



AutoDesk Revit

Software Instructions

Software used	AutoDesk Revit		
Version #	1		
Created by	Logan F.	Date	20/11/20
Reviewed by	James T.	Date	20/11/20

Software Instructions: AutoDesk Revit

Acknowledgments

We would like to acknowledge the following references used to compile these instructions for students:

1. [\[link or reference\]](#)

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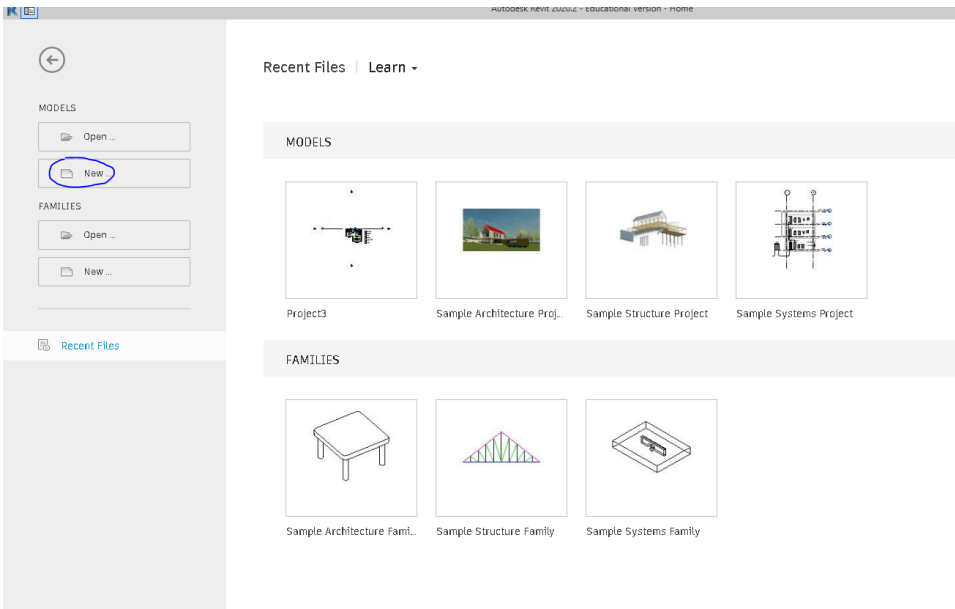
Do not remove this notice.

Software Instructions for Autodesk Revit

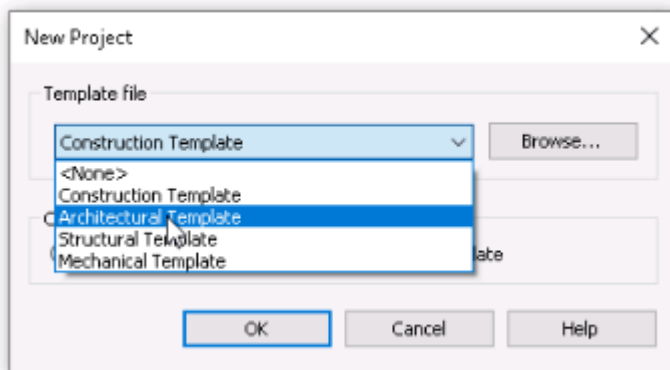
Intro:

Starting your project

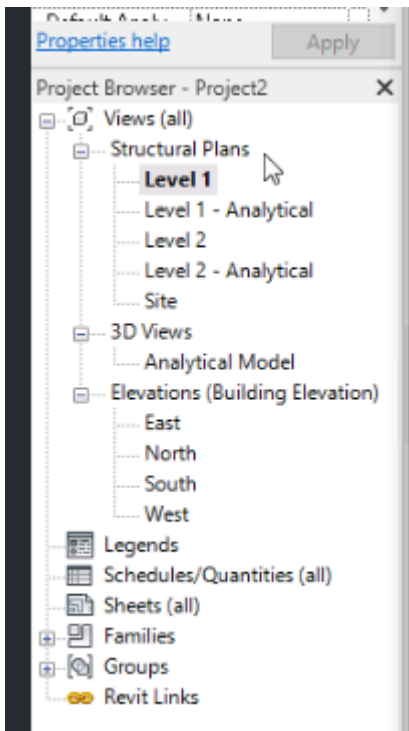
When you open your new project, you will be presented with the following screen.



When the options for opening a new project are presented, select the architectural template and click OK.



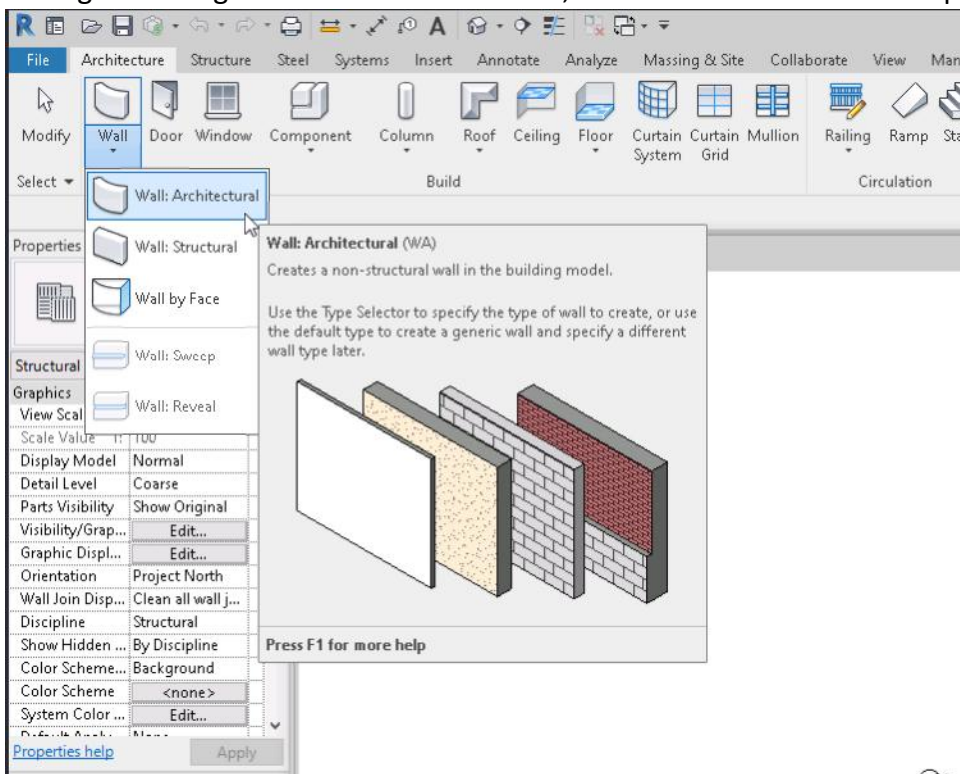
On the left side of the window, there is a list of all current views of the project. The levels featured under the structural plans tab are the floors of the structure. Double click on level 1 or ground depending on which is the lowest. This will open a window to edit and work on this floor plan.



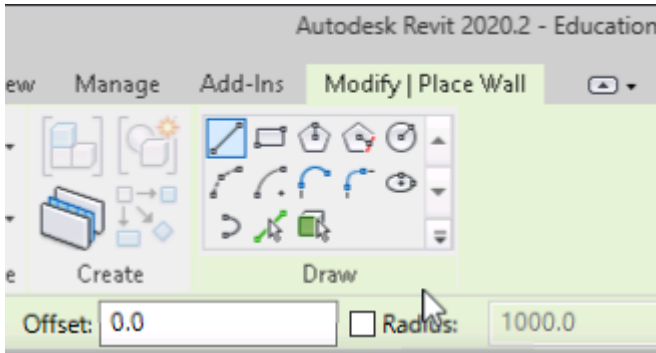
Basic house layout:

Outer walls

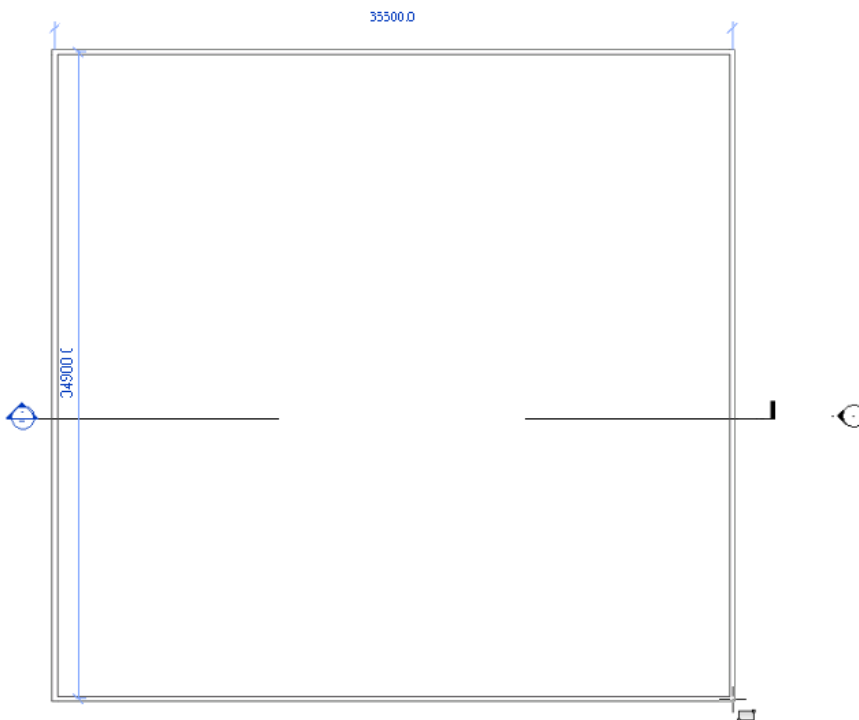
To begin building the walls of the structure, select the wall architectue option under the wall tab.



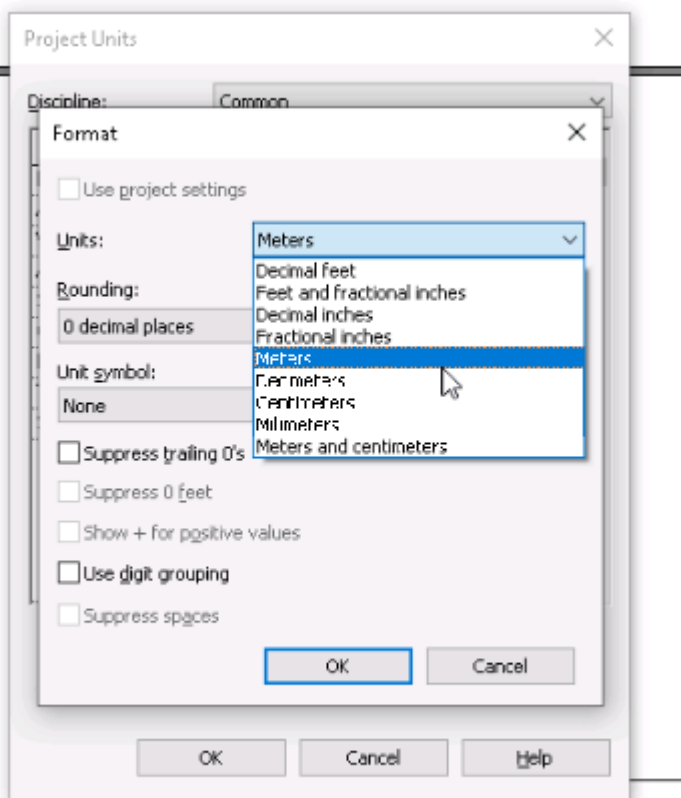
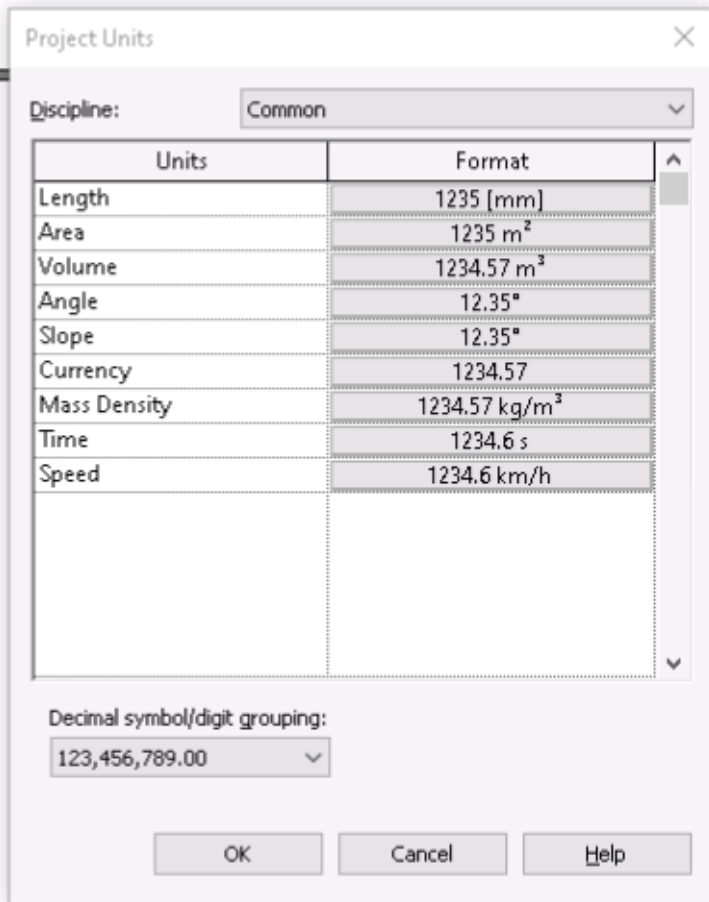
Once the wall tool has been selected, the shape options are available. For most structures, you will likely want to select the rectangle option.



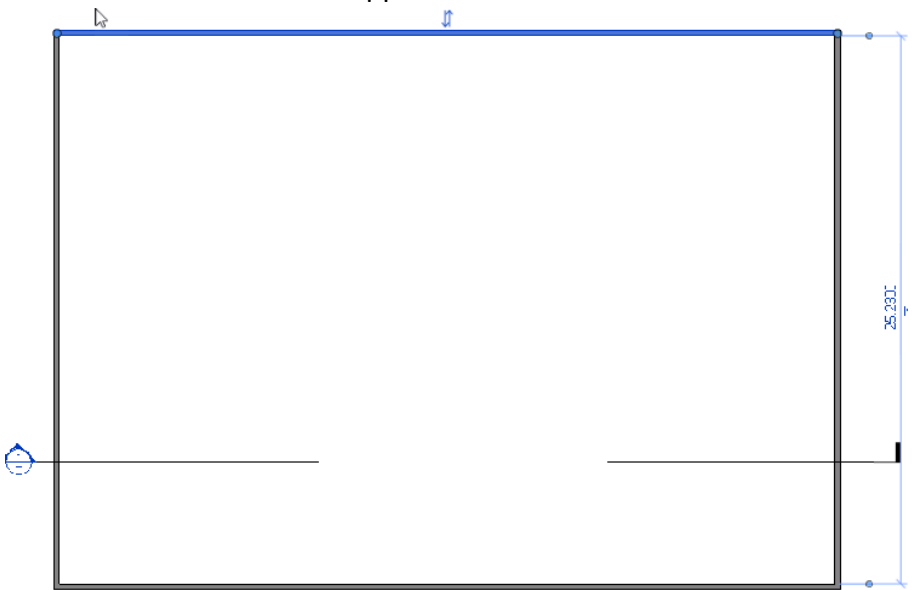
Draw the shape of the walls you want by clicking an area to be one corner, and then click the opposite corner. The size of these walls may be edited later.



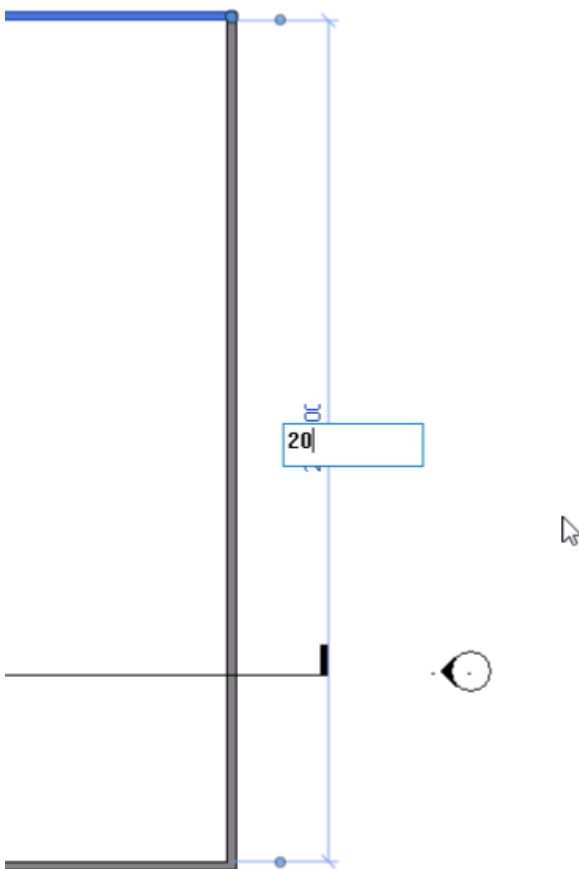
By typing the letters 'un' you have the option to change the units being used in this project. This project will have length units changed to metres.



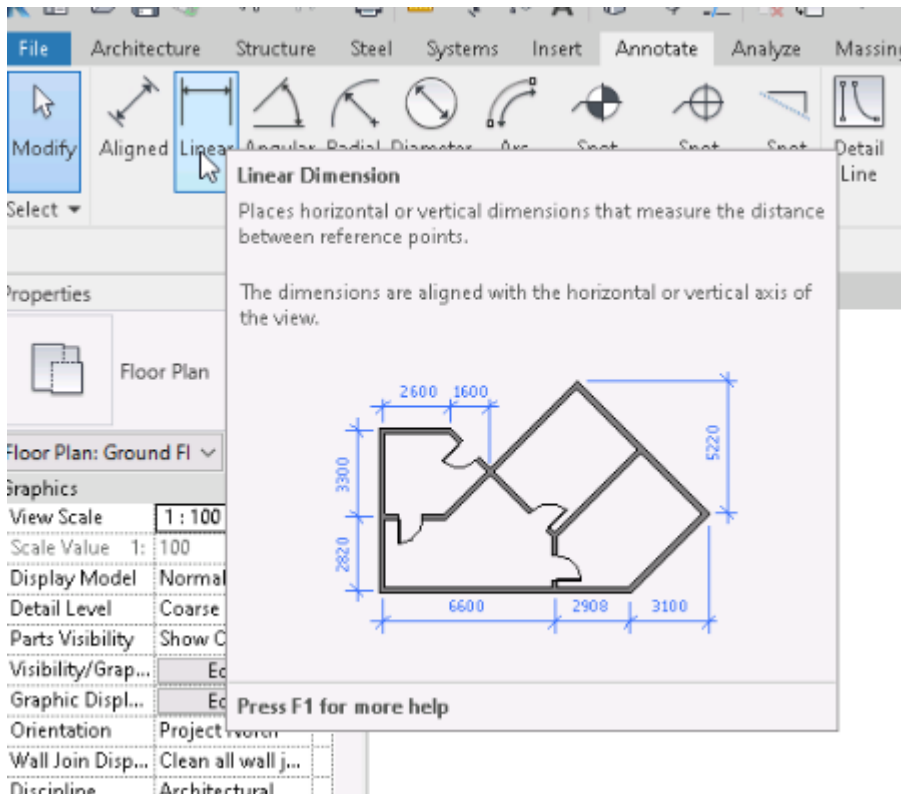
To change the dimensions of your walls, select a wall. This will allow you to change the distance between this wall and the opposite wall.



