



ARCH@UCSD

Revit

Creating a Simple House

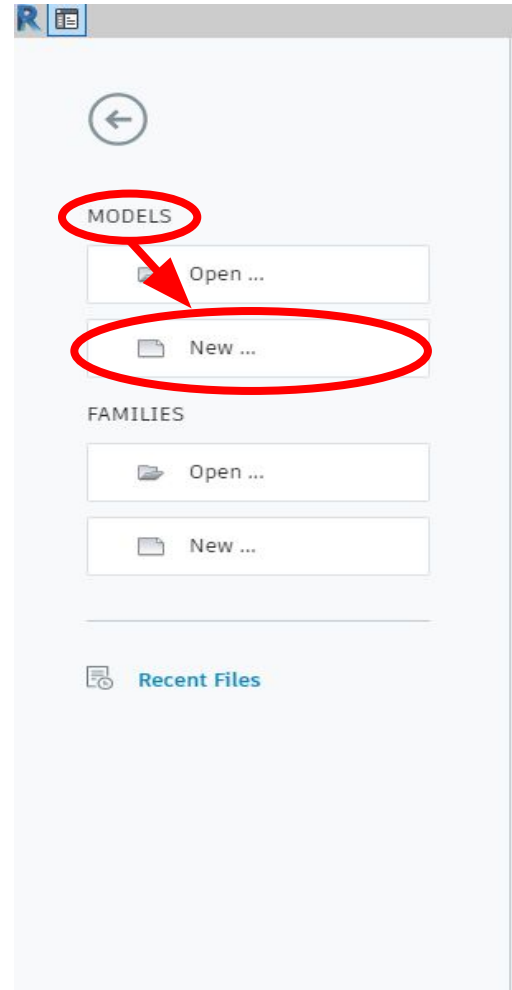


Slides Created By: Doris Liu

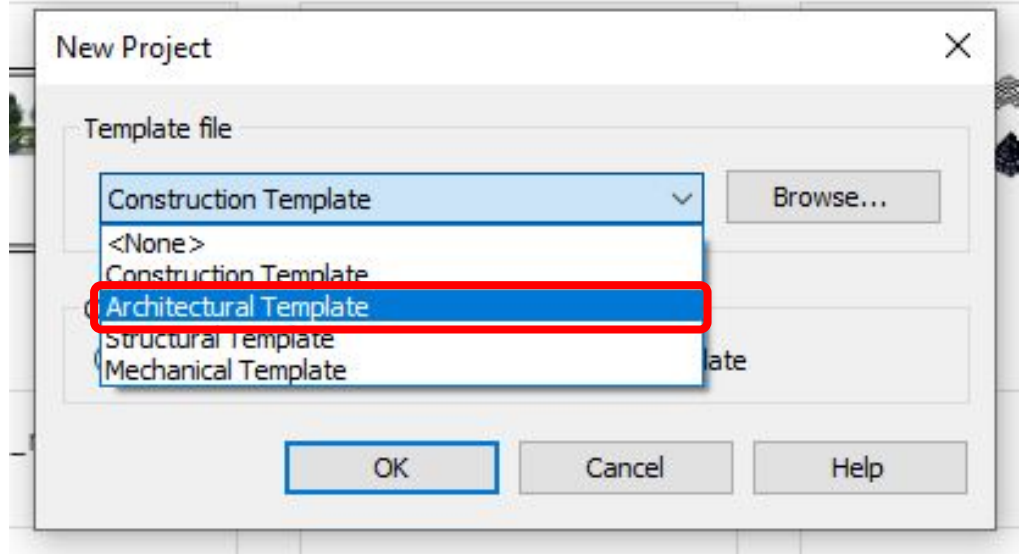


Creating a New Project

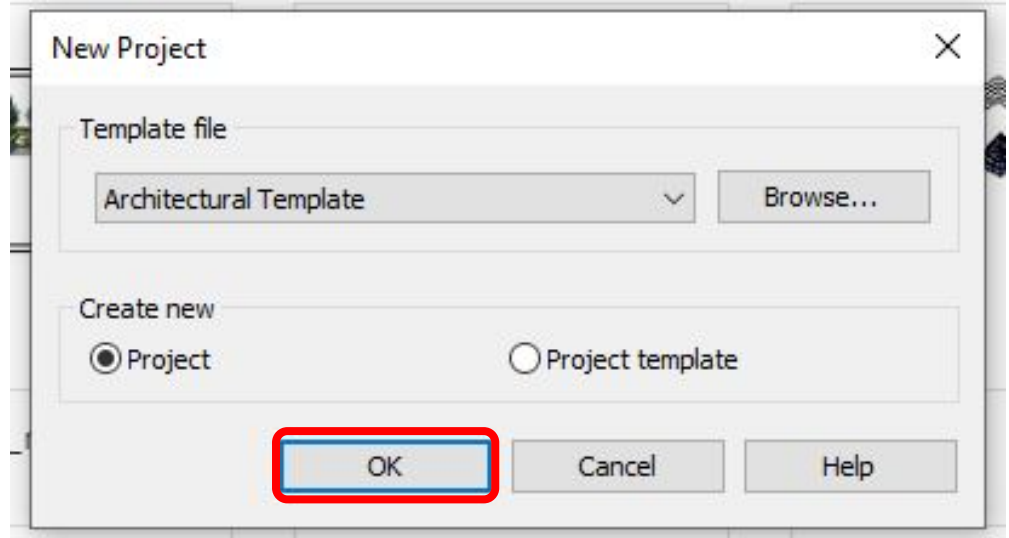
Under “*Models*”
Select “*New...*”



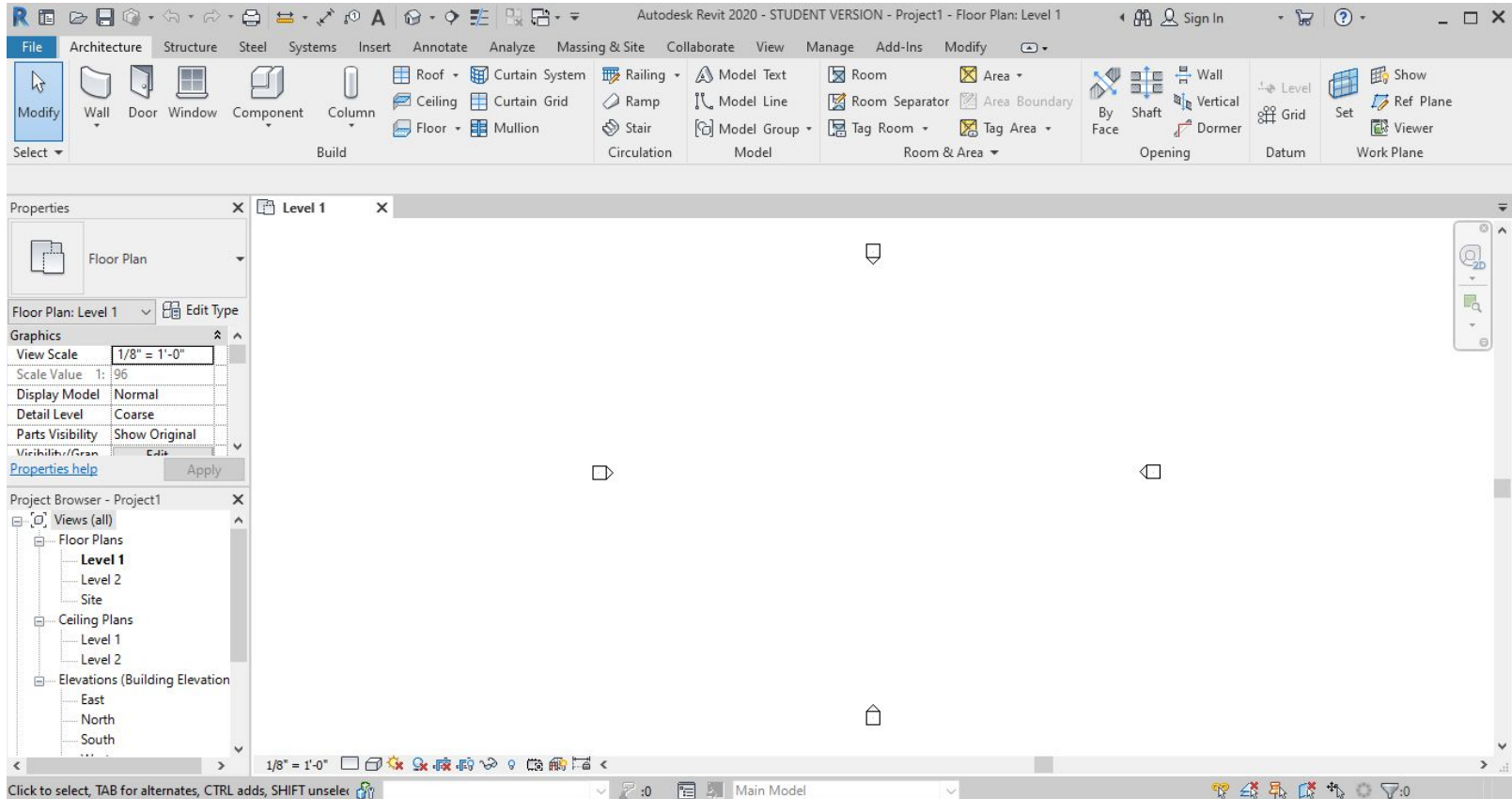
Choose
*“Architectural
Template”*



Leave the
default options
and click “*ok*”



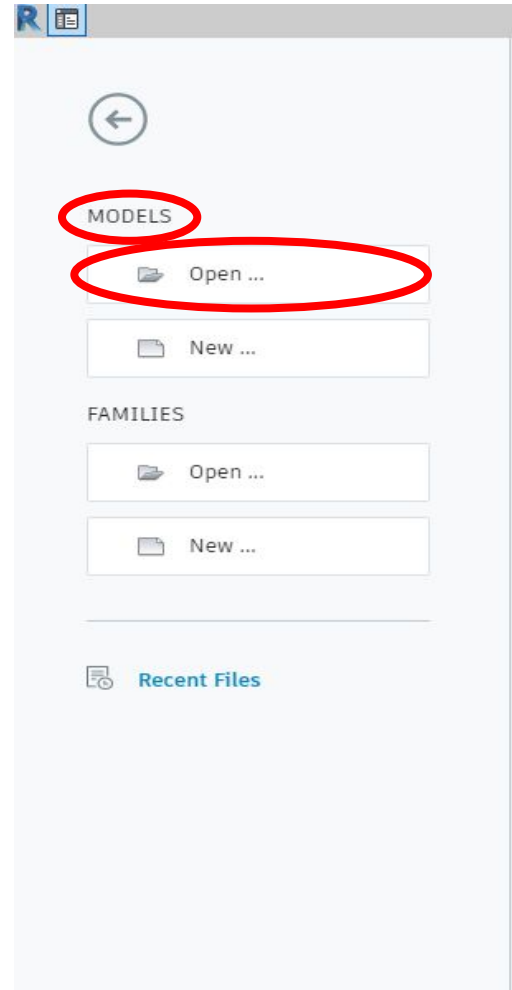
New *Blank* Project



Opening an Existing Project

Under *“Models”*
select *“Open...”*

Note*: Find your file where you stored it in your computer. It could also be under *“Recent Files”*, to the right of this menu.



Basic Functions

(These things would be quite good to know)

Remember to *SAVE YOUR*
PROJECT often!

How to *Zoom In*:

Scroll *Mouse*
Wheel Up

How to *Zoom Out*:

Scroll *Mouse*
Wheel Down

How to *Pan*:

Use the
*Vertical &
Horizontal
Scroll Bars*

OR

Hold down
Mouse Wheel
& move mouse
around

How to *Zoom* & *Pan*:

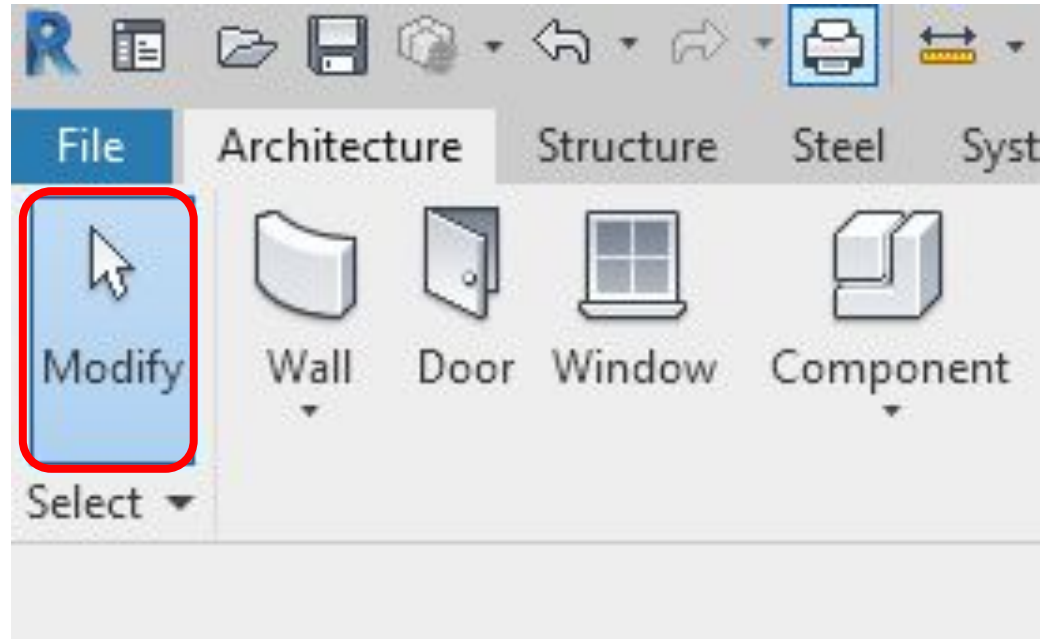
Scroll *Mouse Wheel* to zoom as usual and to pan while zooming, *Move Mouse* to different part of screen and then zoom.

How to *Rotate* Components:

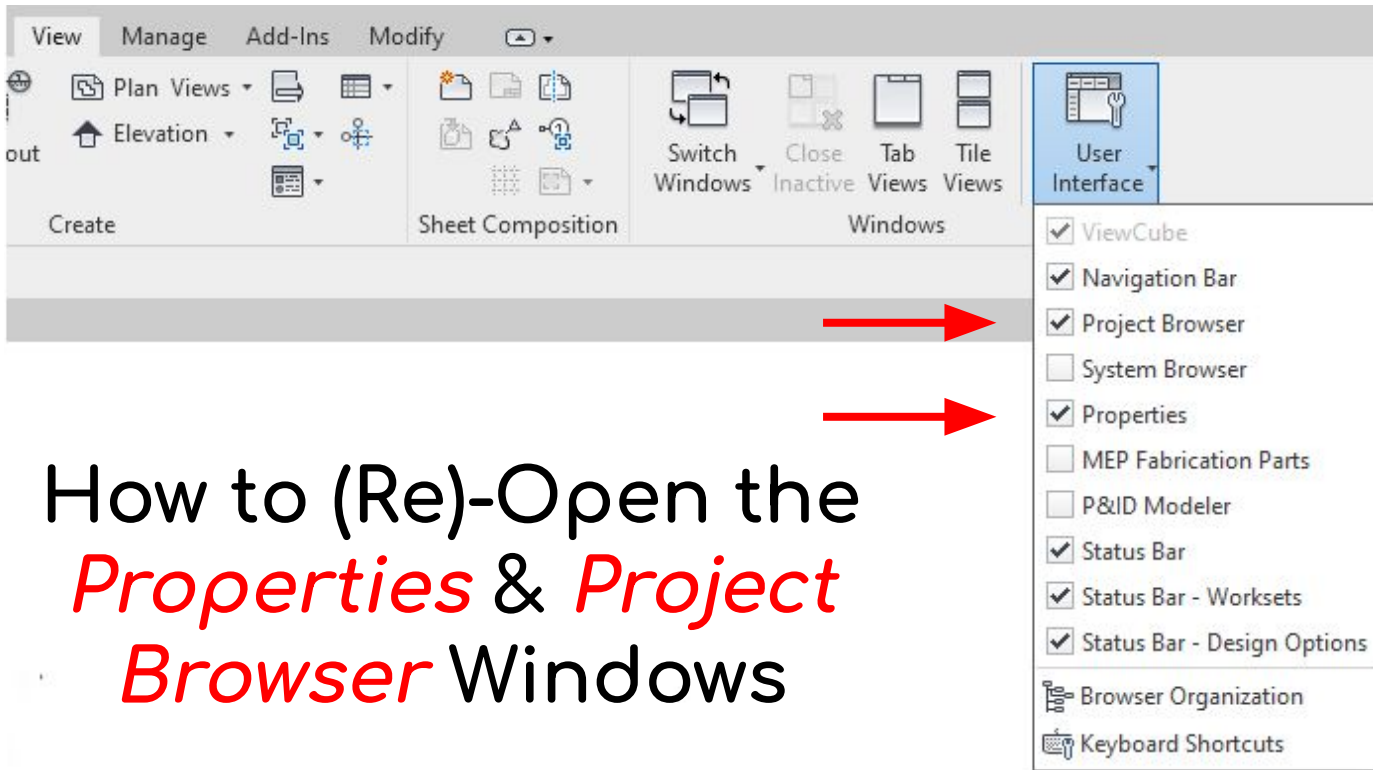
Use the *Spacebar* to rotate furniture, & switch the direction doors and windows are facing.

Note*: Click on the *component first*, then the *spacebar*.

Press the “*ESC*”
Key or “*Modify*”
Option to exit
out of a
command

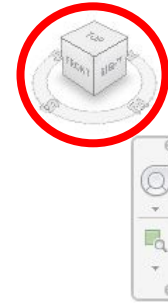
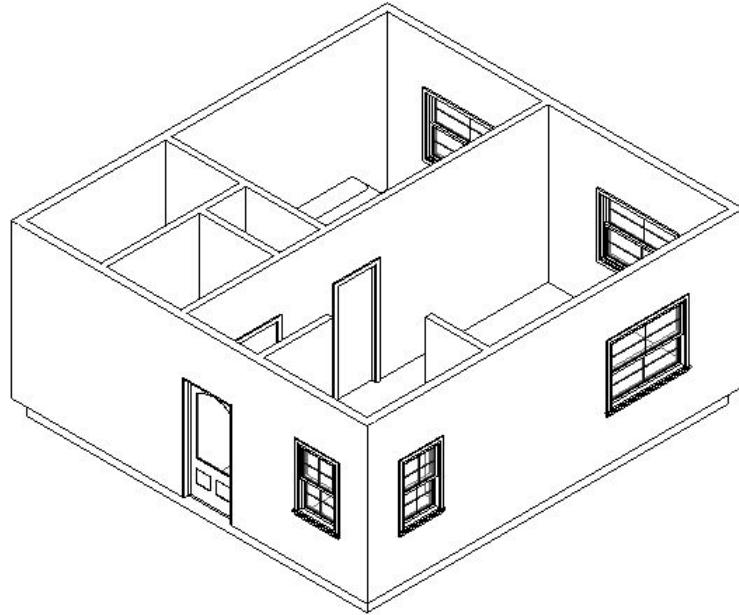


Note*: *Esc* could be pressed once or twice as needed.



Note*: *These are important windows* & if you accidentally close them, this is how to find it again. If project browser & properties are unchecked, *they need to be checked to be visible*.

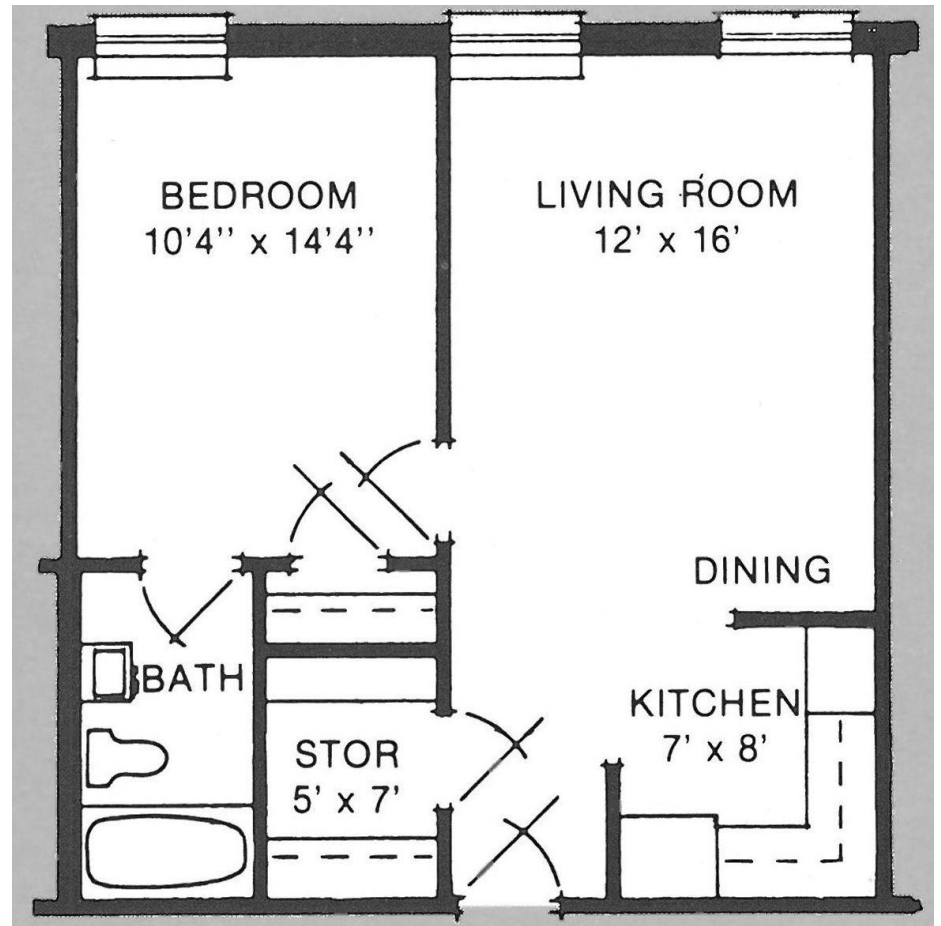
How to *Rotate* in *3D-View*: Click & drag that cube with your mouse



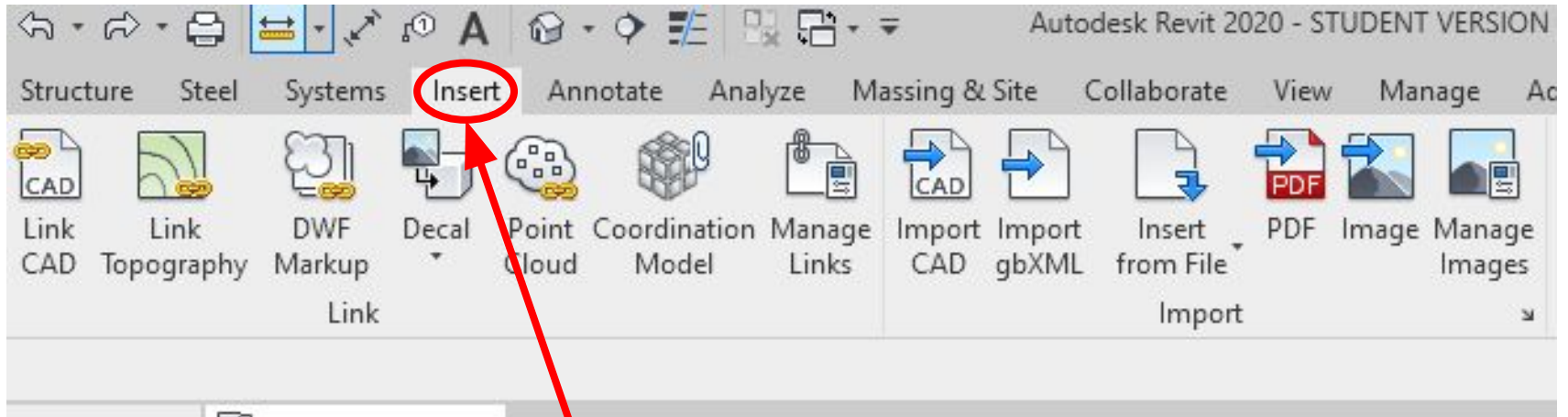
Note*: *Zooming* & *panning* stay the same in 2D & 3D view.

Inserting Floor Plan Image

Screenshot
this Floor Plan

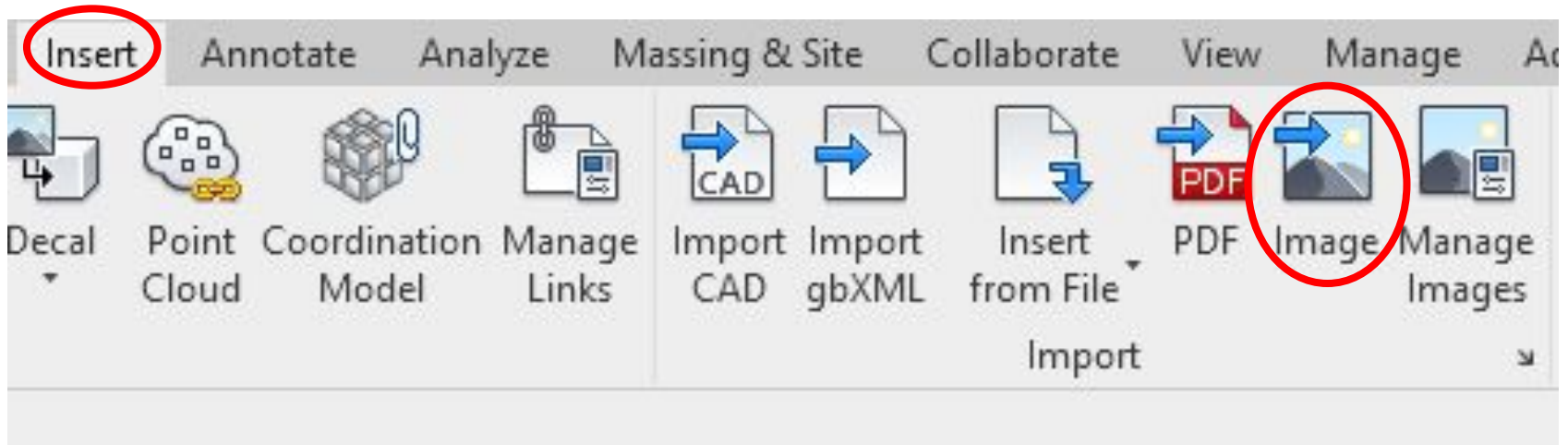


Go To *Insert* Tab



Click

Insert *Image* from your files



Cameras



Place *Image*
in the
middle of
the four
cameras



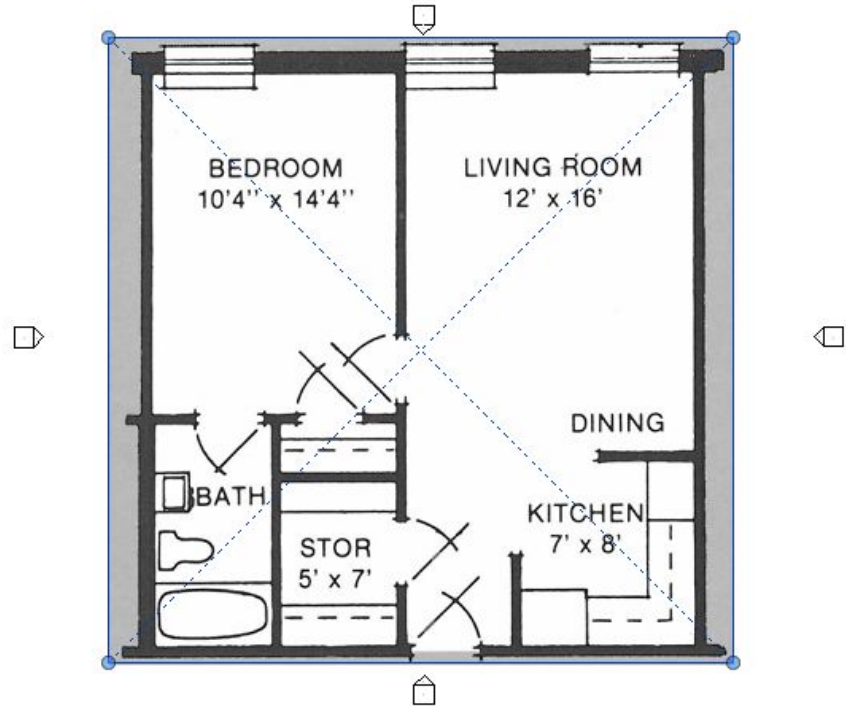
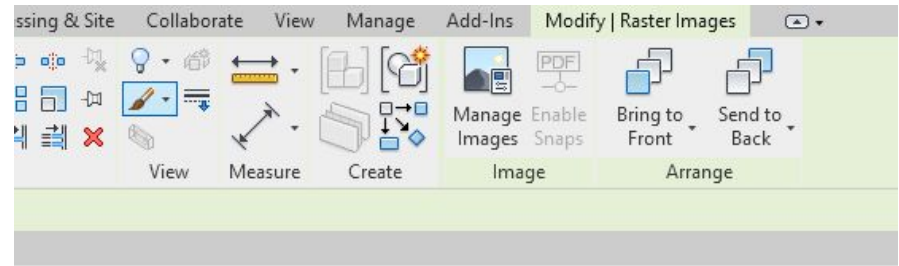
Image



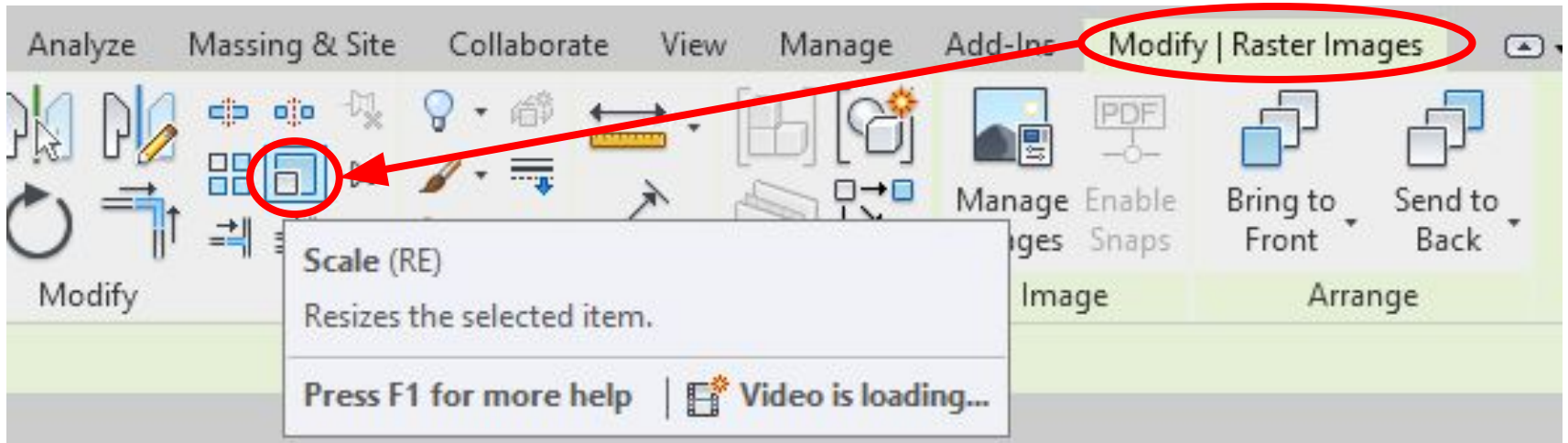
Scaling Floor Plan Image

(This step may not be necessary for every image)

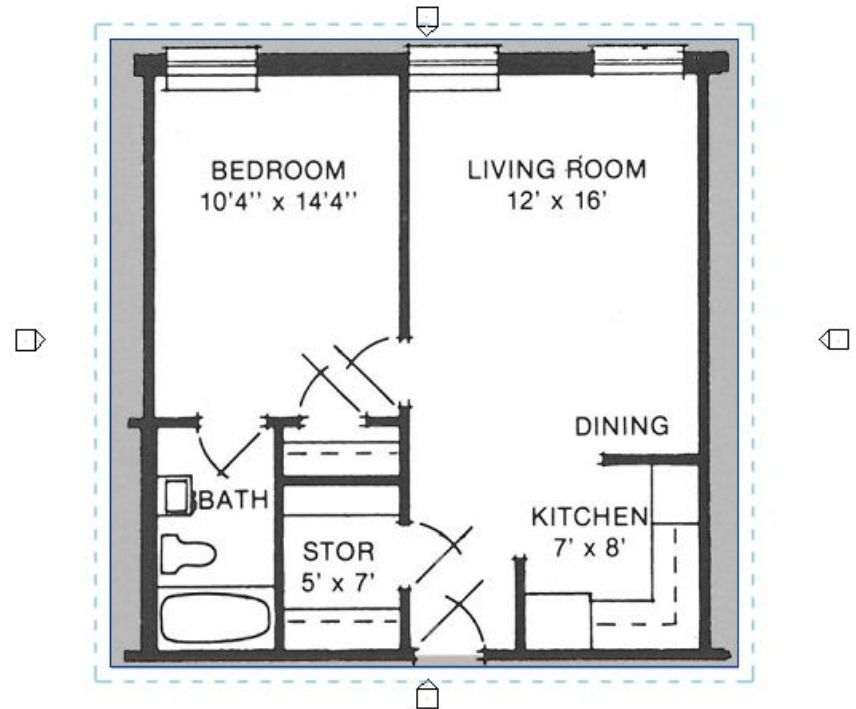
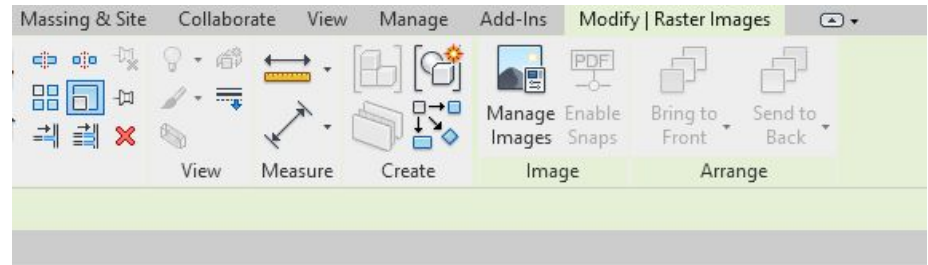
To scale, first
select the
image.
A light dotted
X should
appear as
shown.



