

# Extending the Functionality of Revit



**R**evit® is a great platform for the BIM process. It can model elements and systems, manage parametric information for those elements and systems, and make construction drawings from that model. But I've never heard anyone say that it does everything they want. There is always room for improvement, new features, and customization. This is where third-party tools and add-ins can help fill that void.

A specific third-party add-in I'd like to discuss in this article is RF Tools by RushForth Projects (<http://www.rushforthprojects.com/>). It contains lots of useful features for any Revit user but also several that will make an MEP consultant's life easier. For the price of the add-in you get a ton of functionality and responsive support. I won't be able to cover all the tools this add-in contains, but I will highlight some of my favorite features.

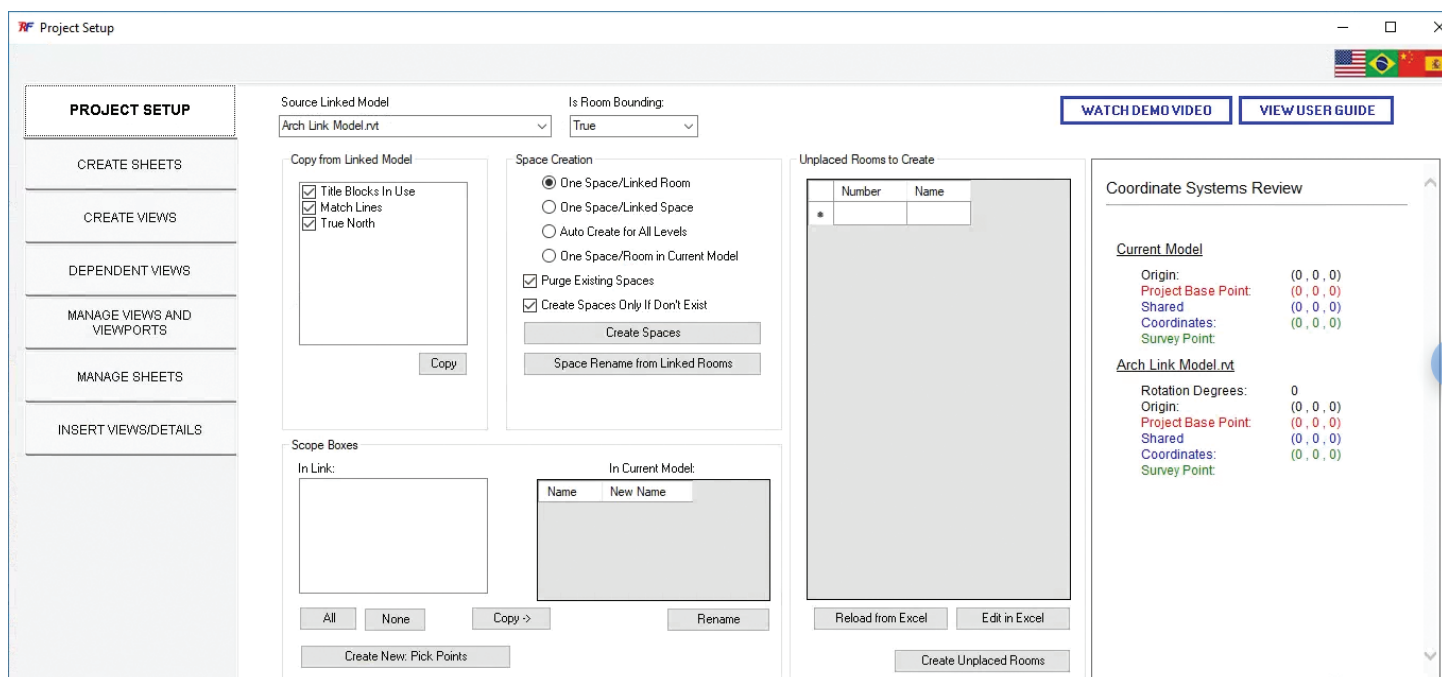


Figure 1

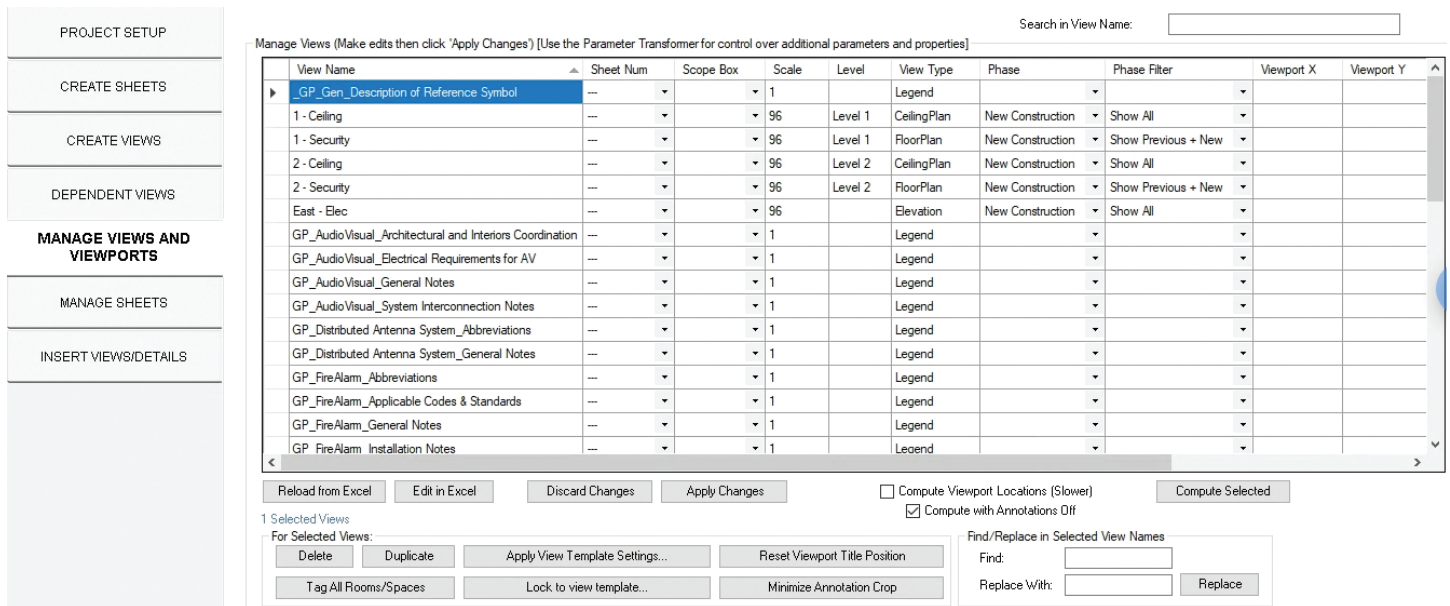


Figure 2

## PROJECT SETUP

RF Tools installs its own tab and ribbon. One of the first and most often used buttons is called Project Setup. From here you can access all kinds of functionality that assist not only in setting up projects, but also in managing critical project objects like views, sheets, scope boxes, rooms/spaces, and so on. Project Setup launches a dialog box that has tabs on the left, each performing several distinct functions (Figure 1).

Title blocks, matchlines, and scope boxes can be inserted into the host model from a linked model of your choice without even having to open the linked model. Similar to the space creation and naming tool finally built into Revit a couple releases ago, Project Setup does the same thing and then some, offering even greater flexibility and controls, including room creation.

The second tab in Project Setup is Create Sheets. Pretty straightforward and, as the name suggests, sheets can be created in bulk either as placeholders or with a specified title block. My personal favorite is that sheets from the linked model can be accessed, added to the dialog box, edited in Excel, and then re-imported for quick and easy sheet creation that matches the linked model standards.

