48-749 Parametric Modeling
Lecture 2b

Carnegie Mellon University
School of Architecture

Revit 2011 Basics

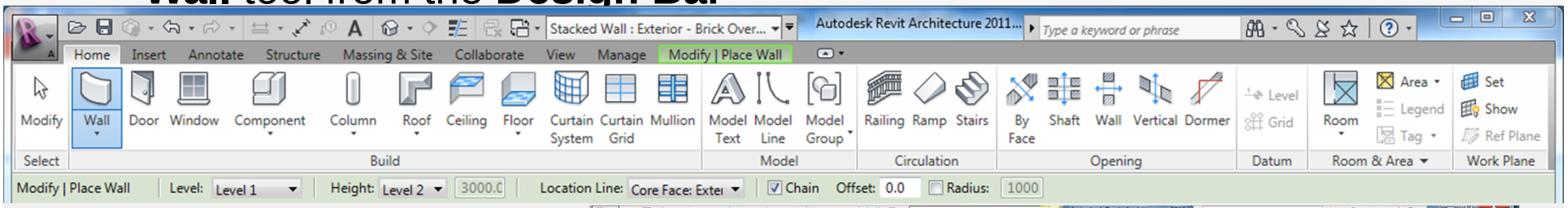
- Walls
- Modeling with Sketch based techniques
  - using sweep and extrusion
- Doors, windows
- Floors, roofs
- Miscellaneous Functions

Wall Types

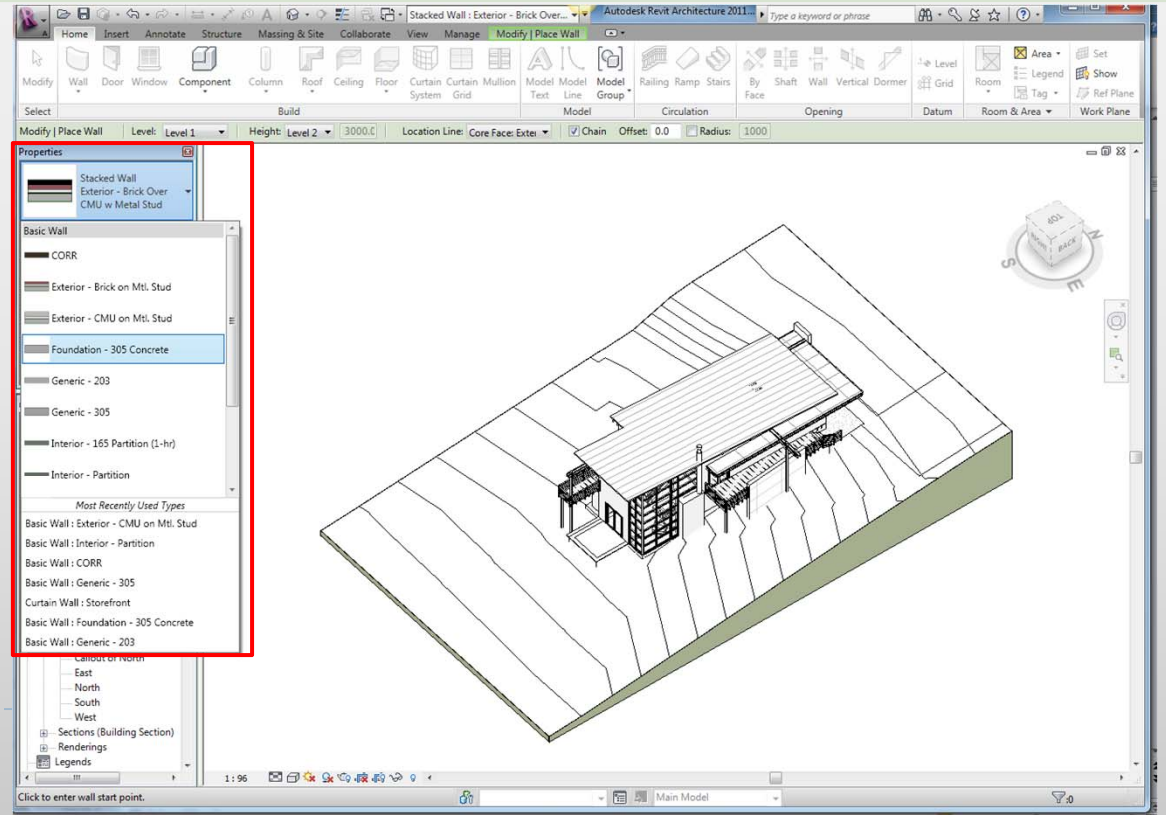
- Basic Walls
  - Exterior walls
  - Generic walls
  - Interior walls
  - Foundation walls
- Curtain Walls
  - predefined curtain walls or screen walls consisting of panels and mullions
- Stacked Walls
  - Can define layers of walls for example “Brick over CMU with metal studs”

Wall Types

- **Wall tool** Choose Home tab **> Wall** from the menu bar or choose the **Wall** tool from the **Design Bar**