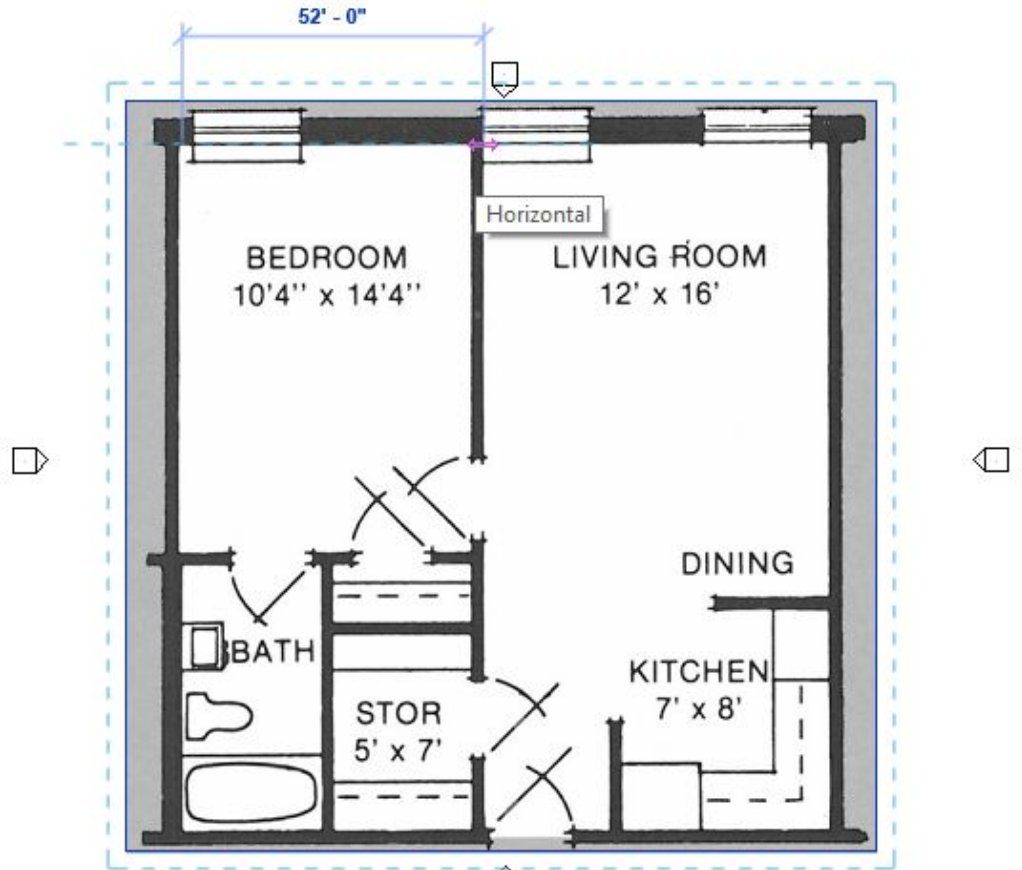
Under *“Modify | Raster Images”* select *“Scale”* Option



Once
“Scale” is
selected, a
light dotted
box should
show up
bordering
the image

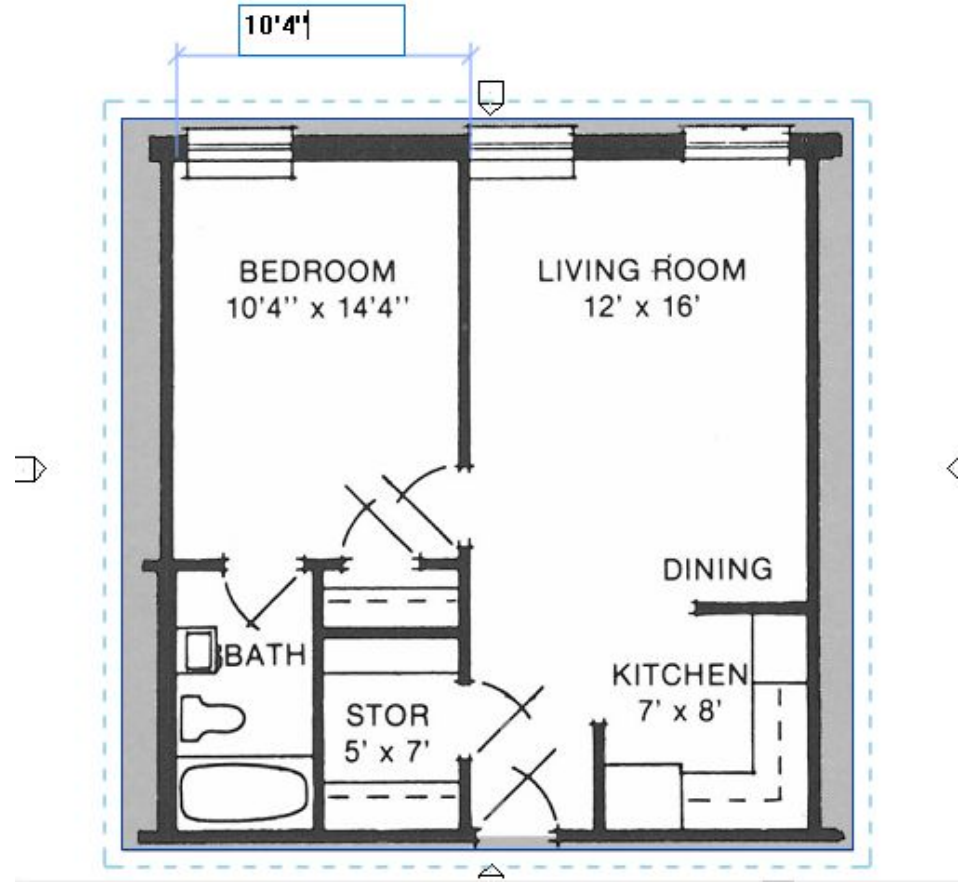


With **“Scale”** selected, choose a length of the floor plan & measure it to check current dimensions



Note*: When **scaling** begin measuring from inside corner of wall. **Click first corner** and **move mouse** to the **second corner** and **click** to **confirm the second corner**.

After viewing
current
dimension for
length of
choice, type in
new dimension,
10'4" (10 feet 4
inches)



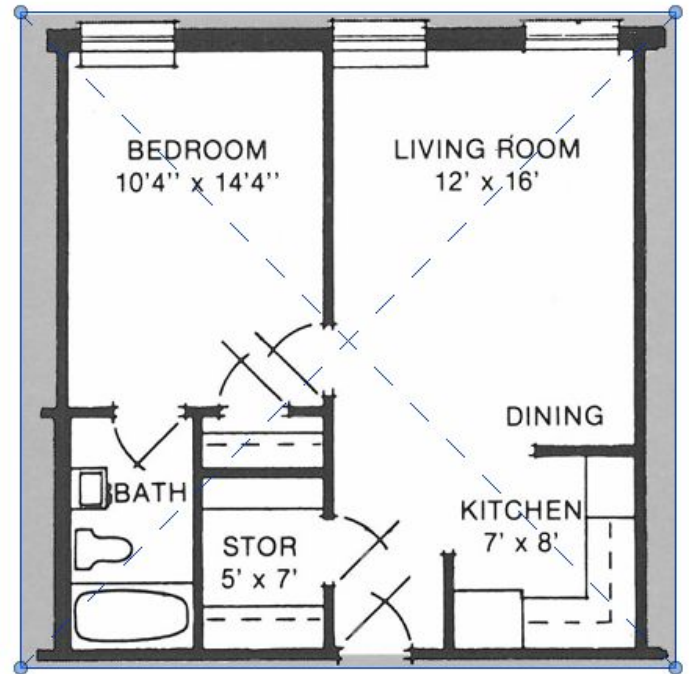
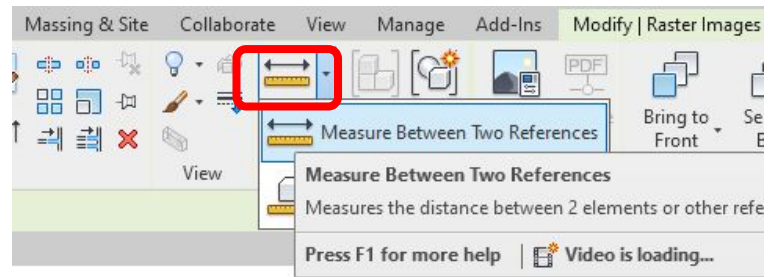
Note*: Type in **10'4"**. You *only need to do this once* and it *will scale the entire image*.

After typing
new dimension,
press *“Enter”* to
confirm and the
image will scale
to the new
dimensions.



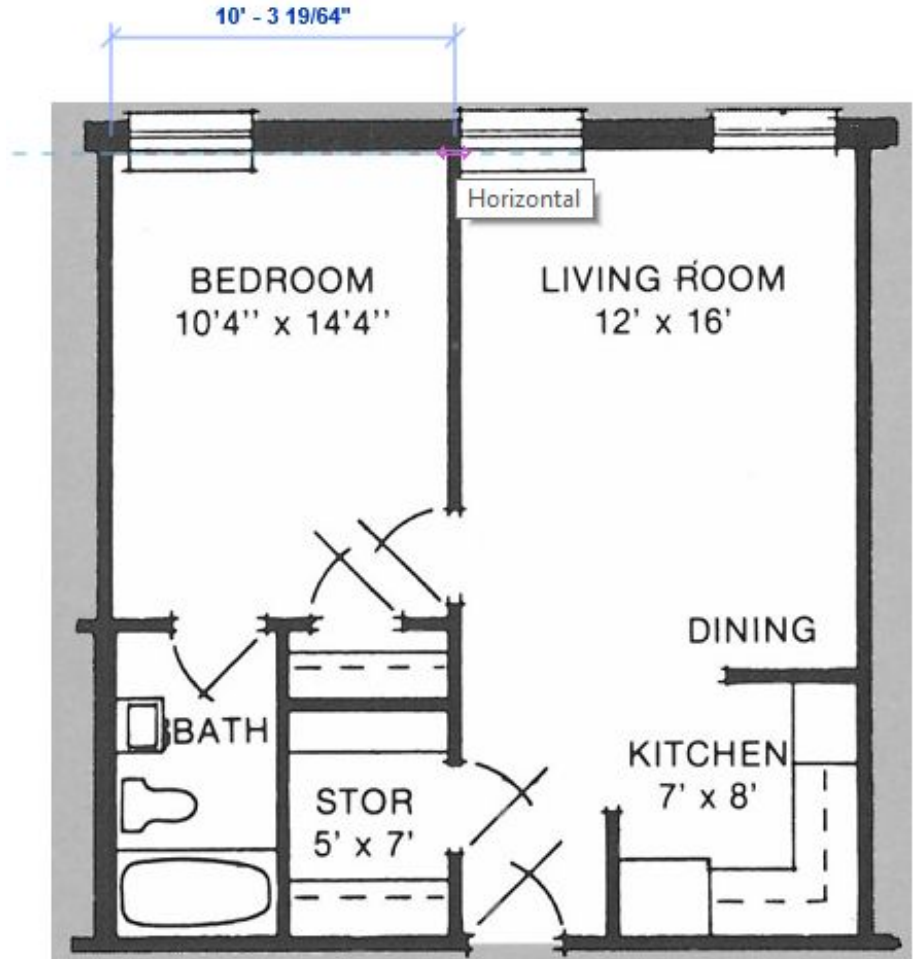
Zoom in to image,
Select image, under
“*Modify | Raster Images*” Select the
drop down menu,
and choose
“*Measure Between Two References*”

Note*: *This step isn't mandatory* but it is good practice to double check that it scaled correctly.



Measure the length that was recently modified during the scale and make sure it matches the dimensions shown in the image.

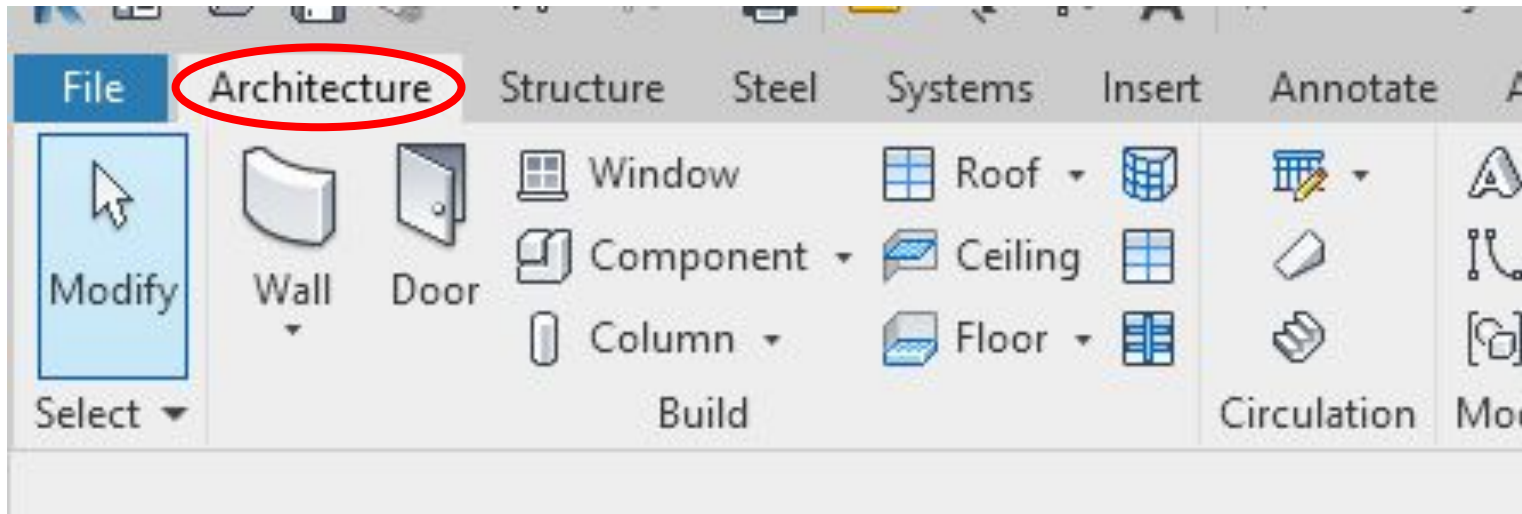
Note*: It *doesn't need to be exact* but as long as it is close enough, it is good.

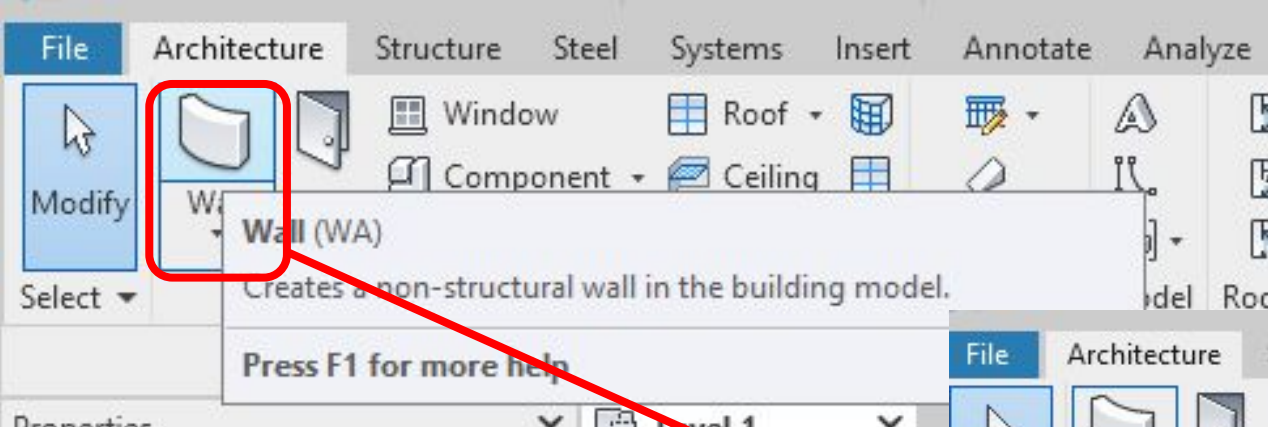


Drawing Exterior & Interior Walls

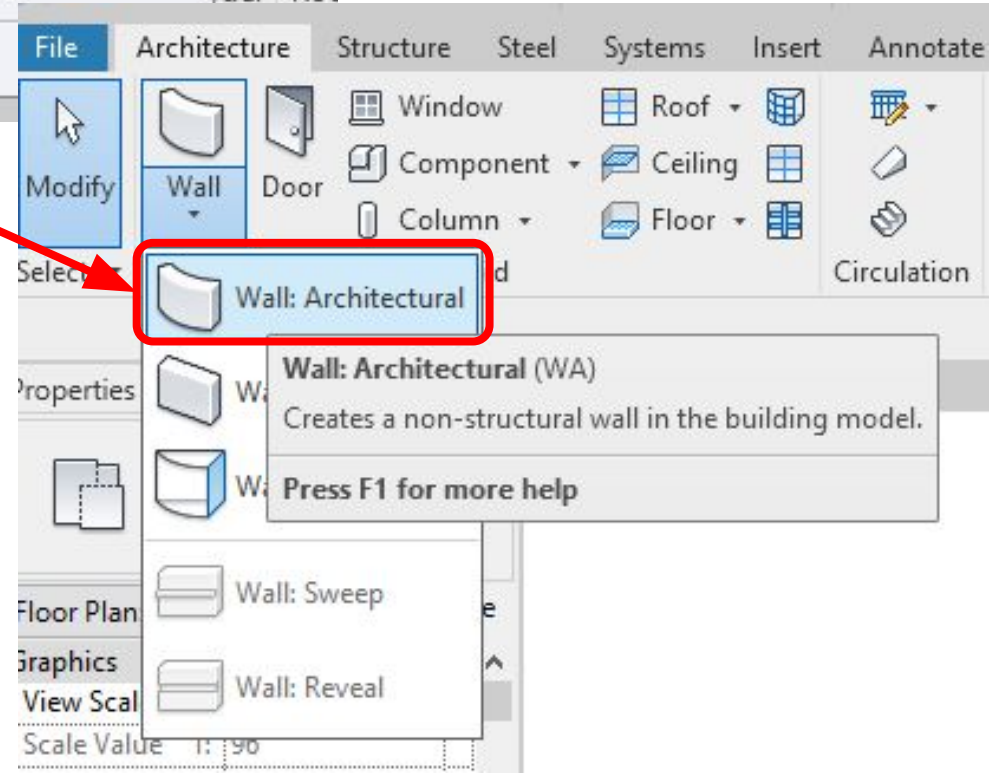
(Doesn't Need to Be Exact)

Go to *“Architecture”* Tab

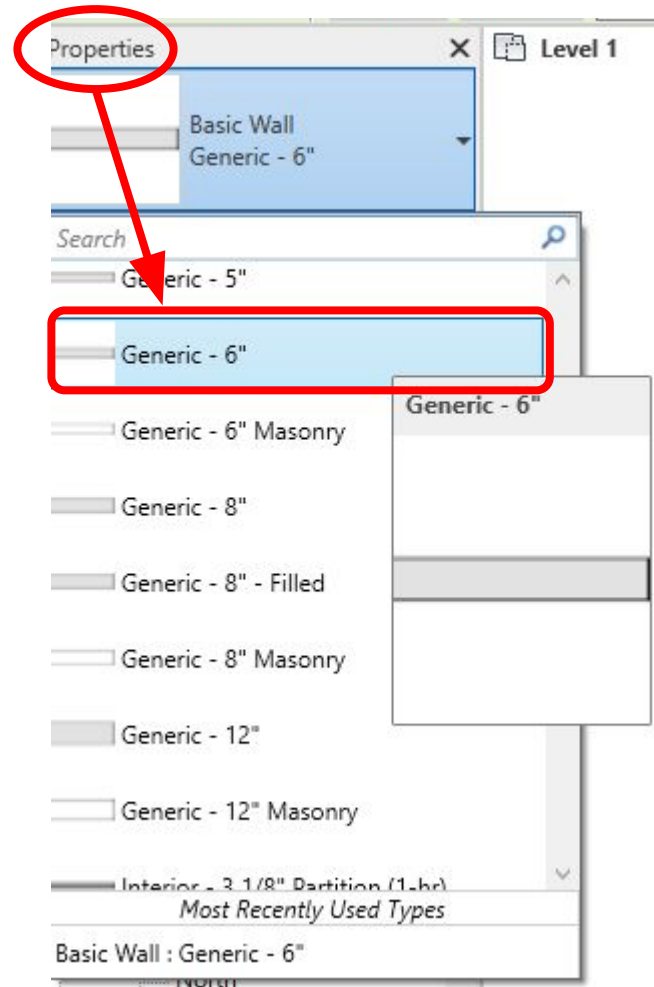


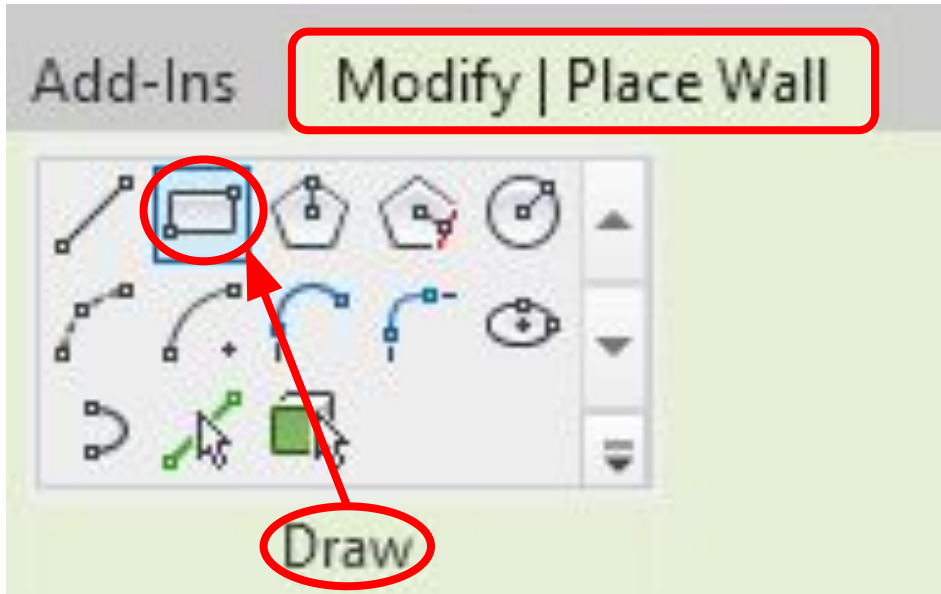


Choose *“Wall”* or Drop-Down Menu *“Wall: Architectural”* which is default & what you should choose



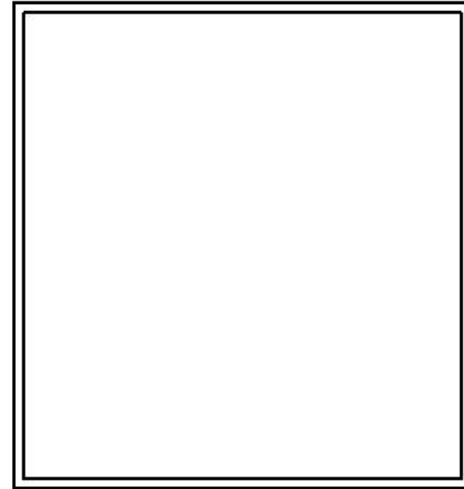
Go to *“Properties”* &
Change Wall Type
to *Generic - 6”* for
exterior wall





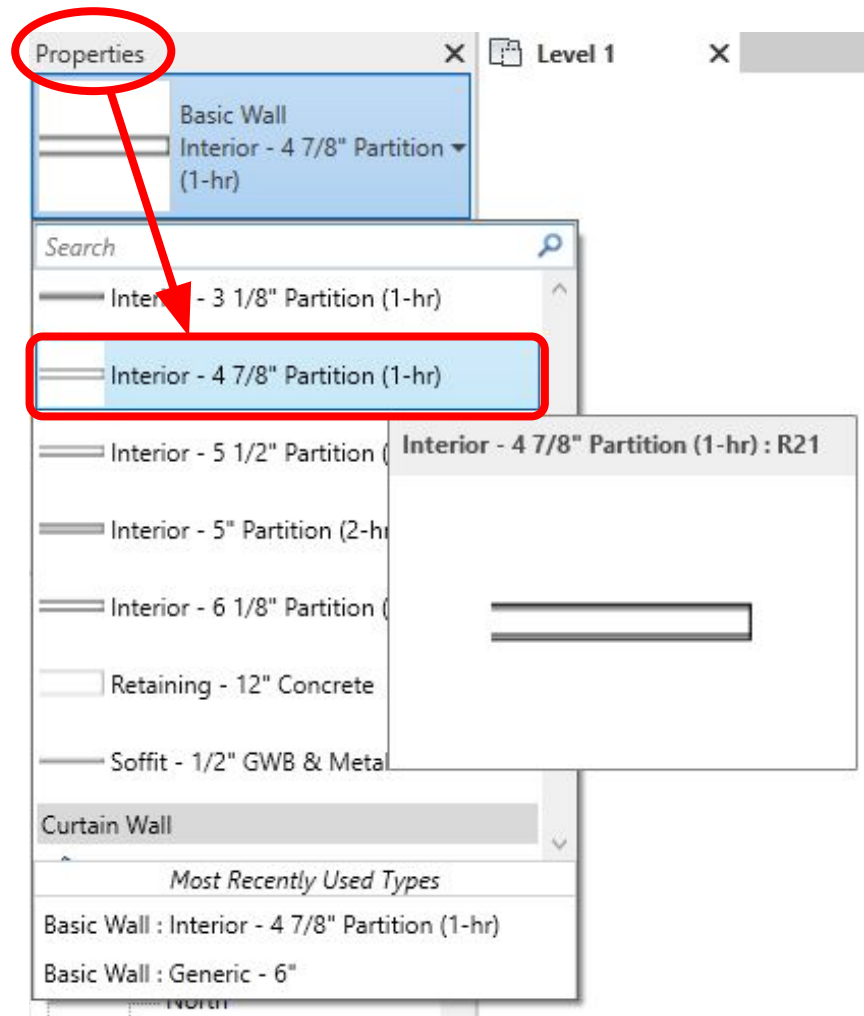
With wall selected, click *“Modify | Place Wall”* & under *“Draw”* select the *“Rectangle”*

Draw a *rectangle* about the size of the image (*exterior*)



Note*: You can *modify* the dimensions by *selecting the walls* & *typing in the new dimensions* if desired.

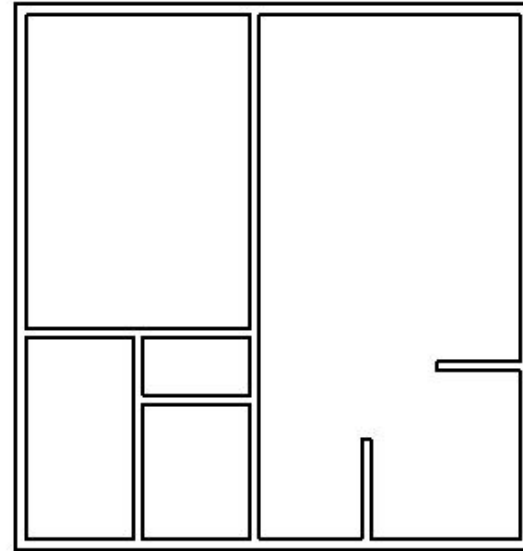
Go to *“Properties”*
again & change to
Interior - 4 7/8
(1-hr)” for interior
walls



Under *“Modify | Place Wall”* use default *“Line”* under *“Draw”*



Use the *“Line”* to draw all the interior walls as shown below

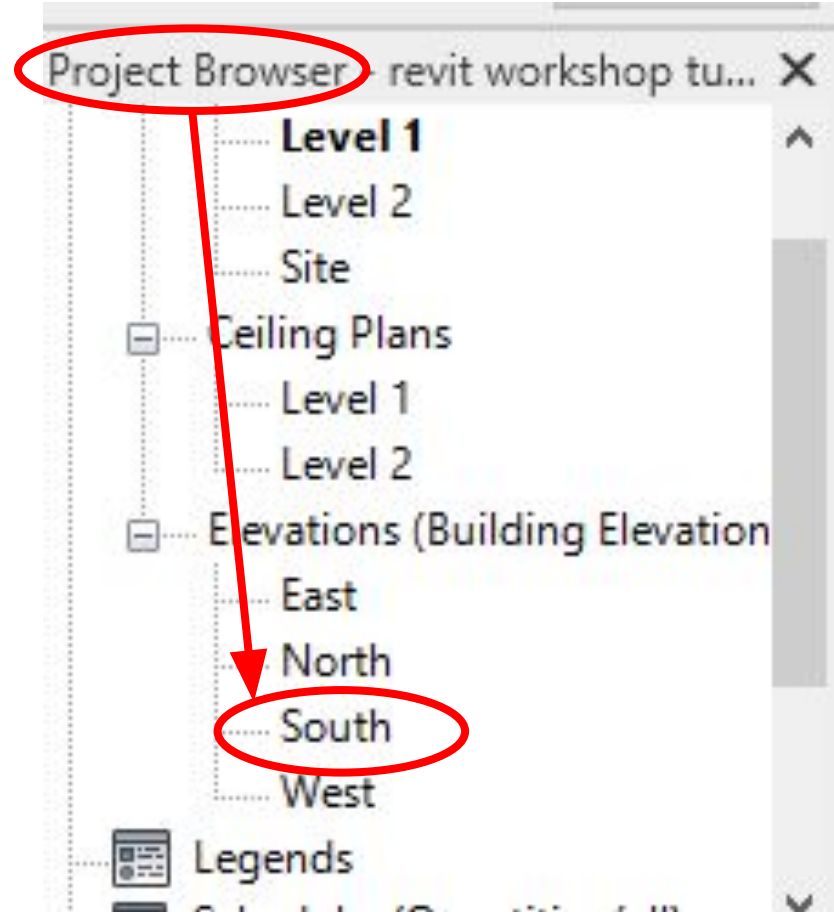


Note*: *No gaps* should be left where there are *doors*. To *draw a separate wall*, press *“ESC”* once and it will go back to the *“Line”* command.

