Revit for Interiors

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Class Description

Are you an interior designer thinking about using Revit? If so, wait no longer. Revit is a terrific tool for interior design. In this session, we'll explore some of the essential skills you will need to begin. We'll look at creating Revit models and setting up grids. We'll add walls, doors and FFE. Place rooms and load them up with useful data and then use that data to help build schedules, create color fill plans, finish plans and quickly place room tags. And of course we'll talk about importing CAD files too. Wrap it up with some export options and when you leave here you will be ready to begin your first Revit interiors project. If you are already using Revit for interiors, there will be some tips for you too, but this class is aimed at those just getting started. Wait no more! See for yourself what Revit has to offer.

Key Learning Outcomes:
- See how easy it is to build walls, doors and other elements.
- Learn to bring in a CAD file and use it to help in basic layout.
- Add rooms, schedules and tags.
- Learn how to output your work to PDF or other deliverables.

About the Speaker:

Paul Aubin is the author of many Revit book titles including the widely acclaimed: The Aubin Academy Mastering Series: and the all new Renaissance Revit and Revit video training at www.lynda.com/paulaubin. Paul is an independent architectural consultant providing Revit® Architecture implementation, training, and support services. Paul's involvement in the architectural profession spans over 20 years, with experience in design, production, CAD management, mentoring, coaching and training. He is an active member of the Autodesk user community, and is a high-rated repeat speaker at Autodesk University, Revit Technology Conference and a national speaker at the BIM Workshops. His diverse experience in architectural firms, as a CAD manager, and as an educator gives his writing and his classroom instruction

a fresh and credible focus. Paul is an associate member of the American Institute of Architects and a member of the Institute of Classical Architecture. He lives in Chicago with his wife and three children.

Introduction

If you are involved in Interior Architecture and Design and are considering the use of Revit in your practice, then you have come to the right place. In this class, we will explore many of the features and benefits of Revit Architecture for interiors projects. The first session will introduce concepts and procedures of using Revit for interiors. The second session will be a hands-on lab where you will get the opportunity to try out some of the techniques first-hand.

There are many entry points to adding Revit to your existing workflow. The most important thing to realize is that you can take it slowly and implement the features that matter most to your practice as project needs dictate and business cases develop. Whether you are interested simply in creating more tightly coordinated construction document sets or wish to implement Building Information Modeling (BIM) into your practice, Revit has something to offer. In the topics that follow, several tips will be presented for ways to achieve common task required by interior design using Revit Architecture.

Getting Started

If you have not yet begun using Revit, then a few obvious questions typically are at the top of the list: Why should we use Revit? How do we get started? Is Revit hard to learn? What benefits will we see? Can we use Revit with AutoCAD files? And many more. This paper will try to address many of these questions and more. For an answer to "why" we should use Revit, there are many potential answers, but consider one of my favorite Revit features: The Project Browser (see Figure 1).
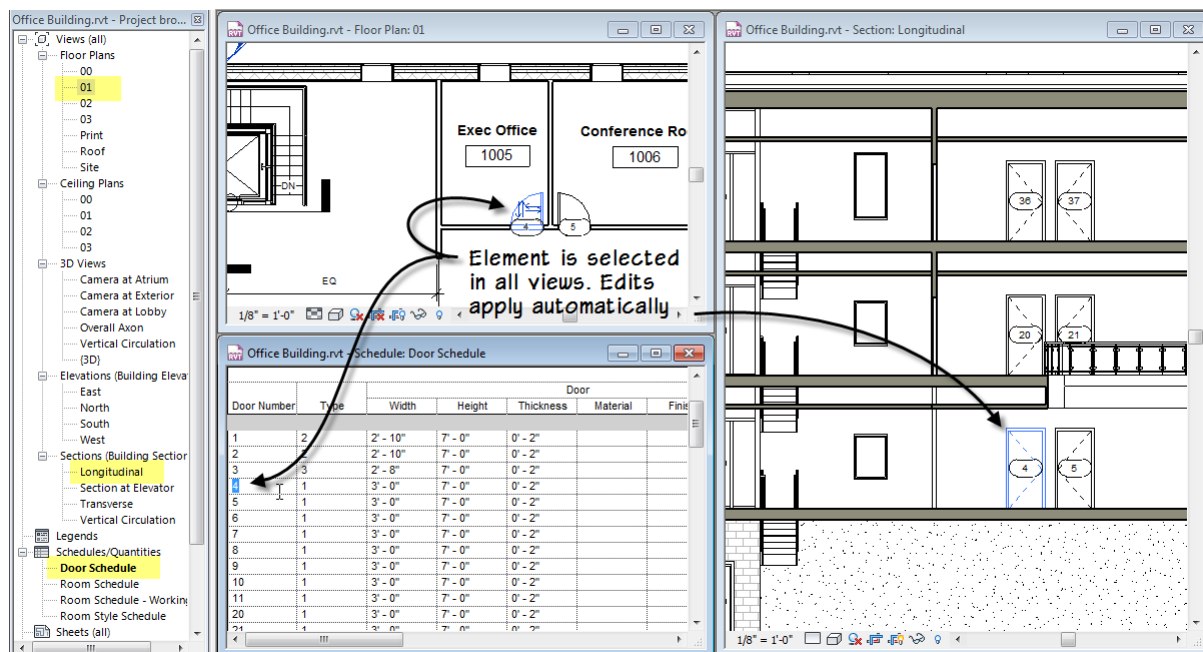
Figure 1 – Select and edit in one view affects all views automatically

In Revit, you create a single virtual model of your project. Revit allows you to view this model in a variety of ways including: floor plans, elevations, sections, ceiling plans, details, 3D views and schedules. Further, you can edit the model from any view and changes automatically appear in all other views. Since there is a single model that is simply displayed as a plan, section, schedule or 3D a change to one view is a change to all. Views *cannot* get out of synch. By itself, this feature alone can be enough to justify using Revit over more traditional approaches where there are dozens of disconnected drawings that represent the same portions of the project and must be manually coordinated.

Edit in any View

If you are new to Revit, getting comfortable with the project browser is definitely the place to start.

The easiest way to get started with this feature is to open an existing Revit project and open several views onscreen and make some simple edits.

1. Open the *01* and *02* floor plans, the *Longitudinal* section and the *Room Schedule*. Tile the windows.

2. Move a door in the *02* plan for example and watch it move in section.

3. Type a new name in a *Room Schedule* and watch the tag in the floor (and ceiling plans) update.

4. Delete an element from one view and watch it disappear in all others.

The easiest way to conceptualize this concept is to think of the actual finished building. Even though you might draw a door several times in your documents: once in plan, once elevation, again in schedule, there is really only one door in the actual building. If this door changes size, location or is removed, it affects only one "real" door, but in traditional procedures, several edits would be required. In Revit, it is built in the Revit model as it is in real life: one real door, one Revit door. Simple.

Basic Building Elements

Walls, Doors, Rooms and Ceilings offer the basic building blocks for many projects. In addition, you can add furniture, casework and equipment and even build specialty items like glass partitions and perform detailed area calculations. Revit offers tools for each of these items. Draw walls in plan by designating overall parameters like height and wall type and draw by picking start and end points. Walls can be straight lines or arc curves. Doors automatically cut holes in walls. Ceilings find the shape of surrounding walls automatically or you can draw custom shaped ceilings in any shape you require (see Figure 2). Equipment, furniture and casework items are placed from a library of content provided with the software or you can locate additional items online at various content provider websites or even build your own.
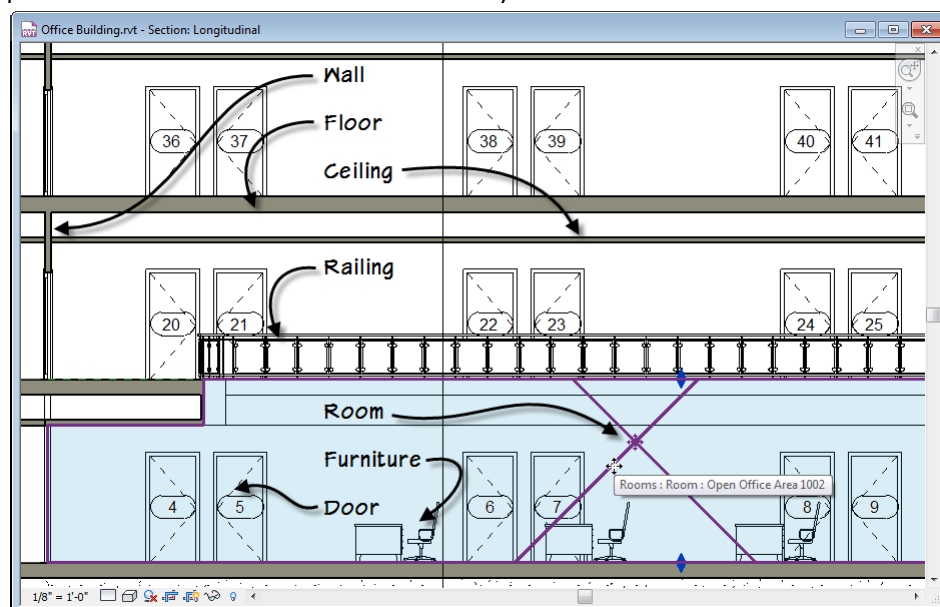

Figure 2 – Various model elements shown in section

There are the obvious benefits of using such objects. For example, rather than draw two parallel lines for each wall, a single wall element is drawn. When two Revit walls intersect, they join automatically creating clean intersections with the additional trimming required of individual lines in CAD. When you place doors, they cut holes in the host walls. Railings, floors and ceilings can all be easily derived from surrounding geometry with little additional effort. Some of these benefits were already noted.