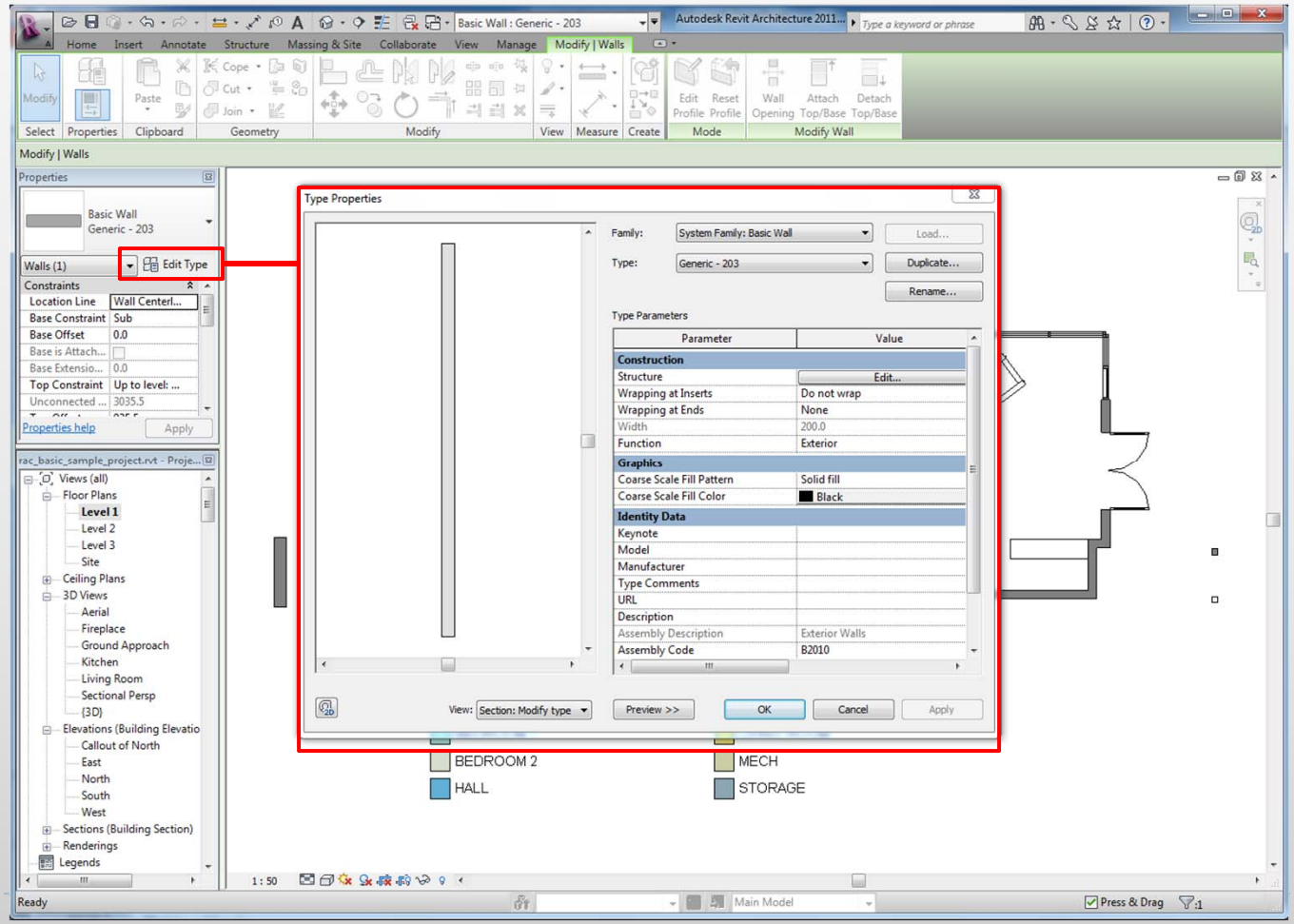


Select from properties



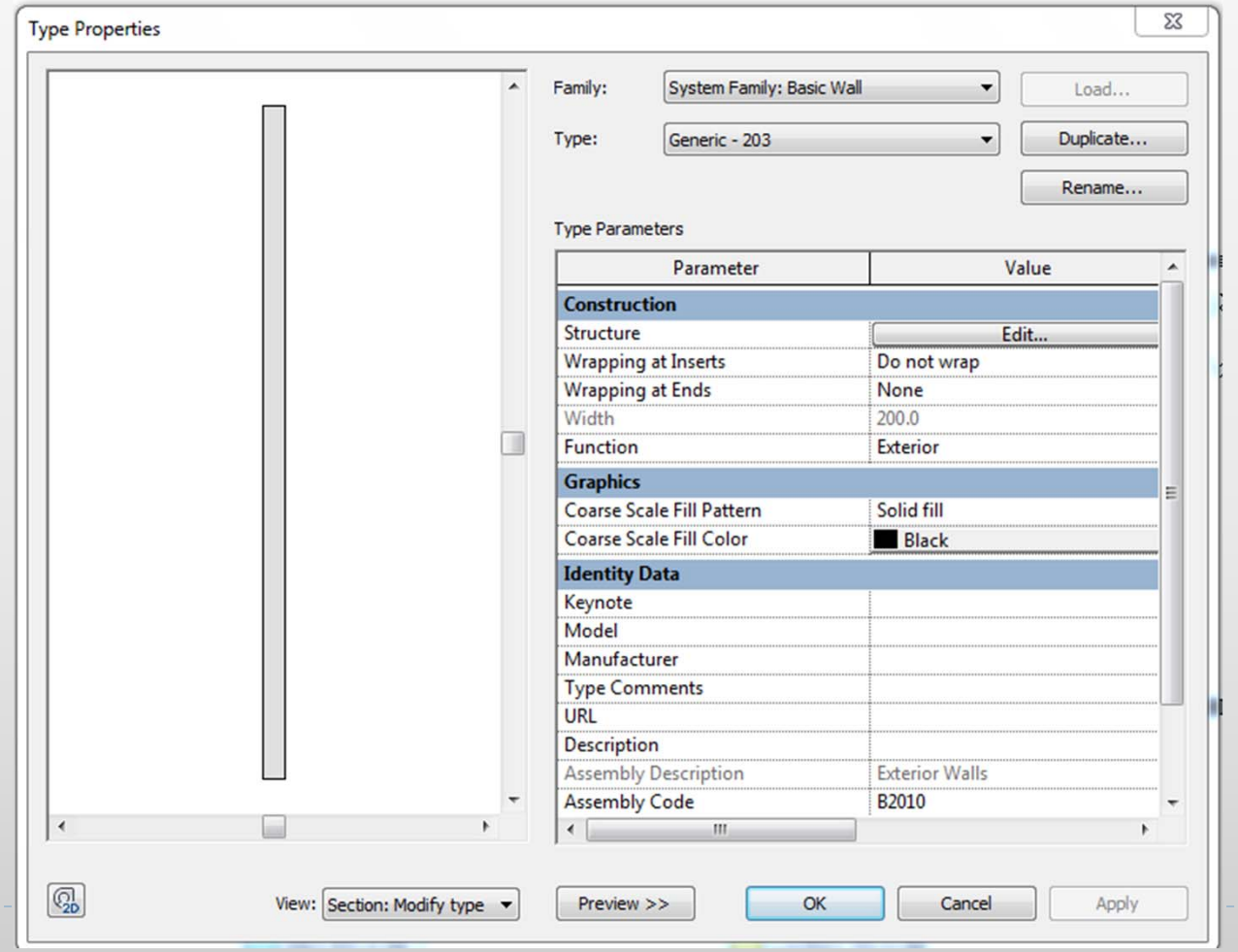
Wall Properties

- The Properties can be seen by clicking edit type

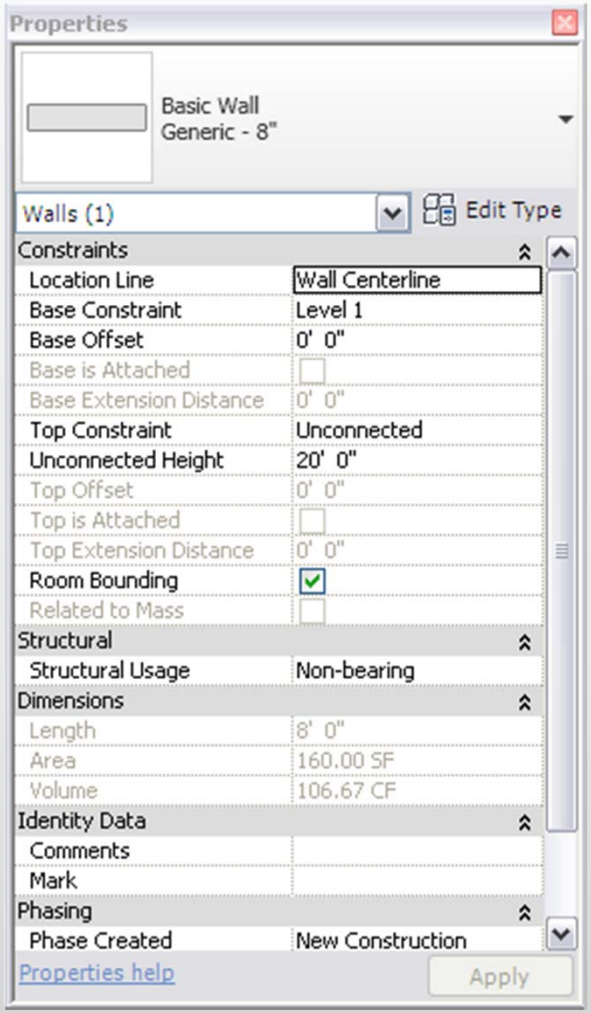


Wall Type Parameters

- To view and modify the type or instance parameters of a wall, change and Apply



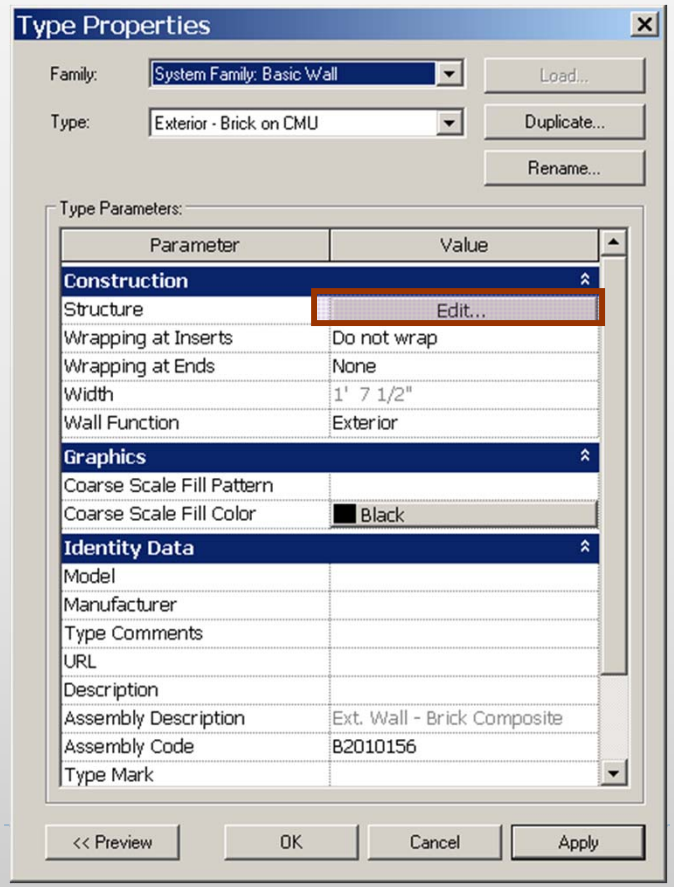
Wall Instant parameters

