BIM for Interiors:
Making Autodesk® Revit® Work for You

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AB4864   This class will cover several pain points that are encountered while incorporating interiors into the BIM process. You will learn what to do, as well as what not to do when using Revit Architecture for modeling, detailing, and scheduling interior components. If you are feeling as though you are not taking full advantage of its coordinated, intelligent environment, this class will get you going in the right direction. Discover what you can do to make Revit work for you. Whether you are using an integrated architecture and interiors model, or a completely separate interiors model, these workarounds will help save time and prevent lots of headaches.

Learning Objectives

At the end of this class, you will be able to:

- Discover workarounds for common pain points

- Evaluate when to use 3D vs 2D elements

- Use coordinated schedules

- Create custom hatches

About the Speaker

Ms. Lamb is a Technical Specialist in Architecture for U.S. CAD with ten years experience in the architectural industry and is an Autodesk® Revit® Architecture Certified Professional. Prior to joining the Autodesk Reseller channel, she was an AutoCAD® instructor at the Delaware Technical and Community College, and has served as a CAD technician in a variety of architectural firms. Ms. Lamb has utilized Revit Architecture to complete conceptual through construction documents on both domestic and international resorts and residences. She regularly conducts seminars in the use of Autodesk technology in Architectural & Interior design and provides implementation services, content creation, customization, training, and support on Revit Architecture.
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Discover Workarounds
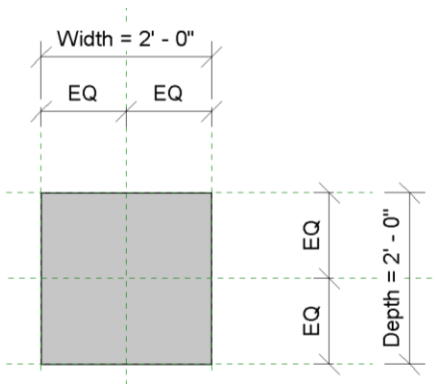
Placeholder Families

For the interior designer, placeholder families can be problematic. Swapping out families throughout the design process runs the risk of losing data such as manufacturer, style, materials, etc... In this session we discuss how to use placeholder families effectively & efficiently without losing valuable data or time.
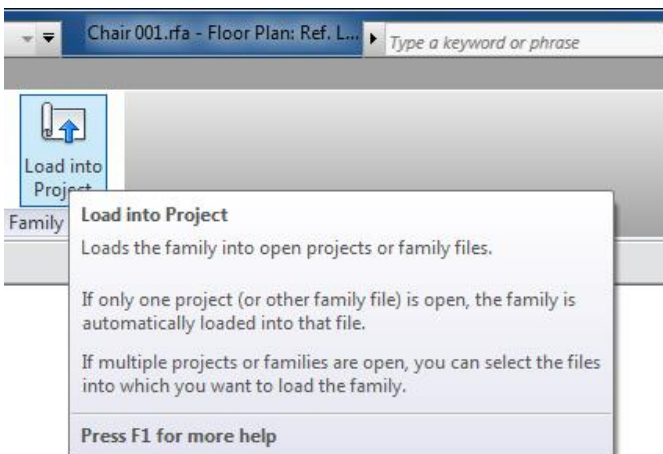
Create Placeholder Families

First you should create a placeholder family. Start with a furniture family template and create a simple box to represent your object.

A simple box doesn't take much time to create yet it gives you an accurate example of the overall dimensions required in your space planning. (See Appendix A for step by step instructions on creating a simple box.) Save this family in a location set by your office standards and name the family something generic like: Chair 001.


Load it into your project and start to layout the basic placement of your furniture.

Swap out Placeholder Families

Once basic design & layout is settled, specific manufacturer, style, & material needs to be chosen. At this point there comes the decision of how to change from the placeholder family to a specific family. One option is to swap out the placeholder families with a manufacturer specific family. This option is best used when you have not inputted any manufacturer data into the placeholder family yet.

Several manufacturers are creating quality content and placing it on Seek. Revit has a direct link to Seek within the program now. Go to the Insert tab on the ribbon and type a keyword into the Seek search box. Always have your BIM manager review downloaded families before placing them directly in your project.
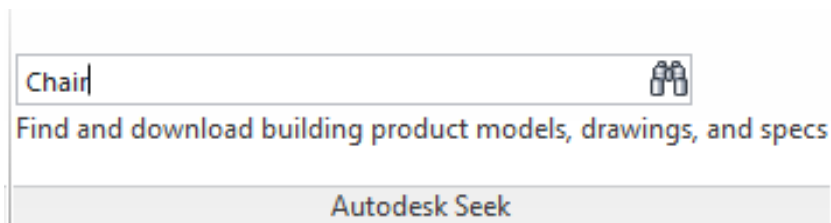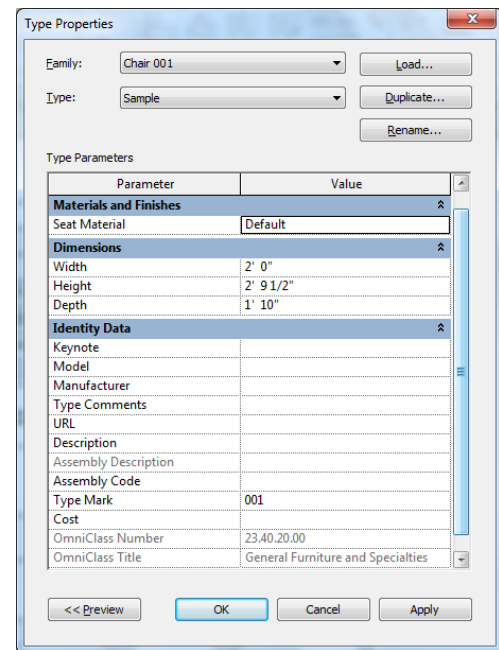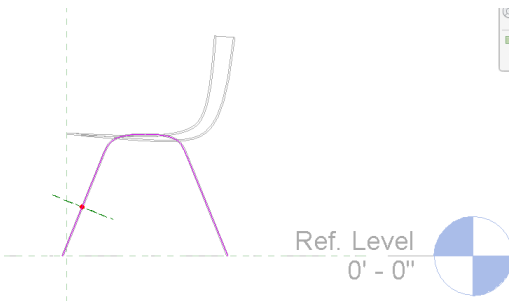
One you have a manufacturer family chosen, load it into your project. Right click on one of your placeholder families (Chair 001) and chose "Select all Instances" and then chose the manufacturer family in the type selector. All of the placeholders will now be replaced with the new family.