Create Views, the next tab, allows for view creation based on levels in the model. But the real power of this tab, combined with the Create Sheets tab, is that an Excel template can be made of required views and sheets per level. This can be a big timesaver and standards enforcer for prime and consultant teams alike.

The Dependent Views tab aids in creating dependent views and improves on the built-in workflow. Dependent views can be made in bulk for selected parent views in two ways. One option is to do so by scope box, incorporating the name of the scope box into the view name. The second option is to make dependent views based

on views in the linked model. Again, all without having to leave the host model while ensuring matching the linked model.

The next two tabs, still in the Project Setup dialog, get used repeatedly throughout a project. Manage Views and Viewports and Manage Sheets offer functionality that is essential to Revit view and sheet management. You will wonder how you lived without it or why it isn't incorporated into Revit itself.

In the Manage Views and Viewports tab (Figure 2) you will notice lots of functionality to make your life easier: search/filter, find and replace, edit in Excel, duplicate (while renaming or adding prefix/suffix), apply view template, assign view template, reset view title, minimize annotation crop, and, another personal fav: tag all rooms/spaces in selected views.

This last one will tag all rooms or spaces in views of your choosing. Love it!

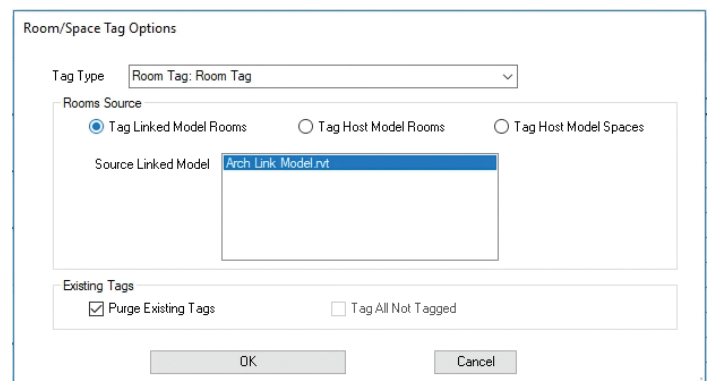


Figure 3



# Revit MEP

Furthermore, you can also automate the placement of views on sheets and by getting the locations of views placed on sheet, place similar views in the same locations across sheets.

Manage Sheets (Figure 4) is very similar with regard to sheet management and manipulation. From here, you can search/filter sheet names and numbers for easy selection, use find and replace on sheet names, edit in Excel for more involved editing, and apply revisions to sheets in bulk.

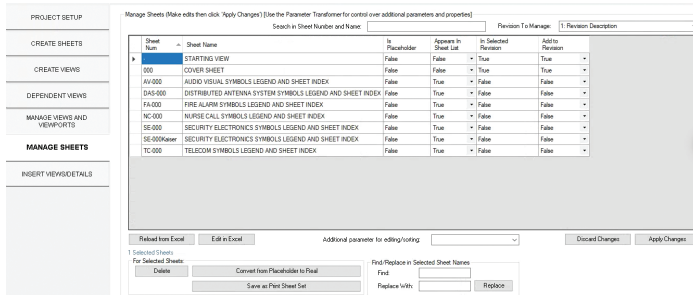


Figure 4

On a side note, it boggles my mind more that advanced view and sheet management tools are not included in Revit. Autodesk's two main pieces of software aimed at the AEC community, Revit and AutoCAD®, and neither one has built-in abilities to manage views and sheets in bulk. Any project that contains more than 10 sheets needs a way to bulk edit sheets and views—otherwise, you are wasting time. How many projects do you have that have more than 10 sheets? Exactly.

Last but not least in Project Setup is the Insert Views/Details tab (Figure 5), a fairly recent addition to RF Tools. Like the “Insert Views from File” functionality that is native to Revit, it allows drafting views to be inserted from a chosen file. However, search helps in finding views, and presets can also be saved to quickly insert often used views.