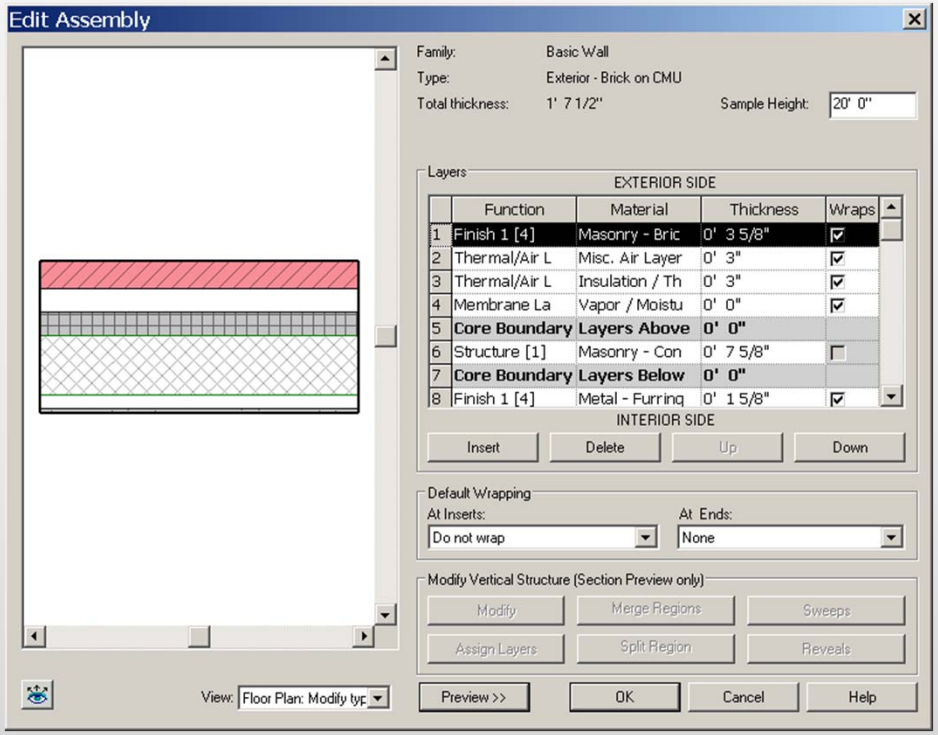


The *Instance Parameters* table in the Element Properties dialog box shows various parameters and their corresponding values the selected wall.

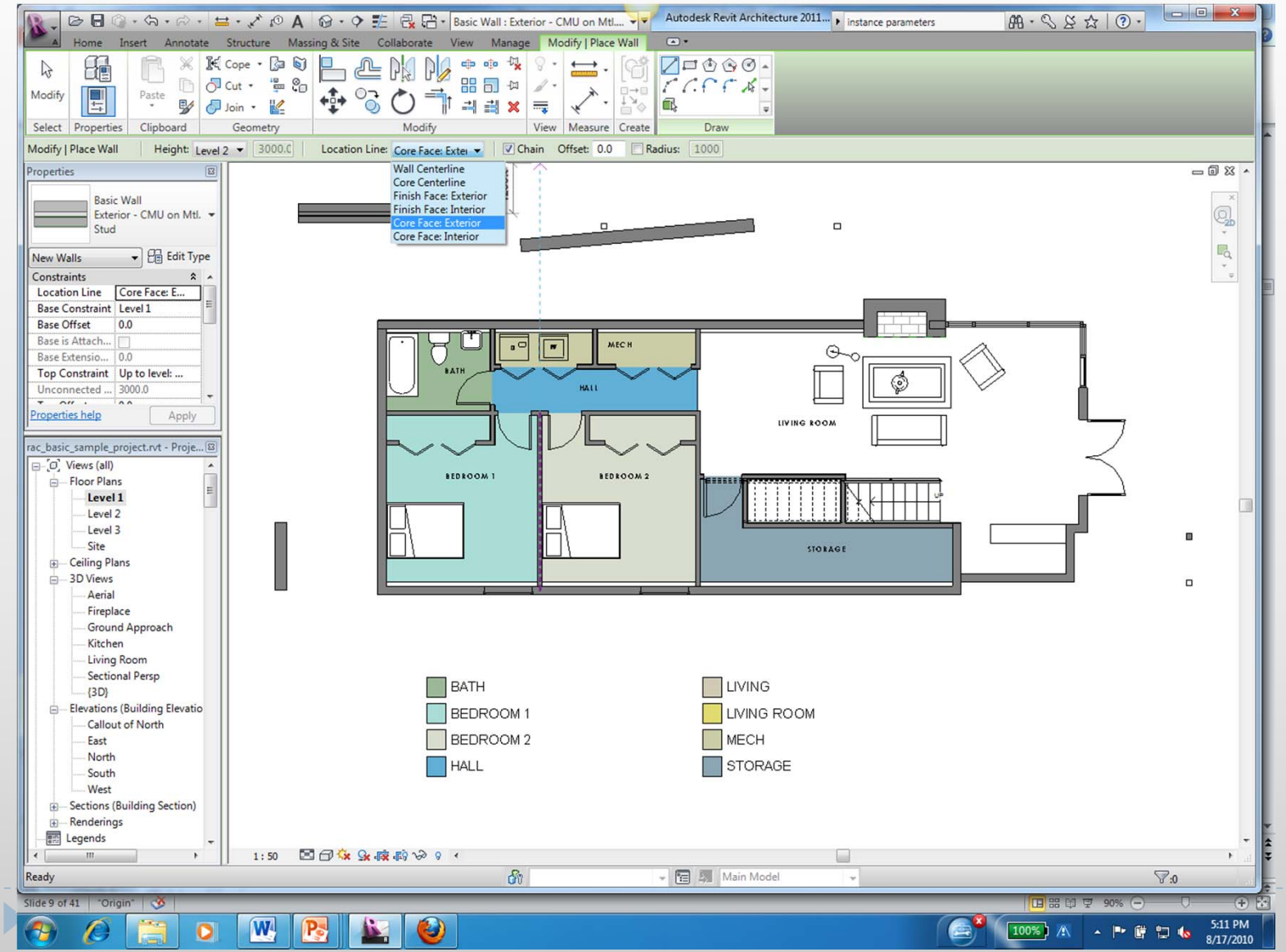
Wall Assemblies

- Walls are comprised of layers of material
- it can be seen by Preview on in the Edit Assembly dialog box to view the graphical representation of the layers