Edit Placeholder Families

If you already have data inputted into your placeholder family then you can edit the placeholder family.

You can use the modeling tools to create a custom chair (extrusion, sweep, etc…). Delete the simple box that had been used to represent the chair and start to model the custom chair. Once your design in complete. Save the family with a new name, load it into the project, and use the select all instances command to swap out the Chair 001 with the new custom family.

Import Manufacturer Family into Placeholder Families

Or you can import a manufacturer chair directly into your placeholder family instead of creating custom extrusions, sweeps, etc.. This is not the ideal way of working. It would be much wiser to load the manufacturer family directly into the project & swap out the families, or create custom family from scratch, but if time is really crucial you can use this option. To import the manufacturer chair open the placeholder family. Load the manufacturer family into the placeholder family. Place the new chair in the family & lock it into place.
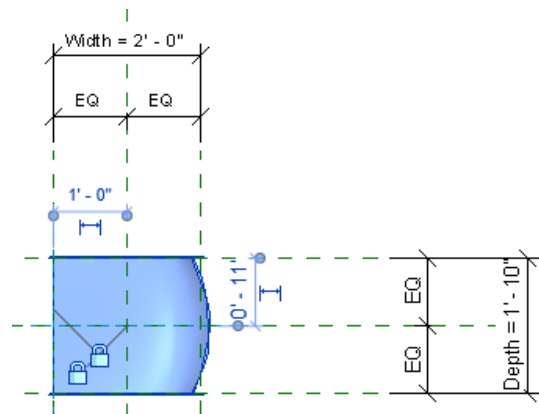
Evaluate 2D vs 3D

Interior Elevations

Detail Lines vs Wall Sweeps

The interior elevations are always a sore spot. How do I show the right amount of detail? One rule of thumb is that if anything is more than 1/8" thick – model it. Plain base (ie: vinyl base) can be 2D, just draw a detail line in the view. Any base molding that is decorative or considered an essential element to the design should be actually modeled in place with a wall sweep. Again, generic but identifiable names are best like "Base 001".