Just the Basics

Let's create a new model and add a few basic elements to get the hang of creating Revit elements.

1. From the Application menu, choose: **New > Project**. Choose the Default Architectural Template and click OK.

2. On the Architecture tab, click the Wall tool. On the Draw panel, click the rectangle icon and then click two opposite corners onscreen to place a rectangle. (It can be any size for now).

3. On the Draw panel, change to the Start, End, Radius arc.

4. Click the first endpoint on one of the walls, the other on the wall opposite it and then click in the middle somewhere to set the radius.

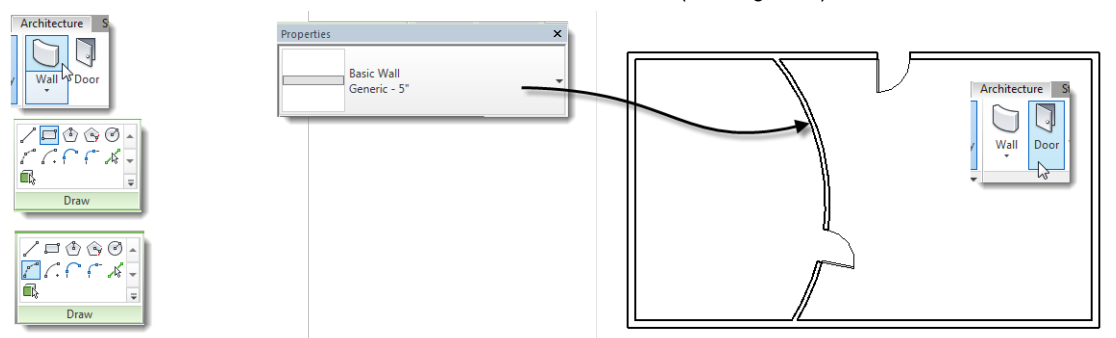5. Click the Door tool next and add a few doors (see Figure 3).

Figure 3 – Create some walls and doors

6. On the Architecture tab, click the Floor tool. Accept all the defaults and then click each of the four exterior walls (not the curved wall). On the ribbon, click the Finish Edit Mode button (large green checkmark).

7. On the Architecture tab, click the Component tool. A Desk will be loaded by default. Click to place one in the model. Tap the SPACEBAR to rotate the desk and then click to place another.

8. On the ribbon, click the Load Family button. Browse to the *Furniture* folder and load a chair family.

9. Place a few chairs.

10. On the Architecture tab, click the Room button. Move the cursor into one of the enclosed spaces and then click to place a room. Repeat in the other space (see Figure 4).
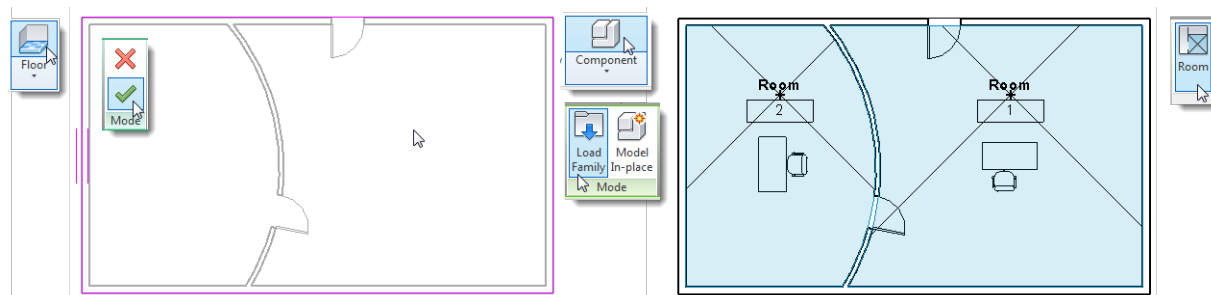
Figure 4 – Add a floor, some furniture and rooms

11. On the Project Browser, double-click the *Level 1* ceiling plan to open it.

12. On the Architecture tab, click the Ceiling tool. On the Properties palette, set the Height Offset From Level to: **9'-0"**.

13. Click inside each room to place ceilings.

14. Stay in the ceiling tool, on the Properties palette, from the Type Selector, choose: GWB on Mtl. Stud. Set the Height Offset From Level to: **8'-0"**.

15. On the ribbon, click the Sketch Ceiling button. On the Draw panel, click an enclosed shape like the circle or ellipse.

16. Draw the shape within one of the rooms and then click the Finish button (green checkmark).

17. On the View tab, click the Section tool. Click two points cutting across the plan.
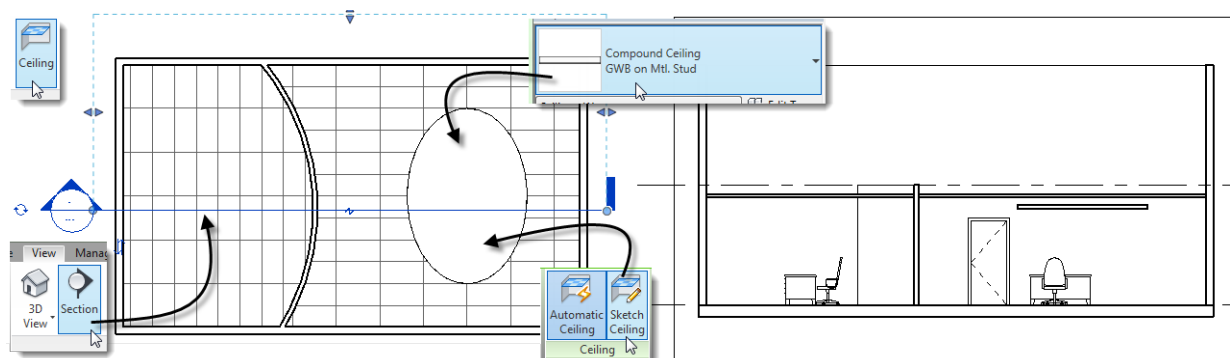
18. Right-click and choose: Go To View (see Figure 5).

Figure 5 – Add a sketched ceiling

You can continue adding elements in similar fashion. Each kind of element has unique characteristics that emulate the real-life elements which they represent.

Design sketches and DWG files

At a high level, considering just project browser and the single building model with its multiple views and the enhanced productivity of using Revit elements to create your building model we already have some compelling reasons to consider Revit for our next project. So the next question is likely when should we

add Revit to the process? Should the project be begun immediately in Revit, or should it be transitioned there after some preliminary work in other programs? Naturally the answer depends. If you have a team of experienced Revit users, you can begin right away in Revit without the need to start in other software first. If the team is new to Revit, there is usually a productivity dip before people get up to speed with the Revit process. At the early phases of a project, the budget may not be able to absorb the associated costs of the learning curve.

Even with an experienced team, sometimes folks will prefer to work in other design tools in schematic design. These might include AutoCAD, SketchUp or other 2D and 3D design packages. Furthermore, many building owners and clients will provide base building information as 2D CAD files often in DWG format. Revit can import CAD files and many popular raster file formats. If you receive such a file, do not feel compelled to trace or otherwise "Revitize" this background file. It is possible to import the background file as is and work in Revit directly on top of the file without editing it or converting it. The specific needs of the project will largely dictate the appropriate course of action. If editing of the background is required (if renovation of an existing space is part of the scope for example), you will have to weigh the pros and cons of tracing the CAD file in Revit vs. performing the necessary edits directly in CAD.

It is possible to begin using Revit at nearly any phase of the project. Naturally, the earlier that you incorporate Revit into the team's workflow, the less potential there is that rework will be required. Regardless of the phase when you begin using Revit, keep the following in mind with respect to CAD files used in Revit projects:

CAD files can be imported or linked. An imported file is embedded in the Revit project and cannot be updated if the original CAD file is modified. Linked files maintain a connection to the original CAD file. If the file changes, you can reload the changes using the "Manage Links" dialog. This is typically the preferred approach for most CAD files, particularly if work is being conducted in CAD concurrently to the work performed in Revit (see Figure 6).
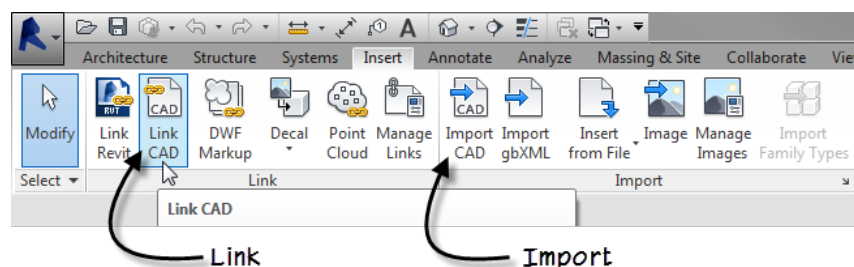
Figure 6 – Link CAD and Import CAD buttons are found on the Import tab

If you Import a CAD file: Do not explode! Exploded CAD files bloat your Revit project file size and create many unnecessary line styles, materials and other project settings and standards that can be difficult to manage and/or purge. If editing of the CAD file is required, it is much cleaner to edit the file in the original application and then re-import it into Revit.

If you Link a CAD file: You cannot explode a linked file, so this is not a concern when linking. Use the Manage Links dialog (Insert tab, Link panel) to modify the settings of the linked file and to reload it during your Revit session. You can also unload it and convert it to an Import with the Import button (this breaks the link). Pay attention to the various settings at the bottom of the "Link or Import CAD Files" dialog. Several options are available when you link and import CAD files.

