire Rating for Selected Wall Type 	e(s)
Duplicate Wall Type(s) and Append Fire I	Rating to the Type Name
	OK Cancel

Custom Fire Rating Parameter

Fire rating also supports fire rating values hosted in a custom text based parameter assigned to the walls category. Many companies leverage a custom parameter to have an instance based option for assigning the fire rating values.

The "Custom Parameter" dropdown menu facilitates selecting a text based project parameter assigned to the walls category. The custom parameter can be either an instance or type parameter and may be assigned to additional categories beyond walls.

NOTE: if instance parameters are used, the values will NOT show in the Fire Ratings list. They will appear in the Mappings tab.

R	Fire Rating			- D >	×		
Refresh 🔄 Options 🔞 Help 💽 Videos 🕦 About							
Fire	Ratings Mappings Graphics						
Sh	ow All Types Select All Clear Select	ion Select Unrated 🛛 🖉 Set Wall Ratings	Custom Parameter	r. 🗸			
	Family Name	Type Name	C	^{pu} Comments			
►	Basic Wall	Generic - 6"	4	Comments Comments			
	Basic Wall	Exterior - Brick on Mtl. Stud	10	CTC Fire Rating			
	Curtain Wall	Exterior Glazing	17	2 Edited by Edited by			
	Basic Wall	Exterior - Brick on Mtl. Stud 2	3	Edited by			
				Family Name			

The custom mapping values can be used in conjunction with the out of box fire rating values. When generating fire rating graphics the application will first check if there is a value in the custom rating parameter, if there is that value will be used and the graphic will be generated. If there is not a value in the custom parameter the out of box parameter will be checked. Again, if a value is found it will be respected and the graphic will be generated. If neither parameter has a mapped value no graphics will be generated for that wall.

Note that custom rating values will not appear on the wall elements shown on the "Fire Ratings" tab.

Mappings

The "Mappings" tab is used to tie existing Revit line styles and/or wall tags to fire rating property values that exist within each project. For each fire rating property there will be a dropdown box to select an existing line style and another dropdown box to select an existing wall tag. These mappings will be used to generate the graphics as described on the next tab.

R Fire Rating				×
🖪 👻 🥏 Refresh 🖾 Options 🔞 F	Help 下 Videos 🕕 About			
Fire Ratings Mappings Graphics				
Clear Mapping 🛛 🚰 Load Mapping 🍃	Save Mapping 📜 Load Default W	/all Tag	1	
Fire Rating	Detail Component Family	Line Style	Wall Tag	
(No Fire Rating)	~	~		\sim
2	~	2 HR 🗸	Wall Tag: 1/4"	\sim
J 1	~	1 HR ~		\sim
		Medium Lines Thin Lines Wide Lines <overhead> <hidden> <demolished> <beyond> Lines <centerline> Hidden Lines MEP Hidden Med Lines Small Lines Thick Lines Thes 1 HR 2 HR</centerline></beyond></demolished></hidden></overhead>		

Detail components can be used as well. If the component is available in the project, select it from the list.

Mappings configured on this tab can be saved for re-use later or on other projects.
NOTE: While the mapping itself can be saved, this add-in does not facilitate transferring the actual Revit line type(s) or wall tag(s).

To save a mapping, click the "Save Mapping..." button. Mappings can be saved in a project (must open the project model to use them) or to a discreet file that can be loaded in by users.

FR	Fire Rating	+ _ 🗆 ×
🕅 👻 🍣 Refresh 🖾 Options 🞯 He	p 🔚 About	
Fire Ratings Mappings Graphics		
Clear Mapping 🛛 🚰 Load Mapping 🕁	ave Mapping 📮 Load Default Wall Tag	

CTC provides a simple, default wall tag family which is configured to show the "Fire Rating" property for walls. This default family can be loaded into the project by clicking the "Load Default Wall Tag" button. Modifying the supplied room tag or using a different tag family is fully supported.

Generating Graphics

Once fire ratings and mappings have been defined, graphics can be generated using the "Graphics" tab. On the left side of the "Graphics" tab a tree view displays plan views from the active Revit project. Select the views from the tree for which graphics should be generated.

F?	Fire Rating	↔	-	×
Image: Check All Check None Image: Graphics Image: Check None Image: Graphics Image: Check None Image: Graphics Image: Check None Image: Graphics <td< td=""><td>Fire Rating About</td><td>↔ Wall Tags er only.</td><td></td><td>×</td></td<>	Fire Rating About	↔ Wall Tags er only.		×
	Walls in Linked Projects	location <not shared<="" td=""><td>></td><td></td></not>	>	
				.::

The "Generate/Update/Remove Wall Tags" checkbox will toggle whether or not mapped wall tags will also be processed when generating graphics.

R Fire Rating		_		×
R - 🗢 Refresh 📄 Options 🔞 Help 🔽 Videos 🕦 About				
Fire Ratings Mappings Graphics				
Check All 🛛 Check None 🛛 🧪 Generate Graphics 🛭 🕏 Update Graphics 🛪 Remove	Graphics			
➡ ☐ RoorPlan ▲ ■ ☐ 01-Level 1 - Mech ■ □ 02-Level 2 - Mech ■ □ 03-Level 3 - Mech ■ □ 04-Roof - Mech ■ □ U-Level 5 ■ □ Level 5 ■ □ Level 7 ■ □ PURGEME-01-Level 1 - Mech (1) ■ □ PURGEME-01-Level 1 - Mech (2) ■ □ PURGEME-01-Level 1 - Mech (3) ■	Wall Tags Generate/Update/Reg Spacing: 10 Specify zero to tag at wal Min End Spacing: 2 Specify zero end spacing: 0 Orientation: Hori	emove Wall Tags I center only. 9 (and non-zero spacing) to tag zontal	ft · · · · · · · · · · · · · · · · · · ·	✓ eng

The "Spacing" field controls the distance between tags along the length of a wall. If a single tag at the midpoint of the wall is desired enter 0 for the spacing value. Curved walls will only be tagged at the midpoint. The "Orientation" dropdown controls the orientation with which the tags should be placed; Horizontal, Vertical or Using Wall Orientation.

To control how far from the apparent end of wall a tag should be placed, specify a distance value the Min. End Spacing text box. Select the distance unit from the dropdown.

R Fire Rating	- 🗆 X
R - 🗢 Refresh 🔄 Options 🔞 Help 🕨 Videos 🕦 About	
Pre Ratings Mappings Graphics	
Check All 🛛 Check None 🛛 🦯 Generate Graphics 🛭 😂 Update Graphics 🗙 Remove	re Graphics
 RoorPlan 01-Level 1 - Mech 02-Level 2 - Mech 03-Level 3 - Mech 04-Roof - Mech Level 5 Level 5 Level 6 Level 7 PURGEME-01-Level 1 - Mech (1) PURGEME-01-Level 1 - Mech (2) PURGEME-01-Level 1 - Mech (3) 	Wall Tags Generate/Update/Remove Wall Tags Spacing: 10 ft ~ Specify zero to tag at wall center only. Min End Spacing: 2 Specify zero end spacing (and non-zero spacing) to tag full wall leng Orientation: Horizontal

Fire Rating also supports generating line graphics based on walls in linked projects. To include linked walls in the graphics creation process, select the desired link(s) from the "Walls in Linked Projects" dialog.

Fire Rati	ing 🕂 🕂 🗆 🗙
Image: Second	ing

Once the desired views, tag options and links have been configured the "Generate Graphics" button can be used to generate lines and tags in the plan views selected.

Before:



After (using the default CTC wall fire rating tag):



Note: Due to limitations in the Revit API, tags cannot be applied automatically to linked elements. Fire Rating can generate and manage line graphics on linked elements, however.

Graphics Maintenance

Generated graphics are static and will not automatically update if the model changes. To keep graphics in sync with current model geometry the "Update Graphics" or "Remove Graphics" buttons can be used. Graphics updates or removal are based on a set of rules in the "Options" dialog:

R Options	× • • • • • • • • • • • • • • • • • • •
Wall Type Options	
 Update Fire Rating for Sele 	cted Wall Type(s)
Duplicate Wall Type(s) and	JAppend Fire Rating to the Type Name
Type Name Suffix Format:	(\$)
Example: (1 hr)	Use '\$' as a Placeholder for Fire Rating Value
Behavior on Missing Line Style or Ta	ag for Generating Graphics
Stop and Display Error Met	ssace
 Ignore and Continue Gener 	ating Graphics
Criteria to Recognize Graphics for R Line Style Is Used for Mapy Wall with Matching Geome Wall with Matching Geome Wall with Matching Geome Criteria to Recognize Tags for Remo Tag Type Is Used for Mapp	lemoval or Update bing Any Fire Rating try Exists try Exists and Line Style Is Used for Mapping Any Fire Rating try Exists and Line Style Is Used for Mapping the Fire Rating of the Matching Wall oval or Update bing Any Fire Rating
Tag Type Is Used for Mapp	ing the Fire Rating of the Tagged Wall
General ☑ Remember Window Size ar	nd Position
Load Defaults	OK Cancel

Invisibility Advisor

Introduction

Invisibility Advisor assists Revit users in finding elements that are not displaying properly. In addition, it can identify the causes of invisibility as well as offer useful information and links to relevant knowledgebase articles for each issue. In many cases, Invisibility Advisor can automatically 'fix' the display of the elements in question.

Starting Invisibility Advisor

On the Revit ribbon, click on the "Invisibility Advisor" button.



Fixing Common Visibility Issues of Elements in Views

There are two ways to begin: Pick an element from a list or select one or more in a Revit view. Depending upon what is known about the element, either is fairly straightforward.

Invisibility Advisor is "modeless" which means it can be used simultaneously with most Revit operations such as navigating views, selecting, creating and editing elements.

Choosing an Element to be Found in a Target View

If there is no view where the element is visible or only the name and category of the element is known, this is the most effective starting point.

Open the view in which should display the element using Revit's Project Browser pane. All views which can contain elements can be analyzed but they must be "open" in the current Revit project.



Using this method, it is most helpful to open any views that could have visibility issues before proceeding.

If additional views are needed, open them and be sure to click the "Refresh" button so that the tool can gather an inventory of the elements once again.



From the element selection dropdown, locate the element to be found in the list and select it.

Invisibility Advisor	_	×
📕 🗸 🕫 Refresh 🗄 Options 🕡 Help 🕨 Videos 🕕 About		
Invisible Element		
Select the element to be found in target view:		
Furniture: Chair-Desk: Chair-Desk [ID: 1260852, Level: Level 5]		 \sim
Furniture: Chair-Desk: Chair-Desk [ID: 1260852, Level: Level 5]		^
Furniture: Chair-Desk: Chair-Desk [ID: 1260862, Level: Level 5]		
Furniture: Chair-Desk: Chair-Desk [ID: 1200872, Level: Level 5]		
Eurotural Chair Europithias Chair Europithia [TD: 1360912] Loual Laural El		

To refine the list, type a term that matches the category, name or ID.

Invisibility Advisor	_	×
🙀 🗸 🛠 Refresh 🗄 Options 🔞 Help 🔁 Videos 🚯 About		
Invisible Element		
Select the element to be found in target view:		
Casework: Base Cabinet-4 Drawers: 15" [ID: 1468019, Level: Level 5]		\sim
Filter: casework Selection Only	,	20

To display a list of only pre-selected elements, check "Selection Only"

이 것 같아. 김 영화 [
	Invisible Element	
	Select the element to be found in target view:	
36 79 90 gs 38	Walls: Basic Wall: Interior - 4 7/8" Partition (1-hr) [ID: 908126, Level: Level 5]	\sim
A A A	Filter: Selection Only	29
<u>7</u> 77		
	Q	

Choose the view to search in the Target View dropdown list and click the Find Element button.

Target View	
Select the view where the element is hidden:	
Drawing Sheet: Demo Page	~
Drawing Sheet: Demo Page	
Floor Plan: CTCLevel 5-Architectural Plan Working (Active View)	
	Find Element

Pre-Selecting One or More Elements that are Visible in Other Views

There may be cases when the easiest method of uncovering hidden elements is to find a view where they are visible and selecting them. This is most effective from views which display the objects from other perspectives or sub-views such as elevations, sections or enlarged views.

Open the target view if is not already. Next open a view which displays the object or objects to be analyzed.

Click either the "Select Element" or "Select by Crossing" buttons.



This will allow a single element to be selected at a time.

Select multiple objects by drawing a rectangular selection window from corner to corner

If an element's ID is known, use the "Select by Id" button and enter it.

IN Select Element by Id		×
Enter element id to select below:		
The element, if found and valid, will be selected from the element list on the main window.	OK	Cancel

TIP: to find an element's ID, select it and use Revit's ID inquiry tool located on the Manage tab.



Once all elements to be found have been selected, choose the target view to search and click "Find Element".

Invisibility Advisor Results

In the following example, we are trying to find out why this element (represented as green dashes) is not visible in the view.

s		An a second second
ve ve	🔝 Invisibility Advisor – 🗆 🗙	
ve ve	IA - 🗢 Refresh 🗄 Options 🔞 Help 🕞 Videos 🕦 About	
ta .e	Invisible Element	
.e .e	Select the element to be found in target view:	
Le	Specialty Equipment: Condiment Bin-4x2: 8RS8110 [ID: 1468013, Level: Level 5]	
.e .e	Filter: condiment Selection Only 1	
.e .e		

After clicking the "Find Element" button, the Invisibility Advisor results window is shown.

Invisibility Advisor Results		– 🗆 X	
Element Element: 8RS8110 Id: 1468013 Category: Specialty Equipment Family: Condiment Bin-4x2 Family: Condiment Bin-4x2	View Name: Id: Type: Discipline:	CTCLevel 5-Archit 899180 Floor Plan Architectural	
What Might be Causing the Invisibility? Object Category Style Overrides Set to Background Color	Fix Fix Show	More	
View Filters Are Set to Hide this Element	Fix Fix Show	? More	
	Check Again	X Close	

The element has two issues preventing it from being displayed properly in the view. To see more details about each issue, click the "More" button. This will expand showing additional information about the specific problem found.

What Might be Causing the Invisibility?	
Object Category Style Overrides Set to Background Color	
Object overrides are often used to permanently change the graphics of an object in a view without using f match the background color, then the element(s) may appear invisible.	ilters. If Cut/Projection line greaphics were set to match or closeley
Get More Help Online	Fix Fix Less
View Filters Are Set to Hide this Element	Fix Fix More

According to the results, this object has object style overrides and view filter properties applied that contribute to it's invisibility. Luckily, these two conditions are easily fixed automatically. Simply click the "Fix" buttons for each issue until the object becomes visible again.

Invisibility Advisor Results	- 🗆	\times	Design Options Ma
Element View Image: Big of the second	CTCLevel 5-A 899180 Floor Plan Architectural	rchit	
What Might be Causing the Invisibility?	New Construct		
Object Category Style Overrides Set to Background Color Object overrides are often used to permanently change the graphics of an object in a view without using filters. If Cut/Projection line greaphics were set to mate match the background color, then the element(s) may appear invisible.	tch or closeley		
Get More Help Online	? Less		
View Filters Are Set to Hide this Element Visibility/graphic overrides for a view can host settings that allow objects to be filtered and toggled off based on object parameter values. While the primary co filter may be controlling the element(s) visibility.	ategory may be o	on, a	
Get More Help Online	? Less		

We found it!

To go back to the main window and find more elements, click the "Done" button at the bottom of this window.

To force the application re-to analyze the element and target view another time (if the attempts to manually fix were not fully successful), click "Check Again".

Clicking "Close" will exit the tool. The applied fixes will be retained.

It may be helpful to use the "Show" button to invoke the command or tools that can be used to manually fix the cause of invisibility.

Wh	at Might be Causing the Invisibility?					
	Could not Find any Issues					
	We could not find any issues for the visibility of the selected element and view	v. The element should b	e visible in the selecte	d view.		
	<u>Get More Help Online</u>	Fix	Show	? Less		
					-	

Online Help

In the lower left of each issue card is a hyperlink to Autodesk's current knowledge article database. The link includes parameters that indicate Revit version and keywords related to the issue.

An internet connection is required to use this feature and public access to the website may be dependent upon company firewall rules or limitations.

Click this link to test whether the main site is accessible from your location: <u>http://help.autodesk.com</u>

If no result is shown for an item, it may be that a related article exists.

The terms used to search the site can be managed in the Help Links File (see the Options section below).

Options

The table below lists the options available in Invisibility Advisor and their functions .

Default	Label	Description
Checked	Remember the size and position of the main and results window	Interface, user changes will be remembered
Checked	Warn when fixing visibility issues may affect other elements	If checked, user receives a warning that multiple objects will be affected visibly but the proposed fix
Unchecked	Always search for elements within links	If checked, the amount of time the application runs a search is greatly increased
Checked	Include results with occasional unknown visibility status	Also show a result row even if the cause of an element's invisibility cannot be determined
Checked	Include cases where visibility cannot be ever evaluated by this app	In some situations or due to API limitations, visibility status cannot analyzed
C:\Program Data \ CTC	Help Links File:	XML file that specifies search terms to be used when linking to an online Knowledge Base system.

Model Compare

Introduction

Model Compare is used to compare the same Revit file at 2 different points in time, to identify differences. Model Compare works by taking data "snapshots" of Revit files, which are then used to generate comparison results. By utilizing snapshots there is no need to retain full copies of Revit project files as a project progresses.

Snapshot files are self-contained and small by comparison to a Revit model. Snapshots can also be configured to be taken on a schedule, for example after hours and perhaps once a week for a specific project.

Starting Model Compare

On the Revit ribbon, click on the "Model Compare" button.



Effective Use of Model Compare

The most effective use of Model Compare is to take periodic snapshots of the desired Revit files. The comparison between two snapshot files is based heavily on Revit element IDs, which would vary from project to project. Periodic snapshots can be used, for example, to identify what changes are being made within a project over the life of the project, or to identify changes made by consultants

Taking Snapshots

To take a snapshot, first open the desired Revit model. For performance reasons it is advisable to have only the single model whose snapshot is desired be open in the Revit session. The file must not have any unsaved changes at the time the snapshot is taken. Click on the "Take Snapshot..." button.

we wodel Comp	pare		- D X
MC 📔 Take	Snapshot 🛂 Comparison	🗸 📝 Save Report 🔍 Auto Zoom 🔓 Au	Auto Select 🎇 Auto Copy 🛛 🗟 Filters Library 🐉 Scheduler Configs 🕑 Scheduler 🗄 Options 🔞 Help 🔽 Videos 🕦 About
General Information	Elements Parameters Rep	port	
	Туре	Identifier	
Comparison Type	Parameters	List	Color Legend
Comparison Type	e Parameters Equal	List ☑ Display Identifiers	Color Legend Equal Non-Existing (Added)
Comparison Type	e Parameters ☐ Equal ☑ Different	List ☑ Display Identifiers	Color Legend
Comparison Type Equal Different Non-Existing	e Parameters Equal Ø Different Non-Existing	List Display Identifiers Expand All Collapse All	Color Legend Equal Non-Existing (Added) Different Non-Existing (Removed)

The following dialog will appear:

ME	Snapshot Settings	×
Save snapshot to file: C:\Temp\Snapshot1.cpd		Browse
What to Include Where to Search		Reset Filters
Categories to Include Select the categories to include. If the list below is empty, all categories will be included.	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
Adaptive Points A Air Terminal Tags A Air Terminals Analysis Display Style Analysis Desults Analysis Pesults Analytic Surfaces Analytics Surfaces Analytical Brace Tags Analytical Brace Tags Analytical Brace Tags Analytical Isolated Foundation Tags Analytical Links Analytical Links Analytical Slabted Foundation Tags Analytical Slab Foundation Tags Analytical Slab Foundation Tags Analytical Slab Foundation Tags Analytical Wall Tags Analytical Wall Tags	Families and types Families and types Family instances Family parameter definitions Family-level parameter values Family-level parameter values Family-level parameter values Forject parameter values Forject Information Project Information Project parameters Schedule data Slow parameter values* Subcategory data Workset data	Include all fast parameters found in the project Edit Re-sort Remove All Include all slow parameters found in the project
Edit Remove All	Select All Select None *Slow Params	Edit Re-sort Remove All
Load Settings Save Settings Lo	ad Defaults Save As Defaults	Take Snapshot Cancel

The first step is to select to where the snapshot file should be created. The "Browse" button can be used to select the location and enter the file name to use.

The next step is to determine what data to include in the snapshot. This is done using the large filtering section in the middle of the screen. The more information that is included in the snapshot, the longer it will take to create the snapshot.

Filtering can be used to not only reduce the time it takes to create a snapshot, but reduce the amount of information that needs to be analyzed in the resulting comparison report.

Please refer to <u>Appendix A</u> for an explanation of how to configure the settings on the "What to Include" and "Where to Search" tabs.

Once the "Take Snapshot" button is clicked, Model Compare will begin extracting project information into a Snapshot. Depending on the size/density of the Revit model, as well as the filter settings, this can take several minutes. The following progress dialog will be displayed during the snapshot:

Getting Project Data	
Getting Families, Types and Instances	
Cancel	ר ר
Calicer	

When the snapshot completes, a message will be shown at the bottom of the main Model Compare window indicating the results of the snapshot.

MC Model Compa	ire							_	
MC 🕶 🧻 Take S	napshot 🛃 Comparison 🗸	🔛 Save Report 🛛 🔍 Auto Zoom 🔓 A	ito Select 🖹 Auto Copy	💎 Filters Library	👸 Scheduler Config	s 🕒 Scheduler	≣ Options	🔞 Help 下 Video	os 🕕 About
General Information	Elements Parameters Report	t							
	Туре	Identifier							
Comparison Type	Parameters	List					Color Legend		
Equal	Equal	Display Identifiers					Equal	Non-Existin	ng (Added)
Different	Different						D://	— N. — 1.4	(7)
Non-Existing	Non-Existing	Expand All Collapse All					Different	Non-Existin	ng (Removed)
The chanchot was i	raved to 'C'\Temn\Spanshot1	and'							
rife shapshot was	saved to c. (remp(snapshot).	chu							

Example Changes

This section will help tie the comparison results (shown in the next section) to actual changes made in Revit. These changes will be specific examples made on a sample project, in an actual production environment.

Office 114 – New Element

In the first snapshot, there was no door leading into office 114:



In the second snapshot, a door has been added:



Elevator Equipment Room – Model Change

In the first snapshot, the ELEV EQ. Room 119 had an area of 52.76 square feet:



In the second snapshot, the north wall has been moved to increase the size of the room. The area has changed to 69.90 square feet. Note the position of the north wall in relation to the horizontal grid line.



Office 105 – Element Deletion

In the first snapshot, room 105 contained a chair family:



In the second snapshot the chair has been deleted:



Family Definition change - New Wall Type

A new wall type has been added after the first snapshot and before the second. The new wall type name is Interior -6''

oe Propertie	s			- 23
Family:	System Family: Basic V	Vall 🔻	Load	
Type:	Interior - 4 7/8" Partiti	on (1-hr) 🔹	Duplicate)
			Rename.	
Type Parr	D Name		23	<u>^</u>
Constr Structu Wrappi	Name: Interior - 6"			
Wrappi Width		ок	Cancel	
Function		Interior		
Graphics				*
Coarse Sc Coarse Sc	ale Fill Pattern ale Fill Color	Black		
Materials	and Finishes			*
Structural	Material	Metal Stud Layer		
Identity [Data			*
Keynote				
Model				
Manufact	urer			
Type Con	nments			
URL				
Descriptio	n			
Assembly	Description	Partitions - Drywa	III w/ Metal Stud	
Assembly	Code	C1010145		_
Type Mar	k	1		1
<< Prev	iew OK	Cancel	Appl	у

Comparing Snapshots

To run a comparison, click the "Comparison" drop-down button, then the "New Comparison" button.

MC Model Compare	2		/							-	- 🗆	×
MC 👻 间 Take Sna	apshot 🕎 (Comparison 🗸 🚺 S	ave Report 🔍 Auto	Zoom 🍃 A	uto Select 📸 Auto Cop	Filters Library	👸 Scheduler Config	s 🕑 Scheduler	E Options	🕡 Help 下 🕻	/ideos 🕕 A	About
General Information	Elements 입	New Comparison										
	<i>6</i>	Open Comparison	lde	entifier								~
	2	Save Comparison										
												~
Comparison Type	Pa	arameters	List						Color Legend			
Equal] Equal	Display Identi	fiers					Equal	Non-E	xisting (Adde	ed)
Different		Different										
Non-Existing		Non-Existing	Expand All	Collapse All					Different	Non-E	xisting (Rem	noved)
The snapshot was sa	ved to 'C:\Ter	mp\Snapshot1.cpd'										

In the "New Comparison Pair" dialog, browse to two previously taken snapshot files. The older snapshot should be selected on the left side, while the newer snapshot should be selected on the right side. Note the "<>" button can be used to swap the locations of the selected snapshot files between the left and right sides.

Temp\Snapshot1.cpd			Browse C:\Temp\Snapshot2.cpd	Browse
These snapshots were taken	using different filter se	ttings.	Compare Snapshot Filter Settings Used	
ompanson Settings Elements Parameters				Load Save
 Compare Family Categories 			Compare Model Category Elements	Compare Annotation Category Elements
 ✓ <above> Cut Marks</above> ✓ <above> Handrails</above> ✓ <above> Nosing Lines</above> ✓ <above> Nosing Lines</above> ✓ <above> Cutlines</above> ✓ <above> Railings Cut Line</above> ✓ <above> Riser Lines</above> ✓ <above> Top Rails</above> ✓ <above> Up Arrows</above> ✓ <above> Up Arrows</above> ✓ <above> Quedand></above> ✓ <centerline></centerline> ✓ <demolished></demolished> 	^	Copy Selection	✓ <above> Cut Marks ✓ <above> Handrails ✓ <above> Nosing Lines ✓ <above> Outlines ✓ <above> Railings Cut Line ✓ <above> Riser Lines ✓ <above> Supports ✓ <above> Top Rails ✓ <above> Supports ✓ <above> Jup Arrows ✓ <area boundary=""/> ✓ <centerline> ✓ <demolished></demolished></centerline></above></above></above></above></above></above></above></above></above></above>	Adaptive Points Adaptive Points Lines Adaptive Points Planes Adaptive Points Planes Adaptive Points Planes Air Terminal Tags Analytical Bear Tags Analytical Brace Tags Analytical Column Tags Analytical Floor Tags Analytical Isolated Foundation Tags Analytical Slab Foundation Tage Analytical Slab Foundation Foun
<	> Select None		< Select All Select None	Analytical Wall Foundation Lags

If the filter settings that were used to create each snapshot were different, the red text seen in the image above will appear.

IMPORTANT: If the filter settings were too different (generated mutually exclusive data) Model Compare will not let you proceed to generate the comparison data from those snapshots, because there wouldn't be any meaningful results.

A comparison won't be allowed if any of the following are true:

- The selected snapshots were filtered to include completely different sets of categories
- The selected snapshots were filtered by completely different levels
- The selected snapshots were filtered by completely different views
- The selected snapshots were filtered by different "Phase Created" names
- The selected snapshots were filtered by different "Phase Demolished" names

IMPORTANT: If the filter settings between the snapshots only contained some common overlapping data gathered, Model Compare will allow the comparison to be generated, but with a warning stating that some results may be misleading.

For example, extra Revit objects that were collected in the later snapshot may appear as "Added" in the resulting comparison, when in reality they did exist in the older snapshot, but were filtered out.

The best practice is to use identical filtering settings on the snapshots to be compared. Filter settings can easily be saved and reloaded for later use, which should help make keeping track of filter settings manageable.

Clicking the "Compare Snapshot Filter Settings Used" button will allow viewing the filter settings used by each snapshot at the same time:

Categories to Include Select the categories to Include. If the site bracked. Include all Revit categories Adgetive Points Ar Temmal Tags Ar Temmal Tags Ar Temmal Tags Ar Temmals Analytical Book Tags Analytical Book Tags Analytical State Foundation Tags Analytical Stat	hat to Include Where to Search		Older project snapshot fi
Mindback an New Categories Ar Terminal Tags Aradytical Bean Tags Analytical Bean Tags Aradytical Bean Tags Aradytical Subtle Foundation Tags Analytical Busice Tags Analytical Busice Tags Analytical Busice Tags Aradytical Boar	Categories to Include Select the categories to include. If the list below is empty, all categories will be included.	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
Select the categories to include. If the list below is empty, all categories will be included. Include all Revit categories Adaptive Points Air Teminal Tags Air Teminal Tags Air Teminal Tags Air Teminal Tags AraNytic Sufaces Analytics Display Style Analytics Display Style Analytica Beam Tags Analytica Beam Tags Analytica Beam Tags Analytica Boated Foundation Tags Analytica Isolated Foundation Tags Analytica Include all Action Tags Analytica Include Tags Analytica Include Tags Analytica Include Tags Analytica Node Tags Analytica Include Tags An	Adaptive Points Air Terminal Tags Air Terminals Analysis Display Style Analysis Results Analytic Surfaces Analytica Beam Tags Analytical Beam Tags Analytical Rore Tags Analytical Roor Tags Analytical Isolated Foundation Tags Analytical Links Analytical Node Tags Analytical Node Tags Analytical Nodes	Families and types Family instances Groups Family parameter definitions Family-level parameter values Family-level parameter values Family-level parameter values For project Information Project parameters Schedule data Slow parameter values* Substaggy data Substaggy data	Include all fast parameters found in the project Edit Re-sort Remove All
Adaptive Points Air Terminal Tags Air Terminals Analysis Display Style Analysis Results Analytica Spaces Analytical Brace Tags Analytical Brace Tags Analytical Column Tags Analytical Column Tags Analytical Column Tags Analytical Column Tags Analytical Column Tags Analytical Solated Foundation Tags Analytical Links Analytical Links Analytical Links Analytical Links Analytical Solated Foundation Tags Analytical Solated Foundation Tags Analytical Soleted Foundation Tags Analy	Analytical Slab Foundation Tags Analytical Slab Foundation Tags Edit Remove A hat to Include Where to Search Categories to Include	Select All Select None *Slow Params Data Types to Include	Edit Re-sort Remove All Newer project snapshot f
Analytical Wall Foundation Lags	Analytical Slab Foundation Tags Analytical Slab Foundation Tags Edit Remove A that to Include Where to Search Categories to Include Select the categories to include. If the list below is empty, all categories will be included. Include all Revit categories	Data Types to Include Select which kinds of information should be included.	Edit Re-sort Remove All

Switching between tabs for either the settings used by the old snapshot or new snapshot will automatically switch tabs for the other settings as well.

In the above example, the filter settings for the newer snapshot show that Slow Parameters were not gathered when the later snapshot was taken.

Once the snapshots have been defined, Comparison Filters are available to control which information to compare between the snapshots.

ME	New Comparison Pair	×
Older Project Snapshot:	Newer Project Snapshot:	
C:\Temp\Snapshot1.cpd	Browse <> C:\Temp\Snapshot2.cpd	Browse
These snapshots were taken using different filter settings.	Compare Snapshot Filter Settings Used	
Comparison Settings Elements Parameters		Load Save
✓ Compare Family Categories	Compare Model Category Elements	Compare Annotation Category Elements
✓ <above> Cut Marks ✓ <above> Handraiis ✓ <above> Nosing Lines ✓ <above> Outlines ✓ <above> Railings Cut Line ✓ <above> Riser Lines ✓ <above> Top Rails ✓ <above> Up Arrows ✓ <above> Up Arrows ✓ <centerline> ✓ <centerline> ✓ <centerline> ✓ <centerline> ✓ <centerline> ✓ <centerline> ✓ <select all<="" td=""></select></centerline></centerline></centerline></centerline></centerline></centerline></above></above></above></above></above></above></above></above></above>	 	Adaptive Points Adaptive Points Lines Adaptive Points Planes Adaptive Points Planes Adaptive Points Points Analytical Beam Tags Analytical Beam Tags Analytical Brace Tags Analytical Beam Tags Analytical Column Tags Analytical Isolated Foundation Tags Analytical Isolated Foundation Tags Analytical Node Tags Analytical Slab Foundation Tags Select All
		OK Cancel

The three comparison filters on the first tab (for elements) are:

- Family Categories This column is for the family definitions themselves. For example, if a new wall type was created on the walls category, checking "Walls" in this list would cause that change to be shown in the comparison results.
- Model Category Elements This column is for model elements that exist in the project. For example, if a new wall is drawn in the project, checking "Walls" in this list would cause that change to be shown in the comparison results.
- Annotation Category Elements This column is for annotation elements that exist in the project. For example, if
 a wall tag is deleted, checking "Wall Tags" in this column would cause that change to be shown in the
 comparison results.

Comparison filters can also be configured on the "Parameters" tab:

ME	New Comparison Pair	×
Older Project Snapshot:	Newer Project Snapshot:	Proves
C:\Temp\SnapshotT.cpd	Browse C:\Temp\Snapsnot2.cpd	Browse
These snapshots were taken using different filter settings.	Compare Snapshot Filter Settings Used	
Elements Parameters		Load Save
Compare Parameters		
 ✓ Adaptive Component ✓ Analysis Results ✓ Analytical Alignment ✓ Analytical Properties ✓ Analytical Properties ✓ Area ✓ Bottom Chords ✓ Calculation Rules ✓ Camera ✓ Common ✓ Conceptual Energy Data ✓ Construction ✓ Curtain U Grid 	Alect None	
		OK Cancel

The options available determine which groups within the parameter window should be included in the comparison. For example, checking "Constraints" would include all the parameters listed under "Constraints" in the properties window to be compared ("Location Line" through "Related to Mass")

New Con	nparison Pair			
Dider Project Snapshot:	Newer Project Snapshot:			
C:\Temp\Snapshot1.cpd Browse	<> C:\Temp\Snapshot2.cpd			Browse
These snapshots were taken using different filter settings.	ot Filter Settings Used			
Companson Settings Elements Parameters			Load	Save
Compare Parameters Adaptive Component Analytical Alignment Analytical Alignment	Properties Basic Wall Interior - 4 7/8	Partition (1-hr)	×	-
Analytical Properties ✓ Analytical Properties ✓ Area	Walls (1)	•	Edit Type	
✓ Bottom Chords	Constraints		* *	
Calculation Rules	Location Line	Finish Face: Interio	or	
Camera	Base Constraint	LEVEL 1		
Conceptual Energy Data	Base Offset	0' 0"		
Constraints	Base is Attached			
Construction	Base Extension Distance	0' 0"		
🔽 Curtain U Grid 🗸 🗸	Top Constraint	Up to level: LEVEL	2	
Select All Select None	Unconnected Height	15' 7"	-	
Jelect Mill Jelect Molle	Top Offset	-0' 5"		
	Top is Attached			
	Top Extension Distance	0' 0"		Cancel
	Room Bounding			
	Related to Mass			
	Text		×	
	Structural		*	
	Structural			
	Enable Analytical Model			
	Structural Usage	Non-bearing		
	Dimensions		\$	
	Length	31' 4 3/8"		
	A	100.10.00	•	
	Properties help		Apply	

Select the desired options for the comparison. For this example all items have been checked.

The "Comparison Settings" can be saved to a .cps settings file for later re-use or to share with other Model Compare users. To save the settings file, click "Save..." and specify the desired location.

	New Comparison Pair	
er Project Snapshot:	Newer Project Snapshot:	
Temp\Snapshot1.cpd	Browse <> C:\Temp\Snapshot2.cpd	Brow
These snapshots were taken using different filter settings.	Compare Snapshot Filter Settings Used	
Comparison Settings		
Elements Parameters		Load Save
Compare Family Categories	Compare Model Category Elements	Compare Annotation Category Elements
✓ (Above> Cut Marks ✓ (Above> Handrails ✓ (Above> Nosing Lines ✓ (Above> Outimes ✓ (Above> Railings Cut Line ✓ (Above> Riser Lines ✓ (Above> Supports ✓ (Above> Top Rails ✓ (Above> Up Arrows ✓ (Above> Boundary) ✓ (Beyond) ✓ (Centerline) ✓ (Demolished) <	 ✓ <above> Cut Marks</above> ✓ <above> Handrails</above> ✓ <above> Nosing Lines</above> ✓ <above> Outlines</above> ✓ <above> Bailings Cut Line</above> ✓ <above> Riser Lines</above> ✓ <above> Supports</above> ✓ <above> Top Rails</above> ✓ <above> Up Arrows</above> ✓ <area boundary=""/> ✓ <benterline></benterline> ✓ Centerline> ✓ Centerline> ✓ Select All Select None 	Adaptive Points Adaptive Points Lines Adaptive Points Planes Adaptive Points Planes Adaptive Points Points Air Terminal Tags Analytical Beam Tags Analytical Brace Tags Analytical Column Tags Analytical Column Tags Analytical Isolated Foundation Tags Analytical Slab Foundation Tags Analytical Slab Foundation Tags Analytical Wall Foundation Tags Select All Select No

To load previously save settings, click the "Load..." button and browse to the desired settings file.

ME	New Comparison Pair	×
Older Project Snapshot:	Newer Project Snapshot:	
C:\Temp\Snapshot1.cpd	Browse C:\Temp\Snapshot2.cpd	Browse
These snapshots were taken using different filter settings.	Compare Snapshot Filter Settings Used	
Comparison Settings		
Elements Parameters	Load	Save
Compare Family Categories	✓ Compare Model Category Elements ✓ Compare Annotation Category Elements	ients
 ✓ (Above> Cut Marks ✓ (Above> Handrails ✓ (Above> Nosing Lines ✓ (Above> Outlines ✓ (Above> Bailings Cut Line ✓ (Above> Supports ✓ (Above> Up Arrows ✓ (Above> Up Arrows ✓ (Area Boundary> ✓ (Centerline> ✓ (Demolished> 	 ✓ <above> Cut Marks</above> ✓ Adaptive Points ✓ Adaptive Points Lines ✓ Adaptive Points Lines ✓ Adaptive Points Planes ✓ Analytical Bace Tags ✓ Analytical Bace Tags ✓ Analytical Floor Tags ✓ Analytical Node Tags ✓ Analytical Slab Foundation Tags ✓ Analytical Slab Foundation Tags ✓ Analytical Wall Foundation Tags 	~
Select All Select None	Select All Select None Select All	Select None
	OK	Cancel .:i

For this example we have selected all possible comparison options. Click OK to run the comparison.

из	New Comparison Pair
Older Project Snapshot:	Newer Project Snapshot:
C:\Temp\Snapshot1.cpd	Browse 🔿 C:\Temp\Snapshot2.cpd Browse
These snapshots were taken using different filter settir	ngs. Compare Snapshot Filter Settings Used
Comparison Settings	
Elements Parameters	Load Save
✓ Compare Family Categories	✓ Compare Model Category Elements ✓ Compare Annotation Category Elements
 ✓ <above> Cut Marks</above> ✓ <above> Handrails</above> ✓ <above> Nosing Lines</above> ✓ <above> Outlines</above> ✓ <above> Railings Cut Line</above> ✓ <above> Supports</above> ✓ <above> Top Rails</above> ✓ <above> Up Arrows</above> ✓ <above> Up Arrows</above> ✓ <above> Up Arrows</above> ✓ <above> Up Arrows</above> ✓ <above> Centerline></above> ✓ <demolished></demolished> ✓ Select All 	Image: Copy election Image: Copy election Image: Copy e

Depending on the size of the snapshot files the comparison may take several minutes to complete. A progress bar will display the current activity at the bottom of the "Model Compare" dialog.

ME	Model Co	mpare		- 🗆 🗙
MC 👻 📄 Take Snapshot 📲 Comparison 👻	Save Report 🛛 🔍 Auto Zoom 🛛 🔓 Auto Se	ect 🖺 Auto Copy 🛛 🗄 Options	🕡 Help 📘 Videos 🝈 About	
General Information Elements Parameters Report				
Туре	Identifier			
				Ŷ
Comparison Type Parameters	List		Color Legend	
Equal Equal	Display Identifiers		Equal Non-Exi	sting (Added)
Image: Different Image: Non-Existing Image: Non-Existing	Expand All Collapse All		Different 📕 Non-Exi	sting (Removed)
	Comparing Families and Elements			.::

Comparison Results

Once a comparison has completed the results will be displayed in the main "Model Compare" window. Tabs are used to display different parts of the comparison results.

MC	Model Compare	•							
N	🗸 🧻 Take S	Snapshot 🔄 Comparison 👻 📗	Save Report	🔍 Auto Zoom	🔓 Auto Select 😭	Auto Copy	E Options	🔞 Help 下 Video	s 🕕 About
Ge	neral Information	Bements Parameters Report							
		Type	Identifier		CTC Sample Proje	ct_jeffb.rvt		CTC Sam	ple Project_jeffb.rvt
l r	File Path			C:\Users\je	effb\Documents			C:\Users\jeffb\Docum	nents
-	Last Saved			10/30/2013	1:30:43 PM		<	10/31/2013 8:40:11 A	M
-	Project Saved v	with Revit Version		2014				2014	1
-	Data Extracted	with Revit Version		2014				2014	
-	Project Name			Sample Tra	aining Project			Sample Training Proj	ject
-	Project Number	r		10000				10000	
	Project Status			Project Sta	itus			Project Status	
	Project Issue D	Date		Issue Date)			Issue Date	
	Warnings and 8	Errors		9				9	
	Model Objects			17087			<	17089	
	Annotation Obj	ects		655				655	
	Families			228				228	
11	Marin			160			-	150	•
C.	Comparison Type	Parameters	List					Color Legend	
	Equal	Equal	Displa	y Identifiers				Equal	Non-Existing (Added)
1	J Different	[√] Different						_	
	7 Non-Existing	V Non Eviction	Expand	All Collapse	All			Different	Non-Existing (Removed)
1	V Non-Existing	V Non-Existing							
Do	ne.								.:

The tabs are:

- General Information Contains overview information about the Revit project such as the number of model objects, warning counts, view counts, etc.
- Elements Contains information about Family definitions and Modeled elements. If the model or family definitions are changed that information will be reflected here.
- Parameters Contains parameter values organized by group. The "Position X" value could be used to identify all elements across all categories that moved in the X axis for example.
- Report Rolls up all the information from the previous 3 tabs and puts it in a spreadsheet that can be saved to a spreadsheet file (for example a .xlsx file), searched, sorted or shared.

Here are the how the changes made earlier are reflected in the comparison results.

NOTE: Once a comparison has been made, the comparison results themselves can be saved to a .mcr file, which can then be reloaded at a later time, even by a different Model Compare user who is using a different computer.



Office 114 – New Element Example

In the example above a new door was added. This change caused the "Doors" category to be highlighted in yellow indicating the change. Expanding the "Doors" category shows the new door exists in the second snapshot (on the right) that didn't exist in the first snapshot (on the left). The line displaying the information for the new door is color coded in Blue to indicate a "non-existing (Added)" condition.