Drawing a detail line across the interior elevation is very simple using the Detail Line command from the Annotate tab.
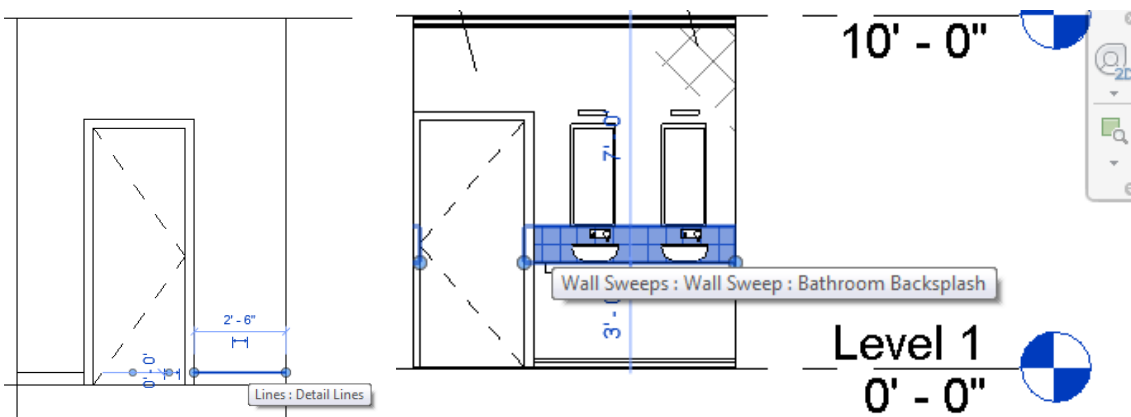
Model the Base by creating a profile family and using that as a Wall Sweep. Wall sweeps can be placed along individual walls using the Wall Sweep command from the home tab under the wall tool. Or wall types can be modified to always include a wall sweep by editing the structure of the wall.