Current View Only: This checkbox determines if the CAD file will behave like model or detail geometry in Revit. If you leave this box unchecked, the CAD file will appear in all views (behaving essentially like Model Lines). If you check this box, the CAD file will appear *only* in the current view (behaving essentially like drafting lines). If you have a CAD file for each floor of a building, you will probably want to check Current view only. If you have a base building file that is the same on multiple floors, you will want to clear the checkbox so that it will appear on all views. If you need it in some views, but not all, you will need to clear the Current view only checkbox and then hide it individually in views that don't require it. You can use the "Visibility/Graphic" overrides dialog to hide it, or use the Hide tool on the ribbon.

Colors: settings include preserve, invert and black and white. AutoCAD typically uses a black background and Revit typically a white one. If you want to show and print the CAD file in color, Invert is a good choice since the AutoCAD primary colors may not read too well on a white background. Invert (or preserve) are good choices if you are tracing the background. Having the color display

onscreen will make it easier to see when you have finished tracing the lines in the file.

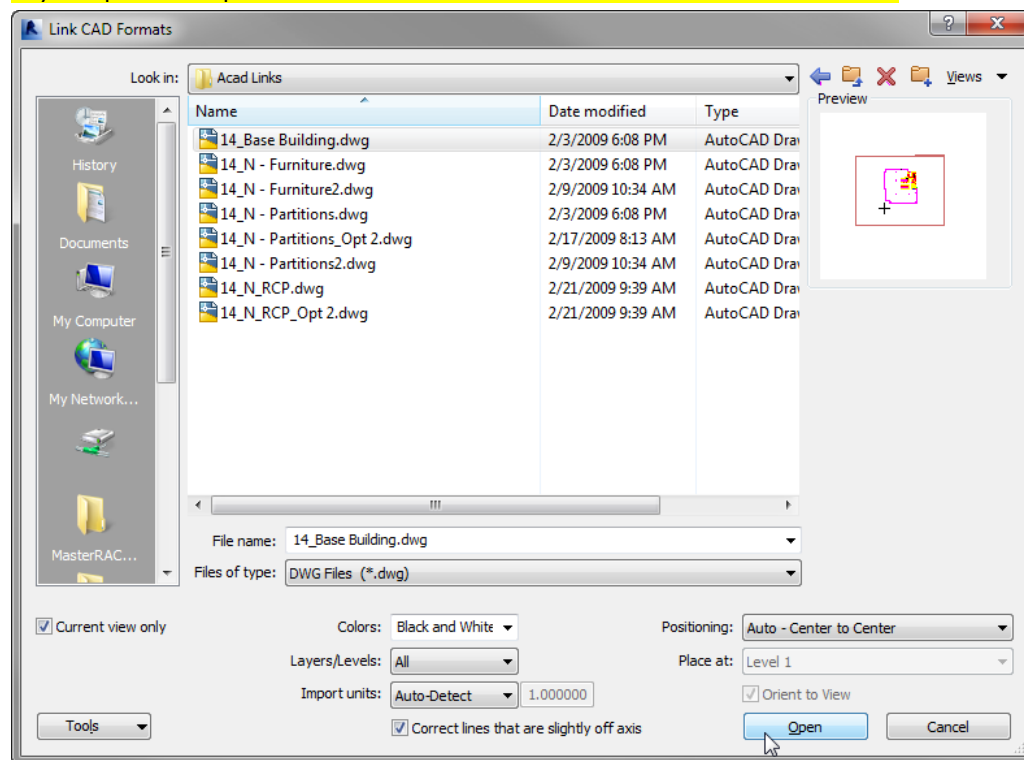If you plan to print the file from Revit, use Black and White.

Figure 7 – Link a CAD file

Positioning: Many options are available. Common wisdom would dictate favoring the Origin to Origin option. However, the way that Revit manages coordinates is different than AutoCAD, so this may not be all that necessary in most Revit projects. Whichever option you choose, you can save the coordinates in a "shared coordinate" system after linking the file. Consult the online help for more information on Shared Coordinates.

Tracing a CAD File

If you find you need to "convert" a CAD file to a Revit model, unfortunately there is no automated way to do this. Tracing the underlying CAD file is your only option. However, Revit is very smart about interpreting the CAD file. For example, Figure 8 shows that Revit will find the centerline between two lines in the CAD file as you trace with the Wall tool. This will speed the task of tracing the file.
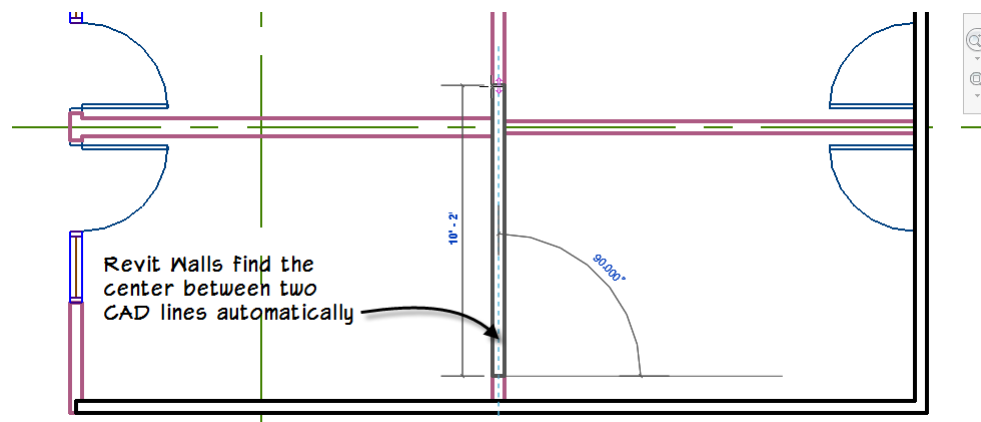
Figure 8 – Tracing a CAD file with Walls

Look carefully at the right side of the figure and note that you should draw walls continuous and not break them at doors and windows. Instead, when you are finished adding walls, come back and add door and window elements. These will automatically be hosted to the walls and cut openings.

Design Options

Creating design schemes with traditional design tools would typically require that multiple copies of each drawing or model be created and maintained. With the Design Options feature in Revit, you can maintain a single model that contains one or more schemes within it. With this methodology, you can explore and present multiple design possibilities while avoiding much of the repetition and duplication of traditional procedures. Furthermore, Revit's fully coordinated building information model is maintained and updated "on-the-fly" accurately representing each scheme as various Design Options are made current.

The Design Options feature (see Figure 9) gives you a flexible way to create, manage, and present alternate design proposals. Using one or more "Option Sets" each containing various "Options," you are able to manage variations in your design that deviate from the "Main Model." You can present each option independently in separate Revit views and sheets including schedules that will accurately reflect the active option.
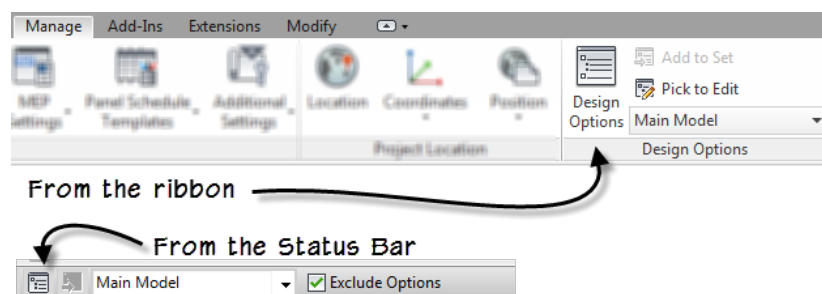
Figure 9 – Access Design Options on the Status Bar or Manage tab

The following are some basic definitions of common terminology used in conjunction with the Design Options functionality.

Main Model—This term is used to describe any part of your Revit design that has no variation under consideration. In other words it does not have any Design Options associated with it. Before you add Design Options to a project, everything is part of the Main Model. Once you begin adding Options, you can move elements from the Main Model to one or more Options.

Option Set—Each work area or portion of a project to which you will consider design variations will become an Option Set. For example if you wanted to consider variations for the entrance to your building, you might create an Option Set called "Main Entry." To this set, you could add an "Option" for each variation you wish to consider.

Option—Each Option Set will contain at least one Option, but to be meaningful, you should include at least two Options. An Option represents a discreet design variation you wish to consider in your project. For example, if you had a "Main Entry" Option Set as suggested above, you might have two Options within it called "Single Door Entry" and "Double Door Entry." Each Option would show the appropriate geometry to represent the design intent of that Option. Both options would contain a copy of the wall that hosts the door variations.

Primary—The Primary Option is simply the Option that you or your client favors. It is the most likely to be accepted and implemented in the final design. When you make an Option Primary, all views in the project will update to reflect the change. You do not need to make an Option Primary to edit it. In fact, making an Option Primary is typically done late in the process as a step in the process of accepting an Option and removing others from consideration (see below).