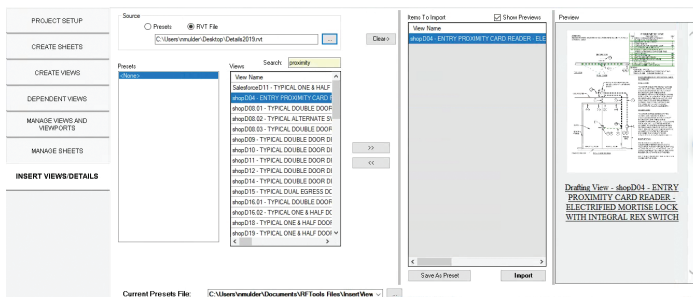


Figure 5

## PARAMETER TRANSFORMER

Next up is Parameter Transformer (Figure 6). From here, just about any parameter and any element can be accessed, selected, and filtered. This dialog box is made up of five tabs along the top left: Filter, Modify, Excel, Transform, and Purge Tools. Under filter, pre-made filters can be saved and reused.

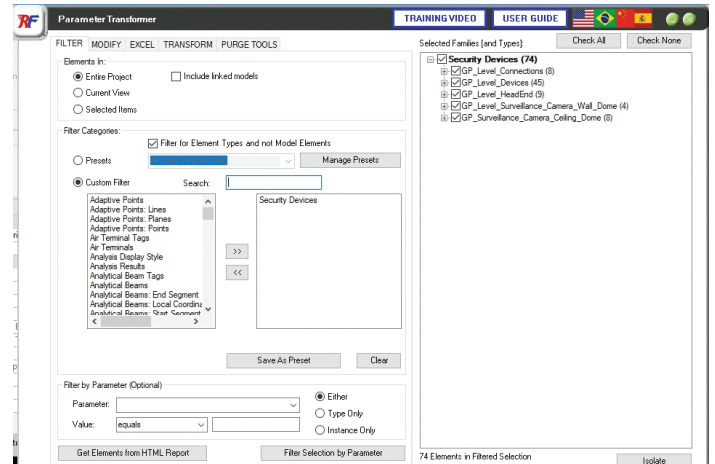


Figure 6

Once filtered and selected, elements and their parameters can be operated on in the Modify tab without even exporting to Excel first (Figure 7). Options include find and replace, copy from parameter, and sequentially number. The powerful thing about copy from parameter is that you can select room information from a linked model and copy that information to a parameter on the selected element(s). If numbering sequentially, a useful feature is that a parameter can be used as or before the prefix.

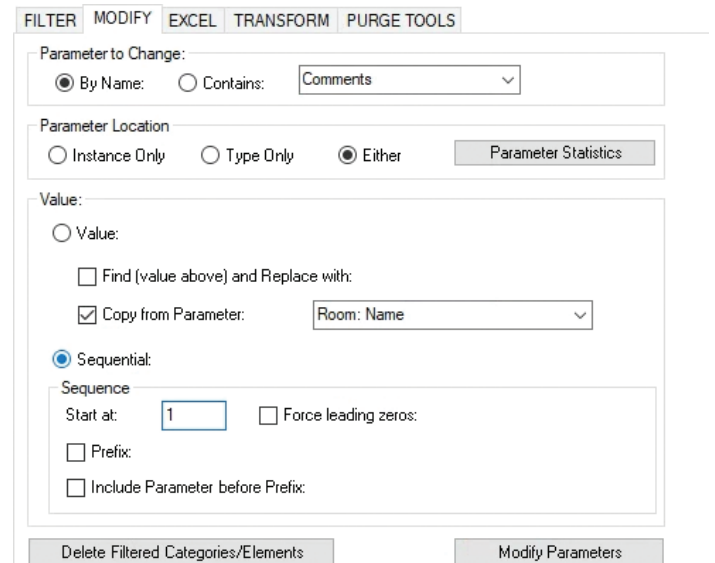


Figure 7

If more functionality is needed than what the Modify tab provides, the next Excel tab is where element and parameter information can be exported to Excel for manipulation and import. In addition to built-in, project, and shared parameters, even parameters available only to the Revit API can be accessed and selected. Additionally, selecting a Revit schedule will add the parameters in use in that schedule and can also be used as a “filter” of its own by only selecting elements in that Revit schedule (Figure 8).