Model Compare				
MC 🗸 🧻 Take Snapshot 🖉 Comparison 🗸 📝 Save	Report 🔍 Auto Zoom 🔓	Auto Select 🖀 Auto Copy 🗦 Options	🔞 Help 下	Videos 🕕 About
General Information Elements Parameters Report				
Туре	Identifier	CTC Sample Project_jeffb.rvt	V	CTC Sample Project_jeffb.r
⊕ Families			<u>ہ</u>	
Model Categories			 	E
⊕ <mark>Ceilings</mark>			 	
Doors			0	
Door-Swing-ICS-Single: 36x84. HM-F. HM-001	220569	Door-Swing-ICS-Single: 36x84_HM-E_HM-0	01 0	Door-Swing-ICS-Single: 36x84_HM-E
Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	709822	(Non-Existing)	~~	Door-Swing-ICS-Single: 36x84_HM-N\
Constraints			<<	
Construction			~	
Dimensions			~~	
Hentity Data Identity Data Identity Identity			~	
Materials and Finishes Other			~	
Comparison Type Parameters	List		Color Le	gend
Equal Equal	Display Identifiers		E	nual Non-Existing (Added)
Different Different				
V Non-Existing	Expand All Collapse All]	Di	ifferent Non-Existing (Removed)
Done.				(e):

Elevator Equipment Room – Existing Element Change Example

In this example, the north wall of the Elevator Equipment room was moved north in the project by several feet. Moving this wall also extended the joined walls in the project. In the image below, two of the walls involved in the change are expanded to show their data. The top wall (element 186633) shows a change in its bounding box in the Y direction because that is the only axis in which it was moved. One of the joined walls (element 186684) shows a change in its Area, Bounding box, Length and Volume. The element existed in both snapshots, which Model Compare views as a change, and colors the cells yellow.

ME Model Compare						J
General Information Bements Parameters Report	Here is t	he row for the	wall moved in	the e	About	
				O		1
⊕ <system> Walls: Interior - 4 7/8" Partition ⊖ <system> Walls: Interior - 4 7/8" Partition</system></system>	186574 186633	<system> Walls: Interio <system> Walls: Interio</system></system>	r - 4 7/8" Partition (1-hr) r - 4 7/8" Partition (1-hr)	0 0	<system> Walls: Interior - 4 7/8" Partition (1-hr) <system> Walls: Interior - 4 7/8" Partition (1-hr)</system></system>	
⊟- Geometry				\diamond		1
- Bounding Box Max Y Bounding Box Min Y	-2147482644 -2147482647	11.8651865850347 ft 11.4589365850347 ft		< <	13.9797615845007 ft 13.5735115845006 ft E	
- <system> Walls: Interior - 4 7/8" Partition</system>	186684	<system> Walls: Interio</system>	r - 4 7/8" Partition (1-hr)	0	<system> Walls: Interior - 4 7/8" Partition (1-hr)</system>	
- Geometry				0		
Area	-1012805	101 SF		<	134 SF	
Bounding Box Max Y	-2147482644	11.6620615850347 ft		<	13.7766365845007 ft	
- Length	-1004005	7" - 0 3/8"		<	9' - 1 3/4"	
Volume	-1012806	41.22 CF		<	54.60 CF	
System> Walls: Interior - 4 7/8" Partition	186724	System> Walls: Interio	r - 4 7/8" Partition (1-hr)	0	System> Walls: Interior - 4 7/8" Partition (1-hr)	4
Comparison Type Parameters	List				Color Legend	
Equal Equal	Display Ide	entifiers			(ted)	
☑ Different ☑ Different	Europed All		This wall was j	oine	d to the wall that moved.	
V Non-Existing Non-Existing	Expand All	Collapse All			novea)	
Done.						

Office 105 – Element Deletion Example

In this example the chair in room 105 was deleted. The Furniture category is shown in yellow because of the change. Expanding the Furniture category reveals the chair itself (element 383975) shown in red. The image below shows the chair as well as the contents of the "Other" group of parameters; Note the value "OFFICE 105" of the "Room" parameter from the first snapshot.

C 🕶 间 Take S	Snapshot	🔡 Compari	son 🕶	🛃 Save Report	🔍 Auto Zoom	🗟 Auto Select	📸 Auto Copy	E Options	🕜 Help	Videos	🕦 About	
eral Information	Bements	Parameters	Report									
	Тур	e		Identifie	ir -	CTC Sample P	roject_jeffb.rvt			CTC Sample	Project_jeffb.	rvt
Model Categor	ies							0				
Ceilings								0				
Doors								0				
Furniture								0				
Hawor	th_Chair_Zo	dy-Guest 4 l	eg Base	383975	Haworth	Chair_Zody-Gue	est: 4 Leg Base	>>	(Non-Exist	ting)		
	ostraints								-	_		
Ge	ometry							>>		•		
⊕ lde	ntity Data							>>				
🕀 Ma	terials							>>				
E Ot	her							- 22/				
	Can Flip F	acing		-2147482642	1				(None)			
	Can Flip H	and		-2147482641	0			15				
-	Can Flip W	/orkPlane		-2147482640	0			1 >>				
-	Can Rotate	6		-2147482639	0			>>>				
-	Facing Flip	oped		-2147482637	0		//	>>				
-	Facing Ori	entation X		-2147482636	-0.00000	0000000100383	337541762	>>				
-	Facing Ori	entation Y		-2147482635	-1			- 25				
-	Facing Ori	entation Z		-2147482634	0			>>				
-	Hand Flipp	ed		-2147482632	0		//	>>				
	Hand One	ntation X		-214/482631	-1	000000000000000000000000000000000000000	07541700					
	Hand Orie	ntation T		-2147482630	0.000000	0000001003	13/041/62	- 22				
	Invisible	niceuun 2		-2147482623	0							
	Is Slanted	Column		-2147482625	0							
	Mirrored			-2147482623	0							
	Pinned			-2147482620	0	<u> </u>		>>				
	Room			-2147482616	OFFICE	105		>>				
	View Spec	ific		-2147482608	0			>>				
monteon Tree		Paramatom		فعذا					Celle	land		
Equal		E Gurd			olau Identifiero				000			
		Equal		V UIS	play identifiers] Equal	Non-Ex	sung (Added)
Different		Differen		Evo						Different	Non-Exi	isting (Remov
Non-Existing		V Non-Exi	sting	CAPO	Collaps					- moron	Inter Ex	and (nonion

Auto Zoom, Select and Copy

When the Auto Zoom button is enabled, Model Compare will automatically zoom in on the location of a model element within the Revit model when that element is selected from the comparison results. This function assumes the model the snapshot was taken from is the model that is open in the current Revit session.

MC Model Compa	are					- 🗆 ×
MC - 间 Take S	Snapshot 😫 Comparison 🔹	🗸 📝 Save Report 🔍 Auto Zoom 🔓 Au	ito Select Auto Copy 🛛 Filters Libr	rary 👸 Scheduler Configs 🕒 Scheduler	E Options	elp 下 Videos 🕦 About
General Information	Elements Parameters Rep	oort				
	Туре	Identifier				~
I Comotione Trace	Demonstern	1:4			Colorian	Ý
Equal	Equal	Display Identifiers			Equal	Non-Existing (Added)
	Different				Lquai	Non-Existing (Added)
Non-Existing	✓ Non-Existing	Expand All Collapse All			Different	Non-Existing (Removed)
Done.						.::

When the Auto Select option is enabled, Model Compare will automatically select the element within the Revit model when that element is selected from the comparison results.

MC Model Compare						- 🗆 ×
MC 🗸 间 Take Snapsh	ot 📲 Comparison 👻 🚂 Sav	re Report 🔍 Auto Zoom 🔓 Auto	Select 🖹 Auto Copy 🛛 💎 Filters Librar	ry 👸 Scheduler Configs 🕒 Schedu	ler 📴 Options 🌘	🕽 Help 下 Videos 🍈 About
General Information Elem	ents Parameters Report					
	Туре	Identifier				~
						~
Comparison Type	Parameters	List			Color Legend	
Equal	Equal	Display Identifiers			Equal	Non-Existing (Added)
Different	Different	Even d All			Different	Neg Evisting (Removed)
Non-Existing	Non-Existing	Expand All Collapse All			Different	Non-Existing (Removed)

When the Auto Copy option is enabled, Model Compare will automatically copy the element ID of an element selected from the comparison results to the clipboard.

	re				- 🗆 X
MC 🕶 🧻 Take Sr	napshot 🔮 Comparison 👻 🔙	Save Report 🔍 Auto Zoom 🔓 Auto	o Selec 🖹 Auto Copy 💎 Filters Library 👸 Scheduler Configs 🕗 Scheduler	E Options €	🕽 Help 下 Videos 🕦 About
General Information	Elements Parameters Report				
	Туре	Identifier			~
					~
Comparison Type	Parameters	List		Color Legend	~
Comparison Type	Parameters	List ☑ Display Identifiers		Color Legend	Non-Existing (Added)
Comparison Type	Parameters ☐ Equal ☑ Different	List ☑ Display Identifiers		Color Legend	Non-Existing (Added)
Comparison Type Equal Different Non-Existing	Parameters ☐ Equal ☑ Different ☑ Non-Existing	List Display Identifiers Expand All Collapse All		Color Legend Equal Different	Non-Existing (Added)

The next three tools (*Filters Library, Scheduler Configs* and *Scheduler*) will be discussed in the section below in the Scheduling Snapshots section.

Report Tab

The report function gathers all the information from the comparison results and puts it into a spreadsheet format. The report can then be saved externally in several popular spreadsheet formats, including .xlsx and .xls.

MC Mod	lel Co	mpare												X
MC	т 🗻 т	ake Si	napshot	🔮 Comparison 🗸	🛃 Save Rep	ort 🔍 Auto Zoom	🔓 Auto S	elect 🖺 Auto Copy	E Options	🕜 Hel	p 下 Videos	() About		
General	Inform	nation	Elements	Parameters Repo	t									
Δ	BC	D		F		F	G	н		1	I	к		•
1		0		L.			0				,	ĸ		E
2	•		стс м	odel Compare										
3				each compare										
4			Project	1:	rac advan	ced sample project	t.rvt							
5			Project	2:	rac_advan	ced sample project	t.rvt							
6			Date an	d Time:	11/20/201	3 11:52								
7			Compar	ison Type:	[Different]	[Non-Exisiting]								
8			Conside	red Parameters:	[Different]	[Non-Exisiting]								
9					(Second)									
10			Family 1	Types Compared	475									
11			E	qual:	475									
12			0	Different:	0									
13			N	Ion-Existing:	0									
14			Element	ts Compared:	7141									
15			E	qual:	7116									
16			0)ifferent:	7									
17			N	lon-Existing:	18									
18														
19	GEN	VERA	L INFOR	RMATION										
20														
21	Туре	e			rac_advand	ed_sample_project	t.rvt	rac_advanced_sa	mple_projec	t.rvt				
22	File	Path			E:\Temp	2.42	=	E:\Temp						
23	Proi	Saved	ı ved with	Pavit Varsion	2014	15:42		2014						
25	Data	Ect Sa	acted wit	h Revit Version	2014			2014						
26	Proje	ect Na	ame		Project Nam	ie	=	Project Name						
27	Proj	ect Nu	umber		Project Num	nber	=	Project Number						
28	Proj	ect St	atus		Project Stat	us	=	Project Status						
29	Proj	ect Iss	sue Date		Issue Date		=	Issue Date						
30	War	nings	and Erro	rs	7		=	7						
31	Mod	lel Ob	jects		6739		<	6753						
32	Anne	otatio	n Object	s	292		>	290						
33	Fam	illes			156		-	155						
35	Scho	vs			10		-	10						
14 4	> H	Shee	t1/		10		-	4						+
C		Turn	/	Parameters	1.					0	les lessed			
Comp	Janson	rype		Farameters	L	R Display Identification				6				
E	qual			Equal	V	Display Identifiers				l	Equal	Non-E	xisting (Adde	ed)
V Di	ifferent	t		Different	-		- 411				Different	Ner 5	winting (D	(have
V N	on-Exi	sting		Non-Existing		Expand All Collaps	e All				Different	Non-E	Existing (Rem	oved)
Done.														:
	_	_												

Scheduling Snapshots

Because querying a Revit project for data can be time-consuming, Model Compare allows you to schedule a snapshot such that the snapshotting process can happen any time, for example after hours or on a weekend.

As it can also be useful to track a project's changes over time, a snapshot of a project can be scheduled to occur periodically, for example every week.

IMPORTANT: A BIM Project Suite license must be available during the entire time a scheduled task runs. Snapshots will not be generated if a license is not available.

When snapshots are scheduled to occur, at the time they are to happen new Revit sessions will be used for the processing. The Revit splash screen will appear briefly as new Revit sessions begin the processing, but the rest of the snapshot process will not be visible.

IMPORTANT: Scheduled snapshots are not supported if Revit itself is using a borrowed floating license.

IMPORTANT: A user account MUST BE logged in on the computer at the time the task is scheduled to run (e.g. 10:00 PM). This is required for Revit to be able to be launched. The logged in user DOES NOT need to be in Revit at the time. So if a task is scheduled to run on this computer later tonight, you must NOT Log Off (or "Sign Out") at the end of the day, but you can Ctrl+Alt+Del and "Lock" the workstation, which keeps you logged in but prevents anyone else from using the computer.

IMPORTANT: The user account logged in at the time the task runs must have drive letter mappings, permissions, etc. that are compatible with the settings and work to be done. For example, if you've specified to take a snapshot from a project on the "P:" drive, the user account that is logged in at the time the task is to run must have a "P:" drive mapped correctly and have permissions to at least read from that drive.

IMPORTANT: Any time a task is created <u>or edited</u> with this tool, when done being created or edited **it will be set** to run as the user who just created or last edited the task. In the above example, that means the person who last edited this task must have the proper permissions to files on the "P:" drive for the work to be done. Changing which account the task runs-as can be done using the Windows Task Scheduler, but if it's edited again with this tool, then who it runs-as will again get reset to being whoever last edited the task on this computer.

IMPORTANT: Central files are processed by creating a new local file in the current user's personal temporary directory and then opening the new local file for processing. This prevents conflicts or other issues that can be caused by opening a central file directly. The new local file is created opening all worksets. When the export is complete, the new local file is closed and deleted. This workflow is needed to ensure all links (including relative links) are maintained. Single user project files can only be opened from their original locations directly, in order to ensure all links are maintained. An error will occur if the single user project file is already opened in another Revit session, either on this computer or another computer.

The Windows Task Scheduler can be used to manually edit the task, provided none of the "Actions" are changed.

Configuring snapshot schedules is done using the Filters Library, Scheduler Configs and Scheduler buttons on the toolbar.

Filters Library

M Model Compare	,		
MC 🗸 📔 Take Snapshot 🛛 Comparison 👻 📝 Save Report	🔍 Auto Zoom 🛛 🔓 Auto Si	elect 🐔 Auto Copy 💎 Filters Library 🛱 Scheduler Config	Scheduler 🗄 Option:
General Information Elements Parameters Report			
Туре	Identifier		

The Filters Library button allows you to load and save filter settings to *.psf (Project Snapshot Filters) files to any folder. The selection of a filters file is necessary for the scheduled snapshot to know what data to pull from each Revit project file it processes.

A default folder is provided, typically: C:\Users\Public\CTC Software\Model Compare\Snapshot Filters

The location of the default filters library folder can be controlled in the Options, which are discussed below.

The Filters Library dialog is pretty self-explanatory:

What to Include Where to Search		Reset Filter
Categories to Include Select the categories to include. If the list below is empty, all categories will be included.	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
Adaptive Points Air Terminal Tags Air Terminals Analysis Display Style Analysis Results Analytic Sipaley Style Analytical Beam Tags Analytical Beam Tags Analytical Beam Tags Analytical Beam Tags Analytical Beam Tags Analytical Beam Tags Analytical Column Tags Analytical Column Tags Analytical Links Analytical Links Analytical Node Tags Analytical Node Tags Analytical Node Tags Analytical Node Tags Analytical Node Tags Analytical Wall Foundation Foundation Foundation Foundat	Families and types Family instances Groups Family parameter definitions Family-level parameter value Type parameter values Vine data Project Information Project Information Schedule data Slow parameter values* Select All Select None *Slow Params	Include all fast parameters found in the project Edit Re-sort Remove All Edit Re-sort Remove All

The toolbar across the top controls loading and saving filter settings. The filter settings themselves complete the rest of the dialog.

Please refer to <u>Appendix A</u> for an explanation of how to configure the settings on the "What to Include" and "Where to Search" tabs.

Scheduler Configs

M Model Compare					
MC 🗸 间 Take Snapshot 🛛 Comparison 👻 📝 Save Report	🔍 Auto Zoom 🛛 🔓 Auto So	elect 🖹 Auto Copy	🧒 Filters Library	🖏 Scheduler Configs 🤇	B Scheduler
General Information Elements Parameters Report					
Туре	Identifier				

A scheduler configuration contains all the settings that are to be applied to a project when creating a snapshot. These settings are stored in *.mcconf (Model Compare Configuration) files.

These settings include:

- 1) In which folder to store the created snapshot file (*.cpd file)
- 2) Which filter settings file (*.psf) to use when taking the snapshot
- 3) Settings that control how to name the snapshot file to be generated

The dialog looks like this, with some sample values provided:

a cuit scheduler coning	uration		
New Configuration 📔	Öpen 🚽 Save 🚽 Save As		
ave snapshot to folder:	.\Model Compare Snapshots		Browse
	(The folder may be either a specific location	or relative to the project file, such as:	.\Snapshots)
	Create subfolder named by: Date	Time	
ilter settings file:	P:\Model Compare Filters\Mechanical Filters.p	osf	Browse
Snapshot File Naming Ru	es		
Project Information Para	neters Se	elected Parameters	
Processing Time Author Building Name Client Name Energy Settings Organization Description Organization Name Project Address Project Issue Date Project Name Project Name Project Status		lename rocessing Date ustom Text 1	
Use Custom Text 1	Aechanical Filters	↑	
Use Custom Text 2			
Separator:	(Underscore> 🗸 🗌	Append date and time stamp	
Preview: rac_basic_sample_p	oject_2016-10-24_Mechanical Filters.cpd		

The value for "Save snapshot to folder" determines where the snapshot file will be stored. This can be a specific folder (e.g. "C:\Snapshots") or it can be a folder that is located relative to where the project file being processed is located.

If either the "Date" or "Time" checkboxes are checked, one more subfolder will be created that will be named by a dateand/or tme-stamp of when the snapshot was taken.

Relative path example 1: Use a subfolder within the project's folder

Project file location: P:\Projects\Hospitals\Hospital1\Hospital1.rvt "Save snapshot to folder" value: .\Snapshots Resulting folder for exports (folder created if needed): P:\Projects\Hospitals\Hospital1\Snapshots

Relative path example 2: Use a folder at the same level as the project's folder

Project file location: P:\Projects\Hospitals\Hospital1\Hospital1.rvt "Save snapshot to folder" value: ..\Snapshots Resulting folder for exports (folder created if needed): P:\Projects\Hospitals\Snapshots

Relative path example 3: Use a folder at a higher level than the project's folder

Project file location: P:\Projects\Hospitals\Hospital1\Hospital1.rvt "Save snapshot to folder" value: ..\..\Snapshots Resulting folder for exports (folder created if needed): P:\Projects\Snapshots

In the example above, the snapshot will be stored in a folder called "Model Compare Snapshots" which will be created in the same folder as the project file itself. The folder will be created if needed. No date- or time-stamped subfolder will be created.

Also in the example above, the filter settings file used will be **P:\Model Compare Filters\Mechanical Filters.psf**, which perhaps only selects data from mechanically-based categories within the Revit model.

"Snapshot File Naming Rules" determine how the snapshot files to create will be named. Specifically, they'll be named based on the list of parameter values, in the order of the parameter values defined.

The list of parameter choices come from the project parameter values, as well as some fixed parameters (the project file name, the processing date, and the processing time). Up to 2 custom text values can be placed anywhere in the list as well.

In the above example, the name to be generated will be the file name of the project followed by the date the snapshot was taken, followed by the words "Mechanical Filters" which describe which filters were applied.

The order in which the selected parameters are used can be controlled using the up- and down- arrows below the list, which will move the selected parameter(s) up or down.

A preview of what the final file name will look like (based on the current project's file name and project parameter values) can be seen in the lower left corner, and will update in realtime as the settings change:

Snapshot File Naming Rules	
Project Information Parameters	Selected Parameters
IProcessing Time Author Building Name Client Name Energy Settings Organization Description Organization Name Project Address Project Susue Date Project Name Project Name Project Status	IFilename IProcessing Date Custom Text 1
Use Custom Text 1 Mechanical Filters	
Use Custom Text 2	
Separator: <underscore> ~</underscore>	Append date and time stamp
Preview: rac_basic_sample_project_2016-10-24_Mechanical	Filters.cpd

Here's another example which uses some different settings:

Snapshot File Naming Rules	
Project Information Parameters	Selected Parameters
IProcessing Date IProcessing Time Author Building Name Client Name Energy Settings Organization Description Organization Name Project Address Project Issue Date Project Name Project Name Project Status	IFilename Custom Text 1
Use Custom Text 1 THIS AND/OR THAT	
Use Custom Text 2	
Separator: <space><hyphen><space></space></hyphen></space>	Append date and time stamp
Preview: rac_basic_sample_project - THIS AND-OR THAT	- 2016-10-24 - 10.55.22.cpd

In this example, the custom text has an illegal filename character (the "/") and the preview shows that a hyphen will be used wherever an illegal character appears in a parameter's value. The character to be used (or none) is controlled in the Options settings, discussed below.

The date and time of the snapshot are appended to the end of the file name by simply checking the "Append date and time stamp" checkbox.

Also, the "<Space><Hyphen><Space>" separator was chosen, which can be seen in the preview between the project file name and custom parameter value, and again between the custom parameter value and the date, and again between the date and time.

The toolbar across the top of this window allows saving or loading scheduler configuration files. The default folder is usually: C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations

The location of the default scheduler configurations folder can be controlled in the Options, which are discussed below.

We can save these filters to a file called "Mechanical Filters.mcconf" in that folder.

Scheduler

M Model Compare						
MC 🗸 间 Take Snapshot 🛛 Comparison 🗸 📑 Save Report	🔍 Auto Zoom 🛛 🔓 Auto So	elect 🏦 Auto Copy	💎 Filters Library	👸 Scheduler Config	() Scheduler	E Option:
General Information Elements Parameters Report						-
Туре	Identifier					

The Scheduler toolbar button allows defining the day(s) and time(s) at which a scheduler configuration file should be run, and on which project(s) it should be run.

For example, you may want to schedule the same snapshot be taken every evening of a project so you can review the changes made to the project each day by generating a comparison between the snapshots.

Each time you click the Scheduler button, the following basic instructions will appear:

Scheduled Task Editing Instructions >	×
Important Revit Scheduled Task Editing Instructions	-
When Revit tasks are scheduled to occur, at the time they are to happen new Revit sessions will be used for the processing. The Revit splash screen will appear briefly as new Revit sessions begin for the processing, but the rest of the processing will normally not be visible.	
In order to schedule Revit to run at a later time:	
 A user account MUST be logged in on the computer at the time the task is scheduled to run (e.g. 10:00 PM). This is required for Revit to be able to be launched. The logged in user DOES NOT need to be in Revit at the time. So if a task is scheduled to run on this computer later tonight, you must NOT Log Off (or "Sign Out") at the end of the day, but you can Ctrl+Alt+Del and "Lock" the workstation, which keeps you logged in but prevents anyone else from using the computer. 	
2. The user account logged in at the time the task runs must have drive letter mappings, printers defined, etc. that are compatible with the settings and work to be done. For example, if you've specified to use a project on the "P:" drive, the user account that is logged in at the time the task is to run must have a "P:" drive mapped correctly.	
3. The Windows Task Scheduler can be used to manually edit the task, provided none of the "Actions" settings are changed.	
4. Any time a task is created <u>or edited</u> with this tool, when done being created or edited it will be set to run as the user who just created or last edited the task. In the above example, that means the person who last edited this task must have the proper permissions to files on the "P:" drive for the work to be done. Changing which account the task runs-as can be done using the Windows Task Scheduler, but if it's edited again with this tool, then who it runs-as will again get reset to being whoever last edited the task on this computer.	
More detailed information can be found in the user guide (by clicking the Help button in the toolbar), and the CTC Suites Installation and Configuration document.	
Don't show me this again OK	

However, this can be turned off by checking the "Don't show me this again" checkbox in the lower left corner.

Once the Scheduler toolbar button is clicked, the list of scheduled tasks will appear:
Scheduled Tasks List >				\times		
Name	Status	Triggers		Next Run Time	Last Run Time	
< /						>
Create New	Edit	Delete		Scheduler Sett	ings Refres	sh

To create a new task, click the "Create New" button on the dialog seen above, which will bring up the task editor:

💱 Edit Scheduled Ta	sk		×				
Scheduled Task Name	My Test Task	🗹 Enable this sche	eduled task				
When to Run One time S Daily	tart: 10/21/2016						
WeeklyMonthly	Recur every: 1 ਦ weeks on:						
	☐ Thursday						
	Stop: 10/24/2016 🔍 1:24:59 PM 🜩						
What to Do							
Run this program or s	cript first:		Browse				
Drag and drop configue	ration files (*.mcconf) from Windows File Explorer into the list below, or use the 'Add Config File(s)' button belo Infouration file in the list or select a configuration file and click the 'Add File(s)' button below.	w. Drag and drop fil	les (*.rvt)				
	Add Config File(s) Edit Config File Setting Add Wildcard Search Edit Wildcard Search	h Add File(s)	E E				
Run this program or s	cript last:		Browse				
Validate Settings]	ОК	Cancel				

Every scheduled task needs a name and the settings to specify when it should run. These are set in the top portion of the screen, as can be seen in the image above.

Every scheduled task also needs to have defined what to do whenever the task runs. The heart of "what to do" is a list that you define of saved Model Compare configuration files, and the Revit project files on which to run each configuration file.

For example:



This approach allows you to specify the order in which configurations will be applied, and the order in which the projects they will be applied to are processed.

Further, this approach also lets you configure an entire evening's processing in ONE scheduled task.

IMPORTANT: It is recommended to avoid having two scheduled tasks run at the same time on the same computer. This is mostly for performance and stability reasons. Because Revit consumes a LOT of system resources, if two or more Revit sessions are opening projects at the same time on the same computer they will compete for resources, possibly running out of memory and almost certainly running significantly more slowly than if each had all the resources available and the tasks were run consecutively.

This feature of defining all of the configuration files to be run against all of the project files in a specified order can therefore improve performance and reliability of scheduled snapshots.

In the above example, we used Windows File Explorer to drag and drop configuration files (*.mcconf) into the list, and Revit project files (*.rvt) onto each configuration file. The new item(s) are added immediately after the item on which they were dropped.

We can also use the "Add Config File(s)" button below the list to browse for one or more configuration files from one or more folders to add to the list:

Stop: 1/ 1/1753	Select Files
What to Do	Parent folder: C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations Browse Search in subfolder Search Again
Bun this program or script first:	2 File(s) Found
	C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations\Mechanical Filters.mcconf
Drag and drop configuration files (*.mcconf) from Win ows	C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations\Structural Filters.mcconf
each conliguration me in the list, or select a conliguration	
C:\Users\Public\CTC Software\Model Compare\Sch	
D:\Projects\rme_advanced_sample_r_ject.rvt	
D:\Projects\rme_basic_sample_pro_ct.rvt	
D:\Projects\rst advanced sample project.rvt	
D:\Projects\rst_basic_sample_r_ject.rvt	Select All Deselect All Add Selected Files
	C: Vusers V-Dolic VL TC Software Vivodel Compare IScheduler Comigurations (Structural Hiters Incconf
Run this program or script last:	
Validate Settings	
	Remove Selected Items Remove All Items
	Ok Cancel

Once a configuration file is in the list, Revit project files can be dragged and dropped on top of it, or the "Add File(s)" button can be clicked to use the same Select Files browser to select one or more Revit project files from one or more folders to be processed using the added configuration file settings:

Bun this program or script first:		
nun and program of actipunat.		Browse
Drag and drop configuration files (*.mcconf) fro on each configuration file in the list, or select a	m Windows File Explorer into the list below, or use the 'Add Config File(s)' button below. Drag and drop files (*.rvt) to configuration file and click the 'Add File(s)' button below.	p process
C:\Usera\Public\CTC_Software\Model C D:\Projects\rms_advanced_sample D:\Projects\rms_basic_sample_pro C:\Users\Public\CTC_Software\Model C D:\Projects\rst_advanced_sample_ D:\Projects\rst_basic_sample_projects\rst_basic_sample_	ompare\Scheduler Configurations\Mechanical Filters.mcconf _project.rvt ject.rvt ompare\Scheduler Configurations\Structural Filters.mcconf project.rvt act.rvt	
🔒 🕹 🛓 Add Config	File(s) Edit Config File Settings Add Wildcard Search Edit Wildcard Search Add File(s)	
Run this program or script last:	Select Files	
Validate Settings	Parent folder: D:\Projects Brow 4 File(s) Found	se Search in subfolder Search Again
	D:\Projects\me_advanced_sample_project.rvt	^
	D:\Projects\me_basic_sample_project.rvt	
	D:\Projects vs_avvalceu_sample_project.vvt	*
	Select All Deselect All Add Selected Files	
	1 File(s) Selected	
	Di Reisstalime, basis, comple, ensist at	
	D. Vrojects vine basic sample project.rvt	
	D.Vriojecis vine_basic_sample_biojeci.tvt	
	D. Vrojecis vine_basic_sample_projecu.vi	
	D. Vrojecis vine_basic_sample_projeci. Vi	
	Remove Selected Items Remove All Items	
	Remove Selected Items Remove All Items	Ok Cancel

When selecting Revit project files, the search results in this dialog will not include Revit backup files by default.

Another important tool is the ability to add a "wildcard search" for Revit project files, which will search for all Revit project files whose names match a specified criteria within a given folder, and optionally all subfolders. This can be done using the "Add Wildcard Search" button below the list when a configuration file is selected. For example:

C:\Users\Fublic\CTC Software\Model Compare\Scheduler Configurations\Mechanical Filters.mcconf D:\Projects\rme_advanced_sample_project.rvt D:\Projects\rme_basic_sample_project.rvt C:\Users\Fublic\CTC Software\Model Compare\Scheduler Configurations\Structural Filters.mcconf D:\Projects\rst_advanced_sample_project.rvt D:\Projects\rst_basic_sample_project.rvt D:\Projects\rst_basic_sample_project.rvt	
Image: Add Config File(s) Edit Config File Settings Add Wildcard Search	C Add File Search Wildcard X
Run this program or script last.	Folder: D:\Projects Browse
Validate Settings	File name wildcard: "me*.rvt (e.g. *.rvt, *Arch*.rvt, Hospital*.rvt etc.)
	Search all subfolders
	Wildcard name: All Mechanical Projects
	Test OK Cancel

Clicking the "Test" button shows:

File Search Results				×
This is the order in which these 2 found files will be processed:				
Name	Size (MB)	Revit Version	Is Central File	
D:\Projects\me_advanced_sample_project.rvt	31.543	2017	No	
D:\Projects\rme_basic_sample_project.rvt	26.563	2017	No	
ОК				

Editing a wildcard search that is in the list can be done by either double-clicking on the item, or selecting the item and clicking on the "Edit Wildcard Search" button or by right-clicking on the wildcard in the list and selecting "Edit Wildcard Search" from the pop-up menu.

The order in which exports will be processed can be changed by using the green Move buttons below the list. This works on multiple items selected:

Drag and drop configuration files (*.mcconf) from Windows File Explorer into the list below, or use the 'Add Config File(s)' button below. Drag and drop files (*.rvt) on each configuration file in the list, or select a configuration file and click the 'Add File(s)' button below.	o process
C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations\Mechanical Filters.mcconf D:\Projects\rme_basic_sample_project.rvt All Mechanical Projects C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations\Structural Filters.mcconf D:\Projects\rst_advanced_sample_project.rvt D:\Projects\rst_advanced_sample_project.rvt D:\Projects\rst_advanced_sample_project.rvt D:\Projects\rst_basic_sample_project.rvt	
	E
Run this program or script last	Province

Items can be removed (deleted) from the list by selecting one or more items and pressing the "Del" key on the keyboard. As is also standard for working with list items, the "Ctrl+A" key combination will select all items in the list.

Context-sensitive right-click pop-up menus are available. Here is just one example:

Drag and drop configuration files (*.mcconf) from Windows File Explorer into the list below, or use the on each configuration file in the list, or select a configuration file and click the 'Add File(s)' button below	Add Config File(s)' button below. Drag and dro	p files (*.rvt) to process
C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations\Mechanical Filters.mo D:\Projects\rme_advanced_sample_project.rvt D:\Projects\rme_basic_sample_project.rvt All Mechanical Projects C(Users\Public)CTC Software\Model Compare\Scheduler Configurations\Structural Filters.model	conf	
Image: Strategy of the strategy	Edit Config File Settings Replace This Config File Add Wildcard Search Add Config File(s) After This One Select All Uncheck All) 🕂 🖻
Validate Settings	Remove All Revit Files Remove Selected Config Files Remove All Config Files	OK Cancel

Each configuration file in the list can have custom processing settings defined. These can be edited using either the "Edit Config File Settings" pop-up menu choice, or by clicking on the "Edit Config File Settings" button located below the list, or by simply double-clicking on the configuration file in the list:

Configuration File	Settings	×
 ✓ Save log files Log files folder: ✓ Email the log to: Open Revit files with 	Delete log files older than I4 days C:\Users\Public\CTC Software\Model Compare\Scheduler Logs helen@mydomain.com auditing turned on	Browse
Run in Revit Version	rsion as is the Revit file or the next lowest version of Revit installed ion installed (browse to Revit.exe):	Browse
	OK	Canaal

IMPORTANT: For emailing log files to work, working email configuration settings must be defined in the Options section of Model Compare (see below). Log files are always emailed in CSV format. A single email with multiple CSV attachments will be sent to each recipient specified (you can separate recipient addresses with semicolon characters). Each CSV attached will be the log for a separate project file that was processed.

IMPORTANT: By default, the lowest version of Revit will automatically be run on project files based on:

- First, the version of Revit in which the project file was last saved, then
- The lowest version of Revit installed for which Model Compare is supported

There may be times when you want to force the projects to be processed in a specific (same or later) version of Revit. To facilitate this, you can select "Specific Revit version installed (browse to Revit.exe)" and then select which Revit.exe to run.

The "Replace this Config File" menu choice will allow you to swap out the selected configuration file with a different configuration file to which you browse, without losing the list of the project files on which to run the configuration.

The default settings to apply to configuration files as they are added to the list can be controlled back on the main Scheduled Tasks List window using the "Scheduler Settings" button, which will be demonstrated further below.

A workflow where using different configuration file settings may be useful is if some project files should have their logs emailed to one person, while other project files should have their logs emailed to another person. For example:



In this example, the same configuration file is listed twice, with different project files to be run for each one. The only difference in this case is to whom the emails are sent for each list of projects processed. Multiple email addresses can be listed if they are separated with a semicolon (;) character. For example: helen@mydomain.com;adam@mydomain.com

IMPORTANT: A separate Revit session is launched for each project file in the list, even if the same project is listed under different configurations. After each project is processed, its dedicated Revit session is closed. This is done because:

- A different version of Revit may need to be used for each project processed (e.g. if the default autodetection setting is used)
- A different, specific version of Revit may be set up for each configuration file
- To help ensure a clean Revit session is used for each project

Scripts or other programs can be run before and/or after all processing is to happen:

What to Do Run this program or script first: C:\Scripts\Before\WeeklySnapshots.cmd Drag and drop configuration files (*.mcconf) from Windows File Explorer into the list below, or use the 'Add Config File(s)' button below. Drag and drop files (*.rvt) to process on each configuration file in the list, or select a configuration file and click the 'Add File(s)' button below.
C:\Users\Public\CTC_Software\Model_Compare\Scheduler_Configurations\Mechanical_Filters.mcconf C:\Users\Public\CTC_Software\Model_Compare\Scheduler_Configurations\Mechanical_Filters.mcconf C:\Users\Public\CTC_Software\Model_Compare\Scheduler_Configurations\Mechanical_Filters.mcconf C:\Users\Public\CTC_Software\Model_Software\Model_Compare\Scheduler_Configurations\Mechanical_Filters.mcconf C:\Users\Public\CTC_Software\Model_Software\Model_Compare\Scheduler_Configurations\Mechanical_Filters.mcconf C:\Users\Public\CTC_Software_advanced_sample_project.rvt
Add Config File(s) Edit Config File Settings Add Wildcard Search Edit Wildcard Search Add File(s)
Run this program or script last: C:\Scripts\AfterWeeklySnapshots.cmd Browse

In the lower left corner of the task editing window is the Validate Settings button. This button may bring up a dialog which warns you of any detectable issues with the scheduled task definition. For example:

	Þ	Data Issues		×
What to Do	The	following iss	sues were found.	
Run this program	Ę	Copy to Clip	board	🔄 Reset
Drag and drop co to process on ea		Туре	Message	Source
C:\Progra	Δ	Waming	The program or script to run first (C:\Scripts\BeforeWeeklySnapshots.cmd) does not exist.	Scheduled Task Editor Data Validation
🗹 D:\Pr	Δ	Waming	The program or script to run last (C:\Scripts\AfterWeeklySnapshots.cmd) does not exist.	Scheduled Task Editor Data Validation
	^			
Run te progra			ОК	
Validate Setting	gs]		OK Cancel

Finally, the last item to mention on the task editor screen is the task enable checkbox, which is checked by default:

💱 Edit Schedule	d Task			×
Scheduled Task Na	ame: My Test T	k		🗹 Enable this scheduled task
When to Run O One time	Start:	10/21/2016 🗐 🔻 10:00:00 PM 🚔		,
 Daily 			•	

A scheduled task can be quickly and easily enabled or disabled by changing this checkbox. Disabling the task will prevent it from running at the scheduled time without having to delete its entire definition. So the task can be "turned on" or "turned off" easily.

Clicking the "OK" button at the bottom of the list saves the task definition in the task list:

Scheduled Tasks	s List		×
Name	Status	Triggers	Next Run Time
🕒 My Test Task	Ready	At 10:00 PM every Friday of every week, starting 10/21/2016	10/28/2016 10:0
			,
Create New	Edit	Delete Schedul	ler Settings Refresh

Editing a task can be accomplished by either double-clicking it or by selecting it and either clicking the "Edit" button below the list or right-clicking on it and selecting the "Edit" choice from the pop-up menu.

The "Scheduler Settings" button below the list can be used to change the default values that are applied to configuration files as they are added to the list for processing:

Scheduler Settings		\times
These default settings wi into the list in the schedu dropped	II be applied to configuration files when they are dropped from File Explore led task editor. These may be customized for each configuration file	ər
Save log files	Delete log files older than 14 days	
Log files folder:	C:\Users\Public\CTC Software\Model Compare\Scheduler Logs Brows	se
Email the log to:		
Open Revit files with	n auditing turned on	
Run in Revit Version		
Automatic same version	rsion as is the Revit file or the next lowest version of Revit installed	
 Specific Revit vers 	ion installed (browse to Revit.exe):	
	Brow	se
	OK Can	el .

Scheduler Troubleshooting Tools

The primary tools for troubleshooting issues are the log files. These can be found in the following locations:

		C:\ProgramData\CTC\Model Compare			-		×
File	Home Share View Search						~ 🕐
$\leftrightarrow \rightarrow$		Compare	~	ර් Search Model	Compare		P
	Fab Sheets	Name	Date modified	Туре	Size		^
	Family Checker	Filters Library	9/16/2016 7:13 AM	File folder			
	Family Processor	Next Scheduled Work To Do	10/20/2016 2:32 PM	File folder			
	FireRating	Scheduled Task Logs	10/20/2016 2:32 PM	File folder			
	Licensing	Scheduler Configurations	10/24/2016 1:28 PM	File folder			
	Model Compare	Scheduler Logs	10/20/2016 2:32 PM	File folder			
	Filter Library	Snapshot Filters	10/7/2016 3:01 PM	File folder			
		Task Processing Order Files	10/24/2016 2:08 PM	File folder			
	Next Scheduled Work To Do	🔄 !Last Revit 2016 Startup Log.csv	10/24/2016 11:29	Microsoft Excel C		1 KB	
	Scheduled Task Logs	🔄 !Last Revit 2017 Startup Log.csv	10/24/2016 12:01	Microsoft Excel C		1 KB	
	Scheduler Configurations	🔄 !Last Scheduled Revit 2017 Startup Log.csv	10/20/2016 2:32 PM	Microsoft Excel C		2 KB	
	Scheduler Logs 🗸 🗸	EditTaskSettings.xml	10/24/2016 2:07 PM	XML Document		1 KB	~
18 items						1000	

The "Scheduler Logs" folder contains the "mclog" XML files which have information about the actual snapshot creation process from a Revit project. These don't usually list much information, but can include details about why a snapshot file couldn't be created due to something like permissions issues.

The "Scheduled Task Logs" folder contains friendlier CSV files with similar information. These can readily be opened in spreadsheet software.

The "!Last Scheduled Revit 201x Startup Log.csv" files contain information generated when Revit starts up after the last time it was launched by the scheduler. These logs show what Revit did on startup, such as to where it copied a central file temporarily for opening as a new central file for processing, and other information about the processing that occurred within Revit as a result of the scheduler launching Revit.

The "!Last Revit 201x Startup Log.csv" files contain information generated the last time Revit started up, whether or not it was started by the scheduler. Most of the time these files report there's no work for Model Compare to do, but the

information will match the information found in the last <u>scheduled</u> startup log file if the scheduler was the last thing to launch Revit.

Options

Selecting the Options button will display a new window which will allow controlling the default behavior for Model Compare.

MC Model Compare				_	
MC 🗸 🔋 Take Snapshot 🛛 Comparison 👻 🔝 Save Repo	rt 🔍 Auto Zoom 🛛 🔓 Auto Se	elect Auto Copy 🛛 🗮 Filters Library	词 Scheduler Configs 🕑 Scheduler	∃ Options 🕢 Help 🕨 Video	s 🕦 About
General Information Elements Parameters Report					
Туре	Identifier				~

The "Display & Report" tab contains the settings which control how Model Compare runs and presents itself.



The "Paths" tab allows you to specify where the library of snapshot filter files is located, as well as the location for storing scheduler configuration files.

ME Options		×
Display & Report Paths Scheduler Default Snapshot Filters		
Snapshot Filters Library Folder C:\Users\Public\CTC Software\Model Compare\Snapshot Filters	Browse	
Scheduler Configurations Library Folder C:\Users\Public\CTC Software\Model Compare\Scheduler Configurations	Browse	

The "Scheduler" tab controls options that affect scheduled snapshots.

Me Options	×
Display & Report Paths Scheduler Default Snapshot Filters	
Show scheduler instructions	
Default date format: yyyy-MM-dd \checkmark	
Default file naming separator: <underscore></underscore>	
Replace invalid file naming characters with:	
Save log files 🖓 Delete log files older than 14 days	
Log files folder: C:\Users\Public\CTC Software\Model Compare\Scheduler Logs	Browse
Email Server Settings	
Email (SMTP) server:	
Email server port: 25	
From/Reply To address:	
This server requires authentication	
Username:	
Password:	
Send messages securely using SSL	
Send Test Message To:	
ОК	Cancel

The "Date format" is used whenever a folder name or a file name is created which uses a date value. Although a list of choices is provided, you may also type in your own custom date format to use.