Accept Primary—This function merges the Primary Option in a Set back into the Main Model and permanently removes all others from the project.
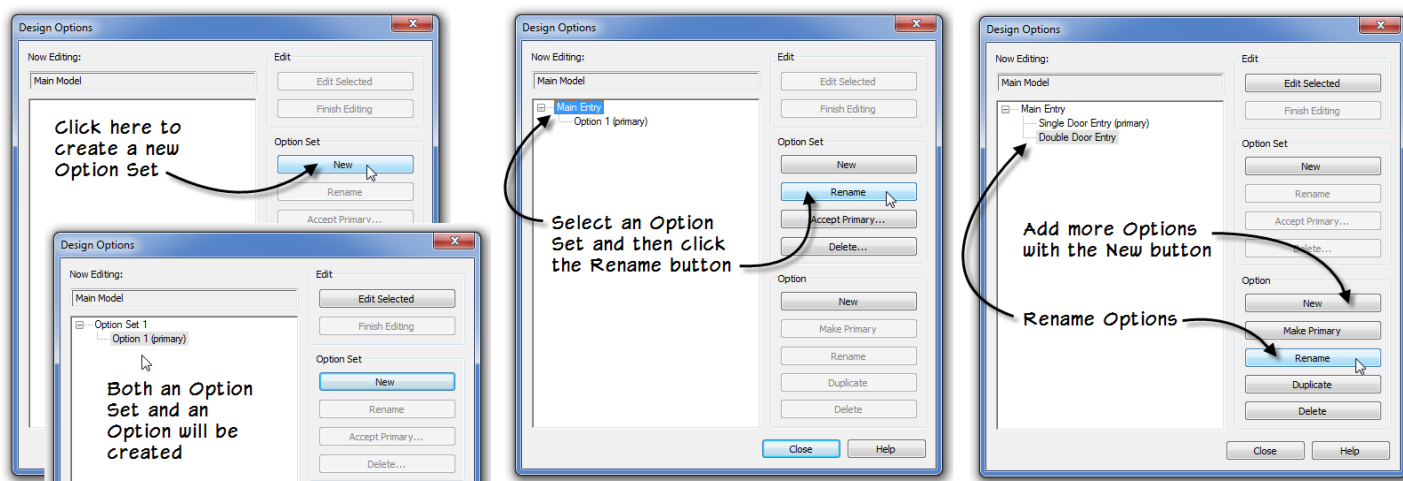
Figure 10 – Before you can begin you must add at least one Option Set and Option

The Design Options toolset is intended as a means to manage the design variations (schemes) under consideration. As such, it is assumed that at some point in the design process, one of the Options will be chosen over the others. The Design Options tool is therefore meant to be temporary. While you could maintain more than one Option indefinitely, the intent of the tool is that one of the Options under consideration will ultimately prevail. The tools will be most successful when used in conjunction with the workflow described herein. However, like many aspects of architectural practice, procedures and workflows can and often do vary from firm to firm and even project to project within the same firm. Therefore, while the intention of Design Options toolset follows a narrow scope and focus, you will find that with a little creativity, it can be used successfully even when deviating from its "intended workflow."

The basic procedure for Design Options is as follows:

✓ Create an Option Set containing two or more Options.

✓ Add geometry to each Option.

✓ Create views (in Project Browser) with Design Option overrides applied to present each scheme.

✓ Upon approval by your client, make an Option Primary and then "accept" the Primary.

Room and Area Calculations

For basic square footage calculations, you can query the area of the room elements in your project. Rooms provide basic "finished" area, volume and simple finish designations (see below). Also, rooms report the name and number for tags and schedules. For more control over square footage calculations, Revit has a special floor plan type called and Area Plan. Area Plans use Area Boundary lines and Area elements to define areas and calculate their values very precisely (see Figure 11).
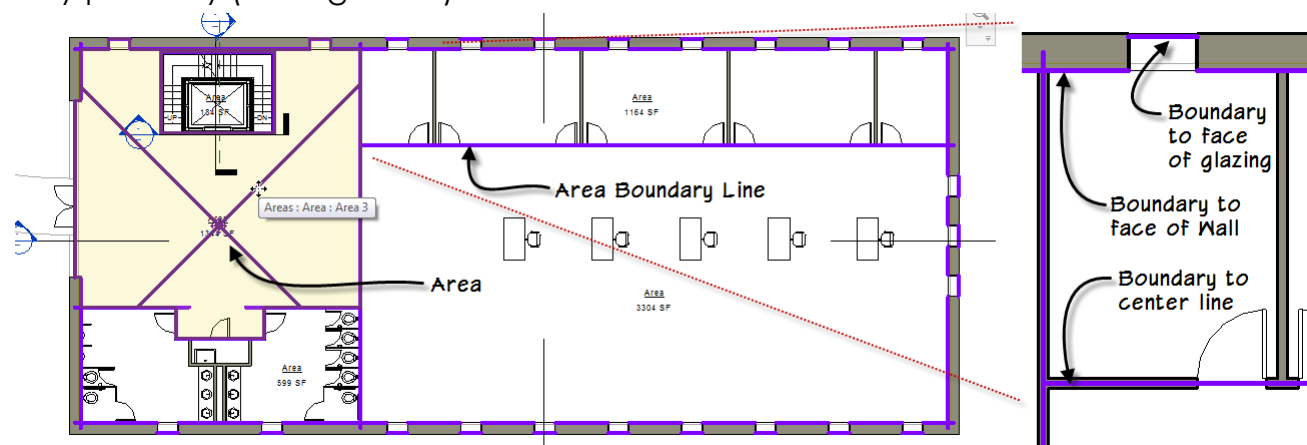

Figure 11 – Creating an Area Plan

The basic procedure for creating an Area Plan is as follows:

✓ On the Home tab, on the Room & Area panel, click the Area tool and choose: **Area Plan**.

✓ In the "New Area Plan" dialog, choose the Type of Area plan (Rentable or Gross Building), the floor level and the scale and then click OK.

✓ You will be prompted to automatically create boundary lines. If you answer yes, Revit will attempt to determine the location of the area boundaries (center of wall, face of glass, etc.) based on the rules built into the system. Consult the online help for more information. You can always override any automatically generated boundary lines by adding your own manually and/or adjusting the automatically created ones.

✓ Click the Area tool again and choose Area Boundary Line to add additional boundary lines. Your goal is to enclose each region that you wish to measure.

✓ Once all Area Boundaries are placed, use the Area tool to add Areas. Simply click in an enclosed region to add the Area. Optionally rename them.

✓ Generate a schedule to see a list of all areas with their values.

There are two schemes included in the out-of-the-box templates. Gross Building Area and Rentable. Gross Building Area will automatically generate Area Boundary Lines to the outside edge of exterior walls, while Rentable will look at adjacencies and inserts in walls to determine if lines should be placed at the face or center of the wall or at the face of glazing. After you add area elements, you can select them and edit their properties. The Area Type parameter is useful to define each area within a set list of types. For the Gross Building Area scheme, two Area Type values are provided: Gross Building Area and Exterior Area. For the Rentable scheme, Area Type values include: Building Common Area, Office Area, Exterior Area, Floor Area, Major Vertical Penetration and Store Area (see Figure 12). Add the Area Type field to a schedule to sort or sub-total based on the function of an area. The values in the Area Type list are fixed in the software and cannot be edited directly.
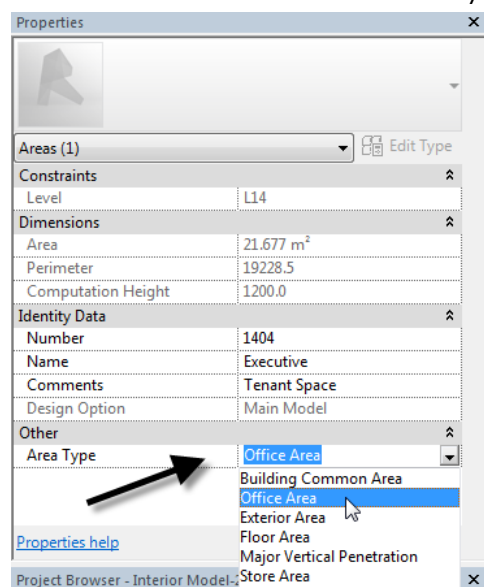

FIGURE 12 – ASSIGN AN AREA TYPE TO MAKE SCHEDULING AND REPORTING MORE ACCURATE

Each type of Area Plan will create a separate branch on the Project Browser. If you need to calculate the areas on a particular plan more than one way, you can create another Area Plan type. On the Home tab, click to expand the Room & Area panel and then click the Area and Volume Calculations button.

On the Area Schemes tab, you can click New to create another scheme. This will allow you to create a new Area Plan with alternate boundaries, areas and schedules.

Color Schemes

Color schemes can be applied to plan, section and elevation views and apply colors and patterns to rooms or areas based upon a particular rule. Any parameter of a room or area object can be used as a criterion for the color scheme. For example, if you have assigned each of your area elements (from the previous tip) to an Area Type, you can create a Color Scheme that displays Building Common Area in one color, Office Areas in another color and so on. You can even add a legend to the view that defines each possible color or pattern used in the view. Color Schemes provide an effective way to display useful information in a graphical way.

To create a color scheme, be sure you have either Rooms or Areas in a view and open that view onscreen.

✓ On the Home tab, click the Room & Area panel to expand it and then click the Color Schemes tool.

✓ From the Category list at the left, choose either Rooms or one of your Area Schemes as appropriate. (Only Area Schemes for which you have created Area Plans will appear in the list).

✓ Beneath Category, a Scheme will be suggested. You can use this one, or use the icons at the bottom to duplicate it and create a new one. Each Scheme can only apply to one parameter at a time, so if you wish to theme by Area Type and Area, you will need to create two schemes and apply them to different views.

✓ On the right side, input a title and then choose what parameter will be used from the Color list. A collection of colors will appear automatically based on the elements appearing in the model in the current view.

✓ Edit the color or pattern of any of the items if you wish and then click OK.