Clicking on the number displaying the imensions of the wall will allow you to type a new length value for the wall.

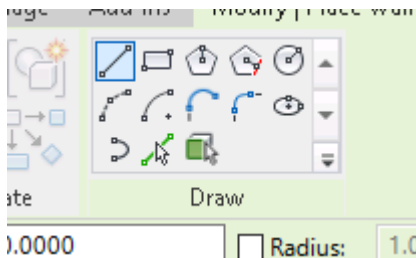


In the Annotate tab, you can select the linear tool. This will allow you to label the length dimensions to your project.

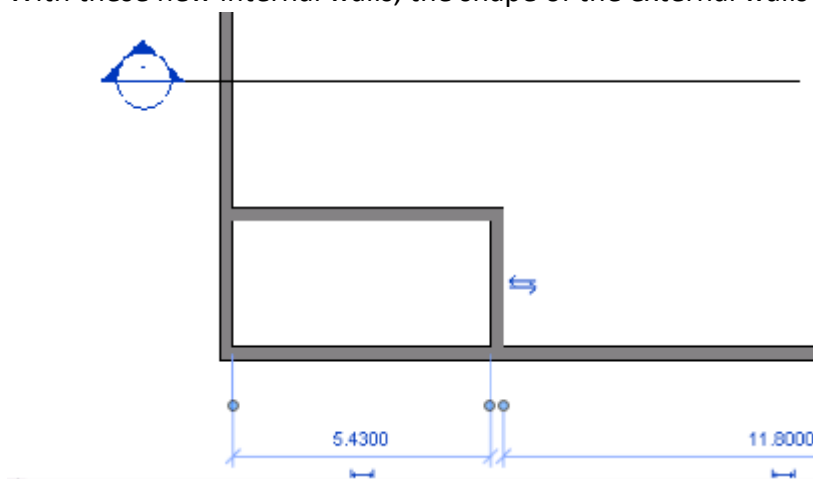


Editing Footprint

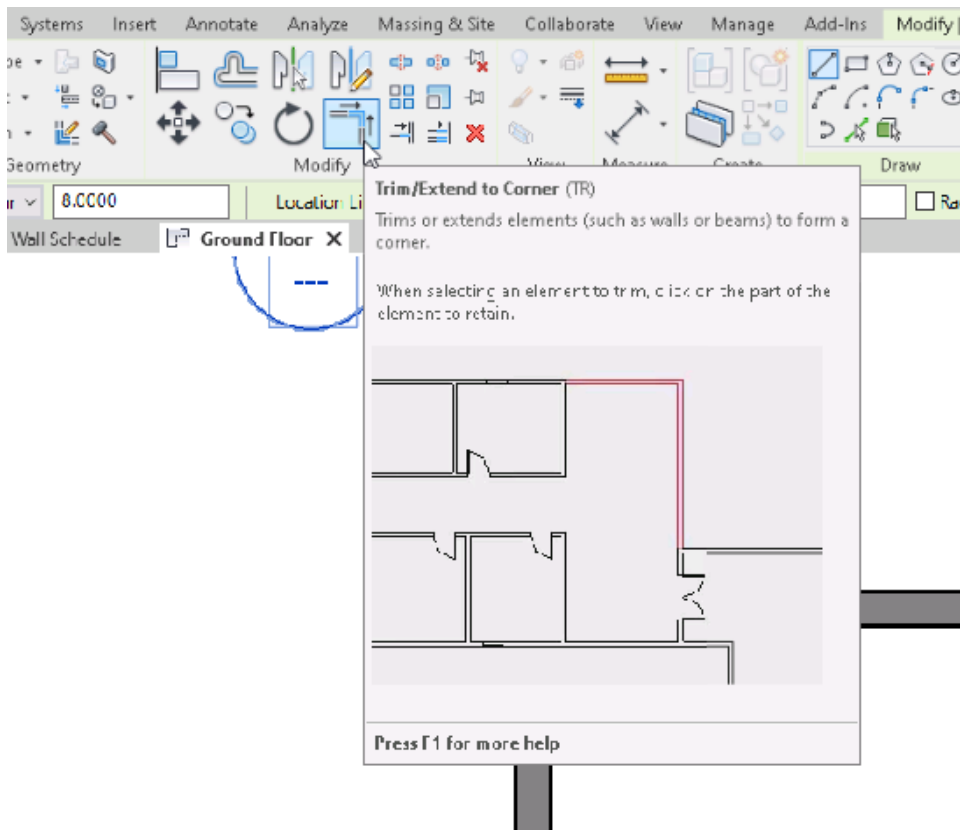
Once the outside walls are completed, you can select the line tool to draw in the internal walls.



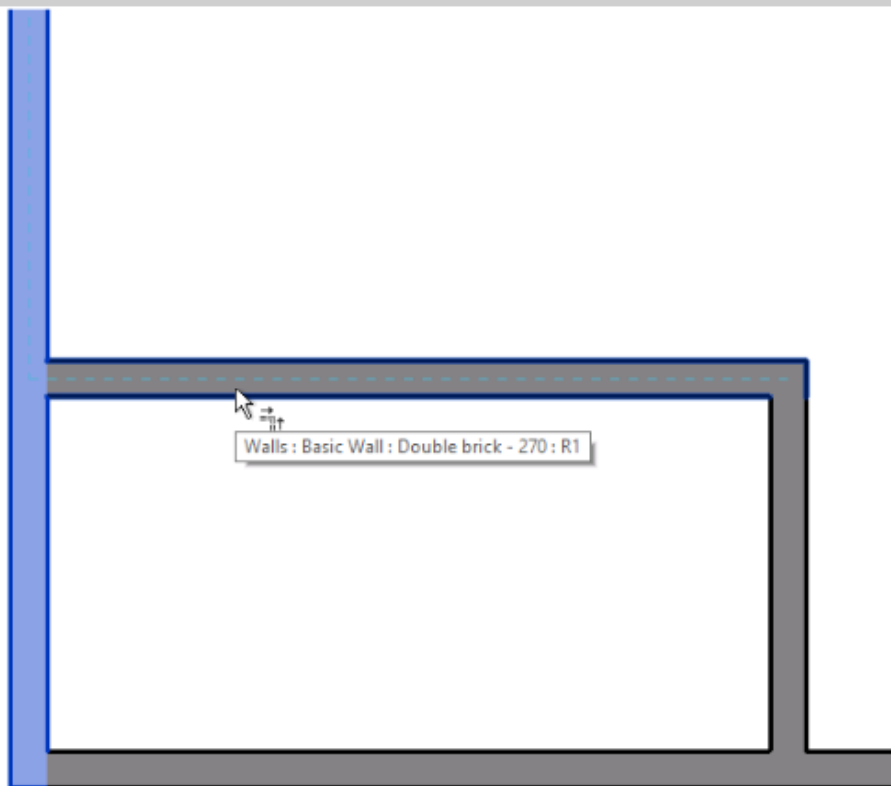
With these new internal walls, the shape of the external walls can also be changed.



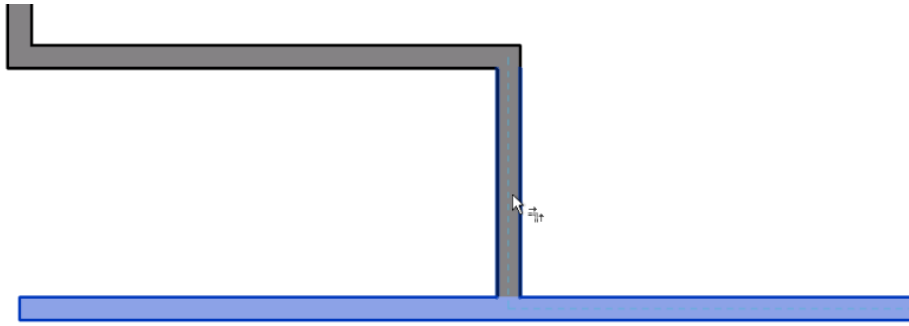
The trim/extend tool can be used to help edit the wall shapes.



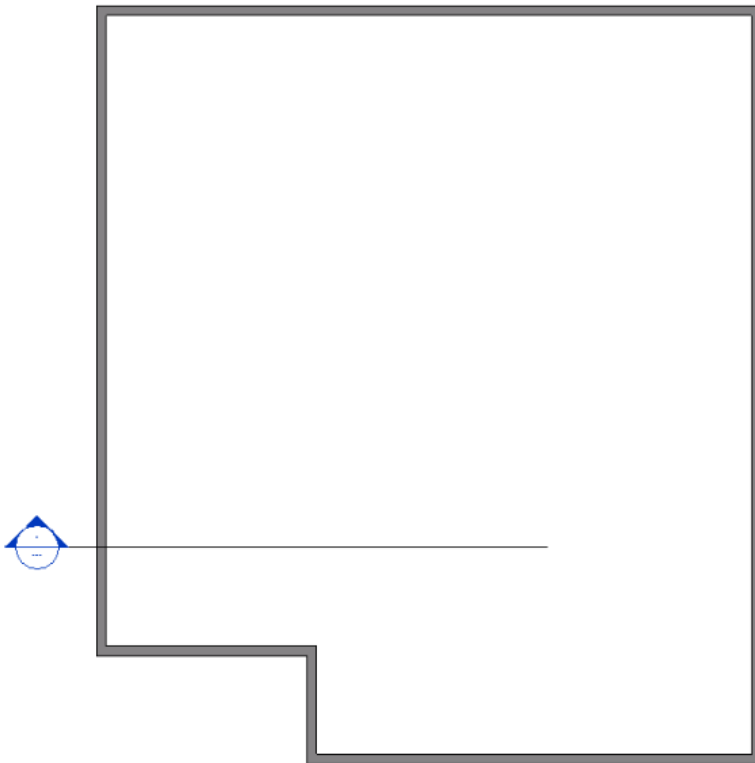
Select one of the walls to trim around. Be sure to click the wall on the side you wish to keep. Following this, click the second wall that you wish to make a corner out of.



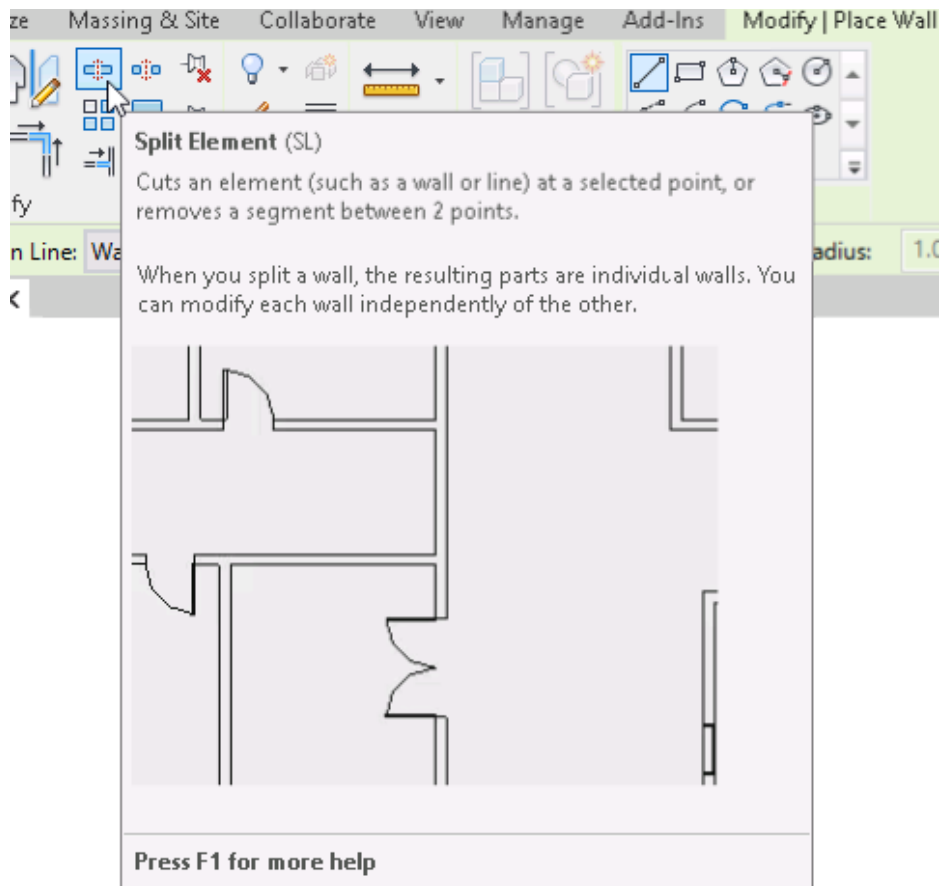
Repeat this process for the other corner.



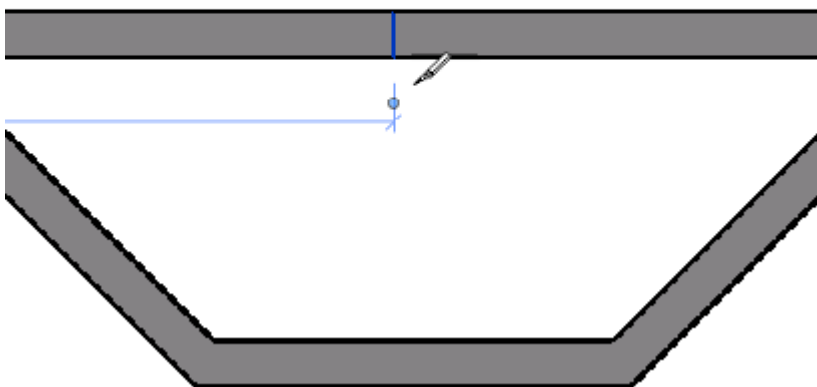
This process allows you to edit the footprint of your structure like so.



Another tool is the split element tool. This is especially useful in combination with the trim and extend tool.

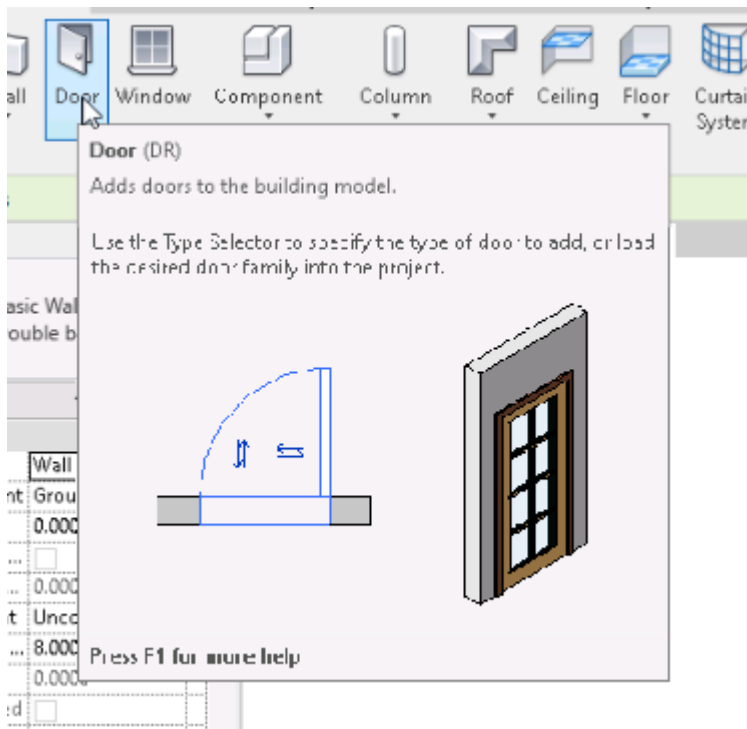


If you want to cut out a section of wall using trim and extend, using the split tool to separate the center line allows you to trim and extend either side.

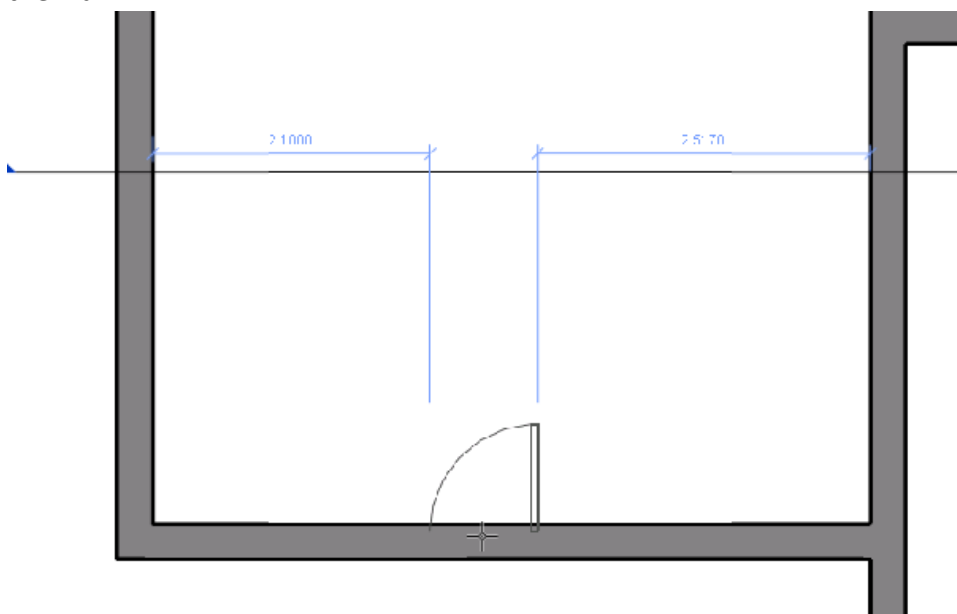


Adding openings

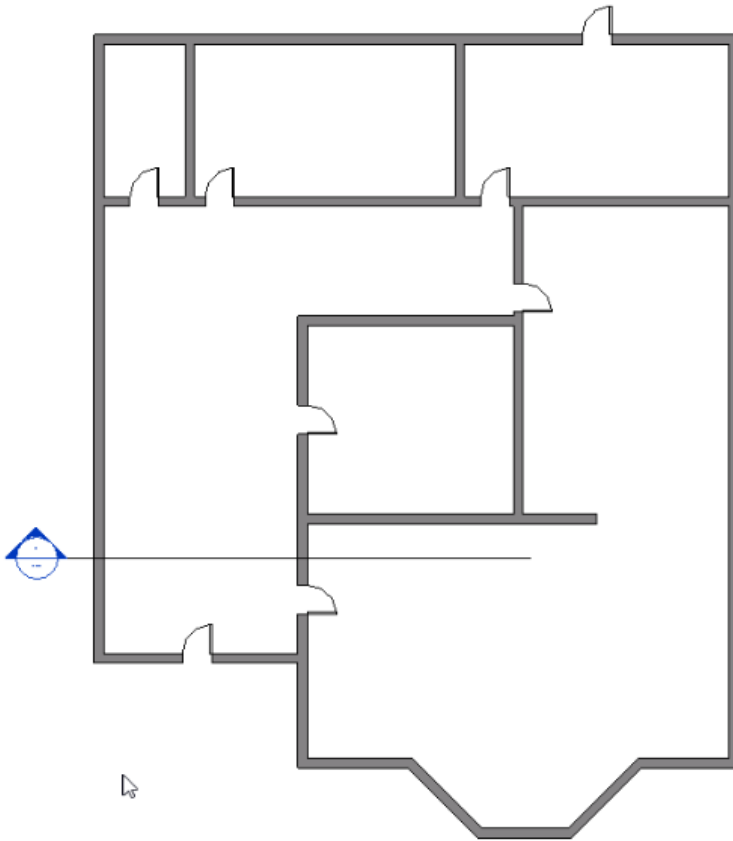
Once the internal walls are added, doors and windows can be added. Select the door tool in the main toolbar.