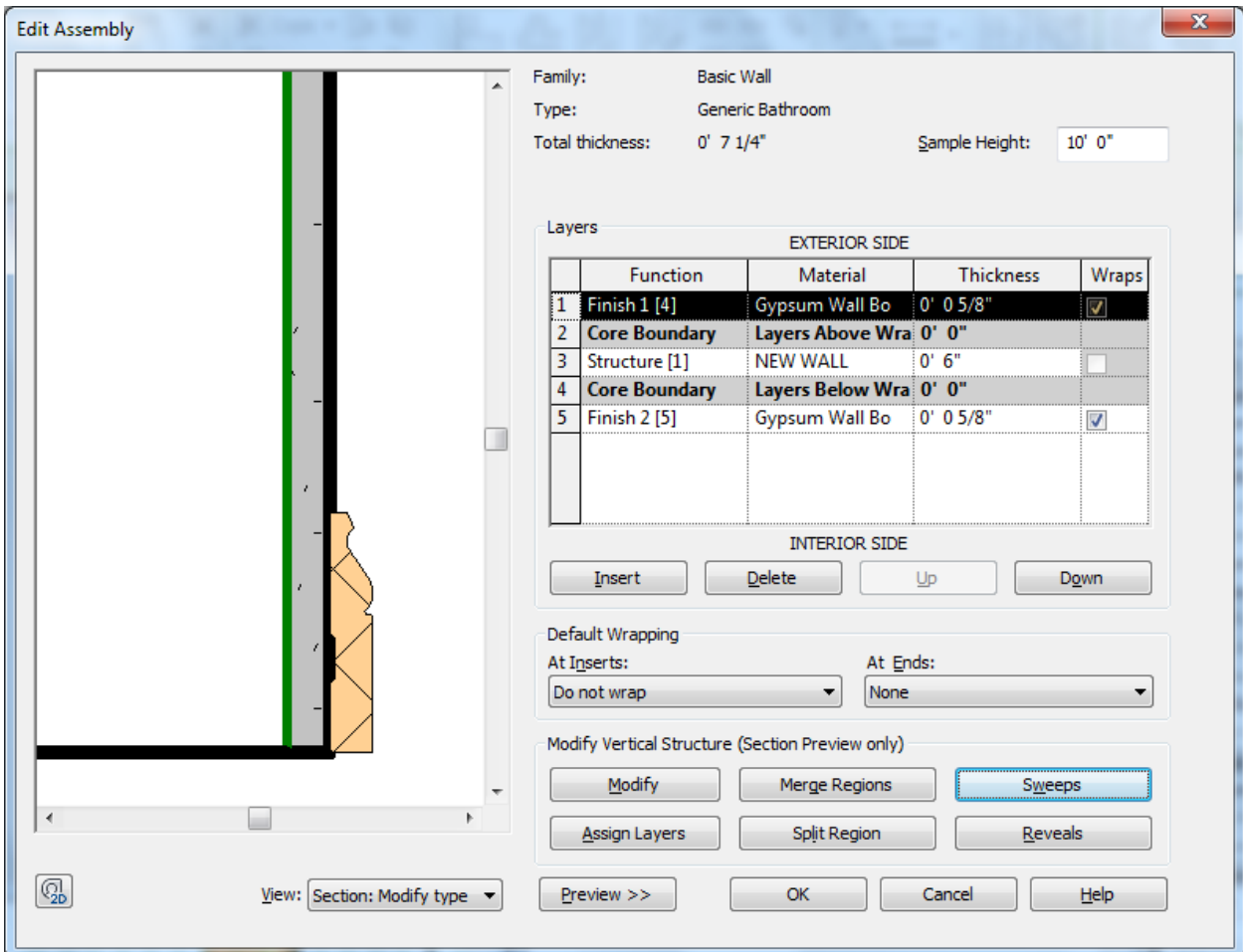
When editing the structure of the wall, it is important to ensure that the preview is showing & that the section view of the preview is chosen instead of floor plan. If the section preview is not active then you cannot access the sweep option of the wall.
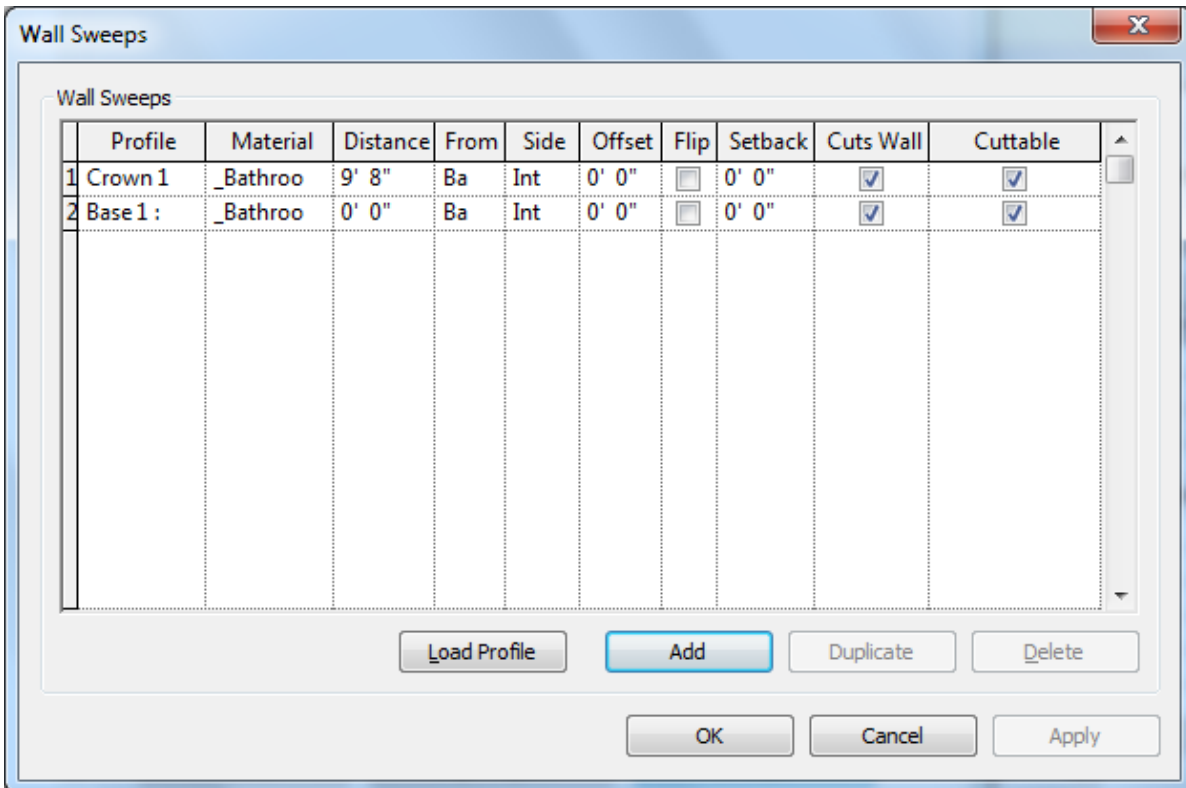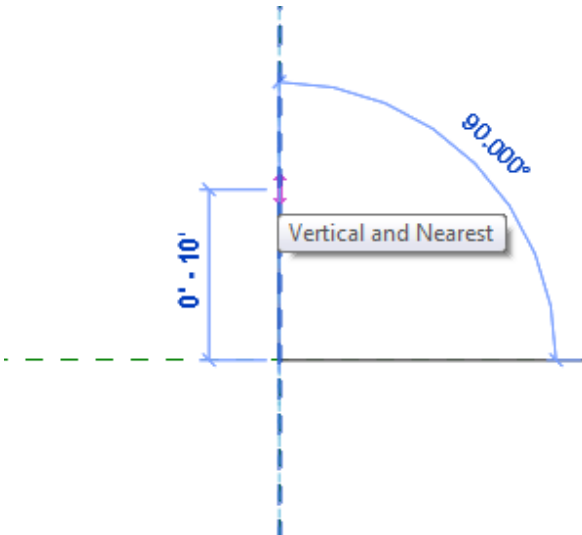
Create a Custom Profile