✓ To apply the Scheme to a View, edit the View Properties and choose it for the Color Scheme property. There is a Legend button on the ribbon if you wish to add a legend to the view (see Figure 13).
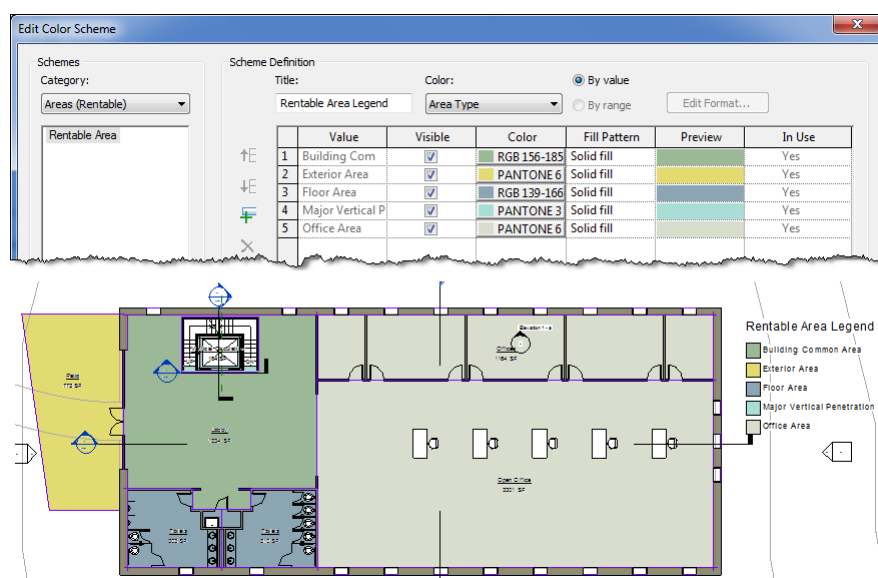

Figure 13 – Create a Color Scheme and apply it to a view

You can create as many Color Schemes as you wish in a project. However, you can only apply one scheme to a view at a time. To display the same view using different schemes, duplicate the View first and then apply different schemes to each one.

Finishes

Designating finishes is a big part of an interior design project. In this area, Revit offers a few possibilities. The simplest way to designate and report your finishes is using rooms and a room schedule. This is effective when the finishes in each room are simple and do not vary from surface to surface (the entire room uses PT-1 for example). Room objects have simple text fields for inputting finishes. The default project template includes a field for Wall, Base, Floor and Ceiling finishes. To use this functionality, add rooms, edit the room's properties and fill in the values for Floor Finish, Wall Finish, etc. Create a room finish schedule that reports these fields.

For spaces with more detailed designs and multiple finishes per surface, an alternate solution is required. Revit offers a few alternatives for such cases:

Modeling—For the sake of completeness, it should be noted that you could choose to model all surface changes. This would require splitting walls, floors and ceilings into multiple elements, and then creating and assigning materials to each such element. Theoretically this approach would maximize the amount of data you could extract from your model, and some might argue was a more "accurate" rendition of the true conditions that would ultimately be built. However, the amount of additional effort required to build such a model would make such an approach impractical. Further a model built this way would be more difficult to maintain as the project progressed. With each decision you make in a project, be sure to carefully weigh the effort required to complete a task with the expected benefits of performing the task. The amount of effort expended should not exceed the benefits gained (see Figure 14).

Figure 14 – just because you can, doesn't mean you should. Always keep the effort vs. Benefit analysis in mind as you make project decisions

Split Face—Another approach is the Split Face tool. With this tool, you can split the surface of a model element into two or more distinct regions. On the Modify tab, on the Geometry panel, click the Split Face tool and then select a face of a single model element such as a wall or floor. This will enable sketch tools and allow you to sketch the shape of the split face. Once you have completed the sketch, use the Paint tool to apply a different Material to the Split Face. Revit will literally paint the material onto the surface in this region. Unlike the modeling approach, the underlying structure of the element will be unaffected by Split Face and Paint; only the surface is affected. However, painted Materials *will* appear in schedules and you can even tag them with Material tags (see Figure 15).
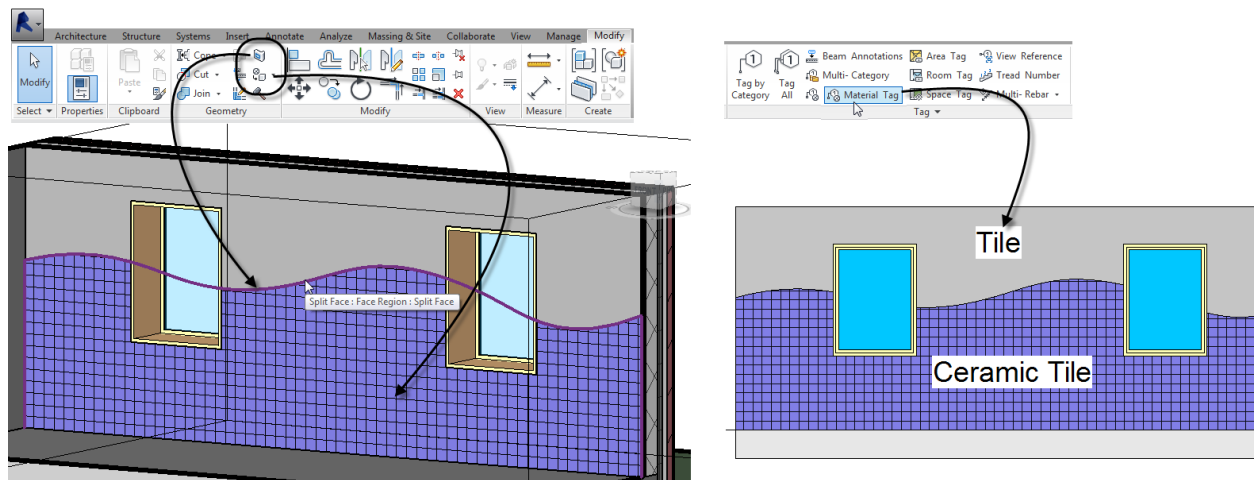
Figure 15 – Use Split Face and Paint to apply finishes to the surfaces of elements

To schedule materials, you create a Material Takeoff. This is simply a schedule that can report on the Material properties of elements in your model. To limit this takeoff to just Materials that are finishes, add a prefix in front of each of the material names you wish to include on your finish schedule. Then use the filter option in the schedule to include only Materials whose name begins with the prefix you designate (see Figure 16).
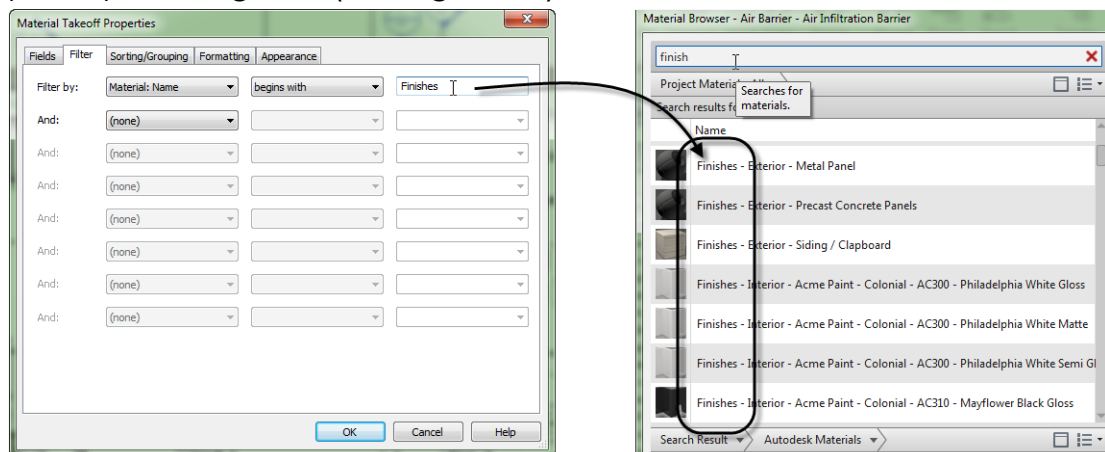
Figure 16 – Creating a Material Takeoff with a filter for just "Finishes" yields a finish list

Floor finishes—You can do floor finishes the same way. Simply use the Split Face and Paint tools on the floor element in a plan view. However, you cannot hide the edges of the split faces automatically. So in views where you don't want to see them, you have to hide them manually, usually using the linework tool.

Finish schedules—As noted, use a Material Takeoff for a Finish Schedule. When you first create it, decide if you want a single material list for the entire project, or

want separate lists for walls and floors. If you want a single list, use the <Multi-Category> option when you create the Material Takeoff. If you wish to have a separate wall or floor finish list, you can choose the appropriate category instead (see Figure 17).
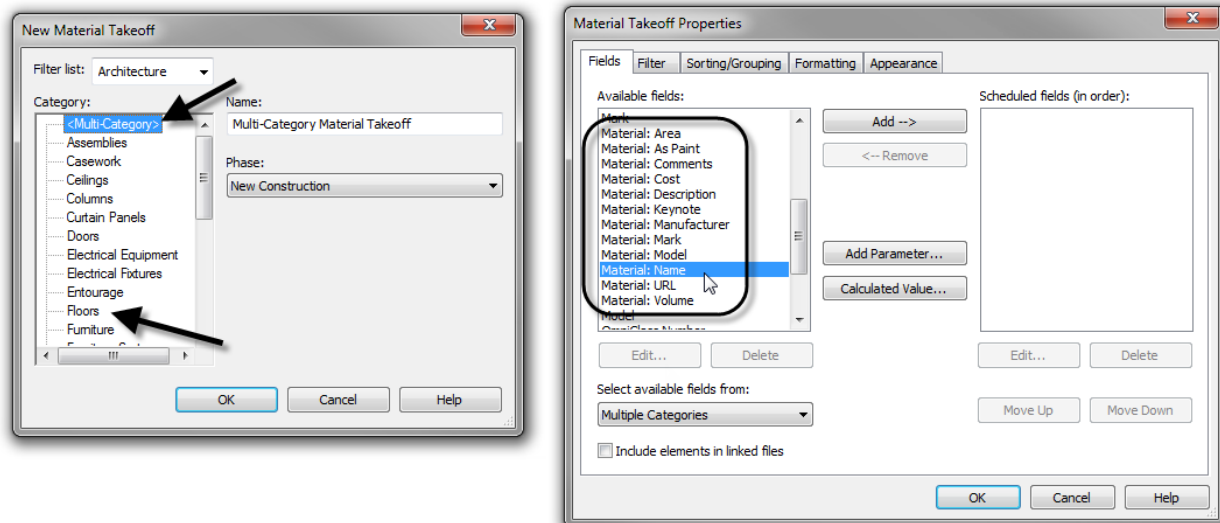

Figure 17 – Understanding the properties of a Material Takeoff

On the Fields tab, the only difference between a Material Takeoff and regular Schedule is the availability of "Material" fields for the Material Takeoff. Material fields are prefixed with "Material:" When you select one of these fields, you are instructing Revit to give you the information about the Material instead of the object to which the Material is assigned. You can tell Materials that have been "painted" onto a surface in the schedule if you include the Material: Volume field. The volume of painted Materials will be zero. You can also use the Material: As Paint field specifically to identify those that are painted.