The "Default Snapshot Filters" tab contains the settings which will be used as the default filters whenever a new snapshot of a project is to be manually taken.

MC Options		×
Display & Report Paths Scheduler Default Snapsho These settings will be the defaults used for filtering o for taking a snapshot. Click the "Reset Filters" button	nt Filters ut the data gathered when taking a new snapshot. Fil for a full snapshot. These settings can be customize	tering out unneeded data can dramatically reduce the time required ed just before taking each snapshot.
What to Include Where to Search		Reset Filters
Categories to Include Select the categories to include. If the list below is empty, all categories will be included. Include all Revit categories Adaptive Points	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
Air Terminal Tags Air Terminals Analysis Display Style Analysis Results Analytic Spaces Analytica Usufaces Analytical Brace Tags Analytical Brace Tags Analytical Column Tags Analytical Isolated Exundation Tags	Family instances Groups Family parameter definitions Family-level parameter values Groups Family-level parameter values Groups Instance parameter values Groups Ine data Project Information Project parameter	Edit Re-sort Remove All
Analytical Link Tags Analytical Links Analytical Node Tags Analytical Nodes Analytical Slab Foundation Tags Analytical Vall Foundation Tags Analytical Wall Tags Analytical Wall Tags Annotation Crop Boundary Sketch Area Load Tags	Slow parameter values* Slow parameter values* Subcategory data	Include all slow parameters found in the project
Edit Remove All	Select All Select None *Slow Params	Edit Re-sort Remove All
		OK Cancel

Filtering can be used to not only reduce the time it takes to create a snapshot, but reduce the amount of information that needs to be analyzed in the resulting comparison report.

Please refer to <u>Appendix A</u> for an explanation of how to configure the settings on the "What to Include" and "Where to Search" tabs.

The "Load Filters" button can be used to load previously-saved filters. Once loaded, clicking the "OK" button will save the changes on this dialog to be the new default settings.

Model Dashboard

Introduction

CTC Model Dashboard is an analytics gathering application that sets values in custom parameters of a Revit model. Also included (but not required) is a titleblock family which can read and display the values that are gathered. Simply run the import tool, place the titleblock on a sheet and save or sync to central the model. The data will be gathered and stored in the parameters to be displayed as helpful graphs of common indicators in Revit model health.

NOTE: The application runs without user intervention and only collects data if the titleblock is present with the expected parameters.

Starting Model Dashboard

On the Revit ribbon, click on the "Model Dashboard" button.



The import dialog will appear. Choose Load to bring the family into the project.



Once the family has been loaded, either place it on an existing sheet or create a new one.

Ideally, this will be displayed on the start view of the project so that users can see the stats when they open the model.

This Autodesk Knowledgebase article explains the process. It is applicable to most supported Revit versions.

https://help.autodesk.com/view/RVT/2024/ENU/?guid=GUID-622E667E-FB0B-47E1-8F66-E237A70771BD



The Model Health Dashboard

Parameters Model Data Metrics

- CTC CAD Import Count: Number of imported CAD file definitions
- CTC CAD Link Count: Count of Linked CAD file definitions
- CTC Design Options Count: Number of design options (not design option sets)
- CTC Detail Group Definition Count: Number of defined detail groups
- **CTC Detail Group Instance Count:** Number of detail group instances in the model
- **CTC Dimension Type Count:** Count of dimension types defined in the model
- CTC Drafting View Count: Count of drafting views
- CTC Drafting Views No VT Count: Count of drafting views that are not associated to a view template
- **CTC Duration Last Sync Sec:** Number of seconds for the last Sync to Central (STC)
- **CTC Duration Open Sec:** Number of seconds for the opening of the model

CTC Family Instance Count: Count of family instances in the model CTC Fill Pattern Count: Count of defined fill patterns CTC Filled Region Count: Count of defined filled regions CTC IFC Link Count: Count of linked IFC models CTC Image Import Count: Count of imported images in the model CTC In-Place Families Count: Count of modeled-in-place families CTC Level Count: Count of defined levels in the model (does not include linked models) CTC Line Style Count: Count of defined line styles in the model CTC Loaded Family Count: Count of loadable family definition (does not include system families such as walls, floors) CTC Local File Size MB: Current file size of the active model in MegaBytes **CTC Material Count:** Count of defined materials in the model CTC Model Group Definition Count: Count of defined model groups in the model CTC Model View Count: Count of model views CTC Model View No VT Count: Count of model view that do not have an associated view template CTC Phase Count: Count of model phases CTC Placed Room Count: Count of all room instances **CTC Placed Space Count:** Count of all space instances **CTC Project Parameter Count:** Count of project parameters defined in the model. CTC Redundant Room Count: Number of room instances indicating "redundant" in the area parameter value CTC Redundant Space Count: Number of space instances indicating "redundant" in the area parameter value CTC Revision Count: Count of revisions defined in the model CTC Revit Link Count: count of linked RVT models CTC Sheet Count: Number of sheets in the model that appear in the sheet list **CTC Sheet Placeholder Count:** Number of placeholder sheets in the model **CTC Text Type Count:** Number of defined text types in the model

- CTC Unenclosed Room Count: Number of rooms that have an instance but no area value
- CTC Unenclosed Space Count: Number of spaces that have an instance but no area value
- CTC Unplaced Family Count: Number of family definitions that have no instances in the model
- CTC Unplaced Room Count: Number of rooms that have no instances in the model
- CTC Unplaced Space Count: Number of spaces that have no instances in the model
- CTC Unplaced View Count: Number of views that have no instances in the model
- CTC View Filter Count: Number of view filters in the model
- CTC Warning Count: Number of warnings
- **CTC Warning Type Count:** Number of warning types
- CTC Workset Count: Number of worksets in the model

NOTES: When this addin runs, it does so silently. It will not produce errors if it is unable to gather data for various reasons. If the dashboard is not updating, it is most likely because the necessary parameters don't exist, it cannot write or display the data in the titleblock family or errors with the model are preventing it from processing.

Occupant Flow Analyzer

Introduction

This tool can be used as a design aid for many common "flow" challenges. It can help determine possible paths between points, their distances, routes affected by impassible objects, overloads based on maximum egress values and perform occupancy related calculations.

NOTE: The intended use of this tool is to provide potential solutions and model information that may be useful in the design process. It is not intended to be used for code compliance or life safety documentation without careful post analysis and validation by a qualified professional!

Starting Occupant Flow Analyzer

On the Revit ribbon, click on the "Occ. Flow Analyzer" button.

OCA Occ. Flow Analyzer	
I Occupant Flow Analyzer I Occupant Flow Analyzer Coupant Path Settings ShortestPath Critical Occupant Path Settings	ptions Pleip Videos (i) About
Impassable Objects Categories: Family Types: Furniture Furniture Systems Walls	Elements:
Show Elements Critical Path Analysis Options Start Region Options	
Spatial Element Parameter to Read Occupant Load: Rooms Areas Spaces 	Occupancy Unit When this parameter is missing, invalid, or has zero value: Ignore element O Assume occupant load of 1
Ignore Elements with Areas Smaller than: Targets Row Load Observe maximum targets flow load when finding pa Row Factor (Per Occupant) Specify: 0.2 O Parameter: Area	30.00 SF aths Output Output
Maximum Flow O Specify: 36	tth ~

Working with Occupant Paths

First, begin in the first tab by defining which object categories or individual elements should be considered "impassable" (in other words, real-world objects that would obstruct the path of something which is moving). Paths will be routed around these objects. For an object to be considered an obstacle, it must have retrievable geometry within the height range of 0.7 to 7.0 (21.3 to 213 cm) feet above the level in question. That is, anything shorter than 0.7 or anything having a larger-than-7-ft clearance will be considered passable.

Select entire categories, specific family types and individual elements to build the impassable list.



Once in the list, double check the selections using the Show Elements button, which will highlight all impassable elements. Alternativley, users can select specific items within the lists, and click Show in the right-click menu to see the highlighted items only.

After all of the desired objects have been selected, click the "Finish" button below the tool panels in the Revit interface.



In the Critical Path Analysis Options, select the spatial element parameter which will be used for to determine the number of people within each region (room, area or space). This parameter can have any name but must be a numeric data type (no alpha characters). If the parameter is missing or there is no value in this parameter, choose whether the spatial will be ignored (skipped) or if a load of 1 should be assumed for that.

Spatial Element Parameter to Read Occupant Load:	Number of People		~
Rooms	When this parameter is missing invalid or has zero	 Ignore element 	
⊖ Areas	value:	Assume occupant load of 1	
◯ Spaces			
Ignore Elements with Areas Smaller than:	30.00 SF		

Set the minimum area value to exclude extremely small or inconsequential rooms, areas or spaces, such as a closets, from calculation.

When finding paths to targets, their flow loads can be considered in directing the occupants to their best targets. If flow factors are not known or not important, uncheck the box for "Observe maximum targets flow load when finding paths". Otherwise, a flow factor and maximum flow characteristics of the targets (more on targets in the next sections) will be

required to determine the target load capacity. If these values are defined in parametric data, choose the options to read that data from the objects. With this option, each target will only be loaded up to their capacity and excess load will be directed to the next available target.

Some sensible defaults for door targets are shown below. The factor is applied according to the projects measurement system. In the following example, the lengths are displayed in inches in Revit, so the capacity will be obtained by dividing the width **(eg 3 foot door for a project configured in feet units)** by the flow factor (2.4). If the targets have a capacity parameter, select it as the maximum flow parameter and specify 1 for flow factor.

NOTE: In the above example, feet units are specified because the tool uses the units setting of the project. For metric, adjust the values accordingly.

When considering flow loads on targets, it is best to find all paths for all occupants. This way, each occupant is able to independently reach the best target that is not overloaded. Otherwise, the entire capacity of each spatial object will be directed to the best target that has enough capacity for all occupants of that spatial element.

□ Targets Row Load □ Observe maximum targets flow load when finding paths	Output
Flow Factor (Per Occupant)	O Longest path in entire selection
Specify: 2.4 Parameter: Area	 Longest path in each spatial element All paths
Maximum Flow	Recommended when flow loads on targets are to be considered in
O Specify: 0 ● Parameter: Width ✓	anālysis.

Creating Paths

There are two ways to show analytical paths:

- Shortest Path will generate a path without obstruction between two selected points in the model that is the least distant, has the least number of segments, or a combination of both (more on this later). Simply go to the tab labeled "Shortest Path" and pick the start and end points in the model.
- Critical Occupant Paths can examine spatial elements to find the most critical path or paths to one or more targets. This can be done in the third tab (Critical Occupant Paths).

In the following example, it is desired to find the shortest paths from the "Open Office" room to the exit doors in the "Lobby". Also taken into consideration will be any obstructions (such as the office furniture in the room). The path will begin at the point in the office furthest from the target(s).



In this simple example, the application takes into account all of the factors and settings in the first tab and builds a graphical representation of the optimal path solutions.

	۲) Select Elements					
	R	loom: 108 - OPEN OFFICE 108					
		OA Occupant Load Repor	t	-	- 🗆 ×	1	
OPEN ÓFRICE	Т	Target	Capacity	Load	Crit. Distance		
	c	FG_72x84 (350520)	180	3	117' - 1 13/32"	Elements:	
		FG_72x84 (350595)	180	2	118' - 4 13/16"	FG 72x84 (350520)	
						FG_72x84 (350595)	
	14						
							Auto Add Exits
	1						
		Targets Total Capacity:	3	60	Save	Find Path(s)	Delete Paths
ארן אסיים אין איין איין איין איין איין איין אי	Read	Targets Total Allocated Lo	ad: 5				
	Neau				ок		
┊╴──┊┤────)♥┌──┊╶───)♥┍┧┌┤└┤┊							(Martin all

More complex Revit models and greater selection sets will require more time to complete. It is recommended to consider this when running the "Find Path(s)" function.

Similar to impassable objects, targets can be selected by category, type or element. The app also has some limited ability to identify exit doors. The targets selected using this method should be reviewed for accuracy. To remove object selections from the list, right-click on the name of the object in the list windows.

Room: 333 - WOMENIC 222	
Show	
💥 Delete	Right click on objects in the lists to Show or
	Delete them from the selections

Fine Tuning Path Generation

There are a few more ways to fine tune the paths that are generated. Click the Options button to see the various graphical and performance options.

- To minimize the number of non-critical messages shown regarding inconsistent or empty values in the parameters used during calculation, uncheck "Warn if settings combination may lead to approximate results." In any case, a list of warning or error messages will be available at the end of each process. All warning messages should be reviewed carefully to ensure the integrity of the analysis. Furthermore, a number of warning messages provide a selection option that can highlight the problematic objects, so they can be helpful in resolving these issues.
- To adjust the distance from objects a path will be drawn around, use the "Impassable Element Offset" slider.
- The element mesh size can be defined which will adjust how much space a path will be calculated around geometry. For example, an L-shaped desk will be regarded as more of a cube shape if the mesh size values are increased. Small mesh sizes will increase analysis time, but may lead to more accurate results.
- Curved wall meshes: larger values make paths follow a more tangential path smaller causes paths to follow the curve more closely.
- Number of Segments Relative Weight in Optimization: by default, the shortest paths are considered to be the best. However, users may choose to alter that logic here by giving a larger-than-zero weight to the number of segments in the path.



A more realistic result based on changes in Options is shown below. This path has a 1-ft clearance from impassable objects.



For paths that span multiple floors, stairs and ramps are considered as a means of egress. The targets are usually doors or openings on the ground level, but this app is not limited to those object types. When the paths have been generated without error, a report is presented. The report can be saved as a spreadsheet for later review or further analysis.

💁 Occupant Load Repo	t	-	· 🗆	×
Target	Capacity	Load	Crit. Distance	•
HM-00_F_72x84 (4741	450	6	248' - 6 1/8"	
Targets Total Capacity:	4	50	Save.	
Targets Total Allocated Lo	oad: 6			
			ОК	

Occupant Load Calculations

OFA can perform calculations in the fourth tab, drawing the values from parameters or a spreadsheet, and write the results back to the model. This can be very helpful where models don't already contain the occupancy data as well as making adjustments later in the design process. Although this functionality is primarily directed at life safety analysis, it is not specific to that use.

Occupancy Load Factors

Using parameters

When the Revit model already contains the proper values, it may be most efficient to gather the load factors from the appropriate parameter. Usually, the value is a factor of area and the parameter must be a number. For example, if the rule is three occupants in a 10ft x 10ft space, the value would be 33.3 (100SF / 3).

Occupancy Load Factors	
From a Parameter	
Occupancy Load Factor Parameter:	Area per Person 🗸
O From Spreadsheet Data:	Area Area per Person
Spreadsheet File Path:	
Parameter to Map to Spreadsheet Data:	Ceiling Finish \lor

These values will then be used to calculate the occupancy of every room, etc.

From spreadsheets

If the model does not contain load factors, a spreadsheet can be used. To begin, create or use a spreadsheet that contains a name or descriptor as the first column and the corresponding load factor values to be used. Browse and select the spreadsheet.

Occupancy Load Factors	
◯ From a Parameter	
Occupancy Load Factor Parameter:	Area per Person $\qquad \qquad \lor$
From Spreadsheet Data: Spreadsheet File Path:	occ-load factor xlsx
Parameter to Map to Spreadsheet Data:	Occupancy ~

Next, choose the parameter whose values correspond to the descriptor column in the spreadsheet. Using this method, the application can search for matching values (like names or types) in the model and map the factors for calculation.

The spreadsheet's first and second columns should contain the values. All other columns will be ignored.

		-
Occupancy	SF per Occupant	
Prep/Dish		50
Dry Storage		10
Conference		50
Office		25
Admin	;	25

Column names are not required.

Load Results and Redistributions

Redistribution changes the way totals are calculated and stored.

Redistribution Types:

- 1. don't redistribute calculates totals only and stores them on the objects
- 2. redistribute uniformly rounds up at the required group, then divides equally for objects
- 3. redistribute according to occupant load rounds up at the required group, then proportionally applies values to objects based on their raw load values

Defining Calculation and Rounding Groups:

By default, Revit rounds up individual object values which, when totaling many values, may result in some overestimation of the number of occupants. OFA can overcome this limitation by performing alternative order calculations. By defining groups, totals can be combined by common parameter values or other properties of the object, such as level, and then rounded up. Groups can have any name, and the default groups are merely suggestions. To change the name of an existing group, simply click on the text. Groups can be added or removed as desired.

Group Display Name	Parameter/Property	Round Up
Level	Level	× 🗆
Primary Use	Occupant Load	V
Smoke Zone	Type Name	✓ ✓

Each group has the "Round Up" checkbox which forces rounding at that point rather than for each object value as Revit does. If rounding up is desired for each object, check the box "Round Up at Spatial Element Level". Only one of these check boxes can be checked at any time.

When the calculation is performed, the result values can be stored in a parameter associated with the selected spatial elements. The parameter can be chosen from an existing one, but must be a number. To create a new parameter, click "Add Parameter..."

🗛 Parameter Name		×
Specify a parameter name to create:		
Occ Loads		
	ОК	Cancel

This will create a new parameter of the proper data type.

Choose which objects should be queried and calculated from the three spatial object type. If the primary target is rooms, for example, uncheck the others. Objects that do not have the applicable data values will be ignored as well. The warning/error messages will be displayed at the end of the process, if any.

Loading and Saving Settings

The loading and saving of settings is a convenient way to store many different configurations for various calculation scenarios. The settings files are stored in text files with an extension .OFASettings.

Create a settings file by clicking "Save Settings..." on the toolbar at the top. Browse to a location and choose a name for the file.

Occupant Flow Analyzer					-		×
💽 🗸 🗃 Load Settings 📄 Save Se	ettings \Xi Options	🔞 Help 下 V	ideos 🕦 A	bout			
Occupant Path Settings ShortestPath	Save As		1 at				
	File name:						
	Save as type:	Occupant Flow	Analysis Sett	tings File (*	.OFASetti	ngs)	
						_	
	 Hide Folders 						Save

To load the a configuration, click "Load Settings..." and browse to a previously created .OFASettings file.

Note: Loading of settings from a file will replace the current settings in the application.

Path Graphic Representations

Occupant Flow Analyzer creates objects representing occupant paths. The object it a generic model with adaptive points at each vertex. The paths can traverse levels through stairs or ramps, and because it is a modeled object, is visible in plan, section, elevation and 3D views.

To make the paths more or less apparent, a view filter could be defined which overrides the default display of generic models.

In Revit's Visibility/Graphics Overrides window, create a new rule-based document filter. Check the "Generic Models" category and define a filter rule condition which selects by family name "begins with" OFA Path.

Filters	Categories	Filter Rules
Rule-based Filters	Select one or more categories to be included in the filter. Parameters common to these categories will be available for defining filter rules. Filter list: select.org Filter list: select.org Filter list: select.org	AND (All rules must be true) · Add Rule Add Set Family Name · begin · OFA Path · -
floors to copy Walls		the generated paths

Back in the Filters tab, click add and select the custom defined document filter. Use the table to apply graphical representations as desired click OK when finished.

Visibility/Graphic Overrides for 3D View: {3D - WyattC}						>					
Model Categories	Annotation Cate	gories	Analyt	ical Model Catego	ries Importe	d Categories	Filters	Worksets	Revit Links		
											_
Na	ime	Visibi	ility	Lines	Patterns	ace Transpare	en	Lines	Patterns	Halftone	
OFA Graphics		✓									

Path Object Components



The paths can be modified by selecting a node and moving it. Note that if paths are modified, they no longer match the data that is shown in the Occupant Load Report.

Selecting individual path nodes shows the number of occupants passing through that point through the Name parameter in adaptive point properties.

To remove paths, go to the Critical Occupant Paths tab and click "Delete Paths...". This will aid in the selection and complete removal of the OFA Path objects from the model.

Parameter Jammer

Introduction

This tool will make changes to the families that are already in a project by modifying the parameter definitions in them to match what a given schedule requires.

Starting Parameter Jammer

On the Revit ribbon, click on the "Parameter Jammer" button.



Choosing the Shared Parameters File

A shared parameter file must be specified. This will be used to source the shared parameter definitions. To select the shared parameter file click the "Browse..." button and navigate to the desired shared parameters file.



Selecting Schedules and Families

Select the desired schedule(s) from the list available in the project on the left.

Schedule(s): All None	Family(ies): All None Pick Families
Delete This Schedule	F FG NV Single-Flush Swing Swing-Exterior Swing Double Swing Double - Exterior
Ready	Next:

NOTE: Selected schedule(s) must have at least one properly configured instance of a family placed in the project (ie. there must be at least one item in the schedule whose parameters are displayed correctly).

One of two options can be used to select the family to change:

• Select the families by checking the box for each. The list will be filtered to display only those families whose category matches one of the selected schedules.

Schedule(s): All None	Family(ies): All None Pick Families
Delete This Schedule DOOR SCHEDULE	☐ F ☐ FG ☐ NV ☐ Single-Flush ☑ Swing-Exterior ☑ Swing Double ☑ Swing Double - Exterior

• Use the "Pick Families..." button to select an instances from a model view in the project.

Schedule(s): All None	Family(ies): All None Pick Families
Delete This Schedule DOOR SCHEDULE	☐ F ☐ FG ☐ NV ☐ Single-Flush ☑ Swing ☑ Swing Double ☑ Swing Double - Exterior

Once the shared parameter file, schedule and families have been specified, click the "Next" button.

Parameter Jammer will begin processing the selected families. During the first step, the parameter fields in the schedule will be matched by name to the parameters in the shared parameters file. Once the list of parameters on the schedule

has been built, Parameter Jammer will swap any parameters in the families with parameters from the shared parameters file that have the same name and data type, but an different GUID.

Mapping Parameters

Parameter Jammer will display a list of parameters, mapping options and status for both automatic and unmapped.

Schedule Parameter	Family Parameter	Status
Appear In Schedule	Appear In Schedule	Already Shared (no change
Frame Depth	Frame Depth	Already Shared (no change
Frame Finish	Frame Finish	Already Shared (no change
Frame Material	Frame Material	Already Shared (no change
Frame Type	Frame Type	Already Shared (no change
Height	<do include="" not=""></do>	Built-In (cannot change)
Panel Finish	Panel Finish	Already Shared (no change
Panel Material	Panel Material	Already Shared (no change

Select how to handle each parameter from the schedule. The dropdown menus contain options to:

- Add as Instance
- Add as Type
- Do Not Include

In this example the "Apparent Load" parameter from the schedule is being mapped to the "Apparent Load For Connector" parameter from the family. Parameter Jammer will swap out the parameter in the family to use the desired parameter from the schedule **while leaving any parameter values or formulas intact**. Note that when viewing the parameters in the family, the names from those in the schedule will now appear instead of the original names that were replaced.



In this example, there was no equivalent to the "Apparent Load" parameter so the <Add as Instance> option is being selected. When processing continues the "Apparent Load" parameter will be added to the family, but will have the default value for its data type (e.g. 0, empty string, etc.) in the family.

Schedule Parameter	Family Parameter		Status	
Apparent Load	<add as="" instance=""></add>	~	Pending	
Apparent Load For Connector			Pending	
Electric Heating Coil Air Pressure D	<do include="" not=""></do>		Pending	
Electric Heating Coil Airflow	<add as="" instance=""></add>		Pending	
Electric Heating Coil Capacity	<add as="" td="" tures<=""><td></td><td>Pending</td><td></td></add>		Pending	
Electric Heating Coil Entering Dry B	Add as Type>		Pending	
Electric Heating Coil Entering Wet B			Pending	
Electric Heating Coil Face Area			Pending	

If the "<Do Not Include>" option is selected the parameter will not be added to the family. This example shows a set of mappings for this sample family.

Parameter Jammer				_		×
P - ≈ Refresh = Options @ He	lp 下 Videos	🚺 About				
Below is the list of parameters from the select parameter to the corresponding parameter in Family> function can be used from the dropdo	ted schedule(s the family. If n own.	s). Please review o parameter exists	and s in	map each rema the family, the «	ining Add to	
UAV Box						^
Schedule Parameter	Family Para	meter		Status		
Apparent Load	<add as="" insta<="" td=""><td>ance></td><td></td><td>Manually Set</td><td></td><td></td></add>	ance>		Manually Set		
Apparent Load For Connector			\sim	Pending		
Electric Heating Coil Air Pressure D	<do inclu<="" not="" td=""><td>ide></td><td>\sim</td><td>Manually Set</td><td></td><td></td></do>	ide>	\sim	Manually Set		
Electric Heating Coil Airflow				Pending		
Electric Heating Coil Capacity				Pending		
Electric Heating Coil Entering Dry B				Pending		
Electric Heating Coil Entering Wet B.				Pending		
Electric Heating Coil Face Area				Pending		~
Clear All S	et Remaining:	<do include<="" not="" td=""><td>></td><td>~</td><td>Set</td><td></td></do>	>	~	Set	
		<do include<="" not="" td=""><td>></td><td></td><td></td><td></td></do>	>			
		<add as="" type=""></add>	6/		Next	
Ready						.:

To automatically complete the empty mappings, choose an option from the Set Remaining drop-down and click Set. Once all parameters have been mapped, click "Next" to continue.

Processing the Changes

It is possible that one of the parameters from the schedule matches a parameter from the family by name, but has an alternate data type causing a parameter conflict. In this situation, if the action on the conflicting parameter is "<Add as Instance>" the following dialog will appear:

CTC BIM Project Suite - Warning
One or more parameters must be changed before the associated shared parameter(s) can be added. Do you want to continue?
These parameters will be renamed to have an _Old suffix added to them, with shared parameters being converted to family parameters before being renamed.
Below is the list of the affected existing parameter(s): Phase
A Hide details Yes No

In this case the "Phase" parameter existed in the family as a Number parameter. The existing parameter in the family will be renamed with an "_Old" suffix to allow the new "Phase" parameter, which is of data type Number of Poles, to be added. Click "Yes" to continue.

Once processing has finished, a list of the shared parameter resolutions will be displayed. Click the "Finish" button to close Parameter Jammer. A log will be displayed with a detailed summary of the operation. The log can be copy/pasted in another document or exported to a spreadsheet file.

۲	Events		×				
þ	Copy to Cli	pboard 🛛 🔚 Save	🖢 Reset				
	Туре	Time	Message				
0	Success 2017-01-09 14.43.04.778 M14_MPP Master Mechanical Equipment Family - Do Not Delete: Replacing parameter: The parameter 'Phase' was successfully						
0	Success	2017-01-09 14.43.07.828	VAV Box: Adding parameter: The shared parameter 'Phase' was successfully added, but to the OTHER group, SP File: MPP_Sha				
0	Success	2017-01-09 14.43.07.854	VAV Box: Adding parameter: The shared parameter 'Schedule Notes' was successfully added, but to the OTHER group, SP File:				
<			>				
			ОК				

Revision Manager

Introduction

Revision Manger gathers all revisions in a Revit project, the views the revisions are on, and which sheets each view is assigned to. The information can then be sorted, filtered or saved to a spreadsheet format.

Starting Revision Manager

On the Revit ribbon, click on the "Revision Manager" button.

RVI

Revision Report

The first tab that is shown when RM is opened is a matrix style table of the sheets in the project. If a sheet contains revisions or a revision sequence has been associated to it, the corresponding 'Seq. #' will show a check in it's box. Each revision sequence that has been created in the project will have its own column in this view.

Sheets and Revision	ns Revisio	on Clouds													
🚽 Save 📔 Lo	ad 🥑 C	Check + = C	Clear 👻 Print Set <all></all>	v	Sequen	<u> All</u> -		~							
Host	ld	Number	Name	Seq. 1	Seq. 2	Seq. 3	Seq. 4	Seq. 5	Seq. 6	Seq. 7	Seq. 8	Seq. 9	Seq. 10	Seq. 11	Seq. 12
<main document=""></main>	213102	A1	Floor Plan	 	U		U	U	U	U	U	U	U	U	U
<main document=""></main>	213116	A2	Sections												
<main document=""></main>	437701	A4	Unnamed												
Create Print Set											Apply		OK	Ca	ncel
Create Fillit Set											Арріу		UN		

1 *Hint:* Double-click any row to view the sheet in Revit.

The data shown in the matrix table can be exported to a spreadsheet by using the 'Save' button. This will produce a file that can be opened in nearly any spreadsheet application. The character used for the check box when exporting the table can be specified in options:



Other suggested values are: true/false, 0/1, or yes/no. Leave a text box empty for no value.

The result of the settings as shown above would appear like this in a spreadsheet editor:

	Α	В	С	D	E	F	G
1	Id	Number	Name	Seq. 1	Seq. 2	Seq. 3	Seq. 4
2	315204	1011	MATERIAL IDENTIFICATION CODES				
3	315210	1550	INTERIOR DETAILS	х	х	x	
4	324371	1501	INTERIOR ELEVATIONS	x	Х		
5	324382	1030	STANDARD MOUNTING HEIGHT ELEVATIONS		Х	Х	

Importing Revisions

Changes made to the exported revisions worksheet can be applied to the model when imported using the "Load..." function. To add a sequence to a sheet, put an 'X' in the cell under the appropriate columns. In the grid, read-only values are identified with a gray background; Name, number and previously issued sequences cannot be changed.

Modifying Revision Information

For convenience, Revit's revision management interface can be accessed by using the 'Sheet Issues/Revisions..' button.



Creating and Using Print Sets

Print sets can be created directly from the selections of rows in Sheets and Revisions tab/grid. Double -click or Shift/CTRL double click to select rows, then use the Create Print Set button at the lower left of the window. This will prompt for a name and save it to the Revit project model.

Any print sets that already exist in the model can be used to filter the list of sheets in the grid. Using the print set selector, choose the print set from the list.

Use the 'Sequence' selector to filter the list by the sequences found.

Sheets and Revision	ns Revision	n Clouds													
📙 Save 💕 Loa	ad 🥑 Cl	heck 🕶 🚍 Cl	ear 🔻 Print Set < All>	~	Sequen	e <all></all>		~							
Host	ld	Number	Name	Seq. 1	Seq. 2	Seq. 3	Seq. 4	Seq. 5	Seq. 6	Seq. 7	Seq. 8	Seq. 9	Seq. 10	Seq. 11	Seq. 12
<main document=""></main>	213102	A1	Floor Plan												
<main document=""></main>	213116	A2	Sections												
<main document=""></main>	437701	A4	Unnamed												

Managing Revision Clouds

On this tab, the white cells indicate the editable properties for the revision clouds found in the model.

Sheets and Rev	visions Revisio	n Clouds									
View Filter: <all></all>						🚽 Save 💕 Load					
Host	ld	Sheet Number(s)	Owner View/Sheet Name	Dependent View(s)	Detail Number(s)	Revision Number	Revision Description	Mark	Comments	Hidden	
<main docu<="" td=""><td>937078</td><td>A103</td><td>03 - Floor Plan</td><td><none></none></td><td>1</td><td>2</td><td>Revision 2</td><td></td><td></td><td></td></main>	937078	A103	03 - Floor Plan	<none></none>	1	2	Revision 2				
<main docu<="" td=""><td>1149071</td><td>A104</td><td>04 - Floor Plan</td><td><none></none></td><td>1</td><td>2</td><td>Revision 2</td><td></td><td></td><td></td></main>	1149071	A104	04 - Floor Plan	<none></none>	1	2	Revision 2				
<main docu<="" td=""><td>936762</td><td>A101</td><td>01 - Floor Plan</td><td><none></none></td><td>1</td><td>3</td><td>Revision 3</td><td></td><td></td><td></td></main>	936762	A101	01 - Floor Plan	<none></none>	1	3	Revision 3				
<main docu<="" td=""><td>1149041</td><td>A102</td><td>02 - Floor Plan</td><td><none></none></td><td>1</td><td>3</td><td>Revision 3</td><td></td><td></td><td></td></main>	1149041	A102	02 - Floor Plan	<none></none>	1	3	Revision 3				
<main docu<="" td=""><td>937054 *</td><td>A100</td><td>00 - Floor Plan</td><td><none></none></td><td>1</td><td>4</td><td>Revision 4</td><td></td><td></td><td></td></main>	937054 *	A100	00 - Floor Plan	<none></none>	1	4	Revision 4				

• *Hint:* Double-click any row to view the associated sheet in Revit.

For performance reasons, the visibility of clouds (such as when they have been turned off in a view or sheet) is not retrieved. If desired, click 'Check Visibility' to verify their display.

l	Some visibility status of revision clouds (other than their hidden status) may not be retrieved to improve perfor	mance,		
	Check Visibility for which potential values are shown. These will be individually updated as changes are made to them, or you can be press Check Visibility to get them right now. This can be a lengthy process.	an Apply	OK	Cancel
S	Sheets Listed: 56			.:

Mark, Comments and Hidden status can be modified in this list. When done editing, click 'Apply' to save changes to the model and keep the Revision Manager open or click 'Close' to apply the changes and exit the tool.

Other Options

Include Links: When checked, revision manager will query the linked Revit models for revision data inside them as well as the current model. This is turned off by default to improve the speed of the query.

Room Data Sheets

Introduction

The Room Data Sheets tool is a powerful and efficient View, Schedule and Sheet building utility for creating small and large format room (or spaces) data sheets. It is capable of building 3D, plans, elevations and schedule views for both rooms and spaces in a Revit project. The views are then automatically placed on new sheets which are parametrically named and numbered. The generated sheets require very little adjustment because views are placed according to their sizes, fit and order in which they are created.

Starting Room Data Sheets

On the Revit ribbon, click on the "Room Data Sheets" button.



Room Data Sheets

The Room Data Sheets Interface

The Room Data Sheets Interface is designed for an easy workflow:

- 1. Pick the room or space for which to create views and sheets
- 2. Use "Add Row" to specify the naming and numbering to be used for the views and sheets
- 3. Set up the types and order of views to create
- 4. Use the sheet layout previews to set the titleblock, order and spacing for view placement

					_	_		
💵 🛨 📴 Load Configura	ation 🛃 Save Configuration	💈 Refresh 🔡 View and S	Sheet Names	ptions 🔞 He	lp 下 Videos	👲 Support	 About 	
Pick Rooms or Spaces	Rooms or Spaces	Elevation Min Boundary Length	No. of Unique Elevation Views	Layouts				
athian Calantad)				Titleblock:	A1 metric - A1	1 metric		
othing Selected)					2.54	Spacing:	cm	
				Margins:	2.54 2.54	Row:	2.54	_
				cm	2.54	View:	1.27	_
Dimensions: m								
beet Numbering and Namir								
Naming: <number> <n< td=""><td>James - RDS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></n<></number>	James - RDS							
	Start	Increment						
Prefix:	Numbering: 1	1 🔹 Suffix:						
ews								
								_
				(Ret	iresh Preview)		A	Jto
Move Up Move	Down Add Bow	Conv Row Delete Row		(Ret	resh Preview)		Au	uto
Move Up Move	e Down Add Row	Copy Row Delete Row		(Ret	iresh Preview)	eate Sheets	Close	uto

Getting Started

Room Data Sheets does not require any special set up to use. It can leverage existing templates, legends and schedule views in a project. It also allows properties such as scale, browser organization and naming to be specified for each view created. Nearly any project that contains rooms and spaces can be used with but a little bit of preparation can greatly facilitate its use.

- 1. Ensure at least one title sheet family is loaded for use. Titleblock sizes are used to generate the layout previews
- 2. Configure any view templates specifically for use with RDS if desired
- 3. Configure schedules to be used with filtering by room. RDS can set the value needed from the selected room's number
- 4. Determine the numbers and names to be used. If corporate standards dictate a specific naming scheme, become familiar with it and how to use RDS naming and numbering to achieve it

Saving and Loading Configurations

Use the saved settings feature to recall typical, complex or uncommon settings. The settings files can be stored and shared for distribution across projects and quick retrieval.

Configuration settings that are stored in the .rdsb files are:

- Sheet Numbering and Naming
- Minimum Boundary Length for Elevations setting
- Views and their properties such as type, names, scale, etc.
- View placement order
- Sheet settings such as titleblock, margins and spacing. If the titleblock does not exist in the project it will use the first one available.

Click 'Save Configuration...' from the toolbar to choose a name and location for a configuration (.rdsb) file

Room Data Sheets	- 🗆 🗙
💦 🗸 🥁 Load Configuration 🛃 Save Configuration 🗳 Refresh 🚟 View a	and Sheet Names 🗄 Options 🔞 Help 陷 Videos 👲 Support 🌐 About
Pick Room or Space	×
Sheet Numbering and Naming ← → ∨ ↑ _ ≪ app te > 20160930-	RDS-v1 v Ö Search 20160930-RDS-v1 p
Naming: <name> - RDS Organize New folder</name>	8:: ▼ ? 0.5
Prefix Name	Date modified
Verue Desktop	irections Room Data Sheets Settings.rdsb 9/30/2016 10:10 Ah
Develop a basic Room I	Data Sheets Settings.rdsb 10/26/2016 9:28 AM
Hospitality-S	SuitePresentations.rdsb 10/26/2016 1:54 PN
1 · 30 View Documents # Hospital-NIC	CU-PatientRooms.rdsb 10/26/2016 1:53 PN
app testing * MechEquipm	mentRooms-sm.rdsb 10/26/2016 1:54 PN
Addins * Standard Off	fices.rdsb 10/26/2016 1:52 PN
5 - Layout (Page Break) C 6 - Elevation View (Multiple)	• • • • • • • • • • • • • • • • • • •
7 - Schedule View File name: Room Data Sheets Setting	gs.rdsb 🗸 🗸
Save as type: Room Data Sheets Config	juration Files (*.rdsb)
Move Up Move Dow A Hide Folders	Save Cancel Close
Ready	

Click 'Load Configuration...' on the toolbar to import previously saved configurations. This will replace the current settings. Loading pre-configured settings reduces the amount of re-work that would otherwise be required for the various types and sizes of rooms or spaces.

Room and Space Selection

Two methods can be used to select rooms. First, clicking on 'Pick Room or Space...' can be used to select rooms or spaces manually by picking them in the Revit view. When done selecting, click the button to end selection from the upper left of the Revit interface.

The second and most powerful way to make selections is to use 'Quick Select'. This brings up the interface for the CTC tool which can select objects by category, parameter values and more. In the example below, Quick Select is used to find rooms which have an occupancy label of "Office".

- 1. Switch to category and choose either 'rooms' or 'spaces'
- 2. In the parameter selection, find the relevant parameter
- 3. Choose the operator (equal, greater than, etc) and then type or choose the value from the list of parameter values
- 4. Click 'Update Selection Set' to add the found objects to the collection on the right
| ☑ Quick Select
OS - [®] New 및 Save ≌ Load - ∷ Options @ Help | 🕨 💽 Videos 👲 Support 🕦 About | - D X |
|--|--|--|
| Selections C Rooms 1 | Selection Criteria Apply Filter To Project Filter Gnone> Category Rooms All Family Categories Parameter Filter (Optional) Parameter: Cocupancy (Instance) Operator: Equal Value: Office Office Office Add to selection Set Remove from selection set Remove from selection set Replace selection set Replace selection set | Selection Set Search: Category (3) Catego |
| | Update Selection Set | 3 Selected Export Selection Set OK Cancel |

Sheet Naming and Numbering

In the text box labeled "Naming:" enter the characters to be included in the sheet names. RDS can automatically add the selected room/space name as part of the sheet name like this <Name>

Supply a prefix and suffix if desired. This will be added to the number on the sheet.

Select the starting number and increment values. RDS will increment each sheet number value by 1 or more, depending upon this value.

In the example below, the room named CONFERENCE Side 2 and numbered 400 has been selected:

Room Data Sheets		- 🗆 X
🚛 🔤 Load Configuration 戻 Save Co	onfiguration 🕏 Refresh 🔠 View and Sheet Names	Options 🔞 Help 📘 Videos 👲 Support 🕕 About
Pick Room or Space Sheet Numbering and Naming	CONFERENCE Side 2 400	Layouts Titleblock: A 8.5 x 11 Vertical V
Naming: (Name> - RDS	Start Increment a: 1005 @ 1 @ Suffix -CTC	0.25 Spacing: in Margins: 0.25 0.25 Row: 0.5
Views Minimum Bou 1 · 3D View 2 · Layout (Page Break) 2 · Layout (Page Break)	andary Length for Elevations: 14.1 et 😵 🗹 Auto	
Browser Organization View Name Template Scale	<default> <name> - Floor Plan Architectural Plan 1/8" = 1" - 0"</name></default>	
Offset A - Reflected Celling Plan View	3.0	(Refresh Preview)
Move Up Move Down	Add Row Copy Row Delete Row	Create Sheets Close
eady		

The result of the example settings in Sheet Numbering and Naming will be:

The generated views are also automatically named using similar settings. If needed, change the names to be used for the views in the 'Views' list:

1 - 3D View	
2 - Layout (Page Break) 3 - Floor Plan View	
Browser Organization	<default></default>
View Name	RDS- <name></name>
Template	Architectural Plan
- Scale	1/8" = 1' - 0"
Offset	3.0
4 - Reflected Ceiling Plan View	

Views

Room data sheets can generate multiple types of views based on the selected room or space. The available properties of the various view types may differ. All are described below:

- Browser Organization: where the view will be located in the Project Browser
- View Name: the name of the view on the sheet. This is also what will be shown as the view title
- **Template**: template to be used for the view. Choose <None> if no template should be associated
- **Scale**: choose the desired scale from the list. This is used to estimate the size and placement on the sheets and will override the scale setting from a template
- **Offset**: for plan views, this is the dimension beyond the room or space boundary to include. For elevations, this is the distance from a boundary to it's parallel cut plane inside the room or space
- Viewer Location: for axonometric 3D views, this is the direction the "camera" is pointed
- **View Direction**: for elevation view, this selects the facing direction of the cut plane
- **Type**: for layout helpers only, choose either Row or Page
 - A row break forces the following view below the previous view
 - A page break forces the following view to the next sheet

To add a view type to the list, click the 'Add Row' button below the views grid.

Views				
Minimun	n Boundary Length	n for Elevations: 9.5	5 ft	😂 🛛 🖂 Au
Scale	1/8'' = 1' - 0			
Offset	3.0			
⊕ 5 - Layout (Page Break)				
 6 - Elevation View (Multiple) 				
ia. 7 - Schedule View				
Browser Organization	<default></default>			
View Name	<name> - S</name>	chedule		
- Template	Furniture Schedule			
Move Up Move Down	Add Row	Copy Row 3D	Delete Rov	v
ıdy		Floor Plan		
		Reflected Ceiling	Plan	
		Elevation		
		Schedule		
		Legend		

Choose the type of view to add by selecting it from the list. Once added, it's properties can be set by expanding the "+" next to it.

Template	Furniture Schedule	
8 - Elevation View (Multiple)		
Browser Organization	<default></default>	
View Name	<name> - Elevation</name>	
Template	<none></none>	
- Scale	12" = 1' - 0"	
Offset	3.0	
Direction	All Boundaries Meeting Length Requirement	

Change the properties by clicking their values in the right column.

The placement of the view can be changed by selecting its row, then clicking the 'Move Up' or 'Move Down' buttons.