Create a new profile family by choosing profile hosted template.

RFT Profile-Hosted.rft   2/24/2011 2:32 AM   Revit Famil
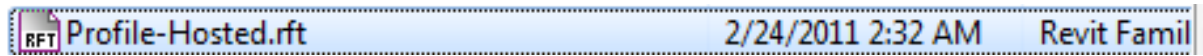
Sketch the outline of the profile at the proper size and then save the family. Again save the family with a generic, yet identifiable name.

Once the profile is saved, load it into your project. Within your project create a wall sweep by selecting the wall sweep tool under the wall command on the Home tab. Duplicate & rename the current wall sweep. Next adjust the parameters, specifically the profile type and the material parameter. Once the profile is created you can begin to place it along the desired walls. Be sure to check the box for "Cut by Inserts". This way your sweep will wrap around any inserts such as doors or windows.

Type Properties

Family: System Family: Wall Sweep   Load...

Type: Bathroom Upper   Duplicate...

Rename...

Type Parameters

| Parameter	Value
Constraints	
Cuts Wall	☑
Cut by Inserts	☑
Default Setback	0' 0"
Construction	
Profile	Bathroom Upper Pattern : Upper
Materials and Finishes	
Material	_Bathroom Upper
Identity Data	
Subcategory of Walls	Wall Sweeps - Cornice
Keynote	
Model	
Manufacturer	
Type Comments	
URL	
Description	
Assembly Description	
Assembly Code	
Type Mark	

