

ARUtils – 2018/19/20/21/22/23

24/08/2023

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ARUTILS – THINGS TO KNOW

There are a few things to know before you start.

- Depending on the routines you use there will be **parameters added to your project information** or to **project elements and types**.
- **All of the routines remember the last set of values you used**. This information is stored in registry entries or in temporary excel files. **Temporary files** are located in your %temp% folder.
- **A Log file** is stored in the %temp% folder and is named "revit.log".
- Important **control files** are stored in "arutilsXXXX\data".
- **Double clicking** on **folder** text boxes or **file name** text boxes will bring you to that folder or file in an explorer window. **NEW - Right hand click will often give easy access to project folders.**
- Some commands are specific to a particular version of Revit. 2012 does not have some commands that are available within 2013, 2014, etc.
- Registry entries relating to the software are stored under "HKEY_CURRENT_User\software\VB and VBA Program Settings\ARUtils"
- Registry entries related to "Dialog" locations, size, and values is stored in "HKEY_CURRENT_User\software\VB and VBA Program Settings\ARUtils\Forms"
- Dialogs that use DataGrids have filters above them. Type in characters to filter the data grid. You can also use ">", "<", "&" or "|" for more complex math checking. E.g., <12 | > 20, to show records less than 12 or greater than 20. You can use the and(&)/or(|) functions with text. E.g., a & w, would show entries with both "a" and "w" somewhere in the data grid item. You can also use "^" for begins with and "~" for ends with, e.g., ^Fred must begin with fred or ~plan for must end in "plan".

ARUtils – The Introduction



[Show me how](#)

To find out about the latest version and changes to ARUtils use any of the links below

- [2019](#)
- [2020](#)
- [2021](#)
- [2022](#)
- [2023](#)
- [2024](#)

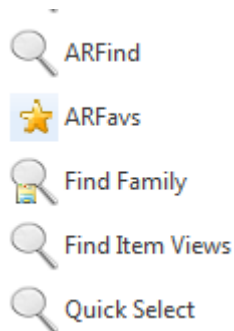
ARUTILS – WHAT’S NEW

11/4/2023	Room Data and Views – Right click of room list now includes “Dump Views on Sheet” to dump unplaced room related views onto the current sheet.
2/4/2023	Room Data and Views – Improved handling of Multi Wall Rooms. Now also supports Zoom to Room, Mass for Room, and Delete View related to room.
11/8/2022	ARFind – Now supports more complex Find strings that use traditional wild card strings. When searching parameters you can now type in a specific parameter for value checking
16/6/2022	AR Curtain Wall Legend – Enhanced dimensioning, view sizing Split Schedules – New to 2023. Command to assist in splitting schedules process. Go to Sheet – 2023 - Now supports schedules split into multiple segments
28/4/2022	Viewport Labels – New command in 2023 that adjust Viewport Label locations and Label line lengths.
3/12/2021	ARFind now supports the use of special characters as defined in the Things to Know Section.
19/11/2021	Room Data and Views – Now supports grid families in elevations that are based on wall start points rather than the project origin
8/11/2021	Room Data and Views – Now supports elevating all walls of a Room. There are some restrictions in layouts of views on the sheet.
1/11/2021	ARFind – Now supports searching parameter values of items Quick Select – Now supports viewing selected items in 2D and 3D in multiple windows.
20/10/2021	AR Curtain Wall Legend – Now supports curtain walls in linked document
12/10/2021	Element Owner Info – Shows details about who created an element, who last changed it, and who currently owns it.
27/8/2021	Wall Finish Tape – Now supports tagging of Rooms in linked documents
25/8/2021	Tag View – Now supports tagging of linked items Room Data and Views – Now supports tagging of linked items Area Masses / Room Masses – Now supports linked rooms AR Curtain Wall Legend – Now allows for Curtainwalls using the same Mark. Only one will be documented.
18/5/2021	AR Save Groups – AR Reload Groups . Allows groups to be bulk saved and reloaded.
7/4/2021	Release of ARUtils 2022
7/4/2021	Parameter Value Colouriser now includes a Create Legend Only option to use existing view filters.
4/3/2021	New command – “ Find Distant Objects ”. Finds items that are a long way from the bulk of your model. Used when 3D views appear to be blank.

FIND

The find group assists in [finding items within your project](#), [finding families stored on disk](#), or [finding which views a view specific item has been used in](#). [Quick Select](#) allows you to quickly select / filter items from your project.

Additionally you can [save favourite items](#) for easy access.

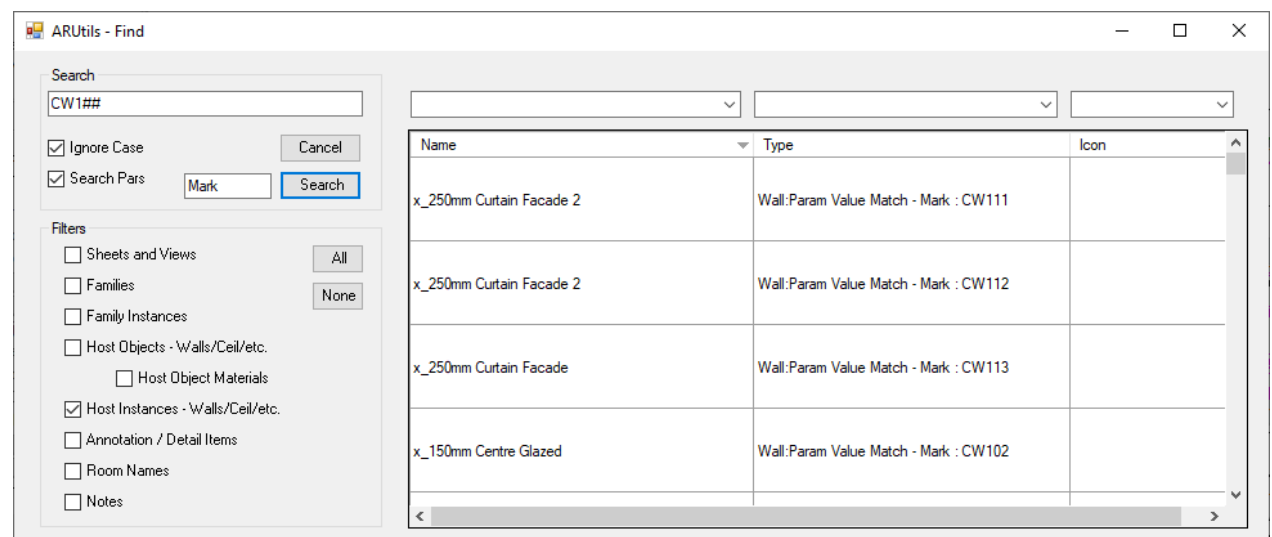


ARFIND

Whilst the **Revit project explorer** does have some sorting options, it does not allow you to display only items that meet a certain search criteria eg. Show all views that contain "ground" as part of their name. ARFind gives you this ability.

Typically you use this command to search families, wall types, walls that use a specific material, etc. that contain the search string as part of their name. You can then place the family, or draw a wall of that type, or zoom to the room. A new option now lets you search for instance items (beyond rooms) that have parameter values that contain the search string.

Note: You can leave this dialogue open and continue working in Revit.



Simply **check the type of items** you are searching for, put in the **search for** string, and click on **search**. Once the items have been found, **double click** on the item to take the appropriate action. Depending on the item this will either take you to the view, start placing the item in the current view, take you to the room or note, or perhaps something else.

Note: This search function is quite powerful in that it will search beyond names. Eg If searching for "brick", a wall that has a "brick" material assigned to one of its layers will also come up in the list. There are many such drilling down searches being done. Ticking all options can therefore take longer to complete.

Note: Not all items can be readily handled. Eg. A curtain panel has no readily associated action. Also it is not currently possible to highlight / select the item in the project

explorer. The search function will however indicate where you will find the item in the project explorer.

Search for

The string to search for. You can also use special characters as defined in the [Things To Know](#) section

In addition to those items in the things to know section you can also use wildcard searches as follows:

- ? Match any single character
- * Match zero or more characters
- # Match any single digit
- [charlist] Match any of the characters
- [!charlist] Any character not in the character list

When using this wildcard matching you will need to use complete search strings i.e. if you want to find all items that end with a number you would use "*#". If you wanted to find anything that has 3 numbers anywhere in the item you would use "*###*".

For more details search for LIKE operator for Visual Basic.

Ignore Case

When checked the case of text will be ignored i.e. Width would match WIDTH, width, Width, etc.

Search Parameters

Search parameter values for the search string. This can greatly increase search times.

To restrict search to a specific parameter e.g. Mark, type in the parameter that should be tested. This can speed up the search process

Sheets and Views

Search through the list of sheets and views. For views both the view name and the name of the view on a sheet will be tested.

Families

Search all families whether they have been placed or not.

Family Instances

Search only families that have been placed in the model

Host Objects

Search items capable of hosting objects e.g. Walls, floors, ceilings

Host Object Materials

Search through the structure of a host item, e.g. A wall, and search through the materials that are used in its layers. E.g. If searching for brick, if a layer of the wall contains brick, then the item is matched.

Host Instances – Walls/Ceils/etc

Search host instances. Best used when "Search Parameters" is enabled. E.g. If you wished to find a wall with a specific Mark you could use this command.

Annotation / Detail Items

Search through Annotation and other items

Rooms Names

Find rooms based on its name

Text Notes

Find text notes in the project that contain the search string

Note:

Where rooms or notes have been found, double clicking results in being taken to the item.
The item will be selected.

Right clicking an item / items enables you to add the items to your [favourites](#) list, delete items, or process items (same as double clicking).

ARFAVS

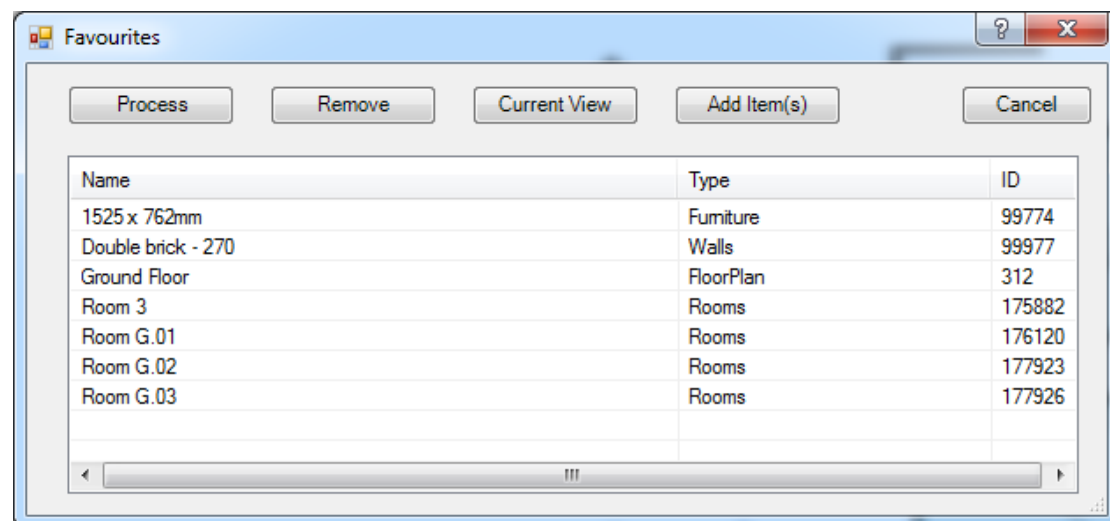
This is a list of your favourite items. Typically these will be views, or an oft used family, although anything that can be found via the ARFind function can be added.

Double clicking an item will take an appropriate action eg. Opening a view, placing a family.

Right clicking an item/s will let you remove the item/s from the list.

If an item cannot be found in your current project you will be prompted to remove the item.

Note: Each set of favourites is project specific.



Process

Depending on the item type a different process will be initiated. Eg. A view will open the view, a family will initiate placement, a room will initiate a 3d view of the room

Remove

Remove the item from the list

Current View

Add the current view as a favourite

Add Item(s)

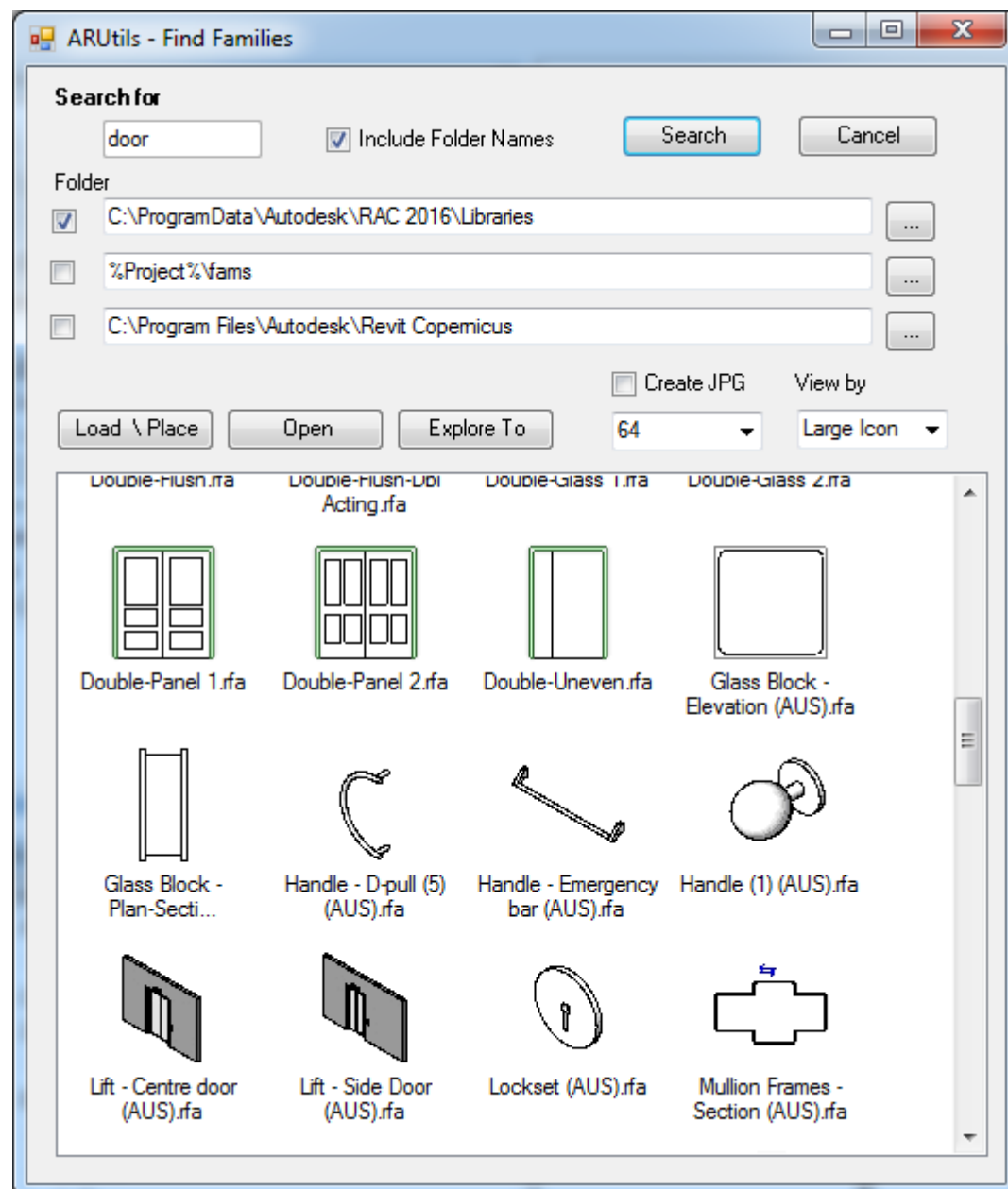
Add one or more items to the favourites by selecting them in the current view. These could be walls, rooms, etc.

FIND FAMILY

Find Family enables you to search for **families on disk**. You can set up to three root folders and specify a search criteria in regards the family file name.

The root folders can be easily enabled or disabled as required.

Note: You can leave this dialogue open and continue working in Revit.



Operation:

Folder

Specify the root folders for up to three libraries. The checkbox enables or disables the folder during the next search. You can double click on the folder text box to open that folder in explorer.

You can optionally use the "%Project%" variable which will be replaced by the save location of the project. Where this is a central file, the central file location will be used. In the shown example we would search the "fams" folder below the project file folder.

Search For

A string that must be part of the family filename.

Include Folder Names

When checked the search for string will also be checked against folder names. Where a match occurs, all files within that folder will be considered a match.

Load / Place Button or Double clicking Item

Load the family into the project and try to insert / place the family.

Open

Open the selected family in the Revit family editor

Explorer To

Open windows explorer and select the item

Create JPG

Create jpeg preview icons in the same folder as the family file.

JPG Size

The size of the preview icon and the optional JPG file.

View By

By default "View By" is by "**Large Icon**". Other normal windows explorer view types are available.

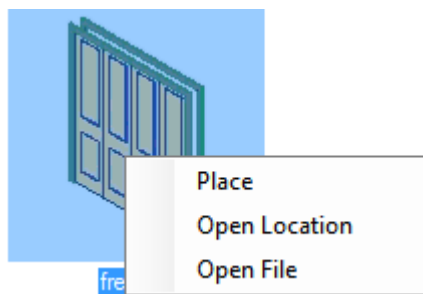
Found Items Window

Double Click an item to load and place the family

Right clicking

Allows you to

- Place Items** (the default),
- Open the file location** in explorer
- Open the file** in Revit.



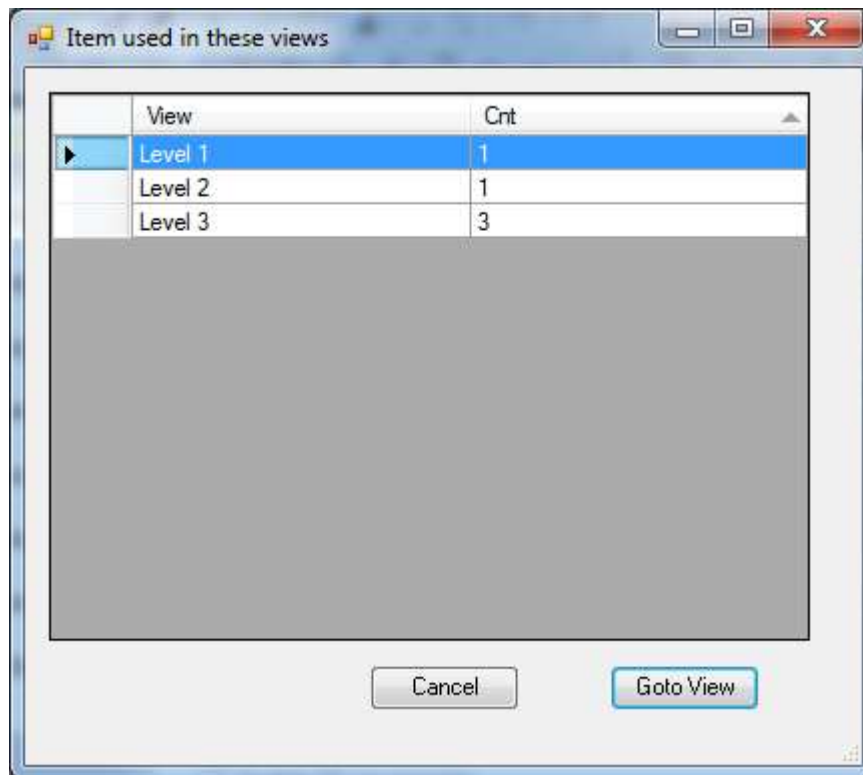
Note: All family backup files are ignored.

FIND ITEM IN VIEWS

Find Item in Views is a command to find which views a view specific item type (eg. Text, Dimension, Detail Item, Import Instance, etc.) has been used in.

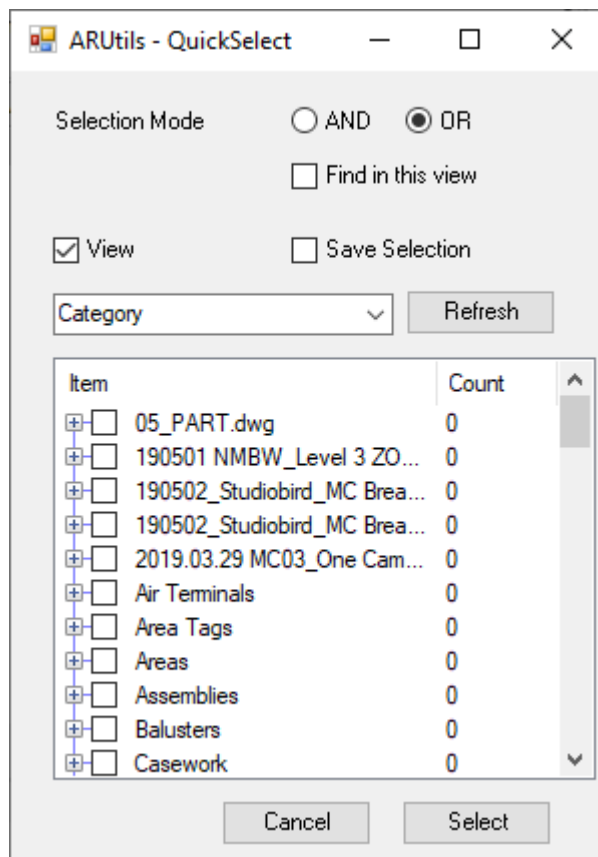
Start the command and select a “View Specific” item. You will then be presented with a list of views in which the item has been used.

Double clicking an entry or clicking “Go to View” will take you to the associated view, select the items in the view, and zoom to those items.



QUICK SELECT

The “Quick Select” routine allows you to easily select / filter items by a range of options all the way down to parameter values. E.g., you could pick all doors that have a specific sill height.



The Select By Parameter Value Dialog

Note: Count will only be updated when a root category is selected or expanded

Selection Mode

AND

When multiple parameter values are checked then for an item to be selected all the criteria must be met.

OR

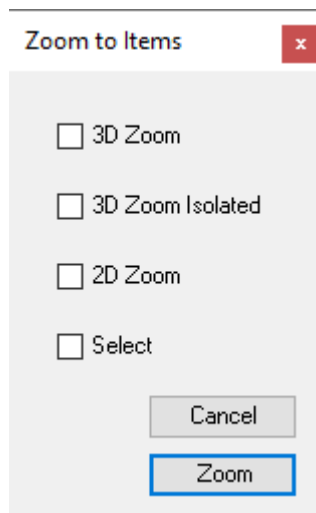
For an item to be selected then any parameter match will cause the item to be selected

Find in this View

Only consider items in the current view for parameter matching

View

View the selected items. You will be presented with the “Zoom to Items” dialog

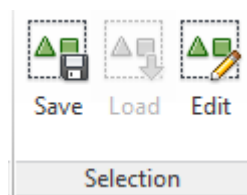


3D Zoom	Zoom to the selected items showing all items
3D Zoom Isolated	Zoom to and isolate the selected items
2D Zoom	Zoom to the selected items in a 2D view. Uses the builtin Revit command to find a view
Select	Simply select the items

Pressing Zoom will then create multiple 3D views (as checked) and find the item in a 2D view and open that view.

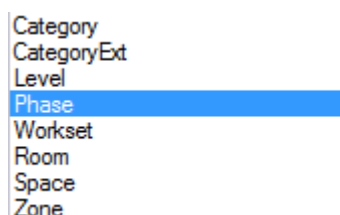
Save Selection

Save the selected items to a named selection set. This can be accessed via Revit's "Manage | Selection | Load" panel.



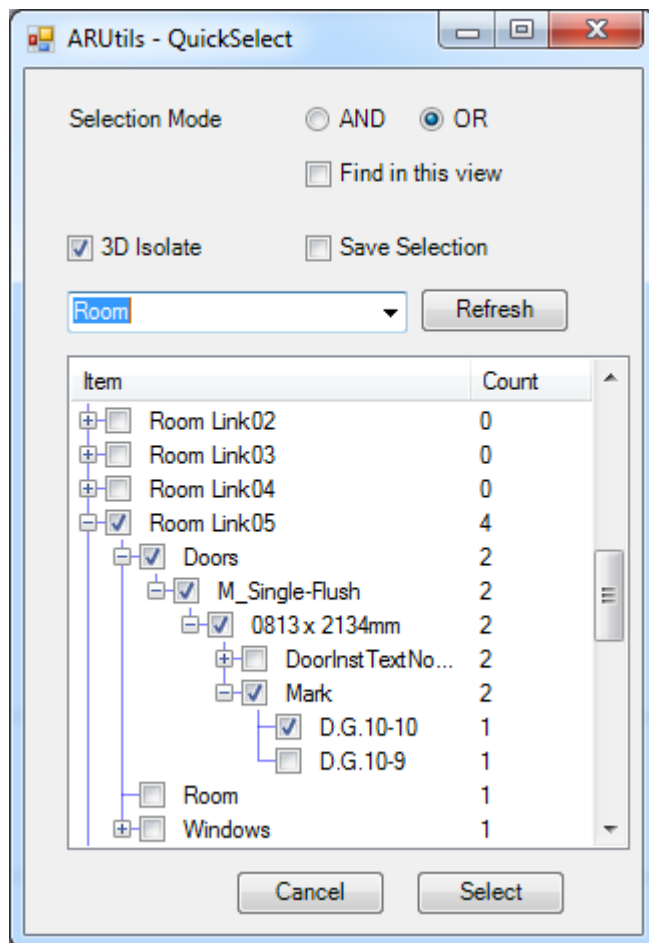
Sorting Category

Allows you to select a number of ways to organise your information.



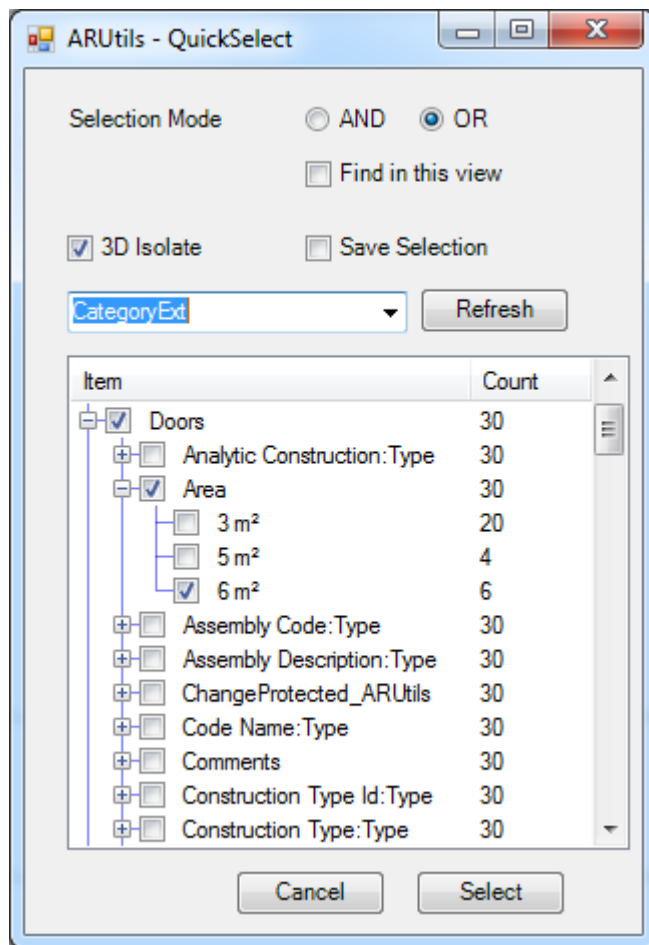
The options allow you to sort by Category, Level, Phase, Workset, Room, Space, and Zone. Below the main items, extra levels will be included (category, family name, family type, parameters, and finally parameter values)

Note: Where a parameter has only one value it is omitted from the list to enable easier identification of filtering options.



Using the Room Group option, we can expand through the Room, Categories of items in the room, and so on, until we reach the possible values of Mark for that item.

If we wish to select by parameter values without considering Family Name and Type name, we can use the CategoryExt grouping option.



The “CategoryExt” option removes the “Family Name” and “Family Type”. This gives an alternative selection option.

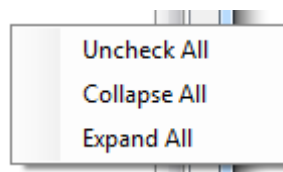
Refresh

Refresh the contents of the “Selection” window. This is required when items have been added or altered.

Parameter Selection Window

Check the values that an item must possess to be selected. By default categories are only processed once the Category has been clicked. This improves performance.

Right Click



Expand All

Expands all items that have currently been scanned for parameters. By default a category is only scanned once the root item has been clicked. E.g., Doors would not be scanned until the doors item is clicked or checked. This greatly improves performance.

Collapse All

Collapse everything back to display only root nodes.

Uncheck All




























Unchecks all currently checked items.

Select

Select the items based on the criteria given. If you currently have items selected you will be prompted as to whether you wish to filter on the currently selected items. Alternatively the entire project will be scanned.

If selected items are specific to a view you will be prompted to open the views that the view dependent items belong to.

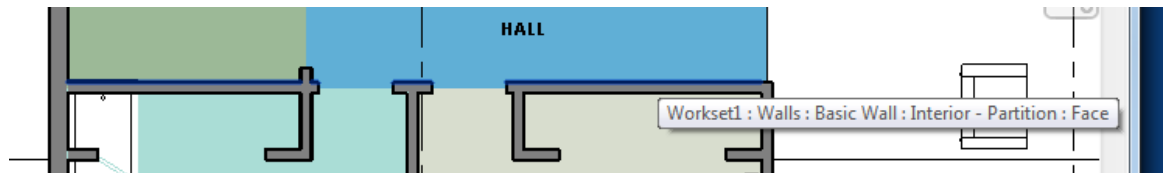
VIEWS[Make Section](#)[Align/Rotate Elevation](#)[Isolate 3D](#)[View to 3D](#)[Isolate 3D Settings](#)[Grow Section Box](#)[Shrink Section Box](#)[Go to sheet](#)[Sheet Viewport Manager](#)[Update Revisions](#)[AR Legend](#)[AR Curtain Wall Legend](#)[Place Views](#)[View Filter Manager](#)[View Template Comparer](#)[Update Reference](#)[Create Callouts](#)[Level Isolator](#)[Workset Isolator](#)[Overridden Elements](#)[Copy Monitored Elements](#)[Parameter View Creator](#)[Parameter Value Colouriser](#)[InPlace Families Isolator](#)[Displace 3D](#)[Duplicate View Details](#)[Duplicate Cropping](#)[Override CropBox Outline](#)

-  Make Section
-  Isolate 3d
-  View to 3D
-  Isolate 3d/ View Name Settings
-  Grow Section Box
-  Shrink Section Box
-  Go to Sheet
-  Sheet Viewport Manager
-  Update Revisions
-  AR Legend
-  AR Curtain Wall Legend
-  Place Views
-  View Filter Manager
-  View Template Comparer
-  Update Reference
-  Create Callouts
-  Level Isolator
-  Workset Isolator
-  Overridden Elements
-  Copy Monitored Elements
-  Parameter View Creator
-  Parameter Value Colouriser
-  InPlace Families
-  Displace 3D
-  Duplicate View Details
-  Duplicate View Cropping
-  Override CropBox Outline

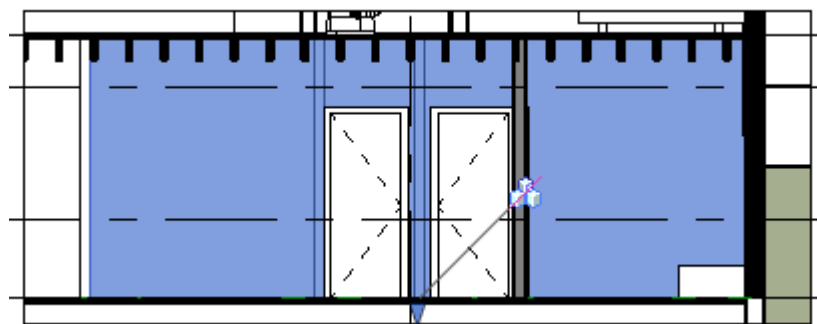
MAKE SECTION

The **"Make Section"** command allows you to pick an item face and create a section square to that face. The important aspect of this is that you are able to pick a face with some certainty. This is slightly less certain in plan views but generally works quite easily. You can of course pick faces in any 3D view.

The view will be called **"tmpSect-username"**



Picking a wall face



Resultant view

ROTATE/ALIGN ELEVATION

Allows you to align an elevation to a face/wall. Pick the wall face and then the elevation marker.

The elevation will be aligned / rotated to match the wall face. The cut plane will be offset from the wall face by the figure specified in the "Room Data and Views | Elevation | Offset from wall" value.

Note: At present the centre of the marker element cannot be correctly determined (API limitation) and so the marker is likely to move slightly.

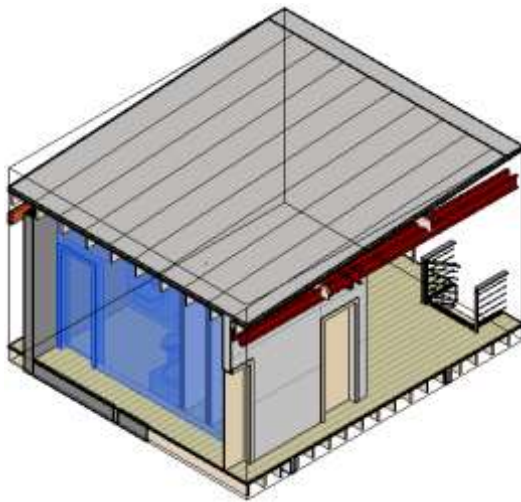
ISOLATE 3D

"Isolate 3d" enables you to select a number of items, typically in a 2d view but there is no restriction, and then be taken to a 3d view that is section boxed to just those items. The 3d view has very similar properties to that of the view that generated it.

You can adjust the settings for this command via the ["Isolate 3d Settings"](#) dialog.



Select items in plan



Resultant view

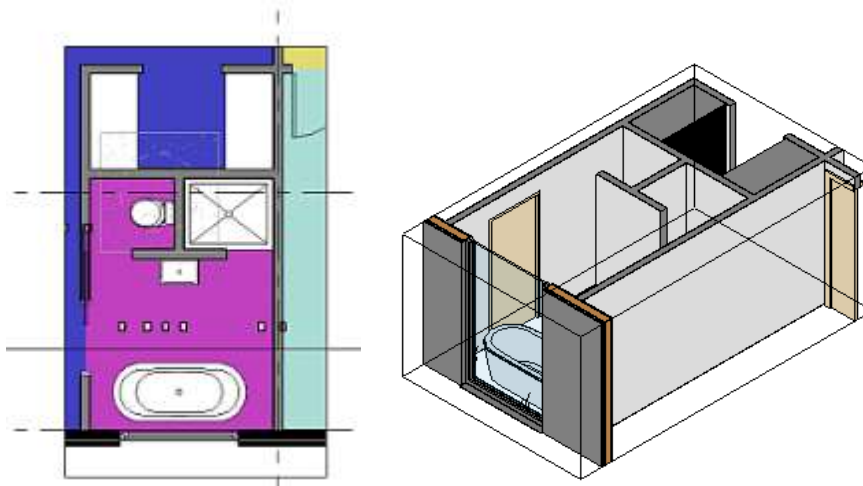
VIEW TO 3D

The “View to 3D” command will automatically take you from your active plan, section, or elevation view, straight into an appropriately section boxed 3D view.

When your current view is a **plan** view the section box applied to the temporary 3d view will use the crop box of the plan view for its xy extents. The Z aspects of the section box will use the associated level of the view for the bottom, and the top will use the “Top Offset” value. When the active view is a ceiling plan, the 3d will be looking up rather than looking down.

Where elevations or sections are the active view, the scope box will use the extents of the section or elevation box.

You can control the name of the view created by using the “[Isolate 3D Settings](#)”



Callout view to 3d view in a single step

ISOLATE 3D SETTINGS

This dialog window enables you to set your Isolate 3d preferences as well as automatic view renaming options.

NEW – 25/10/2019 – Renaming now requires you to enable the option.

Isolate 3D / View Naming Settings

Section Box Border

☒ Distance
305

☐ Percentage
10

Item Display

☐ Select Items

☐ Isolate items in 3d View

☐ Reverse Selection

View Naming

Enable

☐ Ignore Revit Views

☐ Use temp name

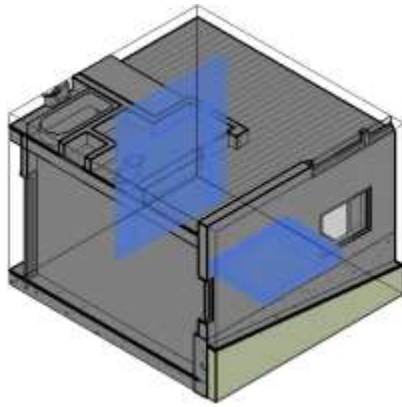
☒ Auto Increment temp

☒ Prompt

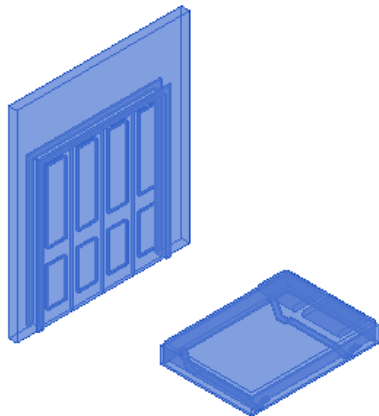
☒ View to 3d Auto Name

Cancel

OK



Result of doing a 3d isolate with “Select Items”



Result of doing a 3d isolate with “Isolate Items in 3D View”

Section Box Border

These items determine how the bounding box surrounding your items should be calculated.

Distance

Specify a distance, in current project units, to increase the enclosing bounding box by. A value of 0 would crop the bounding box exactly to your selected elements.

Percentage

Specify a percentage value to increase the bounding box by. 10 will result in a bounding box that is 10% bigger in X, Y and Z.

Select Items

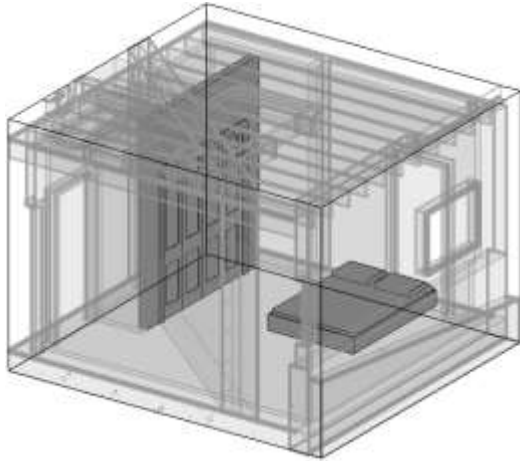
Show the selected items as selected in the generated 3d View, but show all surrounding items as well.

Isolate Items in 3D view

Do a temporary isolate of the selected items in the generated 3d view

Reverse Selection

Invert the selection so that the items not selected in the view are selected. This then allows for graphic overrides such as transparency, to be applied to the items not of interest.



Using the “Reverse Selection” option to apply transparency to items not of interest

Naming

The naming section can take affect whenever a view is created by ARUtils or by Revit.

Enable / Disable

Use this option to enable / disable the auto view renaming options

Ignore Revit Views

When this is checked only views created by ARUtils will be impacted by the naming settings.

E.g., Right clicking a view and selecting “Duplicate View” would not be affected by any of the naming operations when this option is checked.

Use temp name / Auto Increment Temp

This is the traditional temporary view name. ie. Tmp3d-*username*. When this is checked, the existing temp view will be overwritten.

With “Auto Increment temp” checked, new incrementally named views are created.

Prompt

This will generate the view name and then prompt you to alter the name.

Note that this also affects the “Duplicate View” functions of Revit unless you have the “Ignore Revit Views” option checked.

I.e. Right click a view and select “Duplicate View”, or “Duplicate View with Detailing”.

View to 3d Auto Name

When using the “[View to 3d](#)” command checking this generates a view name based on the generating view name with a suffix of “-3d-FromView” eg. “Plan1” would become “Plan1-3d-FromView”.

GROW SECTION BOX / SHRINK SECTION BOX

“Grow / Shrink Section Box” enables you to grow or shrink your section box by 10%

GO TO SHEET

This command will take you to the sheet that the current view has been placed on.

SHEET MANAGER

Revit presents some interesting problems that never occurred when using AutoCAD. One of these is in relation to Sheets, their creation, and most specifically the alignment of views (typically plans) across a number of sheets. Ideally all views of a similar type should be placed identically on sheets. This is just good drawing practice and makes drawings easier to comprehend.

Currently Revit offers a "Guide Grid" option that lets you visually align items between sheets. Consider the scenario where you have a multi-storey building and you would like all your plans positioned identically between sheets. Currently you can only do this visually, without snapping. This is a time consuming and worse yet, inaccurate, process.

ARUtils Sheet Manager addresses this and will:

- Accurately **align views** of similar properties **across sheets**
- **Create** multiple **sheets** and **with** selected **views** in **aligned** positions
- **Align legend views** across multiple selected sheets
- **Place legend views** across multiple selected sheets
- **Create multiple empty sheets**
- **NEW - Create Room View Sheets following a template layout**
- **NEW – Duplicate a sheet and all its views**
- **NEW – Duplicate sheets and views between projects**
- **NEW – Recreate Elevation Views**
- **NEW April2022 – Revit 2023 Only – Control Placement of Viewport Labels**



[Show me how](#)

Sheet Manager - Using: G-02 : Unnamed

Sheet Creation

Create Sheets with View Create New Sheets ☐ Copy Parameters Cancel

Duplicate Sheet Duplicate Sheets Project Sheet Clone Viewport Labels

Sheet Synchronisation

Alignment

Align Title Blocks ☐ At 0,0,0 Align Views

Legend Copy Options

Select Legend Item Copy / Align ☐ Place new items ☐ Correct Position

Revision Comments

Rev Comment Revision (AUS): Tj ☒ Reverse Loc

Sheet Name	Sheet Number	Scale	Title Block
Ground Floor	G-01	1 : 100	A2 metric (AUS) : Landscape

The ARUtils Sheet Manager dialog

Note: Use this command in conjunction with "Sheets Import / Export" function. This will allow more detailed creation of sheet parameters as well as updating the values of sheet parameters.

Sheet Creation

Create Sheets with View(s)

There are two modes in which this command will function.

"Plans Mode" allows you to create sheets with a single "Floorplan" or "CeilingPlan". With this option all views will be aligned across sheets such that common points in the building line up across the sheets.

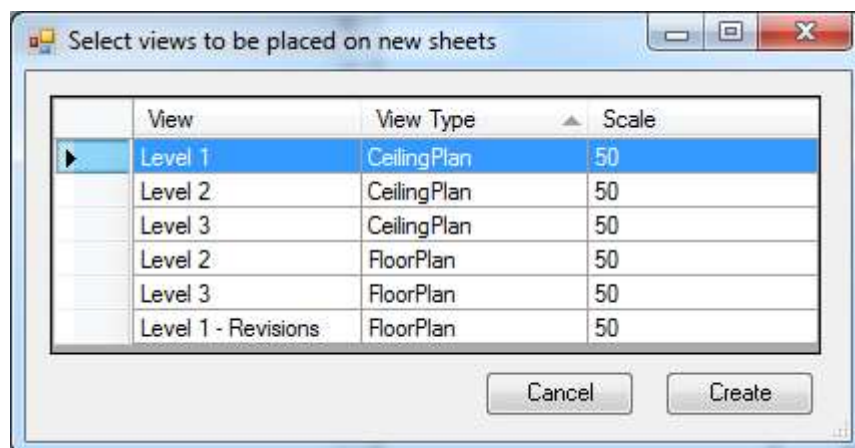
With the "Room Views" mode you can create sheets that place room views in a like fashion, e.g. North and East Elevations on row one, South and West Elevations, on row 2. Views will be placed in similar positions but will move about as the views themselves increase or decrease for each room.

Create Sheet Views – Plans Mode

Set your current view to a sheet that should be used as a "template" for creating new sheets. The current sheet will have one or more viewports already in place. Eg. A plan, Level 01, and a title block.

Once you start the command you will be presented with a list of views that have,

- not been placed on a sheet
- match the properties of any non "Legend" view on the sheet.

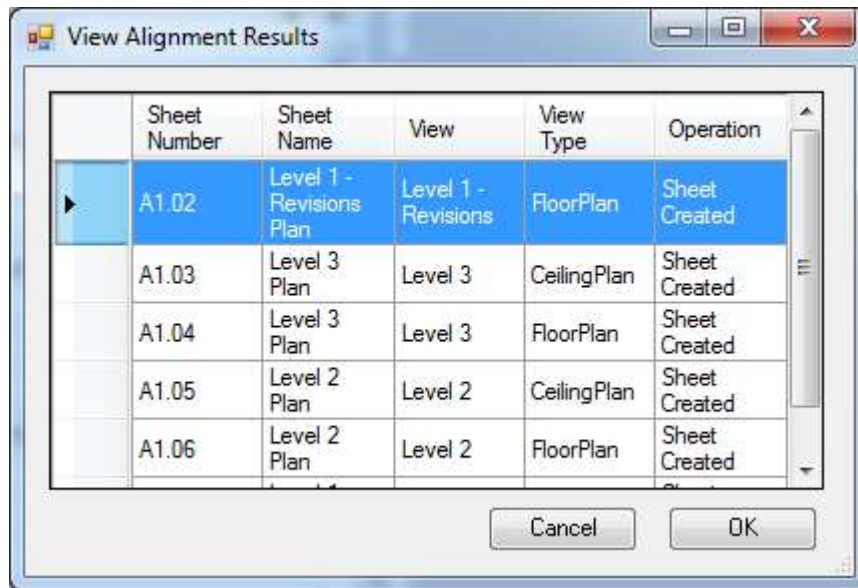


Matched view list. Type, scale, and view direction must match.

Note: Ceiling plans and floor plans although different types are logically matched.

Select all the listed views that you would like a sheet to be created for. By selecting them using a <Ctrl> click sheets will be created in the order of your selecting.

You will then be presented with the list of sheets created.



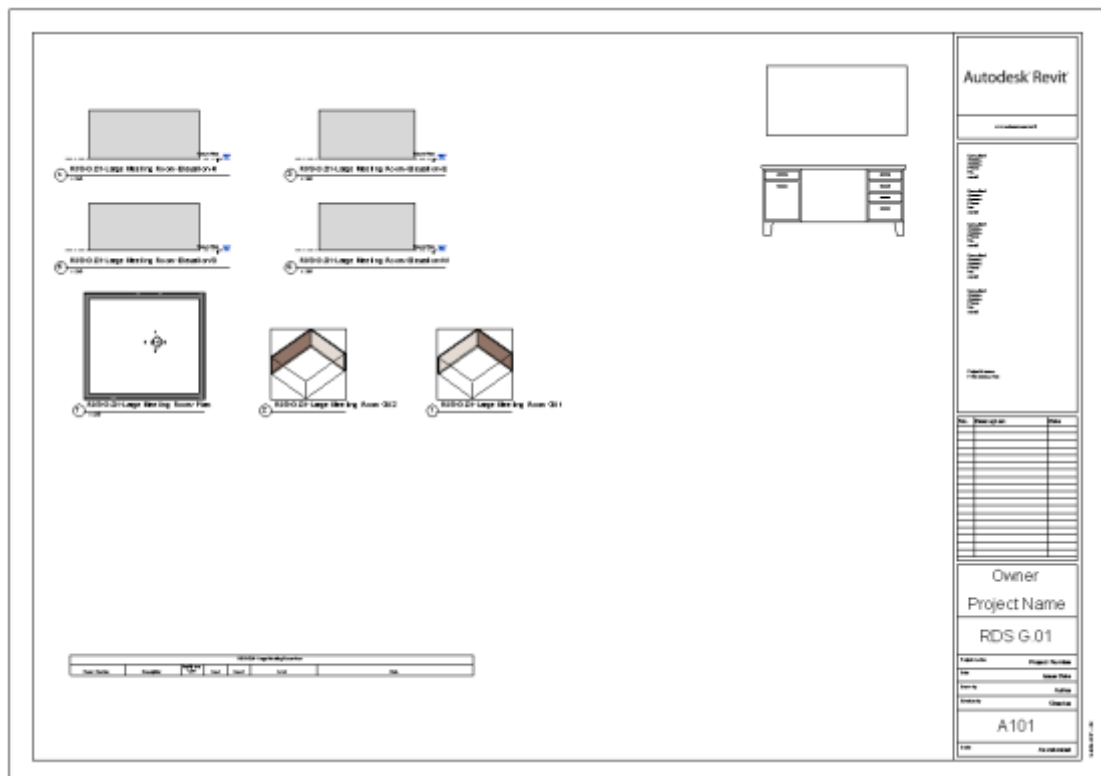
Make sure to set the “copy parameters” option to copy all the parameters of the current sheet to the new sheets.

Note: Numbering will be based on the Revit sheet numbering process. Ie. Sheets will be numbered based on the last number you had entered or modified.

Create Sheet Views – Room Views Mode

With the **room views mode** you place a number of room related views on a sheet in the layout you would like to use for all room view sheets. **At present this will require that the views have the room number and optionally the room name as part of their name**, e.g., the room number is G.01, which would require that an elevation be named “G.01 – Meeting Room – Elevation N”, “RDS-G.01-Elev-N”, etc. The critical aspect is that the room number be present. Since we can have many rooms named “Meeting Room” this is less likely to be successful.

Note: Try and avoid view names where a number could be misinterpreted as a room number, e.g., if you have a room numbered “2” then it is advisable to not have views named “RDS-2-Meeting Room-3D2”. This routine will only alter the first instance of the “2” for subsequent rooms. Therefore a view named “Building-2-Room 2-Meeting” would incorrectly try and find views named Building-3, -4, -5 etc. as opposed to Building-2-Room 3, 4, 5, etc. You can void this by using more specific room numbers that are not open to this misinterpretation. E.g., G.01, 2.03, etc.

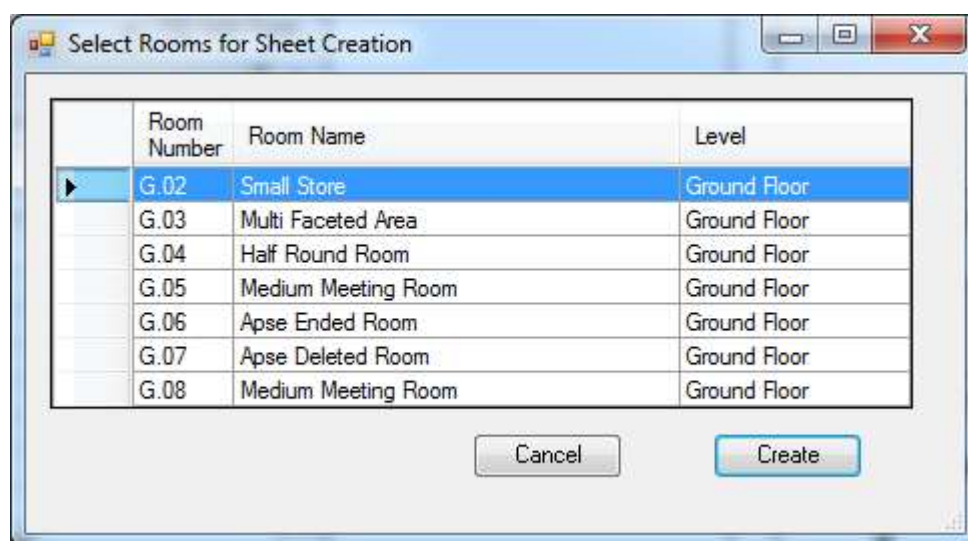


A sheet laying out views of a single room. Views in use are plan, elevation, 3D, Schedule, and a very large legend item. Note that the sheet name uses the G.01 in the title block. This is automatically altered for each new sheet.

Note: Plans, Elevations and 3D items Automatically grow and shrink to suit the size of the room. Schedules and Legends will appear in the same location on all sheets.

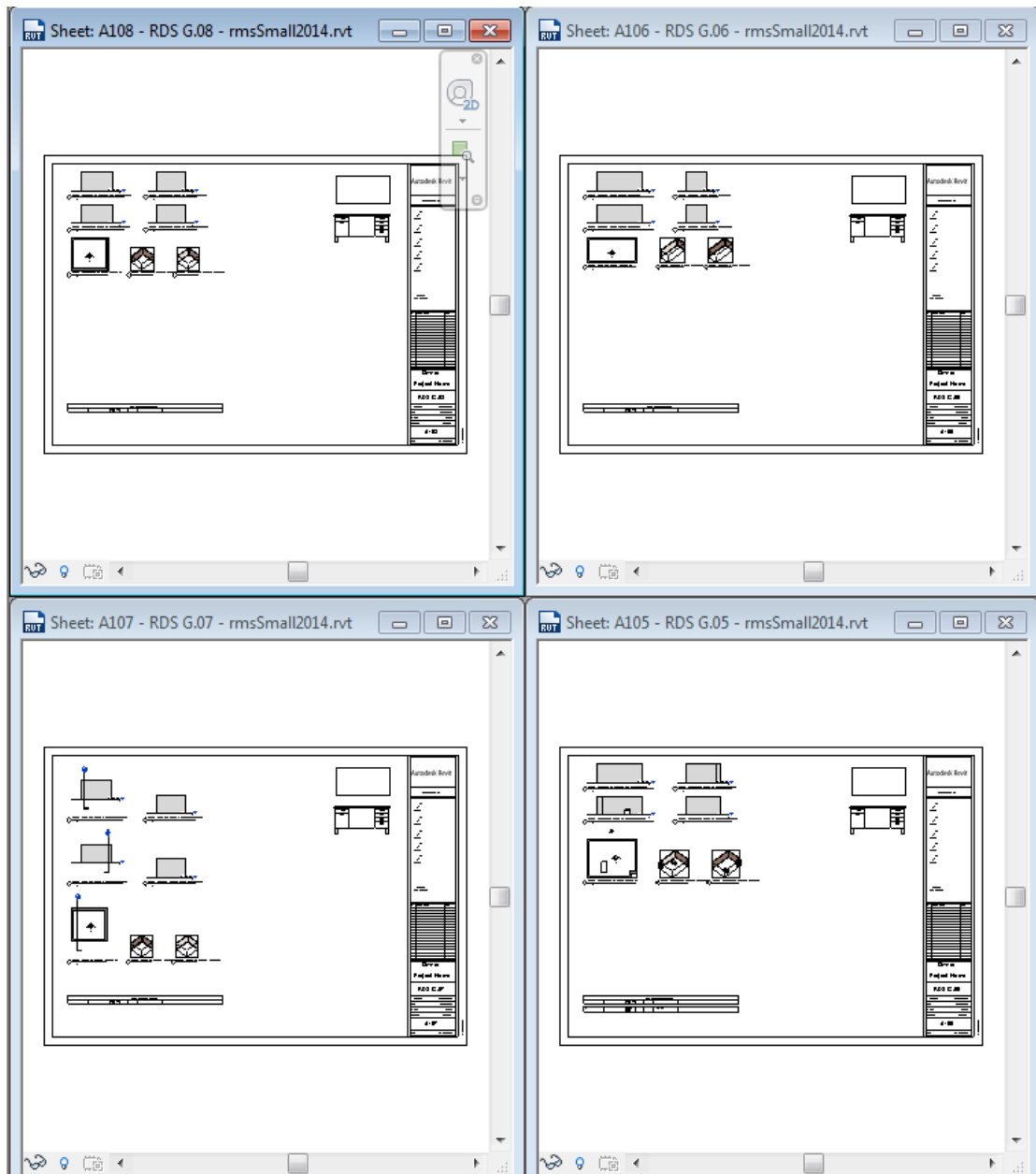
Note: All views except the legend item must include the room number as part of their name. If not the sheet will not be recognised as room specific.

Once you press the "Create Sheets with View" you will then be presented with a list of **rooms that have not had any views placed on any sheets**. If any views using the Room Number have been placed on sheets, the room will not appear in the list.



The room selection dialog. Select one or more rooms to have sheets created.

Note that only rooms which have ALL the necessary views will appear.



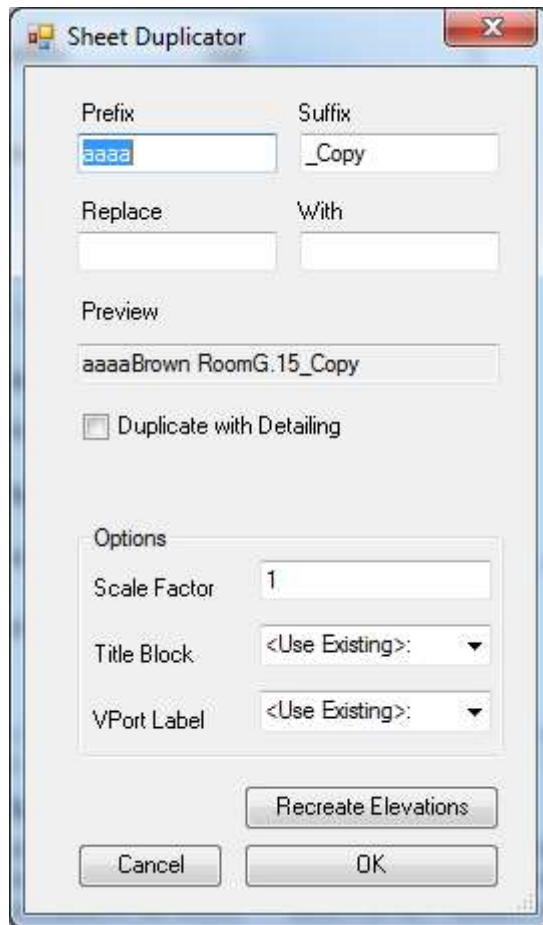
The results of the command. Note the legends and schedules always in the same location whilst the other views move around to accommodate the size of each view.

Duplicate Sheet / Sheets (also Recreate Elevation Views on Sheet)

This command allows you to duplicate the current sheet or selected sheets and all the views on the sheet(s). you also have the option to Recreate Elevation views. This is useful if views are visible but not plotting.

When using the **Duplicate Sheets** command you will first be prompted to select the sheets you want to duplicate / recreate elevations on.

Once activated you will be prompted to define a view renaming template. Hopefully the naming convention you have used can easily generate new names based on the existing names. If not simply allow Revit to generate the new names.



You may opt to add a prefix or a suffix to newly created views, or you may elect to replace a string within the name. e.g., replace Option 1 with Option 2.

Scale Factor

You can optionally specify a scale factor for views. A scale factor of 0.5 will take a 1:100 scale and change it to 1:200. A value of 2 would take 1:100 views and change them to 1:50. View placement will be appropriately scaled.

Note: If views have a view template applied the routine will look for a view template named "*ViewTemplateName-Scaled-theNewScale*". E.g., If a used view template is named "RoomPlans" then the related view template would be named "RoomPlans-Scaled-200" if the resultant scale would be 1:200.

Title Block

An alternate title block to be used. E.g., you may want to go to an A3 title block if scaling

VPort Label

An alternate Viewport Label to be used. If scaling you will need to create a new smaller viewport label to get a similar look.

Note: Since many tags, grid heads, text, etc. are set to be a fixed height then scaling views will rarely create a photo reduced / enlarged result.

The new sheet will be opened to allow you to alter the settings for the views.

Recreate Elevations

Use this to recreate the elevations when there are plotting issues.

Create New Sheets

This command lets you create multiple empty new sheets. You will be asked to enter the number of new sheets you require.

Make sure to set the "copy parameters" option to copy all the parameters of the current sheet to the new sheets.

Note: Numbering will be based on the Revit sheet numbering process. Ie. Sheets will be numbered based on the last number you had entered or modified.

Copy Parameters

Copy parameters from the current sheet to the new sheets. Where the view title has been used in a sheet parameter that value will have the values swapped. Eg. Level 01 Plan, would be updated to "Level 02 Plan".

Project Sheet Clone

Allows you to copy/clone sheets (and associated views) between projects. Open the project which contains the **sheets to be cloned**; then with the TO Project active begin the command.

NOTE: It is best that both projects contain the same

- **Elevation Types**
- **Filters**
- **Section Types**
- **Sun Settings**
- **View Templates**
- **Viewport Types**

Use "transfer project standards" to achieve this.

NOTE: Since existing views in your "To Project" that are being cloned are first deleted make sure NOT TO have a single view open that will need to be recreated.

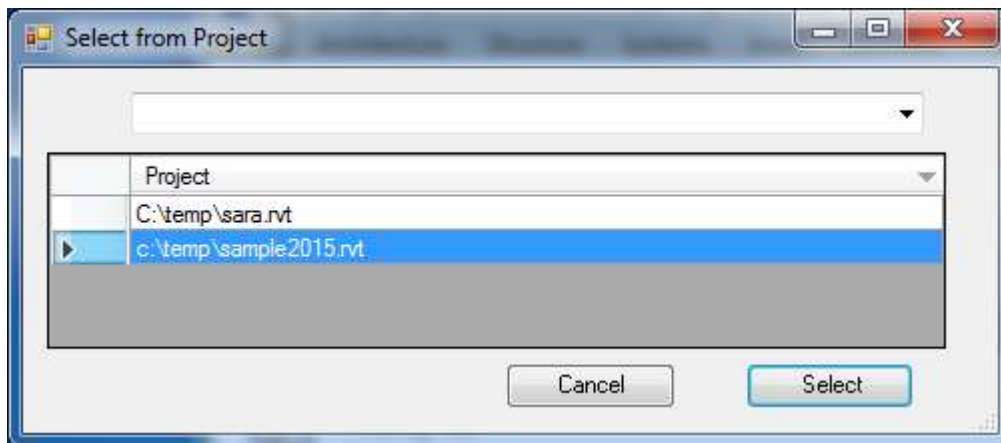
NOTE: Your "To Project" should have at least one plan view if you are creating elevations or sections.

Note: Certain views cannot be cloned by this routine and a couple of approaches can be used to bring these views into the "To Project" before running the Clone command to position the viewports correctly

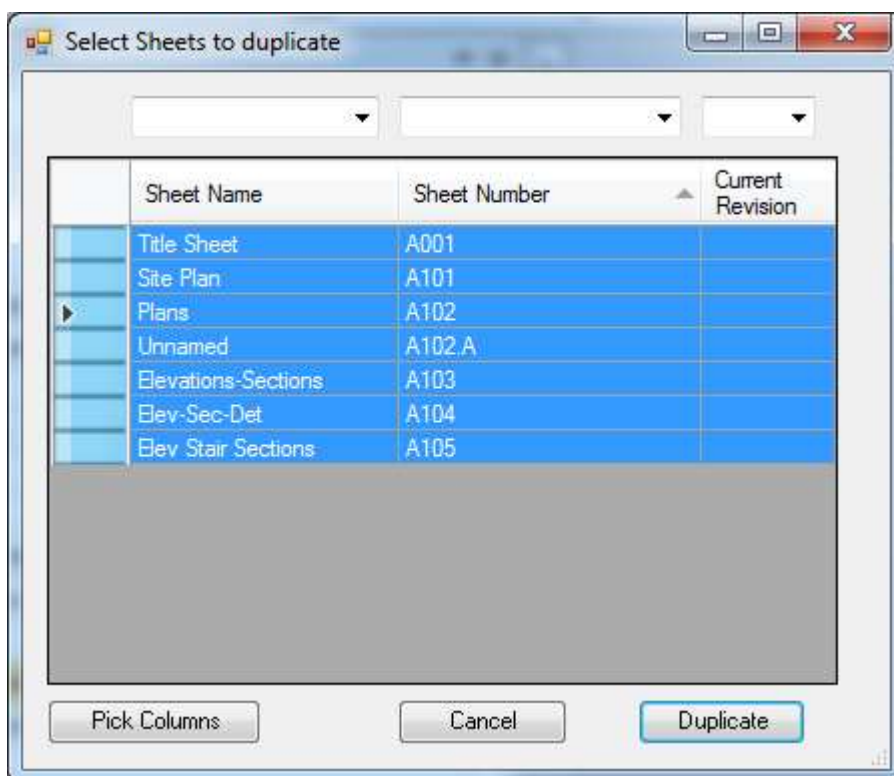
- **Legend Views**
Open the legend view in the "From project", select all, and then use <Ctrl+C>
In the "To project", create a new Legend view. Name it identically and set the scale the same. Use "Paste into current view" to copy the legend items.
You can now run the Clone command
- **Drafting Views / Schedules**
Whilst in the "To Project" use the "Insert | Insert from File | Insert views from file" and select the drafting view / schedule in the "From Project".
You can now run the Clone command

If you have more than 2 projects open you will be prompted to select the "From Project".

Note: If only two projects are open then the other project will be used as the source for sheet duplication.



You are then prompted to select the sheets to be cloned if more than two projects are open.



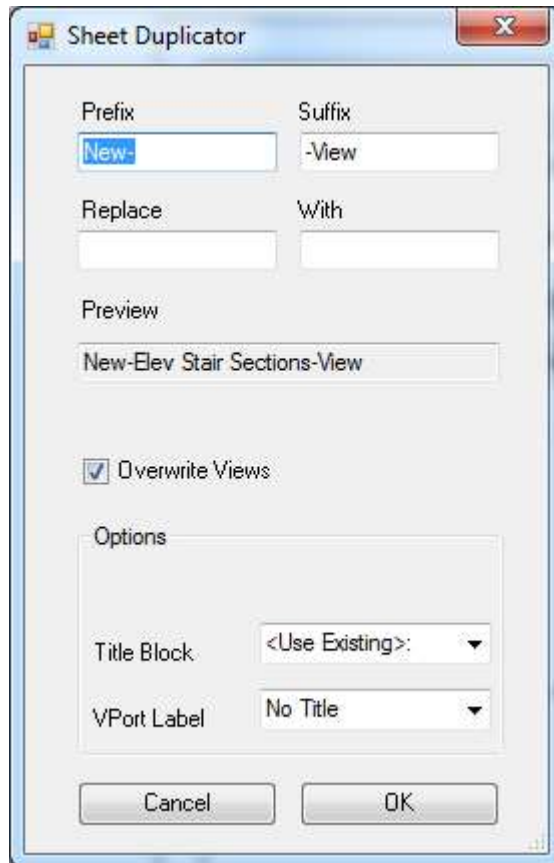
Select all the sheets you want cloned into the "To Project".

The types of views currently handled are Sheets, Floor Plans, Sections, Elevations, 3D views, Area plans, Structural plans, and details.

NOTE: Drafting views and schedules require pre-processing by the user using Insert View from File.

NOTE: Legend Views require the user to Create a legend view in the "To Project" (named the same as the From Project) and elements Copy and Pasted from one project to the other.

You will then be prompted to select various options



Note: **View overrides, view filters, and settings are copied however not all settings are available via the API, e.g., Shadows ON, and therefore some differences may be apparent.** Some detail bubbles are likely to be misaligned; once again an issue of what the API allows for.

Where renaming of views takes place Legend, Drafting, and Schedule views can be named either with the modified name or the original name, e.g., a Legend named "Door Legend", could be named "New-Door Legend-View" (using the example settings given above) or "Door Legend" in the "To Project".

Sheet Synchronisation

These routines enable you to align similar views on multiple sheets

You will need to select "Sheets" in the "Sheets" dialogue to have items in other sheets aligned to matched items in the "Current View".

Align Title Blocks

This will ensure that title blocks across multiple sheets will all be placed at the same coordinates. This is only an issue if sheets have been created without a title block and a title block was then dragged and dropped onto the sheet.

Select the sheets from the sheets dialog and then click this command to have title blocks aligned. If title blocks require moving then all other items on the sheet will also be moved.

Use the "At 0,0,0" option to shift items to a uniform (0,0,0) location. If not ticked, title blocks will be moved to match the title block location on the current sheet.

At 0,0,0

This will force title blocks to be at the default location of 0,0,0. The current view will also be shifted if necessary. This is the preferred option.

Align Views

This will align views of similar types across multiple sheets. The routine will handle multiple views as placed on the current sheet, and will find items on the selected sheets that match views on the current sheet. These will be aligned across sheets.

Note: View Matching

Views are matched by Scale, Type, and also view direction. Therefore you can have plans, mixed with elevations, and sections, and correct matching and correction will occur. Of course the typical aligning is done with a single plan. Floor Plans and Ceiling Plans are also considered to match provided the scales match.

Legend Copy Options

This section is for duplicating and aligning legend items between sheets.

Note: Even though Revit allows the same legend item to appear on multiple sheets, it does not allow you to copy and paste align to one or multiple sheets.

Select Legend Item

Select the legend item to be copied to multiple sheets, and placed in the same location.

Copy to Sheets

Copy the selected item to the selected sheets in the sheets table.

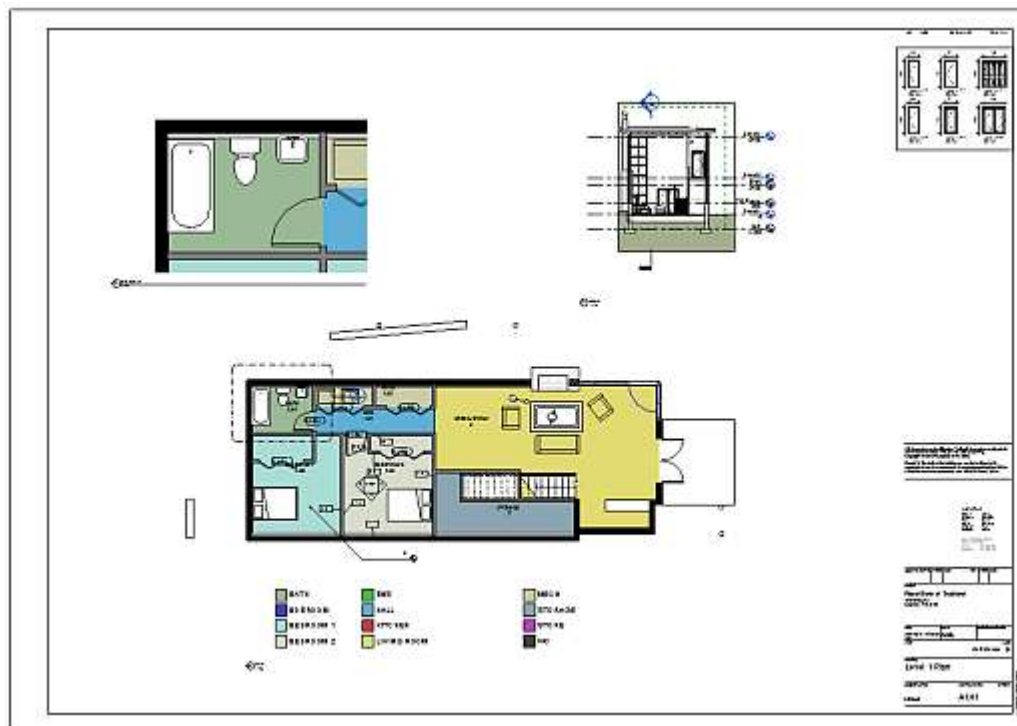
Place New Items

Create the legend item on the selected sheets if it does not already exist.

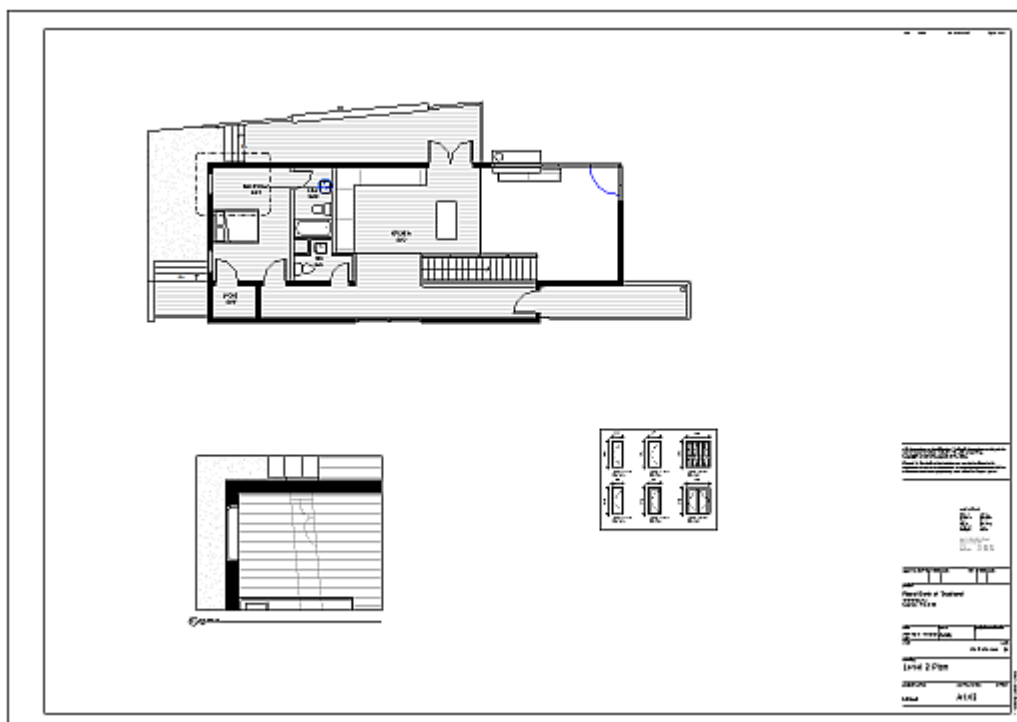
Correct Position

If a legend item exists on the selected sheets, then align the item with the legend item on this sheet.

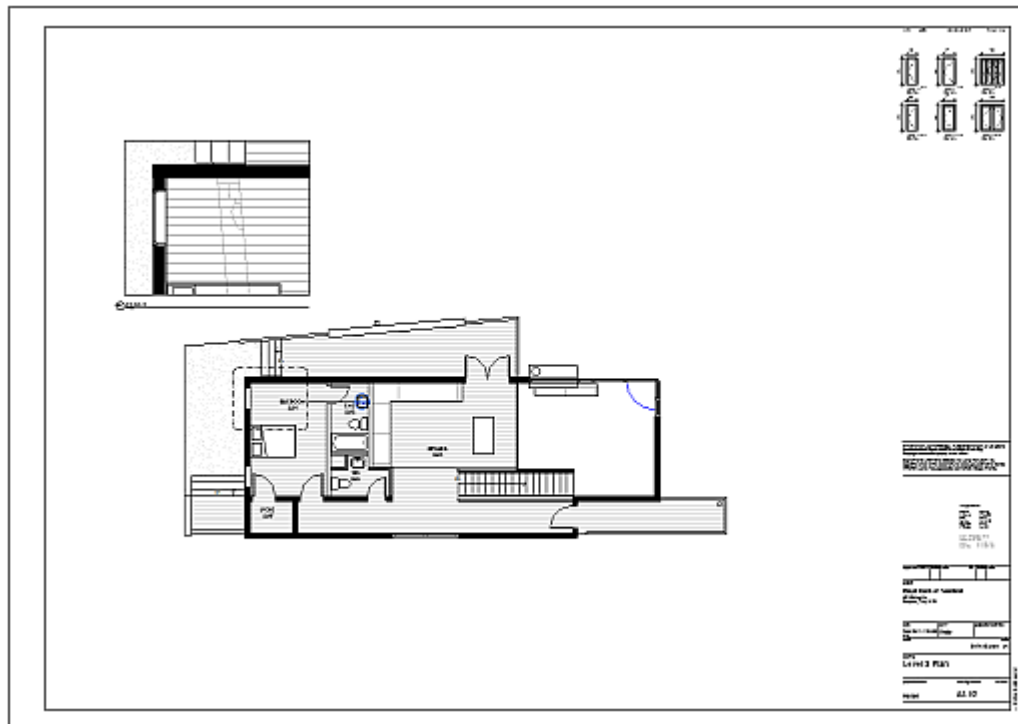
Example 1 : Aligning views



A view setup the way we want



A view with similar views but not aligned correctly



After running the align views command

Revision Comments

Allows Revision Cloud information to be listed in the title block. This is done by using a Revision Cloud tag that has the appropriate labels to display the information you are after. Typically this will include the "Comments" field

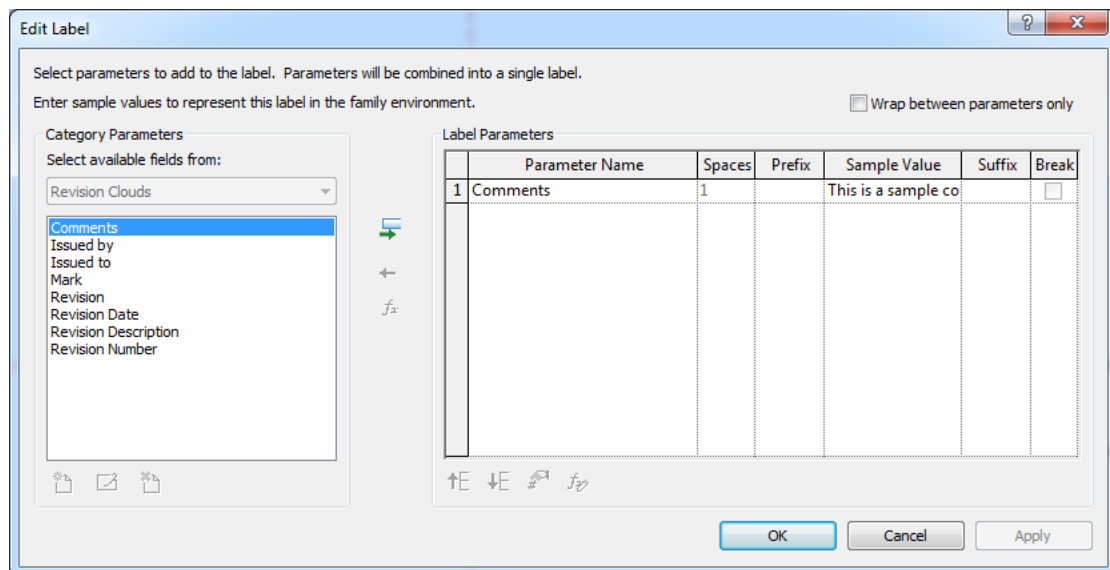
Note: The standard revision block in a title block only allows for information relating to the general/overall revision information. This command will allow you to list individual cloud information.

Rev Comment

Select sheets to have Revision Comment tags placed

Rev Tag

The Revision Cloud tag family to be used. This is a Revision cloud tag that displays the cloud specific information you are after.



Available parameters for display in a Revision Cloud Tag



Labels placed in the Tag Family. Ideally use a Top Left Origin to ensure consistent placement of tags. Tag shows items related to two types where Visibility has been applied.

Reverse

Reverse the order that tags are placed. E.g. 8 to 1 rather than 1 to 8.

Loc

Define the location on a sheet at which tags are to be placed

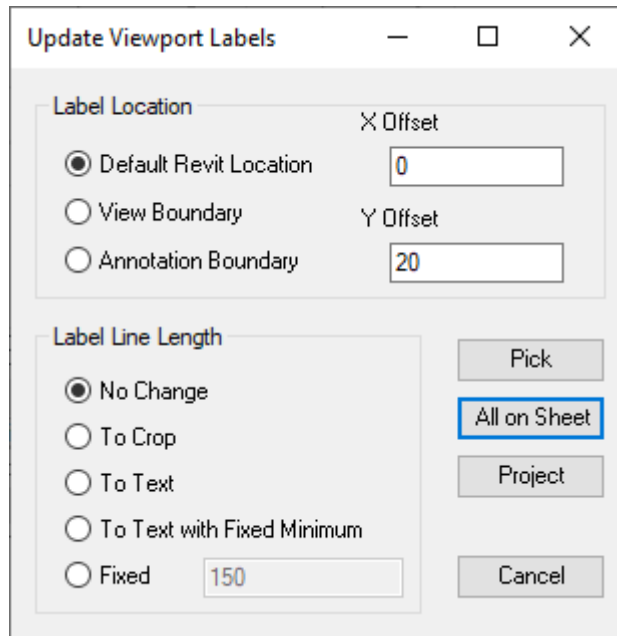


Tags placed using the command.

Viewport Labels

Since Revit 2022

Allows you to update Viewport Labels. You are able to update the location of the labels as well as the line length



Label Location

Default Revit Location

This is the bottom left corner of the viewport as it appears on the sheet. This will place the label directly beneath this point. Unlike Revit the bubble will be left aligned with the edge of the viewport

View Boundary

This location is the bottom left corner of the views Cropbox.

Annotation Boundary

This is the bottom left corner of the views Annotation Cropbox

XOffset

This allows you to alter the horizontal placement of the label. A positive value moves the label to the LEFT

YOffset

This allows you to alter the label placement vertically. A positive value moves the label further away from the viewport i.e. Downwards

Label Line Length

This allows you to control how long the Label Line will be.

No Change

The line length will not be altered

To Crop

The label line will be extended to the crop boundaries, whether that is the view crop or the annotation view crop.

Note: Where a view is not cropped the viewport bounds will be used

To Text

Adjusts the label line length to match the text of the label

To Text with Fixed Minimum

The label line will match the text length but never be less than the specified Fixed length value

Fixed

All viewport labels will be set to the same length as specified

Selection**Pick**

Pick viewports to be updated

All on Sheet

Adjust all viewports on sheet

Project

Adjust all viewports in entire project. Note: This can take quite some time and cannot be aborted.

Cancel

Exit the dialog

UPDATE REVISIONS

Since ARUtils 2015

This command enables you to update the revision of multiple sheets in a single go. The command relies on adding a revision cloud to the sheet(s).

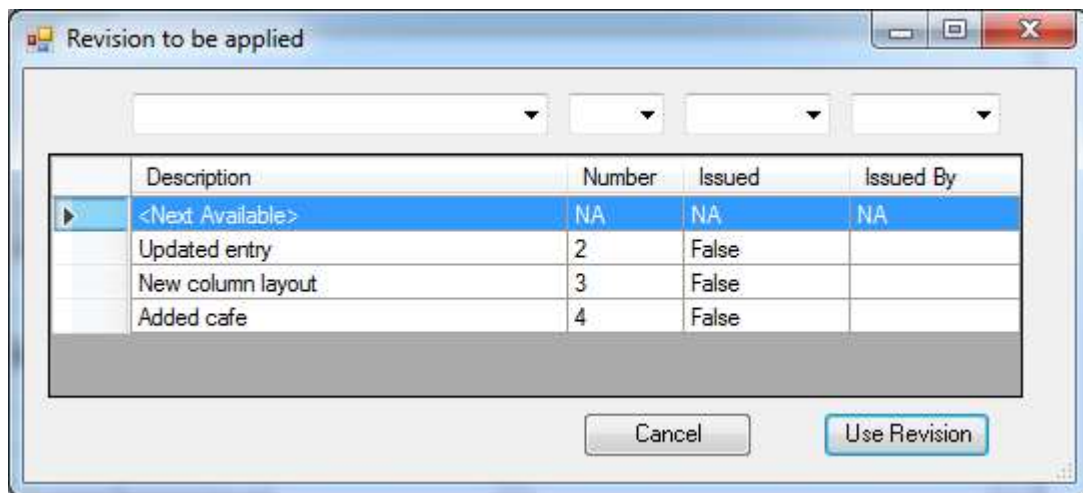
Only non-issued revisions will be available to apply to sheets.

Ideally the revision you are applying will be set to not display Clouds or Tags so that these are not visible on the sheet.

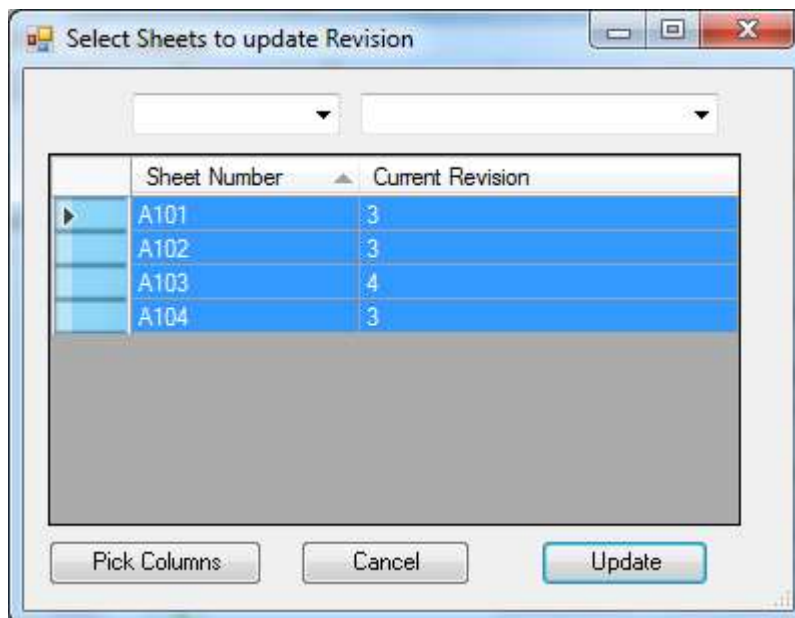
Note: Hiding a specific revision cloud on a sheet effectively removes that revision from the sheet. In this multi sheet approach you should have the specific revision set to not display clouds or codes or the Revisions category set to not display for the sheet. It is unlikely that hiding the entire revisions category will be appropriate.



[Show me how](#)

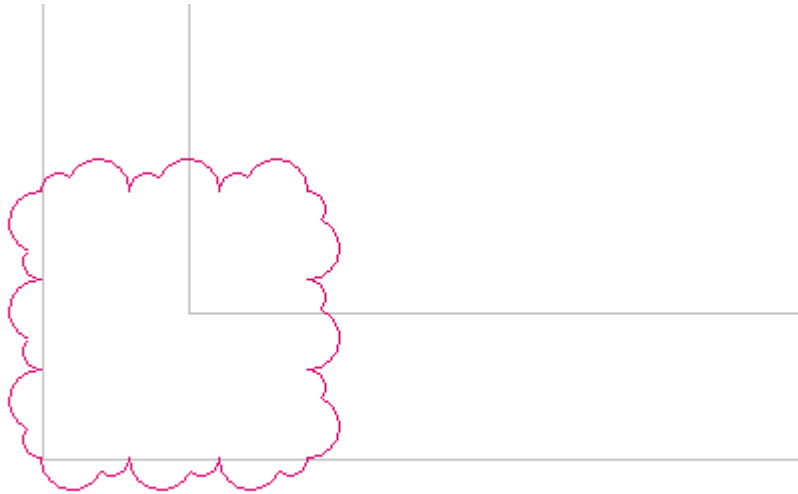


Selecting the Revision to be applied. Selecting <Next Available> will increment each sheet to the next revision in the sequence of Revisions. This will be based on each sheet's current revision.



Select the sheets to be updated to the selected revision

Note: Use Pick Columns to alter the columns to be displayed.



The cloud in the bottom left corner of any updated sheets. This will appear if the revision display is set to display clouds and tags.

*Note: To delete **issued** revision clouds use the “**Delete Clouds**” command from the “[View Cleanup](#)” command.*

PLACE VIEWS

The place views routine will automatically place selected views onto new sheets, or if your current view is a sheet, it will place views onto this sheet. If more than one sheet is required, new sheets will be created.

Note: In the case of placing views on the current sheet the routine assumes that there are no currently placed views. ie. The routine does not try and work around existing views.

Note: This routine is not available in ARUtils 2012



[Show Me How](#)

View Name	View Type	Scale
Level 1	AreaPlan	96
Level 1	AreaPlan	96
Level 2	AreaPlan	96
Typical Floor Wall Connection	Detail	10
Typical Foundation Detail	Detail	10
Typical Wall Roof Connection	Detail	10
Main Stair Detail	Detail	20
Drafting 1	DraftingView	50
101-Kitchen & Dining-Elevation-E	Elevation	50
101-Kitchen & Dining-Elevation-N	Elevation	50
101-Kitchen & Dining-Elevation-S	Elevation	50
101-Kitchen & Dining-Elevation-W	Elevation	50
102-Mech.-Elevation-E	Elevation	50
102-Mech.-Elevation-N	Elevation	50
102-Mech.-Elevation-S	Elevation	50
102-Mech.-Elevation-W	Elevation	50
103-Bath-Elevation-E	Elevation	50
103-Bath-Elevation-N	Elevation	50

The Place Views on Sheets dialog

Sheet Name

You can define the name that will be used for new sheets. The names will be generated using a "Prefix" and a "Suffix". This can be combined with either the name of the first view placed on the sheet, or with a number (note that this is a number appearing in the name and not the sheet number itself)

Prefix / Suffix

The prefix / suffix to be used in generating the sheet name.

Use First view name

Combine the name of the first view with the prefix and suffix to generate the sheet name,

Auto Increment

Sheet names will be created using the prefix and suffix string with a number, e.g., this could result in "Plan Details Sheet 1", "Plan Details Sheet 2", etc.

Starting Number

The number to start from when building sheet names

Title Block Family

The title block to be used when creating new sheets

Viewport Type

The viewport type to be used when placing views on sheets

Viewport Type

The viewport type to be used when placing views on sheets

Viewport Spacing

Specify the distance between viewports. Note that this does not make allowance for viewport labels. Use a value of about 25mm or 1".

Place Views

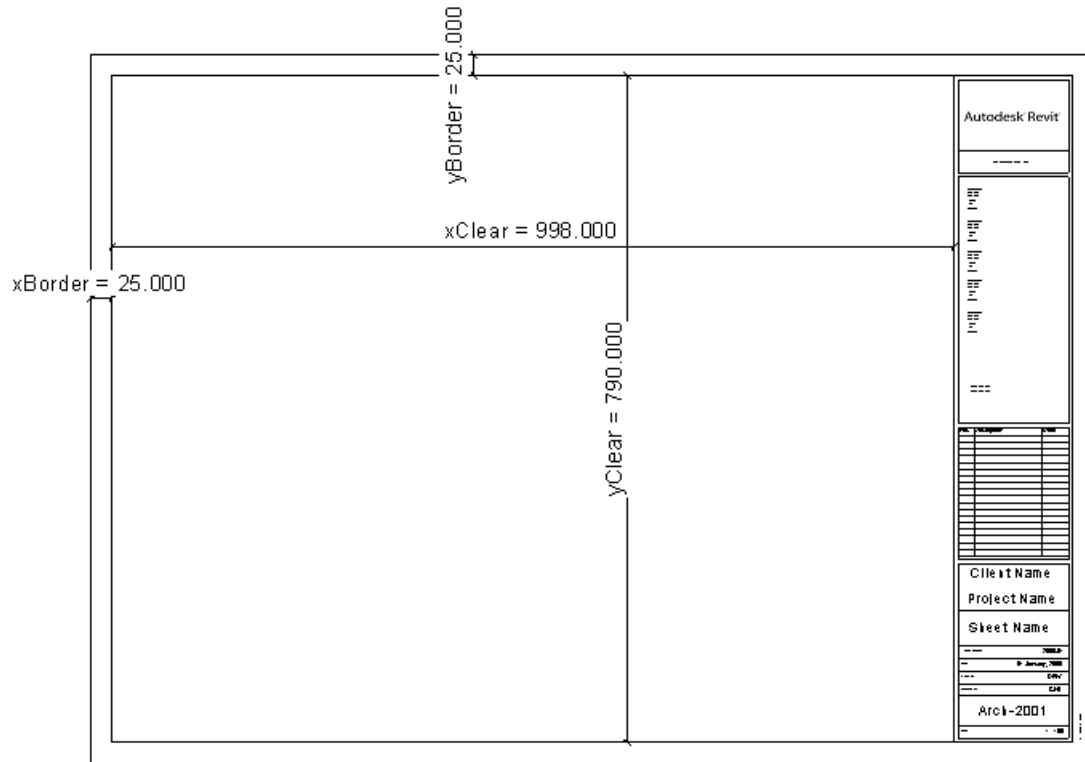
Place the selected views onto sheets

**Elevations placed on a sheet**

Note: It is best to have elevations correctly formatted before you place them using this routine. In the example above all elevations are aligned, however should the elevations have section marks or other such items manual alignment, of floor to floor, may be necessary.

Clear Width and Height:

To get optimal placement of elevations it is best to define four “type” parameters in your “Title Block” family. These are xBorder, yBorder, xClear and yClear. It is easiest to define these using Labelled dimensions.



If these “type” parameters are not defined, the routine assumes 90% of the overall width and height is available for elevation placement and border values of 0.05 of the width of the sheet. Placement is always carried out from the top right corner.

AR LEGEND

Last Updated: 24 August 2023

The **AR Legend** routine enables easy creation of Revit “Legend” sheets. After you create a legend template and select the parameters to be reported on, the legend view can be automatically populated with items used in your project.



[Show Me How](#)

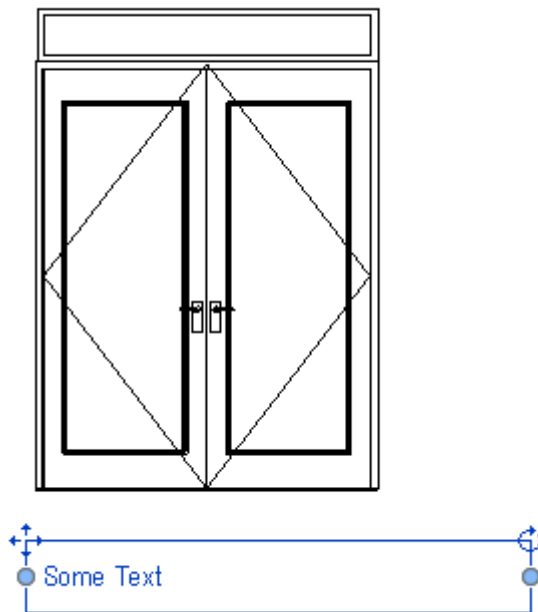
[Template Creation](#)
[Selecting Parameters](#)
[Legend Examples](#)
[Legend Generation Rules](#)
[The Legend Control File](#)

LEGEND TEMPLATE CREATION

You must initially create a “**Legend**” view that has “**template**” as part of its name, eg. Doors-Template.

Note: This is not a Revit “View Template”. It is just a Revit “Legend” view with template as part of its name.

This will have a **legend item**, eg. A door in plan, elevation, or both, as well as a single **Text** item. The two (or three) items you place, should be placed as you want the items to be placed for all items in the legend.



Set the size of the text box to the largest you will want by dragging the width of the text box. This ensures that very long lines will be wrapped.

If you wish to have a dynamically growing text box make sure not to DRAG the width of the text box. This is only available in 2015 onwards.

Example of legend template view. Whilst not 100% necessary, it is best to use the biggest item that is likely to be placed. The elevated door will be replaced with appropriate families. The “Sample” text will be replaced with the specified parameter values related to the elevated item. **Making the text box wider at this stage will ensure all items use text boxes of this width.**

Note: Items that need to be adjusted for sill height should be placed without allowance for the sill height offset, ie. The window would be placed as if on the ground plane. Sill adjustments will occur automatically.

Note: Doors and windows that use instance width and height values for placement in curtain walls are not included in these schedules. Only “Type” items of families are considered.

Multiple Templates

If the number of legend items requires multiple sheets Revit 2013 and onwards will create these for you. In Revit 2012 you will need to create additional templates numbered sequentially. Eg. Door-Template, DoorTemplate1, DoorTemplate2, etc. Only the first template will affect the layout of your legend view.

Note: Progressive templates are not automatically deleted if they are no longer required.

Modifying the template layout

After you have run the “AR Legend” command once on a template, the **generating template items will be hidden in the view**. To adjust placement of the template items use the “Reveal Hidden Items” button to allow you to adjust the hidden items.

AR Legend

Start the command by going to the “AR Legend” button in the “Views” section of ARUtils.

“AR Legend” uses a “Control file” to store a number of “legend view templates”. Each template, stores values required to generate a particular Legend.

Note: These values are now also stored within your project file.

Control File

- Name:** The excel control file to be used. This can be a non-existent file. Simply type the new file name into the field. Clicking the [New] template button will then create the file.
- [...]:** Browse for an existing control file

[Edit]: Open the control file to allow for easy editing. This is generally not required.

[SaveAs]: Save the current settings as a new file

Template: The name of the current template. A template contains all the settings used to generate a legend.

[New]: Create a new template using the current settings.

Whilst a template is active, any changes made are stored to the template and the control file.

Legend Contents

Template View: The existing legend view in the project that this legend relates to. Only Revit “Legend” views with “Template” as part of their name will be listed.

Legend Category: The category of items to be used to generate the legend. Only types that can be used in a legend are accessible.

Sort By: The parameter to sort your legend by eg. Type Mark.

Note: If appropriate a full numeric sort will be done eg. 1,8,9,11, not 1,11,8,9.

Parameters: The parameters to be reported on. For a better preview use the [...] button.

Tip: Set the **legend type** before activating the parameter selection button [...].

Filter A filter to be applied to the items of the category being considered. This allows items to be included or excluded. Refer to the [Conditional Filter Format](#) section of Formatted Excel Import

[...]: Specify the parameters for this legend template. Refer to the section [“Picking Parameters”](#).

Legend Layout

Page Width X,Y: The useable page width and height. This is typically the clear area on your title block sheet. The values take account of the scale of the Legend Template view.

Item Gap X,Y: The clear gap between items in the x and y directions.

On Grid: **UN-Checked:**

When “**On Grid**” is **unchecked** items are placed as close to each other as possible, with just the “Item Gap” separating them.

When “**Down then Across**” is **unchecked**, each row of items will have their bases aligned but will be separated horizontally by just the “Item Gap – X”. Rows will be spaced to maximise sheet usage, i.e., as close to each other as possible.

When “**Down then Across**” is **checked**, each column of items will have their left edges aligned and will be separated vertically by just the “Item Gap – Y”. Columns will be spaced to maximise sheet usage, i.e., as close to each other as possible.

Checked:

When **“On Grid” is checked**, items will be placed on points in multiples of the **“Spacing – X”** (or “Spacing Y”) value. E.g., Most of your items are less than 2000 wide. You set your “Spacing – X” value to 2500. Any items exceeding this value (with dimensions and filled in text) will go to the next multiple(s) of 2500 capable of containing the item.

When **“Down then Across” is checked**, vertical grid spacing occurs based on multiples of the “Spacing Y” value.

Once again Rows (or Columns) will be spaced to maximise sheet usage.

Spacing X,Y:

Only applicable when “On Grid” is checked, this is the grid spacing that legend items will use. Refer to “On Grid” above. Only the appropriate field will be enabled depending on the “Down then Across” checkbox value.

Note: You could use quite small spacing values, e.g., 500mm. This could result in all your items being on a grid which is multiples of 500mm. This avoids excessively large areas of white space.

Down then Across:

Typically items are placed across a sheet in a row, and then progressively down the page in more rows. When checked this option will place items down the page in columns and then across the page. This is useful for Wall, Floor, Ceiling, etc. Schedules.

Wrap Text:

The width of the ‘sample’ text item can be dynamic i.e., grow as the length of lines grows, or it can be a set width.

To create a dynamic sample text item you must ensure that you place a Text item and **DO NOT DRAG THE EXTENTS** of the text item. By having ‘Wrap Text’ unchecked the text box will grow to not wrap the text.

If the sample text item is still Dynamic and the “Wrap Text” checkbox is set all text boxes will be set to the width of the sample text box. This could be too small unless a fairly long string of text is input. E.g., A very very very very long bit of text.

Once the sample text width is set by dragging, all text items will use that width regardless of the “Wrap Text” being checked or not.

Dimensions Checkbox: Enable dimensions for the legend items. Legend items are inspected for Width, Height and Length parameters. The legend item is inspected to see if these can be referenced and then dimensioned.

Dimensions Offset: The offset of dimensions from the bounding box. Dimensions appear above and to the left of items.

DimStyle: The dimension style to be used when creating dimensions

Note: Dimensions are typically created based on length, width, height, and sillheight. Ideally all of your family types should use these variables to avoid ambiguity.

Note: Not all dimension types will offset correctly. Make sure to use settings similar to

Dimension Line Extension	2.4000 mm
Flipped Dimension Line Extensio	2.4000 mm
Witness Line Control	Fixed to Dimension Line
Witness Line Length	5.0000 mm
Witness Line Gap to Element	1.5000 mm
Witness Line Extension	2.4000 mm

LineStyle: The line style to be used for a ground plane line where items have a sill height.

Sheet size: The sheet size that you are likely to place the legend view onto. You can also select a specific title block in your project. This ideally should have xClear and yClear defined. [Refer to this for more information.](#)

W/H Estimate: An estimate of the clear page width and height based on the following:

- If xClear & yClear are defined in the title block then this will be an accurate width and height
- If not defined then these are based on the Sheet Size (90% of sheet is assumed to be available for legend placement)
- The Scale of the legend template view will be taken into account

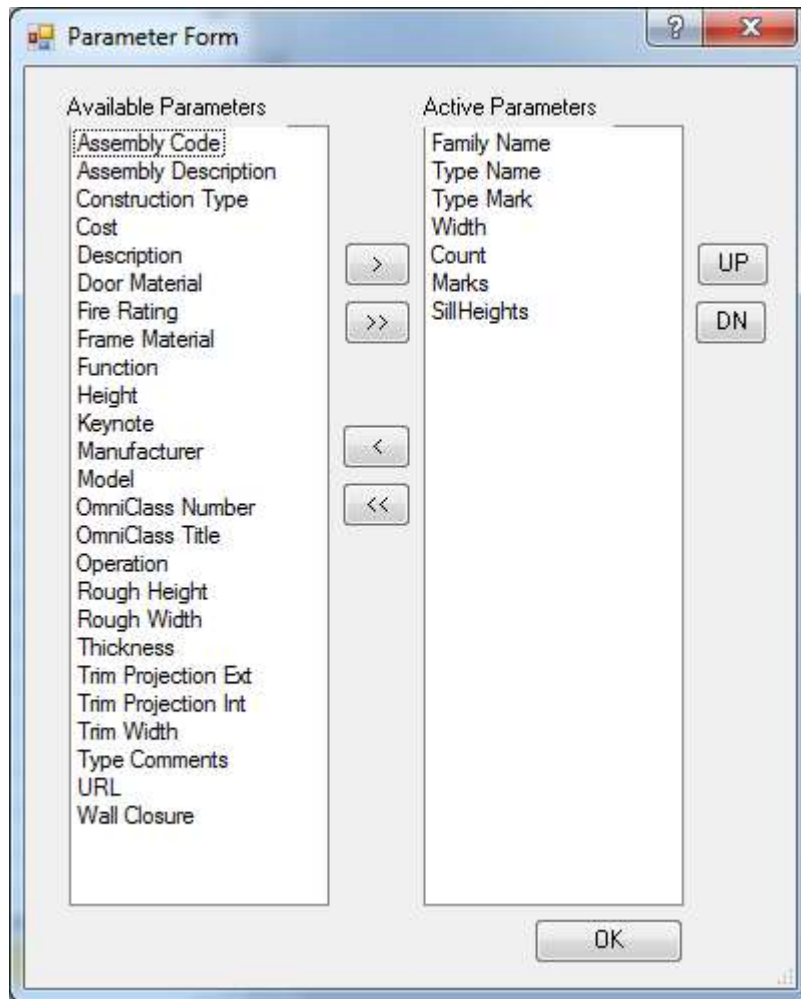
The reported figures can be used to adjust your preferred Page Width X and Y values

Right Click lets you transfer the values to the Page Width /Height values.

SELECTING PARAMETERS

There are two possible parameter selecting windows. The older version allows for little formatting. For the new version go to ["Picking Parameters"](#).

Older Style Parameter Picker



Older Style Parameter Picker

Available Parameters: A list of the parameters available for this type of legend.

Active Parameters: The parameters to be used in the legend.

Moving parameters between lists

Double click an item in either list to move it to the other list

Select Items and press ">" or "<" to move between lists

Press ">>" or "<<" to move all items between lists.

Reordering parameters

Select parameter(s) in the used list and press the **[UP]** or **[DN]** buttons.

Special Parameters

- Count:** A count of how many times the item occurs
- Marks:** A list of all the marks of the instances of the legend items within the project. Items are split by "/"space"
- MarksSpace:** A list of all the marks of the instances of the legend items within the project. Items are split by "space/space"
- Sill Heights:** A list of all the different instance sill heights for the family.

Note: Only one legend item of a family item with multiple sill heights will be placed in the legend view.

NEW PARAMETER PICKER

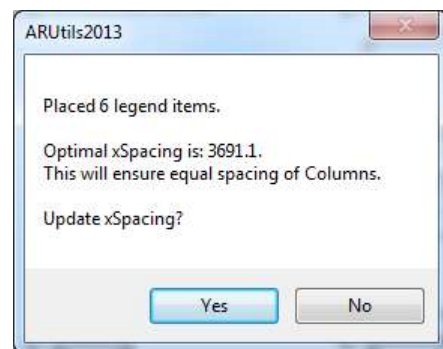
Refer to [New Parameter Picker](#)

CREATE YOUR LEGEND

Finally **create** or **recreate** your legend

[Create]: This will create the legend using the specified Legend view. If a previous creation has occurred, your original legend items have been hidden in the view. If hidden items are found you will be asked if you wish to regenerate the legend. This deletes all of the visible items and then recreates the legend using the currently hidden items.

At the completion of the routine you will be informed of the optimal **Grid Spacing** value. This value ensures that at least 85% of your items would have consistent spacing. Why 85%? This allows you to have a spacing where most of your items will be accommodated. The few larger items would be accommodated by using multiples of this value. By clicking yes you can transfer this value to the appropriate spacing entry.

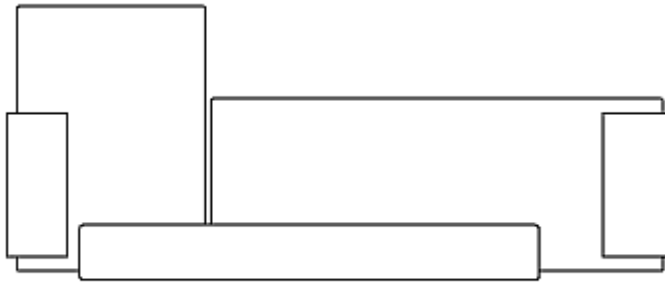


[Update]: This will update the specified "Template View", e.g., "Doors Template" in regards to the **Note text**.

Any items that no longer have a placed instance in the project will be labelled "Not in use".

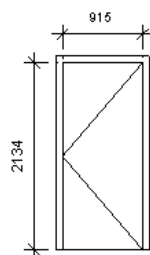
Items that have been added since the last run of the command will be listed. You will need to place these manually or re-run the create command.



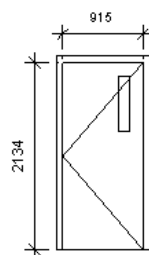


Item not in use

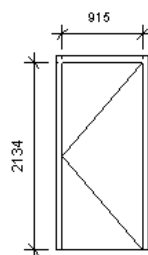
LEGEND EXAMPLES



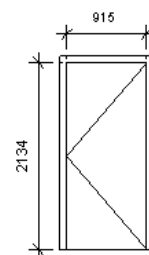
Family Name : M_Single-Flush
Type Name : 0915 x 2134mm
20 Minute Rated
Type Mark : 45
Width : 915.0
Count : 6
Marks : 112/ 125/ 214/ 220/
310/ 317
Sill Heights : 0.0



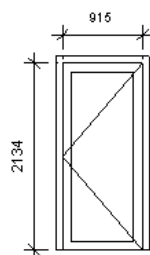
Family Name : M_Single-Flush
Type Name : 0915 x 2134mm
Type Mark : 47
Width : 915.0
Count : 4
Marks : 314/ 315/ 319/ 320 A
Sill Heights : 0.0



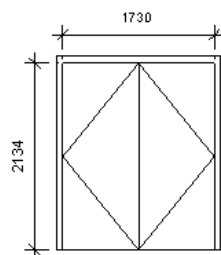
Family Name : M_Single-Flush
Type Name : 0915 x 2134mm
Type Mark : 20
Width : 915.0
Count : 63
Marks : 103/ 104A/ 104B/ 105A/
105B/ 106A/ 106B/ 108A/ 108B/
109/ 110/ 111/ 116/ 117/ 124/
126/ 127/ 128/ 129/ 130/ 132B/
202/ 203/ 204/ 205/ 206/ 207/
208/ 209/ 210/ 211/ 212/ 218/
219A/ 219B/ 221/ 222/ 225/
226/ 228/ 229/ 230/ 231/ 232/
302A/ 302B/ 303A/ 303B/ 304A/
304B/ 305A/ 305B/ 306/ 307/
308/ 309/ 313A/ 313B/ 316/
320B/ 324/ 325/ 326
Sill Heights : 0.0



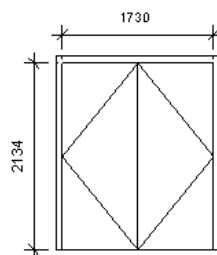
Family Name : M_Single-Flush-
Dbl Acting
Type Name : 0915 x 2134mm
Type Mark : 38
Width : 915.0
Count : 1
Marks : 122
Sill Heights : 0.0



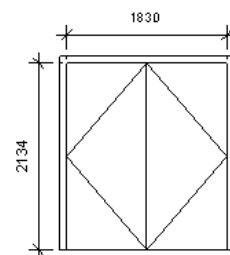
Family Name : M_Single-Glass
Type Name : 0915 x 2134mm
Type Mark : 54
Width : 915.0
Count : 1
Marks : 322
Sill Heights : 0.0



Family Name : M_Double-Flush
Type Name : 1730 x 2134mm
20 Minute Rated
Type Mark : 46
Width : 1730.0
Count : 4
Marks : 118/ 119B/ 227/ 323
Sill Heights : 0.0

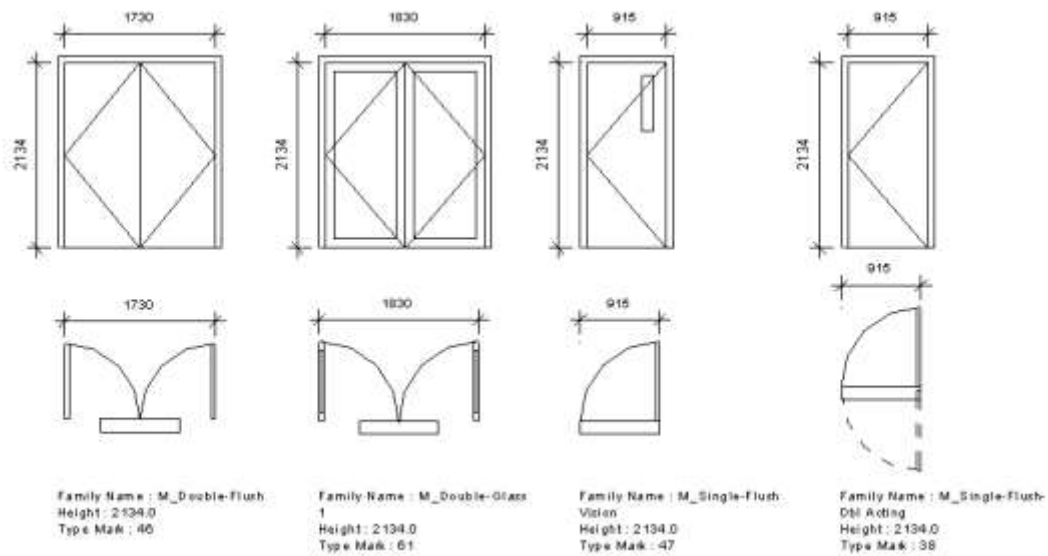


Family Name : M_Double-Flush
Type Name : 1730 x 2134mm
Type Mark : 35
Width : 1730.0
Count : 1
Marks : 119A
Sill Heights : 0.0

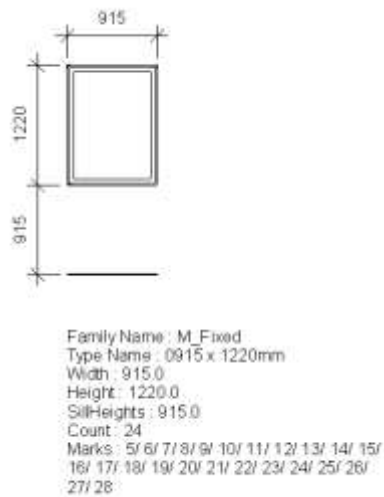


Family Name : M_Double-Flush
Type Name : 1830 x 2134mm
Type Mark : 37
Width : 1830.0
Count : 2
Marks : 115/ 123
Sill Heights : 0.0

A door legend showing count and marks.



A door legend with multiple legend item views



A window legend showing sill heights and window marks.



An example of a wall legend with layer and overall dimension applied

LEGEND GENERATION RULES

- All legend items shown in “elevation” or “plan” will be left hand, and bottom edge justified.
- Text will be horizontally offset from the legend items as defined in the template, ie. If the text is 200mm from the bottom left corner of the legend item, all text will be 200mm from the bottom left corner of each legend item.

- Text will retain the width you set in the template. Set a width that will contain most of the data without the need for wrapping.

Note: When the template “text box” width is quite small, the width of the text box will grow to fit lines of text. When the defined text box width is larger, the textbox width will remain constant. This may then become the controlling spacing factor in the X direction.

- Elevation items will be offset by their sill height if the sill height is greater than 0.
- Multiple sill heights for a family type will only result in one legend item. All Sill Heights can be listed using the “sillheights” parameter.
- Numeric sorting of items will take place ie. 2 is recognised as being less than 11.
- In the case of “Down then Across” being unchecked, row spacing down the page is automatically calculated to optimal spacing. Alternatively where “Down then Across” is checked, column spacing will be automatically calculated.
- The optimal spacing provided by the routine is a value that at least 85% of all items will be less in width or height. Where the difference between this value and the maximum width or height value is less than 20%, the optimal spacing will be the maximum width or height. This ensures that abnormally large items do not affect the entire schedule spacing. E.g., a single roller door will be omitted from calculating the best spacing.

THE LEGEND CONTROL FILE

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	Template View	Legend Type	Spacing X	Spacing Y	Columns	Dimension	Dimension Offset	Sort by	Par1	Par2	Par3
2	Doors-Template	Doors Template	Columns	2500	3000	4	TRUE	250	Type Name	Family Name	Type Name	Type Mark
3	Windows-Template	Windows Template	Windows	2500	4000	3	TRUE	300	Type Mark	Family Name	Type Mark	Manufacturer

The structure of the control file is quite simple. There is a one to one correlation to the fields of the AR Legend dialog. The parameters plus their formatting options then follow.

Note: Opening the control file is the only way to delete a legend template.

Note: If you require imperial and metric templates it is best to have separate control files.

AR CURTAIN WALL LEGEND

Since 2016

AR Curtain Wall Legend replicates the functionality of ARLegend but for Curtain Walls.

This involves creating individual plan and elevation views and placing them on sheets. Rather than using a dumb annotation item (as in ARLegend) wall details are listed via a “Wall Tag”. This allows for dynamic updating of the tags.



[Show Me How](#)

Note: This command is quite different to AR Legend where legend items of Family Types are placed onto a legend view. Things such as Door and Window schedules rely on Family Instances and Family Types. Whilst Curtain Walls have types they are quite different in that the types are not a fixed item where extra grids and mullions can be added / removed. This requires each Curtain wall to be elevated and a plan view created.

Please check out “[Things to Know](#)” for extra information on how the routine functions. Of importance is that the **Mark parameter must be uniquely set for all Curtain Walls**.

AR Curtain Wall Legend creator dialog

Control File

- Name:** The excel control file to be used. This can be a non-existent file. Simply type the new file name into the field. Clicking the [New] template button will then create the file.
- [...]:** Browse for an existing control file
- [Edit]:** Open the control file to allow for easy editing. This is generally not required.
- [SaveAs]:** Save the current settings as a new file

- Template:** The name of the current template. A template contains all the settings used to generate a legend.
- [New]:** Create a new template using the current settings.

Whilst a template is active, any changes made are stored to the template and the control file.

Include Links Include Curtain Walls in Linked Files

Legend Contents

- Sort By:** This is set to sort by Mark.

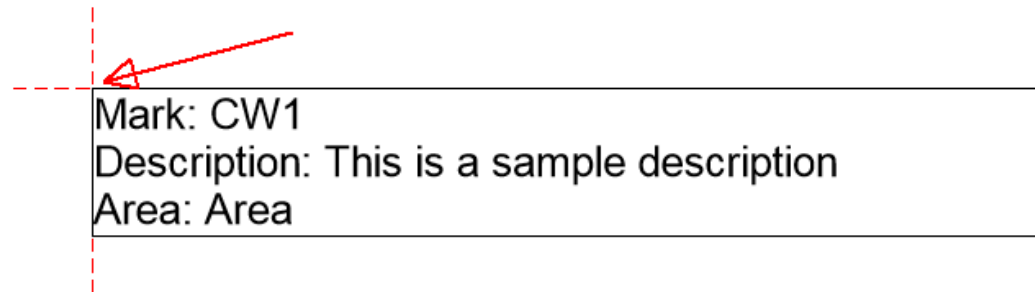
Note: If appropriate a full numeric sort will be done e.g. 1,8,9,11, not 1,11,8,9.

Filter [...]

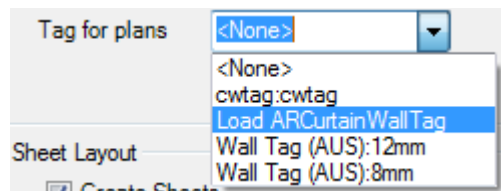
A filter to be applied to the items of the category being considered. This allows items to be included or excluded. Refer to the [Conditional Filter Format](#) section of Formatted Excel Import

Tag For Plans/Elev

The Wall Tag to be applied to plan and elevation views. This tag should be setup with the Top Left corner of the Label positioned at the (0,0) of the family



Use the "Load ARCurtainWallTag" to load the default tag



Alternatively pick a style you have defined.

Panel Tag

The tag to be used for curtain wall panels

Sheet Layout**Create Sheets**

Create sheets and place views

Page Width X,Y:

The useable page width and height. This is typically the clear area on your title block sheet. The values are actual units on the plotted page and are unaffected by View Scale.

Item Gap X,Y:

The clear gap between items in the x and y directions. The values are actual units on the plotted page and are unaffected by View Scale.

Sheet size:

The sheet size that you are likely to place the legend view onto. You can also select a specific title block in your project. This ideally should have xClear and yClear defined. [Refer to this for more information.](#)

W/H Estimate:

An estimate of the clear page width and height based on the following:

- If xClear & yClear are defined in the title block then this will be an accurate width and height
- If not defined then these are based on the Sheet Size (90% of sheet is assumed to be available for legend placement)

The reported figures can be used to adjust your preferred Page Width X and Y values

Right Click lets you transfer the values to the **Page Width /Height** values.

Title Block:	The title block to be used when creating sheets
Viewport Type:	The viewport type to be used for views. This controls the labelling of the views.
Sheet Name:	Allows you to set the Title to be used on sheets, eg. Curtain Wall Schedule. A number will be added as sheets are created.
Numbering Template	Allows you to set the numbering prefix to be used for sheet numbering, e.g., 90. Would create 90.01, 90.02, 90.03, etc.

View Creation

Create Plan / Elevation Create plan and elevation views

Plan / Elevation View Types

Allows you to set the View Types to be used for Plan and Elevation curtain wall views

Plan / Elev Naming Template

The naming template to be used for elevation and plan views. This must include the Mark parameter. The mark parameter must be uniquely set for all Curtain Walls.

Recreate Views If views exist recreate the views. Existing views will be deleted and lost from sheets. Sheets are not currently deleted.

View Scale: The scale of created views

Extension: The distance to extend plan and elevation views by. Views are only extended in the direction of the walls

Enable Dimensioning: Enable dimensions for the legend items.

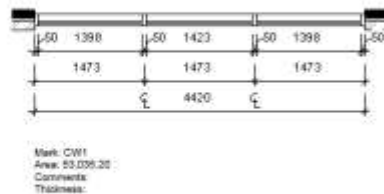
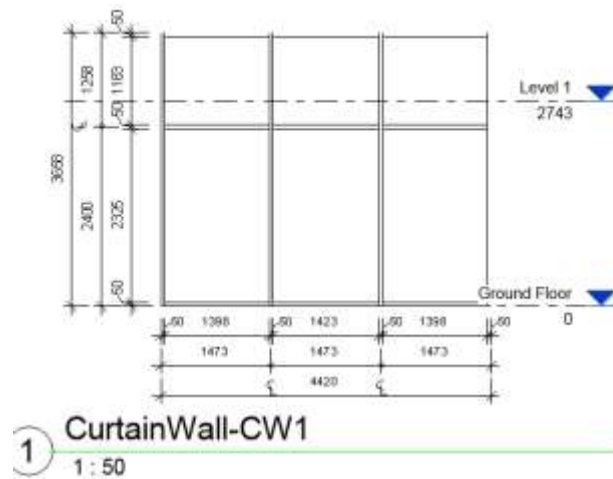
Dimensions Offset: The offset of dimensions from the bounding box. Dimensions appear below and to the left of items. The value is in actual units on the plotted page and are unaffected by View Scale.

DimStyle: The dimension style to be used when creating dimensions

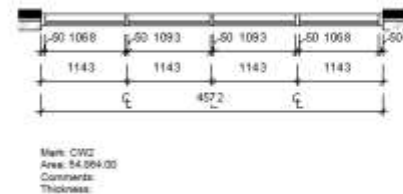
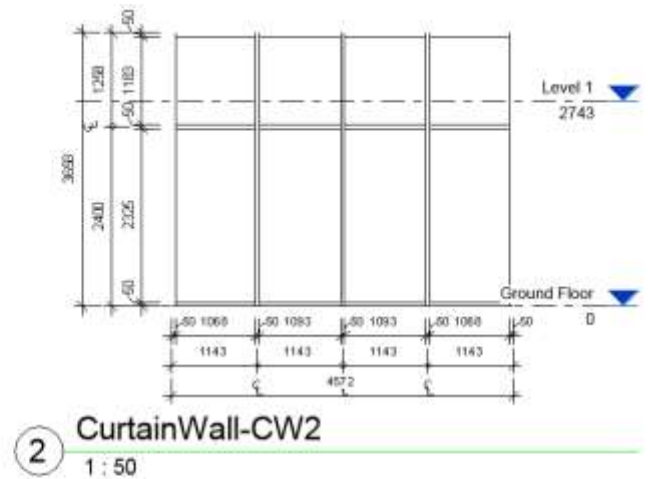
Plan Dims: Dimension the curtain walls in the plan view

Elevation Dims: Dimension the curtain walls in elevation views

CURTAIN WALL LEGEND EXAMPLES



5 CurtainWall-CW1
1 : 50



6 CurtainWall-CW2
1 : 50

THINGS TO KNOW

- You can set the name of created views using the Plan and Elevation Naming Templates. At present **you must use Mark** as part of the naming template. Ideally all Curtain Walls should have a unique Mark value however a new option allows for duplicate Mark values(this assumes curtain walls are the same) and just one wall will be documented. The count of duplicate mark values is copied to the clipboard and can be pasted into word, notepad, or an annotation.
- Layout of views will always be Elevation above Plan unless only one is created
- To ensure best placement of views you should have "View Types" specifically for curtain wall as well as applied "View Templates" which hides **grid lines** and **elevation marks** (and perhaps other categories). Without this, aligning of elevation and plan views becomes an issue.

Note: Hiding of grid lines, elevation marks, is necessary due to Revit failing to extend or hide them correctly in all cases.

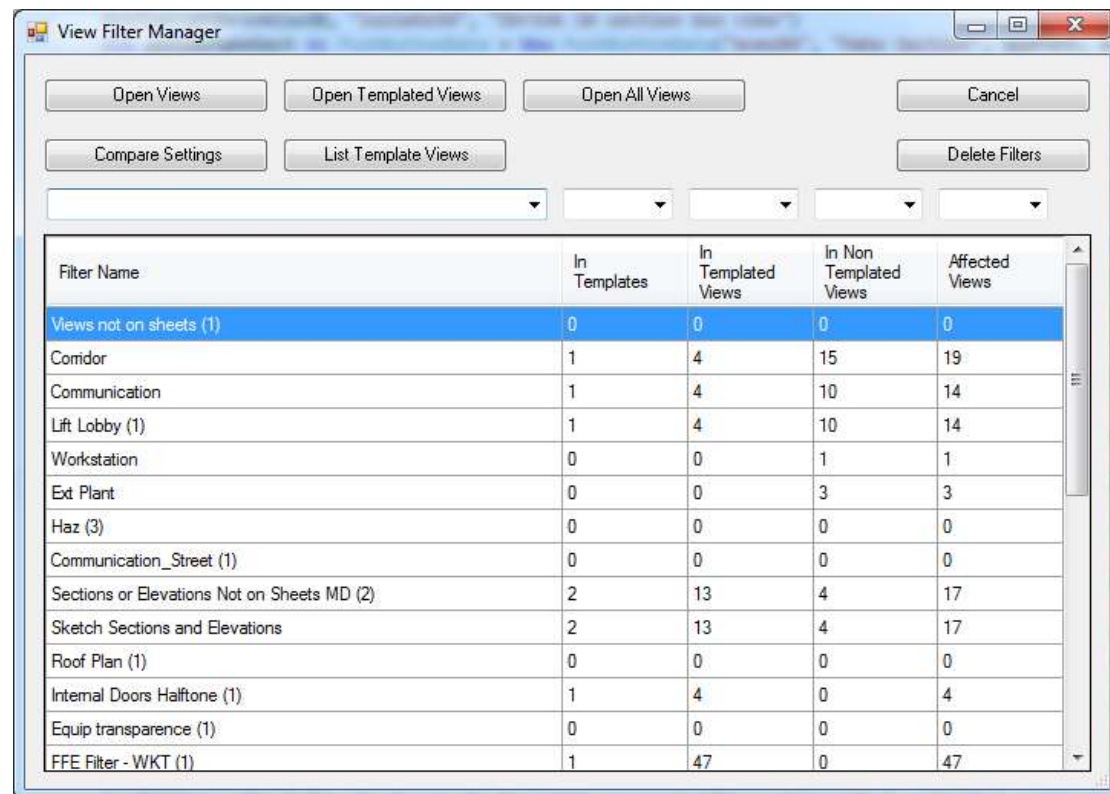
VIEW FILTER MANAGER

Since 2014

Provides an overview of how View Filters have been used within a project. With this information you can then open affected views, delete unused filters, and reconcile differing overrides for a filter.