Vie	BWS
	Minimum Boundary Length for Elevations: 9.5 ft 🥏 🗹 Auto
B	⊡- 1 - 3D View
E	a- 2 - Layout (Page Break)
B	🗉 3 - Floor Plan View
E.	9- 4 - Reflected Ceiling Plan View
	- 5 - Layout (Page Break)
E.	a- 6 - Elevation View 🔥 🚹
	- 7 - Elevation View (Multiple)
6	- 8 - Schedule View
	Move Up Move Down Add Row Copy Row Delete Row

The selected view or layout row can be duplicated by using the 'Copy Row' button and deleted by using the 'Delete Row'.

Note: These control the order and properties of the views to be generated. They have no effect on views that already exist in a project.

Elevation Views

Elevation views can be created individually or in multiples. To create single views for specific directions, add an elevation view type to the list and expand it. In its 'View Direction' property, choose any of the True, Oriented or Wall selections.

True directions are 0, 90, 180 and 270 degrees based on the project true north setting

Oriented directions are relative to the projects oriented north setting

Wall directions are based on the room or space boundaries (use this for very unusual shapes)

To generate multiple elevations based on boundaries, select one of the first three options in 'View Direction'.

All True and All Oriented directions creates four elevations for the room or space and places a single view tag on the plan.

'All Boundaries Meeting Length Requirement' uses the setting from 'Minimum Boundary Length for Elevations'. This function uses some logic when determining how many elevations to create and what orientation they will have. To use this method, select a room with the 'Auto' box checked in the 'Views' pane:

isiaming:	<name> - RDS</name>	0
Prefix:	B- Nur	nbering: 1005 😴 1 😜 Suffix: CTC
Views		
	Minimu	m Boundary Length for Elevations: 9.5 ft 🛛 🥏 🛛 Aut
🚊 - 6 - Ele	evation View (Multiple)	
. В	rowser Organization	<default></default>
V	iew Name	<name> - Elevation</name>
T	emplate	<none></none>
S	cale	1/8'' = 1' - 0''
O	ffset	3.0
D	irection	All Boundaries Meeting Length Requirement 🥣
⊕ 7 - Sc	hedule View	
_		
Move	Up Move Down	Add Row Copy Row Delete Row

RDS automatically calculates this value based on the smallest dimension of the four largest boundaries. The value can be overridden by unchecking the box and typing a value (decimal feet in an imperial project). This setting not only controls how long a boundary (a wall or divider in most cases) should be for an elevation view but also how many elevations should be created.

Schedule Views

Schedule views require a 'Template' selection which can either be a view or a template. RDS will create a new schedule view based on the template selection. For room/space based equipment, furniture, finishes, etc. types of schedules, the template must contain either a room/space number column or a room/space name column so that it can be filtered based on the room/space. These columns can be set to invisible if desired.

Sheet Settings

Select a titleblock from the list of the titleblock families which have been loaded into the project. As mentioned previously, the size of the titleblock is used to determine fitment of the views on the sheets.

The settings in the Layouts panel offer some opportunity for fine tuning of the placement areas on the sheet. For example, if the selected titleblock uses portrait orientation and most of the sheet information is located at the bottom, the margin values can be adjusted so that views will not be placed in areas that would overlap the borders and titles.

There are margin settings for top, bottom, left and right. The values should be entered in decimal units, depending upon the system of measurement setting for the project.

Adjustment is also available to control the spacing of views. The value in the 'Row:' text box controls the space from the bottom of a view (including title if present) and the top of the next. The value in the 'View:' text box defines the width of the space between the sides of views if more than one are in a row. Neither of these settings apply to edges of views that are adjacent to the margins of the sheet.

The text boxes for margins and view spacing are illustrated in the image below:



To preview the approximate placement result on all of the sheets, click the refresh button below the preview pane.

The preview displays the sheets with light blue filled boxes representing views. If a box is filled red, it is too large for the sheet but will not prevent it's creation. If adjustments are needed, click refresh again to see the new layout previews.

Creating Sheets

When the preview results are satisfactory, click the 'Create Sheets' button. Room Data Sheets will generate each required sheet and place the generated views on them. Depending upon the selected browser category, the sheets will appear in the Project Browser tree. RDS allows interaction with Revit while it is open which makes it possible to navigate through the sheets it has created to determine if the result is as desired or more adjustments need to be made.

Before repeating the sheet creation for another room or space, note the value in the 'Numbering:' field. Examine the numbers on the sheets created thus far and verify that the increment value has been set to the next unused number:

Main Floor Space Plan	Sheet Numb	ering and Naming			
	Naming:	<name> - RDS</name>			
				Start	Increment
	Prefix:	B-	Numbering:	1013 🜲	1 📫
Families Appotation Symbols					

If the sheets are created with the same sheet numbering, Revit will append the characters (1),(2), etc.

Delete vs. Undo – Room Data Sheets does not track the sheets and views it has created. The easiest way to "redo" the sheets for a room is to use the 'Undo' function in Revit. The entire operation is encapsulated in a single command. To undo the 'Create Sheets' command, find "Create Views" in the Undo history menu:



Each "Create Views" item represents a complete RDS operation. To undo more than one set of sheets for each room, go back more steps.

If the "Create Views" operation does not exist or is no longer available due to closing the project or being too far back, the only way to clean up the views and sheets is to manually delete them. If the views and sheets are clearly named, it is easier to find them in the Project Browser.

Options

RIS Options	×
General	
Remember the size and position of the main window	
$\hfill \square$ Display the number of renamed views following updates	
Elevation View Options	
Flatten nearby and nearly coplanar room boundaries to extend elevations	
Prioritize fewer elevation markers over the offset value	
View Sizes on Sheets	
Exclude view titles in estimating view sizes on sheets	
Background Processing	
Allow background view size estimation if feasible	
OK Cance	I

Flatten nearby and coplanar room boundaries to extend elevation – ignores small protrusions of an otherwise contiguous bounding element when qualifying elevation views.

Average Research research three research and research and research research research research research research



Prioritize fewer elevation markers over the offset value – when checked, RDS will attempt to combine perpendicular elevation view references to a single tag:



Fewer marker priority combines perpendicular views

Note: Depending upon the size of the selected room/space, offset value, size of the sheet and view scale, the elevation markers may overlap in some cases. This scenario requires adjustment of the locations of the elevation references on the plans after the sheets are created.

Exclude view titles in estimating view sizes on sheets – when checked, view titles will not be considered part of the overall view size. This may cause titles to overlap views but may also allow more views to be placed on a sheet.

Allow background view size estimation if feasible – This feature will override the user selection to temporarily turn off size estimation in documents that are very slow. This is determined the first time a view size is estimated (which means that it can be slow on startup if it is turned on in settings). If the process is found to be overly slow, it will be disabled until the next time a model is opened.

Marker placed for every view (unchecked)

Renaming Sheets and Views

To rename multiple sheets and views in one operation (such as when rooms are renamed and the documentation needs to match), click on "View and Sheet Names..." on the main toolbar.

The View and Sheet Names form will appear. Any views that have a room association will be presented in the list with the "Room or Space" and "Name Template" values populated.

View and Sheet Names			-		×
View or Sheet	Room or Space		Name Template	Update	
3D: 04_3D ISO - Level 4	<none></none>	\sim			
3D: 05_3D ISO - Roof	<none></none>	\sim			
3D: 10_3D ISO SW - Basement	<none></none>	\sim			
3D: 10_3D ISO SW - Basement_Struc	<none></none>	\sim			
3D: 106 OFFICE 5 - 3D	Room: OFFICE 5 (106)	\sim	<number> <name> - 3D</name></number>		
3D: 107 OFFICE 4 - 3D	Room: OFFICE 4 (107)	\sim	<number> <name> - 3D</name></number>		
3D: 108 OFFICE 3 - 3D	Room: OFFICE 3 (108)	\sim	<number> <name> - 3D</name></number>		
3D: 109 OFFICE 2 - 3D	Room: OFFICE 2 (109)	\sim	<number> <name> - 3D</name></number>		
3D: 11_3D ISO SW - Level 1	<none></none>	\sim			1
3D: 11_3D ISO SW - Level 1_Struc	<none></none>	\sim			
3D: 110 OFFICE 1 - 3D	Room: OFFICE 1 (110)	\sim	<number> <name> - 3D</name></number>		
3D: 113 DATA CLOSET - 3D	Room: DATA CLOSET (113)	\sim	<number> <name> - 3D</name></number>		
3D: 117 TRAINING ROOM 1 - 3D	Room: TRAINING ROOM 1 (AW1	\sim	<number> <name> - 3D</name></number>	 Image: A set of the set of the	
3D: 118 TRAINING ROOM 2 - 3D	Room: TRAINING ROOM 2 (118)	\sim	<number> <name> - 3D</name></number>		
3D: 12_3D ISO SW - Level 2	<none></none>	\sim			
3D: 12_3D ISO SW - Level 2_Struc	<none></none>	\sim			
3D: 123 IGD CONFERENCE - 3D	Room: IGD CONFERENCE (123)	\sim	<number> <name> - 3D</name></number>		
3D: 129 LOUNGE - 3D	Room: LOUNGE (129)	\sim	<number> <name> - 3D</name></number>		
3D: 129 LOUNGE - 3D (1)	Room: LOUNGE (129)	\sim	<number> <name> - 3D</name></number>		
3D: 13_3D ISO SW - Level 3	<none></none>	\sim			
3D: 13_3D ISO SW - Level 3_Struc	<none></none>	\sim			
3D: 131 OFFICE 6 - 3D	Room: OFFICE 6 (131)	~	<number> <name> - 3D</name></number>		
3D: 14_3D ISO SW - Level 4	<none></none>	~			
3D: 14_3D ISO SW - Level 4_Struc	<none></none>	\sim			1
			ОК	Cancel	

Here, the values can be changed by modifying them and checking the "Update" box at the end of each line.

Repeat the changes as desired and click OK to apply them.

Room Family Manager

Introduction

Room Family Manager facilitates defining, maintaining, and validating the family content of each room using room type definitions.

- Build room type definitions in a spreadsheet
- Build room type definitions from existing Revit rooms
- Automatically place family content in your model based on room type assignments
- Validate that rooms in your model contain required families

Starting Room Family Manager

On the Revit ribbon, click on the "Room Family Mgr" button.



Parameters

Two text based parameters assigned to the "Rooms" category are required to use Room Family Manager. These two parameters track room type assignments and validation statuses, both of which will be explained later in this document.

If suitable parameters already exist they can be selected from the dropdown lists. If new parameters are required the "Add Parameter..." button can be used to create a new project text parameter for the Rooms category.

Rad Room Family Manager	- • •
R M - ≈ Refresh E Options 🕢 Help 🕦 About	
RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families	
Room Family Manager requires two project parameters; one to track room type assignments and one to track validation status. Both project parameters must exist for the Rooms category and be of type Text.	
RFM Room Type: Add Parameter	
RFM Validation Status: Comments	
The Revit project must be saved the first time Room Family Manager is run, or whenever different project parameters are selected. Save Project	

When adding a parameter, a default parameter name "RFM Room Type" or "RFM Validation Status" is suggested, but can be changed if desired.

RM Parameter Name	x
Specify a parameter name to create:	
RFM Room Type	
	OK Cancel

Building Room Types

A room type, as it pertains to Room Family Manager, defines a specific list of families that must exist in a room. For example, a "hospital patient" room type may need to include 1 bed, 1 nightstand, 1 trash receptacle, and 2 chairs. A "double occupant hotel room" room type may need to include 2 beds, 1 desk, 1 desk chair, 1 television and 2 nightstands.

Room type definitions are built in a spreadsheet using a specific format. The spreadsheet workbook can have any number of sheets defined to help organize the room type definitions. Each sheet can have any name, because Room Family Manager will always use all sheets in the workbook.

Each spreadsheet row of a room type definition must contain values for:

- Room Type (name)
- Equipment Name
- Quantity

Room Types may need to be defined early in a project, before specific families have been selected. To facilitate this need, Room Family Manager has the ability to use generic "placeholder" content.

When defining placeholder content in the Room Types spreadsheet, the room type definition rows must also contain values for:

- Length
- Width
- Height

All dimensional values must be supplied in inches. The generic Placeholder family is simply a box that is sized to match the given Length, Width and Height values.

When a specific family is to be listed in the room type definition, both the family name and the type name to use must be provided, separated by a colon and a space character. For example:

M_Chair-Breuer: M_Chair-Breuer

Here is an example of a room type definition using both the placeholder content (which provides dimensions) and actual content:

R M R	Room Family Manager							
R-M	- \$ Refresh I≡ Options @	Help 🕕 About						
RFN	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families							
2	New Spreadsheet 📓 Load 🛔	🚽 Save 🔈 Add Tab 🏅 Cut 🗈 Copy 🛍 Paste 🌞 Create New Roo	m Type					
	A	В	С	D	E	F	-	
1	Room Type	Family and Type	Quantity	Length	Width	Height		
2	Training Room A	Student Desk	12	30	48	32	2 _	
3	Training Room A	M_Chair-Breuer:M_Chair-Breuer	12	2			=	
4	Training Room A	Instructor Podium	1	. 30	30	48	3	
5	Training Room A	Instructor Stool	1	. 18	18	48	3	
6								
7								
8								
9								
10								
11	A N Shoot1						-	
<u> </u>	F FIL SHEELT							
							.::	

Room types can also be built from existing rooms within the Revit model. To build a room type using the Revit model, start by selecting the first cell in the row to be used.

R M R	Room Family Manager							
RM	R™ • ≉ Refresh 🗄 Options 🔞 Help 🕦 About							
RFN	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families							
1 🔁	New Spreadsheet 📓 Load 🔓	🖥 Save 🕟 Add Tab 🅉 Cut 🐚 Copy 🛍 Paste 🌞 Create New Room Type						
	А	В	С		D	E	F	-
1	Room Type	Family and Type	Quantity		Length	Width	Height	
2	Training Room A	Student Desk		12	30	48	3	32 _
3	Training Room A	M_Chair-Breuer:M_Chair-Breuer		12				=
4	Training Room A	Instructor Podium		1	30	30)	48
5	Training Room A	Instructor Stool		1	18	18	3	48
6								
7								
8								
9								
10								
11	11							*
	♦ ► ► Sheet1/	∢			111			•

Next, select the Revit room from which to pull the list of families. In this example, room 121 has been selected.

lew Spreadsh	ieet 💕 Load 🗟 Sav	ve 🔈 Add Tab 👗 Cut 斗 Copy 🛍 Pasi	e 🗍 🌞 Create New Room Type					
	Α	В	С	D	E	F	G 🔺	
Room Type	e Fan	nily and Type	Quantity	Length	Width	Height		
Training Ro	oom A Stu	dent Desk	1	.2 30	48	32		
Training Ro	oom A M_	Chair-Breuer: M_Chair-Breuer	1	.2				
Training Ro	oom A Inst	tructor Podium		1 30	30	48	=	
Training Ro	om A Inst	tructor Stool		1 18	18	48		
	Ī							
								+
								봄 문화 동안 문제
								The second second
							-	

With the desired worksheet cell and Revit room selected, click the "Create New Room Type..." button.

RI	Room Family Manager							
R	RM - ≈ Refresh 🗄 Options 🔞 Help 🕕 About							
R	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families							
ł	🎦 New Spreadsheet 🞯 Load 🐱 Save 🗔 Add Tab 🛛 🕉 Cut 🗈 Copy 🛍 Paste 🛛 👫 Create New Room Type							
		А	В	С	D	E	F	G 🔺
	1	Room Type	Family and Type	Quantity	Length	Width	Height	
	2	Training Room A	Student Desk	12	30	48	32	
	3	Training Room A	M_Chair-Breuer: M_Chair-Breuer	12				
	4	Training Room A	Instructor Podium	1	30	30	48	=
	5	Training Room A	Instructor Stool	1	18	18	48	
	6							
	7							_
	8							
	9							
	10							
	11							
	12							
	13							-
ŀ	• •	► ► Sheet1		•		III		•

The "Room Type Name" dialog will appear. Enter the desired room type name and click the "OK" button.

RM Room Type Name		×
Enter a name for the new room type def	finition:	
Cafeteria		
	OK	Cancel

The room type definition will be written to the spreadsheet.

R M R	oom Family Manager							
RM	R [™] - ≉ Refresh 🗄 Options 🔞 Help 🕦 About							
RFN	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families							
1	New Spreadsheet 📓 Load 🔓	🖥 Save 💫 Add Tab 🕉 Cut 斗 Copy 🛍 Paste 🌞 Create New Roo	m Type					
	А	В	С	D	E	F A		
1	Room Type	Family and Type	Quantity	Length	Width	Height		
4	Training Room A	Instructor Podium	1	30	30	48		
5	Training Room A	Instructor Stool	1	18	18	48		
6	Cafeteria	M_Single-Flush-Dbl Acting: 0915 x 2134mm	1					
7	Cafeteria	Rectangular Mullion: 50 x 150mm	169					
8	Cafeteria	M_Single-Flush: 0915 x 2134mm	1					
9	Cafeteria	M_Table-Dining Round w Chairs: 0915mm Diameter	15					
10	Cafeteria	M_Chair-Breuer: M_Chair-Breuer	60					
11	Cafeteria	L Corner Mullion: L Mullion 1	3					
12	Cafeteria	M_Curtain Wall Dbl Glass: M_Curtain Wall Dbl Glass	1					
13	L b bl Cheeti							
	► ► N \\ Sneet1/		•			•		

It may be necessary to remove families not relevant to the Room type. To delete a row, first select the row, then right click on it and choose the "Delete Rows" option.

RM Ro	oom Family Manager						• ×			
R™	Refresh 🗄 Options 🔞 Help 🕕 About									
RFM	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families									
1 🖞	🎦 New Spreadsheet 📓 Load 📓 Save 🗔 Add Tab 🛛 😹 Cut 🗈 Copy 🐔 Paste 🛛 🌞 Create New Room Type									
	А	В	С	D	E	F	G 🔺			
1	Room Type	Family and Type	Quantity	Length	Width	Height				
2	Training Room A	Student Desk	12	30	48	32				
3	Training Room A	M_Chair-Breuer: M_Chair-Breuer	12							
4	Training Room A	Instructor Podium	1	30	30	48	=			
5	Training Room A	Instructor Stool	1	18	18	48				
6	Cafeteria	M_Single-Flush-Dbl Acting: 0915 x 2134mm	1							
7	Cafeteria	M_Table-Dining Round w Chairs: 0915mm Diame	Cut							
8	Cafeteria	M_Chair-Breuer: M_Chair-Breuer	Сору							
9			Paste							
10			Paste Special							
11			Insert Rows	_						
12			Delete Rows							
13			Clear Contents				-			
4	► ► Sheet1		Insert Comment		111		4			
			Go To							

The room type definition spreadsheet can be edited within the Room Family Manager interface, or the spreadsheet can be saved to a file for editing in many popular spreadsheet applications, including Microsoft Excel. XLS and XLSX files are natively supported in Room Family Manager, among other file formats.

To save the spreadsheet outside of Revit, click the "Save..." button.

R M R	loom Family Manager						• ×	
RM		🔞 Help 🕕 About						
RFM	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families							
1	🎦 New Spreadsheet 📓 Load 🖬 Save 🕟 Add Tab 🛛 😹 Cut 👒 Copy 🎕 Paste 🏾 🌞 Create New Room Type							
	A	В	С	D	E	F	G 🔺	
1	Room Type	Family and Type	Quantity	Length	Width	Height		
2	Training Room A	Student Desk	12	30	48	32		
3	Training Room A	M_Chair-Breuer: M_Chair-Breuer	12					
							=	

Externally edited spreadsheets can also be opened with Room Family Manager. To open a spreadsheet file, click the "Load..." button.

IMPORTANT: Loaded spreadsheet files are still required to use the format shown above.

R:M R	oom Family Manager							
R-M	- \$ Refresh ⋮≣ Options @	Help 🕕 About						
RFM	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families							
÷ 🔁	🖹 New Spreadsheet 🥁 Load 🔓 Save 🔓 Add Tab 🛛 🕹 Cut 🗈 Copy 🕮 Paste 🛛 🌞 Create New Room Type							
	A	В	С	D	E	F 🔺		
1	Room Type	Family and Type	Quantity	Length	Width	Height		
2	Training Room A	Student Desk	12	30	48	32		
3	Training Room A	M_Chair-Breuer:M_Chair-Breuer	12			-		
4	Training Room A	Instructor Podium	1	30	30	48		
5	Training Room A	Instructor Stool	1	18	18	48		
6	Cafeteria	M_Table-Dining Round w Chairs: 0915mm Diameter	15					
7	Cafeteria	M_Chair-Breuer: M_Chair-Breuer	60					
8								
9								
10								
11								
12								
H ·	♦ ► ► Sheet1		•		1	Þ		
_						.:		

Assigning Room Types

Room type assignments are what bind the room type definitions to room objects in the Revit model. This assignment is accomplished on the "Assign Room Types" tab in Room Family Manager.

On this tab, all of the room objects in the Revit model are listed. Next to each Revit room is a list of the available room types. To assign a room type to a room object, select the associated room type from the list.

In this example, room 101 will be assigned the room type "Training Room A."

RM Room Family Manager	M Room Family Manager						
R™ - \$ Refresh 🗄 Options 🕢 Help () A	R [™] - ≉ Refresh IΞ Options 💿 Help 🕕 About						
RFM Parameters Build Room Types Assign Ro	RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families						
🔀 Clear Room Assignments 🔿 Assign Room Types 🗸 🖹 Apply Project Room Assignments 🖻 Get Project Room Assignments							
Room Name	RoomNumber	Room Department	Room Type				
Vest	101		Training Room A				
Lobby	102		Training Room A				
Cafeteria	121		Cafeteria				
Prep/Dish	122		•				
Dry Storage	124		▼				
Electrical	125		▼				
Conference	123		▼				
Office	127		▼				
Admin	126		▼				
Storage	128		▼				
Toilet	129		~				
Stair	130		▼				
Corridor	131						
Sprinkler	119		▼ ▼				

To assign a room type to multiple rooms, first select the rooms and then click the "Assign Room Types" dropdown option from the toolbar above the list of rooms. Click on the desired room type from the list to assign it to all of the selected rooms.

Room Family Manager						
R-M - ≉ Refresh IΞ Options 🔞 Help 🕕 About						
RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families						
Clear Room Assignments Assign Room	🔀 Clear Room Assignments 🔿 Assign Room Types 🗸 🖹 Apply Project Room Assignments 🎘 Get Project Room Assignments					
Room Name (Clear Roo	om Type Assignment)	A	Room Department	Room Type	•	
Vest. Training R	oom A			Training Room A	- =	
Lobby Training R	oom B				- <u> </u>	
Conference fafeteria					-	
Instruction	104				-	
Instruction					-	
Instruction	106				•	
Corridor	107				•	
Instruction	108				•	
Women	109				•	
Men	110				•	
Lounge	111				•	
Electrical	112				•	
Stair	114				•	
Instruction	115				• •	

Once the room type assignments have been made, click the "Apply Project Room Assignments" button to write the values into the project parameter previously specified for "RFM Room Type" from the "RFM Parameters" tab.

Room Family Manager						
RTM - 🗢 Refresh 🗄 Options 🔞 Help 🕦 A	Refresh I ☐ Options 😧 Help 🕦 About					
RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families						
Clear Room Assignments → Assign Roor	n Types 🝷 😢 Apply Project Room Assign	ments 🛃 Get Project Room Assignments				
Room Name	Room Number	 Room Department 	Room Type			
Vest	101		Training Room A 👻 😑			
Lobby	102					
Conference	103		▼			
Instruction	104		Training Room B 🔹			
Instruction	105		Training Room B 🔹			
Instruction	106		Training Room B 🔹			
Corridor	107					
Instruction	108		•			
Women	109		•			
Men	110		•			
Lounge	111		•			
Electrical	112		▼			
Stair	114		•			
Instruction	115		▼ ▼			

The "Get Project Room Assignments" button will query all rooms in the Revit model and display their room type assignments in the list. This function is useful if room type assignments are edited outside of the Room Family Manager interface, such as in a schedule or using the Spreadsheet Link tool.

RM Room Family Manager				8
R·M -	bout			
RFM Parameters Build Room Types Assign Room	om Types Place Families and Validate Swap Fa	amilies		
Clear Room Assignments 🔿 Assign Room	m Types 🔹 🖹 Apply Project Room Assignme	nts 🖻 Get Project Room Assignments		
Room Name	Room Number	Room Department	Room Type	-
Vest			Training Room A	•
Lobby	102			- ii
Conference	103			-
Instruction	104		Training Room B	-
Instruction	105		Training Room B	-
Instruction	106		Training Room B	-
Corridor	107			-
Instruction	108			-
Women	109			-
Men	110			-
Lounge	111			-
Electrical	112			-
Stair	114			•
Instruction	115			• •

The "Clear Room Assignments" button will clear any room assignments.

RM Room Family Manager				- • ×
R·M - ≉ Refresh I ⊟ Options 🔞 Help 🕦 A	bout			
RFM Parameters Build Room Types Assign Room	m Types Place Families and Validate Swap F	amilies		
Clear Room Assignments > Assign Roor	m Types 🛛 🖹 Apply Project Room Assignme	ents 🖻 Get Project Room Assignments		
Room Name	Room Number	 Room Department 	Room Type	A
Vest	101		Training Room A	-
Lobby	102			- L
Conference	103			-
Instruction	104		Training Room B	•
Instruction	105		Training Room B	-
Instruction	106		Training Room B	-
Corridor	107			-
Instruction	108			-
Women	109			-
Men	110			-
Lounge	111			-
Electrical	112			-
Stair	114			•
Instruction	115			• •

Placing Families and Model Validation

Once room types have been built and assigned, the "Place Families and Validate" tab can be used to both place families and validate that room type assignment requirements have been fulfilled.

To place families, click the "Place Families" button. Families will be placed with the family origin at the room insertion point.

RM Room Family Manager	M Room Family Manager				
R M - Ø Refresh ☷ Option	📶 - 🕉 Refresh 🗄 Options 🔞 Help 🕕 About				
RFM Parameters Build Room	Types Assign Room Types Place	e Families and Validate Swap Far	nilies		
🖉 Place Families 🝷 🖻 Val	idate Rooms 🔹 🛃 Save Report.	🔀 Clear Report			
Room	Room Type	Validation Status	Comments	A	
101 - Vest [177056]	Training Room A	None		=	
102 - Lobby [177304]		None			
103 - Conference [177334]		None			
104 - Instruction [177333]	Training Room B	None			
105 - Instruction [177332]	Training Room B	None			
106 - Instruction [177331]	Training Room B	None			
107 - Corridor [177329]		None			
108 - Instruction [177330]		None			
109 - Women [177328]		None			
110 - Men [177326]		None			
111 - Lounge [177325]		None			
112 - Electrical [177324]		None			
114 - Stair [177322]		None			
115 - Instruction [177321]		None		•	

Once families are placed in each room, they can be moved into the proper location within the room.



The "Validate Rooms" button will query each room to verify it contains the equipment specified in the assigned room type. Options exist to control how the validation is performed. These will be discussed below.

RM Room Family Manager				
RM - Ø Refresh I≣ Options	R M - 🕉 Refresh 🗄 Options 🔞 Help 🕕 About			
RFM Parameters Build Room Type	es Assign Room Types Pla	ce Families and Validate Swap Far	ilies	
🖉 Place Families 🝷 🛃 Validat	e Rooms 🔹 🖬 Save Repor	t 🔀 Clear Report		
Room	Room Type	Validation Status	Comments	×
114 - Stair [177322]		None		
112 - Electrical [177324]		None		
111 - Lounge [177325]		None		
110 - Men [177326]		None		
109 - Women [177328]		None		
107 - Corridor [177329]		None		
108 - Instruction [177330]		None		
106 - Instruction [177331]	Training Room B	Passed		
105 - Instruction [177332]	Training Room B	Passed		
104 - Instruction [177333]	Training Room B	Passed		
103 - Conference [177334]		None		
132 - Stair [177335]		None		
201 - Stair [214958]		None		
202 - Instruction [214966]		None		
		1		· · · · · · · · · · · · · · · · · · ·

Pass or fail results will be reported in the "Validation Status" column as well as be written to the "RFM Validation Status" parameter specified on the "RFM Parameters" tab. This parameter could be used, for example, in a color scheme or shown on a schedule.

M - \$ Refresh I≡ Options	😢 Help 🕕 About			Properties	X
M Parameters Build Room Typ	oes Assign Room Types Place	Families and Validate Swap Fam	nilies		
Place Families 🔹 🛃 Valida	ite Rooms 👻 🛃 Save Report	🗙 Clear Report			
Room	 Room Type 	Validation Status	Comments		
101 - Vest [177056]	Training Room A	Passed			C Lain Turne
102 - Lobby [177304]		None		Rooms (1)	
103 - Conference [177334]		None		Identity Data	× *
104 - Instruction [177333]	Training Room A	Passed		Number	106
105 - Instruction [177332]	Training Room A	Passed		Name	Instruction
106 - Instruction [177331]	Training Room A	Passed		Comments	
107 - Corridor [177329]		None	_	Occupancy	
108 - Instruction [177330]		None		Department	
109 - Women [177328]		None		Bash Finish	
110 - Men [177326]		None		Ceiling Finish	
111 - Lounge [177325]		None		Wall Finish	
112 - Electrical [177324]		None		Floor Finish	
114 - Stair [177322]		None		Occupant	<u> </u>
115 - Instruction [177321]		None		RFM Room Type	Training Room A
				RFM Validation Statu	us Passed
eration Complete.				Phasing	*
		I		Phase	New Construction
u U	U 1	1			

The "Save Report" button can be used to save the validation status report out to an .XLS spreadsheet file.

RM Room Family Manager				×	
R·M - ≈ Refresh 🗄 Options @	KM - ở Refresh ⋮≡ Options 🔞 Help 🕕 About				
RFM Parameters Build Room Types	Assign Room Types Place Famili	es and Validate Swap Families			
🛛 🖉 Place Families 👻 😰 Validate	Rooms 🝷 🛃 Save Report 🔀 Cl	ear Report			
Room	 Room Type 	Validation Status	Comments	-	
101 - Vest [177056]	Training Room A	Passed		=	
102 - Lobby [177304]		None			
103 - Conference [177334]		None			
104 - Instruction [177333]	Training Room A	Passed			
105 - Instruction [177332]	Training Room A	Passed			
106 - Instruction [177331]	Training Room A	Passed			
107 - Corridor [177329]		None			
108 - Instruction [177330]		None			
109 - Women [177328]		None			
110 - Men [177326]		None			
111 - Lounge [177325]		None			
112 - Electrical [177324]		None		-	
Operation Complete.					

The "Clear Report" button will clear all report results.

Ri	M Room Family Manager				
R	M - ≉ Refresh 🗄 Options 🔞	Help 🕕 About			
R	FM Parameters Build Room Types	Assign Room Types Place Familie	s and Validate Swap Families		
10	🥝 Place Families 🔹 📧 Validate R	ooms 🔹 🛃 Save Report 🔀 Cle	ear Report		
	Room	Room Type	Validation Status	Comments	•
	101 - Vest [177056]	Training Room A	Passed		=
	102 - Lobby [177304]		None		
	103 - Conference [177334]		None		
	104 - Instruction [177333]	Training Room A	Passed		
	105 - Instruction [177332]	Training Room A	Passed		
	106 - Instruction [177331]	Training Room A	Passed		
	107 - Corridor [177329]		None		
	108 - Instruction [177330]		None		
	109 - Women [177328]		None		
	110 - Men [177326]		None		
	111 - Lounge [177325]		None		
	112 - Electrical [177324]		None		-
0	peration Complete.				

Swap Families

Placeholder content may eventually need to be replaced with more specific content. The "Swap Families" tab facilitates this replacement on a per-room-type basis.

To view the list of families required for a specific room type, select the sheet and room type from the "Worksheet" and "Room Type" drop down menus.

RM Room Family Manager			- • ×
R·M - \$ Refresh ⋮≡ Options 🔞 He	elp 🕕 About		
RFM Parameters Build Room Types As	ssign Room Types Place Families and Validate Swap Families		
Worksheet: (All Worksheets) •	Room Type: (All Room Types) 🔹 오 Swap Room Families 🍺 Load	Family 🧉 Load 🚽 Save 🔀 Clear Mappings	
Room Type	Current Family and Type	Replacement Family and Type	
Training Room A	RFMPlaceHolder: Training Room A - Student Desk	M_Desk: 1525 x 762mm Student	
Training Room A	M_Chair-Breuer: M_Chair-Breuer		-
Training Room A	RFMPlaceHolder: Training Room A - Instructor Podium		-
Training Room A	RFMPlaceHolder: Training Room A - Instructor Stool		-
Cafeteria	M_Table-Dining Round w Chairs: 0915mm Diameter		•
Cafeteria	M_Chair-Breuer: M_Chair-Breuer		•
Training Room B	RFMPlaceHolder: Training Room B - Student Desk		•
Training Room B	M_Chair-Breuer: M_Chair-Breuer		•
Training Room B	RFMPlaceHolder: Training Room B - Instructor Podium		•
Training Room B	RFMPlaceHolder: Training Room B - Instructor Stool		•

To swap a family, locate the family in the Current Equipment list and select the family and type to replace it with from the Replacement column.

Room Family Manager				
RM - ở Refresh IΞ Options @ Help 10 About				
RFM Parameters Build Room Type	Assign Room Types Place Families and Validate Swap Families			
Worksheet: (All Worksheets)	Room Type: (All Room Types) Swap Room Families	🌽 Load Family 📔 Load 🖬 Save 🔀 Clear Mappings		
Room Type	Current Family and Type	Replacement Family and Type		
Training Room A	RFMPlaceHolder: Training Room A - Student Desk	M_Desk: 1525 x 762mm Student	•	
Training Room A	M_Chair-Breuer: M_Chair-Breuer			
Training Room A	RFMPlaceHolder: Training Room A - Instructor Podium	Couch-Viper: Couch		
Training Room A	RFMPlaceHolder: Training Room A - Instructor Stool	M_Chair-Breuer: M_Chair-Breuer		
Cafeteria	M_Table-Dining Round w Chairs: 0915mm Diameter	M Desk: 1525 x 762mm Student		
Cafeteria	M_Chair-Breuer: M_Chair-Breuer	M Dook 1920x015mm		
Training Room B	RFMPlaceHolder: Training Room B - Student Desk	M_1able-Dining Round w Chairs: 0915mm Diameter M Table-Dining Round w Chairs: 1525mm Diameter		
Training Room B	M_Chair-Breuer: M_Chair-Breuer	M_Table-Dining Round w Chairs: 2134mm Diameter		
Training Room B	RFMPlaceHolder: Training Room B - Instructor Podium	Pendant Light - Linear - 1 Lamp: 2440mm - 277V Potted Plant Potted Plant		
Training Room B	RFMPlaceHolder: Training Room B - Instructor Stool	RFMPlaceHolder: PlaceHolderType		
		RFMPlaceHolder: Training Room A - Instructor Podium RFMPlaceHolder: Training Room A - Instructor Stool		
		RFMPlaceHolder: Training Room A - Student Desk		
		Sconce 4: 40 watt Halogen		
		SHADE SUPPORT: SHADE SUPPORT		
		Table Lamp 4: 60 watt Incandescent		
		Wastebasket2: Wastebasket2		
		Window Shade: Window Shade		

Once all swaps have been selected, click the "Swap Room Equipment" button. The "Swap Room Equipment" button both swaps the content in the Room Type and writes the swap into a mapping file. The mapping file keeps track of which families were specified in the original spreadsheet and what they have been swapped out for. This mapping file is used for model validation to ensure that even after swapping a room will still validate based on the original room definition.

RM Room Family Manager			
R™ - \$ Refresh 🗄 Options 🔞 He	elp 🕕 About		
RFM Parameters Build Room Types As	ssign Room Types Place Families and Validate Swap Families		
Worksheet: (All Worksheets) -	Room Type: (All Room Types) 🔹 🖸 Swap Room Families 🌽 Load I	amily 📔 Load 🛃 Save 🔀 Clear Mappings	
Room Type	Current Family and Type	Replacement Family and Type	
Training Room A	RFMPlaceHolder: Training Room A - Student Desk	M_Desk: 1525 x 762mm Student	
Training Room A	M_Chair-Breuer: M_Chair-Breuer		
Training Room A	RFMPlaceHolder: Training Room A - Instructor Podium		-
Training Room A	RFMPlaceHolder: Training Room A - Instructor Stool		-
Cafeteria	M_Table-Dining Round w Chairs: 0915mm Diameter		-
Cafeteria	M_Chair-Breuer: M_Chair-Breuer		-
Training Room B	RFMPlaceHolder: Training Room B - Student Desk		•
Training Room B	M_Chair-Breuer: M_Chair-Breuer		-
Training Room B	RFMPlaceHolder: Training Room B - Instructor Podium		-
Training Room B	RFMPlaceHolder: Training Room B - Instructor Stool		-
			.::

The "Load Family..." button can be used to load new families into the Revit project. This will make them available in the "Replacement Equipment" drop down.

RM Room Family Manager			
RM - ≈ Refresh 🗄 Options 🔞 He	elp 📵 About		
RFM Parameters Build Room Types A	ssign Room Types Place Families and Validate Swap Families		
Worksheet: (All Worksheets) ·	Room Type: (All Room Types) 🔹 🔍 Swap Room Families	📝 Load Family 🎯 Load 🖬 Save 🔀 Clear Mappings	
Room Type	Current Family and Type	Replacement Family and Type	
Training Room A	RFMPlaceHolder: Training Room A - Student Desk	M_Desk: 1525 x 762mm Student	•
Training Room A	M_Chair-Breuer: M_Chair-Breuer		•
Training Room A	RFMPlaceHolder: Training Room A - Instructor Podium		-
Training Room A	RFMPlaceHolder: Training Room A - Instructor Stool		•
Cafeteria	M_Table-Dining Round w Chairs: 0915mm Diameter		-
Cafeteria	M_Chair-Breuer: M_Chair-Breuer		-
Training Room B	RFMPlaceHolder: Training Room B - Student Desk		•
Training Room B	M_Chair-Breuer: M_Chair-Breuer		•
Training Room B	RFMPlaceHolder: Training Room B - Instructor Podium		•
Training Room B	RFMPlaceHolder: Training Room B - Instructor Stool		•
			.::

Mappings can be saved and loaded using the "Save..." and "Load..." buttons. Saved mappings use the .XLS spreadsheet format.

Saving and loading mappings is needed when using Room Family Manager and switching between different projects.

RM Room Family Manager		_ 0 🔀
R-M - ≉ Refresh 🗄 Options 🕡 He	Ip 🕕 About	
RFM Parameters Build Room Types As	ssign Room Types Place Families and Validate Swap Families	
Worksheet: (All Worksheets)	Room Type: (All Room Types) 🔹 🔍 Swap Room Families 🛛 🚅 Load I	Family 💕 Load 🛃 Save 🔀 Clear Mappings
Room Type	Current Family and Type	Replacement Family and Type
Training Room A	RFMPlaceHolder: Training Room A - Student Desk	M_Desk: 1525 x 762mm Student
Training Room A	M_Chair-Breuer: M_Chair-Breuer	•
		1

The "Clear Mappings" button will clear out any mapped families.

RM Room Family Manager								
Rem - ≈ Refresh III Options @ Help ③ About								
RFM Parameters Build Room Types Assign Room Types Place Families and Validate Swap Families								
Worksheet: (All Worksheets) - Room Type: (All Room Types) - 🔍 Swap Room Families 津 Load F	amily 📔 Load 🚽 Save 🔀 Clear Mappings							
Room Type Current Family and Type	Replacement Family and Type							
Training Room A RFMPlaceHolder: Training Room A - Student Desk	M_Desk: 1525 x 762mm Student 👻							

Options

The "Place Family in Rooms" option s control the handling of families either not listed in the room type definition or exceeding the quantity specified.

"Remove excess equipment" – If this option is checked, Room Family Manager will remove each instance of a family found that exceeds the quantity specified in the room type definition. For example, if there are 6 "desks" in the room type definition, and the room actually has 7 "desks", the last desk identified by Room Family Manager will be removed.

"Remove irrelevant equipment" – If this option is checked, any families in a room that are not specified in the room type definition.

RM Options	- • ×								
Remember the size and position of the main window									
Place Families in Rooms									
Remove unspecified family instances									
Remove excess family instances									
Family Categories to Display									
Adaptive Points Air Terminal Taqs Air Terminals Analysis Display Style Analysis Results Analytical Beams Analytical Brace Taqs Analytical Braces Analytical Column Taqs Analytical Columns	•								
Check All Check None	Invert								
ОК	Cancel								

The "Family Categories to Display" options control which categories of families will appear as options in the "Swap Families" tab.

Schedule XL

Introduction

Schedule XL allows you to load non-BIM data into a Revit project by importing a spreadsheet into a new schedule view, allowing it to be placed on one or more sheets. When opening a project file, Schedule XL can automatically update the schedule(s) if the source spreadsheet has changed, otherwise the schedule(s) can be updated using the Schedule XL tool manually at any time. Auto updates can be enabled or disabled for each link independently or globally in the Options of Schedule XL. Disabling globally disregards the Auto Update setting of each link.

Starting Schedule XL

On the Revit ribbon, click on the "Schedule XL" button.



Creating a New Spreadsheet Link

Once open, select the 'Add' button:

	💷 Sch	edule XL											_		×
5	34	<mark>- A</mark> dd Sp	oreadsheet	🚺 Add Docume	ıt 🧔 Update	🖉 Edit	🙀 Edit Paths	ᡷ Update All	× Remo	ve 🗄 Options	🔞 Help	Videos	👲 Suppo	ort 🕕	About
	Spreads	heet Docu	ment												
	Name		Source	File Path				Worksheet/Rar	nge	Last Updated		Auto Update	Status		

The 'Add Spreadsheet' button will open the spreadsheet editing environment to allow creation of a new spreadsheet. If desired, an existing spreadsheet can be specified and used to create a schedule. Spreadsheets must be saved as files in order to be linked to the project using Schedule XL.

Spreadsheet Editor

The spreadsheet editor allows for basic editing of spreadsheets. If more formatting and styling is desired, it is best to open a spreadsheet using dedicated spreadsheet software such as Microsoft Excel or OpenOffice Calc. Schedule XL is able to replicate much of the appearance and formatting commonly used in spreadsheets such as fonts and font styles, cell background colors, single line borders, merged cells and images.

Spreadsheet Editor Toolbar



The toolbar of the spreadsheet editor allows general file management, minimal spreadsheet column/row management and the ability to open the active spreadsheet in the default spreadsheet application (if installed on the system). Additionally, the Graphic Options for the current sheet are accessed here.

When adding a spreadsheet link for the first time to a Revit project, typically the "Open" button should be used.