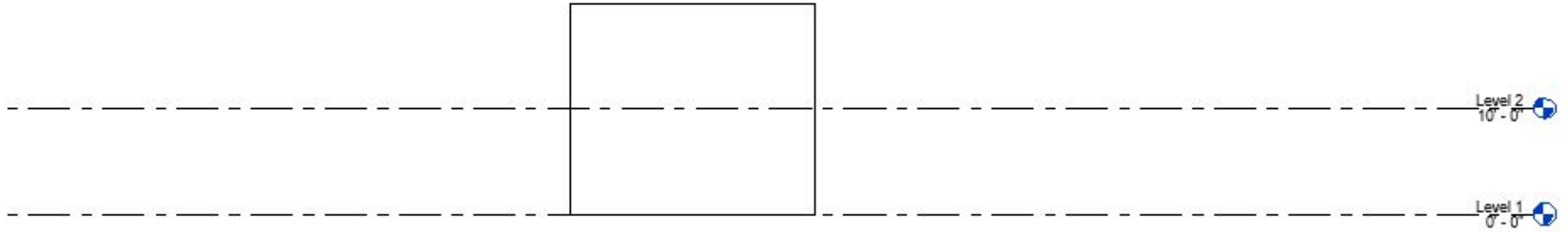
Adjusting Wall Height

Go to *“Project
Browser”* & Click
(under elevations)
“South”

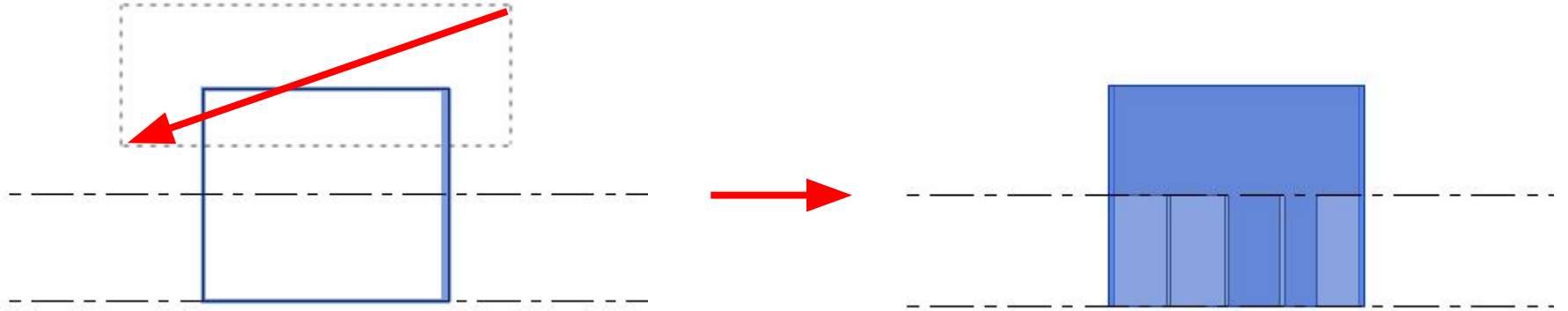
Note*: *Any elevation* is fine as well.



South Elevation View

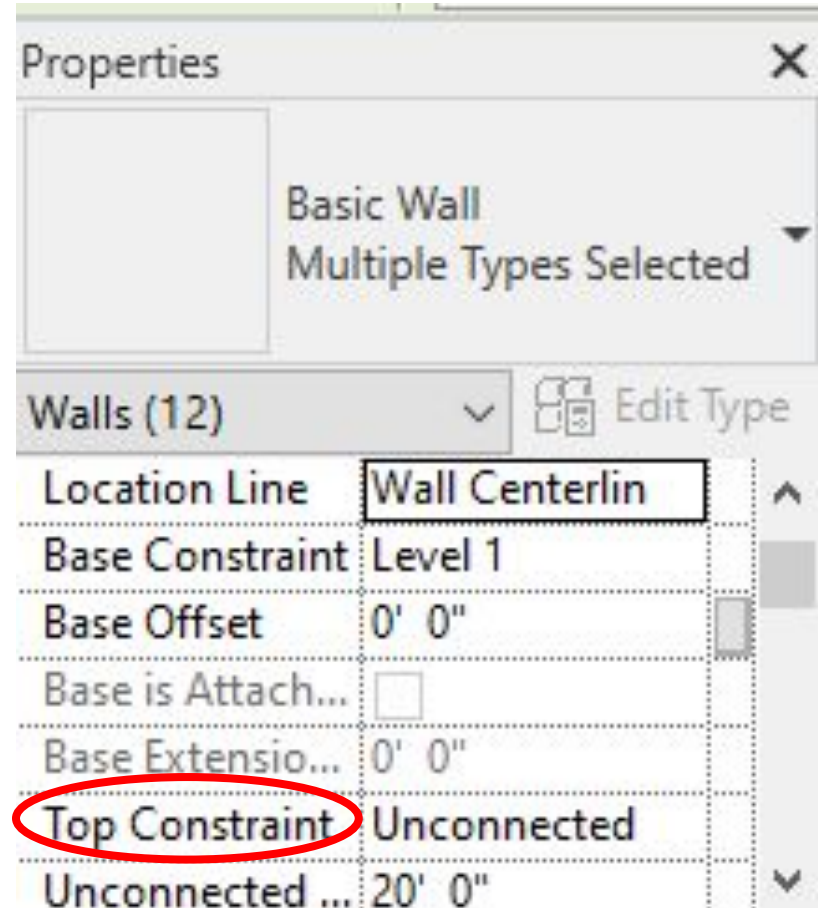


Select all walls by *cross selecting*

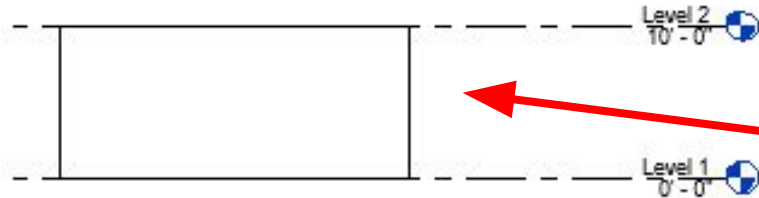


Note*: *Click & drag* from top right corner to the bottom left corner.

Under “*Properties*”,
find “*Top
Constraint*”



Choose *“Up to level: Level 2”* & the result is displayed below



Modify | Walls Activate Dimension

Properties ✕

Basic Wall
Multiple Types Selected

Walls (12) ▼ 📄 Edit Type

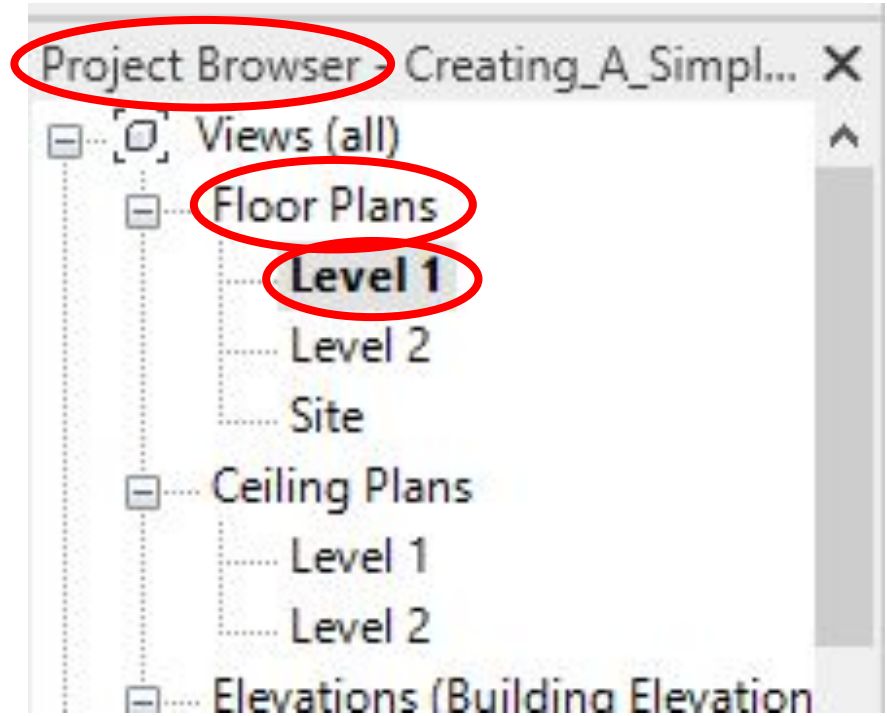
Location Line	Wall Centerline	▲
Base Constraint	Level 1	
Base Offset	0' 0"	
Base is Attach...	<input type="checkbox"/>	
Base Extensio...	0' 0"	
Top Constraint	Unconnected ▼	
Unconnected ...	Unconnected	
Properties help	Up to level: Level 1	
	Up to level: Level 2	

Project Browser - tevit workshop tu... ✕

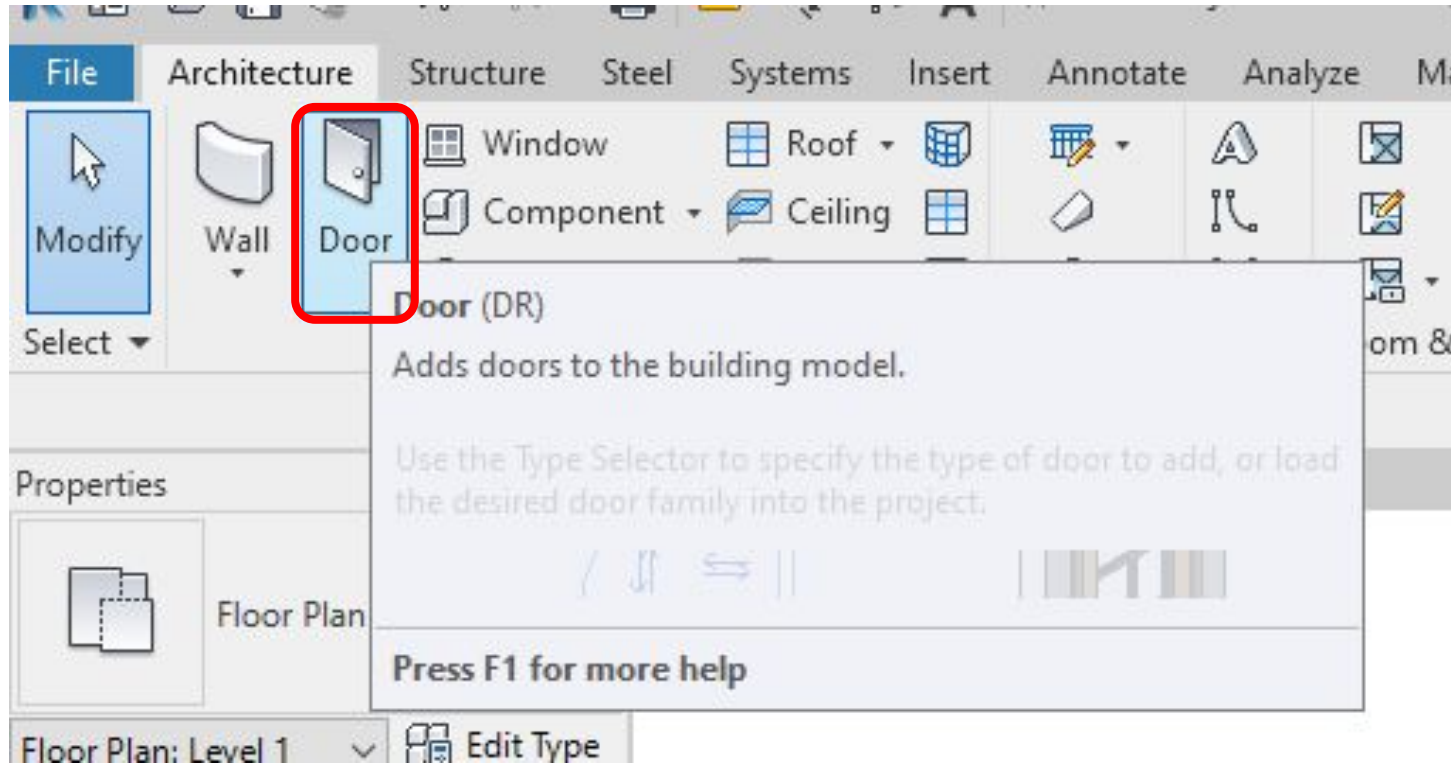
Placing Doors

(You don't have to choose the same door style)

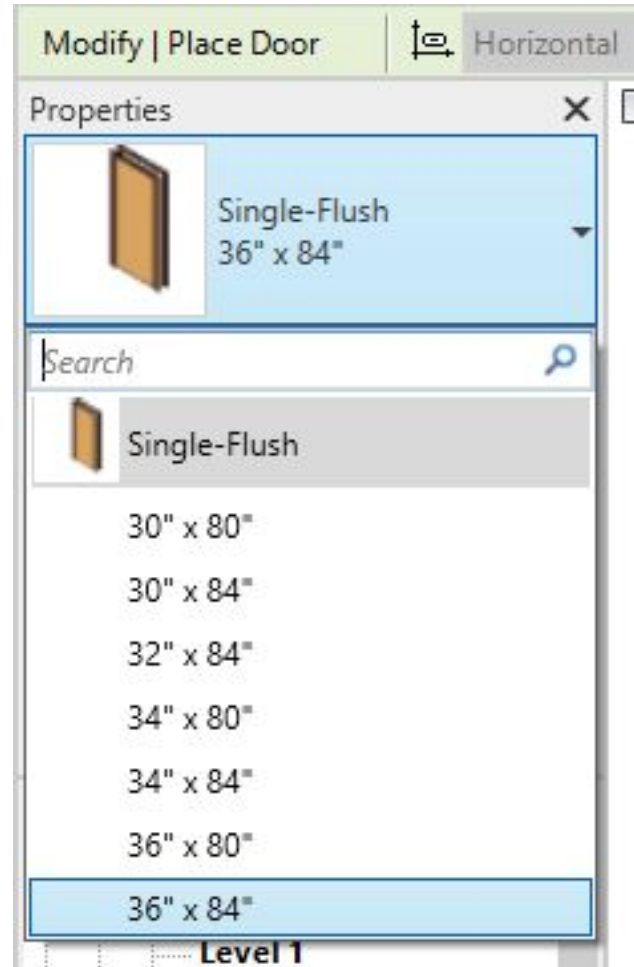
Go back to 2D
View by
navigating to
*“Project
Browser”* ->
“Level 1”



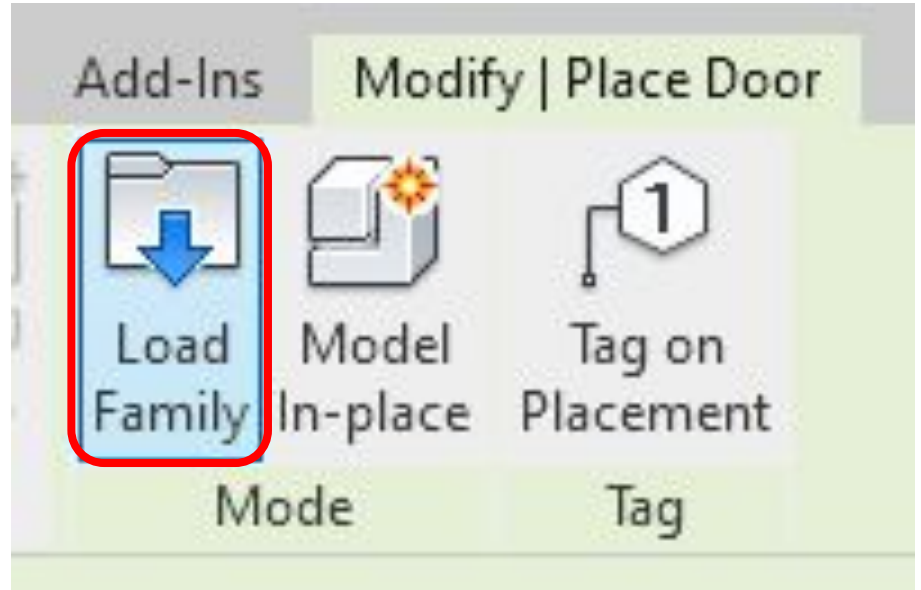
Under *Architecture* tab, choose *Door*



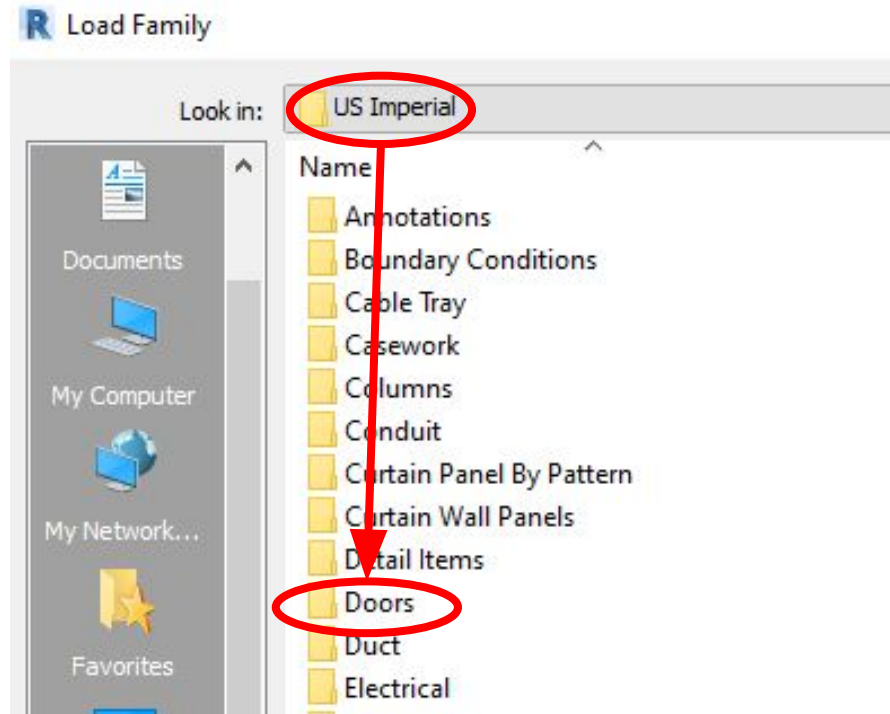
In *“Properties”*, there is no *“Exterior Door”* style door



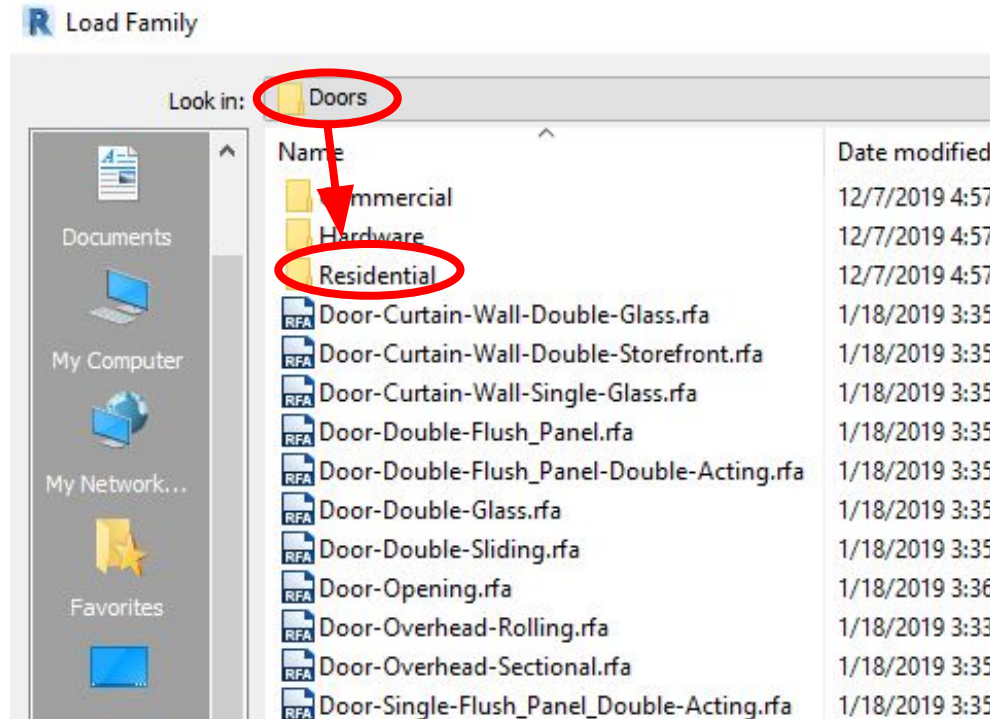
Click on *“Load Family”* to load in more door styles



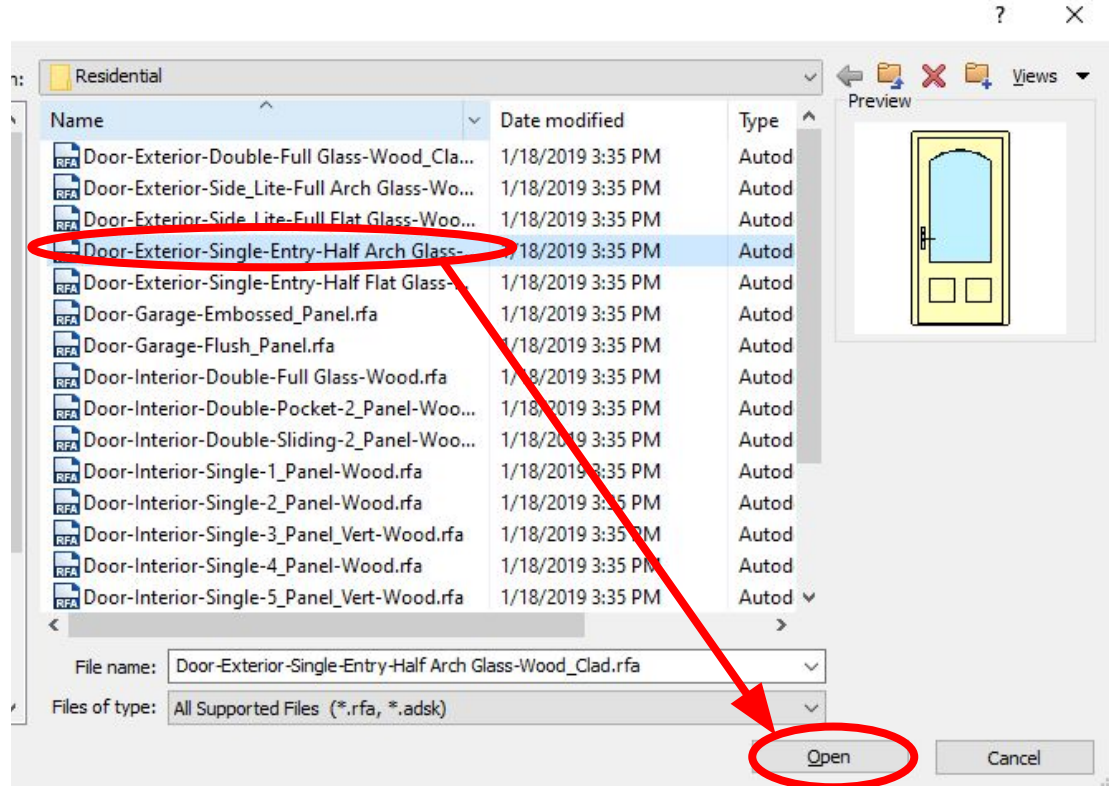
Under *“US Imperial”* go into the folder named *“Doors”*



Under “*Doors*” go into the folder named
“*Residential*”



Choose
"Exterior
Single
Entry
Half-Arch..."
& Click
"Open" or
Double
Click



Specify *“Exterior Door”* Type(s) Window

Specify Types

Family:

Door-Exterior-Single-Entry+ ^

< >

Types:

Type	Width	Height	Stiles
	(all) v	(all) v	(all) v
30" x 80"	2' 6"	6' 8"	0' 4 3/4"
32" x 80"	2' 8"	6' 8"	0' 4 3/4"
34" x 80"	2' 10"	6' 8"	0' 4 3/4"
36" x 80"	3' 0"	6' 8"	0' 4 3/4"
30" x 84"	2' 6"	7' 0"	0' 4 3/4"
32" x 84"	2' 8"	7' 0"	0' 4 3/4"
34" x 84"	2' 10"	7' 0"	0' 4 3/4"

Select one or more types on the right for each family listed on the left

OK

Cancel

Help

To Select All Types: Click on first one, then scroll to the last one & *hold "shift"* & left-click the last type

Specify Types

Family: Door-Exterior-Single-Entry+

Type	Width (all)	Height (all)	Stiles (all)
30" x 80"	2' 6"	6' 8"	0' 4 3/4"
32" x 80"	2' 8"	6' 8"	0' 4 3/4"
34" x 80"	2' 10"	6' 8"	0' 4 3/4"
36" x 80"	3' 0"	6' 8"	0' 4 3/4"
30" x 84"	2' 6"	7' 0"	0' 4 3/4"
32" x 84"	2' 8"	7' 0"	0' 4 3/4"
34" x 84"	2' 10"	7' 0"	0' 4 3/4"

Select one or more types on the right for each family listed on the left

OK Cancel Help

Specify Types

Family: Door-Exterior-Single-Entry+

Type	Width (all)	Height (all)	Stiles (all)
34" x 84"	2' 10"	7' 0"	0' 4 3/4"
36" x 84"	3' 0"	7' 0"	0' 4 3/4"
30" x 96"	2' 6"	8' 0"	0' 4 3/4"
32" x 96"	2' 8"	8' 0"	0' 4 3/4"
34" x 96"	2' 10"	8' 0"	0' 4 3/4"
36" x 96"	3' 0"	8' 0"	0' 4 3/4"

Select one or more types on the right for each family listed on the left

OK Cancel Help

Click "Ok" to Confirm Your Selections

Specify Types

Family: Door-Exterior-Single-Entry+ ^

Types:

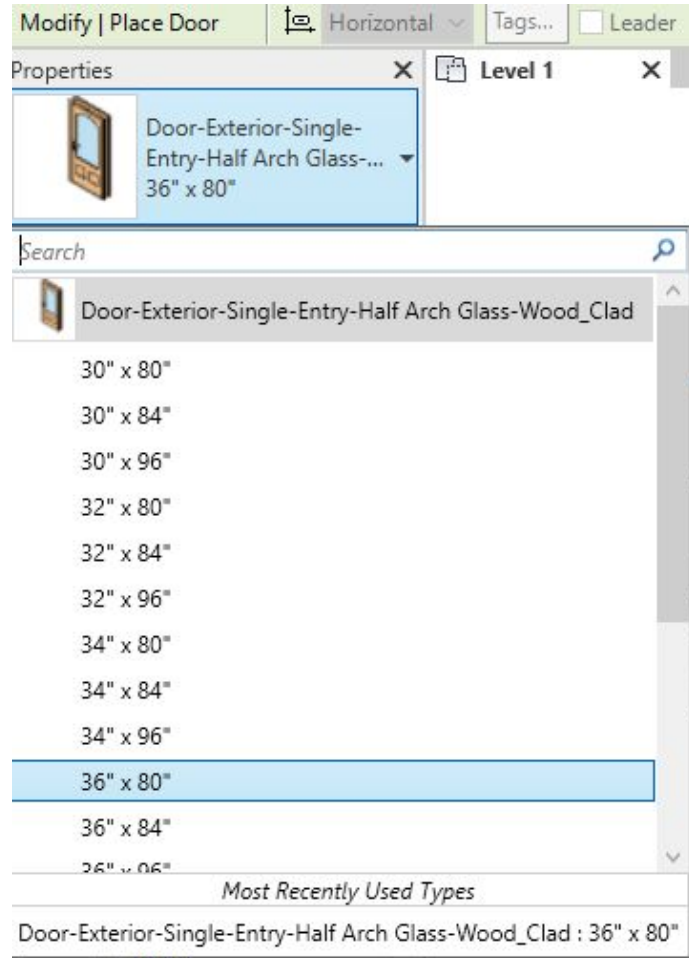
Type	Width	Height	Stiles
	(all) ▾	(all) ▾	(all) ▾
34" x 84"	2' 10"	7' 0"	0' 4 3/4"
36" x 84"	3' 0"	7' 0"	0' 4 3/4"
30" x 96"	2' 6"	8' 0"	0' 4 3/4"
32" x 96"	2' 8"	8' 0"	0' 4 3/4"
34" x 96"	2' 10"	8' 0"	0' 4 3/4"
36" x 96"	3' 0"	8' 0"	0' 4 3/4"

Select one or more types on the right for each family listed on the left

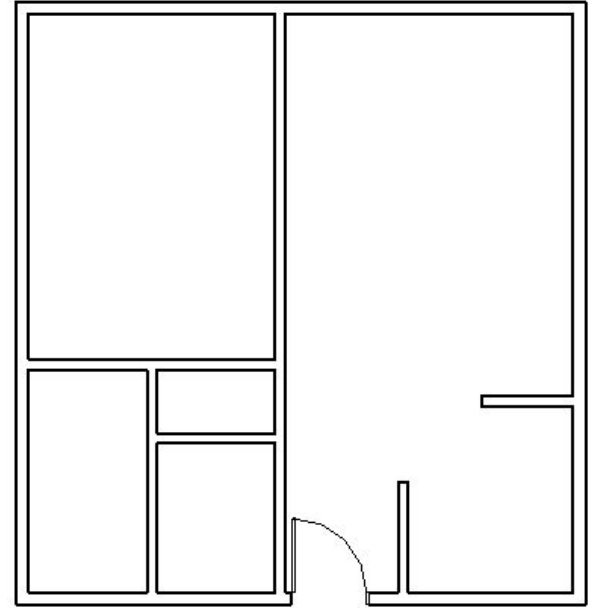
OK Cancel Help

Note*: There will be a pop-up after this. Just click "Ok"

This is what your *properties* should look like after the selections were loaded in

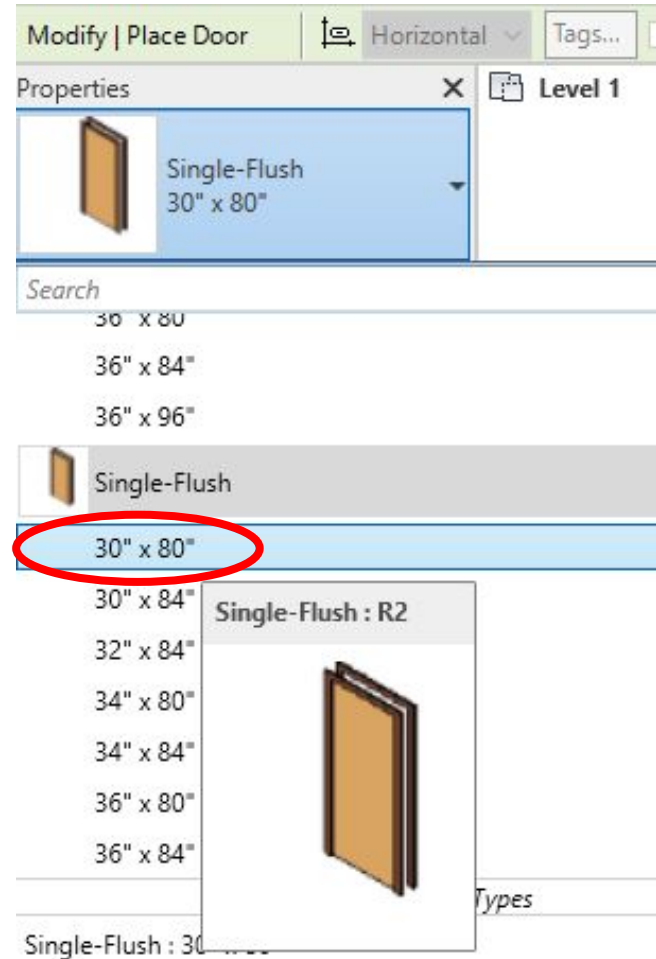


Place the *36" x 80" Exterior Door*

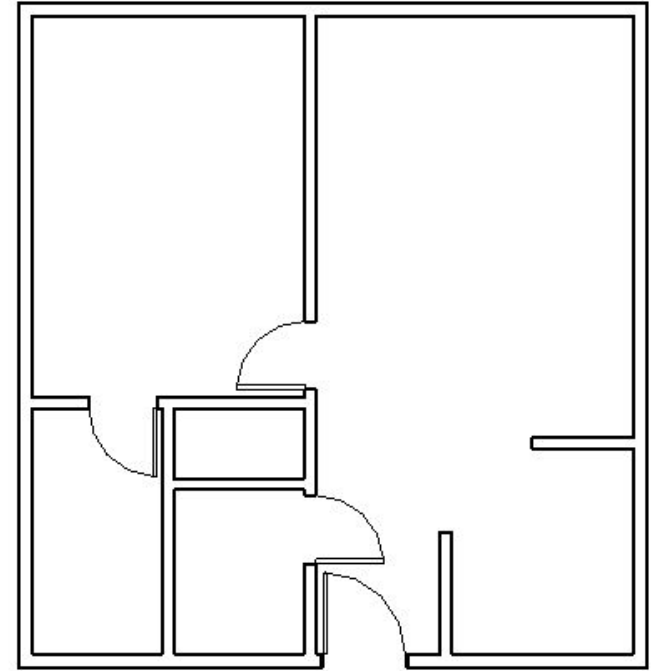
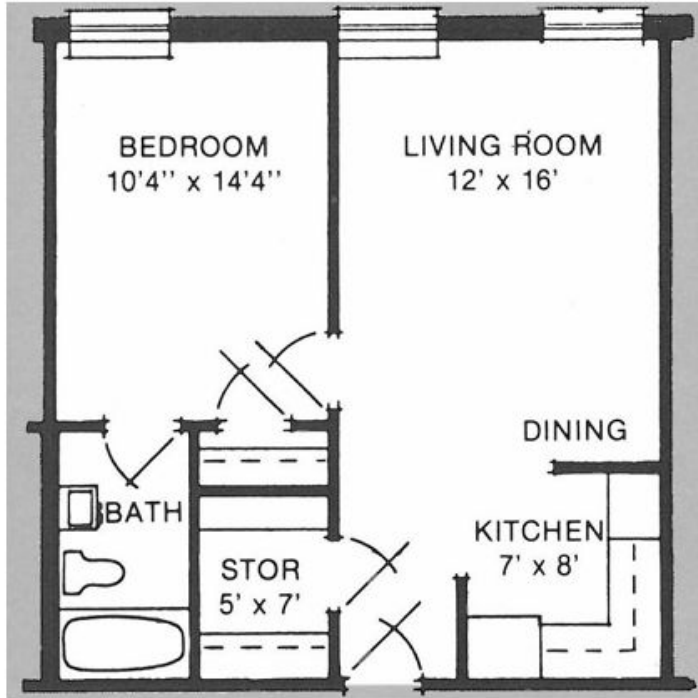


Note*: Under *properties*, *select the door* & *click the location* you want the door to be placed.