[Show me how](#)



Filter Name	In Templates	In Templated Views	In Non Templated Views	Affected Views
Views not on sheets (1)	0	0	0	0
Corridor	1	4	15	19
Communication	1	4	10	14
Lift Lobby (1)	1	4	10	14
Workstation	0	0	1	1
Ext Plant	0	0	3	3
Haz (3)	0	0	0	0
Communication_Street (1)	0	0	0	0
Sections or Elevations Not on Sheets MD (2)	2	13	4	17
Sketch Sections and Elevations	2	13	4	17
Roof Plan (1)	0	0	0	0
Internal Doors Halftone (1)	1	4	0	4
Equip transparency (1)	0	0	0	0
FFE Filter - WKT (1)	1	47	0	47

Filter Table Columns

Filter Name

The name of the filter

In Templates

The number of templates the filter is used in

In Templated Views

The number of views that the filter has been applied to via a Template

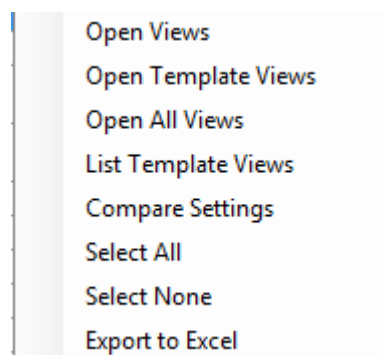
In Non-Templated Views

The number of views the filter has been applied to directly

Affected Views

The number of views that are affected by the filter. This is the sum of the In Templated Views and In Non-Templated views.

Commands / Right Click Menu



Open Views
Open Template Views
Open All Views
List Template Views
Compare Settings
Select All
Select None
Export to Excel

Open Views

Open the views that use the filter NOT via a view template

Open Template Views

Open the views that use the filter applied via a view template

Open All views

Open all the views that are affected by this filter

List Template Views

View templates cannot be opened via the API. This command will list the view templates using the filter. This list could be exported to excel and the view templates reviewed.

Compare Settings

Will compare the settings that have been applied to the view filter. This is most relevant when filters have been applied directly to a view rather than via a view template. Note that views using the filter via a view template will not be shown.

Refer to the [“View Filter Settings Manager”](#) dialog.

Delete

Select the view filters that you wish to delete. It is usually best to sort by Affected Views and simply delete all those that have 0 affected views

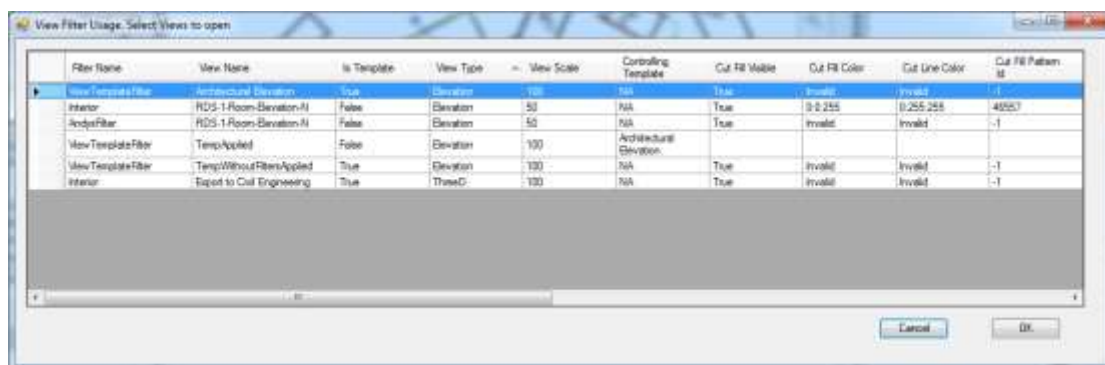
Select All

Select None

Export to Excel

VIEW FILTER SETTINGS DIALOG

This dialog displays the overrides applied to View Filters for all the views that the filter is in use.



Filter Name	View Name	Is Template	View Type	View Scale	Controlling Template	Cut Fill Visible	Cut Fill Color	Cut Line Color	Cut Fill Pattern
New Template Filter	Architectural Elevation	True	Elevation	1/8"	NA	True	Invalid	Invalid	1
Interior	RDS-1 Room Elevation-A	False	Elevation	5/8"	NA	True	0.0.255	0.255.255	48567
ArchFilter	RDS-1 Room Elevation-A	False	Elevation	5/8"	NA	True	Invalid	Invalid	1
New Template Filter	Temp/Applied	False	Elevation	1/8"	Architectural Elevation				
New Template Filter	Temp/Without Filter Applied	True	Elevation	1/8"	NA	True	Invalid	Invalid	1
Interior	Export to Civil Engineering	True	ThreeD	1/8"	NA	True	Invalid	Invalid	1

Columns (worthy of mention):

Filter Name

The name of the filter assigned to the view

Is Template

This view is a template view that has filters

Controlling Template

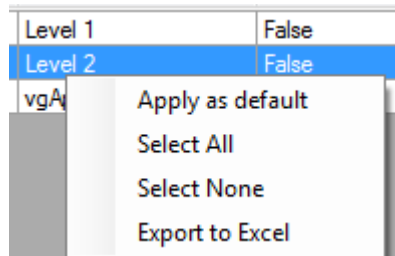
The “View template” that controls filters for the view. For the sake of clarity the overrides used by the controlling view template will be left blank.

Where there is no view template controlling filters a value of "NA" will appear.

Following Values

The various overrides in place for the filters applied to a view.

Right Clicking the datagrid:



Apply as default

Use the overrides defined for this view filter and apply them to all views where the filter is being used. The view filter overrides will then be consistent across all views.

Export to Excel

Export the data grid to an Excel file

Opening views

You can open views by selecting one or more rows and pressing "OK". The views will be opened and the last selected item will be made active.

VIEW TEMPLATE COMPARER

Since 2015

Allows you to compare the applied settings of two View Templates. When prompted select the two view templates to be compared. Differing values will be reported on.

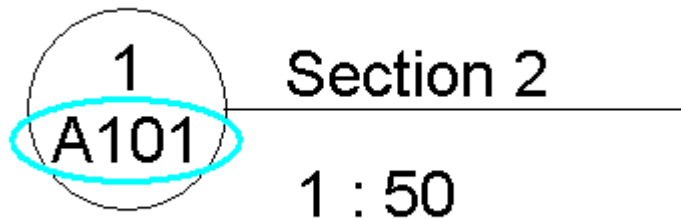
Note: Not all settings of view templates can be reported upon. Where this occurs the item will be reported as not being able to be checked.

Note: Later versions of Revit support more complete comparisons.

UPDATE REFERENCE

Discontinued 2016 due to improved Revit functionality

Allows you to set the sheet that a view symbol first appears on in the sheet set. This affects the referring sheet value as shown in the view title on a sheet. Changing this manually has been quite problematic in Revit.



Referring Sheet field

When you create a new elevation/section view the callout symbol will appear on all plans for that level, e.g. Existing conditions, demolition, furniture plans, etc. When the elevation/section is placed on a sheet, the value of the "Referring Sheet" field will be set to the value of the first sheet in the series on which the symbol appears.

To reset this "Referring Sheet" value you would normally need to hide the view symbol in all the views that are on a sheet before that plan. This is a slow and tedious process.

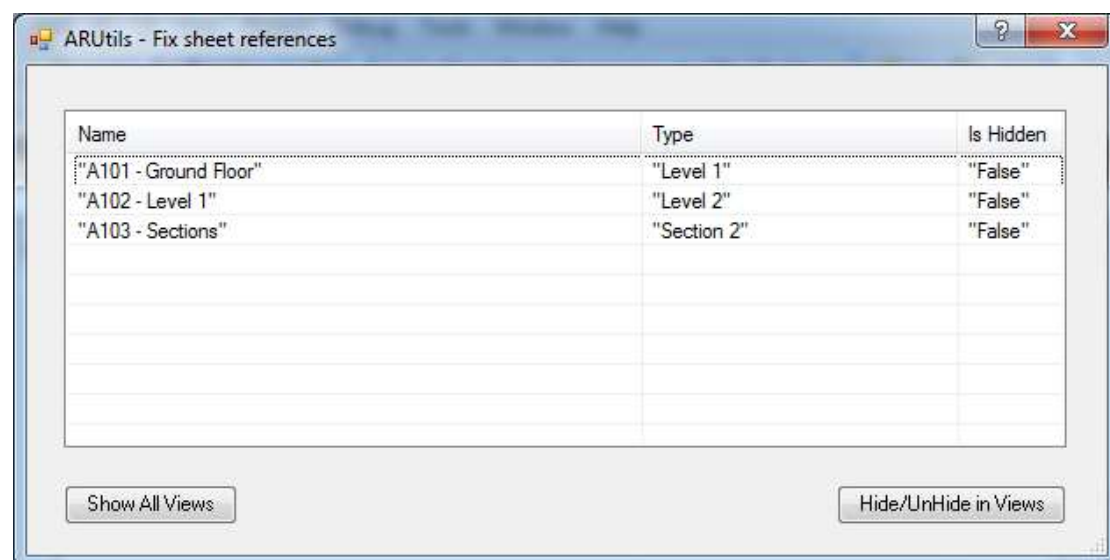
This routine allows you to select a view symbol i.e. An elevation/section marker, and then select all views that the symbol should be hidden in.



Views : Elevation : North

Select the elevation / section marker

You will then be presented with an ordered list of views that the marker occurs on and the sheets that those views have been placed on.



Select the views you do not want the callout to appear on and click the "Hide/Unhide in Views" button.

Repeat the process for additional view symbols.

Un-hiding in Views

If the item has been hidden in views that you now wish to have it revealed in, click on **"Show All Views"**. This will show all views the item can appear in. Any items you now select will have the visibility toggled, i.e. If it is hidden it will be revealed, if visible it will be hidden.

Note: You may also need to hide the associated central elevation symbol i.e. The square box in the example above.

DEPENDENT CALLOUTS

Allows you to create callout bubbles that reference dependent views. Bubbles for the selected dependent views are created in the current view.

In 2015 and 2016 views that already have a bubble in the current view will not be available for selection. 2013 and 2014 are unable to check the view that a callout bubble refers to.

Note: Not all dependent views can be referred to from all other views, .e.g. you cannot reference an elevation view to a plan view. Uncropped dependent views also cannot be referred to.

LEVEL ISOLATOR

The level isolator command creates views for each level in your project and attempts to show items that rely on that level. The command works by temporarily deleting the relevant levels and obtaining the elements that would be deleted by this operation. These elements are then shown in 3D views.

Note: There are items that will not be displayed by this command as they cannot be displayed in a 3D view, e.g., Views that are based on the level, 2D items in a view dependent on the level.

WORKSET ISOLATOR

Create a series of 3D views that has only one "User" workset displayed, all others will be hidden. Views will be named "Workset-Name of Workset". You will also be given the option of opening the views once they have been created. If a view already exists it will be updated to the appropriate settings, i.e., displaying a single workset.

This provides a quick and easy way of checking the elements that are contained in your "User" worksets.

OVERRIDDEN ELEMENTS

Select all the elements in a view that have had their object style overridden through the use of "Override Element in View".

COPY MONITORED ELEMENTS

Select and temporary isolate elements that are involved in copy monitor processes.

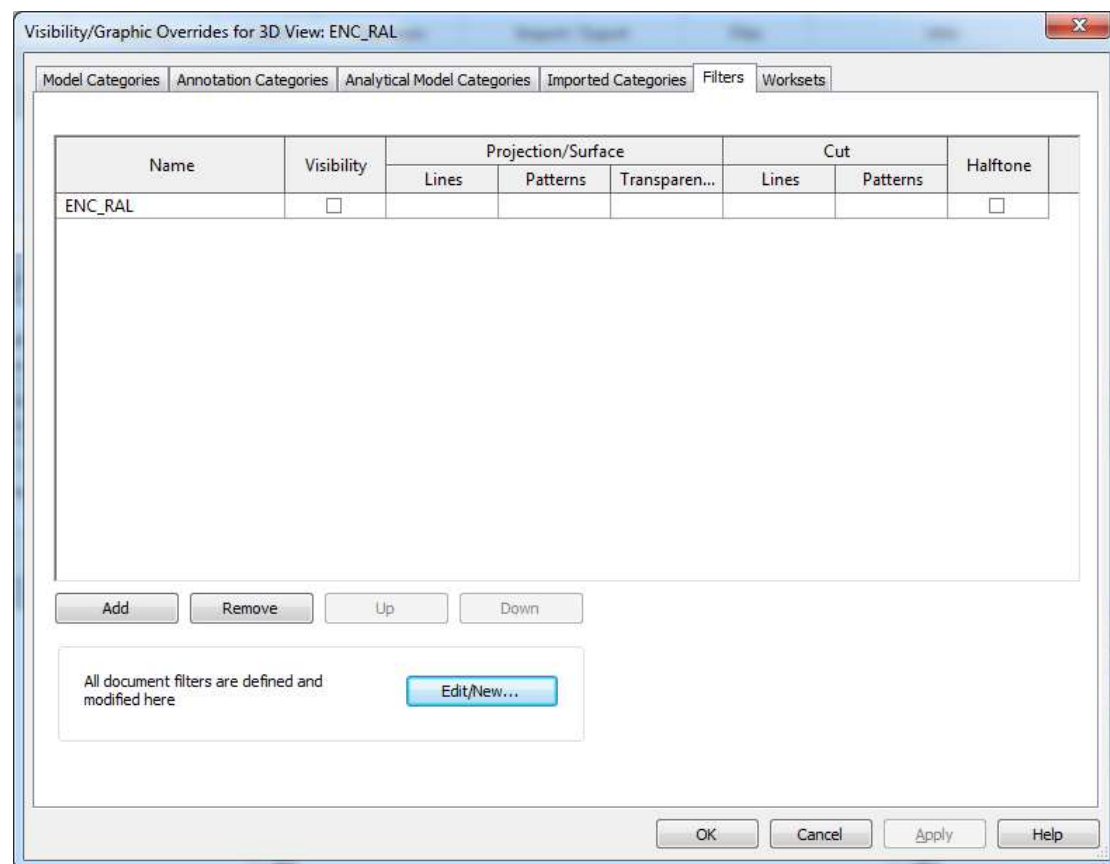
PARAMETER VIEW CREATOR

The parameter view creator is designed to enable creating 3D views that show all items that have a common **project** parameter value. All values for that parameter will have a 3D view created and only items having that value will be displayed.

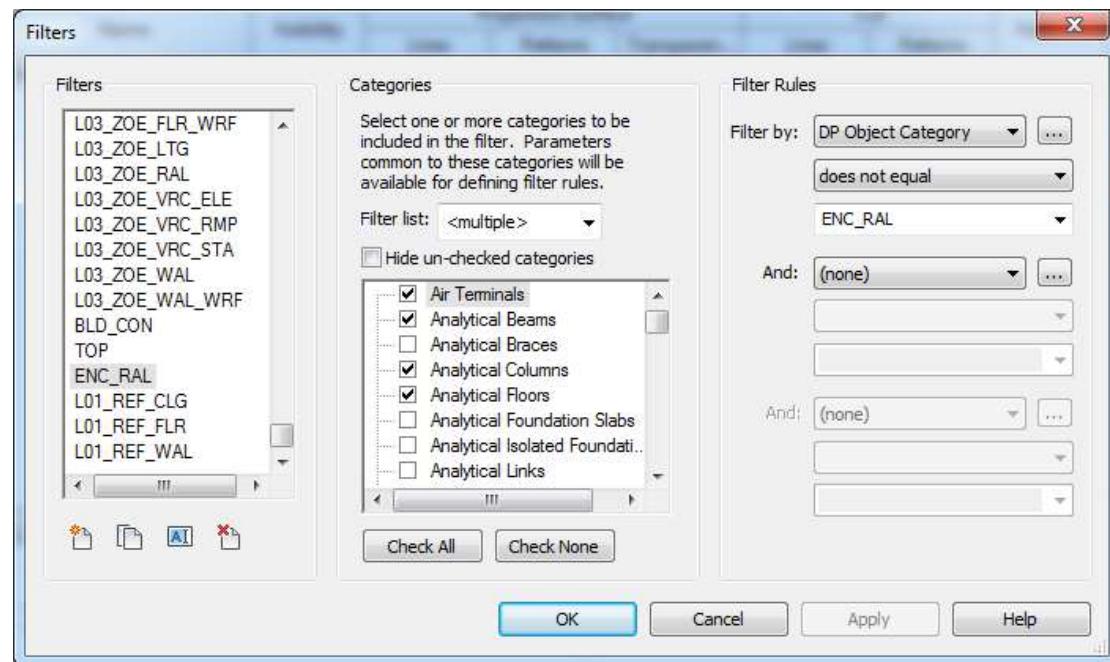
For example you have a parameter “DB Object Category”. This may have had values set by Dynamo e.g. the value consists of the Level, the Workset, and the Category. This allows split up of the model into fairly distinct views and data sets and could be exported into distinct data sets.

Requirements:

The command relies on you first creating a 3D view that has a single “View Filter” applied.

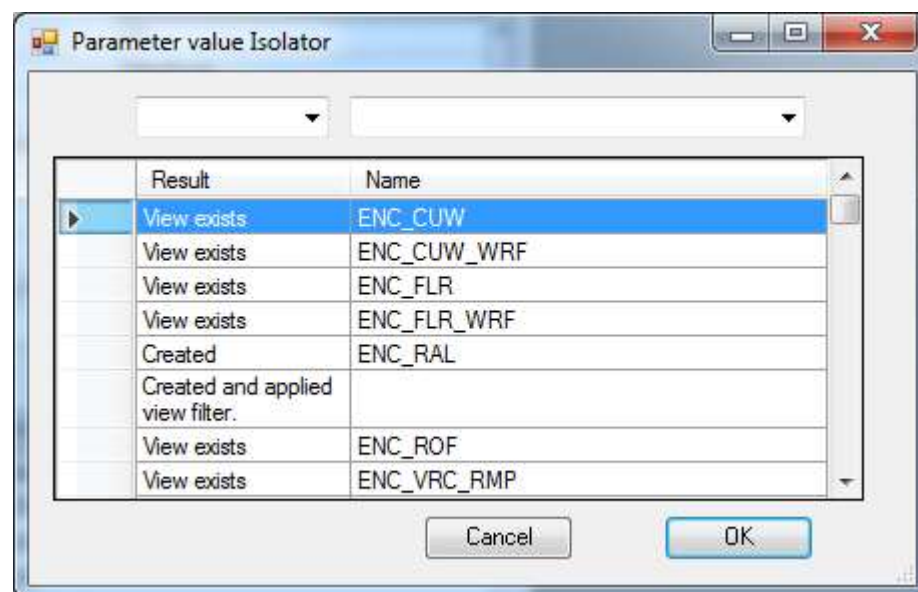


The ENC_RAL view filter applied to our starting view. Items meeting the rule are NOT VISIBLE.

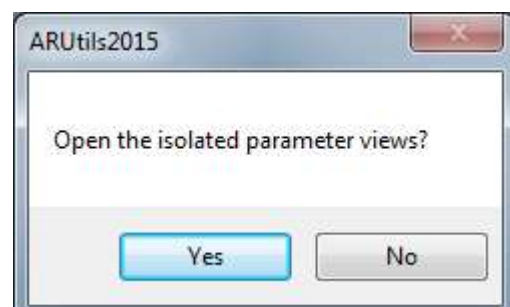


The ENC_RAL settings. "DP Object Category" "Does not Equal" "ENC_RAL"

Views will then be created where the view does not already exist. If a filter exists without the view existing it will not be created.



The results of running the command



You will be prompted to open the views that were just created. A maximum of 30 views will be opened.

PARAMETER VALUE COLOURISER

Since 2014



[Show me how](#)

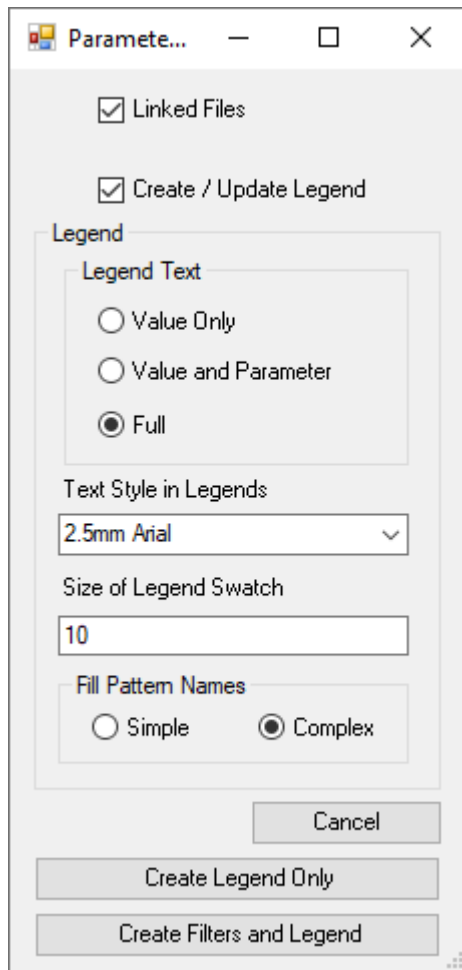
This command enables you to highlight items in a view based on the parameter values related to those items. E.g. You want to colour all chairs based on manufacturer, or Walls by Function, Doors by Width.

Apart from creating the necessary view filters, and applying overriding colours for the filters, the command has the option to also create a legend item that shows the colours relating to each filter.

The command relies on your current view having at least one seed filter assigned to it.

This will have the categories set, **and have an “Equals” rule for the parameter** you wish to colour. Where there are multiple filters applied you will be prompted to select a seed or existing filter. If you already have a set of filters previously applied you can pick any one of the filters from the set.

A new option “**Create Legend Only**” lets you create a legend based on existing view filters that you have created. All rules (equals, begins with, etc) can be used for creating a legend.



The Colouriser Dialog

Linked Files

Process linked files

Create / Update Legend

Create a legend as part of the colourising process. If the legend already exists then the legend will be updated.

Note: Only values actually used in the model will have an override filter created. i.e., If a type exists but has not been placed then that value will not have an override created.

Legend Text

Value Only

Only the value will be shown next to the legend colour swatch, e.g., 900,1000, etc.

Value and Parameter

Both the parameter being used in the filter as well as the value are shown next to the colour swatch e.g., Width = 900

Full

The Category(ies) and the value and parameter will be shown next to the colour swatch.
E.g., Width = 900 – Doors/Windows

Text Style

The Text Style to be used in the legend

Size of Legend Swatch

The size of the colour filled swatches. These should be in plotted units. E.g. 10mm will result in a plotted swatch 10mm in size.

Fill Pattern Names

Simple

Fill patterns are named based on the colour. E.g. Solid-255-0-0

Complex

Fill patterns are named to match the filter property it matches, e.g., Width = 900 – Doors/Windows

Create Legend Only

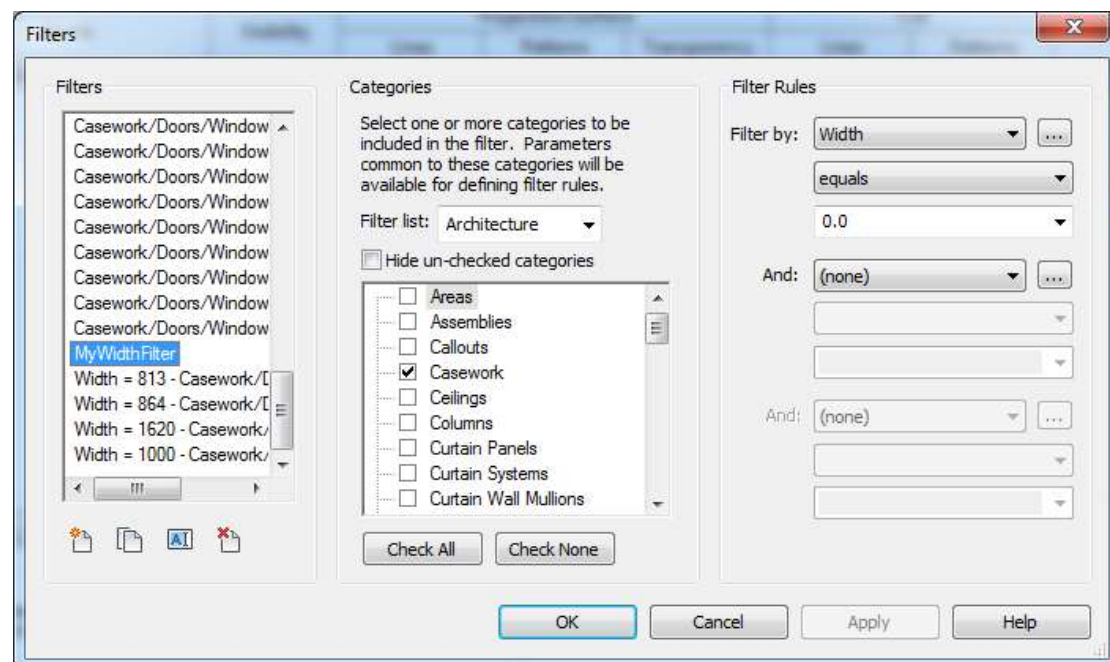
Requires a view with existing view filters. You will be prompted to select the view filters that you wish to have Legended. All view filter rule types can be selected.

Create Filters and Legend

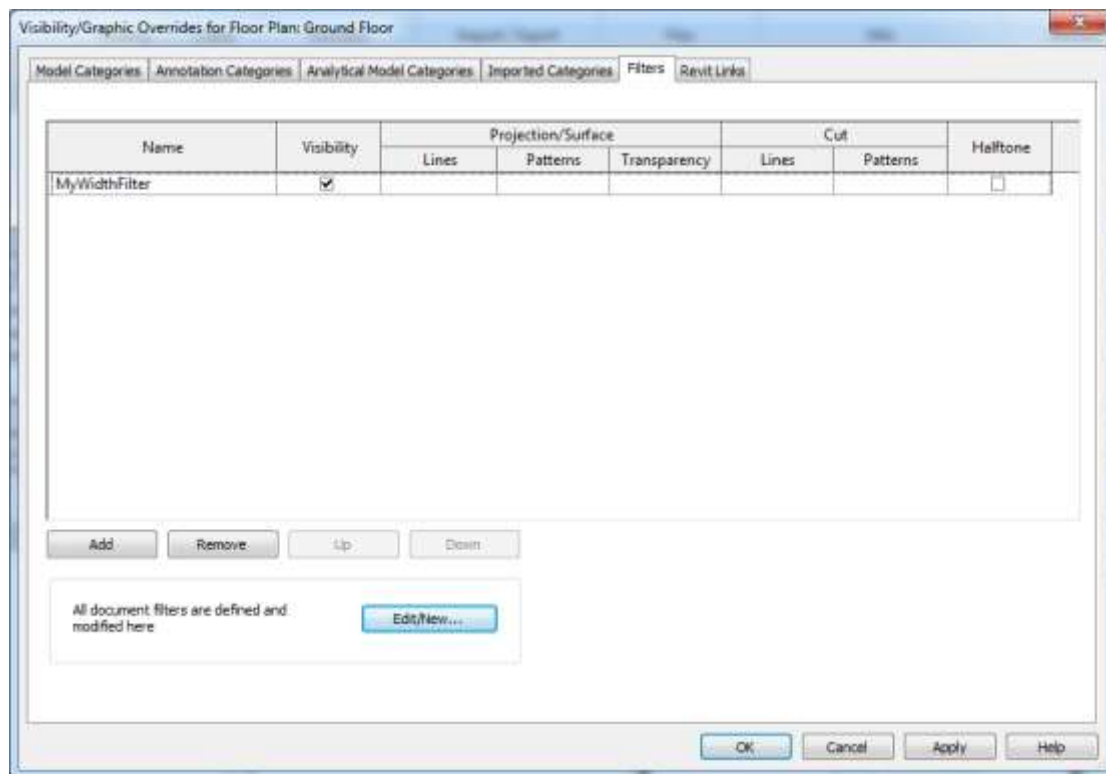
Create and apply the view filter overrides to the current view. If enabled also create the legend.

Create and Apply the Seed Filter

Any view to have overrides applied must have a “Seed” filter applied. **The filter rule must be an “Equals” rule.**



MyWidthFilter – Checks “Width” values equal to “0.0”. This is our seed filter and has been applied to the current view.








The *MyWidthFilter* applied to the view. Note that the overrides are largely irrelevant to the overrides that will be created and applied.

Note: If you have an Override that matches the ARUtils filter rule naming then the overrides for that filter will not be altered and therefore should be set to what you want.

Model Categories Annotation Categories Analytical Model Categories Imported Categories Filters Revit Links							
Name	Visibility	Projection/Surface			Cut		Ha
		Lines	Patterns	Transparency	Lines	Patterns	
Width = 0 - Casework/Doors/Windows	<input checked="" type="checkbox"/>						
Width = 813 - Casework/Doors/Windows	<input checked="" type="checkbox"/>						
Width = 864 - Casework/Doors/Windows	<input checked="" type="checkbox"/>						
Width = 1620 - Casework/Doors/Windows	<input checked="" type="checkbox"/>						
Width = 1000 - Casework/Doors/Windows	<input checked="" type="checkbox"/>						

Once we press "Create" we now have new filters for Casework / Doors/ Windows Widths applied to the view with colours assigned.

	Width = 0
	Width = 813
	Width = 864
	Width = 1000
	Width = 1620

The created legend. Here we have used the “Parameter and Value” Legend Text option.

Determining Colours used for overrides

Filters applied to other views:

If this is the first time the colouriser has been used and the overrides have not been applied to other views then **random colours are assigned**.

If the filters have been applied to more than one other view then **you will be prompted to select one of those other views to provide the override values**.

If the filters have been applied to just one other view then **that view will be used to provide the overrides**.

Removal of Seed Filter:

The original seed filter is removed from the view if it does not follow the ARUtils naming conventions of the filters.

Use of View Templates:

Best practice would suggest you save these overrides as part of a view template. This ensures colours can be consistent across views that use the template.

If you do not use View Templates to propagate the Filters and Overrides, the Colouriser will locate views that use the View Filters and prompt you to choose a view to use for the override settings. E.g., Ground Floor and First Floor have the filters applied. You will then be able to choose either of these as the source for cloning the override settings. If a clone view does not possess all of the overrides that are required you may be prompted again.

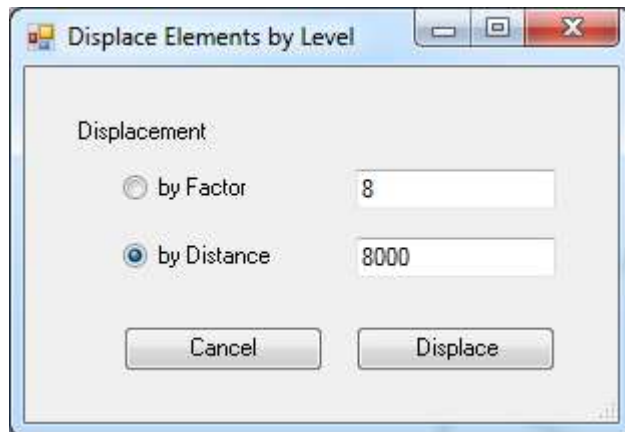
INPLACE FAMILY ISOLATOR

Create a 3D view that shows all InPlace families in the project.

DISPLACE 3D

2014 onwards

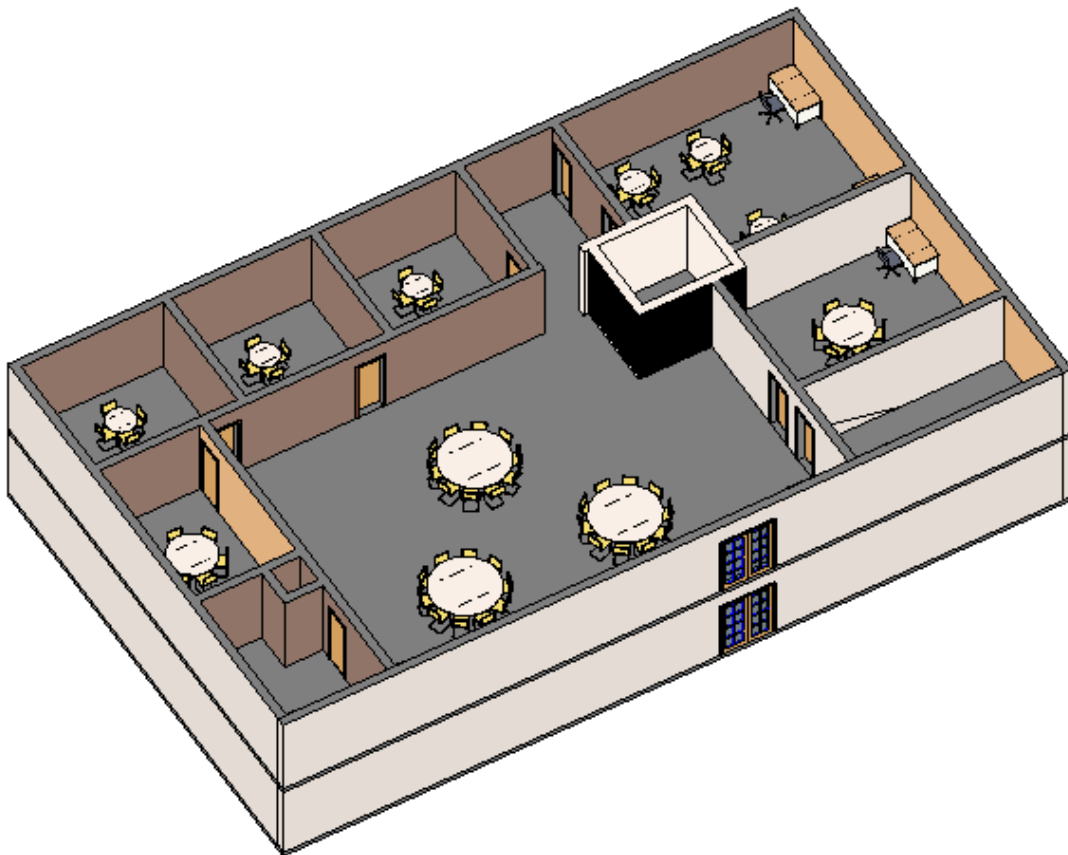
This command will “displace” the elements in a 3D view based on the levels assigned to items.

**By Factor**

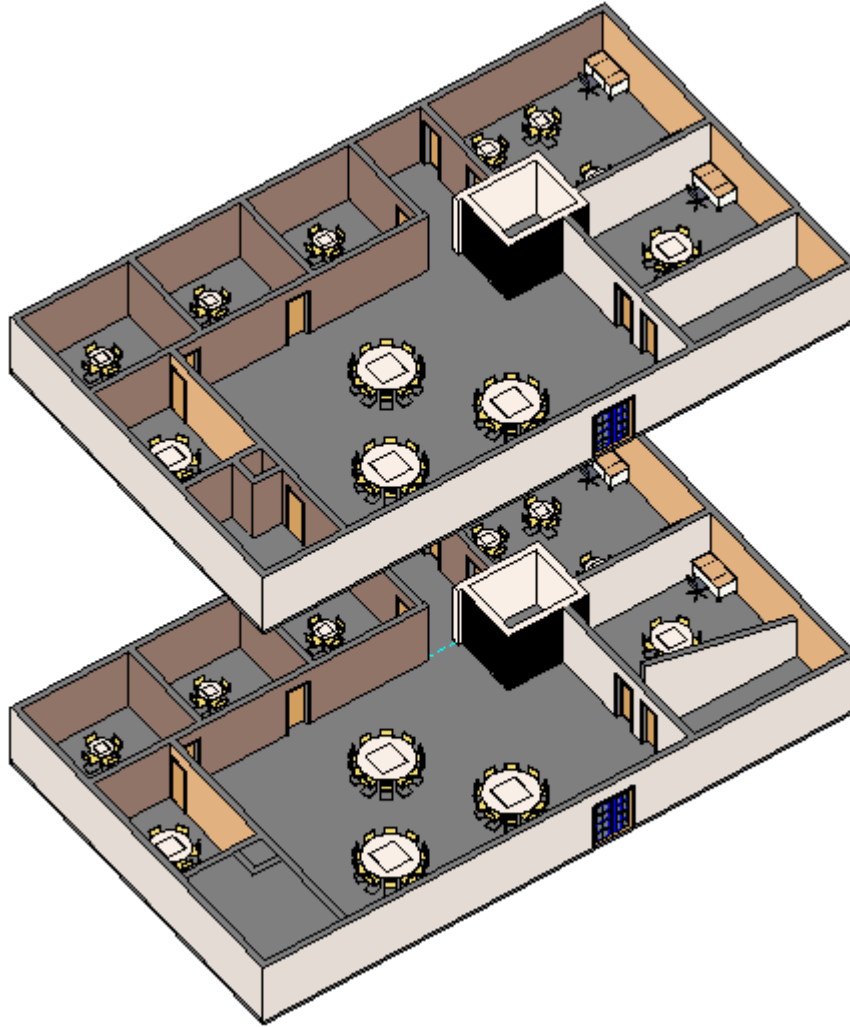
The by factor approach simply uses the RL of a level and displaces it by a factor of that RL. This means that taller floors are displaced by a larger amount.

By Distance

The by Distance approach ensures that the items of each level are displaced by an equal amount. E.g., you will wind up with a stack where each level is displaced to a regular spacing regardless of the distance between levels.



Before displacement



After Displacement

DUPLICATE VIEW DETAILS

This command addresses the issue when you have spent time fine tweaking a view by having added view specific items (Annotation, Dimensions, Fills, Detail Lines, etc.), overridden category and element graphic styles, as well as having applied various view filters.

To start using the command first open the view that you want to apply to other views.

Note: At present items modified by the "LineWork" tool cannot be accessed or applied via the API (Revit 2017)



[Show me how](#)

Name	View Type	View Scale
Level 1	FloorPlan	100
Level 1	CeilingPlan	100
Level 2	FloorPlan	100
Level 2	CeilingPlan	100
Site	FloorPlan	100
T.O. Fnd. Wall	FloorPlan	100
T.O. Slab	FloorPlan	100
T.O. Footing	FloorPlan	100
RLS -G.03-Green Room	FloorPlan	50
G.03-Green Room-Plan	CeilingPlan	50

The Copy View Details / Overrides dialog

Set your active view to the command you want to use for overriding other views!

Copy Items:

Select the types of items you want copied to the other view. Note that “overrides” will try and modify overrides for both **Categories, Elements and View Filters**.

Delete Existing:

Will delete all items of the selected types that occur within the destination view(s) before copying the items from the active view

Detailed Report:

A greater level of detail will be presented in the final log. This shows exactly what has been copied and the changes made. This may take longer to run on larger projects.

Open Views:

Open the destination views after the copy has completed.

Destination Views:

Select the views you want to copy to/override. Only views of the same view type will be displayed.

Cancel:

Exit the command

Copy:

Carry out the command copying view specific items and applying overrides. Note that new items will be placed in the Revit selection set.

Multi Copy:

Rather than transferring annotation items this command allows you to multi duplicate views. This replaces the need to right click a view and select duplicate multiple times.

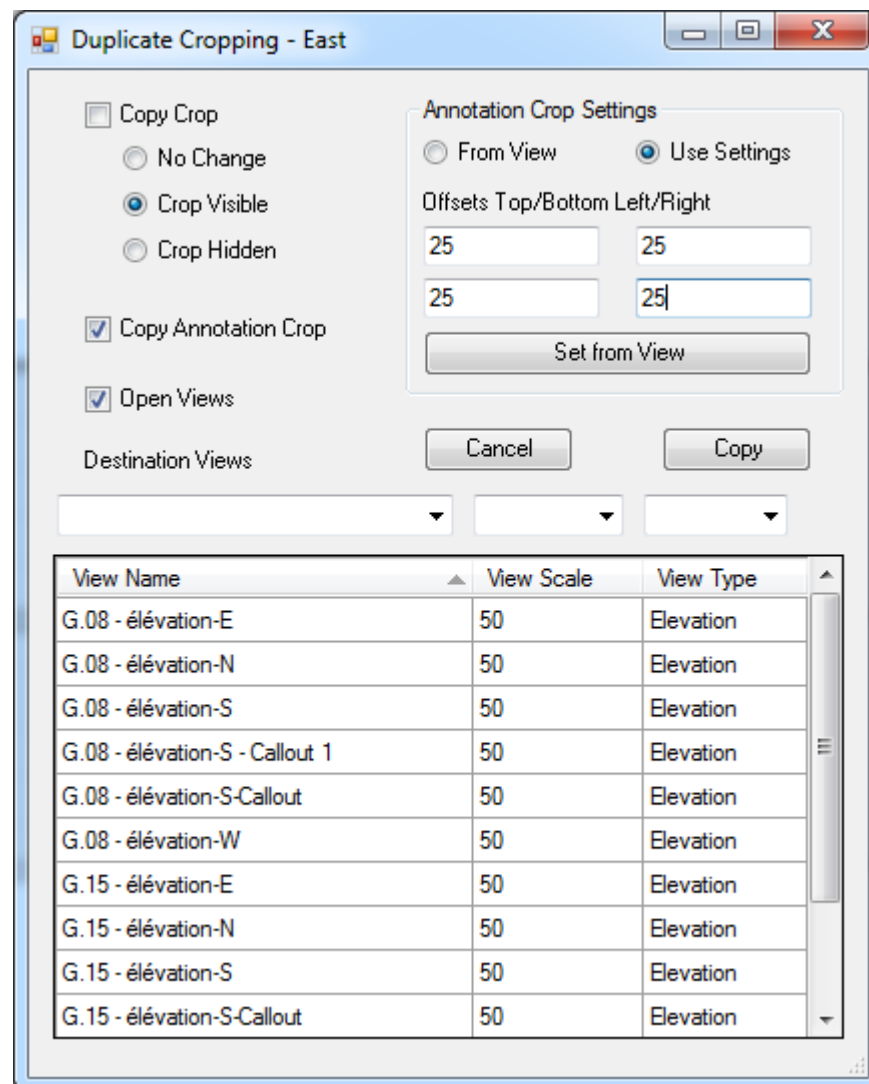
You will be prompted to select the view(s) to be duplicated and the number of times it/they are to be duplicated.

DUPLICATE CROPPING

Since 2016

This command enables you to copy cropping and/or annotation cropping. This can be based on the cropping of a view or in the case of annotation cropping the cropping can be based on a view or by settings.

To start using the command you will ideally want to first open the view that has the cropping you would like applied to other views. Your active view will also determine which views are listed for cropping.



The Duplicate Cropping dialog

Set your active view to the view that you want to use as the source for cropping.

Note: Only views that match by view type will be listed.

Copy Crop:

Copy the cropping extents of the current view to destination views.

Note: When your source view is an elevation / section and "Copy Crop" is checked only views that face the same, or negated direction will be listed.

No Change / Crop Visible / Crop Hidden:

Change the visibility of the crop box

Copy Annotation Crop:

Applies annotation cropping based on the current view or the annotation cropping settings.

Open Views:.

Open the views once the cropping has taken place

Annotation Crop Settings:

From View:

Use the annotation crop settings from the current view

Use Settings:

Set the annotation crop by using the defined offsets

Offsets Top / Bottom / Left / Right:

The offsets to be used when defining the annotation crop boundary

Set from View:

Use the current view to define the annotation offsets

Destination Views:

A list of possible views to apply the cropping to. Select those that you want cropped.

Cancel:

Exit the command

Copy:

Apply the cropping to selected views based on your selected options..

OVERRIDE CROPBX OUTLINE

Since 2014

This command allows you to override multiple Crop Box outlines. You can either override just the line weight or you can apply the overrides of the CropBox of the current view to multiple views.

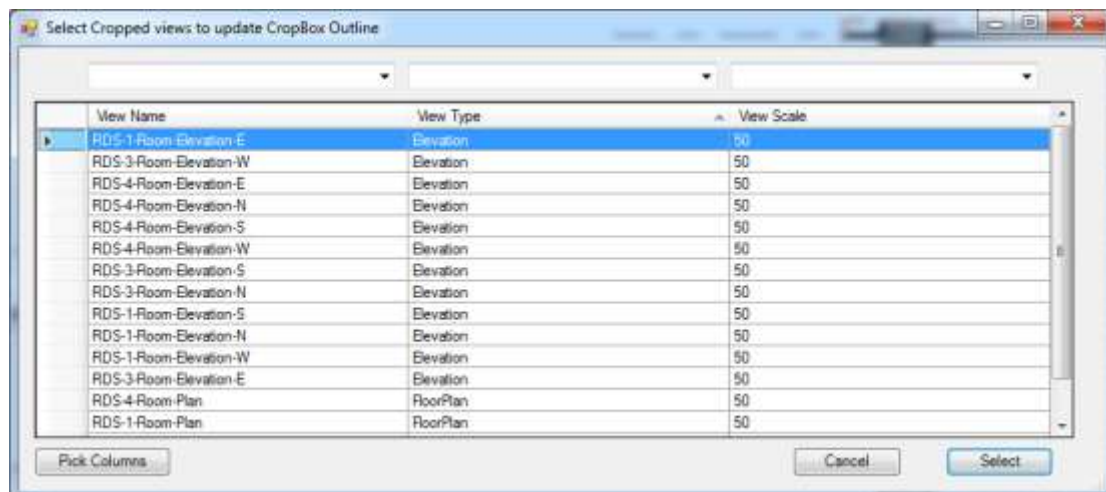
Note: Revit does not allow Plan views to have CropBox elements overridden.

When the current view has a visible CropBox

If the current view has a visible crop box you will be prompted



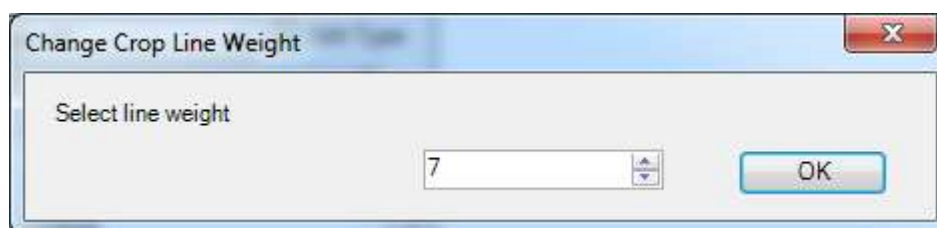
If you choose yes then you will be presented with a list of views that currently have a visible crop box. Views without visible cropboxes will not be presented.



Select views to have the crop box settings applied

When the current view does not have a visible CropBox

When no cropbox is visible in the current view you will be prompted to select a line weight for CropBoxes.



You will then be presented with a list of views that currently have a visible crop box.

VISIBILITY

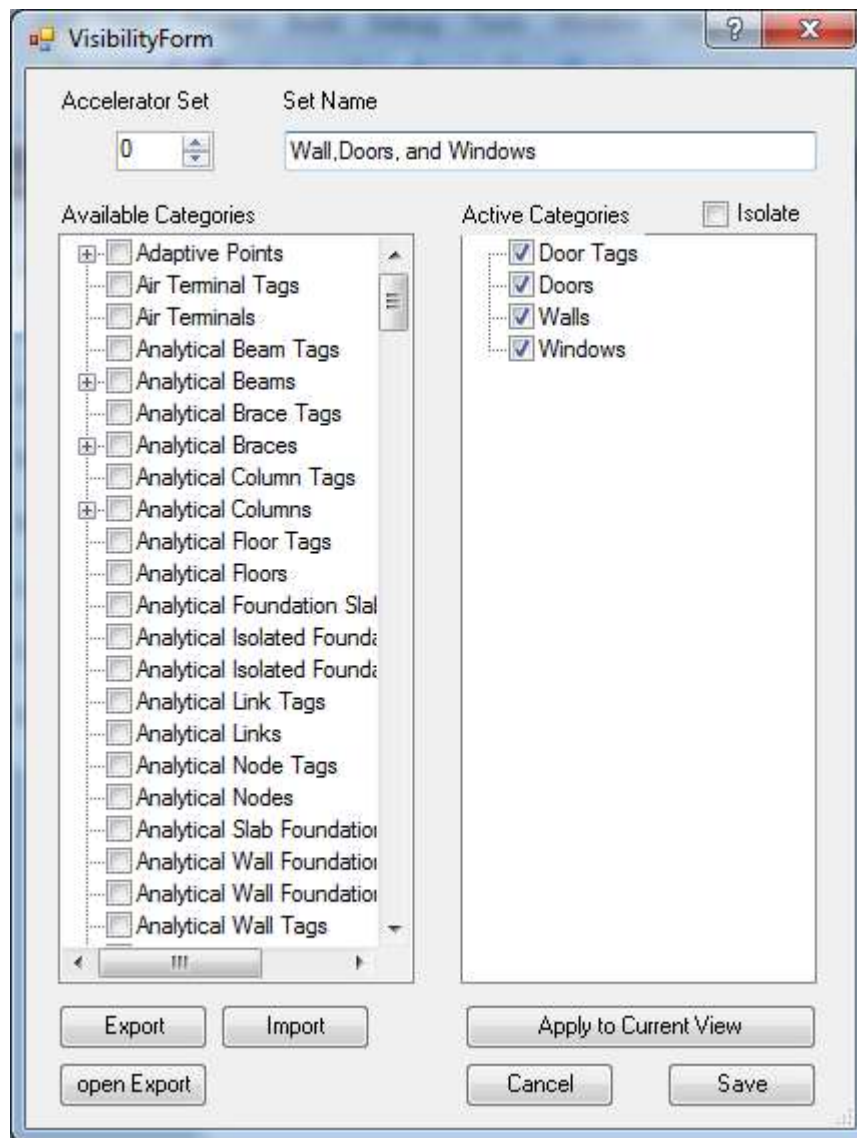
Setup Visibility

Set V0, V2, V3 ... 9



SETUP VISIBILITY

This command enables you to establish up to 10 visibility groups consisting of categories that can be turned off and on through a single command. Alternatively rather than toggling the selected categories off and on you can Isolate the specified categories.



Set your **Accelerator Set** to a number from 0 to 9, and then transfer **Available Categories** to the **Accelerator set**.

Set Name

The name of the visibility set that will appear in the ARUtils menus

Isolate (2013 onward)

By checking this box you can opt to "Temporarily Isolate" the selected categories. This is set / unset for each accelerator set. Therefore some sets can toggle categories off and on, whilst others isolate the selected categories.

Active Categories

You can add and remove items from the "Active Categories" by checking or unchecking items. Unchecking an item in either panel results in the item being removed from the active categories set.

Clicking on an item in the **Active Categories** Set will ensure that the selected item is visible in the **Available Categories** panel. I.e. Clicking on walls in the **Active Categories** set will cause the **Available Categories** panel to scroll down to make the walls category entry visible.

Save

Press **Save** to save off your changes and close the dialogue.

Set Visibility

Press **Set Visibility** to apply the current visibility group to your current view.

Import / Export / open Export

You can **export / import** your visibility sets to an excel file. When you select any of these commands you will be prompted for the visibility file. This file can also be manually edited.

ACCELERATOR COMMANDS - SET V0, SET V1, SET V2, ETC.

These commands enable direct access to the visibility sets, toggling visibility of the categories of the visibility group to all off, or all on.

Note: Where some categories in a visibility group are currently on, and others off, the status of the first category will be used to set the visibility of all the other categories. E.g. If Doors were off, and walls was on, doors would be toggled to on, and walls, along with all other items in the set would be set to on.

[Keyboard Shortcuts](#) should be assigned to the "Set v0", "Set V1", "Set V2", etc. commands.

CREATE

[Change text case in project](#)

[Wall Paint ID](#)

[Wall Paint - Tag Finishes in Plan/Oblique view](#)

[Wall finishes tape](#)

[Pick and Paint](#)

[Assign Room Finishes to Room Parameters](#)

[Add wall note](#)

[Add material note](#)

[Door Mirrored / Belongs to Room](#)

[Window Orientation](#)

[Process DDA Doors](#)

[Mark Setout Points](#)

[Parameter Wall Tape / Fire Wall Tape](#)

[Text on Curve/3D Tag Spaces](#)

[Lines to Room / Area Boundaries](#)

[Room Masses](#)

[Room Floors](#)

[Area Masses](#)

[Tag View](#)

[Site Tools](#)

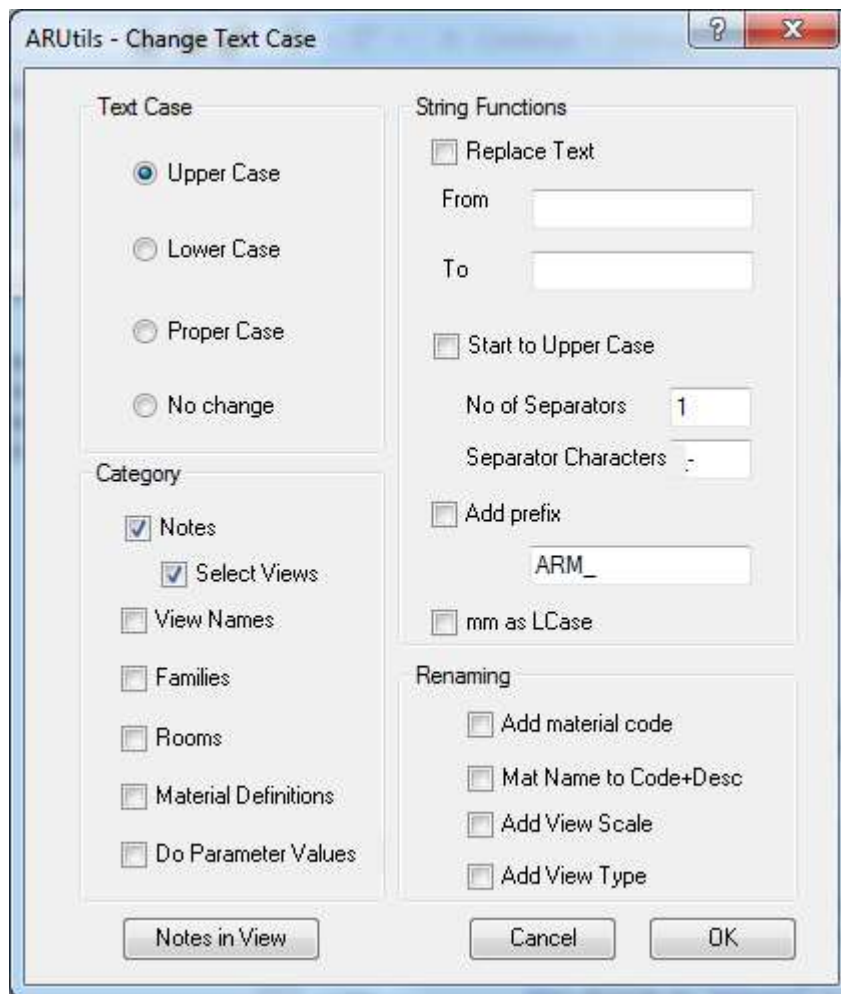


TEXT CASE

“Text Case” is predominantly designed to change the case of text within a project. Text can of course be notes on views, but it can also be family names, types, material definitions, etc.

It also has additional functionality to replace text strings, add a user defined prefix, prefix materials with the material code, add view scale to views, add view type to views, etc.

Note: Groups may cause issues with the updating process.



Text Case

- UPPER CASE
- lower case
- Proper Case
- No change

Categories

- Notes – All notes on all drawing views
- Notes – Select Views allows you to select the specific views for note processing
- View Names
- Families
- Rooms
- Material Definitions – includes name, model, description, etc.
- Do Parameter Values – includes all associated text parameters in the replacement process

String Functions

Replace text

Change **all** occurrences of one string with another.

Start to upper case

With families you may want the first one, two or three prefixes to be upper case, but the following text to be proper case e.g. ARM-FURN-RND Timber Table. You can define how

many separators you want to test for, also what the separator characters are. E.g. Underscore, Dash, Full stop, or space.

Add prefix

Enables you to prefix all your families with a company branding code. E.g. ARM, GYR, etc.

Mm as LCASE

Where found mm should be changed to lower case. The routine does try to identify if the mm is part of a word or a measurement. Sometimes it gets it wrong.

Renaming

Add Material Code

Unlike the "Mat Name to Code + Desc" option where the material name is generated by the Code and the Description, this option will simply add the Material code to the current material name.

Mat Name to Code + Desc

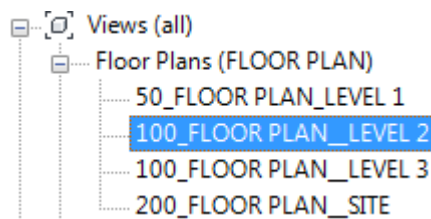
Rename materials based on the materials Code (Mark) and its description

Add view Scale

Add the view scale to the start of a views name, e.g. Elevation G.03, would become 50_Elevation G.03

Add view type

Add the view type to the start of view names



Result of adding "View Scale" and "View Type" to views.

Note: These options check to see if the name already includes scale and type and will not add the scale and type again.

Notes in View

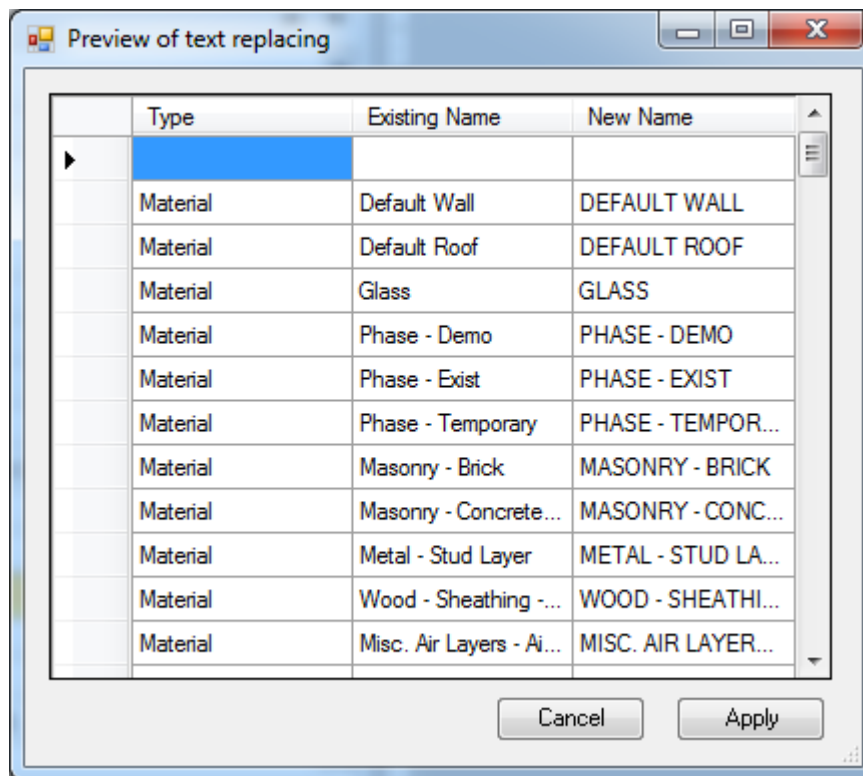
This will only update items in the current view. The command will be affected by the "Category" options selected. Therefore if "Category : Notes" not checked "Annotation" items will not be processed. Where other items are checked e.g. Families, then families appearing in this view will be processed. If "parameters" is checked any items found in the view e.g. "rooms", would also have their family parameters updated.

OK – Changed Operation (31/3/2016)

Pressing OK will seek out items that would be affected by the change and present them in a dialog box. Select the items you want to have changed. Finally you will be presented with the items that have been modified and gives you one more opportunity to abort the changes.

Note: When selecting items, you can right click to "Select All".

Note: Text replace functions will ignore any items with "{" or "}" in their names.



WALL PAINT ID

A simple command that lets you pick a wall face and report the assigned material. The name of the material will be displayed. You also can copy or reconcile linked materials into your current project.

New – Linked Materials now handled (17/2/2014)

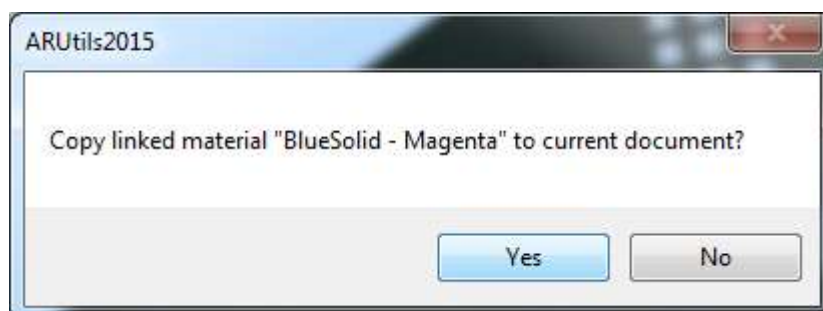
Materials can be identified from most faces in the project, **or in linked projects**.



[Show me how](#)

In 2013 on, where a linked document material is selected the material will be checked for in the current project. If the material exists in both, or the material does not exist in the current project, you have the option of updating the project material to the same values as those used in the linked project, or copying the material to your active project.

Linked material copying:



Dialog when a linked material has been selected and is not in the current project.

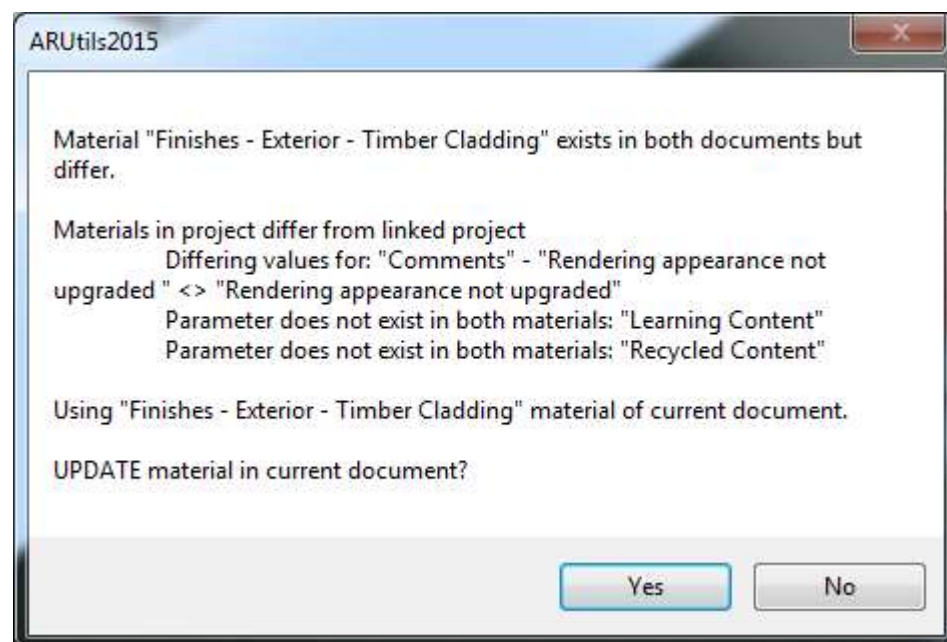
When a linked material is picked the “Copy Linked Material” dialogue appears. Select “Yes” to copy the material.

When a linked material is picked and a material of the same name exists in the current project, the materials will be compared. If they are different you will receive a dialog highlighting the differences.

The comparison is carried out on the typical material parameters as well as the Material assets.

Note: There are three types of material assets. Assets may belong to multiple materials.

- Render appearance – associated with all materials
- Physical Asset – optional, relates to the structural properties of the material e.g. Steel
- Thermal Asset – optional, relates to the thermal properties of the material



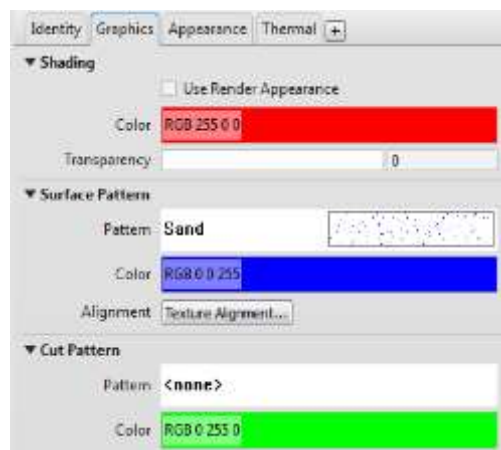
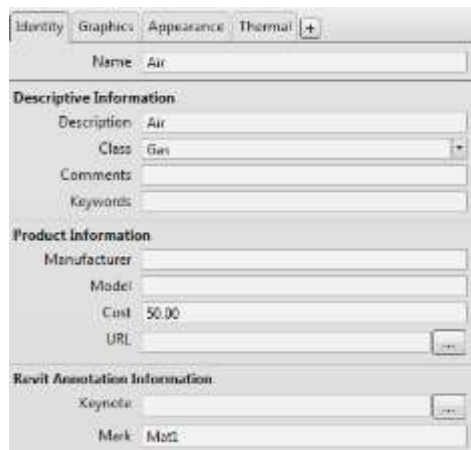
Dialog that appears when a linked material has been picked

The above dialog appears if the material of the picked item occurs in a linked document as well as the local project. This dialog attempts to report on how the materials differ.

Selecting “Yes” will begin the updating of the local material.

Stage 1: Reconciling “Identity” and “Graphics” values

The first stage reconciles the parameters contained in the “Identity” and “Graphics” dialogs.

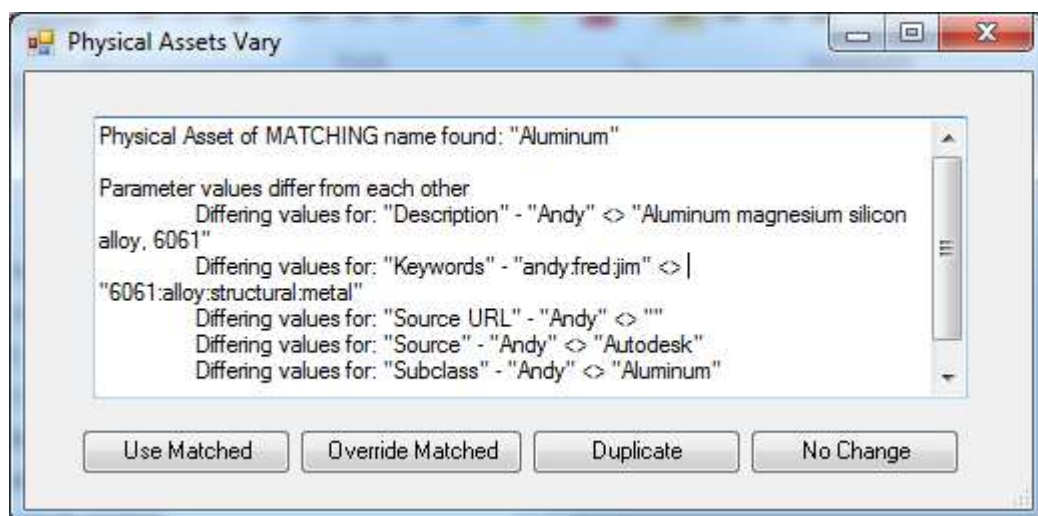


Stage 2: Reconciling Assets

There are three types of Assets: Appearance, Physical, and Thermal. Any asset can be assigned to multiple materials.

Where any of the Asset types already exist in the local document, the assets will be compared. E.g., Where we have a "Rendering Appearance Asset" called "Cyan(1)" then all assets called "Cyan, Cyan(1), Cyan(2), etc." will be found and values compared.

Ideally a complete match is found, but sometimes a match may be close, i.e., some values are not quite the same.



A "Physical" asset has been found by name but various values do not match. We now have a few options:

Use Matched:

Use the **Matched** asset as it exists within the current document

Override Matched:

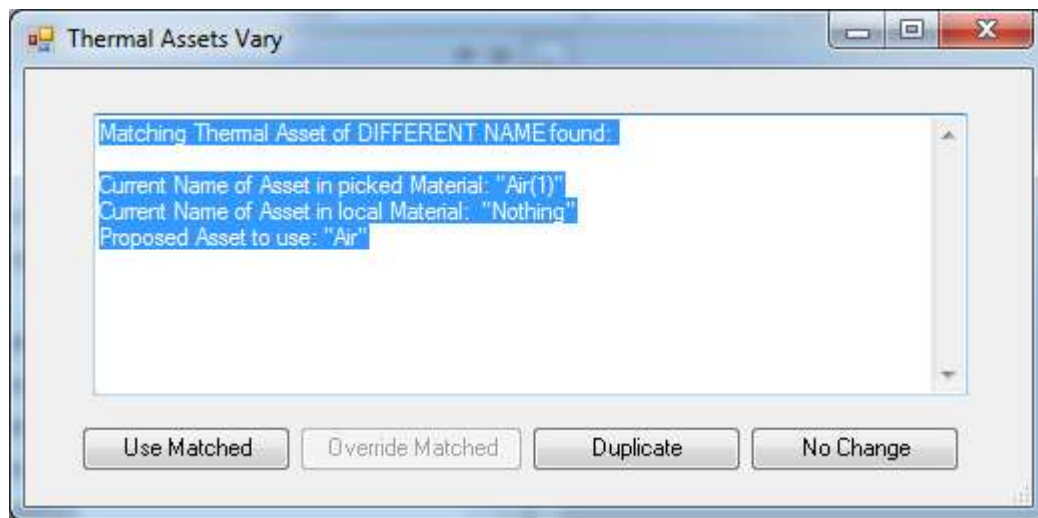
Use the **Matched** asset and **Override** the values of the local Asset (in this case "Aluminium") to those of the values in the linked document.

Duplicate:

Create a new asset using the linked values. The name of the asset may be incremented, e.g., "Cyan" may become "Cyan(2)" if both "Cyan" and "Cyan(1)" were already in use.

No Change:

The material will keep using the currently assigned asset.



Dialog where a complete matched asset has been found. You have the option of using the "Override Matched" becomes greyed out.

Note: When various project parameters exist in one project file and not the other it may be impossible to reconcile the materials to exactly match.

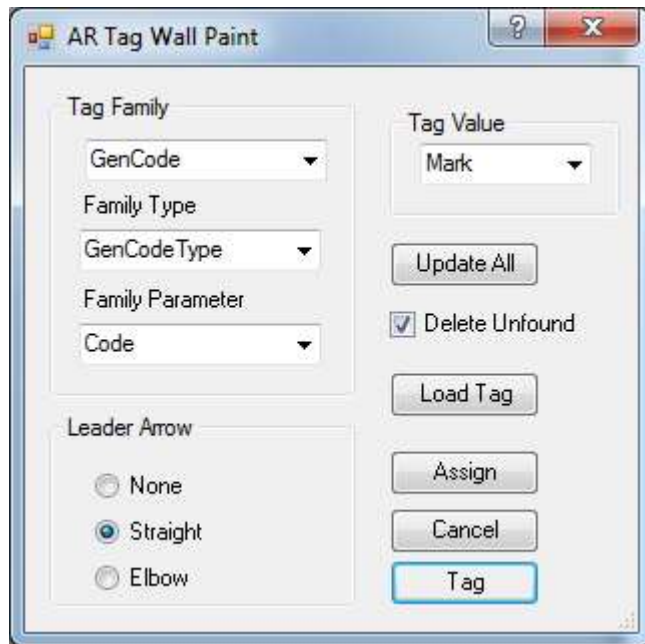
TAG WALL PAINT

"Tag Wall Paint" allows you to tag surfaces that have been "painted" using the Revit paint command in views that you would normally not be able to. Normally in a plan view you can only tag the materials of the wall structure. With "Tag Wall Paint" you can tag walls in plan, or ceiling and floors in section, with the "painted" on material.



[Show me how](#)

New 4/3/2014 – Now handles linked projects and in place families.



The command relies on a purpose created annotation symbol family. Either use the family provided with ARUtils or create your own.

You can use the file "arutils \ families \ GenCode.rfa", as a sample from which to start. The important items for the family are that:

- The family must have a text Instance parameter, e.g. Code, which is the parameter driving the label for the tag.
- A text instance parameter called "EleId". This parameter stores a value to allow for automatic updating of the tags if a painted finish is changed.

New 17/2/2014 – You can now tag faces that have multiple regions. By default single regions are selected. If you want to tag the wall with all regions, use the "Tab" key until the entire wall face is highlighted. The resultant tag includes all material codes.

New 17/2/2014 – Linked projects can now be tagged in your active project.

Note: Where a wall has used split regions the routine selects the split region and uses the code for that item. If split regions overlap the selected face/region item e.g., a slanted split region, or a region like a window, then all codes for those overlapping items will be reported on. This is different in operation to the wall finishes tape command where Room Boundary segments are used.

Tag Paint Dialogue

Tag Family

The tag family (Annotation Symbol) to use for tagging

Family Type

The type within the Tag Family to use

Family Parameter

The parameter that has been assigned to the Label within the family

Tag Value

The material parameter of the paint material that will populate the Label of the Tag Family. Typically this is Mark, Key, or perhaps description.

Leader Arrow

Define the leader arrow definition for each tag. You can have no leader arrow, a straight leader arrow, or one with an elbow.

Update All

Updates all symbols of the identified family and type for this view.

If a wall still exists but has been split or moved and the tag leader no longer hits the wall, the tag and leader will be automatically relocated to correctly identify the item.

Note:

Updating works via the stored value in the tag, "EleId". This is a value that contains the element ID of the source item, e.g. A wall, and the face within the wall. If a wall with different materials on each side as part of its type is flipped, the tag value will update to correctly reflect the wall material. When a wall with a painted material is flipped the painted material does not flip with the wall.

Delete Unfound

If a tag's associated element no longer exists e.g. The wall has been deleted, this option deletes the tag. Otherwise the tag value is changed to "UNSET".

Load Tag

This will load the ARUtils tag family, Gencode

Assign

Re-assign a tag to a wall face. This will prompt you to select a face and then the existing tag to have the value updated. This is useful when you are no longer certain which wall a tag belongs to.

Tag

This will tag selectable faces. First select the "face" and then the location for the tag. You can only select faces.

Note: Curtain Walls can be tagged initially but it is not possible to update tagged curtain walls.

Note: The items that this command creates use Dumb text. Therefore changes to the wall finishes will not be applied to the tags automatically.

PICK AND PAINT

Since 2015



[Show me how](#)

Pick and paint is a simple routine that allows you to pick an existing face and apply the material associated with that face to another face. The command is almost identical to the "Paint" function in Revit except that the material is selected from an existing item, rather than from an often lengthy material list.

Generally you can only paint faces that Revit would allow you to use the "Paint Material" command on, e.g. Walls, floors, ceilings, etc. Unfortunately the command is not available when editing in-place families, e.g. An in-place wall.

New – Linked Materials can be used as the source material (17/2/2014)

Source materials can be picked from most faces in the project, **or in linked projects**. Where a linked document material is selected, the material will be checked for in the current project. If a material of the same name is found but differs, or the material does not exist in the current project, you have the option of updating the project material to the same values as those used in the linked project, or copying the material to your active project.

Refer to "[Wall Paint ID](#)" for more information on [copying linked materials](#) into the current project.

ASSIGN ROOM FINISHES

"Assign Room Finishes" automatically gathers Wall, Floor and Ceiling materials and assigns them to room parameters. This can then be scheduled using Revit or the "Formatted Excel Import Export" of ARUtils to correctly reflect the finishes used in a room.



[Show me how](#)

Assign Room Finishes lets you decide how finishes are assigned or re-assigned to room parameters.

- Automatically assign materials to room wall, floor and ceiling finish parameters
- Use specific North, South, East and West parameters or use sequential parameters to store your finishes
- Determine important walls by area or by extent and then area
- Report material mark, description, or both mark and description
- Assign finishes to parameters by user picking
- Ignore rooms for automatic processing
- Ignore short walls
- Ignore columns

What is a North Wall?

There are different approaches to scheduling wall finishes in rooms. Rooms with four walls can be handled easily by having **North, South, East and West (NSEW)** walls assigned. Even rooms at an angle can still be said to have NSEW walls.

Where rooms have multiple walls, curved walls, split walls, room separation lines, embedded columns, etc., it is often harder to determine what the most important walls are. **Assign Room Finishes** carries out many complex operations to determine what the most important walls are and what finishes should be gathered and assigned to parameters.

Finish Gathering

Assign Room Finishes provides users a number of ways of how they would like wall finishes gathered.

We can opt to assign finishes in a **sequential** order i.e. Start with the north wall and keep going round in a clockwise direction. Alternately we can assign the most dominant finishes to "**North, South, East and West**" parameters, and so that no important finishes are missed the rest are assigned to secondary parameters.

Gathering always starts with the primary North wall. **North walls** are the top wall of a room (actually facing South), east the rightmost, and so on. Where a room has multiple walls all facing the same direction we can opt to **determine the most important wall by largest area, or by the wall that is furthest in its particular direction and then by area**. I.e. the largest most northerly wall.

Sometimes rooms are simply so complex it's hard to automatically determine what should be reported on. If a room just doesn't match any consistent rule or is so complex e.g. A lobby, the user can override the automatic rules and assign the finishes as they see fit. This room will then be ignored from future updates done by using the **Assign Room Finishes** command.

Assign Rooms Dialogue



Sequence Type

Sequential

Room finish parameters are set beginning with the North wall and assigning it to "WallFinish1_ARUtils", and then assigning parameters for the following walls in a clockwise direction. A maximum of 10 such parameters are available.

North, South, East, West

The main wall finish material (as determined by the "Main Wall determined by" setting) are assigned to room parameters "North_WallFinish_ARUtils", "East_WallFinish_ARUtils", etc.

Other walls are assigned to "WallFinish1_ARUtils", etc., and their facing direction (i.e. North, South, North East, etc.) will be appended to the Material information. E.g. Mat1:NorthEast. Possible values are North, South, East, West, NorthEast, SouthEast, SouthWest, and NorthWest. The walls will follow a clockwise direction from the first wall after the North Wall.

Report Parameters

Material Mark

Assign the "Material Mark" to the room parameters.

Material Description

Assign the "Material Description" to the room parameters.

Note: Where both Mark and Description are checked the values will be separated by a ":"

Options

Angle Tolerance

This comes into effect when "**Sequence Type**" is set to "**North, South, East, West**". This value determines at what skewed angle items should still be considered as being north, east, west, south. E.g. A wall at +/- 5 degree of north would still be considered to be a north wall.

Note: If no items are found within the tolerance range then the tolerance will be increased by the tolerance value until one or more items are found. The items are then resolved based on "Main Wall determined by".

Minimum Wall Length

Walls less than this value will be ignored from room finish gathering.

Ignore Columns

This option allows columns within a room to be ignored i.e. They are not considered when gathering finishes for the room.

Floor Ceiling Options

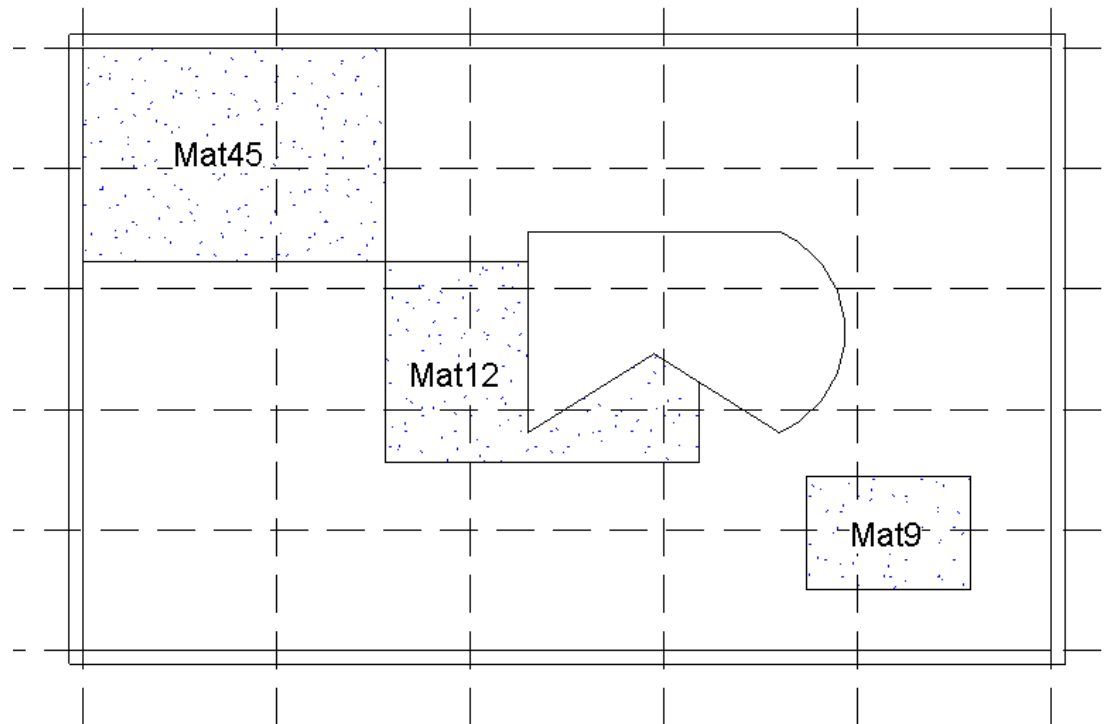
Floor Ceiling Button

Use this to select a room to be "Automatically" processed for Floor and Ceiling finishes. For more difficult rooms, use the "Pick Floor / Ceil" command in the advanced section of the dialog.

By default floor and ceiling items are found by using the room "Location" point (where the room cross lines cross each other) as well as all points of the room boundary. This will miss small parts of ceiling that do not touch the boundary, or reside in line with the room location point. A more intense option can be used

Intense Processing

This option will additionally layout a grid of points across a rooms bounding box. Each point will be sampled above and below for the nearest floor and ceiling items.



Example of an intense processing grid with grid set to 5. Mat9 would not have been picked up by non-intensive processing.

Grid

The number of grid squares in x and y to be laid out over the room.

Note: The API provides no way of easily identifying the floors and ceilings that are within or cross a room. Hence the use of this grid approach.

Main Wall Determined By

Area

The "Main Wall" is determined by the wall with the largest area facing the direction under consideration. I.e. All walls that face south (north walls) will be compared and the one with the largest area will be considered to be the North Wall.

Extent

The "Main Wall" is determined by the wall which is furthest north, south, east or west. If multiple walls are at the same extent the one with the greatest area will be selected.

Process Room

Allows you to pick a room to have its values updated.

If the room has been set to be ignored you will be asked if you wish to set the room to be considered in "**Process All**" execution. You can opt to leave the room ignored from "**Process All**" but still have values updated this one time.

Room Info

Report currently assigned parameters for a room.

Process All

Update the finishes for all rooms. This includes walls, floors and ceilings.

Disabling Updating for a Room (manual approach)

Some rooms simply cannot have finishes automatically assigned. Curved walls, recesses, angled walls, etc., have been carefully considered in this routine but sometimes you may want one wall to be based on area, and another on how far it is in a particular direction.

In this case you can check the parameter "**DisableFinishUpdate_ARUtils**" for that **room**. This will ensure that the room is not considered when the "**Process All**" command is run.

Ceiling and Floor Finish Assignment

Floor and ceiling finishes are determined by using a special view "**ARUtils-FloorCeil**" which is a 3d view with only floors and ceilings displayed.

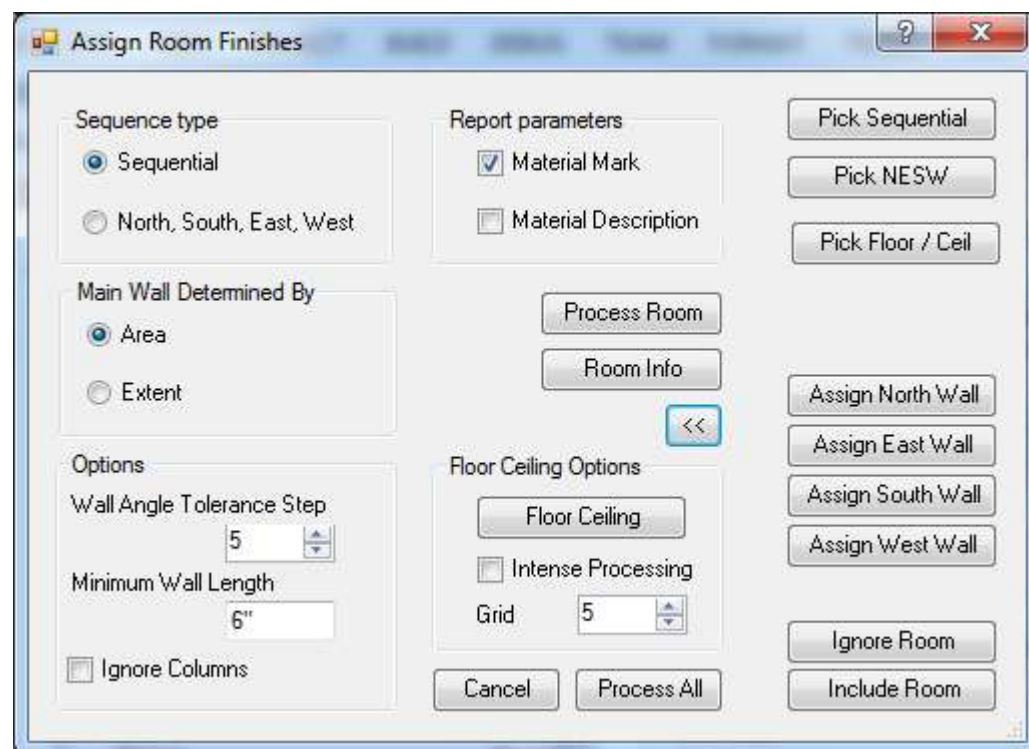
Only one floor and ceiling finish are reported on and the values are assigned to "Floor Finish" and "Ceiling Finish"

Where multiple floors / ceilings are in a room, the floor / ceiling that is above / below the "X" which indicates the room will be assigned to the Floor Finish / Ceiling Finish parameter.

Extended Functions

">>" "<<"

Reveal / hide the extended functions



Pick Sequential

Allows you to pick a room and then sequentially pick the walls to be assigned to the parameters.

Note: All parameters are first cleared and the "**DisableFinishUpdates_ARUtils**" parameter is set to true.

Pick NESW

Allows you to pick a room and then pick the North, East, South and West walls, plus up to six other walls. These last 6 are assigned to WallFinish1_ARUtils, 2, 3, etc.

Note: All parameters are first cleared and the "**DisableFinishUpdates_ARUtils**" parameter is set to true.

Pick Floor / Ceil

Allows you to pick all floor or ceiling finishes to be assigned to a room. Note: You must pick all the floor or ceiling items related to a room in one pass. You do not need to pick both types i.e. Floor or ceiling, to generate the codes.

Assign "North/South/East/West" Wall

Allows you to manually assign the north, south, east, west walls by picking a room and then a wall. You can keep picking rooms and assigning the material to the selected parameter.

The room will be automatically excluded from further "**Process All**" executions.

Ignore Room

Remove a room from being considered in the "**Process All**" command.

Include Room

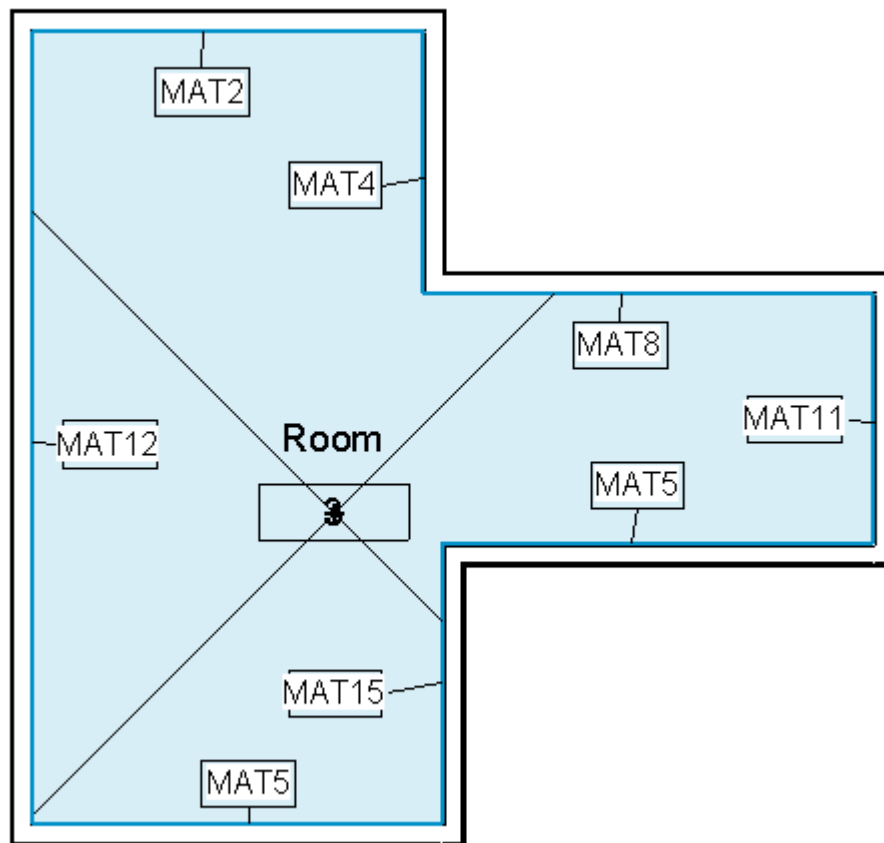
Allow the room to be considered in "**Process All**" executions.

Note: Curtain Walls will be prefixed by "CW-" and reported by their Type Mark and Description rather than any associated materials.

Columns will have the material assigned to the item but will also have their Mark (not Type Mark) appended to the parameter value. This make identification easier.

Examples:

Consider the room below



Example Room

WallFinish1_ARUtils	MAT4:East
WallFinish2_ARUtils	MAT8:North
WallFinish3_ARUtils	MAT5:South
WallFinish4_ARUtils	MAT15:East
WallFinish5_ARUtils	
WallFinish6_ARUtils	
DisableFinishUpdate_ARUtils	<input checked="" type="checkbox"/>
WallFinish7_ARUtils	
WallFinish8_ARUtils	
WallFinish9_ARUtils	
WallFinish10_ARUtils	
WallFinish_North_ARUtils	MAT2
WallFinish_East_ARUtils	MAT11
WallFinish_South_ARUtils	MAT5
WallFinish_West_ARUtils	MAT12

Results of using "North, South, East, West" and by "Extents". The top wall is identified as the north wall, even though it has a smaller area than the "Mat8" wall. Other walls are assigned to secondary WallFinish1,2,3,etc parameters.

WallFinish1_ARUtils	MAT2
WallFinish2_ARUtils	MAT4
WallFinish3_ARUtils	MAT8
WallFinish4_ARUtils	MAT11
WallFinish5_ARUtils	MAT5
WallFinish6_ARUtils	MAT15
DisableFinishUpdate_ARUtils	<input checked="" type="checkbox"/>
WallFinish7_ARUtils	MAT5
WallFinish8_ARUtils	MAT12
WallFinish9_ARUtils	
WallFinish10_ARUtils	
WallFinish_North_ARUtils	
WallFinish_East_ARUtils	
WallFinish_South_ARUtils	
WallFinish_West_ARUtils	

Results of using "Sequential" and "by Extents".

WallFinish1_ARUtils	MAT11:East
WallFinish2_ARUtils	MAT5:South
WallFinish3_ARUtils	MAT2:North
WallFinish4_ARUtils	MAT4:East
WallFinish5_ARUtils	
WallFinish6_ARUtils	
DisableFinishUpdate_ARUtils	<input checked="" type="checkbox"/>
WallFinish7_ARUtils	
WallFinish8_ARUtils	
WallFinish9_ARUtils	
WallFinish10_ARUtils	
WallFinish_North_ARUtils	MAT8
WallFinish_East_ARUtils	MAT15
WallFinish_South_ARUtils	MAT5
WallFinish_West_ARUtils	MAT12

Results of using "North, South, East, West" option and by "Area".

WallFinish1_ARUtils	MAT8
WallFinish2_ARUtils	MAT11
WallFinish3_ARUtils	MAT5
WallFinish4_ARUtils	MAT15
WallFinish5_ARUtils	MAT5
WallFinish6_ARUtils	MAT12
DisableFinishUpdate_ARUtils	<input checked="" type="checkbox"/>
WallFinish7_ARUtils	MAT2
WallFinish8_ARUtils	MAT4
WallFinish9_ARUtils	
WallFinish10_ARUtils	
WallFinish_North_ARUtils	
WallFinish_East_ARUtils	
WallFinish_South_ARUtils	
WallFinish_West_ARUtils	

Unexpected results of using "Sequential" option and by "Area". The north wall is identified as "Mat8" and walls continue on from this wall.

WALL FINISH TAPE

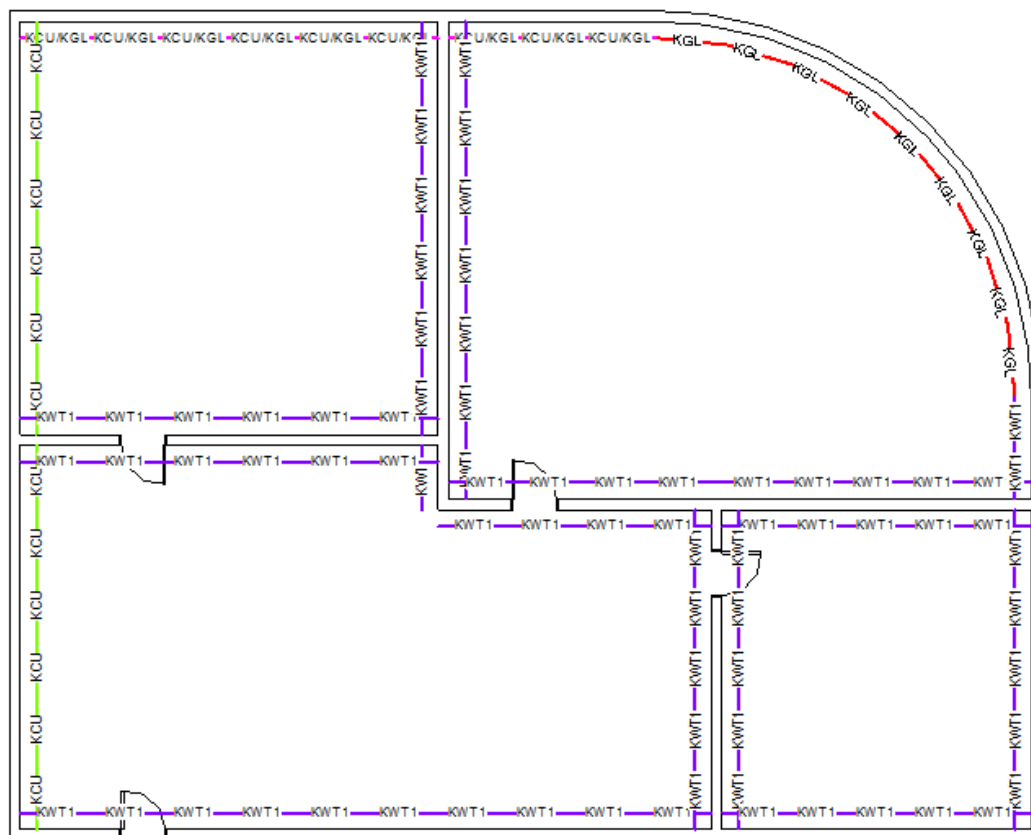
This routine is designed to graphically tag walls based on their finish material. Either the Material mark or keynote value can be used.



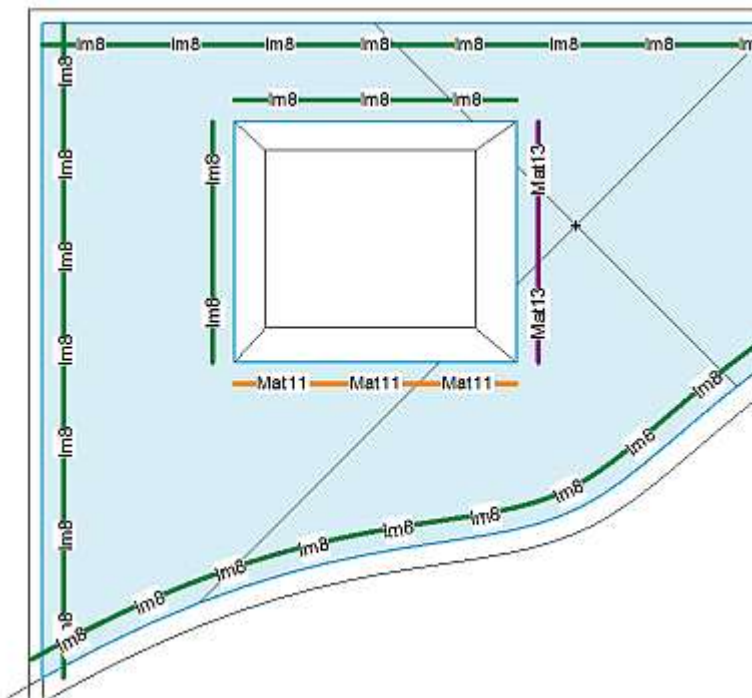
[Show me how](#)

This routine is ideal for showing applied finishes in an easy to understand plan view.

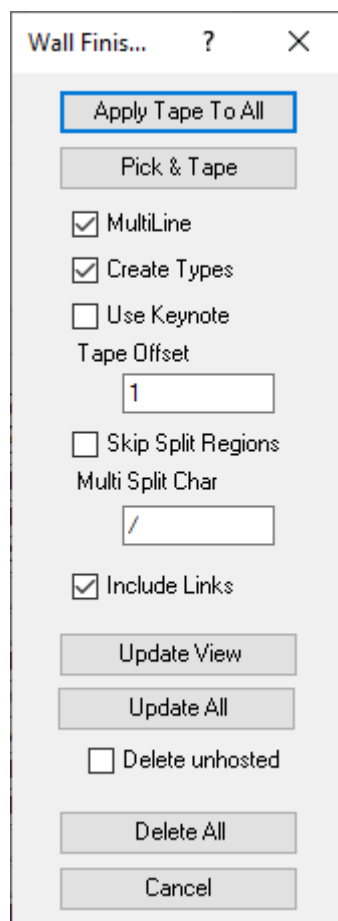
Note: This routine relies on rooms having been placed. Areas that have not had a room placed will not be treated.



An example of what the routine will create



In place families are checked and materials determined



The “Wall Finishes Tape” dialog

Apply Tape

Applies wall finish tape to all walls that have an associated room.

Pick and Tape

Applies wall finish tape to all walls of selected rooms. When using the Include Links option you will need to first pick the link instance and then the room of that instance

MultiLine

Use the multi-line wall tagging option. Walls will be tagged with different line styles as well as different text. This is the preferred option.

Create Types

Where a wall tape type does not exist in the various families, the type can be automatically created. When the type is being created the type name is the same as the parameter value e.g. PB. You will be prompted for the text string you want to be used on the tape. This enables you to have Material mark or keynote values assigned to your walls that are different to what appears as text on the tape. This is possibly more relevant when using the "Fire Wall Tape" option where you could have parameter values of "1 Hour", but text on the tape could be "1HR" or "60".

When using the multi-line version you will also be prompted to select a colour to be assigned to the line for that type.

Use Keynote

Use the Keynote value of the material rather than the material "Mark" value.

Tape Offset

The distance the tape should be offset from the walls finish face

Skip Split Regions

By default, walls with split regions will be tagged with combined values e.g. P1/CT2 would be used where we have a wall with split regions using material P1 and CT2. This wall should be elevated to accurately show where the finishes are used. By checking this option, split regions will simply not be tagged to ensure elevations are referred to.

Multi Split Char

The split character to use when a wall has multiple materials, e.g., A split character of "/" would result in wall codes such as Mat1/Mat2.

Include Links

Use this if you want to tape rooms in linked documents.

Note: When using Pick and Tape you will need to first select the link instance and then the room.

Update View

Update existing Wall Finish Tape items to reflect updated values. Only works on current view.

Update All

Update existing Wall Finish Tape items to reflect updated values. Updates all items in project.

Delete Unhosted

By default Wall Finish Tape items that no longer have a "host" will be altered to show "NA". When "Delete Unhosted" is checked, unhosted items will be deleted.

Delete All

Delete all tape items from the current view.

Cancel

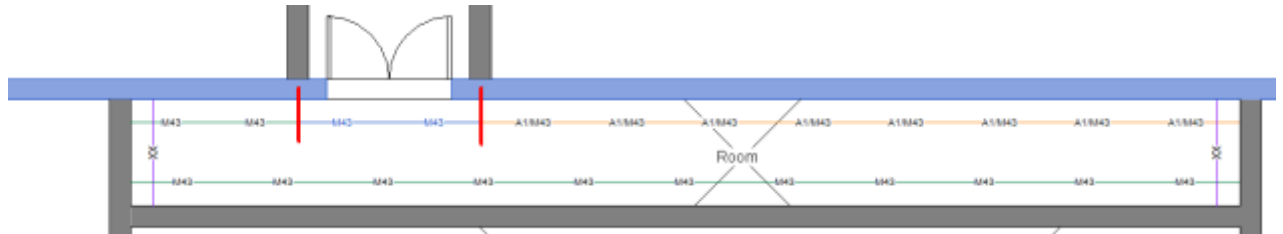
Cancel the command

Refer to the [“Parameter Wall Tape”](#) routine for more detail about how this command works.

How the Wall Finish Codes are determined

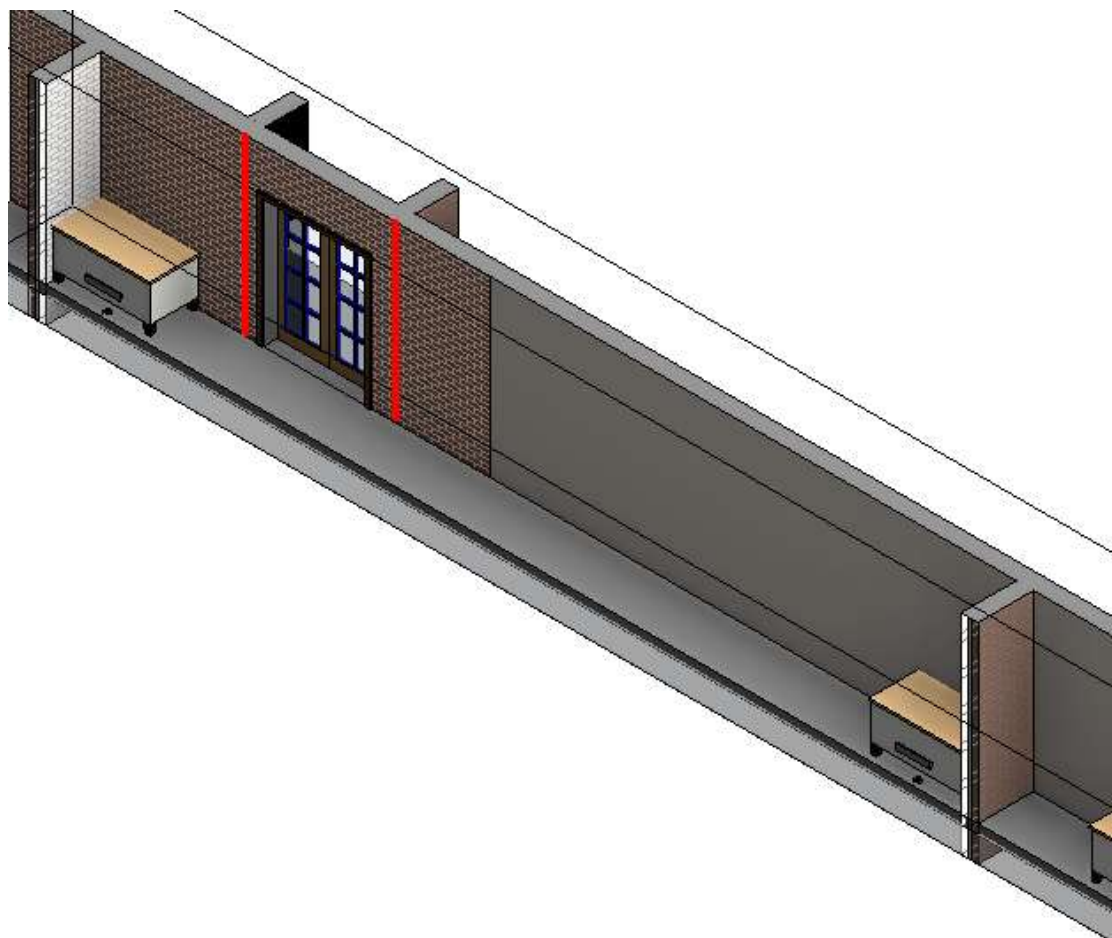
This command relies on Revit Room Boundaries, a built in part of Revit and the API, therefore some results can seem arbitrary or confusing particularly when split regions are being used.

Where a room is quite simple we should find that we will have 4 boundaries, however where walls intersect from the outside we may find that we have more boundaries.



The highlighted wall is a single wall with 3 split regions using different materials. Due to the intersecting walls the North Wall has 3 boundary segments (indicated by the red lines). The Wall Finish tape therefore consists of 3 segments. All materials used along each boundary segment will be indicated in the tape identifiers.

Note: The location of split region lines could be anywhere along a multi coded Wall Finish Tape. For accurate documentation of finishes an elevation will be required.



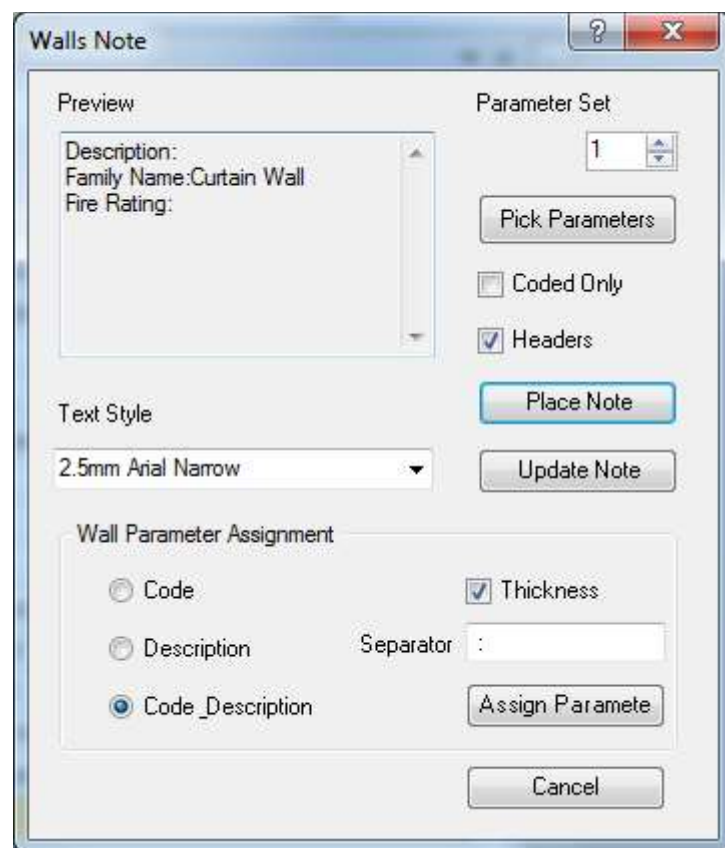
The Boundary Segments shown in 3D. Not the Split Region used to have a different material applied. To achieve a better reflection of wall finish extents we could split the wall rather than just split regions.

WALLS NOTE

The walls dialogue allows you to create a single note / legend in a project that contains a formatted list of all walls regardless of having a code or mark, or only walls that have a code.

Notes with varying detail levels are possible. Typically these notes could be used on a legend sheet and would include the walls types shown in plan view. (As of Revit 2011 this cannot be automated through the API).

This dialogue also allows you to assign parameters to each Wall Type item that display the materials of each layer that is used in the wall type. This allows you to schedule walls and their wall layers.



[Wall Note](#)

[Wall Parameter Assignment](#)

Wall Note Section

The purpose of the “Wall Note” section of this command is to place a note that lists details regarding your walls. It could be used as the basis of generating a wall legend, **however consider using AR Legend as it is better suited to this task.**

Typically you will select the parameters you want to be used to form the note. Once this is done you place the note.

Note: Setting values for your materials and wall types can be done easily via the "[Material Import/Export](#)" and "[Walls Import/Export](#)" routines of ARUtils.

Preview

Shows a preview of the parameters used to generate the note that will be placed.

Parameter Set

You can multiple saved parameter sets that may be useful for different types of notes.

Pick Parameters

Pick the parameters you want to use for the note. Refer to "[Pick Parameters](#)" for more information.

Coded Only

Checking "coded only" will only include walls that have their "Mark" value set.

Headers

Include a header row for your note

Text Style

The text style to be used for the note

Cancel

Close this dialogue




Place Note

Select the bottom left corner of where you want the note to be placed. Current annotation settings will be used.

Update Note

Replace the contents of any existing note with the updated information.

Note: The note uses "tab" characters, but this does not display correctly until you print or edit the text note. This is a Revit limitation.

	A	Plasterboard Partition - Floor to Ceiling Finish - Int - Plasterboard : 13 Metal - Steel Stud : 64 Finish - Int - Plasterboard : 13 Overall: 90
	B	Plasterboard Partition - Floor to Ceiling w/ i Finish - Int - Plasterboard : 13 Metal - Steel Stud with Insulation Batts : 64 Finish - Int - Plasterboard : 13 Overall: 90
	C	Plasterboard Partition - Slab to Slab w/ insl Finish - Int - Plasterboard : 13 Metal - Steel Stud with Insulation Batts : 76 Finish - Int - Plasterboard : 13 Overall: 102

*A Sample of the detailed note (Walls are not included but have been added manually later).
Consider using AR Legend to more readily achieve this result.*

Wall parameter assignment

This section addresses the issue of showing what materials have been assigned to the layers assigned to wall types.

It does this by creating parameters "Wall Element 1", 2, 3, 4, ... 9, assigning these to the wall types, and then set all of the "**Wall Element 1,2,3,...**" parameters to the material information for the layers of each wall type.

Code / Description / Code _ Description

Set the parameter values to variously take the value of just the material code, the material description, or the material code and description.

Thickness

Include the thickness value for the layer.

Note: If the description includes the thickness then no additional thickness value will be added.

Assign Parameters

Create, associate, and set the values of "Wall Element 1", 2, 3, 9, to the material parameters as defined by the radio buttons.

Note: If the thickness already appears as part of the description it will not be re added.

If the parameters do not exist in your project they will be added automatically and then associated to all wall type items.

Type Properties

Family: System Family: Basic Wall Load...

Type: e.T150_WFC12exo-WBA35-MEM/STS9C Duplicate... Rename...

Type Parameters

Parameter	Value
Construction	
Structure	Edit...
Wrapping at Inserts	Do not wrap
Wrapping at Ends	None
Width	150.0
Function	Exterior
Graphics	
Coarse Scale Fill Pattern	
Coarse Scale Fill Color	Black
Materials and Finishes	
Substrate	
Wall Element 1	WFC-05 12mm Exotec System
Wall Element 2	
Wall Element 3	STS-02 90mm Timber Stud Wall
Wall Element 4	WIN-07 95mm r2.0 Insulation
Wall Element 5	WPB-02 13mm Standard Plasterb
Wall Element 6	
Wall Element 7	
Wall Element 8	

<< Preview OK Cancel Apply

Pick Parameters

Allows you to pick the parameters to be used in generating a parameter related note.

Parameter Picker

Category Parameters

- Analytic Construction
- Assembly Code
- Assembly Description
- Category
- Construction Type
- Construction Type Id
- Cost
- Count
- Description
- Design Option
- Door Material Category
- Door Material ChangeProtected_ARUtils
- Door Material Class
- Door Material Color
- Door Material Comments
- Door Material Cost
- Door Material Description

Select Source Item

Label Parameters

Parameter Name	Spaces	Prefix	Sample Value	Suffix	Tab	Ctrl	Places
Family Name	0	Family:	myFamily		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Name	0	Type:	myType		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Width	0	Width:	900		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2
Height	0	Height:	2100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2
Marks	0	Marks:	6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-1

UP DN

Preview

Family: myFamily
Type: myType
Width: 900.00
Height: 2100.00
Marks: 6.00

Cancel OK

Category Parameters

The list of possible parameters for this category. Double clicking an item, or using ">>" transfers the parameter to the "Label parameters" box.

Select Source Item

Allows you to select another item to be used for the source of parameters. This may help in ensuring the required parameters are available for selection.

">>"

Transfer selected items to the "Label parameters" box

Prefix Checkbox

When checked, the **prefix** field in the "Label parameters" box will be set to "parameter name:" when an item is added to the "Label parameters" box.

"<<" or "Delete"

Remove items from the "Label parameters" dialogue.

UP, DN

Move items up or down in the "Label parameters" dialogue. Select one or multiple items to be moved up or down in the list.

Label Parameters

This shows the current parameters to be used in forming the label or note.

Parameter Name	The parameter name	
Spaces	the number of spaces to be placed before the "prefix"	
Prefix	put these characters before the value of the parameter.	
Sample Value	a sample of a typical value for the parameter. By default this is set to the parameter name	
Suffix	put these characters after the parameter value.	
Tab	put a tab character after the prefix and before the value	
CrLf	put a line break after the parameter value and suffix	
Places	Show numbers to this number of decimal places. Use a value of -1 to use project settings.	

NOTE: If the **Marks** or **MarkSpace** parameters are used and you have Tab checked and places set, then the Value will be split to provide a better formatted experience.

Parameter Name	Spaces	Prefix	Sample Value	Suffix	Tab	CrLf	Places
Family Name	0	Family:	myFamily		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Name	0	Type:	myType		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Width	0	Width:	900		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2
Height	0	Height:	2100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2
MarksSpace	0	MarksSpa...			<input checked="" type="checkbox"/>	<input type="checkbox"/>	2

Results in

Family: Double-Glass 2
Type: 1730 x 2032mm
Width: 1,620.00
Height: 2,032.00
MarksSpace: D.G.10-16 / D.G.10-17
D.G.10-1 / D.G.10-2

Items are tabbed and split by every two values

OK

Accept the settings

Cancel

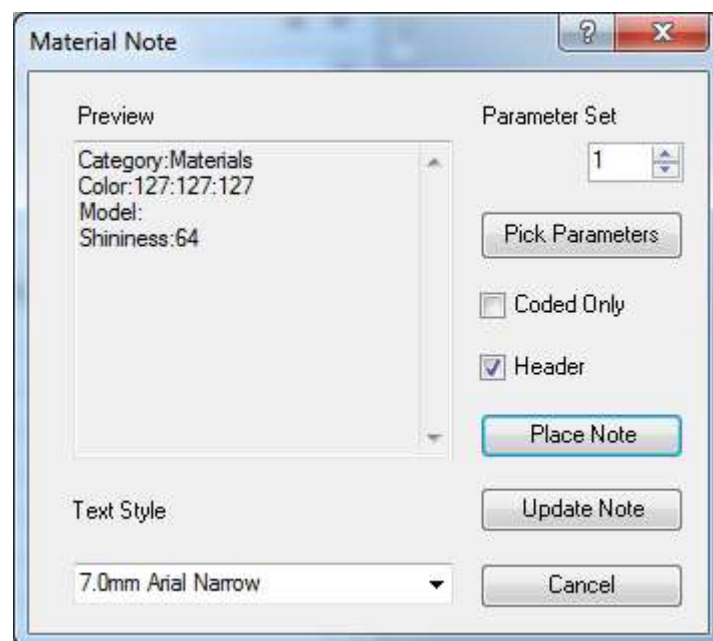
Cancel the changes

MATERIALS NOTE

The materials function allows you to create a single note in a project that contains materials information.

You can choose the parameters you want to be used in this note, as well as extensive formatting options.

Multiple reports (up to 10) can be defined and saved.

**Preview**

Shows a preview of the parameters used to generate the note that will be placed.

Parameter Set

You can multiple saved parameter sets that may be useful for different types of notes.

Pick Parameters

Pick the parameters you want to use for the note. Refer to "[Pick Parameters](#)" for more information.

Coded Only

Checking "coded only" will only include materials that have their "Mark" value set.

Headers

Include a header row for your note

Text Style

The text style to be used for the note

Cancel

Close this dialogue

Place Note

Select the bottom left corner of where you want the note to be placed. Current annotation settings will be used.

Update Note:

Update the contents of an existing note with current information

Note: The note uses "tab" characters, but this does not display correctly until you print or edit the text note. This is a Revit limitation.

Another option explained elsewhere is the ["Import / Export"](#) function which will export or import an excel file of materials.

DOOR MIRRORED & DOOR OPENS INTO


The door mirrored routine will tag all of your doors with a couple of parameters, "Mirrored_ARUtils" and "DoorOpensInto_ARUtils".

The two values will be set to indicate if the door has been mirrored (or handed) as this is physically a different door and door furniture needs to be considered differently.

The "DoorOpensInto_ARUtils" parameter will determine the room that the centroid of the door is in. Where this would indicate the door does not belong to a room, the built in form and to room parameters are checked and the value set to the only non-null value.

WALL/WINDOW ORIENTATION

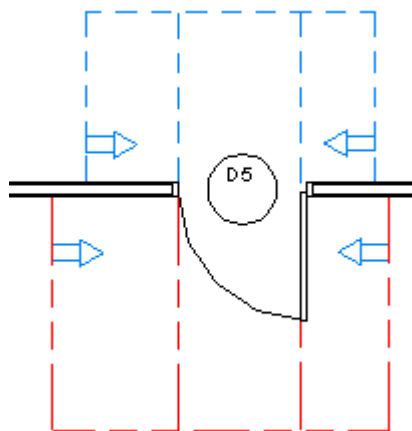
This command will assign a North, South, East, West, North East, etc. value to your **Exterior** Walls and any windows based on the direction they face. This can be useful for solar studies and energy analysis programs.

 M_Fixed 0915 x 1220mm	
Windows (1) Edit Type	
Comments	
Mark	WIN09
Design Option	Main Model
Phasing ^	
Phase Created	Phase 1
Phase Demolished	None
Other ^	
Head Height	7' 0 7/128"
WallWindowOrientation_ARUtils	NW

PROCESS DDA DOORS (AUSTRALIA ONLY)

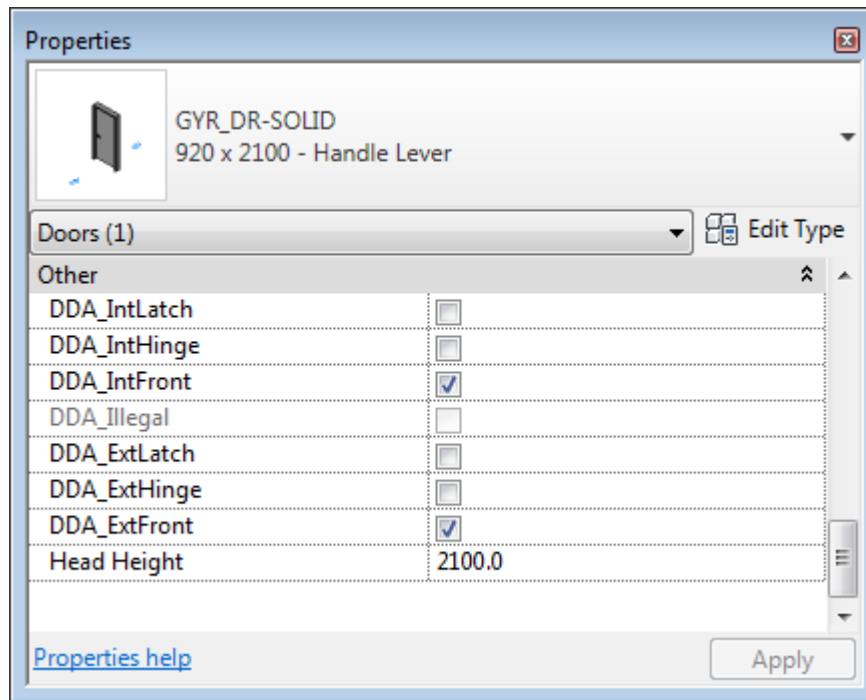
The DDA Doors routine is designed to process specially created DDA doors and correctly size the clearances required by AS 1428.1-2009. These can be downloaded from ["https://dl.dropbox.com/s/vf2g6rfphanwov5/dda.zip?dl=0"](https://dl.dropbox.com/s/vf2g6rfphanwov5/dda.zip?dl=0).

The routine allows the various approach options to be specified and once this is completed the DDA doors routine can process the DDA doors in the project to accurately reflect required clearances.



Usage:

When a door is placed, you must set the approach parameters based on the direction of approach for the door. This is in accord with the DDA standards 1428.1-2009.



The DDA_XXXX are the values you need to set.

- "Int" applies to the "Internal" approach.
- "Ext" refers to the "External" approach.

You can then approach doors from either

- Latch – The latch or lock side of the door
- Hinge – The hinge side of the door
- Front – Approach the door front on

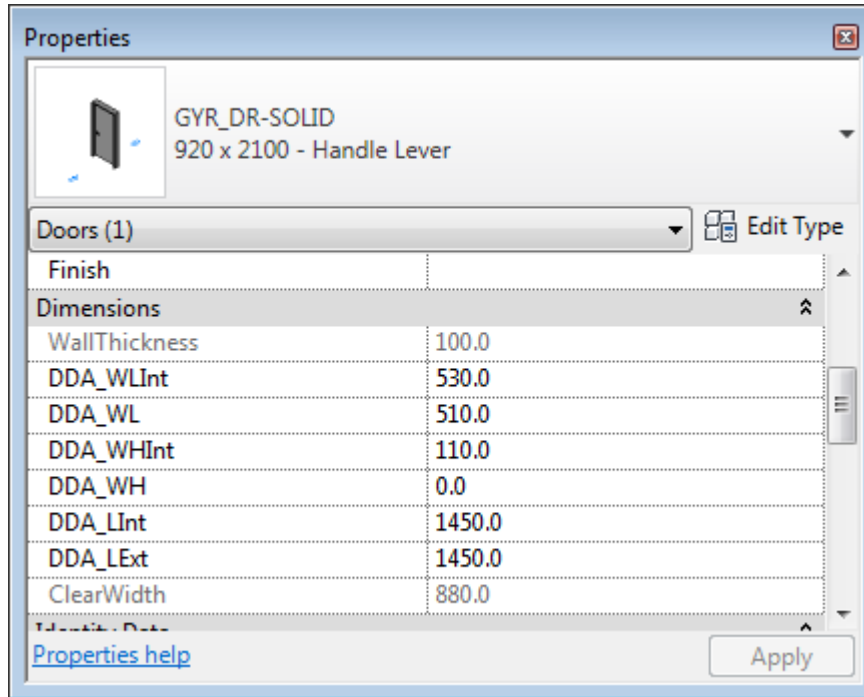
Depending on your selected options the appropriate arrows and lines will appear.

Note: If you set all approach options i.e. Latch, Hinge and Front, the routine will disable the "Front" approach.


Note: The DDA lines and Arrows are on sub categories of the "Doors" category. These are "DDA" and "DDA Interior".


Calculating the required clearances

Having set the approach options the DDA Doors routine will set the appropriate clearance values. These values are calculated based on approach, the type of door (Hinged, Slide, Cavity slide), and the "ClearWidth".




Properties

 **GYR_DR-SOLID**
920 x 2100 - Handle Lever

Doors (1)  Edit Type

Finish	
Dimensions	
WallThickness	100.0
DDA_WLInt	530.0
DDA_WL	510.0
DDA_WHInt	110.0
DDA_WH	0.0
DDA_LInt	1450.0
DDA_LExt	1450.0
ClearWidth	880.0

[Properties help](#) 

ClearWidth / LeafWidth

The ClearWidth is typically calculated by taking the distance between the jamb faces and subtracting the leaf thickness.