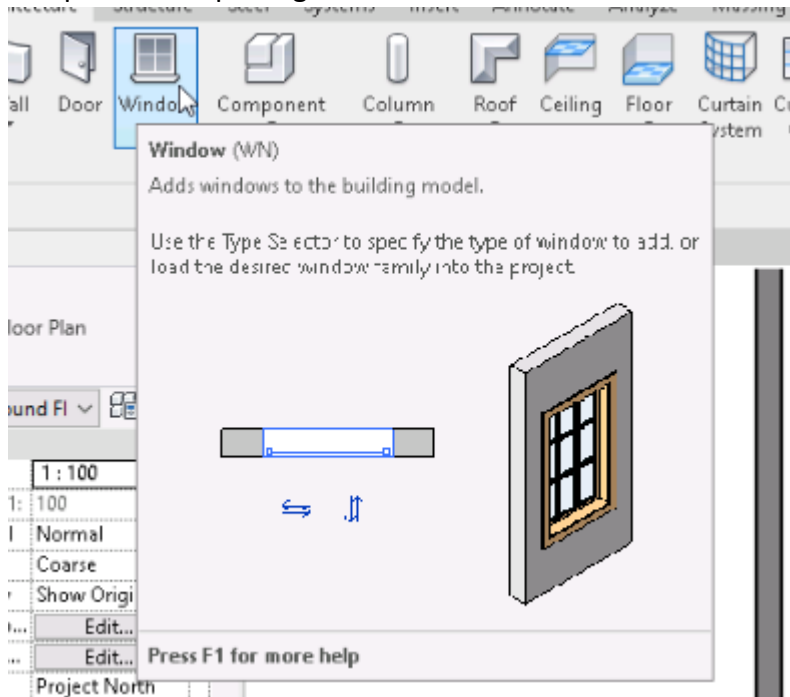
Find the location you want to place the door and ensure the door is placed on the correct side of the wall.

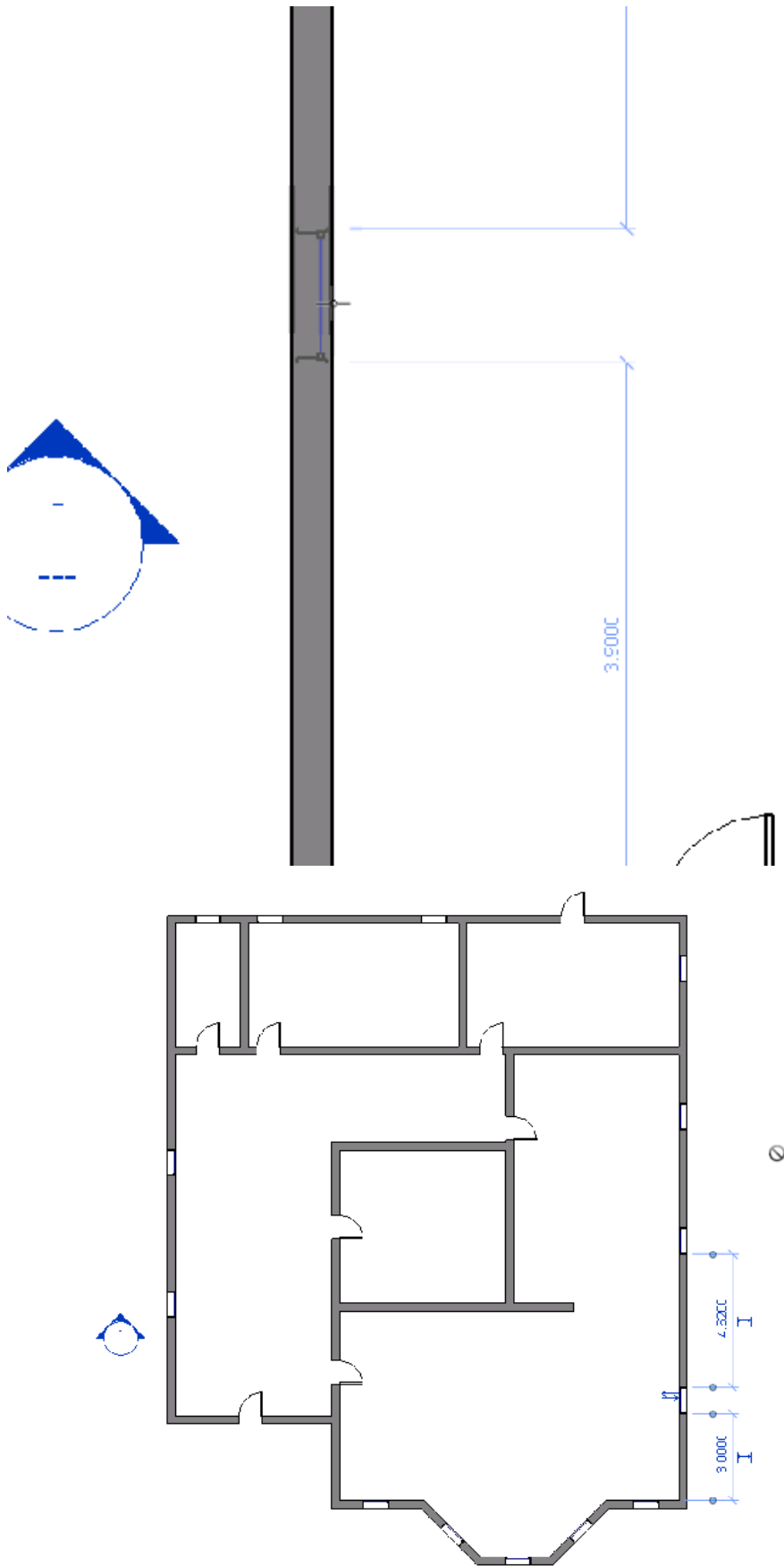


Once the doors are all placed your structure may look as follows.



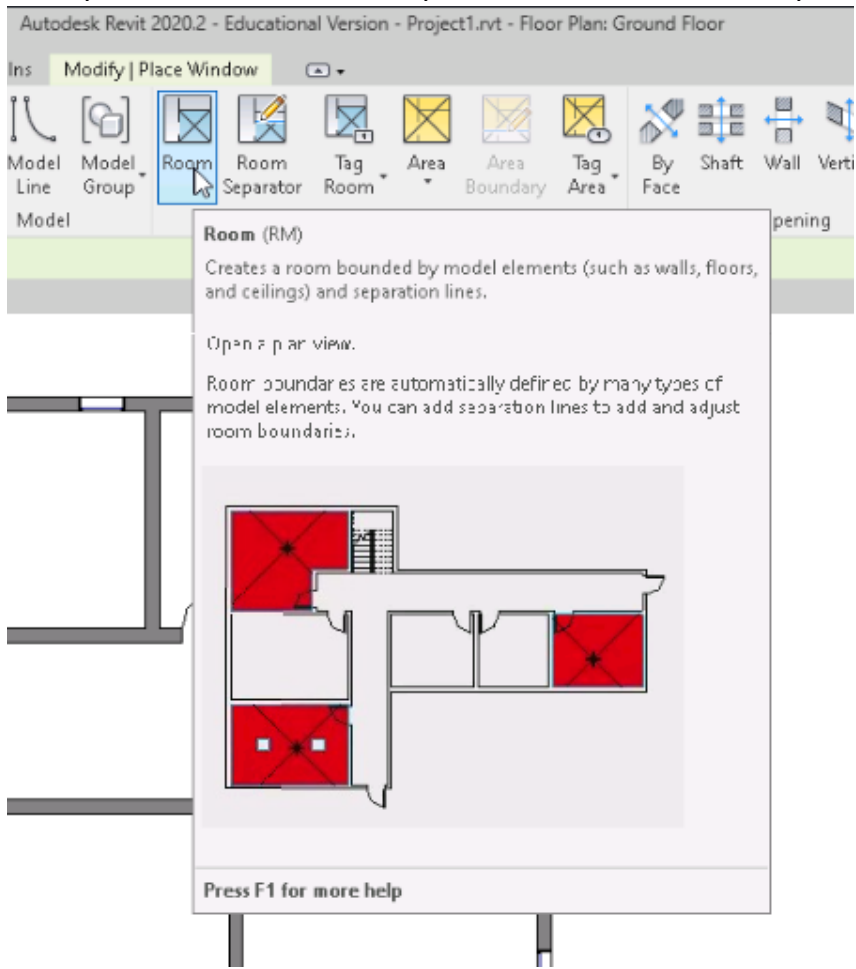
The process for placing windows is the same.



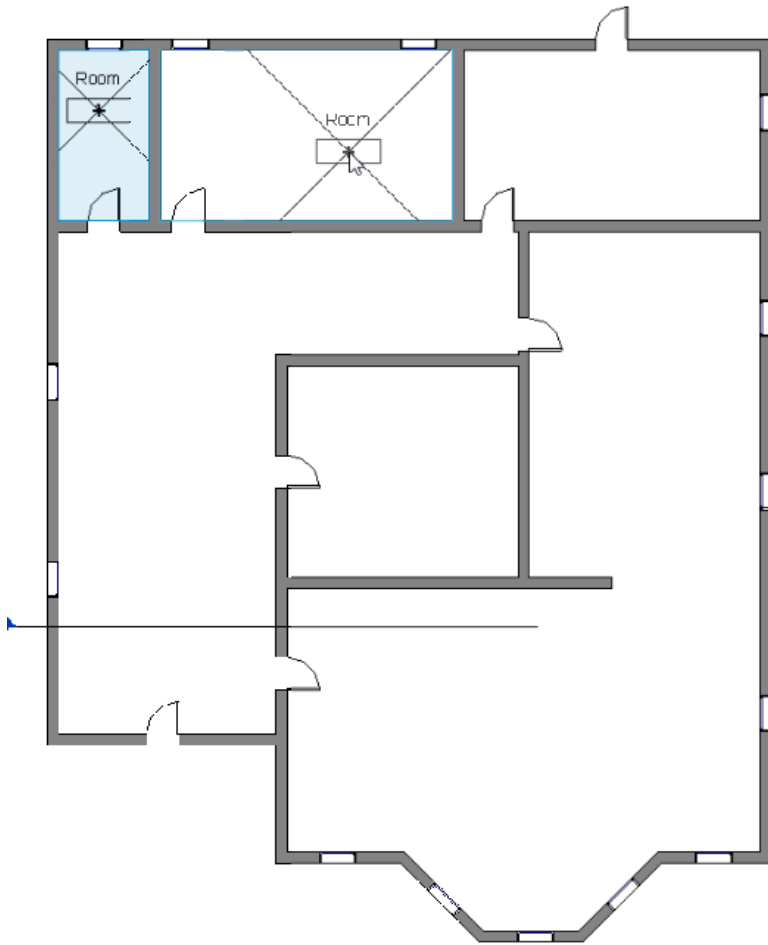


Rooms

Once your structure is finished, you can define the rooms of your structure. Select the Room tool.



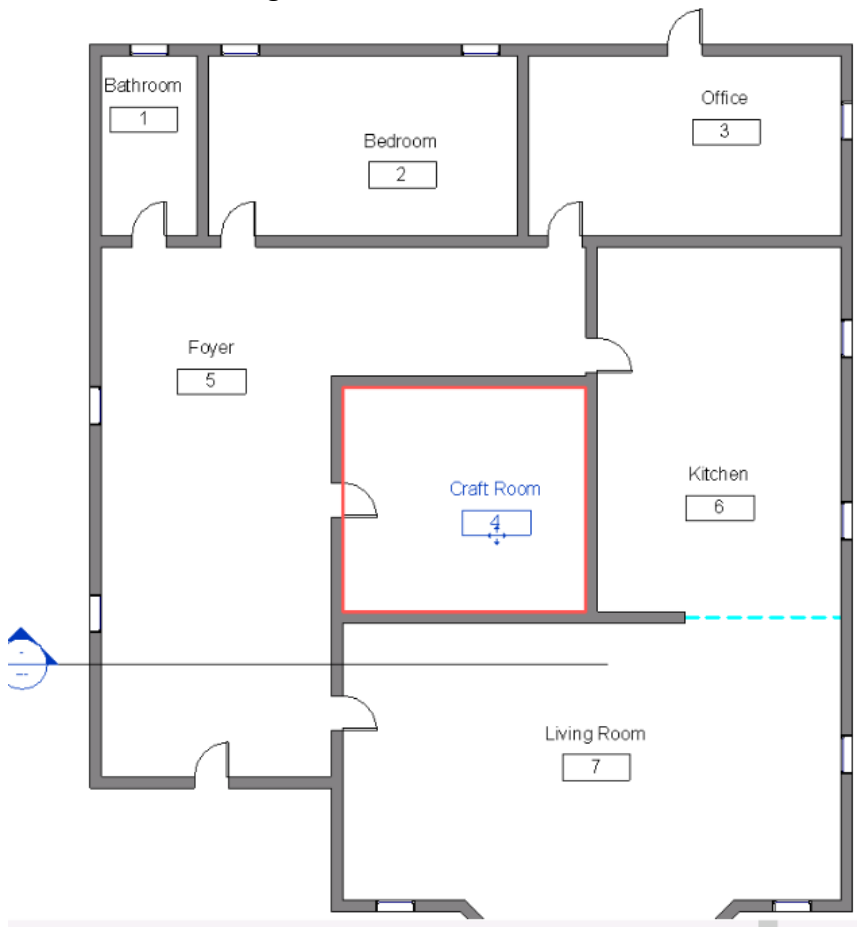
Using the room tool, add a room label to each room you want to define.



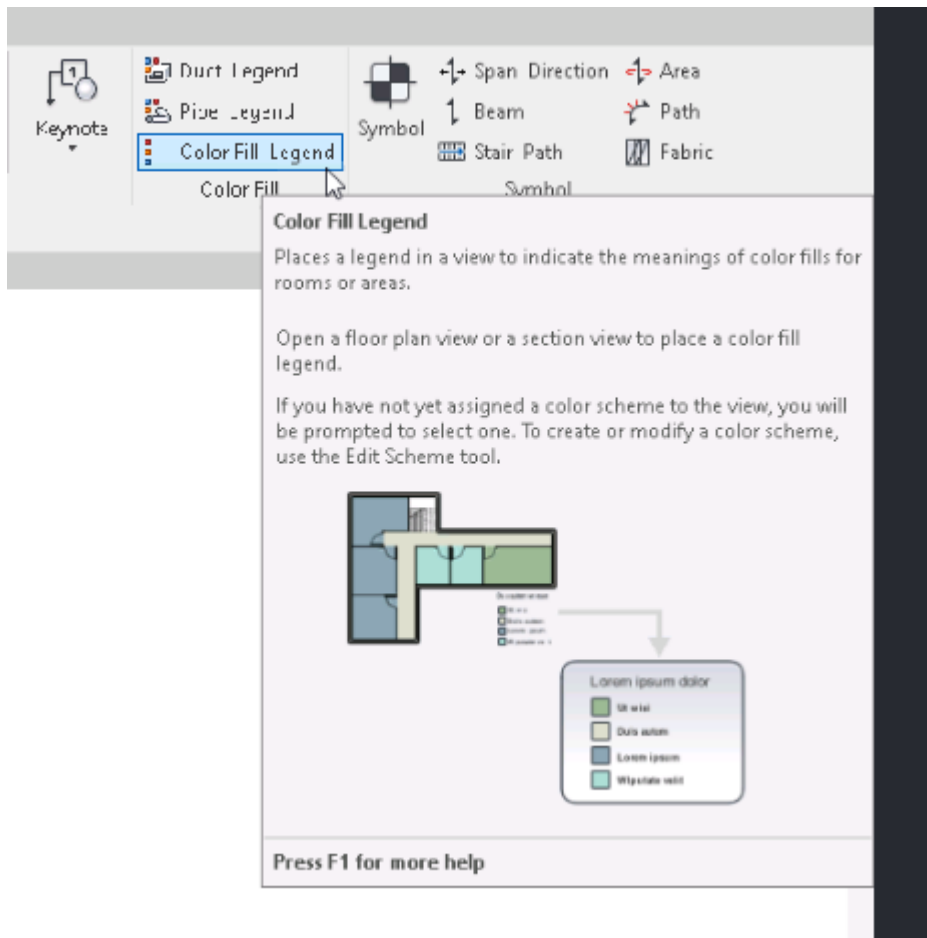
If you want to define two separate rooms but there isn't a wall separating them, you can use the room separator tool to define the boundary.



This is what the assigned rooms will look like.



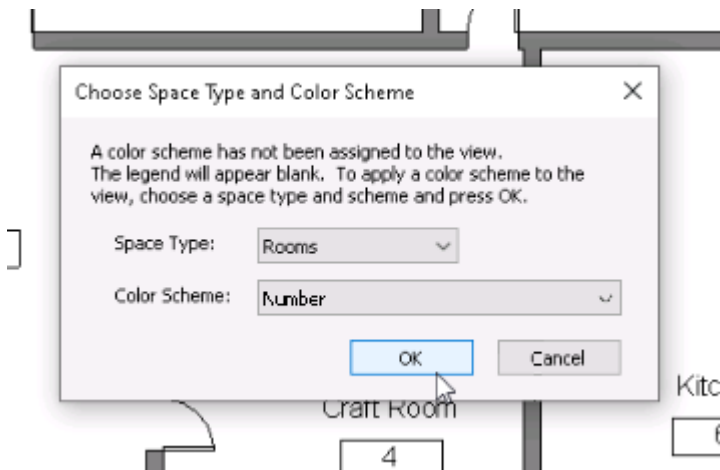
The rooms can also be colour coded with a legend, using the colour fill tool in the annotations tab.



Once the tool is selected, this will hover over the cursor. Choose somewhere to place your legend in the page.



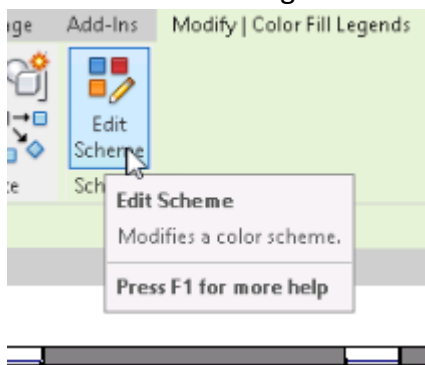
Once placed, you will be asked to choose the legend type. Select rooms as the space type and select a colour scheme.