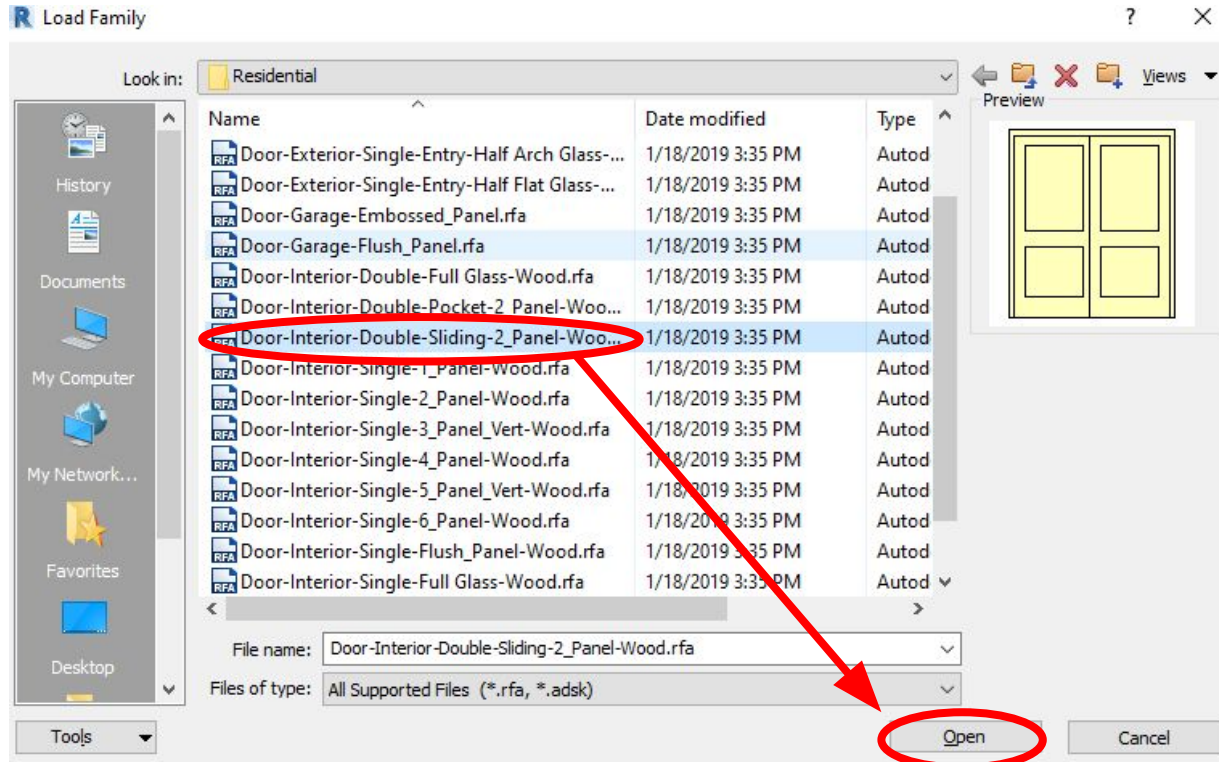
Go to *“Door”* again,
and place *30” x 80”*
Single-Flush Door (Go
According to the
Floor Plan)



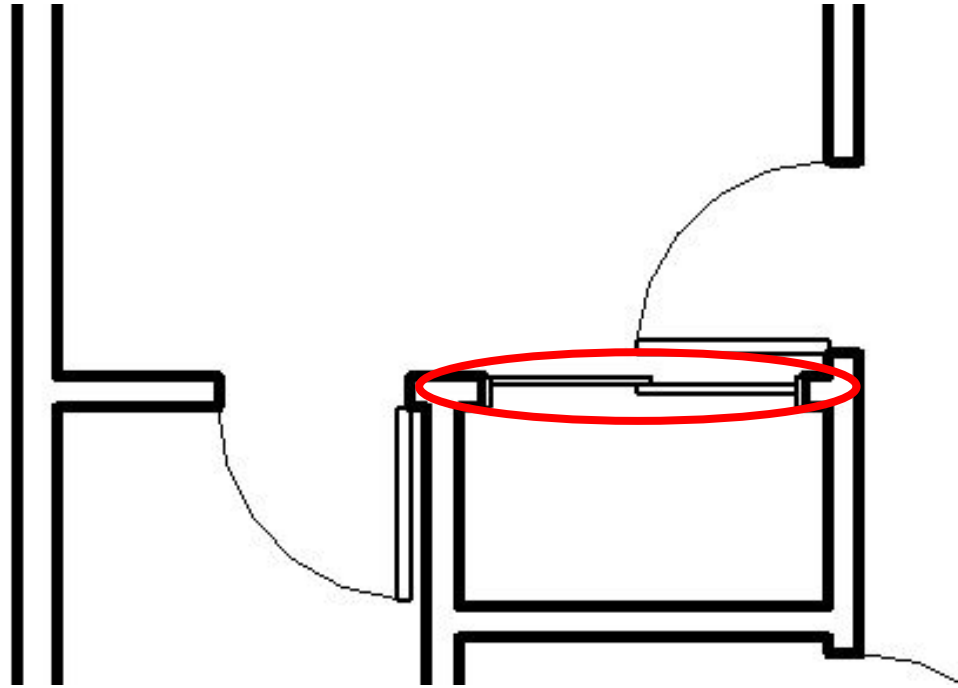
Place *Single-Flush Doors*



Load *“Interior Double-Sliding 2 Panel...”*”



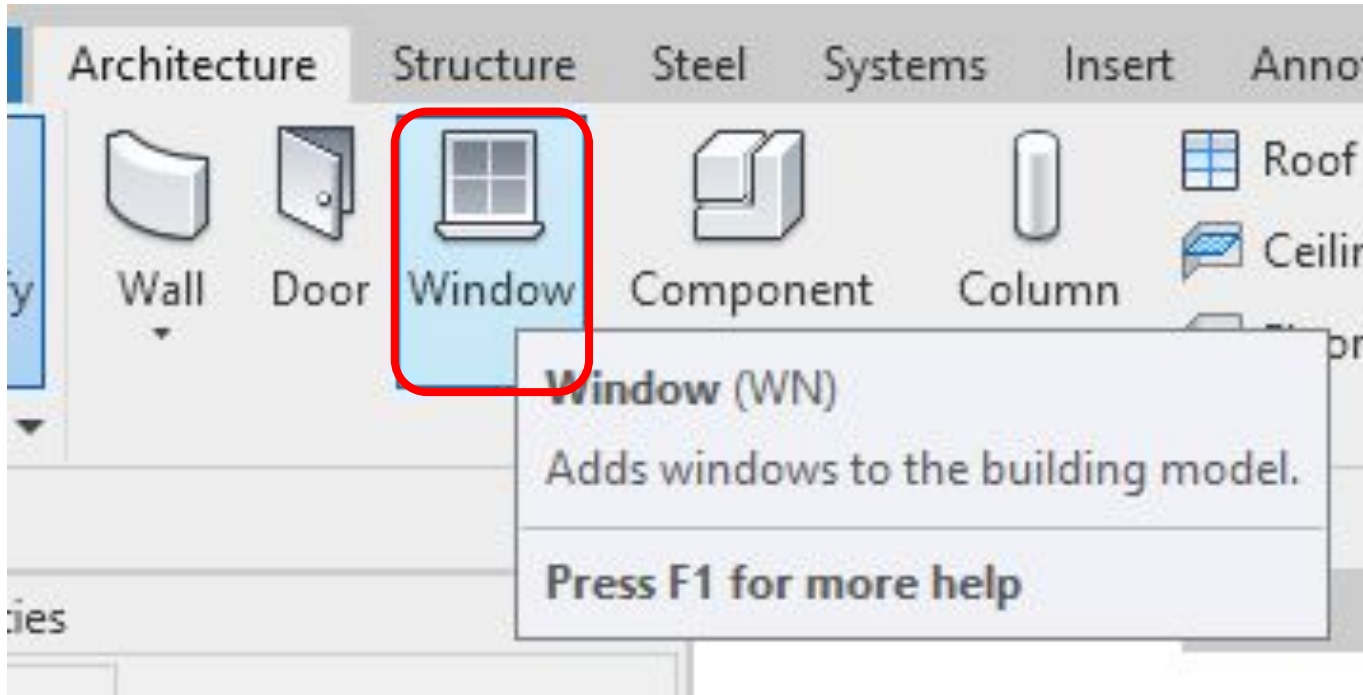
Place *48" x 80" Double-Sliding Door*



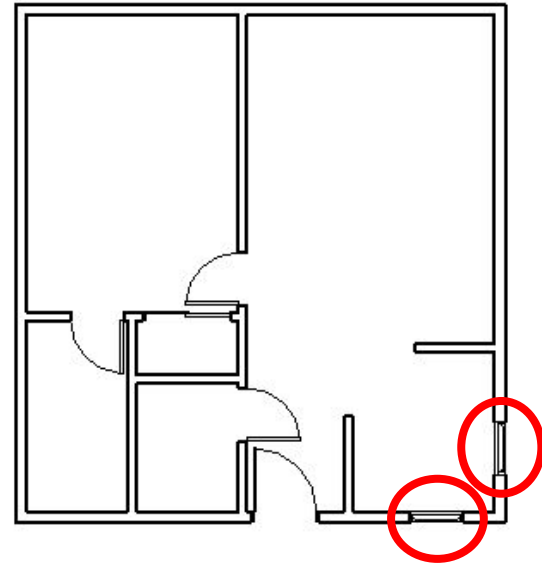
Note*: I am replacing a regular swinging door with this sliding door (different from the original image)

Placing Windows

Select *Window* under *Architecture* tab

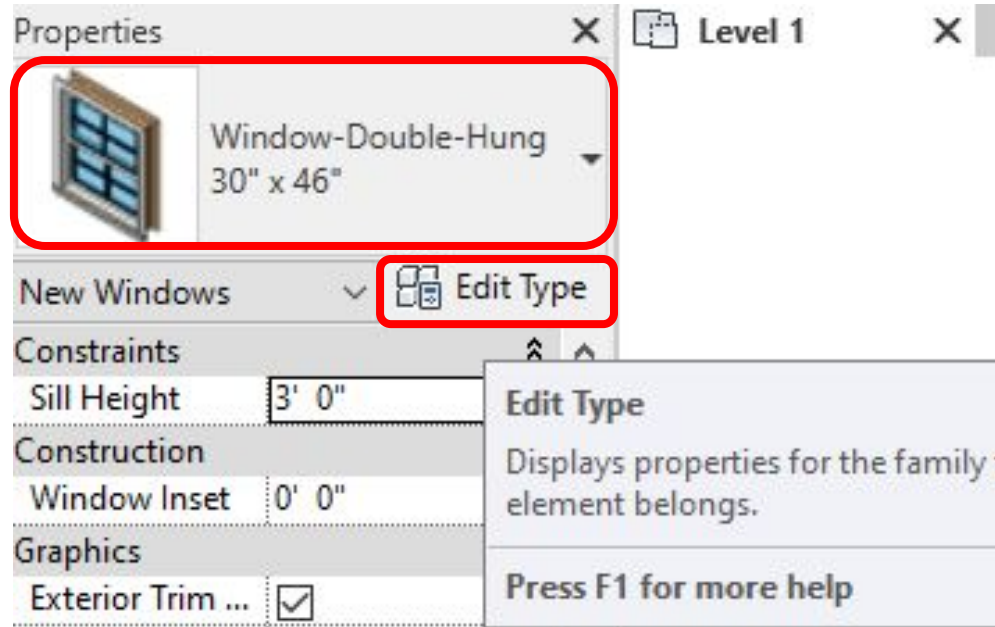


Place any *window* of your choice from the *properties* panel



Note*: I chose to place two windows in the kitchen first. I used the *30" x 46" Window Double-Hung*.

Modifying *Window Size*: Using “*Window Double-Hung 36” x 46”*”, click “*Edit Type*”



Note*: The newly modified window size will be used for the bedroom & living room.

Clicking *“Edit Type”* brings up this window

Type Properties

Family: Window-Double-Hung

Type: 30" x 46"

Load... Duplicate... Rename...

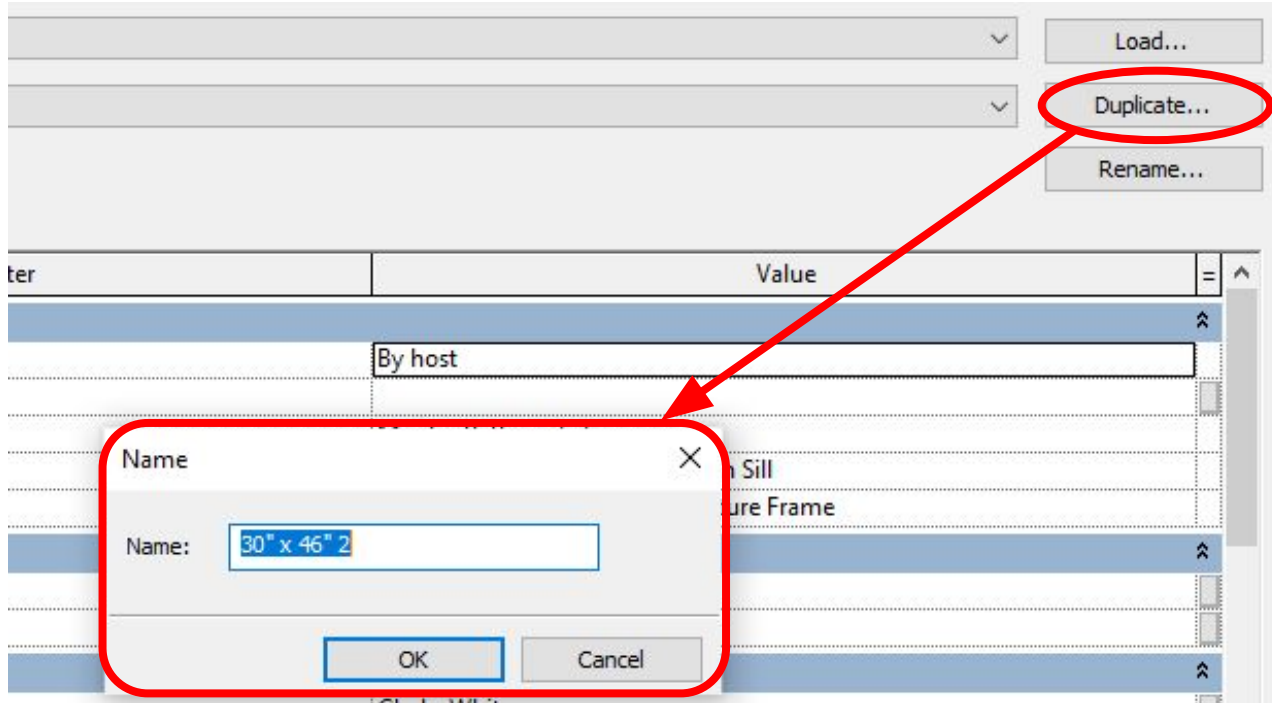
Type Parameters

Parameter	Value
Construction	
Wall Closure	By host
Construction Type	
Muntin Pattern<Generic Models>	Muntin Pattern_2x2
Exterior Trim<Generic Models>	Trim-Window-Exterior-Flat : with Sill
Interior Trim<Generic Models>	Trim-Window-Interior-Flat : Picture Frame
Graphics	
Top Muntin Visibility	<input checked="" type="checkbox"/>
Bottom Muntin Visibility	<input checked="" type="checkbox"/>
Materials and Finishes	
Exterior Frame Material	Clad - White
Interior Frame Material	Wood - Stained
Exterior Trim Material	Clad - White
Interior Trim Material	Wood - Stained
Glass Panel Material	Glass
Dimensions	
Width	2' 6"
Height	3' 10"
Rough Width	2' 6 1/2"

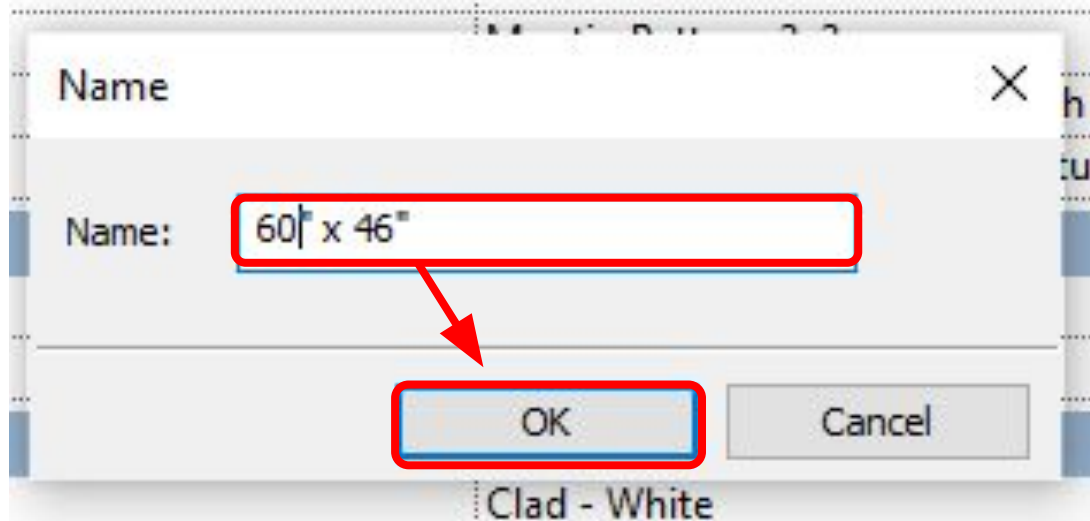
[What do these properties do?](#)

<< Preview OK Cancel Apply

Within this window, click *“Duplicate”* & this window titled *“Name”* will pop up

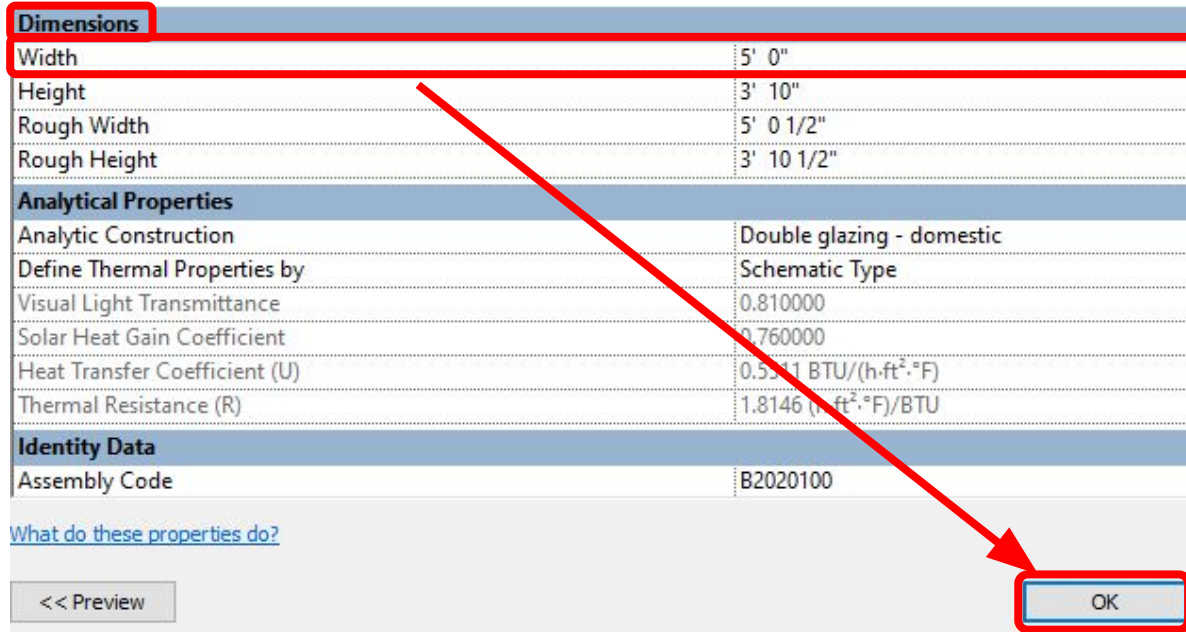


In the *"Name"* window, type in a new name that reflects the new window size, then click *"OK"* to confirm



Note*: The new size can be anything you want. This is just an example.

Scroll down to *“Dimensions”* & modify (in this case) *“Width”* to *5' 0”* to match new window size, then click *“OK”*



Dimensions	
Width	5' 0"
Height	3' 10"
Rough Width	5' 0 1/2"
Rough Height	3' 10 1/2"

Analytical Properties	
Analytic Construction	Double glazing - domestic
Define Thermal Properties by	Schematic Type
Visual Light Transmittance	0.810000
Solar Heat Gain Coefficient	0.760000
Heat Transfer Coefficient (U)	0.5541 BTU/(h·ft ² ·°F)
Thermal Resistance (R)	1.8146 (h·ft ² ·°F)/BTU

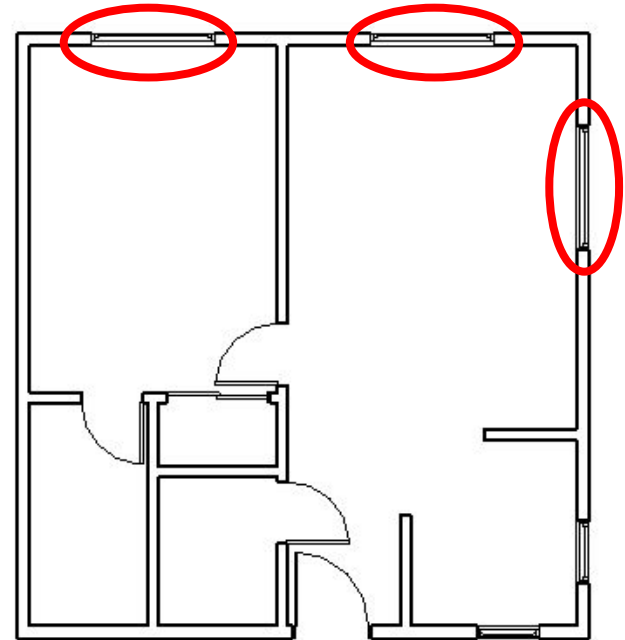
Identity Data	
Assembly Code	B2020100

[What do these properties do?](#)

<< Preview OK

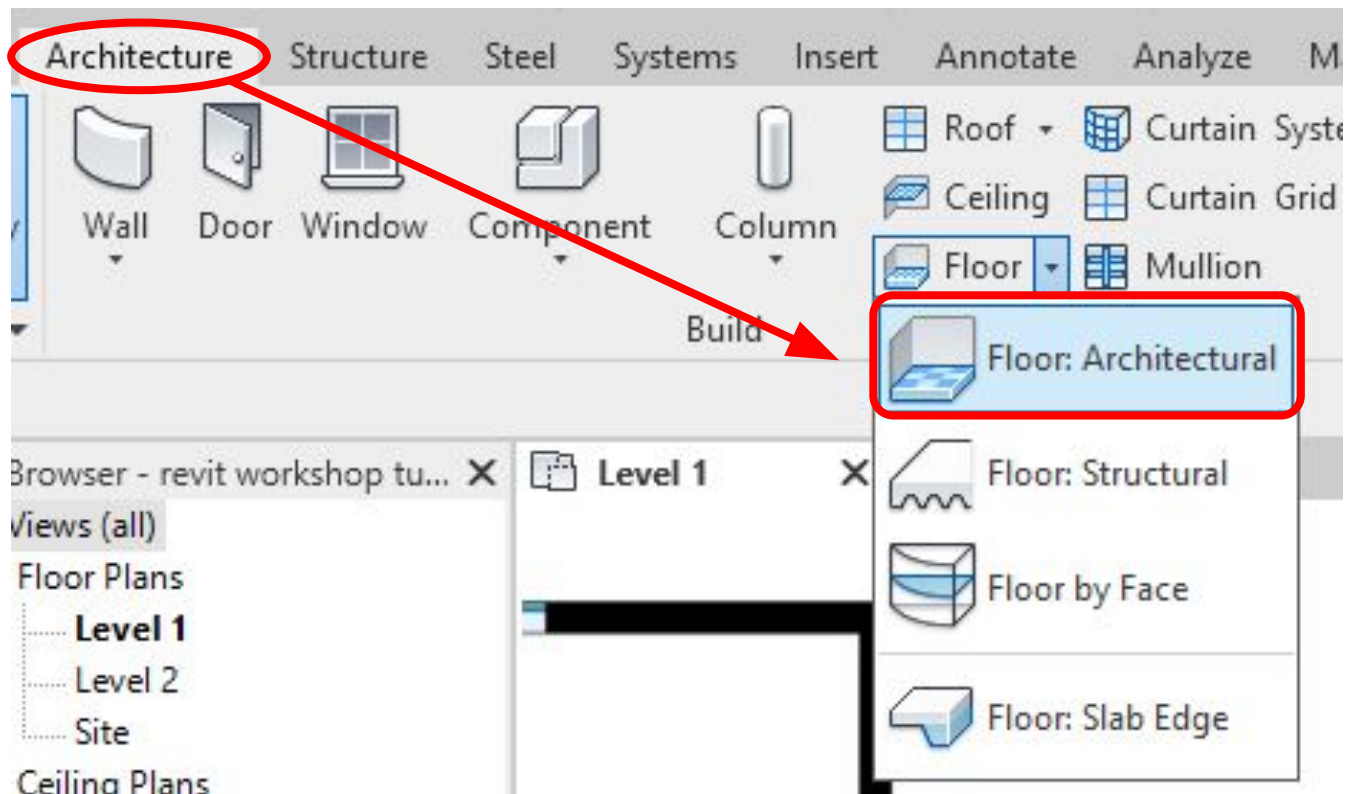
Note*: In Revit, any dimensions you see such as 60" x 46", it is always *W x H* (width times height)

With the newly created window, *place* the windows down where you desire.
Example below.

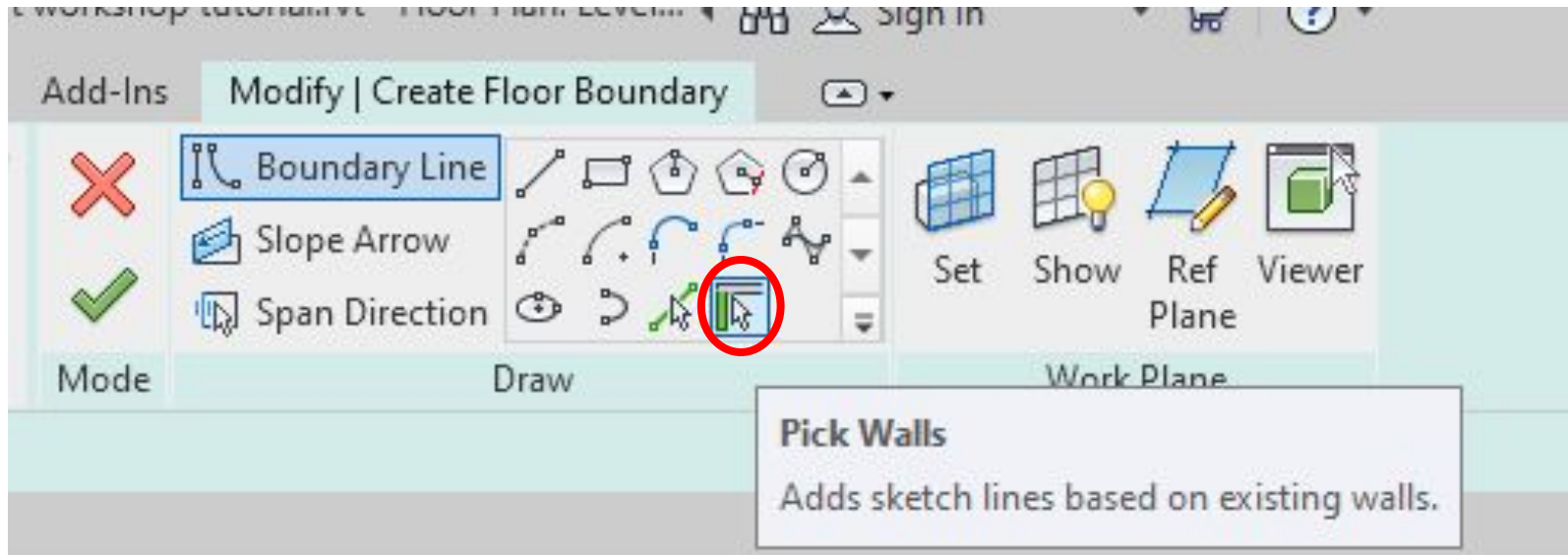


Creating Floors

Choose *“Floor Architectural”*

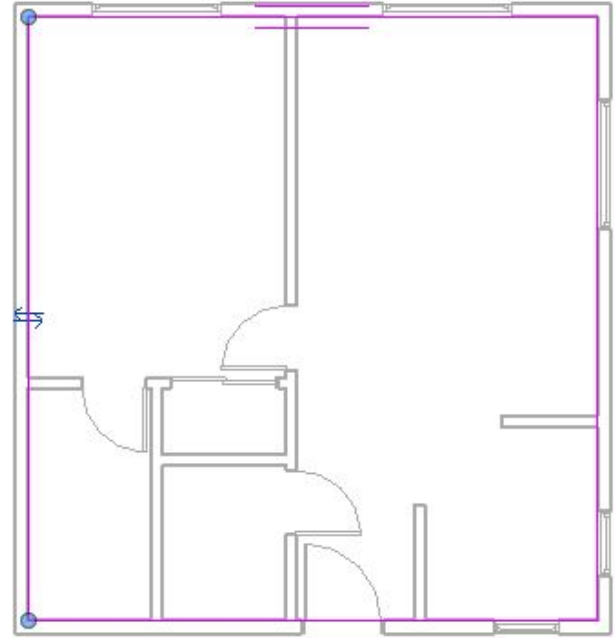
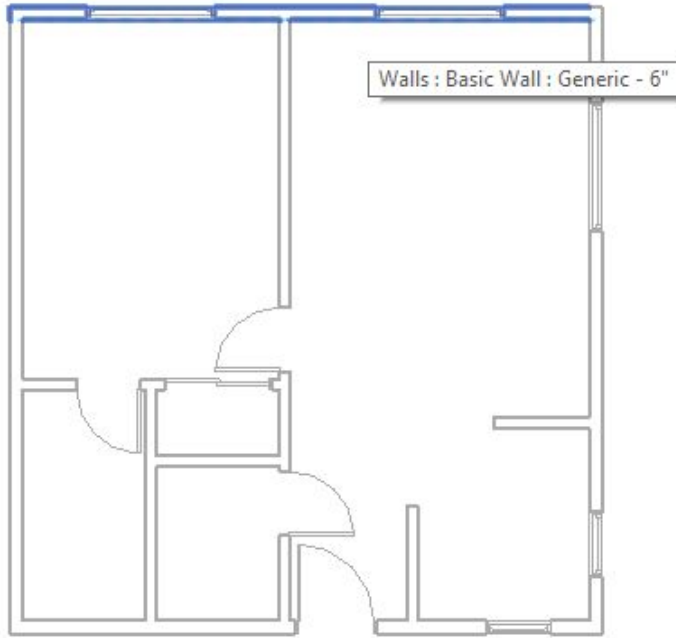


Choose the *“Pick Walls”* option to draw your floor

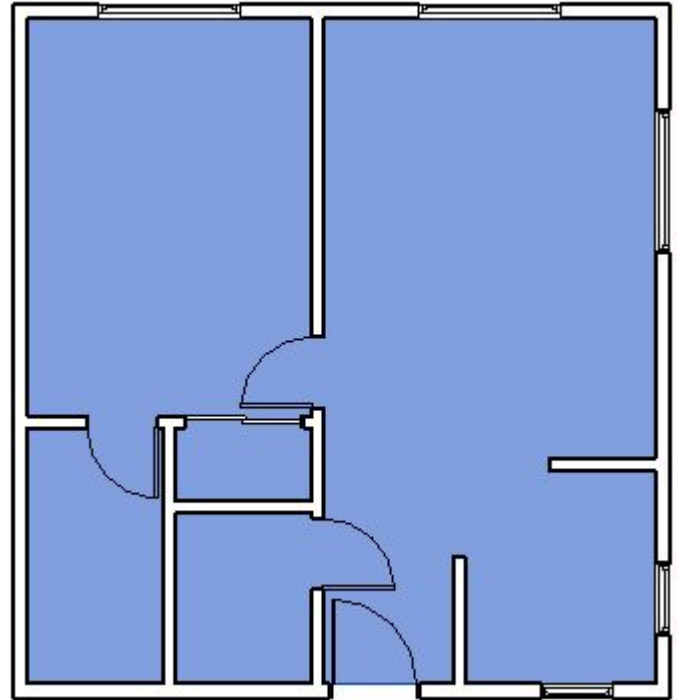
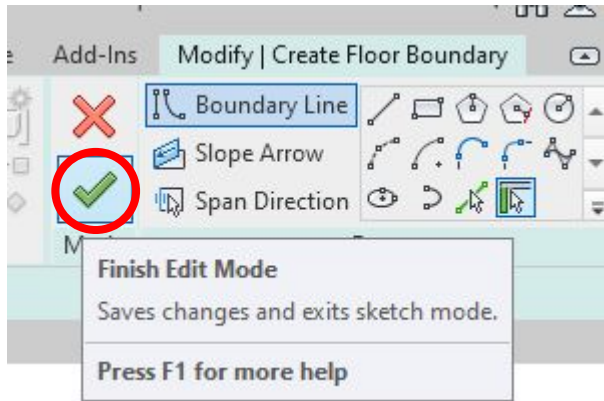


Note*: You can leave the default floor type under properties.