The split face and paint approach can be effective but typically requires more effort to accomplish than what folks are currently accustomed to. This is because the sketched split regions must make enclosed shapes in order to be painted and each element must be selected to use the tool and in some cases, making those selections will be challenging and might require additional views to be created. Furthermore, each Material must be defined in the "Materials" dialog. However, the benefit of the approach is that it is applied to the model and will therefore appear in all views and we can even capture the area of painted Materials giving us a useful tool to make simply quantity takeoffs. Despite these potential benefits, in your own effort/benefit analysis, you may decide that these

benefits do not justify any additional effort. But effort expended is not the only potential downside to split face. Unfortunately, once you split a face, it will be "split" everywhere. So this means you have to sometimes go through quite a bit of work to hide the edges of the split surfaces in views that do not need to show them. There is no mechanism to hide split faces using level of detail or even visibility/graphics. So this much be accomplished with the linework tool, which can be a *significant* amount of work!

Generic Annotation Symbols

The methods above give effective ways to create a Finish Schedule or Material Reference List. However, it may not always be practical to use Split Face and Paint. Therefore, what can you do when you wish to simply callout material designations on a drawing without changing the model in any way? Can this even be done in Building Information Modeling and Revit? Well, it certainly can be done. The more important question of "should it be done?" is one you should consider carefully. But assuming that in your effort/benefit analysis, you have decided that modeling finishes is not desirable, generic annotations offer a nice alternative.

You can simply sketch lines on the views to indicate finish transitions and call them out with generic annotation symbols. This is actually easy to do except for some unfortunate terminology obstacles. In Revit, a "Generic Annotation" family is a simple 2D symbol. It can optionally have parameters (fields) in which we can input values. (If you are familiar with AutoCAD, it is like a block with attributes). The first terminology obstacle is this: "Generic Annotation" and "Symbol" mean the same thing in Revit. Generic Annotation is the kind of family and symbol is the tool used to insert them in a project. Said another way, you use the Symbol tool to insert generic annotation families. To create "symbols" you use the *Generic Annotation.rft* family template. Clear as mud?

Symbols (generic annotations) are 2D annotation and like other 2D annotations appear only in the view to which they are added. Let's assume that you wanted to add finish designations to a plan or interior elevation. Simply draft any transitions between finishes using detail lines (also view-specific) and then add a generic annotation symbol to call out the finishes. To input the finish value, you just click on the symbol and edit the value. Keep in mind that symbols like this are

not linked to anything in the model. So this is not very "BIM" like, but may in fact be perfectly suitable for the task at hand. Despite this possible limitation, there is one important upside. We can create a schedule of all generic annotation symbols that report all of the values input into the symbols! To create such a schedule, we encounter the second terminology obstacle. A generic annotation (or symbol) schedule is called a "Note Block." Said another way, a note block will list all instances of your generic annotation symbols and their associated values!

Got it? The family is a generic annotation, the tool is symbol and the schedule is note block (see Figure 18). Weird.
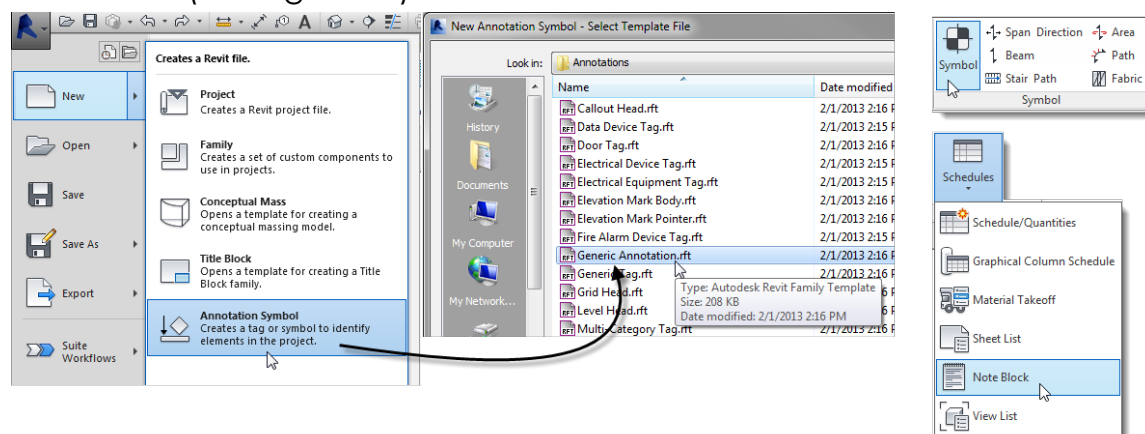
Figure 18—Generic Annotation families are inserted with the Symbol tool and scheduled with a Note Block

Using Generic Annotation for Finishes

So, even though the solution is not very "BIM-like" it is still more effective and powerful than what we are used to with traditional methods. Let's walk through the steps. Our goal here is to create a finish symbol with finish designation displayed and hidden fields for other values and then report all instances of this symbol on a schedule.

1. From the Application Menu (big "R"), choose: **New > Annotation Symbol**. In the "New Annotation Symbol" dialog, select the *Generic Annotaiton.rft* template and click Open.

There are two reference planes marking the insertion point of the symbol and a red note with some instructions. You can read the note and then delete it once you are done. The note instructs us to change the category. But in our case, we need the category to remain: Generic Annotation so we will skip this and simply delete the note. You can use this template to create other kinds of annotation and in those cases you would change the category first.

2. Delete the red note. On the Create tab, click the Line tool and draw the graphics for your symbol.

It can be any shape you like and should be drawn centered on the two reference planes onscreen. Draw it the size it will be on paper when printed. For this example, I am doing an elongated hexagonal shape with an overall width of 7/16" and a height of 5/32". The exact shape you draw is not important.
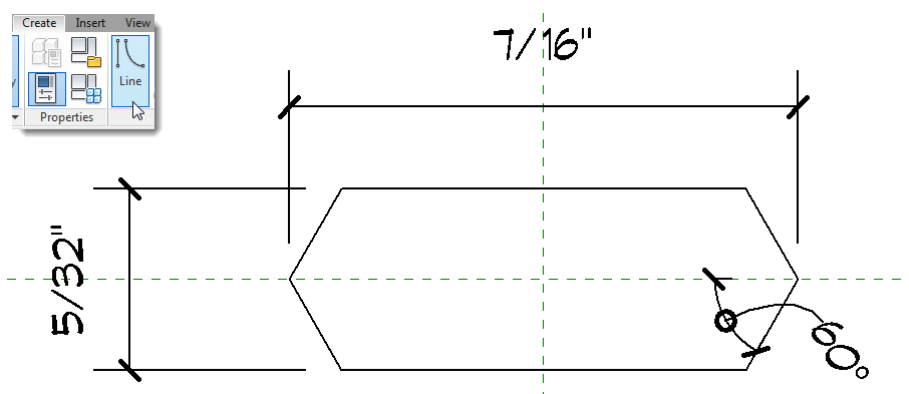

Figure 19—Draw the graphics of the symbol centered on the insertion reference planes (Dimensions here are for reference, you do not need to draw them)

3. On the Create tab, click the Label tool (a Label is a piece of text that references a parameter so that you will be able to edit the value in the project). Click in the middle of the screen to place it.

The "Edit Label" dialog will appear. Since this is Generic Annotation, there are no predefined parameters. We can add any we wish to include in our final Finish Schedule.

4. Click the Add Parameter icon (bottom left).

5. In the "Parameter Properties" dialog:

   a. For the Name, type: **Finish Code**.

   b. Choose the Instance radio button.

   c. For the Type of Parameter, choose: **Text**.

   d. For Group parameter under, choose: **Materials and Finishes** or **Identity Data**.

   e. Optionally, click the Edit Tooltip button and type something like: "Input the finish code designation" and then click OK.