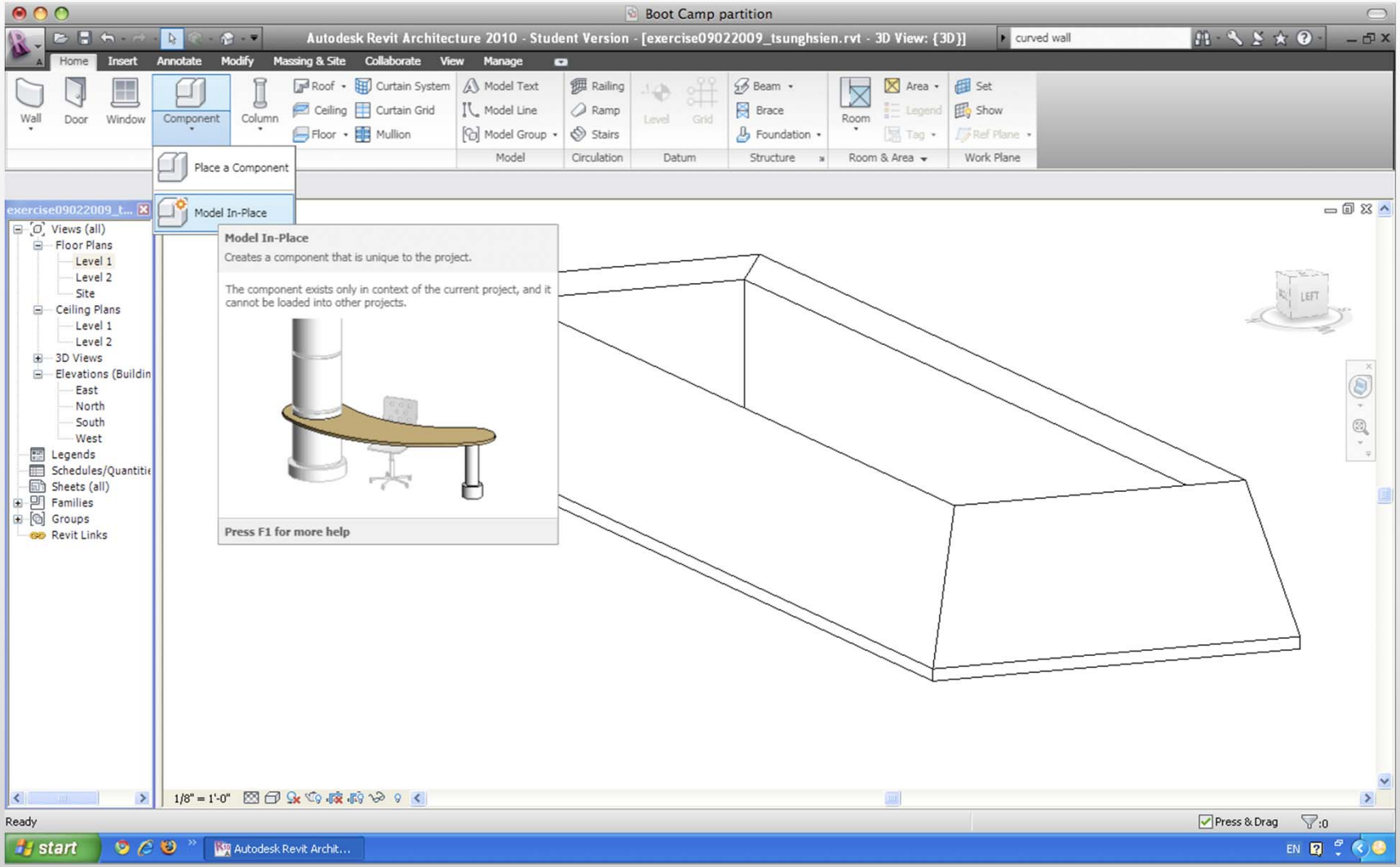




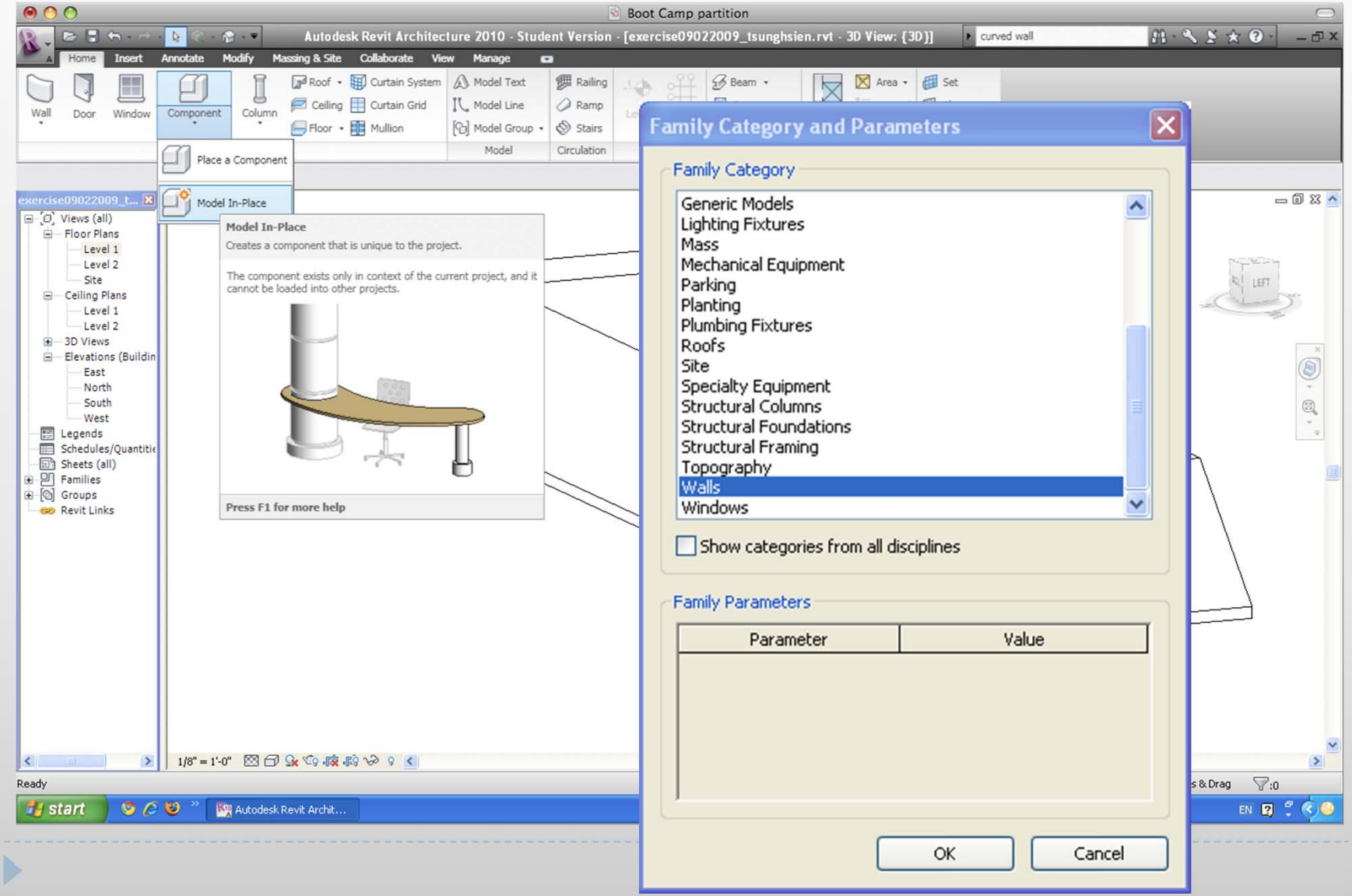
Sketching Walls



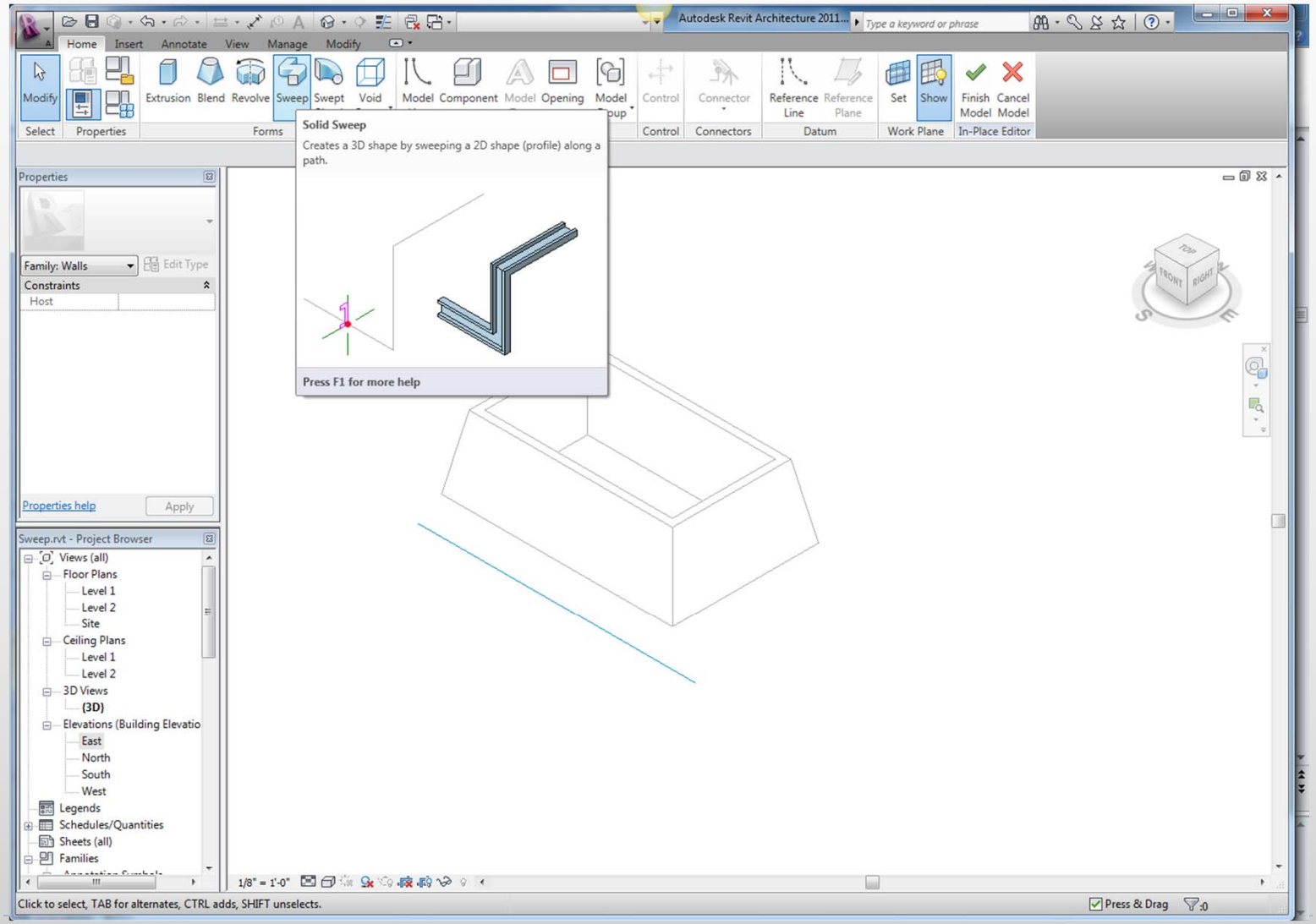
Sketching using sweep(Model In-Place Component)