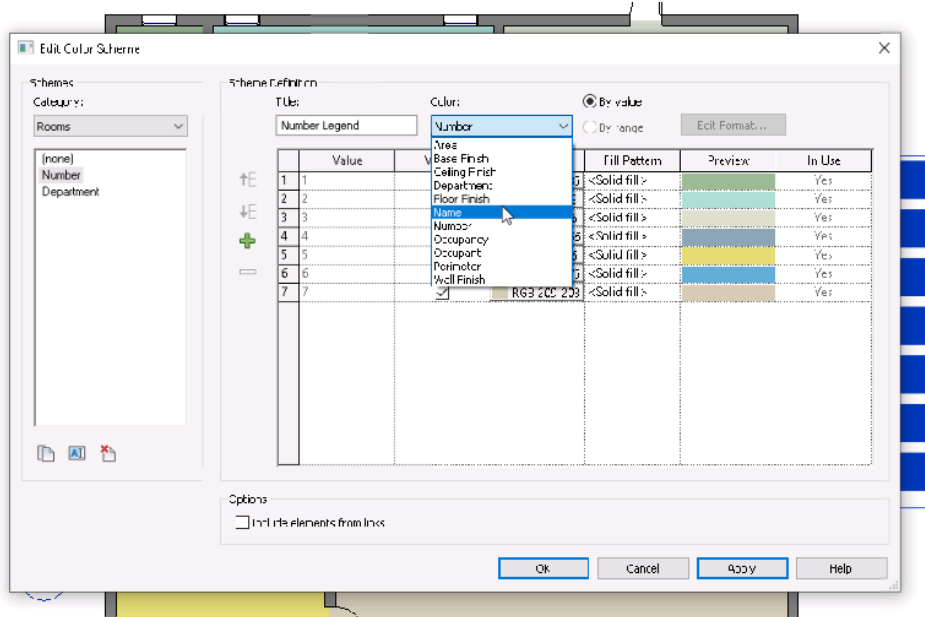
This is what the legend will look like once placed.



With the colour fill legends tool selected, in the modify tab you can open the edit scheme menu.



With this menu open, you can change the labels on the legend to the room names. You can also change the colours.

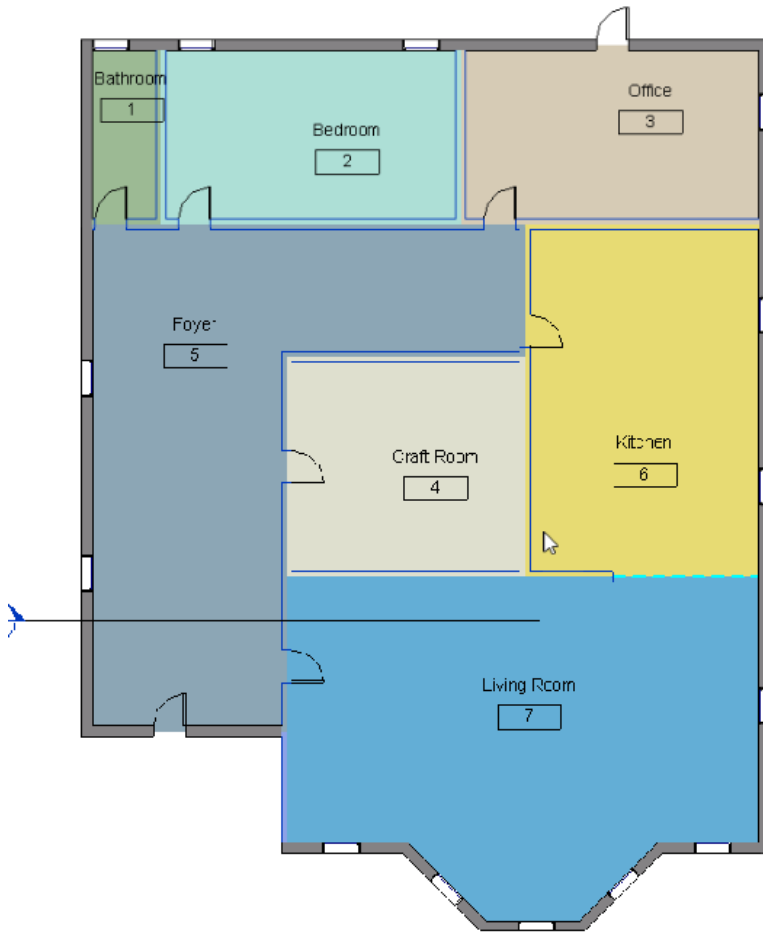


Here is what your page will look like once the room legend is complete.

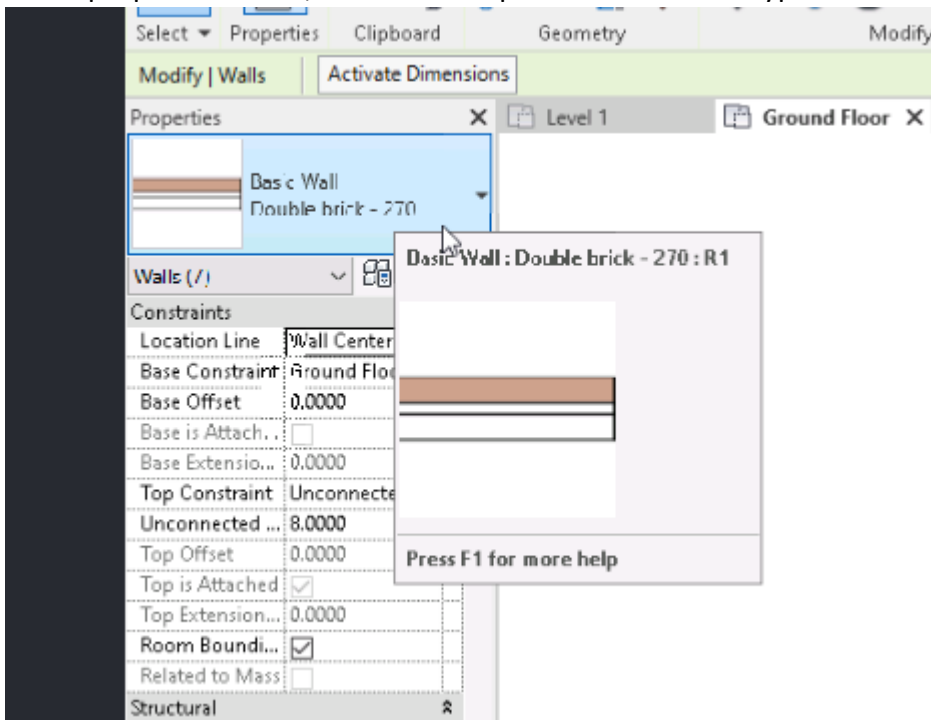


Internal Walls

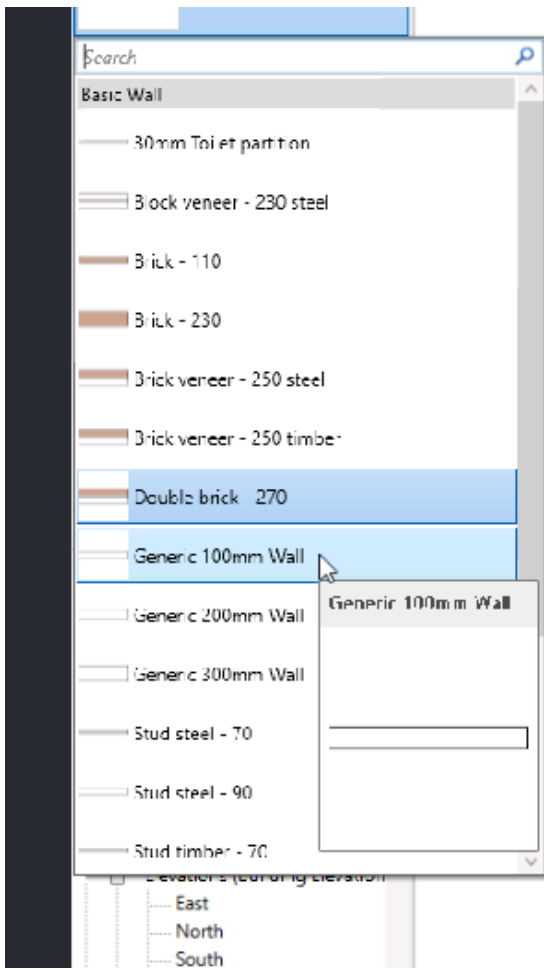
You'll notice that all of the walls inside the house are the same thickness as the outside walls. This can be changed. Select all of the internal walls you want to change the thickness of. You'll note that this selects one of the outer walls as well. The split tool can be used to fix this.



In the properties menu, select the dropdown for the wall type.



Select the generic 100mm wall.

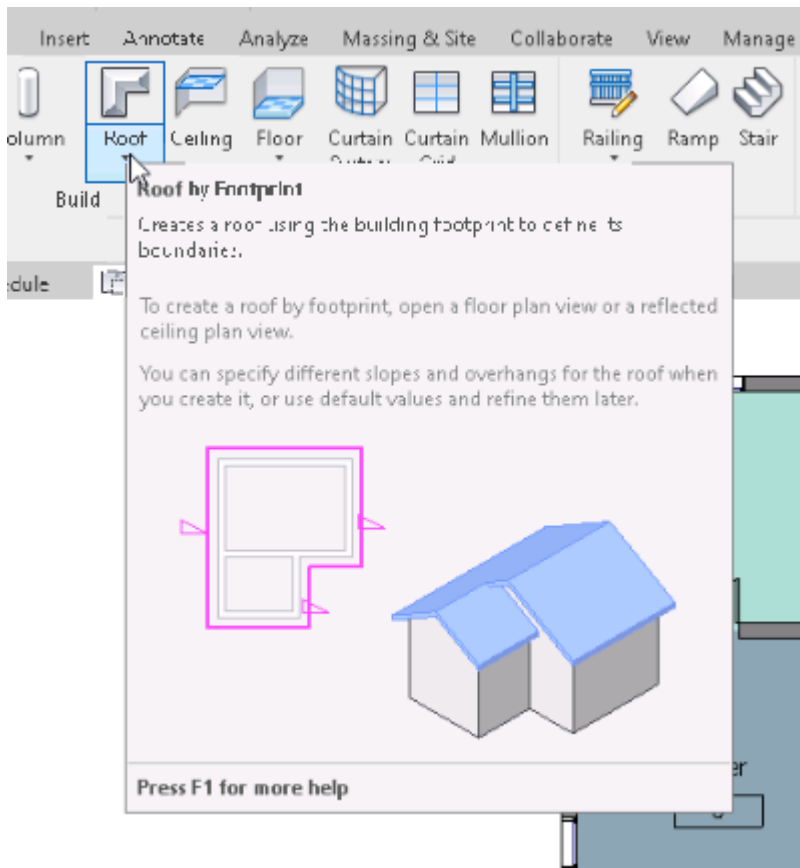


This is the result with the they narrowed internal walls

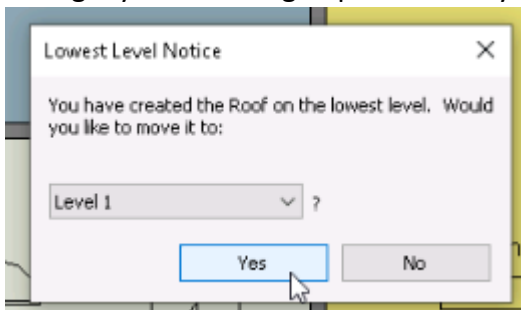


Roofing

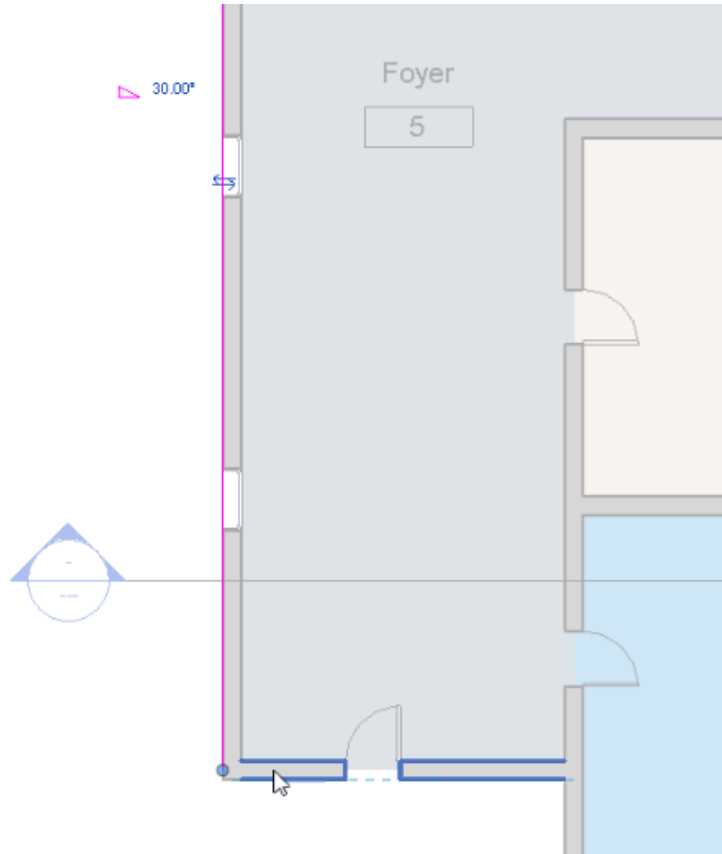
To create the roof for your structure, select the roof button in the toolbar.



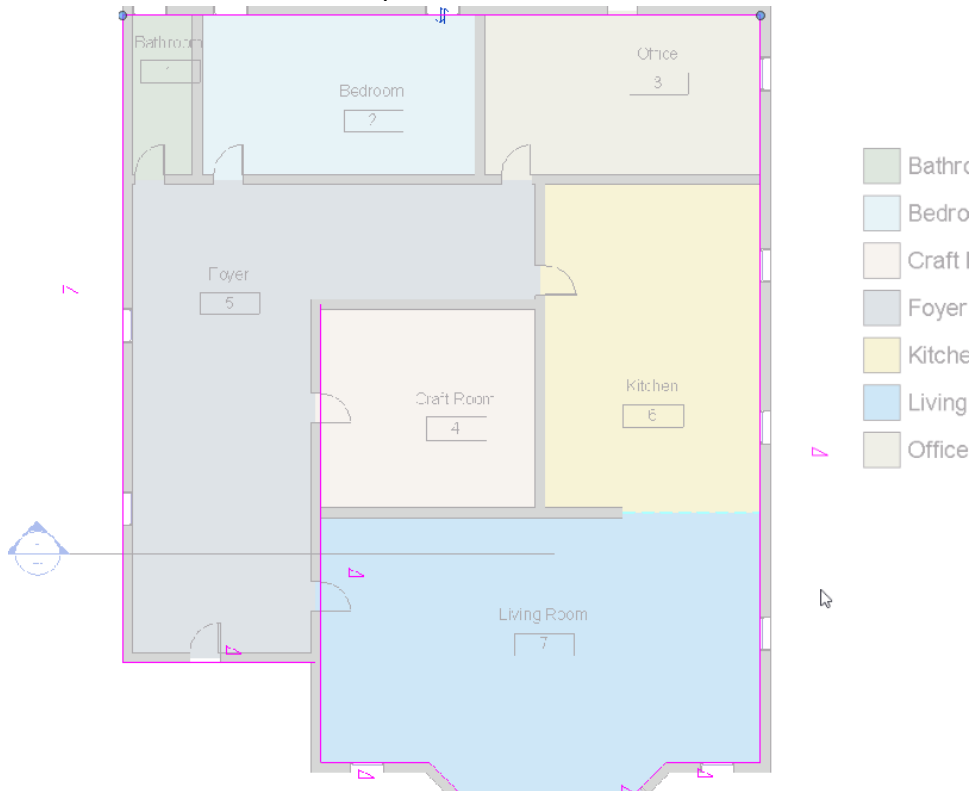
If you open the roof menu from the level your building is constructed on, this menu will open asking if you want to go up a level for your roof. Select yes.



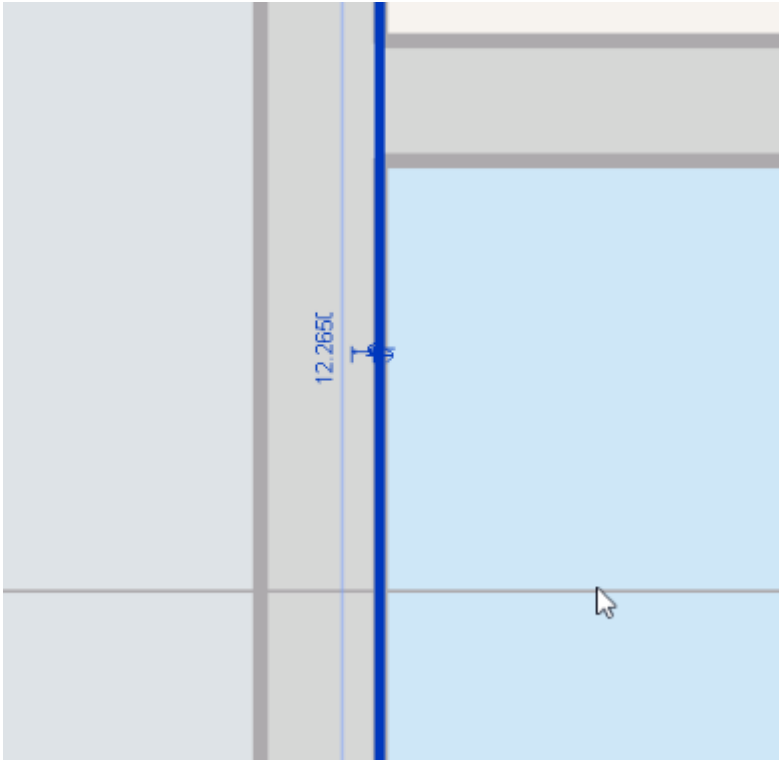
Select the walls which define the outline or footprint for the roof, a pink line will display where the footprint of the roof is based.



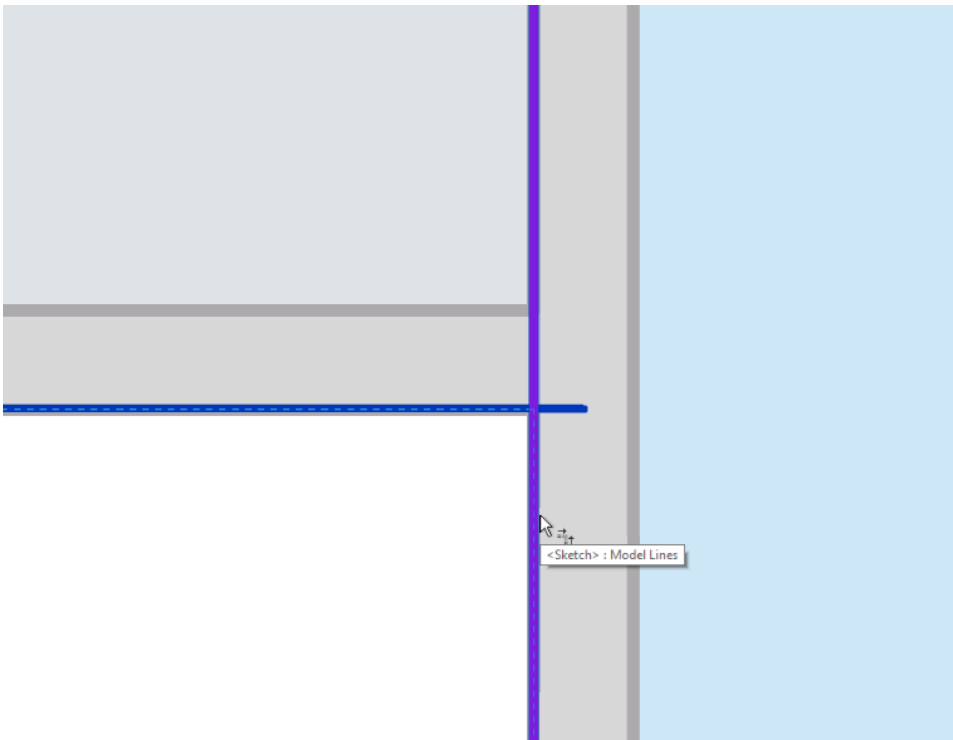
Here is what it may look like once you've completed your outline selection. You'll notice that the wall in the middle continues past the outline.