Spreadsheet Editor 'Edit Pane'

SIL					5	preadshee	et				- 🗆	x
🐴 Ne	ew 对 Oper	n 🛃 Save	🚽 Save As	. 📝 Edit 🛛	_夕 Open Ext	ernally 🛛 🗈	Graphics Opt	ions				
A1		~										
	А	В	С	D	E	F	G	Н	I	J	К	^
1												
2												
3												
4												- 1
5												- 1
6												-
7												- 1
8												
H 4	► N \\ She	et1/					<					>
File	Path:											

The edit pane in the spreadsheet editor window allows data manipulation of an open spreadsheet. Most Microsoft Excel formula functions will work in this window, though no heads-up display will appear when authoring formulas. It is generally best to execute major spreadsheet edits using dedicated spreadsheet editing software. The editor pane in the spreadsheet editor is primarily used for verification that the correct spreadsheet(s) have been selected. Additionally, Named Ranges can be defined here in the same manner as in Excel (select the range and type a name in cell name combo box).

If minor editing is required, the editor pane can be used directly to make rapid changes. Once changes are made, the 'Save' or 'Save As...' options on the toolbar should be used to preserve those changes.

Files can be saved in Microsoft's .xls, .xlsx or .xlsm formats, or alternately a file can be saved as a tab-delimited text file and opened in non-spreadsheet editing tools.

Spreadsheet Editor 'Worksheet Selection Pane'

O Active Worksheet	Worksheet: Sheet1	View Name:	[Use Workshe	eet Name(s), Update	lf Found]
Multiple Worksheets	Range: NamedRange2 Range: Sheet1!Print_Area	Create New View(s)			
or Named Ranges		View Time			
All None		Schedule View	Drafting View	ОК	Cancel

The bottom portion of the spreadsheet editor window allows the selection of either the active worksheet, or selection of multiple worksheets.

If the 'Active Worksheet' option is selected, an alternative view name can be specified for the generated view in Revit. If the 'Multiple Worksheets' option is used, any number of worksheets, named ranges or print areas available in the active spreadsheet can be selected. Schedule XL will automatically generate views in Revit using the name(s) of the selected tab(s).

Choosing the Appropriate View Type

The two view types available when creating tables from spreadsheets are Schedule and Drafting. Schedule views have many advantages over drafting views, depending upon the source spreadsheet and desired result.

Feature	Schedule Views	Drafting Views
Can be placed on multiple sheets	Yes	No
Can contain filled cells	Yes	No
Can have images	Yes	No
Supports very long spreadsheets	Yes, slower when placing	Yes, easier to place
Better format multiple merged/centered cells	No	Yes
Easy to edit in Revit view (zoom and pan)	No	Yes

When the OK button is clicked, Schedule XL will show a progress dialog as it builds the schedules.



IMPORTANT: By default, if a Print Area or Named Range is specified on a worksheet, only the Print Area will be included in the schedule view for that worksheet. This is useful to exclude cells that contain calculations or uncecessary information from the resulting schedule. This can be turned off in the Options dialog. If turned off, the data in entire worksheet will be included in the schedule view. Once complete, the resulting worksheet link(s) will be displayed in the main Schedule XL window.

For example:

Name 🔺	File Path	Worksheet/Range	Last Updated	Auto Update	Status
2016 OOTB-Arch	D:\app testing \BIMListContent Report xlsx	Worksheet: 2016 O	2016-09-02 08:42:07	\checkmark	Up to Date
Generic Annotati	D:\app testing\sl-gatest.xlsx	Worksheet: Generic	2016-09-02 08:42:30		Up to Date
Sheet1	D:\app testing\20160624 - SXL\vertText xlsx	Worksheet: Sheet1	2016-09-02 08:39:45	\checkmark	Up to Date
Sheet2	D:\app testing\Book1xlsx	Worksheet: Sheet1	2016-09-02 08:41:10	\checkmark	Up to Date

The "Name" column displays what the name of the schedule will be in Revit.

New links will default to 'Auto Update', an option that allows Schedule XL to update linked spreadsheets every time a Revit model containing linked spreadsheets is opened.

Whenever Schedule XL is opened, existing links will be displayed in the main window. To edit a link, simply double-click on the link, or click on the link and click the "Edit" button in the ribbon.

Editing a link will open the original spreadsheet file in the spreadsheet editor window and select the linked worksheet automatically.

If changes to the spreadsheet content itself are made, it is important to save them back to the spreadsheet file.

Clicking the OK button will update the existing schedule view, reloading the latest spreadsheet version.

When Schedule XL generates a schedule, it will attempt to ensure cell borders and fills are maintained. There may be specific cell infills that are not possible in the resulting schedule, but users can always return to the original spreadsheet and update cell infills until a reasonable result can be achieved in the Revit schedule environment.

It is important that spreadsheet authors merge cells, though if values in unmerged cells happen to flood across into other cells, Schedule XL will attempt to mimic the spreadsheet graphics. Users can modify Schedule XL options to select explicit functionality for handling cell sizing, merging and borders.

Excel Worksheets with Embedded Images

Schedule XL can insert images into Revit schedules and drafting views if they exist in the source spreadsheet. Schedule XL will extract the images from the spreadsheet to the same folder containing it. The images used will then be linked into Revit and placed in their corresponding locations. This capability requires that Microsoft Excel is installed on the system.

Note: If Excel is not found on the system running Schedule XL, a schedule can be created but images will not be placed. If a Revit project contains previously created schedules with images and is opened on a system without Excel, the schedules will not be updated automatically.

Schedule Graphic Options

The schedule graphics options dialog can be accessed when creating or editing schedules. Graphics Options are specific to each link. On the main window, click Add or double click an item in the list.

raphics Options				
Cell Height		Schedule View Template:	<none></none>	~
Preserve cell he	eight	Drafting View Tomplato:	chlanas	
Apply he	aght correction for wrapped text	Draiting view reinplate.	<none></none>	Ň
O Auto Fit	Multiplier: 2	 Override values text font 	Arial, 12 (1/8")	
	(Multiples of text size, min: 1.0)	Linework		
Cell Width		O No linework		
Preserve cell w	idth	 All grid lines 		
Auto Fit	Multiplier: 1	Border and header:		\sim
0.111.11	(Multiples of text width, min: 1.0)	Interior grid:		\sim
			Use grid lines in title/headers	
🔿 Auto merge adja	acent cells			
		 Cell borders only 	<no override=""></no>	~
View Name Format		Title		
	Prefix: SXL -	O No title text		
	Suffix:	Use spreadsheet rows	1 (Comma-separated)	
Table Layout		Uverride title text font	Ariai, 16 (5/32~)	
Single Table		O Custom title text:		
Multiple Tables		Title tout fact.	Arial 16 (5/22")	_
Co	lumns per table:	The text ion.	Anai, 10 (5/52.)	
		Column Headers		
Data	rows per table:	O No column header text		
		 Use spreadsheet rows 	2 (Comma-separated)	
Maxim	um table height: in	Override title text font	Arial 14 (1/8")	
			Ana, 14 (110)	
		Use only the print area on eac entire worksheet will be used	ch worksheet (if no print area is defined, the)	

Graphic options are useful to override the appearance of the schedule in Revit. The effect of each option varies depending upon the source worksheet and its settings or formats.

- Cell Height/Width: use this to force a size other than what is defined in the spreadsheet. Set Auto Merge adjacent cells to force multiple cells in a row to become one.
- View Name Format: specify a prefix/suffix which Schedule XL will include in the name of the views that are created
- Table Layout: Schedule XL can optionally create multiple schedule tables as specified. These options are useful when working with many rows in a schedule that need to be split up to fit on sheets. Combine with Column Headers option to repeat headers at the top of each table.
- Schedule/Drafting View Template: select a template from the model to apply to the schedule view
- Override Text Font: set this to force a single font or Revit text style to be used for all of the schedule text.
- Cell Borders: Schedule XL can create borders if they don't already exist in the spreadsheet. The styles and widths of borders are limited to what Revit will allow (i.e. no double lines, left/right/top/bottom, etc.)
- Title: use this feature to add a center justified row and title at the top of the schedule.
- Column Headers: similar to Title but requires header text to exist in the specified rows.
- Print Areas: check this option to force Schedule XL to only use print areas in the spreadsheet for the schedule
- Colors and Formatting: check the boxes next to these options to apply cell colors in the schedule

Manually Updating one or More Schedules

One or more schedules can be manually updated from the spreadsheet by:

- Clicking the "Update All" button on the ribbon
- Selecting one or more schedule items in the main list and using the "Update" choice on the "SXL" drop-down menu
- Right-clicking on any one or more items and selecting the "Update" choice

Stedule XL					-		×
SIL 🗸 🕂 Add Spreadsheet 🕕 Add Document	🥏 Update 🔯 Edit 🍻 Edit Paths	💈 Update All 🗙 Remo	ve 🗄 Options 🕢 Hel	p 下 Videos	s 👲 Suppo	rt 🕕 A	About
Spreadsheet Document							
Name 🔺 Source F Path		Worksheet/Range	Last Updated	Auto Update	Status		
ctcProjects User Profile Users w	Itel Doursload by Denoted lat a 11/29111 o Edit Update Override Graphics Options and Up Rename Change File Name or Path Remove	date	2025-05-06 10:50:59		Up to Date		
Ready							

Editing a Schedule Definition

A schedule definition can be manually updated from the spreadsheet by:

- Selecting a schedule item in the main list and using the "Edit" choice on the "SXL" drop-down menu
- Double-clicking on a schedule item
- Right-clicking on any one item and selecting the "Edit" choice

SXL - 🖶 Add Spreadsheet 🕦 Add Document 🗳	Update 😰 Edit 📝 Edit Paths	🕏 Update All 🗙 Remo	ve 🗄 Options 🔞 Hel	lp 下 Video	s 👲 Support 🕕 About
Spreadsheet Document					
Name 🔺 Source F Path		Worksheet/Range	Last Updated	Auto Update	Status
ctcProjects User Profile Users Werter 교 교 교 문 · · · ·	Demode a de Deserva (et al 12011) a Edit Update Override Graphics Options and Up Rename Change File Name or Path Remove	Udelebosti de Projecta	2025-05-06 10:50:59		Up to Date

Custom Naming a Schedule

A schedule can get a custom name when adding only the active sheet from a workbook. However, it can be renamed after the fact by right-clicking on the item in the main window and selecting the "Rename" choice

SXL - 🖶 Add Sp	readsheet 🕕 Ado	I Document 💈	Update 📓 Edit 🚅 Edit Paths	ᡷ Update A	II 🗙 Remo	ve 🗄 Options 🔞 He	lp 下 Video	s 👲 Support 🕕 About
Spreadsheet Docur	ment							
Name 🔺	Source	File Path		Worksheet/R	ange	Last Updated	Auto Update	Status
ctcProjects	User Profile	Users We day	Foundation of the second loss of 1789111 of Edit Update Override Graphics Options and Up Rename Change File Name or Path Remove	Materboot et	cProjects	2025-05-06 10:50:59	2	Up to Date

Removing one or More Schedule Definitions

A schedule definition can be removed from the list by first selecting one or more items from the list, then either:

- Clicking the Remove button in the toolbar
- Clicking the Remove button on the "SXL" dropdown list
- Right-clicking on the items and selecting the Remove choice



Re-Linking to a Moved or Renamed Spreadsheet File

If a spreadsheet file is moved or renamed, when opening the project file where Auto Update was turned on, the following message will briefly appear:



When opening the Schedule XL tool in this situation, the status for the associated items will appear as "Not Found."

This can be fixed by right-clicking on any item and selecting the "Change File Name or Path" choice.

When selecting this choice, a file browser dialog will appear which allow you to choose the location of the new file to associate with that definition.

NOTE: Doing this for one item will repair the links for all items that had been pointing to the old file and reassign them to using the newly selected file.

Edit/Replace Paths

If entire directories of spreadsheets have been relocated, use the Edit Paths... function to quickly re-map to the new location.

St. Schedule XL						-	×	
S (1 - 📑 Add	😂 Update 🎯 E	iter 🥡 Edit Paths	🗳 Update All 🔀 Rem	nove 🗄 Options	🕜 Help 📘	Videos 🌘	About	
Name 🔺	File Path		Worksheet/Range	Last Updated	Auto Update	Status		
2016 OOTB-Arch	D:\app testing\BIMLi	istContentReport xlsx	Worksheet: 2016 O	2016-09-02 08:42:07	7 🗹	Up to Date		
Generic Annotati	D:\app testing\sl-gate	est xlsx	Worksheet: Generic	2016-09-02 08:42:30) 🔽	Up to Date		
Sheet1	D:\app testing\2016	0624 - SXL\vertText.xlsx	Worksheet: Sheet1	2016-09-02 08:39:45	5 🔽	Up to Date		
Sheet2	D:\app testing\Book	1.xlsx	Worksheet: Sheet1	2016-09-02 08:41:10) 🔽	Up to Date		
Sa Find and Replace Path								
	Find	: D:\app testin	g\				Pick Folder	
	Repl	ace: T:\					Pick Folder	
Processing		Auto Check					Reset	
	Select	Name	Current Path		Modified Path			
		Sheet1	D:\app testing\20160624	- SXL\vertText.xlsx	T:\20160624 -	SXL\vertTe	xt.xlsx	
		Sheet2	D:\app testing\Book1.xlsx	۲	T:\Book1.xlsx			
		2016 OOTB-Arch-R	D:\app testing\BIMListCor	ntentReport xlsx	T:\BIMListCont	entReport x	lsx	
		Generic Annotations	D:\app testing\sl-gatest.xl	sx	T:\sl-gatest.xlsx	¢.		_
					Apply Changes		Cancel	

In the Find: text box, type or browse to the portion of the original path which is no longer applicable

In the Replace: text box, type or browse to the portion of the new path. Schedule XL will indicate whether the new path is valid in the Modified Path column of the grid. If the path is displayed in red, the spreadsheet cannot be found at that location.

Simply check the box in the Select column of each link that needs to be re-pathed. If desired, click Auto Check to have Schedule XL select all of the resolved links automatically. In the image below, three of the four spreadsheets were found and selected.

Find		Pick Folder		
Replace: T:\				Pick Folder
	Auto Check			Reset
Select	Name	Current Path	Modified Path	
	Sheet1	D:\app testing\20160624 - SXL\vert Text xlsx	T:\20160624 - SXL\ve	art Text xlsx
	Sheet2	D:\app testing\Book1xlsx	T:\Book1xlsx	
	2016 OOTB-Arch-R	D:\app testing\BIMListContentReport xlsx	T:\BIMListContentRep	ort xlsx
	Generic Annotations	D:\app testing\sl-gatest xlsx	T:\sl-gatest.xlsx	
			Apply Changes	Cancel

Linking Word Files into Revit

Schedule XL can create detail views sourced from Microsoft Word .docx files. When a docx is linked, the text, images and formatting is recreated as Revit native objects. If a file is changed after it has been linked, a manual update must be performed to reflect the changes in Revit.

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Spreadsheet	Document			
Name	Source	File Path	Last Updated	Status
Unique.Tools.	in User Profile	C:\Users\wyattc\Downloads\Unique.Tools.in.docx	2025-05-06 10:22:00	Up to Date

While most regularly formatted Word documents can be replicated in Revit with good fidelity, some may require adjustment of the options to refine the results.

To link in a document, switch to the 'Document' tab and click the 'Add Document' button on the main toolbar.



Browse to the location of a document and select it then press 'Open' to accept.

	SIL Load Document					>
STL Schedule XL	$\leftarrow \rightarrow \checkmark \uparrow$	↓ > Downloads >			~	C Search Downloads $ ho$
STL - 🖶 Add Spreadsheet	Organize 🔻 New f	older				□ - □ 3
Spreadsheet Document Name Source	 ☆ Home ☑ Gallery > OneDrive - Sym ☑ Desktop * ☑ Dosunloads * ☑ Documents * 	Floating,License. Request.FormR esellers (1).docx	MARKETING.TO. DO.docx (1)	SXL.Test.File (1).docx	CTC Custom CMS Solution Overview.docx	Unique Tools in: Naviate Accelerate Families: Family
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Schedule XL will parse the document, translate the text, formatting and images to Revit text and image imports. A view will be generated and made current.

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Name	Source	File Path	Last Updated
Unique.Tools.in	User Profile	C:\Users\wyattc\Downloads\Unique.Tools.in.docx	2025-05-06 10:22:00

Options

Common

- Remember size and position of app windows: windows will keep the user adjustments to size and position
- Enable Auto-Updates on document load: will always load the most current version of the spreadsheets. For large numbers of schedules, disabling this can improve performance but requires users to initiate the updates.
- Warn when manually editing Schedule XL views: enable this to deter users from editing schedules which will later be overwritten with they are updated.

Settings for New Tables

- Use only print area on each worksheet: check this to enable for every new Schedule XL view
- When adding sheets, turn on Auto Update: enable auto-updating of views for new links
- Maintain schedule cell sizes in updates: only use cell sizes from the spreadsheet during updates

Default View Types

• Select the preferred default view type when creating new views

Font Sizing

The options for adjusting the way that documents are reproduced in Revit views can be changed in the Font Sizing tab.

Schedule XL						×
SXL - 🖶 Add S	öpreadsheet 🕕 A	Add Document	🥏 Update 📑 E	dit 🥻 Edit Paths 🧳	Update All 🗙 Remove 🗮 Opti	ions 🛿 Ələp 💽 Videos 👲 Support 🕕 About
Spreadsheet Doc	ument		SIL Options			×
Name	Source	File Path				Status
Unique.Tools.in	User Profile	C:\Users\wj	Common Font	Sizing		Up to Date
			Default	Fonts	Size at 1" (25.4 mm)	
				Aptos	110	
				Aptos Display	110	
				Arial	101	
				Calibri	114	
				Calibri Light	110	
				Cambria	101	
				CityBlueprint	90	
				Lucida Console	116	
				RomanS	99	
Ready						

CTC has preset some defaults that work in many cases.

To add fonts and sizes, type the name of the font and the desired size (at 1"). Set each that should be the default for the font by checking the box.

Sheet Assistant

Introduction

The Sheet Assistant tool expedites the process of creating consistent sheet collections for all types of projects and disciplines. Using Sheet Assistant, teams can ensure that sheets have accurate placement of views relative to other sheets of the same series types.

For example, a plan set of multiple floor buildings can be produced with precise placement and specification of views and their respective view templates.

This tool can be used to place views on new sheets, align views on existing sheets and adjust positioning of views based on standard configurations.

Starting Sheet Assistant

On the Revit ribbon, click on the "Sheet Assistant" button.



When Sheet Assistant is run, it will take a moment to parse the project model for sheets and views. This may take longer for models with a large number of views and sheets.

Sheet Assistant			_		×
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Configuration Sheet	Target Sheets New Sheet				
🚰 Load Layout Configuration	Search Sheets:	Select All Select None			
Name: TEST_CONFIG2-SHEETASST	1 A1 Floor Plan	Filter by Parameter Value:			
	1 A2 Sections				
-		A1			^
Select a View Box to Set Alignment Method: Horizontal: Vertical: Default v Default v					~
		App	y	Clo	se

Getting Started

The Sheet Assistant has multiple workflows. Most often, however, users will need to start with the Sheet tab.

Configuration Sheet	Target Sheets New Sheet
Search Sheets: Save	Search Sheets:
Ŷ A1 Floor Plan Ŷ A6 Sections Ŷ A2 Second Floor Plan	A1 Floor Plan A6 Sections A2 Second Floor Plan
Layout: Name	

HINT: Use the search boxes to find sheets by name more quickly.

Select a single sheet as the source. Notice the graphic representation of the approximate sizes and positions of the views found on the source sheet selection.

Configuration	Sheet				
Search Sheets	Save				
A1 Floor Plan					
Layout: Name					
select a View	a to Set Alignment Method:				

The graphic represents the approximate positions, alignment locations and sizes of the views which includes the annotation crop if enabled. There can be some discrepancies between the graphic representation and the actual appearance on the sheet due to view 'extents', view titles and view types.

Working with the Layout Graphic and Alignment Methods

The graphic representation below the source sheet selector is a close approximation of the views on the sheet as well as their size, proportion, position and types. This can be extremely helpful to understand the outcome of applying the layout to other sheets.

Their numbers correspond to the number for each view on the sheet.



Each of the views in the graphic can be selected to perform changes to the method of positioning (Alignment Method).



The dotted lines on the view graphic display the method of alignment that will be used for the view.
Methods:

Horizontal – determines the location point along the horizontal (x) axis of the sheet.



Vertical – determines the location point along the vertical (y) axis of the sheet.



By Level – uses the levels in the view to align by.

	3	
	Vertical:	
,	Level	v

Notes about alignments:

- 1. Alignment is accomplished in various ways. Some methods work better if the extents of the crop and annotation crop are understood.
- 2. Alignment is dependent upon absolute coordinates as determined by Revit. If titleblocks are not the same size or in the same position as the source view, alignment may appear off.
- 3. Not all views can be aligned in the same manner.
- 4. In some cases, manual adjustment of the views on the sheet may be necessary.

Applying Layouts to Existing Sheets Based on a Sheet

Determine the target sheet or sheets to apply alignments or views to. Select the target sheets in the list by left-click. Deselect by clicking the sheet again.



While clicking, notice the list of sheets with their views appearing in the right-most selection window. This is where the selection of which views to align is made. Select and deselect the views in the same manner.

Adjust the source sheet views method of alignment as needed. Then, when satisfied with the placements and selections, click apply.

Si Sheet Assistant		- 0 X
Sheet Assistant Sing Configuration Sheet Search Sheets: Search Sheets: Save Crif-1.00 CLEANROOM GENERAL NOTES & LEGEND Crif-1.01 CLEANROOM SCHEDULES Crif-2.10 CLEANROOM FLOOR PLAN Crif-2.10 CLEANROOM FLOOR PLAN Crif-2.11 CLEANROOM REFLECTED CEILING PLAN Crif-2.12 CLEANROOM REFLECTED CEILING PLAN Layout: Name Select a View Box to Set Alignment Method: Horizontal: Vertical: Left Bottom Vid	eos Support Target Sheets Search Sheets: Crif-1.00 CLEANROOM GENERAL NOTES & LEGE Crif-1.01 CLEANROOM SCHEDULES Crif-2.10 CLEANROOM FLOOR PLAN Crif-2.11 CLEANROOM FLOOR PLAN UTILITIES Crif-2.20 CLEANROOM REFLECTED CEILING PLA Crif-3.00 CLEANROOM PLENUM PLAN Crif-3.00 CLEANROOM DETAILS Crif-4.01 CLEANROOM DETAILS Crif-5.00 CLEANROOM SERVICE DETAILS Crif-6.00 CLEANROOM HOOD DECK PLANS	- □ × Select All Select None Filter by Parameter Value:
Left Center Right	< >	Apply Close

Double-check the target sheets to verify the desired results. If some adjustment needs to be made, run through the process again, this time picking different alignment methods.

Applying Layouts to New Sheets

The Sheet Assistant can create sheets and place views on them based on a source sheet selection. Views that can be duplicated or shown on more than one sheet can be placed and positioned similarly to the source.

On the 'Sheet' tab select a source sheet and make any desired adjustments to the alignment methods.

Click the 'New Sheet' tab.

otions 🧐 Refresh ᠑ Reset	🕡 Help 🔁 Videos 👲 Support 🕦 About
Sheet	Target Sheet New Sheet

Click the "New Sheet" button to begin adding sheets.

When this button is pressed, Spreadsheet Link will launch, allowing the add sheets functionality in it to be used. Refer to the section in this guide regarding Spreadsheet Link sheets creation. <u>Creating New Elements</u>

The new sheets will appear in the list of the middle pane. They will be selected and represented in the right pane. Click the arrow to reveal the views that will be placed on the new sheet.



Each view in the list will present some options:

Duplicate Sources – This places the same instance of the source sheet view on the target sheet.

Existing Unplaced Views – This places the selected view on the sheet. This list only shows unplaced views.

Keep Original – If the type of view supports it, this will place the existing view on the sheet. This does not remove from the sources sheet or duplicate it.

Skip – By default, don't add a view in this place.

Depending upon the source sheet view, the methods above are enabled and disabled according to the workflow. For example, some view types cannot be placed on more than one sheet. Therefore, if the source view is a plan, 'Keep Original' will be disabled.

For 'Duplicate Sources', specify a suffix to avoid Revit's default copy naming behavior. Enter the characters (no special characters) that should be used to prefix the name of the new copy.

When all of the desired selections have been made, click apply.

After the sheets are updated, check them for accuracy and make adjustments as needed.

Accuracy is dependent on how similar the source sheet is to the choices made during creation (which views, settings, titleblock, view title, view templates, etc.).

Creating and Using Sheet Configurations

Sheet configurations are files that store information about a sheet layout. They can be used to apply standard sheet layouts from one project to another.

The configuration file only stores positions, view types and names. The views they place depend on what is available in the target project.

To Create a Configuration

Switch to the 'Sheet' tab to create a sheet configuration and select an existing sheet from the list.



Adjust any of the alignment methods to be used by the views as desired.

Click the 'Save' button.

S Sheet Assistant	
SA 👻 🗄 Options 🧐 Refresh 😨 Reset 🔞 Help 📔	Vide
Configuration Sheet	
Search Sheets: Save	
A061 PARTITION TYPES	

In the form that appears, give the configuration a name. This will be stored with the configuration to help identify it's intended application.

Save Config	uration	×
Name:	PARTITION TYPES]

Click 'Save' and browse to a location to store the configuration.

To Use a Configuration

Load up a configuration by switching to the 'Configuration' tab and clicking 'Load Layout Configuration'.

Browse to the location of the sheet configuration files. Configurations are displayed in the configuration picker. This is a graphic representation of the configuration.

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SA 🗸 🗄 Options 🚱 Refresh 😨 Reset 🔞 Help 🔁 Videos 👲 Support 🕦 About		
Configuration Sheet Target Sheets New Sheet		
Load Layout Configuration	- 0	×
Name: CTCSA-typical floor plan Browse P:\Projects\Revit Express Tools\BIM Manager Suite\Tools\Sheet Assistant\Configurations\PART	ITION TYPES.saslc	
Preview Name: PARTITION TYPES	-	~
Select a View Box to Set Alignment Met Horizontal: Vertical: Default	Select	
A103 CURRENT TITLEBLOCK	Cancel	

When the configuration is loaded, adjustments can be made if necessary. These changes are not automatically saved to configuration file. To save the changes, switch to the Sheet tab and choose to save over the previous file by browsing to it.

Apply the sheet configuration to Target and New Sheets in the same manner as using a source sheet from the current project.

Options

[X] Remember the size and position of the main window. - this determines how the tool behaves when launched

[X] Pin views on sheets – sets the default when the tool places or adjusts views on sheets. Can be overridden individually.

[X] Default Alignment Method – set the desired methods here to define the initial state when working with source sheet views.

Spreadsheet Link

Introduction

Spreadsheet Link exports data from Revit elements to a spreadsheet where the data can be edited and then imported and applied back in to the Revit model. This allows making changes to the Revit model by simply editing data in a spreadsheet. Spreadsheet Link includes spreadsheet editing functionality, allowing the Revit user to easily edit data without ever leaving the Revit environment. The Revit user may also save the exported data to one of several spreadsheet file types, allowing others to view or edit the data in third-party spreadsheet software. The updated spreadsheet data may then be loaded into Spreadsheet Link and reapplied to the Revit model.

Starting Spreadsheet Link

On the Revit ribbon, click on the "Spreadsheet Link" button.



When Spreadsheet Link is opened, two windows will be displayed:

The Settings window:

Spreadsheet Link Settings			
🔽 👻 New Settings 🔟 Recent Saved Settings	✓ Save Settings ✓ [™] Load Settings ✓ [™] Ξ	Options 🕜 Help 🔚 About	IIII Show Preview
Filter: <show all=""></show>		Parameters Filters Sorting	
Available Categories	Selected Categories/Schedules	Available Parameters	Calc Selected Parameters
Air Terminals			
Analytical Beams			
Analytical braces			
Analytical Courins			
Analytical Foundation Slabs			
Analytical Isolated Foundations			
Analytical Nodes			
Analytical Wall Foundations			
Analytical Walls			
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Conduit Runs			
Conduits			
Curtain Panels			
Curtain Wall Mullions			
Data Devices			
Detail Items			
Categories -		Hide unit symbol Instance	Туре 👚 🖤

The Spreadsheet window:

S. Spreadsheet Link														
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The spreadsheet window can be closed without exiting Spreadsheet Link completely. Closing the "Spreadsheet Link Settings" window will close Spreadsheet Link.

Adding Categories & Parameters

The settings dialog is used to configure the category, parameters and filters that dictate which Revit elements should be included in the spreadsheet for editing.

To add a category, first select it from the list of "Available Categories."

The list of categories can be filtered by discipline from the "Filter" combo box. A single discipline or multiple disciplines can be applied using the checkboxes.

S. Spreadsheet Link Settings			
SL - Mew Settings 🔤 Recent Saved S	Settings 👻 🔄 Save Settings 👻 🄀 Load Settings 👻	E Options 🕜 Help 🔚 About	📰 Show Preview
Filter: Availal Structural Availal Structural Air Ter W Mechanical Analytical Pleotrical Analytical Columns Analytical Floors Analytical Floors Analytical Solated Floordations	Selected Categories/Schedules	Parameters Filters Sorting Available Parameters	Calc Selected Parameters

When the desired category has been selected click the " \rightarrow " button or double-click on the category name.

S Spreadsheet Link Settings	
🔽 - 🐒 New Settings 🔳 Recent Saved Settings - 🚽 Save Settings - 🎇 Load Se	ettings - 🗄 Ogtions 😨 Help 🗄 About
Filter: <show all=""></show>	Parameters Filters Sorting
Available Categories	Available Parameters Calc Selected Parameters
Curtain Panels Curtain Wall Mullions	
Data Devices	
Doors Duct Accessones	
Duct Fittings E Duct Insulations	
Duct Linings Duct Placeholders	
Ducts	
Electrical Equipment Electrical Fotures	
Fascias Filled region	
Fire Alarm Devices Flex Ducts	
Flex Pipes Floors	
Fumiture Systems	
Generic Models	
Categories	Hide unit symbol Instance Type

Adding the category will move the category to the "Selected Categories/Schedules" list and populate the "Parameters", "Filters" and "Sorting" tabs.

S Spreadsheet Link Settings	
Surv 🗞 New Settings 🔳 Recent Saved Settings - 🚽 Save Settings - 🎇 Load Settings - 🗄	Options 🔞 Help 🔛 About 📰 Show Preview
Filter: <show all=""></show>	Doors Parameters Doors Filters Doors Sorting
Available Categories Conduits Curtain Panels Curtain Wall Mullions Data Devices Detail items Duct Accessories Duct Insulations Duct Insulations Duct Insulations Duct Systems Ducts Bectrical Fotures Fascias Filled reaion	Available Parameters Image: Calc Selected Parameters Air Leakage Image: Calc Selected Parameters Analytic Construction Analytic Construction Angle 2 Appear In Schedule Assembly Code Assembly Description Botunding Box Max X Image: Calc Selected Parameters Bounding Box Min Z Image: Calc Selected Parameters Can Rip Facing Image: Calc Selected Parameters
Fire Alam Devices Fiex Alam Devices Flex Ducts Flex Pipes Floors Furniture Furniture Systems Generic Anotations Generic Models Grids <	Can Fip WorkPlane Can Rotate Comments Construction Type Construction Type Id Copyright © Cost Cost CTRL Angle Leaf 1 CTRL Angle Leaf 2 <

Adding the category will also add a tab in the "Spreadsheet Link" dialog for the selected category, build some columns for identifying each Revit element and add a row to the worksheet for each element found. This provides a "real-time preview" of what the ultimate spreadsheet file will be.

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7	220303	228333:249523													
8	220345	228333:249523													
9	220400	228333:249523													
10	220420	228333:232486													
11	220512	228333:249571													
12	220569	228333:232486													
13	220644	228333:232486													
14	220671	228333:249523													
15	220714	228333:249523													
16	220740	228333:249523													
17	220819	228333:249523													
18	220851	228333:249523													
19	220897	228333:249523													
20	220923	228333:249571													
21	220907	220355.232480													
22	220350	224047.249456													
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24	222313	224047.249490													-
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To add a parameter, select the category from the "Selected Categories/Schedules" list, then locate the desired parameter from the "Available Parameters" field on the parameters tab. Select the desired parameter and double click or click the " \rightarrow " button. The green and blue background colors indicate whether a parameter is an instance or type parameter, respectively. Parameters with black text may be edited and reimported into the model. Parameters with light gray text are read-only, and may not be edited.

S. Spreadsheet Link Settings			
SL - 🐑 New Settings 🔤 Recent Saved Settings	🕞 🚽 🚽 Save Settings 🕶 🎇 Load Settings 👻 🗄	Options 🕜 Help 🔛 About	Show Preview
Filter: <show all=""></show>		Doors Parameters Doors Filters Doors Sorting	
Available Categories	Selected Categories/Schedules	Available Parameters	Calc Selected Parameters
Analytical Walls	Doors	Bounding Box Min Z	
Area Loads		Can Flip Facing	
Areas		Can Flip Hand	
Assemblies		Can Flip WorkPlane	
Cable Tray Runs		Commente	
Cable Trave		Continents	
Casework		Construction Type Id	
Ceilings		Copyright ©	
Columns		Cost	
Communication Devices		CTRL Angle Leaf 1	
Conduit Fittings		CTRL Angle Leaf 2	
Conduit Runs		Cut with Voids When Loaded	
Conduits		Description	
Curtain Panels		Door Fire Rating	
Curtain Wall Mullions		DOOR GLAZING (TEXT)	
Data Devices		DOOR SCHEDULE REMARKS	
Detail Items		Edited by	
Duct Accessories		Elevation Swing	
Duct Fittings		Energy Star Zone	
Duct Insulations		Existing	
Duct Linings		Facing Flipped	
Duct Placeholders		Facing Orientation X	
Duct Systems		Facing Orientation Y	
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Electrical Circuits			
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Categories		Hide unit symbol Instance Typ	•

The chosen parameter will be moved to the Selected Parameters list and a column will be added to the spreadsheet. The new column will have either a green or blue background, indicating whether the parameter is instance or type, the same as can be seen in the Spreadsheet Link Settings window. Also, the words "(Instance)" or "(Type)" will appear near the top of the column in the spreadsheet. Again, this is part of the real-time preview system.



Working with Raw Numeric Values

Below the "Available Parameters" column is a checkbox labeled "Hide unit symbol" that, when checked, will output values that have units of measure to the spreadsheet as <u>numbers</u> instead of as text. Further, those numbers will be values in the current project units, with the unit symbols appearing in the column header to show what units of measure were used when the spreadsheet was populated with data.

This makes it much easier to use those values in formulas. When the unit symbols are included (the default setting) the values will appear in each cell as text with the unit symbols next to them. For example: 17 mm

Working with Multiple Categories

Multiple categories can be edited in the same session. Adding additional categories to the list of "Selected Categories/Schedules" will cause corresponding tabs to be built in the spreadsheet window in real-time. Only one category will be active at a time. To switch the active category select it from the list of "Selected Categories/Schedules." Selecting a category here will set the list of available parameters, selected parameters, filters and sorting to match the selected category.



Selecting a category will also make the corresponding tab active in the spreadsheet window.



Type Parameters in the Spreadsheet Window

Spreadsheet Link can export both instance and type information together in the same spreadsheet. There is also an option to export type information alone, which will be discussed in more detail later in this user guide.

When exporting instance and type parameters together, type parameters behave differently than instance parameters in the spreadsheet. This is to mimic how type parameters behave differently than instance parameters in Revit itself.

Because spreadsheet applications have no concept of a "Type" value, formulas have been added to the spreadsheet to help emulate the behavior of type values in Revit. When a type parameter (blue) is added to the list of "Selected Parameters" a new column of data is built in the spreadsheet window.

As the column is built, each time a new Revit type is detected a "key cell" is created which will control the values of all subsequent rows of the same type. Key cells are bordered in red. If the value of a key cell is changed, the change will automatically be updated in any other rows for instances of that type.

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5 2202	232	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3' - 0"						
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2204	400	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3' - 0"						
2204	420	228333:232486		Door-Swing-ICS-Single: 36x84_HM-F_HM-001	3' - 0"						
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220	569	228333:232486		Door-Swing-ICS-Single: 36x84_HM-F_HM-001	3' - 0"						
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2209	967	228333:232486		Door-Swing-ICS-Single: 36x84_HM-F_HM-001	3' - 0"						
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2223	302	224047:249456		Door-Swing-ICS-Double: 72x84_HM-FG_HM-001	6' - 0"						
2223	313	224047:249456		Door-Swing-ICS-Double: 72x84 HM-FG HM-001	6' - 0"						

An easy way to quickly identify which cell is the key cell for a value is to select the desired cell and look at the formula bar. In this example the key cell is identified as cell E4.

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2	-2000023	!	(Instance)	(Instance)	(Type)							
3												
4	220090	228333:232486		Door-SwICS-Single: 36x8+144-F_HM-001	3' - 0"							_
5	220118	228333:232486		Door-Swing-ICs_lingle: 36x84_HM-F_m901	3' - 0"							
6	220232	228333:249523		Door-Swing-ICS-Single_36x84_HM-NV_HM-03-A	3' - 0"							
7	220303	228333:249523		Door-Swing-ICS-Single: 36xo_HM-NV_HM-014A	3' - 0"							_
8	220345	228333:249523		Door-Swing-ICS-Single: 36x84_HM-X_HM-014A	3' - 0"							-
9	220400	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_H, 914A	3' - 0"							_
10	220420	228333:232486		Door-Swing-ICS-Single: 36x84_HM-F_HM-001	3' - 0"							_
11	220512	228333:249571		Door-Swing-ICS-Single: 44x84_HM-F_HM-001	3' - 8"							
12	220569	228333:232486		Door-Swing-ICS-Single: 36x84_HM-F_HM-001	3' - 0"							
13	220644	228333:232486		Door-Swing-ICS-Single: 36x84_HM-F_HM-001	3' - 0"							
14	220671	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3' - 0"							
15	220714	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3' - 0"							
16	220740	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3' - 0"							_
17	220819	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3' - 0"							
18	220851	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3' - 0"							
19	220897	228333:249523		Door-Swing-ICS-Single: 36x84_HM-NV_HM-014A	3'-0"							
20	220923	2283333:249571		Door-Swing-ICS-Single: 44x84_HM-F_HM-001	3 - 8							
21	220967	2283333:232480		Door-Swing-ICS-Single: 36x84_HM-F_HM-001	3-0							
22	220990	220555:232480		Door Swing ICS Double: 72x84_HM-F_HM-001	5-0"							+
23	222302	224047:249456		Door-Swing-ICS-Double: 72x84_HM-FG_HM-001	6'-0"							
24	222313	224047:249450		Door Swing ICS Double, 72x84_HM-FG_HM-001	6 - 0"							-
H I	▶ N \ Door	s/Windows/				•		III				P.
												:

As with read-only parameters, those values that are not key cells have gray text to indicate that you cannot edit them directly. Only the key cells may be edited for type parameters.

Building the Spreadsheet From Schedules

The versions of Spreadsheet Link included for Revit 2013 and later have the ability to source the category, parameters and parameter order from an existing Revit single-category schedule. To add a schedule to the list of "Selected Categories/Schedules" first select "Schedules" from the drop down menu below the first column.

S. Spreadsheet Link Settings			
SL - Mew Settings Recent Saved Settings	-> 🛃 Save Settings → 🎇 Load Settings → 🗦	Options 🕜 Help 🔛 About	📰 Show Preview
Filter: <show all=""></show>		Doors Parameters Doors Filters Doors Sorting	
Available Type Categories	Selected Categories/Schedules	Available Parameters	Calc Selected Parameters
Area Loads Types Assemblies Types Cable Tray Fittings Types Cable Tray Fittings Types	Windows	Facing Orientation Y Facing Orientation Z Family Instance Unique ID Family Name	Family Name Type Name Width
Cable Trays Types Casework Types Ceilings Types		Family Type Unique ID Family Unique ID Field Book	
Comminis Types Conduit Rittings Types Conduit Runs Types		Frie Rating Fire Rating Fire Rating FRAME DETAI-HEAD	
Conduits Types Curtain Panels Types Curtain Wall Mullions Types Data Devices Types		FRAME DETAIL-JAMB FRAME DETAIL-SILL Frame Finish Frame Glazing Material	
Detail items Types Doors Types Duct Accessories Types Duct Ritings Types		Frame Inset Frame Material Frame Type Frame Type	
Duct Insulations Types Duct Linings Types Duct Placeholders Types		From Room Function Glass Material	
Ducts Types Bectrical Circuits Types	4 Þ	Glazing Material Hand Flipped T	
Types Categories		Hide unit symbol	Туре
Schedules			

Next, select the desired schedule from the list and click the " \rightarrow " button. In this example, the "DOOR AND FRAME SCHEDULE" has been added. All the parameters from the Revit schedule are pre-selected, in the same order as they appear in the Revit schedule.



The "Available Parameters" list includes all the parameters that are available for the category of the schedule. This allows adding more information to the spreadsheet than appears on the schedule.

IMPORTANT NOTE: When selecting multi-category schedules, the addin will take more time to gather the data due to the fact that there are significantly more relationships which must be queried. Very large models and schedules could require several minutes to complete the process.

Please note that calculated values, sorting methods, formatting and filters as defined in the Revit schedules will <u>not</u> be represented in Spreadsheet Link.

Exporting Types

Types can be exported by selecting "Types" from the dropdown menu. When exporting type information, Spreadsheet Link will find all types that exist for the selected category, regardless of whether or not any instances exist for the type.

Duct Systems Types Ducts Types Electrical Circuits Types	< <u> </u>	CTRL Angle Leaf 1 CTRL Angle Leaf 2 Cut with Voids When Loaded			
Types		Hide unit symbol	Instance Type	· · · · · · · · · · · · · · · · · · ·	

To begin the process, select the category type to export and add it to the list of "Selected Categories/Schedules" as before. In this example the "Door Types" category has been added. Note that only type parameters are available from the "Available Parameters" list.