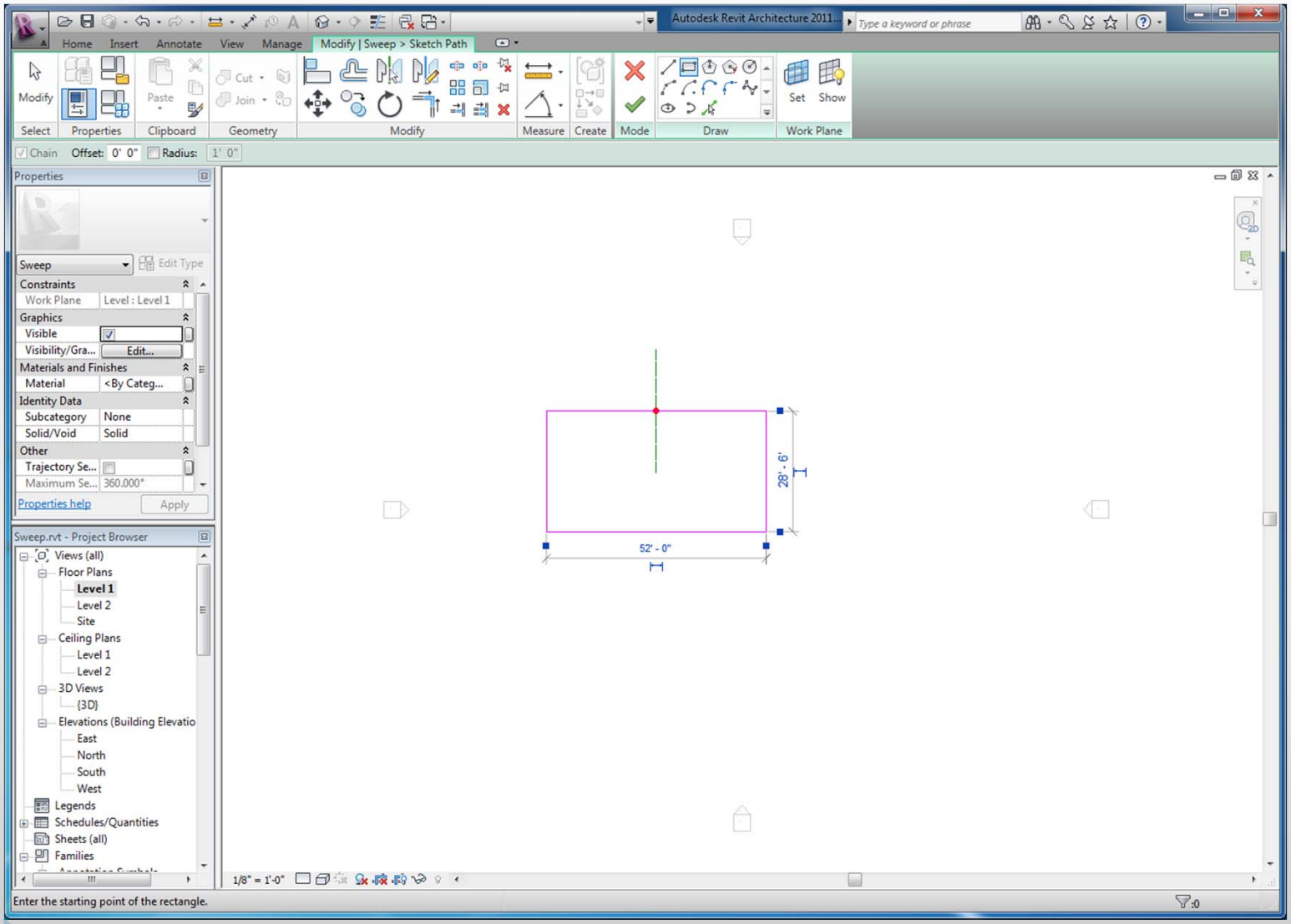
Sketching using sweep
Step 01_Type of Component



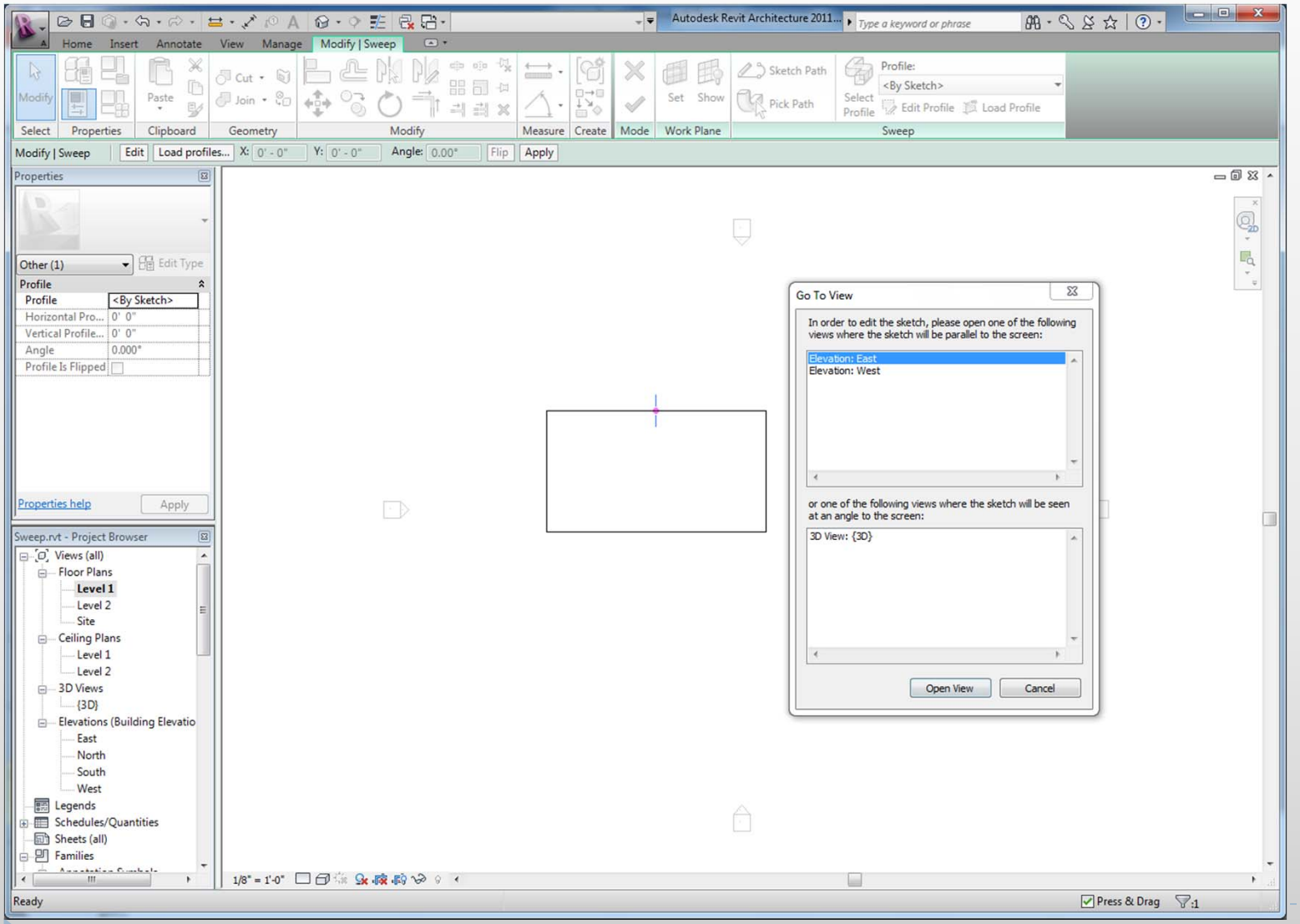
Sketching using sweep
Step 02_Use Sweep to create a solid mass



Sketching using sweep
Step 03_Pick/draw the sweep path (plan view)