ClearWidth = Overall width - frame thickness * 2 - door panel thickness

LeafWidth = Overall Width – frame thickness * 2

Note:

- ClearWidth makes no allowance for jamb profiles or stopping bead thicknesses. This can lead to inaccuracies of up to -40 mm for the LeafWidth value.
- The minimum value for ClearWidth is 850. If a value less than 850 occurs, a cross will appear indicating that the door is too narrow to meet DDA requirements.
- Sliding doors and Pivot hinge doors use modified versions of the above, making allowance for the pivot offset, or for handles preventing doors from fully recessing into cavities. A Minimum of 60 mm clear between handle and door frame is allowed for sliding doors. The offset of the handle from the door edge + 10 mm is allowed for e.g. 60 mm Clear + 10mm (half handle thickness) + handle offset from door edge.
- Sliding doors are determined by having "SLD" as part of their name. Cavity Sliding doors must have both "SLD" and "CAV" as part of their names.

The routine will also produce a report indicating the values used for each door. This could be submitted to a building surveyor to confirm that DDA requirements have been met.

Note: Since the DDA outline increases the extents of the door, door swings may occasionally appear in unexpected circumstances in elevations. Either move the elevation line to not cut the door, or hide the door as appropriate.

MARK SETOUT POINTS

The "Mark Setout Point" routine is designed to place markers at:

- all significant structural concrete points
- along curves
- at curve centres

- at spline control points
- at nested shared setout point family locations. Eg. Fixing points for curtain walls, cable tray hanger fixing points, etc.
- from points defined in an external file typically created by a TotalStation.

This enables the points to be shown graphically, tagged, and also scheduled. Once scheduled the data can then be exported to Excel and used to accurately locate the points on site by using various surveying instruments e.g. A Trimble.

Note: Formatted Excel Import / Export can be used to keep track of changes to these setout points.

Not all markers are equal and once marker families have been placed, the marker families can be selected to set their type to “major” or “minor”, set out points. This enables major set out points to be easily scheduled separately from minor set out points.

Note: Where an item has curves or splines, you can opt to place markers at curve centres, along curves or splines, and also at curve or spline control points. These points will automatically be set to the correct type of “Centre” or “intermediate”.

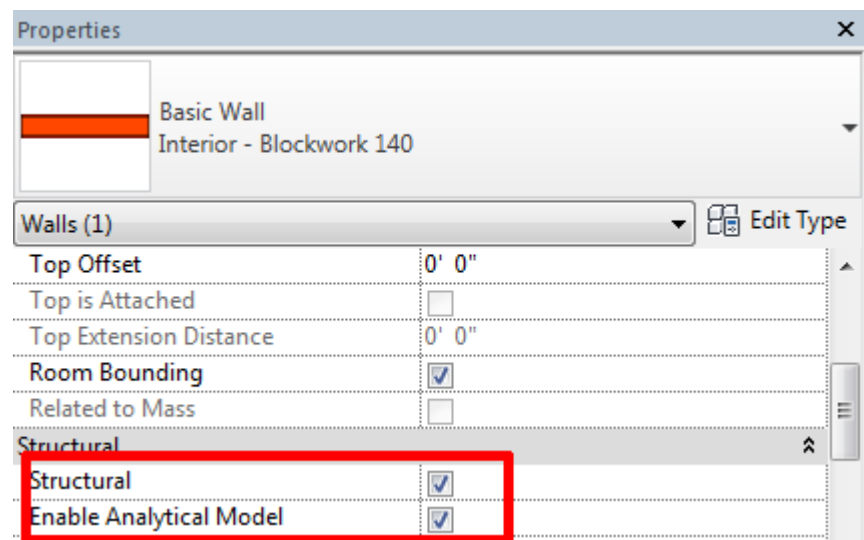
Each marker has real world positional information (i.e. Project coordinates) associated to X, Y, and Z parameters as well as information about the item that generated the marker. This can all be scheduled to provide information grouped the way you would like.

Note: By default the routine does not double up on points.

What items are tagged by this routine:

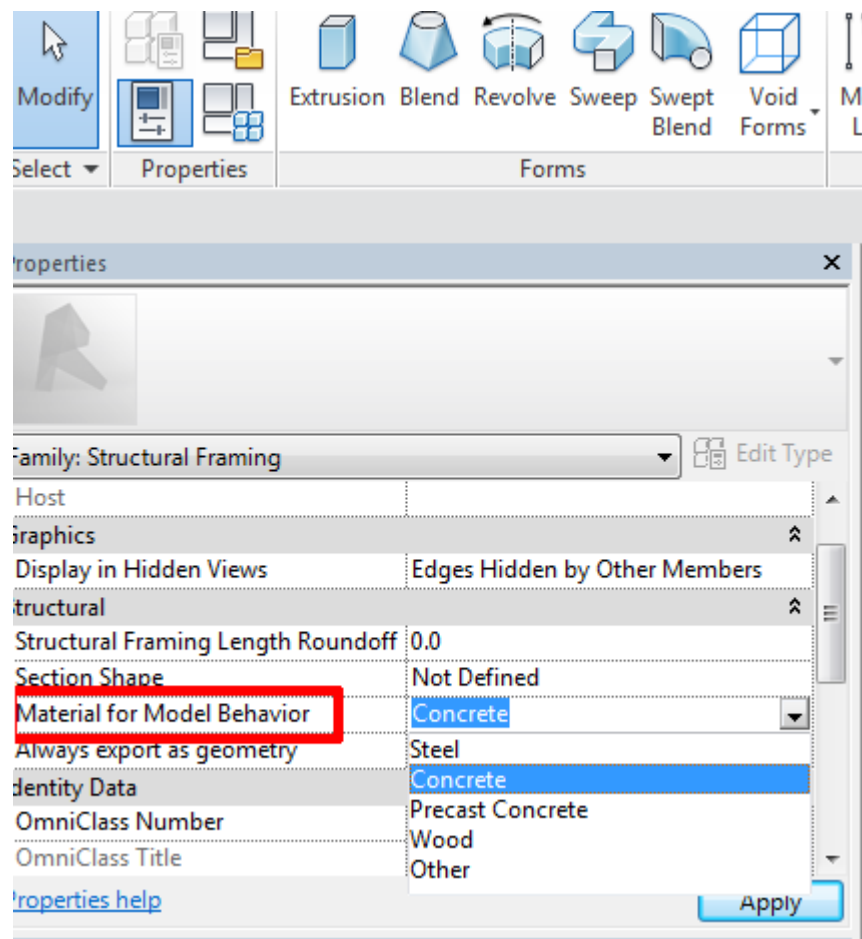
This routine is intended to mark points on “Structural Concrete” items, although it can be used to mark points on specific selected items.

Any wall or floor will be included in processing if they have the “Structural” and “Enable Analytic Model” check boxes ticked.



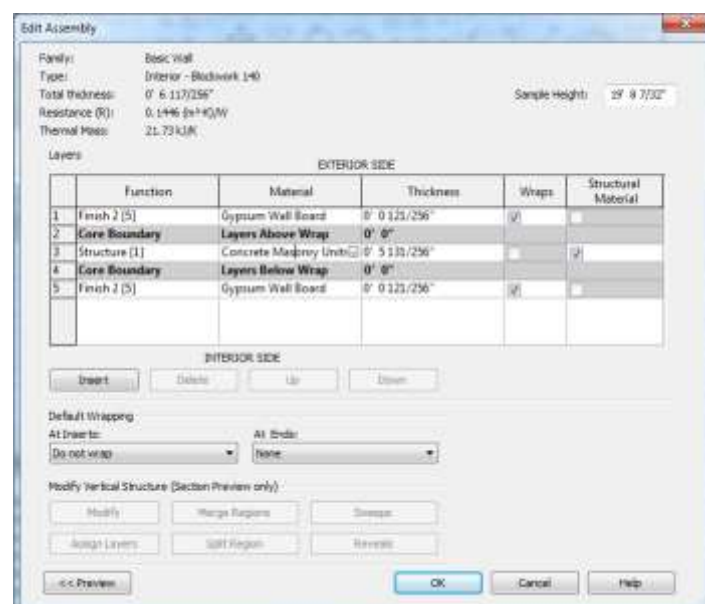
A wall that has been set as Structural and Enable Analytical Model enabled will have setout points tagged

Any structural family that has a “Material For Model Behaviour” set to “Concrete” or “Precast Concrete” material will be included.

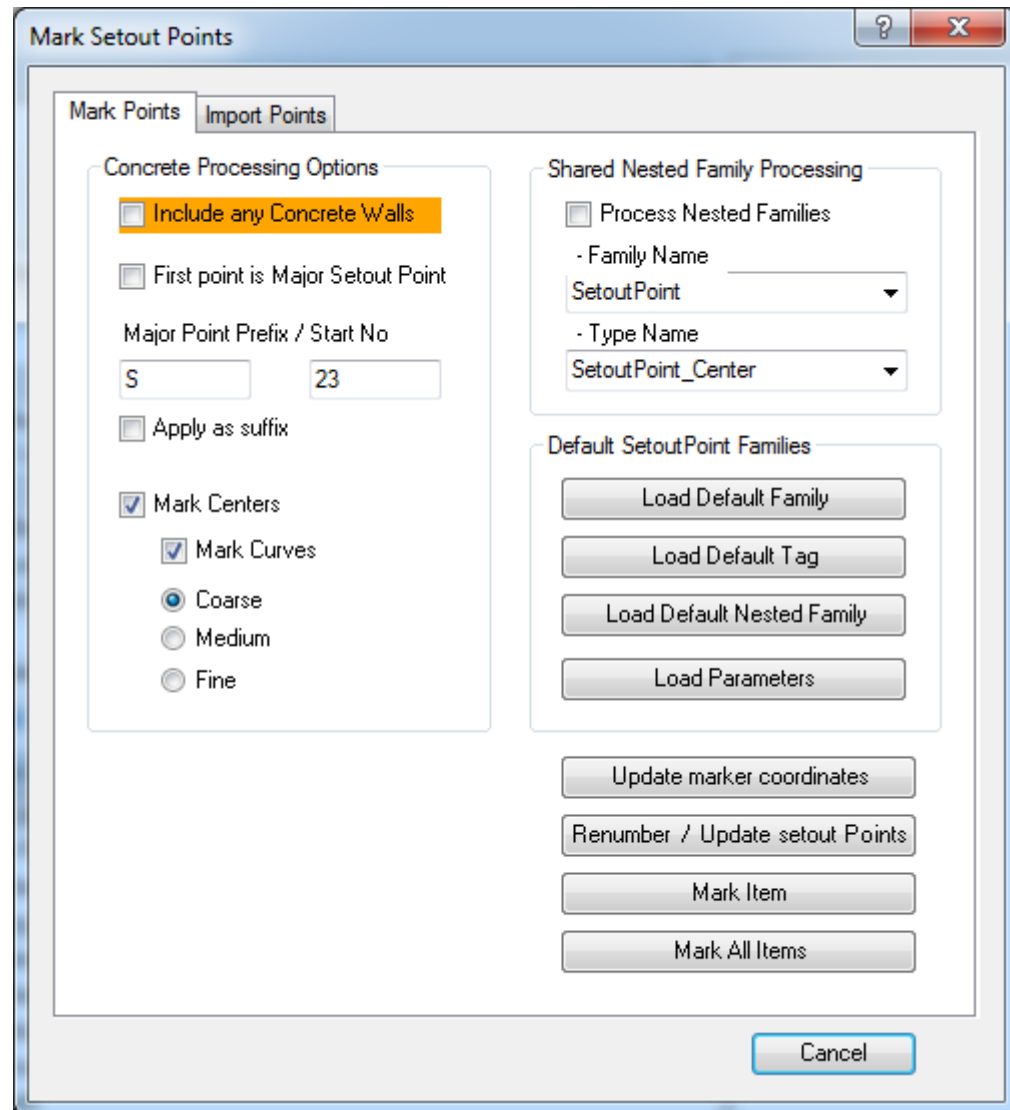


A structural family that has “Material For Model Behaviour” set to “Concrete” or “Precast Concrete” will be included in the tagging process.

If “**Include any concrete walls**” is checked then walls with a layer using a material with “Concrete” as part of their name will also be included.



A wall with a layer of “Concrete Masonry Units” would have setout points marked when “**Include any concrete walls**” is checked.



Mark Setout Points dialog – Mark Points Tab

Concrete Processing Options

Include Any Concrete Walls (~~Process Concrete Items~~)

Use this to process any walls that have a layer with “Concrete” as part of the material name.

First Point is Major Setout point

When checked any concrete item will have its first point marked by the “Major” type of the “SetoutPoint” family. Subsequent points for that item will use the “Minor” type.

Major Point Text Prefix / Start No

Defines the text that “Major” points will prefix their Identity number with e.g. SOP1, SOP2, etc.

The **Start No** allows you to specify the starting number for Major Points. This can be useful when multiple files are in use. The default is 1

Apply as Suffix

Adds the defined prefix text as a suffix to the marker number, e.g. 1SOP, 2SOP, etc.

Mark Centres

Place markers at curve centres and control points on splines

Mark Curves

Place markers along curves and splines at regular distances.

Coarse, Medium and Fine

Increase / decrease the distance between markers along curves or splines.

Shared Nested Family Processing

Process Nested Families

Enabling this will place markers at the location of the origin point of your specified nested Generic family. The family does not require any special parameters, just that it be shared, Generic, and individually selectable within your project (enabled when the family is set to "Shared").

The family it is nested into need not be a Generic family. There is a default family **"SharedSetoutPoint.rfa"** (do not confuse this with **"SetoutPoint.rfa"**), that is ideal for this purpose.

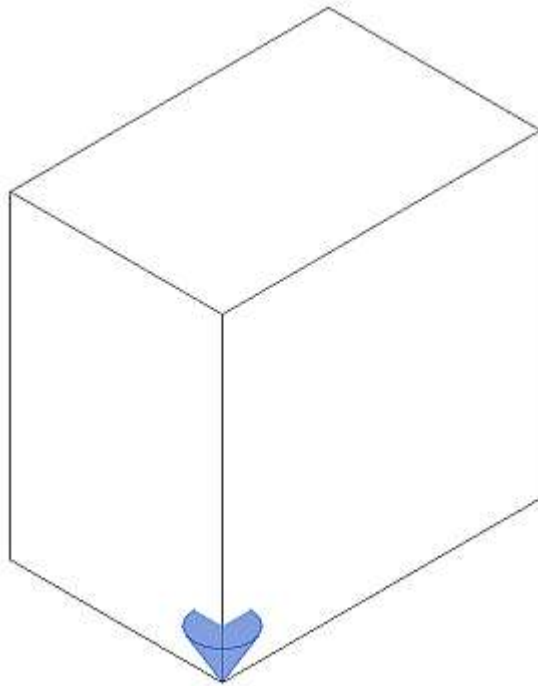
Typical process for using nested families.

1. Create a new family or use an existing family of ANY type
2. Marker Family: Load the default "SharedSetoutPoint.rfa" family, or create your own Generic Model family that you wish to use as a marker. **Make sure that "Shared" is enabled for the family.**

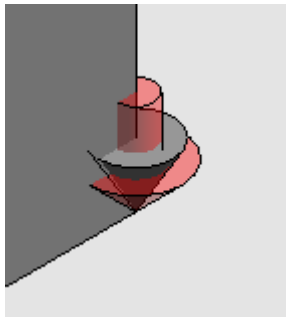
The screenshot shows the 'Family: Columns' dialog box. The 'Family' dropdown is set to 'Columns'. The 'Edit Type' button is visible. The 'Constraints' section is expanded. The 'Identity Data' section shows 'OmniClass Number' as '23.25.30.11.14.11' and 'OmniClass Title' as 'Columns'. The 'Other' section is expanded, and the 'Shared' checkbox is checked and circled in red. The 'Show family pre-cut in ...' checkbox is also checked.

Family: Columns		Edit Type
Constraints		
Host		
Identity Data		
OmniClass Number	23.25.30.11.14.11	
OmniClass Title	Columns	
Other		
Cut with Voids When L...	<input type="checkbox"/>	
Automatically joins geo...	<input checked="" type="checkbox"/>	
Shared	<input checked="" type="checkbox"/>	
Show family pre-cut in ...	<input checked="" type="checkbox"/>	

3. Load the "Marker family" into the family of step one.
4. In the family of step 1, place the "Marker family" at all locations you want marked in your project file. (Note: Sharing does not need to be enabled for this family.)



5. Load the family into your project. Place as required.
6. Make sure to enable "Process Nested Families" and set the "Family Name" and "Type Names" to use the "SharedSetoutPoint" (Not "SetoutPoint")
7. Run the "Mark All Items" command to place the "SetoutPoint" markers where the "SharedSetoutPoint" families occur. The type "SetoutPoint_Major" will be used as the marker.



Marker placed at location of "SharedSetoutPoint" marker.

Family Name

The name of the family that has been nested and shared within other families. This family must be a generic family. SharedSetoutPoint is the default family and Type.

Type Name

The type of the family that has been nested and shared within other families.

Default Setout Point Families**Load Default Family**

Loads the default generic model family, "..\arutils\amilies\SetoutPoint.rfa", which contains both major (Red), minor (Green), center (Dark Blue), and intermediate (Yellow) family types. The family also has the appropriate parameters that are populated when the SetoutPoint families are placed by this routine.

Load Default Tag

Load the default tag “..\arutils\families\SetoutPointTag.rfa” for tagging the generic model SetoutPoint family. The tag family allows for either displaying just the Set out point number, or the number and the X,Y, Z coordinates.

Note: Two tags are provided. One is a multi-category tag, whilst the other is specific to generic category items. Each has certain benefits.

Load Default Nested Families

Load the default **nested** and **shared** point family “..\arutils\families\SharedSetoutPoint.rfa” for use within families to identify key location points. Any family can be used, however the family must be a “Generic Model” family and also “Shared” when it was loaded into a family (of any type). Only the location of the nested family is relevant to this routine. If desired you could have multiple such families, e.g., One for cable tray hanger points, another for curtain wall fixing points. This would require multiple runs of the software with the specific marker families selected each time.

Note: You can also use this family directly within your project to independently mark locations.

Load Parameters

This will load the required parameters into the current project or family file. You would typically only use this if creating a “Generic Model” family to be used instead of the “SetoutPoint” family.

Note: Tag families currently do not allow parameters to be loaded so that they would then be accessible via the “Label” command. This will need to be done manually. The best approach is to modify the default tag family.

Processes

Mark All Items

Place markers at all relevant points based on your current choices.

Mark Item

Place markers on items that you select one by one. This bypasses the need to meet concrete criteria.

Update marker coordinates

Update X,Y, and Z coordinates only. Do not renumber set out point Identifiers.

Renumber / Update Setout Points

This handles:

- Change in marker types between “Major” and “Minor”. This will renumber all of the Major and Minor marker points into two separate number streams. E.g. SOP1, SOP2, ... and 1,2,3,etc.
- Changes in profiles of concrete items
- Changes in profiles of items you selected
- Moves of families with nested shared setout point families in them
- Update marker coordinates if the project has been relocated.
- This does not affect markers that have been created via an import excel file.

Handling of changes to the Revit Model

Revit Element Points moved or deleted

If Revit elements have had points moved or deleted e.g. A floor slab has had points in its boundary removed, or shifted, rerunning the routine will shift markers, or identify and tag markers that no longer have an association. Their host_type parameter will have “Unsynched” included as part of the value and the “Unsynched” items will be selected

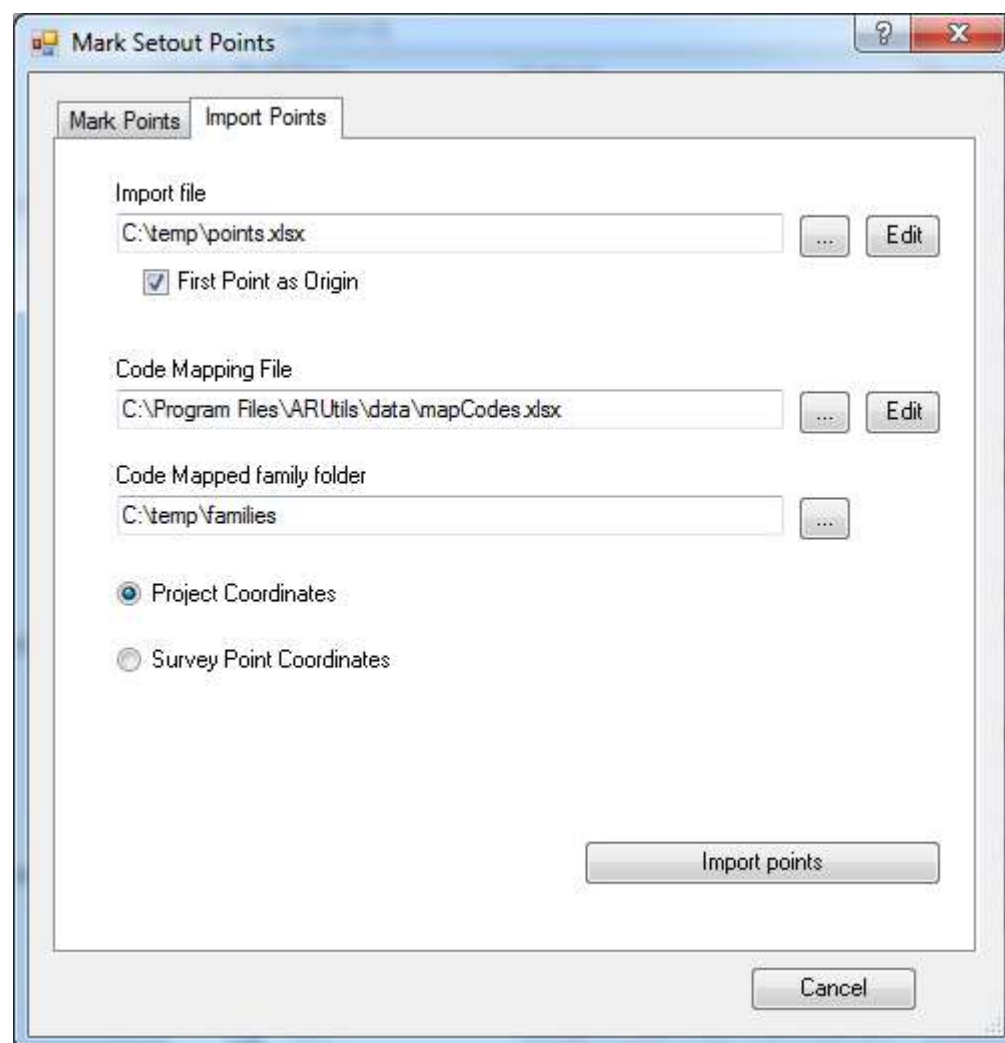
at the end of the process. If desired you could delete these items by simply pressing “Delete”.

Revit elements with Extra Points

If Revit elements have had extra points added e.g. A floor slab now has a more complex boundary, rerunning the “Mark All Items” command will add the extra points. These are likely to now make all points for the item non-sequential. I.e. The new point markers numbers will commence at the end of existing numbers. Deleting the markers for that item and then redoing all the markers for that item may produce a better result.

Import Setout Points

The imports dialogue allows you to place markers at locations that have been captured by various surveying devices. Coordinates can either be based on the project origin or the site survey origin. You can opt to use the default marker family, or use specific families based on defined codes within the Import file.



Import file

The file that defines marker locations and codes. Typically this has been generated by a surveying device such as a Total Station.

The file contains a point number, xyz coordinates, and optionally an assigned code.

	A	B	C	D	E
1	Number	X	Y	Z	Code
2	I1	1000	1000	0	AA
3	I2	2000	2000	0	BB
4	I3	3000	3000	0	CC
5	I4	4000	4000	0	DD
6	I5	5000	5000	0	EE
7	I6	6000	6000	0	FF
8	I7	7000	7000	0	GG
9	I8	8000	8000	0	HH
10	I9	9000	9000	0	II

Note: The first point can optionally define a point that should be mapped to the project or site survey 0,0,0. All following points will be adjusted to account for this offset.

Code Mapping File

Surveying devices can attach codes to coordinate data. The code mapping file allows you to specify the family to be used when a specific code is encountered. This could allow you to place families that belong to the correct Revit category, e.g. Trees, manholes, etc. The "else" option allows you to specify a family to be used when a code does not match, or if no code has been used.

	A	B	C
1	Code	Family	Family Type
2	else	Setoutpoint	SetoutPoint_Minor
3	AA	FamAA	AA
4	BB	FamBB	BB

Example code mapping file

Note: Some family categories do not allow certain shared parameters and therefore cannot be used.

Note: The easiest way to create families for other categories is to open the existing setout point family, change its category, change the geometry, change / rename types, and then save the family under a new name. This will ensure all the required parameters are present in the family. If you create multiple category families you will also need to create matching tag families to allow tagging of those families.

Code Mapped family folder

The folder containing families referred to in the code mapping file.

Note: The default families for this routine will be searched for in the ..\arutils\families folder and will not be loaded from the "Code Mapped Family Folder".

Project Coordinates / Shared point coordinates

Import point information is based on the project origin or on the site survey origin.

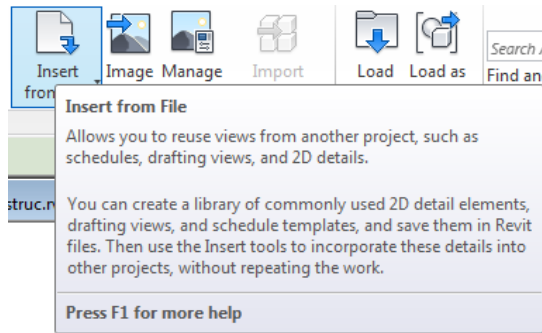
First point as origin

When this option is checked the first point in the import file is assumed to be the coordinates of the project origin or site survey point. All following points are then placed appropriately.

Import Coordinates

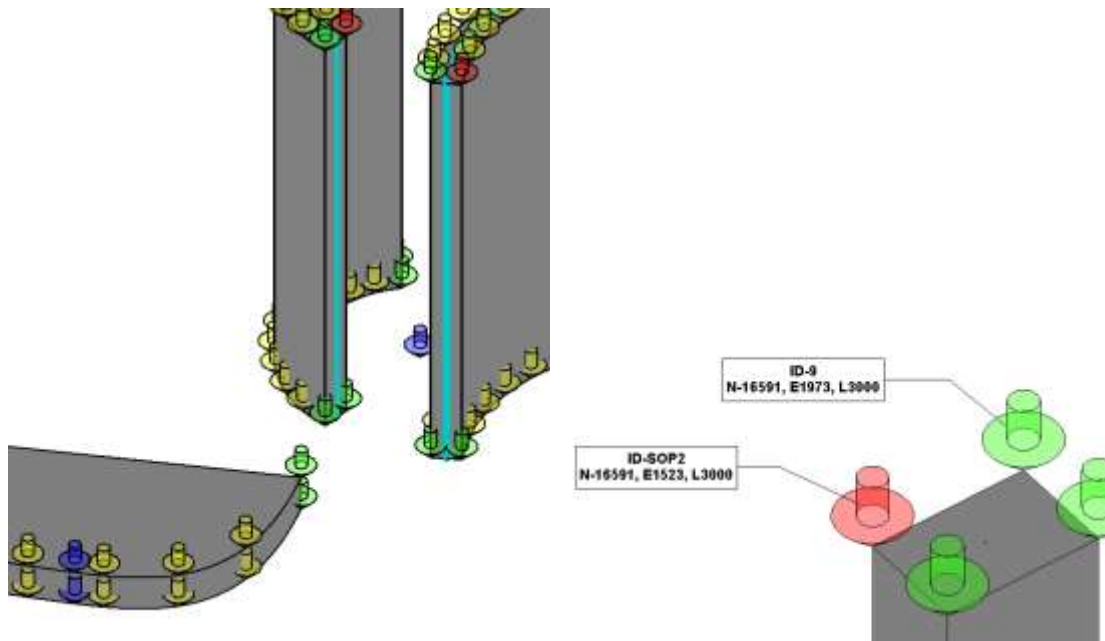
Place markers at the locations as defined in the "Import File".

Note: Sample concrete set out point schedules can be found in
 “..\\arutils\\families\\ConcreteSetoutPoint-*revVersion*.rvt”. You can use “Insert | Insert From File” to insert the schedule views from the sample file into the project.



Assigned Parameters

Host_Id_ARUtils	The ID of the item that generated this point
Host_Type_ARUtils	The Type of item that generated this point
Key_Setout_Point_ARUtils	If true then this is a Major point
Point_Number_ARUtils	The Point Number for this point. Major points will have SOP added to the number
X_ARUtils, Y_ARUtils, Z_ARUtils	The X,Y, and Z coordinates of the point in project coordinates



*Markers applied to column corners – red
 Markers are Major Setout Points,
 Green Minor, Blue Center / Control
 points, and Yellow along curves*

Markers Tagged

<Key Setout Points>

A	B	C	D	E
Object Type	Point No.	East	North	Level
Walls	SOP1	-19432	-2318	3000
Walls	SOP2	-19728	-1476	3000
StructuralColumns	SOP3	-13591	-3631	250

Major Setout Points Table

<Setout Points by referenced Object>					
A	B	C	D	E	F
Marker Type	Object Type	Point Number	East	North	Level
SetoutPoint_Major	Walls	SOP1	-19432	-2318	3000
SetoutPoint_Center	Walls	1	-20139	-2484	3000
SetoutPoint_Intermediate	Walls	2	-19413	-2500	3000
SetoutPoint_Intermediate	Walls	3	-19440	-2681	3000
SetoutPoint_Intermediate	Walls	4	-19512	-2850	3000
SetoutPoint_Intermediate	Walls	5	-19624	-2995	3000

Combined Major and Minor setout points table

PARAMETER WALL TAPE / FIREWALL TAPE

Previously “Fire Wall Tape” routine.

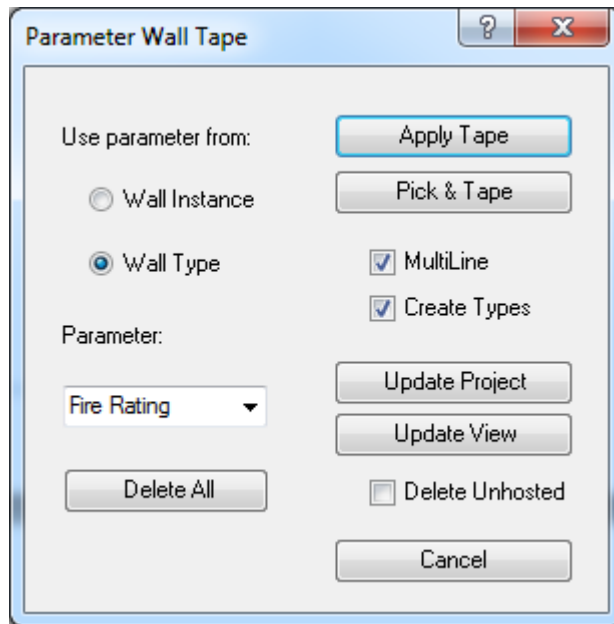
This routine is designed to graphically tag walls based on a walls Type or Instance parameters. By default it uses the wall type parameter “Fire Rating”, **however any other valid type or instance wall parameter can be used.**



[Show me how](#)



The two tagging options. On the left, the **non-multiline** version, where all walls are tagged with a “**Fire Rating-Generic**” line style with parameter value specific **text**. On the right, the **multi-line** version, where both the tag **line** and **text** are specific to each parameter value.



The “Parameter Wall Tape / Fire Wall Tape” dialog

Note: Selected options are stored within your project file to ensure consistency between users.

Most of this process is now fully automatic. If you want to better understand all that is going on on [Refer to “Ordinary” fire wall tagging setup and “Multi Line” fire wall tagging setup](#).

Use Parameter from:

Wall Instance:

Parameter is a wall instance parameter

Wall Type:

Parameter is a wall type parameter

Parameter:

The parameter containing the values to generate the different wall tape types. A wall tape type will be created for each different parameter value.

Apply Tape

Applies wall tape to all items where the parameter value has been set.

Pick and Tape

Applies wall tape to selected items where the parameter value has been set.

New - Where an in-place wall has been modelled and selected you will further be requested to select a face of the in-place item that should have the tape applied. You will also be requested to specify the offset of the tape from that face.

MultiLine

Use the multi-line fire wall tagging option. Walls will be tagged with different line styles as well as different text.

Create Types

Where a wall tape type does not exist in the various families, the type can be automatically created. When the type is being created the type name is generated using the WallType / WallInstance selection, the parameter name, and the parameter value e.g. WallType-Fire Rating1HR. You will be prompted for the text string you want to be used on the tape. This

enables you to have Fire Rating (or other) values assigned to your walls that are different to what appears as text on the tape, e.g. You could have parameter values of "1 Hour", but text on the tape could be "1HR" or "60".

When using the multi-line version you will also be prompted to select a colour to be assigned to the line for that type. Unfortunately the API does not allow for setting the "Line pattern" of the item.

Update Project

Updates all existing items in all views in the Project to reflect changed values.

Update View

Updates all existing items in current view to reflect changed values.

Delete Unhosted

By default Parameter Wall Tape items that no longer have a "host" will be altered to show "NA". When "Delete Unhosted" is checked, unhosted items will be deleted.

Delete All

Delete all tape items from the current view.

Note: Items will be matched based on whether you are using WallType or WallInstance, the parameter, and whether multiline is ticked. Only items that match your current criteria will be found and deleted.

Cancel

Cancel the command

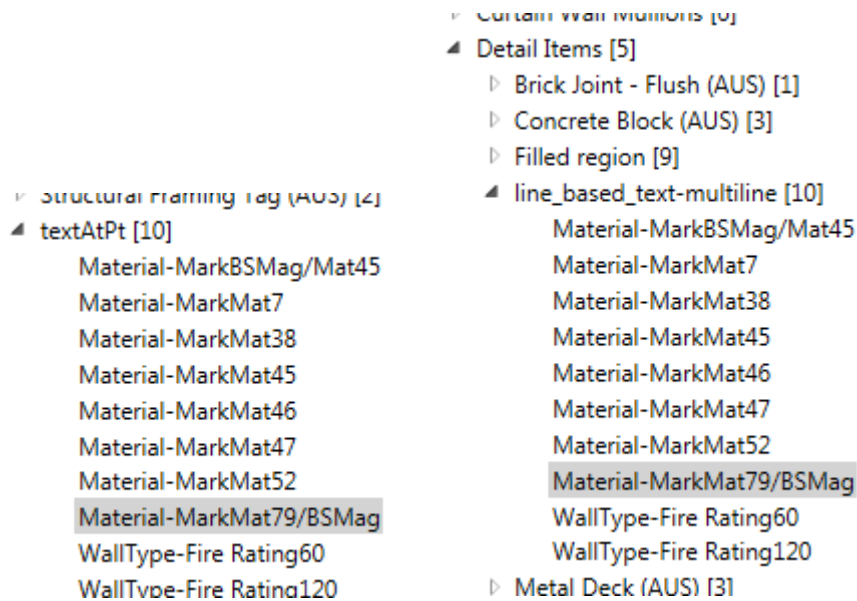
How the routine works

The routine uses two processes to apply a tape to the wall items. Whilst straight walls can be handled by a line based detail item, fire rated curved walls require a different approach.

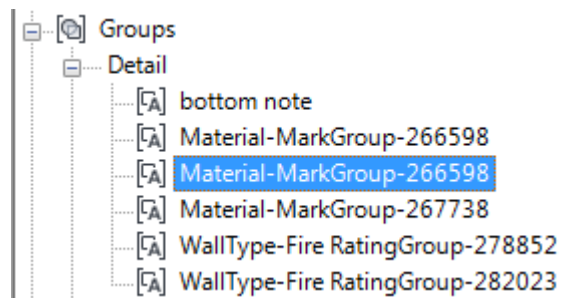
Straight walls will be marked by a line based detail item that contains a number of "Types". This will be either the "line_based_text.rfa" or "line_based_text-MultiLine.rfa" families.

The difference between these two families is that the **multi-line family** has **multiple lines** that are on **different subcategories** and therefore can display differently according to the object styles for the sub category.

The other family has **only one line style** (with different text markings) which is **used by all taped wall types**. E.g. 1HR rated fire walls in the multi-line family have a specific line on a specific sub category, whereas the ordinary family has only one line and sub category that all Family Types use.



textAtPt annotation family and types. Also types within the “*line_based_text_multiline*” family



Groups created where curved walls are tagged

By necessity curved walls use a different approach of placing text family items along the curve (correctly rotated) as well as placing a curve along the centre line of the wall. Once again this family has a number of types (the same names as for the line based families). This makes it easier to change all tape text if such a change is required.

If a particular Type does not exist, the routine can create the new types for you. These will be created in the “textAtPt” family as well as the associated line based family.

Note: The settings of the subcategories in the multiline detail family are actually brought into your project, e.g. A subcategory called “Fire Rating-1HR” will be brought into your project as a “Line Style”. These are available via the API and therefore the lines used on curved walls match the lines used in the families. Unfortunately these are not available to **you** to use when drawing a “detail line”. If you select a curve generated by the fire wall routine, the “Fire Rating” line styles will not be selectable.

Setup Requirements

The following outlines manual setup of the various families. This is generally not required.

Note: It is much simpler to run the “Parameter Wall Tape” command in a file containing all the values of the parameter you typically use, e.g. Fire Rating with 60, 120, Smoke, Acoustic, etc. Once this has been done, save off the families to the Arutils/families folder.

Note: Once a subcategory exists in a project file, the colour, weight, etc. settings will not be altered when a family using those subcategories is reloaded. i.e. Changing subcategory appearance values and re-importing that family will have no effect on the subcategory settings within the project. It is therefore best to delete subcategories, families, (line styles), and then reload the families for subcategory changes to take effect.

Manual Parameter Wall Tape family creation

- Determine the values your “Fire Rating” parameter for wall types use, e.g. 60, 120, 1HR, 2HR, etc.
- Determine if you want different line styles used when tagging a wall.

TextAtPt family

1. Open the “textAtPt” family and add in types that have a name consisting of “WallType” or “WallInstance”, plus a “-”, and then the parameter name e.g. “Fire Rating”, and finally the values assigned to that parameter. E.g. “WallType-Fire Rating60”.

The screenshot shows the 'TextAtPt' family editor. The 'Name' dropdown is set to 'WallType-Fire Rating120'. Below it, a table lists parameters. The 'Text' section is expanded, showing 'Line Text' with a value of '120' and an equals sign in the formula column. The 'Other' section is also visible.

2. Set the “Line Text” parameter for each type to the value you want displayed.

The screenshot shows the 'Family Types' dialog. The 'Name' dropdown is set to 'WallType-Fire Rating60'. Below it, a table lists parameters. The 'Text' section is expanded, showing 'Line Text' with a value of '60' circled in red. The 'Other' section is also visible.

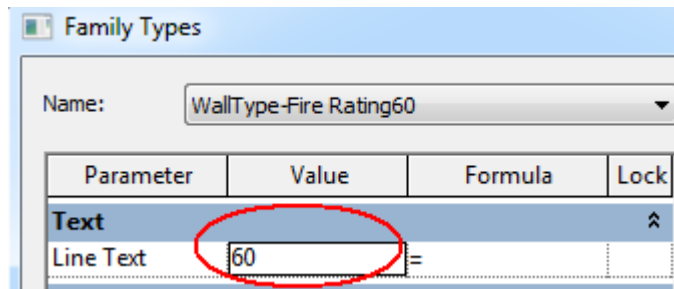
3. Save the family. Make sure to make a copy to another location.

Ordinary fire wall tagging (all walls are tagged with a generic line style using different text)

1. Open the “line_based_text” family and add in types that have the same name as the parameter values you use in the TextAtPt family.

The screenshot shows the 'TextAtPt' family editor. The 'Name' dropdown is set to 'WallType-Fire Rating120'. Below it, a table lists parameters. The 'Text' section is expanded, showing 'Line Text' with a value of '120' and an equals sign in the formula column. The 'Other' section is also visible.

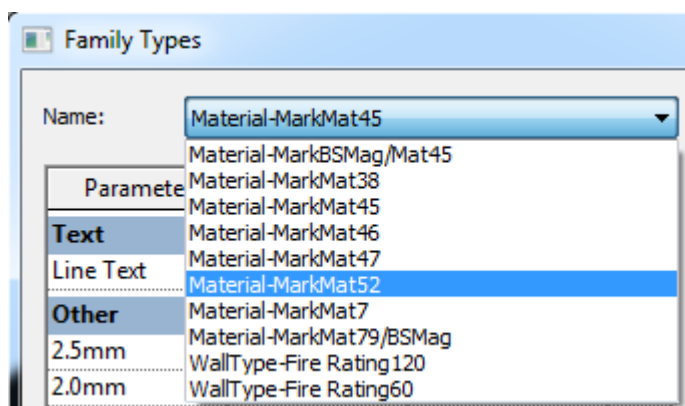
- Set the “Line Text” parameter for each type to the value you want displayed. This should be the same as the value used in the “textAtPt” family.



- Save the family. Make sure to make a copy to another location.
- In your project, Add “FireRating-Generic” as a **Line Style**. This is only required if you want the line style to be selectable by a user.

Multi Line parameter wall tagging (all walls are tagged with different line styles and different text)

- Open the “**line_based_text-MultiLine**” family and add in types that have the same name as the parameter values you use in the other families.



The matching types in the multi-line family. Here we have types for Fire Rating as well as for applying “Wall Finish Tape”.

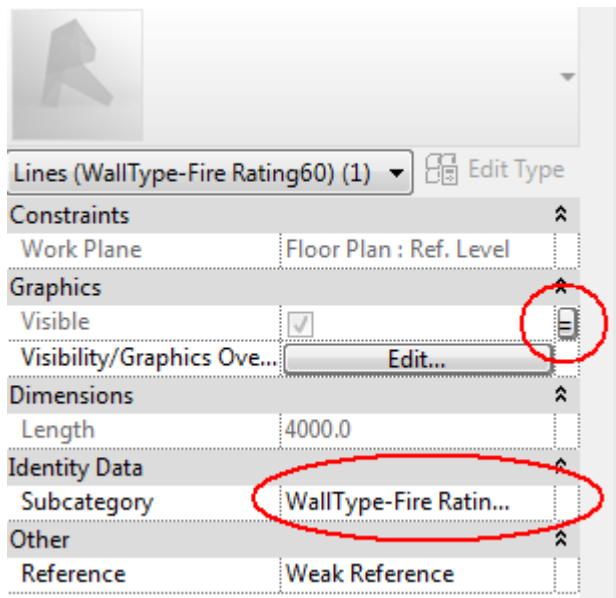
- Set the “Line Text” parameter for each type to the value you want displayed. This should match the values used in the “textAtPt” family.
- Create subcategories for each “Type”. These will contain a single line that is used solely for that type.

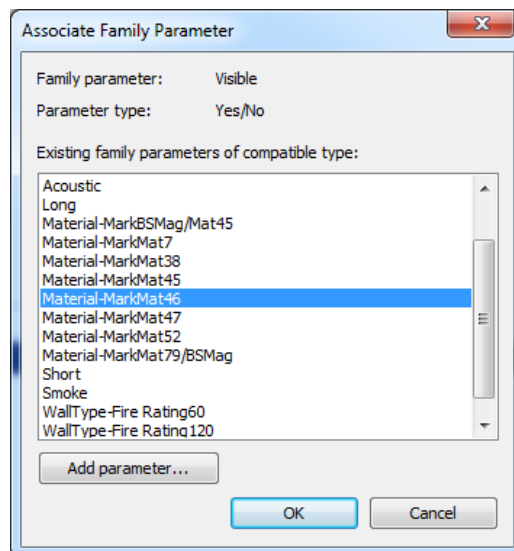
Model Objects	Annotation Objects	Imported Objects
---------------	--------------------	------------------

Category	Line Weight		Line Color	Line Pattern
	Projection	Cut		
Detail Items	1		Black	Solid
Hidden Lines	1		Black	Dash
Material-MarkBSMag/...	6		Green	Solid
Material-MarkMat7	6		RGB 000-128-000	Solid
Material-MarkMat38	6		RGB 255-128-000	Solid
Material-MarkMat45	6		RGB 128-000-255	Solid
Material-MarkMat46	6		Blue	Solid
Material-MarkMat47	6		RGB 255-000-128	Solid
Material-MarkMat52	6		RGB 128-000-000	Solid
Material-MarkMat79/B...	6		RGB 255-128-255	Solid
WallType-Fire Rating60	6		Cyan	Solid
WallType-Fire Rating120	6		RGB 255-128-000	Solid

Sub categories added into the multi-line family

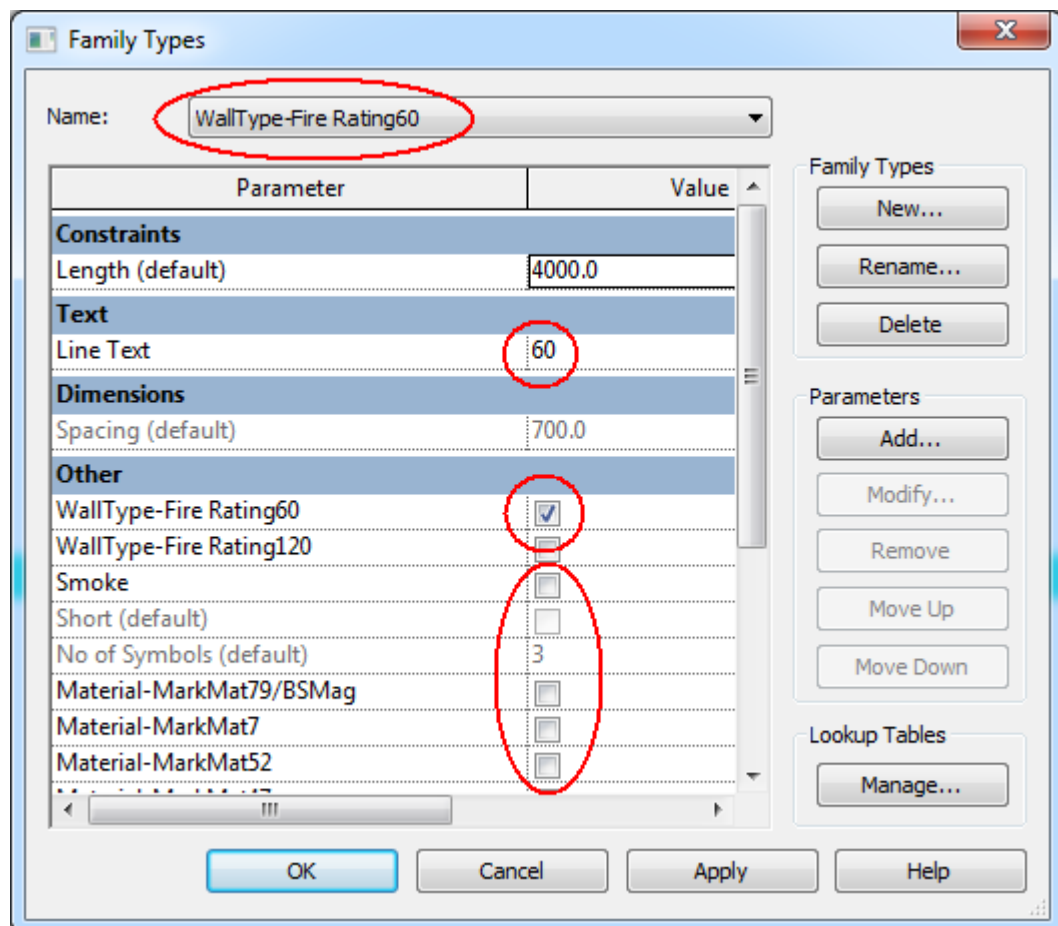
4. Create visibility parameters for each type. These will control the visibility of the separate lines
5. Create lines on each subcategory. Make sure these are locked to the reference line intersections.
6. Assign the matching visibility parameter to the "Visibility" control for the line. (Select the item, and in the properties click on the far right of the line. You can also check that the subcategory is correct.)





Assigning the visibility control parameter for a line.

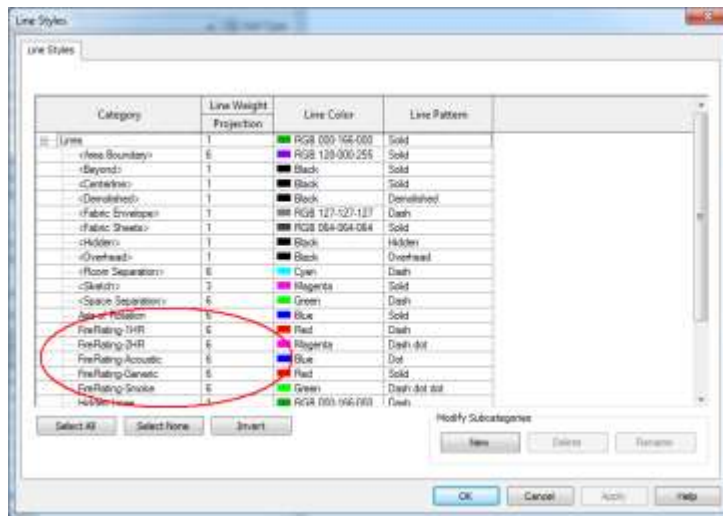
7. For each type ensure that only the appropriate “Visibility” parameter is set.



The “WallType-Fire Rating60” multi-line type. Only the “WallType-Fire Rating60” visibility parameter is set to true. Note also that “Line Text” is set to “60”

8. Save the family. **Make sure to make a copy in another location.**

9. In your project, Add matching line styles to be used for manual detail line placement.

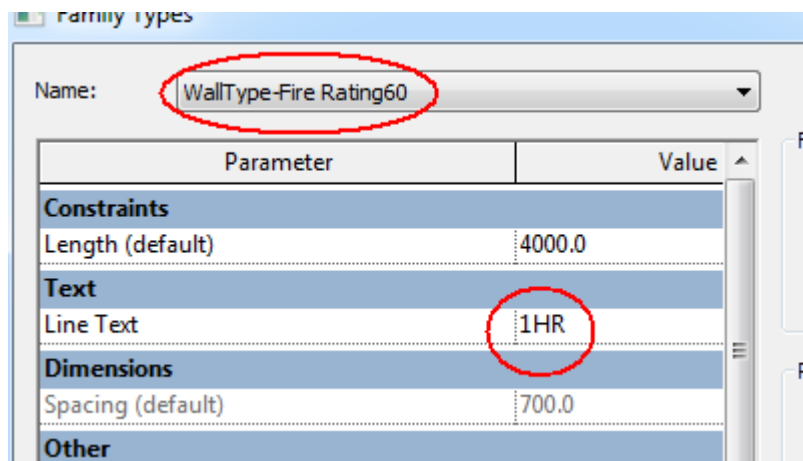


Line styles added to the project to be used for curves

The Line Based Detail Families

The families “textAtPt”, “Line_Based_Text.rfa”, and “Line_Based_Text-multiline.rfa” in the “..larutils\data” folder are the families used for taping walls. The link between these families types and the parameter values for wall type or wall instance is based on a direct match. E.g. If your “wall type” fire rating value is “2HR”, then the routine will look for the family type of “WallType-Fire Rating2HR”.

Note: The text showing in the families need not match the parameter value, e.g. You may have a fire rating value of “60”, but actually have “1HR” show on the tape.

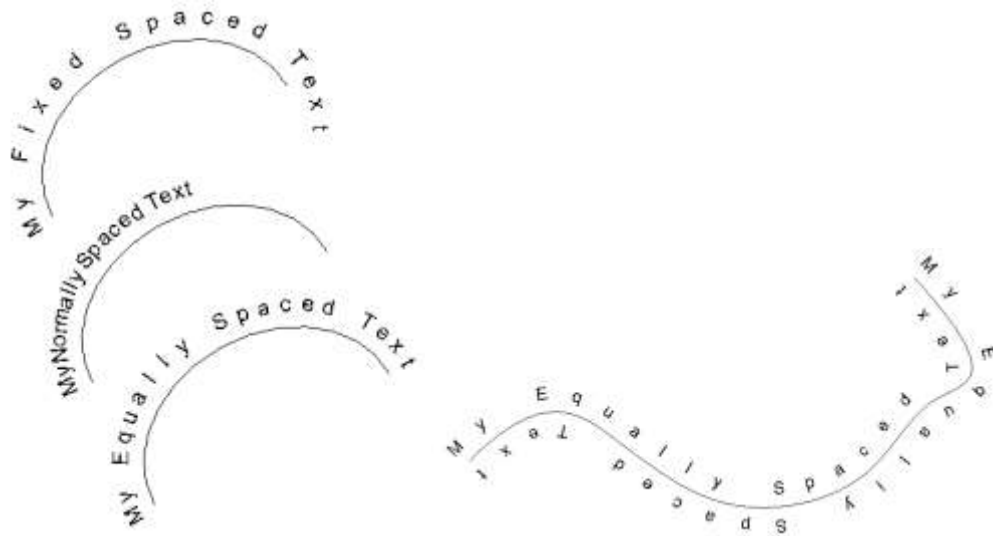


The “60” type showing a “Line Text” value of 1HR. The wall will have a tape with “1HR” placed at regular intervals.

TEXT ALONG CURVES / 3D TAG ROOMS & AREAS

This routine is designed to place annotative or model text along a curve. A curve can be a line, arc, partial ellipse, or spline. Complete circles or ellipses are not supported. The routine also has an option to tag rooms with Model Text items. This is useful for presentation images.

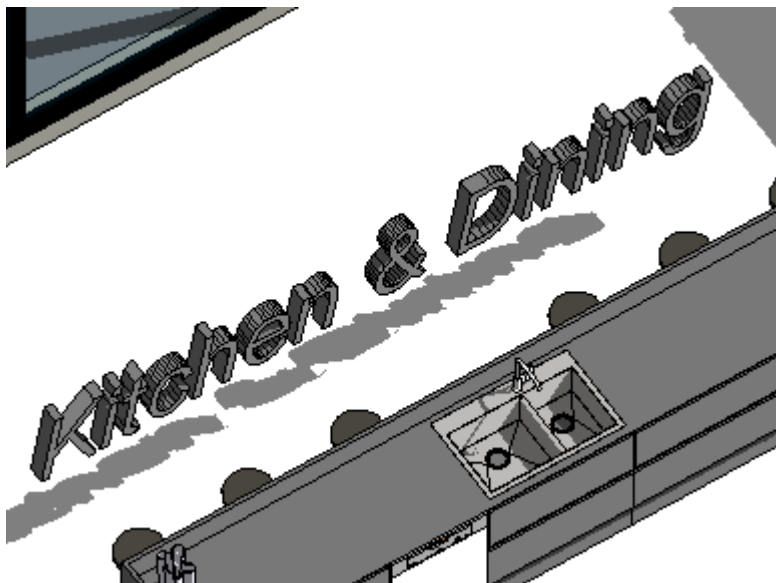
The routine also allows you to create Model Text tags for rooms and areas based on their Room or Area name.



Various curves with text placed along them



Model Text placed along curved wall



Room Tagged with Room Name

The "Text Along Curve" dialogue

Text

The required text

Offset

An offset of the text from the selected curve. This uses the current project units.

Note: The usual rules of curves apply when setting an offset. I.e. If Revit cannot offset the curve by the amount you have requested, this routine will also not work. If you find the routine fails, try and create the offset curve using Revit, and then place text using an offset of 0.

Spacing:

Equal

Text is paced equally along the curve

Normal

Text is placed as one would normally expect. Both character width and kerning properties are considered when placing the text.

Note: Kerning refers to closer or further apart spacing required by various letter combinations. E.g. The letter combination of "AV" kerns the V closer to the A to ensure an expected spacing.

Normal Factor

Depending on the curves you may need to increase or decrease the spacing of the letters to achieve the result you expect. Typically values between 0.9 and 1.1 are appropriate.

Fixed Spacing

Use a fixed spacing between characters. The spacing is in project units.

Annotative Text Style

The text style to use

Model Text:**Use Model Text**

Place model text along the selected curve. Text will be placed vertically.

This section relies on a generic model family **“Letter”**, and the family types defined within the family. This family will be loaded from the ..\arutils\families folder if it does not exist in your project.

Type properties for this family are: Material, Font, Bold and Italic.

Note: The “font” type parameter is simply a dumb text value and only relates to the font used by the “Model Text” because that is how the family has been setup.

The “Letter” family has two model text items that have visibility parameters to control which model text item is used. When setting the font value, do not include things such as “Italic” or “Bold” as part of the “font” parameter value unless that is specifically part of the font name. The “Font” value must exactly match the fonts as displayed by the system. This is critical to have text spaced correctly along curves.

Instance properties are: Size, Depth, and Letter.

Model Text options:**“Letter” family type**

This is one of the “Types” defined in the “Letter” family. The

Model Text Height

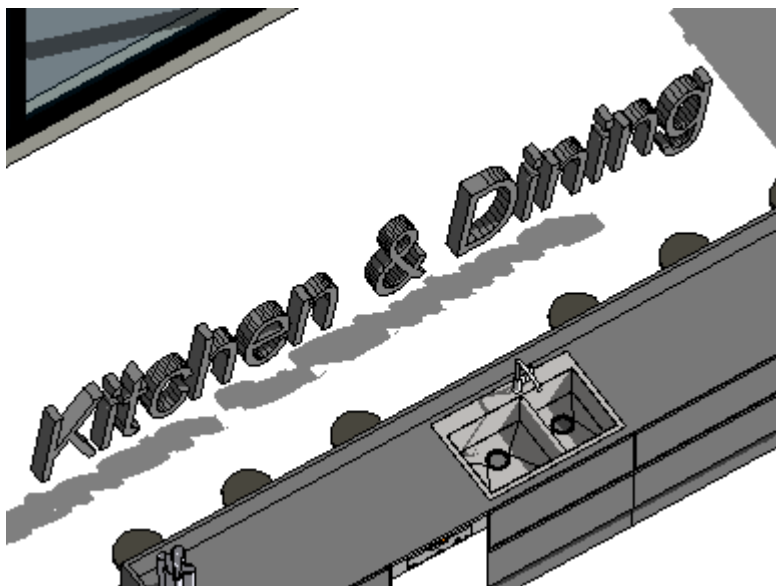
The height of the model text

Model Text Depth

The depth of the model text

Offset from Level

The offset of the text from the current level

Tag Spaces:

Tag Room

Pick a specific room to have a model text tag placed at the "Room Location" point. I.e. Where the room indicator lines cross.

Tag Rooms

Tag all rooms in the project. If rooms have already been tagged you will be presented with the option of deleting all existing tags, or just adding tags for untagged rooms.

Tag Area

Pick a specific area to have a model text tag placed at the "Area Location" point. I.e. Where the area indicator lines cross.

Tag Areas

Tag all areas in the project. If areas have already been tagged you will be presented with the option of deleting all existing tags, or just adding tags for untagged areas.

Tag Angle

The angle to place the model text

Include Links

Include links for processing. When picking a Room/Area you will first need to pick the Link Instance and then the Room /Area which must be visible in the linked view.

Update Names

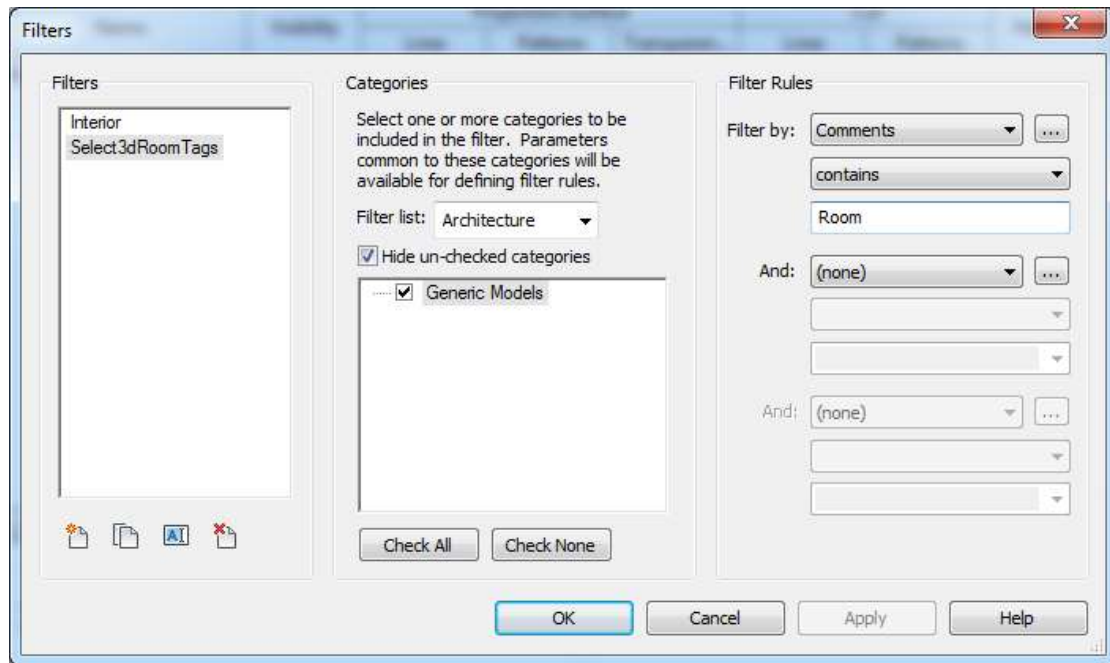
Update the name contents of all existing tags

Update Style

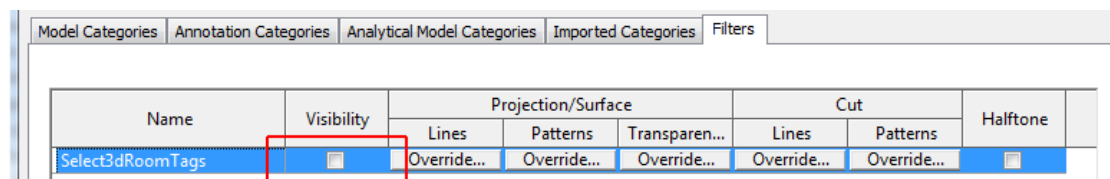
Update the style of existing tags to the current height and depth. Note: Offset, angle, and Family Type are not altered.

Filtering to display / hide 3D room tags

When tagging both Areas and Rooms within the one project you can differentiate the tags by filtering on the "Comments" field. Area names will have "AreaTag" as part of the comment field as well as the "Area Scheme" name e.g., AreaTag|Rentable". "Room" tags will have "RoomTag" set as the value of the comments field.



A filter to select 3d Room Tags. This can be set to not visible to only show “Area” tags.



Filter applied to a view to ensure “3D room tags” are not shown.

Redo

Sometimes the first result is not ideal. You can alter values and press this command to redo the text using the new settings.

Cancel

Exit the command

Place

You will be prompted to select a curve on which to place the Text. Select the curve by the end at which you want the text to begin.

Note: Text may not be placed as expected along some spline curves. This is a limitation within Revit. Keeping control points spaced fairly equally should result in better outcomes.

Using other fonts

To use fonts other than Arial or Arial narrow follow these steps

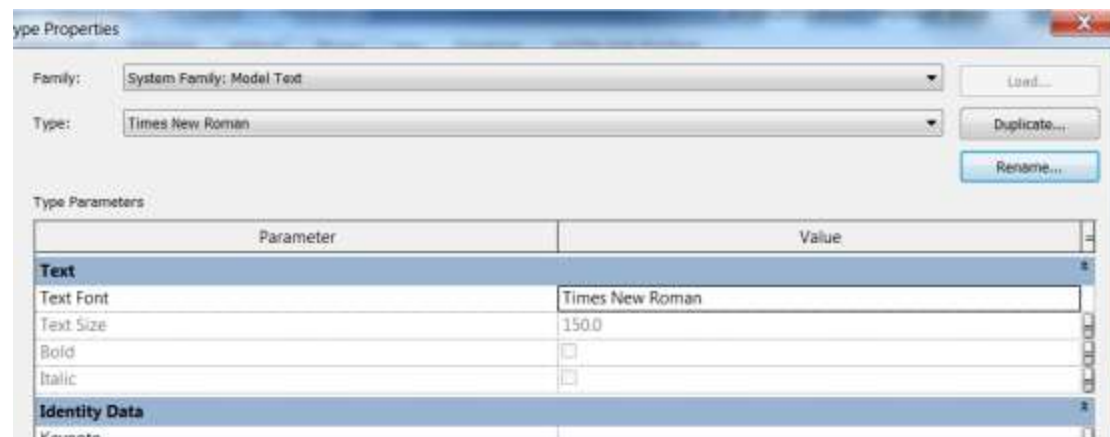
Open the “Letter” family

Create a new “Model Text” type e.g. “Times New Roman”. Set the font to “Times New Roman”

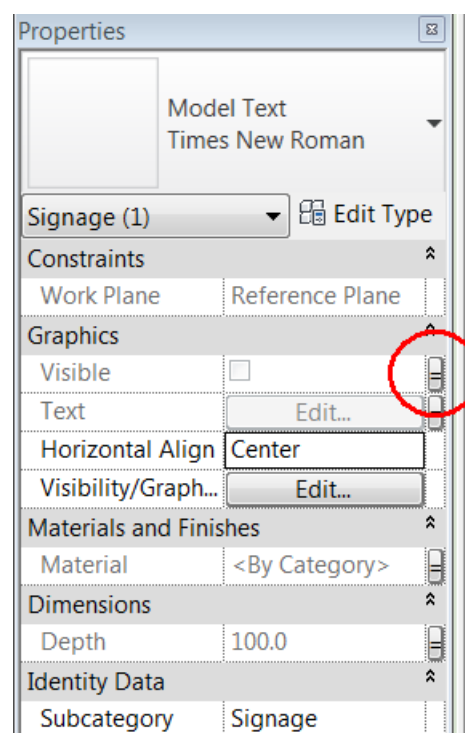
Select one of the two “model text” items.

Duplicate the item, maintaining the location

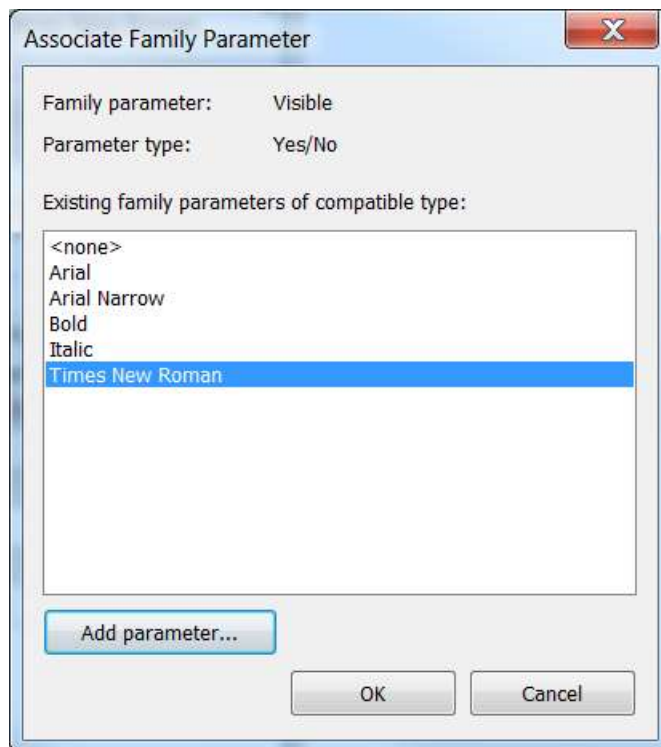
Create a new “Model Text Style” of “Times New Roman” and apply this to the new item



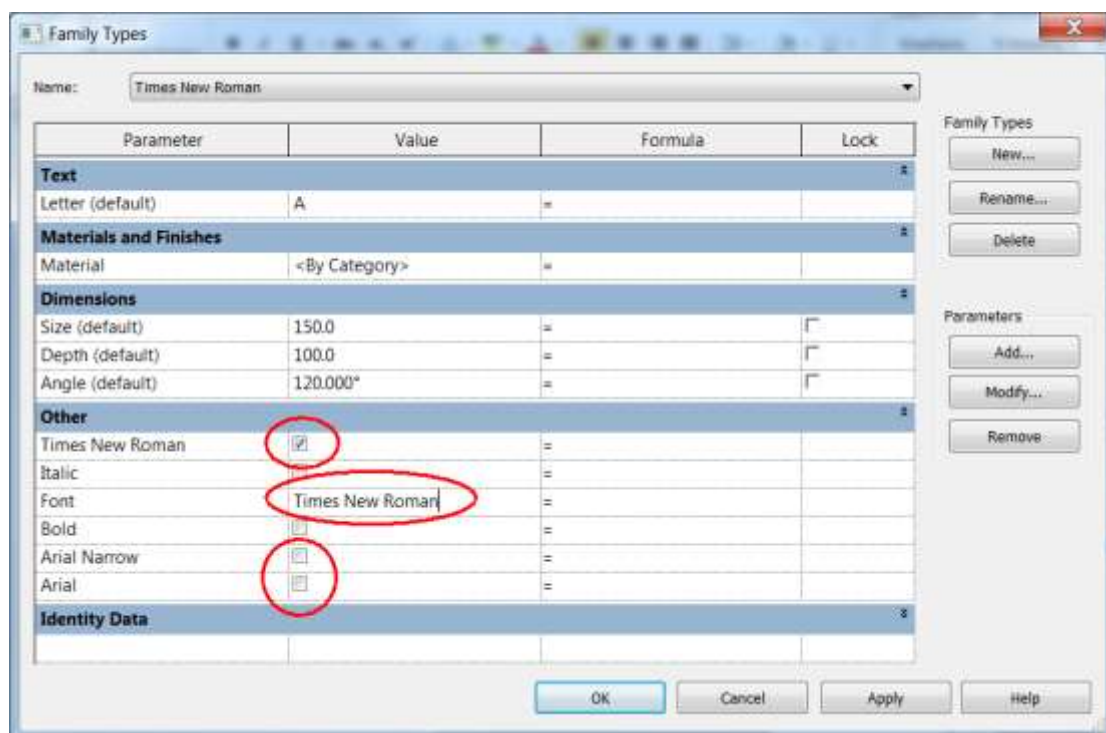
Click on the “Visible” linked parameter box in the properties for the model text.



Create a new yes/no parameter and name it “Times New Roman”



Create a new family type called "Times New Roman"



Set the "Font" parameter for this item to "Times New Roman". You will have to type this exactly.

Check the yes/no parameter "Times New Roman"

Uncheck any other yes/no parameters e.g. "Arial", "Arial Narrow"

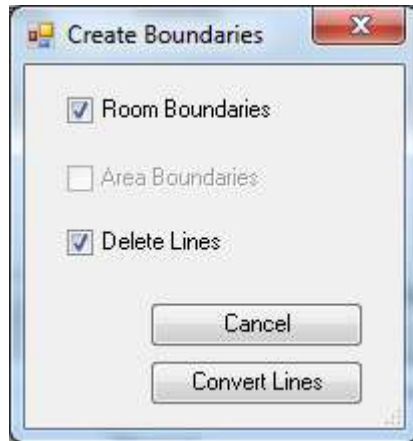
Make sure that "Times New Roman" is unchecked for all other types.

Reload / Save the family

LINES TO ROOM / AREA BOUNDARIES

This command allows you to convert lines to Room Separation lines or Area Boundary lines.

Note: This would typically be used after importing a DWG file with polylines that represent rooms or large volumes in your scheme. Once you have these you could easily place rooms or areas and these could then be further processed by the [“Room Masses”](#) or [“Area Masses”](#) commands.



The Create Boundaries form. Note: Area Boundaries only activates when the active view is an “Area Plan”.

Room Boundaries

Convert lines to room separation lines

Area Boundaries

Convert lines to Area Boundaries. This is only active when the active view is an “Area Plan”.

Delete Lines

Deletes the original lines once the conversion has taken place

Convert Lines

Select and convert lines. You will need to complete selection by using the “Finish” button in the “options” bar.

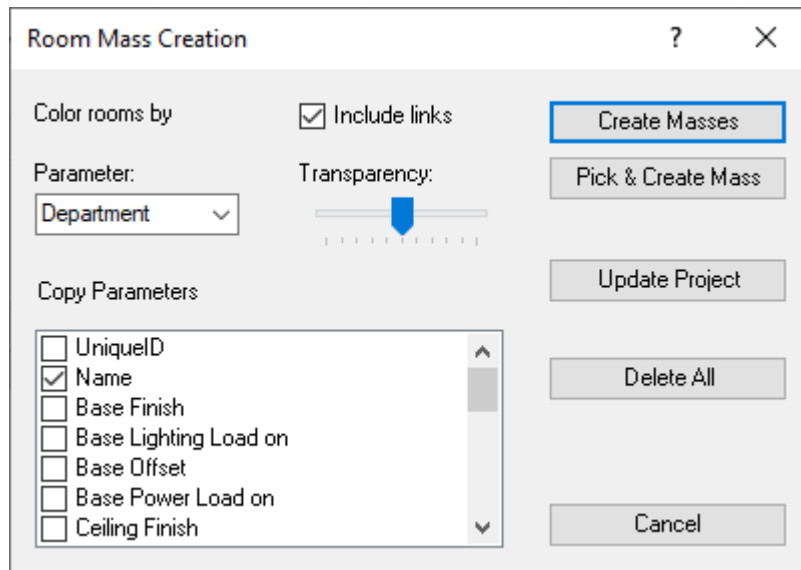
ROOM MASSES

The Room Masses routine allows you to create masses (2013 generic models) based on your rooms and colour the masses based on a specific aspect of the room e.g., Department. This provides a graphically simple method of presenting your design.

Note: **New 7/7/2021** – Now supports rooms in linked documents

Note: **New 2/12/2020** – Now creates an overall 3D shaded view with filters applied, as well as individual views highlighting all items of a particular value

Note: Consider using the “Room Heights” and “Text on Curves – Room Labelling” commands to ensure rooms are shown correctly and also that rooms are labelled in 3D.



The room masses dialog

Color Rooms by:

Parameter:

This is the room parameter that will be used to assign colors to the created masses. Colors are created as a base set of 20 colors using the base system colors. These colors are then accessible as materials.

Transparency:

The transparency of the auto generated materials. For more transparency move the slider to the right.

Include Links:

Process linked documents in your project.

Copy Parameters:

Allows you to copy parameters to the created masses. This makes it simpler to identify the room that created the mass and also allows for filtering of the masses in views. E.g., you could select room masses based on a department, or comment.

Create Masses:

Create masses for all of the rooms. Each room will have a separate mass family created.

You will be prompted if you wish to create an overall view and also if you wish to create views for each parameter value e.g. Departments may have accounts, printroom, office, etc. These views will drop other departments to very faint.

Pick and Create Mass

Pick a room and create a mass

Update project:

All appropriate mass families are deleted from the project and recreated

You will also be prompted to open/create views.

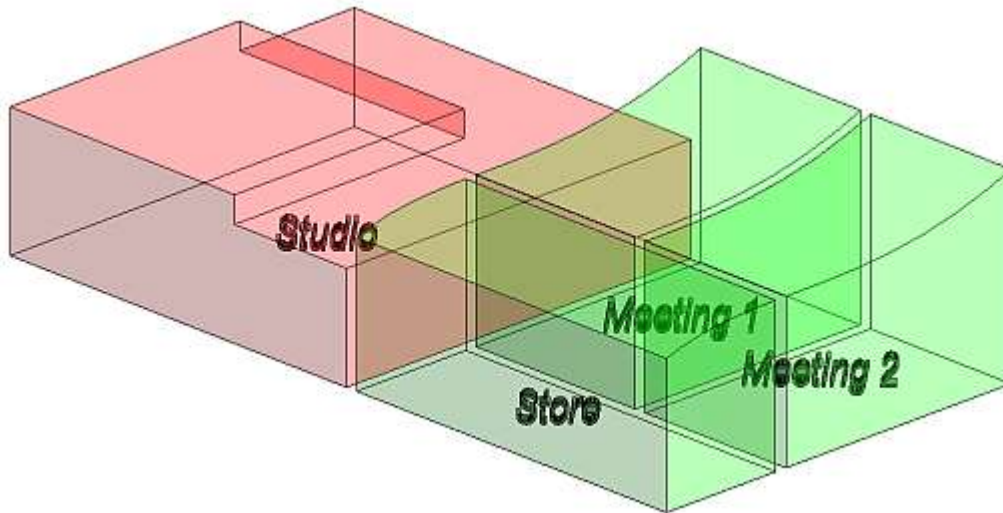
Delete all:

Delete all the mass families created based on currently picked parameter. If you have multiple Room Mass schemes then only the currently picked parameter masses will be deleted.

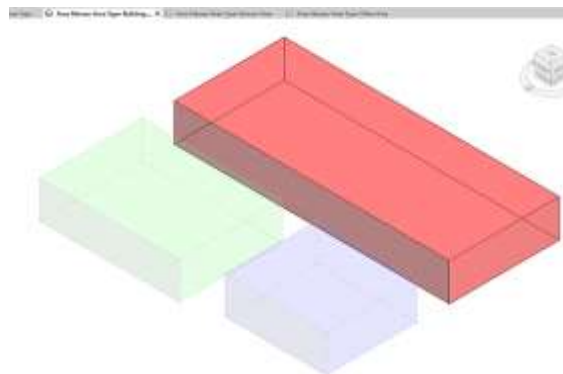
Cancel:

Exit the command

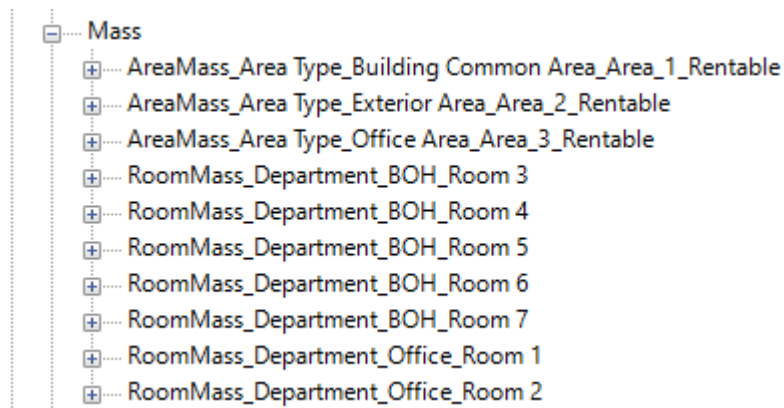
Note: From 2014 onwards the command relies on a “Mass” family template in the Revit Family Templates “Conceptual Mass” folder. In 2013 the “Generic Model.rft” family is relied on.



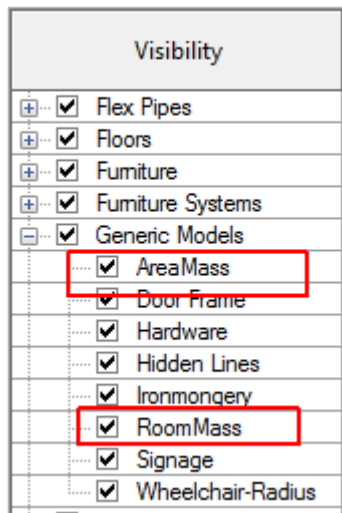
Overall Mass families view created for rooms based on the Department value for rooms. Use the graphic display option of “Shaded”. Room names have been added via the “Text on Curve | Tag Rooms” option. Note the complex top modelling available in 2014/15.



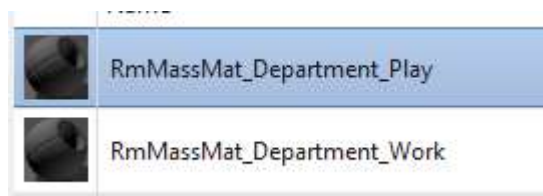
View created to highlight masses of a particular parameter value.



The created families. Names are constructed based on the parameter, the parameter value, and the room name/number. This allows multiple schemes to exist in the project.



Revit 2013 – Generic Model subcategories used for creation of Extrusions. A similar approach is adopted in 2014/15 except using the “Mass” category with similar subcategories.



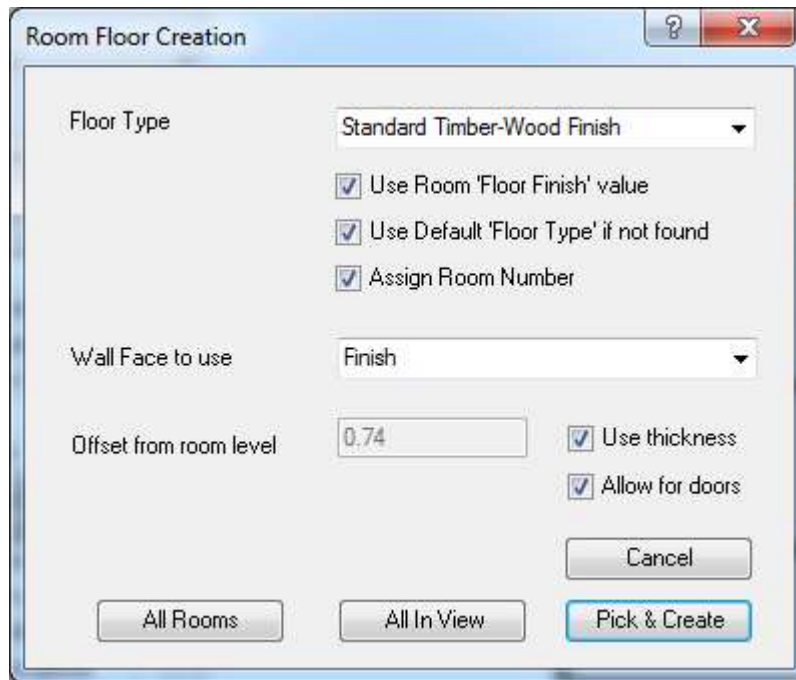
Materials that the routine automatically creates. Colors are assigned only to the Graphics/Shading aspect of the material. Materials are assigned via the Family Type parameter “RoomMassMaterial”

New 2/12/2020 - The routine will also create a shaded 3D view that will be named “Room Masses-Used Parameter”. E.g. Room Masses-Department. The view will also have an applied filter to ensure that only masses of the appropriate name are displayed. This allows for multiple Room Mass / Area Mass studies to be in use. Additional views can be created that highlight masses of a particular parameter value. E.g. Departments.

ROOM FLOORS

Creates floors for placed rooms.

Note: Rooms with “Islands” will have the island created by creating a “Floor Opening”. Therefore editing the floor boundary will not reveal the island. This is a current limitation of the API.

**Floor Type:**

The default floor type to be used when creating the floor

Use Room 'Floor Finish' value

When checked the value of the Room parameter 'Floor Finish' will be checked for a value.

Floor Types in the project will be checked to see if there is a matching Floor Type "Name" or "Type Mark" value.

Use Default 'Floor Type' if not found

If the Room "Floor Finish" is nothing or does not define a Floor Type in the project, then use the default Floor Type e.g. Standard Timber – Wood Finish

Assign Room Number

When checked the value of the Room Number will be assigned to the RoomNumber_ARUtils parameter associated to the Floors category.

Note: RoomNumber_ARUtils will be created if it does not already exist.

Wall Face to Use:

Allows you to select the boundary to be used when creating the floor. Typically this would be "Finish", although "Core Face", Core Center" and wall "Center" are all viable options.

Offset from level:

The amount to offset the created floor from the room level. Typically floors are created below the selected level.

Use thickness:

Use the thickness of the floor as the offset. This ensures a finish floor is set on top of the structural floor.

Allow for Doors:

Will extend floors into door openings. This is set to extend to the wall centre.

Pick and Create Floor:

Select rooms to have floors created.

All Rooms:

Create floors for all Rooms in the project. Note: Existing floors will not be deleted.

All in View:

Create floors for all rooms in current view

AREA MASSES

The Area Masses dialog is used to create masses for defined “Area” objects. This command is very similar to “Room Masses” except that heights are based on a user defined value, or on the level to level distance.

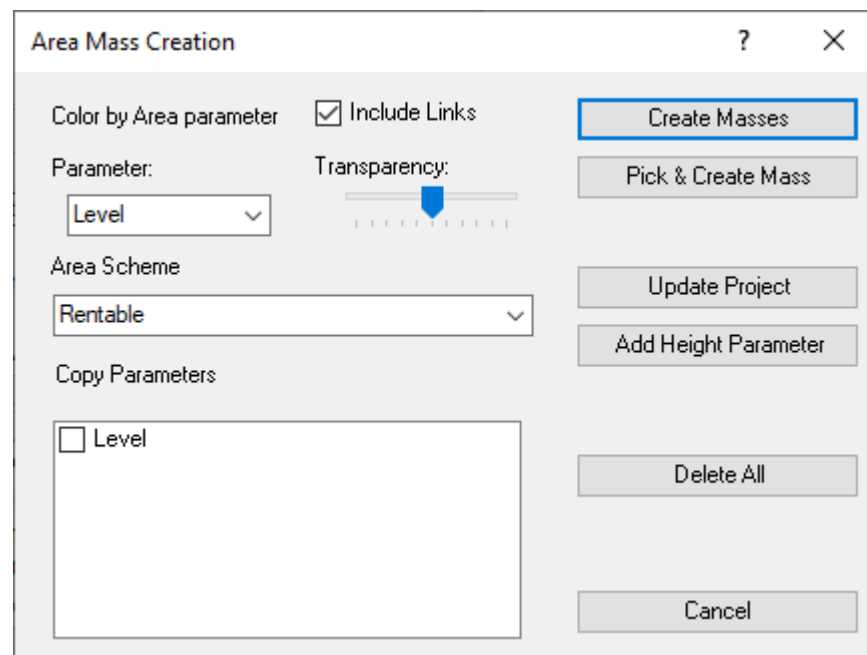
Masses can be created on a particular Area Scheme, e.g., Rentable, or Gross Building.

Note: **New 7/7/2021** – Now supports areas in linked documents

Note: **New 2/12/2020** – Now creates a 3D shaded view with filters applied as well as views that highlight items of a particular parameter value

Note:

This routine will create Mass Families (Generic Model families in 2013). Subcategories will be created in these Categories. Materials will also be created.



The Area Masses dialog

Color by Area Parameter:**Parameter:**

This is the area parameter that will be used to assign colors to the created masses. Colors are created as a base set of 20 colors using the base system colors. These colors are then accessible as materials.

Transparency:

The transparency of the auto generated materials. For more transparency move the slider to the right.

Include Links:

Process linked documents in your project.

Area Scheme:

The Area Scheme to create masses for.

Copy Parameters:

Will copy parameter values from the area elements to the associated mass. This can make it easier to filter area masses.

Create Masses:

Create masses for all of the areas for the specified Area Scheme. Each Area will have a separate mass family created.

You will also be prompted to create an overall shaded view as well as parameter value views to highlight masses of that value.

Pick and Create Mass

Pick an area and create a mass

You will also be prompted to create an overall shaded view as well as parameter value views to highlight masses of that value.

Update project:

All appropriate mass families are deleted from the project and recreated. Only families made using the specified parameter and scheme will be deleted.

Delete all:

Delete all the appropriate mass families. Only families made using the specified parameter and scheme will be deleted.

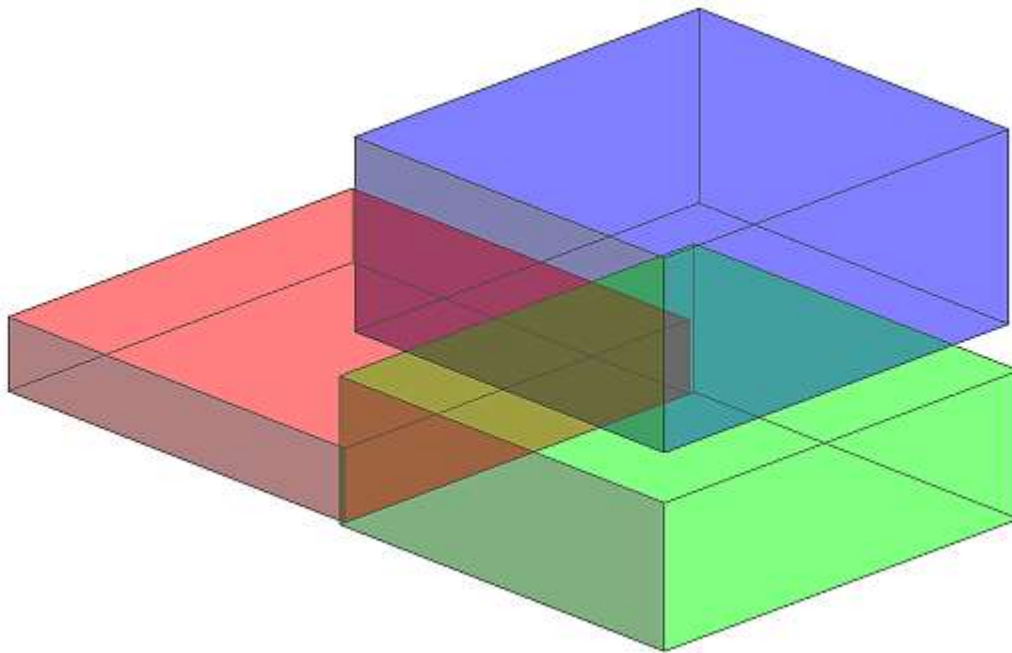
Add Height Parameter:

This will add a parameter to the project category "Areas" which is used to define the height for an Area mass. If this is 0 the height for the mass will be set to the distance of the Areas level to the next level.

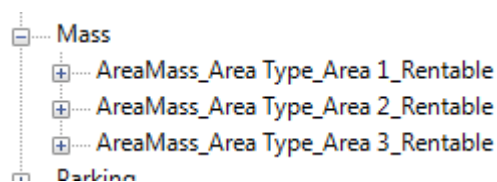
Cancel:

Exit the command

Note: The command relies on a "Mass" family template (or Generic Model template in 2013) in the Revit Family Templates "Conceptual Mass" folder.



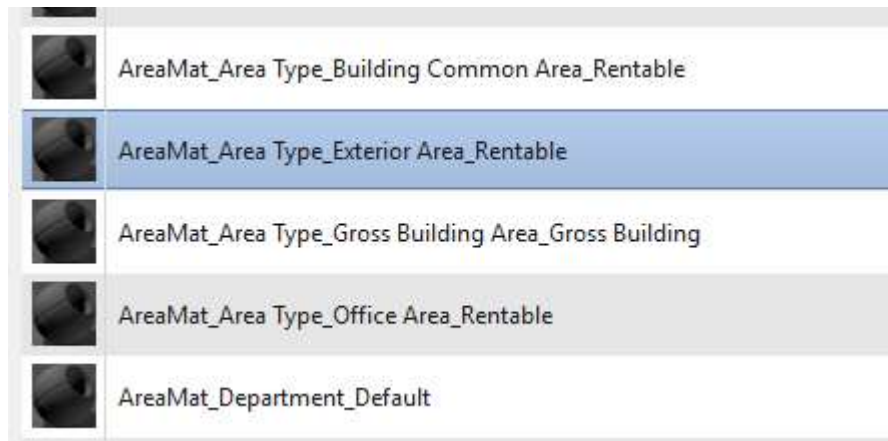
Mass families created for areas based on the “Area Type” value for areas. Use the graphic display option of “Shaded”.



The created families. Note that the names reflect the fact that they are “AreaMasses” based on the “Area Type” value, created for areas 1, 2, and 3, and it relates to the “Rentable” area scheme. In 2013 the families are in the “Generic Models” category.

Visibility	
<input checked="" type="checkbox"/>	Flex Pipes
<input checked="" type="checkbox"/>	Floors
<input checked="" type="checkbox"/>	Furniture
<input checked="" type="checkbox"/>	Furniture Systems
<input checked="" type="checkbox"/>	Generic Models
<input checked="" type="checkbox"/>	AreaMass
<input checked="" type="checkbox"/>	Door Frame
<input checked="" type="checkbox"/>	Hardware
<input checked="" type="checkbox"/>	Hidden Lines
<input checked="" type="checkbox"/>	Ironmongery
<input checked="" type="checkbox"/>	RoomMass
<input checked="" type="checkbox"/>	Signage
<input checked="" type="checkbox"/>	Wheelchair-Radius

Subcategories in use in 2013. In 2014/15 Masses are placed in similar subcategories in the “Mass” category.



Materials automatically created. Colors are assigned only to the Graphics/Shading aspect of the material. Materials are assigned via the Family Type parameter "AreaMassMaterial"

Here we see materials for both Rentable and Gross Building area schemes.

New 12/11/2020 - The routine will also create a shaded 3D view that will be named "Area Masses-Used Parameter". E.g. Area Masses-Department. The view will also have an applied filter to ensure that only masses of the appropriate name are displayed. This allows for multiple Room Mass / Area Mass studies to be in use. Additionally views will be created highlighting masses of the same parameter value.

TAG VIEW

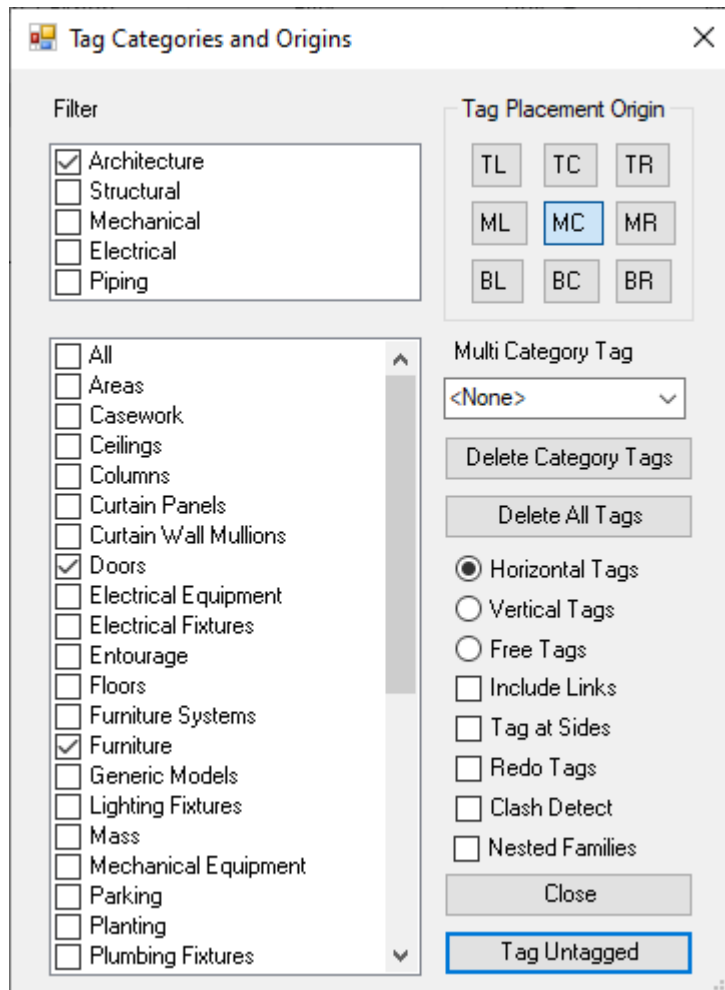
NEW: As of the 25/8/2021 families, walls, floors in linked files can now be tagged. This relates to ARUtils 2018 onwards.

The "Tag View" command allows you to easily tag views for selected categories. The difference between this and standard Revit is that you can:

- Tag multiple categories in a single run
- Use any of 9 origin points for tagging

Note: You can also use this in the "[Room Data and Views](#)" command when creating plans and elevations for rooms.

Note: You must have tags loaded and set for the categories you wish to tag or alternatively use a Multi Category Tag.



The Tag Categories and Origins dialog. Depending on whether the view you wish to tag is a plan or elevation **some options may not be relevant and will not show**.

Note: You can include exclude categories from the list of categories via the “arutilsxxx\data\FamilyCategories.xlsx” file.

Filter:

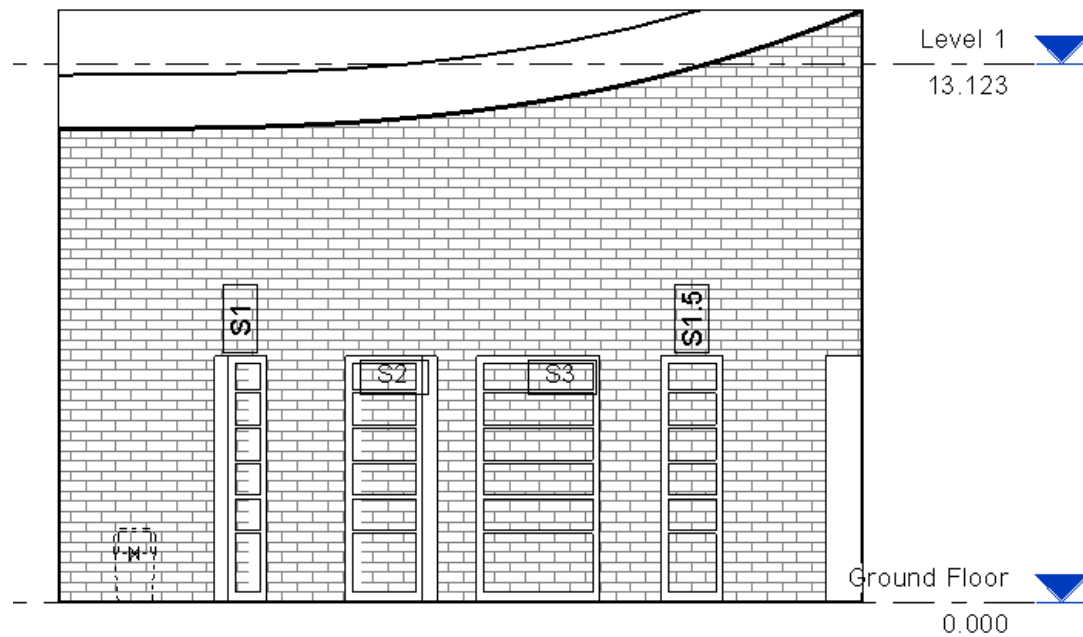
Filter the disciplines you wish to view categories for.

Categories:

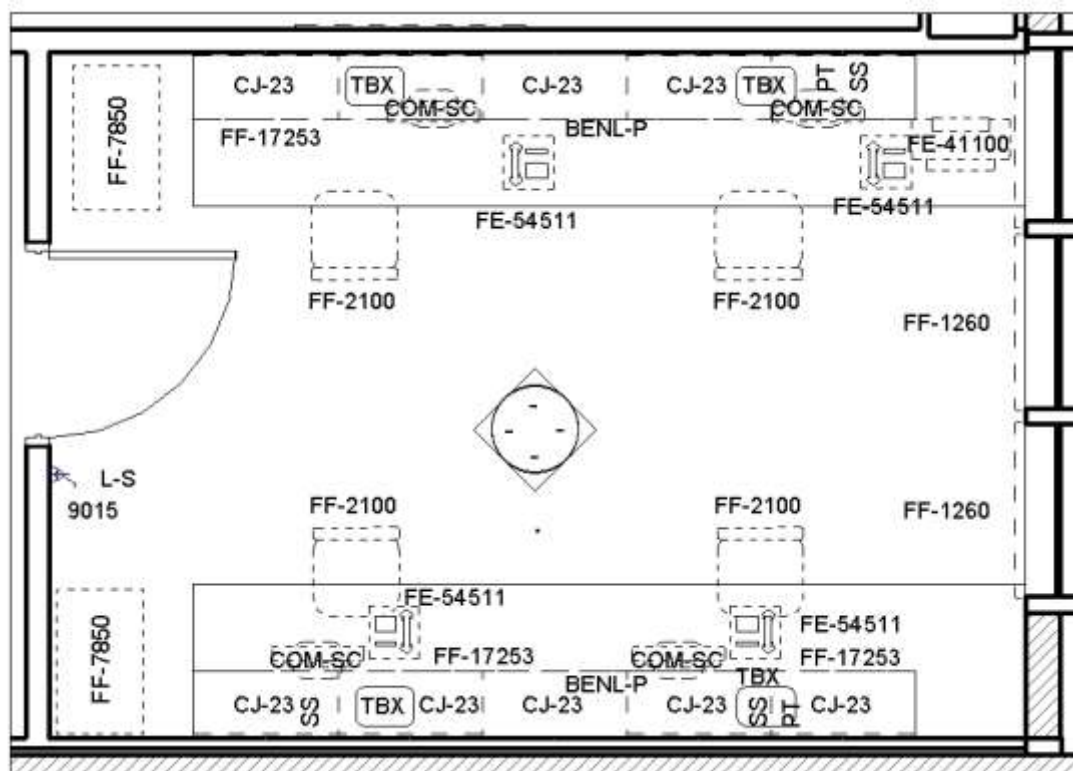
Select the categories you wish to apply tags for. Use “All” if you wish to tag all categories.

Tag Placement Origin:

The tag placement origin relates to how the tag is placed on the item being tagged. A “TR” (top right) origin will place the tag inside the top right corner of the item being tagged.



Sample tags placed in the top right corner. Note that items in section (shown on the right and left) are not tagged. Where a tag is wider than the item being tagged it is rotated to the vertical (provided the tag allows this).



Sample tagging of plan after some clean-up. Where there are small wall mounted items close to the crop boundary of the view, tags are rotated square to the boundary and moved towards the view centre, e.g., PT, SS, FF-1260

Multi Category Tag

By default tagging is done by using category specific tags. Use this option to select a multi category tag. Only the loaded multi category tags will be shown.

Delete Category Tags:

Delete all tags only for items of the selected categories.

Delete all tags:

Delete all the tags used in the current view regardless of the associated category of item being tagged.

Tag Orientation: Horizontal, Vertical, Free

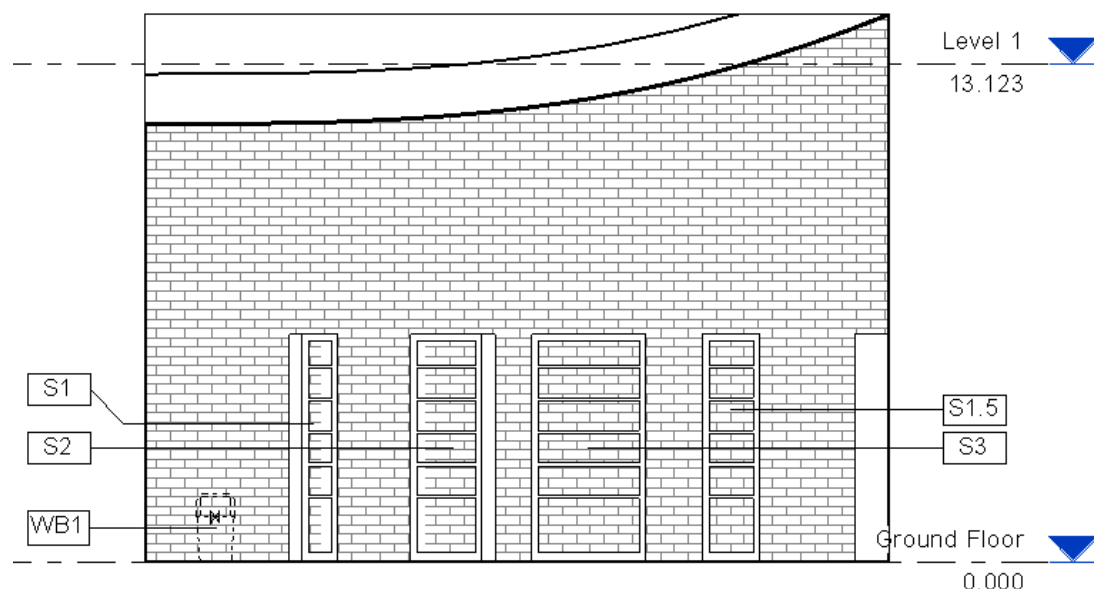
Select the orientation you would like your tags to be placed. Using the Free Tag option results in tags being oriented to best fit the view and the item being tagged. The other two options force all tags to use the orientation specified.

Include Links

Allows you to also tag linked Room. Tagging of other elements in linked documents is now available and is included in ARUtils 2018 onwards.

Tag at Sides:

By default tags are placed within the item, or vertically above the item being tagged. When checked all tags are placed at the sides of the view with a leader back to the item.



Tagging at sides after some manual correction

Redo Tags:

When unchecked items that have already been tagged will not be tagged again. When checked existing tags will be deleted and a new tag placed according to the current settings.

Clash Detect:

When checked tags will be checked for clashes against other tags and other families. THIS CAN ADD A SIGNIFICANT AMOUNT OF TIME TO THE PROCESS. The routine tries moving the tag around in a North, South, etc. process. Sometimes the process will simply fail.

Where the tag is a wall based tag the tag is progressively moved along the wall. Note that this only does clash detection against other tags. Tagging of walls is not done in elevation views.

Nested Families (New 24/2/2016)

By default only a top family (super family) will be tagged. E.g., if a family consists of shared chairs and a table, only the top family would be tagged rather than all the shared families

inside the family. Ticking this option will tag all the nested families rather than the super family.

Close:

Close the dialog

Tag Untagged:

Tags all items of the selected categories.

Note:

When a tag is placed the size of the tag is determined and the tag placed within the boundary of the related family.

Trouble Shooting Tagging of Families:

There are a few things to note in regards the tagging routine:

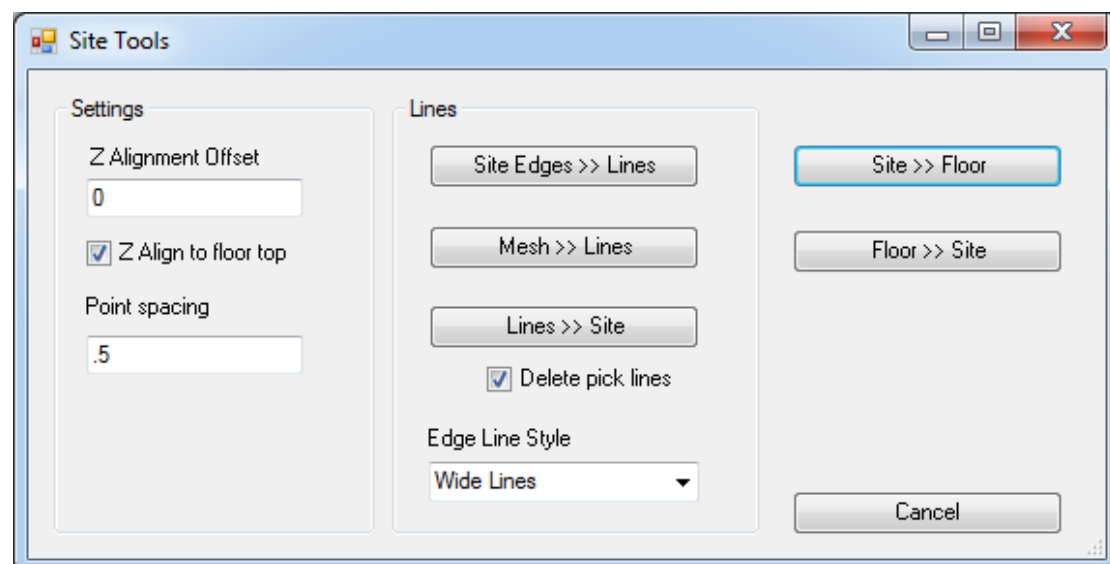
- Families are assumed to be created with the front of the item facing south i.e., a set of drawers would have the opening draws on the south side or bottom side when the family is viewed in the family editor. Failure to do this can result in items being tagged / not tagged or tags placed strangely.
- Families with hidden parts will have tag locations determined as if all the parts are visible. This is a limitation within the API / Revit.

SITE TOOLS

The Site Tools assist in creating roads and paths that closely align to topography. The command relies on “Floor” elements being used for the road / path elements.

Either the floor elements can be dropped to the topography or the topography aligned to the floor. You can also have topography edges converted to model lines to provide clickable items for editing items such as walls.

Note: If trying to get a floor closely aligned to a site please refer to the “Floor to Site” command.



Z Alignment Offset

Typically you will be aligning floors to site topography or site topography to floors. This offset is the amount that a floor (or model line) will be above (or below when a negative value is used) the topography.

Z Align to floor top

By default this should be checked. This ensures alignment is to the floor top, rather than the underside.

Point Spacing

When aligning a floor to a site or a site to a floor you will want to use more closely spaced points to ensure a good fit of one to the other. Specify the distance in your project units. Values of about 3 to 12 feet or 1 to 4 metres seem appropriate, although flatter sights may allow you to use larger values.

Site Edges >> Lines

Select a piece of topography to have all edges outlined with model lines. The alignment offset will be used however the minimum point distance is not relevant or useful.

Mesh >> Lines

Select a piece of topography to have its underlying mesh elements outlined in model lines.

Lines >> Site

Drape model lines onto your site. Lines will be created using the “Edge Line Style” and will be offset based on the “Z Alignment Offset”. Point spacing will also affect the length of the created lines segments. You can select multiple lines.

Delete Pick Lines

When ticked this will delete lines once they have been draped

Edge Line Style

The line style to be used when creating model line elements.

Site >> Floor

The site will have points added and adjusted to match it to the selected floor. A positive “Alignment Offset” value ensures that the site will remain below the floor surface.

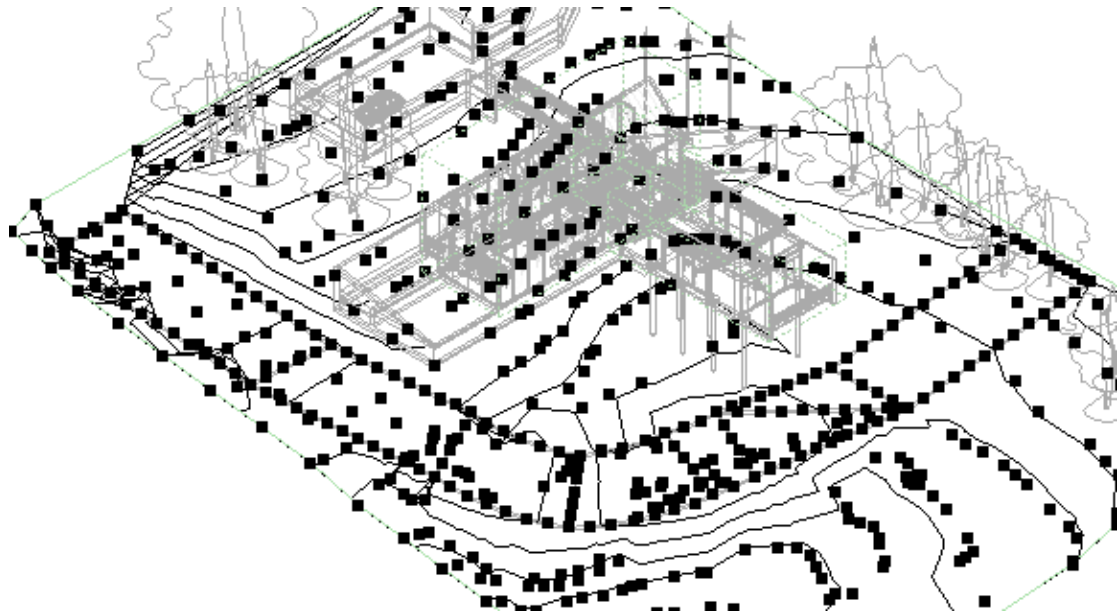
Floor >> Site

Adjust a floor to follow the shape of a topography item. If an offset is specified the floor will be above the site surface. Edges points will be added based on the “Min Point Distance”.

This command follows up the alignment of the slab to the site surface by finally adjusting the site to correctly align to the adjusted floor. This removes the need for sub points.



A fairly complex floor where the site has been forced to follow the floor



Display of the points that have been added to the site

NUMBERS

This is a set of utilities for renumbering items such as [rooms](#), [door](#), [windows](#), [views](#), and [anything else](#). There is also a [batch room](#) renumber routine.

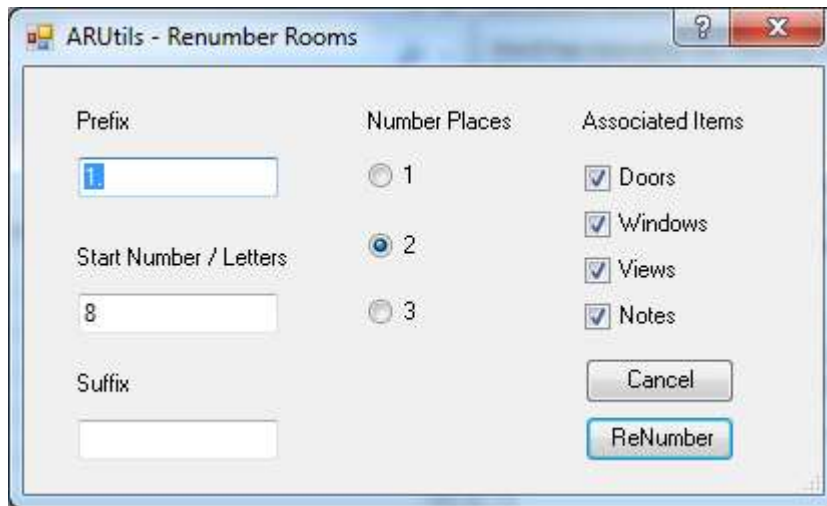
[Renumber Rooms](#)
[Batch Renumber Rooms](#)
[Rename / Number Elevations](#)
[Renumber Doors](#)
[Renumber Windows](#)
[Renumber anything else](#)
[Batch Renumber Anything](#)
[Room Sizes](#)
[Room Heights](#)
[Dimension Across Walls](#)
[Dimension Along Walls](#)
[Combine Dimensions](#)
[Join Dimensions](#)
[Dimension Text Offset](#)
[Dimension Settings](#)



RENUMBER ROOMS

This utility will enable you to pick rooms and sequentially re number them.

You have the option of adding a prefix, suffix, padding the number, and setting the start number.



Once you click on **"Renumber"** simply pick the rooms in the order you want them renumbered. Press "Escape" to end the command.

Note: If you get a warning at the end re "Duplicate Marks", simply click "OK". If you click "Cancel" all your changes will be lost.

Prefix

A string to be appended before each sequential number

Start Number / Letters

The number / letter to start numbering rooms with. Typing in a letter will alter the "Number Places" to sequential lettering options.

Number Places

Specify the padding of numbers. E.g. 2 would result in a "1" appearing as "01"

Associated Items:

Doors / Windows

Check doors and windows associated to a room and if the Mark for that item contains the old room number update it to the new room number. E.g. A door with mark "DG.01a" belonging to room "G.01", would have the G.01 changed to the new room number.

Views

Any views that contain the old **Room Number** as part of their **Name** or **Title on a sheet**, will have the value changed to the new room number.

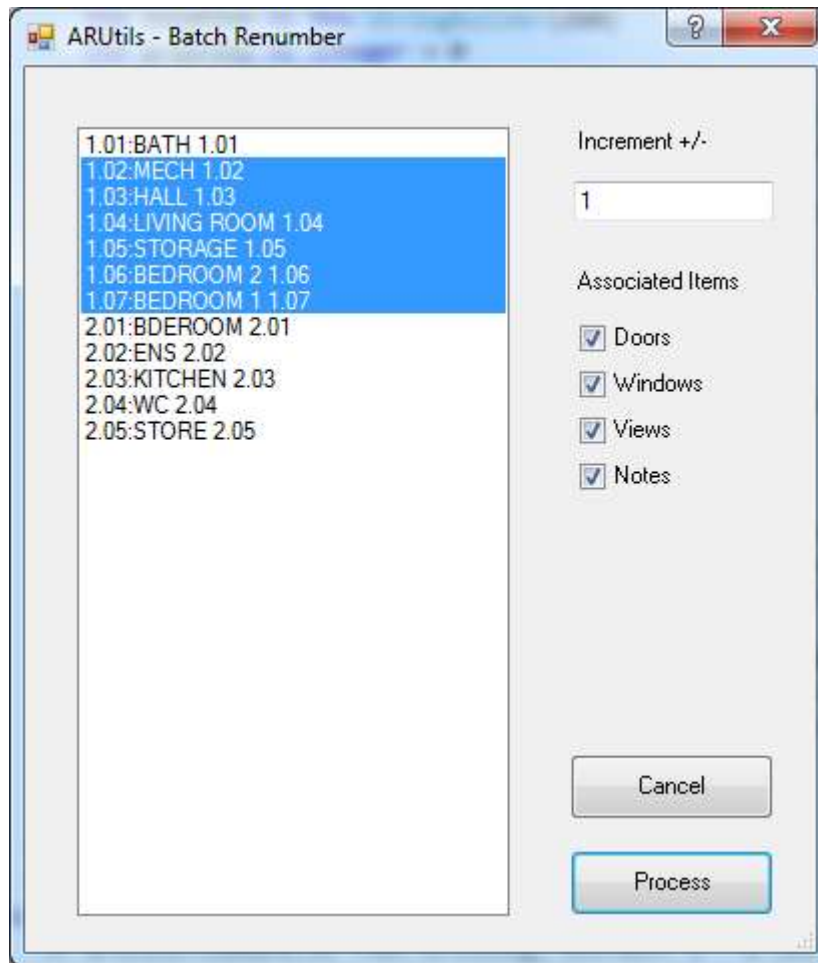
Notes

Any text items that contain the old **Room Number** as part of their **text**, will have the value changed to the new room number.

Note: There is a requirement that the new number be at least 4 characters long. This is to avoid issues when a room is renumbered from "1" to "G.01" and finding all views or notes with "1" as part of their name being affected.

BATCH RENUMBER ROOMS

This enables you to increment / decrement a large number of selected rooms. This is useful if you need to add a new room into a series, or remove a room from a series.



You must select the rooms you want incremented. The above would increment rooms 1.02 to 1.07 by 1.

Note: Room numbers must follow the format 'Prefix & "." & number'. E.g. 1.02. The "." is a critical separator. Alternatively use the 1,2,3,4 format with care and without Doors, Windows, Views or Notes checked.

Associated Items:

Doors / Windows

Check doors and windows associated to a room and if the Mark for that item contains the old room number, update it to the new room number. E.g. A door with mark "DG.01a" belonging to room "G.01", would have the G.01 changed to the new room number.

Views

Any views that contain the old **Room Number** as part of their **Name** or **Title on a sheet**, will have the value changed to the new room number.

Notes

Any text items that contain the old **Room Number** as part of their **text**, will have the value changed to the new room number.

Note: There is a requirement that the new number be at least 4 characters long. This is to avoid issues when a room is renumbered from "1" to "G.01" and finding all views or notes with "1" as part of their name being affected.

RENUMBER ELEVATIONS

This command is designed to rename room elevations to include the room number as part of the elevation name e.g. G.01 – Elevation 1.

Prefix	Room No	Split	Elev No.	Suffix
	G.01	- Elevation	Numeric	

Sample: G.01 - Elevation 1

Buttons: Cancel, Renumber Elevations

The dialog allows you to build a default template for naming elevations using the room number as a point of reference.

You can drag columns to create exactly the naming sequence you want. E.g. you could drag the room number column to appear before or after the sequential elevation number / letter.

Set the "Elevation No." pull down to the type of numbering you want i.e. Numeric, AlphaUpper, AlphaLower, or None. You can then set the prefix and split fields to help generate the sort of Room Number based name that you desire. A sample will appear at the bottom of the dialog.

Renumber Elevations

Having started the "Renumber Elevations" command, simply pick the room and then the elevation marker for each view. When all views for a room have been renamed, press **escape** to select the next room. Name will follow the convention you set using the dialog. The default format is *Room Number-Elevation X*

```

..... G.01-Elevation 1
..... G.01-Elevation 2
..... G.01-Elevation 3
..... G.01-Elevation 4
..... G.02-Elevation 1
..... G.02-Elevation 2

```

Typical room elevation naming.

RENUMBER DOORS

Prefix	Room No	Split	Door No.	Suffix
D.	11	-	Numeric	

Sample: D.11-1

Filter

.....

Cancel

Renumber Doors

Renumber All Doors

Set the various fields to be used for renumbering doors using the room number as a point of reference.

Note: You can drag columns in the data grid to alter the way Door Numbers are created.

Renumber Doors

Simply pick a room reference and then select the doors belonging to that room. Press escape to select another room and its doors.

The default numbering option is D(room number).1, 2, 3, etc. E.g. DG.01.1, but you can also use upper or lower case letters in place of numbers.

Renumber All Doors

Automatically assigns all doors to their associated rooms. You will need to have rooms correctly numbered to ensure door numbers are correct. Where multiple doors are in a room they will be numbered 1, 2, 3, etc. on a random basis, i.e., it does not work clockwise, or anti-clockwise.

Filter

This applies to the "Renumber All Doors" Command and allows you to establish a filter to exclude/include doors from being processed. Refer to the ["Conditional Filter Format"](#) for more information.

RENUMBER WINDOWS

Prefix	Room No	Split	Window No.	Suffix
W	12	.	Numeric	

Sample: W12.1

Filter

.....

Cancel

Renumber Windows

Renumber All Doors

Set the various fields to be used for renumbering windows using the room number as a point of reference.

Note: You can drag columns in the data grid to alter the way Door Numbers are created.

Renumber Windows

Simply pick the room, then pick the Windows. Windows will be numbered according to what you have defined. The default is W(room number).1, 2, 3, etc. E.g. WG.01.1.

Pressing **escape** when picking windows allows you to pick another room. Pressing **escape** again takes you out of the command.

RENUMBER EVERYTHING ELSE

Simply set the prefix, suffix, start number or letter, and padding or letter incrementing method. You can then pick items one by one to incrementally number/letter items.

Note: You can only renumber/reletter one category of items at a time. E.g. If your first item is a furniture item, it is expected that you keep picking furniture items. To pick other items you will need to exit the command and restart it.

ARUtils - Renumber Anything

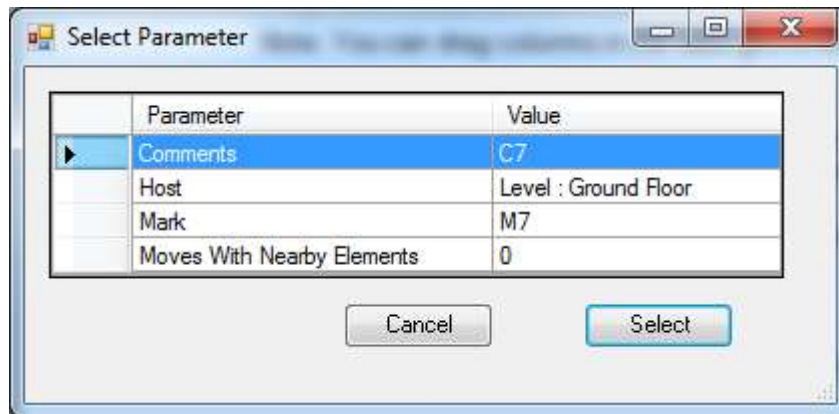
Prefix	Number Places	Number parameter
d	<input checked="" type="radio"/> 1	Mark
	<input type="radio"/> 2	Set Parameter
Start Number / Letters	<input type="radio"/> 3	By Points
40		By Line
Suffix		Cancel
	<input type="checkbox"/> Restrict Selection	ReNumber

ARUtils - Renumber Anything

Prefix	Letter Sequence	Number parameter
CP	<input type="radio"/> Z to AA,AB,AC	Mark
	<input checked="" type="radio"/> Z to Aa,Ab,Ac	Set Parameter
Start Number / Letters	<input type="radio"/> Z to AA,BB,CC	By Points
A		Cancel
Suffix	<input type="checkbox"/> Restrict Selection	ReNumber

By default the "Mark" parameter is updated with the number value, however you can select an alternative parameter to be updated to the number value.

By pressing "Set Parameter" you will be asked to select an item and then pick from a list of the available parameters for that item. This will also set the filter to that category of items.



The parameter selection dialog

The number parameter will be displayed in the dialog.

Restrict Selection:

By enabling this option once an item has been selected, following selections will be restricted to the same "Type Name".

By Points

You will be prompted to select the item type you want renumbered e.g. A parking bay. This follows with picking two points that an imaginary line crosses the items you want renumbered. Items will be renumbered from the first point to the last point.

You can then opt to keep clicking points that then keeps renumbering based on a line from the last second point to the new point.

Pressing "Escape" then lets you pick 2 new points. Press "Escape" again and you will exit back to the dialog.

By Line

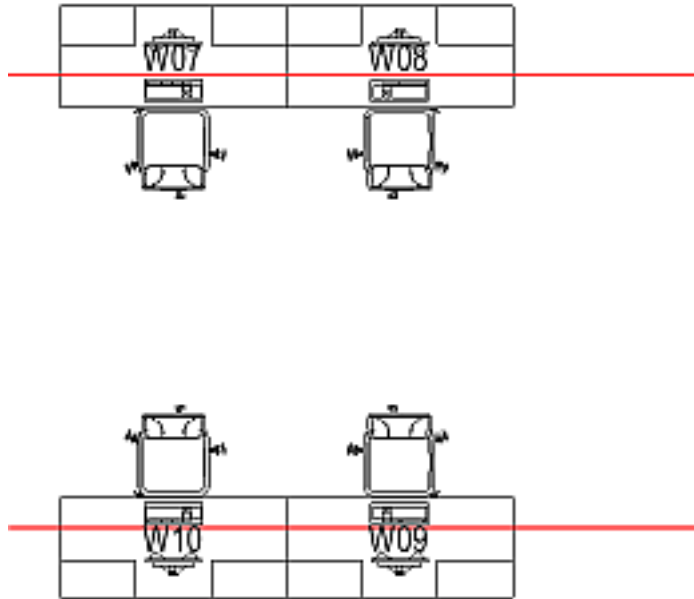
Preparation: You first need to create a series of detail lines that pass over all the objects you want renumbered. Do this using Detail Lines.