<< Preview   OK   Cancel   Apply

Using Filled Regions and Material Tags

Material tags are typically used to tag materials on walls, particularly when multiple materials are used on a wall. They are found on the annotation tab and simply call out the material description as you hover over them. If the material does not have a description yet, you can add the description by clicking on the question mark after the tag had been placed.
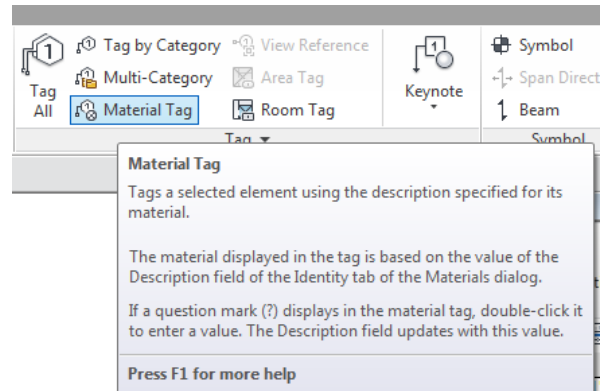
The material tag will not callout the description of the pattern when using filled regions to symbolically show materials in different areas. To workaround this you can create a new tag that looks similar to the material tag. Edit the material tag family by right clicking on the family name in the project browser and chose edit.
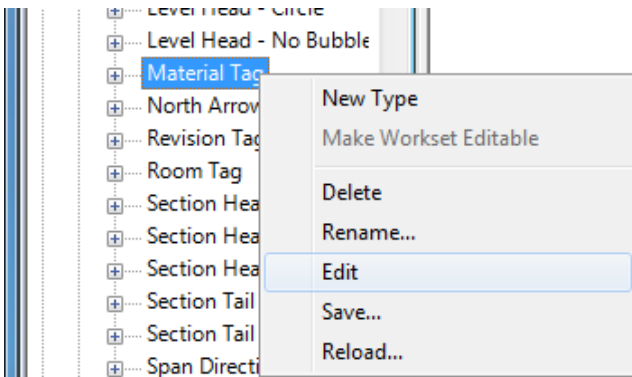

Once the family is opened for editing, go immediately to Visibility Graphics and turn on the annotation category so you can see the origin point of the family. The next step would be to change the Family Category. You have two choices: Generic Annotations or Detail Item Tags

Generic Annotations = dumb tag. You can place this symbol anywhere in the project and input the information that you want. This type of tag will not give you any predefined parameters when creating it, it will also not update automatically in project when you modify elements.

Detail Item Tags = smart tag. This type of tag reads the information from the detail item, in this case filled region, and reports it in the tag. It will update automatically when you modify the elements; you will also have predefined parameters to choose from while creating the tag. The downside could possibly be the need to create unique types of regions or other detail components so that the tags callout unique items.

Once you choose a new family category you will have to create a new label at the origin point of the family. If you need to create a new parameter you can create it as a shared or family parameter. The comments parameter or the type comments parameter is commonly used in Detail Item Tags instead of creating a totally new parameter. After creating the label the tag is ready to be saved & loaded into a project.
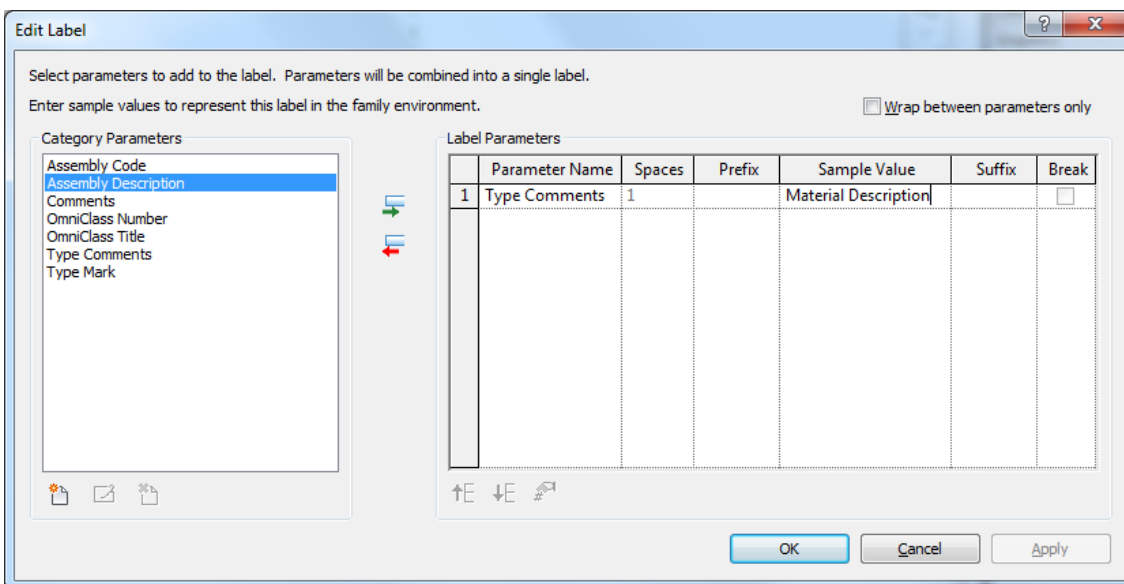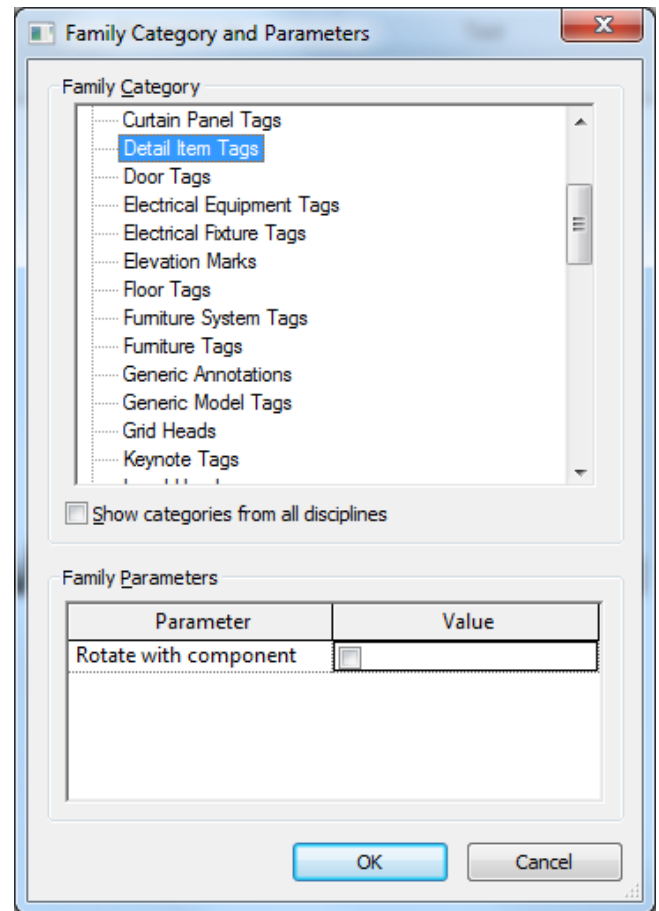
Within the project, choose Tag by Category from the annotate tab to place the tag on the filled region. The tag works very similarly to the Material Tag used on the wall. Again, click on the question mark to fill in the description of the filled region.
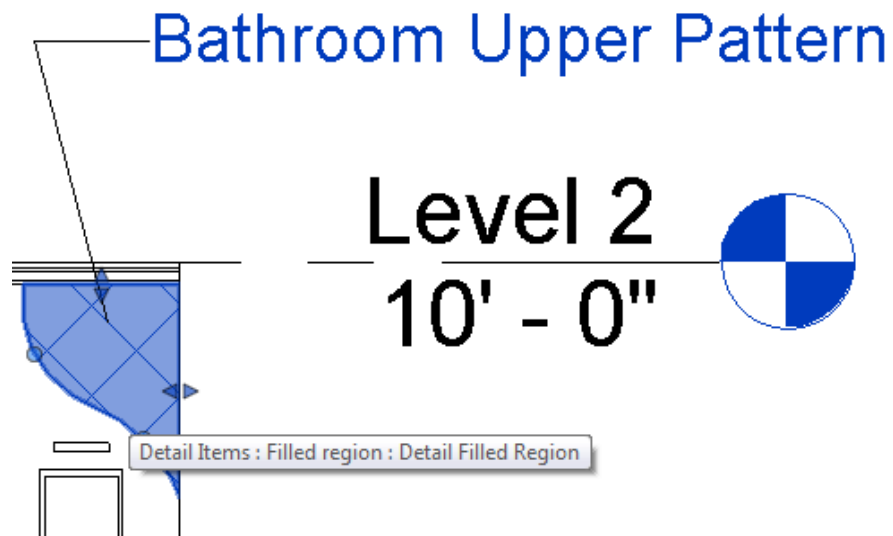
Use Coordinated Schedules