6. Click OK to create the parameter (see Figure 20).
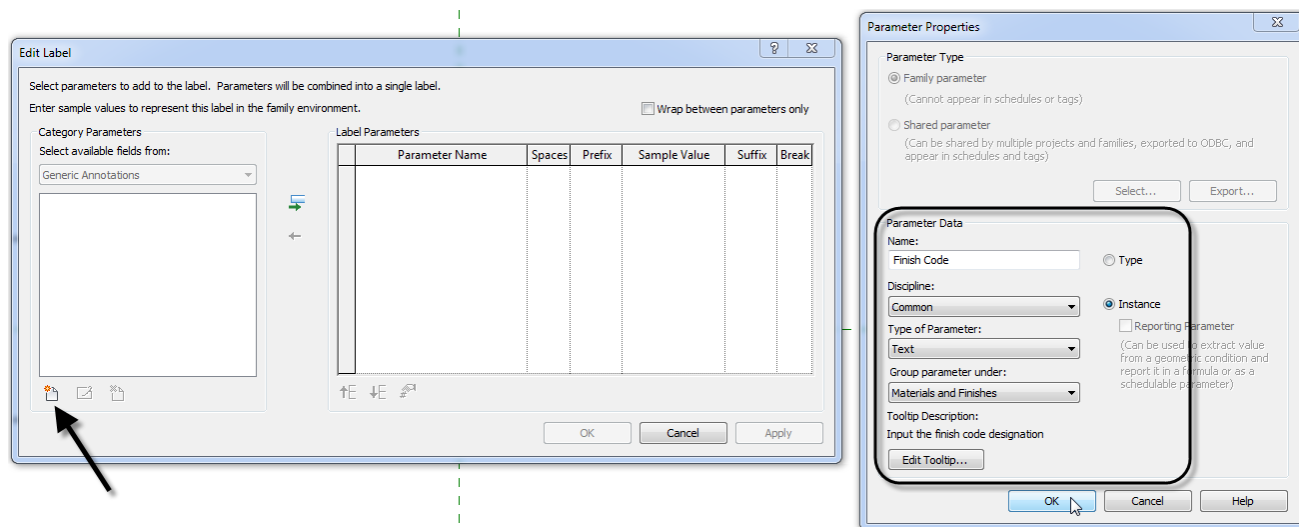
Figure 20 – Create a Parameter for the finish code designation

7. Add other Parameters if you like, such as: Description, Manufacturer or Model Number. Set them all as Instance.

8. Select Finish Code and then click the Add Parameter to Label icon in the middle. Change the Sample Value to something like X-1 and then click OK (see Figure 21).
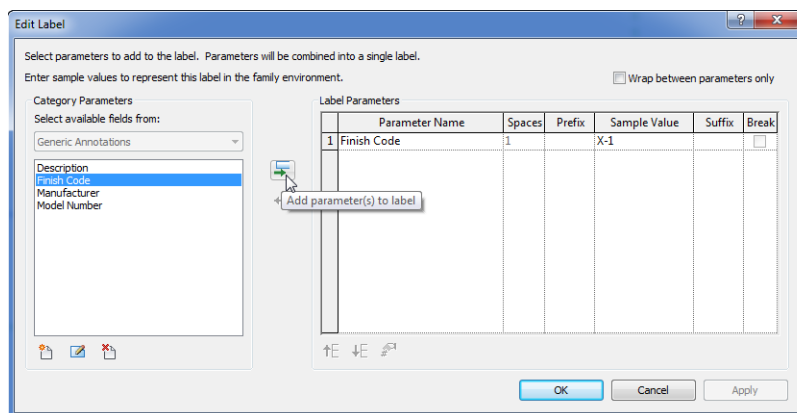

Figure 21 –Add the Code to the Label

9. Save the family file (Name it something like: **Finish Tag (Manual).rfa**) and then on the ribbon, click the Load into Project and Close button.

10. In the project, place a few instances of the symbol.

    When you first load it into the project, the Symbol tool will already be active. You can cancel the command if you are not in the correct view. To get back to the command, remember, to place a generic annotation family you use the Symbol tool.

11. On the Annotate tab, click the Symbol tool. Use the Detail Line tool to draw any finish boundaries as required (see Figure 22).
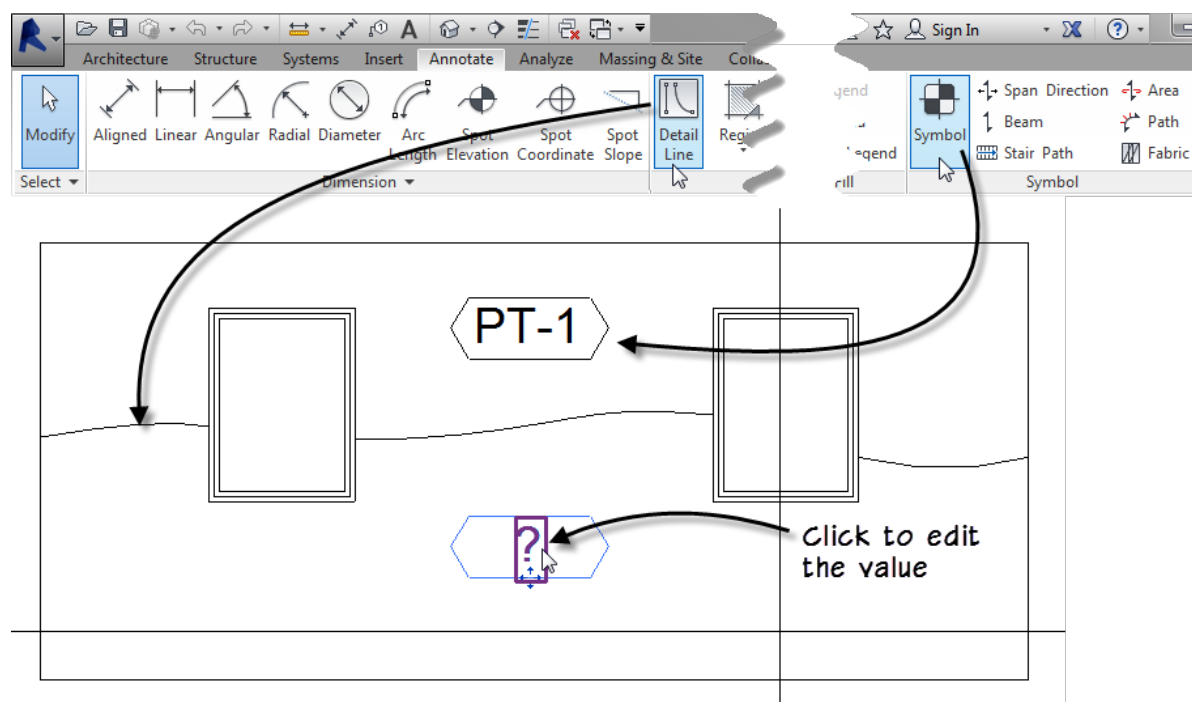
Figure 22 – Add Symbols and edit the values onscreen

12. Like other annotation, you can select the symbol after you place it and then use the tools on the ribbon to add leaders if required. You can also add leaders while placing it on the Options Bar (see Figure 23).
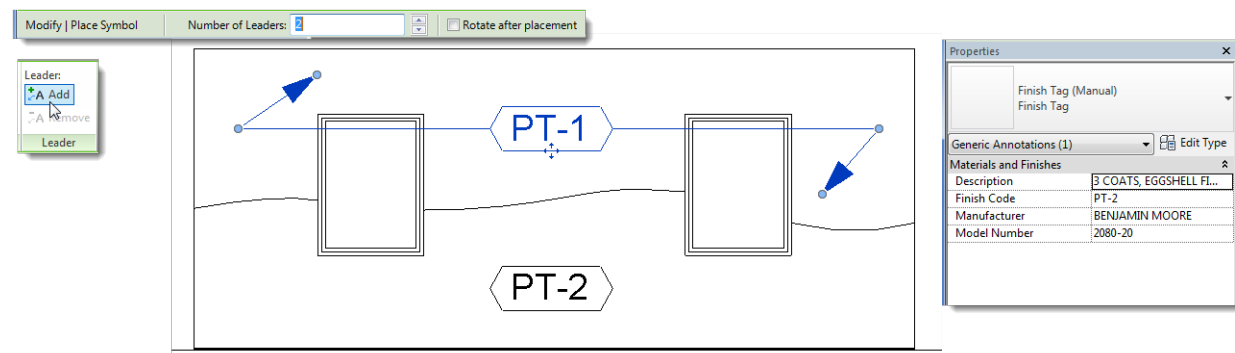

Figure 23 - Add leaders while placing symbols or add them later

13. To edit the hidden fields, select the symbol and edit its properties on the Properties palette. (Or wait till you have a schedule and edit there).

14. Add a few symbols and fill in various values on the Properties palette.
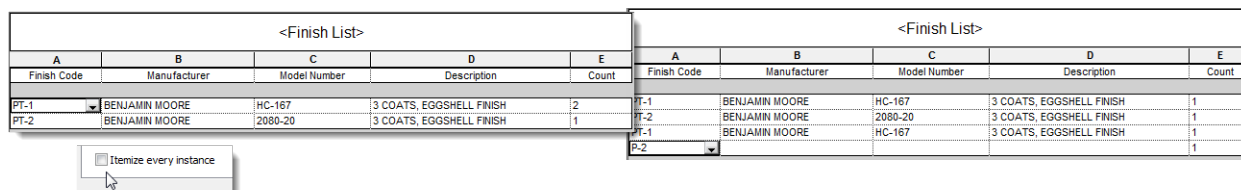
Adding the Note Block Schedule

Once you have the symbol and some values input in them, you can create a note block schedule.

1. On the View tab, click the Schedules drop-down and choose: **Note Block**.

2. Each of the generic annotation symbols in the project will be listed. Select your finish symbol, type a name for the schedule such as: **Finish List** and then click OK.