S. Spreadsheet Link Settings			
SL - 🎦 New Settings 🔤 Recent Saved Setti	ngs 👻 ⋥ Save Settings 👻 Koad Settings 👻 🗄	Options 🔞 Help 🔚 About	III Show Preview
Filter: <show all=""></show>		Doors Types Parameters Doors Types Filters Doors Ty	rpes Sorting
Available Type Categories	Selected Categories/Schedules	Available Parameters	Calc Selected Parameters
Conduits Types Curtain Panels Types Curtain Wall Mulions Types Data Devices Types Duta Vaccessories Types Duct Accessories Types Duct Accessories Types Duct Insulations Types Duct Insulations Types Duct Systems Types Duct Systems Types Bectrical Croutis Types Bectrical Captionment Types Bectrical Equipment Types Bectrical Equipment Types Bectrical Equipment Types Bectrical Equipment Types Bectrical Fatures Types Free Alam Devices Types Filed region Types Filed region Types Filed region Types Filed region Types Filed region Types Fumiture Systems Types Fumiture Systems Types Generic Annotations Types Generic Annotations Types Generic Models Types Generic Models Types Generic Models Types Generic Models Types Grids Types	Doors Windows DOOR AND FRAME SCHEDULE Doors Types	Air Leakage Airayas vertical Analytic Construction Appear in Schedule Assembly Description Bottom Light Height Construction Type Id Copyright © Cost Cut with Voids When Loaded Description Edited by Energy Star Zone Family Type Unique ID Fire Rating Frame Type Function Glazing Material Heat Transfer Coefficient (U) Height Bottom Insett Height Bottom Insett Height Bottom Insett Height Top Insett Height Top	

When exporting Types only, a single row will be added to the spreadsheet for each type, and no formulas will be used as they are when exporting types and instances together. Note the type name parameter in column C below.

s. s	preadsheet Lir	ık						ο Σ	3
S	SIL 🗸 🚰 Open 📮 Save 🥜 Apply 🗸 🐥 Create 🛪 📆 Edit 👻 🎆 Data 🗸								
									_
C3		▼ '							
	A	В	С	D	E	F	G	Н	-
1	Element ID	Family:Type ID	Type Name	Type Mark	Type Comments				
2	-2000023	! [Types]	(Type) -VP-	(Type)	(Type)				-
3									
4		213496:214281	Store Front Double Door	8					-11
5		237276:226390	F	20	Panel theory and model developed by Integrated Content Solutions				-
6		224047:228303	72x84_HM-F_HM-001	21	Door theory and model developed by Integrated Content Solutions				-
7		224047:228305	72x84_HM-F_HM-002	22	Door theory and model developed by Integrated Content Solutions				-
8		228333:232486	36x84_HM-F_HM-001	24	Door theory and model developed by Integrated Content Solutions				- 11
9		228333:232488	36x84_HM-F_HM-002	25	Door theory and model developed by Integrated Content Solutions				- 11
10		233888:235609	6P	26	Panel theory and model developed by Integrated Content Solutions				- 11
11		235623:237262	DG	27	Panel theory and model developed by Integrated Content Solutions				Ε
12		238884:240501	FG	28	Panel theory and model developed by Integrated Content Solutions				
13		240515:242134	FL	29	Panel theory and model developed by Integrated Content Solutions				
14		242148:243766	G	30	Panel theory and model developed by Integrated Content Solutions				
15		243780:245399	L	31	Panel theory and model developed by Integrated Content Solutions				
16		245413:247031	NV	32	Panel theory and model developed by Integrated Content Solutions				
17		247045:249442	S	33	Panel theory and model developed by Integrated Content Solutions				
18		224047:249456	72x84_HM-FG_HM-001	34	Door theory and model developed by Integrated Content Solutions				-
19		228333:249523	36x84_HM-NV_HM-014A	35	Door theory and model developed by Integrated Content Solutions				
20		228333:249571	44x84_HM-F_HM-001	36	Door theory and model developed by Integrated Content Solutions				
21		228333:538447	44x84_HM-F_HM-002	37	Door theory and model developed by Integrated Content Solutions				
22									_
23									
24									
	Door	s / Windows / DOOF	R AND FRAME SCHEDULE Dod	ors Types	<				
-									-

Filters

Results displayed in the spreadsheet can be filtered using the filters tab. Filters, like parameters, are uniquely configured for each category or schedule added to the "Selected Categories/Schedules" list. To activate a filter, click the associated checkbox and configure the filter options.

Project-Level filters allow for filtering by design option, active view and associated level.

S. Spreadsheet Link Settings			
SL - 🌯 New Settings 💿 Recent Saved Set	tings 👻 🛃 Save Settings 👻 Koad Setting	js ▾ 🗄 Options 🕜 Help 🔛 About	E Show Preview
Filter: <show all=""></show>		Doors Parameters Doors Filters Doors Sorting	
Available Type Categories	Selected Categories/Schedules Doors	Project Filters	
Curtain Panels Types Curtain Wall Mullions Types Data Devices Types Detail Items Types	Windows DOOR AND FRAME SCHEDULE Doors Types	Active View Only Associated Levels: <a href="https://www.energy.com/science/active-com/scie/active-com/science/active-com/science/active-com/science/active-</th> <th></th>	
Duct Accessories Types Duct Fittings Types		Phase Filters	

The Phase Filters allow for powerful phase filtering. The Phase Created and Phase Demolished filters emulate standard Revit phase filtering. The Phase Existed filter, however, will allow elements to be filtered down to just the elements that existed for a particular phase.

Curtain Wall Mullions Types Data Devices Types		DOOR AND FRAME SCHEDULE Doors Types	Associated Levels: 	
Duct Accessories Types			Phase Filters	
Duct Fittings Types Duct Insulations Types	=		Phase Created:	
Duct Linings Types			Phase Demolished:	
Duct Placeholders Types			OR OR	
Duct Systems Types			Phase Existed:	
Ducts Types				
Electrical Circuits Types			Parameter Eiter	£
Electrical Equipment Types			T didiricter hiters	
Electrical Fixtures Types			Filter Par All	
Fascias Types				

Parameter-Level Filters allow filtering of elements by up to 4 parameters and values. To enable a Parameter-Level Filter check one of the associated checkboxes.

Electrical Equipment Types Electrical Fotures Types Fascias Types		Filter By:	All	
Filled region Types			•	
Here Marm Devices Types Hex Ducts Types				
Flex Pipes Types Floors Types			· · · · · · · · · · · · · · · · · · ·	
Furniture Systems Types			·	
Generic Annotations Types				
Generic Models Types			·	
	4 III >>		•	-
Types 👻			▼	-

Once the filter is enabled, select the desired parameter by which to filter, the operator to apply and the value for comparison from the drop down lists.

Spreadsheet Link Settings			- • ×
SL - 🎦 New Settings 💿 Recent Saved	Settings 👻 🛃 Save Settings 👻 🎇 Load Settings 👻	· IΞ Options 🛛 @ Help 🔛 About	E Show Preview
Filter: <show all=""></show>	Selected Categories/Schedules	Doors Parameters Doors Filters Doors Sorting Project Filters	^
Conduits Types Curtain Panels Types Curtain Vall Mullions Types Data Devices Types Detail tems Types Duct Accessories Types Duct Ritings Types Duct Insulations Types Duct Inings Types Duct Vaceholders Types Duct Systems Types Duct Systems Types Electrical Circuits Types Electrical Circuits Types Electrical Circuits Types Flactical Fatures Types Flactical Fatures Flactical Types F	Doors Windows DOOR AND FRAME SCHEDULE Doors Types	Primary Design Option Only Active View Only Associated Levels: ">">">">">">">">" Phase Riters Phase Created: ">">">">" Phase Created: ">">">">" Phase Demolished: ">">" OR Phase Existed: ">" OR Parameter Filters Filter By: All " Constraints Texture of the filter of the f	Ш
Hex Ducts Types Hex Pipes Types Hoors Types			

Once all three parameter filtering fields have been defined, the filter will be applied to the spreadsheet.

IMPORTANT: Any values in the spreadsheet that have been manually modified but not applied to the Revit model will be lost when changing any filter settings.

The "Filter By" option controls whether elements must match "Any" of the parameter filter criteria (using "or" logic) or "All" of the parameter filter criteria (using "and" logic).

S. Spreadsheet Link Settings			- • ×
SL - 🐑 New Settings 🔤 Recent Saved Set	tings 👻 🛃 Save Settings 🝷 🎇 Load Settings 🝷	Ξ Options 🔞 Help 🔚 About	E Show Preview
Filter: <show all=""></show>		Doors Parameters Doors Filters Doors Sorting	
Available Type Categories Conduits Types Curtain Panels Types Curtain Wall Multions Types Datal Devices Types Detail Items Types Duct Accessories Types	Selected Categories/Schedules Doors Windows DOOR AND FRAME SCHEDULE Doors Types	Project Filters Primary Design Option Only Active View Only Associated Levels: Phase Filters	
Duct Fittings Types Duct Insulations Types Duct Linings Types Duct Placeholders Types Duct Systems Types Ducts Types Ducts Types		Phase Created: Phase Demolished: Phase Existed: OR OR	
Bectrical Circuits Types Bectrical Equipment Types Electrical Fautures Types Fascias Types Filled region Types Fire Alam Devices Types Rex Ducts Types		Parameter Filters	E
Rex Pipes Types Roors Types Furniture Systems Types Furniture Types Generic Annotations Types Generic Models Types Gride Types			
Types			-

Sorting

The "Sorting" tab can be used to sort a selected category by one of the parameters that have been added to the export. In this example the "Mark" parameter has been selected for the Doors category.

S. Spreadsheet Link Settings			
SL 🗸 🔭 New Settings 🙋 Recent Saved Setting	s 🔹 ⋥ Save Settings 👻 Koad Settings 👻	🗄 Options 🎯 Help 🔛 About	E Show Preview
Filter: <show all=""></show>		Doors Parameters Doors Filters Doors Sorting	
Available Categories	Selected Categories/Schedules	Sort by: (Mark (Instance)	
Analytical Beams Analytical Beams Analytical Beams Analytical Beams Analytical Beams Analytical Roors Analytical Foundation Slabs Analytical Isolated Foundations Analytical Wall Foundations Analytical Walls	Doors Types DOOR AND FRAME SCHEDULE Windows	(none) Appear In Schedule (Type) Family Name Type Name (Instance) Level (Instance) Type Name (Type) Mark (Instance) Width (Type) Height (Type) Panel Material (Type) Panel Material (Type) Panel Material (Type) Panel Material (Type) Panel Material (Type) Panel Finish (Instance) DOOR GLAZING (TEXT) (Instance) Fame: Type (Tyme)	

Sorting using this method will ensure all type parameter key cells remain intact in the spreadsheet. An additional method of sorting is available in the spreadsheet itself and will be discussed later in the user guide. That method disrupts the type parameter key cell system, but it also allows for more powerful sorting and filtering of the results.

Saving & Reloading Settings

Spreadsheet Link settings can be saved and reloaded. There are two options for saving settings, either to an external file or into the project file itself. Settings saved externally will have a .slsettings file name extension. To save settings externally click the "Save Settings" button and chose the "To File" option.

S. Spreadsheet Link Settings		
SL - 🐒 New Settings 🙆 Recent Saved Settings	- 🛃 Save Settings - 👷 Load Settings - 🗄 Options 🞯 Help 🔚 About	I Show Preview
New Settings Recent Saved Settings Filter: <show all=""> Available Categories Ar Teminals Analytical Beams Analytical Braces Analytical Columns Analytical Roors Analytical Roors Analytical Isolated Foundations Analytical Isolated Foundations Analytical Isolated Foundations Analytical Nodes Analytical Nodes Analytical Valls Areas Assemblies Cable Tray Rtings Cable Tray Rtings Cable Trays Codunt Rtings Condutt Rtings Condutt Rtings Condutt Runs Condutt Runs Condutt Runs Condutt Runs Curtain Panels Curtain Wall Mullions Data Devices Totata</show>	Save Settings Coad Settings E Options Options Options Options Doors Parameters Doors Filters Doors Sorting Sort by: Mark (Instance) OOR AND FRAME SCHEDULE Windows Oors Oors	Show Preview
Categories		u

Settings can also be saved directly to a project file. This is particularly useful if settings are to be shared by several users. To save the Spreadsheet Link settings to the current project file, click the "Save Settings" button and choose the "To Project" option.

S. Spreadsheet Link Settings	
SI 🔹 🕆 New Settings 🙍 Recent Saved Settings 🗸 🙀 Save Settings 🗸 🎇 Load Settings 🗸 🗄 Options 🕼 Help 🔚 About	I Show Preview
Filter: To Project Available Categories To Hie Available Categories Selected Categories/Schedules Air Terminals Doors Analytical Beares DOOR AND FRAME SCHEDULE Analytical Foors Windows	Doors Sorting
Analytical Isolated Foundations Analytical Nodes Analytical Walls Area Loads Areas Areas	
Cable Tray Fittings Cable Tray Runs Cable Trays Casework Ceilings Columne	
Communication Devices Conduit Fitings Conduit Runs Conduits Conduits Curtain Panels	
Categories	

The "Save Spreadsheet Link Settings" dialog will appear. The project file itself must be saved when Spreadsheet Link settings are saved to the project. The "Automatically save project after saving settings" checkbox controls whether or not Spreadsheet Link will automatically save the project file when saving settings. Enter a name for the saved settings and click the "Save" button

Save Spreadsheet Link Settings
Settings
Settings Name: Doors
Automatically save project after saving settings.
Delete Save Cancel

The "Save Spreadsheet Link Settings" dialog is also used to delete settings from a project. To delete a saved selection of settings, select the settings to remove and click the "Delete" button. In the example below the "Rooms" settings would be deleted.

S Save Spreadsheet Link Settings
Settings
Doors Mech & Elec Coordination
Rooms
Update Occupancy Calcs
Settings Name: Rooms
Automatically save project after saving settings. Delete Save Cancel

To load previously saved settings from a file, click the "Load Settings" button and select the "From File" option then browse to the desired .slsettings file.

S. Spreadsheet Link Settings			
도 👻 New Settings 🙍 Recent Saved Settings	▼ 🛃 Save Settings ▼ 🎇 Load Settings ▼	Options 🕡 Help 🔚 About	I Show Preview
Filter: <show all=""></show>	From Project From File	bors Parameters Doors Filters Doors Sorting	
Available Categories	Selected Categories/Schedules	Sort by: Mark (Instance)	•
Arr Terminals Analytical Beams Analytical Braces Analytical Columns Analytical Foundation Slabs Analytical Isolated Foundations Analytical Nodes Analytical Walls Area Loads Area Loads Areas Assemblies Cable Tray Fittings Cable Tray Runs Cable Tray Runs Cable Tray Runs Cable Tray Runs Columns Conduit Runs Conduit Runs Conduit Runs Conduits Curtain Wall Mullions Data Devices	Doors Types DOOR AND FRAME SCHEDULE Windows	 Ascending Descending 	
Categories			uđ

To load settings from a project file, click "Load Settings" and then select the "From Project" option.



In the "Load Settings" dialog, select the desired saved settings and click the "Load" button.

S. Load Settings
Settings Doors Mech & Elec Coordination Rooms Update Occupancy Calcs
Load Cancel

Spreadsheet Link will retain a list of the last 10 settings saved to a file. To load one of these settings files, select it from the list of "Recently Saved Settings."

Spreadsheet Link Settings			
SL - 🐒 New Settings 🙆 Recent Saved	Settings 🗸 🚽 Save Settings 👻 Koad Settings 🗸	► 🔁 Options 🛛 @ Help 🔛 About	I Show Preview
Filter: <show all=""></show>		Doors Parameters Doors Filters Doors Sorting	
Available Categories	Selected Categories/Schedules	Available Parameters	Calc Selected Parameters
Air Terminals	Doors	Description	Appear In Schedule
Analytical Beams	Doors Types	Door Fire Rating	Family Name Type Name

Spreadsheet Window

Once desired exports have been configured, the spreadsheet window can be used to perform a number of tasks including changing exported data, saving and opening exports to and from .xlsx files (or other spreadsheet file formats), and applying changes to the Revit model.

Spreadsheet Format

The first three rows and two columns should NOT be edited manually. These are used by Spreadsheet Link to manage the import process.

💶 Sp	Spreadsheet Link															
SL	ST∎ + 😳 Open 🔒 Save 🕜 Apply - 💠 Create - 🔛 Edit - 🔛 Data -															
	Analy															
G18		- I	PPU I													
	А	В	С	D	E	F	G	Н	1	J	K	L	M	N	0	^
1	Element ID	Family:Type ID	Mark	Width	Height	Frame Type	Frame Material	Fire Rating	Comments							
2	185684	@ ! SC	(Instance)	(Type)	(Type)	(Instance)	(Type)	(Type)	(Instance)							
3																
4	118470	134398:134946	2	914.4	2133.6		Door - Frame	20 Minutes								
5	121441	109532:59778	3	762.0	2133.6		Door - Frame	20 Minutes								
6	123178	157820:123822	4	1800.0	2100.0		Door - Frame	20 Minutes								
7	123981	146890:146076						20 Minutes								
8		146890:146076						20 Minutes								
9	123992	146890:146076						20 Minutes								
10		157820:123822	8	1800.0	2100.0		Door - Frame	20 Minutes								
11	126920	109532:59778	9	762.0	2133.6		Door - Frame	20 Minutes								
12	127511	109532:59772	10	914.4	2133.6		Door - Frame	20 Minutes								-
13	127661	109532:59776	11	800.0	2100.0		Door - Frame	20 Minutes								
14	127662	109532:59776	12	800.0	2100.0		Door - Frame	20 Minutes								
15	127667	109532:59776	13	800.0	2100.0		Door - Frame	20 Minutes								
16	128400	146890:146076						20 Minutes								
17	128401	146890:146076						20 Minutes								
18	128402	146890:146076						20 Minutes								
19	128409	146890:146076						20 Minutes								
20	128410	146890:146076						20 Minutes								_
21	128411	146890:146076						20 Minutes								
22	130208	146890:146076						20 Minutes								_
23	130209	146890:146076						20 Minutes								
24	130210	146890:146076						20 Minutes								
25	132771	146890:146076						20 Minutes								
26	132781	146890:146076						20 Minutes								
27	135477	109532:59772	14	914.4	2133.6		Door - Frame	20 Minutes								
28	140021	109532-59772 s /Windows Door	15 Schedule /	914.4	2133 6		Door - Frame	20 Minutes	1							•
		A THINGONDA DOOL	ochoune/												9	

Finding and Replacing Values in the Spreadsheet

While on the Spreadsheet Link window, pressing the Ctrl + F key or using the "Find/Replace" choice on the "Edit" toolbar dropdown button will open the *Find and Replace* dialog.

s_ s _i	Spreadsheet Link □ □ ⊠ SL • 🚰 Open 💂 Save 🧇 Apply • 🕂 Create • 🐺 Edit • 📆 Data •												
A19	A19 v 940221												
	А	В	С		D	E	F		G	Н	I	J	
1	Element ID	Family:Type ID	Mark	Thic	ckness								
2	-2000023	!	(Instance)	(Typ	pe)								
3					Find a	nd Replace						_	<u>_</u>]
4	422466	218942:232780	103	50									
5	423107	930303:866105	201A	25	Find	l: 201B					-	Find Next	וו
6	425292	218942:232780	104	50	Rep	lace:					•		
7	430997	218942:232780	202	50	· ·							Find All	
8	431064	218942:232780	204	50	With	in: Sheet		•	🔳 Ma	atch case		Replace	
9	431144	218942:232780	203	50	Look	cin: Formu	las	•	🔳 Ma	atch entire cel	ls only	Deeless All	
10	431198	218942:232780	205	50	C			_				Replace All	
11	485452	910123:910850	206B	0	Sear	By Ro	ws	•				Close	
12	485679	218942:232780	206A	50									
13	505974	768490:505854	207	40	Boo	ok Sheet	Name	Addres	s Valu	e Formula			
14	704276	910123:910850	106A	0									
15	704286	910123:910850	106B	0			1	_		1			
16	709246	930303:866105	201B	25									- 11
17	906937	907033:907609	105	51									_
18	939962	768490:505854	208B	40									_
19	940221	768490:505854	208A	40									
20													
21													-
14 4	► N \ Door	s						•		111			•
													.:

This option can be useful for locating information about a specific family instance, such as a door with a specific door number (Mark) value.

Sorting and Filtering the Spreadsheet

To follow the type parameter concept, and also to show which parameter values Revit itself will not allow to be changed, some spreadsheet cells may not be editable in the spreadsheet view. These non-editable cells are shown with gray text.

In order to make these cells non-editable in the spreadsheet, the spreadsheet must be protected with a password. However, when a spreadsheet is protected, the data in it cannot be sorted.

To sort the data in the spreadsheet first requires that the spreadsheet be unprotected. To do this, use the "Unprotect Worksheet" choice from the "Data" toolbar dropdown button:

Ī	s_ S	preadsheet Lir	ık										x
	SL	🕶 💕 Open	🗔 Save 🥪 Apply	🗸 🚽 Crea	te 🕶 팽 Edit 🕶	-	Data 👻						
			• • • • • • • • • • • • • • • • • • •	17		-	Card an	d Filess					
	C3		▼				Sort an	d Fliter	-				
l		A	В	С	D	ľ	Unprot	ect Worksheet		Н	I	J	•
	1	Element ID	Family:Type ID	Mark	Type Name		Width						
	2	-2000023	1	(Instance)	(Type) -VP-		(Type)						
ĺ	3												

The default password to unprotect a Spreadsheet Link spreadsheet is:

password

This password is typed in for you automatically in the dialog that appears.

S. Unprotect	All Worksheets
Password:	•••••
Note: Unprot Unexcepted in import fail	ecting the worksheet is not recommended. changes to the worksheet could possibly result ure.
	Unprotect Cancel

Another password may be entered, which could be useful if importing a workbook that someone else had last protected using an external spreadsheet program, such as Microsoft[®] Excel[®].

Once the sheet is unprotected, the data can be sorted.

The sorting is very similar to how Microsoft Excel operates.

First, select a row to be the last row that is **unsorted**. All rows <u>below</u> this row will be sorted depending on the settings. To sort or filter all rows of data, start by selecting Row 3.

Then select the "Sort and Filter" choice from the "Data" dropdown button in the toolbar. This will provide dropdown buttons in each column that can be used to control sorting and filtering.

When you select this option, the following warning will be displayed:



As the warning states, sorting a spreadsheet containing formulas can break the formulas and cause the automatic replication of values for type parameters to stop working.

When the "Yes" button is clicked, the sorting and filtering tools are added to the row that had been selected:

1	s. s	preadsheet Lin	k									
	SL	🗕 🗃 Open	层 Save 🥪 Apply	y 🔹 🐈 Create 🔹 👿 Edit 👻 🌇 Data 🔹								
ľ	A3		•									
		A	В	С	D	E	F 🔺					
	1	Element ID	Family:Type ID	Comments	Mark							
	2	2000022	@I	(Instance)	(Instance)							
	3	_	-	_	-							
1	4	422466	218942:232780		103							
	5	939962	768490:505854		208B							
	6	940221	768490:505854		208A							

Click the dropdown button for a column to display the tools for sorting and filtering the data in that column.

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A3		▼][
	A	B C D E F									
1	Element ID	D Family:Type ID Comments Mark									
2	-2000023	@! (Instance) (Instance)									
3											
4	422466	Sort A to Z									
5	939962	Sort Z to A									
6	940221	Custom Sort									
7	505974	Text Filters -									
8	485452	Filter by Color									
9	485679										
10	431198										
11	431064	⊡ V (Select All)									
12	431144										
13	430997	105									
14	709246										
15	423107	106B									
16	704286	201A									
1/	704276	202									
18	906937										
19	425292	204									
20											
H 4	► H \ De	OK Cancel									

This method of sorting is more powerful, but will break the formulas used to emulate type parameter functionality in the spreadsheet.

This method of sorting is best used when only instance parameters have been chosen for the category, or a type category is being used. When a mixture of instance and type parameters are being used for a category, the simpler sorting method within each category's settings (on the third tab) works best.

To exit this method of sorting and filtering on the current sheet, use the "Exit Sort and Filter" choice on the "Data" toolbar dropdown button.

To protect the worksheet again, use the "Protect Worksheet" choice on the "Data" toolbar dropdown button.

Applying Changes to the Revit Model

To apply changes made in the spreadsheet to the Revit model, be sure to make the desired tab active and click the "Apply" button.

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4	SL • 🗃 Open 🗟 Save 🐓 Apply • 🐈 Create • 🔯 Edit • 🔯 Data •															
G	G18 • '															
	A	В	С	D	E	F	G	н	1	J	К	L	М	N	0	*
	Element ID	Family:Type ID	Mark	Width	Height	Frame Type	Frame Material	Fire Rating	Comments							
	2 185684 @ ! SC (Instance) (Type) (Type) (Type) (Type) (Instance)															
	3															
	4 110470 124209.124046 2 014 4 2122 6 Door Frame 20 Minuter															

If multiple categories have been defined (multiple worksheets exist), changes from all worksheets can be applied simultaneously by clicking the dropdown arrow next to apply and selecting "All Worksheets"

S	Spreadsheet Link																	
SL 🗸 🚰 Open 🔒 Save 🛷 Apply 🗸 🌵 Create 🗸 📆 Edit 🛛 🎲 Data 🗸																		
G18 r Active Worksheet											-							
È		А		🗎 All	Worksheets		E	F	G	Н	I	J	К	L	М	Ν	0	-
	Ele	ement ID	Family:1	Type ID	Mark	Width	Height	Frame Type	Frame Material	Fire Rating	Comments							
	2 185	5684	@ ! SC		(Instance)	(Type)	(Type)	(Instance)	(Type)	(Type)	(Instance)							
	3																	
4	118	8470	134398	:134946	2	914.4	2133.6		Door - Frame	20 Minutes								
	5 121	1441	109532	59778	3	762.0	2133.6		Door - Frame	20 Minutes								

Once the changes have been applied an "Import Result" screen will appear to display the results of the import.

I	mport Result
	The values in the spreadsheet were successfully applied to the Revit project.
	Elements Updated: 36 Elements Unchanged: 77 Elements Created: 10 Element Deleted: 0 Parameters Created: 0 Errors: 0
	➔ View detailed import log.
	Close

For more details, click the "View detailed import log" button:

Im	port Result							
	А	В	С	D	E	F	G	-
1	Description	ElementId	ParameterName	OldValue	NewValue	CellAddress	Worksheet	t
2	Parameter value changed.	145999	Comments		New Comment	C:4	Doors	
3	Parameter value changed.	146094	Comments		New Comment	C:5	Doors	
4	Parameter value changed.	146152	Comments		New Comment	C:6	Doors	
5	Parameter value changed.	146282	Comments		New Comment	C:7	Doors	
6	Parameter value changed.	146343	Comments		New Comment	C:8	Doors	
7	Parameter value changed.	146483	Comments		New Comment	C:9	Doors	
8	Parameter value changed.	146563	Comments		New Comment	C:10	Doors	
9	Parameter value changed.	146641	Comments		New Comment	C:11	Doors	
10	Parameter value changed.	146741	Comments		New Comment	C:12	Doors	
11	Parameter value changed.	147834	Comments		New Comment	C:13	Doors	
12	A new sheet instance created with element Id '274771'.					A:6	Sheets	
13	Parameter value changed.		Sheet Name	Unnamed		C:6	Sheets	
14	Parameter value changed.		Sheet Number	A4	A3	D:6	Sheets	
15	A new sheet instance created with element Id '274785'.					A:7	Sheets	
16	Parameter value changed.		Sheet Name	Unnamed		C:7	Sheets	
17	A new sheet instance created with element Id '274799'.					A:8	Sheets	
18	Parameter value changed.		Sheet Name	Unnamed		C:8	Sheets	
19	A new sheet instance created with element Id '274813'.					A:9	Sheets	
Η	► H \31 Changes /		<.		III			Þ

Exporting and Opening Files from Spreadsheet Link

Exporting data from Revit to a spreadsheet allows staff that either doesn't have Revit or doesn't know Revit to be utilized as part of the design process. The "Save" button is used to save Revit data to any of the following file formats: .xlsx, .xlsm, .xlsb, .xls, .txt, .csv

Three options are available: 'Single File' creates a spreadsheet/workbook with all worksheets/tabs included, "Each Tab" creates separate files per tab and 'Current Tab' exports only the data from the current worksheet.

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C3		Save Single File						
	Α	Save Each Tab to File						
1	Element ID	F Save Current Tab uction A	Assei					
2	-2000170	(Type) <-1005437>	(Туре					
3								

In the "Export Spreadsheet" window, the export format can be selected from the "Save as type:" drop down menu.

🚢 Loc 👝 Loc	cal Disk (C:) cal Disk (D:) C. Technical	(G:) File tolder	Ŧ
_	File name:		-
Sav	ve as type:	Microsoft Excel Workbook (*xlsx) (*.xlsx)	•
		Microsoft Excel Workbook (*xlsx) (*.xlsx) Microsoft Excel Macro-Enabled Workbook (*.xlsm)	

To open a spreadsheet, click the "Open..." button and browse to the desired spreadsheet file.

IMPORTANT: Spreadsheet Link can only import data into Revit from spreadsheet files it originally created.

S.	Spreadsheet Lin	k												[x
S	SL 🛛 🚰 Open 🚽 Save 🖌 Apply = 🖶 Create = 🕎 Edit = 🖓 Data =															
H2	5															
	A	В	С	D	E	F	G	н	1	J	К	L	М	N	0	•
1	Element ID	Family:Type ID	Mark	Width	Height	Frame Type	Frame Material	Fire Rating	Comments							
2	185684	@ ! SC	(Instance)	(Type)	(Type)	(Instance)	(Type)	(Type)	(Instance)							
3																

Creating New Project Parameters

Spreadsheet Link has the ability to create new project parameters which can then be populated with data from the spreadsheet. To create a new parameter from the Spreadsheet Link interface, click the "Create" toolbar dropdown button and select the desired parameter type.

Spreadsheet Link												×				
S	SL • 🖄 Open 🚽 Save 🕜 Apply • 🖶 Create • 🐺 Edit • 🎲 Data •															
H25	j	▼ =\$H\$7		New Proje	ct Parame	ter										
	A	В		New Share	ed Project I	Parameter		Н	I	J	К	L	Μ	N	0	
1	Element ID	Family:Type ID	M	Element C	reation No	t Supported Fo	r Doors et a	I Fire Rating	Comments							
2	185684	@ ! SC	(Instanc	e) (Type)	(Type)	(Instance)	(Type)	(Type)	(Instance)							
3																
4	118470	134398:134946	2	914.4	2133.6		Door - Frame	20 Minutes								
5	121441	109532:59778	3	762.0	2133.6		Door - Frame	20 Minutes								

When creating shared project parameters, Spreadsheet Link will use the shared parameters file currently being used by Revit. If no shared parameters file is specified in Revit, the following message will be displayed when attempting to create a new shared project parameter:

Spreadsheet Link - Shared Parameters File Not Selected
Cannot create a shared parameter because no shared parameters file has been set in Revit.
ОК

As long as a shared parameters file is specified and accessible, the "Create New Parameter" dialog will appear. Select the options to define the new parameter and click "Create"

Sector Create Shared Paramet	er 💽
Shared Parameter Group:	Dimensions
Parameter Name:	Length
	Instance
Parameter Type:	LENGTH
Parameter Group:	Constraints
	Create Cancel

The new parameter will be added to the end of the spreadsheet and is ready to be populated with information.

5.	opreadsheet Lir	nk												×
S	SL • 🖄 Open 🛃 Save 📌 Apply • 💠 Create • 🞲 Edit • 🔯 Data •													
J1 v Length														
	A	В	С	D	E	F	G	Н	1	L	К	L	М	•
1	Element ID	Family:Type ID	Mark	Width	Height	Frame Type	Frame Material	Fire Rating	Comments	Length				
2	185684	@ ! SC	(Instance)	(Type)	(Type)	(Instance)	(Type)	(Type)	(Instance)	(New) (Instance) !-5000119! \$				
3														
4	118470	134398:134946	2	914.4	2133.6		Door - Frame	20 Minutes						
5	121441	109532:59778	3	762.0	2133.6		Door - Frame	20 Minutes						
6	123178	157820:123822	4	1800.0	2100.0		Door - Frame	20 Minutes						
7	123981	146890:146076						20 Minutes						
8	123990	146890:146076						20 Minutes						
9	123992	146890:146076						20 Minutes						
10	126295	157820:123822	8	1800.0	2100.0		Door - Frame	20 Minutes						
11	126920	109532:59778	9	762.0	2133.6		Door - Frame	20 Minutes						

The "New Project Parameter" dialog is similar to the "New Shared Project Parameter" dialog, but a parameter name will have to be specified.

Create Project P	arameter
Name:	
	Instance
Parameter Type:	
Parameter Group:	
	Create Cancel

New project parameters can also be defined when editing the data in a spreadsheet application. Only new instance parameters can be defined when using this approach.

To create a new instance project parameter using a spreadsheet application (outside of Spreadsheet Link), start by opening a spreadsheet file that was exported from Spreadsheet Link. In the first unused column, enter the desired parameter name in row 1 and in row 2 enter: (new)

	A										К				C
1	Element II	Family:Type ID	Mark	Width	Height	Frame Type	Frame Materia	Fire Rating	Comments	Length	Glazing N	aterial			
2	185678		(Instance)	(Type)	(Type)	(Instance)	(Type)	(Type)	(Instance)	(New) (Instance) !-5000119	(new)				
3											GL				
4	118470	134398:134946	2	914.4	2133.6		Door - Frame	20 Minutes			GL				
5	121441	109532:59778	3	762.0	2133.6		Door - Frame	20 Minutes			GL				
6	123178	157820:123822	4	1800.0	2100.0		Door - Frame	20 Minutes			GL				
7	123981	146890:146076						20 Minutes			GL				
8	123990	146890:146076						20 Minutes			GL				
9	123992	146890:146076						20 Minutes			GL				
1	0 126295	157820:123822	8	1800.0	2100.0		Door - Frame	20 Minutes			GL				
1	1 126920	109532:59778	9	762.0	2133.6		Door - Frame	20 Minutes			GL				
1	2 127511	109532:59772	10	914.4	2133.6		Door - Frame	20 Minutes			GL				1
1	3 127661	109532:59776	11	800.0	2100.0		Door - Frame	20 Minutes			GL				
1	4 127662	109532:59776	12	800.0	2100.0		Door - Frame	20 Minutes			GL				
1	5 127667	109532:59776	13	800.0	2100.0		Door - Frame	20 Minutes			GL				
1	5 128400	146890:146076						20 Minutes			GL				
1	7 128401	146890:146076						20 Minutes			GL				
13	3 128402	146890:146076						20 Minutes			GL				
1	9 128409	146890:146076						20 Minutes			GL				
2	0 128410	146890:146076						20 Minutes			GL				
2	1 128411	146890:146076						20 Minutes			GL				
2	2 130208	146890:146076						20 Minutes			GL				
2	3 130209	146890:146076						20 Minutes			GL				
24	4 130210	146890:146076						20 Minutes			GL				
2	5 132771	146890:146076						20 Minutes			GL				
2	5 132781	146890:146076						20 Minutes			GL				
I	♦ ► ► Dot	ors / Windows	Door Sch	edule ⊿	1					li 🗸				فدعمه	

Spreadsheet Link will recognize this as a new project instance parameter when importing values to the Revit model. Upon import, the parameter type and group will need to be specified.

s_ s	Spreadsheet Link													
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128		▼	-		-		-							
1	A Element ID	B Family:Type ID	C Mark	D	L	F Frama Tuna	G Eramo Matorial	H Fire Pating	Commonte	J	K Glazing Ma	L	M	-â
2	185684	sc	(Instance)	(Type)	(Type)	(Instance)	(Type)	(Type)	(Instance)	(New) (Instance) I-50001191 \$	(new)	terial		
3	103004	50	(mounce)	(TYPC)	(1900)	(instance)	(1)pc/	(1) PC/	(instance)	(wew) (histance) - 50001151.9	(new)		-	
4	118470	134398:134946	2	914.4	2133.6		Door - Frame	20 Minutes						
5 121441 109532:59778 3 762.0 2133.6 Door - Frame 20 Minutes														
6 123178 157820:123822 4 1800.0 2100.0 Door - Frame 20 Minutes														
7 123981 146890:146076 20 20 Minutes														
8 123990 146890:146076														
9 123992 146890:146076														_
10	126295	157820:123822	8	1800.0	2100	Nam	e: Glazing Materia	I						_
11	126920	109532:59778	9	762.0	2133		Instance () Type						Ξ.
12	127511	109552:59772	10	914.4	2100	Parameter Typ	pe:			-				-
14	127662	109532:59776	12	800.0	2100	Parameter Grou								
15	127667	109532:59776	13	800.0	2100	Farameter Grou	up.							
16	128400	146890:146076						C	reate	Cancel				
17	128401	146890:146076												
18	128402	146890:146076						20 Minutes						
19	128409	146890:146076						20 Minutes						
20	128410	146890:146076						20 Minutes						
21	128411	146890:146076						20 Minutes						
22	130208	146890:146076						20 Minutes						
23	130209	146890:146076						20 Minutes						
24	130210	146890:146076						20 Minutes						
25	1327/1	146890:146076						20 Minutes						
26 132/31 146890:1460/6 20 Minutes														
28	140021	109532:59772	15	914.4	2133.0		Door - Frame	20 Minutes						-
14 4	► N \ Wind	ows Door Schedu	le /						•					•

Creating New Elements

Spreadsheet Link has the ability to create unplaced rooms, spaces, HVAC zones and sheets. To create a new element from the Spreadsheet Link interface, first configure an export for one of the four supported categories mentioned above.

From the spreadsheet window click the "Create" button, and then "New Element..." option.

For rooms, spaces, areas and zones specify the desired number of new elements and the desired phase.

Seate Unplaced Rooms	—
No. of new elements: 1	
Phase:	•
	Create Cancel

For sheets, specify the desired number of new sheets, the title block and whether or not they should be unplaced sheets.

S. Create She	et	8
No. of new el	ements: 1	
Titleblock		•
	Unplaced Sheet	
		Create Cancel

New elements can also be created in spreadsheets that have been exported when using an external spreadsheet application. To create a new element using a spreadsheet application, open an export from Spreadsheet Link.

To create a new unplaced Room, Space, Zone or Sheet enter "(new)" without the quotes in the first empty row of column A for each new element desired on the sheet for the type of element to be created.

Values entered for read-only parameters will not be applied when the data is imported back into the Revit model.

s. s	2 Spreadsheet Link															
SL	Su - 😂 Open 🔒 Save 🖋 Apply - 🐈 Create - 🖼 Edit - 🔯 Data -															
114	14 🔹															
	A	В	С	D	E	F	G	Н	1	J	K	L	М	N	0	*
1	Element ID	Family:Type ID	Name	Number												
2	-2000160	@!	(Instance)	(Instance)												
3																
4	140239	-2000160:-2000160	BEDROOM 1	1												
5	140243	-2000160:-2000160	BEDROOM 2	2												
6	145126	-2000160:-2000160	BATH	4												
7	152552	-2000160:-2000160	BEDROOM 1	5												
8	152555	-2000160:-2000160	BEDROOM 2	6												
9	152557	-2000160:-2000160	HALL	7												
10	152559	-2000160:-2000160	BATH	8												
11	152561	-2000160:-2000160	STORAGE	9												
12	152606	-2000160:-2000160	LIVING	10												
13	152642	-2000160:-2000160	MECH	11												-
14	180268	-2000160:-2000160	LIVING ROOM	12												
15	(new)		Kitchen	13												
16	(new)		office	14												

When creating new sheets, during the import a prompt will appear which requires having the Title block specified. If the sheet is intended to be a placeholder, checking the "Unplaced Sheet" checkbox will allow not specifying a title block. If numerous new sheets are to be created, the "Apply this option to remaining new elements" checkbox can be used.

s s	Spreadsheet Link															
SL	SI - 📸 Open 🔒 Save 🧼 Apply - 🕂 Create - 🞲 Edit - 🐻 Data -															
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	A	В	С	1	D	E	F	G	Н	I	J	K	L	Μ	N	0 ^
1	Element ID	Family:Type ID	Sheet Name	Sheet N	Number											
2	-2003100	@!	(Instance)	(Instan	ce)											
3																
4	185702	-2003100:75914	Floor Plan	A101												
5	(new)			A102												
6	(new)			A103												
/	(new)			A104												
8	(new)			A105		ate Sheet										
10				_	Cre	ate sheet										
11					No. o	f new elemen	ts: 1									
12					Talet	lash (
13					Inter	ЛОСК										=
14					1		Unplaced She	et								
15					1	Create										
16						Create										
17																
18																

Calculated Values

One of the advantages of exporting information from Revit to a spreadsheet format is the ability to modify that information with the use of formulas in the spreadsheet environment. The calculated value setting in Spreadsheet Link takes these formulas to the next level by saving them into the spreadsheet and the Spreadsheet Link settings files for repeat use. The following is an example of using the Calculated Value function to update the occupancy load of the rooms.

The "Rooms" category has been selected and the "Area", "Occupancy Load Factor" and "Occupancy" parameters have been added. The "Hide unit symbol" checkbox has also been enabled. This strips the unit symbol from the value in the spreadsheet so the values can more easily be used in formulas.



In the spreadsheet, a formula is typed in to the **first value cell** (in row 4) of the "Occupancy" parameter to calculate the occupancy value.

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E4	4 v = (C4/D4)													
	A	В	С	D	E	F	G	Н	1	J	K	L	^	
1	Element ID	Family:Type ID	Area	Occupant Load Factor	Occupancy									
2	-2000160	@!#	(Instance) #SF#	(Instance)	(Instance)								Ξ	
3														
4	265831	-2000160:-2000160	1622	10	=(C4/D4)									
5	265834	-2000160:-2000160	240	100										
6	265837	-2000160:-2000160	179	100										
7	265840	-2000160:-2000160	70	100										
8	265843	-2000160:-2000160	129	100										
9	265846	-2000160:-2000160	129	100										
10	265849	-2000160:-2000160	7092	100										
11	265852	-2000160-2000160	281	100										

Back in the settings window, activate the "Calc" checkbox for the "Occupancy" field.
S. Spreadsheet Link Settings			z
🔽 👻 🎦 New Settings 🙍 Recent Saved Settings	👻 🚽 Save Settings 👻 Koad Settings 🗸 🗦	Options 🔞 Help 🛅 About 🔠 Show Prev	iew
Filter: <show all=""></show>		Rooms Parameters Rooms Sorting	
Available Categories	Selected Categories/Schedules	Available Parameters Calc Selected Parameters	
Ramps	Rooms	Number Area	
Revision Clouds		OCC Occupant Load Factor	
Roofs		Occupant Occupancy	
Runs		Occupany S.F. Type_2003 IBC	
Security Devices		Occupany S.F. Type_2006 IBC	
Sheets		Occupany S.F. Type_2009 IBC	
Site		OLF	
Slab Edges		Perimeter	
Spaces		Phase	
Specialty Equipment		Room Finish Walls East	
Sprinklers 🔷		Room Finish Walls North	
Stairs		Room Finish Walls South	
Structural Columns		Room Finish Walls West	
Structural Connections		Room Occupancy_2003 IBC	
Structural Fabric Reinforcement		Room Occupancy_2006	
Structural Foundations		Room Occupancy_2009	
Structural Framing		S.F.PerPerson_2003 IBC	
Structural Internal Loads		S.F.PerPerson_2006 IBC	
Structural Loads		S.F.PerPerson_2009 IBC	
Structural Rebar		Type Name	
Structural Stiffeners		Unbounded Height	
Structural Trusses =		Upper Limit	
Supports		Volume	
Switch System		Wall Finish	
Telephone Devices		Workset	
Text Notes			
Title Blocks	۰ III ۲		-1
Categories		Instance Type	

When the "calc" checkbox is activated, if there is a formula in the first cell for that parameter it will be propagated through all of the cells for that column. The resulting change in the spreadsheet will look like this:

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F7		•	_				_						
	A	B	С	D	E	F	G	Н		J	K	L	L_^
1	Element ID	Family:Type ID	Area	Occupant Load Factor	Occupancy								-11
2	-2000160	@!#	(Instance) #SF#	(Instance)	(Instance)								E
3	265021	2000160, 2000160	1622	10	16.22								- 11
5	203031	-2000160:-2000160	240	10	2.4								
6	265837	-2000160:-2000160	179	10	1.79								
7	265840	-2000160:-2000160	70	10	0.7								
8	265843	-2000160:-2000160	129	10	1.29								
9	265846	-2000160:-2000160	129	10	1.29								
10	265849	-2000160:-2000160	7092	10	70.92								
11	265852	-2000160:-2000160	281	10	2.81								
12	265855	-2000160:-2000160	411	10	4.11								
13	265858	-2000160:-2000160	29	10	0.29								
14	265861	-2000160:-2000160	123	10	1.23								
15	265864	-2000160:-2000160	116	10	1.16								
16	265867	-2000160:-2000160	114	10	1.14								
17	265870	-2000160:-2000160	114	10	1.14								
18	265873	-2000160:-2000160	116	10	1.16								
19	265876	-2000160:-2000160	118	10	1.18								
20	265879	-2000160:-2000160	284	10	2.84								
21	265915	-2000160:-2000160	8907	10	89.07								
22	200918	2000160:-2000160	425	10	4.23								
23	265921	-2000160:-2000160	120	10	1.20								
24	205524	20001002000100	424	10	1.24						<u> </u>		
	► ► N \ Roon	ns/					•						•

The calculated value settings and formulas will be saved if the settings are saved. This allows for repeat use and can make updating certain values much easier. Spreadsheet Link's interface can interpret most common functions and formulae. For a complete list of functions that can be used, refer to the table in <u>Appendix C</u>.