Schedules – Furniture & Rooms

Room Tags vs Schedules

Furniture schedules enable the user to quickly learn how many components are within the project. Customization of the schedule is available in the view properties. Other than obtaining quantities, the furniture schedules are not that impressive for the interior designer.

Room finish schedules, by default, have parameters for the floor, base, wall, & ceiling finishes. These are all properties of the room object. They are not intelligently tied to the floor, wall, or ceiling objects. They are not, by design, intelligent objects. You simply type in the text. While that does update the room properties, it is not "smart" enough to read the walls & other object's material finishes. If you have a simplistic deign then this is not a problem

For simplistic designs many firms choose to create a custom room tag that is able to call out those same room properties. You can create additional parameters to call out multiple materials. The downside of the tag option is that it is quite large on the floor plan views.
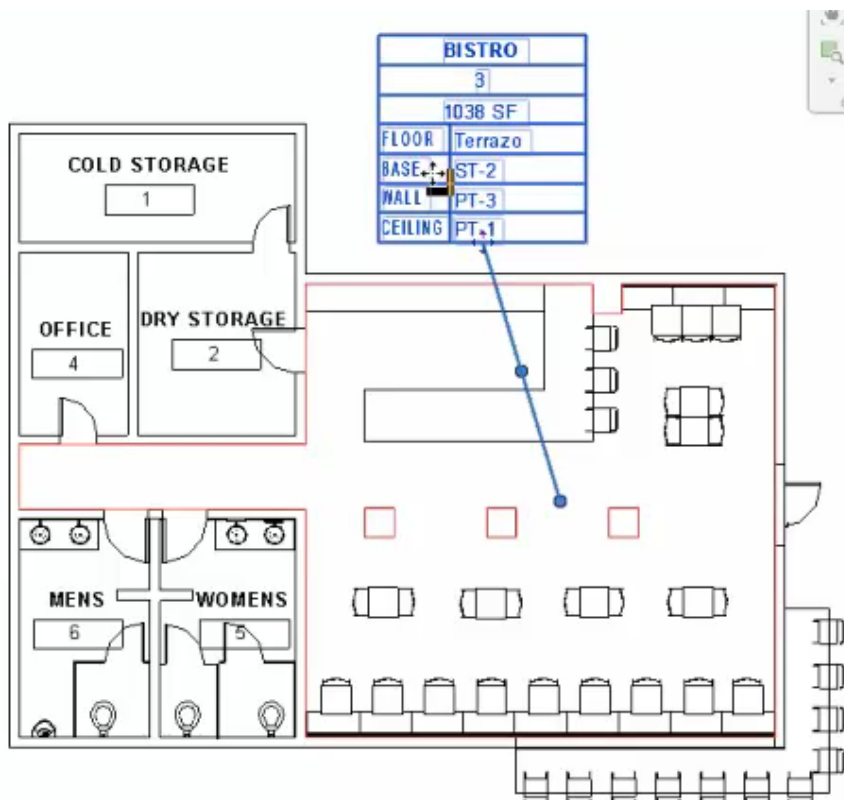
For complex designs the material tags in the interior option is one of the best ways to communicate exactly which materials are applied where. If it is a complex design you will have to model crown, chair rail, base moldings along with tile patterns. Since these objects are already modeled it makes sense to further use them with smart tags. Again the material tag is found on the annotate tag and will automatically read the material description of each item.
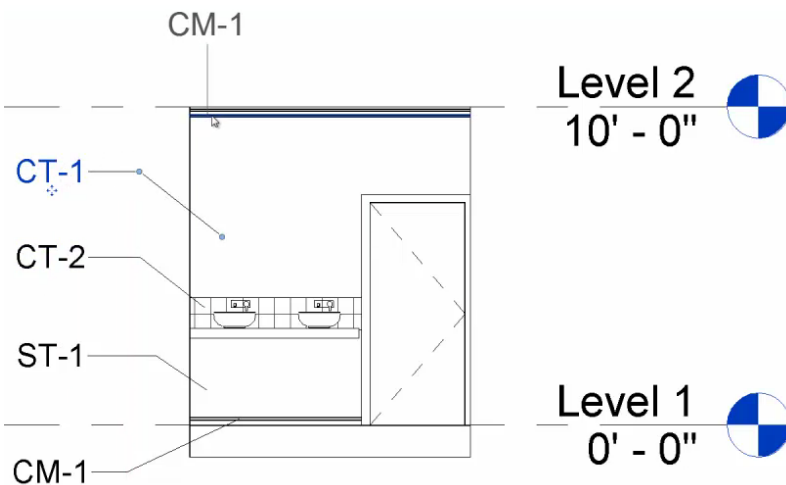
Another advantage of using the modeled elements with materials is the ease in which 3D views can be created. By dropping in a camera and turning on the realistic view setting you can get an accurate feel for the space.

Create Custom Hatches

Filled Regions

Fill Patterns are found on the manage tab under additional settings. Fill Patterns can be either drafting or model patterns. To create either is the same process. The simple pattern gives you the choice of parallel lines or crosshatch along with the ability to control the spacing & line angle. Many times you will need additional patterns though.

Importing in the Acad.pat files can be one of the easiest ways to bring in custom patterns. Open the Acad.pat file and modify the desired patterns to include ;%TYPE=MODEL. Any pattern that has that line included in its definition will be recognized by Revit at a model pattern. Any pattern without that designation will be recognized by Revit as a drafting pattern. Rather than save over your Acad.pat file, save the file with a different name.
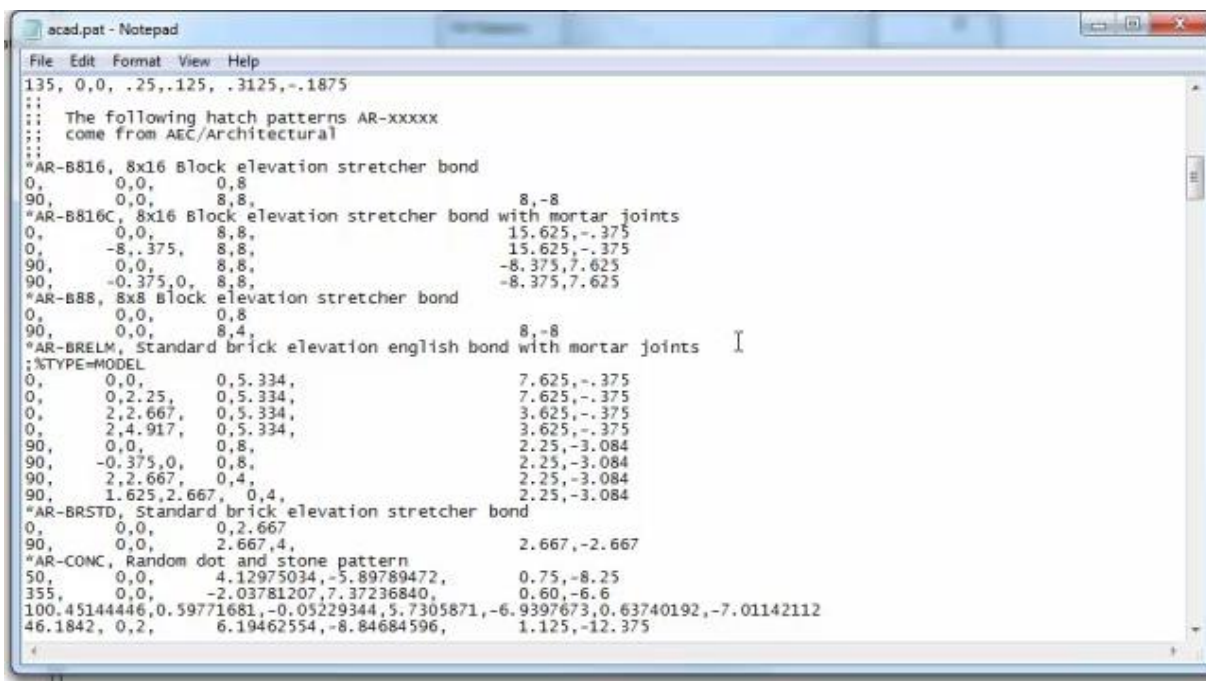

In Revit you will now be able to import those custom patterns by browsing to the saved location of your newly modified .pat file.