Hover over wall to select it & when selected it should be *pink*



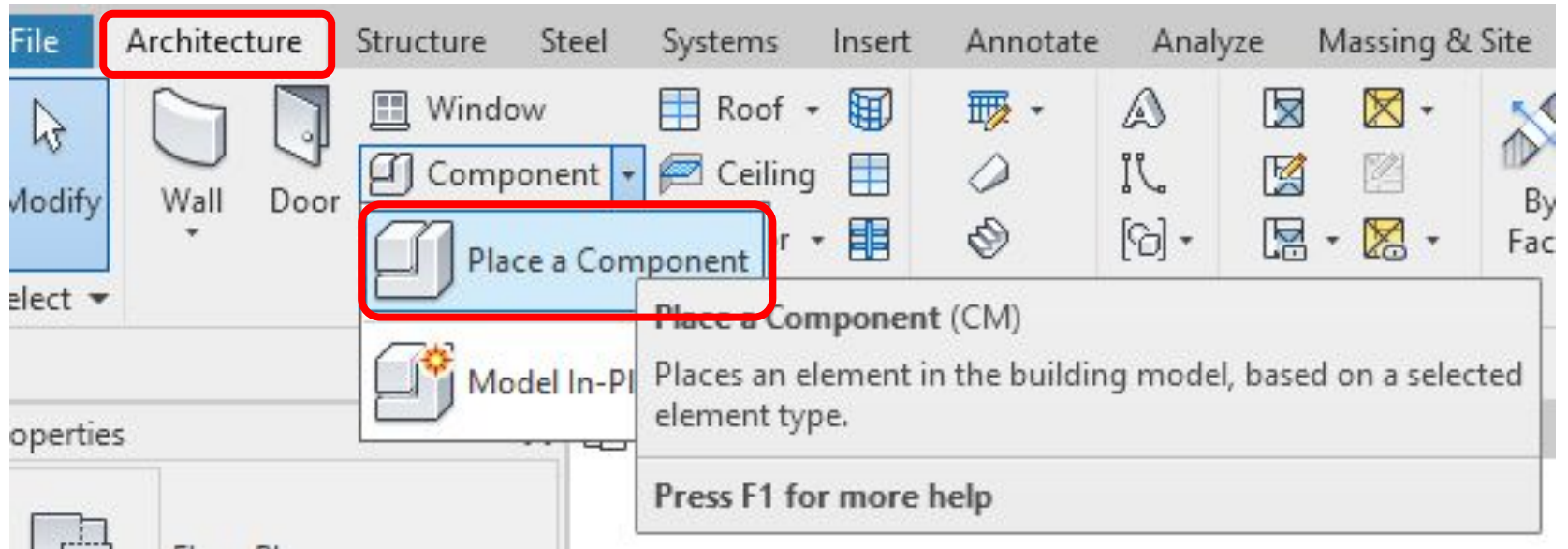
Confirm your creation & see the successful *result!*



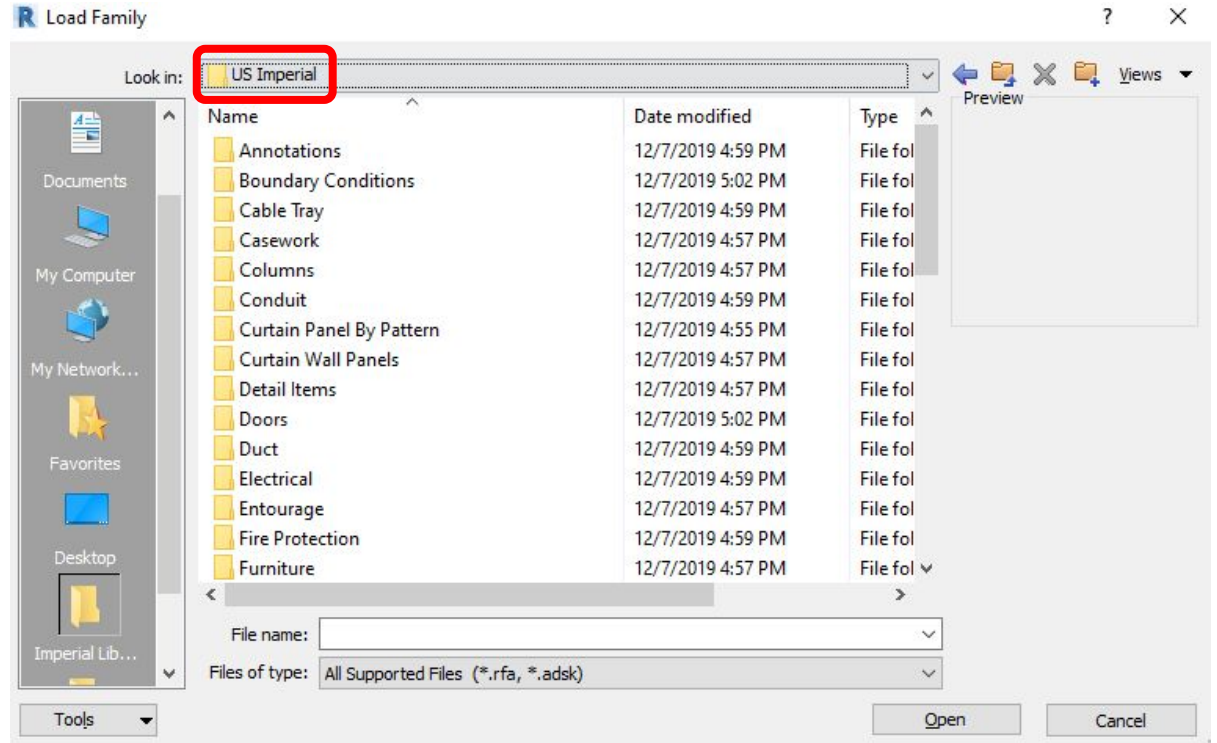
Placing Furniture

(I am only going to show one example)

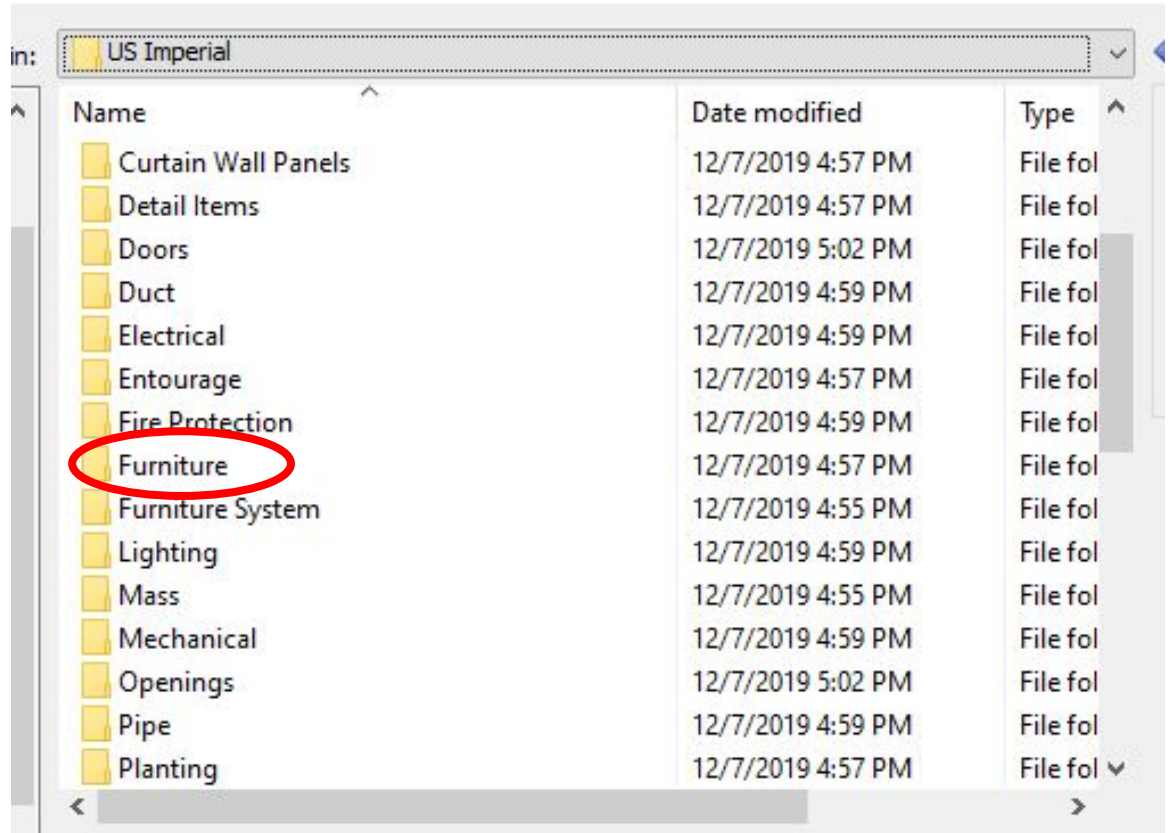
Click *“Component”* & *“Place a Component”*



No *“Beds”* in
Component
so *“Load
Family”* & go
to *“US
Imperial”*
folder

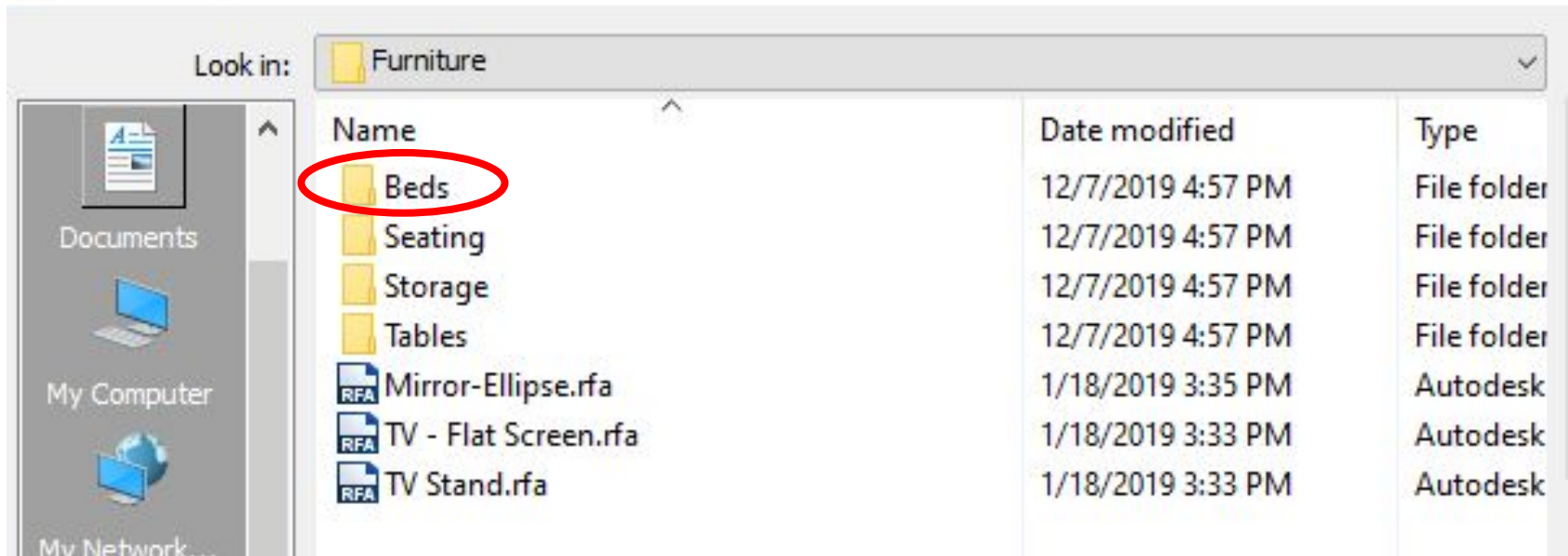


Navigate to
“Furniture”
Folder



Navigate to *“Beds”* Folder

R Load Family

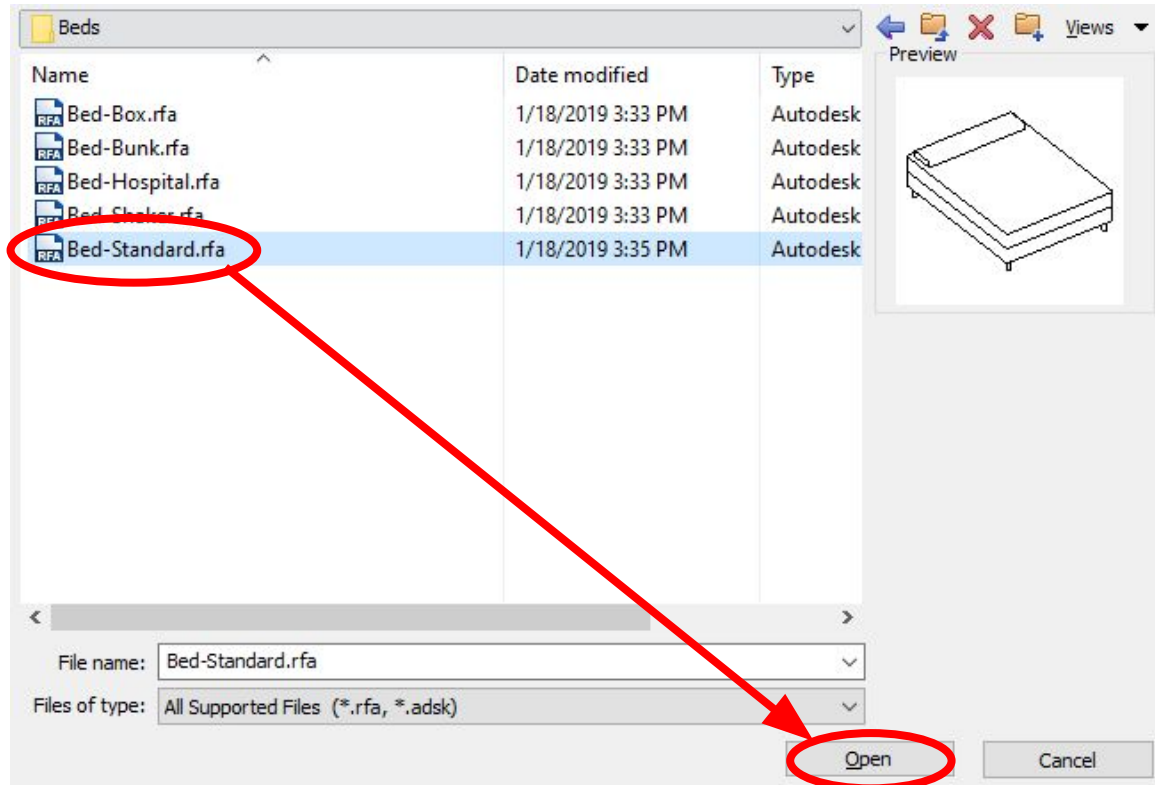


Look in: Furniture

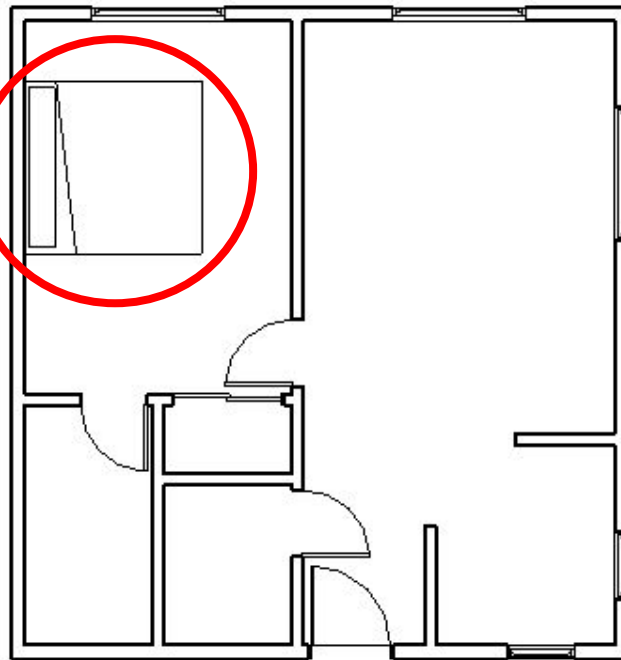
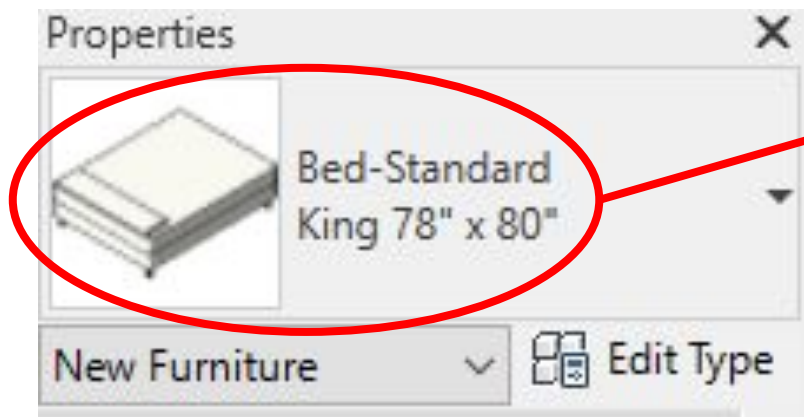
Name	Date modified	Type
Beds	12/7/2019 4:57 PM	File folder
Seating	12/7/2019 4:57 PM	File folder
Storage	12/7/2019 4:57 PM	File folder
Tables	12/7/2019 4:57 PM	File folder
Mirror-Ellipse.rfa	1/18/2019 3:35 PM	Autodesk
TV - Flat Screen.rfa	1/18/2019 3:33 PM	Autodesk
TV Stand.rfa	1/18/2019 3:33 PM	Autodesk

The screenshot shows a Windows File Explorer window titled "Load Family". The address bar indicates the current location is "Furniture". The left sidebar shows navigation options: Documents, My Computer, and My Network Places. The main pane displays a list of folders and files. The "Beds" folder is circled in red. The list includes folders for "Seating", "Storage", and "Tables", and files named "Mirror-Ellipse.rfa", "TV - Flat Screen.rfa", and "TV Stand.rfa".

Choose *“Bed-Standard.rfa”* & Click *“Open”*



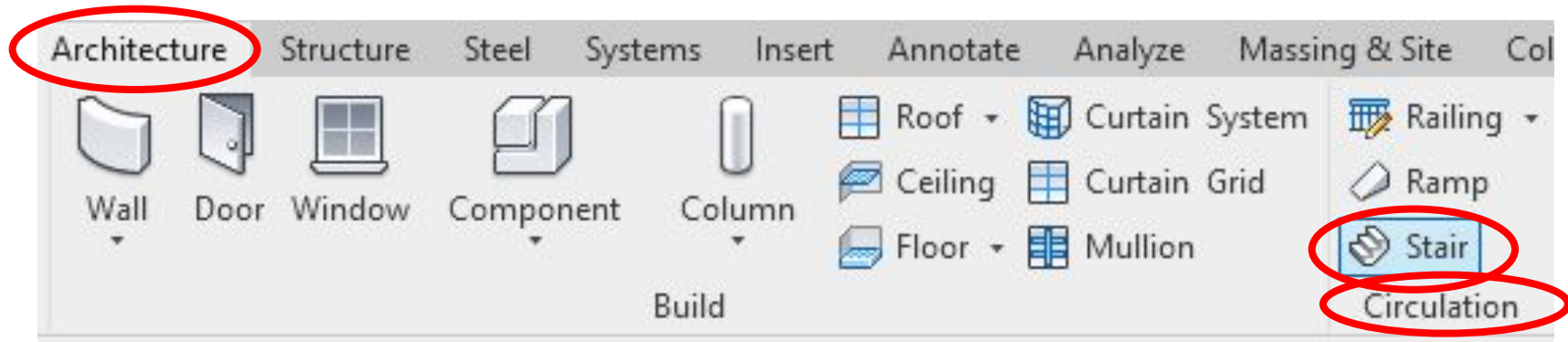
Choose *“Bed-Standard King 78” x 80”* and
Place onto Floor Plan



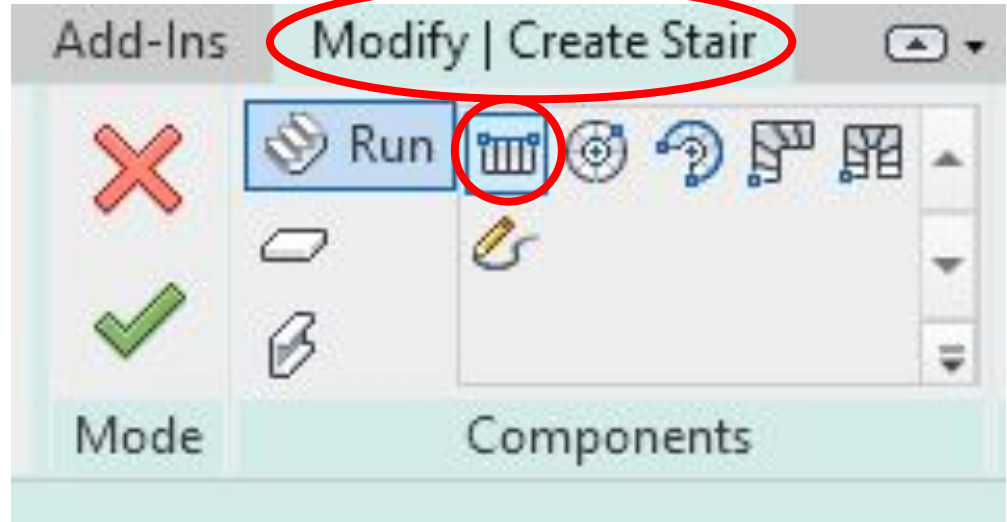
Note*: Use the *spacebar* to *rotate* furniture.

Creating Stairs

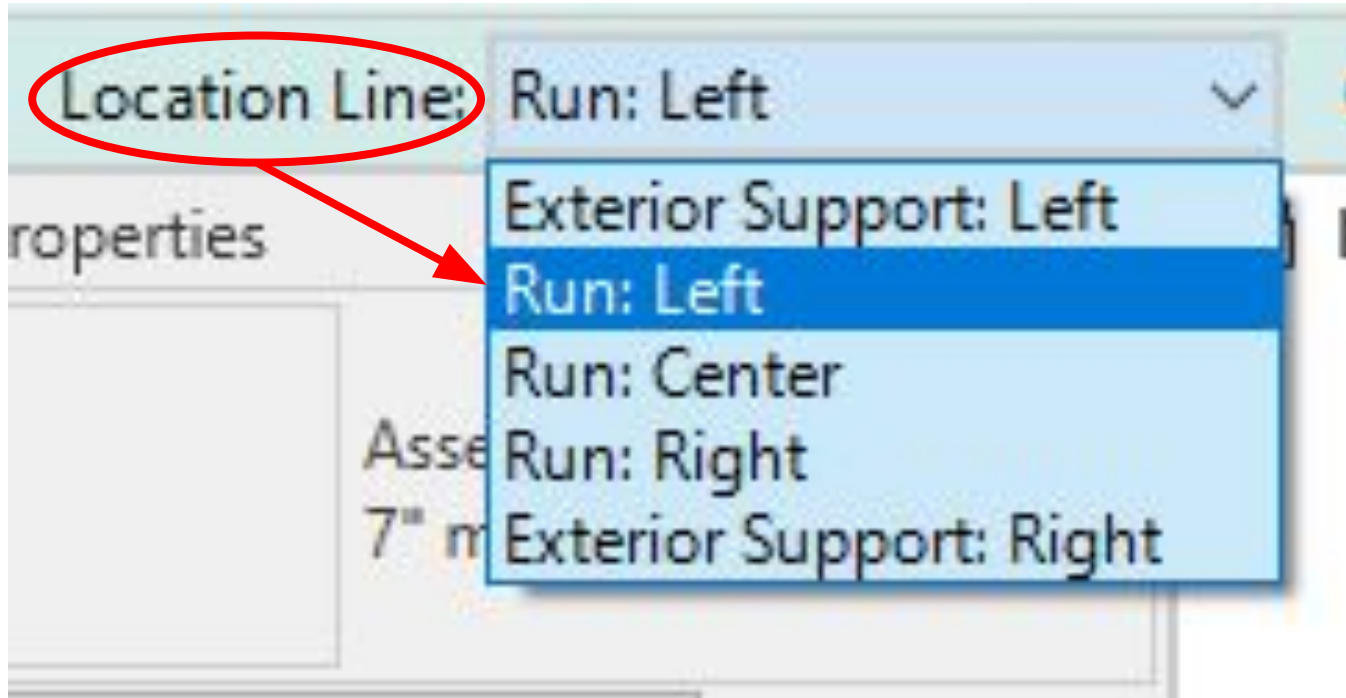
Go to *Architecture* tab & choose the *Stair* Option Under *Circulation*



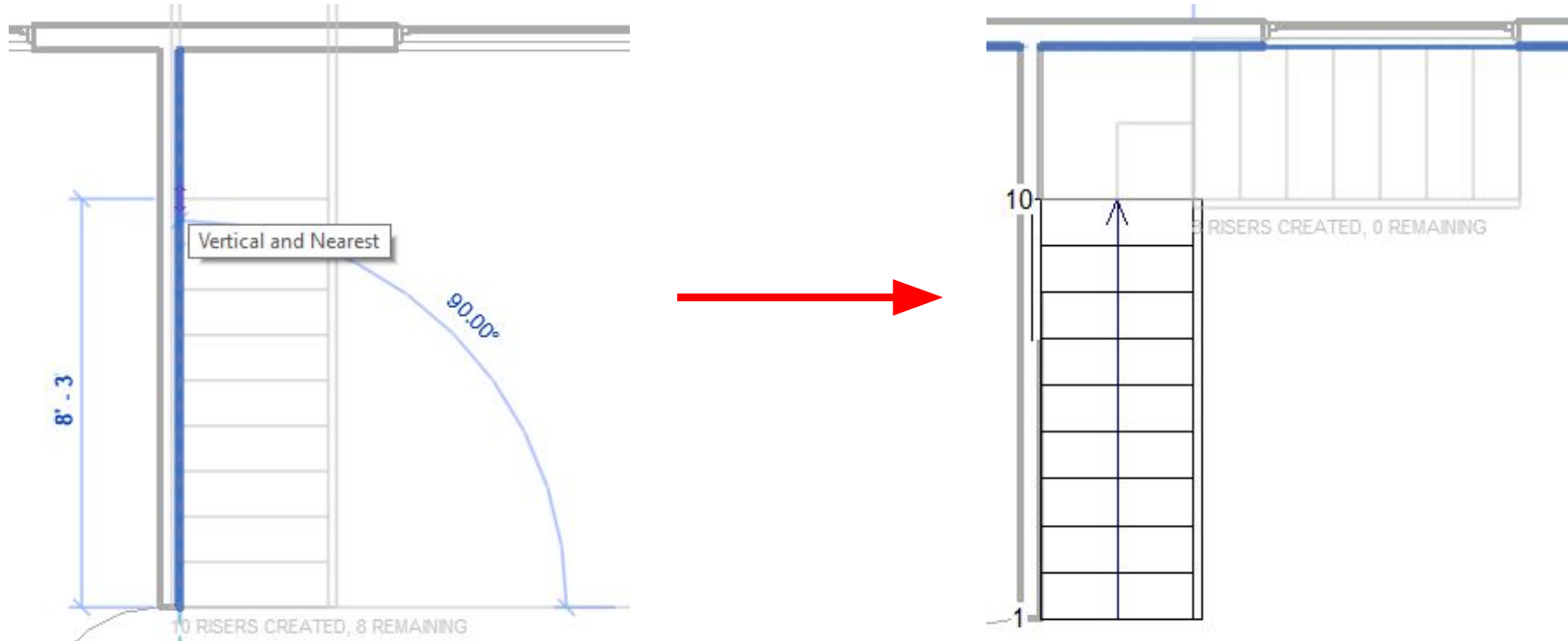
To Create
L-Shape Stair:
Under *“Modify
/ Create Stair”*,
choose the
default
“Straight Stair”



Change *“Location Line”* to *“Run Left”* (for this specific case)

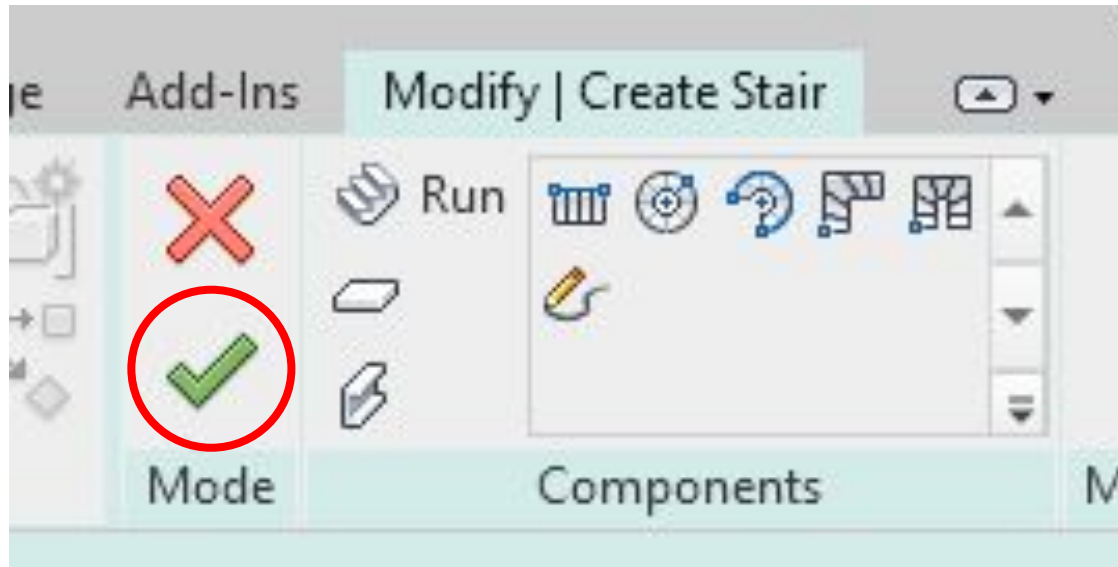


Draw *two vertical stairs* (both times starting from the walls) to form the L-Shape Stairs

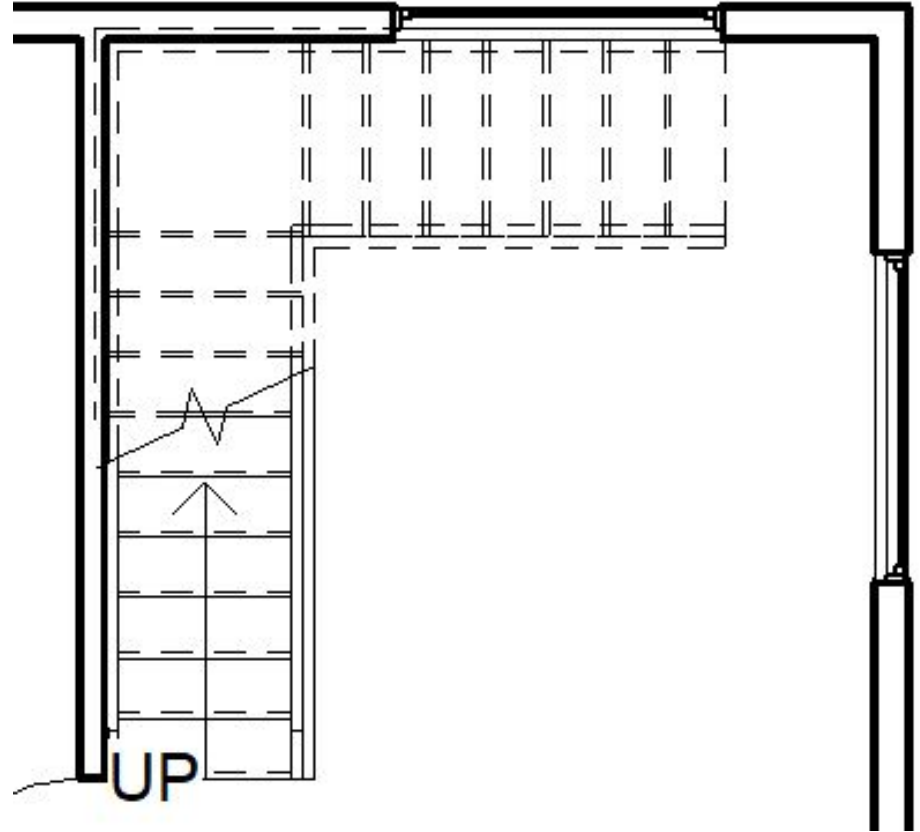


Note*: When creating the second part of the stairs (right), make sure you *start on the inside edge of the railing except across from it at the wall*. The *landing will be automatically generated*.