You will be prompted to select the first line of the line series. Pick the first item nearest its open end or start point. Following connected lines will be automatically acquired.

You will then need to select the type of item to be renumbered. All items of that category will be considered unless you use the "Restrict Selection" option.

Items will be renumbered from the first point to the last point.

You can add / remove lines using standard Revit and then have the renumber track the altered line.



Renumber

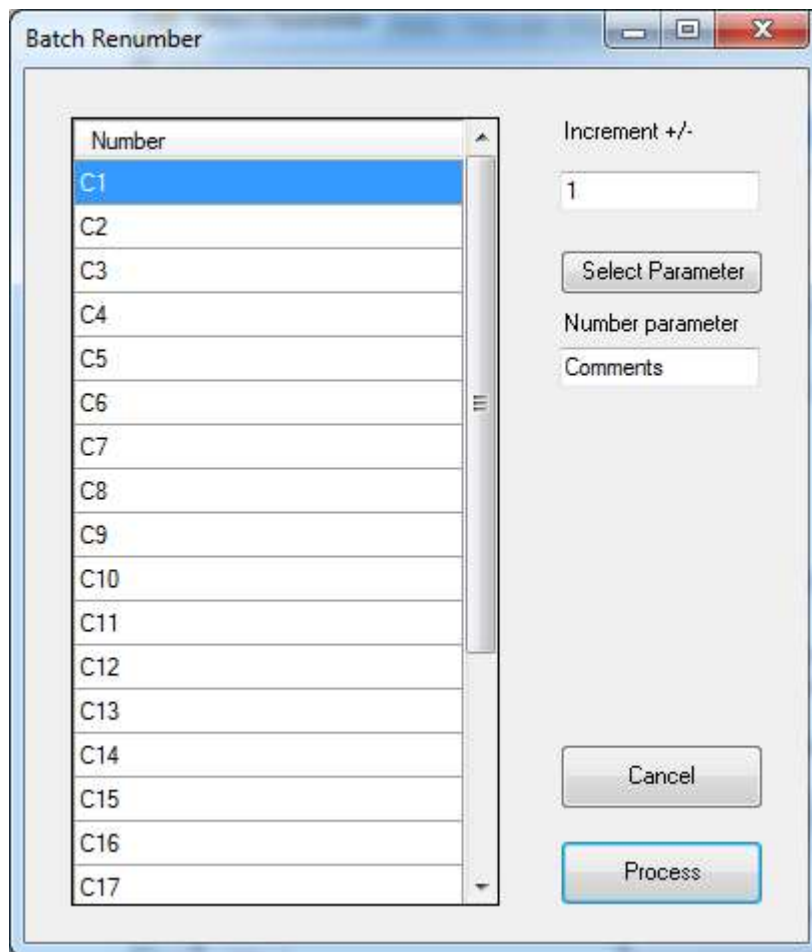
Use this option to renumber items by selecting them one by one. The first item you pick ensures that following items are of the same category, or even the same type name if “Restrict Selection” is enabled.

BATCH RENUMBER ANYTHING

The “Batch renumber anything” routine allows you to select an item of a particular category, e.g. Parking”, and increment / decrement the “Mark” (or other selected parameter) value.

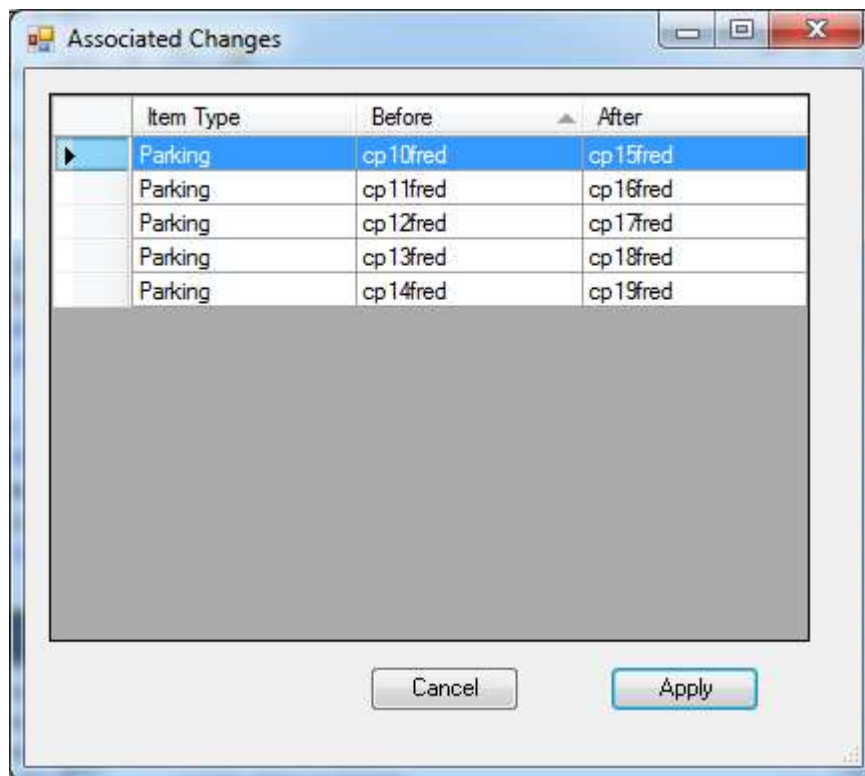
Note: If the parameter is an alphabet character these will also be incremented e.g., A could go to B when batch updating grid items.

Having selected an item you will be presented with the “Renumber” dialog.



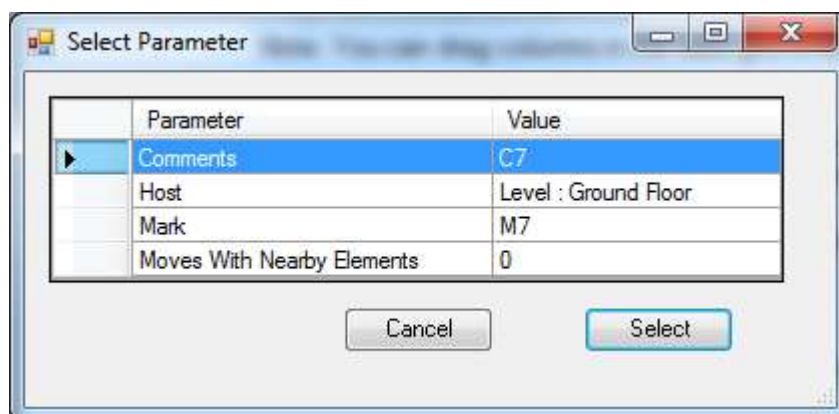
Select the items to be renumbered, set the Increment value, and press “process”.

The intended update will be shown which you can accept or reject.



Note: By default the "Mark" parameter is updated with the number value, however you can select an alternative parameter to be updated to the number value.

Pressing "Set Parameter" will present you with a list of the available parameters for the item you first selected.



The parameter selection dialog

The number parameter will be displayed in the dialog.

ROOM SIZES

The "room Sizes" command assigns two parameters to rooms which record the overall **width and length**. These can then be used to Tag or schedule rooms. This command will calculate the values for all rooms in your project unless the room has been set to be ignored. This is useful where rooms are calculated incorrectly.

**Process Rooms**

This will process all the rooms in your project. A length and a width parameter will be assigned.

Process Room

Pick a single room to have length and width parameters assigned

Pick Length and Width

Pick points to assign the length and width parameters

Ignore Room

Exclude a room from future automatic processing. Using this option you can set the Length and width parameters manually using the pick length and width option, or simply changing the parameters via the properties dialogue when the room is selected.

Include Room

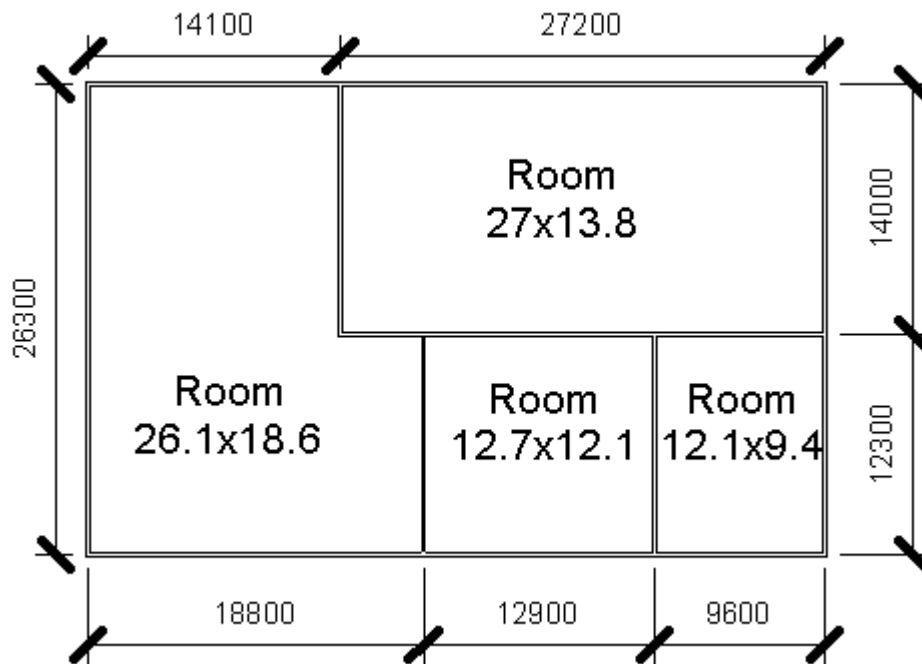
Remove the "Ignore Room" setting for the room

Room Info

Report on all room parameters

Done

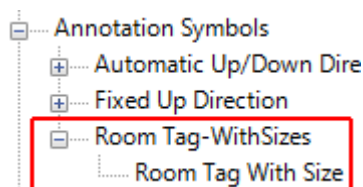
Exit the command



Room sizes are given to the walls finish face.

Other	
RoomWidth_ARUtils	18598.9
RoomLength_ARUtils	26100.0

The shared parameters assigned to rooms used to store the marketing length and width values.



The **Room Tag-WithSizes** in the project explorer which is loaded from the ARUtilsXXXX\amilies folder.

Note: The tag family "**Room Tag-WithSizes**" is setup to display units of metres and two decimal places. This can be modified in the tag family.

ROOM HEIGHTS

The "Room Heights" command investigates rooms in regards their vertical placement within a project.



[Show Me How](#)

The issues it addresses are:

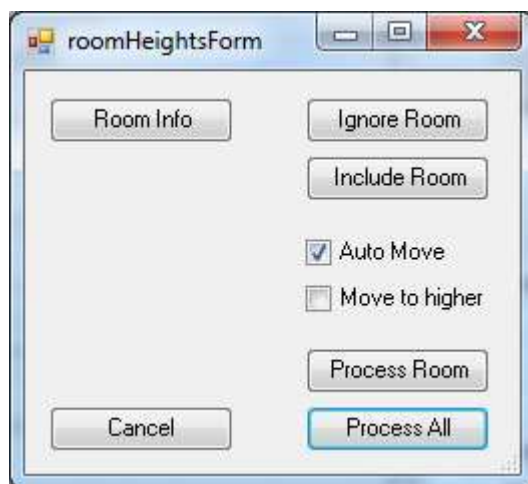
- Correcting the extent of the room reference to the top of the calculated volume, i.e., the extent of the room box in the vertical direction.
- Setting a parameter to equal the modelled floor to ceiling height of the room. Raised floors will be taken into account.
- Moving rooms between levels. Where you have multiple close levels, e.g., a sunken lounge, a house stepping down a site, rooms may be placed using the wrong plan and therefore have an incorrect level association.

More detail: Typically Revit simply sets rooms to some unconnected height, e.g., 4000. This command will align the top of the room reference to the "as modelled" room top. Additionally a parameter, "RoomHeight_ARUtils", is set to the true distance between floor and ceiling. Room bases will also be extended below the associated level if required.

Note: You must have "Area and Volume Calculations" set to use "Areas and Volumes". The command checks for this and will prompt you to enable Volume calculations.

Note: Where the RoomHeight_ARUtils and DisableHeightUpdate_ARUtils parameters do not exist in your project, you will be prompted to add the parameters.

Note: Where the room bounding box does not have a top, the height will be determined by floors and ceilings directly above the room location point. Where this is not the case the room bounding box will be left as is.

**Room Info**

Report on room parameters

Ignore Room

Exclude a room from future automatic processing. Using this option you can set the Height parameter manually via the properties dialogue when the room is selected.

Include Room

Remove the "Ignore Room" setting for the room

Auto Move

Where a room is better suited to being placed on a different level, enabling this option will automatically place the room on the more appropriate level.

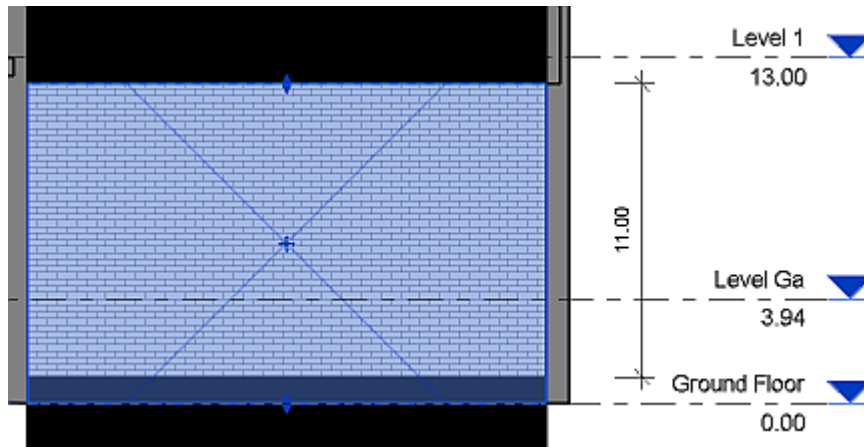
When this is not enabled you will be asked to confirm the shift.

Move to Higher

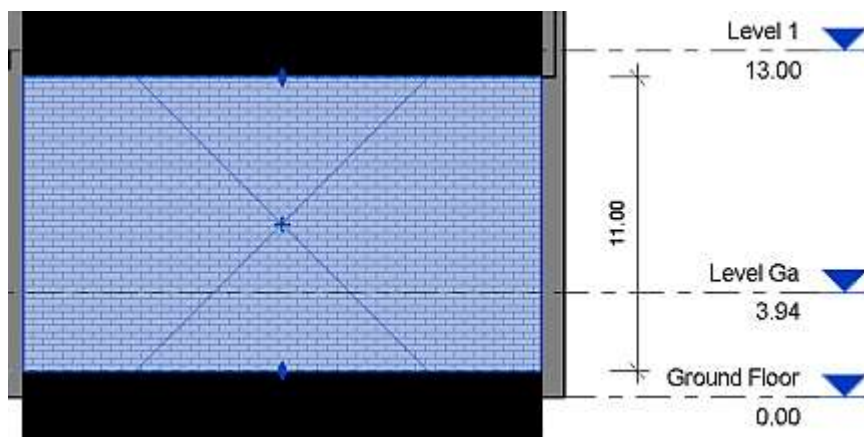
With this option unchecked, rooms that do not have a floor at the rooms associated level are relocated/associated to the closest level. This level could be above or below the placement level for the room. Rooms placed using an incorrect plan can result in a room's base being within a floor element and will cause inconsistencies in your project.

Enabling this option will move a room to the best matching level that is above the level used for the initial placement of the room. This allows the Base Offset to be set to bring the room down to that floor surface. Note that it is not possible to use positive base offsets hence the need to relocate rooms to the level above.

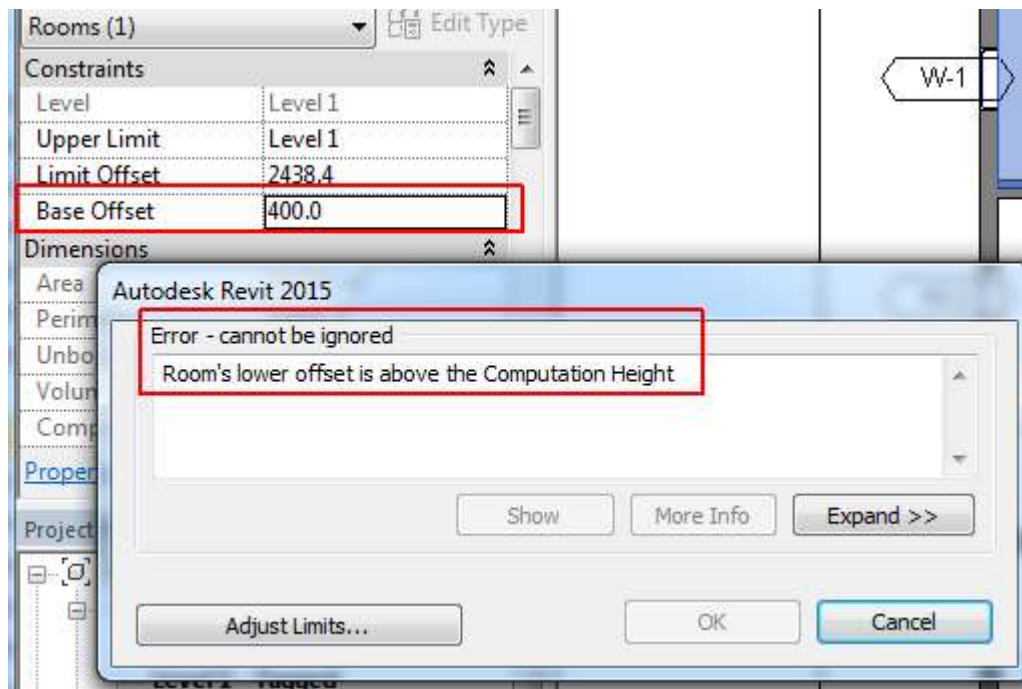
Note: Base Levels for rooms explanation



Room Extent defined with "Move to Higher" UNCHECKED. Room is associated to "Ground Floor"



Room Extent defined with "Move to Higher" CHECKED. Room is associated to "Level GA". Base offset is set to -3.



Base offset can never be a positive value

Process Room

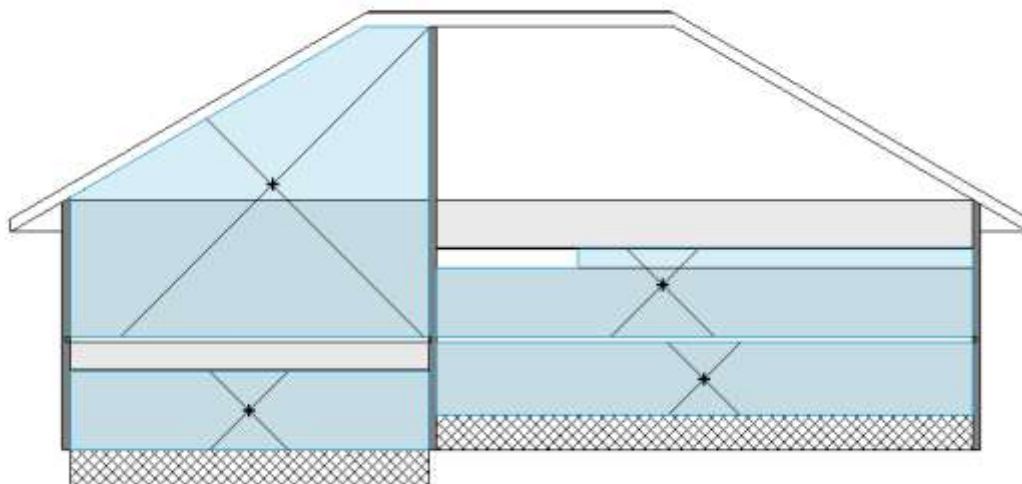
Pick a single room to have the height parameter assigned

Process All

This will process all the rooms in your project. A height parameter will be assigned the actual room height.

Cancel

Exit the command



Rooms in Section. Note the upper left room extends all the way to the underside of the roofs ridge. The bottom right room extends to the underside of the slab above and also has a raised floor. The top right room has a bulkhead which has also been correctly addressed.

Note: Room bases will always extend to the level where they were created. Always make sure to use the correct plan when placing rooms.

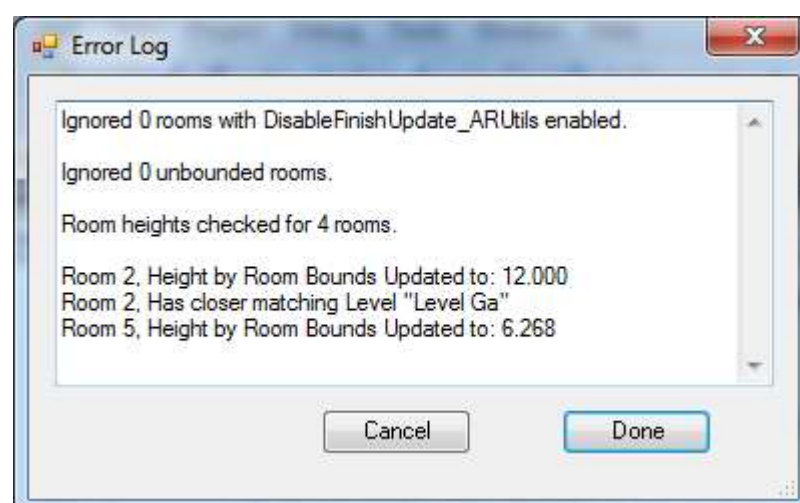
Rooms (1) Edit Type

Constraints	
Level	Level 1
Upper Limit	Level 1
Limit Offset	10916.62
Base Offset	0.00
Dimensions	
Area	265.498 m ²
Perimeter	67390.00
Unbounded Height	10916.62
Volume	1865.656 m ³
Computation Height	0.00
Identity Data	
Phasing	
Phase	New Construction
Other	
RoomHeight_ARUtils	10916.62
DisableHeightUpdate_AR...	<input checked="" type="checkbox"/>

Room parameters. This now shows the "Limit Offset" and "RoomHeight_ARUtils" match. This is not always the case. If a floor sits above the rooms associated level, the ARUtils height will be different.

Room Schedule									
Name	Number	Level	Area	Volume	Base Offset	Limit Offset	Unbounded	Upper Limit	RoomHeight_
Room	1	Ground Floor	265 m ²	728.32 m ³	0.00	2743.20	2743.20	Ground Fl	2743.20
Room	2	Ground Floor	397 m ²	1006.03 m ³	0.00	3752.40	3752.40	Ground Fl	2533.20
Room	4	Level 1	265 m ²	1865.66 m ³	0.00	10916.62	10916.62	Level 1	10916.62
Room	5	Level 1	397 m ²	1100.00 m ³	0.00	3048.00	3048.00	Level 1	3048.00

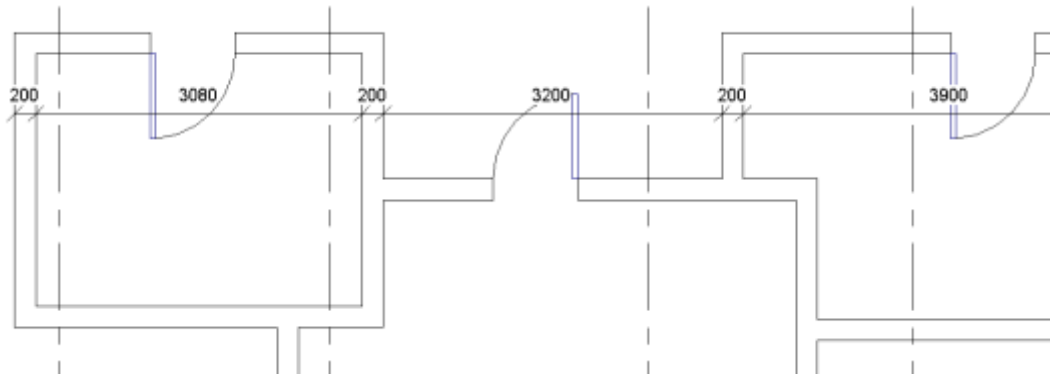
Room Schedule. Due to the raised floor in "Room 2" the "Limit Offset" and "RoomHeight_ARUtils" values are different.



Report showing processing result. Note that Room 2 has a closer matching level.

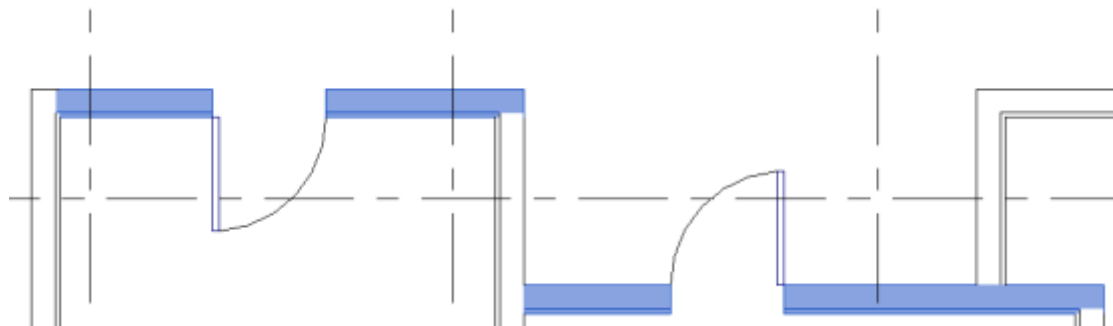
DIMENSION ACROSS WALLS

Allows you to create dimensions by picking two points. All walls that are crossed by the line between the two points will be dimensioned.

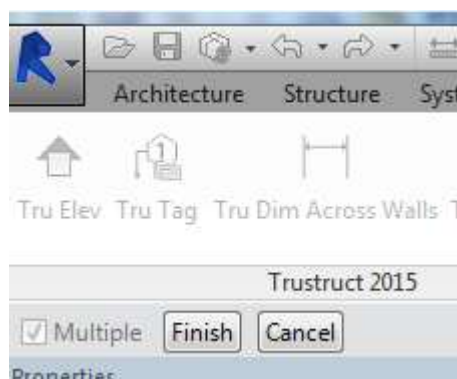


DIMENSION ALONG WALLS

Allows you to create dimensions by selecting one or more walls for dimensioning

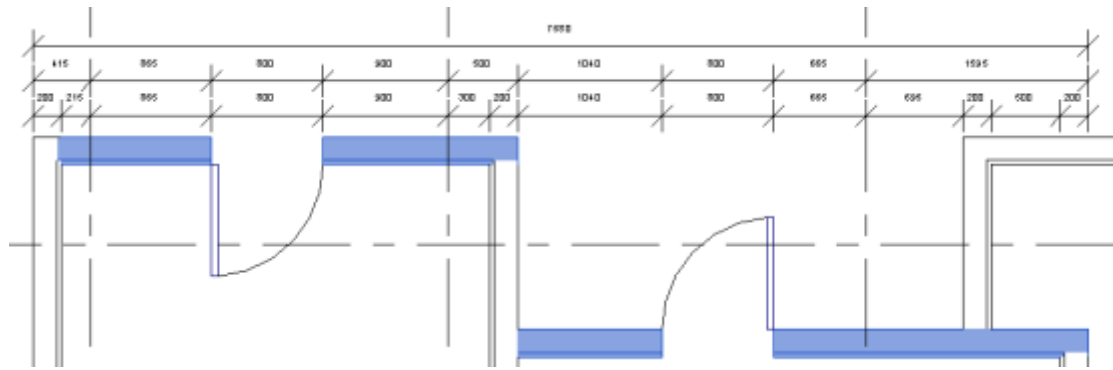


A number of walls selected for dimensioning



You must press the “Finish” button once you have selected all the required walls. You then need to select the location to place the dimension.

Note: Dimensions will always stack in the direction of internal to external. Therefore you should always pick a point that is external to the walls.



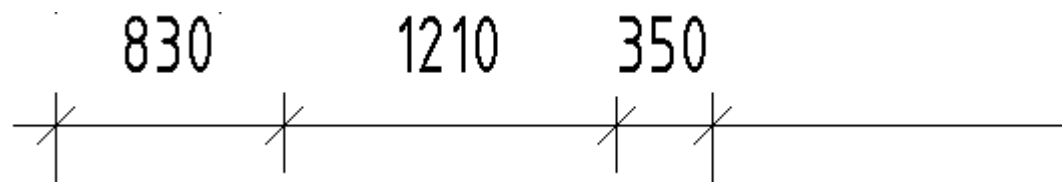
The finished dimensions

COMBINE DIMENSIONS

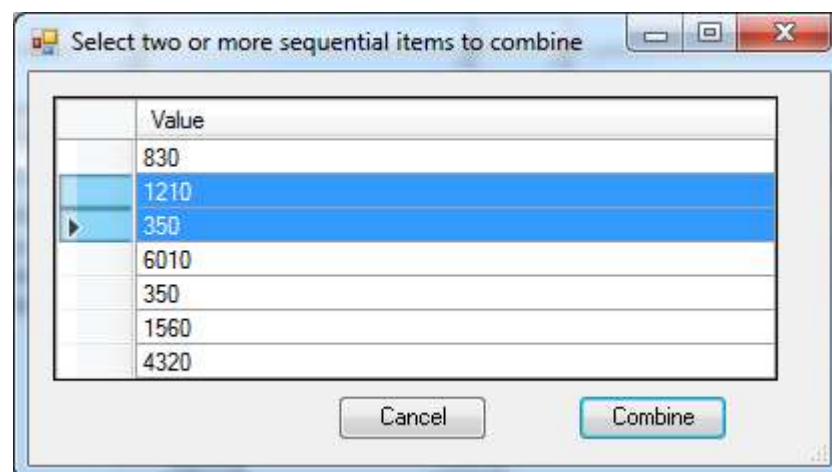
Combine dimensions within a string of dimensions.

Note: This can be achieved via the Revit UI by selecting the dimension and then “Edit Witness Line”. This command slightly simplifies that process.

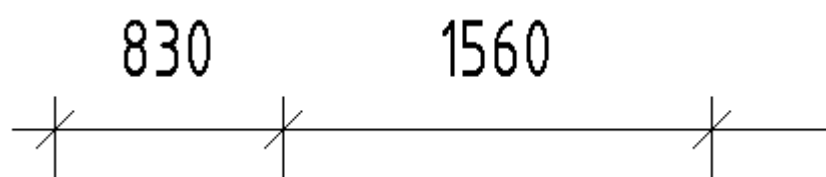
After selecting a multi dimension (i.e., a dimension with a least two dimensions in the sequence) you will be presented with a list of the dimension values. You can select two or more of these to have intermediate references removed.



Before merging



Select 1210 and 350 to combine



Result of combining the dimensions

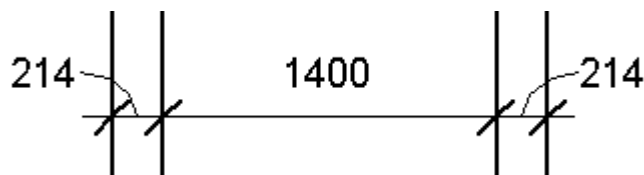
JOIN DIMENSIONS

Allows you to select two dimensions and have them joined into a single item. All items referenced by the two dimensions will be referenced in the new dimension.

DIMENSION TEXT OFFSET

Since 2016

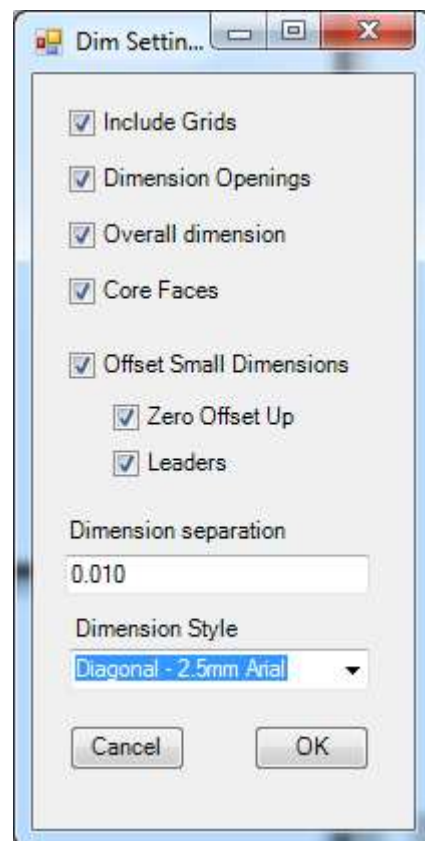
Automatically offsets small dimension text. Uses the settings in the [Dimension Settings](#).



Small dimensions moved left and right. Zero offset up enabled.

DIMENSION SETTINGS

Allows you to specify a number of settings related to dimensions.



Include Grids

When checked any grids that are crossed by a dimension will also be dimensioned.

Dimension Openings

This affects the “Dimension Picked Walls” command. When checked, an additional line of dimensions will added to dimension openings. Grids will also be included if the “Include Grids” option is also ticked.

Core Faces

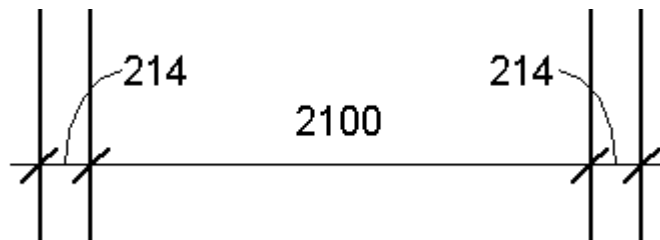
Dimension to the faces of the Core of the wall.

Overall Dimension

This affects the “Dimension Picked Walls” command. When checked an overall dimension will be created.

Offset Small Dimensions - Since 2016

Offset small dimensions left / right and up when they do not readily fit between the witness lines.

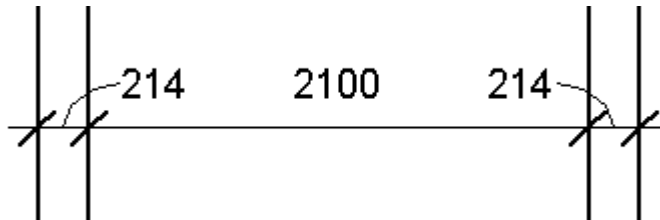


The two 214 values do not fit. Dimensions are shifted up as well as left and right. Typically dimensions are shifted up and right, however the last dimension will be shifted left and up to remain within the extent of the dimension

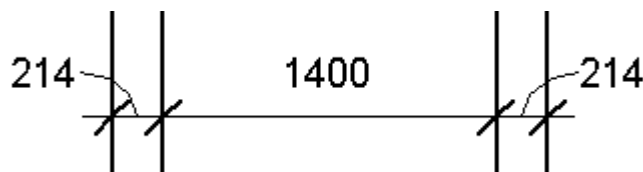
Zero Offset Up - Since 2016

Affects the “Offset Small Dimensions” option. By default dimensions will be offset left / right and also up i.e., away from the dimension line. When Zero Offset Up is enabled dimensions are only shifted left and right.

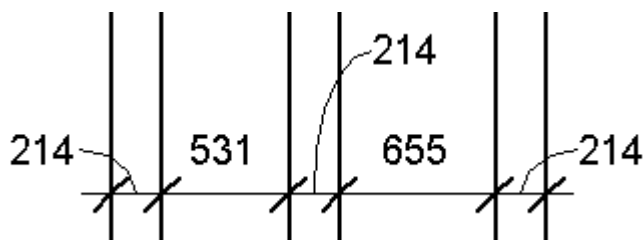
Note: Where multiple sequential dimensions do not fit, the “Up” move will happen to ensure the best outcome.



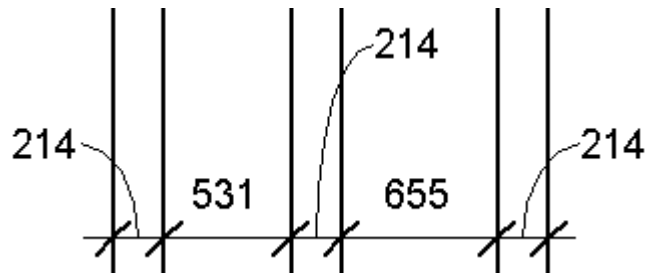
Zero offset up enabled. Non fitting dimensions are just moved left and right where they are unlikely to interfere with other dimensions



Zero offset up enabled. Non fitting dimensions are moved left and right.



Zero offset enabled. Middle 214 dimension is moved up to avoid conflict with other dimensions



Zero offset DISABLED. Sometimes manual adjustment may be required.

Leaders

Include Leader lines with offset dimensions

Dimension Separation

This affects the "Dimension Picked Walls" command. This is the spacing of dimensions. The units are in plotted units. A value of 5 in this case is a spacing of 5mm on the printed page.

Note: Offset Small Dimension results do not affect the Dimension Separation

Dimension Style

The dimension style to be used when creating dimensions.

IMPORT / EXPORT ROUTINES

The import and export routines enable you to round trip information between Revit and Excel. [Walls](#), [Materials](#), [Line patterns](#), and [Fill Patterns](#), and [Everything Else](#), can all be exported to Excel. Having updated these in Excel they can be imported back into Revit where the values in Revit will be updated.

Most of these routines, except for "Anything Import/Export" and "Formatted Import Export", will create the items if they do not already exist within the current project.

The [Import / Export Anything](#) option is less specific, i.e. It may not export all information about an item, than the above routines, but will export and import pretty much any category of item from Revit.

Note: "Import / Export Anything" **will not create** items if they do not exist in a project. This routine can identify items either by Name or by UniqueID. When using uniqueID the export/import must occur on the one file. When using names you can go between project files, provided both files have matching items e.g. Matching door types.

[Formatted Import Export](#) enables a highly formatted export / import with Excel. This is ideal for Door and Window schedules. Apart from supporting excels formatting options, this routine supports sorting, grouping, totals, counting, revision tracking, and more.

Room Data Sheets, Plans, and Elevations can be generated using the ["Room Data and Views"](#) routine.

[Ghost Families](#) allow you to have families that can be scheduled via ARUtils routines without actually having families in the model. You can also use ghost families to dump a set of families into a room.

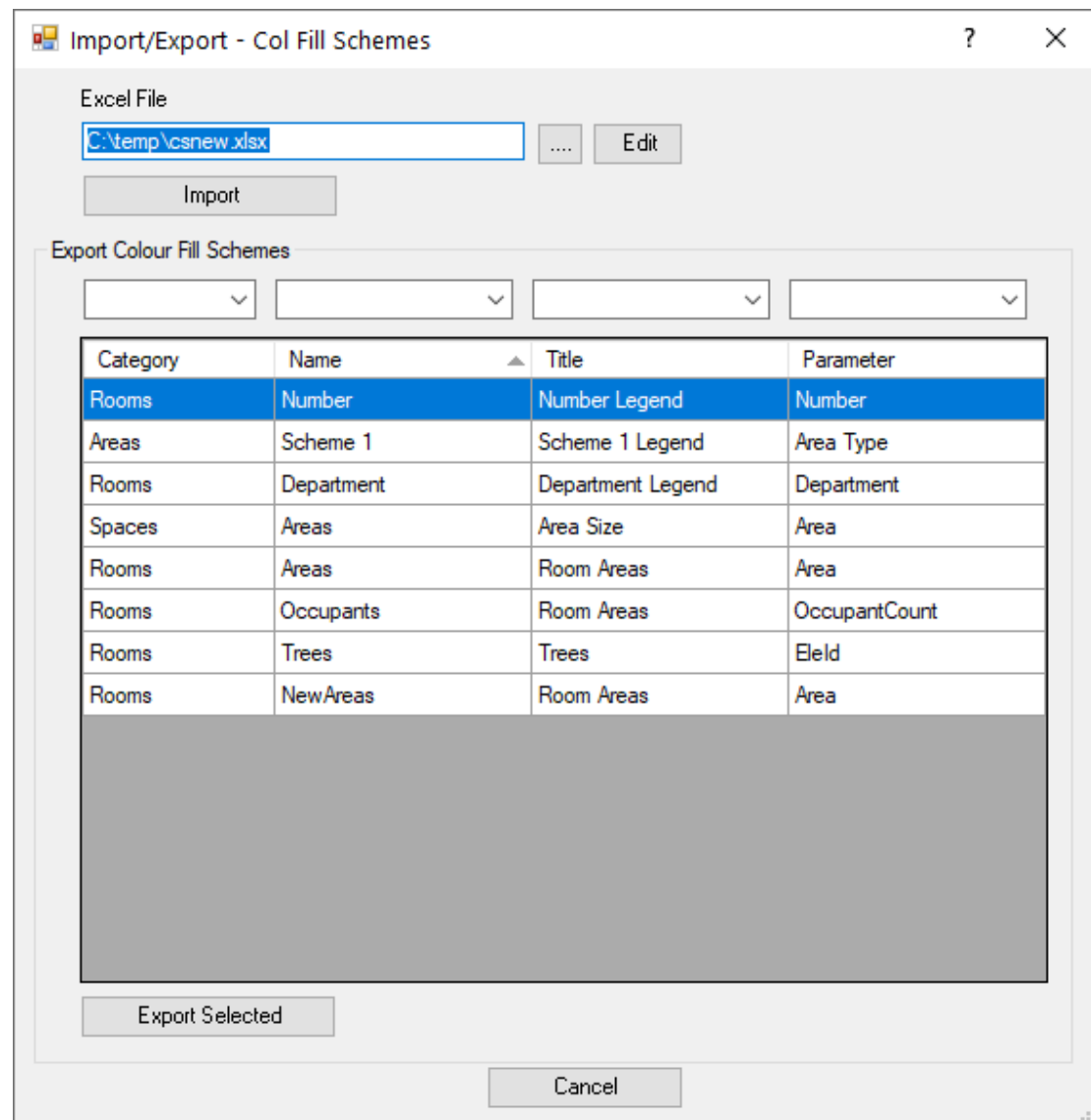
[Export Schedules](#) lets you export schedules to an Excel file. [Split Schedules](#) enables you to split schedules in to multiple schedules

[Draw Excel Sheet](#) lets you import an Excel sheet and have it drawn in a legend or drafting view.



COLOR FILL SCHEMES IMPORT / EXPORT

From ARUtils-2022 onwards



The Colour Fill Schemes (CFSs) import / export routine enables you to

- Export project colour fill schemes to an excel file
- Import colour fill schemes from an excel file

Importing can variously

- Add new Colour Fill Schemes
- Update existing Colour Fill Scheme values

Note: From 2017 onwards you can set line patterns assigned to a category.

Export Object Styles

Excel File

The Excel file to be exported to and imported from

[....]

Browse for the Excel file

Edit

Open the Excel file

Import

Import CFSs defined in an Excel file. File structure is critical and should not be modified apart from values.

Export Colour Fill Schemes DataGrid

The CFSs in the project available for export.

Note: Some may dependent on user defined parameters or ElementIDs that may / may not exist in other projects.

Export

Export the selected CFSs information out to an Excel file. The file can contain multiple sequential CFS schemes.

Sample Excel File

	A	B	C	D	E	F	G	H	I	J	K
1	Category	Name	Title	Parameter	Par Def Integer Value	CategoryID	By Range	Include Links	Unit ID		
2	Rooms	Areas	Room Areas	Area	-1006902	-2000160	True	False	autodesk.unit:unit:squareMeters-1.0.1		
3	Color	Fill Pattern	Inuse	IsVisible	Storage Type	Caption	Double	ElementID	Integer	String	ElementID Name
4	156,185,151	<Solid fill>	True	True	Double	Less than 20 m²	-1.79769313486232E+308	-1	0		NA
5	170,221,234	<Solid fill>	True	True	Double	20 m² - 60 m²	20	-1	0		NA
6	216,221,206	<Solid fill>	True	True	Double	60 m² or more	60	-1	0		NA

Partial View of Excel file

First Line – Contains the headers for the second line values

- Category – e.g. Rooms, Spaces, Areas, etc
- Name – Name of the Color Fill Scheme
- Title
- Parameter – Parameter used for the Color Fill Scheme
- Par Def Integer – not required by user
- Category Id – not required by user
- By Range – Indicates if Color Fill Scheme is by Value or By Range
- Include Links – Whether links are included in the color fill scheme
- Unit ID – The units in use for things such as Areas, Lengths, Temperatures

Third line – Contains the headers for the following lines

- Colour (RW) – R,G,B based on values 0 to 255, e.g. 0,0,0 is black, 255,255,255 is white
- Fill Pattern (RW) – Fill patterns to use. If fill does not exist Solid will be used
- Inuse (R)
- Is Visible (RW) – Should this item be visible / in visible
- Storage Type (R) – Defined by Revit this is non alterable
- Caption – automatically generated for some items e.g. Area Range
- Depending on the storage type (Double, ElementID, Integer or String) the various fields will be populated with the associated values.

Double - Defines floating point numbers in project units e.g. Range Values for Areas

ElementID – the ID of the element to be coloured e.g. typically would only apply to a user defined "Family Type" parameter. Fairly rare usage

Integer – A whole number e.g. Occupants

String – The string that must be matched to colour the item. E.g. Department

ElementID Name – The name of the element based on the ElementID referenced element.

Importing Colour Fill schemes

The routine allows updating of existing CFSs into a project as well as Importing/Creating of CFSs with some limitations.

CFSs that are based on a user defined parameter require the creation of the parameter and association of the parameter to the appropriate Category. E.g. a parameter "People" associated to "Rooms" would first need to be created.

Also if you have a colour fill scheme that relates to specific Elements (a CFS ElementID storage type) requires the elements to exist in the project. These are basically impossible to import / create as the elementIDs will not be consistent project to project. the same.

Import Object Styles

Having altered values, or added new sub categories in the Excel file, save and close the file, and then use the various "Add/Update" options to modify your project.

Add New Items

Enable this so that Categories in the Excel file not existing in project will be added

Delete Tagged Items

Enable this so that categories in the Excel file with a "delete" value set to "1" will be deleted from the project if possible.

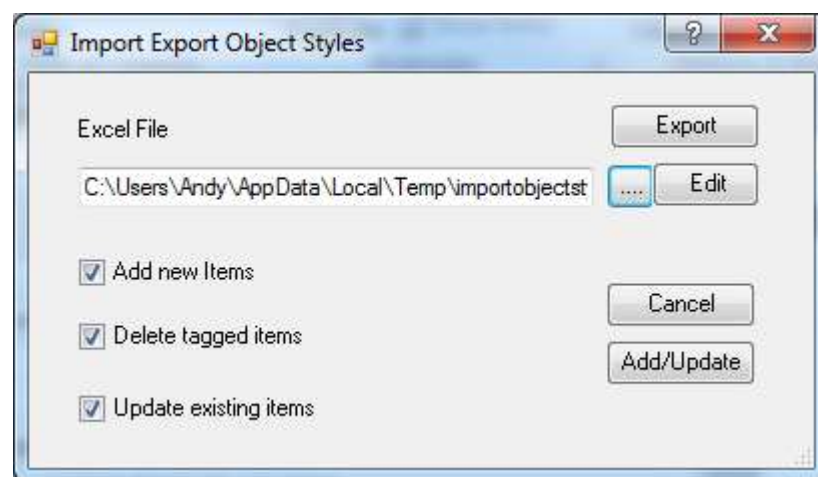
Note: Items which have exported with a value of -1 cannot be deleted as they are a built in category.

Update Existing Items

Enable this so that categories existing in the project will be updated

Note: As of 4/10/2013 there is an issue where the subcategory "Supports" of the main category "Stairs" appears in "Object Styles" but cannot be accessed via API routines. This has been reported to Autodesk.

CATEGORY IMPORT / EXPORT



The category or object styles import / export routine enables you to

- [Export project object styles to an excel file](#)
- [Import object styles from an excel file](#)

Importing can variously

- Add new categories
- Update existing category values

- Delete existing categories
- Report on values that are different

Note: From 2017 onwards you can set line patterns assigned to a category.

Export Object Styles

Excel File

The Excel file to be exported to and imported from

[.....]

Browse for the Excel file

Edit

Open the Excel file

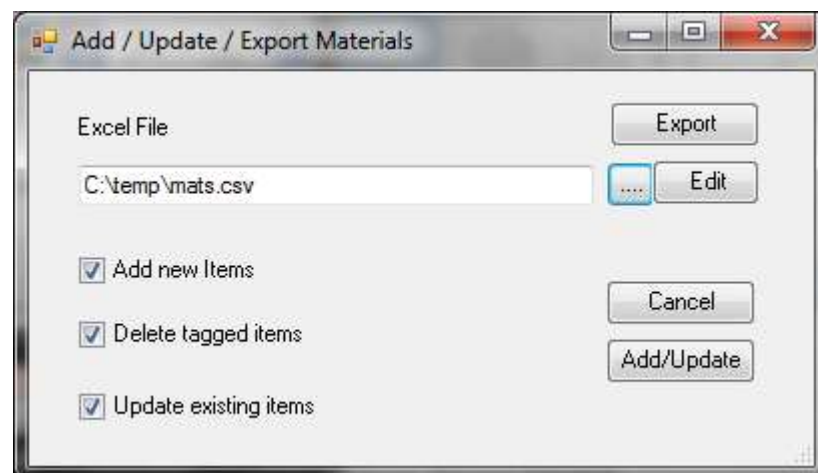
Export

Export information out to the Excel file

Sample Excel File

	A	B	C	D	E	F	G	H	I
1	Category	Sub Category	Red	Green	Blue	Projection Weight	Cut Weight	Material	Delete
2	Adaptive Points		0	0	0	1			-1
3	Adaptive Points	Lines	0	145	201	1			-1
4	Adaptive Points	Planes	0	145	201	1			-1
5	Adaptive Points	Points	0	0	0	3			-1
6	Air Terminal Tags		0	0	0	1			-1
7	Air Terminals		0	0	0	1			-1
8	Doors	DDA	0	0	0	1	1		0
9	Doors	DDA Interior	255	0	0	1	1		0
10	Doors	Elevation Swing	0	0	0	1	1		0
11	Doors	Frame/Mullion	0	0	0	1	2		-1
12	Doors	Glass	0	0	0	1	2		-1
13	Doors	Hardware	0	0	0	1	1		0
14	Doors	Hidden Lines	0	0	0	1	2		-1
15	Doors	Metal Frame	0	0	0	1	1	Default Metal Frame	0
16	Doors	Moulding/Architrave	0	0	0	1	2		0
17	Doors	Opening	0	0	0	1	2		-1

MATERIALS IMPORT / EXPORT



The materials import / export enables you to

- [Export project materials to an excel file](#)

- [Import materials from an excel file](#)

Importing can variously

- Add new materials
- Update existing material values
- Delete existing materials

New – March 2014. The "Appearance Asset" parameter now supports the use of Appearance Assets that exist only in the Autodesk Material Library, "assetlibrary_base.adsklib". You could for example set a material to use "Abstract Olive" even though that "Appearance Asset" does not exist within the project store.

Note: Thermal and Physical Assets that only exist in the "PhysicalMaterials.adsklib" file cannot be accessed in this fashion.

Note: Columns can be reordered or deleted so that just the required parameters are updated.

Export Materials

Excel File

The Excel file to be exported to an imported from

[....]

Browse for the Excel file

Edit

Open the Excel file

Export

Export information out to the Excel file

Sample Excel File (Transposed for presentation purposes)

	A	B	C	D	E	F	G	H	I
1	Name	Description	Mark	Delete (1 for de	Comments	Cost	Model	Manufacturer	Keynote
2	Air Barrier - Air Infiltration Barrier			0	Rendering app	0			
3	Asphalt (system)			0	Rendering app	0			
4	Blue, Solid			0	Rendering app	0			
5	brick			0	Rendering app	0			
6	Carpet (system)			0	Rendering app	0			
7	Cast-In-Place			0	Rendering app	0			
8	Concrete - Cast-in-Place Concrete			0	Rendering app	0			
9	Concrete - Cast-in-Place Lightweight Concrete			0	Rendering app	0			
10	Concrete - Precast Concrete			0	Rendering app	0			
11	Concrete (system)			0	Rendering app	0			

Partial View of Excel file. First column must be name.

Import Materials

Having altered values, or added new materials in the Excel file, save and close the file, and then use the various "Add/Update" options to modify your project.

Add & Update

New materials are added and existing ones updated

Add new only

Only new materials will be created and existing materials left untouched

Update only

Only existing materials will be updated

Note: The export process creates a column labelled **delete**. By setting the value in this to 1 and enabling the **delete** checkbox, the specified materials will be deleted when the file is imported.

Special Material Fields**New Name**

Use this field to define a new name for the material

Delete (1 for deletion) or Delete(1)/Add(2)

Set the value of this field to a value of 1 for materials that should be deleted. When used with the Head of the Family, a value of 2 will add the material if it does not already exist.

Asset fields, Appearance Asset, Physical Asset, Thermal Asset

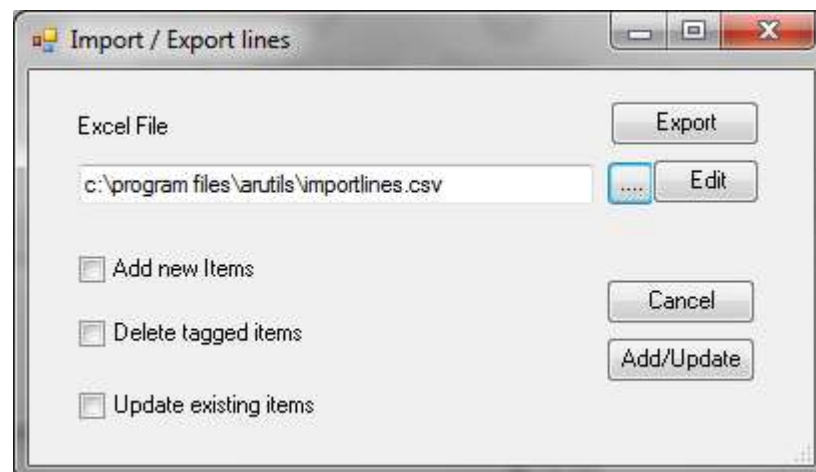
The assets to be used for the material. Appearance Assets can be loaded from the Autodesk Material Library. Physical and Thermal assets must already exist within the project and cannot be retrieved from the "PhysicalMaterial.adsklib" library. Located in "C:\Program Files (x86)\Common Files\Autodesk Shared\Materials\2015" or similar.

Note: Due to their complexity, Assets can only be modified using the Revit material editor.

Note: Physical and Thermal assets may have the same name and it is not always easy to determine the nature of the asset. Due to this UniqueIDs may be included with these assets when the export is carried out. E.g. "Alloy Steel:hjfkdsdhsd80989"

LINES PATTERNS IMPORT AND EXPORT

This dialogue enables you to export line patterns. As for Materials, you can then import the information opting to delete, add, or update items.



The import export Line Patterns

Add/Update**Add New Items**

Create line patterns if they do not exist in the file

Delete Tagged Items

Delete any items where the **"Delete"** column has been set to **"1"**

Update Existing Items

Update existing line patterns to the values in the import file

Note: The top line of the import file must always start with "Name" and "Length1".

The file format is fixed so do not remove or move columns in the file

Line Pattern Import Columns

Name: The name of the pattern. This may exist or may be a new pattern.
Delete: Set to 1 if you wish to delete the pattern. **Delete tagged items** must also be ticked.
 Note: Items currently using this line pattern will default back to Solid
Rename: The new name for the line pattern
LengthX: The length of the line segment
TypeX: The type of the segment. Values are **Dash, Dot, Space**

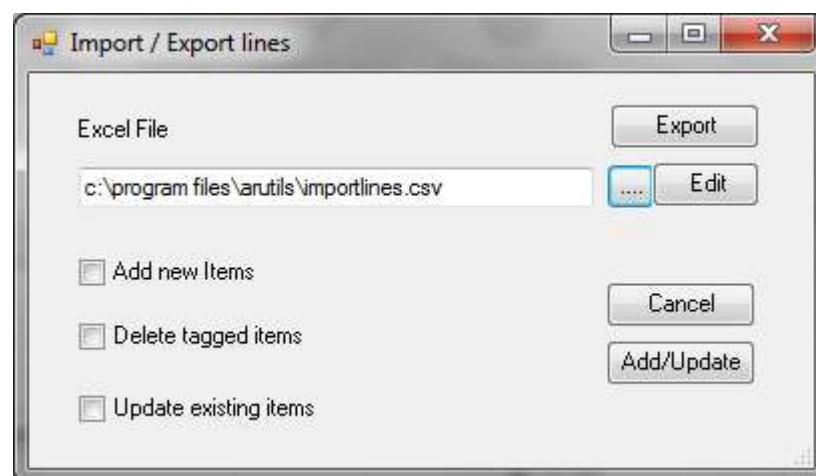
Note: You can have up to 8 line pattern segment definitions i.e. Length, Type e.g. 2,Dash

Note: The values in the file will completely define the new pattern i.e. If a pattern currently has 3 segments and you change the import file to show only two segments, the pattern will only have two segments after the import.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	Delete	Length1	Type1	Length2	Type2	Length3	Type3	Length4	Type4	Length5	Type5
2	Aligning Line		3.2	Dash	3.2	Space						
3	Center		6.4	Dash	4.8	Space		15.9	Dash	4.8	Space	
4	Dash dot dot		6.4	Dash	4.8	Space		0	Dot	4.8	Space	0
5	Dash dot		6.4	Dash	4.8	Space		0	Dot	4.8	Space	

FILL PATTERNS IMPORT AND EXPORT

This dialogue enables you to export fill patterns. As for Materials, you can then import the information opting to delete, add, or update items.



The import export Fill Patterns dialogue

Add/Update

Add New Items

Create fill patterns if they do not exist in the file

Delete Tagged Items

Delete any items where the **"Delete"** column has been set to **"1"**

Update Existing Items

Update existing fill patterns to the values in the import file

Note: The file format is fixed so do not remove or move columns in the file

Fill Pattern Import

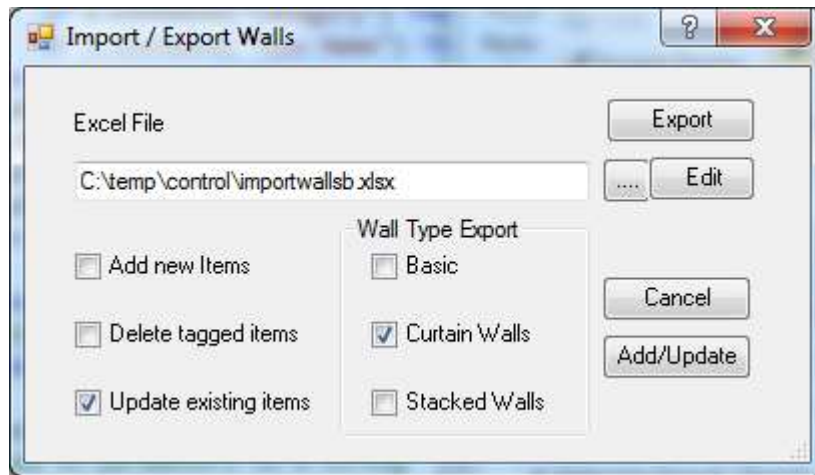
Name:	The name of the pattern. This may exist or may be a new pattern.
Delete:	Set to 1 if you wish to delete the pattern. Delete tagged items must also be ticked.
Target:	Either Model or Drafting
Grid Count:	For information only
IsSolid:	For information only
HostOrientation:	ToView, AsText, ToHost
Angle1:	First line angle in project units
Spacing1:	First spacing in project units
Angle2:	For information only. Always as 90 degrees to Angle 1
Spacing2:	Second spacing at right angles to first line

Note: Custom Hatches are not currently processed. Fill Patterns can have 0, 1 or 2, angled definitions. If there are no angled values then the item is assumed to be solid. Only the first angle is used, but both spacings will be used. The second angle is always at right angles to the first.

1	Name	Delete	Target	GridCount	IsSolid	HostOrient	Angle1	Spacing1	Angle2
2	Concrete - detail		Drafting	12	FALSE	ToView	Custom H	50	-6
3	Crosshatch		Drafting	2	FALSE	ToView	0	3	90
4	Crosshatch 1.5mm		Drafting	2	FALSE	ToView	0	1	90
5	DemoCeiling 24x48		Model	2	FALSE	ToView	0	610	90
6	Diagonal ab		Drafting	1	FALSE	ToView	135	3	
7	Diagonal auf		Drafting	1	FALSE	ToView	45	3	
8	Diagonal crosshatch		Drafting	2	FALSE	ToView	45	10	135
9	Diagonal cross-hatch		Drafting	2	FALSE	ToView	45	3	135
10	Diagonal Crosshatch		Drafting	2	FALSE	ToView	45	3	135
11	Diagonal crosshatch 1.5mm		Drafting	2	FALSE	ToView	45	1	135
12	Diagonal down		Drafting	1	FALSE	ToView	135	3	
13	Diagonal down 1.5mm		Drafting	1	FALSE	ToView	45	1	
14	Diagonal down-small		Drafting	1	FALSE	ToView	135	2	
15	Diagonal up		Drafting	1	FALSE	ToView	45	3	
16	Diagonal up 1.5mm		Drafting	1	FALSE	ToView	45	1	
17	Diagonal up sm		Drafting	1	FALSE	ToView	45	1	

When you export the fill patterns, items with different names but identical data, i.e., they are visually the same pattern, the matching patterns will be highlighted in matching colors.

WALLS – EXPORT AND IMPORT



This routine allows you to export all wall parameters to an excel file and correspondingly import them to Create, Delete, or update the values for the walls.

You can choose to only

- Add new walls
- Delete tagged walls
- Update existing wall parameters

You also have the option to export only specific wall types, i.e., Basic Walls, Curtain Walls, Stacked Walls. Where multiple types are exported each different type will have a line of associated parameters heading that section.

Note: Some parameters affecting different aspects for walls have the same name but relate to different aspects of the wall. E.g., spacing for curtain walls, relates to vertical and horizontal spacing of the curtain grid.

The first column of your import file must be "Name". When redefining layers of a wall all values relating to layer values must be present in your import file. These must appear as the last columns of your file, i.e., no other parameters should be entered after these.

Special Parameters

Rename

Allows you to rename a wall type

Delete (1 for Delete)

Set this to a value of 1 if you want the Wall Type deleted

Layer1Material Name, Layer1Function, Layer1Thickness, Layer1Material Code(RO), Layer1IsCore, Layer Wraps

Material Name – The material used for this layer

Function – The function of the layer, e.g., Finish 1, Structure, etc.

Thickness – The thickness of the layer

Material Code – A read only value of the material mark

Layer is Core – Define the layers to be part of the core

Layer Wraps – Define if the layer should wrap. By default this is true. **Note at time of writing values will not update. This is a Revit issue.**

Thermal Properties

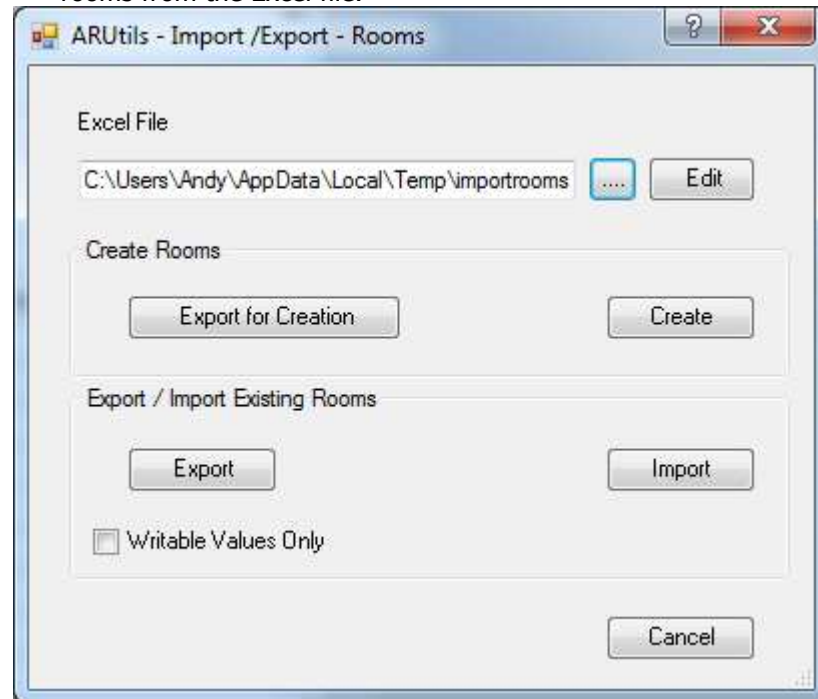
These are determined by the materials used in the layers and are therefore read only

Structural Material

Within the wall layer editor in Revit, you can set the "Structural Material". This is a read only value and is not accessible as a setting within the wall layers.

IMPORT / EXPORT ROOMS

This routine enables you export and import existing rooms. Additionally you can **create** new rooms from the Excel file.



Excel File

All operations rely on first setting the "Excel File". This will be used for "Creation", "Export" and "Import" operations.

[...]

Browse for the Excel file

Edit

Open the Excel file

Creating NEW Rooms

To create new rooms from an excel file, you can use the "Create Rooms" section.

To create new rooms you will require a correctly formatted csv (Excel) file which can be most easily created by using the "**Export for Creation**" button. This will export all rooms in your current project to the Excel file.

Modify the file as required, making sure to keep "Name" and "Count" as your first two columns. All other columns are optional.

Having **modified** your exported file to have your desired new rooms information, press **Create** to "create" the defined rooms.

Creating Rooms – Excel file format

Your Room Creation excel file needs to have a header row that defines what each column represents. The first two columns must always be

Name | Count

Name – the name of the room

Count – the number of such rooms to be created e.g. 5 Meeting Rooms

Note: All rooms are created in the same phase as the current view.







Any other parameters that can be assigned to a "Room" can also be assigned as a column heading. You will need to exactly match the parameter in the header row. This is most easily achieved by using the "Template" option. Typical parameters include

Department

Number

BRIEFED AREA - This requires that you have created such a project parameter associated with rooms.

Note: Rooms cannot be assigned a level, Area, perimeter, volume. This information is set when the room is placed. You could consider using "Briefed Area", "Briefed Volume", etc. parameters.

Rooms (1) 	
Constraints 	
Level	L00
Upper Limit	L00
Limit Offset	4000.0
Base Offset	0.0
Dimensions 	
Area	23.136 m ²
Perimeter	19240.0
Unbounded Height	4000.0
Volume	Not Computed
Identity Data 	
Number	3
Name	Room
Comments	
Occupancy	
Department	
Base Finish	
Ceiling Finish	
Wall Finish	
Floor Finish	
Occupant	
Phasing 	
Phase	New Construction
Data 	
BRIEFED AREA	

Exporting and Importing Existing Rooms

Set your export / import file to the file you want to use for these operations.

If you are doing this purely to update values in your project file, tick the **"Writable Values Only"** checkbox. This ensures only values that are able to be changed are exported to the excel file.

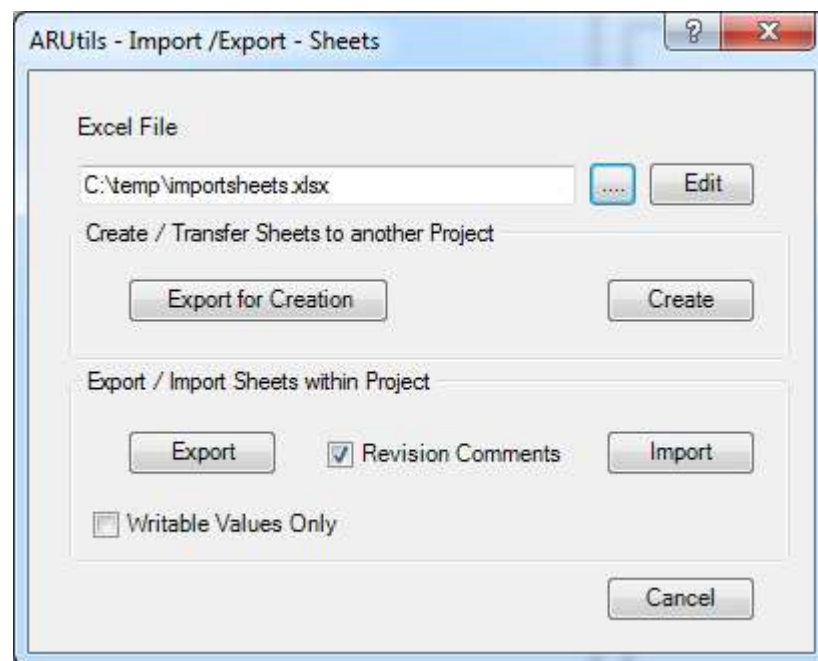
Press the **"Export"** button. Once this operation is completed you can press **"Edit"** to view, and alter the file. You can remove unnecessary columns, change their order, remove some rooms, etc.

Note: Never remove or move the first column **"UniqueID"**. This column uniquely identifies the associated room and ensures the update is applied to the correct item. This also means that the Export/Import can only be applied to the one project file, i.e. You cannot export from one project and then import into another project.

Pressing **"Import"** will then update your project to the newly defined values.

IMPORT / EXPORT SHEETS

This routine enables you export and import existing sheets. Additionally if you have a list of sheets for your project you can **create** new sheets from the Excel file.



Excel File

All operations rely on first setting the "Excel File". This will be used for "Creation", "Export" and "Import" operations.

[...]

Browse for the Excel file

Edit

Open the Excel file

Creating NEW Sheets

To create new sheets from an excel file, you can use the "Create / Transfer Sheets to another Project" section.

To create new sheets you will require a correctly formatted csv (Excel) file which can be most easily created by using the **"Export for Creation"** button.

Note: When creating **"Sheets"** you are required to have a matching **"Title block"** inserted into your project.

Having **modified** your template file to include your sheets information, press **Create** to "create" the defined sheets.

Creating Sheets – Excel file format

Your Excel file needs to have the following columns as a minimum


Name | TitleBlockFamily | TitleBlockType

Any other parameters that can be assigned to a "Sheet" can also be used. You will need to exactly match the parameter in the header row. Using the **"Export for Creation"** option to create a template most easily gets all the available parameters. The **Export for Creation** option will also list the used **title Block** families in your project. Typical parameters for Sheets include:

Sheet Number
Approved By
Designed By
Checked By
Drawn By

	A	B	C	D	
1	Name	titleBlockFamily	TitleBlockType	Sheet Number	Drawn By
2	Floor Plan - Basement level	A0 metric (AUS)	Landscape	C-A1000	
3	Floor Plan - Lower Ground Level	A0 metric (AUS)	Landscape	C-A1001	
4	Floor Plan - Upper Ground Level	A0 metric (AUS)	Landscape	C-A1002	
5	Concrete Setout Plan - Basement level	A0 metric (AUS)	Landscape	C-A1100	
6					

Sample Excel file for creating Sheets.

 Sheet	
Sheet: Ground Floor - General Arrangement Edit Type	
Visibility/Graphics Overrid...	Edit...
Scale	1 : 100
Identity Data ^	
Dependency	Independent
Referencing Sheet	
Referencing Detail	
Current Revision Issued	<input type="checkbox"/>
Current Revision Issued By	IssBy
Current Revision Issued To	IssTo
Current Revision Date	Date
Current Revision Descripti...	Description
Current Revision	1
Approved By	Approver
Designed By	Designer
Checked By	Checker
Sheet Number	A000
Sheet Name	Ground Floor - General ...
Sheet Issue Date	09/29/10
GYR_SERIES	A000 - General Arrangm...
Appears In Sheet List	<input checked="" type="checkbox"/>
Revisions on Sheet	Edit...
Other ^	
File Path	
Drawn By	Author
Guide Grid	<None>

Note: Parameters that are greyed out cannot be set when the sheets are imported, e.g. Current Revision

Exporting and Importing Existing Sheets

If you wish to update the values of your sheet parameters you use the Export and Import buttons.

First set your export / import file to the file you want to use for these operations.

If you are doing this purely to update values in your project file, tick the **"Writable Values Only"** checkbox. This ensures only values that are able to be changed are exported to the excel file.

Press the **"Export"** button. Once this operation is completed you can press **"Edit"** to view, and alter the file. You can remove unnecessary columns, change their order, remove some sheets (rows), etc.

Note: Never remove or move the first column **"UniqueID"**. This column uniquely identifies the associated sheet and ensures the update is applied to the correct item.

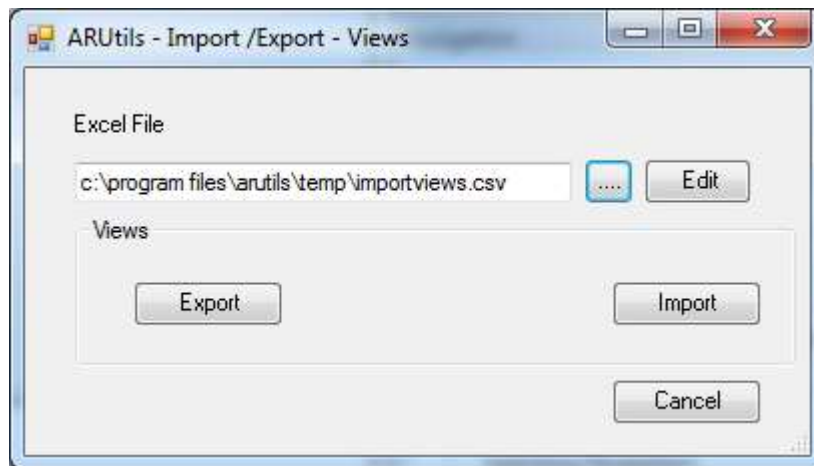
Pressing "**Import**" will then update your project to the newly defined values.

Note: The **Revision Comments** checkbox allows you to export out Comments associated to all Revision Clouds on your sheet.

IMPORT EXPORT VIEWS

This option is designed to enable you to recreate "Section" views from one file to another. It does also handle "Elevation" views, but they will be created as "Building Sections".

NOTE: Consider using the "Sheet ViewPort Manager" to transfer many more view types from one file to another.



Excel File

All operations rely on first setting the "Excel File". This will be used for "Creation", "Export" and "Import" operations.

[...]

Browse for the Excel file

Edit

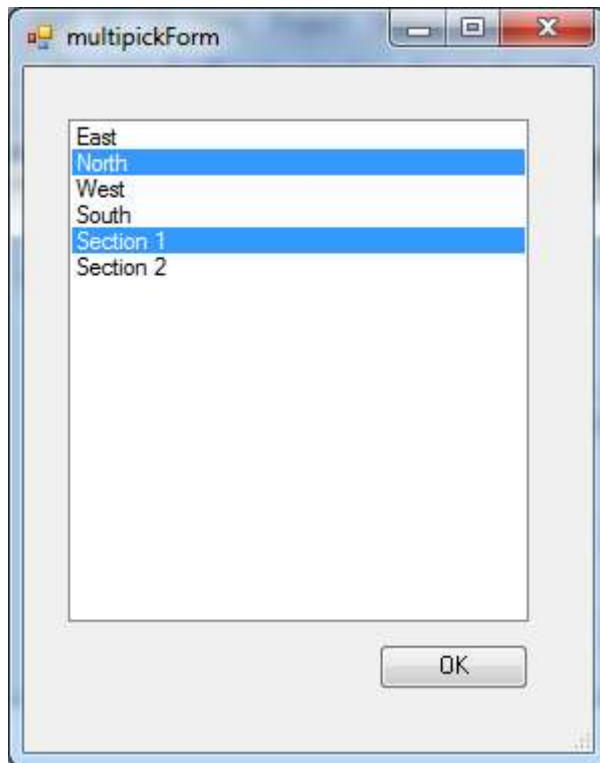
Open the Excel file

Export

Export view values necessary to recreate a view

Import

Create views in the current project based on previously exported views. You are able to select the View/s that you want to create.



Picking multiple views to create in the current project

When would you use this? If you have a number of buildings, each created in its own Revit project file, it is often useful to re-establish section views in the linked files into the "Total Project" file (i.e. Where all linked files are combined and documents are issued from).

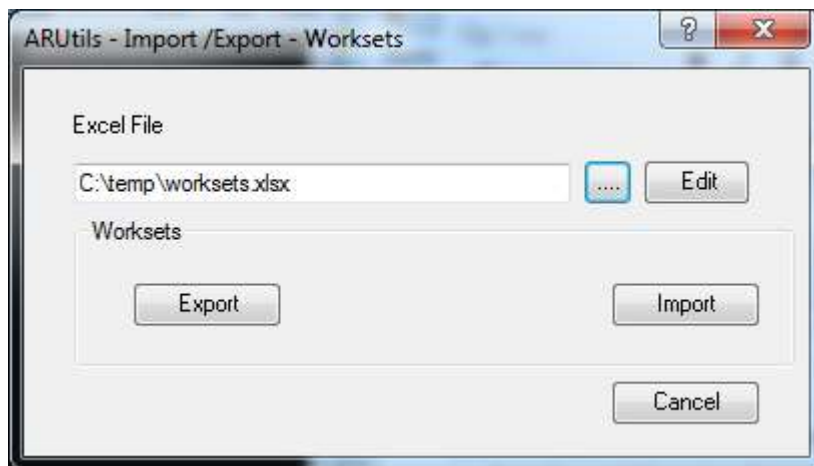
The workflow is as follows:

- Create a section in your "Building file"
- Export the view / section information from this file
- Open your "Total Project" file
- Import the required sections (you can import views in one operation). You now have exactly matching section views in your "Total Project" file.
- Optional: Go to the section view(s) and set the views to display as the section from the "Building File".

IMPORT / EXPORT WORKSETS

Since 2015

Allows you to easily export defined worksets to an Excel file and then create those Worksets in another project file.

**Excel File**

All operations rely on first setting the "Excel File". This will be used for "Creation", "Export" and "Import" operations.

[...]

Browse for the Excel file

Edit

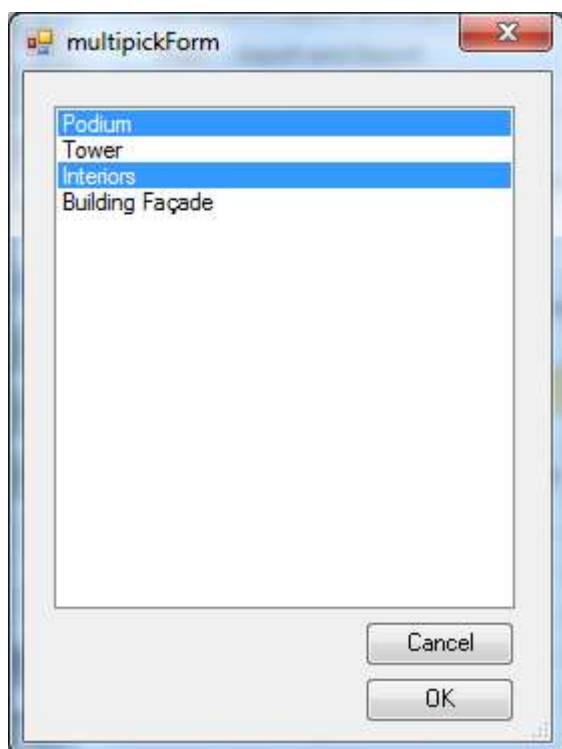
Open the Excel file

Export

Export workset names to the Excel file

Import

Create Worksets in the current project.



Picking multiple worksets to create in the current project

IMPORT / EXPORT ANYTHING

This option is designed to enable you to round trip information to/from Excel. You can export to Excel, modify the information in Excel, and then import the changed data. You can export and import **instances** or **types** of **one or multiple categories**. If appropriate you can also export/import the associated type, host, host type, and room information, for the items.



[Show me How](#)

You can export either via the **uniqueID** (a unique identifier of all items in a Revit project) for items, or using **names** when working with types. If you use **uniqueID** you can only import back into the **same project**.

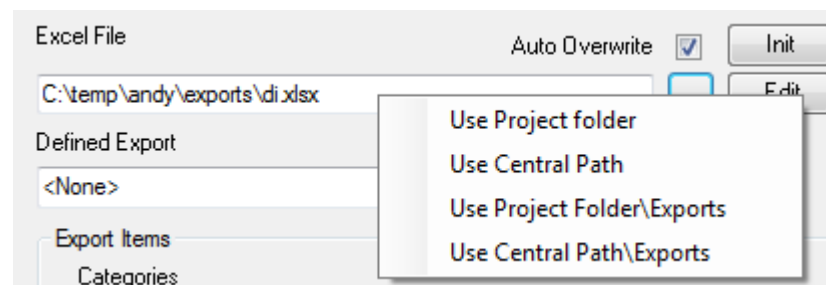
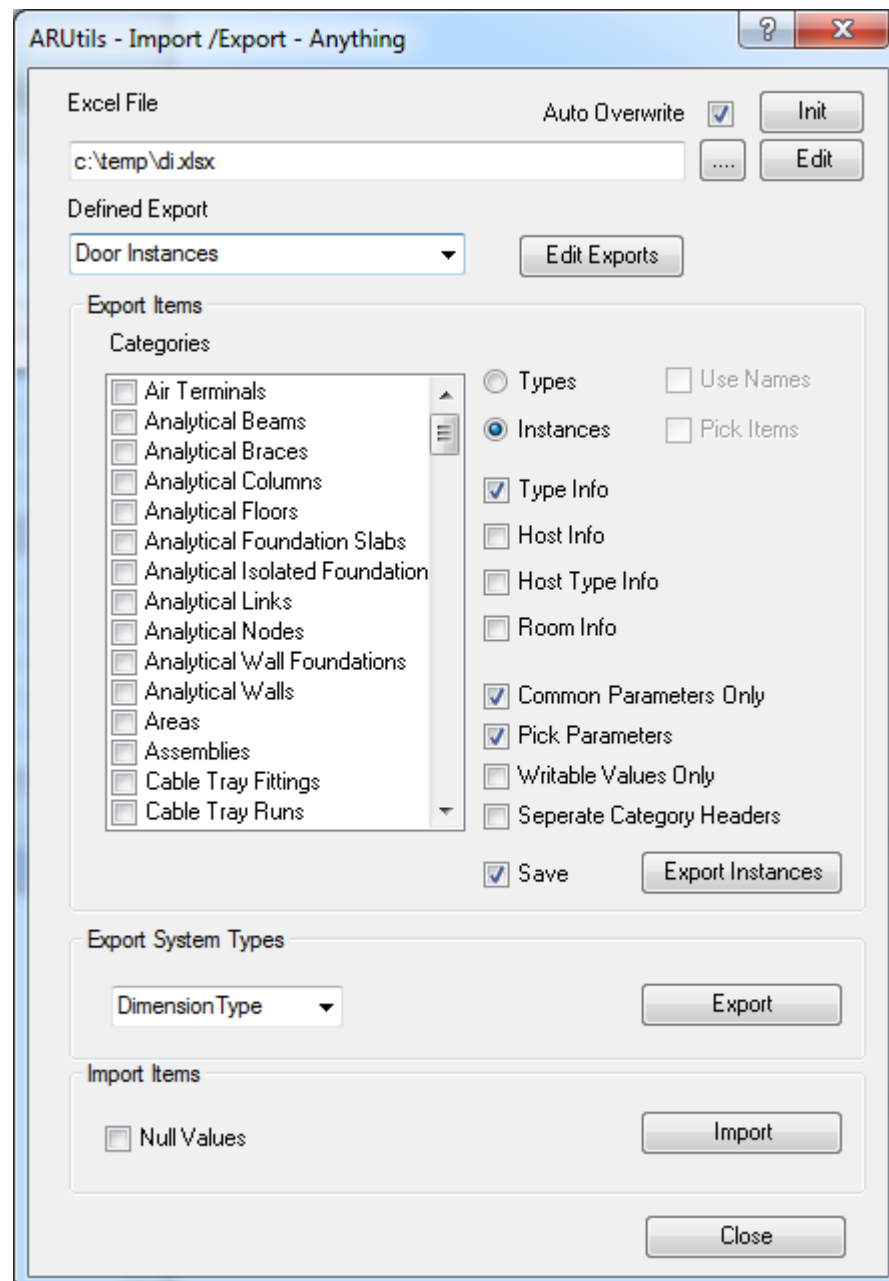
Using **names** allows you to import into **any project** that has families and family types of the same names. E.g. If "Door Single|900mm" exists in two projects, you can align their values by exporting from one project, and importing into the other.

Note: Since instance items do not have a unique name e.g. A door placed in a wall does not have a different name to the same type of door placed into another wall, you cannot do an export / import using names for Instance items.

Note: The trial version is limited to exporting ten items.

Note: If you wish to do a repeatable export/import of selected parameters, perhaps also tracking changed items, use the ["formatted export"](#) routine.

Note: When using the "Generic Annotations" category, the "Level" parameter will report the "view" in which the family instance has been placed. Changing this value and then importing will not update the view of the item.



Right Click options for the Excel file, Browse buttons.

Excel File

The file to export to, or import from.

Note: Right hand click options are available to set the export folder to the project, central, project\exports, central\exports folders.

[...]

Browse for the excel file.

Note: Right hand click options are available for this command.

Edit

Open the Excel file in Excel

Init

Initialise (Delete) the Excel file ready for new entries

Auto Overwrite

By default the "Excel File" is appended to. With this option checked the file will be overwritten with the new export. This can be a faster option.

Defined Export

Allows you to select a defined export definition. These are defined in the "data\definedexports.xlsx" file. These can be most easily created using the "Save" option next to the "Export Instances/Types" button.

Right Click this item to **Delete** or **Rename** an export definition. Note: This could also be done by editing the "Export" definition file.

Note: The export file name used when the definition was Saved will be used as the output file. The currently set folder will be maintained. E.g. The file defined when the definition was created was c:\temp\myoutput.xlsx. If you change to another folder and then select a definition the output file could be c:\exports\myoutput.xlsx. This allows you to use the definitions for multiple projects.

Edit Exports

Open the "data\definedexports.xlsx" file containing the defined export sets.

Categories

The categories of items to be exported. Select all those that you wish to export. Right clicking enables you to select or deselect all categories; hovering will show the selected categories.

Instances / Types

Export either instance items or type items. E.g. If using the **doors** category you would either export the "Door Types" or the "Door Instances" within the project.

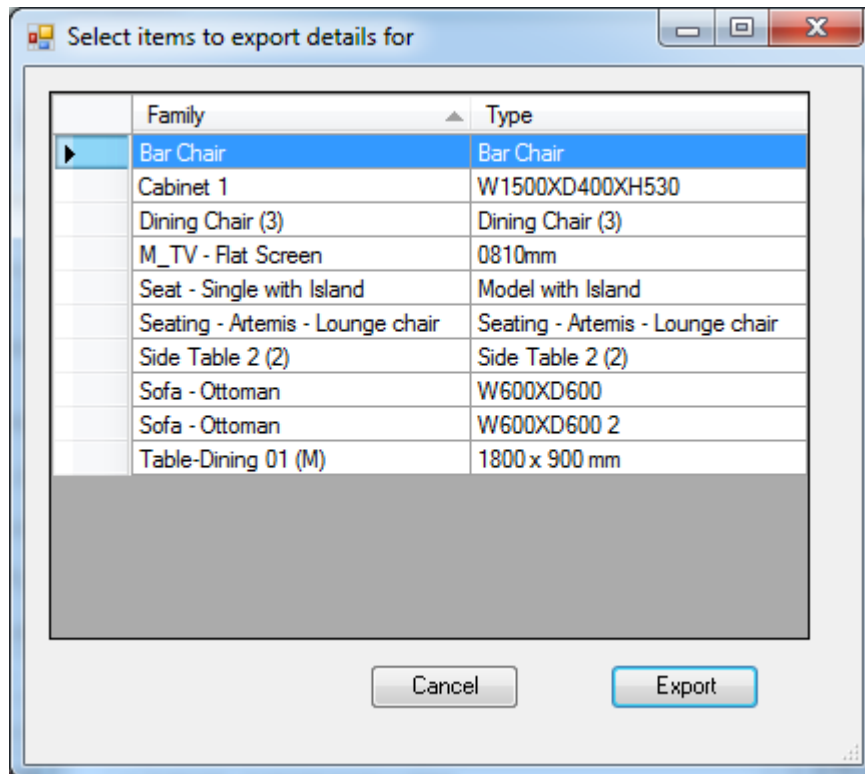
Use Names

Export items using names rather than UniqueId values. When re-importing changed data the associated item will be determined by the name for the item e.g. Double Door, 1800mm would be searched for rather than searching for a an item with a specific UniqueID value. This enables the information to be re-imported into a number of projects that all use the same set of families.

Synching Type Marks between a number of related project files is a classic use for this sort of export/import.

Pick Items

When working with a single category, this option allows you to reduce the export set by selecting specific types from those available.



Type Info

When exporting instances, export the associated type information as well. E.g. a door instance has a mark of DG.01, but its Type Mark is DT1. Changes can be re-imported. The parameters will appear prefixed by "Type:", e.g. "Type:Description"

Host Info

Export the parameters associated with the instance item hosting the instance item. E.g. A wall, floor, or ceiling. Parameters will be prefixed with "Host:".

Host Type Info

Include information regarding the hosting items type parameters, e.g. The wall Type Mark. Parameters are prefixed by "HostType:"

Room Info

Export information regarding the room that relates to the item. This could be a door, furniture, etc.

Writable Values Only

When exporting values do not export values that cannot be re-imported.

Common Parameters Only

When exporting multiple categories e.g. To do a type of room data export, you can opt to export parameters that are common to all of the categories selected. E.g. If doing doors, windows and furniture you would not get things such as "sill height" being exported.

Separate Category Headers

When exporting multiple categories you can opt to export parameters in category sets, i.e. If we selected Doors and Furniture categories, ticking this option would export a line of door parameters followed by the doors, then a line of furniture parameters followed by the furniture items.

Note: Always use "Separate Category Headers" if exporting multiple categories without using "Common Parameters Only". If this is not done then furniture items will be checked for door parameters and therefore export times are greatly increased.

Save

Check this option if you wish to be prompted to save an export as a "Defined Export". You will be prompted to provide a name at the end of the Export. This will be disabled if a Defined Export has been selected.

Export Instances / Type

Export the category and all associated parameters to an excel file.

You can do multiple single category exports to the one file. Each section will have a header row listing the parameters for that export. E.g. Performing a door export, followed by a furniture export will result in a door parameter header row, followed by door data, followed by a furniture parameter header, followed by furniture data. Changes can be made and data will be re-imported.

System Types

Export System Types

Select the type of item you wish to export. Export items such as Dimension Styles, Text Styles, etc. These items do not have a corresponding "Instance" item.

Import Items

Import

Having altered the excel file to reflect value changes, import and update the values within your project. Any values that are not "Read Only" will be updated. This applies to Type Items, Host Items, Host Type items, and room information.

Null Values

If checked this option will clear item values if the value in the excel file is nothing. Alternatively null values will be ignored and the current value will be left.

Import / Export anything File Format

Unique ID export/import.

The unique ID export option exports a unique ID number that uniquely identifies items within a project. The first field will be a unique ID and cannot be altered. All other fields can have their values changed or the column deleted in its entirety. E.g. If you wish to alter type marks, simply delete all columns other than the UniqueID and Type Marks columns.

Deleting an Item:

Note: Prefix the UniqueID with a minus to have the item deleted when an import is carried out.

	A	B	C	D	E	F	G	H	I	J	K	L
	UniqueID	Name	Comments	Finish	Frame Material	Frame Type	Head Height	Level	Mark	Phase Created	Phase Demolished	Soil Height
1	1762daac-226c-4be5-ad73-40009683c779-00010a08	915 X 2134					2133.6	Level 2	2	New Construction	-1	0
2	461e1a36-07c9-4e6c-a7e9-483e10421a63-00010a08	762 X 2134					2133.6	Level 2	3	New Construction	-1	0
3	461e1a36-07c9-4e6c-a7e9-483e10421a63-0001e12a	1800 X 2100					2100	Level 2	4	New Construction	-1	0
4	7883faaf-1586-4d01-a996-4ac5995a0889-0001e442	WINDOW_INSERT								New Construction	-1	
5	7883faaf-1586-4d01-a996-4ac5995a0889-0001e406	WINDOW_INSERT								New Construction	-1	
6	7883faaf-1586-4d01-a996-4ac5995a0889-0001e498	WINDOW_INSERT								New Construction	-1	
7	4a271c4f-7a79-449b-8d0f-a07e565875ab-0001ed37	1800 X 2100					2100	Level 2	8	New Construction	-1	0
8	8dc9c01-528c-4727-920a-0a0f5533d74-0001e0f0	762 X 2134					2133.6	Level 2	9	New Construction	-1	0

Export of Door Instances using UniqueID and Writable values

	A	B	C	D	E	F	G	H	I
1	UniqueID	Name	Assembly Code	Construction Type	Cost	Description	Door Material	Fire Rating	Frame Mat
2	d5f7d73d-8171-455f-8f89-fd9b338a2152-0000e97c	915 X 2134	C1020		0		Door - Panel		Door - Fra
3	d5f7d73d-8171-455f-8f89-fd9b338a2152-0000e980	800 X 2100	C1020		0		Door - Panel		Door - Fra
4	d5f7d73d-8171-455f-8f89-fd9b338a2152-0000e982	762 X 2134	C1020		0		Door - Panel		Door - Fra
5	461e1a36-07c9-4e8c-a7e9-483e1d421ab3-0001e127	1800 X 2100	C1020		0		Door - Panel		Door - Fra
6	461e1a36-07c9-4e8c-a7e9-483e1d421ab3-0001e3ae	1800 X 2100	C1020		0		Door - Panel		Door - Fra
7	wcc2579d-c76e-4f6e-97cf-168648fe8806-00020f22	915 X 2134	C1020		0		Door - Panel		Door - Fra
8	27a2ab57-f4b8-4c75-bcd2-b3e8636d0f5-00023a9c	WINDOW_INSERT			0				

Export of Door types using UniqueID

Export using Names

When exporting "using names", only type items can be exported.

When importing from a named export file, your first three columns must be "Category", "Family", and "Type Name". The first column always contains the "Category" as well as the internal Revit storage class. If the item is a loadable family, e.g. A door, then the second and third columns will be the family name, as well as the type within the family. This will uniquely identify the family for updating purposes when using names.

If the item is a system family e.g. A ceiling, then column two will contain the Revit class.

	A	B	C	D	E	F
1	Category	Family	Type Name	Assembly Code	Construction Type	Cost
2	Casework:FamilySymbol	Kitchen	KITCHEN			
3	Casework:FamilySymbol	Bar	BAR			
4	Category	Type	Type Name	Assembly Code	Cost	Description
5	Ceilings:HostObjAttributes	HostObjAttributes	GENERIC	C3030	0	
6	Ceilings:HostObjAttributes	HostObjAttributes	GWB ON MTL STUD	C3030220	0	
7	Category	Family	Type Name	Assembly Code	Coarse Scale Fill Color	Coarse Scale
8	Columns:FamilySymbol	Rectangular Column	140 X 140	B1010200	0:00:00	
9	Category	Type	Type Name	Assembly Code	Construction Type	Cost
10	Curtain Panels:PanelType	PanelType	GLAZED			
11	Curtain Panels:PanelType	PanelType	WALL			
12	Category	Type	Type Name	Adjust for Mullion Size	Assembly Code	Border 1 Type
13	Curtain Systems:CurtainSystemType	CurtainSystemType	1524 X 3048	0		
14	Category	Type	Type Name	Angle	Assembly Code	Cost
15	Curtain Wall Mullions:MullionType	MullionType	64 X 128 RECTANGULAR	0.000°		
16	Category	Type	Type Name	Assembly Code	Background	Color
17	Detail Items:LineAndTextAttrSymbol	LineAndTextAttrSymbol	FRED6		0 100:100:100	

Export of Door types using Named Export

Exporting all Instances or all Types

When you elect to export all types or all instances, your output file will have multiple header rows. Each header row will list the parameters available for the particular Category.

	A	B	C	D	E	F	G
1	Category	Family	Type Name	Assembly Code	Construction Type	Cost	Depth
2	Casework:FamilySymbol	Kitchen	KITCHEN			0	0
3	Casework:FamilySymbol	Bar	BAR			0	0
4	Category	Type	Type Name	Assembly Code	Cost	Description	Keywords
5	Ceilings:HostObjAttributes	HostObjAttributes	GENERIC	C3030	0		
6	Ceilings:HostObjAttributes	HostObjAttributes	GWB ON MTL STUD	C3030220	0		
7	Category	Family	Type Name	Assembly Code	Coarse Scale Fill Color	Coarse Scale Fill Pattern	Cost
8	Columns:FamilySymbol	Rectangular Column	140 X 140	B1010200	0:00:00		0
9	Category	Type	Type Name	Assembly Code	Construction Type	Cost	Description
10	Curtain Panels:PanelType	PanelType	GLAZED			0	
11	Curtain Panels:PanelType	PanelType	WALL			0	
12	Category	Type	Type Name	Adjust for Mullion Size	Assembly Code	Border 1 Type	Border 2 Type
13	Curtain Systems:CurtainSystemType	CurtainSystemType	1524 X 3048	0		-1	-1
14	Category	Type	Type Name	Angle	Assembly Code	Cost	Description
15	Curtain Wall Mullions:MullionType	MullionType	64 X 128 RECTANGULAR	0.000°		0	
16	Category	Type	Type Name	Assembly Code	Background	Color	Fill Pattern
17	Detail Items:LineAndTextAttrSymbol	LineAndTextAttrSymbol	FRED6		0 100:100:100		DIAGONAL CROSSHATCH
18	Detail Items:ElementFace	ElementFace	BLICK				

Multiple category named export file. Notice the multiple header rows.

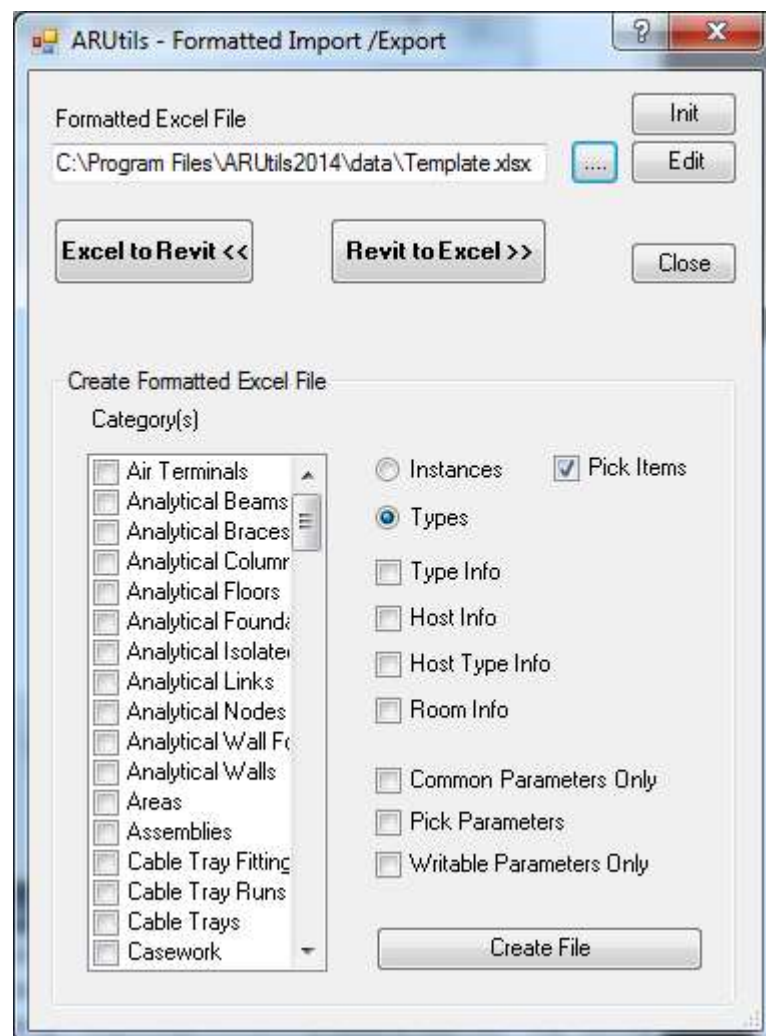
IMPORT / EXPORT FORMATTED

This routine allows you to create and update highly formatted Excel spread sheets yet still round trip parameter values of one or multiple Revit categories. Additionally you can track

changes to the spread sheet and its information. Parameters are typically instance related and in this case the associated Type, Host, Host Type and Room parameters can also be round tripped.

The formatting options consist of:

- 100% user created / formatted title lines using Excel
- Multiple user defined sorting and grouping
- Multiple user defined grouping titles with live variable replacement
- Multiple user defined totalling
- Multiple user defined totalling titles with live variable replacement
- Complex Filtering beyond Revit abilities
- Grand totals
- Highlighting of new items, deleted items, and changed values
- Handles types or instances
- Handles associated element type, element host, element host type and element room parameters
- Individual date stamping of changed lines
- Column specific yes/no representation e.g. Yes/No, True/False, Yes/-



The Formatted Import Export interface

Excel File

The excel file that both defines the item categories, whether instance or type, to be handled, the format to present the information, as well as the parameters to be handled.

[...]

Browse for the excel file

Edit

Open the Excel file in Excel

Init

Delete the Excel file

Close

Close the dialog

Excel to Revit <<

Having altered the excel file to reflect value changes, import and update the values within Revit.

Revit to Excel>>

Having altered the Revit file export the changes to the Excel file. This includes highlighting new items, deleted items, and changed items. Totals will be recalculated.

Create Formatted Excel File

Use this section to create the Formatted Excel File. This file defines the parameters to be reported, as well as a number of other options. Refer to "[Formatted Excel file Format](#)" for further information.

Category(s)

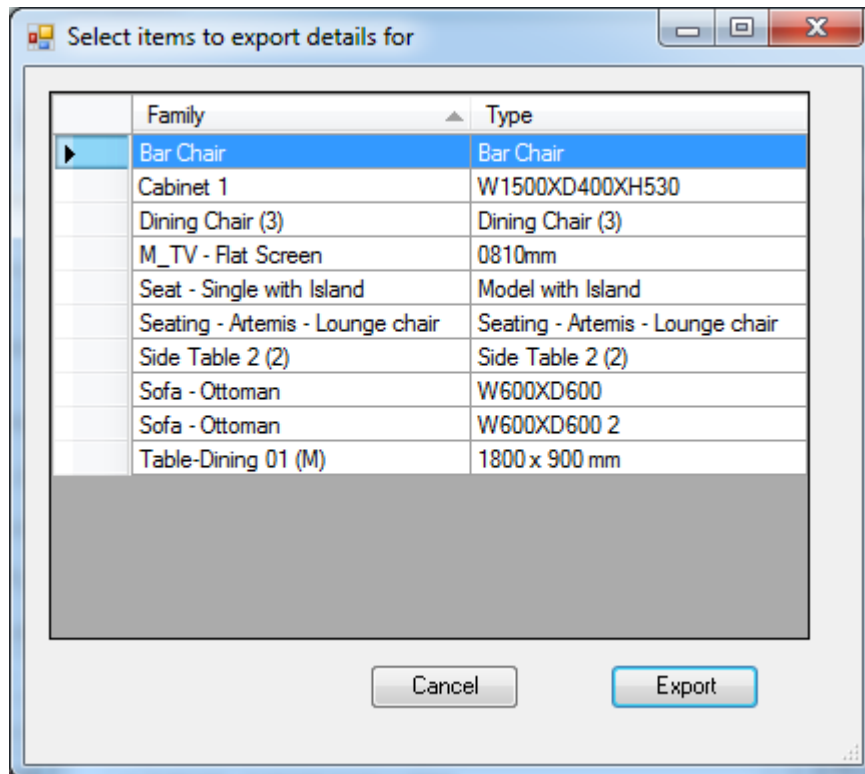
The category(s) of items to that will be considered with this control file. Where multiple categories are selected only parameters common to all the categories will be accessible. Right clicking this area allows you to select / deselect all categories.

Instances / Types

Export parameters for either **instance** items or **type** items. E.g. If using the doors category you would either export the "Door Types" or the "Door Instances" within the project. Typical use would be to use the Instance option e.g. For a door schedule.

Pick Items

When working with a single category, this option allows you to reduce the export set by selecting specific types from those available. This sets the filter variable within the Excel file.



Type Info, Host Info, Host Type Info, Room Info

When creating the control file also write out all parameters appropriate to the ticked sets.

This is only available when working with instances.

- Type Info – Information relating to the Type parameters for the instance item.
- Host Info – e.g. Parameters for the wall / floor / ceiling that hosts the instance item
- Host Type Info – e.g. Parameters for the host objects type information
- Room Info – Parameters relating to the room that houses the instance item.

Note: Use the “**Create – Pick Parameters**” option to specifically select and order the parameters.

Writable Parameters Only

Export only those parameters that can be re-imported to update the Revit model.

Common Parameters Only

When multiple categories are being exported, export only those parameters common to all of the selected categories.

Pick Parameters

[Select parameters](#) to be exported to the Control file. When unchecked All parameters will be exported to the control file.

Create File

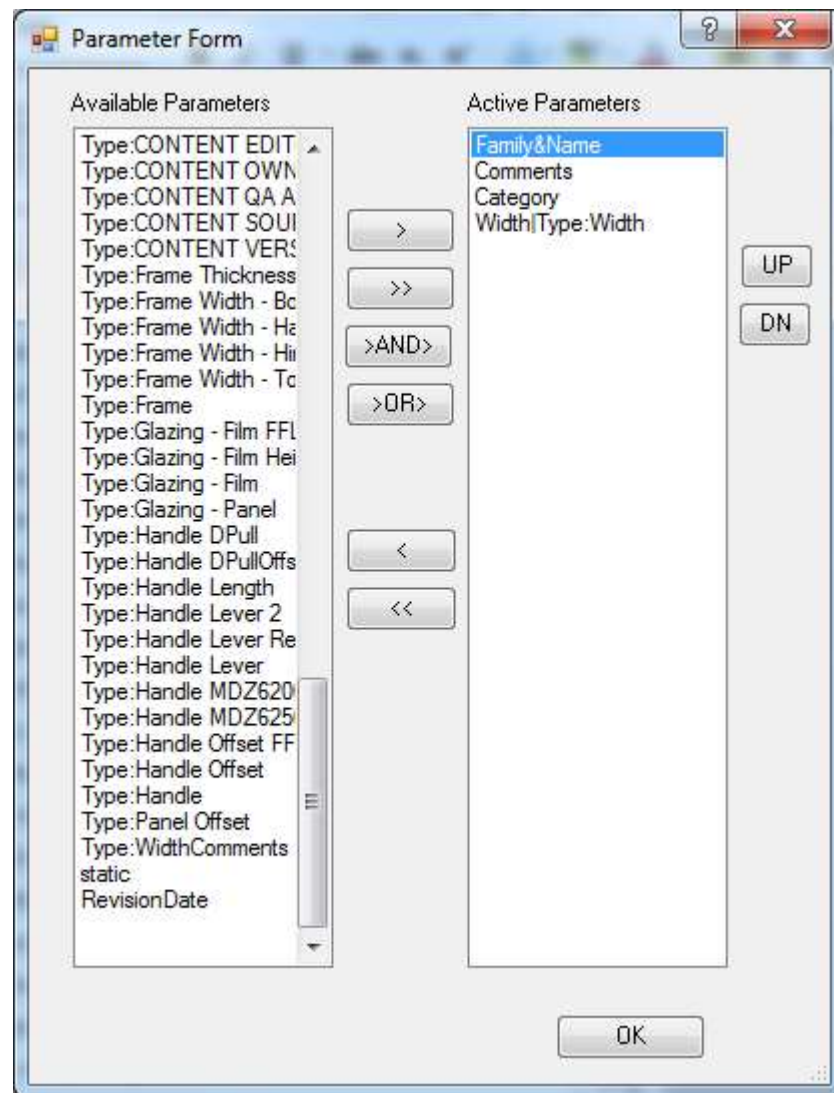
Create a control file that defines the required categories and parameters to be round tripped between Revit and Excel.

Note: When exporting multiple categories only parameters common to all of the categories will be shown.

PICKING PARAMETERS

When you select the **"Pick Parameters"** option you can select the parameters to be used in the Formatted Excel file.

You will be presented with a list of possible parameters for the categories you have chosen and the additional "Info" checkboxes you have ticked. Only parameters applicable to all of your categories will be available for selection. I.e. If you have doors and furniture categories selected, parameters such as "door leaf" would not be available.



You can move items between the lists by:

- Double clicking an item
- Selecting an item and pressing ">" or "<"
- Selecting multiple items and pressing ">" or "<"
- Pressing ">>" or "<<" will move all items from one list to the other
- Selecting an item in the "to" list and then carrying out any of the above will insert the transferred item before the selected item in the "to" list.
- Right clicking either list brings up a popup to let you
 - Select All
 - Select None

>AND>

This option allows you to pick 2 or more items and have them added as a single cell entry. The two (or more) parameters values will be determined and the cell will be set to the values separated by a ":".

>OR>

This option was established to allow for doors where the width may be related to the Type for the door, or the instance width for the door. This occurs when using normal doors and curtain wall doors. Curtain wall doors widths will typically be an instance parameter "Width", whilst other doors widths will be determined by the "Type:Width".

The cell value in Excel for the parameter will be "Width|Type:Width". Both values will be checked, and the non-null value will be inserted in the table.

You can reorder items by selecting one or multiple items and pressing "UP" or "DN".

Once you are happy with your selection, press OK.

The Formatted Excel File format

	A	B	C	D	E	F	G
1	impexpCategory	Doors	byinstance	C:\temp\samplerenstg1.rvt	Doors		
2	Format	New	Deleted	Changed	Unchanged		
3	Revisions	TRUE					
4	Filter						
5	SortGroup	Level\lg	Mark				
6	groupheader1	Doors for %level%					
7	groupheader2	Sorting by door Mark - not grouped so no Header					
8	grouptotal2	Total 2/ Count2 - no totalling being done because this is not grouped					
9	grouptotal1	Total Cost %Level% - %count% Items					TRUE
10	GrandTotal	Grand Total Cost					TRUE
11	UniqueID	Mark	Room:Number	Room:Name	Type:Fire Rating	Type:Type Mark	Type:Cost
12	title	Identity Data			Generic Info		
13	title	Mark	Room Number	Room Name	Fire Rating	Type Mark	Cost

impexpCategory

The category(s) being considered, byType or by Instance, Project File Name. In this case we are working with Door Instances. With multiple categories they will appear after the Project File Name.

Format

Defines the cell properties for New, Deleted, Changed, and unchanged values. Only change the formatting of the cell, not the text values of these cells

Revisions

When set to true changes between tables will be highlighted using the "Format" styles. Set this to false if you do not want changes highlighted. Use of RevisionDate as a reportable parameter is dependent on Revisions being set to true.

Filter

This allows you to specify conditions that must be met for an item to appear in the table. E.g. Name\contains\'fred', would only show items that have "fred" as part of their name. Refer to ["Conditional Filter Format"](#)

ExtraFamilies

Allows you to specify that the contents of rooms should be determined by using the "ExtraFamilies" option of ARUtils. Refer to "ExtraFamilies" in the ["Room Data and Views"](#) command. Set this to "TRUE" to use this option.

Note: Use the "sampleFormattedRoomFamiliesTemplate.xlsx" file as a starting point for developing list of families used in your rooms.

Note: When using "ExtraFamilies" revision tracking has variable results.

SortGroup

Defines the parameters that the table should be **sorted** by, or **sorted and grouped** by. Enter the parameters, one to a column. These need not actually occur as one of the parameters to be reported on. E.g. You could sort by "Level" but you do not actually need to have "Level" appear as a data column.

Note: You can use any of the parameter definitions that you can be used in the "UniqueID" row, e.g. Width|Type:Width is valid.

If you want the items to be **grouped** i.e. Separated by a header and blank line, then add a "\g", e.g. Level\g.

In this example we are sorting and grouping by "Level", and then sorting by "Mark" or "Door Number".

Groupheader1, 2, 3, or 4

The header that will be placed at the start of a change in the "1g" field. Variable content can be used by enclosing a parameter name in "%" symbols e.g. %level% would result in inserting the value of the "Level" parameter.

The entire line will have the formatting of the header text field applied to it

In this case we will have a header "Doors for %Level%" e.g. Doors for Level 1, Doors for Level 2, etc.

GroupTotal1, 2, 3, or 4

This defines both the columns to be totalled at each group change as well as the footer for that section. If using multiple group totalling then grouptotal2 will come before grouptotal1.

In this example we will only have totals for "Type:Cost" as we change levels in the building. We can also use a variable %count% to display how many items are in the group.

GrandTotal

Defines the columns to be grand totalled.

In this case we will do a total cost of doors for the building. Variables can be used in the string. %Count% is of most use.

UniqueID and the parameters used in the report

This line defines the parameters to be reported on. When using the "create Template" function, all parameters that can be reported on will be listed.

Note: Items can be deleted from the model if the UniqueID value has a "-" as its first character. This will require you to type a single quote followed by a minus in Excel so that the cell is not considered to be a mathematical calculation. E.g., '-1023fe4..... just the '-' have been added to the value.

If appropriate, parameters for the item **type** e.g. A doors type, the items **host**, e.g. A specific wall, and the **host type**, e.g. a wall type, and the **room**, e.g. The room the items is in, will also be listed. These will be prefixed with:

- Type:
- Host:

- HostType:
- Room:

There are also some other special parameters available to the user

Reserved / Special parameters

- | | |
|-------------------------|---|
| • Room (obsolete) | The room name and number that the item occurs in |
| • RoomNumber (obsolete) | Just the number of the room the item occurs in |
| • RevisionDate | The date the item was identified as having changed |
| • Static | A parameter that only exists in the excel file (multiple) |
| • Family | The family that this type belongs to |

Formatting of report columns

The format of parameter report cells is taken from the formatting applied to the cells in the UniqueID line. If revisioning is active the fill of cells will be adjusted to take on the "Format" cell fill patterns, e.g., New, Deleted, Changed, Unchanged.

ElementID parameters

ElementID parameters within Revit typically refer to an element such as a material, or perhaps a family by their elementID. This field may be presented to you as the element name, however the ElementID is in use. It is often useful to be able to access information about these items, e.g., the Mark for a material, the description for a family. You access this by using "~" as a separator.

Examples:

myMaterial~Mark

Type:TableTop~Cost

Conditional Formatting of Yes No fields

On occasions you may want yes/no fields to appear differently e.g. Some you want to appear as "Y" or "N", others as "Yes" "No", or perhaps "Y" "-", all are possible.

To conditionally format a Yes No field set the value of the third field (defined by using colons ":" to the desired yes and no values. These are separated by a "/" character e.g. The yes/no parameter "isFireRated" could be changed to "isFireRated::Yes/No", "isFireRated::True/-", or even "isFireRated::Definitely is/Definitely is not".

If you were dealing with a **host:**, **hosttype:**, **type:**, or **Room:**, parameter you would add only one more colon and then do the yes/no information. E.g., "Type:IsMirrored" would become "Type:IsMirrored:Yes/No".

The user needs to delete and rearrange the parameters that they want in the schedule.

In the above example we are reporting on some door instance parameters and also some parameters for the HostType.

Multi Parameter Fields

Sometimes a relevant parameter e.g. Width, may be derived from either the family instance or the family type. The Width parameter for doors will typically be derived from the door types width, but for Curtain wall doors, the Width parameter is derived from the reported Width parameter for the Instance.

To allow for this situation separate your parameters using the vertical bar "|" symbol. Therefore when wanting to report on both Width parameters your parameter entry in the Excel file would be "**Width | Type:Width**".

Another option is where you want parameters combined. Use the "&" symbol, e.g. **Family&Name**, results in the values being separated by a ":", "Single Door:900mm".

Note: If using either of the above with a Yes/No field your entry would look like "IsFired::Y/N|Type:IsFired:Y/N" or "IsFired::Y/N&Type:IsFired:Y/N".

Since each entry is a separate parameter definition, the parameters need not have the same name, nor does the yes/no formatting need to match. E.g. "IsFireRated::Y/-|Type:IsDoorFireRated:Yes/No" is also valid but will result in a somewhat strange table.

Excel File Column Formatting

To use specific Excel number / date formatting for a column, simply apply that formatting to the Excel column. The formatting will be remembered and applied to the column. E.g. Perhaps an item should appear as Currency. Apply that format to the "Type:Cost" cell.

Calculated Values in Excel

You can define a column to be a calculated value. Simply carry out the normal Excel operation of defining your calculation e.g. "=H9*I9", or by picking columns and adding in the mathematical operations. This will be set correctly when the formatted excel file is updated. Do not worry if this results in a message about not being able to calculate the value. Once the fields are numeric (as opposed to parameter names such as Area and CostPerSqM) the values will be calculated correctly.

Note: Calculation can only occur within a single line.

Troubleshooting:

If parameters fail to report a value make sure your parameters are an exact letter and case match for the required parameters.

Use the "Create Template" button to report on all the available parameters. Copy and paste values from this into your modified template sheet.

Title

These lines are totally at the user's discretion and Excel's abilities. These are the pretty lines that appear at the top of your schedule once the control lines have been hidden, or the print area set.

Source Template File

When using the "Create" process, the file "..\arutils\data\FormattedTemplate.xlt" is used as the basis of the create (subject to default installation folder). Therefore you can alter this file to make the create process easier as many of your presentation standards will be already defined.

NOTE: If you make changes to this file please make a backup copy of this file as a new install / update of ARUtils may overwrite this file.

Conditional Filter Format

You are able to define extensive conditional filtering options. All of the Revit filters can be used as well as a few other options.

Whilst Revit filtering only allows for a conditional "AND" (&) statement, ARUtils allows for both "AND" as well as "OR" (|). E.g. Width<800 | Width>1200 would result in finding items that are either below 800 in width or greater than 1200 in width.

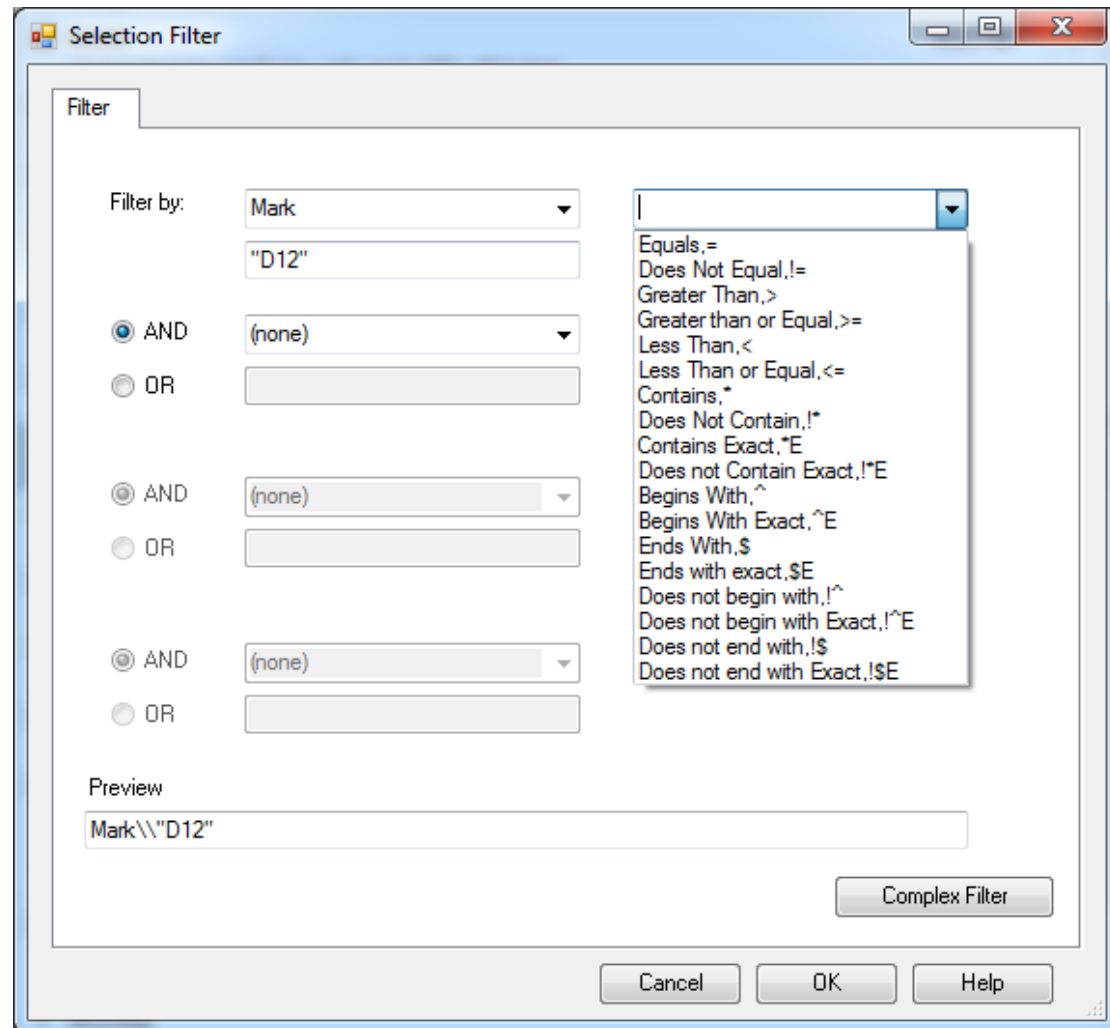
All condition checking requires a format of “item 1” separator “operator” separator “item2”.

The separator is a backslash “\”. An example is Width\=\Height. I.e. Width equals Height

By adopting this separator approach it is possible to support multiple language operators. For example Width\equals\Height, Width\==\Height, and Width\=\Height are all valid. You can use whichever one you are most comfortable with, ARUtils will cope with any of these.

When using strings in your checking operation e.g. Name\contains\“plan”, use quotes to indicate that this is the actual value and not a parameter that requires a lookup to the parameter value. E.g. Name will be evaluated, whereas “plan” will remain as plan.

The easiest way to create filters is via the dialog

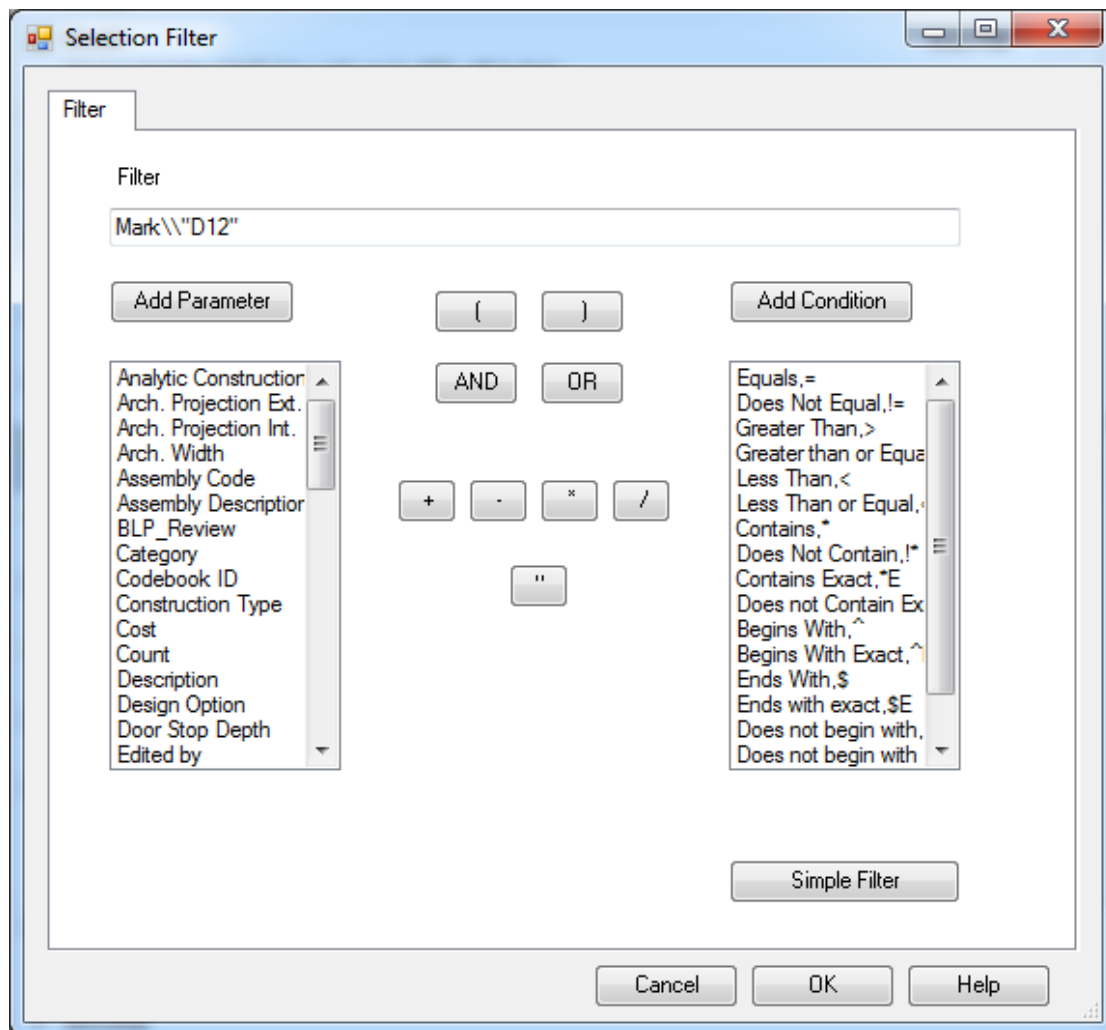


The “Selection Filter” dialog

Simply select the parameter you wish to test for e.g., Mark, the comparison you wish to perform, and the value to be met. Add additional filters using the other comparison groups.