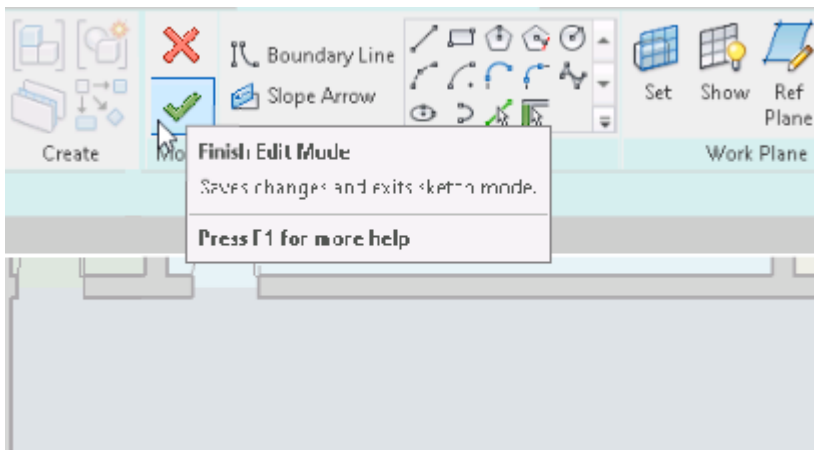
You can select the walls you've placed and change which side of the wall it appears on. This can be done by either dragging the wall or selecting the arrows in the middle of the wall.



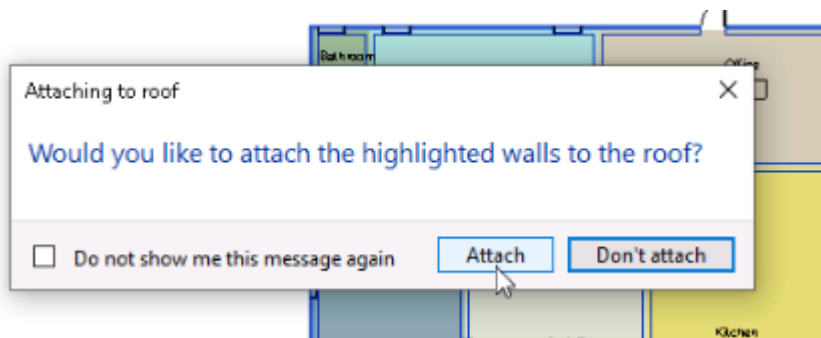
To fix the over lap of the footprint into the internal area of the house, use the trim and extend tool used previously to select the dimensions to be kept.



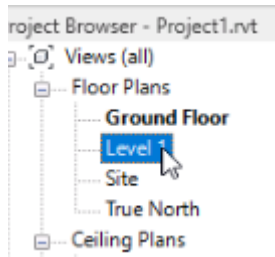
Once you are satisfied with the footprint for your roof, click the green checkmark.



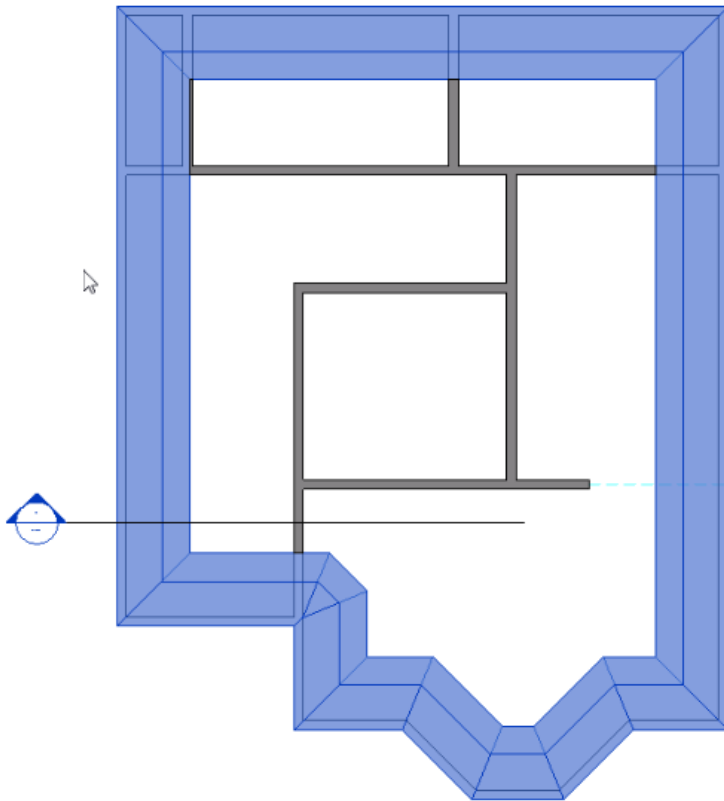
Once you have chosen to finish the outline, Revit will ask if you want to attach the walls to the roof. Select attach.



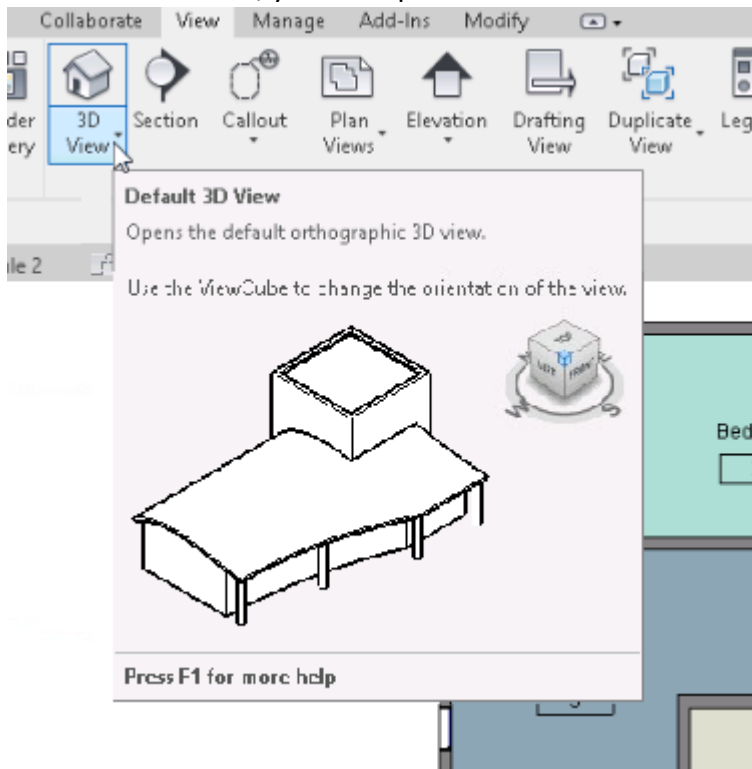
You can open the view for the level your roof was created on to view the new roof.



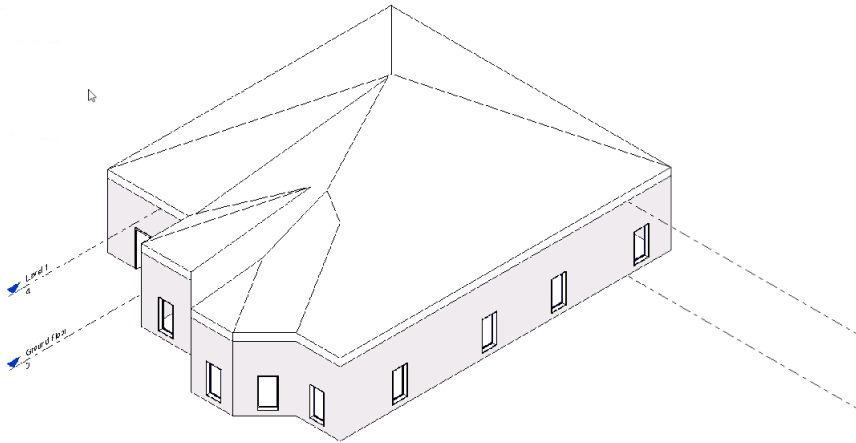
This is how it will look.



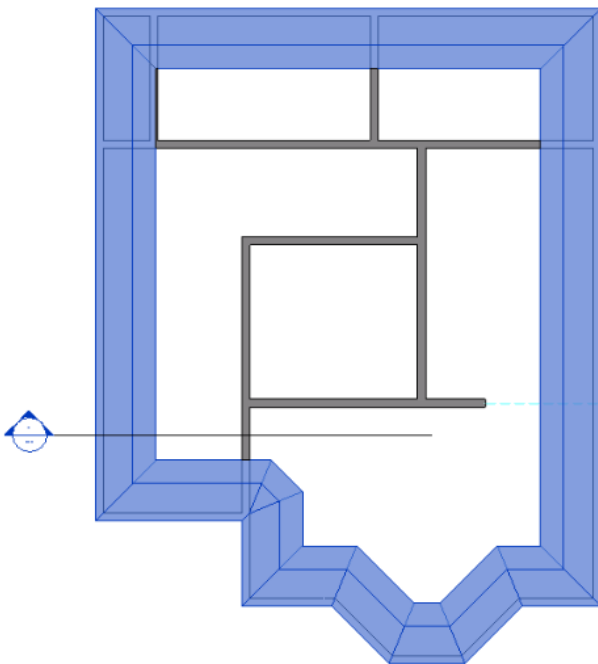
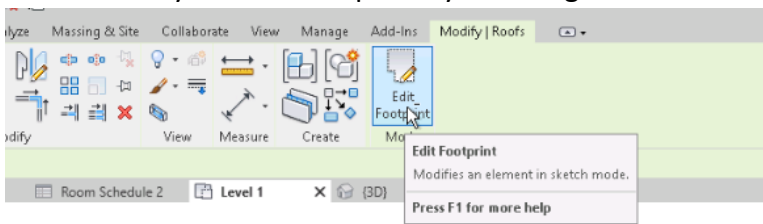
Under the view tab, you can open the 3D view menu to see your structure in 3D.



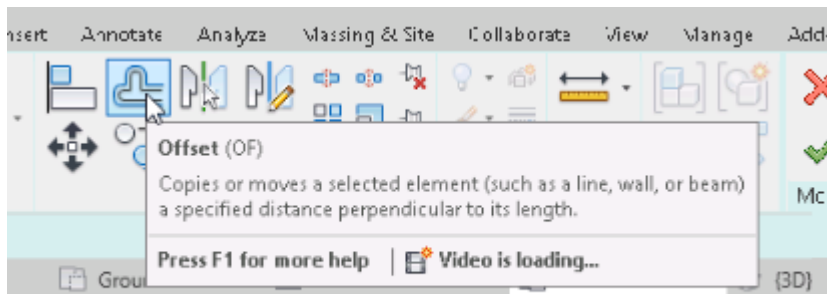
Here is the result. You'll note that the roof cuts off at the walls and has no overhang.



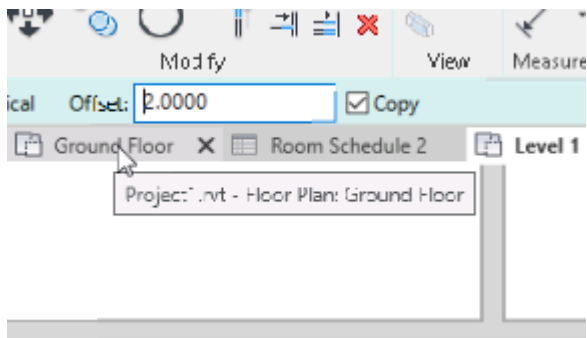
You can edit your roof footprint by selecting the floor and clicking Edit Footprint in the modify tab.



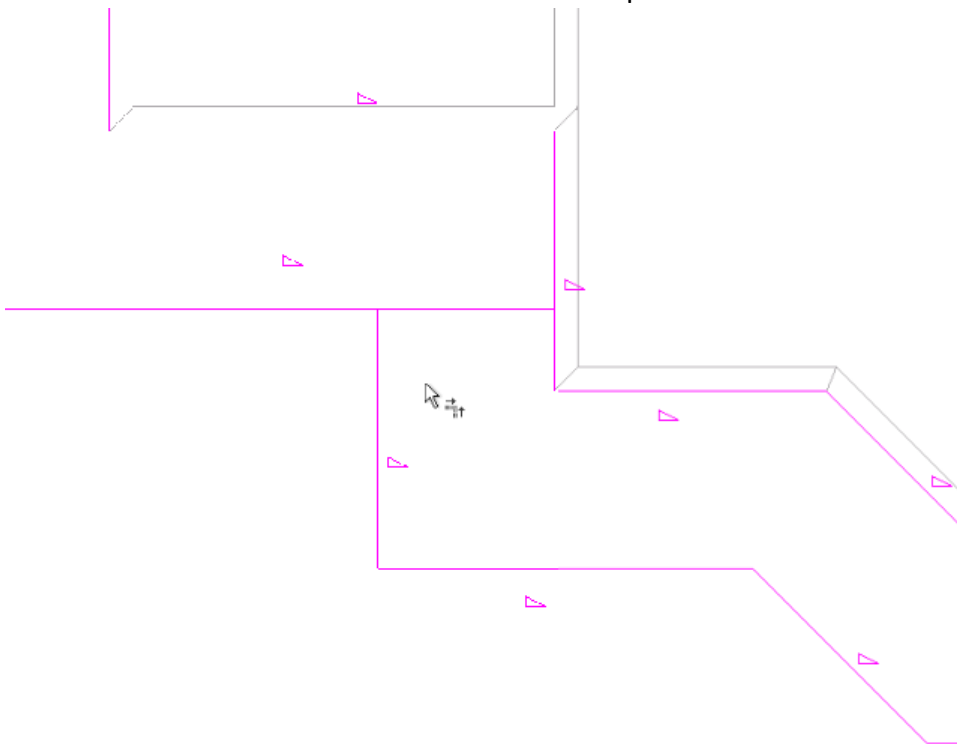
To create a degree of overhang or the roof, we will use the offset tool in the toolbar.



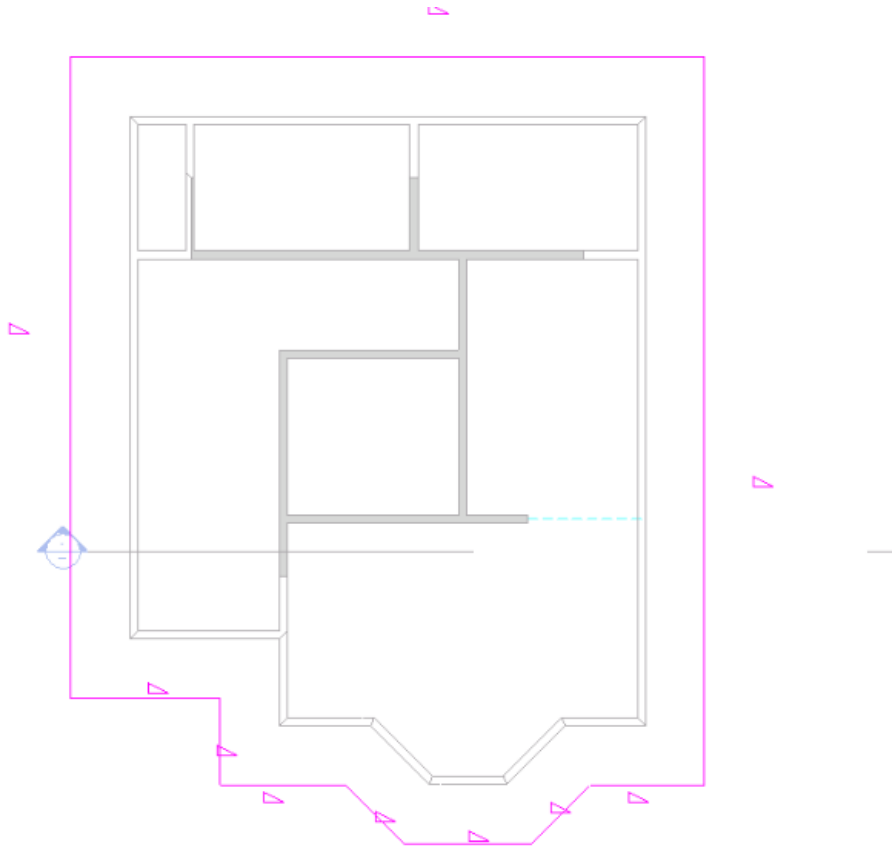
You can also select the amount by which the offset spaces out, in this case we use 2 metres, however this was a little excessive.



Select each section of the footprint with the offset tool. This produces another outline at the offset distance. Use the trim and extend tool to clean up this outline.

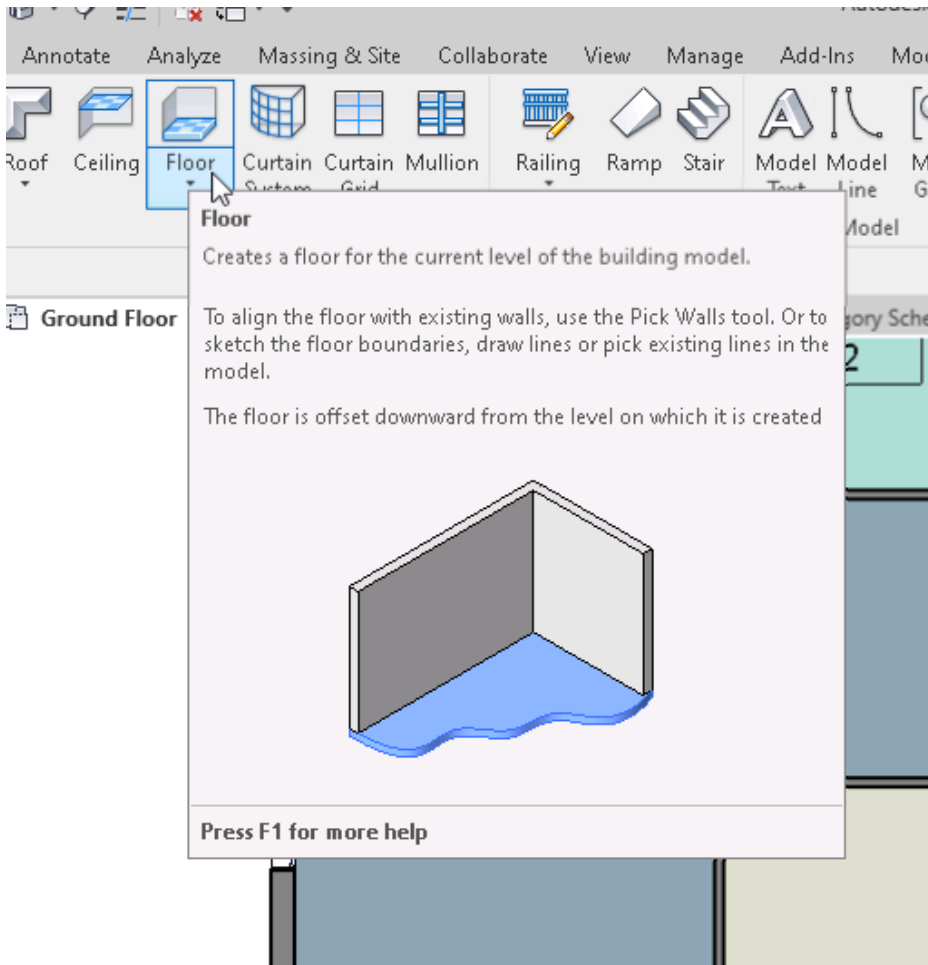


Once the offset outline is ready, you can delete the previous outline and complete the roof footprint.