Click the *“checkmark”* to confirm your creation

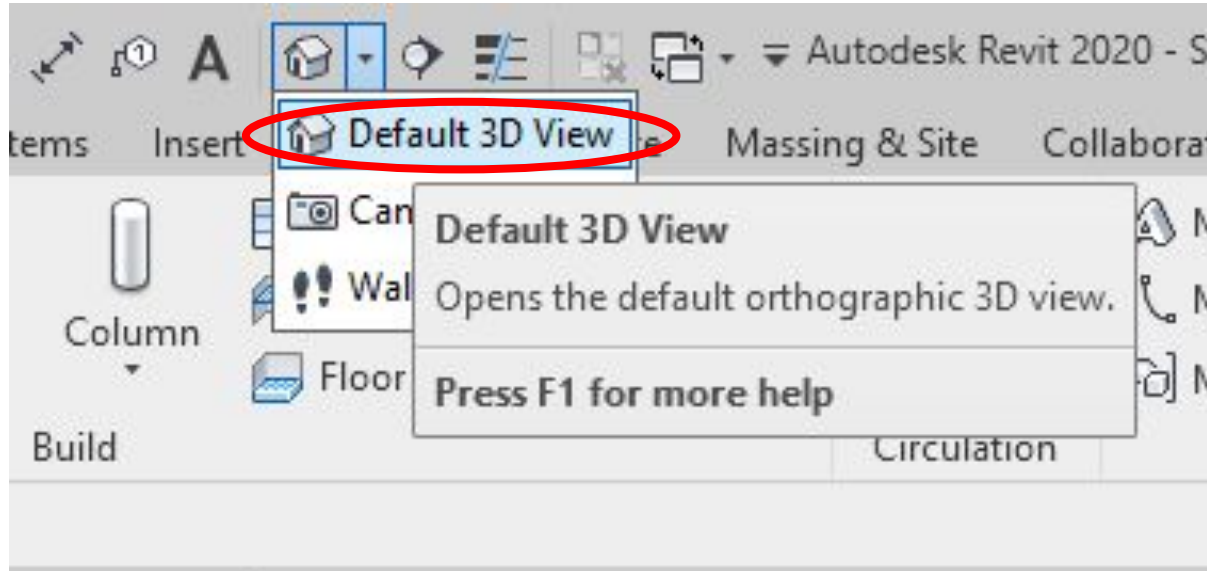


This is the
final *2D view*
of your
L-shaped
stairs.



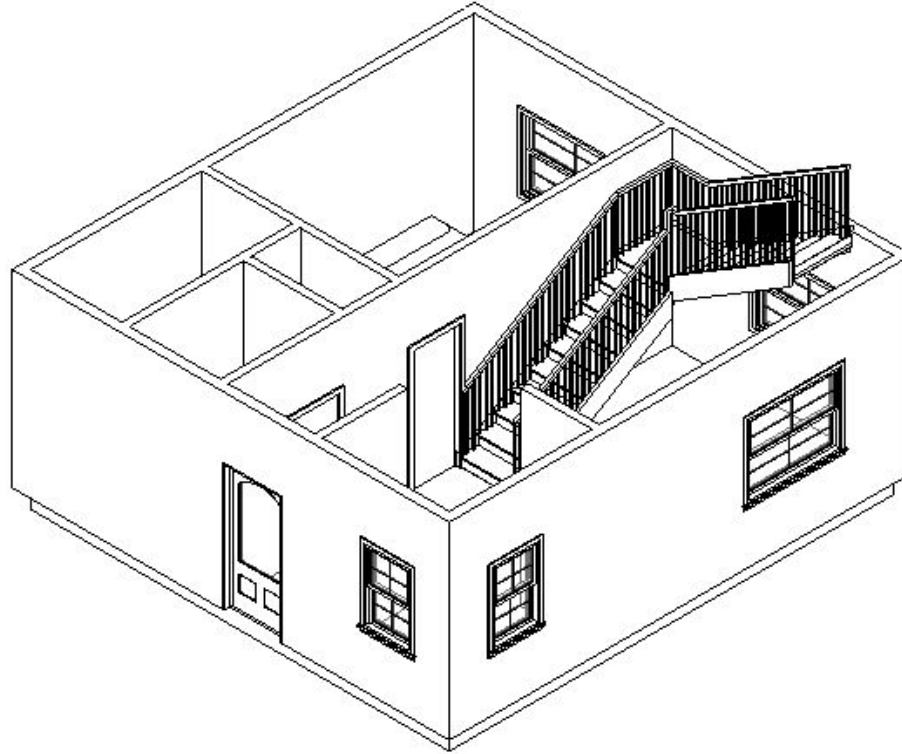
3D-Result!

Go to *3D View*

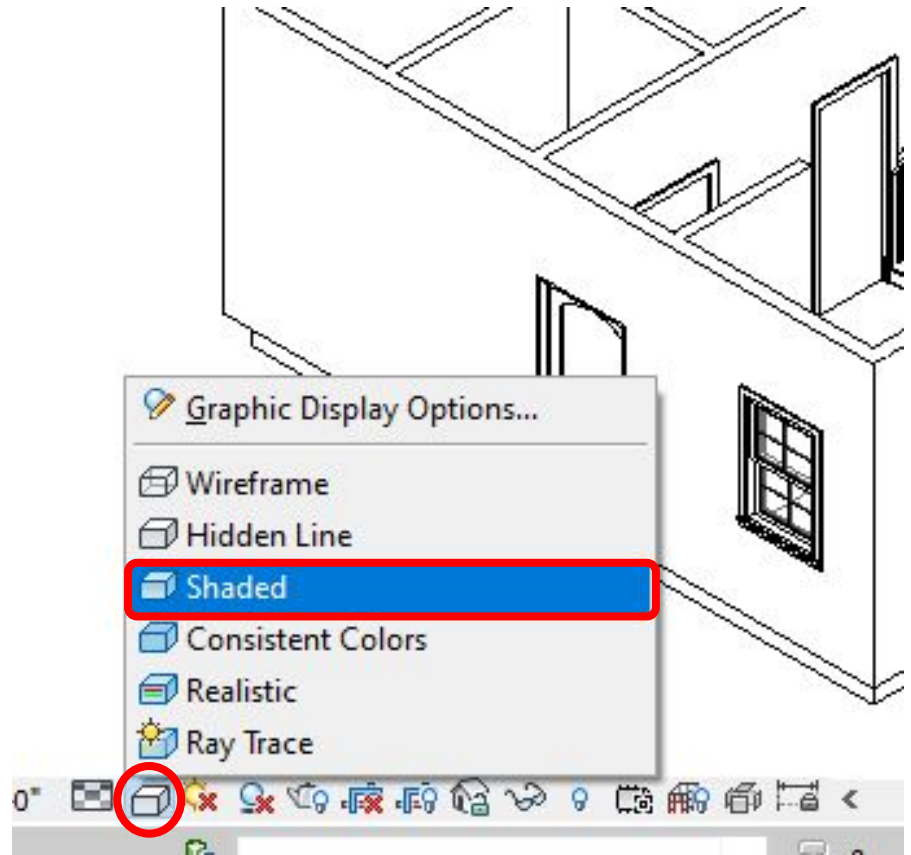


Note*: You can also just *click the house icon directly*.

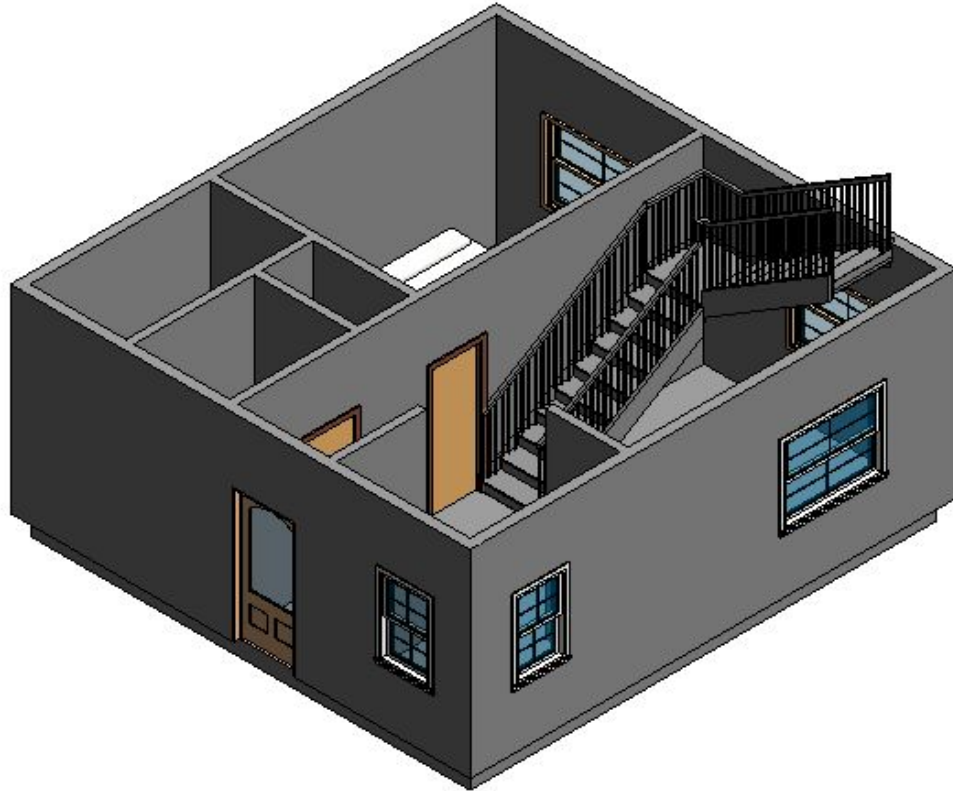
Default 3D View: *Hidden Lines*



If you like to see
more detail:
change the
visual style!



New Visual Style: *Shaded*

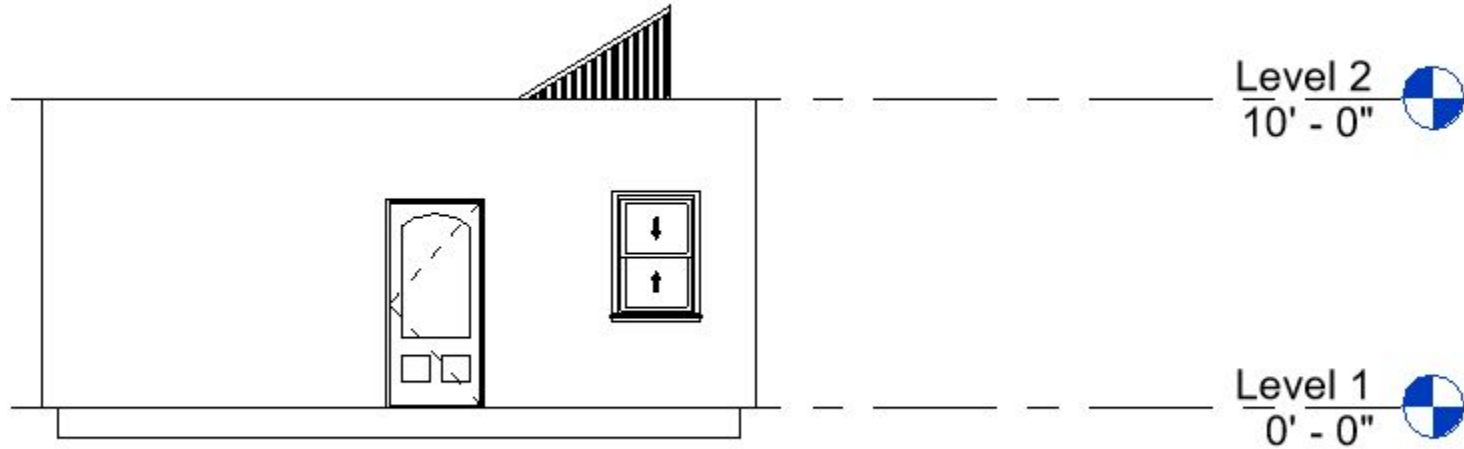


Extra: Second Floor!

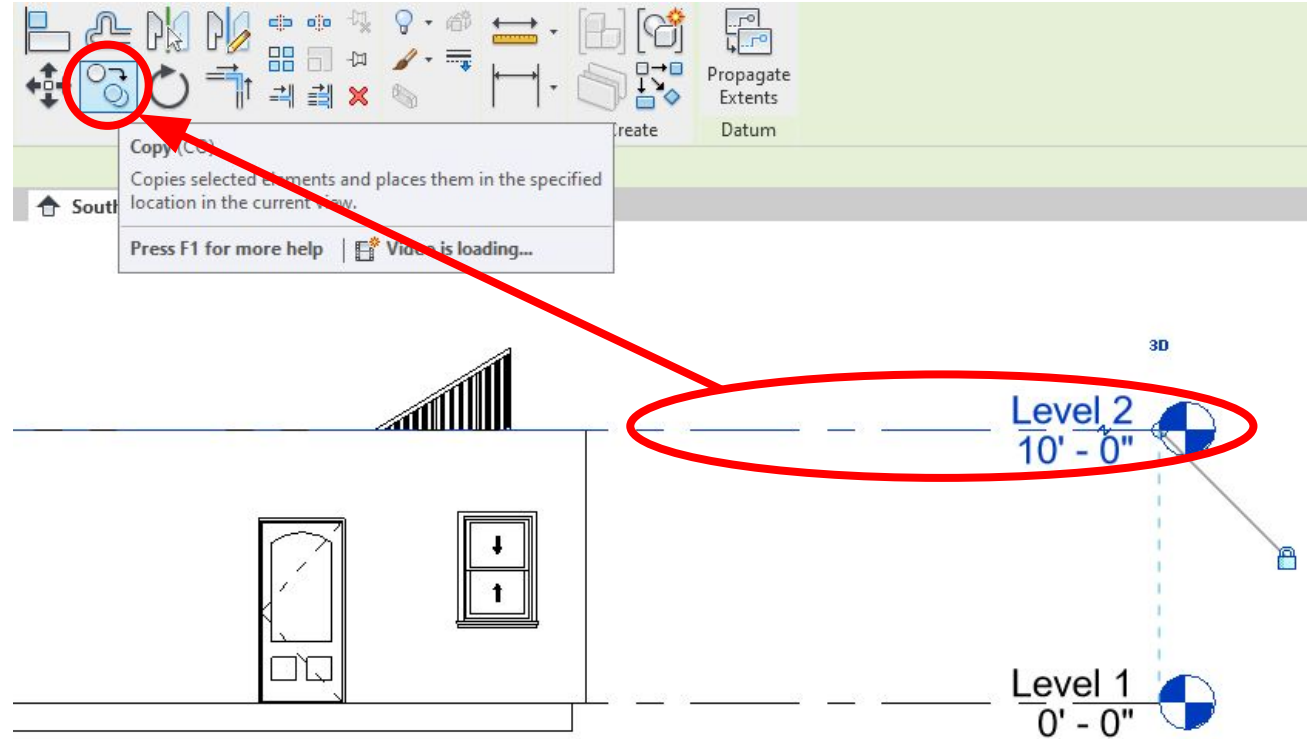
(Not part of floor plan image but cool to know!)

Adding a Second Level

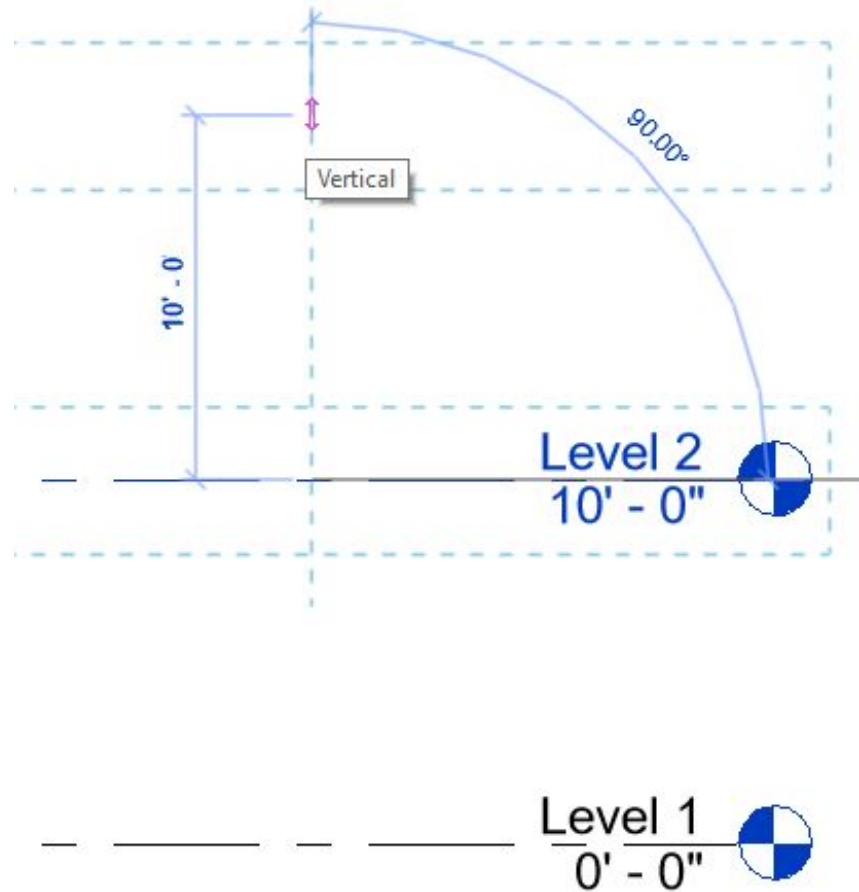
Go to *“Project Browser”* & Under *“Elevations”* click on *“South”*



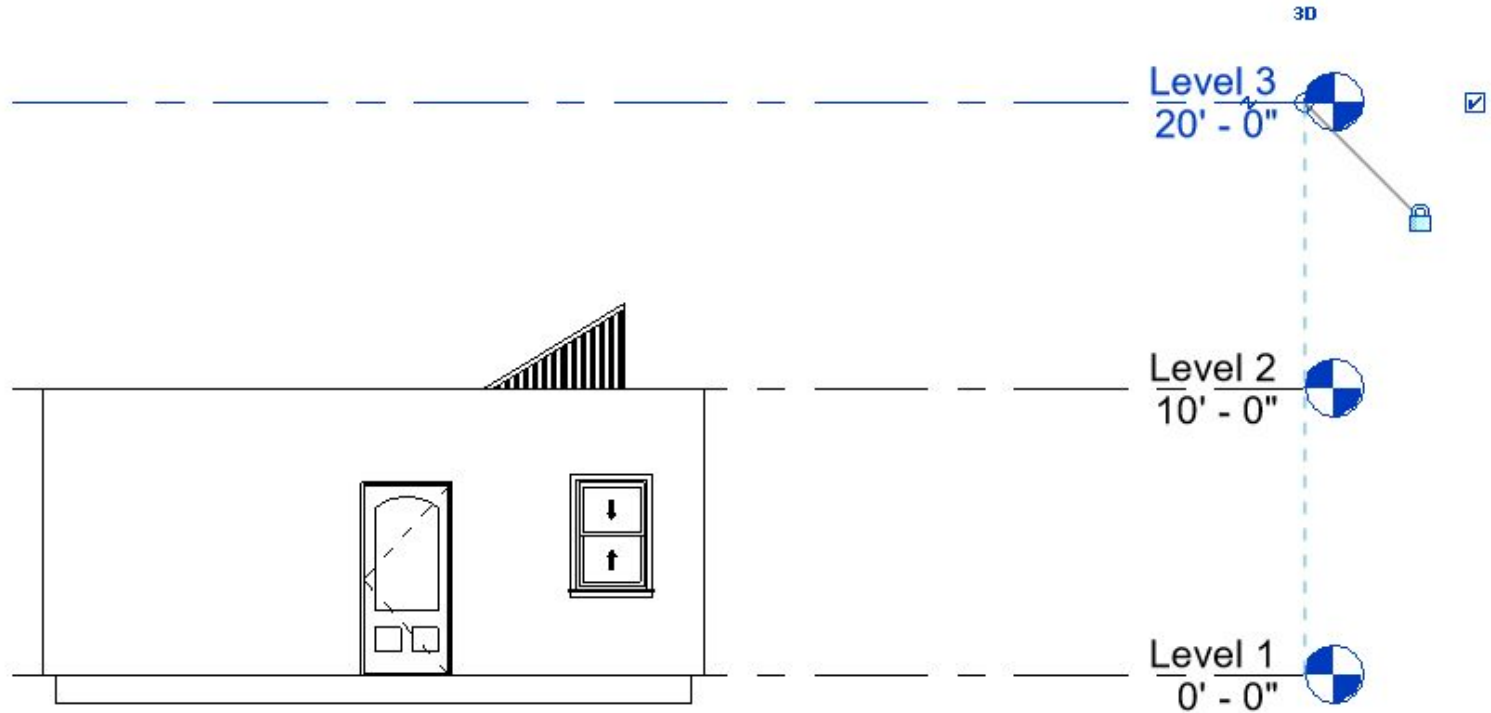
Click on
the line of
“Level 2” &
under
“Modify”,
click the
“Copy”
icon



With *“Copy”* selected, click on the *“Level 2”* line again then move mouse upwards clicking at *10' - 0”* above creating *“Level 3”*

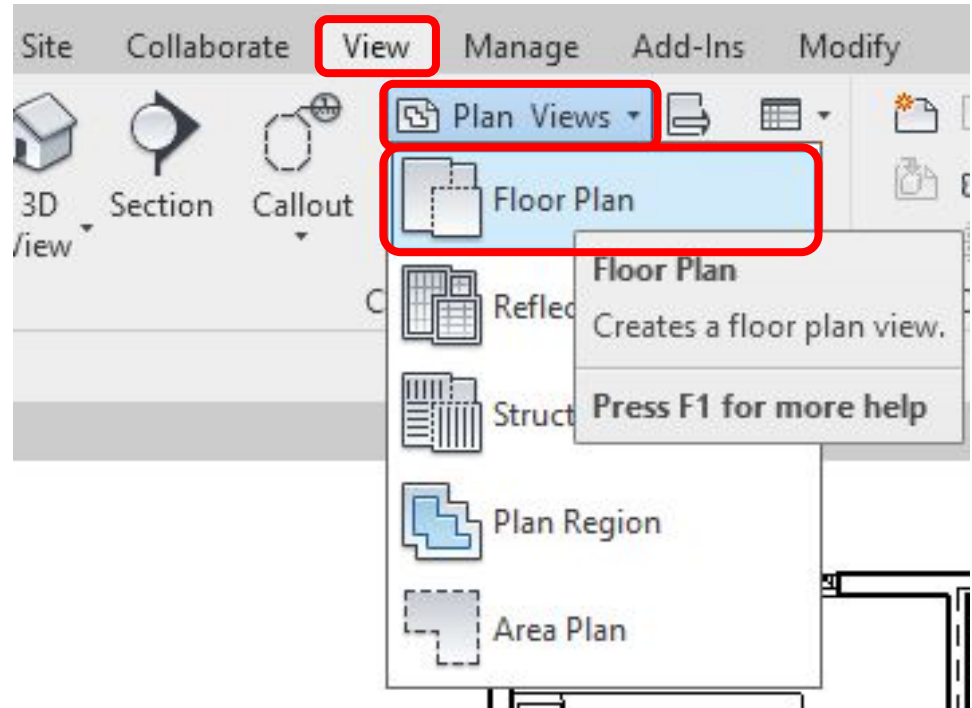


"Level 3" Created



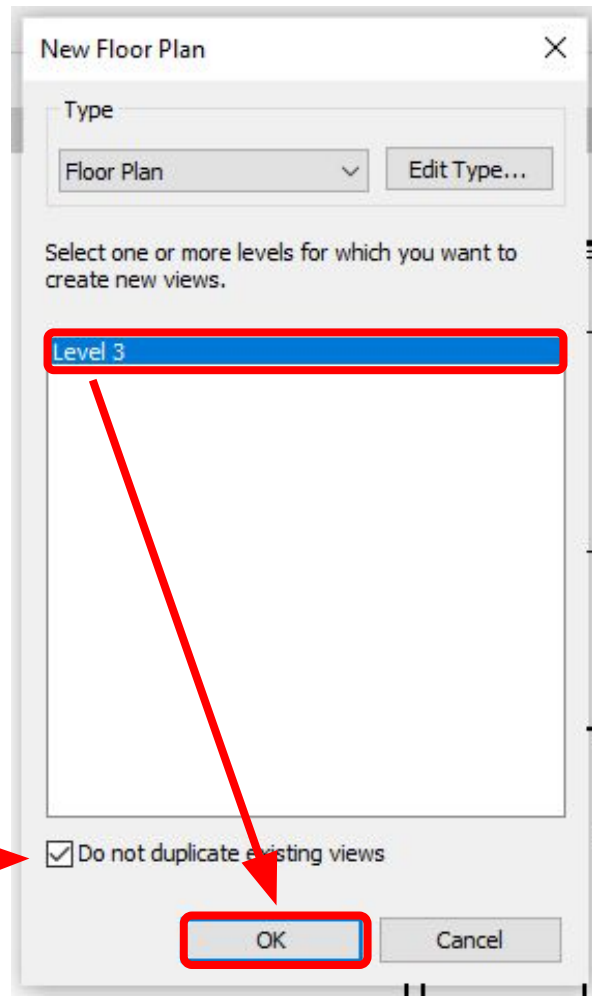
Note*: The creation of level 3 is so the second floor has a *ceiling constraint*.

Go to *“View”* tab
& under *“Create”*
click the drop
down menu of
“Plan Views” &
click *“Floor Plan”*

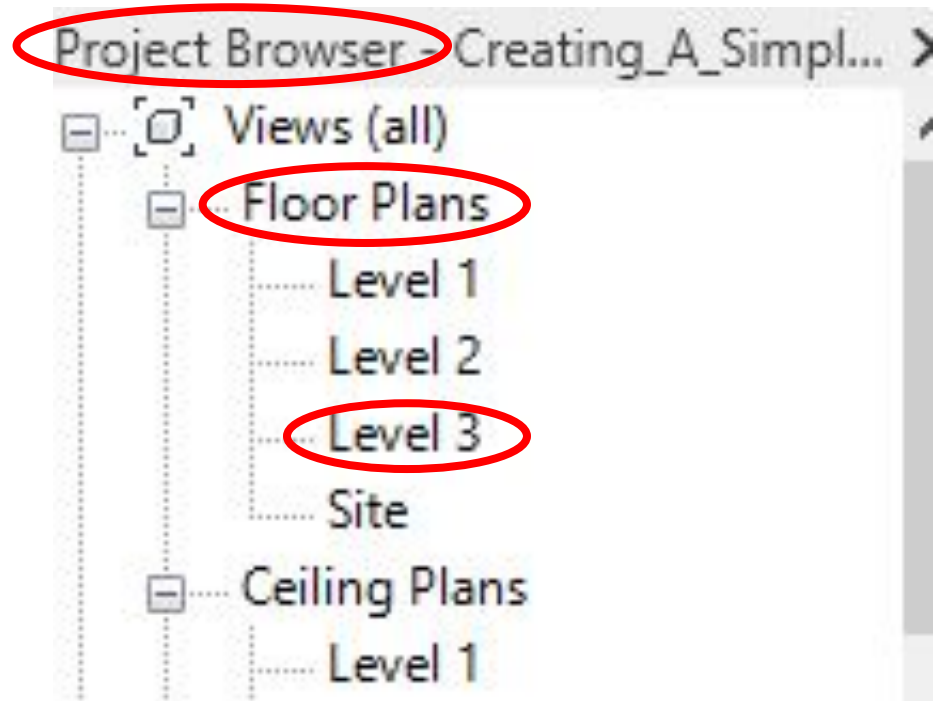


Selecting *“Floor Plan”*, this window will appear, make sure *“Level 3”* is selected then click *“OK”*

Note*: Make sure the *“Do not duplicate existing views”* is checked.