Spreadsheet Link Options

There are several options to control the default behavior of Spreadsheet Link.



- 1. When SL is closed, a message will offer the option to save the current settings, even if no changes were made
- 2. When checked, SL will switch between the settings and spreadsheet windows without have to click on them
- 3. If a previously created spreadsheet exists at the same location, SL will warn before overwriting
- 4. If changes have been made to the spreadsheet data, applying filters or sortings may discard the current changes
- 5. SL can show/hide unit symbols uncheck this to disable the warning

Spreadsheet Link Express

Introduction

Spreadsheet Link Express is intended to rapidly re-apply previously saved settings for Spreadsheet Link. This is particularly useful when the settings have been configured to use the calculated value feature.

This can be very beneficial in environments where some users are more experienced with creating spreadsheet formulas than others. Those with less experience can simply run the settings created by others against the Revit project.

Starting Spreadsheet Link Express

On the Revit ribbon, click on the "Spreadsheet Link Express" button.



Main Dialog

Here is the main dialog for Spreadsheet Link Express.

SE Spreadsheet Link Express
Clicking the 'Apply Settings' button below will apply the selected Spreadsheet Link settings to the current project and display the results.
Load settings from a file
Browse
Coad settings from the active project
Settings
Doors
Mech & Elec Coordination
Rooms
Update Occupancy Calcs
Apply Settings Cancel

To load settings that have been saved to an .slsettings file, click the browse button and locate the desired settings file.



Once selected, click the "Apply Settings" button. This will re-load and automatically apply the settings to the project.

Settings		
Doors		
Mech & Elec Coo	rdination	
Rooms		
Update Occupan	cy Calos	
	Apply Settings	Cancel

Settings that have been saved inside the project itself can also be loaded and applied. To select settings from a project, click the "Load settings from the active project" button.



Select the desired settings from the project and click the "Apply Settings" button.

Load settings from the active project Settings
Doors Mech & Elec Coordination
Update Occupancy Calcs
Apply Settings Cancel

When the "Apply Settings" button is clicked, Spreadsheet Link invisibly runs and applies the settings to the project. When complete, the results dialog is displayed:

Import Result
The values in the spreadsheet were successfully applied to the Revit project.
Elements Updated: 36 Elements Unchanged: 77 Elements Created: 10 Element Deleted: 0 Parameters Created: 0 Errors: 0
View detailed import log.
Close

View Creator

Introduction

View Creator has several functions that aid in the rapid creation of many Revit view types based on settings and templates.

Starting View Creator

On the Revit ribbon, click on the "View Creator" button.



The View Creator User Interface

The View Creator dialog will open.

evels Plan / Ceiling Elevation Views Dependent Views 3D Views Schedules Sheets / Titleb	blocks Worksets Duplicate Views View Templates
Name	Elevation
Parking	-16' - 11"
L1 - Block 35	-5' - 11"
L1 - Block 37	-3' - 5 1/2"
L1 - Block 43	0' - 0"
M1	5' - 6"
12	8' - 1"
L3	18' - 10"
L4	32' - 2"
L5	45' - 6"
Block 37 - Parapet	47' - 8"
Block 43 - Parapet	51'- 2"
R1	52' - 8"
Block 39 - Parapet	54 - 8
RZ Come Re-fillenterer	58 - 10
Green Root Hardscape	03 - 11
Farapet	03 - 0
no Paranat 2	00 - 10 70' - 10"
a apel 2 Parthouse Doof	91'- 0"
	01-0

There are several tabs on the main interface, each one designed to assist with different aspects of view creation. The first tab is used to modify existing or to create additional levels in the project. This is particularly useful for initial project setup.

To create a new level, click in the grey space at the bottom of the list of levels.

Levels Plan / Ceiling Elevation Views Dependent Views Schedules Sheets	/Titleblocks Worksets Duplicate Views View Templates
Name	Elevation
T.O. FOOTING	-6' - 0"
Level 1	0' - 0"
Level 2	16' - 0"
Level 3	29' - 3"
Roof	42' - 11 1/4"

A new row will be created, supply a name and elevation for the new level to be created. In this example the level name "LEVEL 3" has been entered.

Name	Elevation
Level 1	0' - 0"
Level 2	10' - 0"
LEVEL 3	24' - 0''

Names and elevations of existing levels can be modified in this dialog as well. In this example levels 1 and 2 have been changed to upper case and the elevation of level 2 has been changed to 12' - 0''.

0' - 0"
12' - 0"
24' - 0"

Once all level names and elevations have been set, click the "Create/Update Levels" button in the lower right corner of the window to apply the configuration to the project.



A confirmation dialog will indicate the results.



Plan & Ceiling Views

The Plan/Ceiling view tab is used to create floor plan and reflected ceiling plan views by selecting a combination of level, view template and phase.



The view names will be generated automatically based on the name of the level, view template, phase and scope box. Additionally, the order of each name part can be rearranged by selecting a different property from the drop list of the property groups.



If the names of the level, view template, phase and scope box are not desired for the view name, the abbreviation fields can be used instead. To set an abbreviation click in the abbreviation cell for the desired level, view template or phase and enter a value.

Levi	el 🗸		View
	Level	Abbreviation	1
	L1 - Block 43		
	L3		
	L1 - Block 35		
	L2		
	L4		
	L5		
2	Block 3/ - Parapet		
2	Block 43 - Parapet		
Η	BIOCK 39 - Parapet		
۲	P2		

Phases have an additional option to allow "No Abbreviation" which, for example, is common practice for New Construction views. These values can also be set by clicking the "Set Phase Abbreviation" button.

The format used to name each view can be adjusted using the drop-down boxes. Also, a prefix and/or suffix can be added to each view.

Parapet	Colors
View Name Format: Prefix	- <level> - <view template=""> - <phase> - <scope box=""> - Suffix</scope></phase></view></level>

Once the abbreviations and view name format has been setup, to create views check at least one box from each of the 3 columns and click the "Add" button. A row will be added to the list at the bottom with the same name that will be applied to the newly created view. The separator characters are set in the options dialog and discussed later in this user guide. In this example Levels 2,3,4 and 5 are selected. The Architectural Plan template will be applied and the new construction phase has been selected along with the scope box for Levels resulting in the view names "(L2,L3,L4,L5)-Architectural Plan-New Construction-Levels" being added to the list.



At this point, selections can be modified and additional items can be added to the list.

When one or more views have been added to the queue for creation, click the "Create Views" button.

When selecting an option from the view template column, if one of the 'No ...Template' options are selected any view created will have all proper view names associated based on naming rules, but no view template will be associated to the created view.



It is possible to add to the queue a combination of level, view template and phase that already exist in the project. To indicate that a view would be a duplicate, and therefore not created, view combinations that already exist will be indicated in red in the queue.

evel \checkmark	View Template \sim	Phase ~	Scope Box ~
Level / Abbreviation Block 37 - Parapet Block 39 - Parapet Block 43 - Parapet Green Roof Hardscape L1 - Block 35 L1 - Block 37 L1 - Block 43 L1 - Block 43 L2 L3 L5 M1	View Template Abbrev No Abbre Architectural Enlarged Co.	Phase Abbreviation No Abbreviation Legends	ScopeBox / Abbreviation No Abbreviati cnone> Grids Levels Views Overall
w Name Format: Prefix - <level: oor Plans:Floor Plan) L2-Architectural Plan-New C oor Plans:Floor Plan) L3-Architectural Plan-New C</level: 	> - <view template=""> - <phose> - <scope box=""> - Suffix onstruction-Levels onstruction-Levels</scope></phose></view>		Add

Items can be removed from the queue using either the "Remove" or "Remove All" buttons.

Remove Remove All	Create Views

If a duplicate of an existing combination is needed, use the "Suffix" or "Prefix" option to generate a unique name for the view. In this example "Working" has been added to the end of the view name by using the "Suffix" option.

			Structural Framing P; 5	IHUL		
View Name Format:	Prefix	Level	▼ View Template	▼ Phase	✓ Working	Add
01-PLAN-Working						

Elevation, Section and Detail Creation

The Elevation/Section/Detail tab is used to copy an elevation, section or detail view from one phase to another. Greyed out checkboxes indicate for that view name, a view already exists for that phase. To speed the process of selection, use the Check and Clear tool button menus. This function is also available on several other tabs and in a right-click menu.

Levels Plan / Ceiling Bevation Views Dependent Views 3D Views Schedules Sheets / Titleblocks Worksets Duplicate Views Vi	ew Templates		
Check ▼			
Views	Legends	Existing	New Construction
North			
South Disch 20		U	
South - Block 33		U	
Café Kitchen A			
East	Ä	<u> </u>	
Typical Public Toilet Room - West		<u> </u>	
Typical Public Toilet Room -South	Ō	Ŏ	
Typical Public Toilet Room - North	0		

To copy a view into another phase, select the checkbox for the desired phase and view. Once all selections have been made, click the "Create Views" button.

Existing (EXST)	New Construction (NEW)		
		\checkmark	
		\checkmark	
		Create Eleva	ion Views

Dependent Views

This tool supports a dependent view workflow based on the use of Scope Boxes. Create a scope box for each area of a building that will require a dependent view. Once the scope boxes have been created, a column will appear in the "Dependent Views" tab for each scope box in the project.

Check the box for each combination of view & scope box for which a dependent view should be created. Once all selections have been made, click the "Create Views" button.

View Creator			- 0	×
🔨 🕂 🗄 Options 🔞 Help 📘 Videos 👲 Suppo	rt 🕕 About			
Levels Plan / Ceiling Elevation Views Dependent Views	3D Views Schedules Sheets / Titleblocks Work	sets Duplicate Views View Templates		
View Family: <default> View Template: <ar< th=""><th>y> View Name: Starts V</th><th>Vith V</th><th></th><th></th></ar<></default>	y> View Name: Starts V	Vith V		
Views 🗠	View Type	Grids Levels Views Overall		
L1	Floor Plan: Floor Plan			
L1	Ceiling Plan: Ceiling Plan			
L1	Area Plan: Rentable			
L1	Area Plan: Gross Building			
L1 - Scope Box	Floor Plan: Working			
L1 Export to Civil	Floor Plan: Working			
L1 Life Safety Plan	Floor Plan: Life Safety Plan			
L1 Wall Base	Floor Plan: Working			
L1 Wall Top	Floor Plan: Working			
L1_SD	Floor Plan: Schematic Plan			
L2	Floor Plan: Floor Plan			
L2	Ceiling Plan: Ceiling Plan			
L2	Area Plan: Rentable			
L2	Area Plan: Gross Building			
L2 Life Safety Plan	Floor Plan: Life Safety Plan			
L2 Wall Base	Floor Plan: Working			
L2 Wall Top	Floor Plan: Working			
L2_SD	Floor Plan: Schematic Plan			
L2-Architectural Plan-New Construction-Levels	Floor Plan: Floor Plan			
L3	Floor Plan: Floor Plan			
L3	Ceiling Plan: Ceiling Plan			
L3	Area Plan: Rentable			
L3	Area Plan: Gross Building			
			Create Dependent Vi	iews

3D Views

Similar in workflow, 3D views can be created as quickly and easily as Plan/Ceiling views. Additionally, the views orientation can be selected to create 3D plan views, elevations, sections, etc.



Schedules

The schedules tab can be used to duplicate schedules either by phase or per level.

View Creator		— D X
▼ Set Phase Abbreviations 🗄 Options 🕡 Help	🕨 Videos 🕧 About	
Levels Plan / Ceiling Elevation Views Dependent Views Sc	hedules Sheets / Titleblocks Worksets Duplie	cate Views View Templates
⊘ Check • ≡ Clear • Schedule Name: Starts With ∨		
Schedule View /	Per Phase	Per Level
DOOR SCHEDULE		
Door Schedule 2		
SHEET LIST		
WALL FIRE RATING SCHEDULE		
		Create Schedules

Check the box for each desired copy operation. Once all settings are configured, click the "Create Schedules" button.

Create Schedules

Sheets & Title Blocks

The main function of the "Sheets" tab is to view and control title block usage across the sheets in a project. Each sheet in the current project is represented on a row. Columns are created for each title block loaded into the project. Checkboxes indicate which title blocks have been found on each sheet.

	nt views Schedules Sheets / II	Worksets Duplicate Views V	iew l'emplates
eet Name	Sheet Number	E1 30x42 Horizontal	Start Page - TB
Start Page	-		
Demo Page			
Main Floor	A101		
Main Floor Ceiling Plan	Δ103		
Fire Rating	A105		
Exterior Elevations	A106		
Exterior Elevations	A107		

To change the title block on a specific sheet select the checkbox for the desired title block. In this example, sheet A101 has been set to use the "C 17 x 22 Horizontal" title block.

Sł	neet Name	Sheet Nu 🗠	E1 30x42 Horizont	A 8.5 x 11 Vertic	B 11 x 17 Horizont	C 17 x 22 Horizont	D 22 x 34 Horizont	E 34 x 44 Horizont
2	CTC_UG	U000	v					
	CTC_VC_UG 1	U101						4
	CTC_VC_UG 2	U102						\checkmark
	CTC_VC_UG 3	U103				v		

It is also possible to assign a specific title block to multiple sheets at the same time. Shift or CTRL select in the first column of row for the sheets to include in the assignment.

When all sheets have been configured with the desired title blocks, click the "Process" button.

Sheet Creation

To create a new sheet, click in the blank space at the bottom of the list of sheets.

Main Floor Ceiling Plan	A104
Ø Fire Rating	A105
Exterior Elevations	A106
Exterior Elevations	A107
*	
Add Sheet Batch Add Sheets	

Supply a name and number for the sheet and select the desired title block.

Multiple sheets can be created at the same time using the "Batch Add Sheets" button.



When this button is pressed, Spreadsheet Link will launch, allowing the add sheets functionality in it to be used. Refer to the section in this guide regarding Spreadsheet Link sheets creation. <u>Creating New Elements</u>

Worksets

The main function of the "Worksets" tab is to create new 3D views that display a specific workset per view. Each view will be associated to the latest phase and use default view settings.

To generate 3D views, select any number of worksets then select "Create Views"

Check • = Clear • Workset Name: Starts With • Workset Shared Levels and Grids Floor 1 Floor 2 Floor 3-5						
Circ						
	Workset	_				
$\mathbf{\nabla}$	20160902					
	Shared Levels and Grids					
⊻.	Hor 1					
∠	Floor 2					
	Floor 3-5					
	Mech 1					
	Mech 2					
	Revit Links					
	Situet 1					
	Stude 1					
<u> </u>	Studt 2.5					
<u> </u>						

Upon creation a confirmation dialog will be displayed.



Duplicate Views

The main function of the "Duplicate Views" tab is to allow for mass/repetitive duplication of multiple views.

Is Plan / Ceiling Elevation Views Depe	endent Views Schedules Sheet	s / Titleblocks Worksets Duplicate Views View Templates	
heck 🔹 🚍 Clear 👻 # of Duplicates: 🔨	View Type: <all></all>	✓ View Name: Starts With ✓	
View	Туре	Duplicate X number of times	
01-Level 1	Floor Plan	0	
01-Level 1 - Furniture	Floor Plan	0	
Level 2-Architectural Plan	Floor Plan	0	
Level 3-Architectural Plan	Floor Plan	0	
Roof-Architectural Plan	Floor Plan	0	
T.O. FOOTING-Architectural Plan	Floor Plan	0	
Level 2	Floor Plan	0	
Level 3	Floor Plan	0	
01-Level 1 - Equipment	Floor Plan	0	
RDS BREAK ROOM 109 - Floor Plan	Floor Plan	0	
Level 1	Floor Plan	0	
RDS CONFERENCE East 117 - Floor PL.	Floor Plan	0	
Level 1	Ceiling Plan	0	
Loval 2	Coiling Plan	Ň	
w Naming Options	Duplicate Viev	v Settings	

To duplicate a view, select the check box preceding its row and enter a quantity. Then click 'Duplicate Views'

	• 🖬 Set Phase Abbreviations 🛛 🗄 Op	tions 🔞 Help 下 Videos 🕕 Al	[
evel	s Plan / Ceiling Elevation Views Dep	endent Views Schedules Sheets	Titleblocks Worksets Duplicate Views View Templates	
C	heck 👻 🚍 Clear 👻 # of Duplicates: 🗸	∖ ∨ View Type: <all></all>	View Name: Starts With	
	View	Туре	Duplicate X number of times	^
	01-Level 1	Floor Plan	0	
	01-Level 1 - Furniture	Floor Plan	0	
7	Level 2-Architectural Plan	Floor Plan	1	
2	Level 3-Architectural Plan	Floor Plan	1	
	Roof-Architectural Plan	Floor Plan	0	
2	T.O. FOOTING-Architectural Plan	Floor Plan	1	
	Level 2	Floor Plan	0	
2	Level 3	Floor Plan	1	
	01-Level 1 - Equipment	Floor Plan	0	
	RDS BREAK ROOM 109 - Floor Plan	Floor Plan	0	
\sim	Level 1	Floor Plan	1	
~	RDS CONFERENCE East 117 - Floor Pl	Floor Plan	1	
	Level 1	Ceiling Plan	0	
View	V Naming Options	Coiling Plan	Settings	
Prefi	ix: WCC Suffix:	O Duplicate	With Detailing () As Dependent Create Duplication	ate Views

Using the Up and Down arrows will automatically increase or decrease the quantity of all selected views

o c	heck $\bullet \equiv$ Clear \bullet # of Duplicates:	View Type: <all></all>	✓ View Name: Starts With ✓	
	View /	Туре	Duplicate X number of times	^
	DEMO NOTES	Drating View	0	
	DESK PLAN	Floor Plan	0	
	DESK PLAN Copy 1	Floor Plan	0	
\checkmark	DIVISION 01 - GENERAL REQUIREME.	Schedule	5	
	DIVISION 02 - EXISTING CONDITIONS	Schedule	0	
	DIVISION 03 - CONCRETE	Schedule	5	
	DIVISION 04 - MASONRY	Schedule	0	
	DIVISION 05 - METALS	Schedule	0	
	DIVISION 06 - WOOD, PLASTICS AND	Schedule	0	
	DIVISION 07 - THERMAL & MOISTURE	Schedule	0	
	DIVISION 08 - OPENINGS	Schedule	0	
\checkmark	DIVISION 09 - FINISHES	Schedule	5	
\checkmark	DIVISION 10 - SPECIALTIES	Schedule	5	
	DIVISION 11 - EQUIPMENT	Schedule	0	
	DIVISION 12 - FURNISHINGS	Schedule	0	
\checkmark	DIVISION 22 - PLUMBING	Schedule	5	
	DIVISION 23 - HEATING, VENTILATIN	Schedule	0	
	DIVISION 26 FLECTRICAL	C-L-J.J.		

As the list of views may get quite long, it is possible to filter the list by both view type and view names.

v: v VC	iew Creator ▼ 🔲 Set Phase Abbreviations 🛛 👯 Opti	ons 🔞 Help 下 Videos 🕦 About	- 0	×
Level	s Plan / Ceiling Elevation Views Depe	ndent Views Schedules Sheets / Titlebl	ocks Worksets Duplicate Views View Templates	
o 📀	heck 👻 🚍 Clear 👻 # of Duplicates: 🔨	View Type: <all></all>	View Name: Starts With V RDS	
	View	Туре	Duplicate X number of times	^
	RDS BREAK ROOM 109 - Floor Plan	Floor Plan	0	
\square	RDS CONFERENCE East 117 - Floor PL.	Floor Plan	3	
	RDS BREAK ROOM 109 - Reflected Ce	Ceiling Plan	0	
	RDS CONFERENCE East 117 - Reflect	Ceiling Plan	0	
	RDS BREAK ROOM 109 - ELEVATION	Elevation	0	
	RDS BREAK ROOM 109 - ELEVATION	Elevation	0	
	RDS BREAK ROOM 109 - ELEVATION	Elevation	0	
	RDS BREAK ROOM 109 - ELEVATION	Elevation	0	
	RDS CONFERENCE East 117 - ELEVA	Elevation	0	
	RDS CONFERENCE East 117 - ELEVA	Elevation	0	
	RDS CONFERENCE East 117 - ELEVA	Elevation	0	
	RDS CONFERENCE East 117 - ELEVA	Elevation	0	
	RDS Furniture System	Schedule	0	v
16-1		Dunlingta Maur Sattinga	0	
Pref	ix: WCC Suffix:	O Duplicate Wi	h Detailing () As Dependent Create Duplicate	Views

When duplicating model and detail views it is possible to select how views are duplicated. At the bottom of the selection list are options to select how duplication of all selected views is handled.

L . JKS	Drafting √iew Drafting View	0	• • • • • • • • • • • • • • • • • • • •
View Naming Options Prefix:	Suffix:	Duplicate View Settings Ouplicate O With Detailing O As Dependent	Create Duplicate Views
			:

View Templates

Using the View Templates it is possible to assign view templates to multiple views quickly and easily. View Creator will not allow a view template of the incorrect category to be assigned to views.



To assign view templates, simply drag the desired views from the left onto the appropriate view templates in the right pane.



Options

View Creation Options

The "View Name Separator" section is used to control the characters that are inserted between name parts for any view created by this tool.

ew Creation SI View Name Sep	neet Creation arator	Refresh		
Separator: -	Add	space before an	d after the separato	·
This separator For example, E	will be added i Entry-New-Leve	in between the v el1, where the da	iew name. ash - is the separato	r.
View Template /	Application			
O Assign View	w Template Per	rsistently		
O Apply View	Template Prop	perty		

View Template Application determines how template properties are controlled. If the second option is selected, only the properties of the view will be set to match the view template.

View Name	Separator	ce before and after th	e separator	
This separ For examp	ator will be added in be e, Entry-New-Level 1,	tween the view name where the dash - is the	a. ne separator.	
View Templa	ate Application			
O Assign	View Template Persist	ently		
◯ Apply V	iew Template Property	,		
				_

Sheet Creation Options

The options under sheet creation allow the application of view properties to the naming of the sheets when they are created in View Creator.

Select properties in the left pane to move to the right. The order in which they appear determines their place in the name.



Refresh Options

The Refresh options control whether to populate the checkboxes on the "Elevations/Sections/Details" tab and the "Sheets" tab with current information in the project. Projects with more than 50 elements of either type may take several minutes to refresh. Even if the tabs are not refreshed View Creator will still function properly. Parsing the project provides additional context that may be helpful when making decisions about what views to copy or which title blocks to assign to a sheet.



Appendix A – Using Snapshot Filtering

IMPORTANT: While the software for querying Revit for information has been optimized for speed, if all data is to be extracted from a Revit project, **taking a snapshot can take a long time**, depending on the size and complexity of the project. Snapshot times of 20, 30 or 40 minutes or more are quite possible.

If, however, only a subset of information from a Revit project is needed, filtering out unnecessary information queries can dramatically speed up the time it takes to create a snapshot from a Revit project. This is particularly true if "slow" parameter values are not needed.

Snapshot filtering enables controlling (reducing) what is queried in order to help speed up the time it takes to create a snapshot, and to reduce the amount of data in the results that needs to be evaluated.

This is what the first tab ("What to Include") of the filtering controls looks like:

What to Include Where to Search		Reset Filters
Categories to Include Select the categories to include. If the list below is empty, all categories will be included. Include all Revit categories	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
CArea Boundary> CRoom Separation> Capace Separation> Adaptive Points Air Terminal Tags Air Terminals Analytical Beam Tags Analytical Beam Tags Analytical Boate Tags Analytical Boate Tags Analytical Boate Foundation Tags Analytical Isolated Foundation Tags Analytical Isolated Foundation Tags Analytical Isolated Foundation Tags Analytical Slob Foundation Tags Analytical Node Tags Analytical Slob Foundation Tags Analytical Wall Foundation Ta	Families and types Family instances Family parameter definitions Family-level parameter values Instance parameter values Type parameter values Type parameter values Project Information Project parameter values* Schedule data Slow parameter values* Subcategory data Workset data Imports and Links data Warnings data (Revit 2018+)	Include all fast parameters found in the project Edit Re-sort Remove All Include all slow parameters found in the project
Edit Remove All	Select All Select None *Slow Params	Edit Re-sort Remove All

Note that the "Reset Filters" button in the upper right corner will clear all filter settings, resulting in all the data in the project that this tool knows how to extract being included in the export. These are the default settings.

This is what the second tab ("Where to Search") of the filtering controls looks like:

What to Include Where to Search		Reset Filters
What to include where to search Search by Levels Enter level names to search, one per row. Leave blank to search all levels. ✓ Search all levels found in the project	Search by Phase Enter any single phase name for one or more of the items below. Different phase names can be used for each item. Leave all items blank to search all phases. Name of phase created or Name of phase demolished or Name of phase existed Browse	Search by View Search all views Only search the active view Search only the view: (View title is case-sensitive) Search only for families in the Primary Design Option
Edit Re-sort Remove All		

Each of the areas on these tabs will be discussed in detail.

Selecting What to Include

The first tab in the filters dialog allows selecting what values to include in the export.

Categories to Include

The first setting that can be defined is to filter by one or more categories.

What to Include Where to Search			Reset Filters
What to Include Where to Search Categories to Include If the list below is empty, all categories will be included. Include all Revit categories Include all Revit categories Area Boundary> <room separation=""> <space separation=""> Adaptive Points Ari Terminal Tags Ari Terminals Analytical Brace Tags Analytical Brace Tags Analytical Column Tags Analytical Board Tags Analytical Isolated Foundation Tags Analytical Isolated Foundation Tags Analytical Vice Tags Analytical Shab Foundation Tags Analytical Wall Foundation Tags Analytical Wall Foundation Tags Analytical Wall Foundation Tags Analytical Wall Foundation Tags Analytical Wall Fags Analytical Wall Foundation Tags Analytical Wall Fags Analytical Wall Fags Analytical Wall Fags Analytical Wall Fags Analytical Wall Fags Analytical Wall Fags Analytical Lade</space></room>	Data Types to Include Select which kinds of information should be included. Families and types Family instances Groups Family parameter definitions Family-level parameter values Type parameter values Type parameter values Type parameter values Family-level parameter values Type parameter values Type parameter values Schedule data Slow parameter values* Subcategory data Workset data Monorts and Links data	Parameters to Include Enter the case-sensitive names of only those parinclude, one per row. Leave blank to include all projection ✓ Include all fast parameters found in the projection Edit Re-sort ✓ Include all slow parameters found in the projection	Reset Filters rameters to parameters. ct Remove All ect
Area Loads Area Tags Area Tags Edit Remove All	Imports and Links data Warnings data (Revit 2018+) Select All Select None	Edit Re-sort	∨ Remove All

When the "Include all Revit categories" checkbox is selected, all categories will be included and the list will not be editable. To edit the list requires deselecting this checkbox.

Once the list is editable, both the "Edit" and "Remove All" buttons below the categories list can be clicked. Clicking the "Remove All" button will clear the list.

NOTE: If there are no categories in the list, <u>all</u> categories will be included in the snapshot. Keeping the checkbox selected essentially just shows the list of the categories that will be used.

NOTE: Depending on the specific add-in which is taking a snapshot, some categories that are required for that specific add-in may not be visible to choose from.

If the "Edit" button below the categories list is clicked, the following dialog will allow selecting only specific categories for inclusion in the snapshot:

		Edit Categories	
Available Categ	ories		Selected Categories
Filter list:	<all></all>	~	
Adaptive Point: Air Terminal Ta Air Terminals Analysis Displa Analysis Result Analytical Bear Analytical Bear Analytical Boar Analytical Iola Analytical Iola Analytical Link: Analytical Link: Analytical Slab Analytical Slab Analytical Slab Analytical Slab Analytical Slab Analytical Wall Analytical Wall Area Load Tag Area Loads	s , gs , y Style is n Tags e Tags e ted Foundation Tags ted Foundation Tags s s e Tags es Foundation Tags acces Foundation Tags Foundation Tags acces Foundation Tags Foundation Fags Foundation Fags Foundation Fags Foundation Fags Foundation Fags Foundation Fags Foundation Fags Foundation Fags Fags Foundation Fags	Add Selected > Add All >> Add All >> < Remove Selected << Remove All	OK Cancel

All categories that are not already in the "Selected Categories" list (which will initially be populated from the previous screen) are shown in the "Available Categories" list on the left. However, the "Filter list" choice allows narrowing down the available category choices by discipline.

		Edit Categories		×
Available Catego	pries		Selected Categories	
Filter list: Adaptive Points Air Terminal Ta Air Terminals Analysis Display Analytical Bean Analytical Braot Analytical Colur Analytical Colur Analytical Colur Analytical Colur Analytical Isofa Analytical Linkt Analytical Linkt Analytical Linkt Analytical Linkt Analytical Suffa Analytical Suffa Analytical Wall Analytical Wall Analytical Wall Area Load Tag	All> Architecture Model Architecture Annotation Structure Model Structure Annotation Structure Analytical Model Mechanical Model Mechanical Model Bectrical Model Bectrical Model Piping Annotation Piping Model Piping Annotation Tags s Foundation Tags Tags s	Add Selected > Add All >> < Remove Selected << Remove All		
			Caricer	

For example, if we select the "Mechanical Model" filter, the list of available categories gets much shorter, because only those associated with mechanical models are displayed:

vallable Lai	tegories		Selected Lategories	
ilter list:	Mechanical Model	~ ~ ~~~		
Air Terminal:	s			
veas				
Detail Items				
Juct Fittings	S soldom			
Juct Flacer	loiders		1	
lex Ducts		Add Selected >		
Generic Mo	dels		1	
IVAC Zone	s	Add All >>]	
ines				
Mass	F		1	
Viechanical	Equipment	< Remove Selected		
rans Paster Imag			1	
Rooms	63	<< Remove All		
Spaces				

Clicking the "Add All" button will add all the visible categories in the "Available Categories" list to the "Selected Categories" list. However, one or more categories can be selected in the "Available Categories" list and moved to the "Selected Categories" list using the "Add Selected" button.

Once the list of Selected Categories is correct, clicking the "OK" button will result in them being selected on the "What to Include" tab of the filter settings dialog:

What to Include Where to Search	-	Reset Filters
What to Include Where to Search Categories to Include. If the list below is empty, all categories will be included. Include all Revit categories Include all Revit categories Air Terminals Areas Detail Items Duct Fittings Duct Fittings Duct Fittings Duct Fittings Duct S Generic Models HVAC Zones Levels Lines Mass Mechanical Equipment Parts Rooms Spaces Views	Data Types to Include Select which kinds of information should be included. Families and types Family instances Family parameter definitions Family-level parameter values Family-level parameter values Level data Level data Project Information Project Information Slow parameter values* Solve values	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters. Include all fast parameters found in the project Edit Re-sort Remove All Include all slow parameters found in the project
Edit Remove All	Workset data Imports and Links data Warnings data (Revit 2018+) Select All Select None	Edit Re-sort Remove All

NOTE: If after editing the list you re-select the "Include all Revit categories" checkbox, your edits will be lost and all categories will once again be shown in the list.

Data Types to Include

The next filters to explore are for the "Data Types to Include" --

What to Include Where to Search		Reset Filters
What to Include Where to Search Categories to Include Select the categories to include. If the list below is empty, all categories will be included. Include all Revit categories Include all Revit categories Air Terminals Areas Detail Items Duct Fittings Duct Flaceholders Ducts Generic Models HVAC Zones Levels Lines Mass Mechanical Equipment Parts Rooms Spaces Views	 Data Types to Include Select which kinds of information should be included. Families and types Family instances Groups Family parameter definitions Family-level parameter values Instance parameter values Type parameter values Level data Phase data Project Information Project parameters Schedule data Slow parameter values* Subcategory data 	Reset Filters Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters. ☑ Include all fast parameters found in the project ☑ Include all fast parameters found in the project ☑ Edit Re-sort ☑ Include all slow parameters found in the project
Edit Remove All	View data Workset data Imports and Links data Warnings data (Revit 2018+) Select All Select None *Slow Params	Edit Re-sort Remove All

NOTE: Depending on the specific add-in which is taking a snapshot, some data types that are required for that specific add-in may not be visible to toggle on or off. The image above shows all data types available.

- <u>Families and types</u> will include all of the family definitions and type definitions within each family definition *for the categories that have been selected*.
- <u>Family instances</u> will include information about each family instance that has been placed in the project for the family and type definitions that were collected.
- <u>Groups</u> will include information about the groups that have been defined which include instances of families that were collected. Note that if families of non-selected categories are included in the groups, no information about those families will be included in the results. In other words, only a *subset* of the group definitions will be included in the snapshot.
- <u>Family parameter definitions</u> will include the definitions of the parameters in each family, *but not any values*. This will include such things as the names, parameter types, GUIDs if the parameters are shared, whether or not they're project parameters vs. family parameters vs. built-in parameters, etc.
- <u>Family-level parameter values</u> will include the actual values for those parameters that are found at the family level.
- <u>Instance parameter values</u> will include the actual values for those instance parameters that exist on each family instance that was found. This requires the Family instances to have been collected.
- <u>Type parameter values</u> will include the actual values for those type parameters that exist on each family type that was collected.
- <u>Level Data</u> will include **basic** information about the levels in a project. Note that this is a subset of the data that is gathered for Levels when the "Levels" category is chosen. The category approach gathers more information, but this approach makes it much easier to search for level-based information from the resulting data, for example if writing reports.
- <u>Line pattern data</u> will include information about line styles, line patterns and line pattern segments.
- <u>Phase data</u> will include information about the different phases defined in the project
- <u>Project Information</u> will include information about the Project Information parameters seen in the project
- <u>Project parameters</u> will include information about the Project Parameters that have been defined.
- <u>Schedule data</u> will include information about the project schedules.
- <u>Slow parameter values</u> will attempt to get information from Revit which can take a long time to query. Clicking the "*Slow Params" button below the list will show the list of all the parameters that may take longer for Revit to provide values than normal parameters. These are typically special parameters, such as for the insertion point X, Y and Z positions in space, the room in which a family exists, or the rotation of the family instances.



The list of the names of "slow parameters" is included in <u>Appendix B</u> of this document.

• <u>Subcategory data</u> will include information about subcategories within the project

- <u>View Data</u> will include **basic** information about the views in a project. Note that this is a subset of the data that is gathered for Views when the "Views" category is chosen. The category approach gathers more information, but this approach makes it much easier to search for view-based information from the resulting data, for example if writing reports.
- <u>Workset data</u> will include information about the worksets that have been defined within the project.
- <u>Imports and Links data</u> will include information about files that have been imported into the model or that are linked into the model
- <u>Warnings data (Revit 2018+)</u> will gather information about warnings in the project. Data will only be gathered if the snapshot is being taken with Revit 2018 or later.

Parameters to Include

The next filters to explore are for the "Parameters to Include" --

What to Include Where to Search		Reset Filters
Categories to Include Select the categories to include. If the list below is empty, all categories will be included.	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
Air Terminals Areas Detail Items Duct Fittings Duct Placeholders Ducts Flex Ducts Generic Models HVAC Zones Levels Lines Mass Mechanical Equipment	Family instances Groups Family parameter definitions Family-level parameter values Type parameter values Type parameter values Level data C Line pattern data Phase data Project Information	Include all fast parameters found in the project Edit Re-sort
Parts Rooms Spaces Views	Project parameters Schedule data Slow parameter values* Slow parameter values* View data View data Vorkset data Imports and Links data Warnings data (Revit 2018+)	Include all slow parameters found in the project
Edit Remove All	Select All Select None *Slow Params	Edit Re-sort Remove All

This section allows specifying to gather only information about parameters with specific names. When the "Include all fast parameters found in the project" checkbox is selected, you cannot change which fast parameters have data about them gathered: all fast parameters in the project for the selected categories will have data about them gathered.

Fast parameters include built-in parameters, custom shared parameters or custom family parameters.

When the "Include all slow parameters found in the project" checkbox is selected, you cannot change which slow parameters have data about them gathered: all slow parameters in the project for the selected categories will have data about them gathered.

Slow parameters are special values built into Revit itself. Clicking the "*Slow Params" button on the dialog will present a list of those parameters. The list of the names of "slow parameters" is also included in <u>Appendix B</u> of this document.

When the either checkbox is unselected, the remaining associated controls identified in the image above are enabled. For example:

 Parameters to I 	include		
Enter the case include, one p	e-sensitive na er row. Leav	ames of only those para ve blank to include all pa	meters to arameters.
🗌 Include all	fast paramet	ers found in the project	
			^
			~
Edit	Re-sort		Remove All
Edit	Re-sort slow parame	eters found in the project	Remove All
Edit	Re-sort slow parame	eters found in the project	Remove All
Edit	Re-sort slow parame	eters found in the project	Remove All
Edit	Re-sort	eters found in the project	Remove All
Edit	Re-sort	iters found in the project	Remove All
Edit Include all	Re-sort	iters found in the project	Remove All

Either list of parameter names is actually a simple text editor. This allows either free-form typing of parameter names, or pasting in a list of parameters from another source, such as from a word processing or spreadsheet document.

IMPORTANT: As in Revit itself, parameter names are case-sensitive.

Clicking the "Remove All" button will clear the list.

IMPORTANT: If the list has no parameter names in it, all fast parameters in the project will be queried.

This allows for some very flexible filtering. For example, you can get parameter information for all the fast parameters and only one slow parameter (for example, Room, which returns the room in which the family exists [where applicable]). This would be much faster than getting information for all the slow parameters.

Clicking the "Re-sort" button will resort the list alphabetically. This may be particularly useful for reviewing the list after pasting in parameter names from different sources.

Clicking the "Edit" button will bring up the Edit Parameter Names dialog.

For fast parameters, the dialog looks like this:

	Edit Param	eter Names	
Type a parameter name		Selected parameters:	
	Add>		
Show built-in parameters			
Show the parameters from the current project for the select	ted categories:		
Parametern	^		
# of Ground Conductors # of Hot Conductors # of Neutral Conductors # of Neutral Conductors # of Neutral Conductors # of Runs 3D 5% Modulus of Elasticity Abbreviation Absorptance Abstract Join Strength Order Actual Exhaust Airflow Actual Lighting Load Actual Number of Risers Actual Number of Treads Actual Power Load	~		
Select All	Select None		Remove Selected
	ОК	Cancel	

If parameter names had been listed on the previous screen, they would also appear in the "Selected parameters" list when this dialog first appears.

Whatever is in the "Selected parameters" list will be returned to the previous screen if the "OK" button is clicked. On the previous screen the list will be <u>replaced</u> with the parameter names in the "Selected parameters" list.

The "Type a parameter name" and "Add" button next to it allow manually typing in a (case-sensitive) parameter name for addition to the Selected parameters list. This is similar to simply typing in a new name on the previous screen.

The list of parameter names on the left side provides known parameter names to make it easier to ensure the correctlyspelled (and case-sensitive) parameter names make it to the final "Selected parameters" list. As the items in the list on the left are checked or unchecked, the list of "Selected parameters" on the right will change.

The checkboxes above the list on the left control what appears in the list on the left.

Show built-in parameters

Show the parameters from the current project for the selected categories

"Built-in parameters" are those defined in Revit itself. That list include things such as "Offset," "Manufacturer," "Mark" and "Zone" among many, many others.

The second checkbox will scan the current project and show all the parameters found for the categories that were selected on the previous screen. As this can take some time, a warning is shown when selecting this checkbox:



Once complete, the names of all parameters found in the current project for the selected categories will be added to the list of choices on the left.

The box above the list on the left will filter the list of choices based on whatever is typed in (case insensitive filter):

Show the parameters from the current project for the selected categories
Rip (fip
Parameters
Component Flip Flip Flip Flip Direction Flip Section Profile Flipped Flipped Flipped Dimension Line Extension Frofile Across Flip Frofile Along Flip Frofile Is Flipped Frofile Is Flipped
Select All Select None

Once you are done editing the "Selected parameters" list, clicking the OK button will change the list on the previous screen to match what was selected:

What to Include Where to Search		Reset Filters
What to Include Where to Search Categories to Include Select the categories to include. If the list below is empty, all categories will be included. Include all Revit categories Air Terminals Areas Detail Items Duct Placeholders Ducts Flex Ducts Generic Models HVAC Zones Levels Lines Mass Mechanical Equipment Parts Rooms Spaces Views	Data Types to Include Select which kinds of information should be included. Image: Select which kinds of information should be included. Image: Select which kinds of information should be included. Image: Select which kinds and types I	Reset Filters Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters. Include all fast parameters found in the project Actual Supply Airflow Height Until Length Width Edit Re-sort Remove All Include all slow parameters found in the project
Edit Remove All	Workset data Maports and Links data Marnings data (Revit 2018+) Select All Select None *Slow Params	Edit Re-sort Remove All
Edit Remove All	Select All Select None *Slow Params	Edit Re-sort Remove All

NOTE: Re-selecting the "Include all fast parameters found in the project" checkbox will provide the following confirmation question:

Include All Parameters?			
Do you want to include all fast parameters found in the project? This will clear the list of currently selected parameters.			
Yes <u>N</u> o			

Clicking "Yes" will clear the list and disable the editing controls.
Defining the slow parameters for which to gather information works in a very similar manner, with two exceptions:

1) If not allowing the snapshot to include any information for slow parameters (in the "Data Types to Include" section), then providing a list of specific slow parameters to query will be unavailable. For example:

What to Include Where to Search		Reset Filters
Categories to Include Select the categories to include. If the list below is empty, all categories will be included.	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
Include all Revit categories Air Terminals Areas Detail Items Duct Fittings Duct Placeholders Ducts Flex Ducts Flex Ducts Generic Models HVAC Zones	Families and types Families and types Family instances Groups Family parameter definitions Family-level parameter values Instance parameter values Type parameter values	Include all fast parameters found in the project Actual Supply Airflow Height Length Width
Levels Lines Mass Mechanical Equipment Parts Rooms Spaces Views	Level data Line pattern data Phase data Project Information Project parameters Schedule data Slow parameter values* Subcategory data View data Workset data Morkset data Imports and Links data Morkinga data (Revit 2018+)	Edit Re-sort Remove All Include all slow parameters found in the project Slow parameters cannot be configured unless the 'Slow parameter values" option is selected.
Edit Remove All	Select All Select None *Slow Params	Edit Re-sort Remove All

2) When the "Edit" button is clicked for the slow parameters section, the dialog changes:

		Edit Parame	eter Names	
Available slow parameters:	Q.		Selected parameters:	
Parameters Absolute Path Align Area Scheme Name Blue Bounding Box Max X Bounding Box Max Y Bounding Box Max Y Bounding Box Min X Bounding Box Min X Bounding Box Min Y Bounding Box Min Z Can Be Printed Can Flip Facing Can Flip Hand Can Flip WorkPlane Can Rotate Cans CropBox Active CronBox Fnabled				
CropBox Is ReadOnly		>		
	Select A	NII Select None	Cancel	Remove Selected Remove All

Because the list of slow parameters is fixed, there is no option to type in a parameter name or scan the current project for parameter choices.