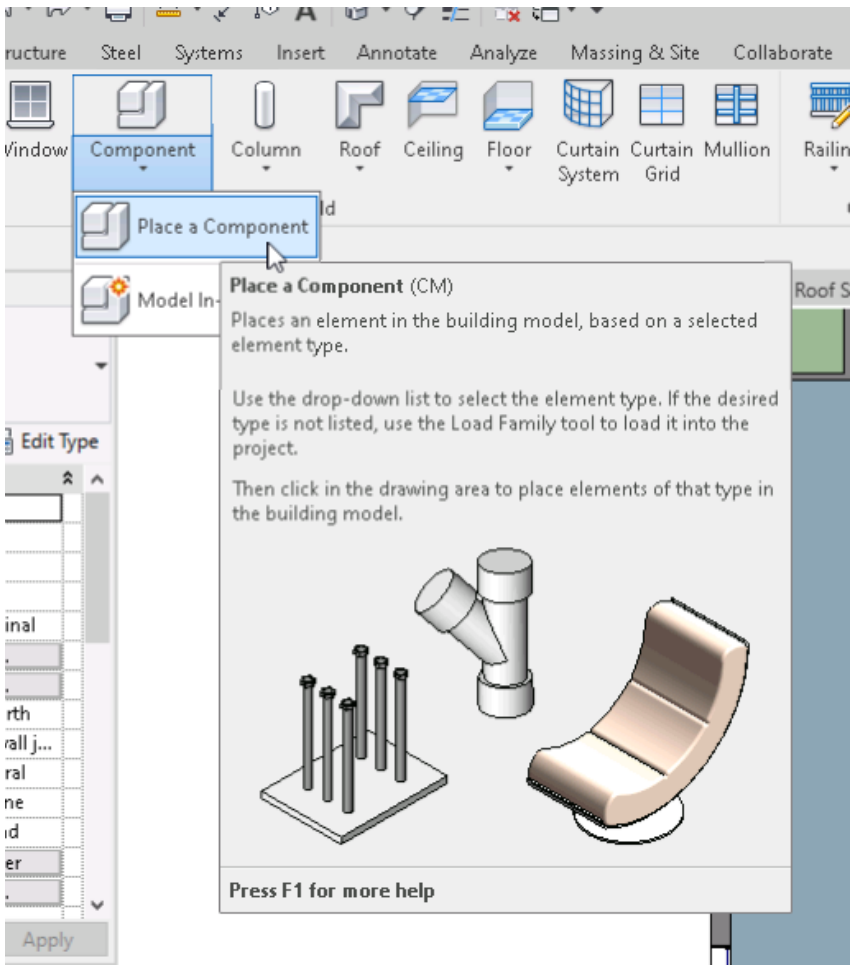
Flooring

To create a flooring for your structure, open the floor tool in the main toolbar. This will allow you to create the floor under your building.

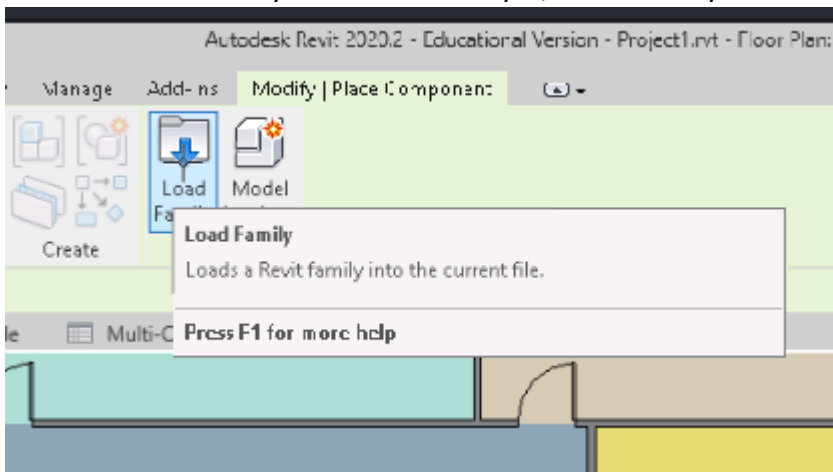


Furniture

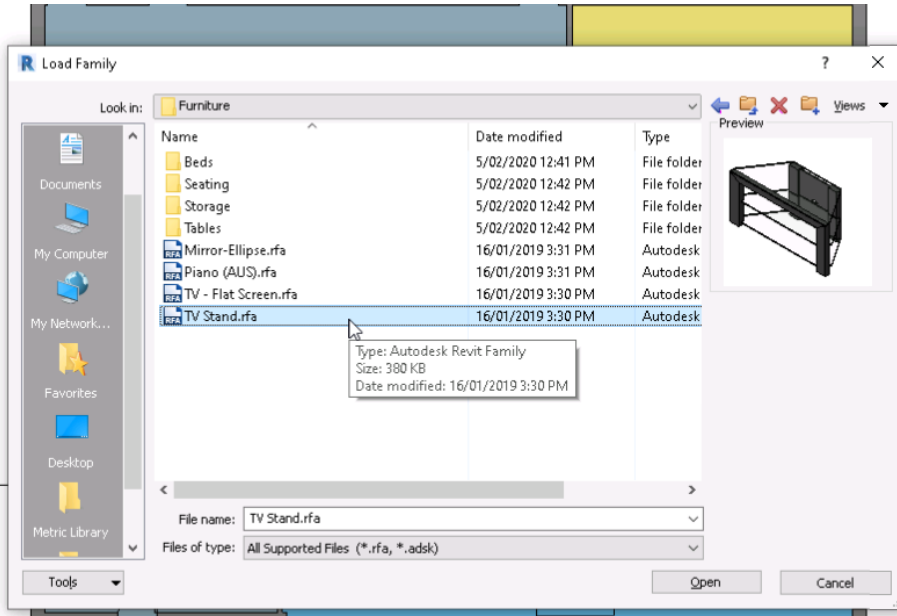
Once your structure is constructed, you can begin to add furnishings. In the main toolbar, select the “Component -> Place a Component” menu.



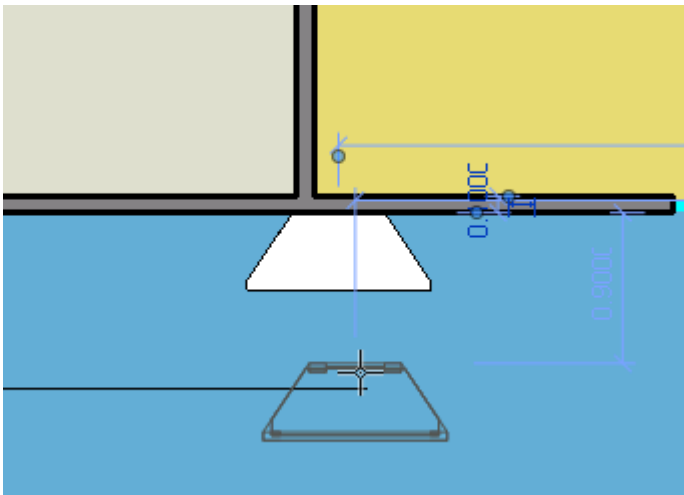
To use a model that you haven't used yet, in the modify menu select the Load Family option



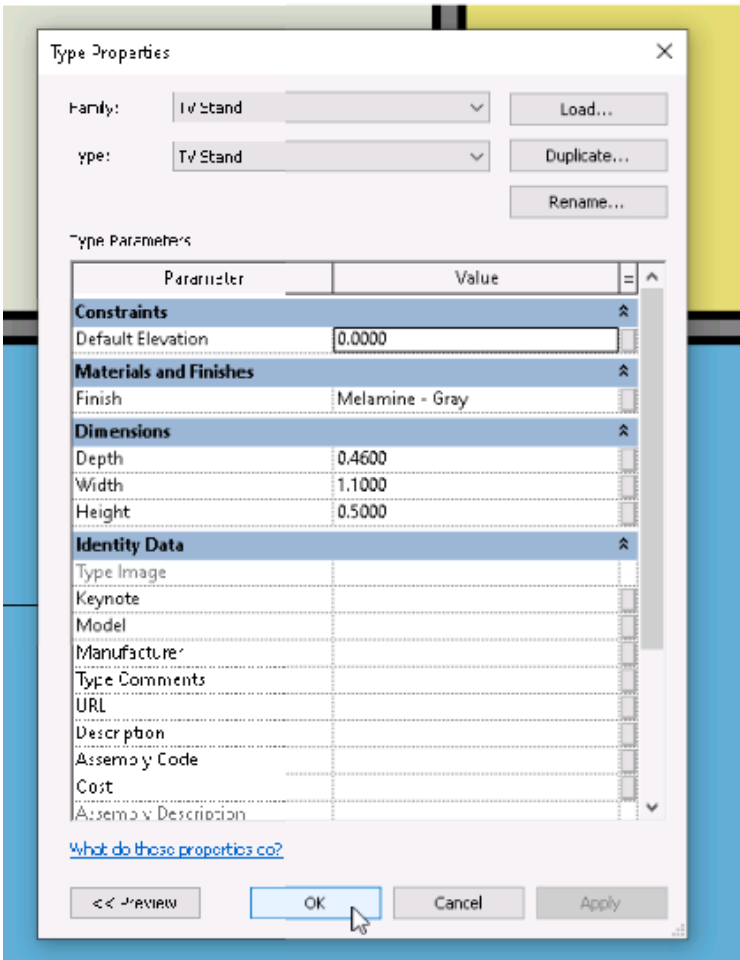
Search through the folders to find the model you want to use and click open.



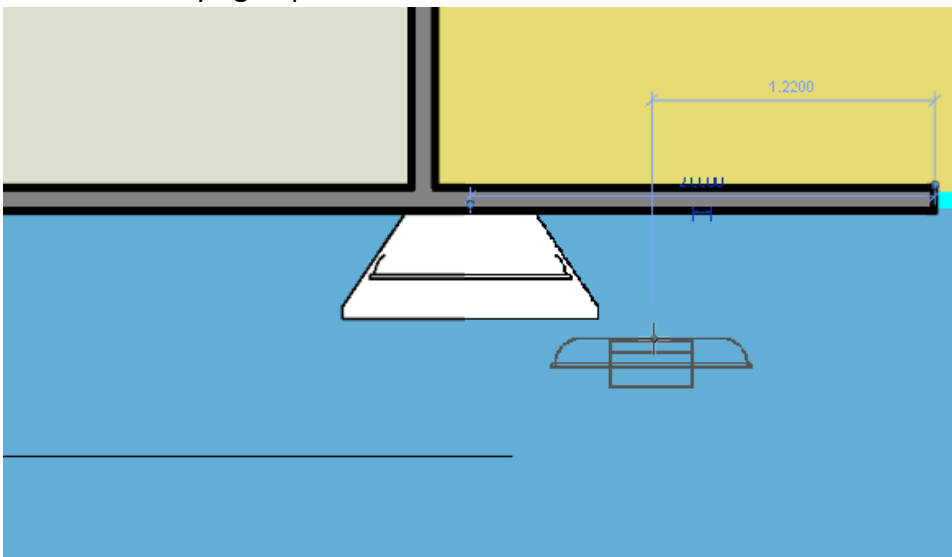
Find the location you want to place your object and click to place it down.



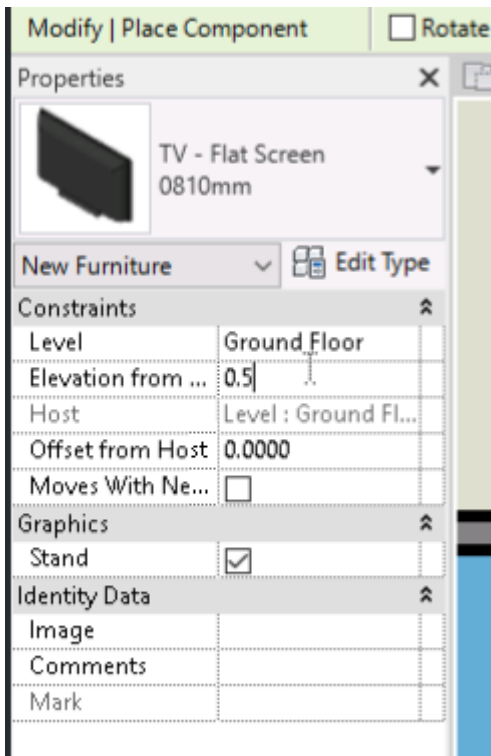
With this tv stand, we will want to put a tv on it, and to do this, we need to know how tall the stand is. In the properties menu, select the “edit type” button and find the height dimension. This, as well as the other dimensions, can be changed.



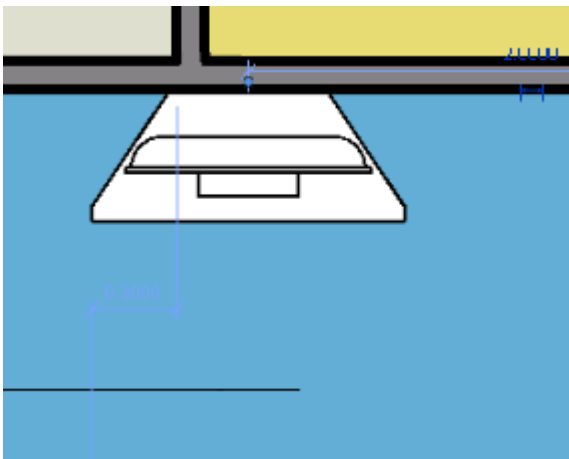
Here is what trying to place a TV on the TV stand looks like without editing the offset.



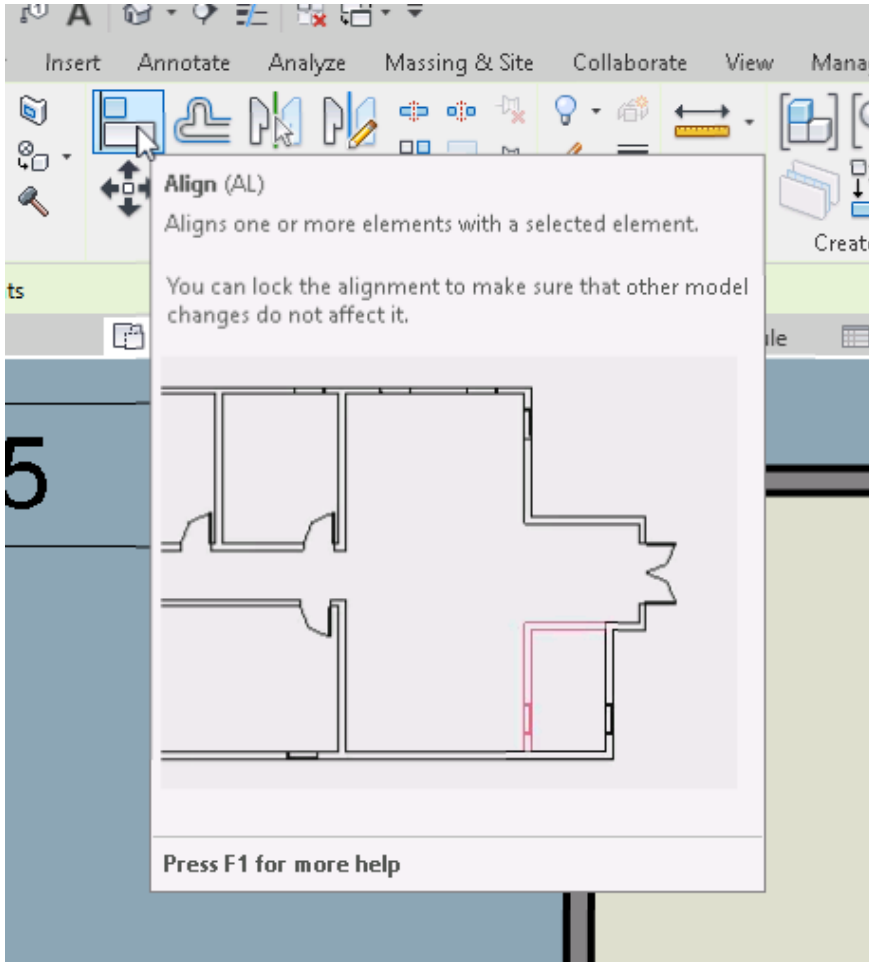
To fix this, go to the properties menu and find the “elevation from...” field. Set this field to the height of the object you want to place the TV onto.



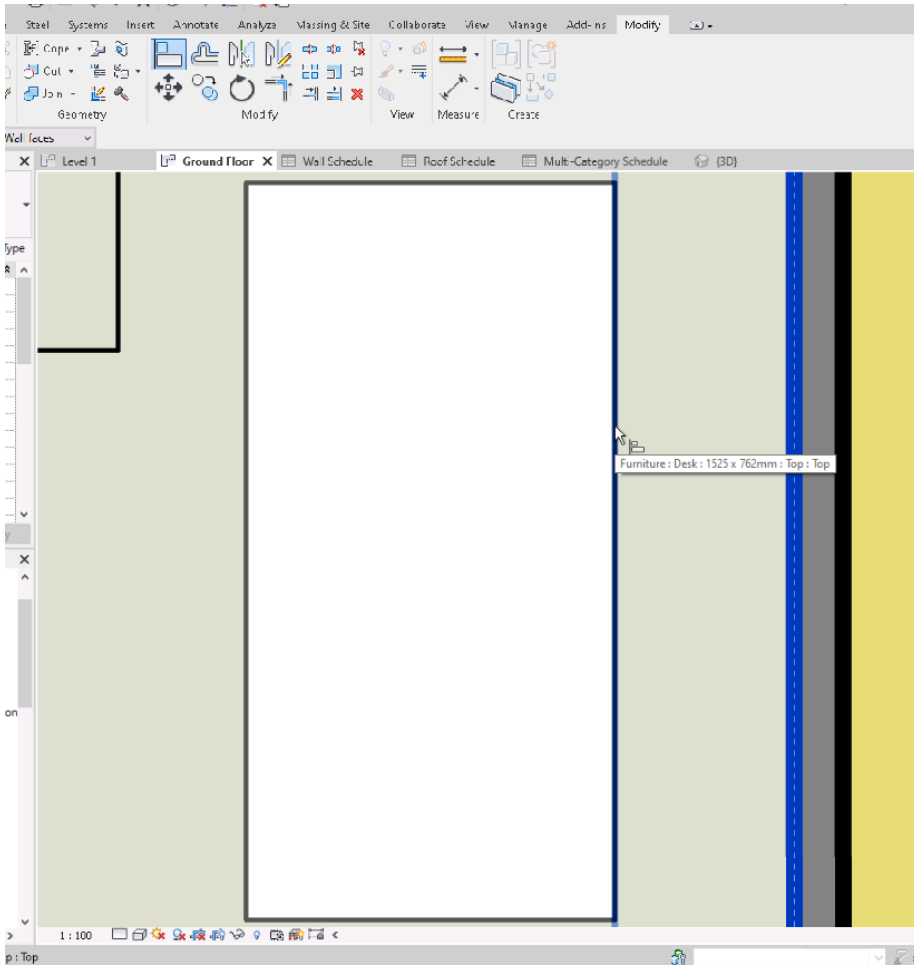
This is what the TV looks like with the correct height offset.