Note: Some commands implement a (Pick) option. This will prompt you to select the items you wish to process from a list e.g., Curtain Wall Legend has this option.

Complex Filter



The “Complex Filter” creator dialog

The complex dialog assumes you know more about what you are doing. See below for a more detailed explanation.

Operators

Equals, =, ==	Equality operation, e.g. Width\=Height. This command also allows for “Null” comparison, e.g. FireRating\=Null is matched if FireRating has no value.
Does not equal, !=, <>	Inequality operation, e.g. Width!=900. This command allows for “Null” comparison
Greater than, >	Greater than operation for numbers, e.g. Width>900
Less than, <	Less than operation for numbers, e.g. Width<900
Greater than or equal, >=	Greater than or equal to, e.g. Width\greater than or equal\900
Less than or equal, <=	less than or equal to, e.g. Width\<=900, would match all Widths less than or equal to 900

Contains, *	Item contains specified string. E.g. Name*"plan", would match only items that have "plan". This is not case sensitive.
Contains exact, *E, *e	Item contains specified string. E.g. Name*"plan", would match only items that have "plan". This IS case sensitive.
Does not contain,!*	Item does not contain specified string. E.g. Name!*"plan" would match all items that do not have plan as part of their name. This is not case sensitive.
Does not contain exact ,!*E, !*e	Item does not contain specified string. E.g. Name!*"plan" would match all items that do not have plan as part of their name. This IS case sensitive.
Begins with, ^	Begins with a string, e.g. Name\begin with*"Plan" would only match items that start with plan. This is not case sensitive.
Begins with exact, ^E, ^e	Begins with a string, e.g. Name\begin with*"Plan" would only match items that start with plan. This IS case sensitive.
Ends with, \$	Ends with a string, e.g. Name\ \$"room", would match all items where the "Name" ends with room. This is not case sensitive.
Ends with exact, \$E, \$e	Ends with a string, e.g. Name\ \$E\ "room", would match all items where the "Name" ends with room. This IS case sensitive.
Does not begin with, !^	Does not begin with a string, e.g. Name\does not begin with*"Plan" would only match items that do not start with plan. This is not case sensitive.
Does not being with exact, ^!E, ^!e	Does not begin with an exact match string, e.g. Name\does not begin with exact*"Plan" would discard items that do not start with "Plan". This IS case sensitive so "plan" would not be a match.
Does not end with, !\$	Does not end with a string, e.g. Name\! \$"room", would match all items where the "Name" does not end with room. This is not case sensitive.
Does not end with exact, !\$E, !\$e	Does not end with a string, e.g. Name\! \$e\ "room", would exclude all items where the "Name" ends with "room". This IS case sensitive and therefore "Room" at the end would not be excluded.

You can combine conditional statements with "AND" or "OR" operators. E.g. Width\<\900 & Height\>\1200.

&	Logical "AND". For the statement to be true, both items must be true, e.g. Width\>\900&Width\<\1200
 	Logical "OR". For the statement to be true, either item must be true, e.g. Width\>\900 Width\<\1200, would always result in true since width will always either be greater than 900 or less than 1200.

You can also perform mathematical operations.

Mathematical Operators

+	Add items. E.g. Width+Length\>\900
-	Subtract item. E.g. Width-Length\>\0
*	Multiply items. E.g. Width*Length\<=\5000000
/	Divide items. E.g. Length/Width\>\1 matches all items where the length is greater than the width.

You can also use brackets to create complex operations combining multiple mathematical operations or conditional operations

()	Brackets. E.g. (Width/Length)/(Height *2). Multiple nesting is possible. E.g. (Name\contains\"plan"&Name\contains\"detailed")((Name\begin with\"Section") would get all items that have both detailed and plan as part of their name or section as part of their name.
----	--

Note: At present equations are calculated left to right and currently divide and multiply do not evaluate in the normal precedence, e.g. 6+2 /4, would result in "2" rather than 6 and ½. Use 6 + (2/4) or 2/4 +6.

Sample Output

	A	B	C	D	E	F	G
1	impexpCategory	Doors	byInstance	C:\temp\samplerenstg1.rvt	Doors		
2	Format	New	Deleted	Changed	Unchanged		
3	Revisions	TRUE					
4	Filter						
5	SortGroup	Level\g	Mark				
6	groupheader1	Doors for %level%					
7	groupheader2	Sorting by door Mark - not grouped so no Header					
8	grouptotal2	Total 2/ Count2 - no totalling being done because this is not grouped					
9	grouptotal1	Total Cost %Level% - %count% items					TRUE
10	GrandTotal	Grand Total Cost					TRUE
11	UniqueID	Mark	Room: Number	Room: Name	Type: Fire Rating	Type: Type Mark	Type: Cost
12	title	Identity Data			Generic Info		
13	title	Mark	Room Number	Room Name	Fire Rating	Type Mark	Cost
14	AutoGengroupe Doors for Level 1						
15	3c779981-e9b1-4e D1.06a		1.06	BEDROOM 2 1.06	2HR	DT2	140
16	7eacc5c3-dcb8-4a D1.05a		1.05	BEDROOM 1 1.05	2HR	DT2	140
17	86eed515-3516-4f D1.06b		1.06	BEDROOM 2 1.06	No	DT4	130
18	86eed515-3516-4f D1.03a		1.04	HALL 1.04	No	DT4	130
19	86eed515-3516-4f D1.03b		1.04	HALL 1.04	No	DT4	130
20	aa2f1c4f-fa99-449 D1.04.1				No	DT5	50
21	dbf7ae41-c29d-4f D1.01a		1.01	BATH 1.01	2HR	DT2	140
22	e0f071aa-9d1b-47 D1.04.2		6	LIVING ROOM 6	No	DT8	0
23	AutoGengrouptot Total Cost Level 1 - 8 items						860
24							
25	AutoGengroupe Doors for Level 2						
26	3c779981-e9b1-4e D2.01.2		2.01	BDEROOM 2.01	1HR	DT1	100
27	461e1a36-07c9-4e D2.04.1		2.04	WC 2.04	No	DT3	130
28	461e1a36-07c9-4e D2.03.2				No	DT5	50
29	86eed515-3516-4f D2.01.1		2.01	BDEROOM 2.01	1HR	DT1	100
30	8cc9cc61-828c-4f2 D2.02.1		2.02	ENS 2.02	No	DT3	130
31	c7b2daac-c2bc-4b D2.03.1		2.03	KITCHEN 2.03	1HR	DT6	75
32	AutoGengrouptot Total Cost Level 2 - 6 items						585
33							
34	AutoGengrandtot Grand Total Cost						1445
35	86eed515-3516-4f D1.05a		1.05	BEDROOM 1 1.05	No	DT4	130

Sample output

Note: The items in green are values that have changed, the line in "New" cell format style is a door that has been added, whilst the line in Red at the bottom is a door that no longer exists in the project.

	B	C	D	E	F	G
12	Identity Data			Generic Info		
13	Mark	Room Number	Room Name	Fire Rating	Type Mark	Cost
14	Doors for Level 1					
15	D1.06a	1.06	BEDROOM 2 1.06	2HR	DT2	140
16	D1.05a	1.05	BEDROOM 1 1.05	2HR	DT2	140
17	D1.06b	1.06	BEDROOM 2 1.06	No	DT4	130
18	D1.03a	1.04	HALL 1.04	No	DT4	130
19	D1.03b	1.04	HALL 1.04	No	DT4	130
20	D1.04.1			No	DT5	50
21	D1.01a	1.01	BATH 1.01	2HR	DT2	140
22	D1.04.2	6	LIVING ROOM 6	No	DT8	0
23	Total Cost Level 1 - 8 items					860
24						
25	Doors for Level 2					
26	D2.01.2	2.01	BEDROOM 2.01	1HR	DT1	100
27	D2.04.1	2.04	WC 2.04	No	DT3	130
28	D2.03.2			No	DT5	50
29	D2.01.1	2.01	BEDROOM 2.01	1HR	DT1	100
30	D2.02.1	2.02	ENS 2.02	No	DT3	130
31	D2.03.1	2.03	KITCHEN 2.03	1HR	DT6	75
32	Total Cost Level 2 - 6 items					585
33						
34	Grand Total Cost					1445
35	D1.05a	1.05	BEDROOM 1 1.05	No	DT4	130

The finished schedule with control rows and columns hidden.

ROOM DATA AND VIEWS



Room Data and Views

The room data and views routine enables you to:

- **Generate Word Room Data Sheets** that contain room data. Information that can be included is the value of any room parameters, project parameters, e.g., Project Name, as well as specified families and their parameters that are in the room. The formatting and values to be used are fully user definable. There is also an option to define additional families for rooms via an Excel file.
- **Create plan, elevation, 3D, and schedule, and sheet views for the room.** Various cropping options are available. Views are named using a user defined naming convention. Elevation and Plan views can be tagged during the creation process. Created views can also be placed onto sheets as a final step. CSheet creation is also an option.

What's great about this command?

- Obviously, creating multiple views with little effort
- Consistent naming of views
- Elevation cut planes set a consistent distance from walls
- Create/Update multiple schedules all filtered for each room
- 3D views remove front walls and include back walls and floors
- Elevation views are shape cropped when ceilings are sloped or curved.
- Elevation and plan views can have families automatically tagged during creation.
- Elevations can have Line of Height or planning grids applied

- Update plan, 3d, and schedules views when they have already been placed on sheets.
- Elevation Markers that have no views activated will be deleted

Note: This command benefits from having “Volumes” calculated. You will be prompted if this is not enabled for your project. This improves elevation and 3D view cropping. **Running the “[Room Heights](#)” command will also assist in correct creation of views.**

Tips for best Results:

- Make sure all “naming templates” generate unique names. Typically include “Room Number” as part of the naming templates.
- Establish Plan, Elevation, and 3D “**view types**” that are specific to the Room Data Views. This makes sorting easier and also allows for view templates to be assigned to the types.
- “View Types” should have assigned “View Templates”. You will need types for Plan, RCP, Elevations, and 3D. These are then specified via the command dialog and ensure that things like Grids, Level, Sections, Scope Boxes are hidden and the size of the Views will achieve consistent results.
- Have rooms placed in your project
- Have walls, floors and ceilings modelled. This will ensure your elevations are cropped top and bottom to these items.
- Rooms that are complex, e.g., with curved walls, may require some manual adjustment of crop boxes, section boxes, crop shapes, and occasionally rotation
- Rooms that are not totally bounded by walls may require manual stretching of elevation extents in an associated plan view.
- Elevations are created based on the location of the room location point, i.e., where the cross of the room occurs. Walls for elevating will be determined by projecting N,S, E, W from this point. For rotated rooms the NSEW is appropriately rotated.
- Elevation Markers will typically be placed on the associated room plan view. If this does not exist the elevation markers will be placed on the current view. Since elevations are updated by native Revit, elevation views are excluded from any “update” operations.
- The specified elevation marker must have 4 elevation points
- Placing the “schedule template” on a dummy sheet allows you to stretch columns as you prefer. When schedules already exist on a sheet the schedule will be recreated from the template schedule and replaced on the sheet with the same format as the schedule template. This enables you to add a field, change sorting and grouping and apply the changes to all the room schedules.
- If tagging elevations during creation make sure to have tags loaded for the categories of items you want tagged.
- If including notional or ghost families you will need to have an excel file in your project folder named “extrafamilies.xlsx”. Refer to “[Extra Families](#)” for more information.
- LINKED FILES:
 - Requires matching levels in the Host and Linked Files
 - Requires matching phases in the Host and Linked Files

Note: Due to an issue in the Revit API and in order to obtain correct cropping of elevations, first an elevation must be created and then duplicated. This unfortunately results in 4 elevation markers on top of each other.

ARUtils - Room Data Sheets

RDS Extra Fams

Create RDS

RDS for Room

RDS Template File
C:\Users\apv36110\Documents\roomd:
... Edit

☐ Multi Page RDS

Output Folder
RDS Naming ...

Select Parameters ☐ Ignore rooms of 0 area. ☒ Include Links Rescan Project

View Creation

Create Views

Views for Room

Scale 50 Spacing 0

☒ Update Views ☒ Open

Plan Elev 3D Sched Sheet

☒ Create Plan ☒ Create RCP

Plan Name Sheet Name

☐ Shape Crop ☐ Dependent

Extend past wall
1 Auto Tag

Plan Floor Plan

RCP Ceiling Plan

Border <None>

☐ Key Key Plan

Dash - 0.5 pen

Cancel

Name	Number
Apse Room	G.01
Ball Room	G.05
Black Room	G.08
Blue Room	G.02
Blue Room	G.17
Brown Room	G.15
Chapel	G.12
Entry	G.16
Green Room	G.03
Lobby	G.11
Pink Room	G.13
Room	G.18
Room	G.19
Room	G.20
Room	G.21
Room	G.22
Room	G.23
Room	G.24
Room	G.25
Room	G.26
Small Store	G.09
Walkway	G.10
Yellow Room	G.14

The room data sheet dialogue

Project ID:	Room ID:	Project Number:	Room Name:
00000000000000000000	00000000000000000000	00000000000000000000	00000000000000000000

Net Room Area (sqft)	Design Area (sqft)	Net Room Area (sqm)	Design Area (sqm)
00.00	00.00	00.00	00.00

ID	Description	Category	Group	Qty	Selection / Remarks
00	0000 x 0000mm	Furniture	00	00	
00	0000 x 0000mm	0000	00	00	

ID	Description	Category	Group	Qty	Selection / Remarks
00	0000 x 0000mm	Furniture	00	00	
00	0000 x 0000mm	0000	00	00	

Sample Room Data Sheet

Room Data Sheets: RDS Tab

Create RDS

Create room data sheets based on the rooms selected in the Room Data Grid. Note that existing word documents will be overwritten.

RDS for Room

Create a room data sheet for an interactively picked room. Note that existing word documents will be overwritten.

RDS Template File

The Word docx file to be used as the Room Data Sheet template. This defines the information you want to report on for each room. Refer to "[Creating the room data sheet template](#)" for more information.

"...."

Select the RDS Template file

Edit

Open the RDS Template file for editing. Refer to "[Creating the room data sheet template](#)" for more information.

Multi Page RDS

By default the routine creates separate word documents for each room. Selecting this option will create a single Word document containing all the Room Data Sheets.

Note: Creating multiple documents is faster than creating a single multipage document.

Output Folder

The output folder for the created RDS documents

RDS Naming

The parameters to be used for generating the RDS Word document names.

Note: Invalid filename characters will be replaced with an “_” (underscore).

Extra Fams Tab

Extra Families / Ghost Families

Refer to the [“Ghost Families”](#) routine for further information.

Creating the Room Data Sheet Template

The room data sheet template is a **Microsoft Word** document that defines how you want your room data sheets to look and the information they should contain. The contents of this file will be replicated for each room resulting in either a single multi sectioned Word document, or multiple Word documents, one for each room.

You can find a sample template file in the “data” folder of ARUtils, “rdsTemplate.docx”. This contains some tables that can be used as a starting point for generating your own Room Data Sheets.

Where a multi room Word document is created we use “Sections”. This allows each **section to have a unique header and footer**. These can be further refined such that the first page of the section, and subsequent pages of each section, differ. E.g., you may opt to have just the room name and number on trailing pages, whilst the first page includes more detailed information.

To insert all the information required for a room data sheet we rely on Merge fields for room information. Family types that have been used in a room use Text Fields in the last line of a “Table”.

Room Parameters / Project Parameters

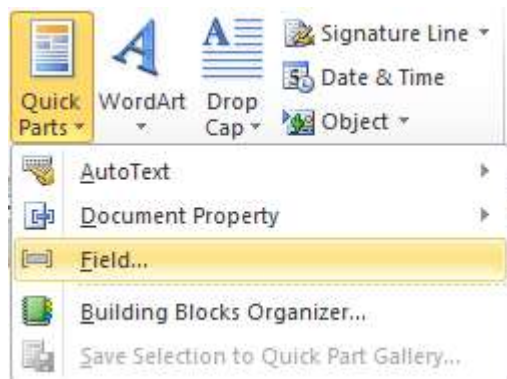
Room (and project) parameters rely on “Merge” or “Mailmerge” fields in the document. If you are unfamiliar with Mailmerge fields it is advisable to research these to get best results. We simply use the room parameter name as the mailmerge field.

Sometimes you will want to reference project parameter values. This requires use of “Project:” as a qualifying part of the mailmerge field, e.g., Project:Project Name would report on the “Project Name” parameter.

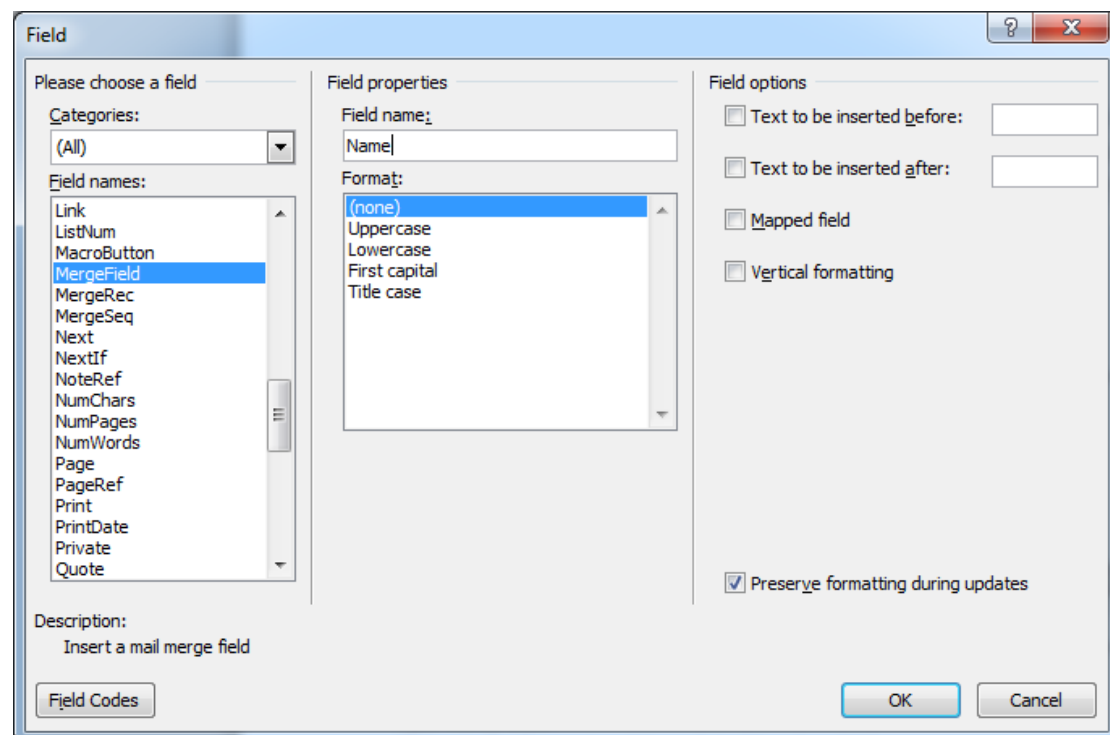
Project: «Project:Project Name»		«Project:Project Number»	
Department	«Department»	Room Number:	«Number»
Room Name	«Name»	Room Volume:	«Volume»
<hr/>			
Net Room Area Briefed	«Area Briefed»		
Designed Area	«Area»		
No of Rooms	«Count»		
Description	«Comment»		

RDS Template doc showing Room parameter mailmerge fields

To insert a “Room Parameter” use the **“Insert | Quick Parts | Field”** (or similar depending on Office version).



Follow this by selecting the “MergeField” option under “Field Names:”. You can then define the field name to exactly match the “Room” parameter field.



Inserting the mergefield, “Name”. This will be replaced with the “Name” value for each room when the Room Data Sheets are generated.

Tables used for Listing Families in a Room

Tables are used to either list **family type parameters (not family instance parameters)** used in a room, or to insert a supported view type into the document. Depending on your requirements you may use one or more tables to group family types, e.g., furniture in one, electrical in another. This is entirely up to the use.

Note: You can use the “Count” parameter to report on the number of times this family type is used in the room. “Marks” is also available to show all the “Family Instance Marks”.

Parameter Reporting Table:

Type Mark\^\"SW"

Fixtures, Equipment and Associated Services (FE)

ID	Description	Group	Qty	Ele	Data	CdW	HtW	WmW	Tap	Dns	Gas	Selection / Remarks
Type Mark	Name	Group	Count	Electrical	Data	CdW	HtW	WmW	Tap	Dns	Gas	Comments

A single table used to group families. Note: The first rows in this table have had their border set to not display.

The first line defines the condition to be met for all the families. In this case the family type must have a "Type Mark" that begins with "SW". Refer to the "[Conditional Filter Format](#)" for more detail about filters.

The last line defines the family type parameters that should be reported on. In this case "Type Mark", Name, Group, Count, etc. will be replaced by the appropriate family type (not instance) parameter.

Other intermediary lines in the table are left unchanged.

View Insertion Table:

View
PDF{RDS-<Number>-<Name>-Plan{c:\temp\RDS
Plan View

View
PDF{RDS-<Number>-<Name>-Elevation-E{c:\temp\RDS
East Elevation

A table used to insert views into the Room Data Sheets

The first line defines that this is a "View" table. The value must be set to "View"

The second line defines the type of file, the room related view, and finally the folder for the file.

e.g., PDF{RDS-<Name>-Plan{c:\temp specifies that we are using a PDF file. The files name is RDS-"Room Name"-plan.pdf, and it is located in the folder c:\temp.

Note: Views are linked back to the view files on disk.

Note: The PDF views can be most easily created using [PDF Printer](#) and either a standard form size or the "ARFit" custom form size.

Trouble Shooting

No families are shown in tables:

Check that you have specified the filter correctly.

- Make sure the parameter is a family type parameter and not a family instance parameter.

- If comparing a parameter to a set value, make sure to wrap the value in double quotes, e.g., Type Mark**"SW"**
- Consider using a simpler filter, e.g., Type Mark\<>\null, or simply do not specify a filter, i.e., include all families for that room.

View Naming Templates:

View naming templates are a process by which view names are generated by substituting values related to an item, e.g., a room, into a defined string, e.g.,

Naming template is:

<Number>-<Name>

Would result in names such as

1.01-Store

1.02-Meeting

When creating a naming template make sure that all rooms would result in generating a different view name, e.g.,

RLS-<Name>

Could result in many rooms having the same view name, and therefore overwriting each other. E.g., if a number of rooms were named Store, they would all be called RLS-Store.

NameFormatForm

Control File

Name: c:\Program files\arutils2015\data\RDSPan.xls [Edit]

Template: RDS [Add]

Name Builder

Prefix	Parameter	Suffix
RDP-	Number	-
	Name	-Plan

Preview Name: RDP-"Number"-AMH COURTYARD 2-Plan

[Cancel] [OK]

The View Naming Template form

Control File:

Name

The control file that stores your naming templates

[...]

Select the naming template file

Edit

Open the control file in Excel. This will open a file that looks like

	A	B	C	D	E	F	G	H
1	Name	Prefix	Par2	Suf3	Par4	Suf5	Par6	Suf7
2	RDS	RDP-	Number	-	Name	-Plan		
3								
4								
5								

Hopefully the structure of this is quite obvious.

Template

The name of the Template to be used.

NOTE: The default naming template is "RDS". It is best to set this to your preferred prefix, suffix, and par values.

Add

Add a new template to the control file

Name Builder

This allows you to define the values to be used to create view names. Parameters can be interspersed with fixed strings. Simply set prefix and suffix values as well as selecting parameters used to generate the view names.

Preview Name

Typically a default item will be used to generate a preview of the view name.

Note: Where a parameter value is null then the parameter name will appear in quotes. This may indicate that view names will not be generated uniquely. In the above example "Number" has no value and therefore "Number" appears in the preview name.

View Creation

Create Views

Create the plan, elevation, 3D and Schedule views for the rooms selected in the Room Data Grid table.

Scale

The scale for newly created views

Spacing

The gap between views. This is the distance in actual millimetres or feet.

Update Views

By default views are not overwritten. Check this if you want existing views to be updated. Currently elevation views are not updated. Note that views are found by name and therefore manual editing of view names or changing the naming template will result in the views not deemed to exist.

Open

Select this option if you want updated/created views to be **opened** in Revit. By default views are created / updated but not opened.

Note: To minimise issues related to memory only 30 views will be opened. Consider using "WT" to tile all the views, followed by "ZA" to zoom all views.

Note: If you need to use views in Room Data Sheets (export to Word) Views can be exported to PDF using the "[Print PDF](#)" routine in conjunction with a specific custom page size of "ARFit".

Note: Limits of the Revit API mean that some views will not be created exactly as desired. This might relate to the elevation view extents not being set correctly. Where this is likely to be the case the view will be opened to enable manual correction.

Note: Where the number of views to be opened exceed 30, the views will be entered into the ARFind dialog to enable easy browsing to the views you have just created.

Default Naming Templates

Please note that when a project has "Room Data and Views" run for the first time the naming templates for plans, elevations, etc., will be set using the "First" naming definition in the associated naming template files located in the "arutilsXXXX\data" folder. The files in question are all prefixed with RDS and are XLSX files.

Annotation Crop Settings

By default the annotation crop boundaries of views are set to the minimum, i.e., slightly larger than the crop. Grids also often extend further than expected.

This can be altered by using a "RDS-AnnotationCrop.txt" file in the "ARUtilsXXXX\data" folder.

There is a file in the folder named "sampleRDS-AnnotationCrop.txt". To activate the files settings rename the file to "RDS-AnnotationCrop.txt" and then edit the file as required.

'Annotation Crop Settings

'Use -1 for no change

'Use 0 for minimum

'Values are in Sheet units e.g. 10 would equal 10mm on the plotted sheet.

'Note: Grid line extension uses project units

PLAN,10

ELEV,10

THREED,20

RCP,-1

KEY,-1

'Sets the distance grids are offset from the crop boundary in plans and elevations. Units are in project units. E.g. 300 is 300 mm.

GRID,300

'By default plans are rotated such that the longest wall of a room runs square to the sheet. Sometimes the longer angled wall may be marginally longer than another room wall that is square to the project. The sqFactor (default 1.5) allows you to define a multiplier that is applied to shorter walls e.g. The longest wall is angled and is 10m long. A shorter square wall is 8m long. $8 \times 1.5 = 12m$. This shorter wall is now considered to be the longer wall and used for setting the rotation of the plans. If you want any room with a square wall to be drawn square you would set the value to 1000.ARUtils 2017 onwards.

SQFACTOR, 1.5

Plans Tab

Plan	Elev	3D	Sched	Sheet
<input checked="" type="checkbox"/> Create Plan		<input checked="" type="checkbox"/> Create RCP		
<input type="text" value="Plan Name"/>		<input type="text" value="Sheet Name"/>		
<input type="text" value="RCP Name"/>		<input type="text" value="Sheet Name"/>		
<input checked="" type="checkbox"/> Shape Crop		<input type="checkbox"/> Dependent		
Extend <input type="text" value="1"/>		<input type="button" value="Auto Tag"/>		
Plan <input type="text" value="Floor Plan"/>				
RCP <input type="text" value="Ceiling Plan"/>				
Border <input type="text" value="<HideCrop>"/>				
<input type="checkbox"/> Key <input type="text" value="Key Plan"/>				
<input type="text" value="<HideCrop>"/>				

Create Plan

When checked, plans will be created for the selected rooms. The plan view is used for placing the elevation marker, therefore it is best that this view be created in conjunction with creating elevations.

Create RCP

When checked, reflected ceiling plans will also be created. These will be named according to the "Plan Name" & "Sheet Name" templates, however "-RCP" will be appended to the generated name.

Plan Name / RCP Name

Define the naming convention for room plans / reflected ceiling plans. Refer [View naming Templates](#).

Note: The current naming template will appear as the tooltip.

Sheet Name

Define the naming convention for plans / reflected ceiling plans when they are placed on a sheet. Refer [View naming Templates](#)

Note: The current naming template will appear as the tooltip.

Shape Crop (Since 2014)

When unchecked rectangular crop boxes are used to crop the plan view.

When checked, polygonal cropping takes place. This will follow the interior wall face exactly. This can be offset by setting the "Extend Past Wall" value. Sometimes the offset curve will cause self-crossing and invalidate the curve loop. In this case the exact wall face will be used for cropping.

Annotative cropping will be set to true.

Note: Revit 2013 uses rectangular cropping.

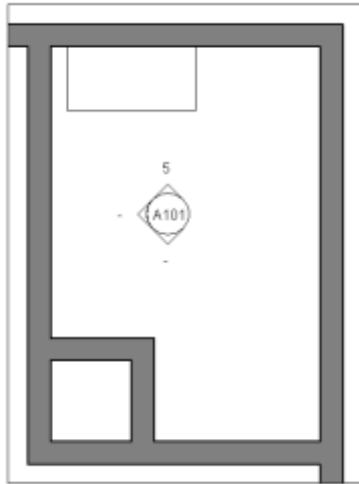
Dependent

Create plans and RCP plans as dependent views. The currently active view will be used as the master view to create the plans. Only rooms that are in the active view will be processed. Therefore you may need to cycle through a series of views, creating the various plans and RCP plans as you go. If creating RCP and plan views, it is best to first create only RCP plans, and then create the Plan views and have the RCP views included when creating the sheets.

Extend past wall face distance

By default room plans are clipped to the internal wall face, i.e., no wall structure is shown. Change this value to extend cropping beyond the wall face.

Note: This will fail where the offset loop starts to cross itself. In this case cropping is set to the internal face.



Cropping set to 500mm past internal wall of room. Shape cropping unchecked.

Auto Tag <Left / Right Click>:

Automatically tag families in plan views when creating plans. Button will show green if enabled, or red if disabled. Use a left click to toggle or a right click to enable and edit existing values. Refer to the ["Tag View"](#) command for details about the interface for Auto Tagging.

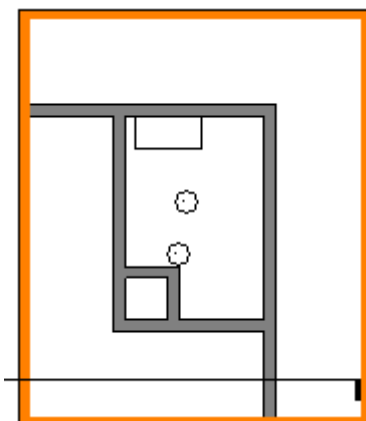
Plan / RCP

The plan/rcp view type to be assigned to newly created floor and ceiling plans. For best results these "View Types" can have default view templates set.

Border Linestyle

Some users like to apply a line style to views other than the default Revit thin linestyle or the wish to hide the crop border altogether (use <HideCrop>). Simply select the line style that you want applied to your views and detail lines will be added to the view. These lines are not aligned so altering the extent of the view will not automatically update the detail lines.

Note: This uses the crop applied to a view, therefore if the crop fails so does the application of the line style. This may require you to manually correct the border line.



A wide orange line style applied to a view. Note that cropping had been set to a very large offset of 2400mm (or 8 feet).

Key / Key View Type / Key view line style

Optionally create a key plan for your room. Also select the key view plan type for your Key Plan. Rooms will be highlighted by a line which is slightly larger than the room. Set the line style for this highlighting line or use <HideCrop> to have the crop hidden. Key plans will always be placed in the bottom right corner on sheets. (Note: No clash detection is done for the key plan)

Elev Tab

Note: It is best that floors and ceiling have been modelled before creating elevations.

Create Elevations

When checked elevations will be created. A four way elevation marker is required. It is best to have all floors and ceilings in place to ensure the extents of the views are set correctly.

Recreating Elevations

If you have “update views” checked, the elevation views will have some updating done.

- The Elevation View Type can be updated
- The Extend Elevation distance will be applied
- Border Line Style can be applied or extents updated. Changing line style is not supported and can result in multiple borders
- LOH can be applied / updated
- Fill grid can be applied or the extents updated. Changing the fill pattern is not supported and can result in multiple fill grids
- Grid Family can be applied or the extents updated.

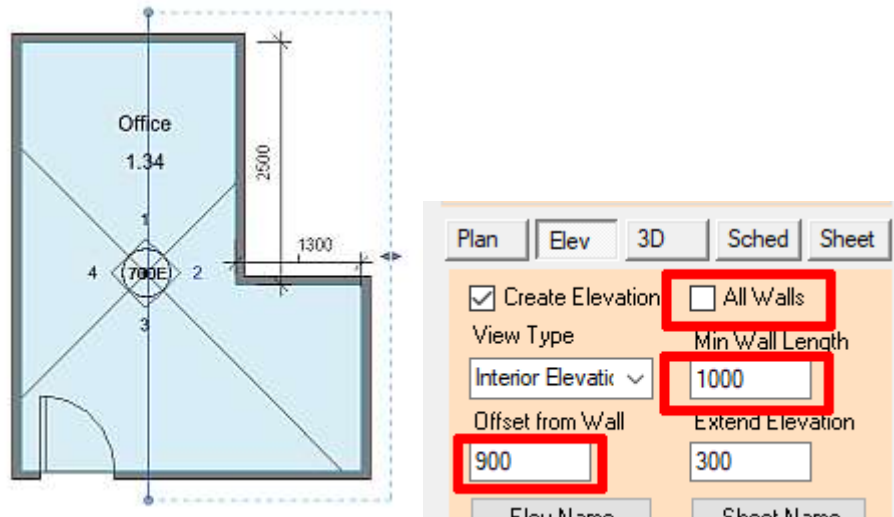
Fills and Border Linestyles cannot be updated to different styles as there is no way to know what the original style was. This could result in wanted items being deleted and therefore no deletion of existing Fills or Borders takes place if you change the styles.

Auto Tagging is not carried out when elevation views are updated.

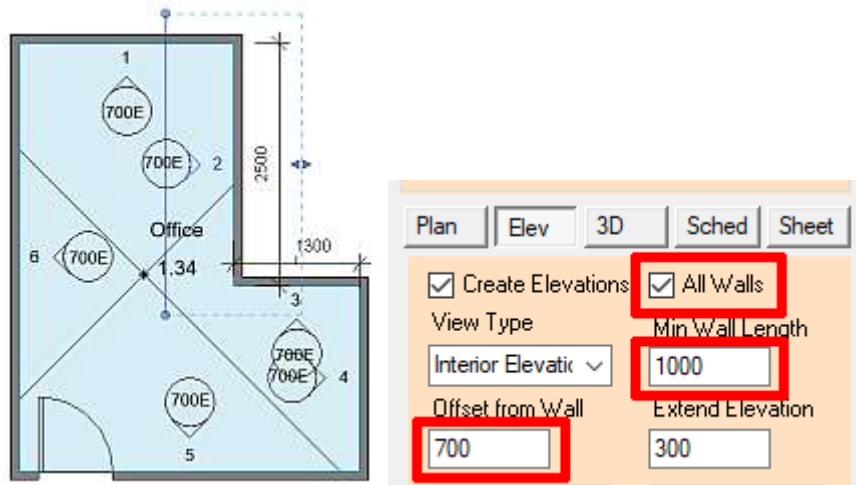
Note: In some circumstances some elevation views will not display correctly until the crop boundary is selected in the elevation view and “Edit Crop” pressed, followed by pressing the “Green Tick”.

All Walls

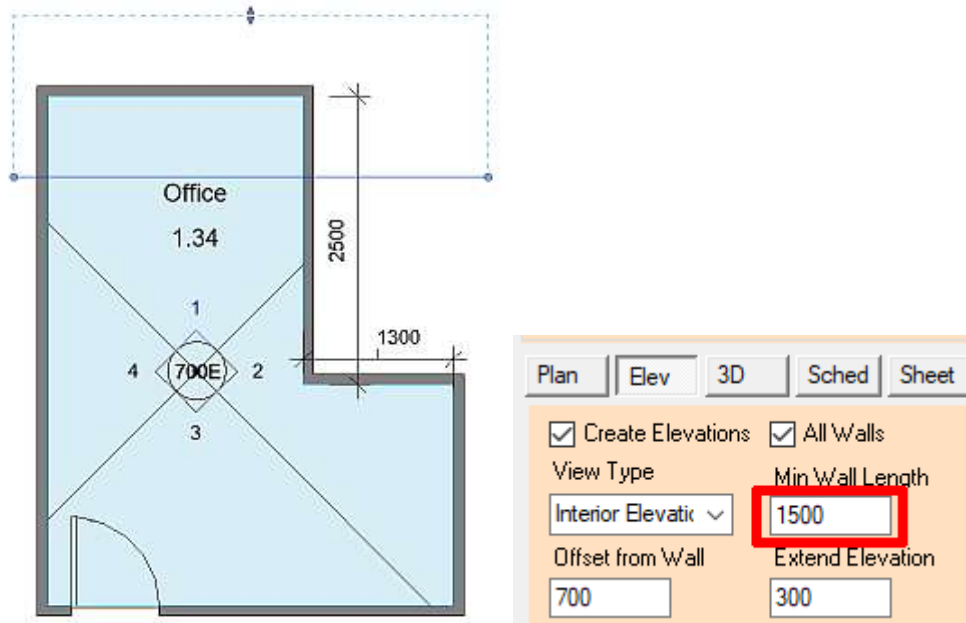
When unchecked simple rooms, e.g. 4 walls and square to each other, the 4 walls will be elevated and a 4 way marker placed at the room reference point. Where a room has angled walls or more than 5 walls, all the walls will be elevated, however if possible only 4 elevations will be produced. These elevations could have quite large steps in them.



"All Walls" Unchecked. Min Wall Length set to 1000. Elevation 2 shows how the elevation depth includes both walls and is offset 900 from the closest wall. All elevation indicators are at the room location point.



All Walls Checked. Min Wall Length set to 1000. Elevation offset is 700. Each wall is elevated



All Walls checked. Minimum Wall Length set to 1500. The 1300 mm wall is ignored. Elevation 2 includes both of the North / South walls.

Note: Determining which walls should and should not be included in an elevation view is difficult and often depends a great deal on the detail on the walls. Sometimes you will need to make adjustments.

When “All Walls” is checked the routine will elevate all walls that are longer than the “Min Length” value. Where possible elevations will span multiple parallel segments of walls that do not necessarily exceed the “Min Length” value.

Note: Where rooms have only four walls, views will be created based on the traditional creation routine. Where multiple walls (more than 4) are elevated the views will be numbered in a clockwise direction starting at the top wall. Layout on sheets will have strips of elevations at the top followed by plans and then 3Ds.

Min Length

Defines the minimum length of wall to be considered for elevating.

View Type

The elevation view type to be used for created Elevations. This will determine the marker to be used. This can also have a default view template set.

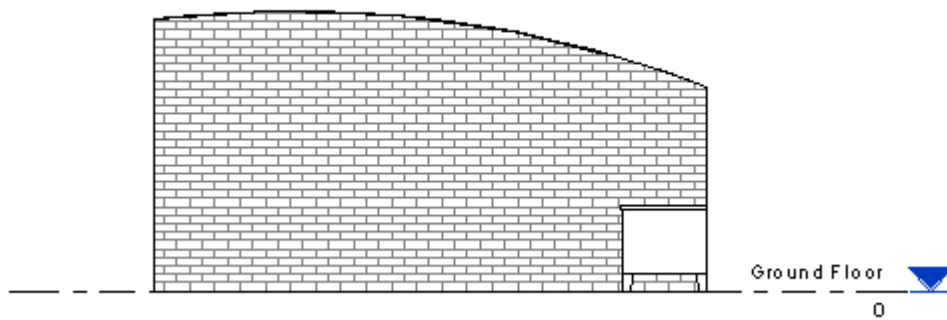
Note: This elevation type must use a “4 Way Marker”. Refer to <https://youtu.be/M0UXGBgcWk> for a more detailed explanation.

Note: Since Revit updates elevations based on changes to the model, existing elevations will not be altered by this routine. There is of course the option to delete the elevations and recreate them.

Note: Where a room has unusual aspects e.g., a curved ceiling, the elevation will be shape cropped to follow the line of the ceiling. Shape cropping is not available in Revit 2013.



A room with a curved ceiling

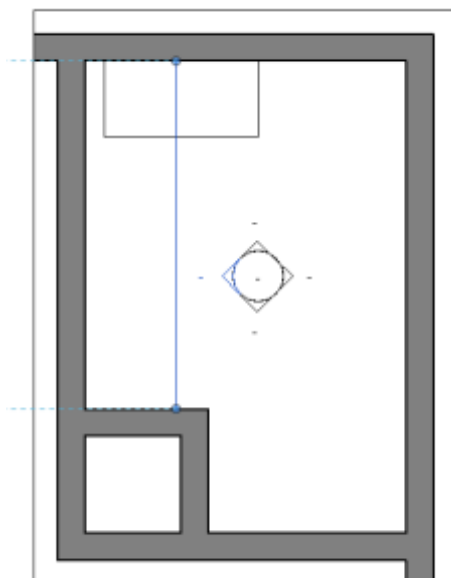


The elevation shape cropped to match the ceiling profile.

On rare occasions a “Shape Crop” may be incorrectly applied to a view. In this case use the “Reset Crop” option to correct the view.

Offset from Wall

Despite using a four way elevation marker, cut planes will be set this distance from the associated wall. 3 feet or 900 mm are the default values.



Elevation cut plane set 900mm from wall

Extend Elevation

Enables you to expand the crop of elevation views.

Note: This may require an edit and save of the cropboundary to correctly display items outside the normal crop boundary, e.g., walls may not show correctly hatched until an edit and save of the crop is done. This is not available in Revit 2013.

Elevation Name

Define the naming template to be used for Elevation view naming. Refer [View naming Templates](#)

Note: The current naming template will appear as the tooltip.

Sheet Name

Define the naming template to be used for an elevation when it is placed on a sheet.

Refer [View naming Templates](#)

Note: The current naming template will appear as the tooltip.

Use Numbers

By default North, South, East, and West will be appended to elevation names.

Checking this box will append 1,2,3,4 to the elevation name. 1 is equivalent to North, 2 East, etc.

Note: When using the "All Walls" option elevation views will be numbered regardless of this setting.

Auto Tag <Left Click / Right Click>:

Automatically tag families in elevation views when creating elevations. Button will show green if enabled, or red if disabled. . Use a left click to toggle or a right click to enable and edit existing values. Refer to the "[Tag View](#)" command for details about the interface for Auto Tagging.

CSheet

Will create CSheet views and place them appropriately on a sheet. A CSheet is a layout where a plan is at the centre of folded out elevation views.

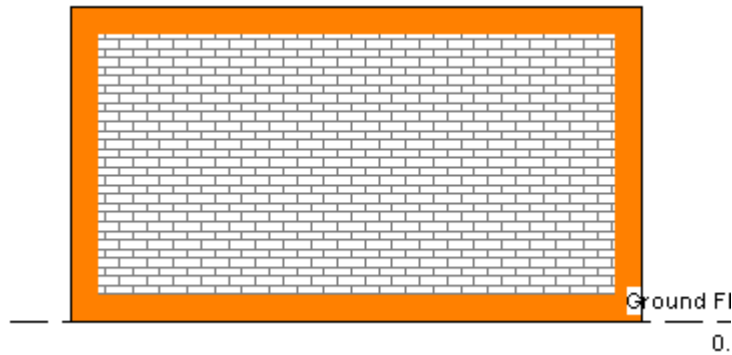
Note: A **callout** of the south elevation is required to allow 180 degree rotation of the view on a "Sheet". This callout is placed on the sheet instead of the South Elevation. At present alignment of this view is "close" to aligning with the plan, although in later Revit versions alignment is exact.

Note: Some strange placement of viewport labels has been noted. This is a Revit issue and cannot be controlled via the API.

Border Linestyle

Some users like to apply a line style to views other than the default Revit thin linestyle or they like to hide the Crop boundary altogether (use <HideCrop>). Simply select the line style that you want applied to your views and detail lines will be added to the view.

Note: This uses the crop applied to a view, therefore if the crop fails so does the application of the line style. This may require you to manually correct the border line.

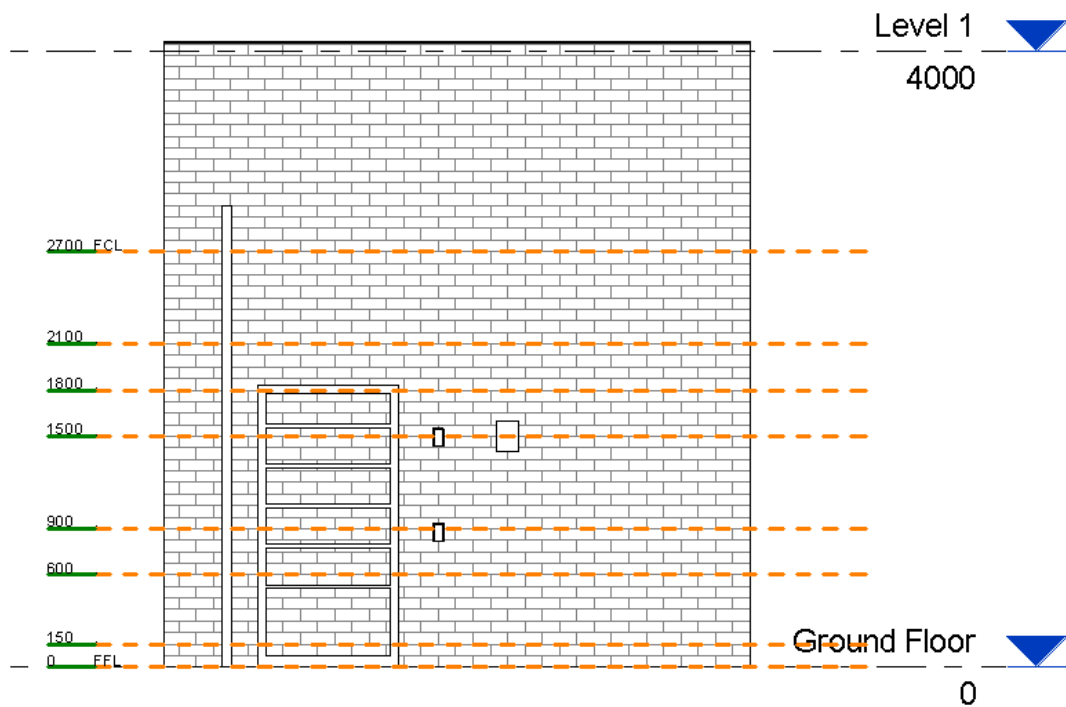


An elevation view with a very thick (16) Border Linestyle applied

LOH

Allows you to add a **line of height family** to your elevation views. This uses the “LOH_ARUtils.rfa” family and will assign either the “Metric” or “Imperial” type. If desired you can create your own types or redefine the existing types. The family is located in the “ArutilsXXXX/families” folder.

If you have types that match the first letters of your room name then this type will be used, e.g. Create a room named “Ensuite” and have a type in the LOH family named “Ens”. This will then be applied to all the elevation views for that room.



Line of Height Family Applied to Elevation at time of creation

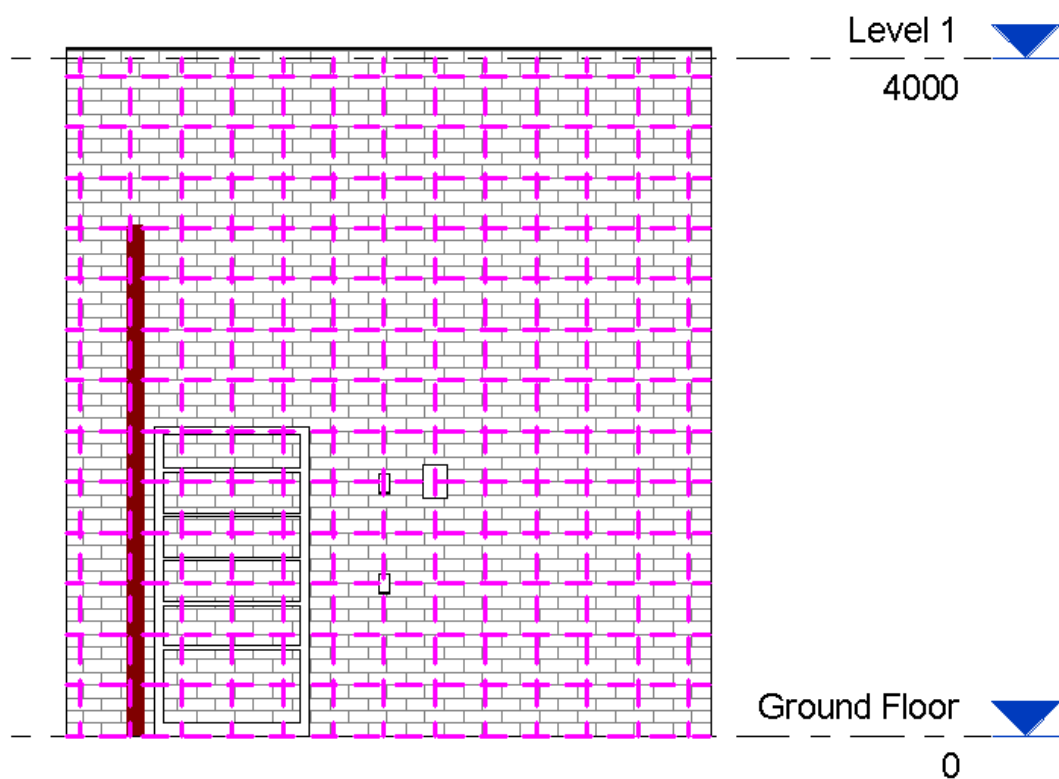
Object Styles			
Annotation Objects			
Category	Line Weight Projection	Line Color	Line Pattern
Generic Annotations	1	Black	
Annotations - Line of Height	1	RGB 089-089-089	Dash 1/2
Annotations - Tick Mark	1	Black	Solid
Centerline	5	Black	Solid
Symbol - Int Ele RL Tick	1	Black	Solid
Symbol - Int Ele RL Tick 2	1	Black	Solid
Reference Lines	1	RGB 255-128-000	
Reference Planes	1	Red	Dash - Tight

The subcategories that can be adjusted to display LOH items as you require.

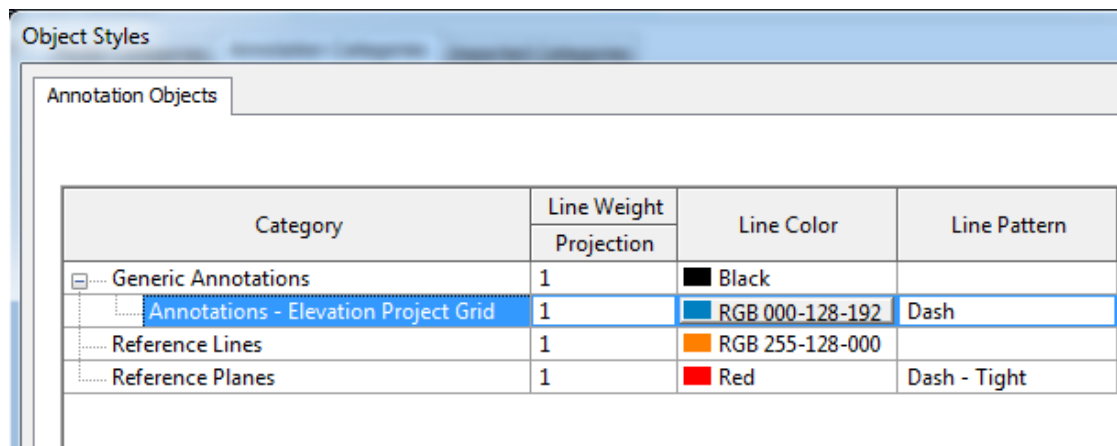
Grid Family

This applies a grid family (much like the LOH family) to elevation views. This was created for projects where a planning grid is in use. This uses the "Grid_ARUtils.rfa" family that can be found in the "ARUtilsXXXX/families" folder. Simply select the type you want used on your elevation.

The family will be automatically adjusted to match the project grid provided you have "Project Origin Grid" checked. If this is not checked a grid will be applied using the start of the wall / walls in the elevation.



An Elevation view with the "Grid Family" applied with Project Origin Grid checked.



The subcategory used for Elevation Project Grid

Fill Grid

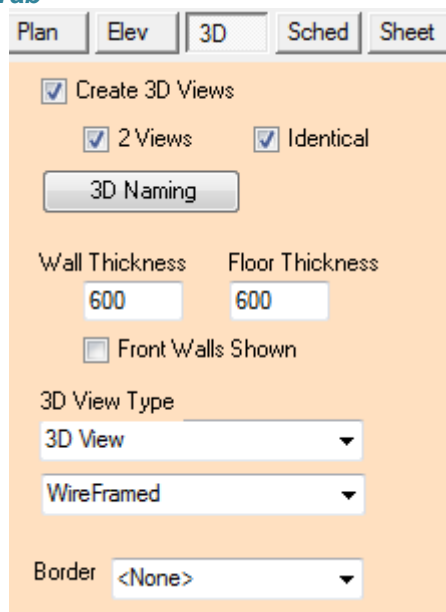
Allows you to apply a defined Fill Region to your views. This was created for projects where a planning grid is in use. E.g. A 300mm planning grid based on the project origin.

Note: The fill cannot be auto aligned via the API at present and therefore manual adjustment is required.

Project Origin Grid

When placing the *Grid Family* use this option to align the grid to the project origin or alternatively apply grids to each wall in the elevation view.

3D Tab



Create 3D Views

When checked 3d views are created. The default view is viewing North East. The section box for the 3D is set to the interior wall faces for the room unless a "Wall thickness allowance" has been set. If the room is considered to be rotated the "North East" direction is altered appropriately.

2 Views

When checked a second 3D view is created which faces South West.

Identical

When checked and creating two views the second view will be from the identical direction. You can then also select a secondary 3D View Type to be applied to the second 3D view.

Wall thickness allowance

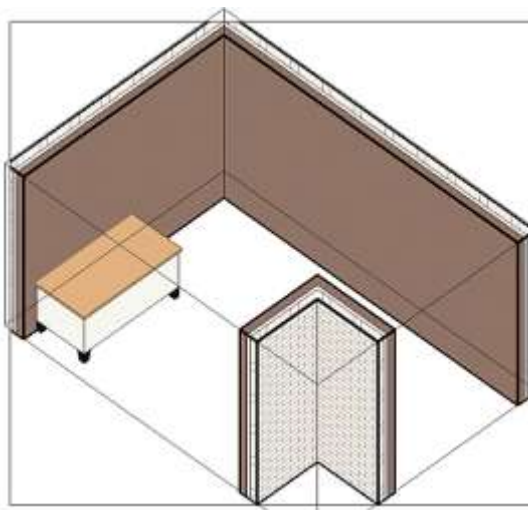
This option extends the section box for the view beyond the wall face by the specified distance. This only affects walls at the back of the view unless the “Front Walls Shown” checkbox is ticked. This allows 3D viewing into the room.

Floor Thickness

This option will extend the 3D section box below the floor surface of the room thus allowing you to see the structure below the room.

Front Walls Shown

By default the “front” walls are removed by careful placement of the Revit Section Box. Check this if you want the “Front” walls to be included in the Section Box. You may then opt to change the visibility of these items.



3D view cropped and section boxed with a wall thickness allowance in use. Front walls have been section boxed out.

3D Naming

The naming template to be used for naming 3D views. Where “2 Views” is checked, the views have 1 and 2 added to the naming template result. Refer [View naming Templates](#)

Note: The current naming template will appear as the tooltip.

3D View type

The 3D view type to be applied to created views. This type can have a View Template applied to it to ensure all your views display as you wish.

When “**Identical**” is checked the second view type will be available for selection. This enables you apply different visibility settings to the two views.

Border

Set the line style to be applied to the crop box. <HideCrop> is probably the most useful option. This uses an element override approach.

Schedule Tab

Plan Elev 3D Sched Sheet

☒ Create Schedules

Schedule Naming

Schedule Template

☒ Furniture Template
☒ FFE Template
☒ Joinery Template

Select one or more

Create Schedules

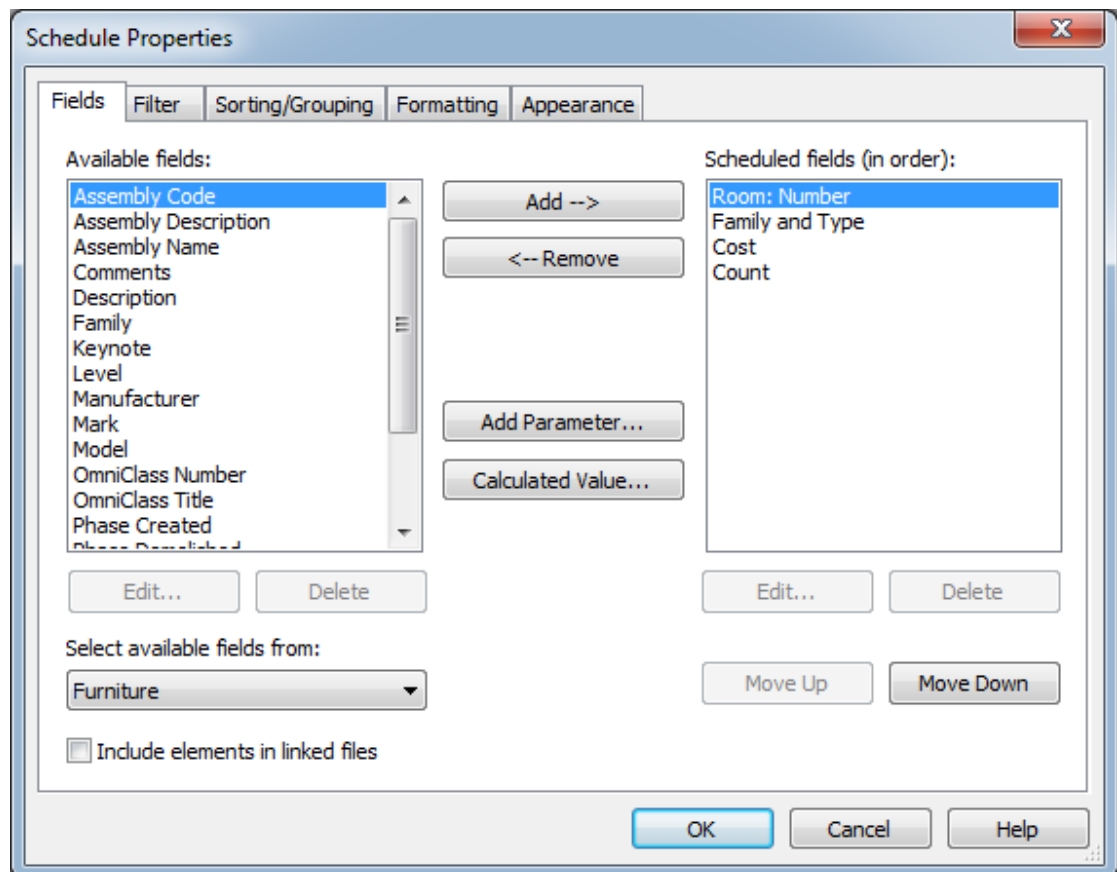
When checked, schedules will be created. Schedules are created slightly differently to other views in that a “schedule template” must first be created by the user. The “Schedule template(s)” are simply a Revit schedules that use “Room Number” as one of the included fields. Room Number is then used in the “filter” section of the schedule. When the command is run the “Filter value” will be set to room numbers.

The “Schedule Template(s)” must include “template” as part of their name. You can select any or all of the listed schedules.

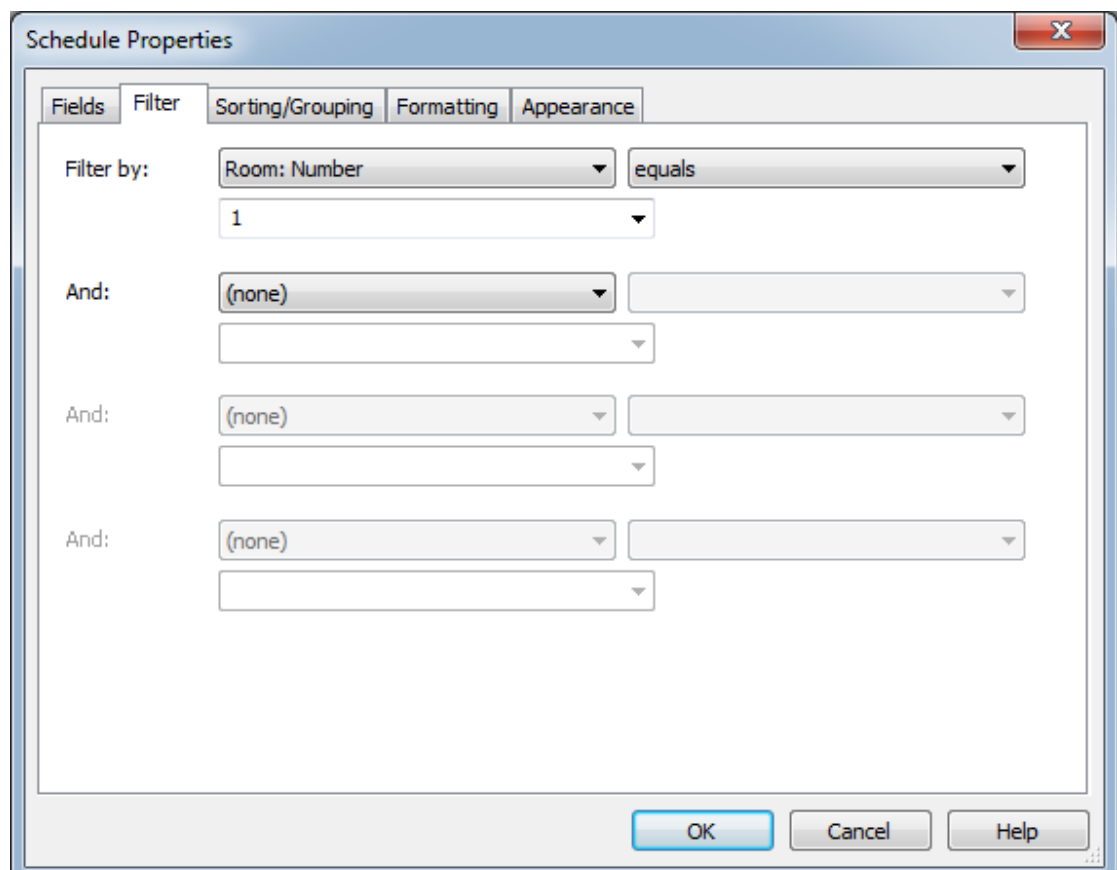
Note: Template will be removed from the newly created views e.g., FurnitureTemplate will be truncated to “Furniture”. This plus a dash will be appended to your “Schedule Naming” string so you may get a result such as 01-Meeting-Furniture when using a template such as <Number>-<Name>

It is useful to place the schedule template(s) on a dummy sheet and format the schedule(s) as you want them. E.g., set column widths, row heights, etc.

Note that you can alter all of the aspects of the “template schedule(s)” and then re-run the creation routine. Schedules will be updated to the altered aspects of the template.



The "Room Number" field as one of the fields



A filter set to use “Room Number”. This is set progressively to create schedules for each room.

Schedule Naming – CHANGED OPERATION 15/1/2019.

Define the naming template to be used for creating room Schedules. Note that the name of schedules will change “Template” to the string generated by the naming template. A template named “my Template Furn” will replace “Template” and we may get “my G.01-Meeting 1 Furn” as the name of a created schedule. Refer [View naming Templates](#)

Schedule Template

The existing “Schedule” views to be used for creating other schedules. Tick one or more.

Note: Schedule Placement on Sheets. When creating sheets as part of the creation process, Schedules by default will be placed down the page in alphabetical order. They will be placed right of the elevation views, or if no elevations are being created, right of the plan and 3D views.

Sheet Tab

The Sheet tab allows you to automatically create sheets as you create your room views. **This is a somewhat risky approach as many views require checking and some manual modification. It may be better to create all your views except for the sheets, fix the views, and then use the “[Sheet Viewport Manager](#)”.**

If you must create sheets at the same time as you create your views then you have two options. You can select a “Sheet Template” of “<None>” in which case sheets are created with a default layout of views using the following layout:

North, East, Schedule
South, West
Plan, 3d1, 3d2

CSheets:

If you have selected the “CSheet” option in the “[Elevations](#)” tab, you will get a classic CSheet layout, i.e., Elevations appear as petals around the plan view.

Note: At present the “Sheet Viewport Manager” does not support CSheet Layouts.

Alternatively by setting the “Sheet Template” to a Sheet that has “template” as part of its name, the layout of the views on that sheet will be used as a guide to the layout of all other rooms. **As view placement is dependent on the size of the views being placed it is often better to post process your views and then follow up and use the “[Sheet Viewport Manager](#)” to create your sheets.**

Create Sheet

Enable sheet creation

Plan First

Typically elevations are placed across the top of sheets followed by plans and 3D views. This option will have plans in the first row.

Single Sheet

Force the views related to a single room to be placed on one sheet. Whilst the command tries to maximise use of space on a sheet sometimes views will go to multiple sheets. This enables you to force all views to a single sheet.

Sheet Naming

Set the naming template for sheets. Refer [View naming Templates](#)

Add Suffix

Where a room requires multiple sheets, add a number suffix to generated sheet names. E.g., G101-Meeting Room-1, G101-Meeting Room-2, etc.

Numbering Template

Set the starting number for your sheets. The next available sheet number will be used.

Note that you can use **<Number>** in the template field to include the room number as part of the Sheet Number. E.g., Your room number is ICU-201, if you set your "Number Template" to "A55-<Number>" (case sensitive) your sheet would be numbered "A55-ICU-201"

Note that if your last character in the numbering template is an A-Z character then this will be incremented. E.g. A,B,C etc. Where a room requires multiple sheets these will be numbered A.1, A.2. Once Z is reached we will have AA, AB, AC, etc. Beyond this you can use the Import / Export sheets function to renumber sheets in bulk.

Title Block

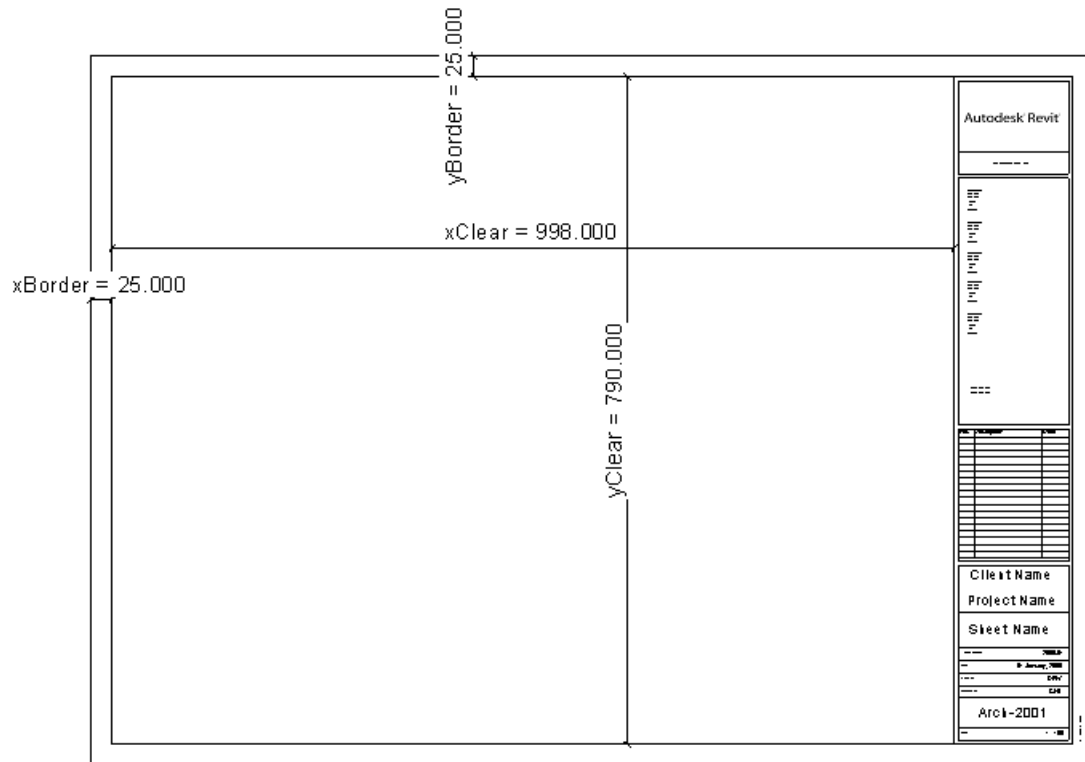
The Title block to be used. This can be overridden by your Sheet Template

Viewport Label

The viewport label to be applied to views. All views except schedules will use this label. This can be overridden by you sheet template.

Note: To obtain the best placement results for Viewports on sheets **you should add certain parameters to your title block family**. The parameters to add are all length parameters (no need to be shared) that define the clear area of the sheet, i.e., where items can be placed, and also the top and left hand borders. The parameters are:

xBorder – Left border
 yBorder – Top Border
 xClear – Width of clear area
 yClear – Height of clear area



Sheet Template

By creating a sheet that has “Template” as part of its name, you can define a template layout (or series of template layouts) of views relating to a single room. This layout will then be replicated for the other rooms you select. The layout of views, the value of parameters, the Viewport Labels will all be taken from this template.

The typical process for creating a template is:

- Get the routine creating all required views and the sheet(s) correctly, i.e., views are named correctly ideally using the Room Number as one of the parameters.
- Create the views and sheet(s) for a room
- Drag views around the sheet(s) to the locations you want. Note that views are scanned for horizontal alignment, i.e., what views should go in row one, row two, etc. Alignment in columns is not really tackled.
- Rename the sheet(s) to include “Template” as part of its/their name(s). If multiple sheets are required then use “Template-1”, “Template-2”, etc. as part of the names.
- “Rescan” the project to find the Template(s). These should now be available for selection. With a multi sheet template select the “Template-1” item.
- Create views and sheets for other rooms.

Note: Key Plans will be in the same location on all sheets (centered). CSheet layouts are not handled by this option.

Room List Options

Room Data Grid

Shows the rooms available in the project.

Select Parameters

Select the room parameters to be displayed for each room. Refer to "[Parameter Picker](#)" for more detail.

Ignore Rooms of 0 area

Ignore listing rooms with 0 area as these are likely to not produce useful RDSs.

Include Links

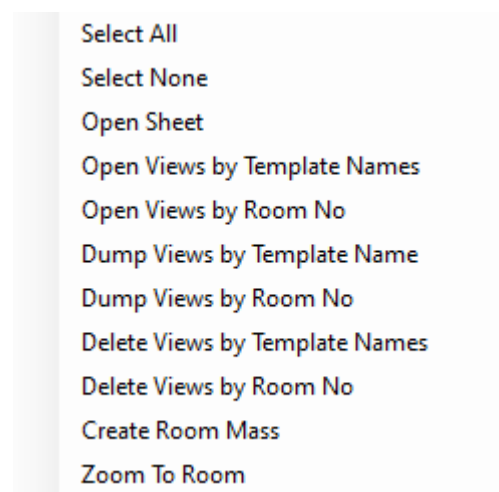
Include rooms in linked documents

Rescan Project

Rescan the rooms in the project. When the RDS dialog is opened in the same project as last time, **stored text** data quickly populates the data grid. This may not necessarily be up to date with the actual project state. Rescan will interrogate the model to provide up to date information.

Note: If a room has an associated plan existing then the room row will be coloured "Orange".
If a sheet exists as well then the item will be coloured green.

Right clicking brings up a "Select All" | "Select None" | "Open Sheet" | etc



Open Sheet

Open sheet will open the associated sheet/sheets for the selected rooms

Open Views by Template Names

Open views by template name will open all the views associated to a room or rooms.

Matching is determined by views matching the various naming templates and defined types.

Open Views by Room No

Open views will open all the views associated to a room or rooms based on views using the Room Number as part of the name.

Dump Views by Template Name

Dumps any room related views onto the current sheet. Only views matching the naming templates will be considered. Manual placement will be required

Dump Views by Room Number

Dumps any room related views onto the current sheet. Any views with the Room Number as part of their name will be considered. Manual placement will be required

Delete Views by Template Names

Deletes views by template names will delete the associated sheet/sheets for the selected rooms based on templated view names

Delete Views by Room Number

Deletes views by searching for views incorporating the Room Number. You will be prompted to select views for deletion.

Create Room Mass

This will create room masses Open sheet will open the associated sheet/sheets for the selected rooms

Zoom to Room

Allows you to zoom to a single room in 2D, 3D, or to select the room.

The data grid allows multi column sorting. Each time you click another column to sort, the previous sorted column will be used as a secondary, tertiary, sort. By default the table will be sorted by parameter 1 and 2.

You can drag and drop columns, however it is better to define your column order using the order of parameters.

Items selected in the data grid will be selected the next time the dialog is opened.

Achieving consistent results across your network

The “Room Data and Views” command tries to ensure that a project can move between computers and achieve the same results again and again. **It does this by storing the settings in the project.**

To have your standard “Room Data and Views” setup consistently **applied to projects for the first run of the command** requires some **additional configuration**. The simplest approach is to have a Project Template file that has all of the desired settings. Simply open your “Project Template” file, run the “Room Data and Views” command and re-save your template file.

By rights this initial step of embedding settings in your Project Template should ensure that rooms are generated to office standards. Of course things can be altered in unexpected ways and additional steps will mitigate further unexpected results. This involves copying all the “Naming Template” files (Named RDSxxxx.xlsx in the ARUtilsXXXX\data folder) to the “arutilsxxxx\Data” folder on all computers as well as applying other settings via registry files, e.g., Should elevations use North, South, or use numbers. Should the plan be placed first on a sheet?)

Steps to consistent Room Data and View results:

1. Edit ALL your Naming Template files (Named RDSxxxx.xlsx in the ARUtilsXXXX\data folder) to have your default naming templates. **The first entry will be your default naming template for that particular view type.**

	A	B	C	D	E
1	Name	Prefix	Par2	Suf3	Par4
2	RDS		Number	-	Name
3	WD	WD-	Number	-	Name

The first entry named “RDS” will be the default naming template for projects the first

time the command is run in a project.

2. Copy all of your Office Specific “Naming Template” files (from 1 above) to the “arutilsXXXX\Data” folder on all computers.

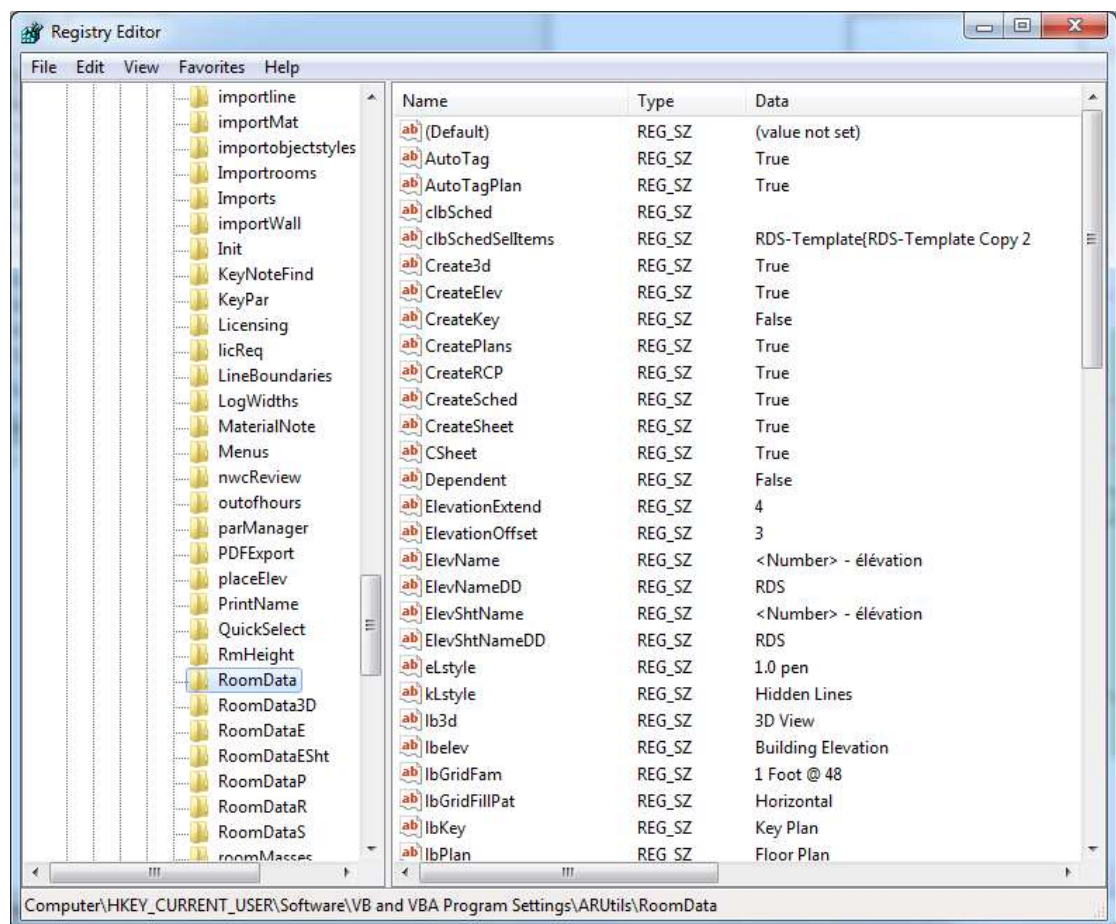
(Note: Use the “[Manage Setup](#)” option to do this most easily.)

3. In your **Office Project Template** file run the “**Room Data and Views**” command making sure to set all the values you want as your default settings. Save your project template file.

Note: This is stored in the non-visible project parameter “RoomDataForm_ARUtils”

Note: You can use the “[Parameter Manager](#)” or the “[ARUtils Parameter Deleter](#)” commands to clear this parameter.

4. Export and apply the registry settings relating to the “Room Data and Views” routine, and various naming templates to all computers. Once again do this via the “[Manage Setup](#)” option in ARUtils.



The “RoomData” registry. Use “File/Export” to export settings you are happy with. Double clicking on the created file will import the settings to other computers. Also include the other “RoomData??” registries.

5. Ensure that your project contains all the items that you depend on to create your Room Layout Sheets. Check through the following to ensure your template files have the used:
 - Plan view type
 - RCP view type
 - Line Styles (optional)

- Key Plan type (optional)
- Elevation view type and marker
- LOH Family in your project (this should also be in your arutilsxxxx\amilies folder and consistent between computers. Family is "loh_ARUtils.rfa") (optional)
- Fill grid pattern (optional)
- 3D view type
- Schedule Template Views
- Title Block family
- View Port Label

Note that purging any of these will cause the command to produce unpredictable results.

Missing Items

The "Room Data and Views" command checks your project to ensure that all the required items that the command relies on are in your project. If the item does not exist in your project you will be presented with a message about the missing item(s)

Items that are checked are:

- Plan view type
- RCP view type
- Line Styles (optional)
- Key Plan type (optional)
- Elevation view type and marker
- LOH Family in your project (this should also be in your arutilsxxxx\amilies folder and consistent between computers. Family is "loh_ARUtils.rfa") (optional)
- Fill grid pattern (optional)
- 3D view type
- Schedule Template Views
- Title Block family
- View Port Label

Your options then are to re-establish the item(s) by the most appropriate method. You may need to re-create view types, reload families, transfer in line styles or fill patterns, or recreate region fill patterns.

Alternatively "Rescan" the project and set values based on items within your project.

Known Limitations:

- Rooms with curved walls may cause issues in regards view extents.
- Multi page Room Data Sheet generation is somewhat slow. This is a limitation of the Word Automation routines.
- Support of Revit views in the RDS word documents is best achieved via PDF exports of the views from Revit. To achieve the best results views must be closely cropped, i.e., zero margins.

This can be achieved using Acrobat's "Trim Whitespace" or by printing views using a custom page size that closely matches the size of the exported plan or elevation. ARUtils – Named Print PDF supports this via the "ARFit" page size.

- LINKED PROJECT FILES
 - ~~Tagging of families cannot occur with rooms in linked files whether the families are in the linked file or the host file~~
 - The phase of the linked Room will be set based on the following criteria:
 - By Name
 - By the phase of the view when the command is started

- The last phase in the project
- The level of the linked room will be set based on the following criteria:
 - By elevation
 - By Name
 - If neither of these are met the routine fails

AREA CROPS

Since 2014

The Area Crops command is designed to create dependent plan views cropped to Areas defined in a matching Area plan.

You can either create dependent views for a single plan (Floor or Ceiling) or for all the plans of a particular type.

The typical usage for this command would be in an apartment tower situation.

Single Plan View

The workflow when using a single plan view is as follows:

- Create an Area plan where each apartment has a designated area.
- Name and Number the areas according to your needs.
- Create a plan view that encompasses all apartments
- Start the Area Crops command with the apartment master plan view active.
- Make sure Plan Type to Process is set to "<Active View>"
- Set the Matched Area Type to "<Select>"
- Set the "Area types" to be considered for cropping e.g., "Office Area", "Floor Area"
- Set the crop offset
- Set the naming template (based on Area parameters). The default is <Name>-<Number>
- Press create. Each area will have a view created.

The result will be a series of dependent views cropped to the various areas.

Multi Plan

The workflow when generating cropped views for all of a plan type is as follows:

- Create Area plans for each level. Each apartment needs to have a designated area. These Area plans should all be of a particular Type, e.g., Apartment Area Plans. This is user defined
- Name and Number the areas according to your needs.
- Create plan views for all required levels. These should all be assigned a particular Type e.g., Apartment Floor Plans. This is user defined.
- Start the Area Crops command.
- Set the Plan Type to Process to the required type, e.g., Apartment Floor Plans
- Set the Matched Area Type to the required type, e.g., Apartment Area Plans
- Set the "Area types" to be considered for cropping e.g., "Office Area", "Floor Area"
- Set the crop offset
- Set the naming template (based on Area parameters). The default is <Name>-<Number>
- Press create. Each area will have a view created.

The result will be a series of dependent views cropped to the various areas.

The Area Crops dialog

Plan type to Process

Set this to "<Active View>" or to one of the available plan types

Matched Area Type

Set this to "<Select>" to be prompted for a matching Area Plan, or set it to the Available area plan types.

Note: There should only be one area plan for each level.

Area Types

Select the Area Types to be considered when creating dependent views

Offset for Crop

The offset to be used to expand the Areas when cropping

Open New Views

Open any new (or updated) views

Naming Template

The naming template to be used for new views. Refer to "[View Naming Templates](#)"

Create

Create the dependent views.

SCOPE BOX VIEWS



[Scope Box Views](#)

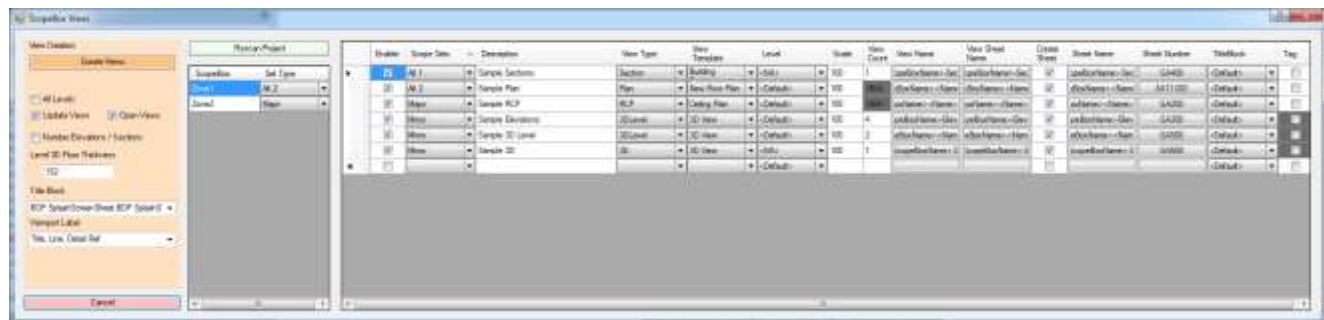
The “Scope Box Views” command allows you to easily create a set of consistently named views for your project. The views you can create are:

Scope Box Based:

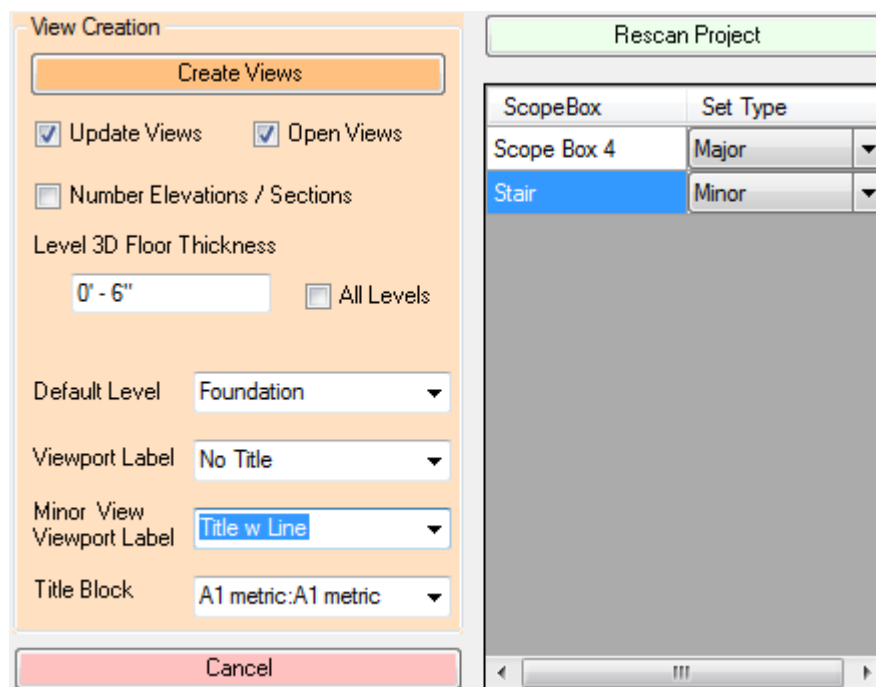
- Elevations – A north, south, east and west elevation of the scope box
- Sections – Sections that slice through the scope box in East-West and North-South directions
- 3Ds – Either one or two 3D views encompassing the entire scope box

Scope Box and Level Based, these views are generated on a level by level basis:

- Plans
- Reflected Ceiling Plans
- Area Plans
- Structural Plans
- 3Ds – Either one or two 3D views for each level



The Scope Box Views dialog



The left section of the Scope Box Views dialog

View Creation:**Create Views**

Create the views for the selected scope boxes and the various enabled view template

All Levels

By default only "Building Storey" levels will be used for creating level based plans. Tick this if you want all possible levels used for view creation.

Note: Levels above or below the extents of the scope box will not be used. Also levels assigned a specific scope box will not be used for other scope boxes.

Note: If levels are associated to a scopebox then they will only be used for that scopebox.

Update Views

Update existing views.

Note: Elevations do not update.

Open Views

Views created or updated will be opened

Number Elevations and Sections

By default elevations use North, South, East and West. Checking this option will name elevations 1, 2, 3, 4.

By default sections use A, B, C, etc. This option will number consecutive sections.

Level 3D Floor Thickness

When creating a Level based 3D, extend the 3D section box this far below the level. I.e., show some of the slab below.

Default Level

Where a View Creation Definitions naming template is "Static", i.e., it does not use any parameters to generate a name, and the level is set to "<Default>" this is the level to be used to create that single view.

ViewPort Label

The viewport label to be used when placing views on sheets. Major items are typically a single view on a sheet and do not require a visible viewport label. Using the "No Title" viewport type is therefore the best.

Minor ViewPort Label

The viewport label to be used when placing Minor views on sheets. Minor views are typically grouped on a single sheet and require a visible viewport label. Using the "Title with Line" viewport type is therefore a preferred option.

Title Block

Use this title block when creating sheets and the "Title Block" item is set to "<Default>".

Rescan Project

Resync the data for the project for the Scope Boxes and View Creation Dialog.

Scope Box list

The scope boxes that exist in the project. Each of these can have a set type assigned. The valid types are Major, Minor, Alt 1, and Alt 2. This enables you to define a set of view definitions to be used for the scope boxes. E.g., You may use Minor for Stair and Lift scope boxes.

You must select the scope boxes that you want views created for.

Note: Both Minor and Alt 2 assume that multiple views will be placed on sheets. The placing sequence is

- Primary 3D views(s)
- Elevation views
- Section Views North South
- Section Views East West
- Plan views
- RCP views
- 3D Level views

View Creation Data Grid

Gridline	Scope Set	Description	View Type	View Template	Level	Scale	View Count	View Name	View Sheet Name	Create Sheet	Sheet Name	Sheet Number	Title Block	Tag
Alt 1	Sample Section	Section	Building	Alt 1	100	1	1	scopeBoxName-Sec	scopeBoxName-Sec	Alt 1	scopeBoxName-Sec	GA400	Default	Alt 1
Alt 2	Sample Plan	Plan	New Floor Plan	Default	100	1	1	scopeBoxName-Plan	scopeBoxName-Plan	Alt 2	scopeBoxName-Plan	AA11 001	Default	Alt 2
Major	Sample RCP	RCP	Ceiling Plan	Default	100	1	1	scopeBoxName-RCP	scopeBoxName-RCP	Alt 3	scopeBoxName-RCP	GA300	Default	Alt 3
Minor	Sample Elevation	3DLevel	3D View	Default	100	4	1	scopeBoxName-Elev	scopeBoxName-Elev	Alt 4	scopeBoxName-Elev	GA300	Default	Alt 4
Minor	Sample 3D Level	3DLevel	3D View	Default	100	2	1	scopeBoxName-Plan	scopeBoxName-Plan	Alt 5	scopeBoxName-Plan	GA300	Default	Alt 5
Minor	Sample 3D	3D	3D View	Alt 1	100	1	1	scopeBoxName-3D	scopeBoxName-3D	Alt 6	scopeBoxName-3D	GA300	Default	Alt 6
Alt 7					Default					Alt 7			Default	Alt 7

The View Creation Data Grid

Note: Data for this is stored in “arutilsXXXX\Data\zoneviews.xlsx”. This could be distributed to all users.

Note: Data for naming templates is stored in “arutilsXXXX\data\ScopeBoxNames.xlsx”

Note: Right click cells to duplicate rows.

Enable

Enable this View Creation Definition (VCD)

Scope Set

The Scope Box Set that this view definition relates to. Only definitions that match the “ScopeBox | Set Type” will be used for a zone. Even if a definition is enabled the Scope Box Sets must match for the definition to be processed.

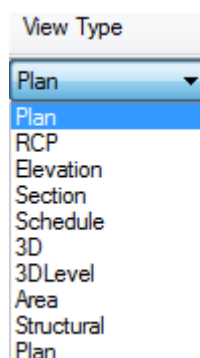
Description

A description of what this creates

View Type

The view type you are creating. 3D, Section, and Elevation relate to the overall scope box. All other options relate to specific levels and the scope box, i.e., Plan will generate a plan for each level.

Note: Elevation view types rely on a “1 Way” elevation marker. To learn more about this refer to <https://youtu.be/M0UXGBgcWk>



View Template

The available “types” stored in the project to be used when creating this view type.

Note: Elevation types must use a related marker that can only create one elevation. I.e., the marker cannot be a four way marker.

Level

A value of <default> will use all levels as defined in the “View Creation” section of the dialog, i.e., either all levels or all building storey levels. As an alternative you can pick a specific level, perhaps for generating a site plan.

Note: This will not be enabled for View Types that are not level based. E.g., Elevations are not level based and therefore the item is disabled.

Note: If you use a value of <Default> then all naming templates must contain a level parameter, e.g., <Name>-Plan. If creating a single view e.g., a Site Plan, then you must set the “Level” to a specific level and only then can you use a constant name template such as “Site Plan”. This is checked for both when the form loads and also when create views is clicked.

Scale

The scale for the created view. This may be overridden by the View Template

View Count

Relevant to the Section and 3D commands.

With 3D command the valid options are 1 or 2. When 2 is used, a view from the bottom left and top right corners will be created.

With Section this number of sections will be created in the East/West and North/South directions. E.g. a value of 3 will create a total of 6 views.

Note: This will locked for View Types that cannot use the count value.

View Name / View Sheet Name / Sheet Name

Naming template strings for created views. To use the “Scope Box” name you can use the variable “<ScopeBoxName>”. Use of “Level” parameters is only relevant to level based view types.

<ScopeBoxName>-Section
<ScopeBoxName>-<Name>-<Elevation>

Refer [View naming Templates](#)

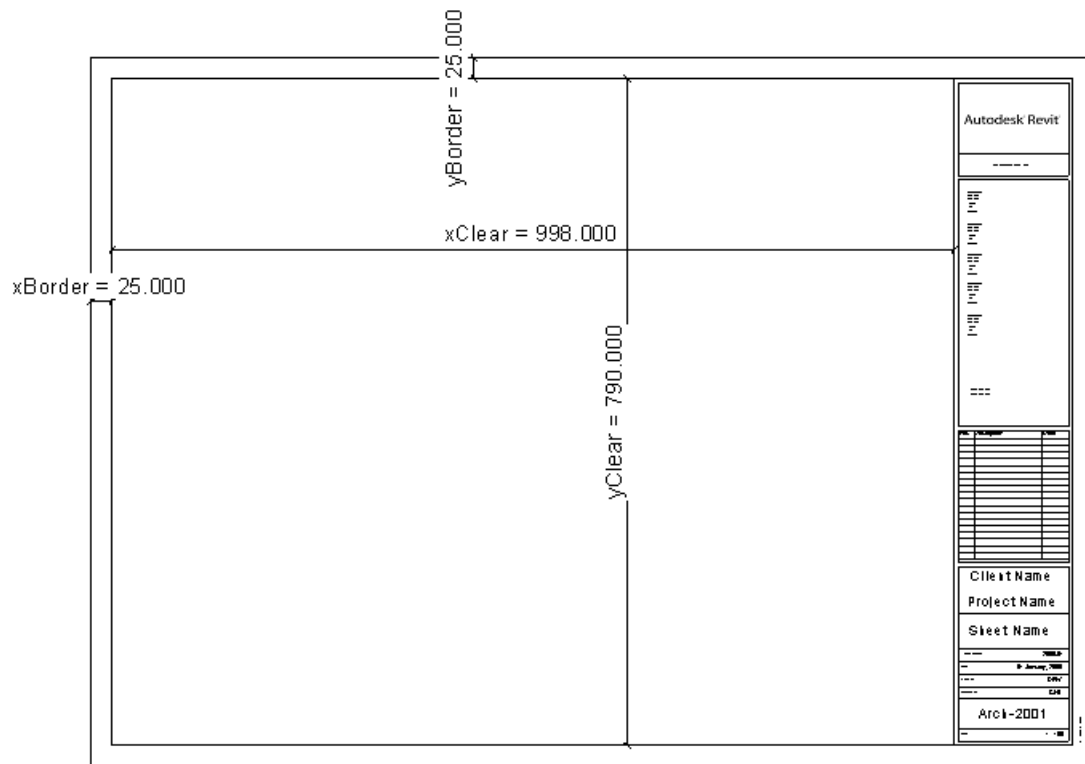
Note: Do not use “Scope Box” as this is the scope box assigned to a level.

Create Sheet

Create a sheet for each created view. Views will be placed individually and centred on the white space of the sheet.

Note: To obtain the best placement results for Viewports on sheets **you should add certain parameters to your title block family**. The parameters to add are all length parameters (no need to be shared) that define the clear area of the sheet, i.e., where items can be placed, and also the top and left hand borders. The parameters are:

xBorder – Left border
yBorder – Top Border
xClear – Width of clear area
yClear – Height of clear area



Sheet Number

A template number to use when creating sheets. The next available number will be used. As with view naming you can use a template to create the number, e.g., AA10-<ScopeBox>-<Name> would generate a number such as AA10-Zone1-Level1, AA10-Zone1-Level2, etc.

TitleBlock

When set to default the title block defined in the “View Creation” section will be used.

Alternatively specify a specific title block. This can be useful for including / excluding a north point or other such information.

Tag

Specify the tagging options you require for your created views.

Duplicating Entries

You can select a row and right click the row to reveal

	Description	View
▼	Sample Sections	Sec
▼	Sample Plan	Pla
▼	Sample RC	RC
▼	Sample Elev	3D

Copy to End – Copy the current row to the last row
 Copy Before – Copy the current row to before this row
 Copy After – Copy the current row to after this row

GHOST FAMILIES / EXTRA FAMILIES

Ghost Families / Extra Families

The Ghost / Extra Families option addresses two situations that architects may find themselves in where it is unnecessary and undesirable to actually place families in the project, however you want the families to appear in schedules (Only in ARUtils Schedules).

Note: This applies to the “[Room Data Sheets](#)” routine and is also used with the “[Import / Export Formatted](#)” routine.

In the first situation you are required to have families list in a schedule, however they do not need to appear in any of your views. This could be addressed by creating empty families and inserting them into the appropriate rooms however this can become difficult to manage as finding and selecting the families is difficult. Your model also increases in size and becomes less responsive.

In the second situation it is desirable to **base a rooms contents on another room**, e.g., you may have 100 hotel or hospital rooms. Modelling each of these is time consuming and largely a waste of time, particularly at the early stages of a project. Admittedly linked rooms, super families, etc. are viable alternatives; however a lot of effort goes into producing little result. Once again your model is likely to be less responsive.

With Ghost families enabled, you can set a parameter value. By default the parameter is “ExtraRoomFamilies_ARUtils”, however you can use an existing parameter of your own. This then links the room contents to either an associated:

- **“Ghost Type” defined in a project specific Excel file**, (“ExtraFamilies.xlsx” in the project folder),
- **“Ghost Room” where the parameter value is set to a Room Number and the contents (families) of that room.**

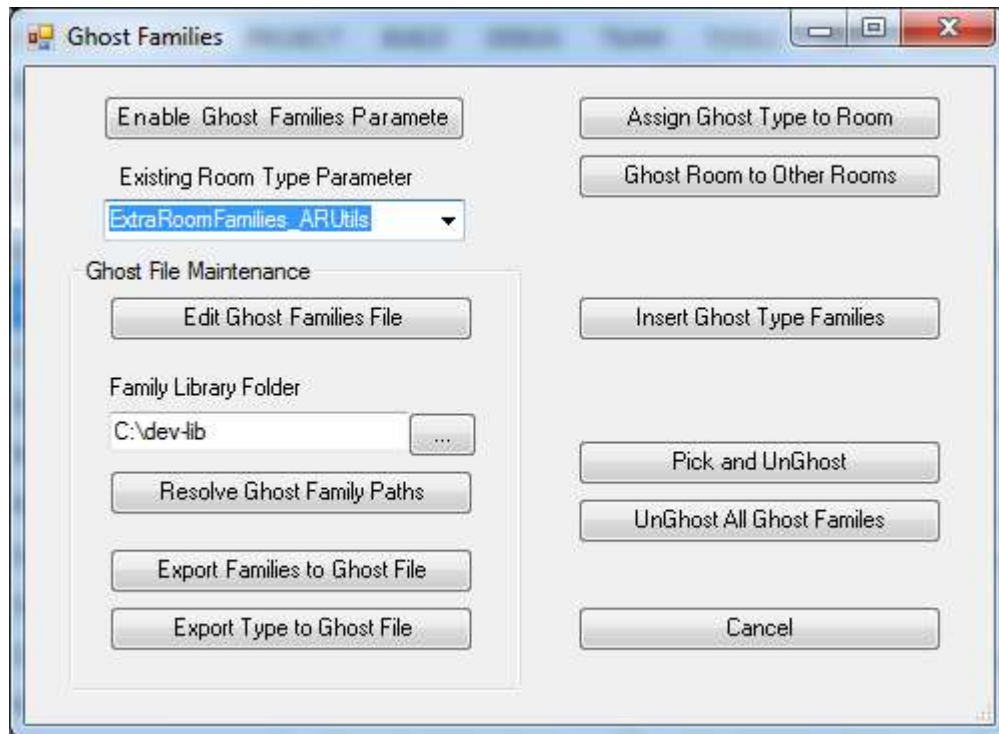
By using this approach you can easily populate your rooms with “ghost” families. When the parameter value is set to a value that has an asterisk (*) as its first character, a set will be selected from the Excel file. Where this is not the case the contents of the defined room (defined by the Room Number) will be used to generate the room contents list.

Phasing		^
Phase	New Construction	
Data		
ExtraRoomFamilies_ARUtils	3	
Other		
RoomHeight_ARUtils	2438.400	
DisableHeightUpdate_ARUtils	<input checked="" type="checkbox"/>	

ExtraRoomFamilies using a room number (3) to specify that the families from room number 3 are used for this room

Phasing		^
Phase	New Construction	
Data		
ExtraRoomFamilies_ARUtils	*Type1	
Other		
RoomHeight_ARUtils	2438.400	
DisableHeightUpdate_ARUtils	<input checked="" type="checkbox"/>	

ExtraRoomFamilies using a type defined in the Ghost Excel file



Enable Ghost Families Parameter

Add and associate the parameter “ExtraRoomFamilies_ARUtils” to the rooms category for your project.

Existing Room Type Parameter

As an alternative to the “ExtraRoomFamilies_ARUtils” you can use your own “Room Type” parameter.

Ghost File Maintenance

Edit Ghost Families File

Open the extrafamilies.xlsx file located in the project folder. If this does not exist you will be prompted to copy the sample file to the project folder. This can then be modified as required. Refer to [“The ExtraFamilies.xlsx”](#) file for more information.

Family Library Folder

The root folder where your family files can be found. The Ghost routine assumes that at some time you will want to turn your ghost families into real families. This is the folder where your real families exist.

Resolve Ghost Family Paths

Try and find Revit family files that match the family entries in the Ghost file. The Family Library Folder and sub folders will be searched for an rfa file that matches the “Family” field in the Ghost file.

Export families to Ghost file

Select family instances in your project to be exported as family types to your Ghost file. Parameters of those defined in the Ghost file will be exported to the Ghost file.

Export Type to Ghost file

Select a set of family instances to be exported as a new type in your Ghost file. E.g., you could select all the families in a hotel room, and have them exported as a new type. You will be prompted to Name the type and provide a description.

Assign Ghost Type to Room

Pick a Ghost type and assign to picked rooms.

Ghost room to other rooms

Pick a source room for ghosting and then pick rooms to use the picked room for ghosting.

This assigns the source room number to the Ghost parameter.

Insert Ghost Type families

Select a Ghost type and insert the families to a picked location.

Pick and UnGhost

Pick a room that is currently ghosted and have the Ghost families inserted. This will either be a copy of the families in a room, or a dump of the families defined in a ghost type.

UnGhost all Ghost families

Process all rooms with a ghost value and either duplicate the families of the Ghost Room or insert the Ghost Type families into the centre of the room.

The Ghost - ExtraFamilies.xlsx file

The Excel file defines our Sets / Types, parameter names, and families with their associated parameter values.

	A	B	C	D	E	F	G	H
1	*New Type	New Type	CH1A	CH1A	CH13A	DS2	DS2	DS3
2	*Type1	Single Bed with Ensuite	BR1	BR1	BR1	DS2	DS2	DS3
3	*Type2	Double bed with Ensuite	BR2	DS1	UB1			
4	*Type3	Meeting Room Small	UB1	CH1A	CH13A			
5	Type Mark	Path	Category	Family	Name	Description	Cost	Model
6	BR1	C:\dev-lib\samplefams\Sink.rfa	Plumbing Fixtures	Sink	Type1	Basin type 1	50	BR1-AA
7	BR2	C:\dev-lib\samplefams\Sink.rfa	Plumbing Fixtures	Sink	Type2	Basin type 2	60	BR2-CC
8	CH13A		Furniture	117000_Chair_Guest	New Type	Desk 1	0	Dsk1
9	CH1A		Furniture	117000_Chair_Guest	21Wx22Dx31H	Desk 2	0	Dsk2
10	DS1		Furniture	Desk	Type1	Desk 1	70	Dsk1
11	DS2		Furniture	Desk	Type2	Desk 2	80	Dsk2
12	DS3		Furniture	Desk	Type3	Desk 3	90	Dsk3
13	UB1		Specialty Equipment	Drawer	UB Drawer	Under Bench Drawer	33	Draw1

Sets / Types

This routine assumes you will want to assign the same set of families to a number of rooms. The first section of the file contains a number of entries each beginning with an asterisk (*). In the example above we have *New Type, *Type1, *Type2, etc., however they could as easily be *MeetingSmall, *Ensuite, etc.

The text in column B is a lengthier description of the family set.

Following columns refer to families that comprise the set. These are defined later in the file. E.g., BR1 in C2 refers to the family definition in row 6. Simply enter the codes of families that you want in that set. If you require multiples of the family you will need to enter the family code multiple times.

Parameter Definition

The row commencing with "Type Mark" defines the parameters we wish to specify for each family. Currently "Type Mark, Path, Category, Family and Name" are critical to the functioning of the routine. All other parameters are optional.

Type Mark	Is the type mark of the family
Path	The full path to the family file. This will be used when families are unghosted
Category	The Revit category of the family
Family	The family name

Name The name of the family type

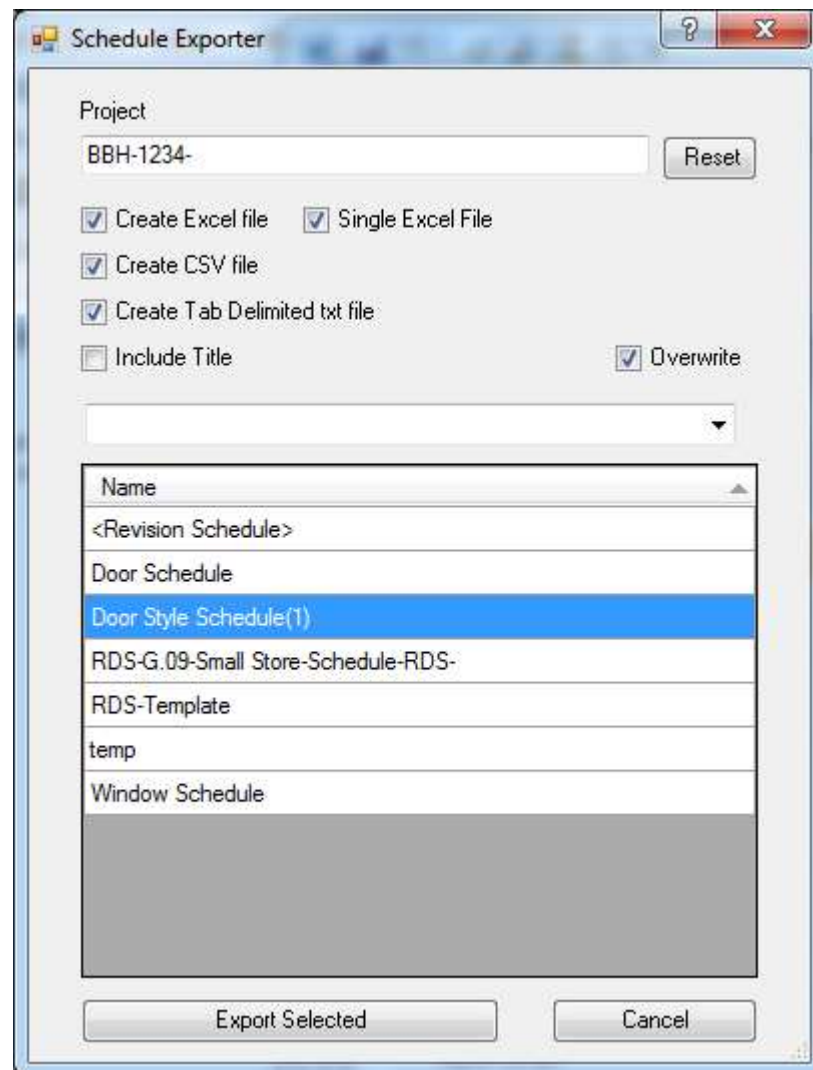
Family Definition

The lines following the parameter definition line all define families and their parameter values. Clearly these should match parameters you wish to report on in your Room Data Sheet.

These can most easily be defined by using Ghost routines.

EXPORT SCHEDULES

Export Schedules allows you to export Revit Schedules to one work sheeted file or to multiple Excel files.



Project

This is a prefix that will be added to the name of Excel files. E.g., in the example above the "Door Schedule" would be exported to "1079-BBH-Door Schedule.xls"

Reset

Resets the project text box to the current project name.

Create Excel / CSV / TXT file

Exports the selected schedules to any or all file types.

- CSV – Comma separated file
- TXT – Tab delimited text file
- XLSX – Excel file

Note: XLSX files are created by creating a CSV file first and then converting it. If CSV is not ticked, existing CSV files will be overwritten and then deleted.

Single File

Will export multiple schedules to a single Excel file. Each schedule will be on a separate worksheet named the same as the Schedule.

Include Title

Includes the title of the schedule in the exported file

Overwrite

Overwrite files without prompting

NOTE: Worksheet names can only be 31 characters in length. Names will be automatically truncated to this length.

Schedule List:

Select one or more schedules to be exported.

Export Selected

Export the selected schedules to a folder that will be prompted for.

Note: CSV files are created in the %tmp% folder as a midway step.

SPLIT SCHEDULES

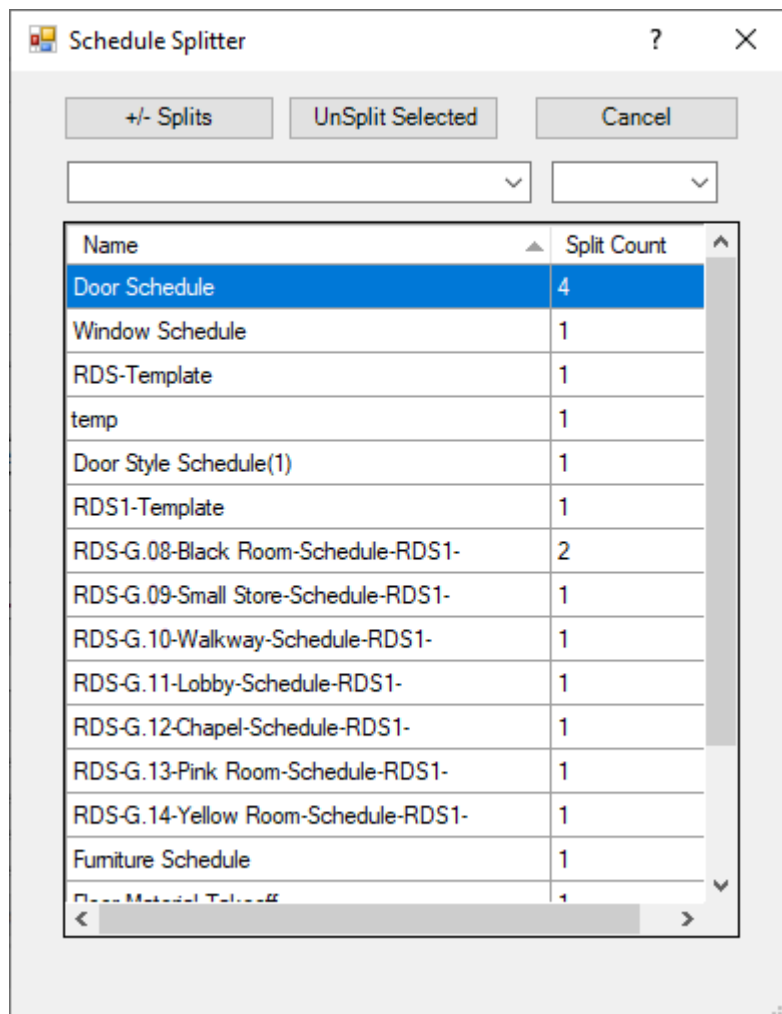
Since 2023

Since Revit 2023 splitting schedules has become much simpler. This allows long schedules to be placed across multiple columns or across multiple sheets.

Unfortunately (as of June 2022) it is not possible to easily increase the number of splits.

Currently the process to increase the number of splits requires deletion of the existing splits, then re-splitting, and finally inserting the splits / segments back onto sheets. Any previous height changes to the segments will also need to be adjusted manually. Clearly a lot of room for errors to occur.

This routine makes the re-splitting process much simpler – remembering where splits were placed, and also the previously set segment heights. You can also be prompted to place any new segments onto sheets.

**+/- Splits**

Add / remove splits from selected schedules.

Split Count Increases

Extra splits will be created and you will be prompted to place NEW segments on sheets. Current segments remain as currently placed

Split Count Decreases

The last segments will be deleted and therefore removed from the sheets they are on

Split Count set to 1

Where a schedule has splits the splits will be deleted. The full schedule will be placed where segment 1 was located.

Unsplit Selected

Deletes all splits from a schedule

Examples

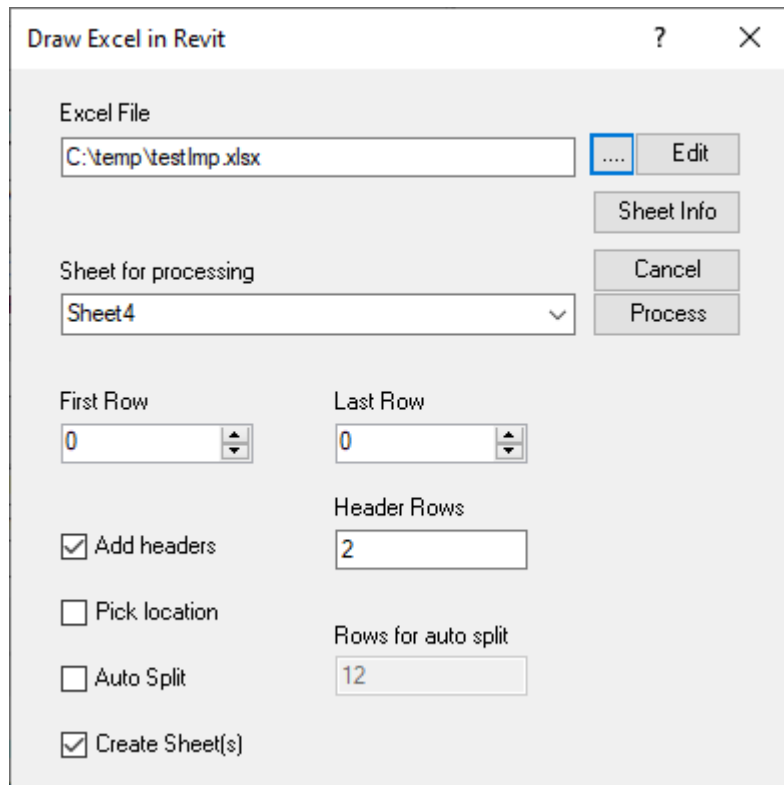
Existing 4 segment schedule split into 6.

User is prompted for the sheet and location for each additional schedule. The length of Segment 4 has been reduced to allow for the 2 extra segments.

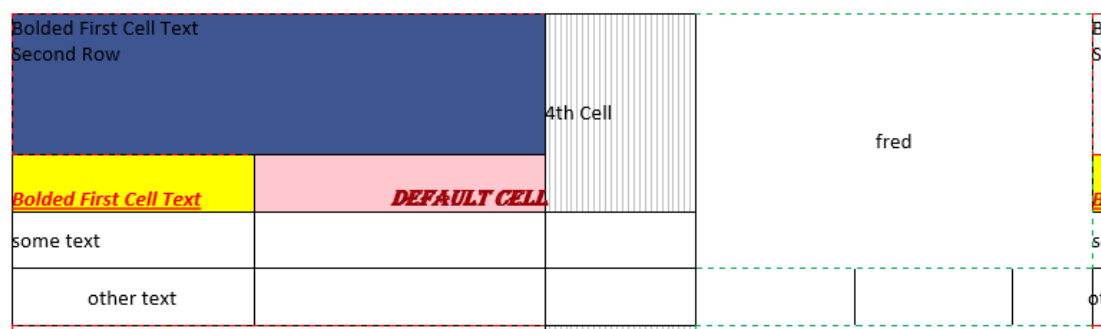
DRAW EXCEL SHEET

Allows you to select an Excel sheet and have it drawn in one (or more) drafting views a scale of 1:1.

Note: This command will create new Fonts, Filled Region Types, Fill Patterns, Line Styles, and possibly line patterns. These will all be prefixed with XL-



The Draw Excel Sheet Interface



Results of importing an Excel file into Revit. Fonts, Fills and Line styles are all created automatically as required.

Excel File

The excel file containing the sheet to be imported

[...]

Browse for the Excel file to be used

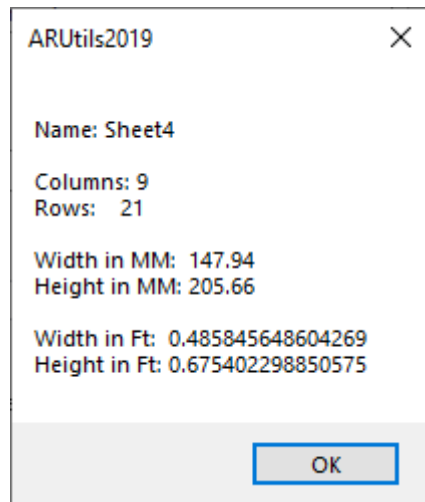
Edit

Open the excel file in the default program.

Note: The Excel file must be closed to process the file

Sheet Info

Provides details about the number of rows and columns in the selected sheet

**Sheet for processing**

The sheet in the Excel file to be drawn

Process

Draw the Excel sheet in Revit

First Row / Last Row

Allows you to specify a start or end row to be imported. Values of 0 result in the first to last rows being imported

Add headers

Where we are drawing a subset of rows from the Excel file, or using the auto split function, checking this will result in the header rows being drawn as well as the data rows.

Header Rows

The number of rows that constitute the Header for the file.

Pick location

Allows you to pick the location for the creation of the table.

Note: This is not available when "Create Sheets" is enabled

Auto Split / Rows for Auto Split

With larger tables enabling this will split a table into multiple blocks and lay them out side by side, or place them on multiple sheets.

Create Sheets

This will create a sheet, or sheets, when the process button is pressed. The naming convention used is *XL-file name-sheetname-(sheet number)*.e.g. XL-MyFile-Sheet2-(1).

Note:

This command will create Fonts, Fills and Line Styles defined in the Excel file that accurately reflects the Excel file.

Naming: All created items will be named based on a prefix of "XL-" and combine pattern and colour, font, height, bolding, etc. values to form the rest of the name.

Fonts based on MM: All fonts will be created based on a mm height that best enables a 1:1 representation of the Excel file.

XL-7.37 mm Calibri

XL-7.37 mm Calibri Bold Italic Underline

XL-8.04 mm Algerian Bold Italic

Line Styles: Line styles will be colour accurate and have an associated line pattern. These may require the Line Weight to be manually set (from Manage | Line Styles) and the line pattern modified to reflect your needs.

Category	Line Weight	Line Color	Line Pattern
	Projection		
..... XL-DashDot-0-0-0	2	Black	Dash dot
..... XL-DashDotDot-0-0-0	2	Black	Dash dot dot
..... XL-Dashed-0-0-0	2	Black	Overhead
..... XL-Dotted-0-0-0	2	Black	Dash
..... XL-Double-0-0-0	8	Black	Solid
..... XL-Hair-0-0-0	1	Black	Dot
..... XL-Hair-255-0-0	1	Red	Dot
..... XL-Medium-0-0-0	4	Black	Solid
..... XL-MediumDashDot-0...	4	Black	Dash dot
..... XL-MediumDashDotD...	4	Black	Dash dot dot
..... XL-MediumDashDotD...	4	Red	Dash dot dot
..... XL-MediumDashed-0-...	4	Black	Overhead

Fill patterns: Fill patterns of Excel are not directly convertible to Revit and therefore the Foreground Fill Pattern used in a Fill Region Type may need to be manually selected. The Excel fill patterns are as much as possible mapped to default Revit Fill Patterns.

XL-gray125

XL-gray0625

XL-gray0625-255-0-0

XL-lightDown

XL-lightGray

XL-lightGrid

XL-lightHorizontal

XL-lightTrellis

XL-lightUp

XL-lightVertical

XL-mediumGray

XL-Solid-0-112-192

XL-solid-255-199-206

XL-solid-255-255-0

Type Properties

Family: System Family: Filled region

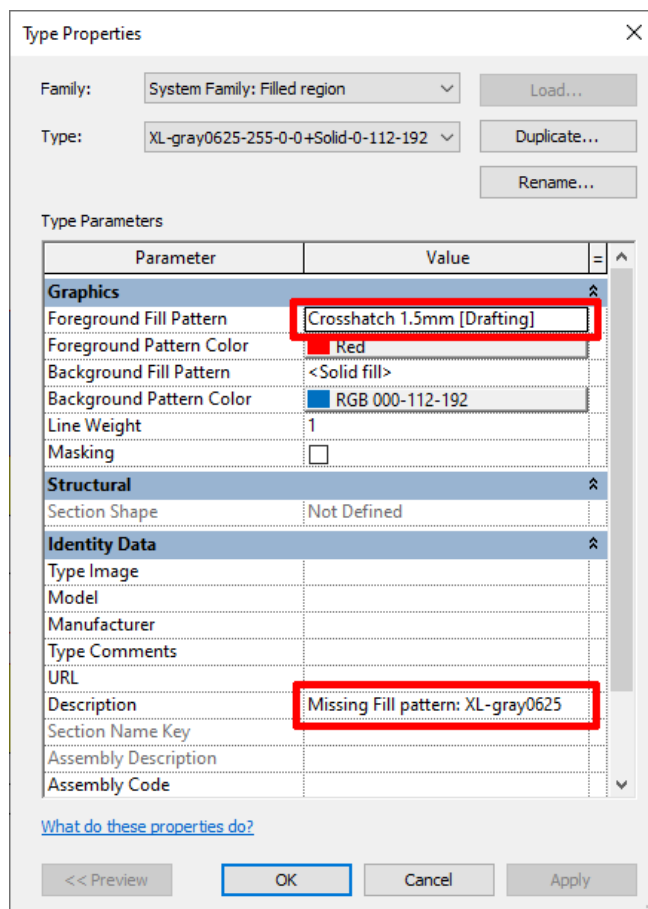
Type: **XL-darkDown**

Type Parameters

Parameter	Value
Graphics	
Fill Pattern	Diagonal down [Drafting]
Background	Transparent
Line Weight	1
Color	Black
Structural	
Section Shape	Not Defined
Identity Data	
Type Image	
Model	

Fill region types created by the import process. Auto match of Excel fill pattern to

Revit fill pattern.



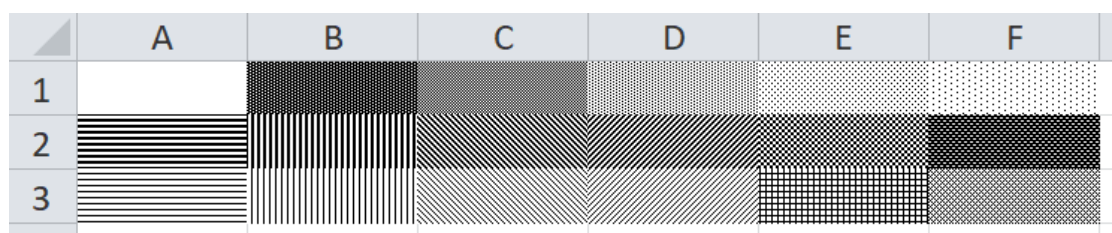
Filled Region Types may require some manual modification by the user in regards the Foreground Fill Pattern. (2019 onwards Filled Region Type dialog shown)

Note: Since Revit 2019 there is support for both a Front and Back pattern/fill. In Revit 2016-2018 two filled regions will be created to replicate this behaviour.

Sample Filled Regions File

The file `arutils\XXXX\data\sampleXLfills.rvt` contains all of the Patterns that can be used to fill a cell as well as all the line styles that Excel has available. These can be used by the command as the basis for creating similar patterns of various colours.

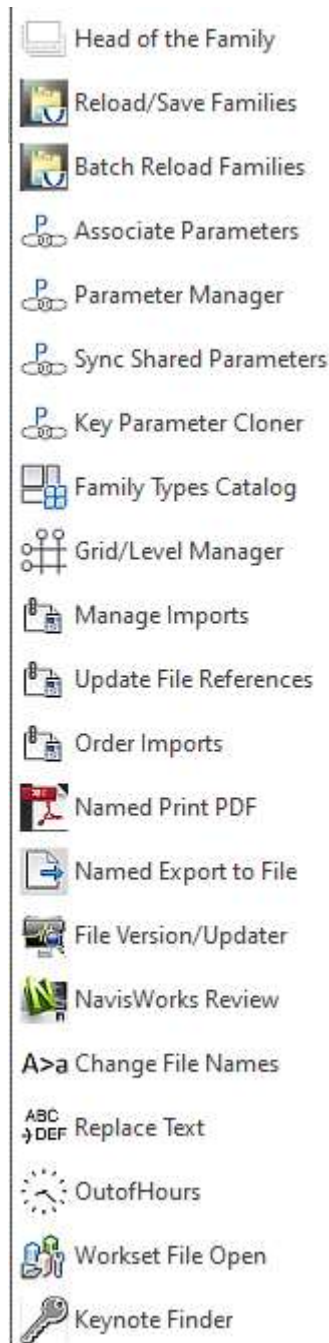
You can also import the `arutils\XXXX\data\sampleXLFills.XLSX` to create all the Fill Patterns and Line styles. These can then be modified in Revit to your preferences and then brought into your template file or imported via a transfer project standards.