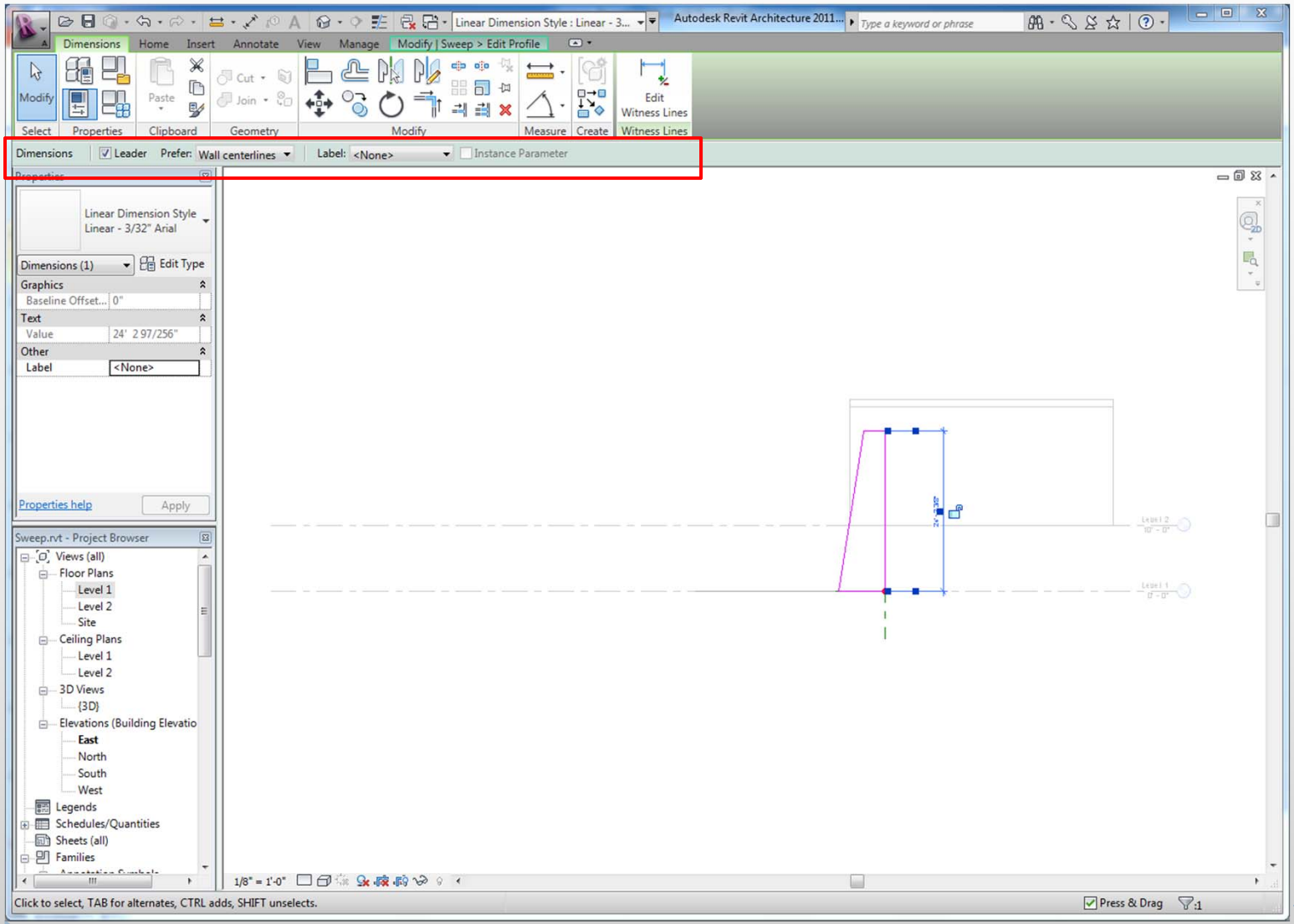


Sketching using sweep
Step 04_select view to draw the profile

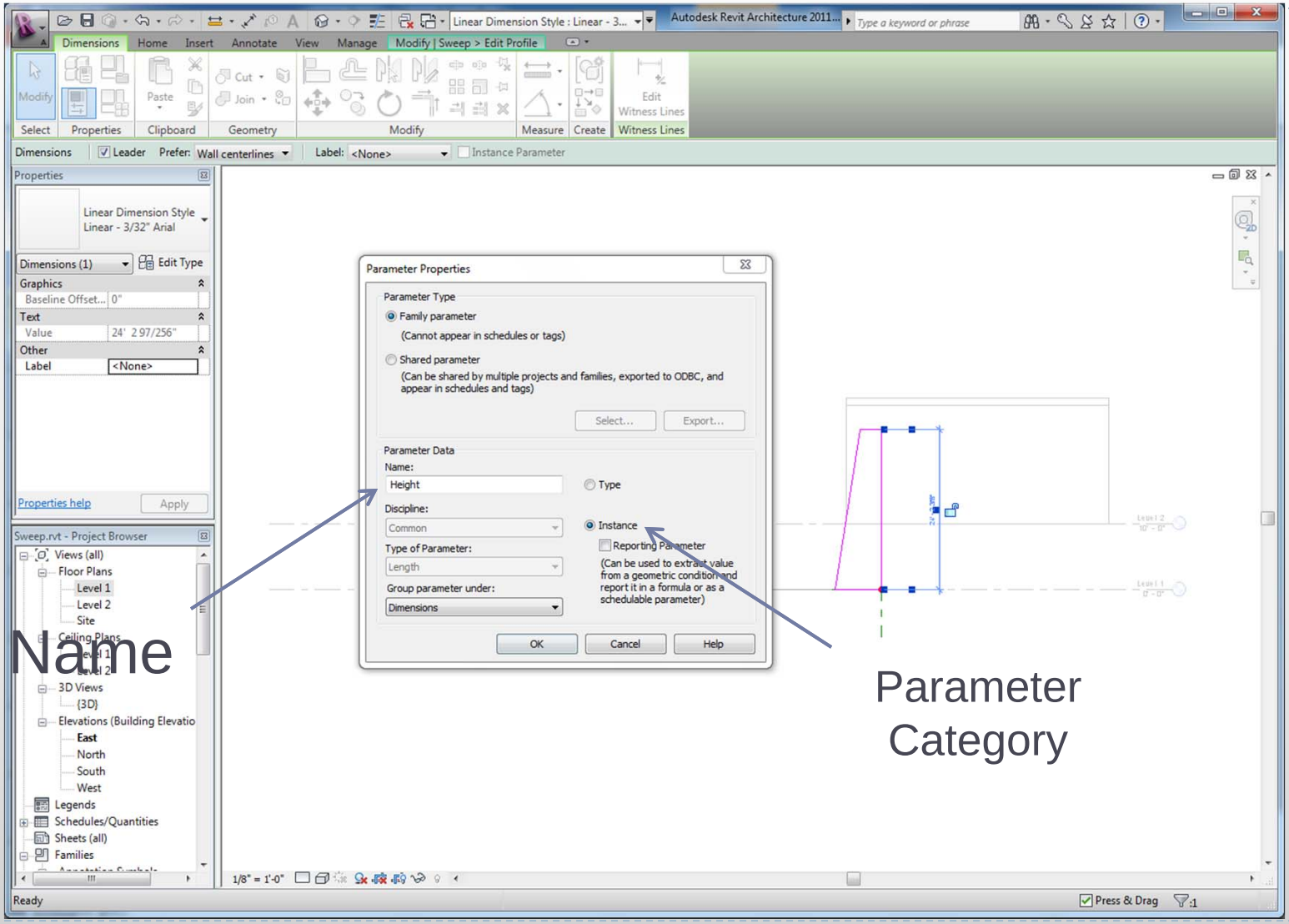


Sketching using sweep

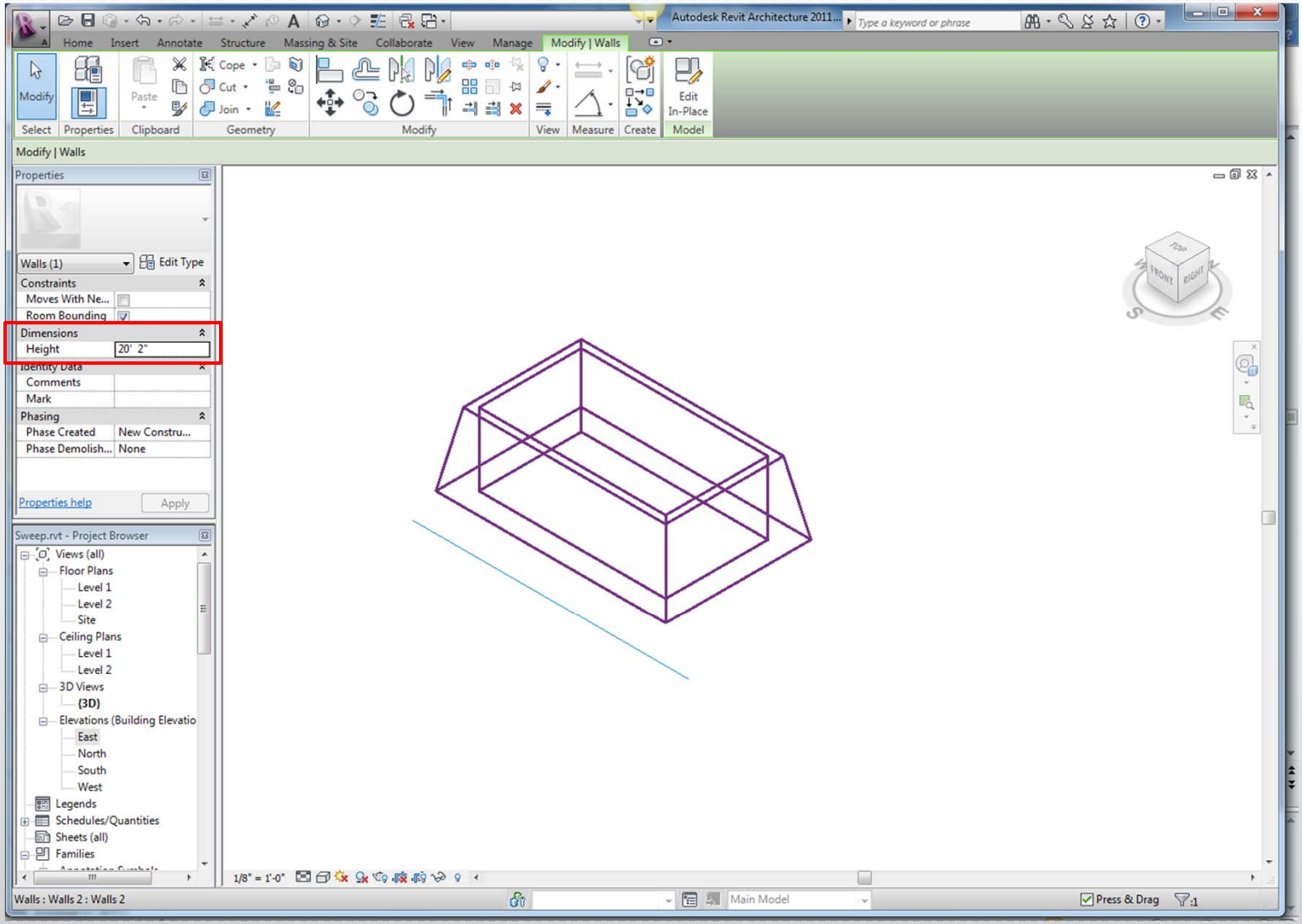
Step 06_ Draw profile and Set up component parameters while in edit mode