3. In the "Note Block Properties" dialog, add all the fields (except Type). Rearrange the order as desired.

4. On the Sorting/Grouping tab, you can uncheck the "Itemize every instance" checkbox and you will end up with only one entry for each unique value.

For example, if you want P-1, P-2 and P-3 to each be listed only once, uncheck this box. Further, setting it up this way allows you to easily edit the other fields associated with P-1 directly in the schedule rather than having to edit them individually in the project views. If you want to do a quality check and see if you have redundant values, turn itemize each instance back on. You can even have two versions of the schedule, one itemized for checking and editing, one not itemized as your final version (see Figure 24).

Figure 24 – Add Symbols and edit the values onscreen

Reporting annotation

Another interesting characteristic of generic annotation is that you can include dimension parameters that behave like reporting parameters in the labels of generic annotations. While I find this very intriguing, I have not come up with a really practical use of this yet. I did a blog post on it here:
http://paulaubin.com/blog/generic-annotations-in-revit/
Feel free to visit that post to learn more.

Other Tips

There are many more topics worthy of discussion. Hopefully in this short tour of Revit features relevant to the Interior Designer, you have found some compelling reasons to give Revit some serious consideration for your next project. Here are a few more items/questions to consider:

2D vs. 3D—Often people get the impression that in order to use Revit, they must model everything in 3D. I am not sure why they get that impression, maybe it is all the hype out there telling them to do everything in 3D… Much of what you build in Revit will be 3D. 3D can be very useful and powerful. However, it is *not* necessary to build everything in 3D. Furniture and equipment are terrific examples. If you plan to do renderings of the 3D space and wish for the furniture

to appear in the rendering, then you will be required to have 3D models of your furniture. But, if you are only concerned with creating furniture plans and schedules, 3D will not be required. When you build the family, simply add only 2D geometry in plan and that is all you will see in both plan and 3D views. This is also an excellent way to quickly leverage your existing symbol libraries. You can literally import the AutoCAD 2D symbols directly into families in Revit (see Figure 25).
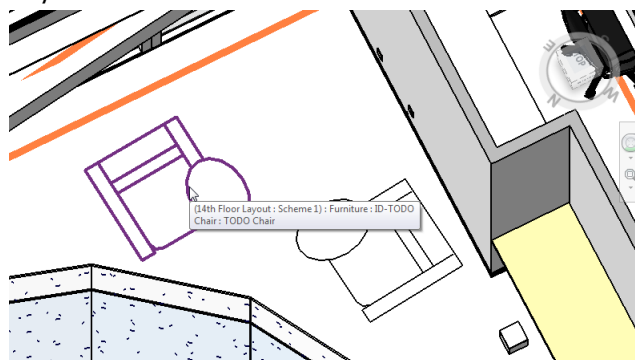

Figure 25 – Families can contain simple 2D symbols if 3D is not required

Note: *Complex AutoCAD geometry in families can impede performance. So while simply importing AutoCAD files directly into a family is the fastest way to migrate a library, a better long-term solution will be to consider converting all such AutoCAD files to native Revit 2D or 3D geometry.*

In-Place Families—for very custom "one-off" conditions in a project that will not be reused in other projects, consider In-Place families. In-Place families have the benefit that they are built "in-place" in the context of your project (see Figure 26). So you can easily take advantage of surrounding geometry to build them. However, they are not portable at all, so if you build one in a project, you will not be able to use it in another project. In fact, copying it within the same project is a bad idea as well. This will make a whole new family, even though you copied it. So unlike normal families, changes made to one copy will NOT propagate to other copies when you copy in-place families. So, if you need it in more than one location, or in another project, build a regular family instead.
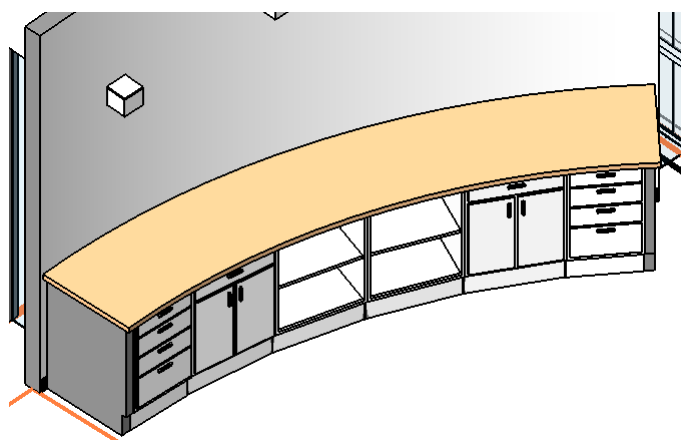
Figure 26 – Example of an In-Place Family

In-place families can be good choices for custom millwork conditions like the one shown here, or custom ceiling conditions, etc.

Moving Room Tags outside of rooms—You can move all tags to a new location. With room tags however, the room tag must remain inside the Room boundaries or it will lose its association. To overcome this, add a leader to the room tags.
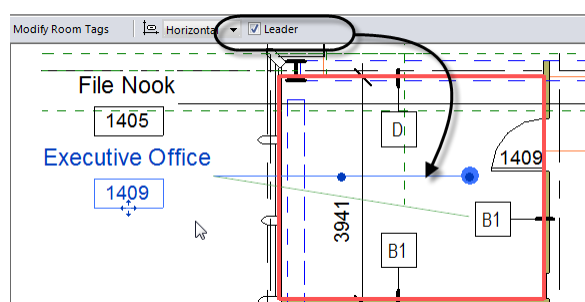

Figure 27 – To move Room Tags outside the Rooms, add a leader

Schedules—When you choose your fields for a schedule, be sure to look at the "Select available fields from" drop-down list (see Figure 28). Certain object types will allow you to query fields from other objects. For example, when creating a furniture schedule, you can choose fields from Rooms. This will allow the furniture to report in which room it is located and even list the occupant or other relevant data from that room.
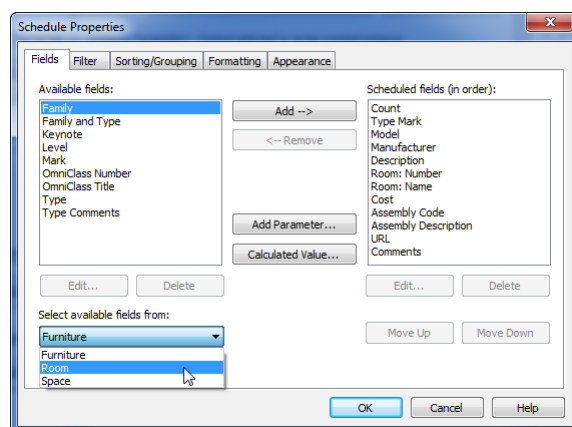
Figure 28 – Certain categories are "room aware" and can report properties from the containing room

Add Rooms to a Schedule—If you have room schedule, you can actually add rooms to your model directly from the schedule. Such rooms will appear on the schedule as "Not Placed." To do this, open a room schedule. On the ribbon, on the Rows panel, click the Insert Data Row button. This will add a room to the schedule but not the model. You can fill in its name and other properties directly in the schedule. Later, in a plan, you can place the Room by choosing it from the Options Bar when adding a Room (see Figure 29).
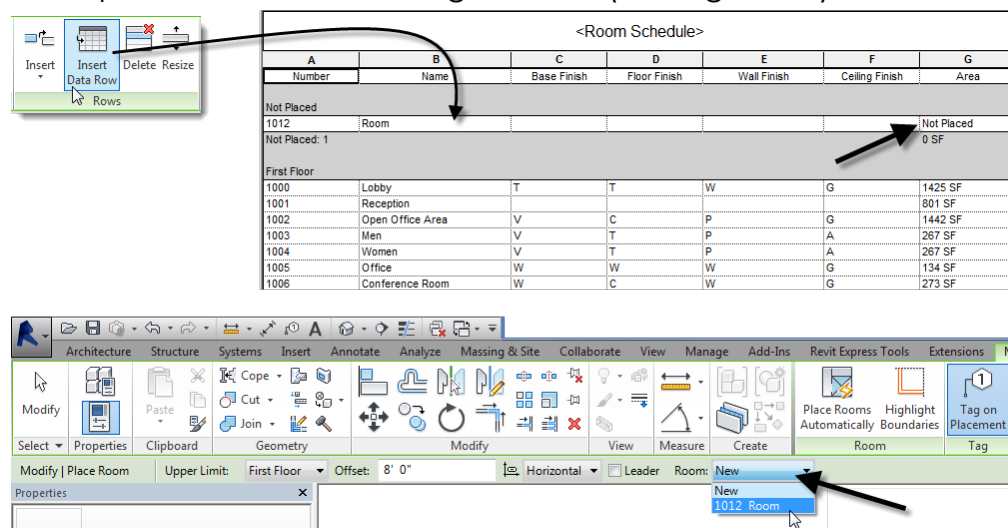

Figure 29 – Add Rooms to a Schedule and place them later

There is SO much more to Revit than we had time and space to cover here. So please do continue to explore. I am sure that if you had any doubt about Revit and its usefulness to Interior Design, you will be pleasantly surprised!

Further Study

You can find more information and tutorials in my books and video training. Please visit my website at: www.paulaubin.com for more information on my books.

I also have Revit video training available at: www.lynda.com/paulaubin. I have several courses at lynda.com including: Revit Essential Training, Revit Family Editor and Revit Architecture Rendering, Advanced Modelling in Revit Architecture, Formulas and Curves and many more. If you have any questions about this session or Revit in general, you can use the contact form at www.paulaubin.com to send me an email.

Follow me on twitter: **@paulfaubin**

Thank you for attending. Please fill out your evaluation.