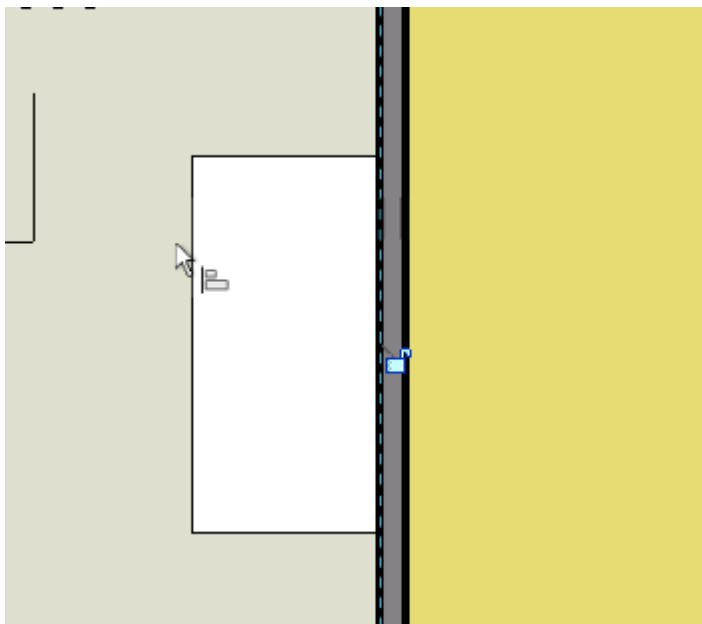
The align tool can be used to line up furniture with the walls or other furnishings.



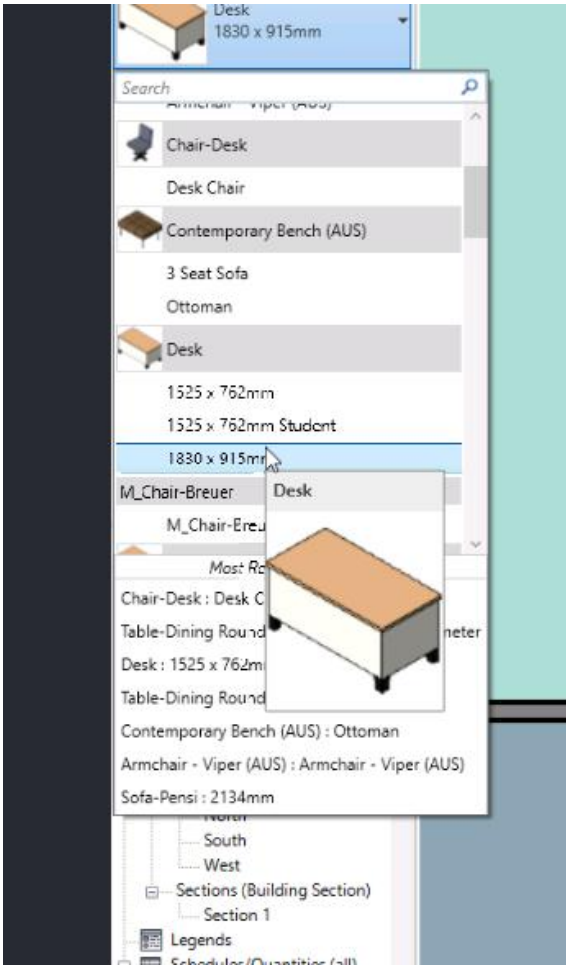
Be sure to first select the edge on the object you want to move, then the edge you'd like to move it to.



Here is the result.



To select a model that you have already used in the project, you can, instead of going to the “Add Family” menu, select the dropdown in the property menu and find the model you want to use.



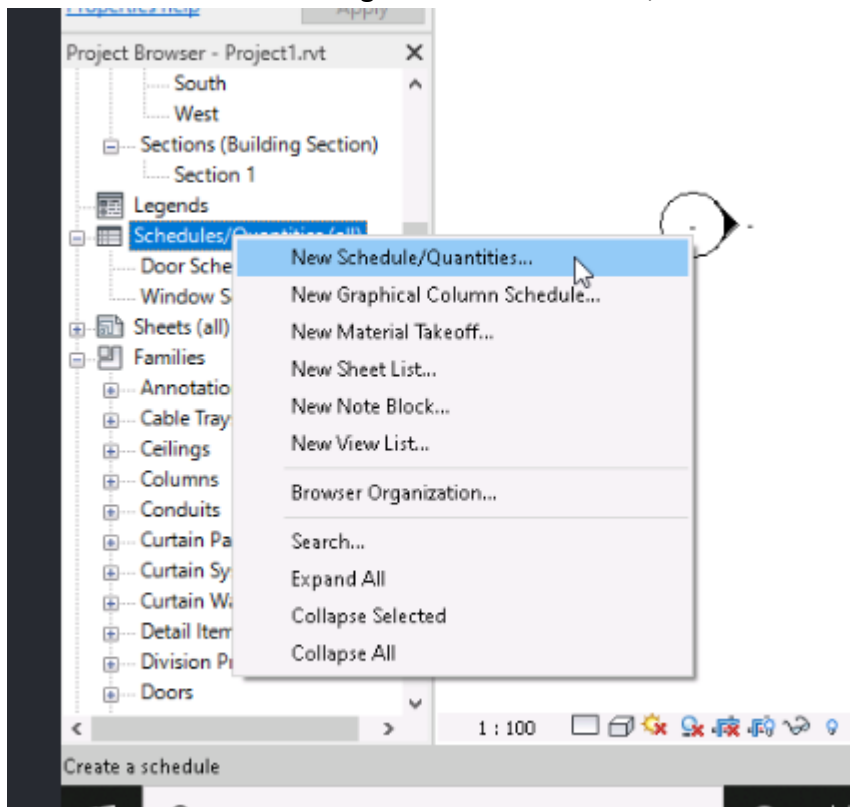
Here is the result of these furnishings.



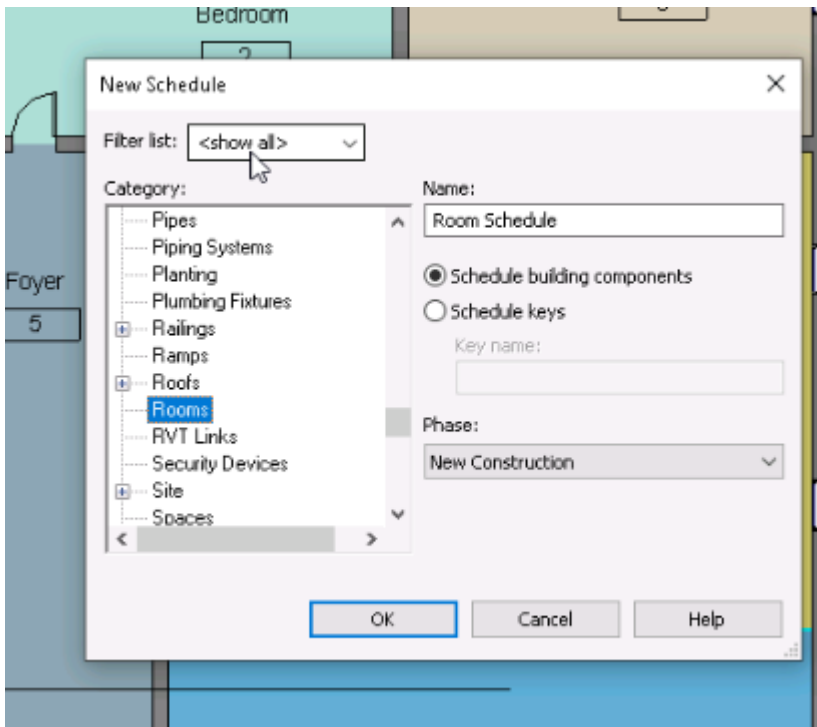
Analysis:

Room schedules

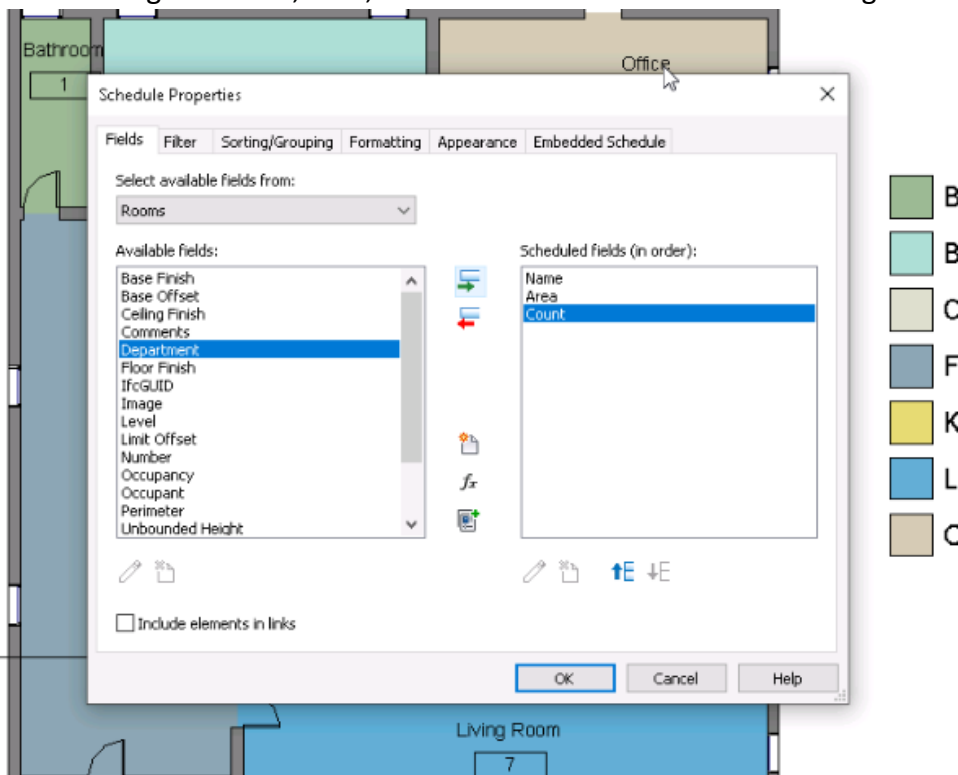
Schedules are Revit's way of performing an analysis on the project. To create a new schedule, right click on the schedules listing in the views window, then select "New Schedule/Quantities".



Once the schedule menu is open select the type of schedule you want to create. In this case we will be using the rooms type.



In the following menu, you can select the fields of the schedule that will be displayed. In this case we are using the name, area, and count. Select OK to finish creating.



Once the schedule is created, this table is created displaying the relevant information of each room.

<Room Schedule 2>		
A	B	C
Name	Area	Count
Bathroom	7 m ²	1
Bedroom	31 m ²	1
Office	32 m ²	1
Craft Room	31 m ²	1
Foyer	78 m ²	1
Kitchen	50 m ²	1
Living Room	87 m ²	1

Costing Schedule

Using the 'un' units menu, you can select the currency of the project and its formatting.

Project Units

Units	Format
Length	1235 [m]
Area	1235 m ²
Volume	1234.57 m ³
Angle	12.35°
Slope	12.35°
Currency	1234.57
Mass Density	1234.57 kg/m ³
Time	1234.6 s
Speed	1234.6 km/h

Decimal symbol/digit grouping: 123,456,789.00

Format

Use project settings

Units: Currency

Rounding: 2 decimal places Rounding increment: 0.01

Unit symbol: None

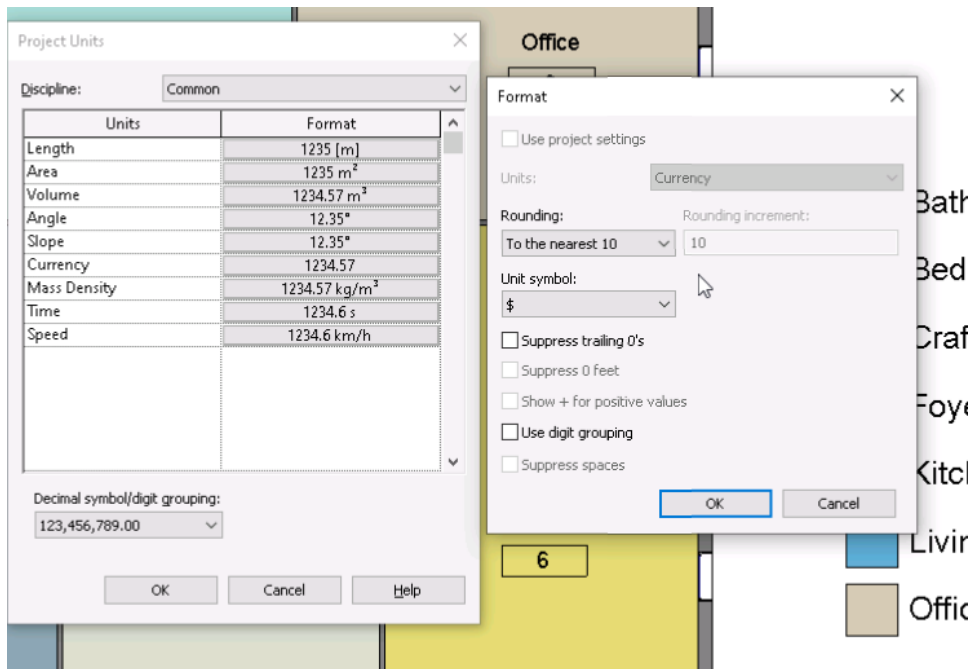
Suppress trailing 0's

Suppress 0 feet

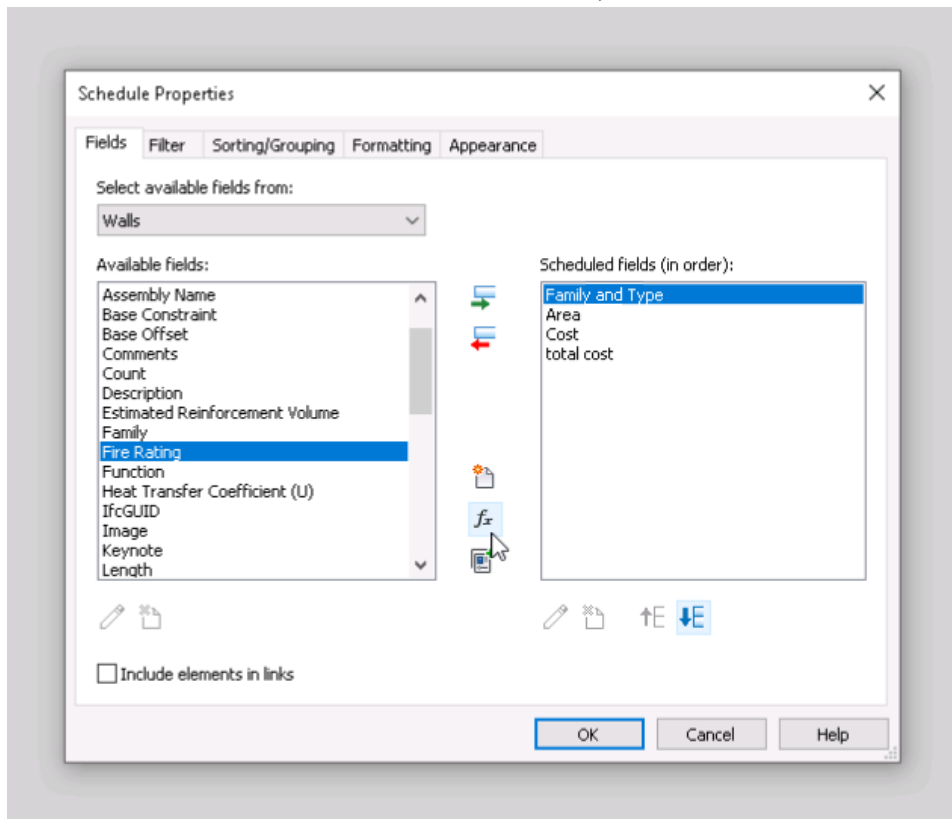
Show + for positive values

Use digit grouping

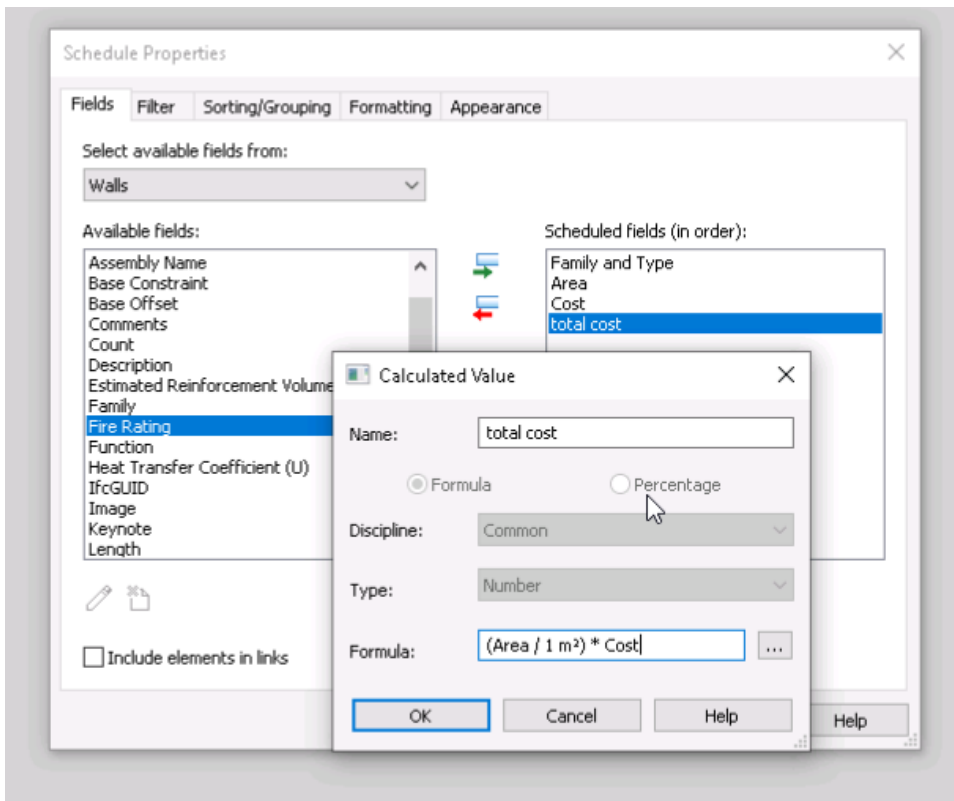
Suppress spaces



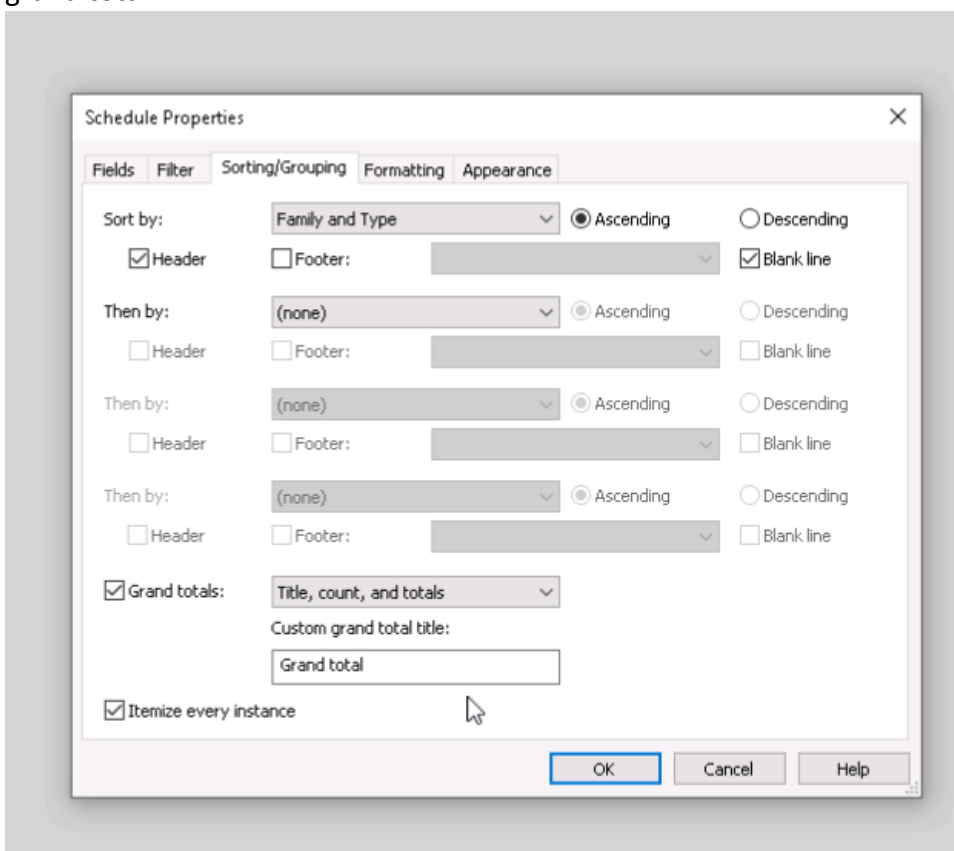
To create a cost estimate schedule, follow the same process as previously. Select walls for the for the schedule type. In this example we are using Family and Type, cost, area, and a claculated field called Total cost. To create this calculatd field, select the calculated field option.