Here are example settings for gathering all the information about elements associated with an architectural model which gather all the fast parameter information as well as just the "From Room," "To Room" and "Room" slow parameters:

What to Include Where to Search		Reset Filters
Categories to Include Select the categories to include. If the list below is empty, all categories will be included.	Data Types to Include Select which kinds of information should be included.	Parameters to Include Enter the case-sensitive names of only those parameters to include, one per row. Leave blank to include all parameters.
Areas Detail Items Duct Fittings Duct Fitceholders Ducts Flex Ducts Generic Models HVAC Zones Levels Lines Mass Mechanical Equipment Parts Rooms Spaces Views	Family instances Family parameter definitions Family-level parameter values Family-level pa	Include all fast parameters found in the project Edit Re-sort Remove All Include all slow parameters found in the project From Room Room To Room V
Edit Remove All	Select All Select None *Slow Params	Edit Re-sort Remove All

NOTE: As of the 20.0.0 release, by customer request when Project Parameters are selected for gathering they will NO LONGER be filtered based on these settings. Now when Project Parameters are selected, **ALL** project parameters will always be gathered.

Selecting Where to Search

The second tab controls where in the Revit project to search for elements from which to gather data.

Search by Levels

Searching by levels allows only gathering data from elements that exist in the project on one or more selected levels.

What to Include Where to Search			Reset Filters
Search by Levels Enter level names to search, one per row. Leave blank to search all levels. ✓ Search all levels found in the project being queried	Search by Phase Enter any single phase name for one or more of the items below. Different phase names can be used for each item. Leave all items blank to search all phases. Name of phase created or Name of phase demolished or Name of phase existed Browse or Search only for families in the Primary Design O	Search by View Search all views Only search the active view Search only the view named: (View name is case-sensitive) ption	Browse
Edit He-sort Hemove All			

This works in very much the same way as listing only specific parameters to query, discussed immediately above.

The list of level names is a simple text editor, which allows typing or pasting in the names of levels to examine.

Clicking the "Edit" button will display the following dialog:

	Edit Levels
Available Levels in the Current Project Ceiling Foundation Level 1 Level 1 Living Rm. Level 2 Roof Line	Selected Levels to Search
	Add Selected > Add All >>
	<< Remove All
	OK Cancel

The list on the left contains the names of levels from the currently open project. The list on the right will initially be filled with the selected level names from the previous screen.

When the "OK" button is clicked, the list of "Selected Levels to Search" will replace the list on the previous screen.

Search by Phase

You can also specify to only include the results for elements that are in one or more building phases:

What to Include Where to Search		_	Reset Filters
Search by Levels Enter level names to search, one per row. Leave blank to search all levels. Search all levels found in the project being queried Ceiling Foundation Level 1 Level 1 Level 1 Level 2 Roof Line	Search by Phase Enter any single phase name for one or more of the items below. Different phase names can be used for each item. Leave all items blank to search all phases. Name of phase created or Name of phase demolished or Name of phase existed Browse B	Search by View Search all views Only search the active view Search only the view named: (View name is case-sensitive)	Browse
Edit Re-sort Remove All	Search only for families in the Primary Design Op	ltion	

Any element that matches any one of these settings will be searched and included in the results.

Typing in a phase name for the "Name of phase created" option will return elements that were created in the phase with the name specified.

Typing in a phase name for the "Name of phase demolished" option will return elements that were demolished in the phase with the name specified.

Typing in a phase name for the "Name of phase existed" option will return all elements that existed in the phase with the name specified. This will include elements that were created in that phase.

Clicking any of the "Browse" buttons will bring up a dialog which shows the names of the phases in the current project, as a tool which may be helpful in specifying the correct name which may be used in whatever project is being queried:

	Select A Phase	
Phase:		
		~
	OK. Can	cel

Select A Phase	
Phase:	
	~
Existing Working Drawings Leaming Content	

Search by View

You can also specify to only include the results for elements that are in a particular view:

Search by Levels	Search by Phase	Search by View	
Search by Levels Enter level names to search, one per row. Leave blank to search all levels. Search all levels found in the project being queried Ceiling Foundation Level 1 Level 1 Level 1 Level 2 Roof Line	Search by Phase Enter any single phase name for one or more of the items below. Different phase names can be used for each item. Leave all items blank to search all phases. Name of phase created or Name of phase demolished or Or Name of phase demolished or	Search by view Search all views Only search the active view Search only the view named: (View name is case-sensitive)	Browse
	Name of phase existed Browse Search only for families in the Primary Design C	Iption	
Edit Re-sort Remove All			

This section is fairly self-explanatory. When specifying a view by its (case-sensitive) name, it can either be typed in or the "Browse" button can be used to select from the list of view names in the currently open project:

	Select A View	×
View:		
		~
	OK Cance	el .:

Select A View	x
View:	
	~
Project View Level 1 North East West	^
Visit Site Architectural Reflected Ceiling Plan Architectural Elevation System Browser South Building Section Level 2 Longitudinal Section Plans Elev (Sec /Det	
Kitchen From Yard Living Room Stair Section Approach Section Perspective Elevations/Sections Elev./ Stair Sections Typ. Wall Section Typical Wall Roof Connection Typical Rour Mall Connection Typical Foundation Detail	
Main Stair Detail	× .

Search by Primary Design Option

You can also specify to only search for family elements that are in the Primary Design Option:

What to Include Where to Search			Reset Filters
Search by Levels Enter level names to search, one per row. Leave blank to search all levels. Ceiling Foundation Level 1 Level 1 Level 2 Roof Line	Search by Phase Enter any single phase name for one or more of the items below. Different phase names can be used for each item. Leave all items blank to search all phases. Name of phase created or Name of phase demolished or Name of phase existed Browse or Name of phase existed Browse	Search by View Search all views Only search the active view Search only the view named: View name is case-sensitive)	Browse
~	Search only for families in the Primary Design O	bion	
Edit Re-sort Remove All			

Once all of the settings have been specified, a snapshot taken of a Revit project will only include a subset of the elements in the project. This may allow the snapshot to be taken in dramatically less time than if the snapshot were to include all of the elements in the project.

Appendix B – List of Slow Parameters

Some parameters (listed below) require extra time for Revit to provide their values. Turning off "Slow Parameters" or ensuring as few as possible of these names are in the list of only selected parameters to gather can significantly speed up the time it takes to query information from Revit.

Absolute Path Align Area Scheme Name Attachment Type Blue Bounding Box Max X Bounding Box Max Y Bounding Box Max Z Bounding Box Min X **Bounding Box Min Y Bounding Box Min Z** Can Be Printed Can Flip Facing Can Flip Hand Can Flip WorkPlane Can Rotate Class Coordinate Project End X Coordinate Project End Y Coordinate Project End Z Coordinate Project Start X Coordinate Project Start Y Coordinate Project Start Z Coordinate Project X Coordinate Project Y Coordinate Project Z Coordinates Project End X Coordinates Project End Y Coordinates Project End Z Coordinates Project Start X **Coordinates Project Start Y** Coordinates Project Start Z Coordinates Project X **Coordinates Project Y Coordinates Project Z CropBox Active CropBox Enabled** CropBox Is ReadOnly CropBox Max X CropBox Max Y CropBox Max Z CropBox Min X CropBox Min Y CropBox Min Z

CropBox Visible **Curtain Panel Horizontal Spacing Curtain Panel Tile Pattern Curtain Panel Vertical Spacing** Cut Pattern Color Blue Cut Pattern Color Green Cut Pattern Color Red **Design Option Direction Angle Direction X Direction Y** Direction Z **Display Style** End Point X End Point Y End Point Z External File Last Modified Time **External File Reference Type** Facing Flipped Facing Orientation X **Facing Orientation Y** Facing Orientation Z Family Instance Unique ID Family Name Family Name Type Name Family Placement Type Family Type Unique ID Family Unique ID Field Count File Size in Bytes From Room Generated From Level Green Hand Flipped Hand Orientation X Hand Orientation Y Hand Orientation Z Has Embedded Schedule Height Host Host View Name Include Linked Files Instance Name Invalid

Invisible Is Conceptual Mass Family Is Curtain Panel Family Is Design Option Primary Is Editable Is Embedded Is InPlace Is Internal Keynote Schedule Is Itemized Is Key Schedule Is Linked Is Material TakeOff Is Pinned Is Slanted Column Is System Family Is Template Is Title Block Revision Schedule Is View Specific Is WorkPlane Flipped **Key Schedule Parameter Name** Link Type Display Name Linked File Status Local Alias Material Name Mirrored Outline Max U Outline Max V Outline Min U Outline Min V **Owner View** Path Path Type Pinned Plane Reference Global Point X Plane Reference Global Point Y Plane Reference Global Point Z Plane Reference Type Plane Reference UV Point U Plane Reference UV Point V Position X Position Y Position Z **Project Elevation** Red

Referencing Sheet Name Referencing Sheet Number Relative Path Right Direction X Right Direction Y Right Direction Z Room Rotation Schedule Category Show Spatial Element Calculation Point Single Host View ElementID Space Start Point X Start Point Y Start Point Z Structural Material Structural Material Type Structural Type Structural Usage Surface Pattern Color Blue Surface Pattern Color Green Surface Pattern Color Red Text To Room Type Name Up Direction X Up Direction Y Up Direction Z **View Direction X View Direction Y View Direction Z** View Id View Specific View Title View Type Width Workset Name

Appendix C – Table of Supported Spreadsheet Functions

Link to List of Supported Features

Database and List Management Functions	
DAVERAGE	Indicates the average of the values that meet the specified criteria.
DCOUNT	Counts the number of cells containing numbers that meet the specified criteria.
DCOUNTA	Counts nonblank cells containing numbers or text that meet the specified criteria.
DGET	Returns a single value that meets the specified criteria.
DMAX	Extracts the highest value that meets the specified criteria.
DMIN	Extracts the lowest value that meets the specified criteria.
DPRODUCT	Returns the product of the values that meet the specified criteria.
DSTDEV	Estimates the standard deviation of a population, based on a sample of selected entries from the database.
DSTDEVP	Returns the calculation of the standard deviation of a population, based on the sum of the whole population.
DSUM	Returns the total of the values that meet the specified criteria.
DVAR	Estimates the variance of a sample population based on the values that meet the specified criteria.
DVARP	Returns the calculation of the true variance of an entire population based on the values that meet the specified criteria.

Date and Time Functions	
DATE	Returns the serial number that represents a date.
DATEDIF	Returns the difference of two dates in years, months or days.
DATEVALUE	Converts date text to a DATEVALUE serial number.
DAY	Returns the corresponding day of the month serial number or date text from 1 to 31.
DAYS	Returns the number of days between the two specified dates.
DAYS360	Returns the number of days between two set dates based on a 360-day year.
EDATE	Returns the value or serial number of the date which is a certain number of months before or after a user-specified date.
EOMONTH	Returns the date at the end of the month a specified number of months before or after a specified date.
HOUR	Returns the hour as a serial number integer between 0 and 23.
ISOWEEKNUM	Returns the ISO week number for a specified date.
MINUTE	Returns the serial number that corresponds to the minute.
MONTH	Returns the corresponding serial number of the month of a date between 1 and 12.
NETWORKDAYS	Returns the number of working days between two dates. Excludes weekends and specified holidays.
NETWORKDAYS.INTL	Returns the number of whole workdays between two dates using parameters to indicate which and how many days are weekend days.
NOW	Returns the current date and time in the form of a serial number.
SECOND	Returns the seconds portion of a serial time value.

TIME	Returns the decimal value of a given time.
TIMEVALUE	Returns the decimal number for a given time.
TODAY	Returns the current date as a serial number.
WEEKDAY	Returns the corresponding day of the week as a serial number.
WEEKNUM	Returns the number where a week falls numerically within a year.
WORKDAY	Returns a date that is a specified number of working days before or after a given date.
WORKDAY.INTL	Returns the serial number of the date before or after a specified number of workdays using parameters to indicate which and how many days are weekend days.
YEAR	Returns the corresponding year as a serial number in the form of an integer.
YEARFRAC	Calculates the fraction of the year between two dates.

Engineering Functions	
BESSELI	Returns the BESSEL function in modified form for imaginary arguments.
BESSELJ	Returns the actual BESSEL function.
BESSELK	Returns the BESSEL function in modified form for imaginary arguments.
BESSELY	Returns the BESSEL function, also known as the Weber or Neumann function.
BIN2DEC	Converts a binary number to decimal form.
BIN2HEX	Converts a binary number to a hexadecimal.
BIN2OCT	Converts a binary number to octal form.
BITAND	Returns the bitwise AND of the two specified numbers.
BITLSHIFT	Returns the specified number shifted left by the specified amount.
BITOR	Returns the bitwise OR of the two specified numbers.
BITRSHIFT	Returns the specified number shifted right by the specified amount.
BITXOR	Returns the bitwise XOR of the two specified numbers.
COMPLEX	Converts real and imaginary coefficients into a complex number of the form $x + yi$ or $x + yj$.
CONVERT	Interprets data from one measurement system to another.
DEC2BIN	Converts decimal numbers to binary form.
DEC2HEX	Converts decimal numbers to hexadecimal.
DEC2OCT	Converts decimal numbers to octal.
DELTA	Tests whether numbers or values are equal with a number result. Returns "0" for unequal, "1" for equal.
ERF	Returns the integrated error function between a lower and upper limit.
ERF.PRECISE	Returns the error function
ERFC	Returns a complementary ERF function integrated between 'x' and infinity.
ERFC.PRECISE	Returns the complementary ERF function integrated between x and infinity
GESTEP	Returns the value 1 if the number is greater than or equal to a specified step value, otherwise it returns 0.
HEX2BIN	Converts hexadecimal numbers to binary form.
HEX2DEC	Converts hexadecimal numbers to decimal form.
HEX2OCT	Converts hexadecimal numbers to octal form.

IMABS	Returns the absolute value (modulus) of a complex number in $x+yi$ or $x+yj$ text format.
IMAGINARY	Returns the coefficient of a complex number in $x+yi$ or $x+yj$ text format.
IMARGUMENT	Returns the theta argument - an angle expressed in radians.
IMCONJUGATE	Returns the complex conjugate of a complex number in $x+yi$ or $x+yj$ text format.
IMCOS	Returns the cosine of a complex number in $x+yi$ or $x+yj$ text format.
IMCOSH	Returns the hyperbolic cosine of the specified complex number.
IMCOT	Returns the cotangent of the specified complex number.
IMCSC	Returns the cosecant of the specified complex number.
IMCSCH	Returns the hyperbolic cosecant of the specified complex number.
IMDIV	Returns the quotient of complex numbers in x+yi or x+yj text format.
IMEXP	Returns the exponential of a complex number in $x+yi$ or $x+yj$ text format.
IMLN	Returns the natural logarithm of a complex number in $x+yi$ or $x+yj$ text format.
IMLOG10	Returns the common logarithm (Base 10) of a complex number in $x+yi$ or $x+yj$ text format.
IMLOG2	Returns the common logarithm (Base 2) of a complex number in $x+yi$ or $x+yj$ text format.
IMPOWER	Returns a complex number raised to a power in $x+yi$ or $x+yj$ text format.
IMPRODUCT	Returns the product from 2 to 29 complex numbers in $x+yi$ or $x+yj$ text format.
IMREAL	Returns the real coefficient of a complex number in $x+yi$ or $x+yj$ text format.
IMSEC	Returns the secant of the specified complex number.
IMSECH	Returns the hyperbolic secant of the specified complex number.
IMSIN	Returns the sine of a complex number in $x+yi$ or $x+yj$ text format.
IMSINH	Returns the hyperbolic sine of the specified complex number.
IMSQRT	Returns the square root of a complex number in $x+yi$ or $x+yj$ text format.
IMSUB	Returns the difference of two complex numbers in $x+yi$ or $x+yj$ text format.
IMSUM	Returns the sum of 2 to 29 complex numbers in $x+yi$ or $x+yj$ text format.
IMTAN	Returns the tangent of the specified complex number.
OCT2BIN	Converts an octal number to binary form.
OCT2DEC	Converts an octal number to decimal form.
OCT2HEX	Converts an octal number to hexadecimal form.

Financial Functions	
ACCRINT	Returns accrued interest for securities that pay periodic interest.
ACCRINTM	Returns the accrued interest for securities that pay interest at the maturity date.
AMORDEGRC	Returns the depreciation for each accounting period within the formula.
AMORLINC	Returns the depreciation for each accounting period.
COUPDAYBS	Returns the number of days from the beginning of the period to the coupon-period settlement date.
COUPDAYS	Returns the number of days in the period that contains the coupon period settlement date.
COUPDAYSNC	Returns the number of days between the settlement date to the next coupon date.
COUPNCD	Returns the next coupon date after the settlement date.
COUPNUM	Returns the total number of coupons to be paid between the settlement and maturity dates,

	rounded up to the nearest whole coupon.
COUPPCD	Returns the coupon date previous to the settlement date.
CUMIPMT	Returns the cumulative interest on a loan between start and stop dates.
CUMPRINC	Returns the cumulative principal amount between start and stop dates on a loan or mortgage.
DB	Returns the asset depreciation for a period using the fixed declining balance method.
DDB	Returns the asset depreciation for a period using the double-declining balance method or another specified method.
DISC	Returns the security discount rate.
DOLLARDE	Converts a fraction dollar price into a decimal dollar price.
DOLLARFR	Converts a decimal dollar price into a fraction dollar price.
DURATION	Returns the Macauley duration for an assumed par value.
EFFECT	Returns the effective interest rate annually. This is based on the nominal annual interest rate and the number of compounding periods per year.
FV	Returns the future value of an investment that makes payments as a lump sum or as a series of equal periodic payments.
FVSCHEDULE	Returns the future value of a principal amount after applying several, or a series of compound interest rates.
INTRATE	Returns the interest rate of a security that is fully invested.
IPMT	Returns the interest for a period of time based on an investment with periodic constant payments and a constant interest rate.
IRR	Returns the internal rate of return for a series of cash flows represented by numbers in the form of values.
ISPMT	Calculates the interest paid during a defined period of an investment.
MDURATION	Returns the modified duration of a security with a par value assumed to be \$100.
MIRR	Returns a modified internal rate of return for several periodic cash flows.
NOMINAL	Returns the nominal annual interest rate given an effective rate and the total number of compounding periods for the year.
NPER	Returns the total number of periods for an investment. This is based on a periodic constant payment and a constant interest rate.
NPV	Calculates the net present value of an investment from the discount rate and several future payments and income.
ODDFPRICE	Returns the value of a security based on a per \$100 face value and an odd (short or long) first period.
ODDFYIELD	Returns the security yield with an odd first period.
ODDLPRICE	Returns the per \$100 face value of a security having an odd last coupon period.
ODDLYIELD	Returns the security yield that has an odd last period.
PDURATION	Returns the number of periods for the specified present value to reach the specified future value given the specified interest rate.
РМТ	Calculates the loan payment for a loan based on constant payments and constant interest rates.
РРМТ	Returns the principal payment for a period of an investment based on periodic constant payments and a constant interest rate.
PRICE	Returns the value of a security based on price per \$100 face value and periodic interest payments.
PRICEDISC	Returns the value of a discounted security based on a price per \$100 face value.

PRICEMAT	Returns the value of a security that pays interest at maturity and price per \$100 face value.
PV	Returns the present value based on an investment.
RATE	Returns per period the interest of an annuity.
RECEIVED	Based on a fully invested security, returns the amount received at maturity.
RRI	Returns the effective interest rate required for the specified present value to reach the specified future value in the specified number of periods.
SLN	Returns the straight-line depreciation on an asset.
SYD	Based on a specified period, SYD returns the sum-of-years' digits depreciation of an asset.
TBILLEQ	Returns the bond equivalent yield for a treasury bill.
TBILLPRICE	Returns the price per \$100 face value for a treasury bill.
TBILLYIELD	Returns the yield of a treasury bill.
VDB	For a period you specify, returns the depreciation of an asset.
XIRR	Returns the internal rate of return for a schedule of cash flows that is not necessarily periodic.
XNPV	Returns the net present value for a schedule of cash flows that is not necessarily periodic.
YIELD	Based on a yield that pays periodic interest, returns the yeild of the security.
YIELDDISC	Returns the annual yield for a discounted security.
YIELDMAT	Returns the annual yield based on a security that pays interest at a maturity.

Information Functions	
CELL	Returns information about a cell's location, formatting, or contents in the upper-left cell in a reference.
ERROR.TYPE	Returns the corresponding number value associated with an error type in Microsoft Excel.
INFO	Returns operating environment information.
ISBLANK	Returns TRUE if the cell is empty, FALSE if it contains data.
ISERR	Returns TRUE if value contains any error value except #N/A, FALSE if it does not.
ISERROR	Returns TRUE if value contains any error value (including #N/A), FALSE if it does not.
ISEVEN	Returns TRUE if value is an even number, FALSE if it is not.
ISFORMULA	Returns TRUE if the specified cell contains a formula.
ISLOGICAL	Returns TRUE if value is a logical value, FALSE if it is not.
ISNA	Returns TRUE if value is #N/A, FALSE if it is not.
ISNONTEXT	Returns TRUE if value is not text, FALSE if it is.
ISNUMBER	Returns TRUE if value is a number, FALSE if it is not.
ISODD	Returns TRUE if value is an odd number, FALSE if it is not.
ISREF	Returns TRUE if value is a reference, FALSE if it is not.
ISTEXT	Returns TRUE if value is text, FALSE if it is not.
Ν	Returns a value converted to a number.
NA	An alternative representation of the error value #N/A.
SHEET	Returns the one based index of the specified sheet, or the index of the sheet containing the formula if no sheet is specified.
SHEETS	Returns the number of sheets in a 3d cell reference, or the number of sheets in the workbook containing the formula if no reference is specified.

TYPE

Logical Functions	
AND	Returns TRUE if all the arguments are TRUE in the formula, and FALSE if any one argument is FALSE.
FALSE	Returns the value FALSE. May be typed directly into the cell as "FALSE".
IF	Returns a value if one condition is TRUE and returns another value if the condition is FALSE.
IFERROR	Returns a value you specify if a formula evaluates to an error; otherwise, returns the result of the formula
IFNA	Returns the specified first argument unless it is $\#N/A$, in which case it returns the specified second argument.
NOT	Returns the reverse value of its arguments; TRUE becomes FALSE and FALSE becomes TRUE.
OR	Returns FALSE if all arguments are FALSE, and TRUE if at least one argument is TRUE.
TRUE	Returns the value TRUE. May be typed directly into the cell as "TRUE".
XOR	Returns TRUE if the specified arguments contain an odd number of TRUE values, or FALSE if the values contain an even number of TRUE values.

Lookup and Reference Functions	
ADDRESS	Given specified row and column numbers, creates a cell address as text.
AREAS	Returns the number of areas based on a reference.
CHOOSE	Returns an item from a list of values
COLUMN	Returns the column number(s) based on a given reference.
COLUMNS	Returns the number of columns based on an array or reference.
HLOOKUP	Searches for a specified value in an array or a table's top row.
HYPERLINK	Creates a shortcut to jump to a document stored on a network server.
INDEX	Returns the value of an element selected by the row number and column letter indexes.
INDIRECT	Returns the contents of a cell using its reference.
LOOKUP	Looks in the first row or column of a range or array, and returns the specified value from the same position in the last row or column of the range or array.
МАТСН	Returns the relative position of an item in an array that matches a specified value in a specified order, or the position of an item.
OFFSET	Returns a reference to a range that is a specific number of rows and columns from a cell or range of cells.
ROW	Returns the row number based on a reference.
ROWS	Returns the number of rows in a reference or array.
TRANSPOSE	Returns a horizontal range of cells as vertical or vice versa.
VLOOKUP	Searches for a value in the leftmost column of a table and returns a value from the same row in a column number that you specify.

Math and Trigonometry Functions	
ABS	Returns the absolute value of a number.
ACOS	Returns the arccosine of a number in radians in the range 0 to pi.

ACOSH	Returns the inverse hyperbolic cosine of a number.
ACOT	Returns the inverse cotangent of the specified number.
ACOTH	Returns the inverse hyperbolic cotangent of the specified number.
AGGREGATE	Returns an aggregate in a list or database
ARABIC	Converts the specified Roman numeral to a number.
ASIN	Returns the arcsine of a number in radians in the range -pi/2 to pi/2.
ASINH	Returns the inverse hyperbolic sine of a number.
ATAN	Returns the arctangent of a number in radians in the range -pi/2 to pi/2
ATAN2	Returns the four-quadrant arctangent of the specified x- and y- coordinates in radians between -pi and pi excluding -pi. A positive result represents a counterclockwise angle from the x-axis, a negative result represents a clockwise angle.
ATANH	Returns the inverse hyperbolic tangent of a number.
BASE	Converts the specified number to text with the specified radix and minimum length.
CEILING	Returns a number rounded up, away from zero, to the nearest multiple of significance.
CEILING.MATH	Returns the specified number rounded up using the specified significance and mode.
CEILING.PRECISE	Rounds a number to the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number if rounded up.
COMBIN	Returns the number of combinations for a given number of items.
COMBINA	Returns the number of combinations with the specified number of items.
COS	Returns the cosine of the given angle.
COSH	Returns the hyperbolic cosine of a number.
СОТ	Returns the cotangent of the specified angle.
СОТН	Returns the hyperbolic cotangent of the specified angle.
CSC	Returns the cosecant of the specified angle.
CSCH	Returns the hyperbolic cosecant of the specified angle.
DECIMAL	Converts the specified text to a number using the specified radix.
DEGREES	Converts radians into degrees.
EVEN	Returns a number rounded up to the next even integer for positive integers and rounded down to the next even integer for negative numbers.
EXP	Returns e (2.71828182845804) raised to the power of a specified number.
FACT	Returns the factorial of a number.
FACTDOUBLE	Returns the double factorial of a number.
FLOOR	Returns a number rounded down, toward zero, to the nearest multiple of significance.
FLOOR.MATH	Returns the specified number rounded down using the specified significance and mode.
FLOOR.PRECISE	Rounds a number to the nearest integeror to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded up.
GCD	Returns the greatest common divisor of two or more integers.
INT	Rounds a number down to the nearest integer.
ISO.CEILING	Returns the specified number rounded up using the specified significance.
LCM	Returns the least common multiple of integers.
LN	Returns the natural (base e) logarithm of a number.

LOG	Returns the logarithm of a number of the base you specify.
LOG10	Returns the base-10 logarithm of a number.
MDETERM	Returns the matrix determinant of an array.
MINVERSE	Returns the inverse matrix for the matrix stored in an array.
MMULT	Returns the matrix product of two arrays. The result is an array with the same number of rows as array1 and the same number of columns as array2.
MOD	Returns the remainder of a division operation (modulus).
MROUND	Returns a number rounded to the desired multiple. Rounds up if the remainder after dividing the number by the multiple is at least half the value of the multiple.
MULTINOMIAL	Returns the ratio of the factorial of the sum of the values to the product of the factorials.
MUNIT	Returns an identity matrix with the specified n by n dimension.
ODD	Returns a number rounded up away from zero to the nearest odd integer.
PI	Returns the approximate number 3.14159265358979, the mathematical constant pi, accurate to 15 digits.
POWER	Returns the result of a specified number raised to a specified power.
PRODUCT	Multiplies all the numbers given as arguments and returns the product.
QUOTIENT	Returns the integer portion of a division.
RADIANS	Converts degrees to radians.
RAND	Returns an evenly distributed random number greater than or equal to 0 and less than 1. A new random number is returned every time the worksheet is calculated.
RANDBETWEEN	Returns a random integer between the integers you specify. A new random number is returned every time the worksheet is calculated.
ROMAN	Converts an Arabic numeral to Roman, as text.
ROUND	Round a number to a specified number of digits.
ROUNDDOWN	Rounds a number down, towards zero.
ROUNDUP	Rounds a number up, away from zero.
SEC	Returns the secant of the specified angle.
SECH	Returns the hyperbolic secant of the specified angle.
SERIESSUM	Returns the sum of a power series.
SIGN	Determines the sign of a number. Returns 1 if the value is positive, 0 if the value is 0, and -1 if the value is negative.
SIN	Returns the sine of a given angle.
SINH	Returns the hyperbolic sine of a number.
SQRT	Returns a positive square root.
SQRTPI	Returns the square root of (NUMBER * Pi)
SUBTOTAL	Returns a subtotal in a list or database.
SUM	Adds all the numbers in a range of cells.
SUMIF	Adds the cells specified by a certain criteria.
SUMIFS	Adds the cells in a range that meet multiple criteria
SUMPRODUCT	Multiplies corresponding components in the given arrays, and returns the sum of those products.
SUMSQ	Returns the sum of the squares of the arguments.

SUMX2MY2	Returns the sum of the difference of squares of corresponding values in two arrays.
SUMX2PY2	Returns the sum of the sum of squares of corresponding values in two arrays.
SUMXMY2	Returns the sum of squares of differences of corresponding values in two arrays.
TAN	Returns the tangent of the given angle.
TANH	Returns the hyperbolic tangent of a number.
TRUNC	Truncates a number to an integer by removing the fractional part of a number.

Pre-Excel 2010 Sta	tistical Functions
BETADIST	Returns the cumulative beta probability density function.
BETAINV	Returns the inverse of the cumulative beta probability density function.
BINOMDIST	Returns the individual term binomial distribution probability.
CHIDIST	Returns the one-tailed probability of the chi-squared (X^2) distribution; the area in the right tail under the chi-squared distribution curve.
CHIINV	Returns the inverse of the one-tailed probability of the chi-squared (X^2) distribution.
CHITEST	Returns the test for independence of the characteristics in a table.
CONFIDENCE	Returns the confidence interval for a population mean.
COVAR	Returns the covariance, the average of products of deviations, for each data point pair.
EXPONDIST	Returns the exponential distribution.
FDIST	Returns the F probability distribution.
FINV	Returns the inverse of the F probability distribution.
FTEST	Returns the result of an F-test.
GAMMADIST	Returns the gamma distribution.
GAMMAINV	Returns the inverse of the gamma cumulative distribution.
LOGINV	Returns the inverse of the lognormal cumulative distribution function of x , where $ln(x)$ is normally distributed with parameters mean and standard deviation.
LOGNORMDIST	Returns the cumulative lognormal distribution of x , where $ln(x)$ is normally distributed with parameters mean and standard deviation.
MODE	Returns the most frequently occuring, or repetitive, number in an array or range of data.
NEGBINOMDIST	Returns the negative binomial distribution.
NORMDIST	Returns the normal cumulative distribution for the specified mean and standard deviation.
NORMINV	Returns the inverse of the normal cumulative distribution for the specified mean and standard deviation.
NORMSDIST	Returns the standard normal cumulative distribution function.
PERCENTILE	Returns the k-th percentile of values in a range.
PERCENTRANK	Returns the rank of a value in a data set set as a percentage of the data set.
POISSON	Returns the Poisson distribution.
QUARTILE	Returns the quartile of a data set.
RANK	Returns the rank of a number in a list of numbers.
STDEV	Estimates standard deviation based on a sample.
STDEVP	Estimates standard deviation based on a sample assuming that the arguments represent the total population.

TDIST	Returns the percentage points (probability) for the student t-distribution, where a numeric value (x) is a calculated value of t for which the percentage points are to be computed.
TINV	Returns the t-value of the Student's t-distribution as a function of the probability and the degrees of freedom.
TTEST	The probability associated with t-test.
VAR	Returns an estimate for the variance of a population based on a sample data set.
VARP	Calculates variance based on the entire population.
WEIBULL	Returns the Weibull distribution.
ZTEST	Returns the two-tailed P-value of a z-test.

Statistical Functions		
AVEDEV	Retuns the average of the absolute deviations of data points from their mean.	
AVERAGE	Returns the average of its arguments.	
AVERAGEA	Returns the average of the values in its list of arguments including text and logical values.	
AVERAGEIF	Returns the average (arithmetic mean) of all the cells in a range that meet a given criteria	
AVERAGEIFS	Returns the average (arithmetic mean) of all cells that meet multiple criteria	
BETA.DIST	Returns the beta cumulative distribution function	
BETA.INV	Returns the inverse of the cumulative distribution function for a specified beta distribution	
BINOM.DIST	Returns the individual term binomial distribution probability	
BINOM.DIST.RANGE	Returns the probability of the specified trial using a binomial distribution.	
BINOM.INV	Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value	
CHISQ.DIST	Returns the chi-squared distribution	
CHISQ.DIST.RT	Returns the one-tailed probability of the chi-squared distribution	
CHISQ.INV	Returns the inverse of the left-tailed probability of the chi-squared distribution	
CHISQ.INV.RT	Returns the inverse of the right-tailed probability of the chi-squared distribution	
CHISQ.TEST	Returns the test for independence.	
CONFIDENCE.NORM	Returns the confidence interval for a population mean.	
CONFIDENCE.T	Returns the confidence interval for a population mean, using a Student's t distribution	
CORREL	Returns the correlation coefficient between two data sets.	
COUNT	Counts the number of cells that contain numbers (including dates and formulas that evaluate to numbers) within the list of arguments.	
COUNTA	Counts the number of cells that are not empty.	
COUNTBLANK	Counts the empty cells in a specified range.	
COUNTIF	Counts the number of cells in a range that meet a given criteria.	
COUNTIFS	Counts the number of cells within a range that meet multiple criteria	
COVARIANCE.P	Returns covariance, the average of the products of paired deviations	
COVARIANCE.S	Returns the sample covariance, the average of the products deviations for each data point pair intwo data sets	
CRITBINOM	Returns the minimum number yields a binomial distribution less than or equal to the specified criteria	
DEVSQ	Returns the sum of the squares of deviations of a data set from their sample mean.	

EXPON.DIST	Returns the exponential distribution.
F.DIST	Returns the F probability distribution.
F.DIST.RT	Returns the (right-tailed) F probability distribution (degree of diversity) for two data sets
F.INV	Returns the inverse of the F probability distribution
F.INV.RT	Returnd the inverse of the (right-tailed) F probability distribution
F.TEST	Returns the result of an F-test.
FISHER	Returns the Fisher transformation at x.
FISHERINV	Returns the inverse of the Fisher transformation at y.
FORECAST	Calculates or predicts a future value by using existing values.
FREQUENCY	Calculates how often values occur within a range of values and then returns a vertical array of numbers.
GAMMA	Returns the gamma funnction result for the specified number.
GAMMA.DIST	Returns the gamma distribution.
GAMMA.INV	Returns the inverse of the gamma cumulative distribution.
GAMMALN	Returns the natural logarithm of the gamma function.
GAMMALN.PRECISE	Returns the natural logarithm of the gamma function.
GAUSS	Returns the probability that a number will fall between the mean and the specified standard deviation in a normal distribution.
GEOMEAN	Returns the geometric mean of an array or range of positive data.
GROWTH	Calculates predicted exponential growth by using existing data.
HARMEAN	Returns the harmonic mean of a data set.
HYPGEOM.DIST	Returns the hypergeometric distribution.
HYPGEOMDIST	Returns the hypergeometric distribution.
INTERCEPT	Calculates the point at which a line will intersect the y-axis by using existing x and y values.
KURT	Returns the Kurtosis of a data set.
LARGE	Returns the k-th largest value in a data set.
LINEST	Calculates a straight line that best fits your data using the least squares method.
LOGEST	Calculates an exponential curve that fits your data and returns an array of values that describes the curve.
LOGNORM.DIST	Returns the lognormal distribution, of x , where $ln(x)$ is normally distributed with mean and standard deviation.
LOGNORM.INV	Returns the inverse of the lognormal cumulative distribution.
MAX	Returns the largest value in a set of values.
MAXA	Returns the largest value in a set of values including text and logical values.
MEDIAN	Returns the median of the given numbers.
MIN	Returns the smallest value in a set of values.
MINA	Returns the smallest value in a set of values including text and logical values.
MODE.MULT	Returns a vertical array of the most frequestly occurring, or repetitive values in an array or range of data.
MODE.SNGL	Returns the most common value in a data set.
NEGBINOM.DIST	Returns the negative binomial distribution.

NORM.DIST	Returns the normal cumulative distribution.
NORM.INV	Returns the inverse of the normal cumulative distribution.
NORM.S.DIST	Return the standard normal cumulative distribution.
NORM.S.INV	Returns the inverse of the standard normal cumulative distribution.
NORMSINV	Returns the inverse of the standard normal cumulative distribution function.
PEARSON	Returns the Pearson product moment correlation coefficient, r, a dimensionless index that ranges from -1.0 to 1.0 inclusive and reflects the extent of a linear relationship between two data sets.
PERCENTILE.EXC	Returns the k-th percentile of values in a range, where k is in the range 01, exclusive
PERCENTILE.INC	Returns the k-th percentile of values in a range.
PERCENTRANK.EXC	Returns the rank of a value in a data set as a percentage (01, exclusive) of the data set
PERCENTRANK.INC	Returns the percentage rank of a value in a data set
PERMUT	Returns the number of permutations for a given number of objects that can be selected from a range of numbers.
PERMUTATIONA	Returns the number of permutations given the specified total number of items and the specified number of items chosen for each permutation.
PHI	Returns the value of the probability density function of the specified number for the standard normal distribution.
POISSON.DIST	Returns the Poisson distribution.
PROB	Returns the probability that values in a range are between two specified limits.
QUARTILE.EXC	Returns the quartile of the data set, based on percentile values fro 01, exclusive.
QUARTILE.INC	Returns the quartile of a data set.
RANK.AVG	Returns the rank of a number in a list of numbers.
RANK.EQ	Returns the rank of a number in a list of numbers.
RSQ	Returns the r^2 value of a linear regression line.
SKEW	Returns the skew of a distribution.
SKEW.P	Returns the population skewness of the specified distribution.
SLOPE	Returns the slope of a regression line through data points in KNOWN_Y'S and KNOWN_X'S.
SMALL	Returns the k-th smallest value in a data set.
STANDARDIZE	Returns a normalized value from a distribution characterized by MEAN and STANDARD_DEV.
STDEV.P	Calculates standard deviation based on the entire population
STDEV.S	Estimates standard deviation based on a sample.
STDEVA	Estimates standard deviation based on a sample. Includes text and logical values.
STDEVPA	Estimates standard deviation based on a sample assuming that the arguments represent the total population. Includes text and logical values.
STEYX	Returns the standard error of the predicted y value for each x in the regression.
T.DIST	Returns the percentage points (probability) for the student t-distribution.
T.DIST.2T	Returns the percentage points (probability) for the student t-distribution.
T.DIST.RT	Returns the Student's t-distribution.
T.INV	Returns the t-value of the Student's t-distribution as a function of the probability and the degrees of freedom.
T.INV.2T	Returns the inverse of the Student's t-distribution.

T.TEST	Returns the probability associated with a Student's t-test.
TREND	Returns the y-values along a linear trendline that best fits the values in a data set.
TRIMMEAN	Returns the mean of the interior of a data set.
VAR.P	Calculates variance based on the entire population
VAR.S	Estimates variance based on a sample.
VARA	Returns an estimate for the variance of a population based on a sample data set and may include text or logical values.
VARPA	Calculates variance based on the entire population and may include text or logical values.
WIEBULL.DIST	Returns the Weibull distribution.
Z.TEST	Returns the one-tailed probability-value of a z-test.

Text Functions		
CHAR	Returns the character specified by a number.	
CLEAN	Removes all nonprintable characters from text.	
CODE	Returns a numeric code from the first character in a text string. The opposite of the CHAR function.	
CONCATENATE	Joins several text strings into one text string.	
DOLLAR	Converts a number to text using Currency format, with the decimals rounded to the specified place.	
EXACT	Compares two text strings and returns TRUE if they are exactly the same, and FALSE otherwise.	
FIND	Locates one text string within another text string, and returns the number of the starting position of of FIND_TEXT from the leftmost character of WITHIN_TEXT.	
FINDB	Returns the position of specified text within another specified text string based on the number of bytes each character uses from the first character of WITHIN_TEXT.	
FIXED	Rounds a number to a specified number of decimals, formats the number in decimal format using a period and commas, and returns the result as text.	
LEFT	Returns the first character(s) in a text string.	
LEFTB	Returns the first character(s) in a text string based on a specified number of bytes	
LEN	Returns the number of characters in a text string.	
LENB	Returns the number of characters in a text string expressed in bytes.	
LOWER	Converts all letters in a text string to lowercase.	
MID	Returns a specific number of characters from a text string starting at the position you specify.	
MIDB	Returns a group of characters based on a specified number of bytes from a text string starting at the position you specify.	
NUMBERVALUE	Converts the specified text to a number using the specified decimal seperator and thousands separator.	
PROPER	Capitalizes the first letter of each word in a text string or sentence.	
REPLACE	Replaces part of a text string with a different text string based on the number of characters you specify.	
REPLACEB	Replaces part of a text string with a different text string based on the number of characters you specify in terms of bytes.	
REPT	Repeats specified text a given number of times.	
RIGHT	Returns the last character(s) in a text string.	

RIGHTB	Returns the last character(s) in a text string based on a specified number of bytes.
SEARCH	Returns the number of the character at which a specific character or text string is first found, reading from left to right.
SEARCHB	Returns the number of the character at which a specific character or text string is first found in bytes, reading from left to right.
SUBSTITUTE	Substitutes NEW_TEXT for OLD_TEXT in a string.
Т	Returns the text referred to by a value.
TEXT	Converts a value to text in a specific number format.
TRIM	Removes all spaces from text except single spaces between words.
UNICHAR	Convert the specified UTF-32 code point to text.
UNICODE	Convert the first character in the specified text to a UTF-32 code point.
UPPER	Converts text to uppercase.
USDOLLAR	Converts a number to text using US Dollar format, with the decimals rounded to the specified place.
VALUE	Converts a text string that represents a number to a number.

Web Functions	
ENCODEURL	Returns the specified string as an encoded URL.
FILTERXML	Returns the selected node(s) from the specified xml and xpath expression.
WEBSERVICE	Returns the text result of an HTTP request from the specified URL.