Sketching using sweep
Step 06_Add Component parameters

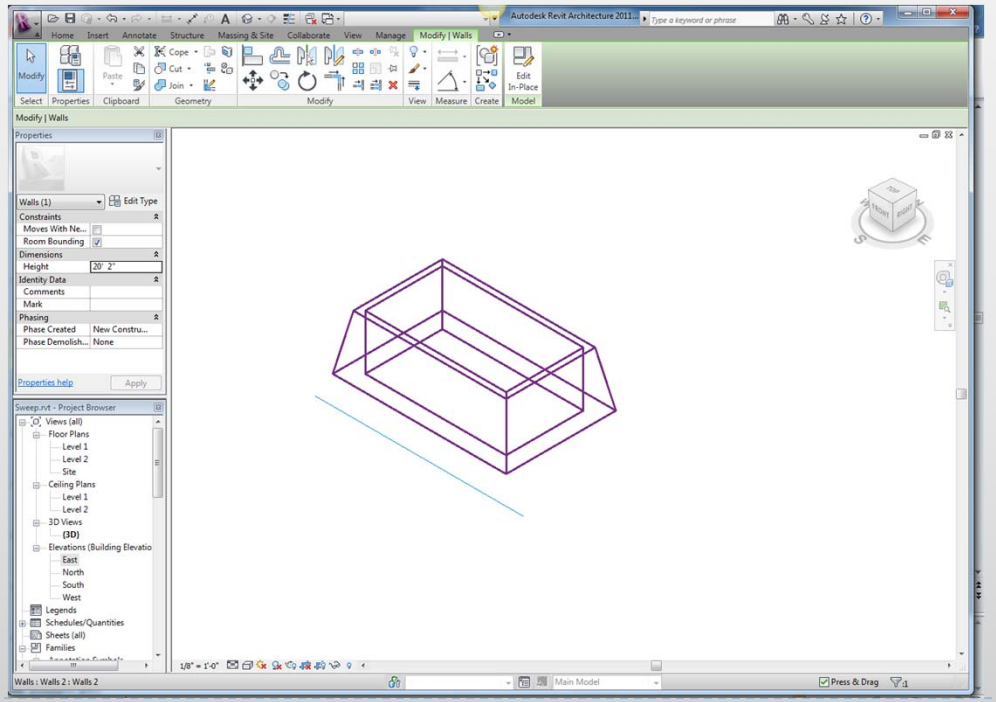


Sketching using sweep
Step 07_Change Component parameter



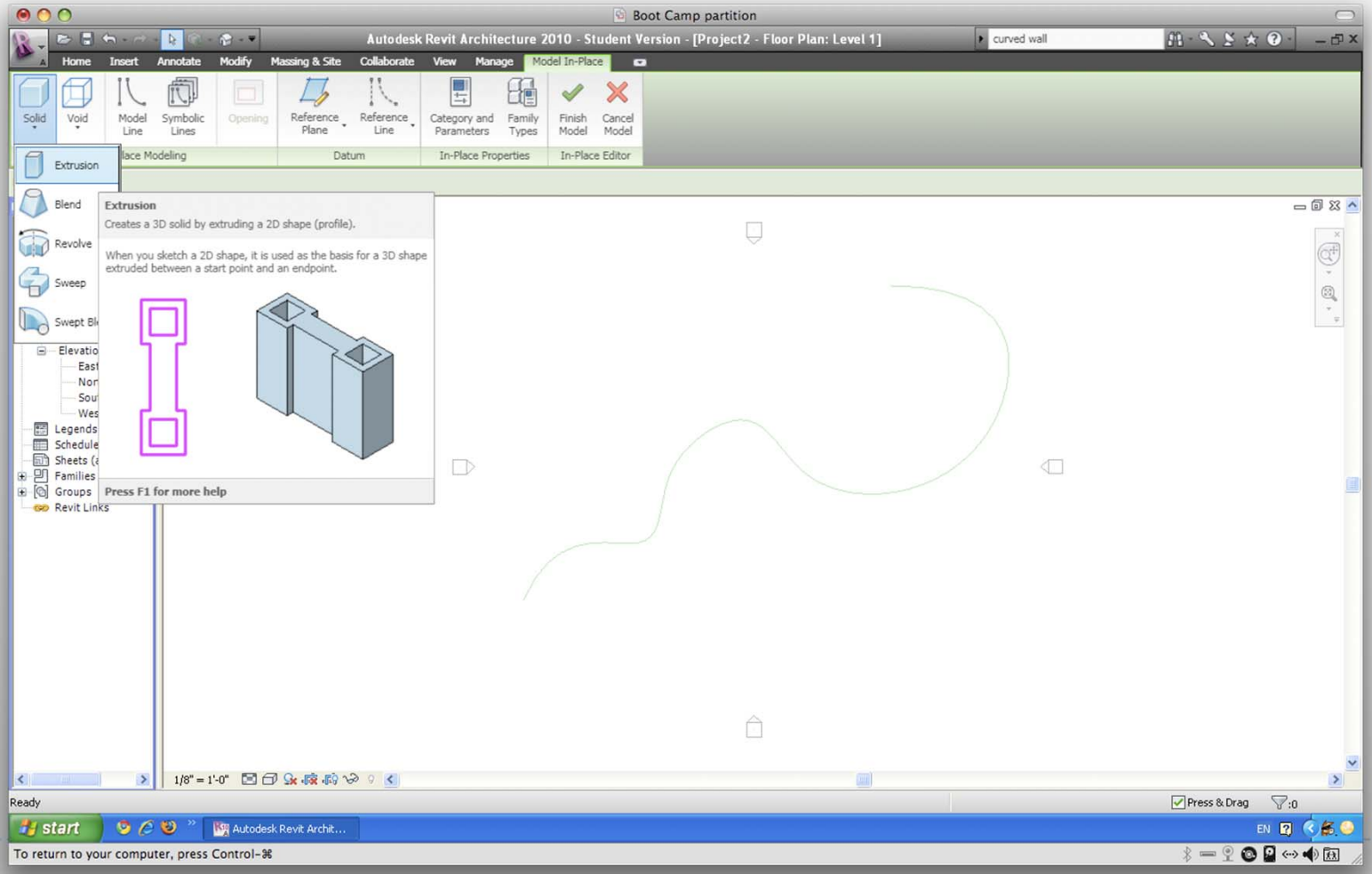
Sketching using sweep
Exercise 1.