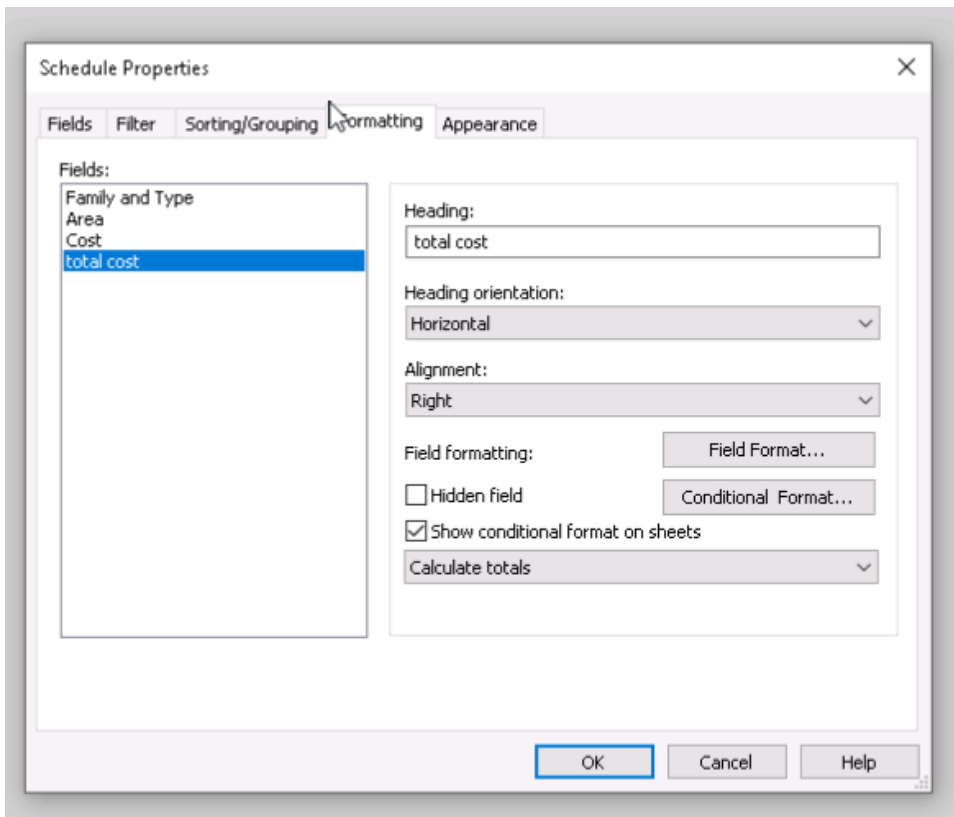
In the calculated value menu, choose a name for your calculated field and input the formula to be calculated. In this case, the formula multiplies the area of the wall by the cost per metre squared. It's important to divide the area by 1 as it converts the value to a float which can interact with the cost.



Before completing the schedule, open the sorting/grouping tab and set the sort by option to family and type. Also select the Header and Blank Line box. Finally, check the Grand Totals box and select grand total.



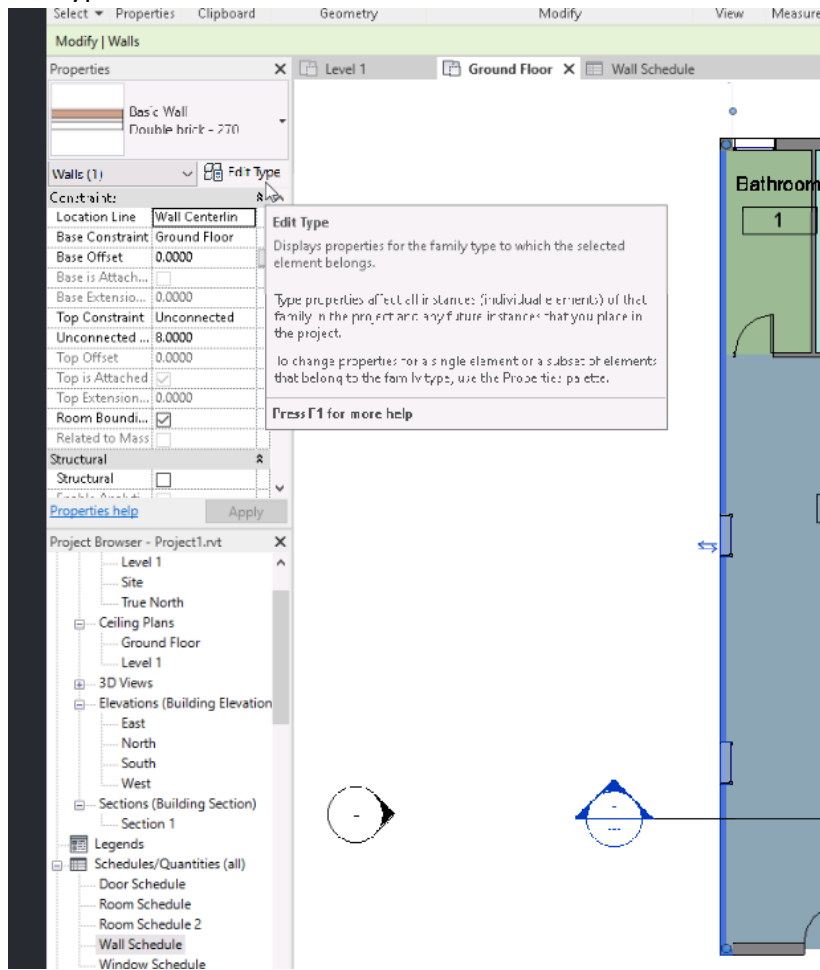
In the formatting tab, select the total cost entry and ensure it keeps with the following parameters.



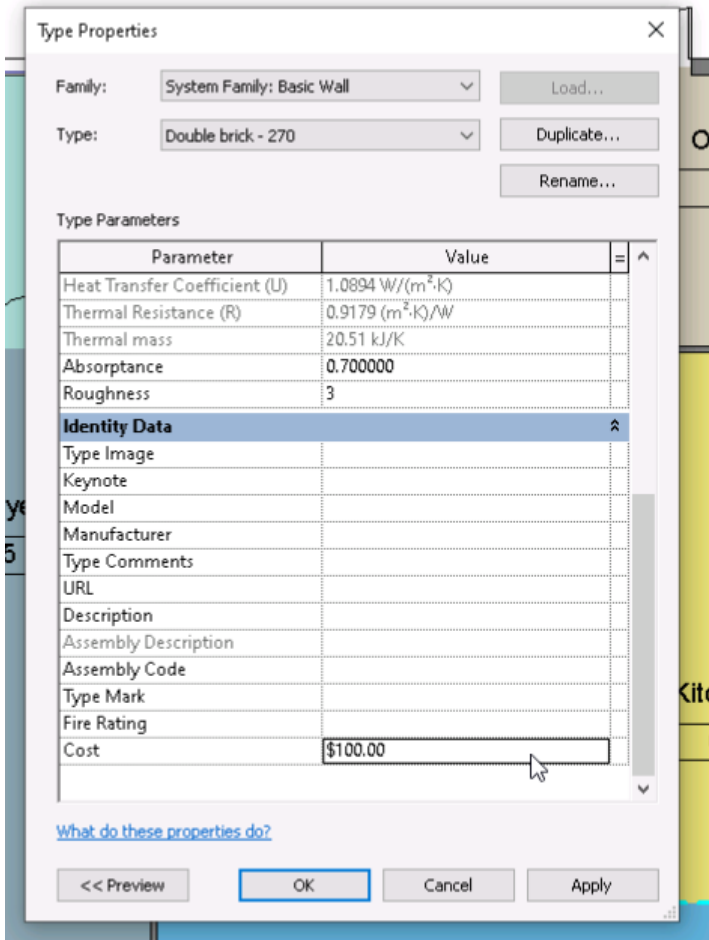
Here is what the schedule will look like. The cost and total cost fields are empty because the materials need costs assigned.

<Wall Schedule>			
A	B	C	D
Family and Type	Area	Cost	total cost
Basic Wall: Double brick - 270			
Basic Wall: Double	84 m ²		
Basic Wall: Double	89 m ²		
Basic Wall: Double	14 m ²		
Basic Wall: Double	101 m ²		
Basic Wall: Double			
Basic Wall: Double	24 m ²		
Basic Wall: Double	15 m ²		
Basic Wall: Double	13 m ²		
Basic Wall: Double	11 m ²		
Basic Wall: Double	14 m ²		
Basic Wall: Double	16 m ²		
Basic Wall: Generic 100mm Wall			
Basic Wall: Generi	65 m ²		
Basic Wall: Generi	66 m ²		
Basic Wall: Generi	116 m ²		
Basic Wall: Generi	75 m ²		
Basic Wall: Generi	56 m ²		
Basic Wall: Generi	27 m ²		
Basic Wall: Generi	29 m ²		

Select a wall in your structure to assign it's cost. In the properties menu, select "edit type" to open the type menu.



Scroll down to the cost section of the properties menu and input the cost per unit for that wall type.



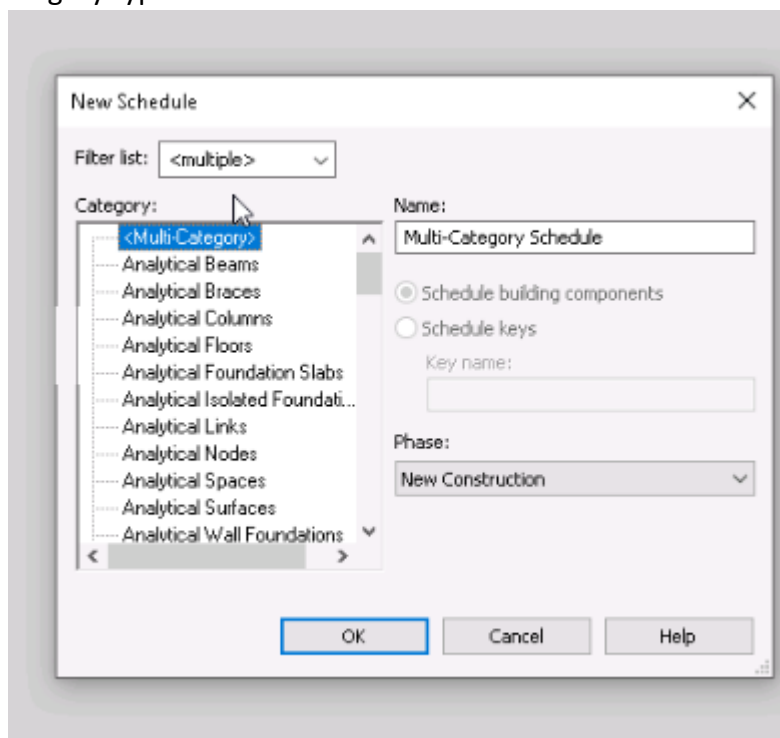
Once this is completed for all your wall types, your wall schedule will be populated with the new data.

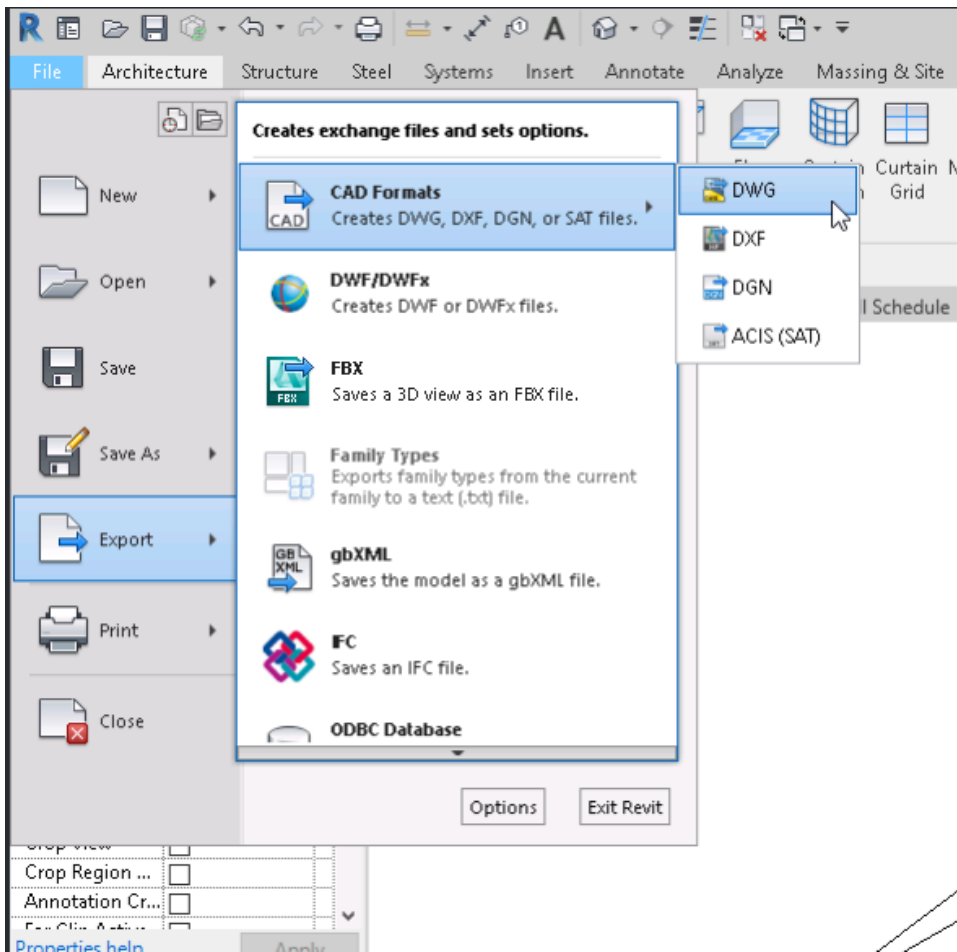
	A	B	C	D
	Family and Type	Area	Cost	total cost
	Basic Wall: Double brick - 270			
	Basic Wall: Double	84 m ²	\$100	8405.822191
	Basic Wall: Double	89 m ²	\$100	8868.904848
	Basic Wall: Double	14 m ²	\$100	1425.221997
	Basic Wall: Double	101 m ²	\$100	10092.671578
	Basic Wall: Double	24 m ²	\$100	2361.761326
	Basic Wall: Double	15 m ²	\$100	1514.498209
	Basic Wall: Double	13 m ²	\$100	1300.610946
	Basic Wall: Double	11 m ²	\$100	1111.918059
	Basic Wall: Double	14 m ²	\$100	1415.087776
	Basic Wall: Double	16 m ²	\$100	1562.842863
	Basic Wall: Generic 100mm Wall			
	Basic Wall: Generi	65 m ²	\$70	4567.932
	Basic Wall: Generi	66 m ²	\$70	4644.535057
	Basic Wall: Generi	116 m ²	\$70	8121.296685
	Basic Wall: Generi	75 m ²	\$70	5220.512361
	Basic Wall: Generi	36 m ²	\$70	3895.004767
	Basic Wall: Generi	27 m ²	\$70	1866.496926
	Basic Wall: Generi	29 m ²	\$70	1999.445033
	Grand total 1'			68374.582642

This can also be completed for the roof.

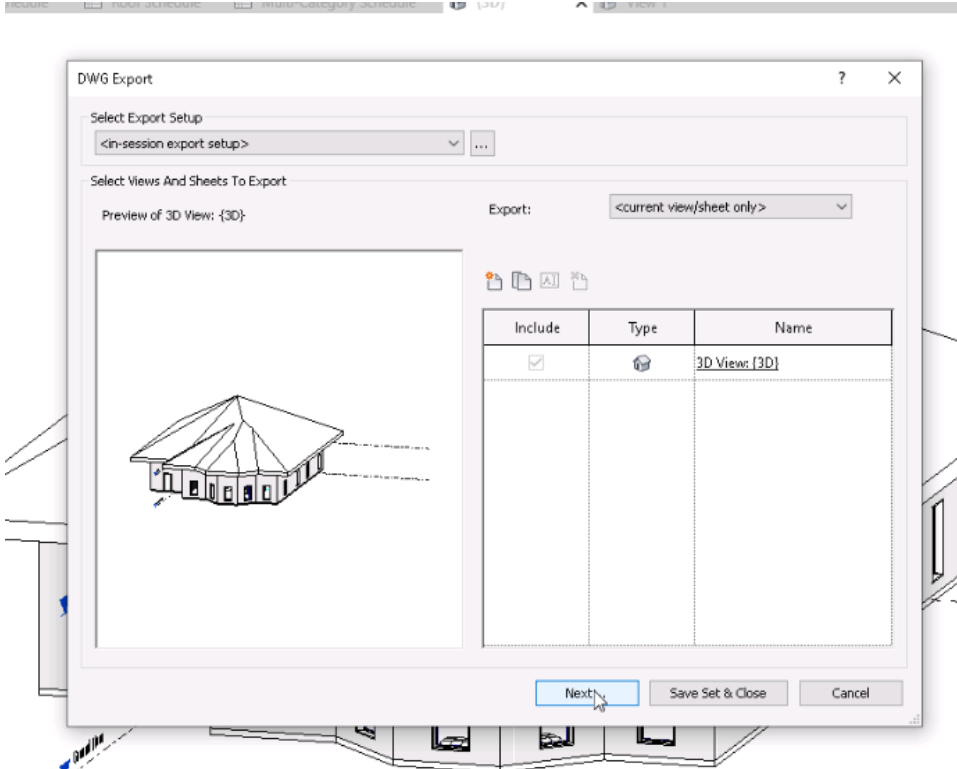
<Roof Schedule>			
A	B	C	D
Family and Type	Area	Cost	Total roof cost
Basic Roof: Generic - 400mm			
Basic Roof: Generi	603 m ²	\$90	54256.514787
Grand total: 1			54256.514787

As well as for the doors and windows. To create the doors and windows schedule, choose the multi-category type.





Have a look at the preview of your structure before exporting and make sure all of the options are to your liking, then click next.



Find the file location for your export and save the file.