“Level 3” will appear under *“Project Browser”* & under *“Floor Plans”*



Copying to Level 2

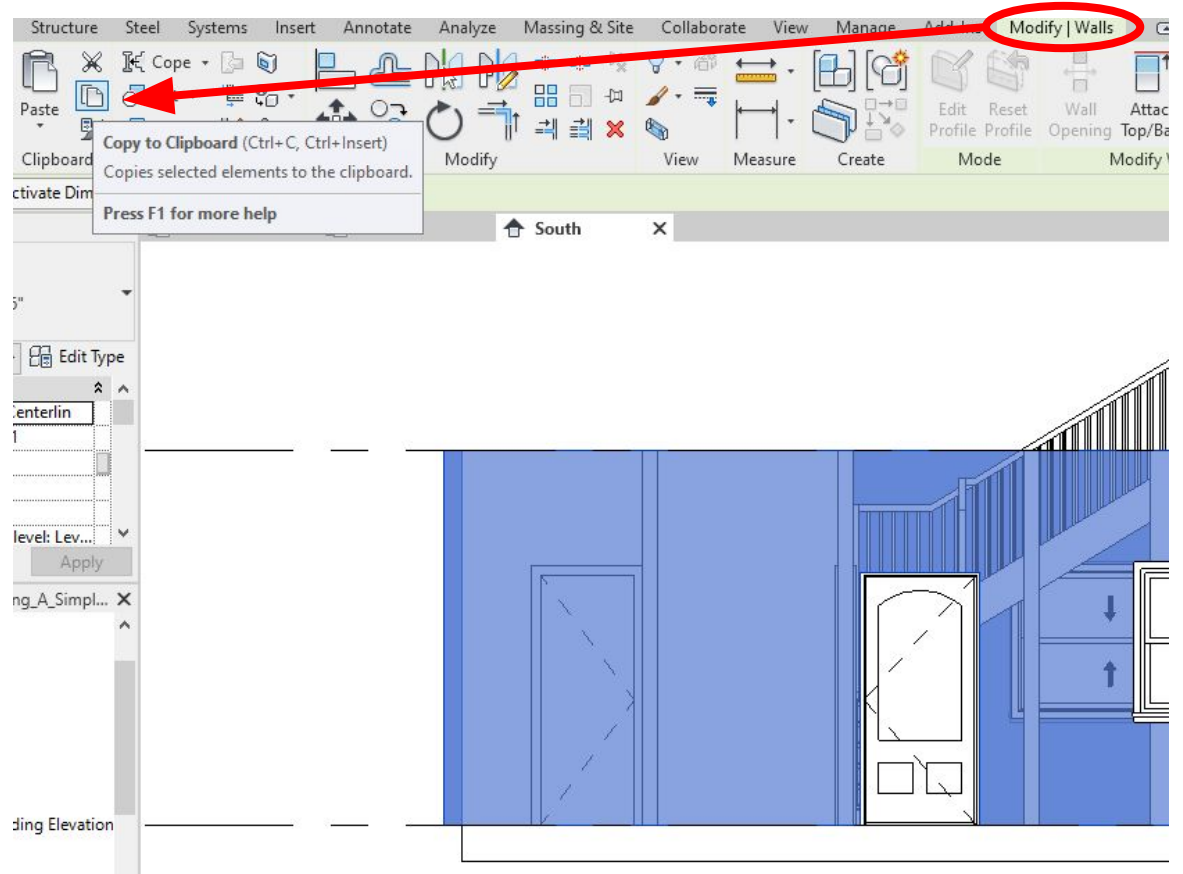
(This is so you won't need to manually draw the same plan a second time)

Under *“Project Browser”* & under *“Elevations”*, go to *“South”*. Click one wall & press *“Tab”* to make sure the walls are selected

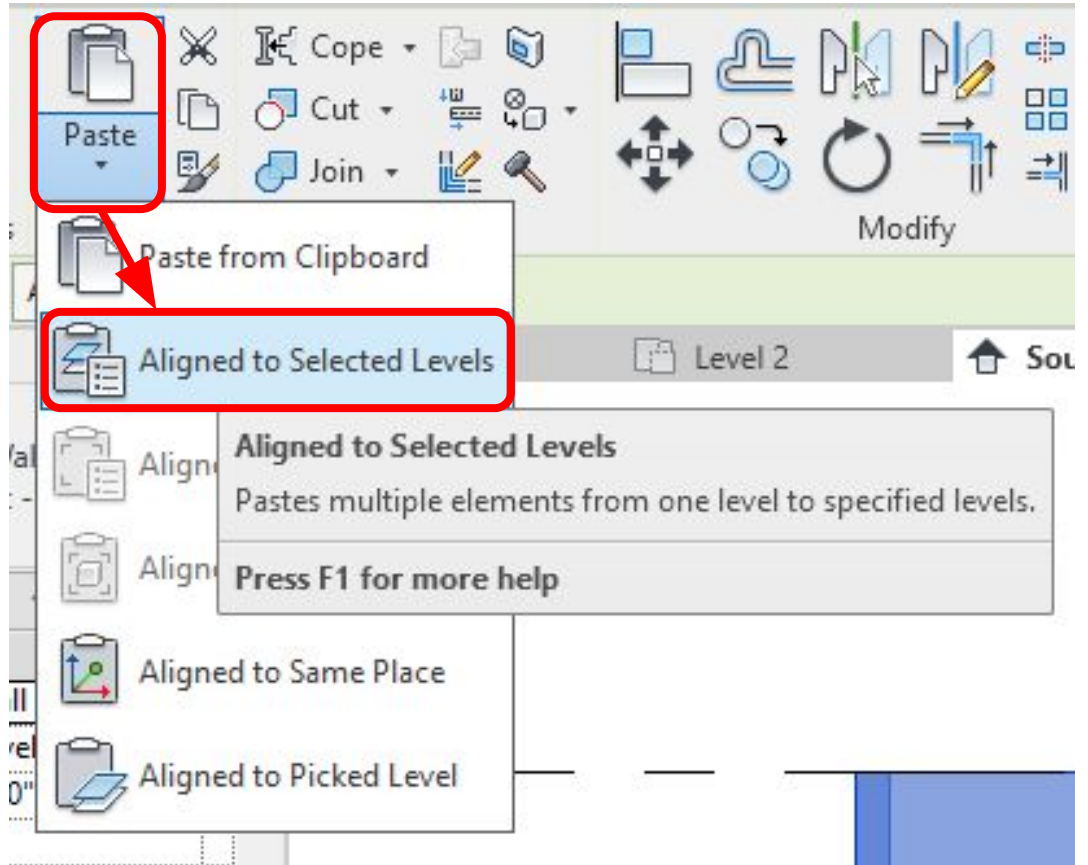
Note*: Press *“Tab”* while hovering your mouse over this wall till you see this.



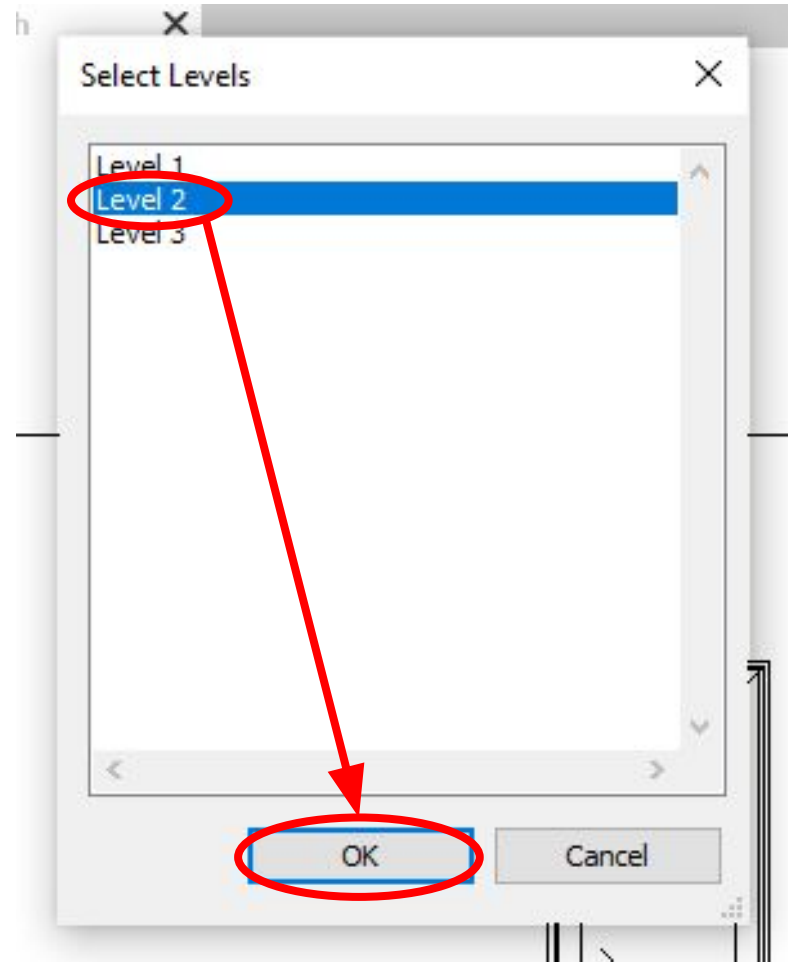
With the walls selected, under *“Modify / Walls”* & under *“Clipboard”* click the *“Copy to Clipboard”* icon



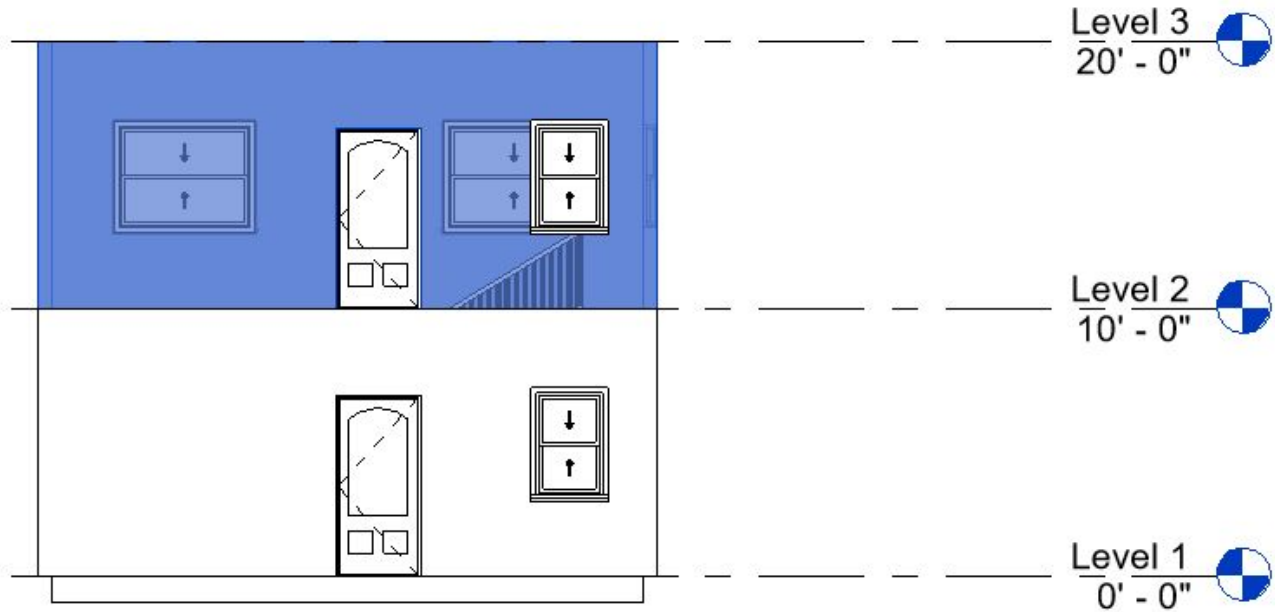
With walls still selected, click the drop down menu of *“Paste”* & select *“Aligned to Selected Levels”*



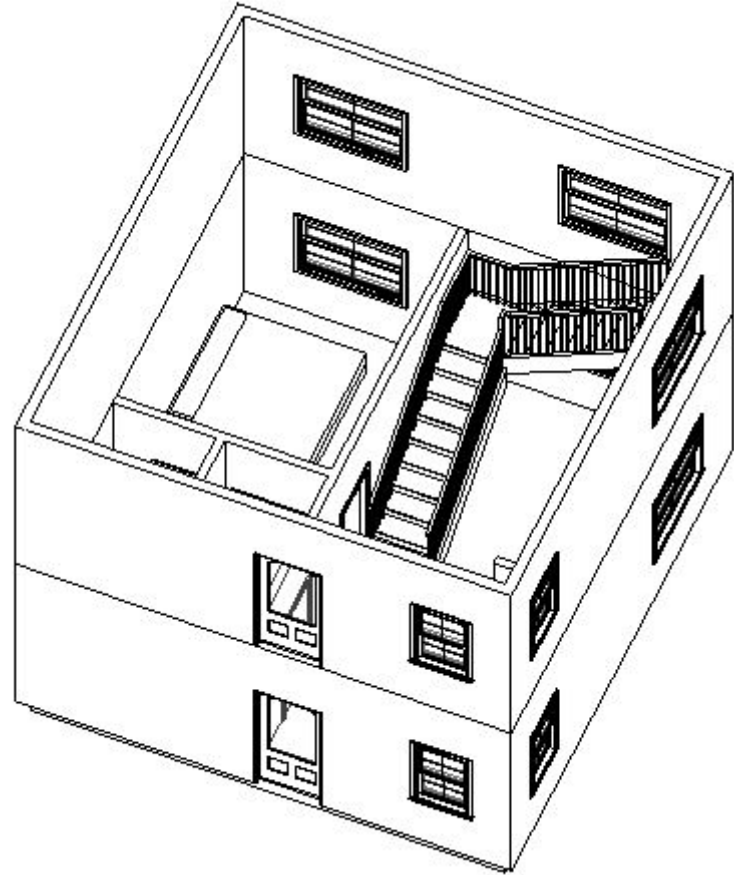
Window titled
“Select Levels”
will pop up,
so select
“Level 2” as
the base level
to paste then
click *“OK”*



After clicking "OK", here is the result of what it will look like.



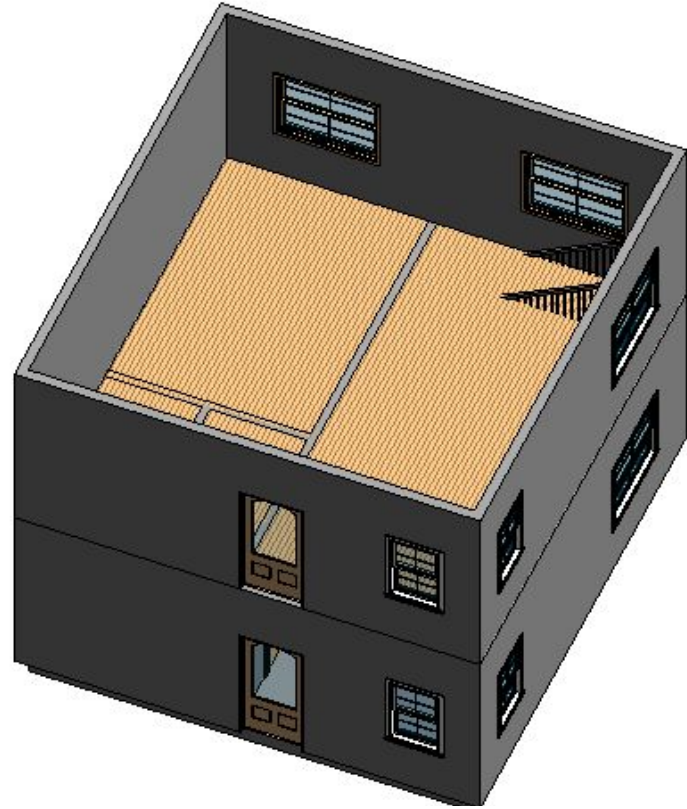
Also, here is
the *3D View* of
the second
floor.



Creating a Floor

(for Level 2)

Create a *Floor*
for Level 2.
Refer to that
section of the
PDF for
guidance.

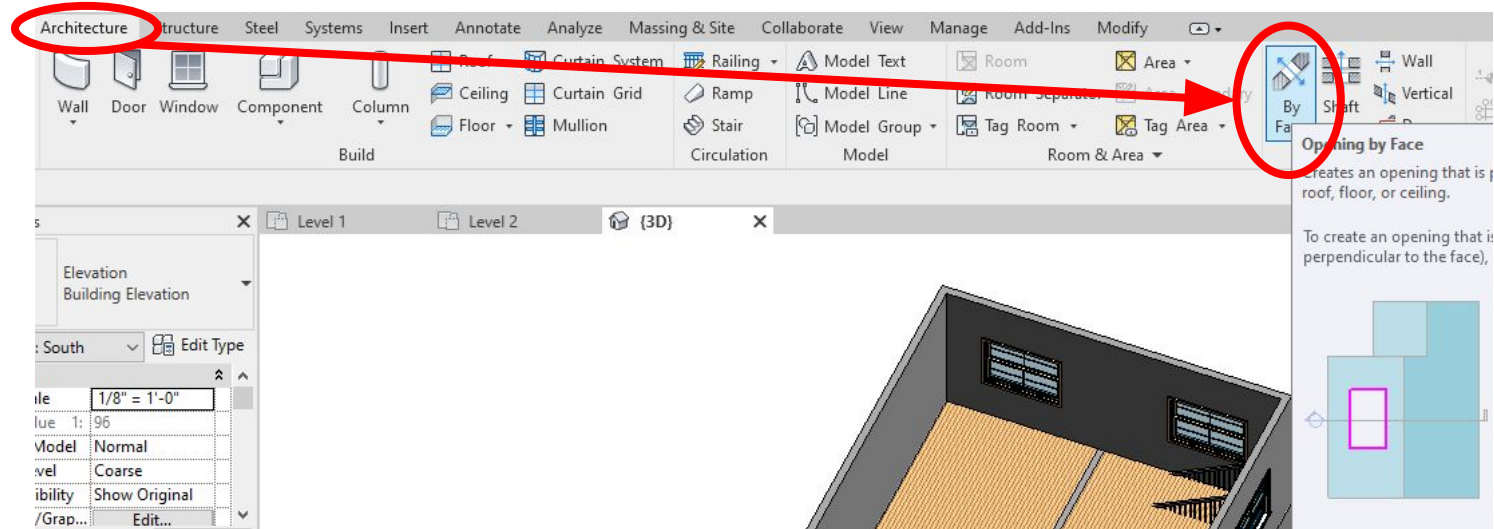


Note*: You can modify the floor type under *Properties* & a pop up will ask you something after you confirm your floor, click *No*.

Cutting a Opening

(In the floor of Level 2 for the stairs)

To open up the floor to reveal the stairs, go to *“Architecture”* tab & under *“Opening”* select *“By Face”*



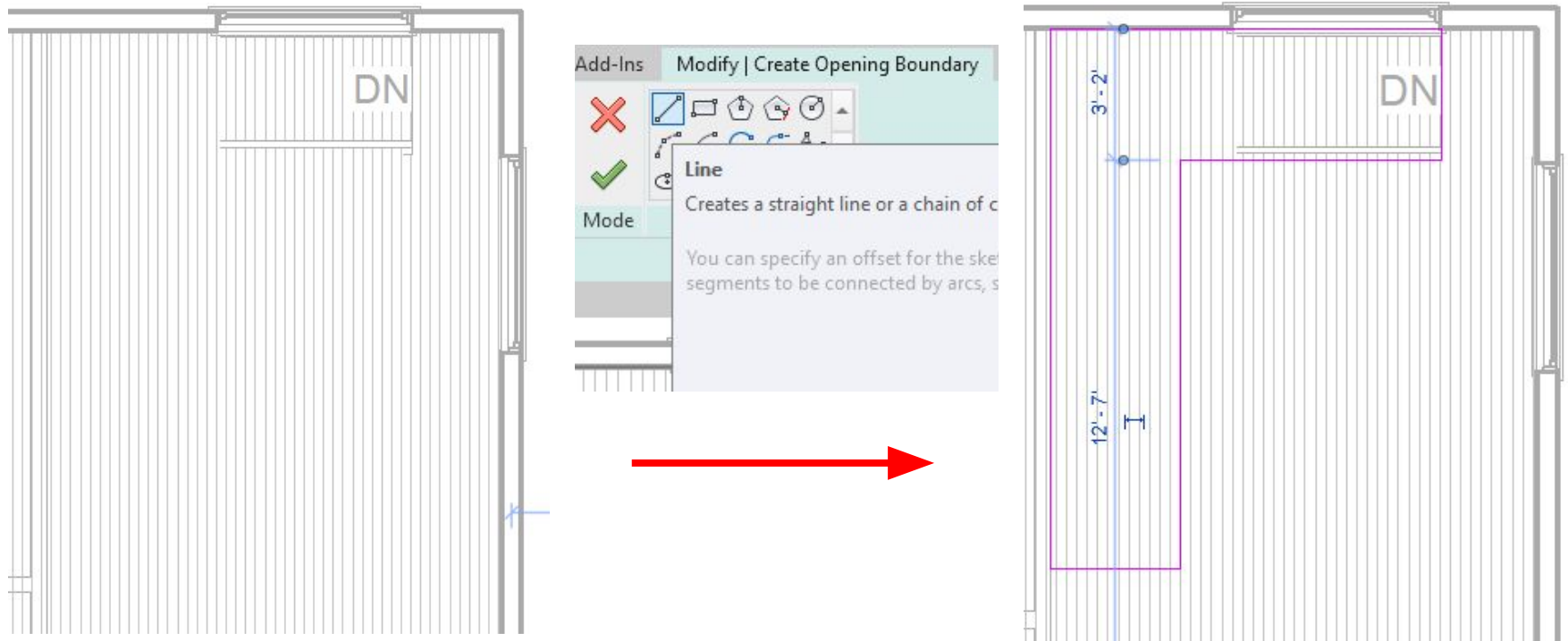
Note*: You can also go to *“Structures”* tab and it will be located the same place.

Hover near the edge of the floor & when a blue border appears with the message, *click* on the floor

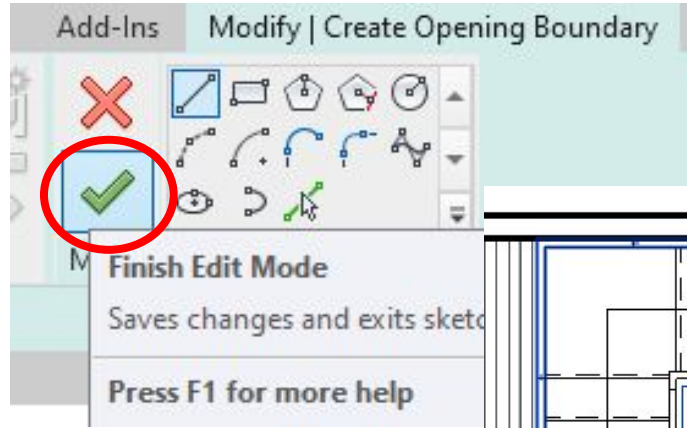


Note*: This is showing *how to select on the floor face*.

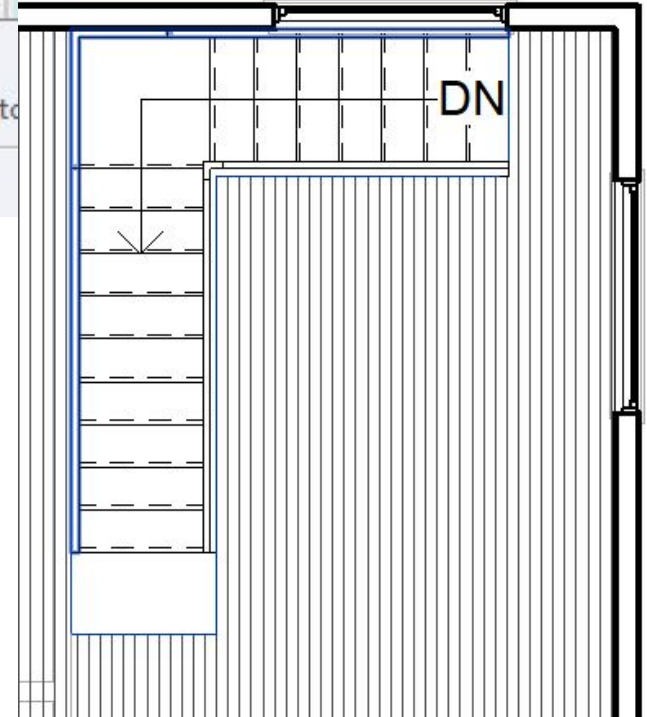
Use default *“Line”* to draw a border around where you want the floor to be cut out.



Confirm your
creation with
the green
“Checkmark”
& view your
result

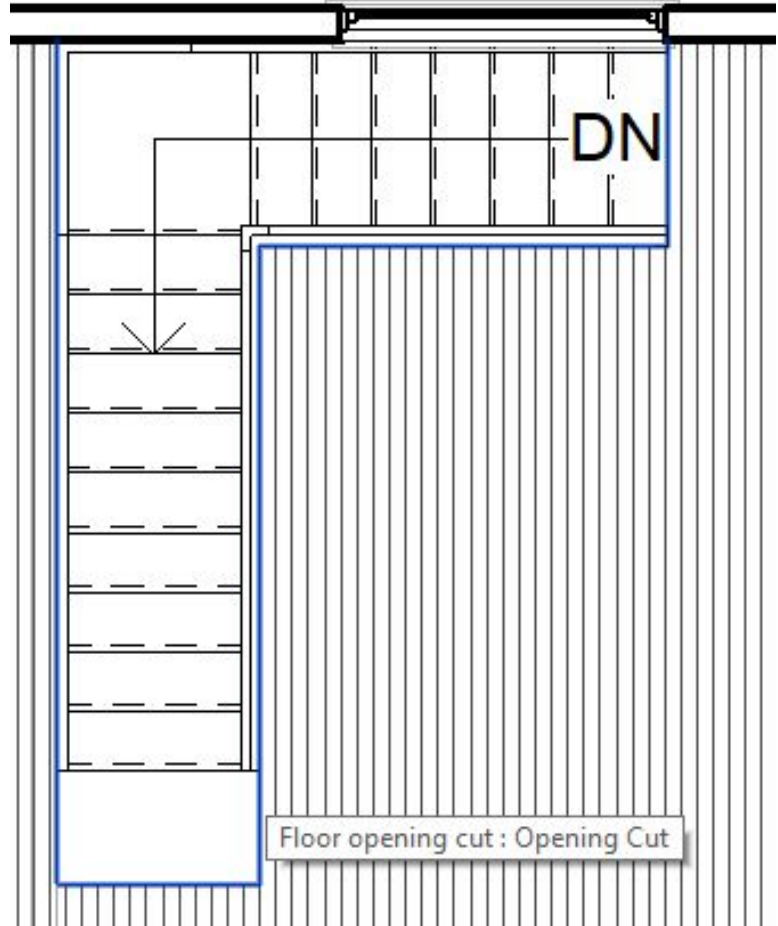


Result ---->

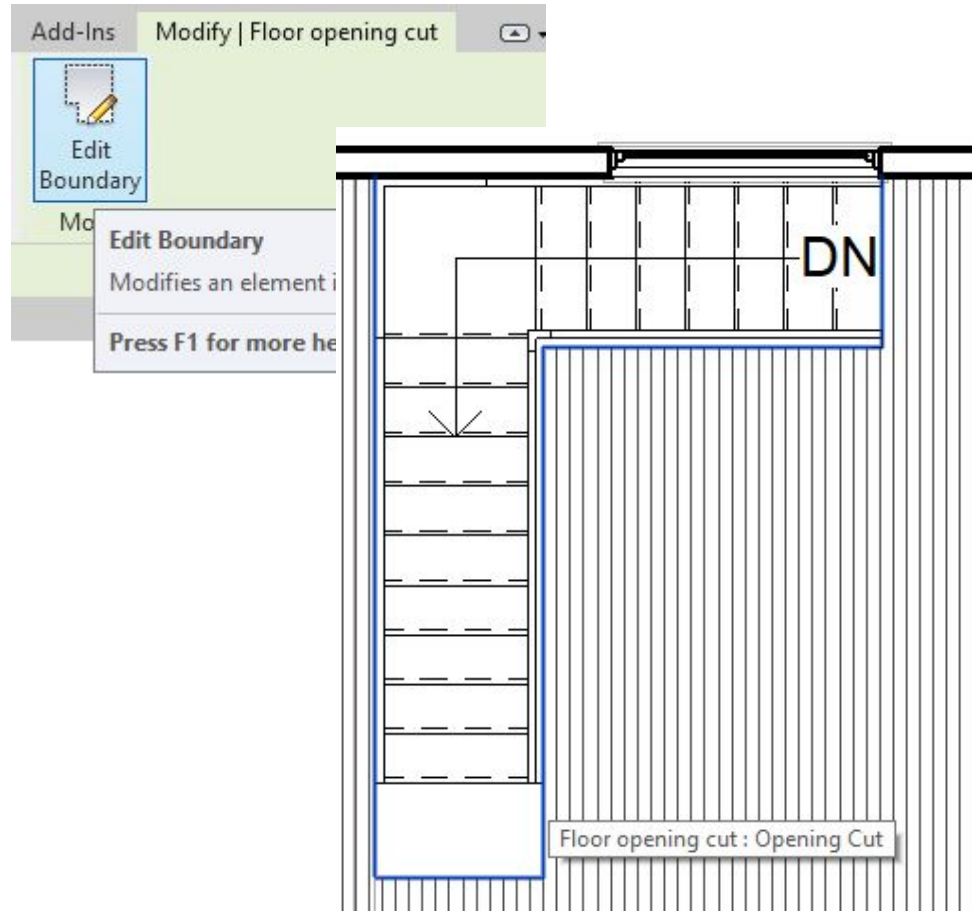


Edit floor opening by *hovering* & *clicking* on the boundary

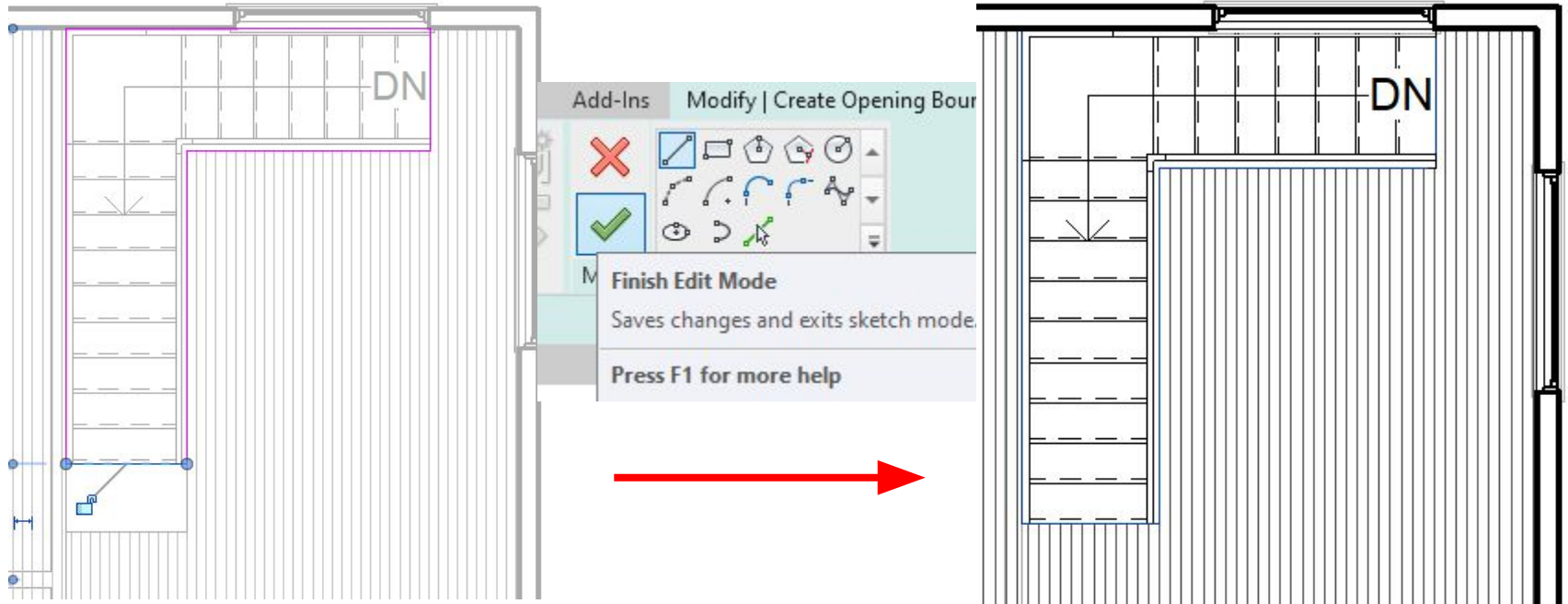
Note*: This is only necessary if you are not satisfied with your first attempt.