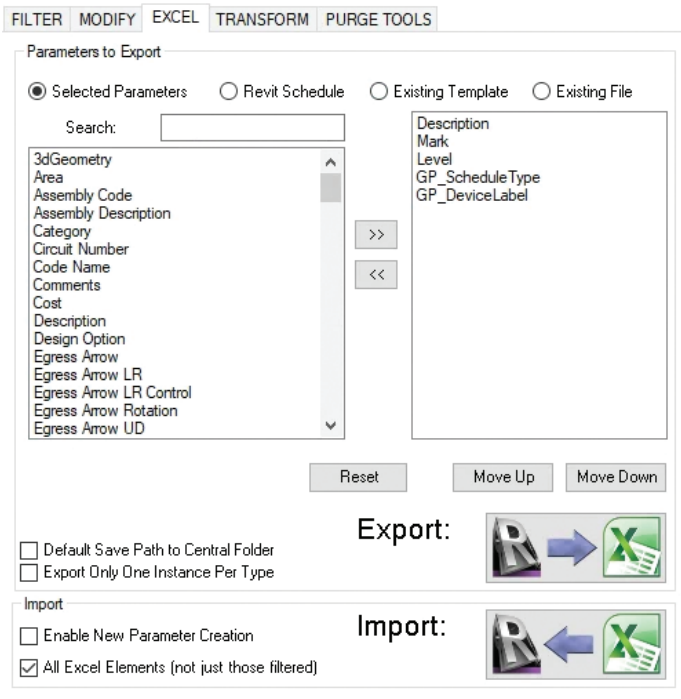


Figure 8

The Transform tab (Figure 9) allows for placement of elements based on location information of selected elements from the filter tab. I have used it to place hangers along cable tray at specified intervals. There are a lot of potential uses—all that is needed is your creativity!

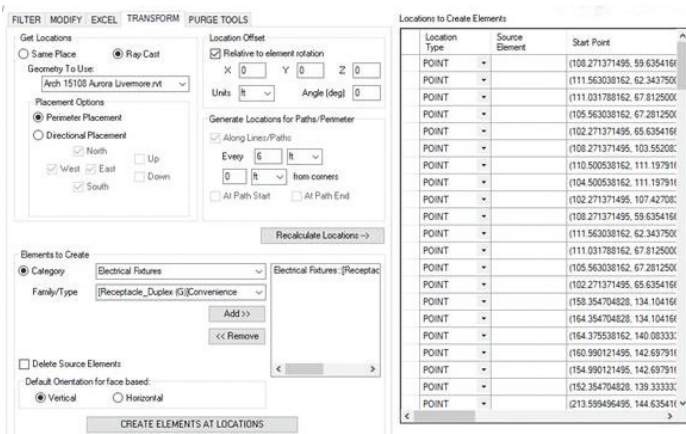


Figure 9

## PARAMETER LINKER

Project Setup and Parameter Transformer are great for parameter manipulation and one-time operations. But what if that one-time operation turns into a routine chore? Enter Parameter Linker (Figure 10)! This is another tool with lots of options and lots of potential. It allows you to not only copy parameter values from one element to another, but also establish a link so that if the source value changes so will the destination parameter value. Here are just a few possible workflows: 1) copy parameter values from source objects in linked

models to parameters in host model elements; 2) copy a parameter value not available for tagging (such as elevation/offset before Revit 2020) to a parameter that is on the same element; and 3) copy parameter values from model elements to elements in drafting views to help build and maintain information in risers and one-line diagrams.