Various fill patterns available in Excel

FILE UTILITIES

- [Head of the Family](#)
- [Reload Families](#)
- [Batch Reload Families](#)
- [Associate Parameters](#)
- [Parameter Manager](#)
- [Sync Shared Parameters](#)
- [Family Types Catalog](#)
- [Grid / Level Manager](#)
- [Manage Imports](#)
- [Order Imports](#)
- [Change Link Location](#)
- [Print to named PDF](#)
- [Import Export to Named Files](#)
- [File Version](#)
- [Navisworks Review](#)
- [Change file names](#)
- [Replace Text](#)
- [Out of Hours Processing](#)
- [Workset File Open](#)
- [Keynote Finder](#)



PROCESS FAMILIES "HEAD OF THE FAMILY"

"Head of the family" is designed to enable you to analyse your families for consistency in a number of criteria. Once issues have been identified you then have various options to address those inconsistencies. Doing this manually is time consuming, virtually impossible, and highly prone to error or omission.

The typical process when using Head of the Family is to scan your families using the "Process All" option with "Disable Updates" checked. Any issues found should then be addressed one by one.

Using the **Generate 2d/3d**, **Material Deletion** and **File Prefix** options during this initial scan can be quite beneficial as all your icons are corrected, unused materials are deleted, and files are prefixed with a category prefix e.g. A door file would have DR assigned as a

prefix. This can very quickly highlight "odd man out" files e.g. A plumbing item that is in fact a casework item. New in 2015 is the Automatic alphabetic reordering of parameters.

After this initial scan it is best to address one issue at a time, ensure it has been successfully addressed, and then move onto the next issue. There is however nothing to stop you from enabling all error correction options at once.

Head of the Family offers a number of options to analyse the information into easy to use "control" files. These are used to update your families to your standards.



[Head of the Family – The Interface](#)



[Head of the Family – The Basics](#)



[Head of the Family – Updating SubCategories](#)

A backup of all your families is advisable as there is no undo option.

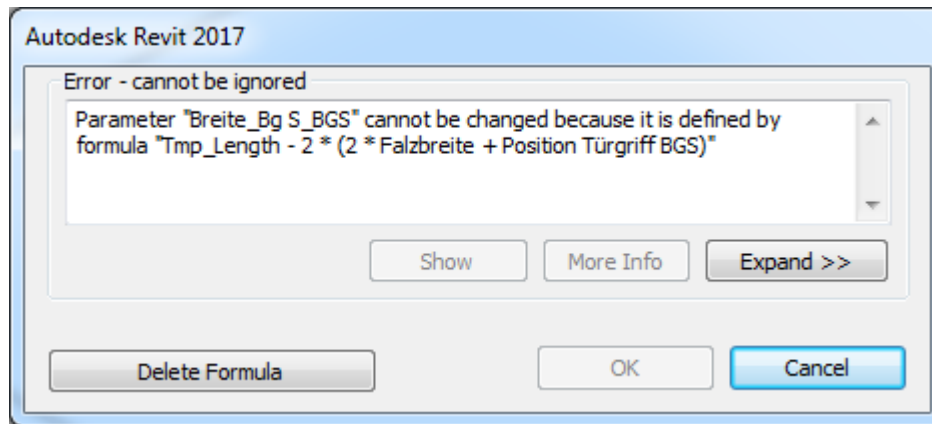
"Head of the Family" will process multiple family files to achieve the following

- Generate consistent 3D / 2D preview icons
- List family details such as category, sub categories, types, parameters, etc.
- Update some sub category settings and move items to a preferred sub category (rename or delete of subcategories is not currently possible!)
- Delete Unused Materials
- Rename, Add, and update Materials and their values (New 1st November 2012)
- Add parameters / shared parameters
- Allow parameter copying / renaming to ANZRS standards
- Allow for File specific parameter value updating via an Excel control file
- Allow assigning of new values to parameters. Useful for versioning or branding.
- Update text styles
- Rename nested families and types
- Processing of the current file
- File prefix renaming according to family category (user defined)

ARUTILS – ERROR WINDOW KILLER

An external routine to press the "Cancel" or "OK" button when batch processing items.

If you have ever had the "Error – cannot be ignored" window come up during Batch processing, using ARUtils or some other addin, there is now a routine to click that cancel button automatically.



Example of the Error – cannot be ignored window.

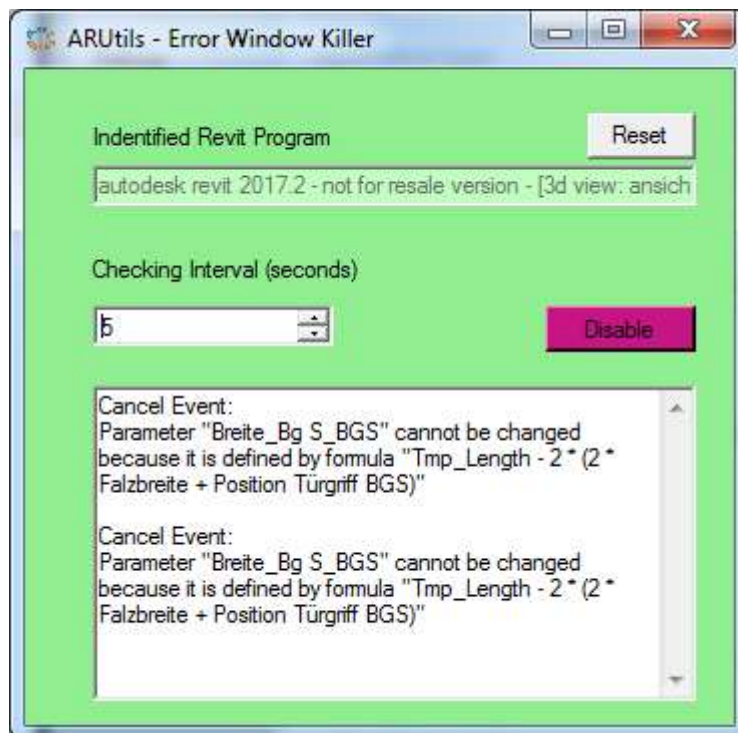
Download the routine

The command will need to be downloaded from

<https://dl.dropbox.com/s/0q1l8kduwujcyhk/errKiller.exe?dl=0>

Note: Once downloaded you may need to right click and check the properties to see if the executable file is "Blocked". If it is the use the "Unblock" option.

The ERROR WINDOW KILLER dialog



The ARUtils – Error Window Killer

Background to routine

The routine uses Windows UIAutomation to find windows that meet certain, **very specific** criteria. It is possible that if Autodesk change things the routine may not work correctly.

Acquiring the Revit program

When you open the routine it spends some time “acquiring” the main Revit window (20 seconds or more). If you have multiple Revit programs **open it will select the first one it finds** so it is best to have only one Revit open.

Once acquisition is achieved performance improves however the routine will still have periods where it is looking for windows and will show the “Busy” icon.

Reset

Seek out the Revit main window again

Identified Revit program

Shows what Revit window has been acquired

Checking Interval

Frequency of checking for the “Error – cannot be ignored” window

Disable / Enable

Enables / disables the window killer.

Event Window

The events that have been showing when the automated click has taken place. You can use select all and copy and paste commands.

THE BASICS

ARUtils - Head of the Family

Family Folder

Select Files ☐ Subdirectories ☐

☒ List family details

☒ Type Parameters, Check Dims

☒ Nested Families ☐ Report Null values

☐ Nested Family Parameters

☒ **Disable Updating**

☐ Expert Mode

Initialise

Open Search

Cleanup *.00???.rfa

Warnings

Manual Edit

Imports

Shared Parameters

Simple Update Options

Control FilesFolder

Preview View Name

☐ Generate 3d/2d preview

☐ Material Deletion

☐ Save Nested Families

☐ Prefix file names

☐ Save to Category folders

☐ Retain File Properties

Open

Advanced Update Options

☐ Update Categories

☐ Update Materials ☐ Most used settings

☐ Update Text Style ☐ Build Text Names

☐ Rename Nested Families

☐ Replace Text

Shared Parameter File

☒ Add/Rename/Replace Pars ☐ Sort ☐ List Sort

☐ Resolve Names

File Based Parameters

☐ File Specific Par Values

☐ Family Specific Par Values

Cancel Scan Current Scan All

Family Folder to process

Specify the folder in which the files reside. Either type the folder name or browse for the folder.

Select Files

Enabling this option allows you to select files from the family folder for scanning / processing.
This obviously reduces the total processing time.

Subdirectories

This will scan both the top folder and the subfolders within the specified folder for processing.

List Family Details

This will scan family files and report some information

- Family Category
- Units
- Family types
- Categories and sub categories names and values
- Materials in Family

Information will be written to an excel file "families.csv" in the arutils\temp folder.

Family Type Parameters

This will include extra information:

- Main family parameters such as Always Vertical, Host, Omniclass, etc.
- Family parameters for each family type

Nested Families

Reports on nested families within family. Also reports on text styles

Nested Family Parameters

Reports on nested families and their parameters and values

Report Null Values

This ensures that parameters are reported on even if they do not have an assigned value.

Note: When ordering parameters by list this is useful to ensure all parameters are ordered as expected.

	A	B	C	D	E	F	G	H	I	J	K
1											
2	C:\temptest\GYR_FURN-CHAIR-FOOTLESS_TASK_CHAIR_212.RFA										
3	C:\temptest\GYR_F Furniture										
4											
5	No Detailed Types present										
6	C:\temptest\GYR_F Furniture	Furniture			RGB		0	0	0	Weight	2 Weight Cut
7	C:\temptest\GYR_F Furniture	Subcategory			0 RGB		0	0	0	Weight	1 Weight Cut
8	C:\temptest\GYR_F Furniture	Subcategory	BMCD2-12ZSTG01		RGB		0	0	0	Weight	1 Weight Cut
9	C:\temptest\GYR_F Furniture	Subcategory	Hidden Lines		RGB		0	0	0	Weight	1 Weight Cut
10											
11	C:\temptest\GYR_F Furniture	Material	BMCD2AR3\Bitmap Textures\Fabric\FABRI05								
12	C:\temptest\GYR_F Furniture	Material	BMCD2AR3\Solid Materials \Matte\Normal\Black								
13	C:\temptest\GYR_F Furniture	Material	BMCD2AR3\Solid Materials \Matte\Textured\Black								
14	C:\temptest\GYR_F Furniture	Material	Default								
15	C:\temptest\GYR_F Furniture	Material	Default Light Source								
16	C:\temptest\GYR_F Furniture	Material	Default Roof								
17	C:\temptest\GYR_F Furniture	Material	Default Wall								
18	C:\temptest\GYR_F Furniture	Material	Glass								
19	C:\temptest\GYR_F Furniture	Material	Poche								
20	C:\temptest\GYR_F Furniture	Material	Render Material 255-255-255								
21											
22	C:\temptest\GYR_F Furniture	Parameters	Always vertical		1	####					
23	C:\temptest\GYR_F Furniture	Parameters	Host		0	####					
24	C:\temptest\GYR_F Furniture	Parameters	OmniClass Number			####					
25	C:\temptest\GYR_F Furniture	Parameters	OmniClass Title			####					
26	C:\temptest\GYR_F Furniture	Parameters	Shared		0	####					
27	C:\temptest\GYR_F Furniture	Parameters	Work Plane-Based		0	####					

Warnings

Presents a warning report.

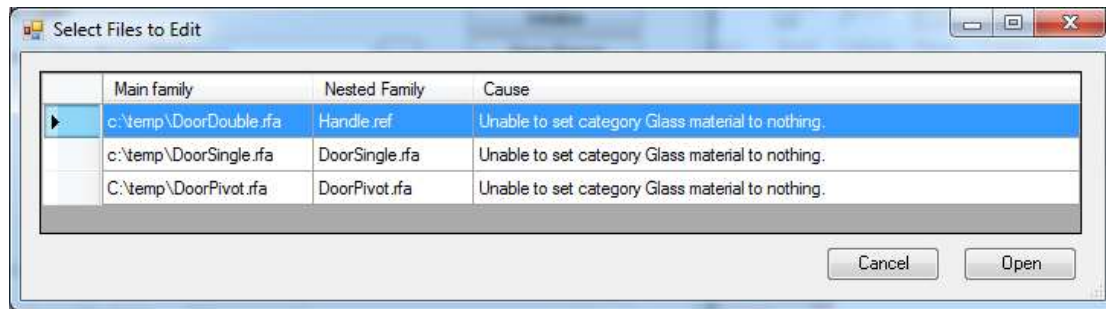
Depending on your report level, warnings are generated for things such as:

- Non ANZRS Sub categories

- Families with numerous types, where a family Catalogue file may be more appropriate
- Labelled dimensions not referenced to reference planes
- Family size on disk is above 500k
- Lack of visibility use in a family i.e. Coarse, Medium, Fine, or items specific to a view direction for a family

Manual Edit

Presents a list of files that have been identified as having an issue. The issue cannot be resolved via the API and therefore cannot be resolved via ARUtils. Setting a subcategory material to "Nothing" is an example of such an issue in Revit 2012 & 2013.



You can select one or multiple files that you wish to open for manual editing and then pressing "Open".

You can also opt to export the list by right clicking in the data section and selecting "Export to Excel".

Where a family with an issue is a nested family, the name of the nested family will appear in the "Nested Family" column.

Note: This button will only be enabled after an attempt has been made to correct issues and issues have been identified that can be corrected by manual editing.

Imports Moving

Clicking "**Imports**" will prompt you for a folder to move the files that have been identified as containing imports, i.e. DWG files. This assists in creating a pure "Revit" library.

You are then presented with a list of files that will be moved. You have the option of carrying out the move or cancelling the operation.

The list of files is contained in the file "importsfiles.txt" in the control directory.

Note: There is no undo for this option

Shared Parameters

As families are scanned all shared parameter definitions are exported to a file in the Shared Parameters file format. This is useful where shared parameter definitions have been lost or families have come from a foreign source.

Clicking this button will sort the found parameters and allow you to copy and paste the parameters into your shared parameters file.

Initialise

Delete the current report file (families.csv) and "importsfiles.txt" if it exists.

Open

Open the report file, "families.csv"

Search

Search the report file for specific text. This can enable you to easily identify a family that has a specific issue, e.g., you have come across a category named "Dodgy". Using the search function enables you to quickly find all families having a reference to "dodgy" (in any aspect of the file) and then open all or some of the families found this way.

Cleanup *.00??.rfa files

Deletes all the backup files from the scanned folders

Disable Updates

Disables all updating. This allows for easy switching between generating reports and having a set of preferred updating options

Export Mode

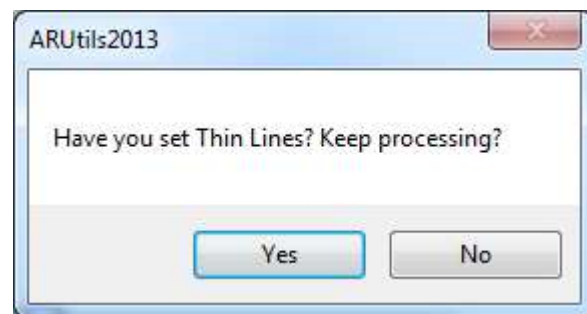
By default Head of the Family enables and disables commands based on what files are present. E.g. If the fixcats file is not present the "Update Categories" "open" button will be disabled. Enabling expert mode disables this sort of checking. This can improve performance of the interface.

Process All

Process all the files found in the "Family Library Folder".

Note: If you are generating 3D views you will be prompted about thin lines being set.

Typically you will want to process files with "Thin Lines" mode enabled. This creates clearer preview icons.



Note: If a previous "Process all" was aborted by the user, or perhaps Revit, the user will be presented with a dialogue



- Abort – quit out of this run
- Resume – start processing files from the aborted file
- Restart – start processing from the beginning file
- Skip – start processing from the next file after the aborted file
- Edit – open the aborted file for editing.

Process Current

Process just the current file. This can be useful for testing reports and settings before running the full family processing.

Note: Various buttons will be disabled if certain conditions are not met. E.g. If a scan has not been performed then the “Used” buttons will be disabled.

Note: Where a “used” file is newer than the “open” file, the open button will be highlighted in Red to indicate that the control file may not be what you want to apply to your families. Typically this occurs if you have generated a “used” file, but have failed to transfer the file across to the “control” or “open” file.

Simple Updating

Head of the family allows for some simple automated correction of family files. These do not require an initial “pre scan” and can just be run on any set of family files.

[Control Files Folder](#)

[Preview Icon](#)

[Material Deletion](#)

[Save Nested Families](#)

[Prefix File Names](#)

[Metric / Imperial Units](#)

ARUtils - Head of the Family ? X

Family Folder

Select Files ☐ Subdirectories ☐

☒ List family details
☒ Type Parameters, Check Dims
☐ Nested Families ☐ Report Null values
☐ Nested Family Parameters

☐ Disable Updating

Initialise
 Open Search
 Cleanup *.00???.rfa

Warnings
 Manual Edit
 Imports
 Shared Parameters

☐ Expert Mode

Simple Update Options

Control FilesFolder

Preview View Name

☒ Generate 3d/2d preview
☐ Material Deletion
☐ Save Nested Families
☐ Prefix file names

☐ Metric Units
☒ Imperial Units
☐ Save to Category folders

☐ Retain File Properties

Open

Advanced Update Options

☐ Update Categories < ANZRS Categories
☐ Update Materials < ☒ Most used settings
☐ Update Text Style < ☐ Build Text Names
☐ Rename Nested Families <
☐ Replace Text

Shared Parameter File

☐ Add/Rename/Replace Pars < ☐ Sort ☐ List Sort
☐ Resolve Names

File Based Parameters

☐ File Specific Par Values <
☐ Family Specific Par Values <

Cancel Process Current Process All

Note: Various buttons will be disabled depending on what files have been created e.g. If a scan has not been performed the "used" buttons will be disabled. Also if the "Open" file is older than the "Used" file, the "Open" button background will be set to Red. This helps to avoid running an update when the "used" file actually contains the updates you want to use.

Control Files Folder

This enables you to have multiple sets of family file standards. You may be working on multiple projects that require different sets of parameters, category settings, etc. By changing your control folder you will be able to keep a set of standards / fixes to be used in specific circumstances.

Generate 3d/2d Icon

This will add a default view for Family items. This ensures preview thumbnails are all the same orientation and view type. Certain categories that clutter the icons are turned off by default. E.g. Walls, Reference Planes, dimensions, etc. Some family types will be handled in quite specific ways e.g. Face base families. These families may have a preview done using a crop box.

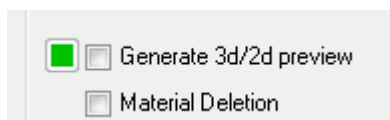
Preview View Name

You can set the name of the preview icon view. This will be a new view within the family file. If it exists it will be re-created. Settings for this are currently not adjustable by the user. An option is to use the "viewSeed.rfa" file and the "NewIcon" prefix.

Note: This works for 3d and 2D family items.

ViewSeed.rfa file

Note: When a file named "viewSeed.rfa" is open a **green square** next to "Generate 3d/2d preview" appears to indicate that view seeding operations will take place.



You can create new views, a preview icon, or in 2015 onwards Type Images in your families by having a "Seed" file open when you start updating families. To enable this you will need to have a family file opened named "viewSeed.rfa". This file will contain one or more views named according to the following principles:



[Using the ViewSeed.rfa file](#)

Note: All names are Case sensitive

- "**New** *viewname*" – to create/update a view and apply the same appearance settings .e.g. as colour rendered
- "**NewIcon** *viewname*" – to create /update a view that will have its settings updated and set as the preview icon or thumbnail that appears in windows Explorer views
- "**NewTypeImageFamily**[*options*]*viewname*" – to create / update a view and create an image file that will be used as the "Type Image" **for all types** in that family. (2015 Onwards)

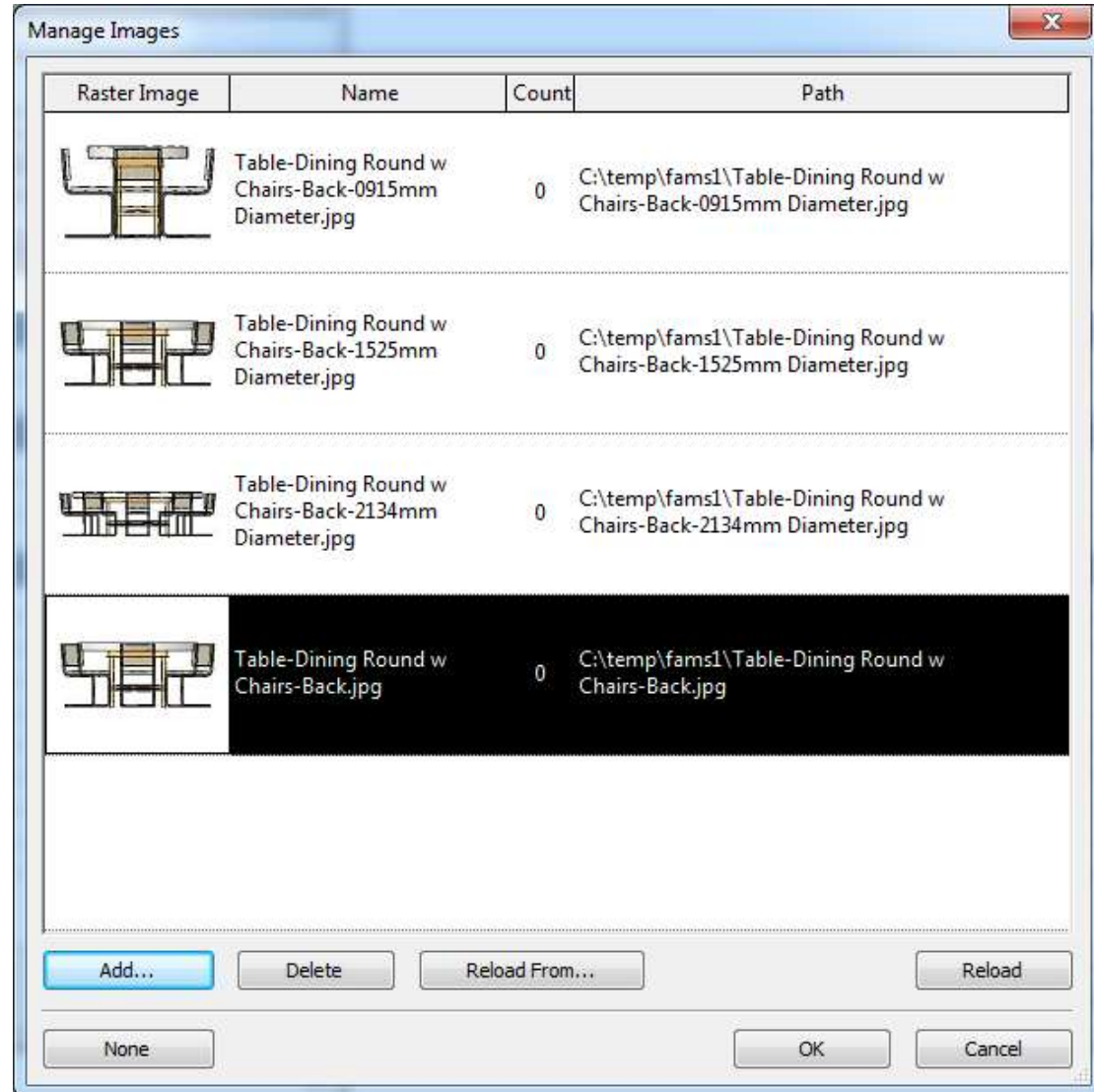
Optionally include the "Width" and DPI via _PIXxxxx_ and _DPIxxx_.

- E.g., "NewTypeImageFamily_PIX1200_DPI150_Back" would create a single image used for all types. The image will be 1200 pixels wide and set to 150 DPI. The view in the destination family will be named "Back".

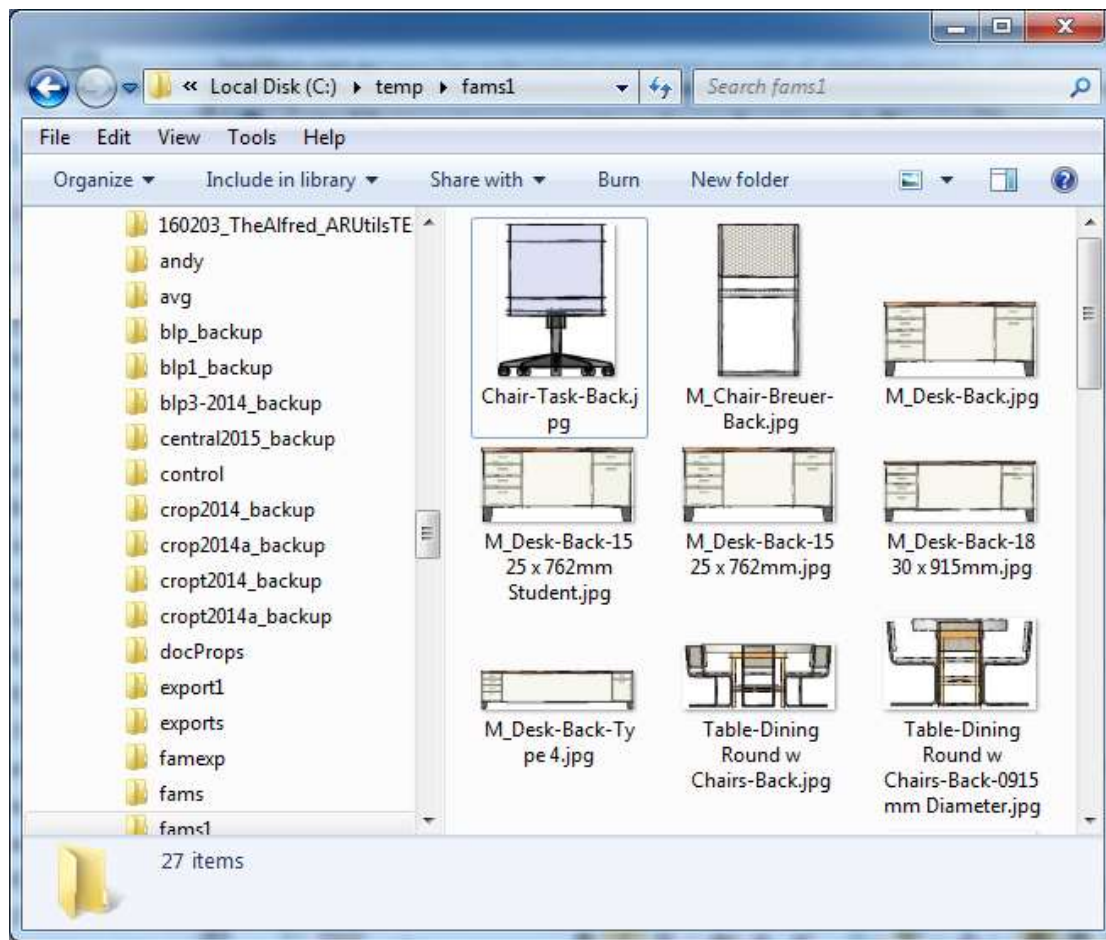
- "**NewTypeImageMulti**[*options*]*viewname*" – to create / update a view and **create a separate image for each type** in that family and apply the views to the "Type Image" parameter for each family type. (2015 Onwards)

Optionally include the "Width" and DPI via _PIXxxxx_ and _DPIXXX. E.g., "NewTypeImageFamily_PIX1200_DPI150_Back" would result in a view named "Back" and images for each type 1200 pixels wide and 150 DPI.

Note: Valid DPI values are 72, 150, 300, and 600. The DPI if not specified is 72 and the default image width is 200 pixels.



Images embedded in a family and assigned to each type in the family.



Type Image views created on disk

Save Nested Families

Selecting this option will save nested families to a folder named "Nested Families" in the "Family Folder". If this does not exist the folder will be created. Files are overwritten by default. The command handles will keep going until no more nested families are found within families.

Material Deletion

Material Deletion will remove any unused materials from a family file.

Note: Accurate checking is not possible where there are imported DWGs.

Note: Files containing imports can be accessed via the [Imports](#) button.

Note: Whilst the Revit UI allows materials to be deleted without concern for the material being used, the API does not always allow this.

Note: Editing nested families and deleting materials, reloading the family, and then re-editing may bring back materials. This is an Issue with Revit and not ARUtils.

Prefix File Names

The **"Prefix File Names"** checkbox will rename files by prefixing them with the <Functional Type> of the family. These functional types are a user defined prefix string representing the typical functional types e.g. DR for Doors, JOIN for casework, etc. This mapping is defined in "arutils\data\HOTF-FileRenameMap.xlsx". You can use the **"open"** button to open this file.

You can use the "*" **wildcard** in the rename definition file. E.g. *tag* will match all family categories with tag as part of their name. Such wildcard items should appear first in the file.

Another option is the "**else**" option, which requires a value of "**correct**". If a family category is not matched in the definition file and the **else** option with a value of "**correct**" is present, the family file will be prefixed with the full family category name as defined by Revit. If the **else** option is not present, or has a value other than "correct" the file will not be renamed.

	A	B
1	else	correct
2	*Sym*	SYM
3	*Tag*	TAG
4	Balusters	BLSTR
5	Callout Heads	CLLHD
6	Casework	JOIN
7	Columns	COLM
8	Curtain Panels	CPNL
9	Detail Items	DETL
10	Doors	DR
11	Electrical Equipment	EEQP
12	Electrical Fixtures	EFXT

Sample HOTF-FileRenameMap.xlsx

Save to Category Folders

The "**Save to categories folders**" checkbox will save files to a new set of folders based on their associated family category.

Retain File Properties

The "**Retain File Properties**" will keep the same date and time stamp associated with the original file.

Metric Units / Imperial Units

These options only operate on files that are not currently metric / imperial e.g. If a file is already metric and you tick the Metric Units option nothing will be changed. Only Imperial files would be set to use Revit **default** metric units.

If you wish to reset Imperial or Metric files to use **default** units then a two stage process would be required e.g., change first to imperial and then to metric to ensure default units are used.

Advanced Updating

Head of the family allows for automated updating of a number of aspects of families.

[Update Categories](#)

[Material Updates](#)

[Text Styles](#)

[Nested Families](#)

[Shared Parameters](#)

[File Specific Parameter Values](#)
[Family Specific Parameter Values](#)

Head of the Family Workflow

An important aspect to understand in updating families via Head of the Family is the process of creating the control files. The process involves:

1. Scanning all your family files to create the "Families.csv" file. This contains all the information (depending on the reporting detail level used) about your families. Things such as categories, parameters, etc.
2. Using the "Used" button. This takes information from the "Families.csv" file and formats it specific to a particular aspect, e.g., categories. You can edit this file to contain just the information you want in it, e.g., perhaps you are just interested in one category.
3. Use the "<" transfer button. This step allows you to append the information in the "Used" file to the "Control" file. This lets you build up your control file bit by bit. You can also just overwrite the control file to just use the new data.
4. Use the "Open" button to see what is in the control file that is used to update your families.
5. Check the appropriate box to enable that type of updating, e.g., Update Categories.

Update Categories

Categories can be updated (or added) to reflect office or ANZRS standards. Only RGB values, projection and cut weights, and material assignment, can be modified. In later versions the line pattern can also be updated. You can also opt to move elements from one category to another category. Deletion of the subcategory is also version dependent and can also be impacted by families updated from earlier versions.



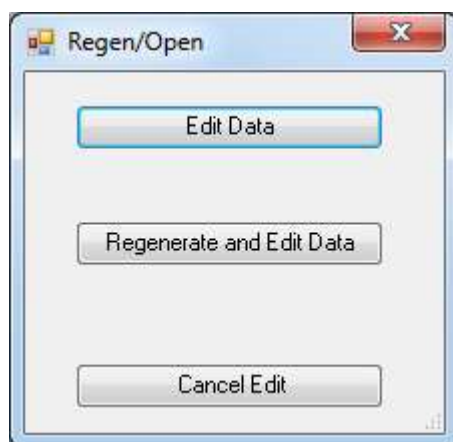
[Learn about updating SubCategories](#)

Usage

It is usually best to first scan your files to determine what categories and sub categories your family files are using and also what the colour values and line weight values are.

Used

Pressing the "**Used**" button will bring up either



- Edit Data – Edit the data in Excel
- Regenerate and Edit Data – Rebuild the used data list by using the "Report" file
- Cancel Edit – cancel Edit process

<

Copy or append the "used" file to the "control file". You will be presented with a dialog to

- Overwrite or
- Append

the "used" file to the "control" file.



Open

Open the subcategory control file

Save Nested Families

This checkbox allows you to save nested families to the control file folder. This is only operational during updating of categories as to correctly update categories requires processing of nested families.

Most Used Settings

When you press the "Used" button, checking this option will report only the most used subcategory or material settings.

ANZRS

Open the file defining the acceptable "ANZRS" subcategory names for each family category.

Note: There is also a file arutils\data\addANZRScats.csv that contains all the details to add the categories to the correct family types. Simply put this file into the control folder and rename it to fixcats.csv.

Update Categories File Format

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	0 [Update] / 1 [Add]	Family Type	Subcategory	R	G	B	Projection	Cut	Material	Information	Count	Item Count	Move Items To
2	0	Door Tags	Detail Items:Detail Items	255	0	255	6	None	Builtin		1	0	
3	0	Door Tags	Detail Items:Hidden Lines	255	0	255	6	None	Builtin		1	0	
4	0	Door Tags	Dimensions:Automatic Sketch Dimensions	255	0	255	6	None	Builtin		1	0	
5	0	Door Tags	Dimensions:Dimensions	255	0	255	6	None	Builtin		1	0	
6	0	Door Tags	Door Tags:Door Tags	255	0	255	6	None	Builtin		1	4	
7	0	Door Tags	Door Tags:fred	255	0	255	6	None	WARNING: Non ANZRS category fred		1	0	
8	0	Door Tags	Generic Annotations:Generic Annotations	255	0	255	6	None	Builtin		1	0	
9	0	Door Tags	Imports in Families:Imports in Families	255	0	255	6	None	Builtin		1	0	
10	0	Door Tags	Reference Lines:Reference Lines	255	0	255	6	None	Builtin		1	0	
11	0	Door Tags	Reference Planes:Reference Planes	255	0	255	6	None	Builtin		1	2	
12	0	Doors	Detail Items:Detail Items	255	0	255	6	None	Builtin		2	0	
13	0	Doors	Detail Items:Hidden Lines	255	0	255	6	None	Builtin		2	0	
14	0	Doors	Dimensions:Automatic Sketch Dimensions	255	0	255	6	None	Builtin		2	183	
15	0	Doors	Dimensions:Dimensions	255	0	255	6	None	Builtin		2	54	
16	0	Doors	Doors:Doors	255	0	255	6	Andy	Builtin		2	0	
17	0	Doors	Doors:Frame/Mullion	255	0	255	6	Andy	Builtin		2	0	

Sample Update Categories Control File

0 (Update) / 1 (Add)	A value of "0" will apply the values if the category exists. A value of "1" will create the subcategory if it does not exist.
Family Type	The Family Type (category) that this update should be applied to. A value of "All" will apply the fix to all family types.
Subcategory	The category / sub category name. Since families can contain a number of other family categories within them, the main category name is also included.
R,G,B	RGB values for the category. Values of 0 to 255.
Projection	The projection line weight
Cut	The cut line weight (may be nothing for non-cut families)
Line Pattern (opt)	In releases 2017 and later you can define the line pattern to be applied to a category.
Material	The material assigned to the layer. Materials not currently in a family will be created with generic settings. The API does not allow for clearing of a material for a category i.e. Setting the material to none. The files affected can be accessed via the "Manual Edit" button.
Information	Provides information about the category. Typically ANZRS warnings or "BuiltIn:" if the category is a non-user defined subcategory.
Count	The number of times this particular set of values has occurred throughout the families scanned.
Item Count	The number of elements that use the particular category.
Move Item to	If desired you can move items on this category to another category. If the subcategory does not exist some releases of Revit allow the subcategory to be renamed. Alternatively it will be created using the values of the current subcategory. An attempt to delete the existing subcategory will be made however this does not always work. This is particularly an issue when using families that have been updated from early releases of Revit. At worst items should be moved from the redundant category to the new category. Even though some subcategories e.g. Plan Swing, can be deleted via the UI deletion may fail when deleted via the API. Files that fail in this way can be accessed via the "Manual Edit" button.

Note: You must transfer values in the **"used"** items file into the **"Update Categories"** control file which defines the changes you want applied. To transfer the used values to the control file, use the **"<"** transfer button.

Note: If you assign a material to a category, and the material does not exist in a file, a material of that name will be created and assigned to the category. At present the material will be generic i.e. No extended material properties are assigned or matched. The material can be corrected in your project or you can use the **"update materials"** option to set the values as you wish.

Note: Changing a material assignment for a category to nothing is not possible via the API in 2012 or 2013. For non-built-in categories it would be possible to first move all items to a temporary category, deleting the now empty category, and then moving the items back to the re-created original category. This process is not possible for Built-in categories as they cannot be deleted. Files where this "nothing" material assignment has failed can be accessed via the **"Manual Edit"** button.

Note: If you elect to **"move items to"** another category and the category does not exist the category will be created using the values of the **"move from"** category as defined in the control file. Items drawn as "detail items" cannot be moved from one subcategory to another, as detail items use linestyles rather than categories.

Note: If a nested family has its categories updated but has no elements on a specific category, later opening the nested family via the UI will reset category values to their

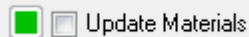
default "Revit" values. Any categories in the nested family with items on them, will use category settings of the main family.

Material Updating

This option enables materials to be updated, added, deleted or renamed.

Note: If **material updating** is enabled and a document that includes "**materialseed**" in its name is open, then materials that exist in both the seed file and the family files will cause the family file material to be updated to the seed file material definition. Fill patterns not in the family file (based on name matching) will be copied to the family file.

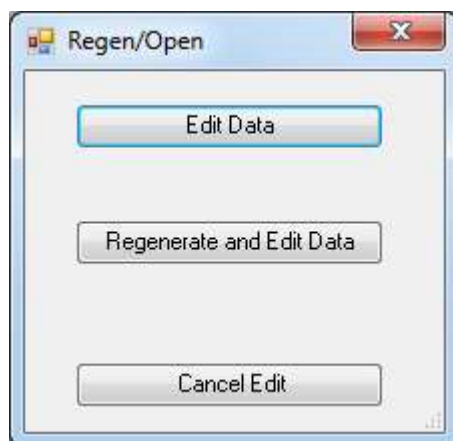
A small green square will appear next to the "Update Materials" checkbox when the "MaterialSeed.rvt" file is open.



Note: The "Use Render Appearance" property is not accessible in the Revit 2014 API and any materials that rely on this will only ever have the property left unticked. A solution to this is to load the families into the "MaterialSeed" file and then save those out using "ARUtils | Files | Reload / Save Families".

Used

Pressing the "**Used**" button will bring up either



- Edit Data – Edit the data in Excel
- Regenerate and Edit Data – Rebuild the used data list by using the "Report" file
- Cancel Edit – cancel Edit process

<

Copy or append the "used" file to the "control file". You will be presented with a dialog to

- Overwrite or
- Append

the "used" file to the "control" file.



Open

Open the subcategory control file

Most Used Settings

When you press the "Used" button, checking this option will report only the most used material settings.

Update Materials File Format

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	Name	Description	Mark	Comments	C	N	K	U	C	C	C	C	C	C	C	C	S	S	S	S	S	T	C	N	Count	Delete(1)/Add(2)	New Name		
2	Default Light Source	des1	mk1	c1										N												1			
3	Default Light Source	des2	mk2	c2										N												2			
4	Default Roof	des3	mk3	c3										N												2			
5	Default Wall	des4	mk4	c4										N												2			
6	Default	des5	mk5	c5										N												2			
7	Glass	des6	mk6	c6										N												2			
8	Metal - Chrome	des7	mk7	c7										N												1			
9	Phase-Demo	des8	mk8	c8										N												1			
10	Phase-Exist	des9	mk9	c9									S													1			
11	Phase-Temp	des10	mk10	c10									C													1			
12	Poche	des11	mk11	c11										N												1			
13	Textile - Black	des12	mk12	c12										N												1			

Sample Update Materials Control File

Name	The material name
Various fields	All the parameters that can be assigned to a material are displayed here. Note: All colour fields require values of 0 to 255.
Count	The number of times this particular set of values has occurred throughout the families scanned. By using the "Most used settings" checkbox only the item with the highest count will be put in the control file.
Delete(1)/Add(2)	Set this to 1 to delete the specified material. Set this to 2 to Add the material to all families. All other values will simply update the materials values if it exists.
New Name	If desired you can rename existing materials. This can allow for consistent naming conventions.
Appearance Asset	Previously this could only refer to appearance assets saved within your project. This can now refer to any material in the base material library. Refer to Special Material Parameters for more information.

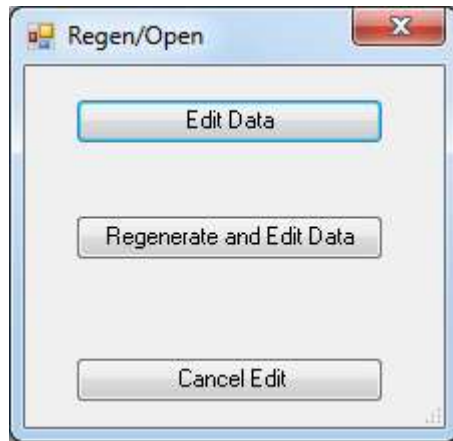
Note: You must transfer values in the "used" items file into the "Update Materials" control file which defines the changes you want applied. To transfer the used values to the control file use the "<" transfer button.

Update Text Style

This enables you to update text styles within your family files. You will first need to scan your files to the **"Type Parameters"** level of detail.

Used

Pressing the **"Used"** button will bring up either



- Edit Data – Edit the data in Excel
- Regenerate and Edit Data – Rebuild the used data list by using the "Report" file
- Cancel Edit – cancel Edit process

<

Copy or append the "used" file to the "control file". You will be presented with a dialog to

- Overwrite or
- Append

the "used" file to the "control" file.



Open

Open the control file and make changes

Text Style File format

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Text Style Name	Family Type	Background	Bold	Color	Italic	Leader/Border Offset	Line Weight	Show Border	Tab Size	Text Font	Text Size	Underline	Width Factor
2	1/8"	Room Tags	1	0	0	0 1/2"		1		0 3/8"	Arial	1/16"	0	1
3	Bold 1/8"	Room Tags	1	1	0	0 1/2"		1		0 3/8"	Century Gothic	1/16"	0	1
4	Text Note 1	Room Tags	0	0	0	0 1/2"		1		0 3/8"	Arial	1/16"	0	1

Text Style Name: The text style name

Family Type: Set this to the family type you want to be affected. Alternatively use "all" to affect all family types

Parameters: Adjust these to suit

Your file only requires the first two columns and at least one parameter column. If you do not wish to alter a type simply delete the row.

Build Text Names

This option will enable auto renaming of any text styles used in your families. The names are built from the following attributes of the text style

- Height
- Font
- Bolding
- Italicising

Typical results are

2.00 mm Arial

5.00 mm Arial Narrow Bold Italic

Replace Text

This option enables you to replace one string with another (or nothing). Typically you may use this to rebrand a set of families, e.g., change the company branding from Acme to Coyote.

Open:

This will open the replace text definitions file

	A	B	C	D	E	F	
1	From String	Replace With	Ignore Case	Types	Elements	Parameter Values	
2	Lockheed	Boeing	TRUE	TRUE	TRUE	TRUE	
3							

The values in this file match those in the "[Replace Text](#)" Function.

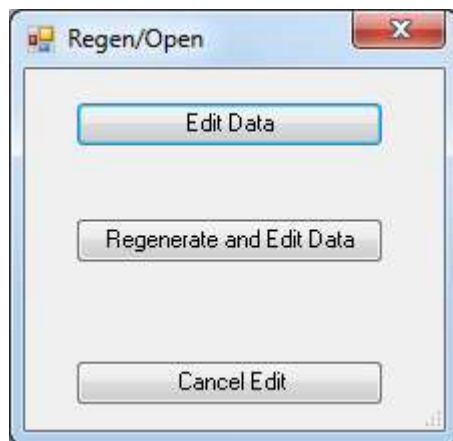
Note: You can have multiple string replacement definitions in this file.

Rename Nested Families

This enables you to rename nested families and family types within your family files. You will first need to scan your files to the "**Type Parameters**" level of detail.

Used

Pressing the "**Used**" button will bring up either



- Edit Data – Edit the data in Excel
- Regenerate and Edit Data – Rebuild the used data list by using the "Report" file
- Cancel Edit – cancel Edit process

<

Copy or append the "used" file to the "control file". You will be presented with a dialog to

- Overwrite or
- Append

the "used" file to the "control" file.



Open

Open the control file and make changes

Rename Nested Families File format

	A	B	C	D
1	Exi Family Name	Exi Family Type	New Family Name	New Family Type
2	DR-Arrow	DR-ARROW	Arrow	
3	DR-DDA Arrow - Model	DR-DDA ARROW - MODEL		Arrow - Model

- Exi Family Name:** The existing family name
Exi Family Type: The existing name of a type within the family
New Family Name: The new family name
New Family Type: The new name of a type within the family

Your file requires all four columns. You should do separate runs for renaming families and family types, as once the family is renamed, the family and type may no longer be found.

Family Parameters

Replace Text

Allows you to define multiple text strings to be replaced in your families. This may be useful if company branding needs to be altered or removed. E.g., replace "Lockheed" with "Boeing". Pretty much everything can be changed, e.g., view names, line styles, categories, parameter names, parameter values, etc.

Open

Open the control file and make changes

Replace Text File format

	A	B	C	D	E	F	
1	From String	Replace With	Ignore Case	Types	Elements	Parameter Values	
2	Lockheed	Boeing	TRUE	TRUE	TRUE	TRUE	

From String:	The string to be searched for
Replace With:	The string to be swapped with the "From String"
Ignore Case:	Ignore the case of the "From String" when matching
Types:	Process types in the family
Elements:	Process elements in the family
Parameter Values:	Process parameter values and parameter names

Shared Parameter file

This is the file that contains the definition of your shared parameters. This file will be used for all shared parameter operations. You can browse to this file using the "...". Button or set it to the Architectural ANZRS file (currently V3) by pressing "**ANZRS**". Once set you can use the "**Open**" button to open the file.

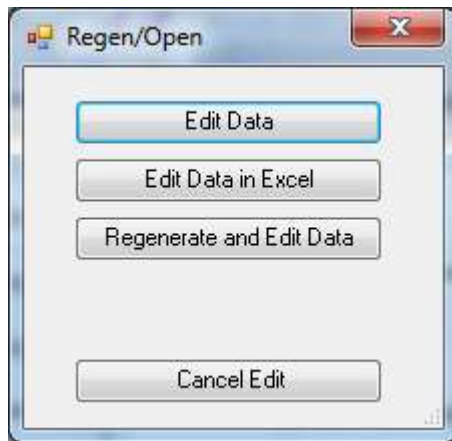
Add / Rename Only / Rename and Update / Replace Parameters

This checkbox will enable adding / renaming / replacing / setting of values for both shared and non-shared parameters. You can:

- add **project** or **shared parameters**
- **rename** existing **project** or **non-shared** parameters
- **rename only** will rename any parameter without updating instance/type or group
- **rename and update** will rename and update instance/type and group
- **replace** existing **non shared** parameters with **shared** parameters
- **set the value** of **shared** or **non-shared** parameters for all types in a family
- assign parameters to groups that appear within the properties window
- change the Case of text based parameter values

Used

Pressing the "**Used**" button will bring up either



- Edit Data – Edit the data in the default editor (this may be Excel) or an **ARUtils** editor
- Edit Data in Excel – Edit the data in Excel
- Regenerate and Edit Data – Rebuild the used data list by using the "Report" file
- Cancel Edit – Cancel Edit process

<

Copy or append the "used" file to the "control file". You will be presented with a dialog to

- Overwrite or
- Append

the "used" file to the "control" file.

**Open**

Open the control file and make changes

Sort (2015 Onwards)

Sort all parameters in a family Alphabetically



[Show me how](#)

List Sort (2015 Onwards)

Sort parameters by the order that they appear in the control file.



[Show me how](#)

Note: Parameters can only be reordered by editing the control file using Excel.

It is recommended that all parameters appear in the control file to ensure accurate ordering of parameters. You should use the "Report Null Values" option when generating the report and then the "Used" parameter file.

Resolve Names (a tristate checkbox)

Allows you to change the name of shared parameters used in your families.



[Show me how](#)

Note that this command should only be used by the most skilled of BIM Managers.

The general process is to edit the name of your shared parameters as they appear in the "Shared Parameter File" and also include the old parameter name in the "Open" or control file for parameter renaming/replacing/etc. This can be avoided by using the "Resolve All" option.

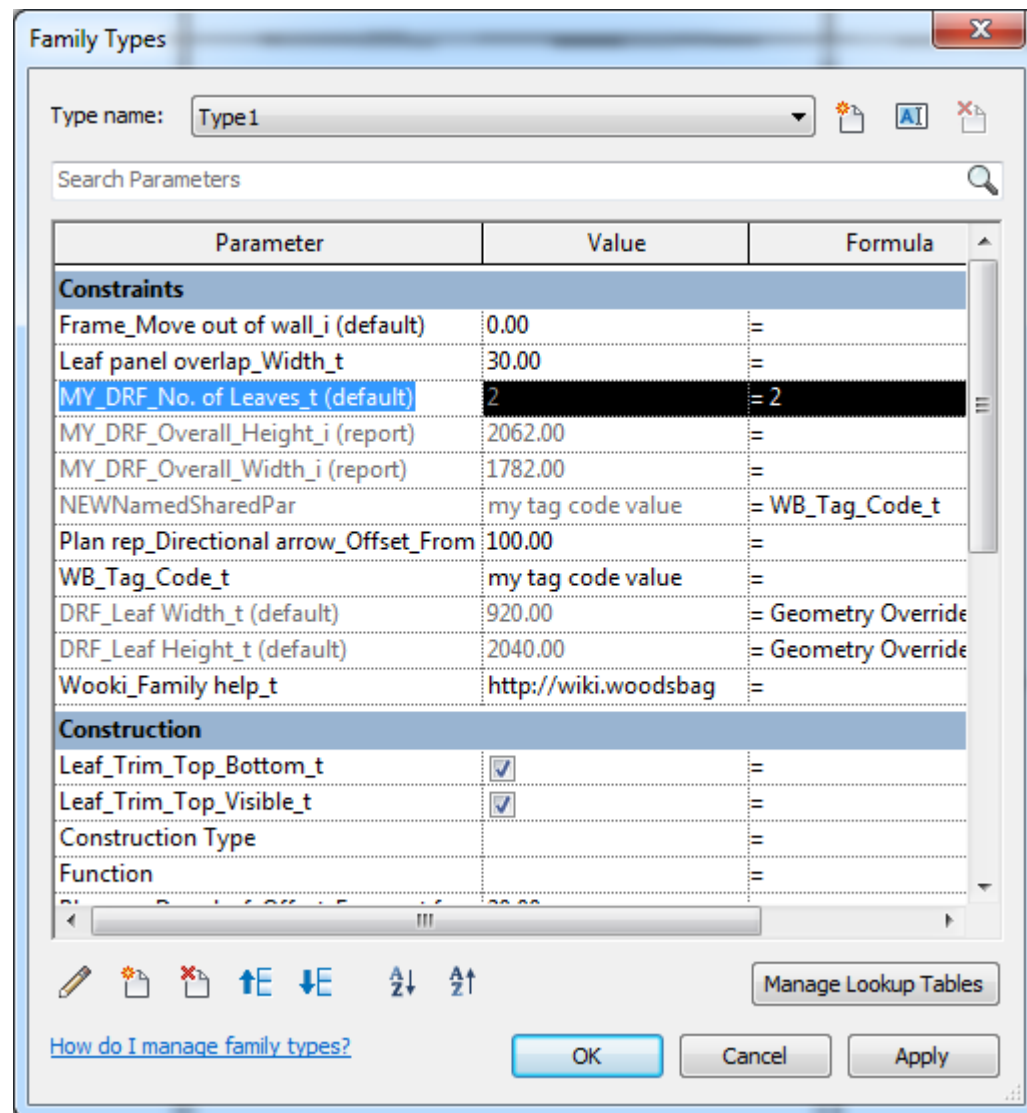
NEW: A new option (since 2015) has the Resolve Check Box as a TriState checkbox. This enables you to have the Checkbox "enabled" to check parameters that occur in the Open / control file, or to have the checkbox in the third state (blue) to "Resolve All". In both cases you will need to have the "Add/Replace/Rename" checkbox enabled.

Changing the name in the shared parameters file can be done via notepad or a similar text editor. Make sure that you do not inadvertently delete a "TAB" character.

File	Edit	Format	View	Help
PARAM	aeb9637d-840d-40e9-b7d6-2155c2f0a300	MountingType_ANZRS	TEXT	0 1 1
PARAM	6788cf80-07dd-4fc3-8924-6f7e548d5622	Carparkwidth_ANZRS	LENGTH	13 1 1
PARAM	6f656f82-2054-4078-9015-5226ae254661	InstallationType_ANZRS	TEXT	15 1 1
PARAM	d860ca85-31bc-43c3-a612-fb95fa4e5a73f	DoorFrameFinish_ANZRS	TEXT	4 1 1
PARAM	06c6cc8a-b116-4612-b763-f47858dccc8c	DoorPanelDepth_ANZRS	LENGTH	4 1 1
PARAM	9db78e8d-c24f-46c0-8623-f0133fe52eeb	Descriptor_ANZRS	TEXT	11 1 1
PARAM	c7311995-c3c8-4540-8dba-275d100762c3	PlumbingMaterial_ANZRS	MATERIAL	15 1 1 1
PARAM	649fc895-d008-426b-9132-edfc726f51d0	Trap_ANZRS	TEXT	15 1 1
PARAM	72d2fc95-0279-4807-ba38-8837dcd8de10	DoorFrameType_ANZRS	TEXT	4 1 1
PARAM	4882899b-8d06-425f-9579-fe420ce15ed4	My_DRF_Overall_Height_1	INTEGER	25 1 1
PARAM	7e26cf96-899c-40c6-800a-96032659c9e8	My_DRF_Overall_Height_1	LENGTH	25 1 1
PARAM	de4cbf9b-eda3-4501-a686-3370256e0a05	DoorPanelFinish_ANZRS	TEXT	4 1 1

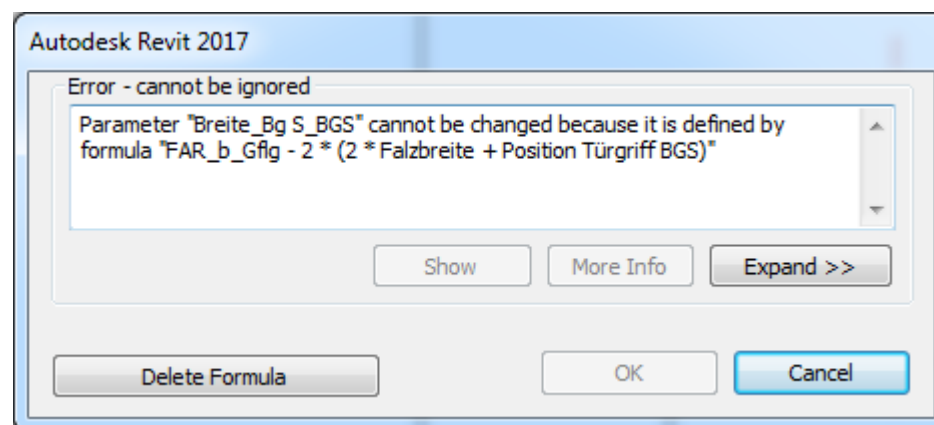
Editing the shared parameters file to change the name of a parameter

Once the resolve names checkbox is checked any shared parameters in your family and specified in the "open" file ("fixpars.xlsx") will be checked first by name and if not found then checked by GUID. Using "Resolve All" removes the need for having the parameters defined in the "open" file.



The renamed shared parameter in the "Family Types" window.

Note: An issue can arise when shared parameters are used in formulas and also in nested families. In these cases a popup something like

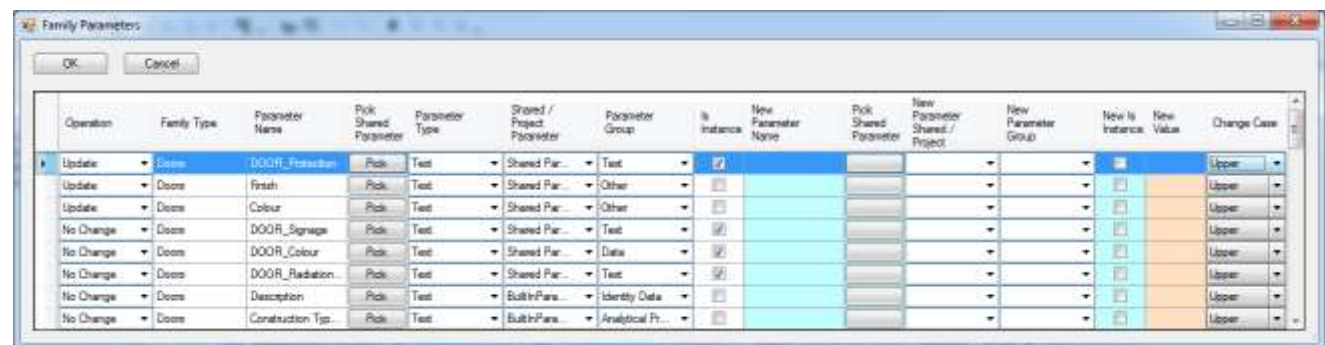


will appear and manual resolution will be required.

Generally the process is:

1. Save all the "nested families" out using the "Save Nested Families" option in Head of the Family
2. Process all the nested families using the "Resolve All" option. This should generate a list of "problem" families in the "Manual Edit" list.
3. Open any trouble families (using the Manual Edit list) and open nested families (and there nested families and so on) that use the parameters. Then use "Batch Reload Families" to update the nested families to now use the redefined parameter names.
4. Run the "Resolve all" on the family you have just applied a reload to and check if parameters have been renamed. If not, then look for deeper nested families, and repeat 3 and 4. Otherwise load the family back into the family up the nesting and try the resolve again.

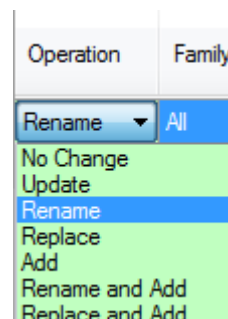
Rename / Replace parameters interface



Operation

Select the operation to be performed for this parameter. Valid values are:

No change	Do not change the parameter (resolving if checked, will take place)
Update	Use to update the value of a parameter and also the group the parameter appears in
Rename	Rename a Project parameter
Replace	Replace a parameter with a shared parameter
Add	Add the parameter if it does not exist
Rename and Add	Rename the parameter if it exists and add the parameter if it does not exist
Replace and Add	Replace the parameter if it exists and add the parameter if it does not exist.
Delete	Remove the parameter from the family



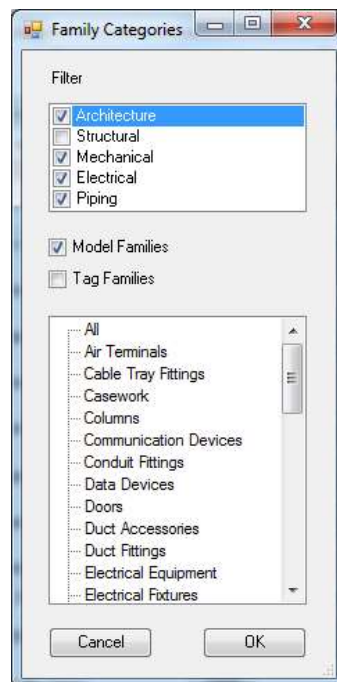
Note: Any replacing and renaming operations will also update associated catalog files.

Family Type

the families type e.g. Doors, Windows, Casework, etc. This will restrict the processing to only that family type. Use the value "All" to process

all family types. Pressing this will present you with a filtered list of valid values.

You can filter by discipline or by Model or Tag families.

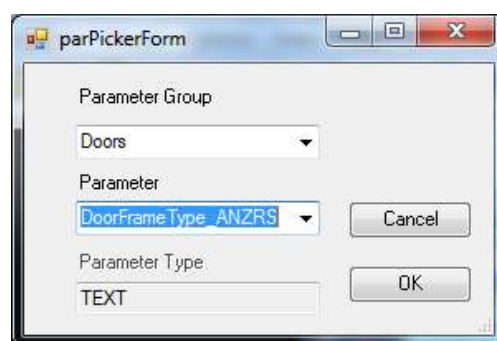


Parameter Name The existing parameter name

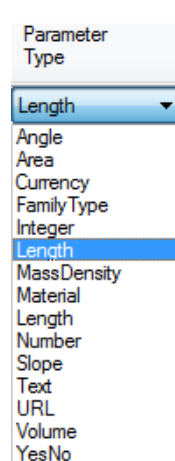
Pick Shared Parameter (blank in Excel file)

This enables you to pick a shared parameter for your selected process. Typically you will not need to pick a parameter as this field will have been set via the "Used" button generation of data.

In the control file this field will be labelled "Blank" – do not remove this column.

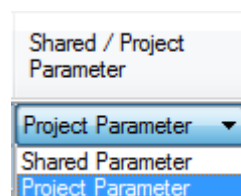


Parameter Type The type of parameter i.e. Length, Text, Integer, Angle, Slope, etc.

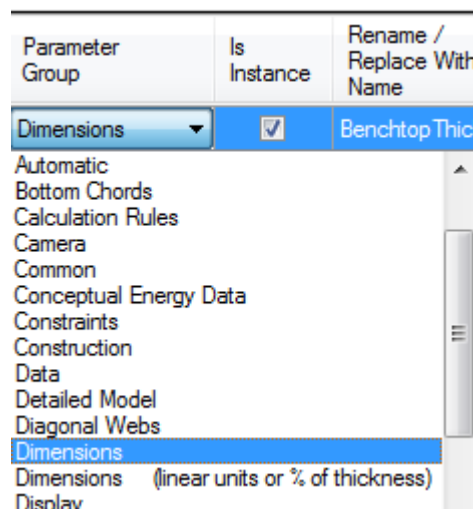


Parameter Project/Shared

The type of parameter i.e. Shared, Project, or BuiltIn.
BuiltInParameters cannot be renamed or replaced. They can have their values updated.



Parameter Group The group in which the parameter appears in the Revit **properties** window. The value is given for information purposes only.



IsInstance Is this an instance parameter

Name for Rename / Replace Operation

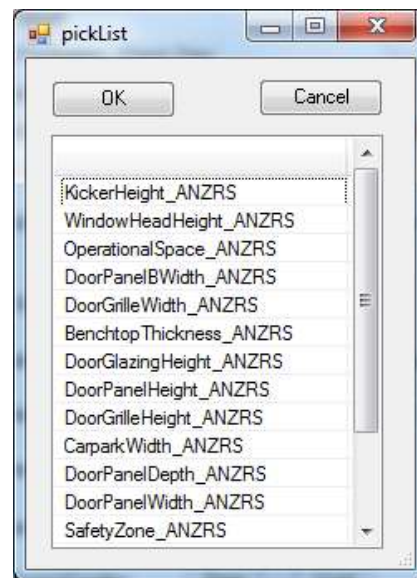
Optional. The new name to be used in either a rename or replace operation. If replacing, the parameter name must exactly match a parameter in your shared parameters file. This can be most easily selected using the "Pick Shared Parameter" button. Copying and pasting between the shared parameters file and the Excel file is another option.

Note: If you use "Rename and Add" or "Replace and Add", this parameter will be added if it is not found in the family.

Pick Shared Parameter (blank in Excel file)

This enables you to pick an existing shared parameter for your selected process. Typically you will use this when you wish to replace, add, or add and replace a parameter with a shared parameter, e.g. replace the project parameter "BenchThickness" with the shared parameter "BenchThickness_ANZRS".

Note: If replacing a parameter then the list of parameters will be restricted to those of the same type i.e. You cannot replace a length parameter with a text parameter.



In the control file this field will be labelled "Blank" – do not remove this column.

Project/Shared

The type of parameter i.e. Shared or Project

New Group

optional. The group in which the parameter appears in the properties window.

Note: All ANZRS parameters are automatically assigned to the correct group. The value of "Automatic" will put the item into the correct group based on a number of factors. Typically this will be the best option. E.g. A material parameter would be placed in the Materials group, Length in Dimensions, etc.

In the Excel file you can use either the common parameter group name e.g. Dimensions, Materials and Finishes, or the more complex "BuiltinparameterGroup" names.

IsInstance

Is this an instance parameter. Ideally you should not change an instance parameter to a type parameter or vice-a-versa. If you change this value the operation column will change to "update" and the parameter will be changed to Type or Instance as set.

New Value

optional, **set the value** of the new or existing parameter to the specified value, calculated value, concatenated value, or to a formula.

You can simply set a value to be assigned or you can assign calculated values. Simply use the "<" and ">" to wrap parameter names. E.g., <Width>*<Height> would calculate the value and assign the value to the parameter.

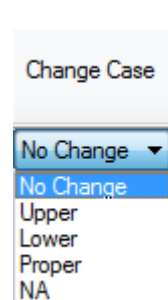
Note: Functions available are +, -, *, /, (and) can be used for structuring the mathematics.

Where any of the parameters are not numeric the value will be evaluated as a String expression, e.g., <Manufacturer> --- <Model> would take the manufacturer value, add " --- ", and then the model value.

To apply a formula use the qualifier "Formula_" to specify that the new value is a formula. E.g. "Formula_Width * Height" would assign the formula "Width * Height" to the designated parameter.

Change Case

Allows you to change the case of any text parameter values. Possible options are:



e.g., Use proper to change "FRED" to "Fred"

Examples:

All the following examples assume that you have:

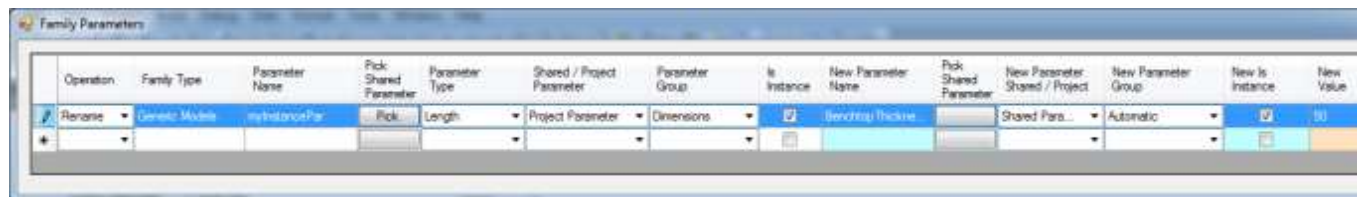
1. Processed a number of family files to generate a report file
2. Set the "**Shared Parameter File**" that defines your shared parameters
3. Generated the "**Used**" parameter information by pressing the "**Used**" Add/Rename/Replace Pars button
4. Transferred the "**Used**" information to the "**Control**" parameters file by pressing then "<" button.
5. You have deleted any parameter entries by selecting a line or lines and pressing the "**Delete**" key on your keyboard.
6. Found the parameter entry you are interested in altering

Some typical scenarios are:

Replace an existing non shared (project) parameter to a shared parameter

- **Operation:** Set this to "**Replace**" to only replace existing parameters. Use "**Replace and Add**" if the new parameter should be added if it does not exist in a family.

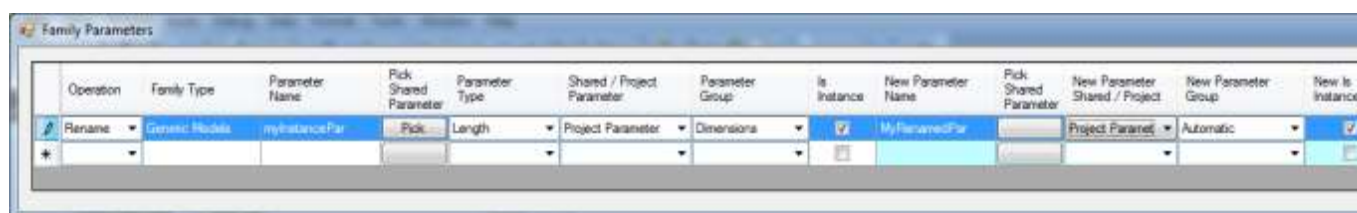
- **Family type:** this will have been correctly set, e.g. "Generic Models". You can set this field to "All" if you wish the operation to be independent of family type.
- **Parameter Name, etc.:** The existing parameters details will have been populated via the "Used" parameters operation. Do not alter any of the existing fields as this will have no effect. Parameter Type, Shared / Project parameter, Parameter Group, Is Instance should not be changed.
- Click on the second **"Pick shared parameter"**
- **New Shared / Project:** this will automatically be set to "Shared Parameter".
- **New Parameter group:** use the value "Automatic" to have the parameter automatically placed into a consistent group. ANZRS parameters are also handled as per ANZRS standards.
- **New Value:** set field to the appropriate value.



Replacing the project parameter "myInstancePar" with the shared ANZRS parameter "BenchTopThickness_ANZRS". The parameter group is automatically determined by ARUtils. The value will be updated to 50.

Renaming an existing Project parameter to another name

- **Operation:** set this to "Rename"
- **Family type:** this should already be correctly set, e.g. "Generic Models". You can set this field to "All" if you wish the operation to be independent of family type.
- **Parameter type:** leave as is.
- **Shared / Project:** leave as is.
- **Parameter group:** leave as is.
- **Is Instance:** leaves as is.
- **New parameter Name:** set the new name for the parameter
- **New Shared / Project:** leave as is, not used
- **New parameter group:** leave as is, not used
- **New IsInstance:** leave as is, not used
- **New Value:** Optional – set this to the new value.



Renaming the project parameter "myInstancePar" with the shared ANZRS parameter "BenchTopThickness_ANZRS". The parameter group is automatically determined by ARUtils. The value will be updated to 50.

Set the value of a parameter.

- **Operation:** set this to "Update"
 - **New Value:** set this to the appropriate value.
 - Keyword Formula Options:

- **Formula**
To set a formula use "formula *formula_rule*" e.g. formula Model would set the value of the parameter to be use the Model value
- **=Formula**
This option clears the formula and sets the value to the current formula value

Add a new project Parameter

- **Operation:** set to "Add"
- **Family type:** set to the type of families that this parameter should be added to, e.g. "Generic Models". You can set this field to "All" if you wish the operation to be independent of family type and applied to all families that are processed.
- **Parameter Name:** type in the name of the parameter, e.g. "myNewPar".
Once this is completed the "Shared / Project" field will be set to "Project Parameter" and "Parameter Group" will be set to "Automatic".

Note: If you had used the "Pick Shared Parameter" button, the "Shared / Project" field will be set to "Shared Parameter".

- **Parameter Type:** set to one of the possible types. E.g. Length.
- **Parameter Group:** set to "Automatic" or change it to a specific parameter group.
- **Is Instance:** set the checkbox if you want the parameter to be an instance parameter. .
- **New Value:** set this to the value you want this parameter to have. This will be applied to all types within the family.



Add the new project parameter, "myNewPar" to all family types. Set the value to 50.
File specific parameter value updater (New October 2012)

File Specific Parameter Values

The "File Specific Par Values" checkbox allows you to update parameter values using an Excel file that contains a list of family files, family types, parameters, and the values that the parameters should be set to. You can also define new types which are created during the process.



[Show me how](#)

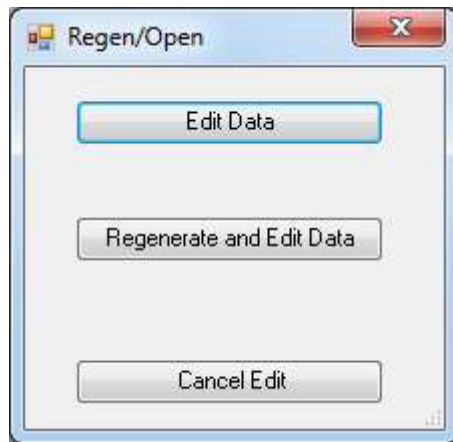
This enables you to set one or multiple parameters, e.g. URL, to individual values in each file, and for each type within the family.

You can opt to create your control file either manually or using the "Used" option for this command. If you opt for the "Used" option you will first need to scan your files to the "Type Parameters" level of detail.

Note: This command runs in a different fashion to most of the "Head of the Family" routines in that the control file specifies the files to open, and the parameters to be updated. Enabling this command therefore does not carry out any of the other options, hence they are disabled.

Used

Pressing the “**Used**” button will generate the “Used file specific par values” file or bring up the menu



- **Edit Data** – Edit the data in Excel
- **Regenerate and Edit Data** – Rebuild the used data list by using the “Report” file
- **Cancel Edit** – cancel Edit process

If you opt to **regenerate** you are given the option of what type of file you want to generate. Depending on the current state of parameters in your files, and whether you wish to update values specific to each type in a file, you may opt to pick one of the following.



This dialogue allows you to opt to generate a file that

- **Files** – Insert the file name and set the family type to “All”.
Use this if you just want to set one or two parameters to the same value for each type in a file, and your files do not have any of these values set correctly. You will need to add a parameter name to the next blank column, e.g., URL. The values you enter will be set for all types in the family.
- **Files and Family Types** – Create a line for each file, and each family type in the file.
Use this if you just want to set one or two parameters to a value for each type in a file, and your files do not have any of these values set correctly. You will need to add a parameter name to the next blank column, e.g., URL. The values you enter will be set for the specific type in the family.
- **Files, Family Types, and all parameters** – Create a line for each file, each family type, and also every parameter and its value for the family type. You will be prompted to select the parameters you want to report on.

	A	B	C	D	E	F	G
1	File	Family Type	Assembly Code	Description	B Material Glass	Pro Material Paddles	I Mattress Mats
2	C:\dev-lib\Bistr-Baluster - Round.Rfa	25	NA	myDesc1	NA	NA	NA
3	C:\dev-lib\Cilind-Callout Head.Rfa		NA	NA	NA	NA	NA
4	C:\dev-lib\Detl-Brick Standard.Rfa	Running Section	NA	NA	NA	NA	NA
5	C:\dev-lib\Dr-Bifold-4 Panel.Rfa	1800 x 2100	C1020	myDesc4	NA	NA	NA
6	C:\dev-lib\Furn-Bed-Box.Rfa	Double 1346 x 1890	E2020200	myDesc5	NA	NA	Mat16
7	C:\dev-lib\Furn-Chair-Corbu.Rfa	Chair-Corbu	E2020200	myDesc6	NA	NA	NA
8	C:\dev-lib\Furn-Chair-Corbu.Rfa	Couch Corbu	E2020200	myDesc6	NA	NA	NA
9	C:\dev-lib\Gyr_Ceiling - Fan With Light.Rfa		D5020220	myDesc8	Glass - Frosted	Wood - Walnut	NA
10	C:\dev-lib\Gyr_Ceiling - Fan With Light.Rfa	100 watt Incandescent	D5020220	myDesc8	Glass - Frosted	Wood - Walnut	NA
11	C:\dev-lib\Gyr_Ceiling - Fan With Light.Rfa	150 watt Incandescent	D5020220	myDesc8	Glass - Frosted	Wood - Walnut	NA
12	C:\dev-lib\Sfrm-C-Channel.Rfa	C10X25	B10	myDesc10	NA	NA	NA
13	C:\dev-lib\Tolk-A1_Arm Pres.Rfa		NA	NA	NA	NA	NA

A sample of what the "Files, Family Types, and all parameters" file will contain. Note the use of NA where a value does not exist within a file.

Refer to the "[File Specific Par Values](#)" file format for more detail.

<

Copy or append the "used" file to the "control" file. You will be presented with a dialog to

- Overwrite or
- Append

the "used" file to the "control" file.



Open

Open the control file and make changes

File Specific Par Values file format

The format of this file consists of a number of columns.

- **File** – The full path to the family File
- **Family Type** – The type name within the family, e.g. Family File is "Table.rfa", Family Types might be "Round" and "Square". If you want all "Family Types" set to the same value, use the value "All" for the "family type".
- **Parameter** – The parameter name to have its value updated (multiple columns are possible).

	A	B	C	D
1	File	Family Type	Description:BuiltInParameter:Text	URL
2	C:\dev-lib\Blstr-Baluster - Round.Rfa	all	myDesc1	http://www.softwaresolutions.com.au
3	C:\dev-lib\Cllhd-Callout Head.Rfa	all	myDesc2	http://www.softwaresolutions.com.au
4	C:\dev-lib\Detl-Brick Standard.Rfa	all	myDesc3	http://www.softwaresolutions.com.au
5	C:\dev-lib\Dr-Bifold-4 Panel.Rfa	900mm	myDesc4	http://www.softwaresolutions.com.au
6	C:\dev-lib\Furn-Bed-Box.Rfa	Single	myDesc5	http://www.softwaresolutions.com.au
7	C:\dev-lib\Furn-Chair-Corbu.Rfa	Couch	This is a couch	http://www.softwaresolutions.com.au
8	C:\dev-lib\Furn-Chair-Corbu.Rfa	Chair	This is a Chair	http://www.softwaresolutions.com.au
9	C:\dev-lib\Gyr_Ceiling - Fan With Light.Rfa	all	myDesc8	http://www.softwaresolutions.com.au
10	C:\dev-lib\Sfrm-C-Channel.Rfa	all	myDesc10	http://www.softwaresolutions.com.au
11	C:\dev-lib\Tblk-A1_Arm Pres.Rfa	all	myDesc11	http://www.softwaresolutions.com.au

A sample of the “File specific parameter Value” file.

Note the use of two ways of defining the parameter. “**Description**:BuiltInParameter:Text” or simply “**Description**” would both be acceptable. The former has been generated automatically by using the “Used” option.

Note: Parameter values can be defined to be a **formula**. Use the value qualifier “Formula_” to specify that the new value is a formula. E.g. “Formula_Width * Height” would assign the formula “Width * Height” to the designated parameter.

Family Specific Parameter Values

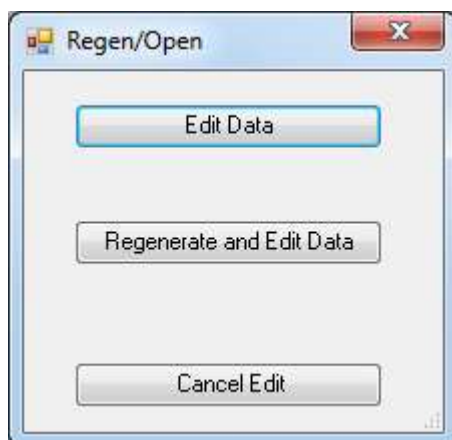
The “**Family Specific Par Values**” checkbox allows you to update parameter values using an Excel file that contains a list of family files and their parameters, and the values that the parameters should be set to. The parameters handled are things like OmniClass, Shared, Always Vertical, etc.

This enables you to manage your families via an Excel file, e.g. OmniClass, to individual values in each file.

Note: This command runs in a different fashion to most of the “Head of the Family” routines in that the control file specifies the files to open, and the parameters to be updated. Enabling this command therefore does not carry out any of the other options, hence they are disabled.

Used

Pressing the “**Used**” button will generate the “Used Family Specific par values” file or bring up the menu



- **Edit Data** – Edit the data in Excel
- **Regenerate and Edit Data** – Rebuild the used data list by using the “Report” file
- **Cancel Edit** – cancel Edit process

Refer to the "[Family Specific Par Values](#)" file format for more detail.

<

Copy or append the "used" file to the "control file". You will be presented with a dialog to

- Overwrite or
- Append

the "used" file to the "control" file.



Open

Open the control file and make changes

Family Specific Par Values file format

The format of this file consists of a number of columns.

- **File** – The full path to the family File
- **Parameter** – The parameter name to have its value updated (multiple columns are possible).

	A	B	C	D	E	F	G
1	File	Always vertical Vertical	Cut with Voids When Loaded	OmniClass Number	OmniClass Title	Shared	Work Plane-Based
2	C:\temp\fams1\Chair-Task.rfa	0	0	23.40.20.14.14.11	Chairs	0	0
3	C:\temp\fams1\M_Chair-Breuer.rfa	0	0	23.40.20.14.14.11	Chairs	0	0
4	C:\temp\fams1\M_Desk.rfa	0	0	23.40.20.14.14.11	Chairs	0	0
5	C:\temp\fams1\Table-Dining Round v	0	0	23.40.20.14.14.11	Chairs	0	0

A sample of the "Family Specific Parameter Value" file.

RELOAD / SAVE FAMILIES

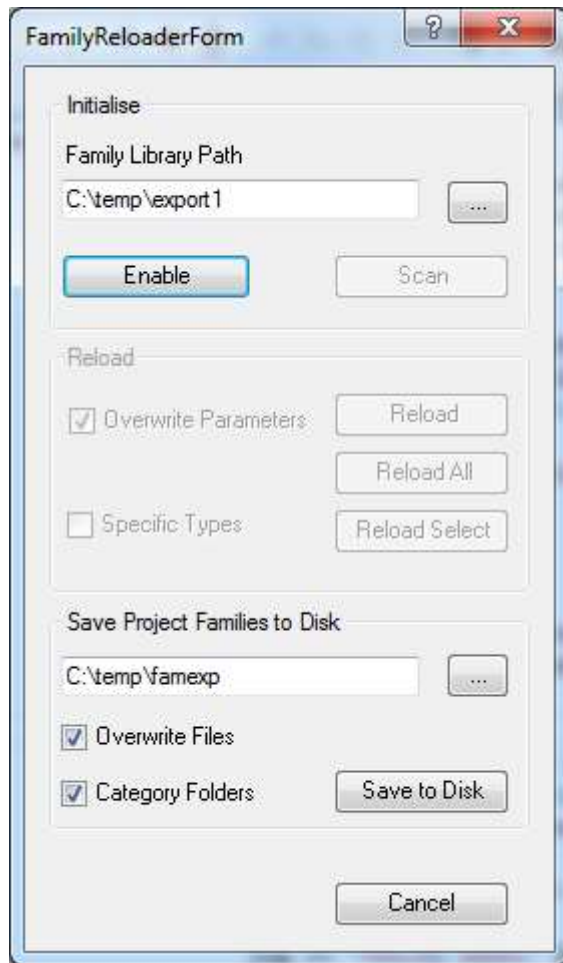
Keeping track of loaded families in multiple projects against the families out on disk can be a complex task. Is the loaded family newer or older than the family on disk?

Note: For a less structured approach to loading / reloading families use the [Batch Reload Families](#) command.

This routine will time stamp families in your project and compare them against the time stamp of files on disk. Where these differ you can opt to easily reload the families that are on disk.

The routine also lets you save families to disk. Unlike Revit's "Save As| Library | Family" function, this routine allows you to select just the families you want to save.

Note: At present the routine does not write out newer project families to disk. I.e. If a family in the project is newer than those on disk, this routine will not automatically overwrite the disk version. This must still be done using normal Revit functionality.



The Family Reloader Dialog

Family Library Path

This is where you store your families on disk. Revit projects do not store the location of your families within the project file, therefore a scan needs to be done to find family files.

Enable/Disable

Pressing "Enable" adds some parameters to your project and associates them to selected family categories and their types within your project, e.g., doors, windows, furniture, etc. This also enables event triggers to update the ARUtils parameters values when a family is modified within a project.

You will be prompted to do a scan to complete the process. This reconciles families in the project to files on disk.

"Disable" will show when Monitoring is enabled. Pressing "Disable" will disable family monitoring and remove associated parameters. Saving and reopening the project is recommended.

Note: Only selected family categories are automatically assigned. You can modify this using the "Manage | Project Parameters" dialog of Revit.

[More about the parameters](#)**SCAN**

Once we have enabled "**Family Monitoring**" we need to do **a scan of the project and the library folders**. This scan will update the parameter values for each family type.

When you add families to the project from disk you may need to repeat this scan process.

Reload Group Box**RELOAD**

Reload allows you to reload families that are in the project. The family must have an "**OnDisk_ARUtils**" parameter set to the location of the file on disk. Families that do not have this set will be reported as not having been found.

Note: Only families on disk that have a newer time stamp will be loaded.

RELOAD ALL

"Reload all" forces a reload of all reconciled families regardless of the date stamping

RELOAD SELECT

"Reload Select" will prompt you to select from a list the families you want to update. No date checking will be done.

Save Project Families to Disk**[Folder]**

The folder where families will be saved. A double click will open Explorer in the specified folder.

[...]

Browse for the save folder

Overwrite Files

Overwrite existing files. Existing files will be renamed to be a backup file.

Category Folders

Save families into their Family Category folders. E.g Save a door family in to a "Doors" folder.

Save to Disk

Will prompt you to select the families to be saved. These are then opened and

Note: If "**Specific types**" is enabled then you will be presented with all the types available for a family. You can then choose to reload only specific types within a family.

OverWrite Parameters

Allows you to load families and overwrite their parameters within the project when the items are reloaded

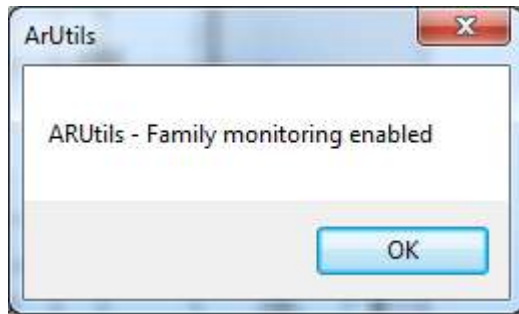
Specific Types

When **unchecked** and "**Reload Select**" is used, only the family name (not its types) are presented for selecting and loading.

When **checked** and "**Reload Select**" is used, families and all types are presented for selecting and loading.

Opening your project after Family Monitoring has been enabled

Projects which have "Family Monitoring" enabled will display the following dialogue



Note: If ARUtils is not available you may receive a message that the application is not available.

Parameters Added to your Project

Parameter: FamilyMonitor_ARUtils

Boolean parameter added to "Project Information". This tells ARUtils that Family Monitoring should be turned on when the project is loaded. Unchecking this item will turn family monitoring off. This may require a reload of the project.

Instance Properties

Family: System Family: Project Information Load...

Type: Edit Type...

Instance Parameters - Control selected or to-be-created instance

Parameter	Value
Identity Data ^	
Author	
Energy Analysis ^	
Energy Settings	Edit...
Other ^	
Project Issue Date	Issue Date
Project Status	Project Status
Client Name	Owner
Project Address	Edit...
Project Name	Project Name
Project Number	Project Number
TempLPar_ARUtils	0' 2"
FamilyMonitor_ARUtils	<input checked="" type="checkbox"/>

OK Cancel

Project Information Dialogue

Parameter: RevisedType_ARUtils

Text parameter – Reverse Date / time formatted string. Contains when the item was revised.

Parameter: RevisedByType_ARUtils

Text parameter – User that revised the item

Parameter: OnDisk_ARUtils

Text parameter – Full path of file on disk

Type Properties

Family:

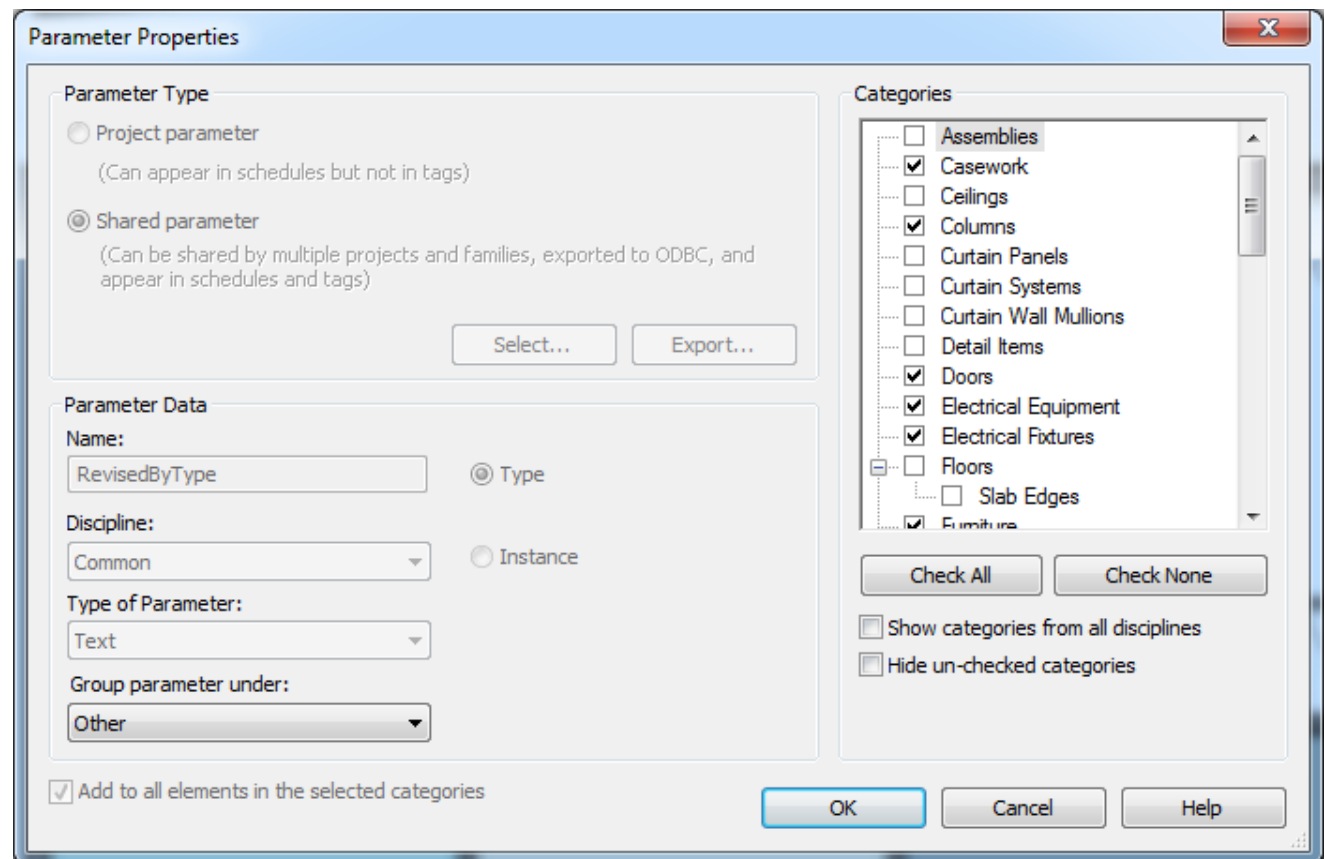
Type:

Type Parameters

Parameter	Value
Model	
Manufacturer	
Type Comments	
URL	
Description	
Assembly Description	
Assembly Code	
Type Mark	28
Fire Rating	
Cost	
OmniClass Number	
OmniClass Title	
IFC Parameters	
Operation	
Other	
RevisedType_ARUtils	2012/02/08 08:31
RevisedByType_ARUtils	Andy
OnDisk_ARUtils	C:\dev-lib\New folder\M_Single-

Type properties dialogue

The above parameters are associated to selected family categories that are loadable eg. Furniture, Doors, Special Equipment, etc. Categories such as walls do not have the association set. You can check / alter the assigned categories by going to **"Manage | Project Parameters"** and **"modifying"** any of the parameters.



Parameter Properties Dialogue – Shows assigned categories for the "RevisedByType" parameter.

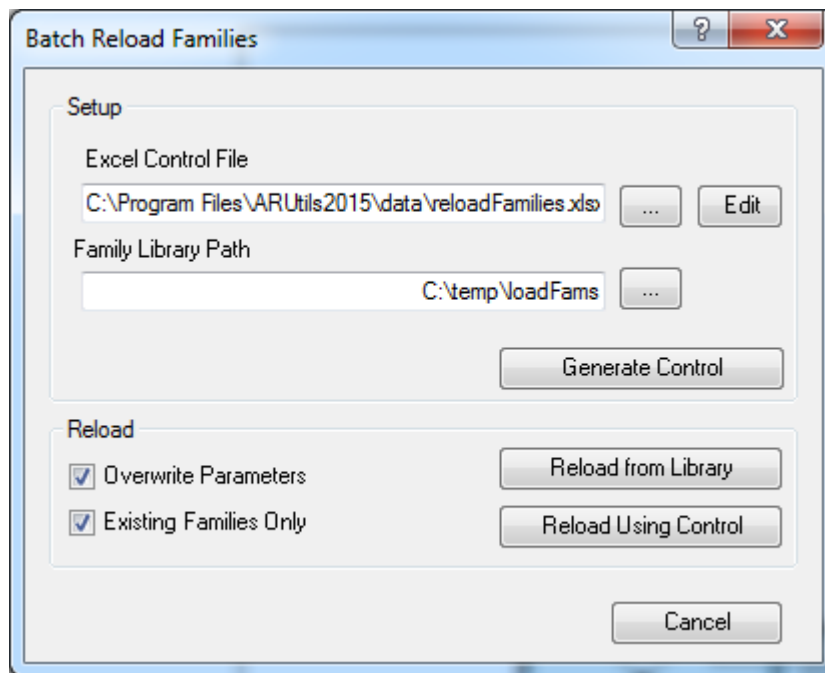
These parameters are assigned to each **type** within a family, eg. Single Door, 720, 820, 920, etc. would all have separate values for these parameters. Once **family monitoring** is enabled, changing the geometry eg. By changing the width parameter, the monitor will update the **RevisedType_ARUtils** and **RevisedByType_ARUtils** parameters.

Note: The use of the "**Type**" extension for these parameters is necessary as we also have "Revised_ARUtils" and "RevisedBy_ARUtils" parameters that relate to **instances** and [element updating monitoring](#).

BATCH RELOAD FAMILIES

Allows you to easily load /reload families from disk into your project. The reload process can be as simple as specifying a family library folder and loading based on names, or loading families based on an excel control file

Note: Use the "[Reload / Save Families](#)" command for a more highly managed approach to keeping families up to date in your project.



Batch Reload Families Dialog

Setup

Excel Control File

The excel control file (when used) allows you to create a file that specifies what families should be reloaded (or loaded) into the project.

Note: Use the generate control to most easily create this file

The file can have entries in a number of formats.

	A
1	3D Tree - Ellipse (AUS)
2	Baluster - Round
3	Tapered Notch

The simplest entry in the control file. Simply have the Family Names listed you want reloaded (or loaded). The "Family Library" will be searched for matching families.

	A	B
1	3D Tree - Ellipse (AUS)	C:\temp\loadFams\Planting\3D Tree - Ellipse (AUS).rfa
2	Baluster - Round	C:\temp\loadFams\Balusters\Baluster - Round.rfa
3	Tapered Notch	C:\temp\loadFams\Division Profiles\Tapered Notch.rfa
4	Angled Step	C:\temp\loadFams\Division Profiles\Angled Step.rfa
5	line_based_text	C:\temp\loadFams\Detail Items\line_based_text.rfa
6	Double-Glass 2	C:\temp\loadFams\Double-Glass 2.rfa
7		

A more complex format. The Family Name (as it appears in the project) and the path to the family on disk are specified.

	A	B	C
1	Baluster - Round		Replaces with a family of the same name found in Family Library
2	Tapered Notch	Tapered Notch	Replaces with a family of the same name found in Family Library
3	Angled Step	Angled Step.rfa	Replaces with a family of the same name found in Family Library
4	line_based_text	newline_based_text.rfa	Replaces with a family of a DIFFERENT name found in Family Library
5	DoubleGlass2	C:\temp\loadFams\New Double Glass 2.rfa	Replaces with a family of a DIFFERENT name found in Family Library

Various options that can be used in the Control File

Family Library Path

The location to be used for searching for families

Generate Control

Generates a control file using the current project and the Family Library. Only families that are in the project and on disk will be exported to the control file.

Reload

Overwrite Parameters

When reloading families the parameters in the project families will be overwritten with values used in the families on disk

Existing Families Only

When checked families defined in the control file will only be loaded if they already exist in the project. When unchecked all families will be loaded/reloaded.

Reload from Library

Reload all families in the project that exist in the Family Library folders

Reload Using Control

Reload / Load families based on the definitions in the control file. Use the Existing Families Only checkbox to ensure only families already in the project are loaded.

ASSOCIATE PARAMETERS

The **Associate Parameters** routine is designed to assist in parameter assignment in families that have nested families.

You will have families nested within another family, a "Head Family". The nested families use "Shared Parameters" and you want these shared parameters to be used and exposed in the "Head Family". E.g. A nested family uses the shared parameter "Bench Material". You want your head family e.g. "Galley Kitchen", to also have the shared parameter "Bench Material". Typically the "Head Family" parameter "Bench Material" would be assigned to the nested families "Bench Material" parameter.

The **Associate Parameters** routine will do the following:

- Identify all shared parameters that are being used by inserted (nested) families.
- Add these shared parameters to your Head family.
 - These are added to the same parameter group as for the nested families
 - Values are set to the values of the nested families
 - Parameters are set to be type or instance the same usage as the nested family
- Parameter values for the inserted families are Associated to the head families parameters.

Associate Parameters assumes that you have a set of related families that use consistent shared parameters. Most importantly all of these nested families will use the same value for these parameters e.g. "Kicker Height", Bench Top Height", "BenchTop Material", "Carcass Material". If these parameters are not the same then **Associate Parameters** will not be a good solution to your problem.

PARAMETER MANAGER

Requires **Head of the Family** license

The **Parameter Manager** routine is designed to:

- List project parameters
- List parameters when your active document is a Family
- List Global parameters (2016 service pack onwards)
- List shared parameters in families in your project
- List parameters used in Tag Families (from 2016 onwards)
- List parameters defined in Key Schedules (New 18/4/2020)
- Manage hidden parameters
- Confirm GUIDs are identical for identically named Shared parameters
- Export parameters to a shared parameter file
- Export parameters to an Excel file
- Delete parameters from your project
- Delete parameters from your families
- Totally delete shared parameter elements from your project (2016 Onwards)
- Embed project parameters into families
- Copy shared parameters between families
- Assign a value to newly embedded parameters
- Update family parameters to type or instance
- Copy Project Parameters to new parameters

NOTE: If you want to simply set parameter values for your families use the Import/Export Anything routine:



[Show me how](#)

The routine provides a much clearer way of understanding how parameters have been used in a project and also in copying parameters from project to families and family to families.

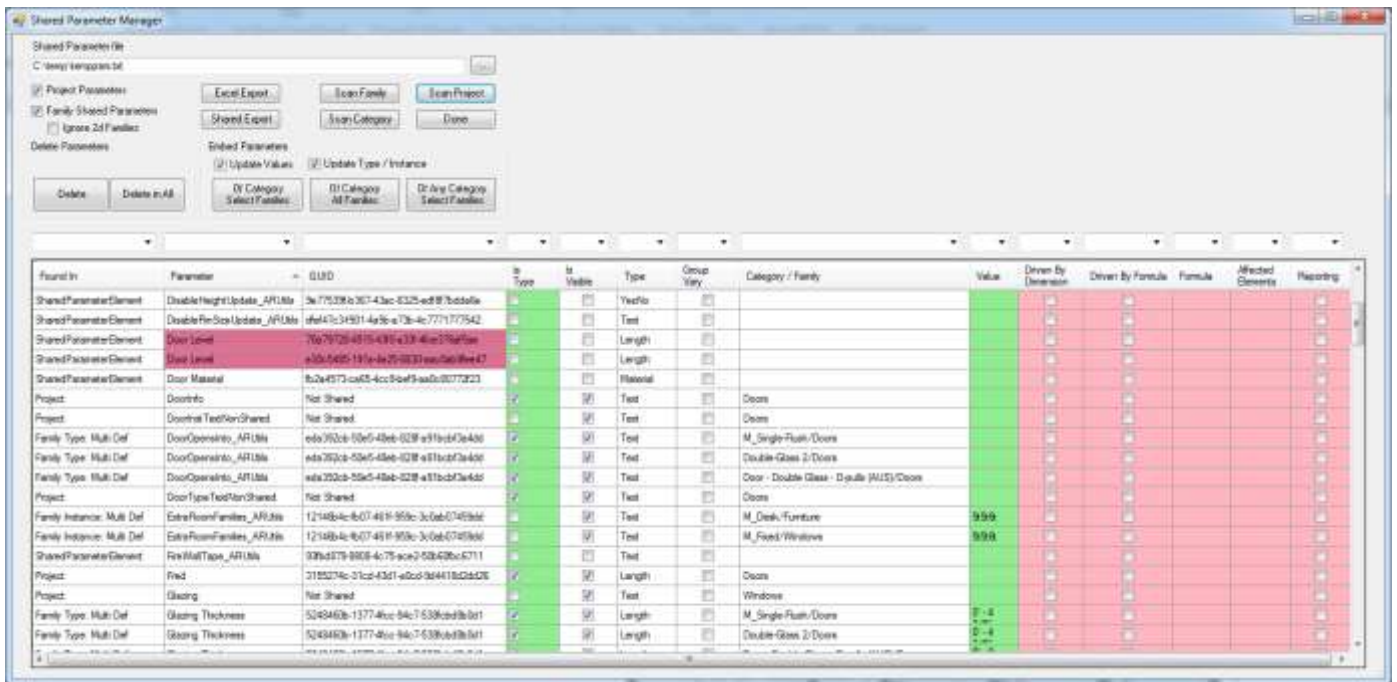
Additionally **“Hidden”** parameters can be found, exported, or deleted via this routine. This cannot currently be achieved via the normal Revit User interface where a Hidden parameter is simply not visible via the Revit UI.

By displaying the GUID you are able to determine if parameters are in fact the same parameter. **Parameters with identical names, but with different GUIDs** are not the same as far as Revit is concerned. Parameters with the same name but different GUIDs will be highlighted in Maroon.

Note: “Non shared” parameters assigned to your project (not those in families) will also be reported on. Key Schedules will also have their parameters reported on.

Note: Renaming Parameters - Unfortunately there are few possibilities in regards changing PROJECT parameters that have been added using the “Revit | Manage | Project Parameters” command. Deletion and reporting is about all that is possible. Even though renaming of project parameters can be done via the User Interface, the API does not allow this or many other desirable changes, e.g. Visibility, name, etc.

A possible approach is to use the “<Right Click> Copy Parameter” option, and then delete the original parameter.



The Parameter Manager dialog

Shared Parameter File

The Shared Parameter file currently in use by your project

“...”

Browse for a different parameter file

Project Parameters

Include Project parameters in results when Scan Project is clicked

Family Shared Parameters

Include **shared parameters** used in loadable families when **Scan Project** or **Scan Family** is clicked. This can add considerably to the time required to “Find” shared parameters. This is particularly true where the family is loaded but has not been instantiated into the project.

Ignore 2D Families

Ignore families such as tags, elevation markers, section heads, etc. Generally these do not use “Shared Parameters” of any great significance.

Note: “Shared Parameters” used in labels / tags cannot currently be reported on. (As of Revit 2018)

Scan Family

Select a single family instance to be scanned for **shared parameters**. This is much faster than scanning the entire project.

Scan Category

Select a single family instance and then use the category of that family to scan for **shared parameters**. This is much faster than scanning the entire project. e.g. Select a door instance to have all Door families scanned.

Scan Project

Process the current project file and find shared and project parameters depending on the options enabled.

Excel Export / Right Click table

Export the selected items to an Excel file

Export Shared / Right Click table

Merge selected Shared parameters to a specified shared parameter file. Only undefined parameters will be written out. You will be prompted to select the Parameter group to assign the parameters to.

Delete / Right Click table

Delete the selected parameters. This could be any of the possible types of parameters, i.e., Project, Family Type, Family Instance, Global, or SharedParameterElement.

- Project – A parameter that has been defined using “Manage | Project Parameters”. This could be a shared or non-shared parameter. It has been assigned to one or more categories.
- Global – A parameter added using “Manage | Global Parameters”. This cannot be a shared parameter
- Family Instance – A shared parameter used in a single Family and assigned as an instance parameter
- Family Instance: Multi Def – A shared parameter used in Multiple Families and assigned as instance parameters
- Family Type – A shared parameter used in a single Family and assigned as a Type parameter
- Family Type: Multi Def – A shared parameter used in Multiple Families and assigned as Type parameters
- SharedParameterElement – A shared parameter that at some stage has been brought into the project and cannot be determined to be in use in the project (This can only be relied on as accurate after a Full parameter scan of Project and Families).
- TAG SharedParameterElement – A shared parameter that is in use in a TAG Family. This is likely to be used in a Label in the TAG Family however at present the Label cannot be interrogated. There is little management possible apart from listing and exporting.
- KeySchedule – *Key Schedule Name* – This is a parameter defined by a Key Schedule. There is little management apart from opening the schedule and renaming the parameter.

Shared Parameter Latency in Projects and Families

Shared Parameter Elements are stored in a project anytime you bring in a family that uses the parameter, or by adding a shared “project” parameter. These are permanently stored in a project and deleting the family, the project parameter, or purging your project will not remove the definition. Since 2017 the API has access to these parameters and can FULLY remove the definition from the project.

Note: Unlike projects, shared parameter elements are deleted from Families when they are no longer in use, therefore any Shared Parameter Elements found in model families or TAG Families will be in use in the family.

Typically displayed Shared Parameter Elements can be deleted from a project provided that a FULL scan has been performed, e.g., If you scanned at only a “Project Parameters” level, a parameter may incorrectly appear as a “Shared Parameter Element” as the Families were not tested for use of that parameter.

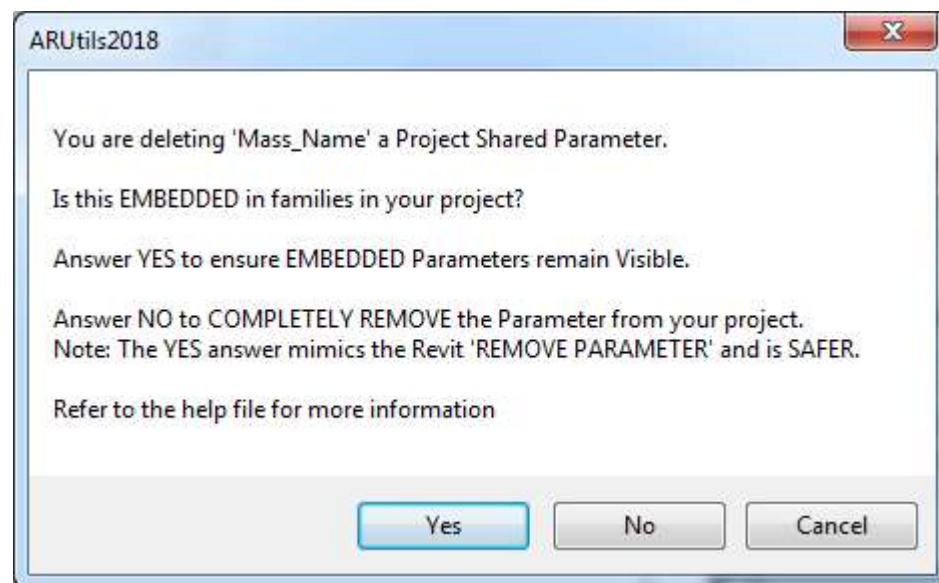
Doing a scan of both “project” and “family shared parameters” and not “ignoring 2D families”, is best before assuming that an item appearing as a Shared Parameter Element is not used, and can therefore be deleted. WHEN IN DOUBT it is best to NOT DELETE the parameter.

Note: DELETING PROJECT SHARED PARAMETERS (from 2017 onwards) needs to be done with EXTREME CAUTION.

When you have a project parameter assigned to a category, e.g., doors, that is a shared parameter, using the Revit UI to delete the parameter does not actually remove the parameter definition; it remains in a shared parameter element section of the REVIT project file. If you later try to re-add that parameter from a Shared Parameter Definitions file, it is the still stored parameter definition (the Shared Parameter Element) that is used, rather than a possibly changed definition in the Shared Parameter Definitions file. Effectively Revit does not allow you to truly delete the shared parameter.

Revit does this so that if a shared parameter is used in a Family (i.e., Embedded in the Family) the parameter will appear in the Type/Instance parameters. If the shared parameter is Fully Removed (via the API) the parameters will not be available in type/instance properties.

If you attempt to delete a project based shared parameter you will be warned



You then have the option of choosing “No” to fully delete the parameter.

NOTE: If in doubt you should perform a complete scan of all families (a lengthier process) to determine if the parameter you are deleting is Embedded in a family and needs to remain in the internal “Project Shared Parameters Table” to allow the family to still display the shared parameter.

Delete in All / Right Click Table

Delete the selected parameters from all families that have a matching category. E.g., A “MyWidth” parameter would be deleted from all Door families.

Open Family (Right Click only)

Allows you to open the selected families in the family editor.

Note: Where a family has a saved on disk location, the family saved on disk will be opened rather than the possibly updated family in the project. Where there is no saved on disk location, the family will be saved to the %tmp% folder and opened from that location.

Where the family on disk is from a different version of Revit you will be asked if you want to open the found family. Any eventual save would overwrite the family on disk.

Open View (Right Click Only)

Applies only to Key Schedules. Opens the schedule.

Embed Parameters

Update Values

Allows you to update the value of parameters that already exist. By default values are only set if the parameter is Newly Created in a family. The value column will change to Light Green to indicate this option is active. All types for the family will be set to use this value.

If “Update Values” is not enabled and a project parameter is being embedded into families then the value of the parameter in the project for each type will be used. E.g. a Project Type Parameter such as “Warranty” assigned to the Doors category would be embedded in the Families and the current values would also be embedded into each type.

If “Update Values” is checked then all values for each type would be set to the defined value.

Warning: Keep in mind that the value will be applied to all types for the family. This may or may not be appropriate to your task. Consider using some of the “Excel Import/Export” routines to have better control.

Update Type/Instance

Where a parameter exists in a destination family the parameter will be modified to type or instance determined by the source parameter. This is useful if parameters have been wrongly added as a Type instead of Instance, or vice-versa. When this is checked the “Is Type” column is changed to a Light Green colour. The Type/Instance of the selected parameter entry is used to update existing definitions in families.

Of Category Select Families

Embed the selected project or family parameter(s) into families of the same category. You will be presented with a list of possible families. Select one or more parameter rows for the parameter embedding process before clicking this command.

Of Category All Families

Embed the selected project or family parameter(s) into all families of the same category. E.g., All doors families.

Of Any Category Select Families

Embed the selected project or family parameter(s) into families of any category. You will be presented with a list of possible families. Select one or more for the parameter embedding process.

The parameter table

Found In:

Indicates where the parameter was used. Typical values are Project, Family Type, Family Instance, Global, or KeySchedule. Where a parameter has been used in both the project, and a family, “Multi Def” will be added to the “found in” value.

Parameter:

The name of the parameter.

Found In:	Parameter:	Value	Is Type
TAG SharedParameterElement	RoomLength_ARUtils	b5d31624-0dba-4cbb-8406-cf3f1083df10	
Project	roomMasses_ARUtils	20ccd302fc78-457a-b0b7-98c29a8ef4b1	
SharedParameterElement	roomMasses_ARUtils	c8133678-2242-4716-913b-65f8d4027f6d	
Family Instance: Multi Def	RoomMassMaterial	dd14de2f-0541-4b80-ae75-dd58569e5cd2	
Family Instance: Multi Def	RoomMassMaterial	dd14de2f-0541-4b80-ae75-dd58569e5cd2	

Highlighted parameters show that there are multiple GUIDs in use for the same parameter.

GUID:

The GUID value for the shared parameter. This uniquely identifies the parameter. If a parameter in the project is not a shared parameter this value will be "Not Shared". If the project does not contain any items using the parameter the value will be shown as "Not Used".

Note: Unshared parameters in families, i.e., those that do not have a GUID, are not reported on.

Is Type:

The parameter has been associated to a "Type" item. When unticked the item is associated to instances. Note that you cannot simply edit this field.

Is Visible:

The parameter is visible to the user. Non visible parameters do not display to the user.

Type:

The type of parameter. Typically Length, Text, Number, YesNo, etc.

Group Vary

Indicates if the parameter can vary between groups. Note that this is only possible for project parameters. Via the Revit User Interface parameters in families do not have the option to set a parameter to vary between groups.

Category / Family:

Where a parameter has been associated to one or more project categories, this item will show the categories the parameter is associated to. E.g. Furniture/Doors. In the provided example we can see that a number of parameters have been associated to the "Project Information" category.

Where a shared parameter was found in a loadable family this field will show the family and the family category that contain the shared parameter. E.g. M_Television/Furniture.

Value (can be edited in table if Update Values is checked)

This shows the value for an occurrence of the parameter; this may be from one type, or one instance. You can edit this value to change the value that will be applied to target families. This will only be applied once an embed operation is carried out, i.e., you are only changing the value in the table not to the parameter until you run an embed process.

Warning: Keep in mind that the value will be applied to all types for the family. This may or may not be appropriate to your task. Consider using some of the "Excel Import/Export" routines to have better control.

Note: Where a project parameter is applied to matching category families, the value will be determined for each type. i.e., If a project door type parameter is embedded into door families, the value of the parameter in the Project will be transferred to the new parameter embedded in the family. This will be set for each type as it was defined in the project.

E.g., We have project type parameter "Supplier" associated to the Furniture category. If we embed this into all furniture families, the value of the parameter in the project will be assigned to the embedded parameter for each type of the family.

Global Parameters (Since 2016)**Driven By Dimension (Global Parameters Only)**

Indicates the global parameter is driven by a dimension

Driven By Formula (Global Parameters Only)

Indicates the global parameter is driven by a formula

Formula (Global Parameters Only)

The formula driving the parameter

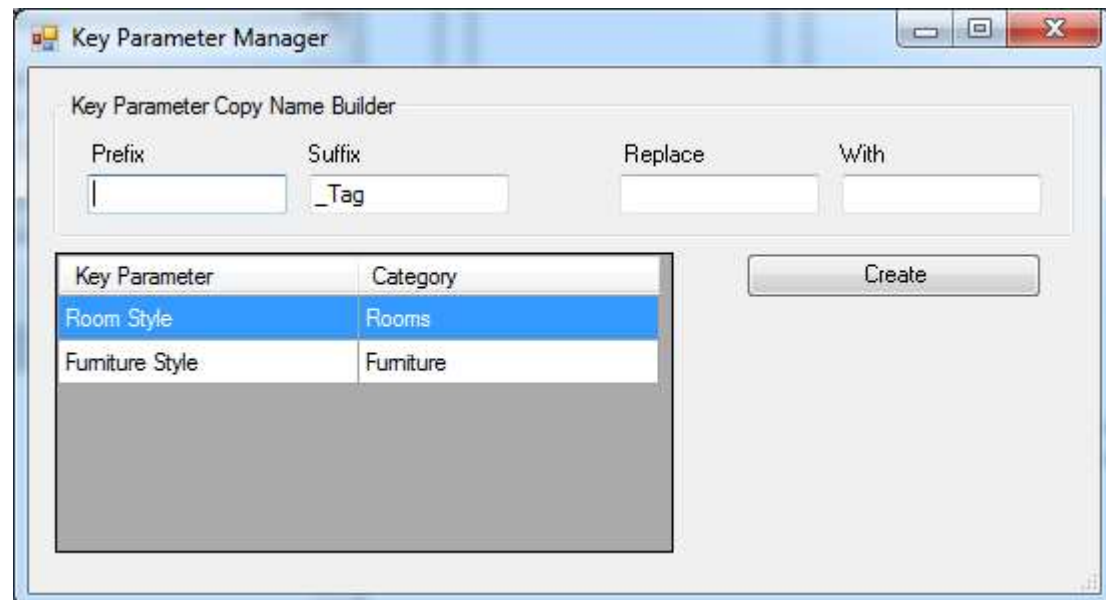
Affected Elements (Global Parameters Only)

The number of elements affected by the global parameter.

KEY PARAMETER CLONER

When using “Schedule Keys” to set a number of parameter values for an item it is not possible to TAG items using the Schedule Key name. This routine will copy the Schedule Key Name to a Shared Parameter that can then be used to tag items.

Note: It is possible to use the Schedule Key name in a schedule – just not in a tag.

**Key Parameter Copy Name Builder**

These fields enable you to build a consistently named new parameter that will store the “Key Parameter” value.

Prefix

Add a prefix to the Key Parameter name

Suffix

Add a suffix to the Key Parameter

Replace / With

Replace a string in the Key Parameter with another string

Key Parameter List

A list of all the Key Parameters in the project. Select one or more of these to be replicated.

Create

Create a new shared parameter named according to the Name Builder settings. By default a suffix of “_Tag” will be added to the Key Parameter name.

Once the new parameters have been created and assigned to the matching categories the values will be transferred to the new parameter.

This can also be used to synchronise the Style parameter value to the Tag parameter.

SYNC SHARED PARAMETERS

2017 Onwards – Created Feb 2021

Allows you to sync your shared parameter names in your project with those in your Shared Parameters File.

Typically shared parameters cannot be renamed in a project. This routine will resolve the names of Parameters defined in the shared parameters file with those in your project.

You will need to use a text editor to change the names in your shared parameters file and then run this command.

Note: If **schedules** use a shared parameter in Filters or Sorting Grouping the filter / sort grouping will be recreated and applied to the schedule.

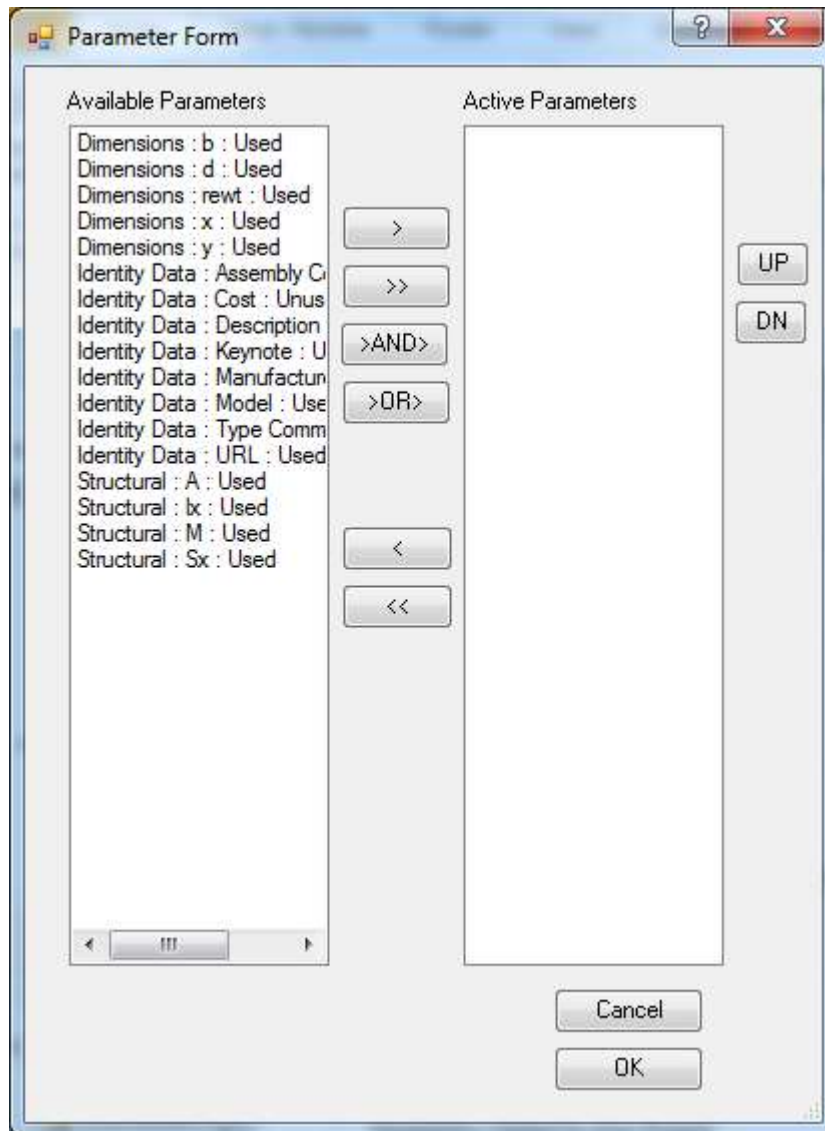
Note: At present (Feb 2022) it is not possible to update tag families to the newly named parameter. At the end of the run you have the option of opening these families. You will need to use the [Parameter manager](#) to delete the Shared Parameter Element and then create / edit a label to use the new shared parameter as defined in the shared parameter file.

Note: In Trial mode all parameters in your shared parameter file will have “-ARUtils” added to their names in a temporary shared parameters file.

FAMILY TYPES CATALOG

Much like the Revit “Export | Types Catalog” function this routine will create a types catalog for the currently open family file.

There is some extra functionality that lets you pick parameters you want included and also the order in which they will appear. Unlike the Revit version you can include parameters that do not currently have assigned values.



Parameters will be grouped according to the parameter group they appear in.

Where a parameter has a value, the item will show “Used”. If not assigned a value “Unused” will show.

Simply transfer the parameters across by using the various options. Refer to [“Picking Parameters”](#) for more detail.

Once you click OK the catalog file will be opened for inspection.

GRID / LEVEL MANAGER

Since 2016

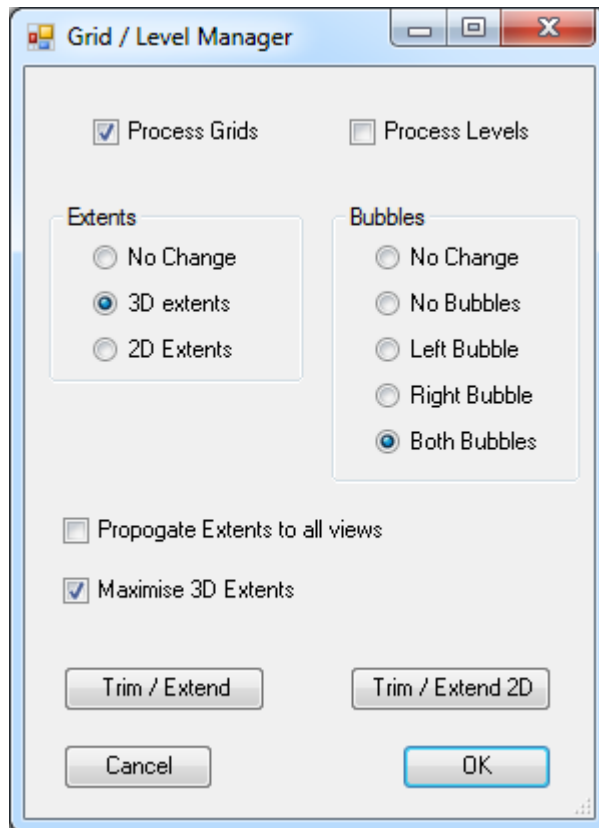
If you have ever used grids and levels in Revit you should have found that they are both brilliant yet also madly frustrating. The use of 2D / 3D extents is fairly well handled however if you have ever used the “Maximize 3d Extents” you will get some rather arbitrary results.

Try: In a new project draw a small rectangle of walls. Add a horizontal and vertical grid within the walls. Now try the Maximize 3D extents on the two grids. Now keep altering the walls up, down, left and right, variously increasing and decreasing the extent of the room.

Keep using the Max3DEx command to see the sorts of results you get. The logic is beyond my understanding.

The Grid / Level Manager is in part designed to assist in controlling Grids and Levels in terms of

- Changing all items in a view to 2D or 3D
- Changing all items to display none, one or two bubbles / level marks
- Trim / Extend grids / levels to a curve



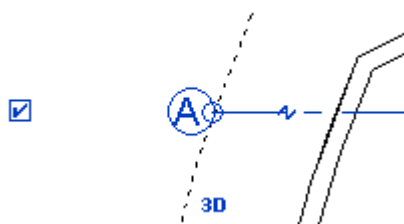
Process Grids / Levels

Make changes to all grids / levels in the active view

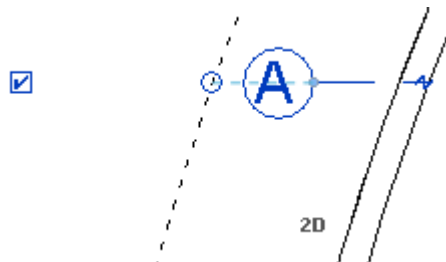
Extents

Change the type of Extents for all grids / levels in the view. This can be a lengthy process when you wish to change all grids / levels from 2D to 3D or 3D to 2D.

Explanation: When a grid/level is selected a small 2D/3D symbol is shown. This command will change all grids / levels to the selected type.