Edit floor opening by *hovering* & *clicking* on the boundary & selecting “*Edit Boundary*”

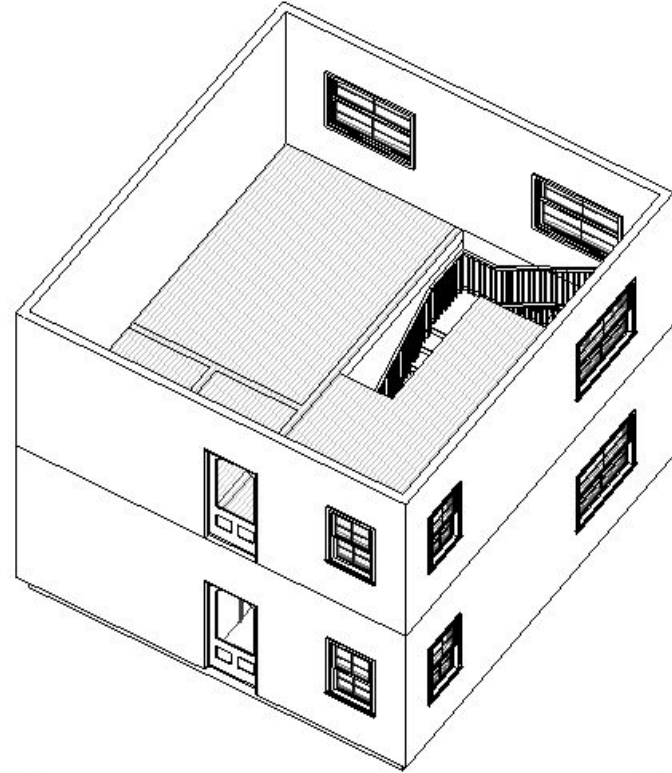


Edit the boundary to how you want it,
Confirm, & view the new result

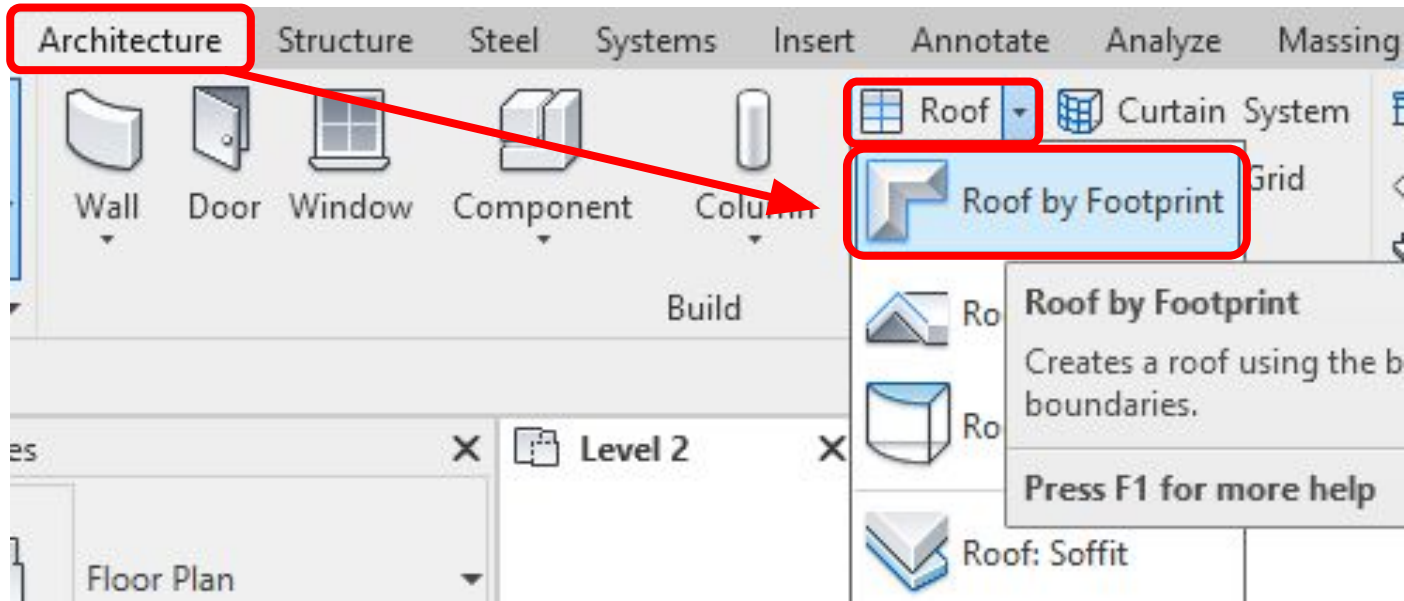


Creating the Roof

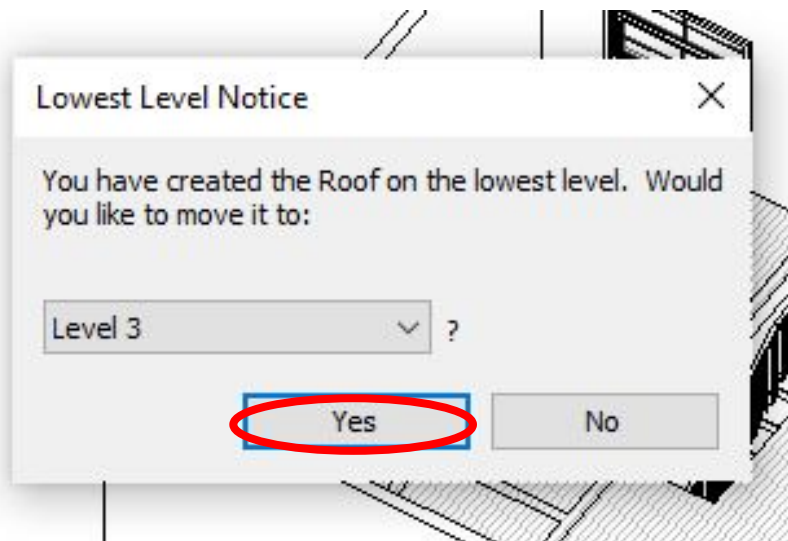
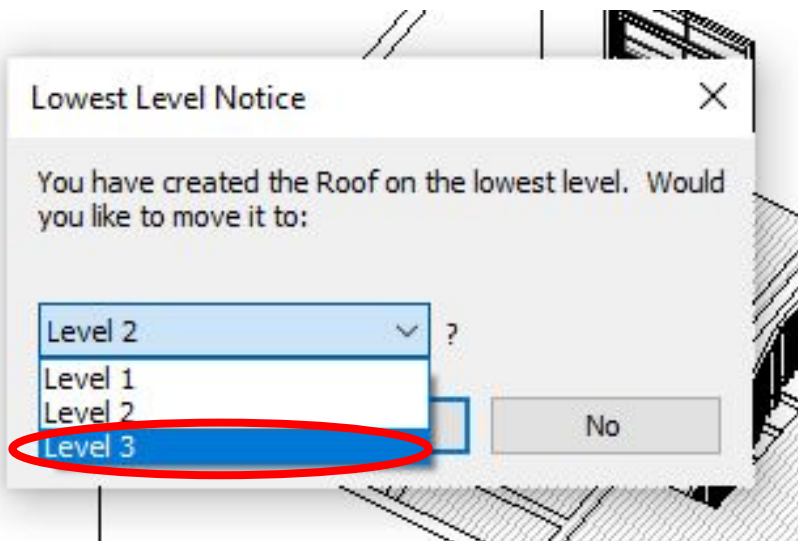
Go to
“3D-View” by
using the
“House” icon



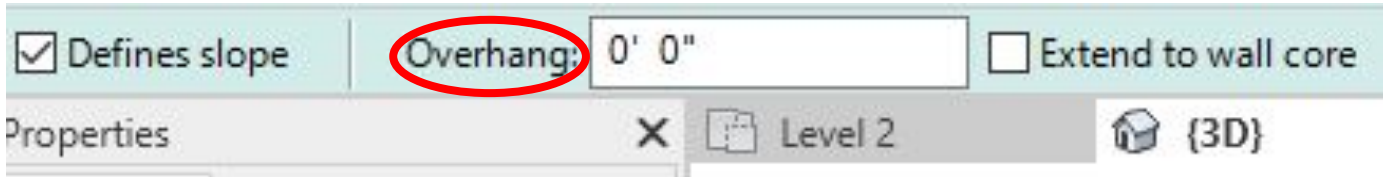
Go to *Architecture* tab & go to *Roof* drop down menu & select *Roof by Footprint*



Window pop-up: Switch to *“Level 3”* then click *“Yes”*

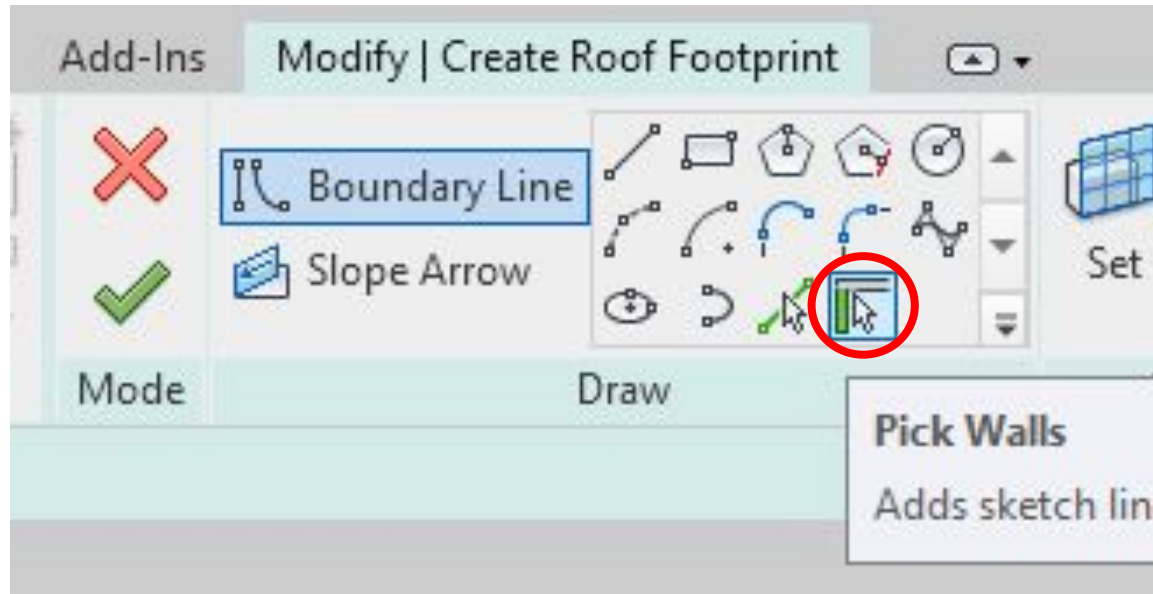


Before drawing the roof, first edit the *Overhang* value

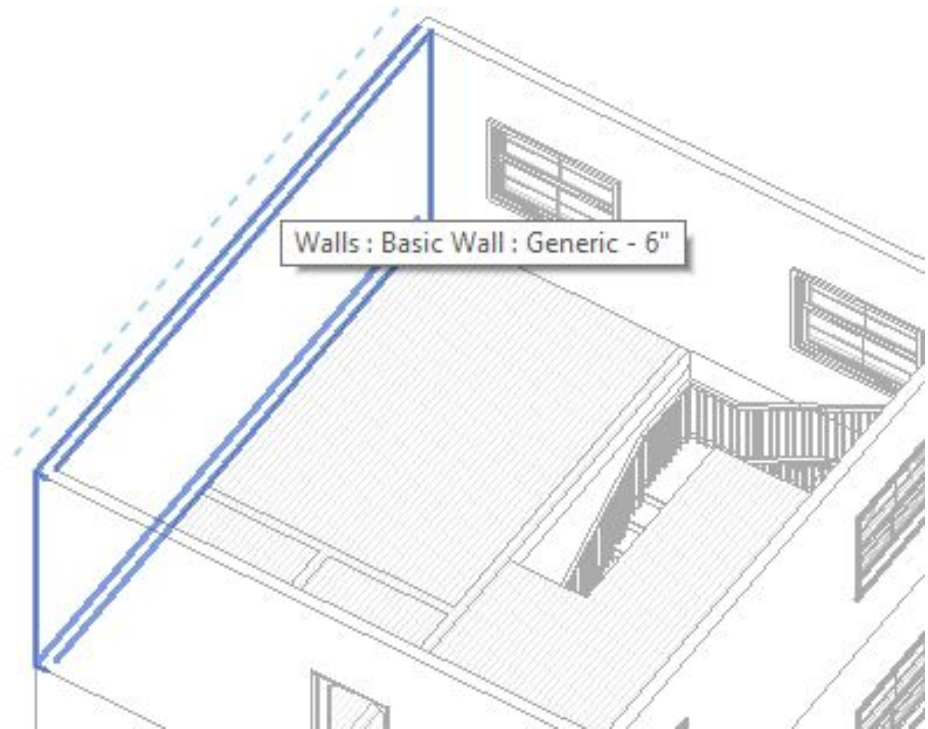


Note*: *1 foot (1')* is the minimum standard residential roof overhang. Leave the other settings as default shown.

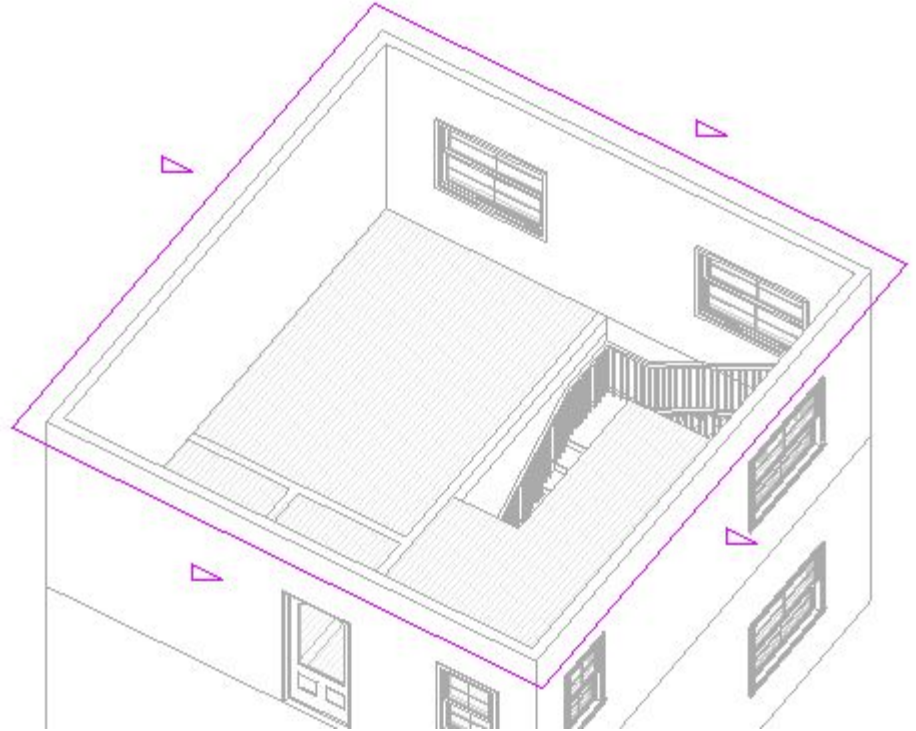
Now, use the default *"Pick Walls"* option to begin drawing the roof footprint



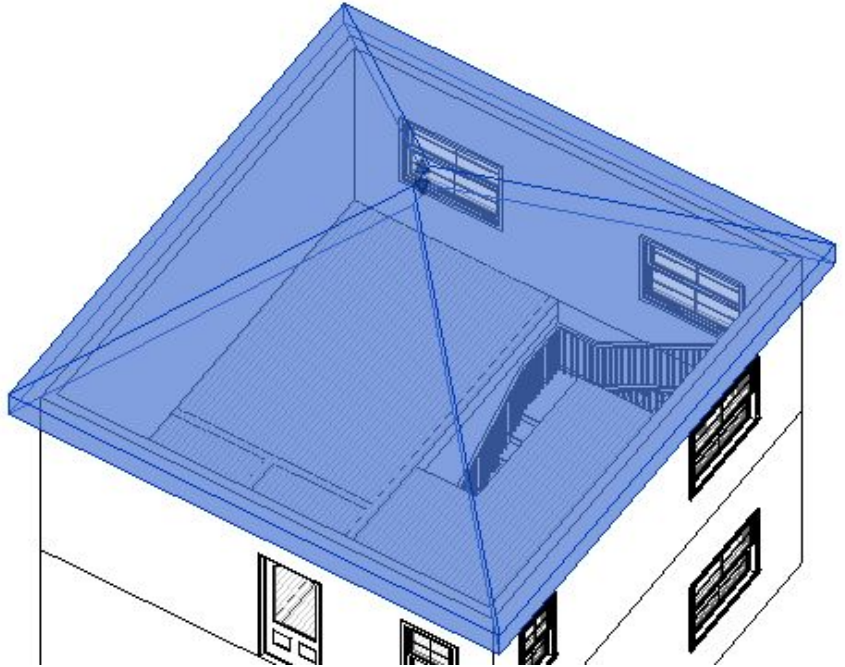
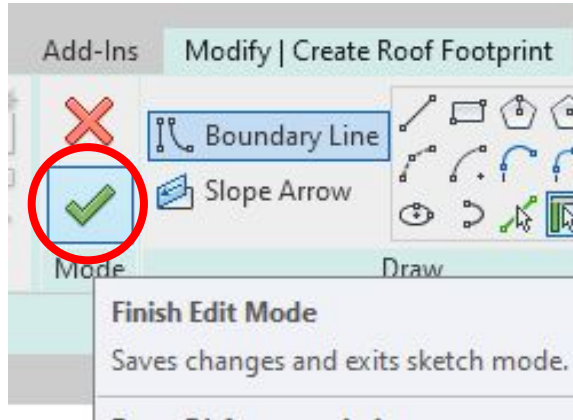
To begin drawing roof footprint, *hover* over the first wall & make sure *overhang* is on the *exterior side* before clicking



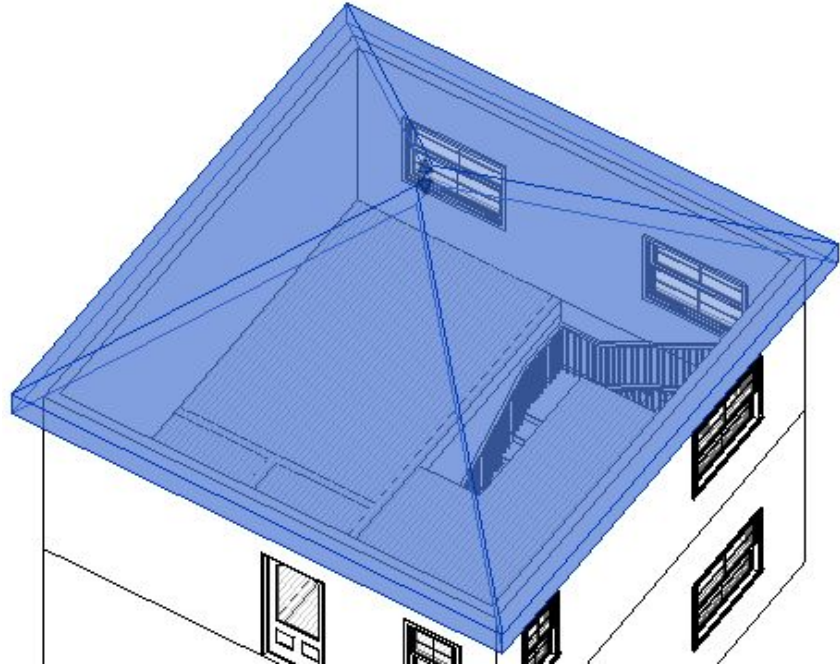
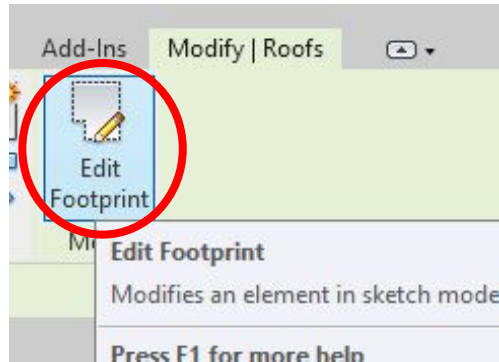
Create the roof footprint with the overhang on the exterior.



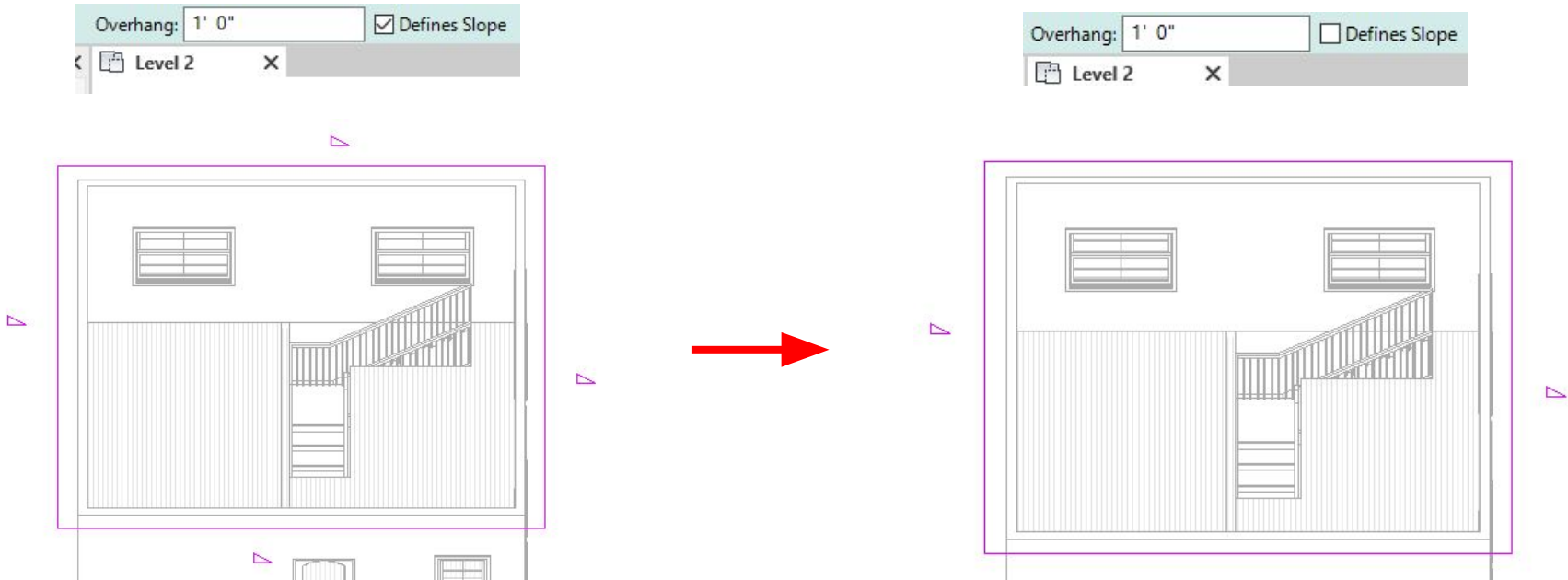
Confirm roof footprint & *View* result



Edit roof boundary by selecting “*Edit Footprint*” while roof is selected

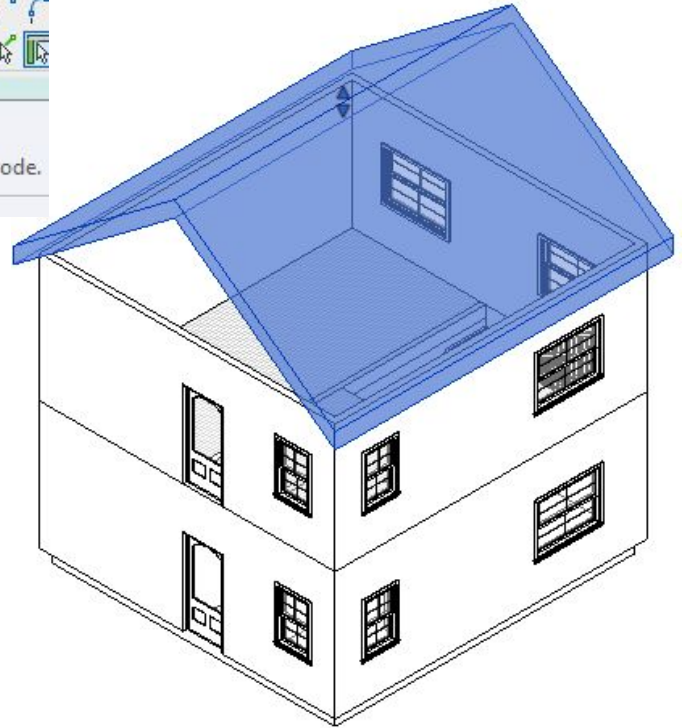
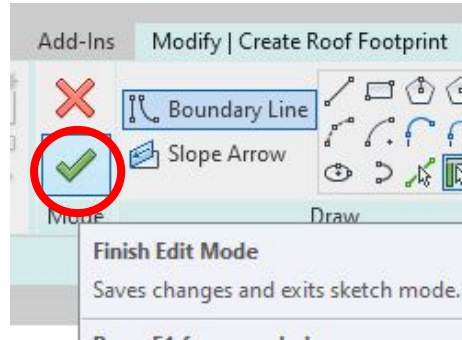


Select top & bottom roof boundary & Uncheck "Defines Slope"



Note*: Notice how the "right triangle" disappears from the top and bottom when the "defines slope" is unchecked. *Each side needs to be selected and unchecked individually.*

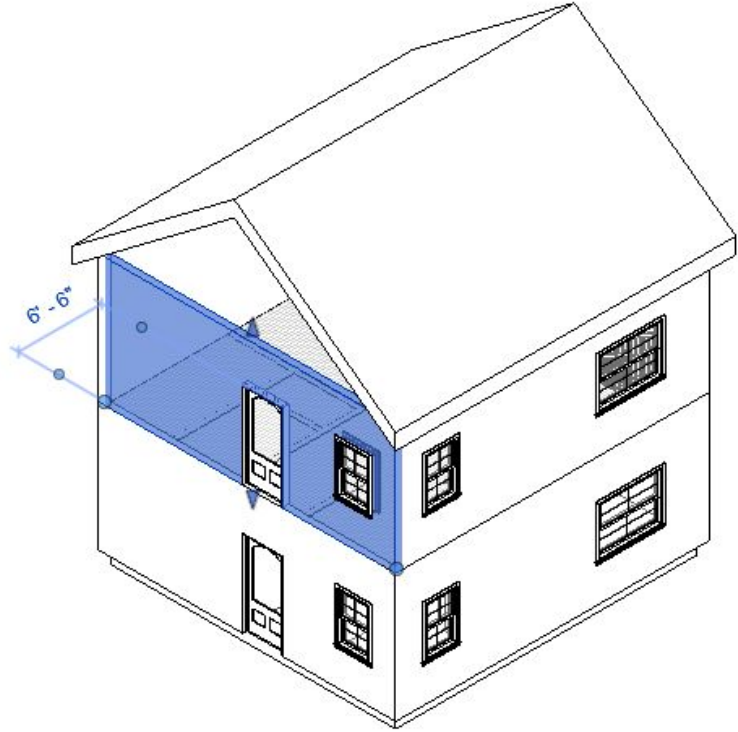
Confirm
changes
by clicking
checkmark
& view new
roof



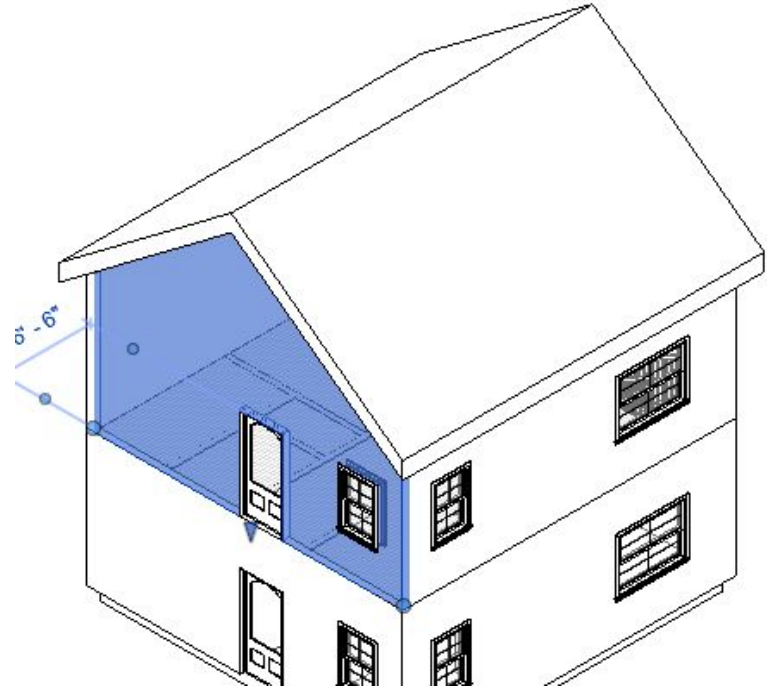
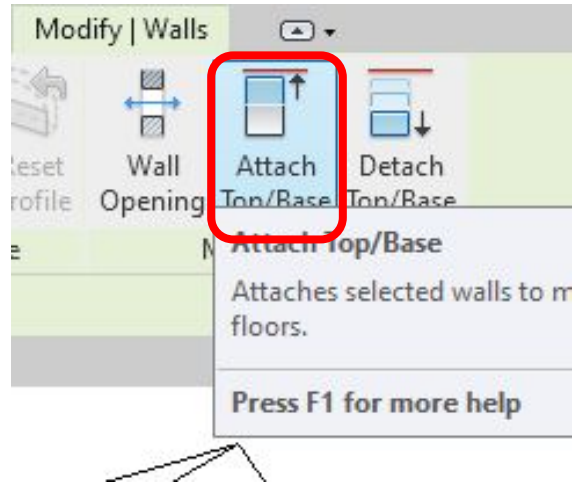
Attaching Walls to the Roof

(You don't want gaps between your roof & walls)

Deselect roof
& *select* wall
(at level 2)



Select ***Attach Top/Base*** & select the roof to attach

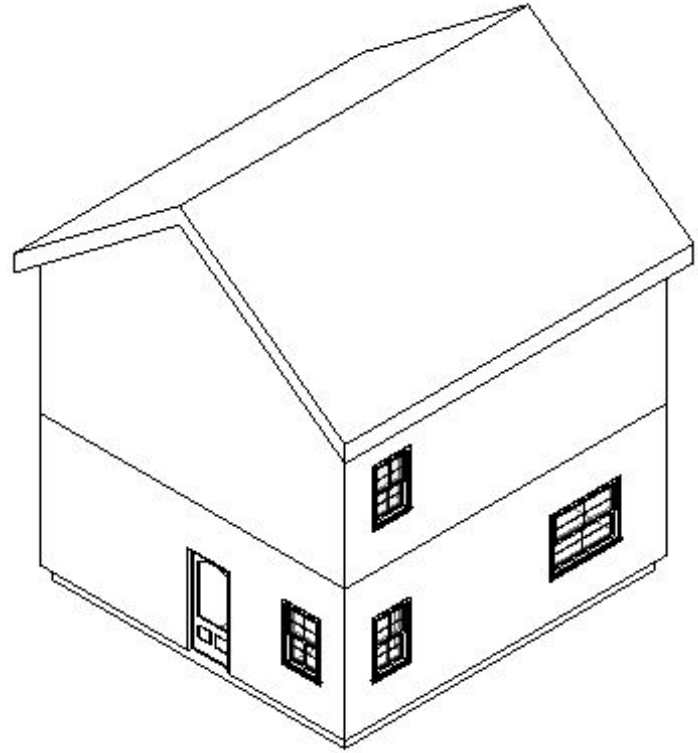


Note*: ***Repeat*** on opposite side.

Removing Unnecessary Elements

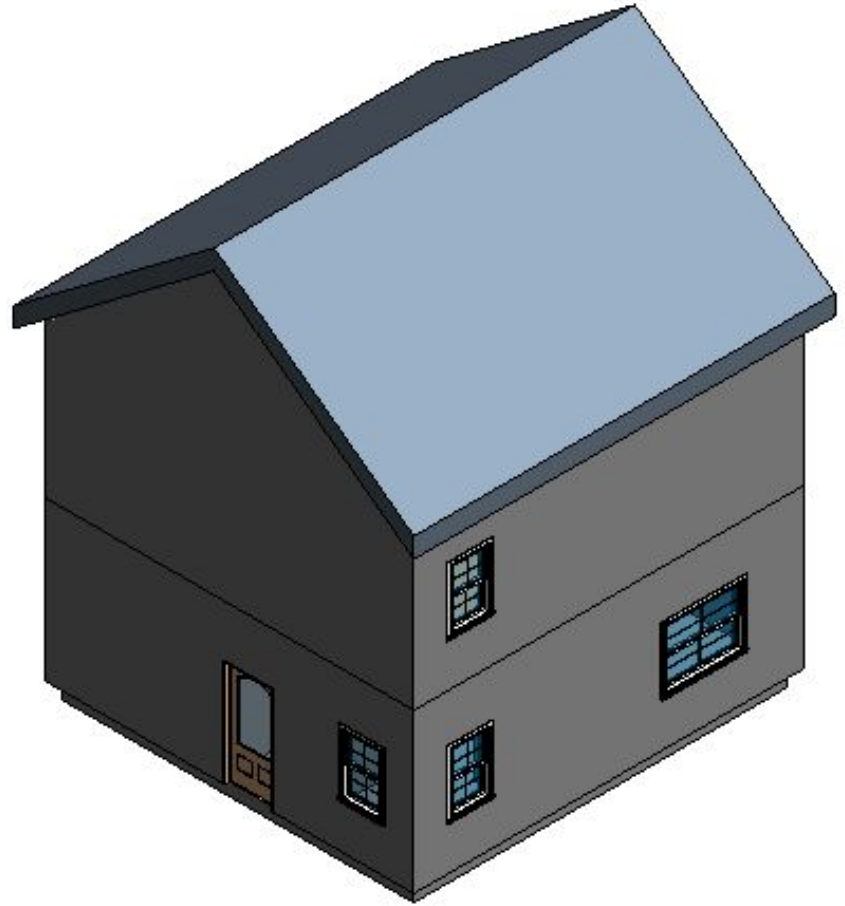
(For example: a door on the second floor is not needed)

Remove Door
by selecting it
& pressing
“Delete”



Note*: *Delete* anything else you want. This is just an example.

Final 3D View:
Shaded



More Resources

- <https://www.revitcity.com/index.php> (download cool furniture here!)
- Go to **YouTube** & **Google** to learn more about Revit!
- forums.autodesk.com/ & knowledge.autodesk.com/ are good sources too