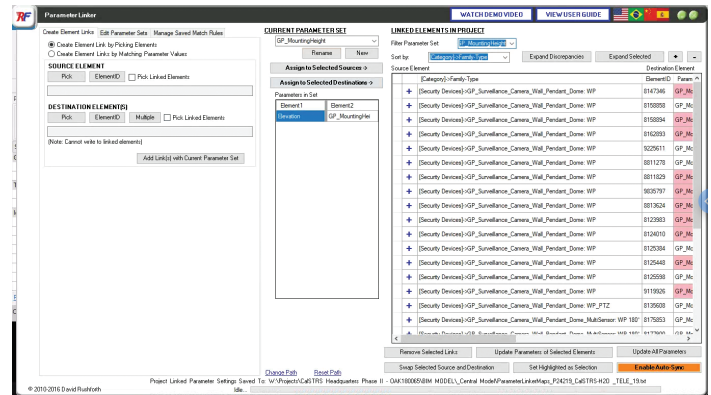


Figure 10

## PARAMETER SCHEDULER

In last month's article (AUGIWorld, June 2019), Dan Stine made the case for industry-standard shared parameters, which is a great goal. Until that day comes, Parameter Scheduler (Figure 11) can help wade through the drudgery of family content with mismatching parameters. With the Project Schedules Review, upon selecting a schedule in the project, it will tell you if some families having missing parameters and then allow you to add those parameters to those families without leaving the project or having to edit the family manually. You also have the ability to add shared parameters to a project in bulk as well as apply selected parameters to families in a folder. Very useful tools for managing parameters to maximize information tagging and scheduling.

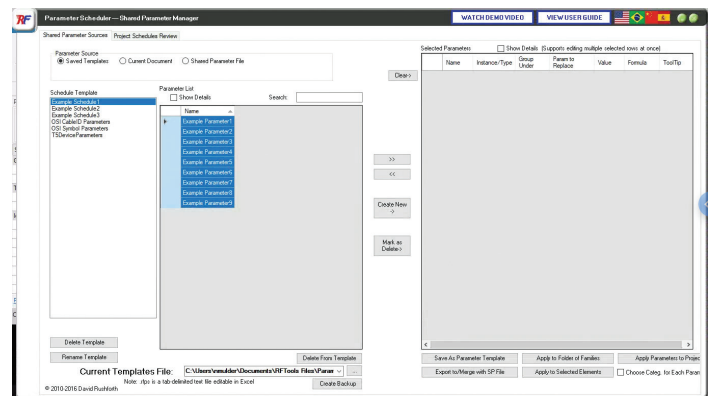


Figure 11

## ELEMENT TAGGER

Element Tagger allows you to tag any element in the model in multiple views at once. It also provides various controls for tag positioning and avoiding duplicate tags. This is simple but powerful functionality (Figure 12).

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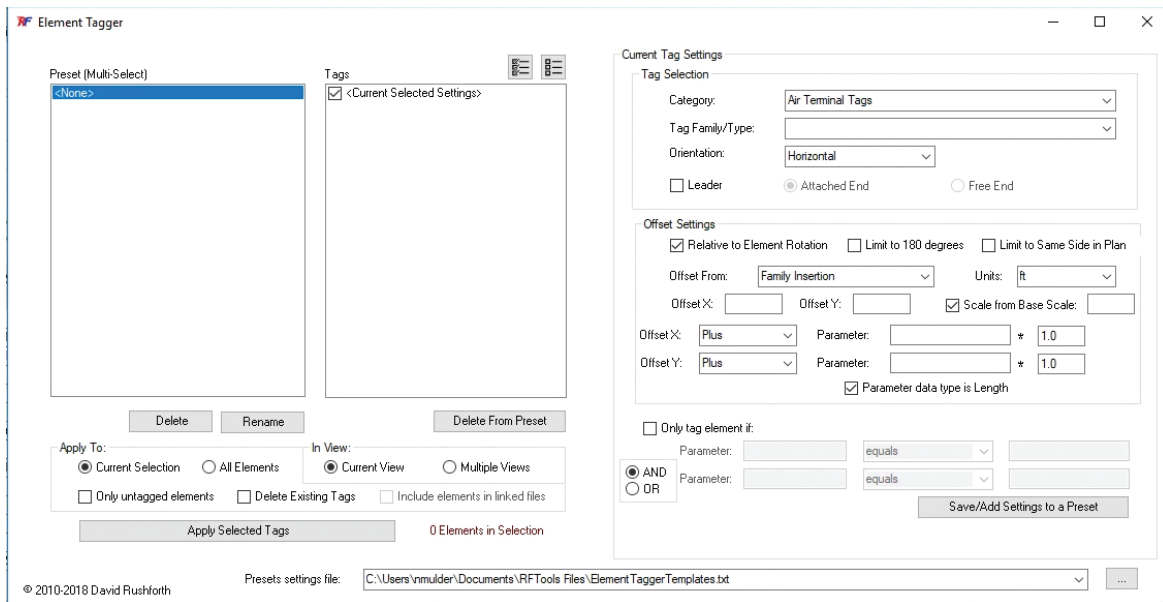