A grid showing it is 3D, i.e., the extents are used in all views in the project (except where the grid/level is 2D in specific views)



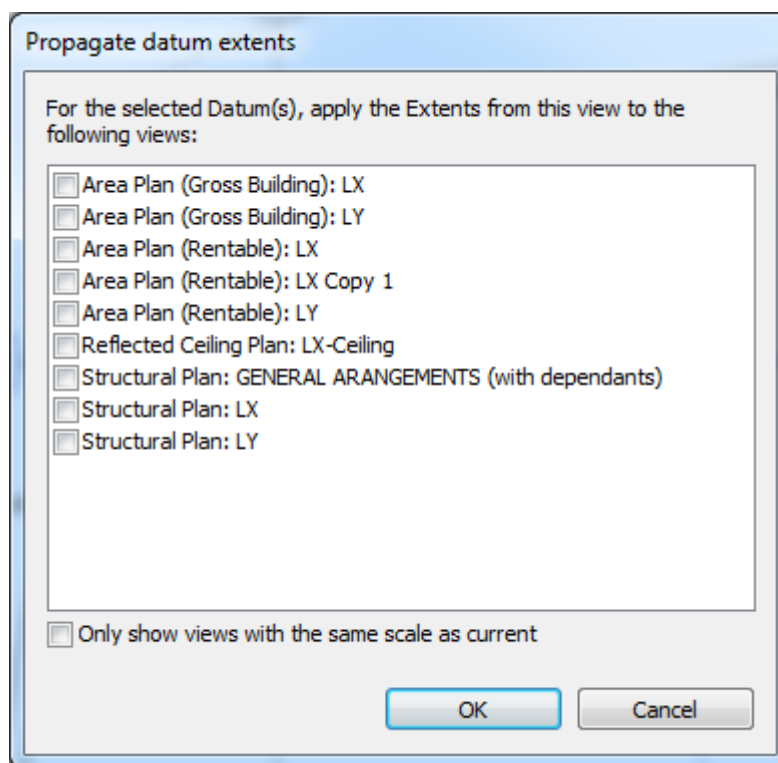
A grid showing it is 2D. The larger circle shows the 3D extent, whilst the dot shows the 2D (view specific) extent.

Bubbles

Change the bubbles shown on grids / levels.

Propagate Extents to All Views

When checked the extents of all the grids / levels will be propagated to views that Revit identifies as being suitable for extent propagation.



The “Propagate Datum Extents” window that Revit would normally show. Using the Grid / Level Manager all these views would have the extents of grids / levels in the active view applied.

Maximise 3D Extents

Changes all grids / levels to 3D and sets the grids / levels to the maximised project extents for those items. The maximised extent is calculated by Revit and can be somewhat hard to predict.

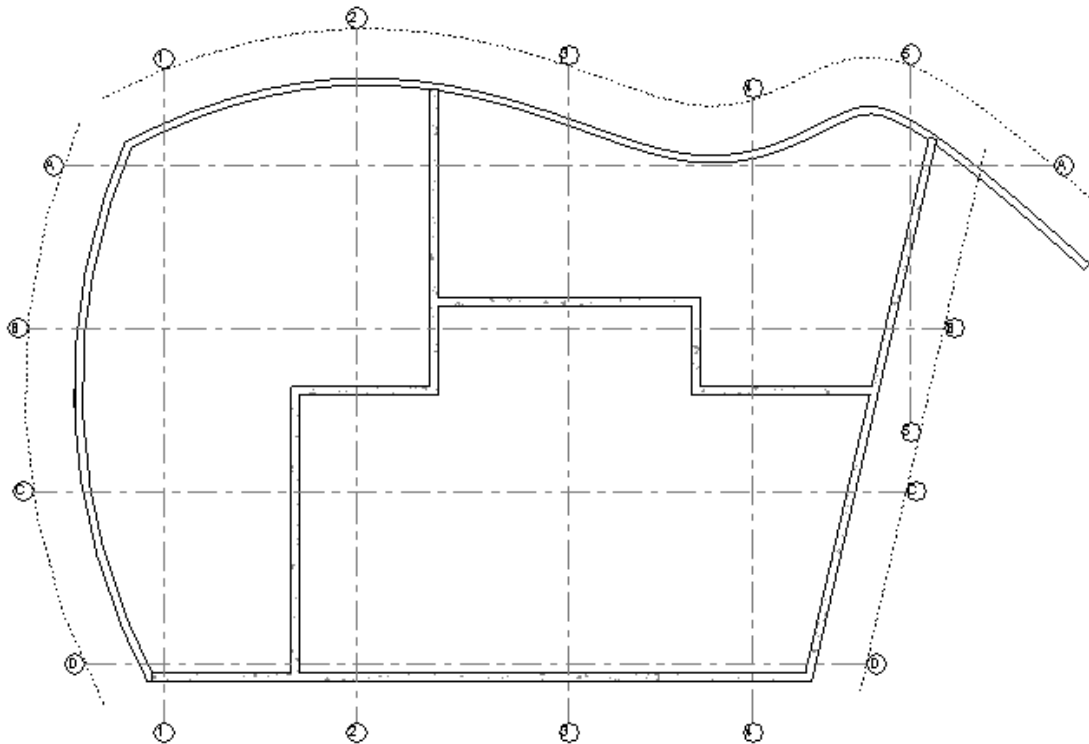
Trim / Extend – Trim Extend 2D

This allows grids / levels to be trimmed / extended to a curve. Grids / Levels are converted to 2D (view specific) if the Trim / Extend 2D command is used, otherwise the existing 2D/3D nature of a grid is maintained.

Once started the command will prompt you to pick a curve to use for trimming. The curve can be any line / detail line. Typically you would create the curve (line, arc, ellipse, spline)

to be used as the trimming item by offsetting from the face of the building.

You then simply pick the grid / level at the end you want trimmed / extended. Repeat as needed.



Trim / Extend used to get grids following the shape of a building. Temporary detail lines have been used to trim the grids to.

Cancel

Exit the command

OK

Apply the specified changes to Grids / Levels

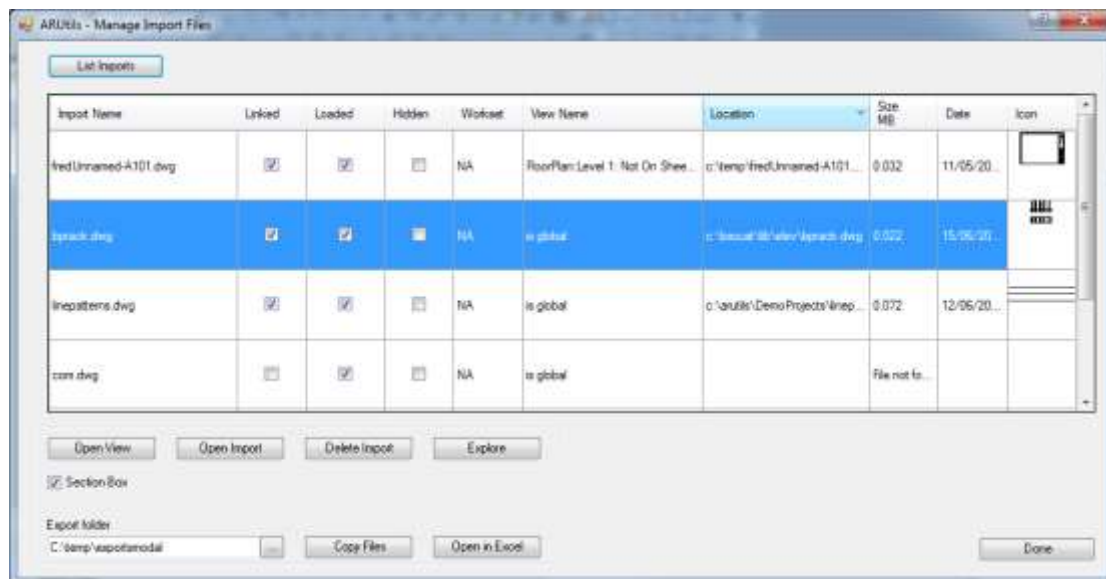
Note: Do an internet search for “Revit Grids explained” if any of the functionality of grids / levels is unfamiliar to you.

IMPORTS

The **imports** routine scans your project for imported or linked files and lists information about the linked / inserted files. Unlike Revit where rvt, dwf, dwg, files are on separate tabs, it will list all file types in the one dialogue.

Note: Imports Manager will now also report on links within links. You cannot however zoom to these items or delete them from the main project.

Once you have scanned your file you can easily go to a view containing the item, delete the item, open the import in its native application, or export imports to a folder for easy archiving or transmittal of the imports.



This dialog box can be left open as you work your way through the imports in your project.

List Imports

Process the current file for all inserted / linked files.

Operating in the Imports list view

The Imports list box

Columns

Import name:	The name of import as Revit has stored it
Linked:	Is the file linked or unlinked
Loaded:	Is it currently loaded
Hidden:	If the item is view based then is the item hidden in the view
Workset:	Only relevant for workshared projects. The workset in which the import resides. If this starts with view, then the item will be "View" specific.
Viewname:	Either the view in which you can find the item, or "Is Global" if it is not specific to a view.
Location:	The location of the file on disk
Size:	The size of the file on disk
Date:	The last modified date of the file on disk

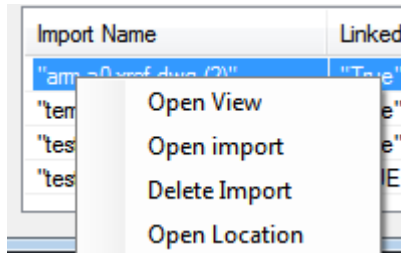
Single clicking an item will highlight the item in the current view.

Double clicking an item will take you to an appropriate view for the item.

Global items will be shown in a 3d view with optionally a section box set to contain the item. The item will also be selected and highlighted.

View specific items will open the view in which they exist and the item will be selected and highlighted.

Right clicking an item or using the button commands



Open View The default action. The view will be named according to the "[Isolate 3d Settings](#)" dialogue.

Section Box When enabled, 3d views will be section boxed around the item.

Open Import This will try to open the import in the appropriate package. DWG files would be opened in AutoCAD

Delete Import The import will be deleted

Open Location Explorer will be opened to where the file is located on disk

Export folder

A single folder where all imports will be copied.

Open Report

Will open an excel file containing the information in the List View.

Copy Files

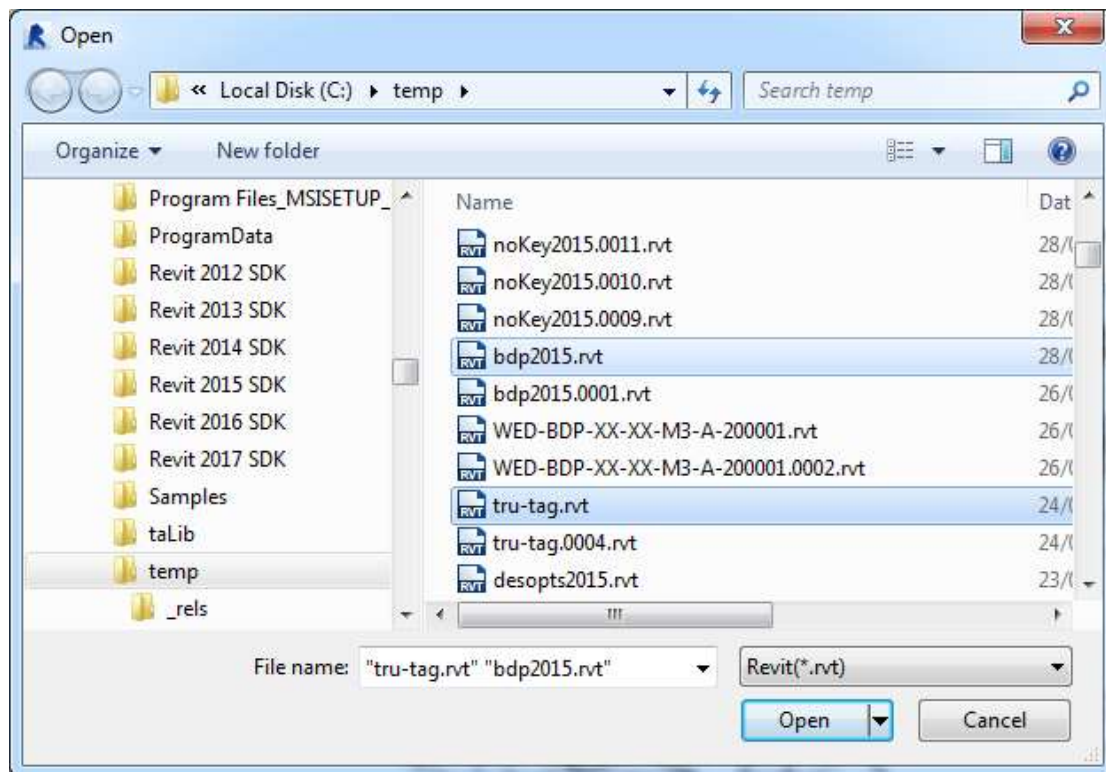
Press this to copy linked files to the export folder. This is only enabled once a scan has been done.

Note: Nested imports e.g. An Xref in an AutoCAD file, or imports in a linked Revit file are not currently able to be accessed. If you wish to bundle all items within items use the optional Revit "Transmit a Model" routine which is available to Autodesk Revit customers under a subscription contract.

UPDATE FILE REFERENCES

This routine allows you to quickly change the location for "linked" items in your projects. This issue may arise when folders have been moved and file links are now in a new location. When there are more than a couple of linked files this could be a very time consuming task. Links could be for Revit links, DWGs, Images, etc.

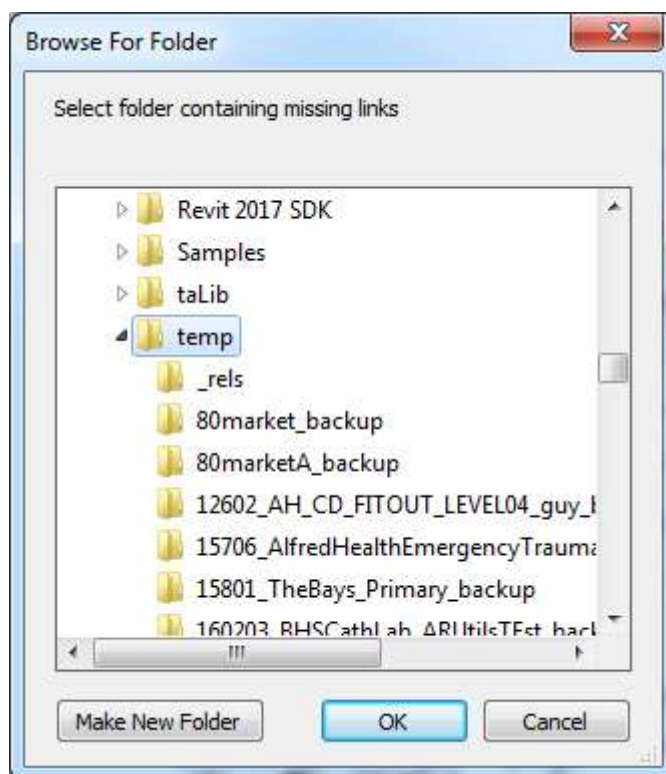
You will first be prompted to select one or more files to have their links resolved.



Selecting the projects to have links updated

Next you will be asked to select a folder where links have been moved to.

Note: All sub folders will be searched for the missing files. At present if there are multiple possible file matches, the first file found will be used.



Selecting the missing links folder

Note: The project file and any linked Revit files will need to match the version of Revit you are using to run the command. This minimises the chance of project corruption.

Trouble Shooting:

The routine can fail for a few logical reasons:

- Project file does not match the current version
- Project file is currently open by the user or someone else
- Linked files do not match the project and current Revit version.

ORDER IMPORTS

This routine allows you to quickly bring all import instances to the foreground or background of the views that they occur in. You can make this change for import instances throughout the project or just those found in the currently active view.

Note: Global import instances have a specific point in 3D space and therefore foreground and background settings are not available to those imports.

You are given the option of applying or cancelling the changes once processing has completed.

**All Views**

Process all view specific "Import Instances" within the project.

Process only this view

Process all view specific "Import Instances" within the currently active view.

Foreground

Bring items to the foreground

Background

Send items to the background

Exit

Exit the command

PRINT PDF

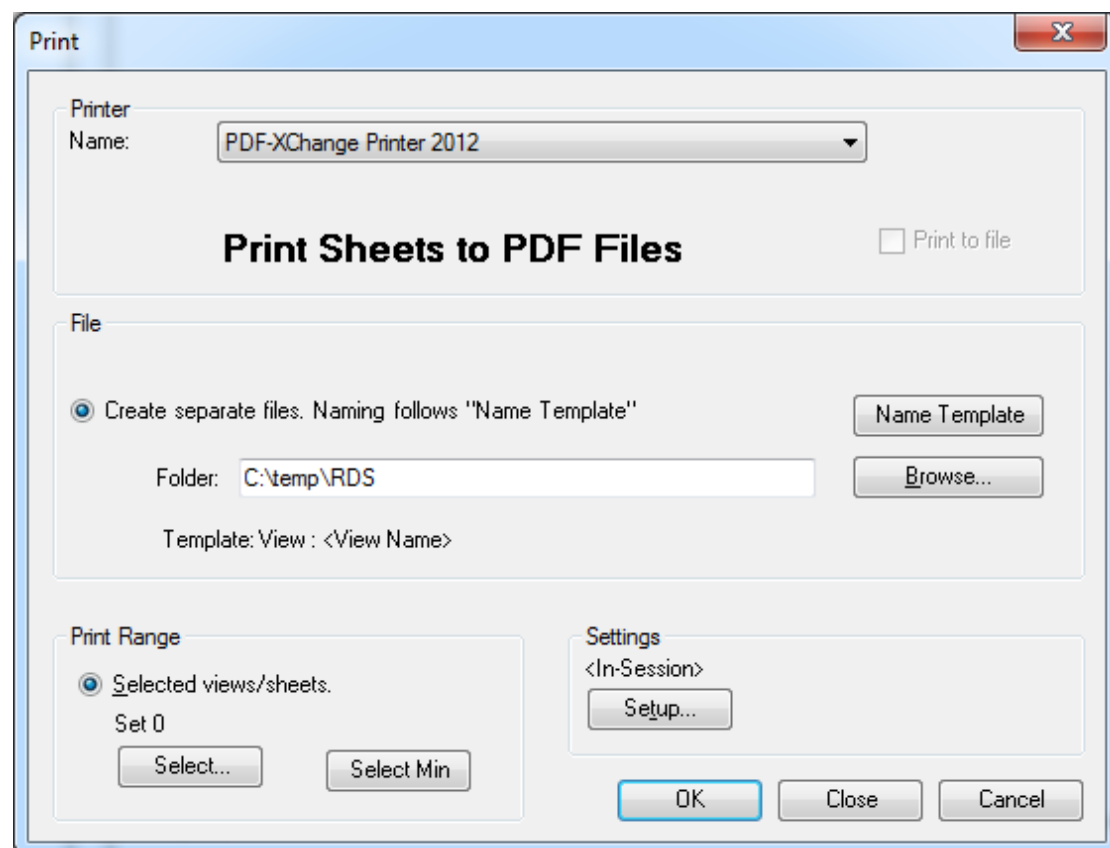
This routine mimics the Revit print dialogue but is specifically designed to batch PDFs of sheet files giving the PDF a specifically formatted name. The interface reproduces the normal printer interface, but the name will meet a specific format that is defined using the Name Template button. Depending on the [PDF creation software](#) being used the process will be more or less automatic.

New 18/7/2014 – Support of all view types as well as support for a custom paper size "ARFit". By creating and using a custom paper size of "ARFit" it is possible to create PDFs that are sized to the view, rather than a specific paper size. This can be useful for insertion into Word or PowerPoint documents.

Note: Some printers handle this better than others. Some printers will use their own custom form, and others will use the Windows system forms.

Preferred Printer Choice:

If you do not currently have PDF creation software we recommend the professional version of "PDF-XChange Printer 2012". This printer is very fast. (Do not use the Lite version).



Note: Beneath the name field is the current "Name Template" plus a preview of the same, that will be used when creating the PDF files. The value in the "Name:" field simply shows the path that will be used to store the PDF files.

Printer:

The printer to be used for creating PDFs.

Folder:

The folder where PDFs will be created.

Name Template:

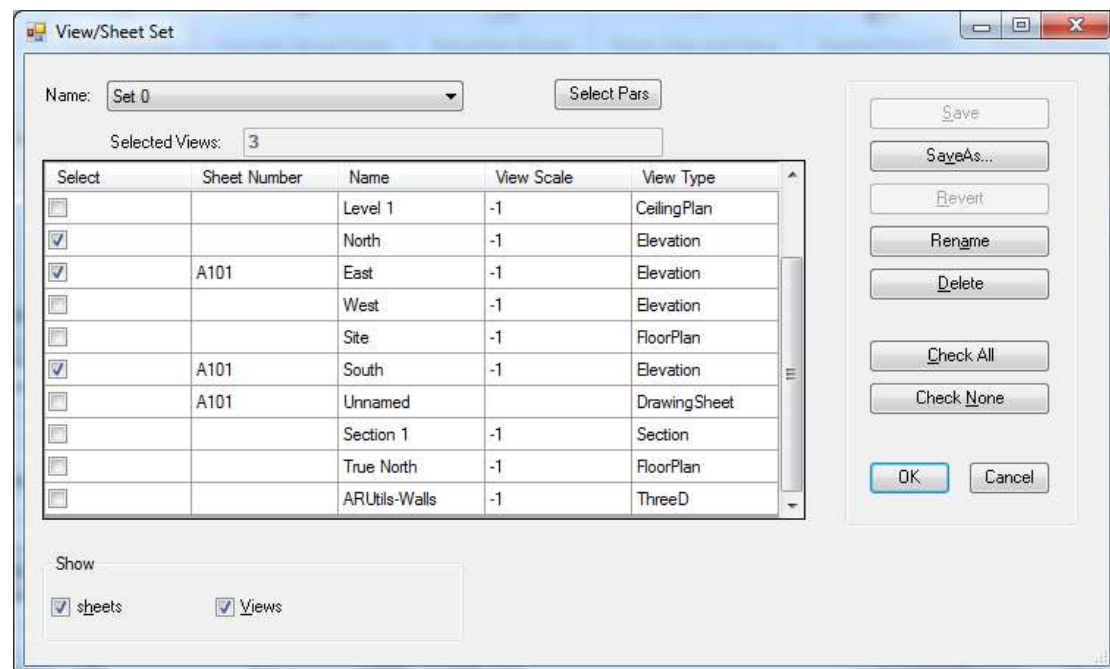
The **"Name Template"** dialogue lets you define a number of "Name templates" to be used when creating PDF files. You can "build" one or a number of definitions that you typically use. By using a network based control file all BIM managers can setup the standards for their office.

Note: The name template uses sheet parameters by default. If your ViewSet is of non-Sheet views, e.g., plans, elevations, etc., you will be presented with parameters associated to views. Therefore select your Viewset before using the Name Template button.

Selected Views / sheets:

Select

Select the sheets / views to be printed using your previously defined sheet settings dialog settings, i.e., the set of parameters you used previously, as well as the show sheets, show views checkboxes. This may take longer on large projects with lots of views. Only have one type, i.e., Views or Sheets, in your set.



Select Pars:

Enables you to select the parameters to be displayed. This makes it easier to select the views you want.

Note: This dialogue uses a multi-stage sorting routine and allows for sorting on up to four levels. Simply click the columns in the order you want them sorted, e.g., if you wanted to see selected items sorted by name, you would first click "Name" and then "Select"

Select Min:

Use this option to select sheet set items using a minimal set of parameters and only sheet view items. This will be faster to load.

Setup:

Define the setup to be used for printing. **Save your setup as a named setup.**

Note: You can use a custom form / page size called ARFit to create PDF pages the size of the views rather than just a specific size.

Note: Whilst every effort is made to support print setups via the Print PDF dialogue "Setup" dialogue there are some issues with the API that can cause this to fail. Therefore when establishing the print settings setup for some printers it can be best to do this via the built-in Printer dialogue and use its "Settings" | "Setup" button.

Name Template Dialog:

NameFormatForm

Control File

Name: C:\Program Files\arutils\data\plotname.xls ... Edit

Template: "Schematic Design"

Name Builder

Prefix	Sheet Parameter	Suffix
SD-	"Sheet Number"	-
	"Sheet Name"	[-
	"Current Revision"]

Preview Name: SD-"Sheet Number"-"Sheet Name"-"[-Current Revision"]

Export to Control File OK

Control File

Name

The control file to be used for name template definitions. You can simply hand edit this field if you would like to write values out to a new file.

Template

The specific "Name template" to be used e.g. Schematic Design. Whilst not necessary, you can edit this field in preparation for writing the current values to the control file by pressing the "Export to control file".

"..."

Browse for the control file

Edit

Open the control file in excel. Here you can change values, delete entries, add new entries, change template names, etc. You will be prompted to reload the control file once you have saved and closed the file.

Note: If you edit by hand make sure to get parameter names 100% correct. Generally it is best to use the "Name Builder" to get parameters into the control file.

Name Builder

The fields here are fairly obvious. **Prefixes** and **suffixes** are separators between **the sheet parameters**. All sheet parameters available to the project are loaded into the drop down boxes.

The **preview** field gives you an indication of what the generated PDF file name will look like.

Export to control file: This button exports the current "Name builder" values to the specified excel file. When you press this, the values will be written to the END of the specified excel file. Currently no duplicate checking is done so removing duplicate entries is best done by "Editing" the control file.

"Print to PDF" currently supports

- PDF XChange 3.0, 4.0, 5.0 and 4.0 Lite – Not 5.0 Lite (fully Automatic)
- PDF Redirect Pro – need to create a batch printer called "PDFBatch" (fully Automatic)
- CutePDF Writer – Always has items as portrait (slower – UIAutomation used to press buttons and fill in fields)
- PrimoPDF – (slower – UIAutomation used to press buttons and fill in fields)
- PDF995 – painful if license not purchased (slower – UIAutomation used to press buttons and fill in fields)
- Adobe PDF (new 3 April 2012) – do not use Adobe PDF Converter

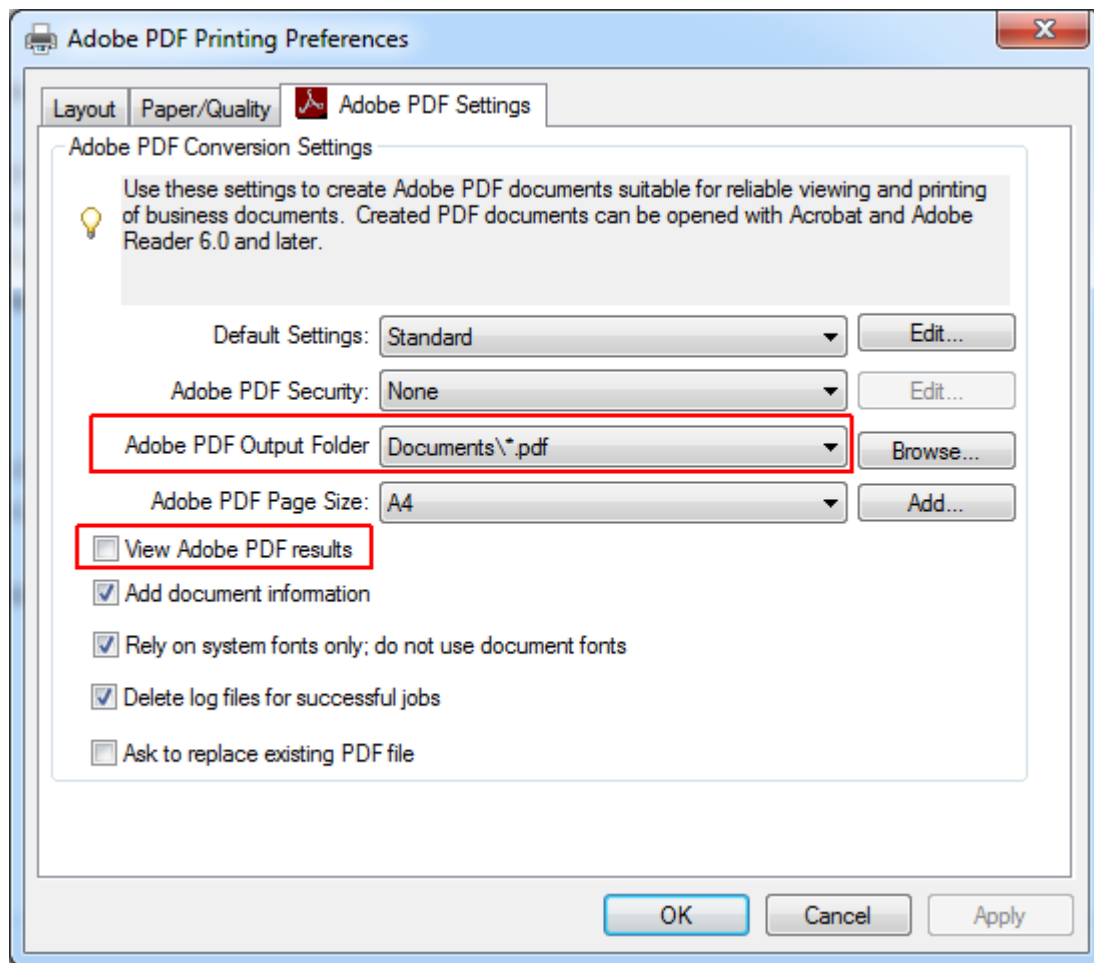
Both **PDF-XChange** and **PDF redirect Pro** allow for batch creation and can run unattended.

The other specified printers use UIAutomation to fill in the file name and press "OK" or "Save" when required. **This tends to be a much slower process.**

Adobe PDF configuration – Fully Automatic

In order to use "Adobe PDF" you need to configure a couple of options in the printer setup.

Adobe PDF Output folder must be set to "Documents*.pdf"
Uncheck "View PDF results"



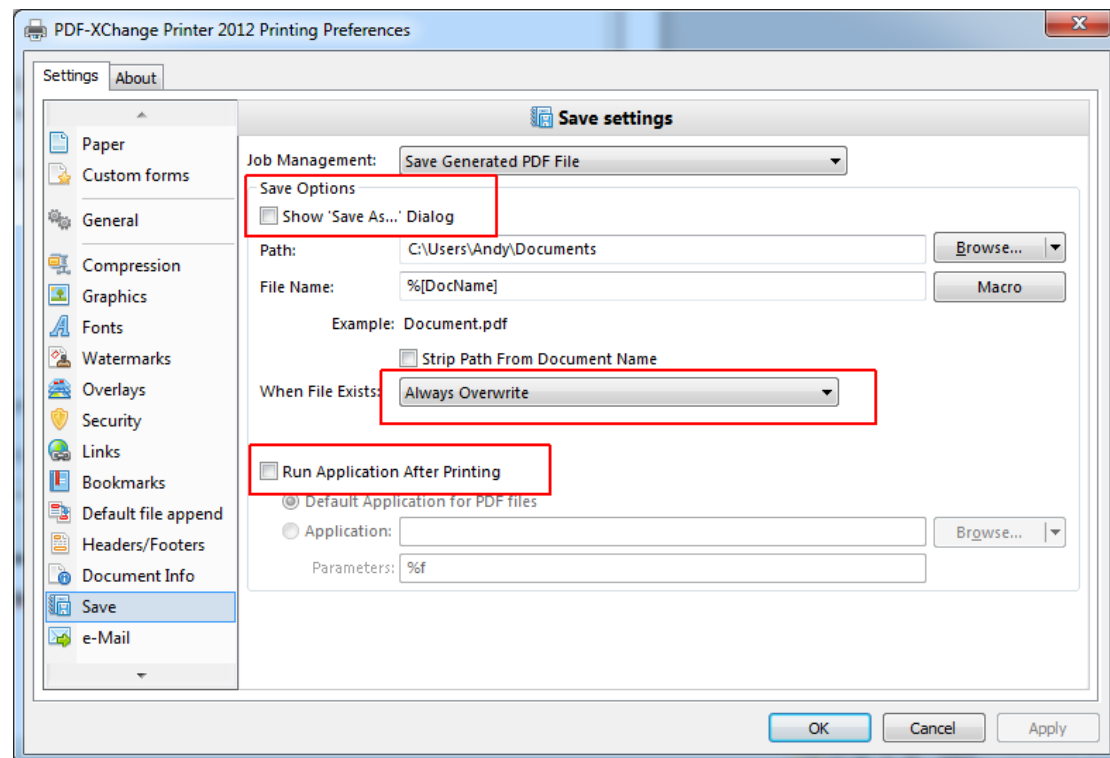
Adobe PDF printing preferences dialogue.

PDF-XChange 3 / 4 / 5 – fully Automatic

Settings for PDF-XChange 3, 4, or 5 should be as shown below.

“Show Save As Dialog” should be un-ticked.

“When file exists” should be set to “Always Overwrite”.



Cute PDF Writer, PDF995 and PrimoPDF

These have been automated so that the required buttons are pressed and file names filled in. It is best to allow the routine to run to completion before using the computer again.

PDF Redirect Pro

PDF Redirect Pro has the option to create a batch printer. You will need to do this using the batch printer setup option found in the Pro version. This printer must be named PDFBatch and setup for each user. Once this is done all other settings will be correctly set when OK button is pressed.

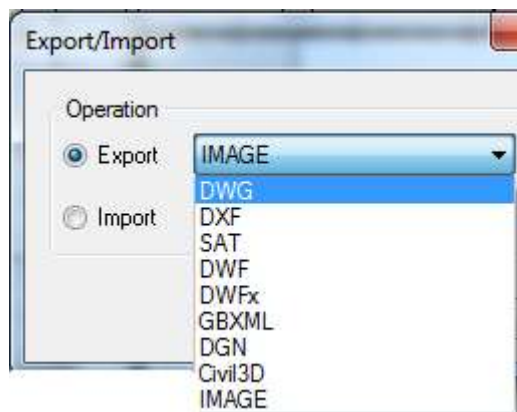
PDF Name Control File Format

	A	B	C	D	E	F	G	H
1	Name	Pre	Par1	Suf1	Par2	Suf2	Par3	Suf3
2	"Contract Docs"	"A-"	"Sheet Number"	"-"	"Sheet Name"	"-["	"Current Revision"	"]"
3	"Town Planning"	"TP-"	"Sheet Number"	"-"	"Sheet Name"	"-["	"Current Revision"	"]"
4	"Schematic Design"	"SD-"	"Sheet Number"	"-"	"Sheet Name"	"-["	"Current Revision"	"]"
5	"Design Development"	"DD-"	"Sheet Number"	"-"	"Sheet Name"	"-["	"Current Revision"	"]"

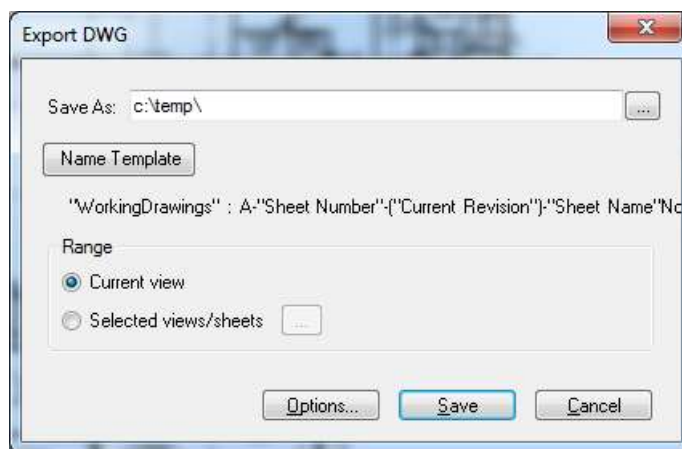
EXPORT NAMED DWG / DWF / IMAGE FILES

This routine, like the PDF creator routine enables you to directly export a variety of file types from Revit but automatically naming them to your specified format. Refer to the name builder in "[Print PDF](#)".

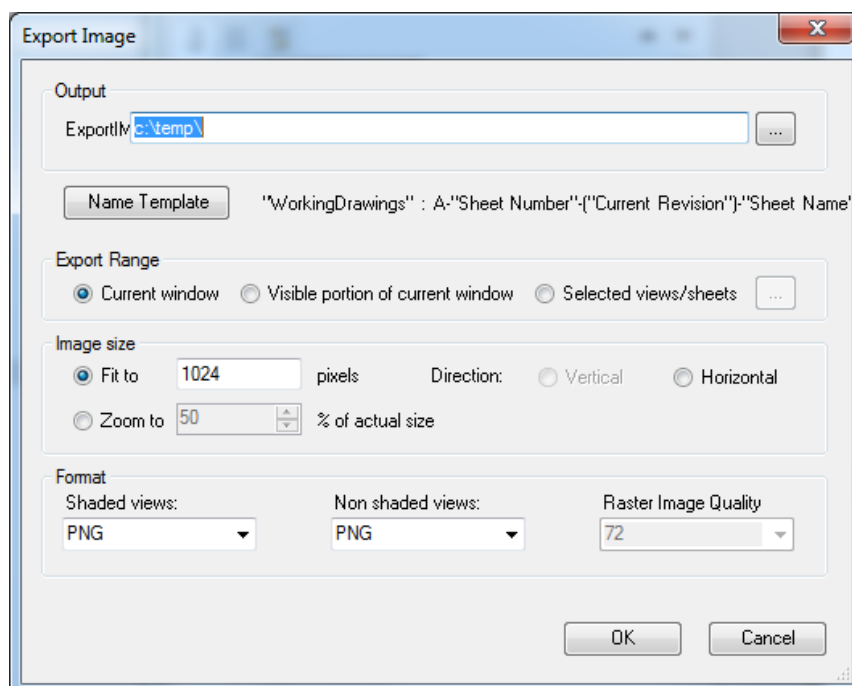
Beyond this exporting is done in the same fashion that Revit would typically do it.



The initial export window enabling you to select the format you wish to export to.



A Typical export window allowing you to select the name template, and what views to export.

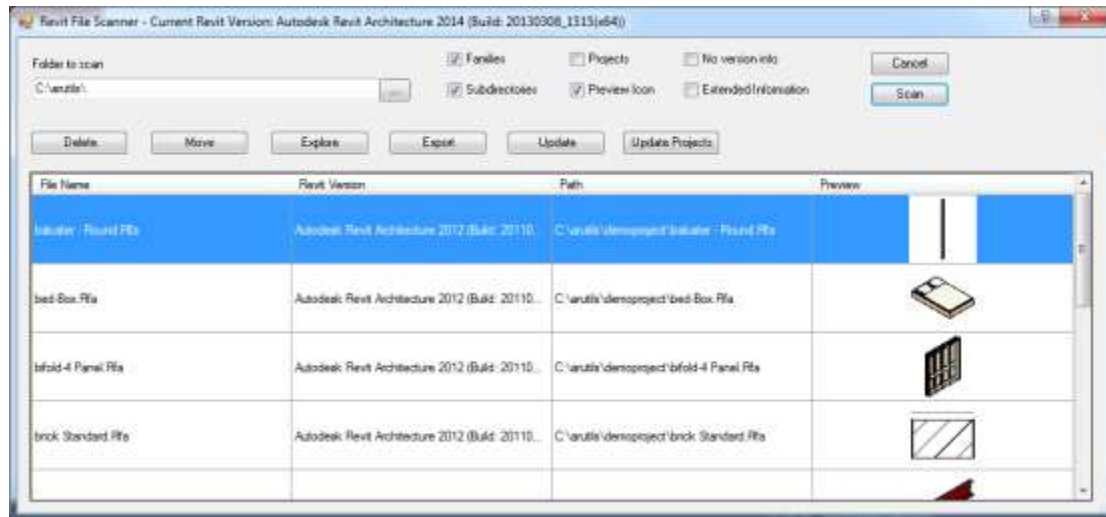


The image export window

REVIT FILE SCANNER / UPDATER

Revit File Scanner lets you scan Revit files on disk for detailed information about what version of Revit last saved the file. It then allows you to update family or project files.

Project files can be updated with a simple open and save, or via a more complex open and save-as process. Linked files will also be opened, updated and also saved-as.



The typical Revit file scanner dialogue

Folder to Scan:

The folder to scan for Revit files

Families:

Include families in your scan

Projects:

Include project files in your scan

No Version info:

Use this option to do a simple find of files. No version checking is done. Useful if you simply want to update a complete set of families or projects without regard for their current version.

Subdirectories:

Scan sub folders of the main directory

Preview Icon:

Generate the preview Icon for the Revit files

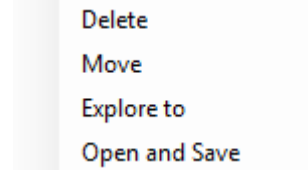
Extended Information:

Provide more detailed information about the file

Scan:

Scan the specified folder (and subfolders) for all Revit files

Note: The currently running Revit version is shown in the title line of the "Revit File Scanner" dialogue. Where a file has the same information for "Revit Version", the "Revit Version" value will be set to "Current".

Buttons & Right Click Menu:

Right clicking on one or more selected items brings up the above menu

Delete:

Delete all of the selected items. You will be prompted to confirm. **Note: There is no undo.**

Move:

Move the selected files to another specified folder

Explore to:

Open up explorer with the file selected

Open and Save: / Update:

Open and save the selected files to update them to the current version of Revit. If updating projects, consider updating linked files before updating files containing the links.

Update Projects:

Allows you to update selected projects. A number of options are available. Refer below to "Updating Projects".

Note: Functionality varies in 2013 and 2014. Not available in 2012

Extended Information

The extended information provides extra file information as displayed below. can also include information for Workshared files.

Build Time Stamp	Central File Path	Document Type	Is Central File	Is Local Working File	Last Save Path	Open Workset Default	Platform	Product	User Name	Worksharing
20110916_...		Family	False	False	C:\dev-lib\...	3	x64	Architecture		NotEnabled
20110916_...		Family	False	False	C:\dev-lib\...	3	x64	Architecture		NotEnabled
20110916_...		Family	False	False	C:\dev-lib\...	3	x64	Architecture		NotEnabled
20110916_...		Family	False	False	C:\dev-lib\...	3	x64	Architecture		NotEnabled
20110916_...		Family	False	False	C:\dev-lib\...	3	x64	Architecture		NotEnabled

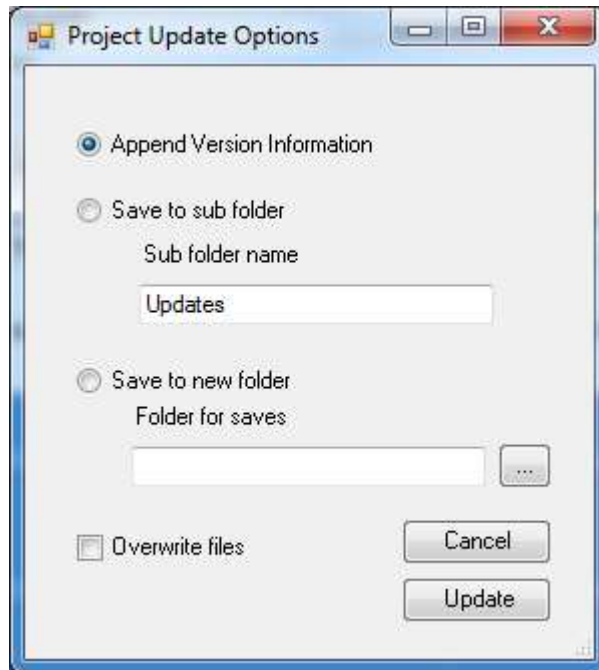
Updating Projects:

Note: Functionality varies in 2013 and 2014. Not available in 2012

The simplest option is to use the “Update” command. This simply opens the original project and overwrites (with a backup) the original project file. By updating linked files first you can greatly improve the performance of this operation.

The “Update Projects” command offers additional functionality by doing a save-as process, i.e. The original project file remains. The save-as can be to:

- the same folder as the original project but with the version details appended to the name
- a separate folder related to the original project location
- a single folder where all projects will be placed

**Append Version Information:**

Project files will be saved in their original location and have the current version of Revit number (e.g. -v2014) appended to the name.

Save to sub folder / Sub folder name:

This option will save all project files to a folder beneath the current project file location. E.g. A folder called “Updates” will be created beneath the current project folder where an identically named file will be created. All links will also be saved to this folder.

Note: You can also use “.” And “..” to create a folder at the same level or the level above. E.g. A subfolder name of “.\Revit2013” would create a folder at the same level as the current folder for the project. If your project were in n:\projects\0011-bbh\revit2012, using .\Revit2013 would result in your converted project being placed in “n:\projects\0011-bbh\Revit2013”.

Save to new folder:

This will save all projects to the one specified folder. All links will also be placed in this folder.

Overwrite Files:

Tick this if you want updated project files to overwrite existing files. I.e. If you wished to repeat the update process, ticking this would cause the previously updated file to be overwritten. Having this un-ticked ensures that projects are only processed once. E.g. A file linked to multiple project files will only be updated once.

Note: This routine never overwrites the original files selected for processing.

Note: 2013 does not have as much functionality in terms of re-pathing that is found in Revit 2014. Where linked files in a project reside in a different folder to the project, the updated project file will still point to the original links. These will need to be manually reloaded to correctly refer to the updated files.

Note: This command depends heavily on the “OutofHours” subroutines.

Note: Where you wish to update a single (or a few projects) consider using “eTransmit”.

NAVISWORKS REVIEW (2013)

Navisworks Review enables you to easily select and view the Revit items that a Navisworks clash report has identified. It also makes generating views and sheets of the clashes a simple one step operation.

In Navisworks, open your Revit file, then run your clash report and output to a tabular HTML format. Export this to some easy location, perhaps “c:\temp”

Note: You must have your units set to Feet and 8 decimal places of precision. Why?

By default Revit uses Feet as the default units, therefore generating a report using Feet makes it easier to locate elements within your project. The increased precision ensures that items can be found accurately.


Make sure to pick HTML tabular as your output format.

Autodesk®
Navisworks®

Clash Report

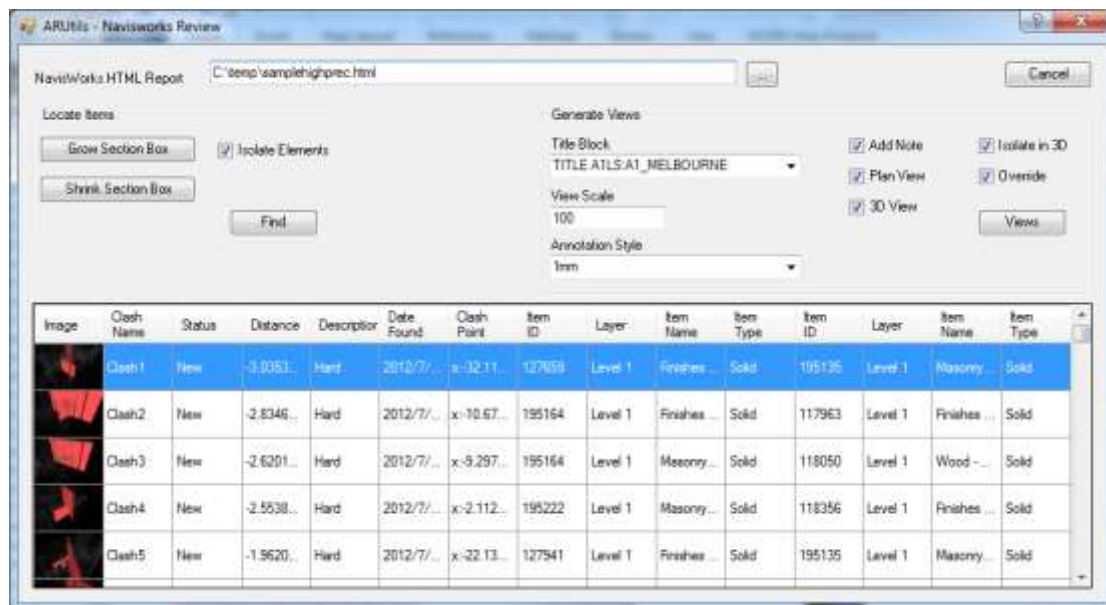
Test 1

Tolerance	Clashes	New	Active	Reviewed	Approved	Resolved	Type	Status
0.001m	2	2	0	0	0	0	Hard	OK

Image	Clash Name	Status	Distance	Description	Date Found	Clash Point	Item 1				Item 2			
							Item ID	Layer	Item Name	Item Type	Item ID	Layer	Item Name	Item Type
	Clash1	New	-0.13	Hard	2012/7/13 0:25:22	x:-6.49, y:1.46, z:0.00	Element ID: 129259	Ground Floor	Double brick - 270	Solid	Element ID: 129301	Ground Floor	Double brick - 270	Solid
	Clash2	New	-0.13	Hard	2012/7/13 0:25:22	x:0.27, y:1.60, z:0.60	Element ID: 129259	Ground Floor	Double brick - 270	Solid	Element ID: 129301	Ground Floor	Double brick - 270	Solid

The Navisworks report

In Revit start “Navisworks Review”



Navisworks Review Dialog

Simply browse to the Navisworks Clash report you have just generated to fill the dialog data table.

Once you have your clash data loaded you can opt to find and isolate the items in your project or alternatively you can generate plan or 3d views that highlight the conflicts. The generated views are automatically placed onto sheets to enable table discussions to take place.

Navis Works Html Report:

The Navisworks Html Clash report file

....

Browse for the report file

Locate Items

Grow / Shrink Section Box

Navisworks review takes you to a 3d section box view. Pressing grow or shrink, grows or shrinks the section box by 10%

Isolate Elements Checkbox

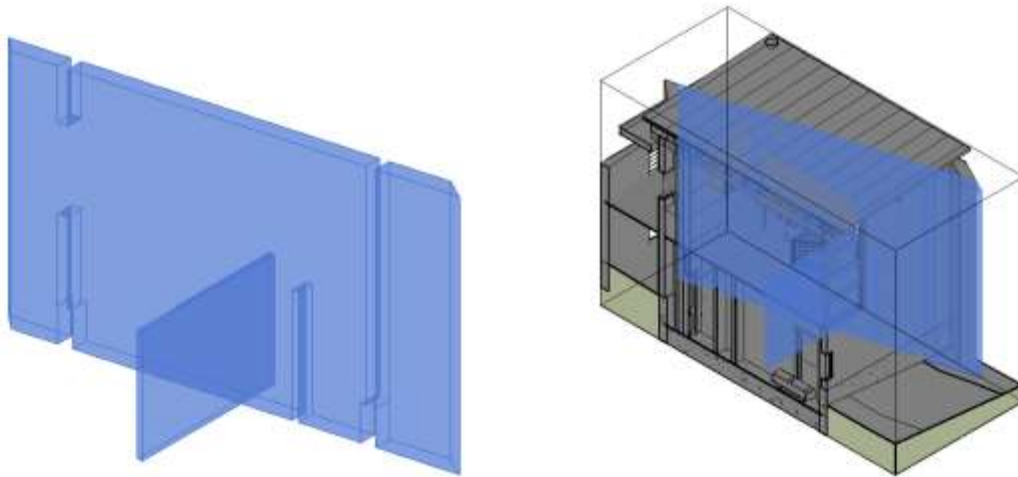
Select this to temporarily isolate the elements in the 3d view of the clashing items.

Cancel

Exit the command

Find / Double Click Item / Right Click Item : Find

Find the items in the clash and present them in a 3d section boxed view. Since the dialogue box is Modeless you can leave the dialogue box up while you correct the issue.



Isolated and non-isolated element find

Right Click: Fit All

Size all cells to fit the current information

Generate Views

This section enables you to generate plan and 3d views and place them onto sheets to enable easy viewing of the clashing items.

TitleBlock

The title block to be used when generating sheets

View Scale

The scale of the views to be generated

Annotation Style

The annotation style to be used when placing notes about the clash.

Add Note

Add notes to each view detailing the name of the clash and other clash information.

Note: Navisworks reports do not correctly list element IDs for clash items. Navisworks lists the type ID. Where this is the case the actual clashing element IDs will be listed as part of the note.

Plan View / 3d View

Generate a plan or 3dview that shows the clash. Generally the 3d view will best show the clash.

Isolate in 3d

Show only the clashing items and not surrounding elements

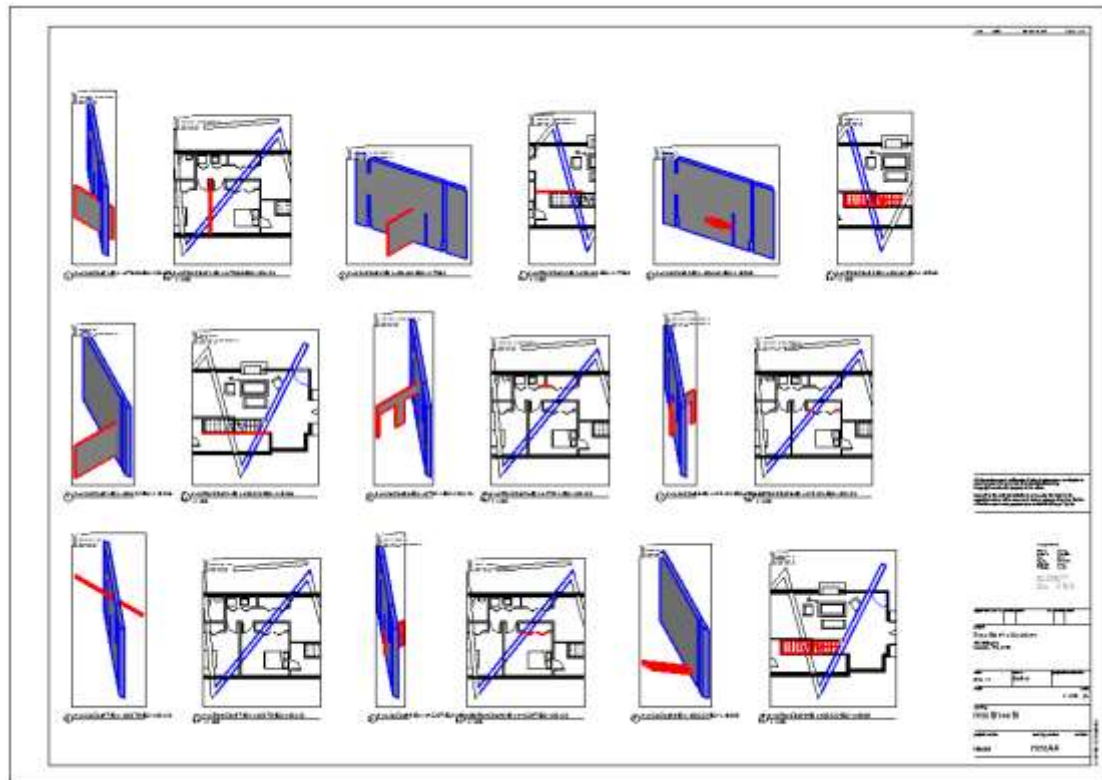
Override

Override the display style of the clashing elements. One item will be highlighted in Red, the other in Blue.

Views

Generate the views and place on sheets.

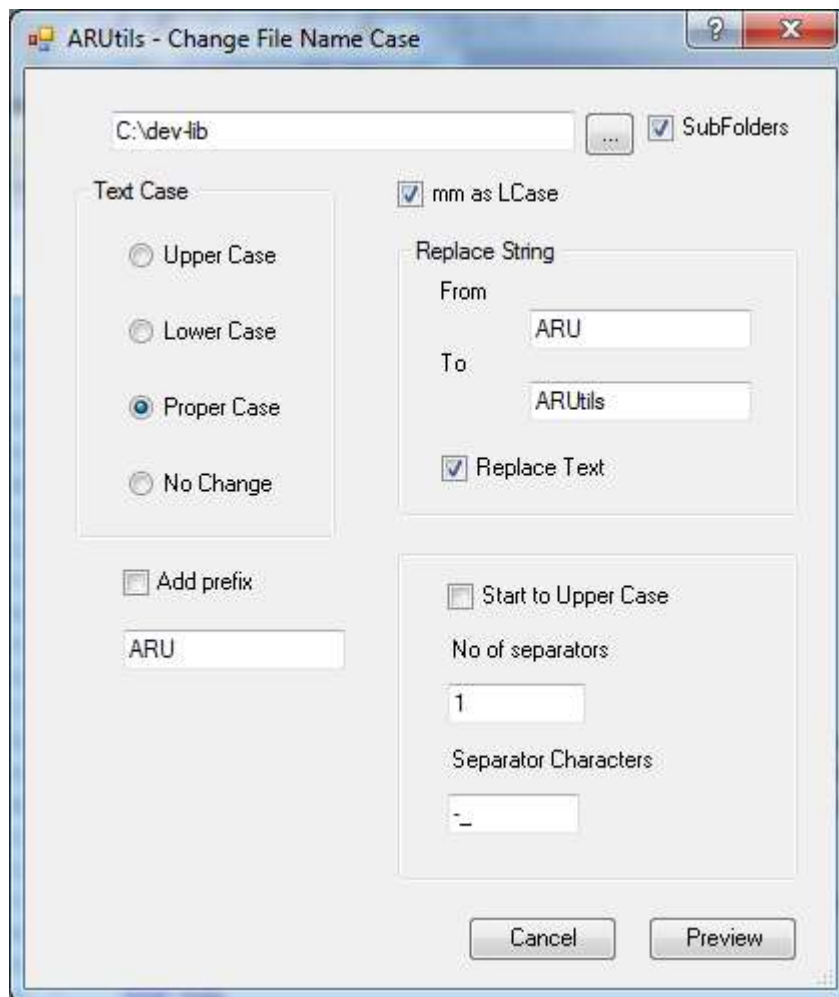
Note: Revit has strange bounding boxes for 3dviews when placed on sheets i.e. The bounds for the 3dView include a lot of white space once a note is placed onto the view. This can result in more whitespace than you may desire.



A sheet generated using ARUtils Navisworks Review

FILE NAMES CHANGE CASE

The "File Case" routine enables a user to change all or selected parts of file names and folders to a particular case. Additionally prefixes can be added, or parts of the file name replaced. The proposed changes can be previewed before applying the changes.

**Folder field**

Specify the folder in which the files reside. Either type the folder name or browse for the folder.

Subfolders

This will scan both the top folder and the subfolders within the specified folder for processing.

Text Case

- UPPER CASE
- lower case
- Proper Case

Add Prefix

This option allows a prefix to be added to all the selected item types. E.g. You may want to add "GYR_" to prefix all Family Names and Family types. Alternatively you may wish to add prefixes to views or materials. This will brand your families.

Start to Uppercase

This option will set the first part of a string to Uppercase. The "Start" is defined by a combination of the "No of Separators", as well as the "Separator Characters". Typically your separator characters will be and underscore or a hyphen E.g. "GYR_FURN-CHAIR-Chair Type Abc", has three start parts. "GYR_FURN-Really Nice Chair", has only two parts. Just how many you want considered can be defined in the "No of separators".

Anything after the last "_" or "-" will be converted to the selected case. The start will be changed to uppercase.

Replace String

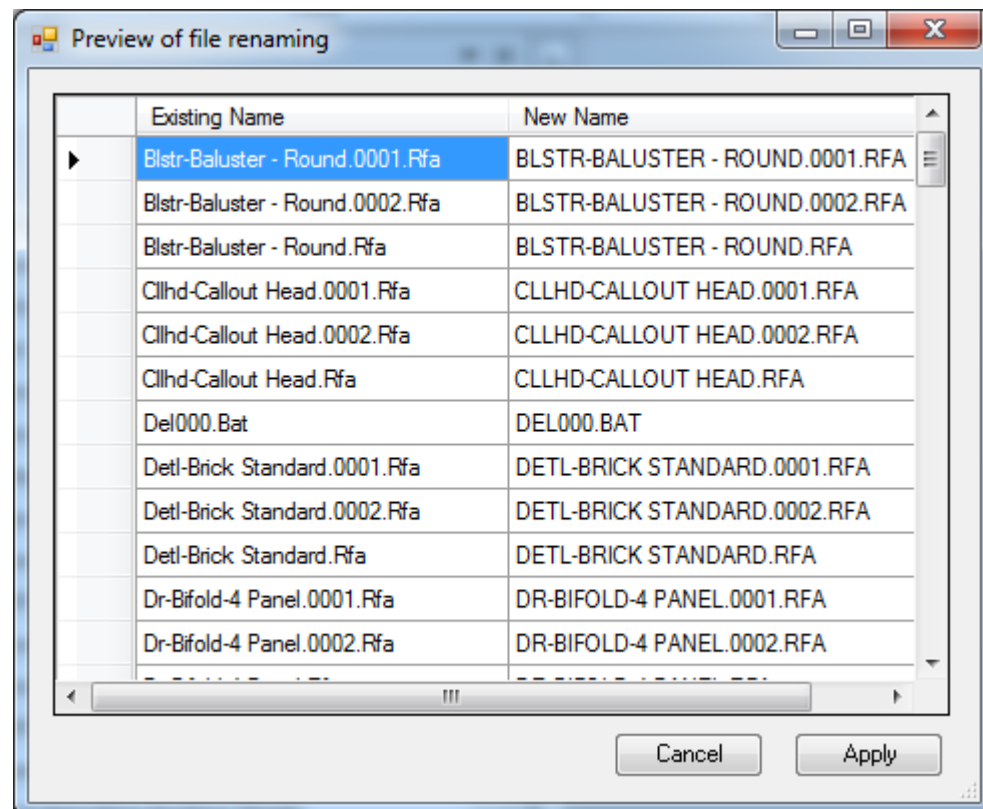
"Replace String" allows you to search for and replace one string with another.

Mm as Lower Case

"mm as LCase" will keep all instances of "mm" as lower case. This will not (should not) affect words that have mm as part of them.

Preview

Press this to preview the changes that will occur.



Press "Apply" to commit the changes to the files.

Note: There is no undo for this command.

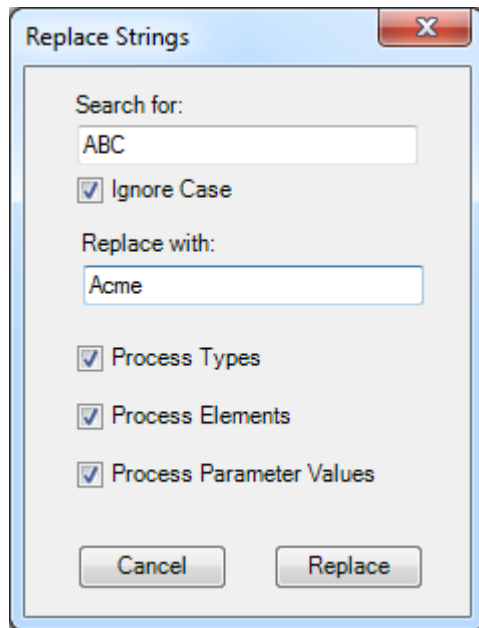
REPLACE TEXT

The replace text routine is designed **to replace all occurrences of one string with another**.

This will affect all types, elements, parameter names as well as parameter values. This works in families and also projects. It is therefore much less discriminating than the various "Text Case" commands. This could be most useful when a name change occurs for a company.

Note: If processing families "Head of the Family" allows you to carry out this replacement in multiple families and with multiple definitions.

Note: Refer to the "Create | Text Case" command if you wish to have more control over specific categories of items in which you wish to replace text.



The Replace Text dialog

Search For:

The text string to be searched for.

Ignore Case:

Allows you to match text regardless of the “case” of the text.

Replace with:

A string to replace all occurrences of the searched for string. This could be a null value if simply stripping the branding string.

Process Types:

Process all “Type” item names. This includes such things as Families and family type names, categories

Process Elements:

Process all “Element” item names. This could be view names for example.

Process Parameter values:

This will process all text parameter values

Replace:

Carry out the replacement process.

OUT OF HOURS

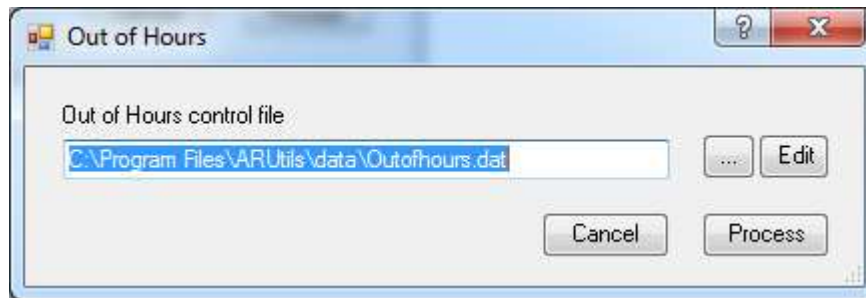
Note: Not available in Revit 2012

The “{Out of hours}” command provides unattended processing of one or multiple project or family files. At present it supports exporting to multiple formats, e.g., DWG, PDF, IFC, etc., as well as creating backups, and compressing of projects.

It relies on a file containing “Out of Hours” commands to be executed during the process. The default file is “outofhours.dat” in the “..\arutils\data” folder. There is a sample file in the “..\arutils\data” folder to make processing definition simpler.

The command file can either be executed by the user whilst in Revit or alternatively a file, "AutoOutofHours.txt" can be created in the "..\arutils\data" folder, which specifies the script file to be executed when Revit starts. ([New 4/8/2013](#))

A new modification allows you to run the script on the current file.



The Out of Hours dialog



[Out of Hours](#)

Out of hours control file

The control file that contains the out of hours commands

...

Browse for the control file

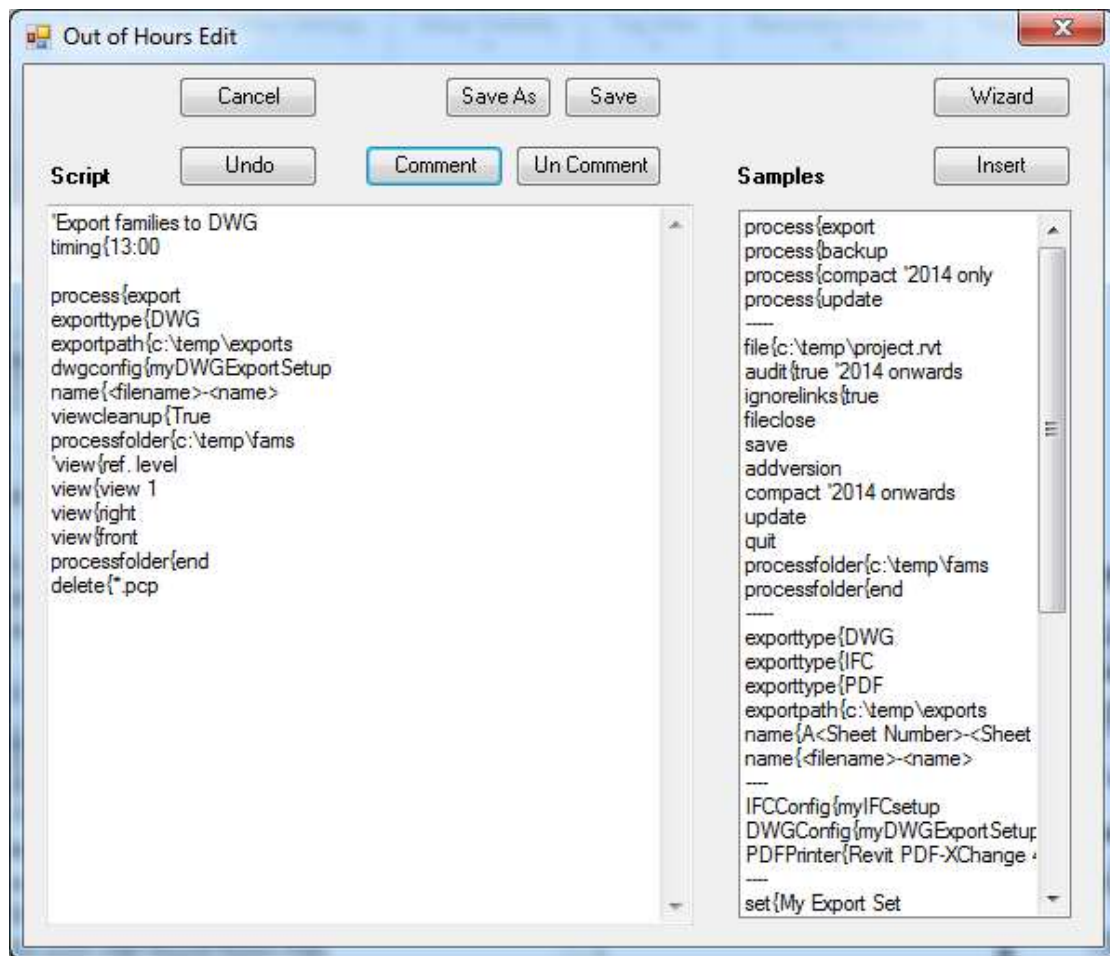
Edit

Edit the control file

Process

Process the commands in the control file.

[Out of Hours Edit](#)



This interface presents you with a window to edit your text as well as providing a list of sample commands.

Undo

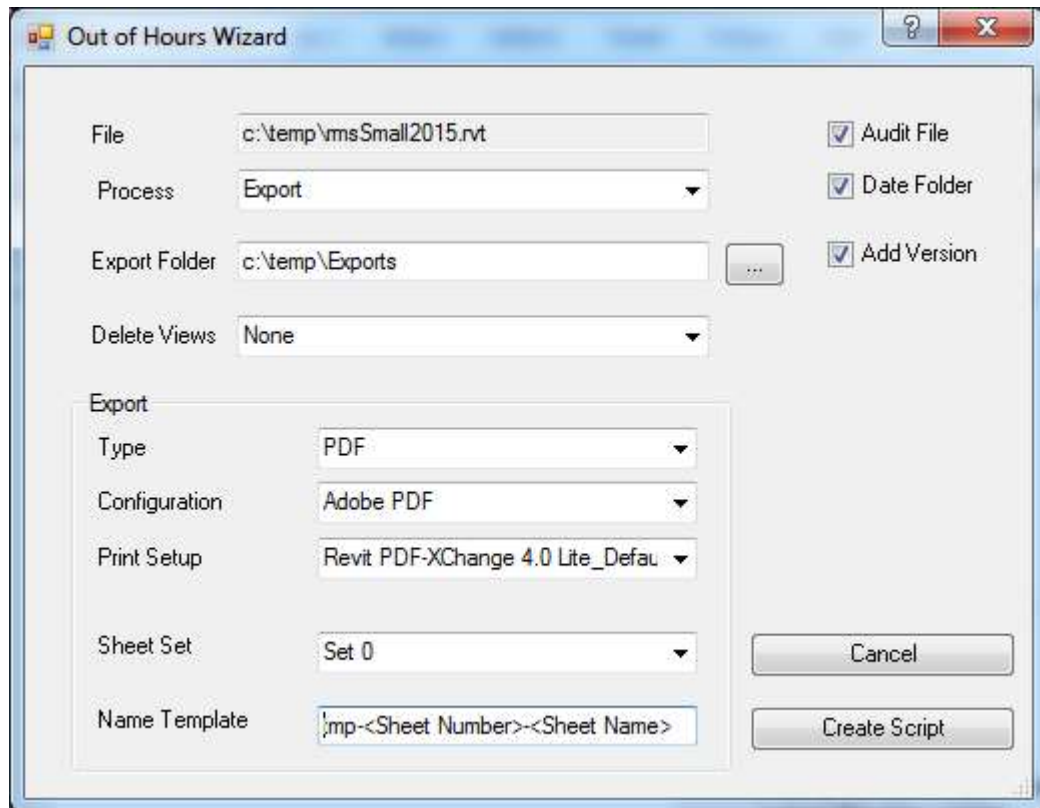
Undo the last change

Comment / Uncomment

Insert or remove comment marks on the selected lines.

Wizard

This opens up the Out of Hours Wizard which makes it easier for you to create the most common purpose scripts. It relies on you having the target file open.

**File**

The currently open file.

Process

The process you want to apply to the file. Depending on your selection other options will be revealed / hidden. Options are “Backup”, “Compact”, “Export” and “Update”.

Export Folder

The folder where exports will be saved / exported to.

Delete Views

The views in the file you wish deleted when performing a Backup operation.

Audit File

The file will be audited when it is opened

Purge File

The file will be purged when it is opened

Date Folder

Adds the “Date” option to the export folder path

Add Version

Adds Revit Version information to the name of any backup files

Export

Only Appears when the process is set to “Export”

Type

The type of export, e.g., PDF, DWG, DWF, etc.

Configuration

A saved export configuration that resides in the project file. Typically you will need to do a manual export and save your settings under a name you recognise.

Alternatively this will refer to a printer used for PDF exports. In this case you will also need to select a print setup saved in the file.

Note: Not all export types are supported with saved configurations. Default export settings will be used where this is the case.

Print Setup

Only appears when a PDF export is undertaken.

Sheet Set

The wizard only allows you to specify a Sheet Set for export operations. If you wish to use specific views you will need to enter these using the editor.

Name Template

The naming template. Double click this item to open the View Name Builder. Alternatively just edit the text string

Create Script

Generate the necessary commands and append or overwrite the current script in the editor window.

Insert (or Double Click)

Insert the selected command before the current "script" line.

Save

Save the current script and close the dialog

SaveAs

Save the current script under a new name

Cancel

Cancel the changes

Stage 1 – preparing your files for batch exporting:

Before using the routine for batch exports, as opposed to backup, or compacting, you must establish "**named export configurations**" and although not entirely necessary, "**named view / sheet sets**".

Named Export configurations

Revit allows you to create **named export configurations** that are saved within a project. Typically these are accessed via the "**Export**" command for a particular type of export. E.g. "Revit | Export | CAD Formats| DWG Export | DWG/DXF Export Setup".

Once created you need to specify which "**Named Export Configuration**" to use by use of the command "**dwgconfig**", "**ifcConfig**", or alternatively the "**pdfprinter**" command. This will be specified in your Out of Hours definition file.

Note: imgconfig can be used for image exports. This is a definition rather than a saved configuration. You can specify pixels and resolution. E.g., imgconfig{1200{300, would give an image of 1200 pixels wide and a resolution of 300 DPI.

Typically this should be specified after the file to be processed has been opened using a “file” command, however when using the “processfolder” command the configuration should be contained in the project active when the “Out of Hours” command is started.

Named view / sheet sets

The easiest way to define the views to export is via “**View sets**” within Revit. These can be most easily setup via the “Print” command within Revit.

Stage 2 – the outofhours.dat file:

The outofhours.dat file

The routine relies on a text based file that contains a number of entries that define what projects to process, how to process them, and what views to export, files to compact, or files to backup. A sample file currently exists in ..\arutils\data.

Sample file

The following is a sample file that would export views from a couple of projects to both DWG and IFC. Note the use of the field delimiter “{”.

```
process{export
'Set processing to only occur between certain times
timing{22:00{2:00
file{c:\temp\sample2013.rvt

'Export dwgs ; a comment line
exportpath{c:\temp\export\DWGS
name{<Sheet Number>-[<current revision>]-<Sheet Name>
dwgconfig{MyDWGExportSettings
exporttype{DWG
set{DWG Export Set
set{DWG Export Set 2
view{my3dview
'Export IFCs
ifconfig{Fred
exporttype{IFC
exportpath{c:\temp\exports\IFC
set{IFC Export Set 1
set{IFC Export Set 2
delete{*.log
delete{*.txt
'Create a backup copy in the exportpath folder
save
'Note: The file will be closed by the save command

'Suspend processing for 240 minutes
Wait{240
'The next file
file{c:\temp\sample2013-part1.rvt
exporttype{DWG
set{another set
```

OutOfHours.Dat Keywords

The outofhours.dat file relies on each line starting with a keyword (or command) followed by a value. The keyword is separated from the value by a “{” delimiter.

Keywords

Process

At present the only values supported are “**export**”, “**backup**”, “**compact**” and “**update**”.

E.g. {Process Categories="Out of Hours"}{export, process{backup, process{compact, or process{update.

Process{**Export** is used to export views / sheets to DWG, IFC, PDF, or IMG (jpeg image). Use this with the **set** or **view** commands to initiate the export

Process{**Backup** is used to create a backup copy of a project file. The specified file (and any linked Revit files) will be copied to the “exportpath” folder and have their links updated to the exportpath folder. Use this with the **save** command.

Process{**Compact** is used to compact existing files and any linked files. Use this with the “**compact**” command to initiate the compact. (2014 Onwards)

Process{**Update** is used to update an open document. Typically the script will relate to updating parameters and deletion of views. Use this with the “**update**” command to initiate the update.

File

The revit file to be processed. This can be defined multiple times. E.g.

File{c:\temp\file1.rvt. If appropriate files will be detached from central on opening.

Additional options include opening a specific workset Set (defined in an excel file via the [Workset File Open](#) (2014 Only). You can use the default Workset Set file, or specify the file containing the definition.

E.g. File{c:\temp\project.rvt{Base Building{c:\temp\worksetcontrol.xlsx

ProcessFolder / ProcessFolder{End

Will process all of the files in a folder. Most typically this is used to process a folder of families using the same set of commands, e.g., when creating DWG blocks from views in families.

Note: To process RVT files use the RVT option, e.g., processfolder{c:\temp\RVT

```
process{export
exporttype{DWG
exportpath{c:\temp\exports
DWGConfig{myExportConfig
name{<filename>-<name>
viewcleanup{True
```

```
processfolder{c:\temp\fams
view{ref. level
view{left
view{right
view{front
processfolder{end
```

```
delete{*.pcp
```

Note: When using “processfolder”, the DWGConfig should be defined in the active project when you start the “Out of Hours” command. This can be set using the Revit DWG / DXF Export Settings interface. Make sure to save your settings as a named configuration.

The following script will process a folder of Revit project files, load families using a reload control file, purge the file, and save the altered project files to the export path

```

process{backup
Audit{False
ExportPath{c:\temp\andyupdatedPojects
processfolder{C:\temp\andyprojectsforupdate{RVT
loadFamilies{C:\temp\loadFams{true{true{true{C:\data\reloadFamilies.xlsx
purge
save
processfolder{end
Fileclose

```

IgnoreLinks

By default all linked files are also processed by this routine. Set this to true to ignore links. Links will not be copied, compacted, or updated. If a file is backed up the links will point to the original link and therefore if any of those links have changed the backup will not reflect the file as it was.

```

IgnoreLinks{True
IgnoreLinks{False

```

Audit (2014 Onwards)

This option forces the file to be audited when doing a “backup” process. E.g. Audit{True

Purge (2017 Onwards)

This option will do multiple purges on the file

Compact (2014 onwards)

Compact the specified file and all its linked Revit files.

Note: No copies are made of the files processed this way. Consider making a backup of the files first. E.g.

```

'Backup the file
Process{backup
File{c:\temp\project.rvt
DeleteViews{unplaced{*plan*           Delete unplaced views except views with “plan”
                                         in their name
DeleteFamily{*arsoft*                 Delete all families with “arsoft” in their name
DeleteFamily{*arutils*                 Delete all families with “arutils” in their name
purge
Save
'File automatically closed
'Compact the main files
Process{compact
Audit{true
File{c:\temp\project.rvt
Compact

```

Note: **Process** must be first set to “compact” to ensure correct opening of the file.

Note: This operation will close the file specified by the “file” keyword. Therefore any export operations should be executed before using the “compact” command.

Save

Save the currently specified file (and any Revit links) to the exportpath folder. E.g.

```

Process{backup
File{c:\temp\project.rvt
Audit{true
Exportpath{c:\temp\exports
purge

```

Save

Note: Any linked Revit files will be copied to the folder as well. In 2014 the links will be updated to point to the exportpath copies of the links. This also processes any nested linked files.

Note: 2013 is unable to handle “absolute” paths for Revit links.

Note: Process must be set to “backup” to ensure correct opening of the file.

Note: This operation will close the file specified by the “file” keyword. Therefore any export operations should be executed before using the “save” command.

Export

Export the currently specified file (and any Revit links) to the exportpath folder. Use this with Export Type of NWC and GBXML E.g.

```
Process{Export
File{c:\temp\project.rvt
Audit{true
ExportType{NWC
Exportpath{c:\temp\exports
export
```

AddVersion

Adds the version of revit to file names as they are saved or copied. E.g. Myproject.Rvt would become MyProject-v2015.rvt

Update

Use to apply parameter updates and view deletion for the current project.

Fileclose

Close the current document. This occurs by default when a new document is opened but is useful when suspending processing between defined processing periods.

```
Eg.Fileclose
Wait{240
File{c:\temp\project2.rvt
```

Quit, Kill

Use either quit or kill to end the Revit process. This will only occur once all processing in the script has been completed. The statement can occur any place within the script file.

ExportType

Specifies the type of export to perform. Possible values are DWG, IFC, PDF, NWC, GBXML, and IMG.

e.g. Exporttype{dwg

Note: IMG is for export of Jpeg image exports. Use this with “imgconfig” and optional specification of pixels and resolution, e.g., imgconfig{1200{300

Note: For PDF file creation refer to the [Named PDF export](#) routine for setting up PDF printers.

Note: NWC and GBXML will require use of the Export command to trigger the export. Other exports are view based and will typically use a sheet set to export items.

ExportPath

The folder where exported files will be placed. This can be defined multiple times. Each new definition will redefine the folder for export. E.g. Exportpath{c:\temp

You can also use a “**date**” option, e.g. Exportpath{c:\temp{**date**. This will create a folder within the specified folder following yyyy_mm_dd format. E.g. C:\temp\2013_02_21

Note: Where the folder does not exist, the folder will be created. (Only one level)

Name : With Sheets

The naming template used for sheets. Any sheet parameters should be placed in “<>” brackets. E.g. <Sheet Number> would change the output name to use the “Sheet Number”. Refer to the “PDF Named Export” routine for more information

e.g. Name{A<Sheet Number>-<Sheet Name>-[<Current Revision>] would create names such as A001-Level 1-[A].

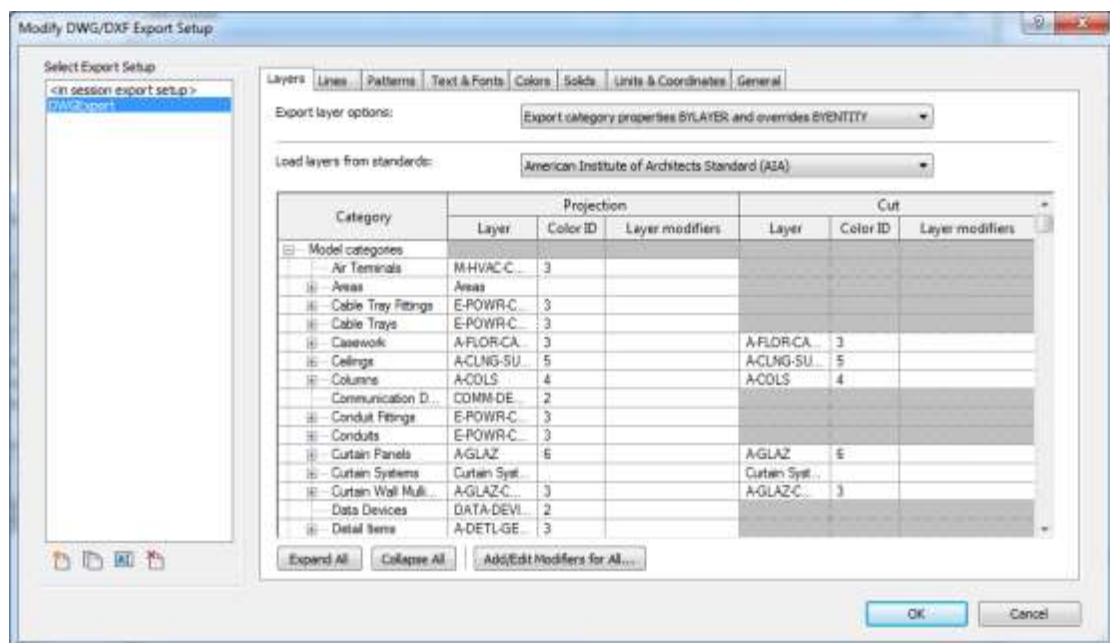
Name : With Views

The naming template used for views. Only two parameters are currently available, <name> and <filename>. These should be placed in “<>” brackets. E.g. <filename> would change the output name to use the name of the file.

DWGConfig

A previously defined Dwg Export configuration. This is done via the Revit “DWG Export” command accessed via “Revit | Export | CAD Formats| DWG Export | DWG/DXF Export Setup”. Make sure to save your settings to a defined name.

E.g. DWGConfig{BuilderExport

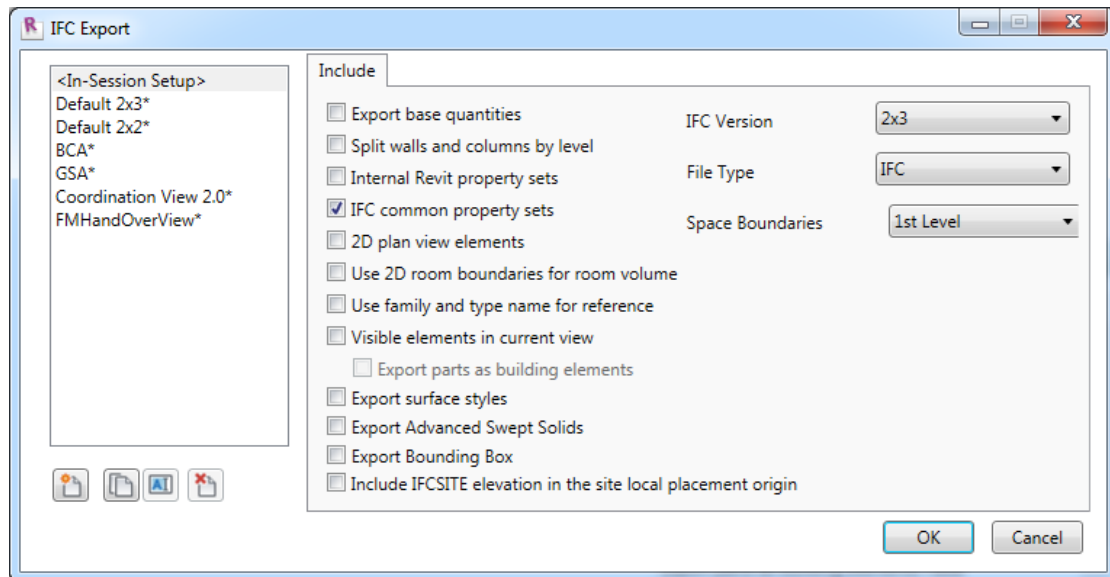


Example of saving DWG Export settings to “DWGExport”

IFCConfig

A previously defined IFC Export configuration. This is done via the Revit “IFC Export” command accessed via “Revit | Export | IFC | IFC Export Setup”. Make sure to save your settings to a defined name.

E.g. IFCConfig{myIFCExport



Note: This interface is using the publicly available “IFC Exporter for Revit” available from <http://sourceforge.net/projects/ifcexporter/files/2013/>. This offers improved IFC export options and replaces the normal “IFC Export” interface. You should download and install this for IFC exports.

IMGConfig

Specify settings for image export. Usage is:

`Imgconfig{pixels{resolution [72,150,300,600]}`

E.g. `IMGConfig{1200{300}` result in an image 1200 pixels wide, and a resolution of 300 DPI.

PDFPrinter

Specify a pdf printer to use for converting files to pdf. Usage is

`pdfprinter{printer_name{Print setup}`. Print setup is the print setup as defined within your project.

E.g. `pdfprint{Revit PDF-XChange 4.0 Lite{A1 print`

Set

A set of sheets or views to be exported.

E.g. `Set{ifc export set`

View

A specific view to be exported. E.g. `View{my 3d view`

Viewcleanup

Typically used when exporting family views to DWG. Reference items, levels, dimensions, and wall items are turned off before the export. Use `viewcleanup{true}` to turn it on, or `viewcleanup{false}` to turn it off.

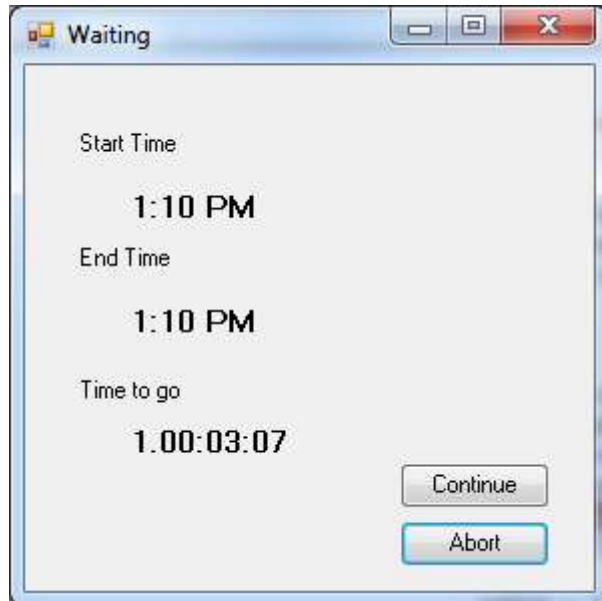
Timing

Specify times in which processing can occur. E.g. `Timing{22:00{6:00}` would commence processing at 10pm and stop processing at 6am.

e.g. `Timing{22:00` 'would commence processing at 10pm a keep running until completion.

e.g. `Timing{22:00:1` would commence processing at the next 10pm + one day

eg:Timing{22:00:1{6:00:2 would commence processing at the next 10pm + one day and finish processing at 6am, 2 days after the start time.



The waiting dialog. In this case there is one day, 3 minutes and 7 seconds, before processing will commence.

Note: View sets will be completed even if they fall outside the specified times. Each line within outofhours.dat will be time checked.

Wait

Wait for a specified period of time in minutes. E.g. Wait 2400 would wait for 2400 minutes.

This is designed to enable you to let processing continue the next day so that very large files can be processed on separate days. Generally set the wait period to the duration of the processing window

Delete

Delete unnecessary files that are created by the export process. Format is "delete{wild sepecifier", e.g. "Delete{*.log"

DeleteViews

Deletes views from the project.

DeleteViews{All	Delete all views from the project
DeleteViews{Sheets	Delete all sheets from the project
DeleteViews{UnPlaced	Delete all views not on a sheet
DeleteViews{All{*plan*;*section*	Delete all views except for those with plan or section as part of their names.
DeleteViews{Clear	Clear any settings for view deletion

DeleteFamily

Allows you to specify families to be deleted from the project. Typically this is used to remove title blocks from a project. You can define this multiple times and all of the definitions will be applied.

DeleteFamily{Family Name	Delete the family and all its types from the project. Use of wild characters is allowed.
--------------------------	--

```
DeleteFamily{*ARSoft*
DeleteFamily{Clear
```

E.g., *ARSoft*, would delete all families that have ARSoft as part of their name.

Clear any family deletion settings

e.g.

```
Process{update
Processfolder{c:\temp\fams
Deletefamily{thermometer
Save
Processfolder{end
FileClose
```

ReloadFamilies

Allows you to RELOAD families that already exist in the project and also exist on disk

```
reloadFamilies{folder{subfolders{overwrite pars{Excel Control File
Reload families from the folder specified
```

Subfolders set to true will recurse sub folders

Overwrite Pars will overwrite the parameter values in the project.

Excel Control File – Use an Excel control file to load / reload families using the [Batch Reload Families](#) file format

e.g. reloadFamilies{c:\temp{true{true

The following script will process a folder of Revit project files, load families using a reload control file, and save the altered project files to the export path

```
process{backup
Audit{False
ExportPath{c:\temp\andyupdatedProjects
processfolder{C:\temp\andyprojectsforupdate
reloadFamilies{C:\temp\loadFams{true{true{C:\data\reloadFamilies.xlsx
save
processfolder{end
Fileclose
```

Reload Family

Reload a specific family. Also define if parameters are to be reloaded from the disk version. Only families already in the project will be Reloaded.

Note: Use the “Script Wizard” with “Update” to get a list of families in the project.

```
reloadFamily{File{OverwritePars
```

File – The file to be loaded

Overwrite Pars – Load the parameters from the external family

e.g. reloadfamily{c:\temp\fam.rfa{false

LoadFamilies

Load all families from a specified folder. Families will be loaded if not in the project, and may optionally be reloaded if the family is already in the project.

```
loadFamilies{Folder{Subfolders{Overwrite Loaded Family{Overwrite Pars{Excel Control
File
```

Folder – the folder to load from

SubFolders – Recurse directories. Default

is False

Overwrite Loaded Family – If family exists in the project file, overwrite the family.

Default is false.

Overwrite Pars – Overwrite the parameters of the loaded family.

Excel Control File – Use an Excel control file to load / reload families using the [Batch Reload Families](#) file format

The following script will process a folder of Revit project files, load families using a reload control file, and save the altered project files to the export path

```
process{backup
Audit{False
ExportPath{c:\temp\andyupdatedPojects
processfolder{C:\temp\andyprojectsforupdate
loadFamilies{C:\temp\loadFams{true{true{true{C:\data\reloadFamilies.xlsx
save
processfolder{end
Fileclose
```

LoadFamily

Load a specific family into the project. If the family already exists in the project you can elect to overwrite the existing family.

```
loadFamily{File{Overwrite Loaded Family{Overwrite Pars
Folder – the folder to load from
Overwrite Loaded Family – If family exists
in the project file, overwrite the family.
Default is false.
Overwrite Pars – Overwrite the parameters
of the loaded family.
e.g., loadFamily{c:\temp\chair.rfa{true{true
```

Parameter

Allows you to update "Project" parameter values.

Parameter{ParameterName{Value{Option	Update the specified parameter to the defined value
Parameter{ Clear	Clear previously defined parameter updates

Value Options

<day>--<month>--<year>[<yy>]	Will determine the current date in the format of day-month-year. Use <yy> for a two digit year.
<vbcr>	Include a carriage return
&/+	As the first character will append the new value to the current value. As the last character will prefix the current value with the new value.
<parameter>	Use another project parameter as input to the specified "ParameterName"

Option

Math	To perform some maths functions set the "option" field to "Math".
------	---

Parameter{ProjDate{&<vbcr><Day>/<Month

Appends a linefeed followed by 12/6 to the value of the ProjDate parameter

Parameter{ProjDesc{<Client Name> / <Project Address>

Would result in ProjDesc being set to the values in Client Name and Project Address

Parameter{RevCount{<RevCount>+1{Math

Increments the RevCount parameter by 1. RevCount must be a valid number without any alphabetic characters. If leading 0's are in use new number will also be padded to same length.

Note: Use the "Script Wizard" with "Update" to get all the appropriate parameters entered into your script

Copy/Move

Copy / Move files from one folder to another. The command has three possible forms

Copy{to_folder

copy all files from the export path folder to the defined folder. E.g. Copy{c:\temp\backup would copy files from the "exportpath" folder to c:\temp\backup

Copy{to_folder{wild_spec

copy files matching the wild_spec string from the export path folder to the defined folder.

E.g. Copy{c:\temp\backup{*.dwg

would copy dwg files from the "exportpath" folder to c:\temp\backup.

Note: Wild spec could be a complete file name e.g. Myproject.rvt

Copy{from_folder{to_folder{wild_spec

copy files matching the wild_spec string from the from_folder to the to_folder. E.g.

Copy{c:\temp\myexport{c:\temp\backup{*.dwg

would copy dwg files from c:\temp\myexport folder to c:\temp\backup.

Note: Wild_spec could be a complete file name e.g. Myproject.rvt. If you want to copy all files use a value of *.*.

,

A comment line can be defined by using a single quote, or #, at the start of a line.

{

Used to separate the reserved keyword and the value. E.g. View{My view

Full Automation of Out of Hours

It is possible to fully automate the out of hours processing. To accomplish this you will need:

1. An out of hours script file (fully tested). **Consider using “quit” as part of your script.**
2. A text file (Script List file) that contains the full path to your script file, or script files. This file is copied to a file named AutoOutOfHours.txt, in the ARUtils “data” folder. Note: AutoOutOfHours.txt is renamed to AutoOutOfHours.tmp as soon as processing commences. This is to ensure the process is not repeated if a user starts Revit.
3. A windows command file (a “.bat” file) that copies the “Script List” file of step 2 to the arutils data folder as “AutoOutOfHours.txt “. It then then starts Revit and opens a blank file (not one of the files to be processed).
4. To setup a “Scheduled Task” using windows “Task Scheduler”. Simply type in “Task Scheduler” in the windows “Search field” to find and run the task scheduler where you can create the scheduled task.

Example file for step 2 above, File could be named auto.txt. It contains a single line (or more) which specifies the script to be automatically launched when Revit starts:

```
#My main script
C:\my scripts\outofhours.dat
'A Comment line
'Another script
C:\my scripts\script2.dat
```

Note: You can use a single quote or # to define a comment. This must be the first character of a line.

Example file for step 3 above, the “bat” file, could be called autoOoO.bat:

```
Copy c:\temp\auto.txt "c:\program files\arutils\data\autooutofhours.txt"
C:
Cd "C:\Program Files\Autodesk\Revit Architecture 2013\Program"
revit.exe c:\temp\blank.rvt
```

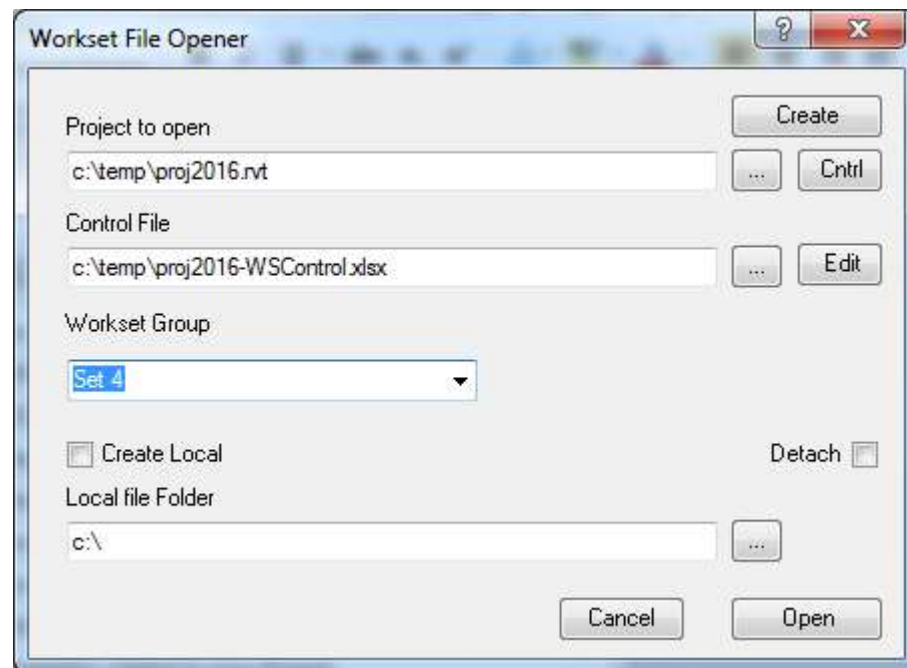
Trouble Shooting

Refer to the file “revit.log” in the “%tmp%” folder for messages about possible errors.

WORKSET FILE OPEN (2014 ONWARDS)

Larger projects require the use of worksets. As projects grow in size the number of worksets grow, as does the time required to select / deselect the worksets to be opened or closed.

This routine allows you to predefine sets of worksets that should be opened when carrying out specific tasks on a project file.



Project to Open

The revit project file to open.

Create

Create a control file using the currently open project file. If the control file already exists you will be given the option of Updating the control file. This ensures current settings are retained; only new or removed worksets will be removed from the control file.

...

Browse to the Revit project file

Ctrl

Generate / update a control file for the specified project. Where the file does not exist, the list of worksets will be transferred to the Excel control file. A number of default sets will be created

	A	B	C	D	E	F
1	Workset	Base	Tower	Site	Plot Set	Set 5
2	Podium	Y			Y	
3	Tower		Y		Y	
4	Site	Y		Y	Y	Y
5	Imports	Y	Y		Y	Y
6	Links	Y	Y	Y	Y	Y

Example Workset control file. Set names appear across the top. Worksets as used by Revit appear in the first column. A value of "Y" indicates that the workset is to be opened.

If the file exists then you have the option of overwriting the control file, or updating the list of Worksets to match with the current set of worksets. Workset entries will be added or deleted as required.

Control File

The control file that contains the Workset Sets. By default the file is named using the central file name with "-WSControl" appended to its name. This ensures local files still point to a central control file.

...

Browse to the workset control file

Edit

Open the control file in Excel

Workset Group

The control file “workset set” to be used when the project file is opened.

Detach

When opening the project, detach it from the central file.

Create Local

Automatically create a local copy when the central file is opened.

Note: If the central file contains “central” as part of its name, this will be replaced by “local” when the local file is created.

Local file folder

The folder where local files are stored.

...

Browse to the Local file folder

Cancel

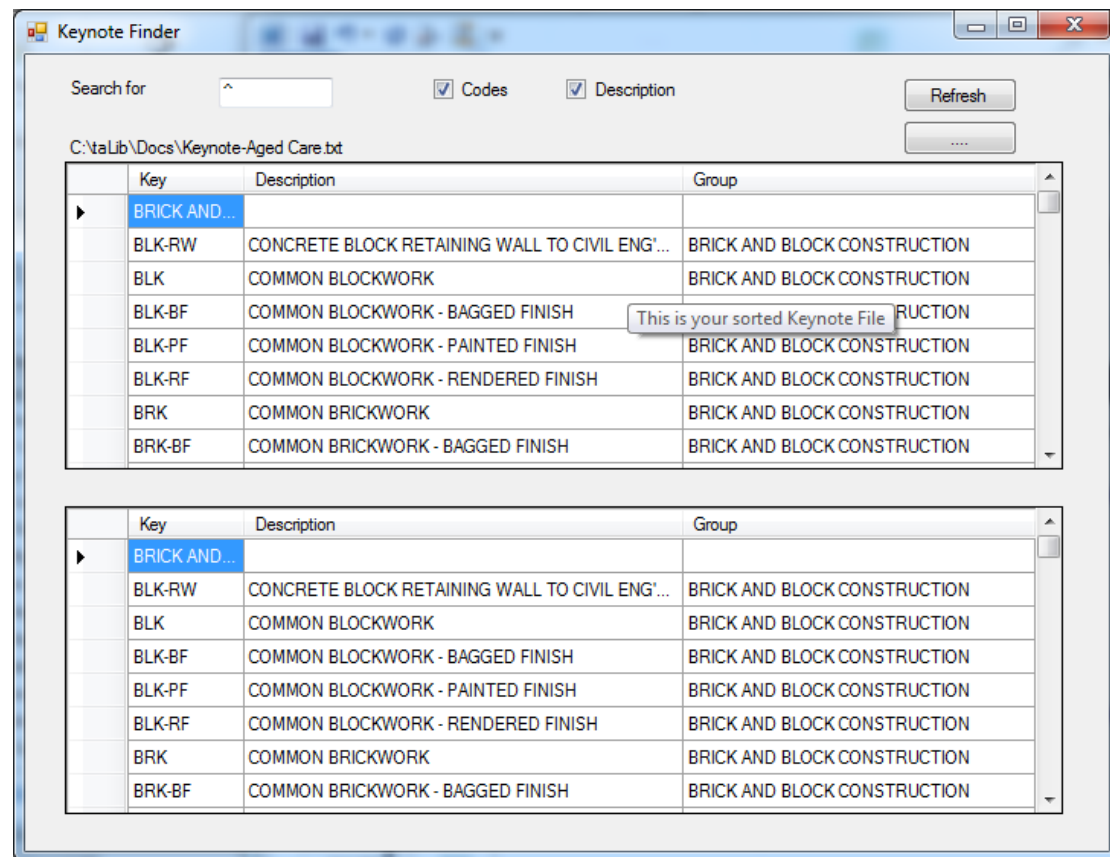
Cancel the command

Open

Open the project file

KEYNOTE FINDER

When using keynotes it can often be difficult to find a code without knowing the code. Keynote finder is a standalone routine that enables easy searching of specific text strings within a keynote file.

**Search for:**

The set of characters you are searching for

Note: You can use “^” as the first character to ensure that found strings start specifically with the specified characters. E.g. ^blk find all strings starting with “blk”.

Note: The search is case insensitive.

Codes / Description

Search both the code and description for matching strings

Refresh

Refresh the data

“...”

Select the keynote file to be searched. Typically the keynote file attached to a project will be used.

The data grids

The top data grid is the raw keynote file. You can however sort by any of the columns, The lower grid displays the filtered results i.e. The entries that match your search criteria.

Clicking on a cell

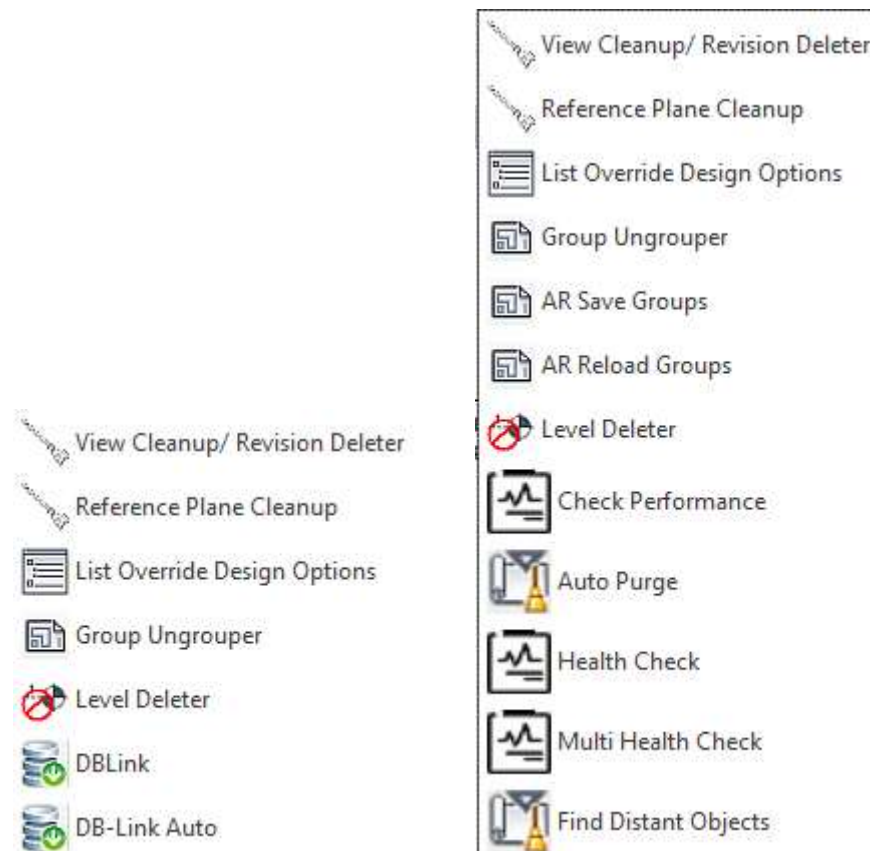
Clicking on a cell automatically copies the contents of that cell to your clipboard. You can then use this in Revit to easily specify your Keynote code.

CLEANUP

[Purge Materials](#)

[Delete views / sheets from a project](#)

[Reference Plane Clean-up](#)
[Manage Design Options](#)
[Group Ungrouper](#)
[AR Save Groups](#)
[AR Reload Groups](#)
[Level Deleter](#)
[Check Performance](#)
[Auto Purge](#)
[Health Check](#)
[Multi Health Check](#)
[Find Distant Objects](#)
[Health Check Settings](#)
[DBLink / DB-Link Auto](#)



PURGE MATERIALS

The "Purge Materials" command automates the purging of Materials. To some extent the new 2012 material purge option makes this redundant. **DELETED ARUtils 2015.**

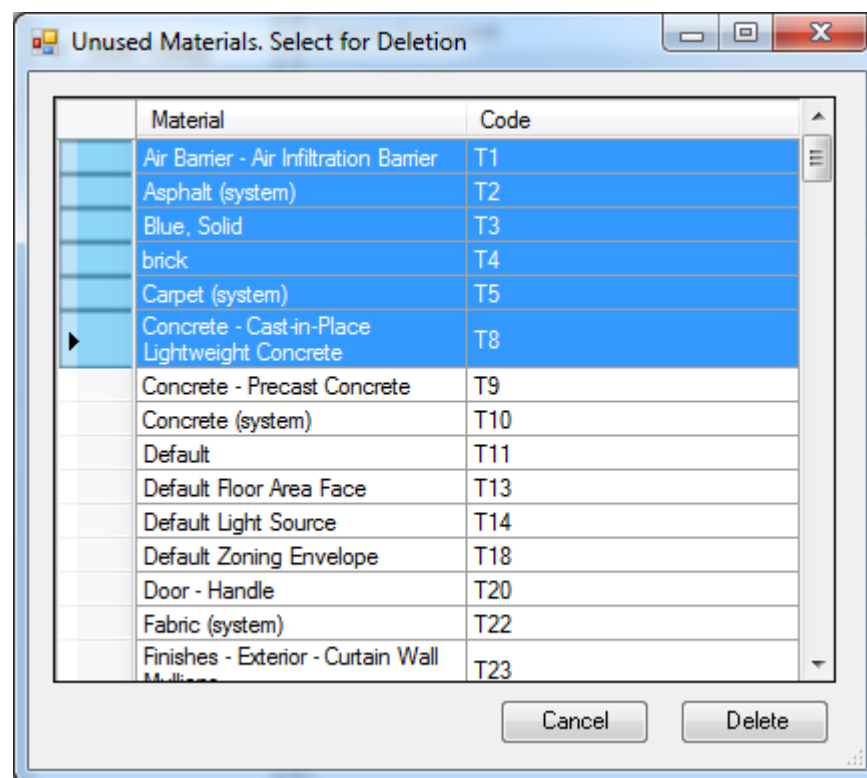
When you select this command, the following will occur

1. All Materials will be placed into a list
2. Materials will be removed from the list if
 - a. It is assigned to a category or subcategory
 - b. It is used by a family item
 - c. It is assigned to a type of item as defined below
 - Walls
 - Floors
 - BeamSystems
 - Continuous footing

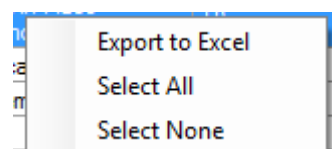
- Hosted Sweeps
- Gutter Types
- Mullion Types
- Panel Types
- Roof Types
- Slab Edge Types
- d. It is used by a family primitive
 - Revolution
 - Extrusion
 - Blend
 - Sweep
 - Swept Blend

Finally you will be presented with a list of materials that have been determined to not be in use.

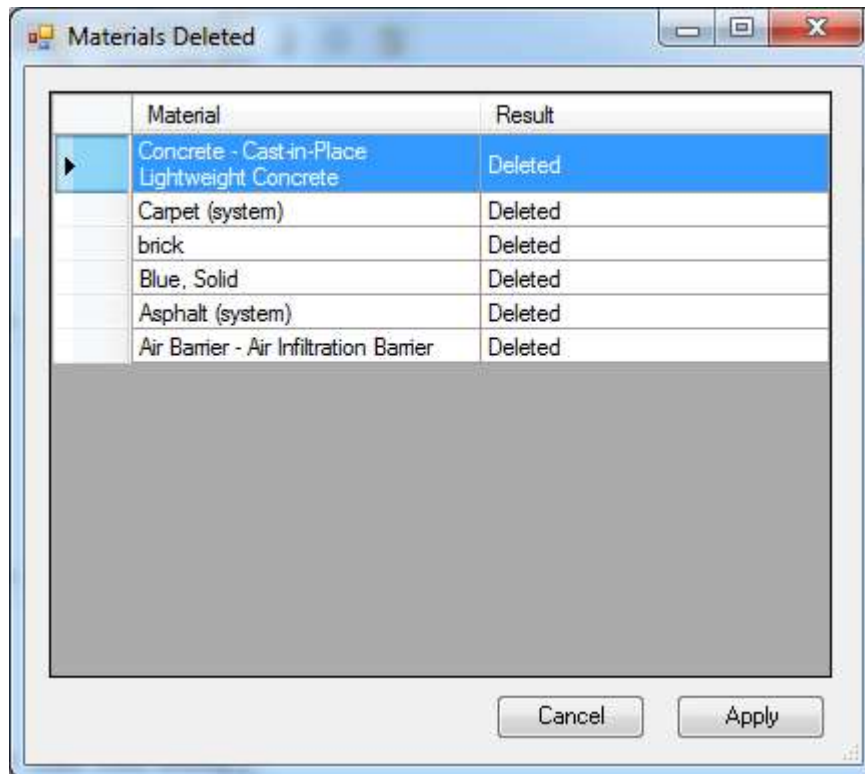
You then need to select those that you want to delete.



Note: Right clicking gives the options of



After you press delete, the results of the deletion attempt will be shown.



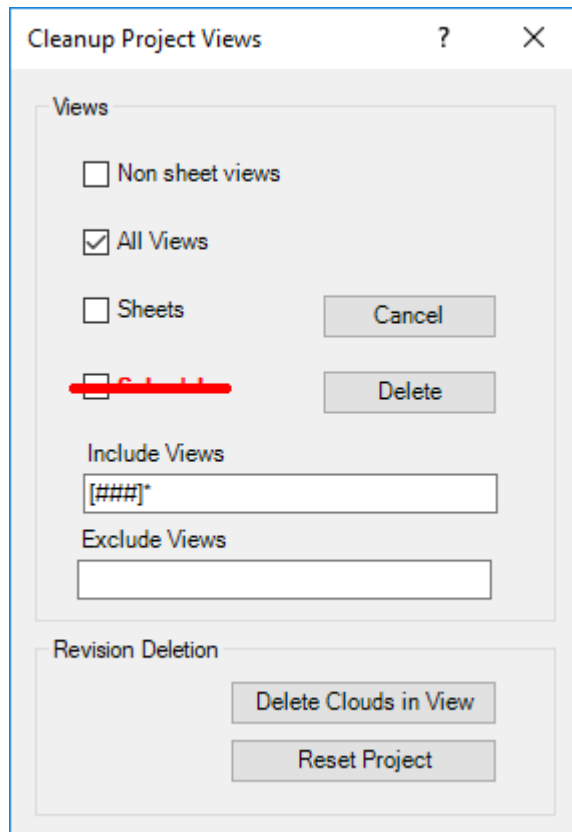
At this point you can opt to apply the changes or cancel the changes. You do still have the option of undoing the operation using the Revit "Undo" command.

Note: Whilst every effort is made to identify all used materials it is possible that some required materials will appear as being unused!

VIEW CLEANUP

The cleanup routine is designed to strip out the majority of views and sheets leaving just the base model. This is often what a consultant will want.

It is best to first select the view you would like people to open up to. When deleting all views the current view will be the only one left



Non Sheet Views

Delete only views that are not on sheets

All Views

Delete all views (plans, elevations, sections, schedules, etc.) except for sheet views.
Somewhat pointless as your sheets will now have nothing on them.

Sheets

Delete all Sheets from the project.

Schedules

Delete all schedules within the project. The distinction is made because the API does not currently allow determination of the whether the schedule is on a sheet or not.

Include Views

Specify view names to be matched for inclusion in deletion process. Specify wildcarded inclusions separated by semicolons (;). E.g. *plan*; *elev*

For more information on wildcard specifying refer to <http://www.lininfo.org/wildcard.html>

Exclude Views

Specify views to be excluded from deletion. Specify wildcarded exclusions separated by semicolons (;). E.g. *plan*; *elev*; ??plan*

For more information on wildcard specifying refer to <http://www.lininfo.org/wildcard.html>

Revision Deletion

Delete Clouds

Delete all clouds from this view. The routine will temporarily change the “issued” checkbox to enable clouds to be deleted. Once clouds have been deleted the “issued” checkbox is

set back to issued.

This command is required when a view is “Duplicated with Detailing” and the view has “Issued” revision clouds. Revit does not allow you to delete “Issued” revision clouds.

REFERENCE PLANE CLEANUP

This routine deletes all reference planes that do not constrain any items and also do not have a specific name assigned.

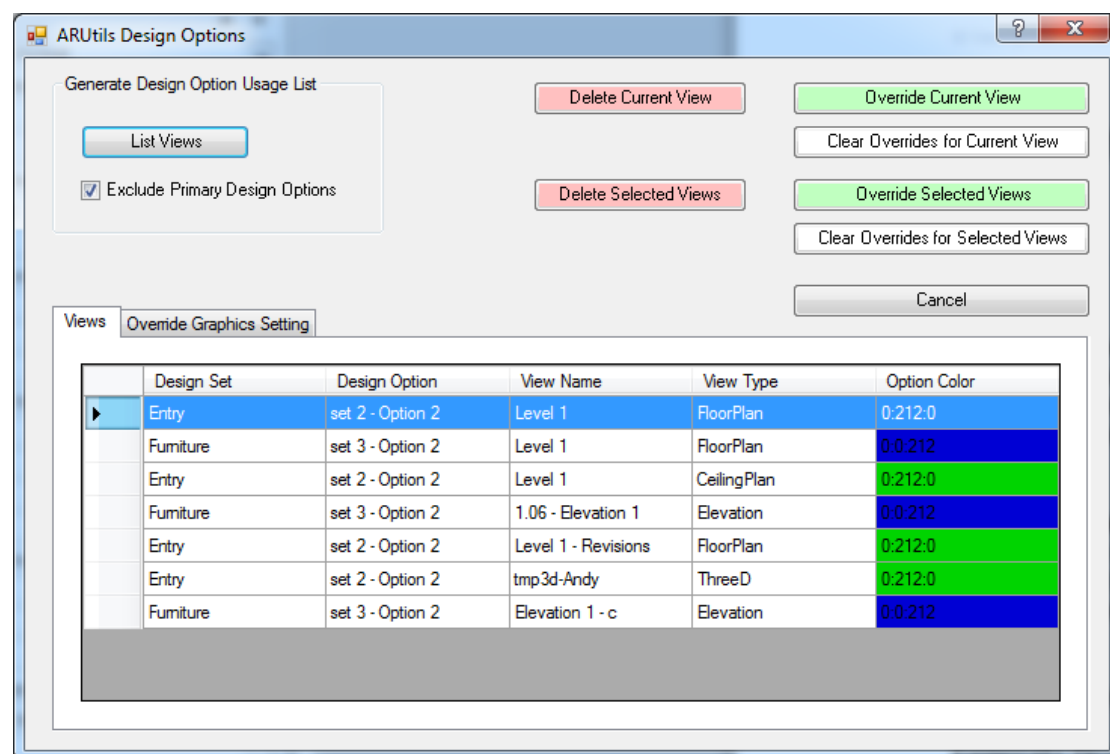
MANAGE DESIGN OPTIONS

Currently Revit offers no easy way of identifying what elements belong to specific design options. Also you cannot override the visibility settings based on which design option items belong to, nor can you filter items based on the design option they belong to.

This routine is designed to overcome this short coming and make managing your design options a simpler process.

There are two main functions

1. List views that have design option elements **displayed in them** and the design options that affect the view. Views that have a design option applied but do not have elements displayed (in wire frame mode), will not be listed
2. Override the graphic representation of the items within a view



The Design Options Dialogue

Generate Design Option Usage List:

List Views

List all the views that display elements (in wire frame) from a design option.

Exclude Primary Design Options:

Do not list views affected by primary design options. Since most views use primary design options, listing views affected by a primary design option means you will wind up listing every view.

Delete Current View:

Deletes the currently active view within Revit. This need not be the currently selected item in the "Views" list.

Override Current View:

Overrides the currently active view within Revit with the settings defined in the "Override Graphics Settings" tab. This need not be the currently selected item in the "Views" list.

Clear Overrides for Current View:

Removes the design option graphics overrides for the currently active view within Revit. This need not be the currently selected item in the "Views" list.

Note: If the settings defined in the "Override Graphics Settings" tab has the "Hide Main model Elements" ticked, then all main model elements hidden by a "Hide Element in View" operation will be revealed.

Delete Selected Views: (right click in Views)

Deletes the views currently selected in the "Views" list.

Override Selected Views: (right click in Views)

Overrides the views currently selected in the "Views" list with the settings defined in the "Override Graphics Settings" tab. This need not be the currently selected item in the "Views" list.

Clear Overrides for Selected Views: (right click in Views)

Removes the design option graphics overrides for the views currently selected in the "Views" list.

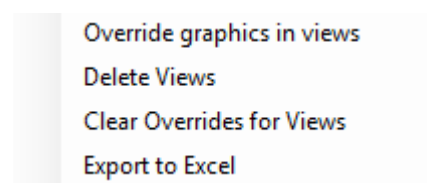
Note: If the settings defined in the "**Override Graphics Settings**" tab has the "**Hide Main model Elements**" ticked, **then all main model elements hidden by a "Hide Element in View" operation will be revealed.**

Views Tab

This table lists the views and the design options that affect them. The "Option Color" shows the colour that will be used to override the design option.

Note: The option colour is set via the "Override Graphics Setting" dialog.

Double clicking a row will take you to the view defined in that row, **select** the elements of the **design option** of that row, and **zoom** to those selected elements.

Views Tab:Right Click Menu

These right click commands match those above.

Export to Excel quite remarkably exports the table of values to Excel.

Override Graphics Settings Tab

Views
Override Graphics Setting

☒ Hide Main Model Elements
Regenerate Overrides

Design Option	Color	Weight	Pattern
Building - Complex (primary)	255:0:0	6	Solid fill
Building - Simple	212:0:0	6	Solid fill
Entry - set 2 - Option 1 (primary)	255:128:0	6	Solid fill
Entry - set 2 - Option 2	0:212:0	6	Solid fill
Furniture - set 3 - Option 1 (primary)	0:0:255	6	Solid fill
Furniture - set 3 - Option 2	0:0:212	6	Solid fill
Furniture - set 3 - option 3	0:0:170	6	Solid fill

Hide main model elements

This option, when enabled, will hide elements that belong to the main model, i.e. They do not belong to any design option.

Regenerate Overrides

This will regenerate the list of design options based on the design options in the project.

Colors will be assigned based on the primary option sets, with each option of an option set being a less intense version of the colour before.

The Overrides Table:

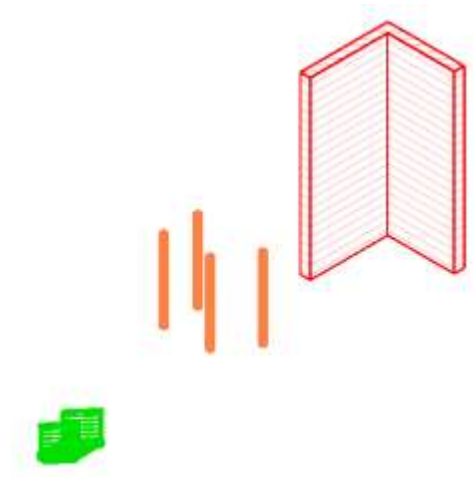
Design Option	The design option
Color	The colour to be applied to the design option
Weight	The line weight to be applied to the design option
Pattern	The fill pattern to be applied to the design option

Override Graphics Setting Tab: Right Click

Export to Excel
Import from Excel

Export / Import

Save or load the override settings to an excel file for later use



A highly relevant model with 3 design option sets overridden and main model elements hidden.

GROUP UNGROUPER

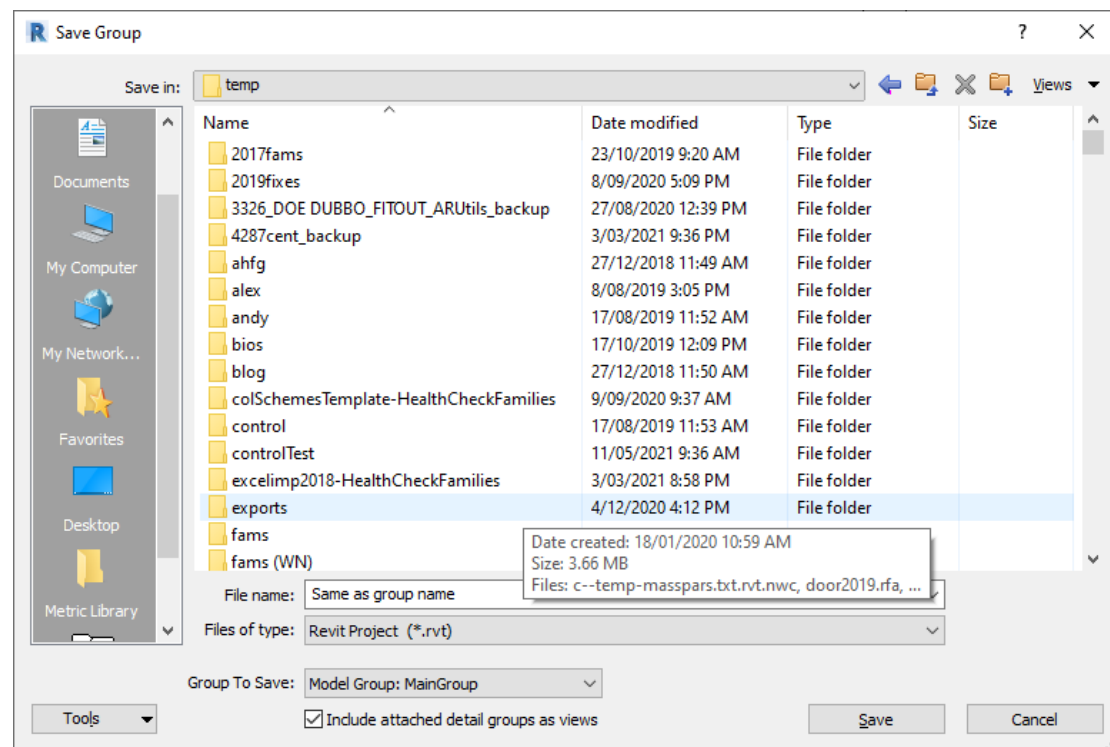
Group Ungrouper will present you with a list of all the groups in a project and report on the number of times they have been placed. You then have the option of ungrouping those placed groups and then removing the group type from the project.