Appendix A

Create a Basic Box.

1. Open Revit
2. Big "R" button – New – Family
3. Choose the Furniture.rte from the Imperial Templates
4. In your plan view, you will see 2 reference planes defining the center point of your new object.
5. Draw more ref planes, one to each the right & left side, then one above & below
6. Place a dimension string between the left, center, & right ref planes and equalize.
7. Place another dimension from the left to the right ref planes
8. Select that dimension & add a label from the options bar
9. Name the new parameter "Width" and leave it as a type parameter
10. Repeat step 7-9 for the horizontal ref planes; above, center, & below.
11. Name this new parameter Depth
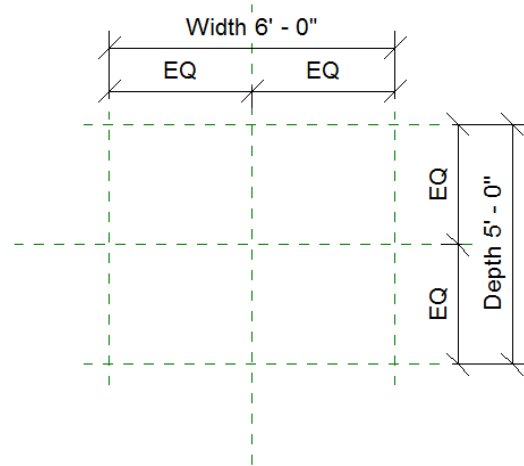
12. Now it's time to make sure things are working properly, Flex the model.
13. Click on the Family Types button on ribbon to the left.
14. Change the dimensions for both the Width & Depth parameters & press Apply
15. You should see the reference planes move accordingly. If not, go back & redo the above steps.
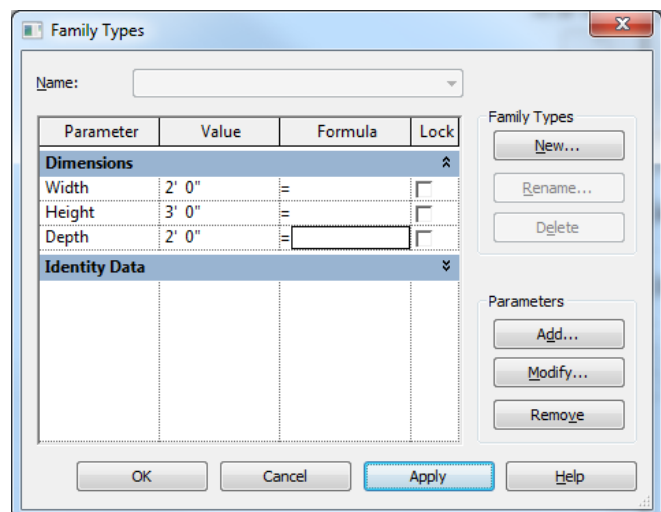
16. Now that you've got these working, let's create a parameter for Height
17. Switch to the Front elevation view
18. Create a horizontal ref plane above the level line
19. Place a dimension between the the level line & the new ref plane
20. Label this dimension with a new parameter called "Height"

Height 7' - 0"

Ref. Level
0' - 0"

3' - 0"
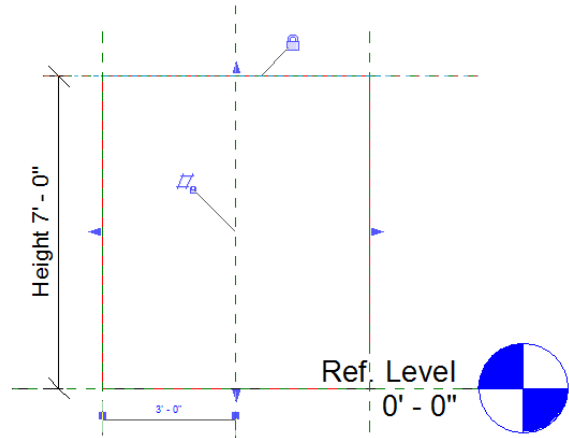
21. Flex the model to make sure it works
22. Once you verify all three parameters are adjusting the ref planes correctly you can create the model
23. Switch back to the plan view
24. From the ribbon, choose Solid Extrusion
25. Sketch a rectangle along the Width & Depth ref planes
26. Be sure to lock these sketch lines to the ref planes and Finish the sketch
27. Flex the model again to verify that your extrusion moves with the ref planes
28. Go to the front elevation view
29. Select the extrusion and drag it up to your Height reference plane
30. Lock the extrusion to the ref plane
31. Flex your model again

Width 6' - 0"

EQ   EQ

5' - 0"

EQ

EQ

Depth 5' - 0"

6' - 0"

Width = 2' - 0"

EQ   EQ

EQ

EQ

Depth = 2' - 0"