Figure 12

A few other honorable mentions are Open CAD link, 3D sections, and DraftXL. Open CAD link will automatically open the selected DWG link in AutoCAD without having to manually find the file in Windows or get the saved path from Manage Links. 3D Sections offers various helpful shortcuts for making 3D views in the model (Figure 13).

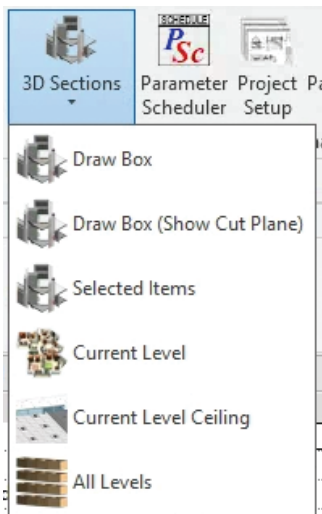


Figure 13

Lastly, DraftXL, as you might predict from the name, allows for importing Excel calculations into Revit. It converts the file/cell range to a drafting view, drawing lines for grids/borders, and text for the cell values. Obviously, scheduling elements in Revit is the preferred workflow, but this is a solution for tables not natively scheduled in Revit (Figure 14).

Add-ins extend the functionality of Revit. There is an active community of developers, many of whom make their tools available on the Autodesk Exchange app store (<https://apps.autodesk.com>).

Many add-ins are free and most are inexpensive. In most cases, the minimal purchase cost easily pays for itself in reduced or eliminated manual tasks. Consider all the things you regularly do in Revit. There is probably a third-party add-in to help you complete those tasks, saving you time and reducing errors.

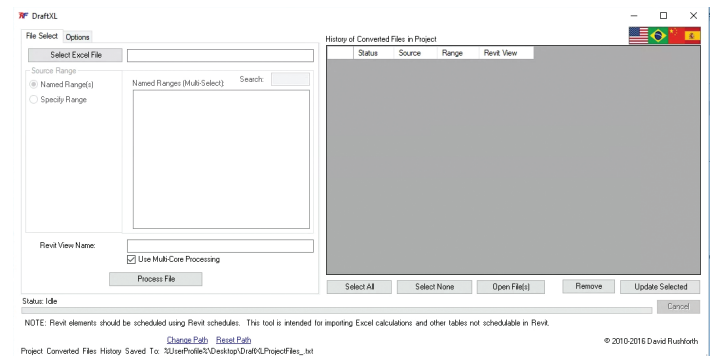


Figure 14



Nathan Mulder has more than 10 years of experience in the AEC industry. He is currently the BIM and CAD Manager for Guidepost Solutions, a global leader in investigations, compliance, and security consulting, offering design services for security, telecom, and technology systems. A Revit MEP Electrical Certified Professional, Nathan is always looking for ways to fully leverage software to improve the project design and management process. Contact him at [mulder.nathan@gmail.com](mailto:mulder.nathan@gmail.com) or on LinkedIn.