AR SAVE GROUPS / AR RELOAD GROUPS

AR Save Groups will save all placed groups in a project. The command will use the default Save Group settings. Groups will be saved into a folder “Groups” below the current project file. This is created if it does not exist.

Note: All placed groups will be saved

Note: The command relies on UIAutomation to click buttons, fill in fields, etc. **The command should be started and the computer then left to do its thing.** A console window will appear a number of times – simply leave this until the final window where you will be prompted to press a key to close the console window.



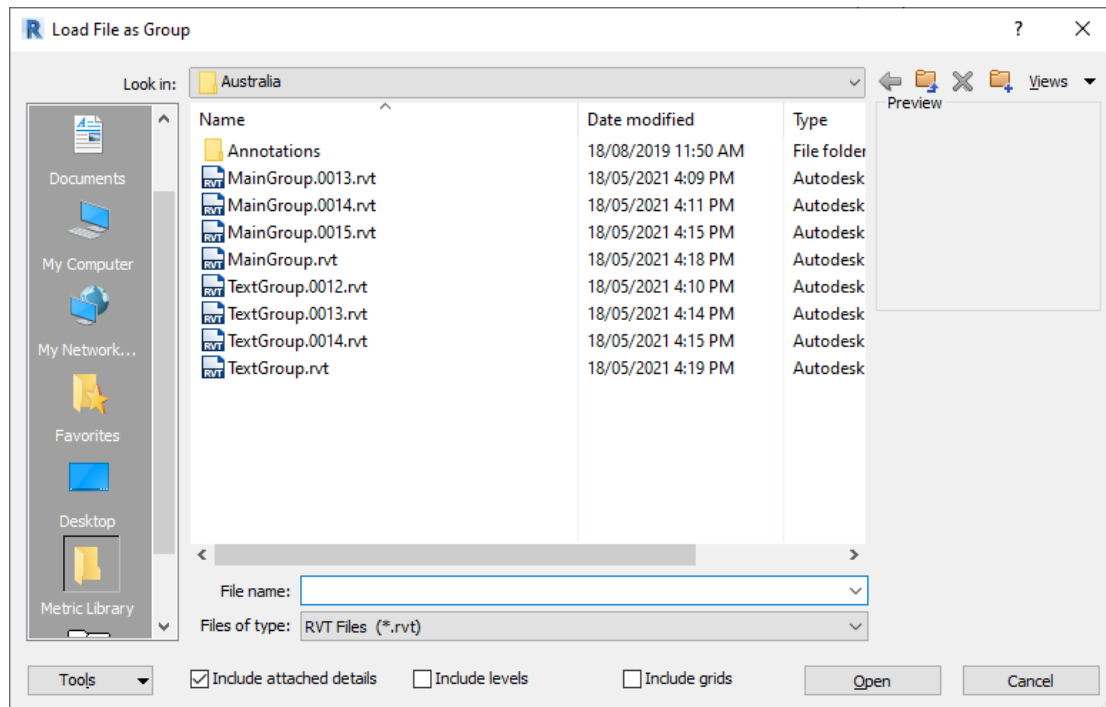
The Save Group dialog

AR Reload Groups will reload groups from disk. The command will use the default Reload Group settings. Files will be loaded from the groups folder below the project folder.

Note: The command expects an exact correlation of groups on disk to groups in the project

Note: The command relies on UIAutomation to click buttons, fill in fields, etc. **The command should be started and the computer then left to do its thing.** A console window will

appear a number of times – simply leave this until the final window where you will be prompted to press a key to close the console window.



The Reload Group dialog

Note: The routine relies on creating some files in the %tmp% folder on your computer. These are used to ensure that items are processed one after the other. You can browse to this folder by entering “%tmp%” into an explorer window. The groupsLog.txt file is the most relevant for debugging issues.

LEVEL DELETER

NOTE: Due to the complexity of the Revit model this command may not be able to resolve all elements dependent on a level.

NOTE: Running the command multiple times may be required.

Sometimes Levels are created and at some stage it is realised they are not really required or that they duplicate another level. Deleting the level will delete all the items dependent on the level and unfortunately there is no easy way of identifying the items that are hosted by this level.

This routine identifies the dependent items and tries to move those items to another level of your choice. Offsets will be adjusted to leave the item in the same physical location.

Having selected your level for deletion you will be further prompted to select another existing level that items should be assigned to. E.g. A wall reliant on “Level 1” could be associated to “Ground”. The “level offset” for the item will be changed so that the item does not change its physical location.

Note: **The command is not meant to be used for deleting heavily used levels.** Where complex modelling has taken place the complex nature of Revit elements makes it difficult to move all elements to another level. If this is the case the level is not deleted and the items not able to be reassigned are selected and isolated in 3d. It may then be possible to tackle the move in a more manual approach.

NOTE: Running the command multiple times may result in a clearer understanding of what items have failed the move.

NOTE: Rooms can only be moved if the walls that encompass the rooms actually appear on the level you are moving items to.

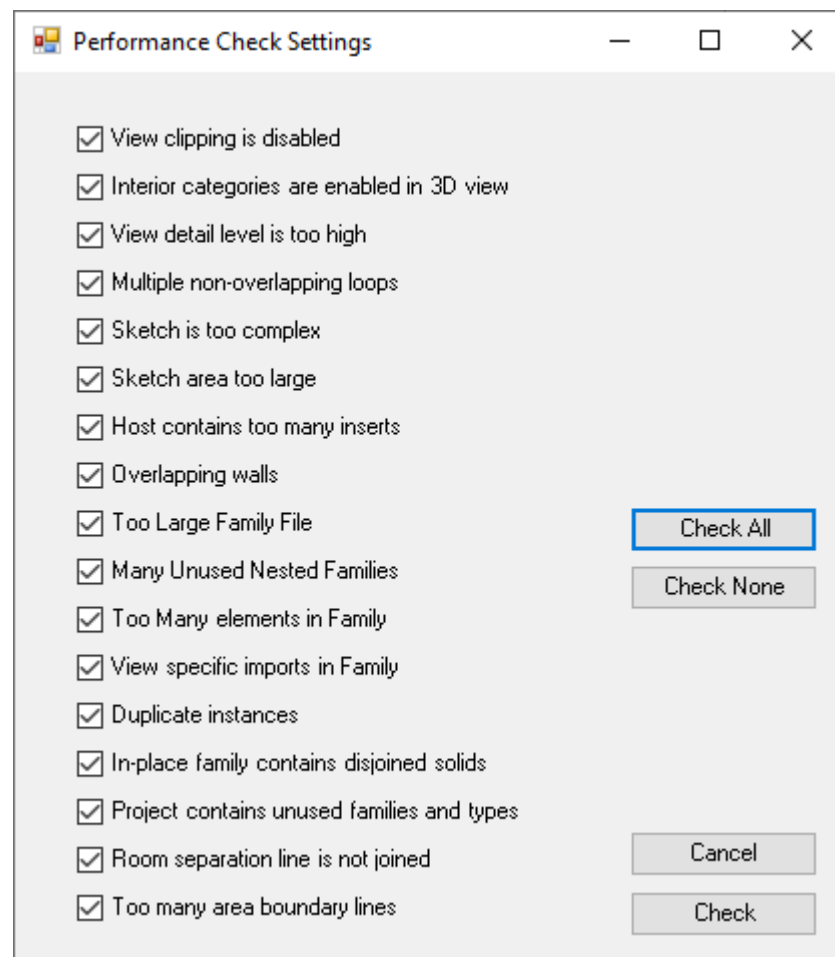
CHECK PERFORMANCE

This command uses the built in Revit Performance Advisor along with the “ARFind” dialog. It is in some ways similar to the ARUtils | Utils | [Health Check](#) command but looks at different issues.



[Show me How](#)

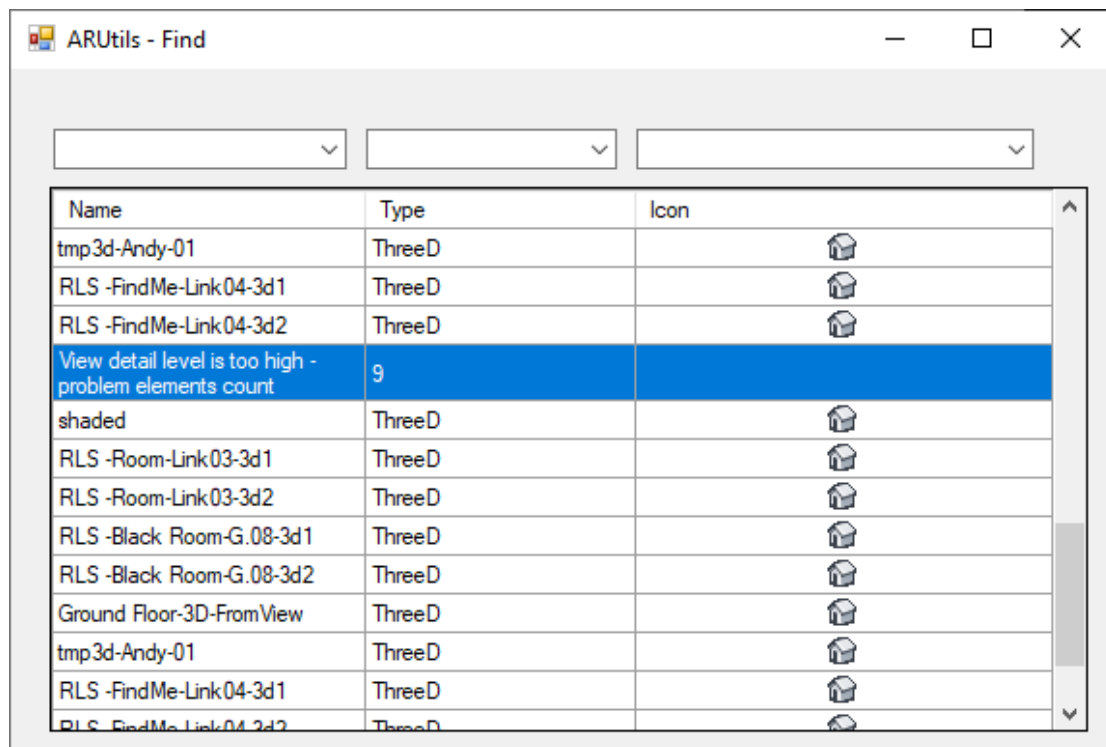
Note: It is best to run the “[Auto Purge](#)” command before doing the performance check















The Check Performance Dialog

Use Check All and Check None to enable / disable all rules. Once set use the “Check” command to check for the issues selected.

Note: These rules have been implemented by the Revit team. This command runs those rules and presents the results in a modeless dialog. This gives you easier access to explore the issues and decide for yourself if they are in fact issues.



Name	Type	Icon
tmp3d-Andy-01	ThreeD	
RLS -FindMe-Link04-3d1	ThreeD	
RLS -FindMe-Link04-3d2	ThreeD	
View detail level is too high - problem elements count	9	
shaded	ThreeD	
RLS -Room-Link03-3d1	ThreeD	
RLS -Room-Link03-3d2	ThreeD	
RLS -Black Room-G.08-3d1	ThreeD	
RLS -Black Room-G.08-3d2	ThreeD	
Ground Floor-3D-FromView	ThreeD	
tmp3d-Andy-01	ThreeD	
RLS -FindMe-Link04-3d1	ThreeD	
RLS -FindMe-Link04-3d2	ThreeD	

Depending on the item type “Double clicking” an item (or Right Clicking and selecting Process) will:

- Open the view
- Find a view the item is in and select the item
- Bring up a message that direct action is not possible

Note: It may also be worthwhile to run the Revit | Manage | Inquiry | Warnings command for another approach to addressing the issues.

AUTO PURGE

(2017 Onwards)

This command is the equivalent of running the “Revit | Manage | **Purge Unused**” command multiple times.

Note: When used in a family that uses a “Family Type” parameter, no families of the associated family category will be purged.

Note: Material Assets and Materials are not picked up by this command.

HEALTH CHECK

The Health Check routine checks your Project file for possible issues. Various aspects are analysed against user defined limits and results are displayed graphically.

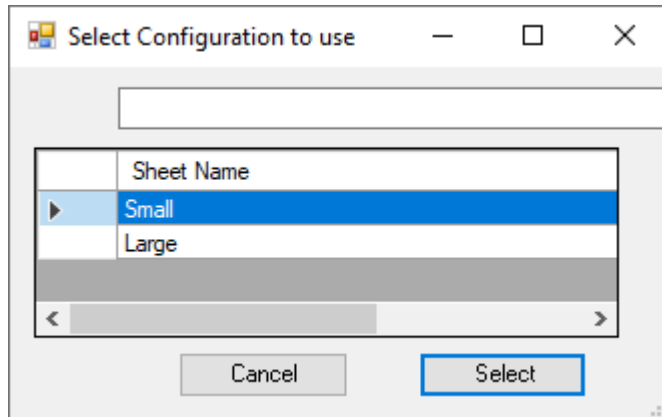
Once issues are identified there are direct links to commands to quickly resolve the issues.



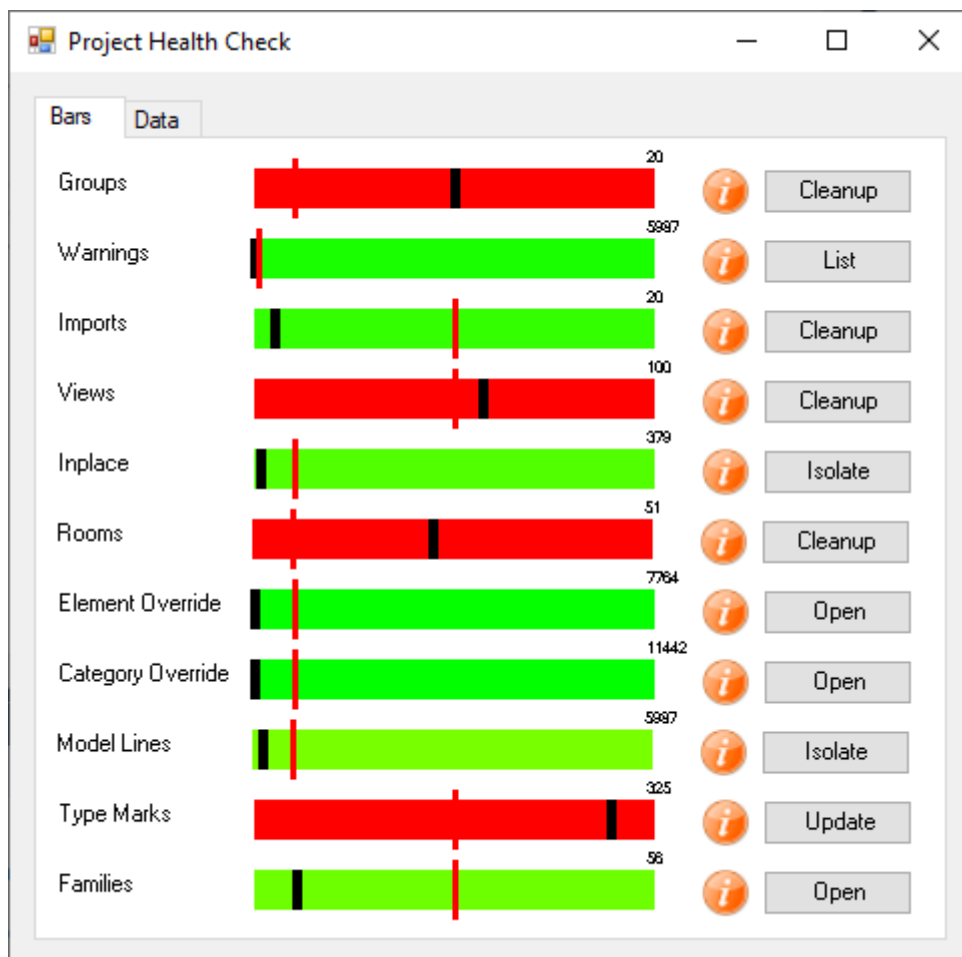
[Show me How](#)

User defined criteria are defined in a [Health Check Settings](#) file. This file can contain multiple sheets, with each sheet defining a configuration that may be appropriate to larger or smaller files, or to different types of file that your organisation uses.

Note: If the settings file has multiple Excel sheets you will be prompted to select the configuration sheet to be used.



Select the configuration sheet to use

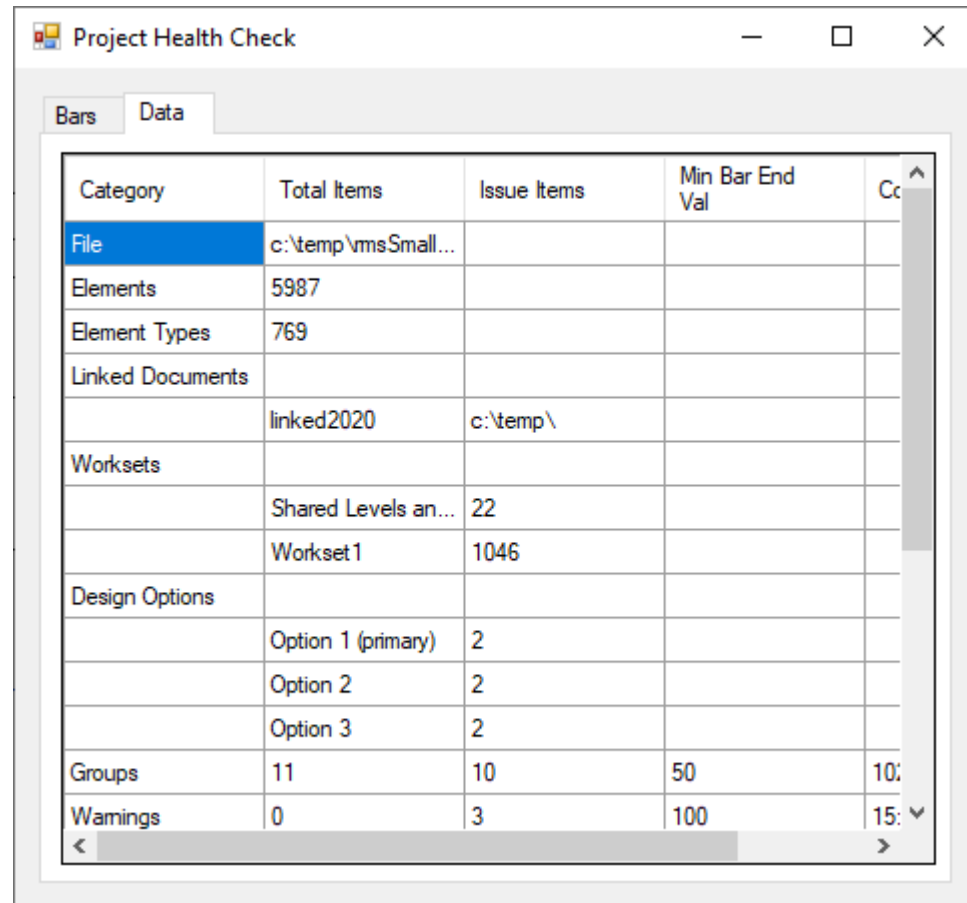


The Health Check Dialog – Bars Tab



A typical bar

- The colour indicates if there is a problem.
- The black bar indicates the Issue Item Count. In this case it is 1 import
- The red bar indicates the value that is our defined Serious Issue level, e.g. 10
- The 20 value shows how many items the bar represents e.g. 20
- Hover over the (Info) button to get some more detail



Category	Total Items	Issue Items	Min Bar End Val	Count
File	c:\temp\msSmall...			
Elements	5987			
Element Types	769			
Linked Documents				
	linked2020	c:\temp\		
Worksets				
	Shared Levels an...	22		
	Workset1	1046		
Design Options				
	Option 1 (primary)	2		
	Option 2	2		
	Option 3	2		
Groups	11	10	50	10:
Warnings	0	3	100	15: v

The Health Check Dialog – Data Tab

TIP: If you have done a families size check i.e. families exceeding a certain size, you can double click on the family name to open and activate the family from disk.

TIP: Data view now allows double clicking of Worksets and Design Options cells to activate the [Views | Workset Isolator](#) routine and the [Utils | List Override Design Options](#) routines.

Check Categories:

Groups

The Groups check looks for Group Types that have been used once or not at all. Pressing Cleanup will take you into the "[ARUtils | Cleanup | Group Ungrouper](#)" command.

Warnings – from 2018 onwards

The Warnings check simply gives you the current number of warnings for the file. List will bring up a list of warning messages. To rectify issues use the "Revit | Manage | Inquiry | Warnings" command.

Imports

The Imports check looks for items imported into the file, e.g. DWGs. Pressing Cleanup will take you to the [“ARUtils | File Utilities | Imports”](#) command.

Views

The Views check looks for the number of Views not currently on sheets. Pressing cleanup takes you to the [“ARUtils | Cleanup | View Cleanup”](#) command.

ViewsNoTemplate

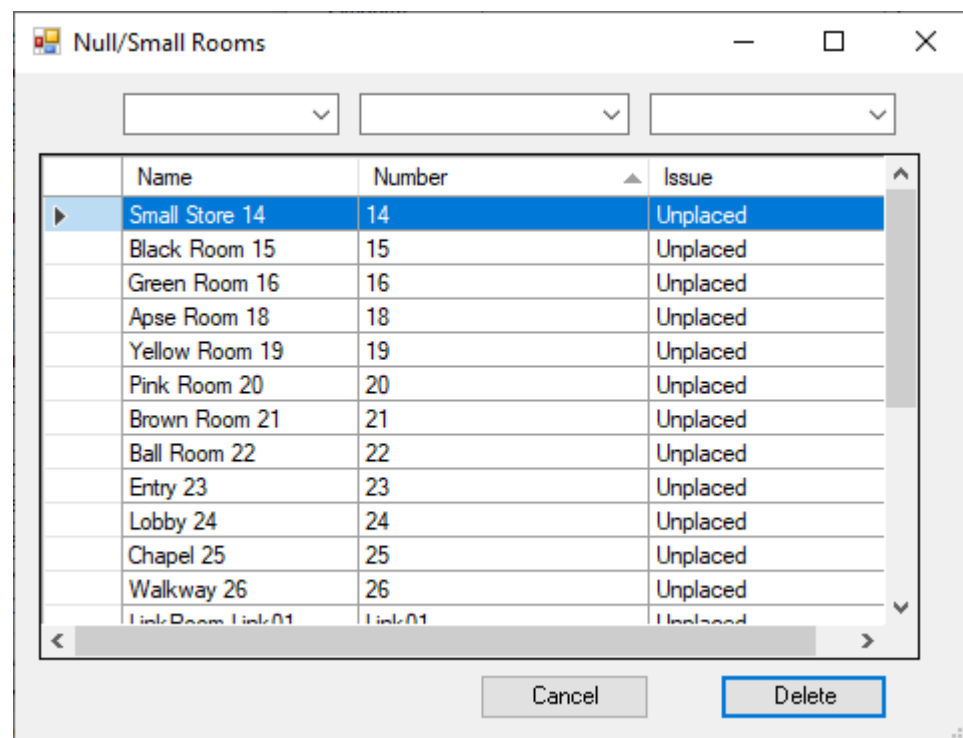
The ViewsNoTemplate check looks for the number of Views that do not have a View Template applied. Pressing cleanup takes you to a list of the Views that do not have a View Template. These can be reviewed and opened as required.

Inplace

The Inplace check looks at how many inplace families you have in the project. Pressing Isolate takes you to the [“ARUtils | Views | Inplace Families Isolator”](#).

Rooms

The Rooms check looks at how many unplaced or very small rooms you have. Pressing Cleanup brings up a list of unplaced or very small rooms that can then be deleted.



Tip: Right Click to “Select All”

Model Lines

The Model check looks at Model Lines in your project. Pressing Isolate creates a view where all categories are turned off except for model lines.

Category Override (slow)

The Category Override check looks for views where Categories have had their display settings overridden. The Open command will let you select views to open and review the overrides. The last view opened will also have the overridden categories listed.

Element Override (slow)

The Element Override check looks for views where elements have been overridden. The Open command will let you select views to open and review the overrides. The last view opened will also have the overridden elements selected.

Type Marks

The Type Marks check looks for Types that have a “null” Type Mark. The Update command will list ALL types and their Type Marks. You can edit these values, save the file, and then you will be prompted to apply the changes to the project.

Families (slow)

The Families check looks for families above a certain size. To do this, families must be written to a folder and therefore **the processing time can be lengthy**. Families will be exported to a folder named **ProjectName-HealthCheckFamilies**.

Pressing “Open” will open the export folder of the families.

Note:

- You can open “Large” families by double clicking on the family name in the “Data” tab page.
- Only **model** families are written to disk i.e., **no tag families** are written to disk.
- Once a family has been saved to disk it will not be overwritten
- Some families will cause an error when opened. Consider using the [ARUtils – Error Killer](#) to automatically kill off prompt windows.
- You can configure families to be ignored based on:
 - existing in your company family library
 - parameter values in your families.

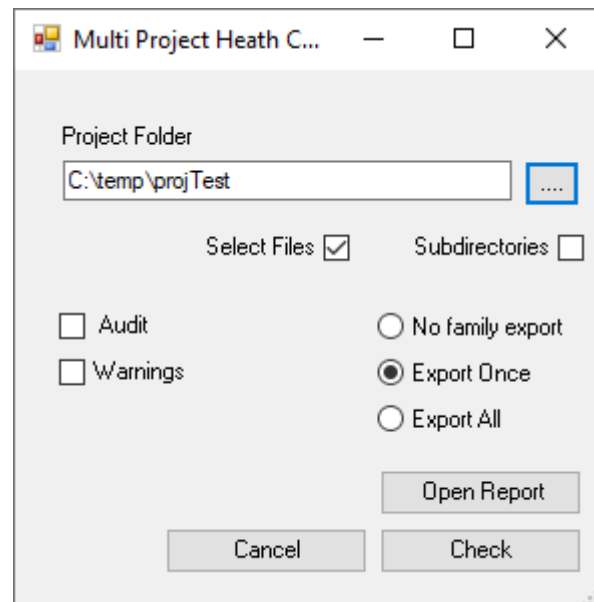
Refer to “[Health Check Settings](#)” for more details.

Configuring Health Check

Go to [Health Check Settings](#)

MULTI HEALTH CHECK

Batch health check a number of projects



Project Folder

The top folder that contains projects to be checked

[...]

Browse for the Project Folder

Select Files

Will prompt you to select the files you want to process

Subdirectories

Look for files in sub directories as well as the top folder

Audit

Opens the project file(s) with an audit option. In this case the file will be saved when it is closed.

Warnings

Include Revit warning messages associated to the files

No family export

Regardless of the Health Check Settings used no families will be exported

Export Once

Families will all be exported to a single folder. This means that the first file that contains a family will determine the file written to disk

Export All

Families from each file processed will be written to individual folders. Once exported they will not be exported again until those export folders are cleared.

Open Report

Opens a previously created report

Check

Pressing check will first request you to select the files to be processed (if appropriate) and then the configuration as defined in the Health Check Settings file.

Output

Output is to an Excel file in the Project file directory. It is named Healthchk.xlsx.

	A	B	C	D	E
1	Category	Total Items	Issue Items	Min Bar End Val	Colour
2	File	C:\temp\projTest\fred1.rvt			
3	Elements	5933			
4	Element Types	768			
5	Linked Documents				
6		linked2020	c:\temp\		
7	Worksets				
8		Shared Levels and Grids	22		
9		Workset1	1046		
10	Design Options				
11		Option 1 (primary)	2		
12		Option 2	2		
13		Option 3	2		
14	Groups	11	10	20	255:0:0
15	Inplace	379	6	50	81:255:0
16	Rooms	51	23	50	255:0:0
17	Model	5933	141	50	121:255:0
18	CatOver	11442	2	50	1:255:0
19	Families	56	6	50	109:255:0
20	Family Size Exceeded	Double-Glass 2.rfa	388 KB		
21	Family Size Exceeded	line_based_text-multiline.rfa	404 KB		
22	Family Size Exceeded	M_Desk.rfa	360 KB		
23	Family Size Exceeded	Site - Parking Space (AUS).rfa	424 KB		
24	Family Size Exceeded	Table-Dining Round w Chairs.rfa	420 KB		
25	Family Size Exceeded	UB-Universal Beam.rfa	356 KB		

HEALTH CHECK SETTINGS

The Health Check Settings file allows you to define the limits for what you consider to be a problem.

Note: **You can define multiple configurations by creating additional sheets.**



	A	B	C	D	E	F	G
	Label	Percent/Maximum/Disabled	All Elements/Category/None	Number or Percent Value	Minimum Bar End Value	Comment	Size
1						Based on number of 0/1 instance group types against total number of group	
2	Groups	Percent	Category	10	20	Types	
3	Warnings	Percent	Elements	1	20	Based on number of Warnings vs Total Elements	
4	Imports	Maximum	None	10	20	Checks your project for the total number of Imports	
5	Views	Percent	Category	50	100	Compares the number of views not on sheets to the total number of views	
6	Inplace	Percent	Category	10	50	Checks inplace families against the total number fo family instances	
7	Rooms	Percent	Category	10	50	Checks for number of unplaced rooms against the total number of rooms	
8	ElOver	Percent	Category	10	50	Checks the total number of overridden elements in all views against all elements shown in views	
9	CatOver	Percent	Category	10	50	Checks the total number of Categories in all views against all the Categories available in views	
10	Model	Percent	Elements	10	50	Checks the total number of Model Curves against all elements	
11	TypeMark	Percent	Category	50	50	Checks that the 'Type Mark' parameter has been set for all Family Types	
12	Families	Percent	Category	50	50	Checks that family files do not exceed a certain size	350

Note: **You can alter the order of rows** to affect the order items are displayed in the Bars tab and Data tab. If you do not want a row to appear then delete the row or set the second field to Disabled.

Tip: Consider keeping a page that has all items as the Label name is critical to functionality.

Label

This is the category that relates to the following settings. **Do not alter these values!**

Percent/Maximum/Disabled or Deleted

Typically most rules will be based on a Percent calculation where issue elements exceed a percentage of the total number of elements.

The other option, Maximum value, is used where we have a maximum regardless of how big the project is.

e.g. Warnings shows a **“Percent”** rule against all **“elements”** in the project.

Note: An alternative is to use **“Category”** where we would be comparing to all items in the category.

The **“value”** of **1** percent means the number of warnings as compared to 1% of Total Project **“Elements”**. Therefore if we had 100,000 elements and 1000 warnings we would be showing **Red** on the graphics bar.

The **“minimum bar end value”** of 100 means that we will never get a 100% Red bar until our warnings equal or exceed 10 warnings. In most cases you may want something more like 0.001 % for warnings, however this is entirely your choice.

The other option is to use **“Disabled”** or simply delete the row. This will speed up the processing time required.

Note: If a row is completely deleted this is equivalent to assigning Disabled.

Elements / Category / None

Where we are reviewing a category of items e.g. Views, we are more likely to compare the issue elements to the total number of elements in that Category, e.g., for views we are comparing non sheet views to the total number of views that could be on sheets.

None means we simply have a maximum value that we do not expect to be exceeded. For imports we have a max value of 10 items. Below 10 we will fall somewhere along the bar. Anything above 9 will give us 100% Red.

Minimum End Value for Bar

This is the minimum value that the bar end represents. If the total number of elements is greater than the minimum, then the total elements value will represent the bar end.

Comment

This will appear in the Tooltip when you hover over the associated "Info" icon.

Size

This only applies to the **Families** item and is the Kbyte size of files that is considered an issue.

Families Library

This applies only to the **Families** group.

Set this to the location of your library of families to **speed up families processing**.

If a family in your project exists in your library of families then the family is excluded from the size test which requires writing a family to disk. This is based on families in your library having been quality tested and therefore size testing is superfluous.

Families Exclusion Rule

This applies only to the **Families** group.

This is another way of **excluding** families from size testing. The rules follow the [Conditional Filter Format](#) rules.

Note: At present there is no direct access to generate or insert rules into the file. **The rules are applied to the first "Family Type" in the family**

Typically you would use something like –

- **Approved\!="True"**
This would look for a Parameter "Approved" in the **first family type** and check to see if it has a value of "True". If true the family is excluded from further testing.
- **CompanyName\!="ARSS"**
This would look for a Parameter "CompanyName" in the **first family type** and check to see if it has a value of "ARSS". If true the family is excluded from further testing.
- **Family:OmniClass Number\!="null"**
This would look for a the "OmniClass Number" parameter in the overall family and check to see if it does not have a Null value. If true the family is excluded from further testing.

Make sure to use quotes around values. If you don't the item is assumed to be a parameter rather than a value.

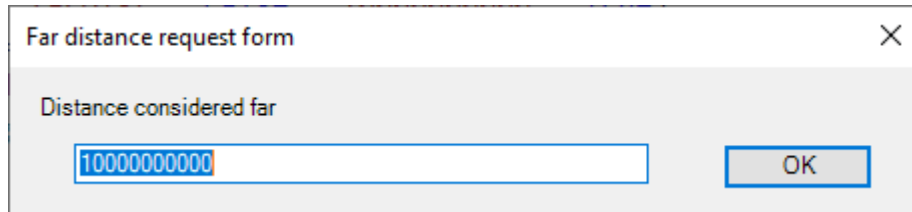
Note: Parameters are case sensitive.

Note: You must close the Excel file before running the Health Check or Multi Health Check routines

FIND DISTANT OBJECTS

Have you ever been presented with a blank 3D view even though you know you have an entire building in the project. This is usually caused by a few objects that were accidentally moved well away from the main model. Sometimes you can drag around the blank screen and hope to find the offending elements which are then deleted.

This command will look for distant objects, and then select them, zoom to them, and then give you the option to move, delete, or just select them.

A dialog box titled "Far distance request form" with a close button (X) in the top right corner. The text "Distance considered far" is displayed above a text input field containing the value "10000000000". To the right of the input field is an "OK" button.

Far distance request form

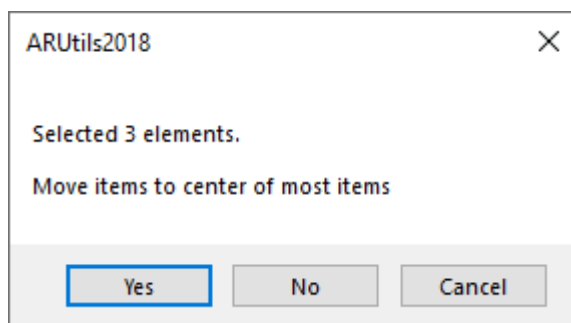
Distance considered far

10000000000

OK

This is the distance to be considered as being a long way away. It should roughly match the largest distance between any two items in your project multiplied by a factor of 10, e.g. the corner to corner distance times 10.

The routine will then identify distant items and try and zoom to them. Sometimes the items will be so distant that zooming to the items is not possible. In this case you will be given the option of moving the items to the rough centre of your model elements.

A dialog box titled "ARUtils2018" with a close button (X) in the top right corner. The text "Selected 3 elements." is displayed above "Move items to center of most items". At the bottom are three buttons: "Yes", "No", and "Cancel".

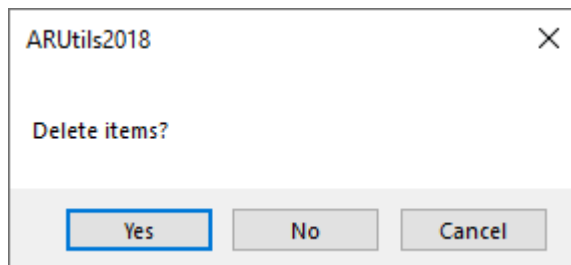
ARUtils2018

Selected 3 elements.

Move items to center of most items

Yes No Cancel

Responding yes will move the elements and zoom to them. Responding No will then bring up the option to delete the elements.

A dialog box titled "ARUtils2018" with a close button (X) in the top right corner. The text "Delete items?" is displayed. At the bottom are three buttons: "Yes", "No", and "Cancel".

ARUtils2018

Delete items?

Yes No Cancel

Hopefully deleting the elements will then result in your model reappearing.

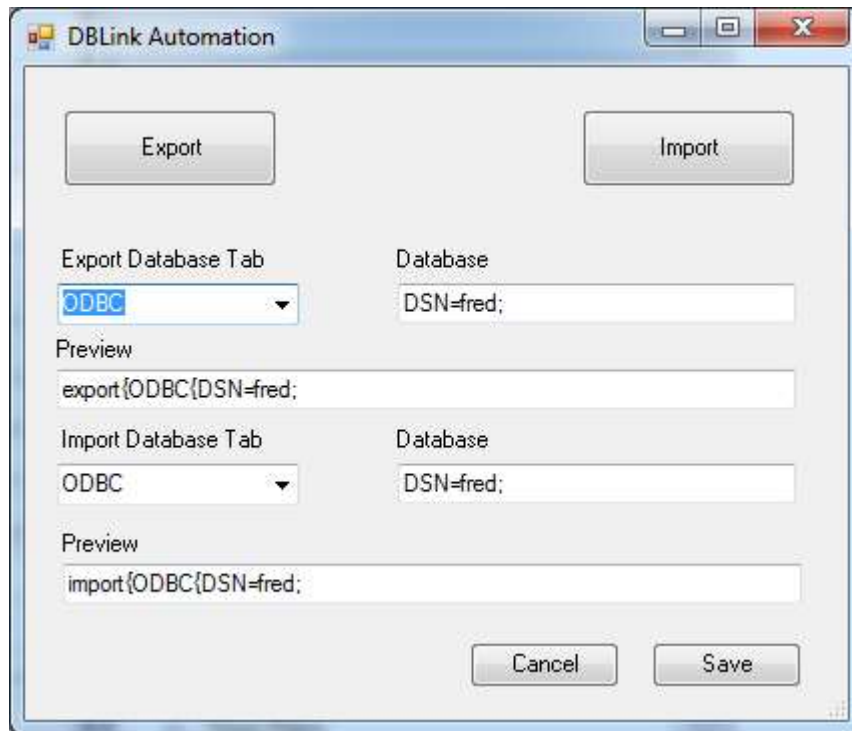
If you still have issues you may need to reduce "far distance" value.

DBLINK AUTO

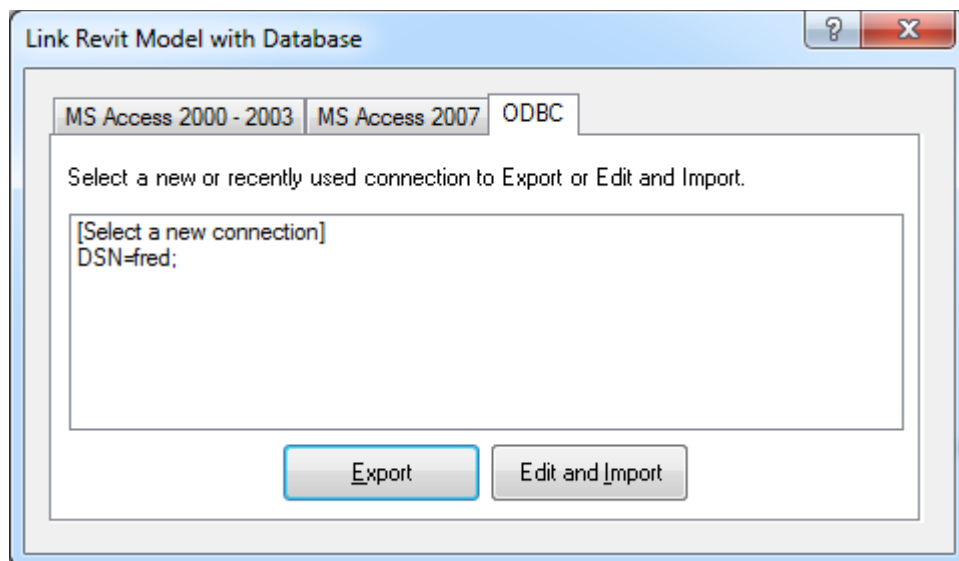
DBLink, an Autodesk Utility for Revit available via subscription, allows you to export and import the Revit database to various external databases. When managing multiple projects it can become a complex task to keep track of which database relates to the current project. Some companies also use one database for exporting and another for importing.

Note: DBLink and DBLink Auto only appear when DBLink has been installed from the Autodesk Subscription website.

DBLink Auto makes this easier by saving the names of the associated databases for a project, within two project parameters.



DBLink Auto Interface



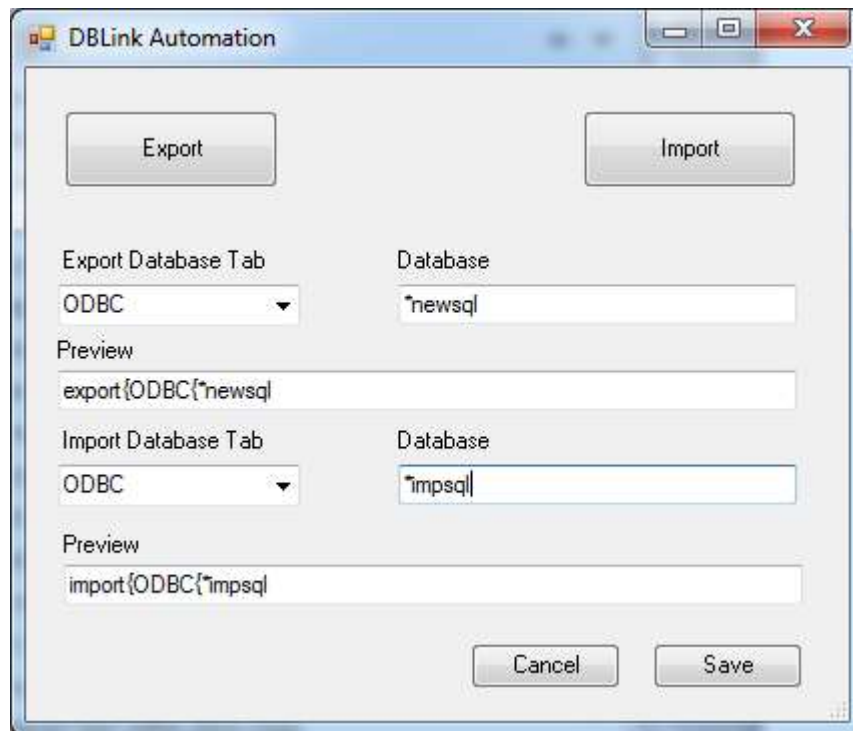
DBLink Interface

Setting up DBLink Auto

1. Create the various databases required by DBLink. (This is not covered by this documentation. Note that DBLink must have been installed and configured.)
2. Take note of the "Tab" within "DBLink" e.g. ODBC, MS Access 2007, etc., as well as a unique entry in the "Connection" listbox e.g. The above example shows the tab "ODBC" as well as the connection/database "DSN=fred;".

Note: **You can also specify items using a wildcard match.** At present wild card entries use a "*" as the first character. A match will occur if the rest of the string occurs in the list of databases. E.g. You set the "Database value" to "*project1123".

The first entry that has "project1123" as part of the "Connection Name" will be used for the process. The search is independent of text case.



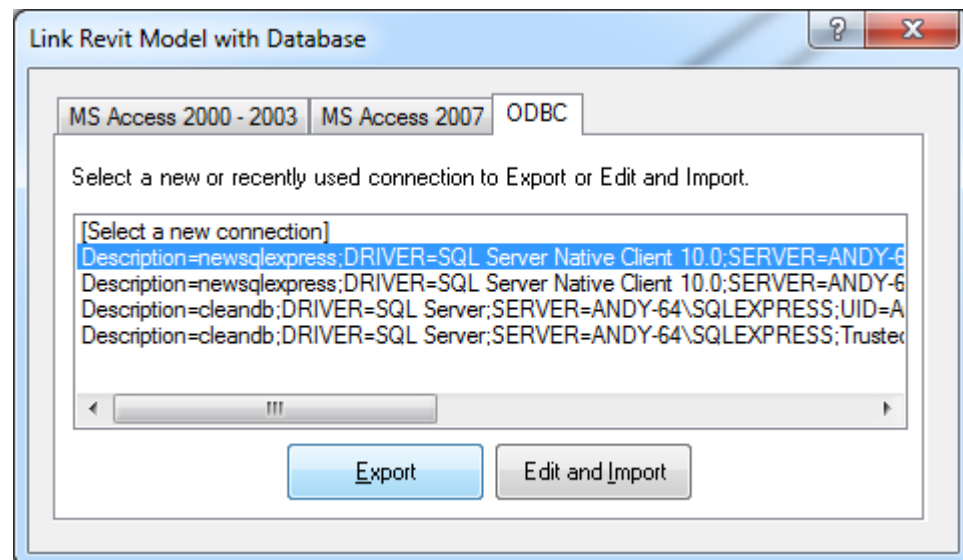
Using wildcards to match databases

3. Transfer the items from step 2 into the appropriate fields in the DBLink Auto interface.
4. Press "Save" to Store these values in the Project

Running DBLink Auto

Now when you go into "DBLink Auto" you can simply press "Export" or "Import". Pressing either button will initiate the external "DBlink Auto" command window. This shows various information about the buttons being pressed.

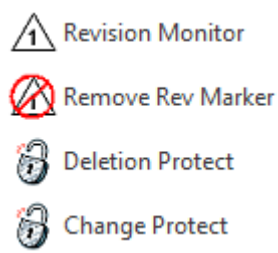
Note: DBAuto only selects the specified database and then presses "Export" or "Import". After this you will need to respond to any messages generated by "DBLink".



The DLink dialogue with the correct database selected and "Export" about to be pressed.

ELEMENT PROTECTION / REVISIONS

Keeping track of who has changed what and when, or locking items to prevent their deletion, or modification can result in improved project workflows.

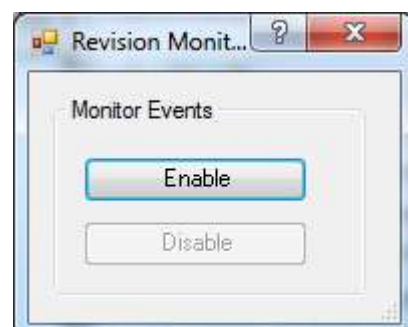
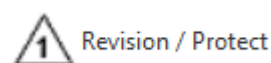


[Revision monitor](#) – Keeps track of when items were changed and who changed them

[Deletion Protect](#) – Lock items so that they cannot be accidentally deleted

[Change Protect](#) – Locks items so that they cannot be modified

REVISION MONITORING




[Learn More about Revision Monitoring](#)

Revision monitoring will monitor all elements for changes to Geometry (not for parameter changes). When an item is modified or added to the model two parameters are updated. One, "**Revised_ARUtils**", records the date and time when the item was changed / created, and the other, "**RevisedBy_ARUtils**", records who changed / created it.

To enable this feature press the "**Enable**" button. This will

- Associate the parameters, "**Revised_ARUtils**" and "**RevisedBy_ARUtils**", to all categories of Revit items, e.g. Doors, Windows, Furniture, etc. (Except wall sweeps)
- Associate the parameter "**RevisionMonitor_ARUtils**" to the "Project Information" element. "RevisionMonitor_ARUtils" parameter is set to True which indicates revision monitoring is enabled for the project.
- Enables triggers to catch modification events e.g., when geometry is changed or added (not when a non-geometry affecting parameter is changed).

Other ^	
Revised_ARUtils	2012/02/08 12:53
RevisedBy_ARUtils	Andy

Parameters for a wall automatically date and user stamped upon modification.

DISABLING MONITORING FOR SPECIFIC CATEGORIES

You may only want to monitor certain item categories. To change what's monitored go to "**Manage | Project Parameters**" and then progressively select **Revised_ARUtils**, **RevisedBy_ARUtils**, **RevisedByType_ARUtils**, **RevisedType_ARUtils**. Once selected, click on Modify to alter the associated categories for each parameter.

Simply "Check" or "Un-check" the categories you do or do not wish to monitor.

Changing the associated categories for a parameter

DISABLING REVISION MONITORING

You can use the Monitor Events "**Disable**" button to disable "Revision Monitoring" .

DISABLING REVISION MONITORING MANUALLY

Under "**Revit | Manage | Project Information**" uncheck the "**RevisionMonitor_ARUtils**" parameter, then re-open your project to effect the change.

Simply re check the "**RevisionMonitor_ARUtils**" parameter to re enable revision monitoring. Re-opening the project will be necessary.

Instance Properties

Family: System Family: Project Information Load...

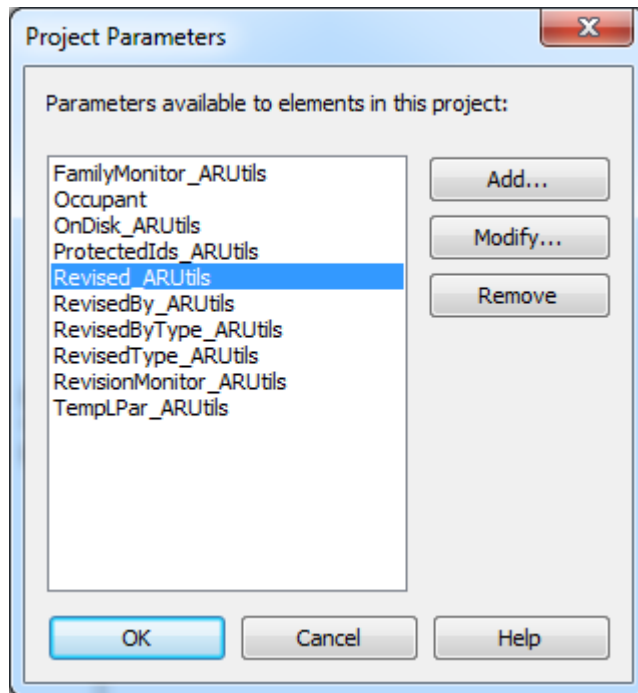
Type: Edit Type...

Instance Parameters - Control selected or to-be-created instance

Parameter	Value
Identity Data ^	
Author	
Energy Analysis ^	
Energy Settings	Edit...
Other ^	
Project Issue Date	Issue Date
Project Status	Project Status
Client Name	Owner
Project Address	Edit...
Project Name	Project Name
Project Number	Project Number
TempLPar_ARUtils	3720.7
ProtectedIds_ARUtils	
RevisionMonitor_ARUtils	<input type="checkbox"/>
FamilyMonitor_ARUtils	<input checked="" type="checkbox"/>

OK Cancel

If you wish to also remove the associated data you will need to **remove** the associated project parameters, **Revised_ARUtils**, **RevisedBy_ARUtils**, **RevisedByType_ARUtils**, **RevisedType_ARUtils**.



REMOVE ARUTILS REVISION MARKER



Remove Rev Marker

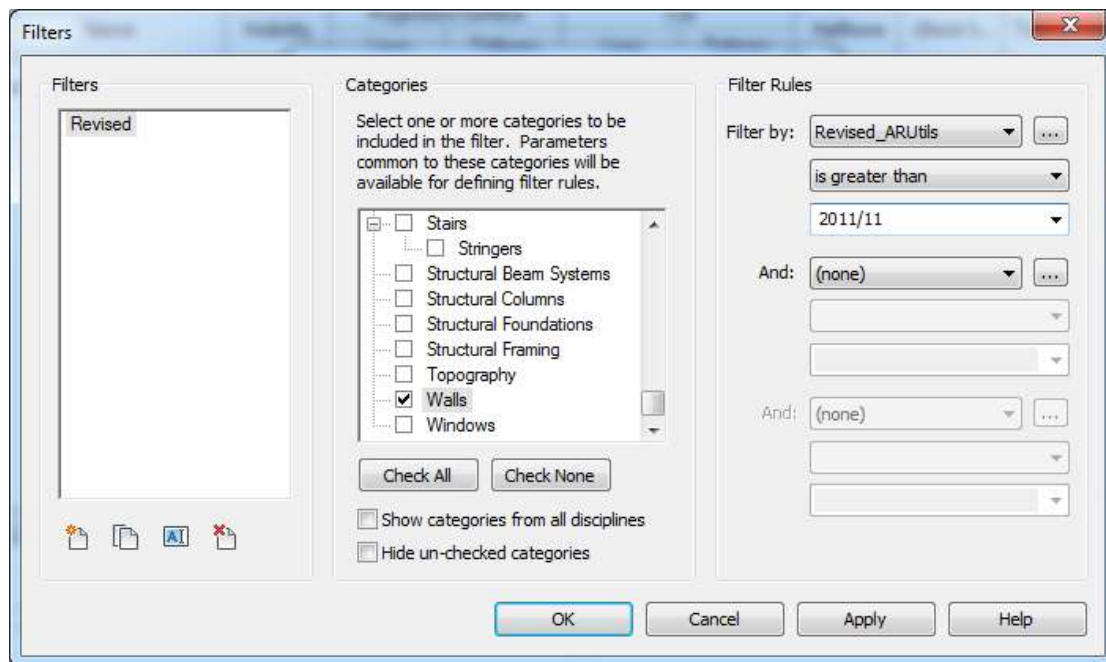
“Remove Rev Marker” offers a simple way of clearing the **“Revised_ARUtils”** and **“RevisedBY_ARUtils”** values of selected items.

Simply select the items to have the values cleared and then make sure to press “Finish”.

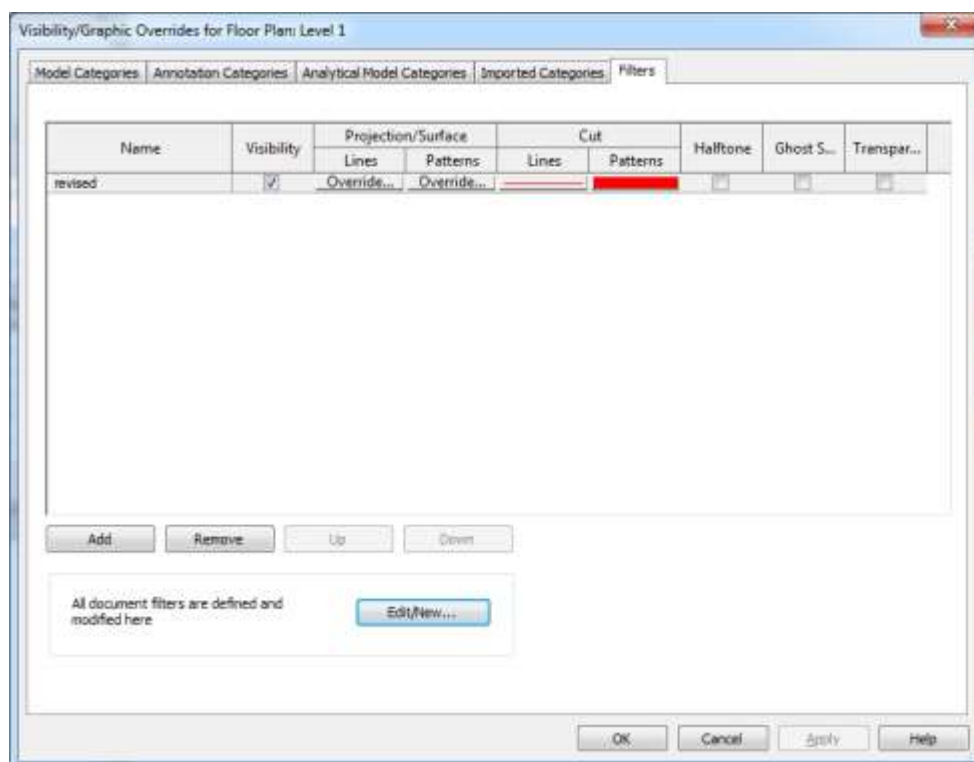
Note: This command is necessary due to the disparity in what Revit considers to be a revised item, and what Architects and Engineers typically consider being a revised item. Revit correctly considers that all items that an item attaches to, e.g. Other walls, floors, ceilings, etc., are modified when a wall is shifted. More typically Architects and Engineers really only want to consider the item that has moved.

SO WHAT’S REVISION MONITORING GOOD FOR?

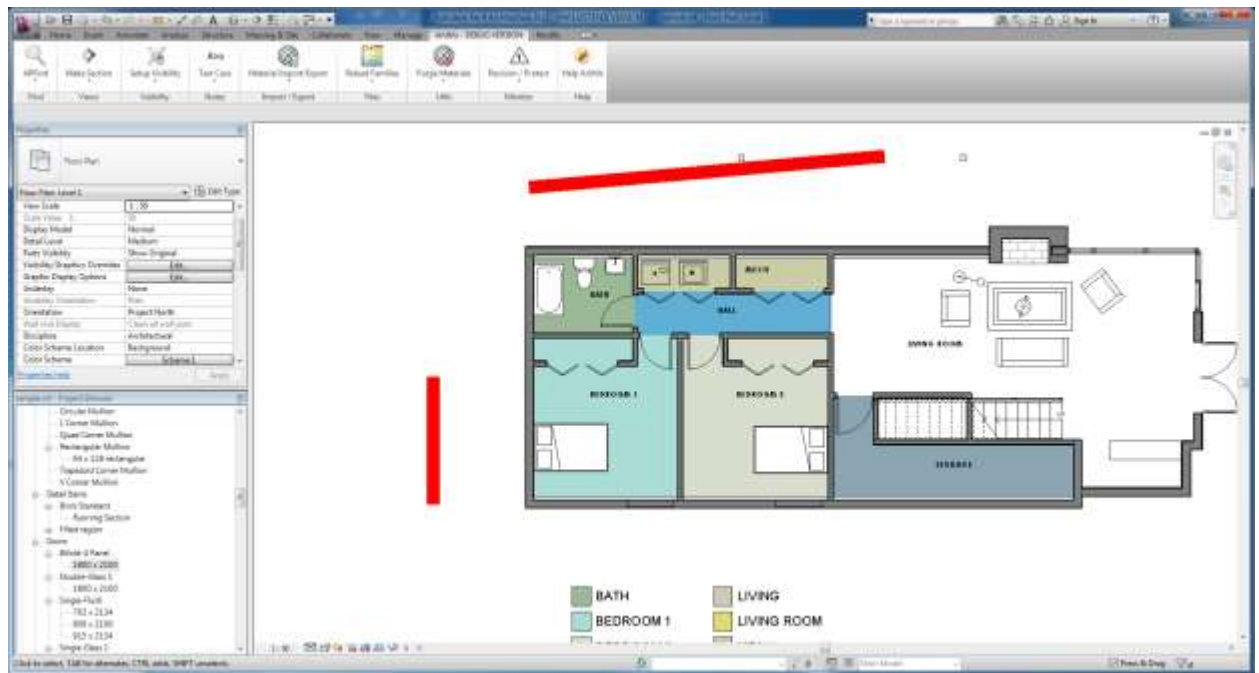
By using filters you can now visually identify items that have been changed in a specific time period. No more wondering what items have been changed since the last issue of drawings. Clearly this is best used during the construction phase when changes are more significant.



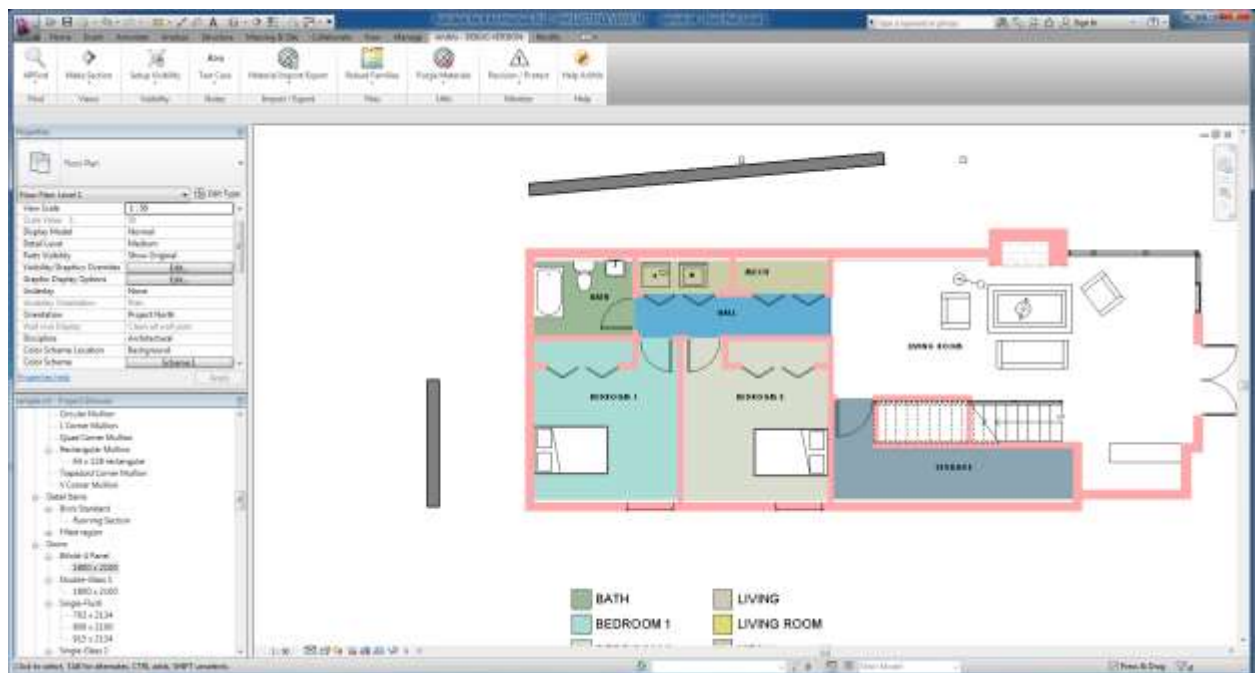
Here we are simply checking for items that have been created since year 2011 and month 11 (November).



Apply the filter to a view



Walls highlighted in red.



Another filter - Un revised walls half toned to Red

DELETION PREVENTION

Some firms use worksharing and worksets to lock items to prevent them from being modified or deleted. This can be somewhat cumbersome usually requiring a change in user name and reopening the file if you want to modify the items.

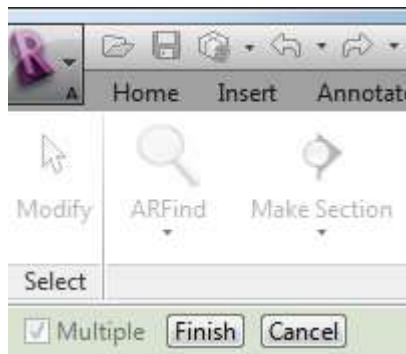


The deletion prevention routine enables you to simply pick items that you want to be locked and protected from accidental deletion.

Protect

Pressing "**Protect**" will prompt you to select items that you want protected from deletion. When done make sure to press the "**Finished**" button, up near the Revit "R".

Note: Already protected items will be excluded from reselection



Unprotect

Pressing **unprotect** allows you to remove items from the protection element set. Only elements that are protected will be available for selection.

Select

Pressing **select** will select and highlight all of the items that are currently being protected.

DeSelect

Pressing **DeSelect** will remove protected items from your currently selected items i.e. The items that are highlighted by Revit as being selected. This would let you easily remove protected items from the selection set so that other items left in the selection can be deleted.

Deletion protection now uses a couple of parameters to make it more visible to users. There are two project related parameters "**DeleteMonitor_ARUtils**" and "**DeleteProtectedIds_ARUtils**" and also there is an element parameter "**DeleteProtected_ARUtils**".

By unchecking "**DeleteMonitor_ARUtils**" you can manually turn off the deletion monitor.

Project Information [X]

Family:

Type:

Instance Parameters - Control selected or to-be-created instance

Parameter	Value
Route Analysis Settings	<input type="button" value="Edit..."/>
Other [Up] [Down]	
Project Issue Date	Issue Date
Project Status	Project Status
Client Name	Owner
Project Address	Enter address here
Project Name	Project Name
Project Number	17-3333
ChangeMonitor_ARUtils	<input checked="" type="checkbox"/>
DeleteMonitor_ARUtils	<input checked="" type="checkbox"/>

To include or exclude various categories for deletion protect you need to change the categories associated to the "**DeleteProtected_ARUtils**" parameter. Do this via the Revit UI "**Manage | Project Parameters**".

Parameter Properties [X]

Parameter Type

☐ Project parameter
(Can appear in schedules but not in tags)

☒ Shared parameter
(Can be shared by multiple projects and families, exported to ODBC, and appear in schedules and tags)

Parameter Data

Name:

Discipline:

Type of Parameter:

Group parameter under:

Tooltip Description:

☒ Type
☒ Instance

☒ Values are aligned per group type
☐ Values can vary by group instance

Categories

Filter list:

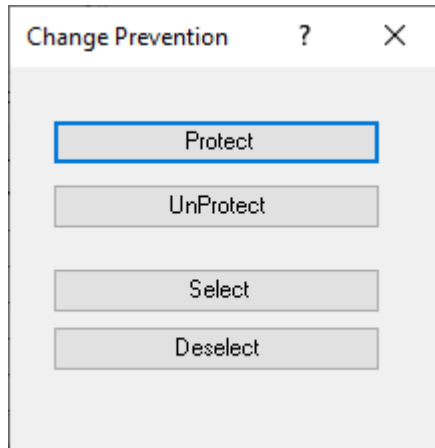
☒ Hide un-checked categories

- ☒ Casework
- ☒ Ceilings
- ☒ Columns
- ☒ Curtain Panels
- ☒ Curtain Wall Mullions
- ☒ Doors
- ☒ Electrical Equipment
- ☒ Electrical Fixtures
- ☒ Floors
- ☒ Furniture
- ☒ Furniture Systems
- ☒ Generic Models
- ☒ Grids
- ☒ Levels
- ☒ Lighting Fixtures
- ☒ Mass
- ☒ Materials
- ☒ Mechanical Equipment
- ☒ Parking
- ☒ Parts

☒ Add to all elements in the selected categories

CHANGE PREVENTION

Some firms use worksharing and worksets to lock items to prevent them from being modified or deleted. This can be somewhat cumbersome usually requiring a change in user name and reopening the file if you want to modify the items.



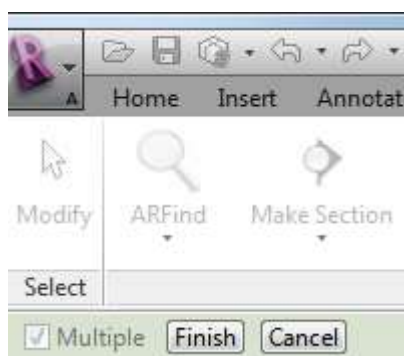
The change prevention routine enables you to simply pick items that you want to be locked and protected from accidental changes.

Note: When an item is modified in Revit there are usually other items that are also affected. E.g., you move a wall and therefore a room is affected. This can have the effect that a protected item will stop you from modifying an item that you believe should have no bearing on the protected item. To minimise the effects of such false positives you will only receive a "warning" rather than an error that stops you from making a change you should be able to make.

Protect

Pressing "**Protect**" will prompt you to select items that you want protected from change. When done make sure to press the "**Finished**" button, up near the Revit "R".

Note: Currently protected items will not be available for Re-selection.



Unprotect

Pressing **unprotect** allows you to remove items from the protection element set.

Note: Only items that are protected will be available for selection.

Select

Pressing **select** will select and highlight all of the items that are currently being protected.

DeSelect

Pressing **DeSelect** will remove protected items from your currently selected items i.e. The items that are highlighted by Revit as being selected. This would let you easily remove items from the selection set to delete items en-masse.

Change protection uses a couple of parameters to make it more visible to users. There are two project related parameters "**ChangeMonitor_ARUtils**" and "**ChangeProtectedIds_ARUtils**" and also there is an element parameter "**ChangeProtected_ARUtils**".

By unchecking the Project Parameter "**ChangeMonitor_ARUtils**" you can manually turn off the change monitor.

Project Information

Family: System Family: Project Information Load...

Type: Edit Type...

Instance Parameters - Control selected or to-be-created instance

Parameter	Value
Route Analysis Settings	Edit...
Other	
Project Issue Date	Issue Date
Project Status	Project Status
Client Name	Owner
Project Address	Enter address here
Project Name	Project Name
Project Number	17-3333
ChangeMonitor_ARUtils	<input checked="" type="checkbox"/>
DeleteMonitor_ARUtils	<input checked="" type="checkbox"/>

OK Cancel

To include or exclude various categories for change protect you need to change the categories associated to the "**ChangeProtected_ARUtils**" parameter. Do this via the Revit UI "**Manage | Project Parameters**".

Parameter Properties

Parameter Type

☐ Project parameter
(Can appear in schedules but not in tags)

☒ Shared parameter
(Can be shared by multiple projects and families, exported to ODBC, and appear in schedules and tags)

Select... Export...

Parameter Data

Name:

Discipline:

Type of Parameter:

Group parameter under:

Tooltip Description:
<No tooltip description. Edit this parameter to write a custom tooltip. Custom tooltips hav...

☐ Type
☒ Instance

☒ Values are aligned per group type
☐ Values can vary by group instance

Categories

Filter list:

☒ Hide un-checked categories

- ☒ Casework
- ☒ Ceilings
- ☒ Columns
- ☒ Curtain Panels
- ☒ Curtain Wall Mullions
- ☒ Doors
- ☒ Electrical Equipment
- ☒ Electrical Fixtures
- ☒ Floors
- ☒ Furniture
- ☒ Furniture Systems
- ☒ Generic Models
- ☒ Grids
- ☒ Levels
- ☒ Lighting Fixtures
- ☒ Mass
- ☒ Materials
- ☒ Mechanical Equipment
- ☒ Parking
- ☒ Parts

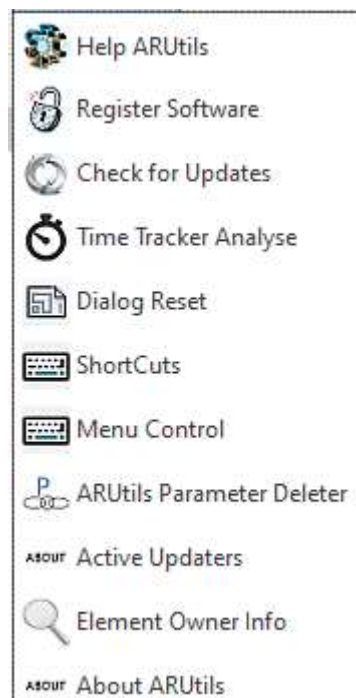
Check All Check None

☒ Add to all elements in the selected categories

OK Cancel Help

HELP MENU

[Help ARUtils](#)
[Register Software](#)
[Check for Updates](#)
[ARTimeTracker](#)
[Time Tracker Analyse](#)
[Dialog Reset](#)
[Shortcuts Manager](#)
[Menu Control](#)
[ARUtils Parameter Deleter](#)
[About Active Updaters](#)
[Element Owner Info](#)
[Open Log File](#)
[About ARUtils](#)
[Network Licenses](#)



HELP ARUTILS

Display the **ARUtils** help file

REGISTER SOFTWARE

Request a license for **ARUtils**. This requires that a payment has been received.

CHECK FOR UPDATES

See if there are any updates of the **ARUtils** software available for download. Information about the contents of the update are displayed.

DIALOG RESET

Reset the **ARUtils** dialogs / forms to their default locations and sizes. Also clear all data grids of retained data. This may be useful if forms go missing or load times of forms becomes excessive. You can also reset individual forms by deleting values in the registry key "HKey_Current_User\Software\VB and VBA Program Settings\ARUtils\Forms".

AR TIME TRACKER

Time tracker will automatically keep track of how long you work in files. To enable this you will need to have the file "TimeTracker.config" in your Network License Folder or in your "c:\program files\arutilsXXXX\data" folder. Where files exist in both locations the "data" folder file will be used.

Activating Time tracking

Create the file TimeTracker.config in the network license folder or the c:\program files\arutilsxxxx\data folders. There is a file sampleTimeTracker.config file in the arutilsXXXX\data folder.

Note: You can use something like notepad.exe to edit the file.

```
Timer{05.00  
OutputFolder{c:\temp  
Verbose{False  
MinimalOutput{False  
SingleFile{False  
FolderJobDepth{2  
JournalChange{10
```

TimeTracker.config keywords

Timer

Sets how often the routine will check for activity. By default it is set to every 4 minutes. To set a value you would use "Timer{mm.ss" to set the minutes between checks.

Note: Opening / Closing a document will also trigger a recording event. Simply swapping between open documents does not register until the next timer event occurs.

OutputFolder

Sets where time log files will be created. E.g. "OutputFolder{c:\temp"

Verbose

Additional information relating to Inactivity will be written out to the log file in the output folder.

E.g., Verbose{True

MinimalOutput

Only the bare minimum information is written out. This will only show the Active time spent in a file.

SingleFile

By default each user has a log file generated each day. Files are named

"yyyy-mm-dd-User-Time.csv" e.g. 2017-07-23-ARicke-Time.csv

With the single file option enabled the date is omitted from the file name. e.g., "ARicke-Time.csv" and day after day of information will be written into a single file.

Ideally you will establish some protocols / scheduled tasks to process these files on a daily / weekly basis.

FolderJobDepth

Job numbers are acquired from the Project Information parameter in a project. Where this has not been set then identifying the Project Number that a file belongs to can usually be best done via a folder name e.g., most large office use a folder structure something like n:\projects\job_number so reporting on the project_number folder is a good way to allocate time to a project. Something similar can be achieved with A360 or Revit server.

By setting the FolderJobDepth you can ensure that the project_number information is recorded as well as the project file path. This enables easy addition of time spent on a project. In the example given above we would want a FolderJobDepth of 2.

JournalChange

Defines the change in size of the journal file required to be considered as work having been done in the specified time period. The default value of 10 requires very little to have been done in a file to be considered as work having been done.

Operation:

- Time is only recorded against the Active Document. Inactive documents are ignored.
- Time recording events occur when a file is closed or opened, but not when you merely swap between open documents. The next timer event should pick up this change.

- The Revit journal file is checked for an increase in size to determine if any work had been done. Anytime a Revit command is run various log information is recorded to this file. If this file does not change in size then no work has been done and no time is recorded against the project for that time interval, e.g., If someone leaves a file open and goes to lunch, makes a phone call, goes to the toilet for the duration on the Time Interval, no time will be recorded against the project. At present this is hard coded to 10 bytes change.
- The accuracy of the routine should be sufficient for most purposes however we do not warrant the accuracy down to seconds.
- Families are considered to relate to the last recorded project and are not recorded separately.

Output from the routine

	A	B	C	D	E	F
1	Event	File\Project	Time (sec)	Journal Change (bytes)	Full File Path	
2	ACTIVE Usage of file	temp	300	99	c:\temp\rmssmall2015-2yr.rvt	
3	ACTIVE Usage of file	temp	300	23	c:\temp\rmssmall2015-2yr.rvt	
4	ACTIVE Usage of file	temp	100	14	\\Andy-64\C\temp\2rms2015.rvt	
5	ACTIVE Usage of file	Admin Project	200	23	A360://Admin Project/mass2015.rvt	
6	ACTIVE Usage of file	temp	100	11	c:\temp\rmssmall2015-2yr.rvt	
7	ACTIVE Usage of file	temp	300	2	c:\temp\rmssmall2015-2yr.rvt	
8	ACTIVE Usage of file	Admin Project	240	3	A360://Admin Project/mass2015.rvt	
9	ACTIVE Usage of file	temp	25	3	\\Andy-64\C\temp\2rms2015.rvt	

Output from the routine – MinimalOutput set to True

	A	B	C	D	E
1	Initiating time keeping	07-22-2017 16:00:42			
2	Event	File / Project	Time / Elapsed Time(secs)	Journal Change (bytes)	Full File Path
3	Document Opened	temp	07-22-2017 16:00:42		
4	ACTIVE Usage of file	temp	0	99	c:\temp\rmssmall2015-2yr.rvt
5	ACTIVE Usage of file	temp	52	73	c:\temp\rmssmall2015-2yr.rvt
6	Document Opened	Admin Project	07-22-2017 16:02:31		
7	ACTIVE Usage of file	Admin Project	56	20	A360://Admin Project/mass2015.rvt
8	Document Opened	temp	07-22-2017 16:02:40		
9	ACTIVE Usage of file	temp	5	20	\\Andy-64\C\temp\2rms2015.rvt
10	ACTIVE Usage of file	Admin Project	54	75	A360://Admin Project/mass2015.rvt
11	Document Closing	temp	07-22-2017 16:03:50		
12	ACTIVE Usage of file	temp	15	9	c:\temp\rmssmall2015-2yr.rvt
13	Document Closing	temp	07-22-2017 16:03:56		
14	ACTIVE Usage of file	temp	6	6	\\Andy-64\C\temp\2rms2015.rvt
15	Document Closing	Admin Project	07-22-2017 16:04:06		
16	ACTIVE Usage of file	Admin Project	9	9	A360://Admin Project/mass2015.rvt

Output from the routine – MinimalOutput set to False

TIME TRACKER ANALYSE

Analyse the files created by ARTimeTracker. Refer to [ARTimeTracker](#) for details on how to setup Time Tracking. More help on the Analyse command can be obtained by pressing F1 when the ARTimeTracker-Analyse dialog is open.

Refer to the built in help for more information.

SHORTCUTS MANAGER

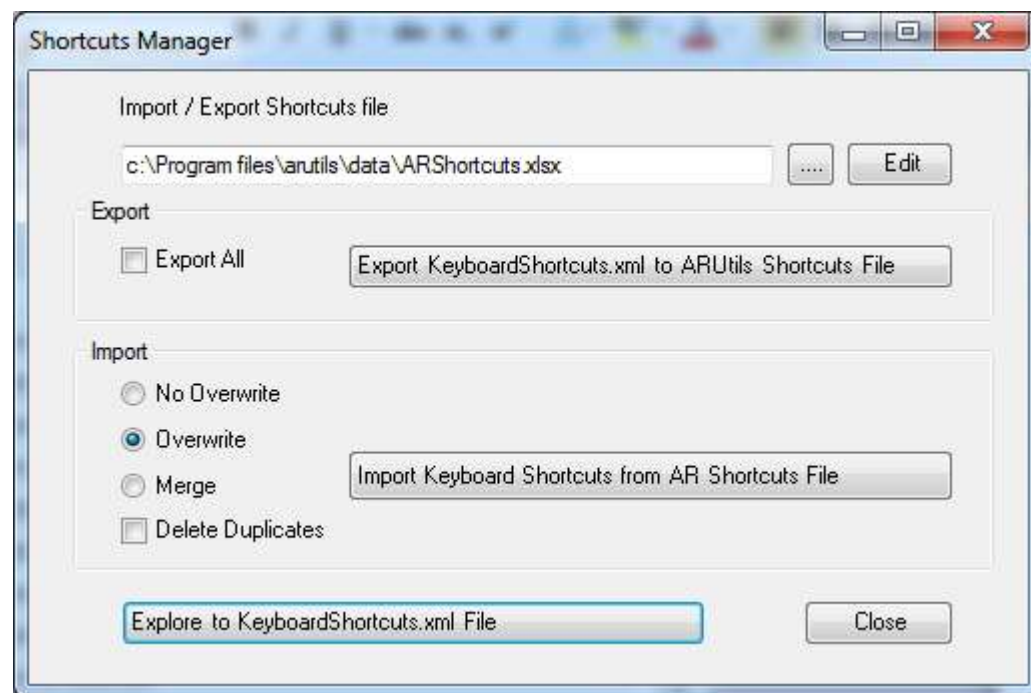
If you have ever tried to maintain a file of keyboard shortcuts for Revit the process can be less than ideal.

Whilst Revit allows you to export all of the commands and their associated, if any, shortcuts, this file is in a difficult to edit format and contains all of the commands, rather than just those with a shortcut. This makes distribution of shortcuts to your users less than simple and open to overwriting their defined shortcuts.

```
<ShortcutItem CommandName="About..." CommandId="CustomCtrl1_CustomCtrl1_Add-InsModel ReviewAbout" shortcuts="" Paths="Add-Ins&gt;Model Review" />
<ShortcutItem CommandName="Check" CommandId="CustomCtrl1_CustomCtrl1_Add-InsModel ReviewCheck" shortcuts="" Paths="Add-Ins&gt;Model Review" />
<ShortcutItem CommandName="Manage" CommandId="CustomCtrl1_CustomCtrl1_Add-InsModel ReviewManage" shortcuts="" Paths="Add-Ins&gt;Model Review" />
<ShortcutItem CommandName="View" CommandId="CustomCtrl1_CustomCtrl1_Add-InsModel ReviewView" shortcuts="" Paths="Add-Ins&gt;Model Review" />
<ShortcutItem CommandName="Wartens3d:Batch2-2012" CommandId="CustomCtrl1_CustomCtrl1_Add-InsWartens3dBatch2-2012" shortcuts=""
Paths="Add-Ins&gt;Wartens3d" />
<ShortcutItem CommandName="Wartens3d:http://wartens3d.com" CommandId="CustomCtrl1_CustomCtrl1_Add-InsWartens3dHttpWartens3d"
LinkToWartens3dSite" shortcuts="" Paths="Add-Ins&gt;Wartens3d" />
<ShortcutItem CommandName="Revit Lookup:Events..." CommandId="CustomCtrl1_CustomCtrl1_Add-InsRevit LookupOptionsEvents..." shortcuts=""
Paths="Add-Ins&gt;Revit Lookup" />
<ShortcutItem CommandName="Revit Lookup:Hello world..." CommandId="CustomCtrl1_CustomCtrl1_Add-InsRevit LookupOptionsHelloWorld"
Shortcuts="" Paths="Add-Ins&gt;Revit Lookup" />
<ShortcutItem CommandName="Revit Lookup:Snoop Application..." CommandId="CustomCtrl1_CustomCtrl1_Add-InsRevit LookupOptionsSnoop
```

Sample of the part of the keyboard xml file

ARUtils Shortcut Manager simplifies this process by allowing you to export shortcuts to an easier to modify Excel file, as well as providing options when merging the values with existing shortcuts.



Import / Export Shortcuts File

The more readable Excel file that allows you to define your required shortcuts.

The file contains four columns.

	A	B	C	
1	Paths (Read Only)	Command (Read Only)	Shortcut(s)	Command ID (Read Only)
2	Add-ins>Revit Lookup	Revit Lookup:Snoop Current Selection...	LS	CustomCtrl_ %CustomCtrl_ %CustomCtrl_ %A
3	ARUtils 2013 - DEBUG VERSION>Files	Files:Family Types Catalog	FTC	CustomCtrl_ %CustomCtrl_ %CustomCtrl_ %A
4	ARUtils 2013 - DEBUG VERSION>Files	Files:Reload Families	RF	CustomCtrl_ %CustomCtrl_ %CustomCtrl_ %A
5	ARUtils 2013 - DEBUG VERSION>Files	Files:Named Export to File	EXPF	CustomCtrl_ %CustomCtrl_ %CustomCtrl_ %A
6	ARUtils 2013 - DEBUG VERSION>Files	Files:Named Print PDF	PDF	CustomCtrl_ %CustomCtrl_ %CustomCtrl_ %A
7	ARUtils 2013 - DEBUG VERSION>Files	Files:Manage Imports	MI	CustomCtrl_ %CustomCtrl_ %CustomCtrl_ %A
89	Modify>Modify	Align	AL	ID_ALIGN
90	Annotate>Dimension; Modify>Measure; Aligned Dimension		DI	ID_ANNOTATIONS_DIMENSION_ALIGNED
91	Application Menu	Exit Revit	FX	ID_APP_EXIT
92	Modify>Modify	Delete	DE	ID_BUTTON_DELETE
93	Create>Select; Insert>Select; Annotate> Modify		MD	ID_BUTTON_SELECT
94	Annotate>Tag; Quick Access Toolbar	Tag by Category; Tag by Category	TG	ID_BUTTON_TAG
95	Contextual Tabs>Edit Group	Cancel	CG	ID_CANCEL_GROUP_EDIT_MODE
96	Context Menu	Define a new center of rotation	R3	ID_DEFINE_ROTATION_CENTER
97	Modify>Modify	Array	AR	ID_EDIT_CREATE_PATTERN
98	Modify>Create	Create Similar	CS	ID_EDIT_CREATE_SIMILAR

Note: The data folder contains a sample file, sampleARShortcuts.xlsx, which contains shortcuts for some ARUtils commands.

Paths:

The path to the command, i.e., the panels and tabs to get to the command

Command:

The command

Shortcut(s):

The shortcut or shortcuts assigned to a command. Multiple shortcuts are separated by the “#” symbol, e.g., CO#CC

Command ID:

The command ID used by Revit

Edit:

Open the shortcuts file

[....]

Browse for the shortcuts file

Export

Export All:

When checked all items are exported. When unchecked only items with an assigned shortcut are exported.

Export Keyboard Shortcuts:

Export keyboard shortcuts to the defined Shortcuts file.

Import

Import Options

No Overwrite:

Do not overwrite existing shortcuts

Overwrite:

Overwrite Revit shortcuts with those defined in the shortcuts file

Merge:

Merge the shortcuts file values with existing Revit shortcuts, i.e., allow multiple shortcut definitions

Delete Duplicates:

When checked, other commands using the same definition will have the shortcut removed.

Import Keyboard Shortcuts

Import the shortcuts defined in the Import/Export shortcuts file using the defined options.

NOTE: You must RESTART Revit for keyboard shortcuts to take effect.

NOTE: Shortcuts Manager makes backup copies of your existing shortcuts file.

Explore to KeyboardShortcuts.xml File:

Open windows explorer to the Revit KeyboardShortcuts.xml file.

Refer also to [Keyboard Shortcuts](#)

KEYBOARD SHORTCUTS

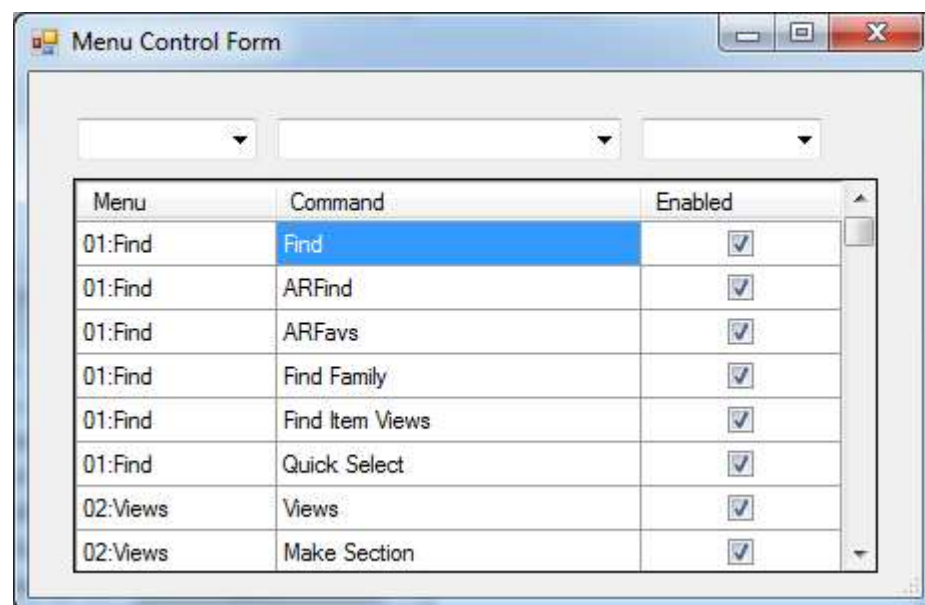
These can be loaded from "..\arutils\data\KeyboardShortcuts.xml" and add the following

FIND	AR find
FAV	Favourites
FAM	Find Family
I3D	Isolate 3d
SEC	Make section
GRO	Grow section box
SHR	Shrink section box
I3DS	Isolate 3d settings
VS	Visibility Setup
V0,1,2...9	Visibility Accelerator
TC	Text case
NO	Number
WP	Wall Paint
RF	Assign room finishes
UR	Update reference
NW	Wall Note
NM	Material Note
DRM	Door Mirrored
DDA	DDA Doors
ARL	AR Legend
MIMP	Material Import / Export
LIMP	Line pattern import / export
FIMP	Fill pattern import / export
WIMP	Wall import / export
RIMP	Rooms import / export
SIMP	Sheet import / export
VIMP	Views import / export
AIMP	Anything import / export
FOMR	Formatted import / export
HOTF	Head of the Family
REL	Reload families
APAR	Associate parameters
MI	Manage imports
PDF	Create Named PDF
EXPF	Export to named file

FV	File version
NVR	NavisWorks Review
CFN	Change file names
PM	Purge materials
VC	View clean up
RPC	Reference plane cleanup
RMON	Revision monitor
RREV	Remove revision marker
EP	Element protect
Help	ARUtils help
REG	Register software
UPD	Check for updates
AAR	About ARUtils

MENU CONTROL – HIDING MENU ITEMS

Enables you to hide ARUtils commands or complete command panels.



Simply enable / disable the various Panels e.g. the 01:Find | Find entry removes all of the find pull down.

Right click the menu to get the “Enable All” command.

Settings are saved in the “ARUtilsXXXX\Data” folder and is named “menuControl.txt”. This file can be copied to other computers or deployed using the deployment options to ensure all users have certain items hidden.

ARUTILS PARAMETER DELETER

Delete hidden ARUtils parameters from your project file.

OPEN LOG FILE

Open the ARUtils log file "Revit.log".

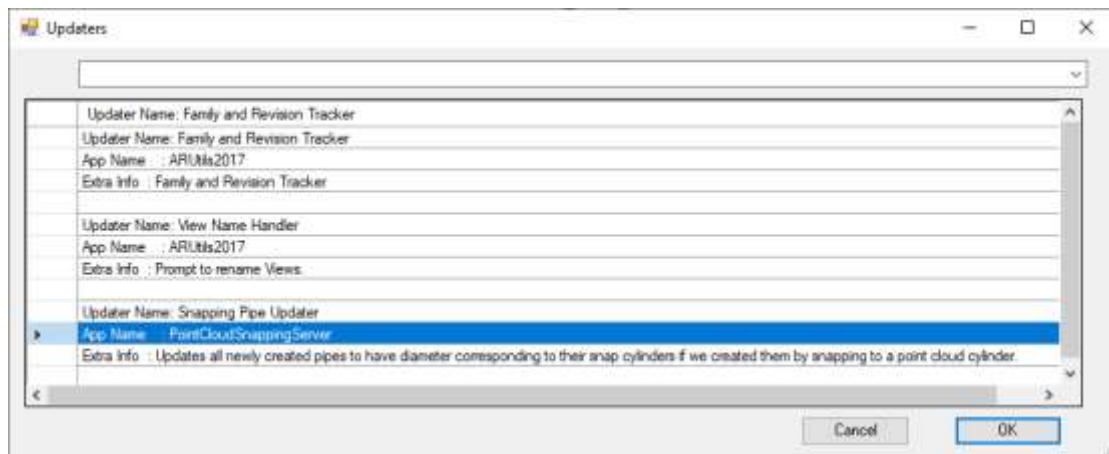
ABOUT ACTIVE UPDATERS

Updaters are used by programmers to automatically do things when certain things happen. For example you could have an updater fire up when a view is created, a family is updated, or an item is deleted.

ARUtils uses updaters for monitoring families, protecting items from deletion, or marking items when an item is revised or changed.

If you use multiple addins then it is possible that you will have multiple updaters from different vendors all firing on the same event e.g., a view is created.

If you are having issues this command is a good place to start to get an overview of what is going on.

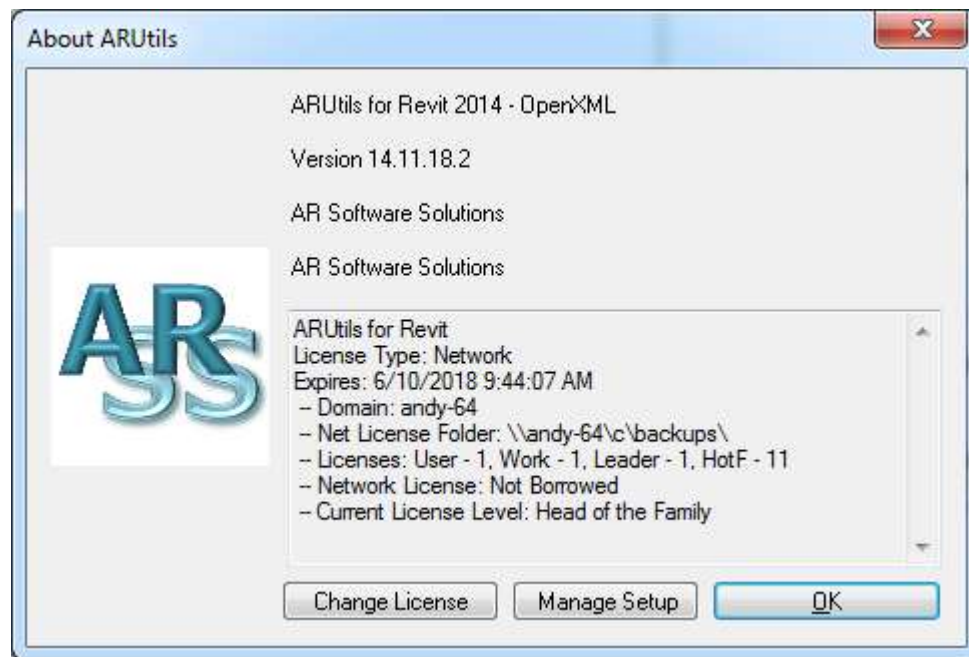


ELEMENT OWNER INFO

Display information about an element in a Workshared document. Shows the creator, the person that last changed it, and the person that now owns it.

ABOUT ARUTILS

Display information about the current version of **ARUtils**.



If the current license type is “Network” then the [“Change License”](#) option will appear.

MANAGE SETUP

ARUtils relies on a combination of control files (typically in the arutilsXXXX\data folder) and registry entries. Registry entries are used to save dialog panel values.

With this command you have easier access to import and export ARUtils registry settings, view the ARUtils Data folder, and when using Network Licenses makes it simpler to enforce company standards via ARUtils registry settings and the control files.

NOTE: This command should only be used by skilled users, or more likely your system manager.

When using network licensing you have the option of applying standards and updates via a **number of folders within the Network license folder**. These folders can contain an ARUtils.reg file as well as any files that you want copied to the users arutilsXXXX\data folder that you want everyone to have.

Name	Date modified	Type
Force	11/04/2017 10:30 ...	File folder
Force15	11/04/2017 11:28 ...	File folder
RunOnce	11/04/2017 10:30 ...	File folder
RunOnce15	11/04/2017 11:28 ...	File folder
Update	11/04/2017 10:32 ...	File folder
Update15	11/04/2017 11:28 ...	File folder
arutils.options.tmp	24/08/2015 11:09 ...	TMP File
ARUtilsLicenses.txt	11/04/2017 11:37 ...	Text Document
licenseANDY-64Network.xml	5/09/2016 2:23 PM	XML File

The net license folder with a number of control folders. The folders with a number extension are specific to a version. Other folders will be applied to all ARUtils versions.

RunOnce / RunOnceXX:

This folders contents are applied the first time a user starts Revit with ARUtils installed. Folders with a number suffix are version specific, otherwise folders are applied to all ARUtils versions.

Force / ForceXX:

This folders contents will overwrite a user's registry entries and files each time a user starts Revit with ARUtils installed. Ideally only some specific registry entries are contained in the file. Folders with a number suffix are version specific, otherwise folders are applied to all ARUtils versions.

Update / UpdateXX:

This will only copy files that are newer than the files stored on the user's computer. Registry entries will not be applied from this folder. Folders with a number suffix are version specific, otherwise folders are applied to all ARUtils versions.



The Registry manager dialog

Use GLOBAL folders

When checked command will apply to the folders that affect all versions of ARUtils. Unchecked the folders used will be version specific e.g., ARUtils 2015.

Export Registry

This command will export all of the ARUtils registry settings on your computer to the file "%tmp%\ARUtils.reg", and then further copy the file to the selected folders, (RunOnce, Forced, Updated). If the folders do not exist they will be created.

Note: ARUtils registry entries can be found in "HKEY_CURRENT_User\software\VB and VBA Program Settings\ARUtils". Use regedit to access these.

Please note that this file can be edited, using notepad or some other editor, to contain only the entries you want applied to a user. This does require some imagination.

To RunOnce / To Forced Settings / To Update settings

Select these to copy your current registry settings to these folders.

Copy Data Files

Creates the checked folders and opens the ARUtilsXXXX\data folder on your computer as well as the network license folder.

Open License Folder

Open the net license folder in explorer.

Open Data Folder

Open the "arutilsxxxx\data" folder in Explorer. The is the Data folder on your computer.

Simulate Logon

Carries out the registry application and file copying of the logon command.

The ARUtils.reg file

Windows Registry Editor Version 5.00 **'MUST KEEP**

[HKEY_CURRENT_USER\software\VB and VBA Program Settings\ARUtils]

[HKEY_CURRENT_USER\software\VB and VBA Program Settings\ARUtils\2014revitVersion]

"NoPrompt"="True"

"Lastchecked"="9/07/2013 12:00:00 AM"

[HKEY_CURRENT_USER\software\VB and VBA Program Settings\ARUtils\2015revitVersion]

"NoPrompt"="False"

"Lastchecked"="22/03/2014 12:00:00 AM"

[HKEY_CURRENT_USER\software\VB and VBA Program Settings\ARUtils\3dView]

"Distance"="1\""

"Perc"="10"

"PlanH"="9"

"rbDistance"="-1"

"rbPerc"="0"

"rbSelect"="-1"

"rbIsolate"="0"

"rbRev"="0"

"rbTemp"="-1"

"rbTempAuto"="0"

"cbPrompt"="0"

"cbView3dAuto"="-1"

[HKEY_CURRENT_USER\software\VB and VBA Program Settings\ARUtils\areaMasses]

"Xpos"="2105"

"Ypos"="101"

"par"="Area Type"

"scheme"="Rentable"

[HKEY_CURRENT_USER\software\VB and VBA Program Settings\ARUtils\ARLegend]

"ControlFile"="C:\temp\control\VARLegendaa.xlsx"

"XSpacing"="94497"

"YSpacing"="1451537"

"Width"="12192"

"Height"="9144"

"DimOffset"="20"

```
"xGap"="305"
"yGap"="305"
"Preview"="Family:myFamily"
```

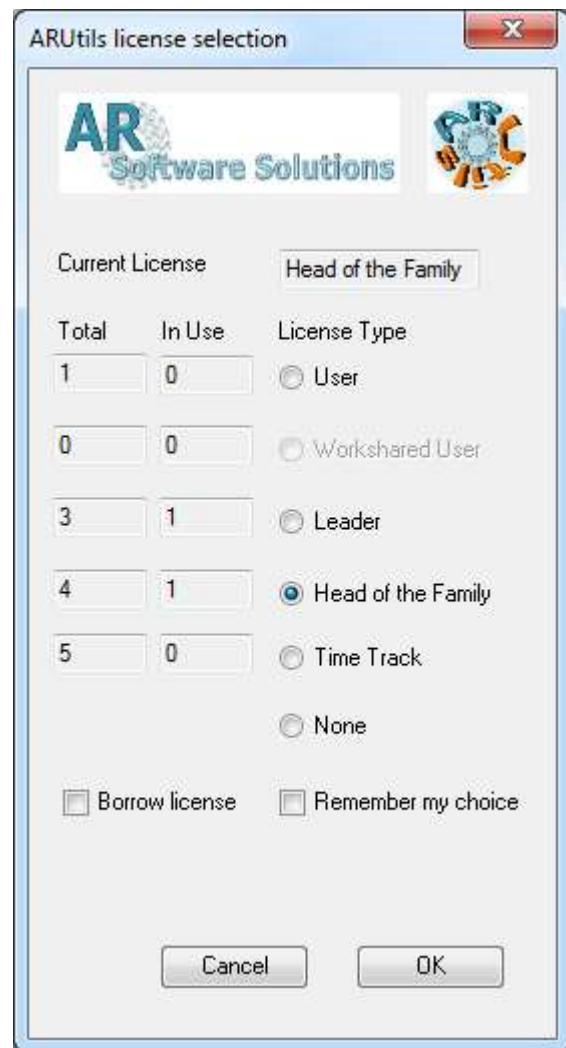
A quick inspection of the file reveals a number of sections e.g., areaMasses, ARLegend.

These relate to ARUtils dialogs. Some are more obvious than others. Values within these relate to fields within the dialog.

Generally you can delete individual fields that you do not want applied. Alternatively you can delete the Key definitions (e.g., [HKEY.....]) and all the fields within that Key.

NETWORK LICENSES – SELECTING THE LICENSE TYPE

If you are using a [network license](#) model then you will have the option of selecting the **ARUtils** licensing level i.e. User, Workshared User, Leader, or Head of the Family.



ARUtils license selection dialogue

Current License: the currently selected license level

Total: the total number of licenses available in the issued license file

In Use: the number of licenses currently being used. Your current license is not counted as part of the “in use” values.

License Type: the **ARUtils** license type to use. If licenses are not available then the button will be greyed out.

Borrow License: borrow the license for longer term use and availability if you are not connected to the network. If you are connected to the network when you start or stop Revit, you will be asked if you wish return the license. Selecting this will bring up a date field (shown) where you can select a borrow period of up to 3 months.

Remember my choice: set my selected license as a default response, i.e. Always try and use a “Leader” type license. Leaving this unchecked will cause you to be prompted for the license type each time Revit starts up. If the license type is not available, you will also be prompted to select a licence.

Note: If you set “**Remember my choice**” you can reach this dialogue via the “**Help | About ARUtils | Change License**” button. This is only available when you have a network license.

Note:

Borrowed Licenses: If users “borrow” a license, a file, “borrow.xml”, is created in the “..\arutils\data” folder. The file is unique to the machine that borrowed the license. Do not alter the file as this will invalidate the license.

Once a borrowed license expires, the license will automatically be returned to the license pool. Therefore the computer borrowing the license does not need to return the license.

Trouble Shooting Network Licensing Problems

Whilst every attempt is made to return licenses for use by other users, there may be instances where you find that some licenses remain incorrectly checked out.

If this occurs, delete the file “ARUtilsLicenses.txt” that resides in the network licensing folder. The file will be rebuilt over the next half hour. Licenses will be registered as **ARUtils** is used.

MENU CONTROL – ADDING YOUR HELP FILES

Most companies have their own standards and procedures. Gaining access to these can be done in a number of ways, but often it is desirable to give easy access directly from the program i.e. Revit.

By creating an Excel file “userAddins.xlsx” in the “..\arutils\data” folder, you are able to define various new menu items. These items may open a file, internet site, or execute a command. It is also possible to use project specific commands by using one or more “Project Information” parameters as part of the command definition.

You can opt to have the items added to the ARUtils help tab, or you can have your own company tab.



ARSS Help added to the typical menu tabs



The user defined ARSS help menu

userAddins.xlsx file format

The userAddins file format consists of a number of columns.

	A	B	C	D	E	
1	Operation	Display	Command	Icon	Tip	
2	Menu	ARSS Help	NA	NA	NA	
3	File	ARSS Standards	c:\temp\arss5T0.pdf	c:\temp\iconarss.png	ARSS Revit Standards	
4	File	ARSS Routines	c:\temp\arssCmds.pdf	c:\temp\iconarss.png	ARSS Customised Routine Help	
5	Internet	Building Coder	http://thebuildingcoder.typepad.com/	c:\temp\jeremy.ico	The Building Coder	
6	cmd	Intranet Help	"c:\program files\internet explorer\iexplore.exe" "http://thebuildingcoder.typepad.com/"	c:\temp\icon1.ico	ARSS Intranet Help	
7	explore	Explore File	File	c:\temp\iconarss.png	Open Explorer & Select this file	
8	explore	Explore File Folder	File Path	c:\temp\iconarss.png	Open Explorer to this files folder	
9	explore	Families	..\library\families	c:\temp\jeremy.ico	Open explorer to my projects families folder	
10	explore	Trees	trees	c:\temp\icon1.ico	Open the trees folder below this files folder	
11	explore	Library	u\Revit\Library	c:\temp\iconarss.png	Open the office library folder	

Example userAddins file

Operation:

Valid Operation values are:

- Menu** Defines a new tab to be used for the menu items. Can only occur once and it must be the first defined item. Display will be used as the label for the menu
- File** The item in the "Command" column is a file. The default command for that file type will be used to open the file. You can test if this will work on your computer by using a "cmd" window, and typing in the file name.
- Internet** The item in the "Command" column is a reference to a website. The default web browser for the computer will be used to open the site.
- Cmd** The item in the "Command" column is a complete command. The command will be executed as is. You may need to use multiple quotes to get the command to work. E.g. "c:\program files\internet explorer\iexplore.exe" <http://arsoftwaresolutions.com.au/>
- Explore** This option allows you to open explorer to the specified folder or open explorer and select the specified file.
The simplest option is to specify a specific path e.g. C:\temp\trees, or [\\server\temp\files](#).

Optional keywords are "**File**" to open explorer and select the currently open file and "**File Path**" to open explorer to the folder where this file is located. Note that where a project file is worksetted the central file location will be used.

By using ".." you can specify a path relative to the folder of the currently open file, e.g. ..\library\families, would go up a folder from the folder for the current file, and then down into library and families. If you simply put in the name of a folder, that folder will be sought below the current files folder and explorer opened.

Display:

The text to display in the menu item

Command:

The file name, internet link, or command to be executed when the menu item is selected.

Note: You can use "Project Information" parameter values in the command by enclosing the project parameter in "{" brackets. If you wish to refer to the folder where the currently active Revit is located use "File" or "File Path". "File" will open the folder and select the current file, whilst "File Path" will simply open explorer to the folder of the currently active file.

E.g. "N:\projects\{**Project Name**\projectHelpFile.pdf" would be converted to "N:\projects\BallaratBaseHospital\projectHelpFile.pdf", if the parameter projectName had the value of BallaratBaseHospital.

You can use multiple parameters. If the parameters do not exist in your shared parameters file they will be created under the ARUtils group in your shared parameters file. The parameters will be of type "Text". These are then associated to the "Project Information" element.

You can set the values of the parameters by going to the "Manage | Project Information" dialogue.

Icon:

The icon to display in the menu item. This is not compulsory. Icons should be 32x32 pixels and have a dpi set to 96.

Tip:

The tool tip to display when you hover over the command.

Note: A sample file, "sampleUserAddin.xlsx" has been included to allow you to easily setup your own custom menu.

DEPLOYING ARUTILS

You can easily deploy arutils to all computers on your network.

[Simple User Install](#)
[IT Based Deployment](#)

SIMPLE USER INSTALL DEPLOYMENT

The simplest approach to automating the ARUtils install process is to allow users access to the ARUtils Install Executable. Place your license file in the same folder as the executable and when any user runs the install process the license file will be copied as well.

Additionally you can have a "data" folder in the install executable folder. Any files in that folder will also be copied during the install process.

Note: The user will be prompted to overwrite any newer files they already have in their ARUtils data folder.



ARUtils install folder with the installer, a license file, and a data folder containing your company standard files.

IT BASED DEPLOYMENT

There are four things that are important in this process:

1. Copy the “ARUtils” folder and sub folders to all target computers.

The default location for “ARUtilsXXXX” is “c:\program files” but this can be changed during the installation process.

Tip: Get your IT department to create a script that will update these files from a central location when a user logs onto their computer. This ensures everyone is using the same ARUtils version.

2. Make sure that each computer has the network license file placed in “ARUtilsXXXX\Data”.
3. Copy the appropriate “ARUtilsXXXX.addin” file to the appropriate folder on each computer. Refer below for more details
4. Make sure the “network license folder” is accessible to all users with full read/write permissions.

License File Requirements:

Note: Your license file must be a site, enterprise, or network license for ARUtils to correctly license on all computers.

Location of the manifest / addin file:

You will also need to copy the “arutilsXXXX.addin” file to the appropriate addins folder for your version of Revit and Operating System.

For Revit 2013 on a Windows 7 computer the folder for the addin file is:

C:\ProgramData\Autodesk\Revit\Addins\2013

The following is an extract explaining all the possible locations for the ".addin" files.

Manifest files will be read automatically by Revit when they are placed in one of two locations on a user's system:

- **In a non-user specific location in "application data"**
 - For Windows XP - C:\Documents and Settings\All Users\Application Data\Autodesk\Revit\Addins\2013\
 - For Vista/Windows 7 - C:\ProgramData\Autodesk\Revit\Addins\2013\ (preferred option)
- **In a user specific location in "application data"**
 - For Windows XP - C:\Documents and Settings\<user>\Application Data\Autodesk\Revit\Addins\2013\
 - For Vista/Windows 7 - C:\Users\<user>\AppData\Roaming\Autodesk\Revit\Addins\2013\

All files named .addin in these locations will be read and processed by Revit during startup.

Note: Whilst some commands specifically use Excel control files for settings, there is some benefit in running all of the commands in ARUtils before copying the ARUtils folder, as well as the registry settings.

Transferring User Preferences:

If you wish to transfer user settings you will need to export and then import the registry settings from

HKCU\Software\VB and VBA Program Settings\ARUtils.

RESETTING ARUTILS USER PREFERENCES VIA REGISTRY DELETION

You can use the "[Dialog Reset](#)" command to reset ARUtils dialogs.

Alternatively to reset ARUtils to its default state delete the registry key:

HKCU\Software\VB and VBA Program Settings\ARUtils

This can be done via the "regedit" command. Registry entries will be recreated as command are used.

Note: Some commands store these parameters within the project (Room Data and Views, ARLegend, Wall Tagging). To remove these possibly hidden parameters use the ARUtils parameter manager and delete all parameters that have "ARUtils" as part of their name.

UPDATING ARUTILS LICENSE FILES – NETWORK LICENSING

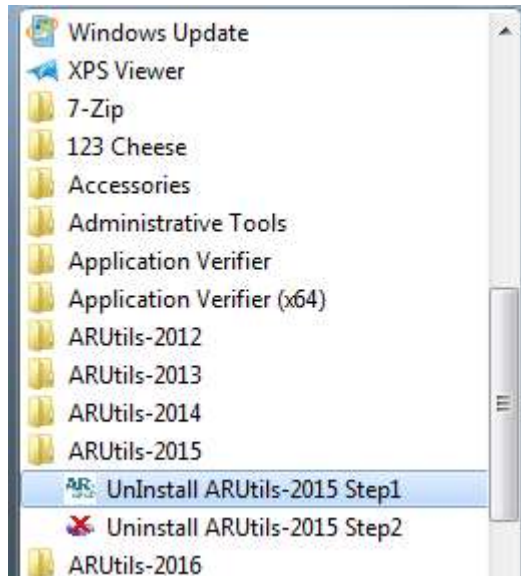
When you receive an updated ARUtils license file, i.e., due to subscription purchasing, all computers with ARUtils need to have this new file placed in the "ARUtilsXXXX\data" folder.

Where licensing is a network license the new license file can be placed into the "network license control folder". As computers start Revit and ARUtils the updated license file will be copied to the ARUtils\Data folder thus updating the licensing for the installed ARUtils product.

Refer to "Help | About ARUtils | [Manage Setup](#)" for more information.

UNINSTALL ARUTILS

To Uninstall ARUtils run the two stage uninstall process available from the main “Windows” “Program Menu”.



Note: Do not have Revit running when uninstalling ARUtils.

Failing this, delete the manifest (.addin) file from the [Location of the manifest / addin file](#) and also the folder “C:\Program Files\ARUtilsXXXX”.

All registry settings are stored in “**HKCU\Software\VB and VBA Program Settings\ARUtils**”. Use “regedit” to delete this key.

LICENSING

ARUtils must be registered to be used. 30 day trial licenses are available via the license request dialogue.

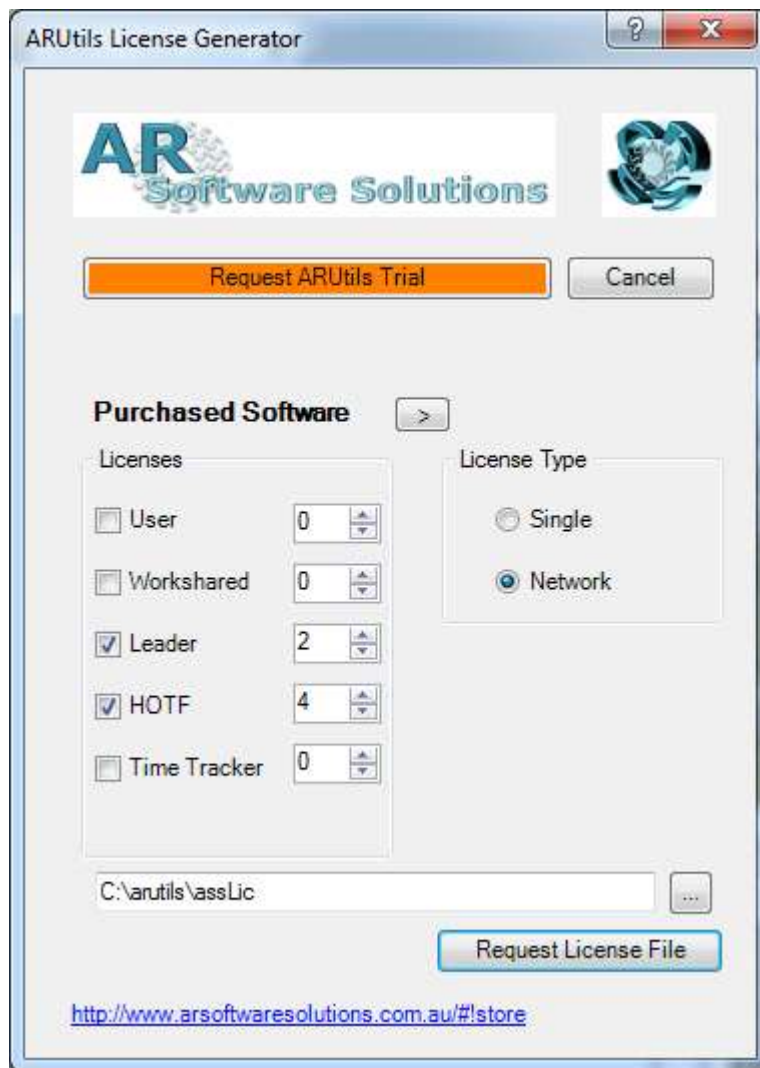
You will first be asked to enter your details.

Note: If you already have a license file you can use the “Browse to existing license file”. The file will be named “license***.xml”.**



The image shows a Windows-style dialog box titled "ARUtils License Request". The title bar includes a question mark icon and a close button (X). The dialog box has a header area with the "AR Software Solutions" logo on the left and a 3D circular graphic on the right. Below the header, there are four text input fields: "First Name *" with the value "Andreas", "Surname *" with the value "Ricke", "Company" with the value "AR Software Solutions", and "Email *" with the value "info@arsoftwaresolutions.com". Below these fields, there is a label "* Required Field" followed by "Cancel" and "OK" buttons. At the bottom of the dialog box, there is a button labeled "Browse to existing license file".

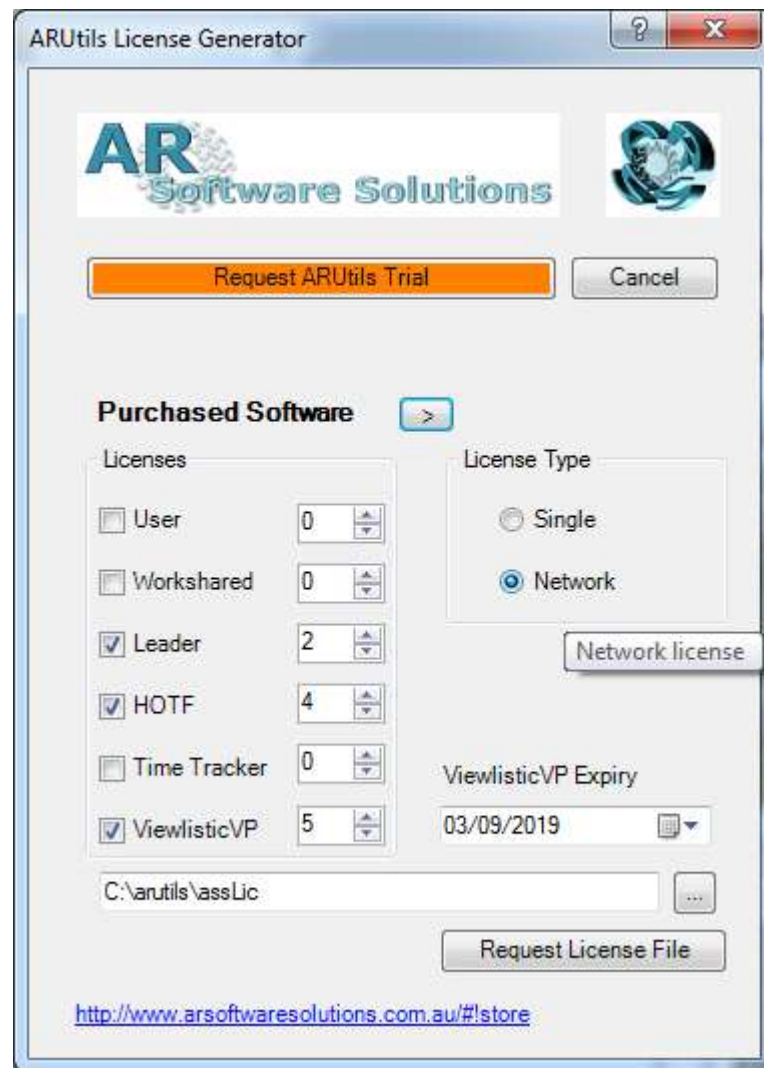
Following this the licensing request dialogue will be opened.



The image shows a Windows-style dialog box titled "ARUtils License Generator". At the top left is the "AR Software Solutions" logo. To its right is a circular icon with a globe. Below the logo is an orange button labeled "Request ARUtils Trial" and a gray "Cancel" button. A section titled "Purchased Software" contains a right-pointing arrow button. Below this is a "Licenses" list with five items: "User" (checkbox), "Workshared" (checkbox), "Leader" (checked checkbox), "HOTF" (checked checkbox), and "Time Tracker" (checkbox). Each item has a numeric spinner box to its right, with values 0, 0, 2, 4, and 0 respectively. To the right of the licenses is a "License Type" section with two radio buttons: "Single" and "Network" (which is selected). At the bottom left is a text field containing "C:\arutils\assLic" and a browse button "...". To the right of the text field is a blue button labeled "Request License File". At the very bottom is a blue hyperlink: <http://www.arsoftwaresolutions.com.au/#!/store>.

Note: Depending on your license type various commands within **ARUtils** will not be available to you or will be limited in functionality. Refer to <http://www.arsoftwaresolutions.com.au/#!/software> for details of the different versions.

Note: Use ">" to show all available options. This is useful if you also have access **ARUtils-ViewlisticVP** licenses.



Dialog showing all license types.

Note: ARUtils-ViewlisticVP licenses also require an expiry date.

REQUEST A TRIAL LICENSE

Trial licenses are designed to enable you to evaluate the fully functional ARUtils software for a period of 30 days.

Press the “**Request ARUtils trial**” button to generate a request file

“..\arutilsXXXX\data\requestxxxxxxx.xml” that needs to be emailed to info@arsoftwaresolutions.com.au . This will fully enable all aspects of ARUtils except for

- **Head of the Family** which will be limited to processing 10 families at a time.
- Various Export/Import routines which will all be limited to 10 or less items

A return file, “**licensexxxxxxx.xml**”, will be sent to you. This needs to be placed in the “..\arutilsXXXX\data” folder.

Use of ARUtils beyond the trial period, without purchasing a license(s), breaches the agreement you entered into by downloading and installing the software. Refer to www.arsoftwaresolutions.com.au/#!eula for complete details.

REQUEST AN ACTIVATION CODE

Having purchased **ARUtils** you will need to request an **activation code**. This can be done via the lower section of the license request form. Depending on what you have purchased you can enter the type, User, Workshared, Leader, or HOTF (Head of the family), AR Legend as well as the number of licenses you have bought.

You will then need to send the generated file to info@arsoftwaresolutions.com.au to receive a return file, "**licensexxxxxx.xml**", which should be placed in "..\arutils\data".

License type, **Single, Roaming User, Site, Enterprise, or Network** defines how the license is validated.

Single: If you are requesting a **single** license (specific to a computer) you must run the license request on the machine on which you wish to run the software.

Roaming User: The license file is based on a specific users logon details. Both the user name and the domain must match that in the license file.

Site: If you are requesting a site license you must run the license request on a machine within the site where you wish to run the software. Only computers within the specific site will be licensed.

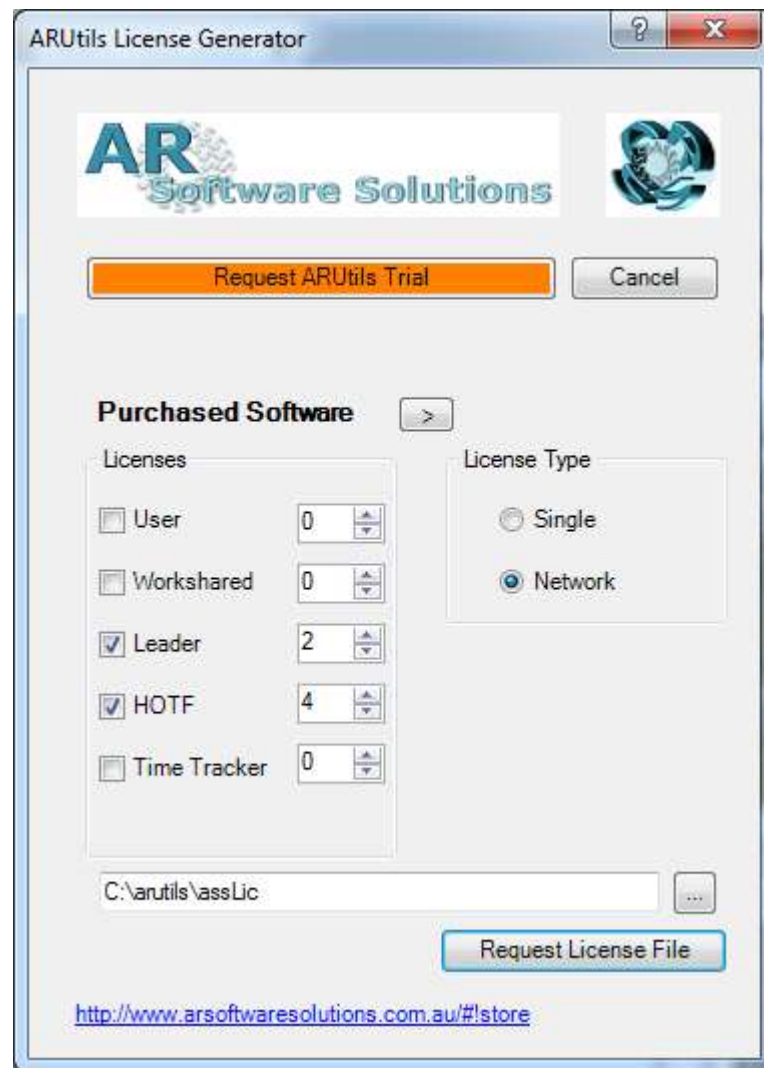
Enterprise: This allows the software to be run on any computer that is part of a specific domain. This does not have the limitations of the network license.

Network: This allows for licenses to be shared from a central file licensing store. It also allows for license borrowing of up to 3 months. Refer to "[Request a network license](#)" for more information.

Pressing "**Request license file**" will generate a file which you will need to send to info@arsoftwaresolutions.com.au. The return file, "**licensexxxxxx.xml**", should be placed in "..\arutils\XXXX\data".

Note: Altering any part of the file will invalidate your license.

REQUEST A NETWORK LICENSE



If you have purchased and then request a **“Network”** license you will need to define a network folder that has full read and write permissions for all users i.e. Users need to be able to read, write, create and delete, any files within the folder.

NETWORK LICENSING – ARUTILS.OPTIONS FILE

The “ARUtils.Options” file is a simple file that enables you to reserve licenses for a computer or a user. This ensures there is always a license available for nominated users or computers.

The file needs to be placed in the “Network License Folder” and has the following format

```
#Format
#User:UserName:LicenseType
#Computer:ComputerName:Licensetype
#LicenseType:
#1 - User
#2 - WorksharedUser
#3 - Leader
#4 - Head of the Family
#e.g. User:Andy:4 - Reserves a head of the family license for Andy
#e.g. Computer:Andy-64:3 - Reserves a leader license for the computer Andy-64
user:andy:4
```

computer:pcJames:3

Note: Any lines beginning with a “#” are considered as comment lines.

Ideally this file should only be editable by nominated rather than all users.

Note: There is a sample file “ARUtils.options” in the “ARUtilsXXXX\data” folder. This will need to be copied to the network license folder and edited to your needs.