- Draw a path and profile using sweep.
- Add parameters: Height and angle

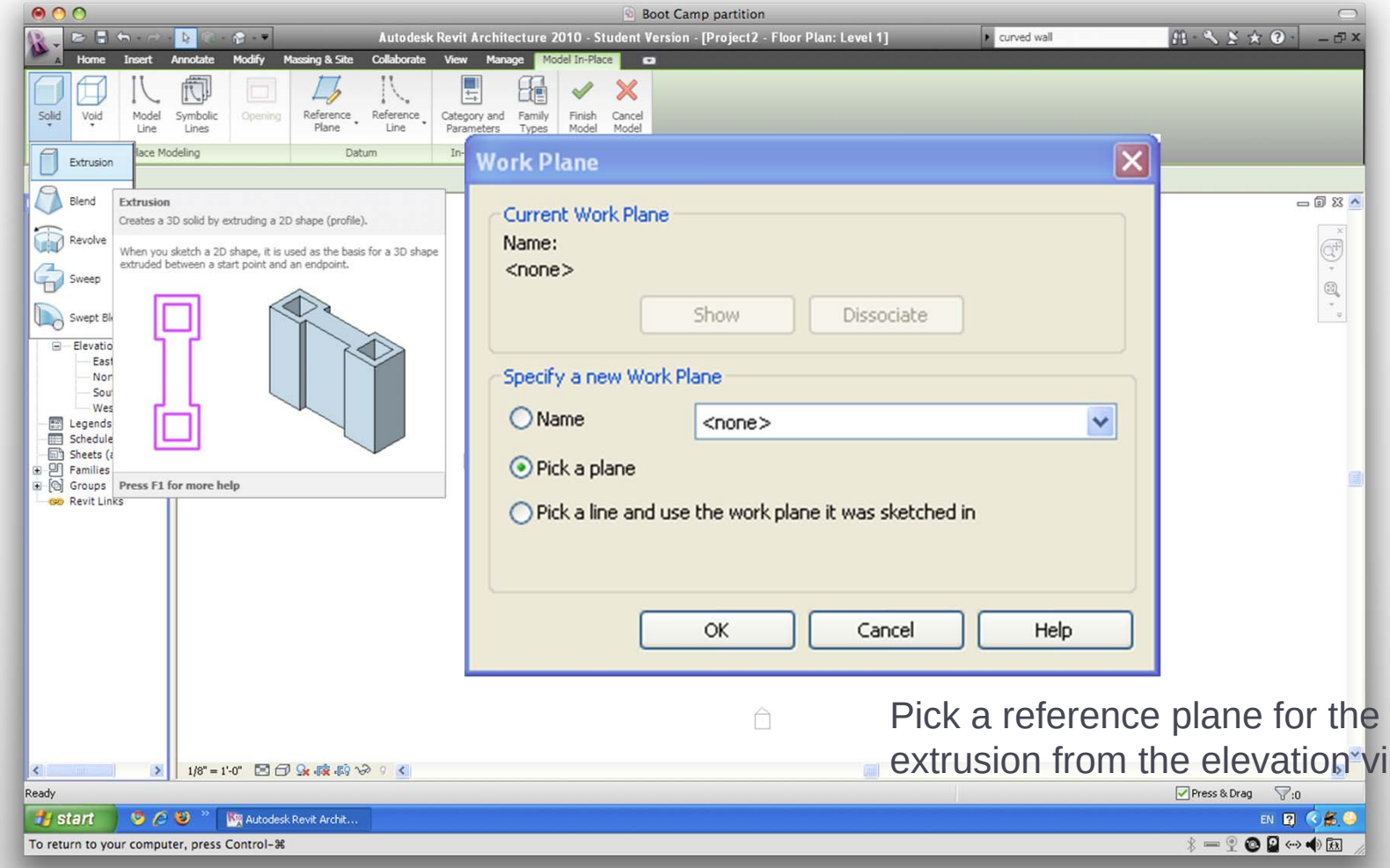


Sketching using extrusion

- Start with Component> Model in-place> Pick a family



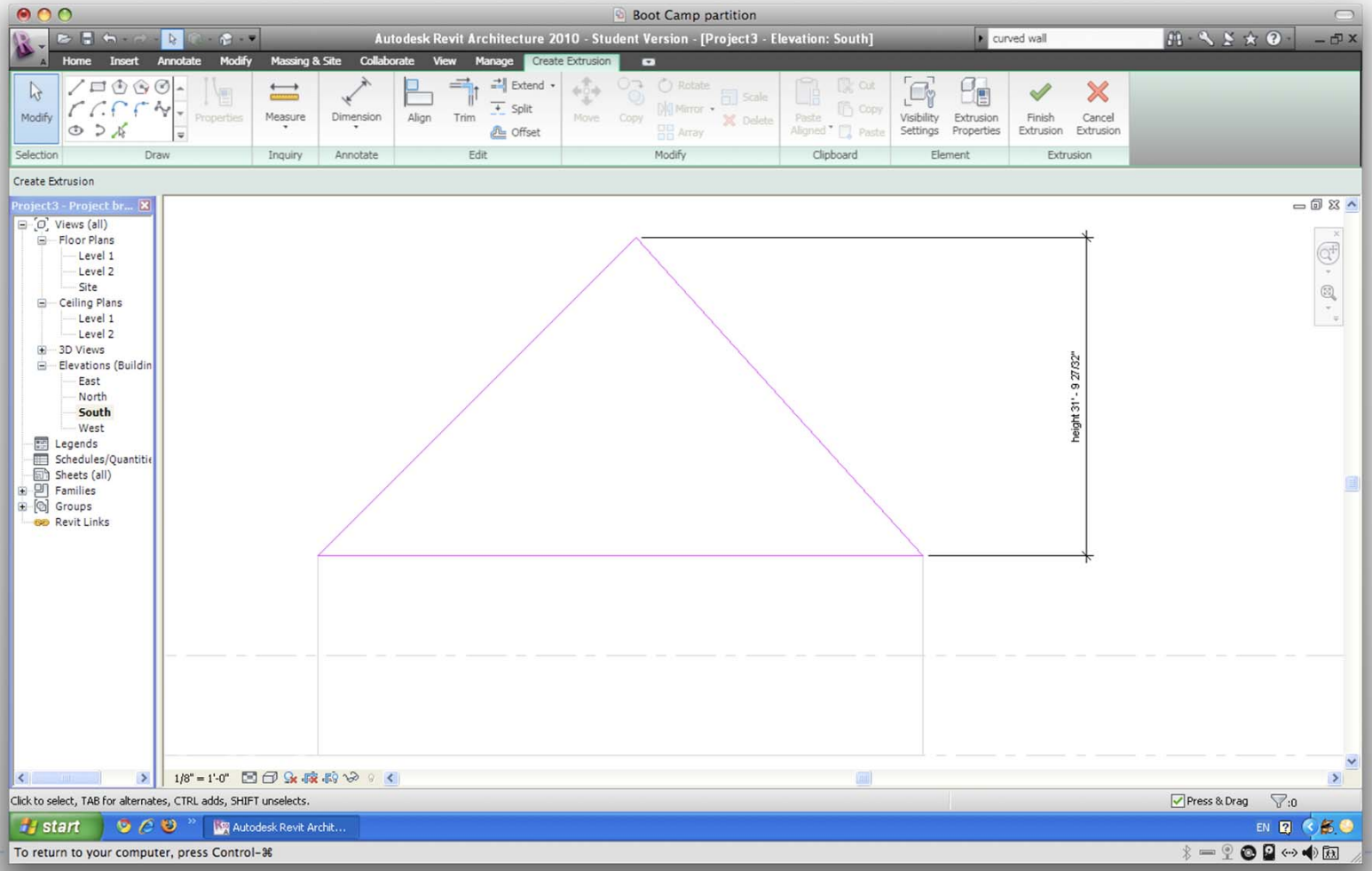
Sketching using extrusion



Pick a reference plane for the extrusion from the elevation view.

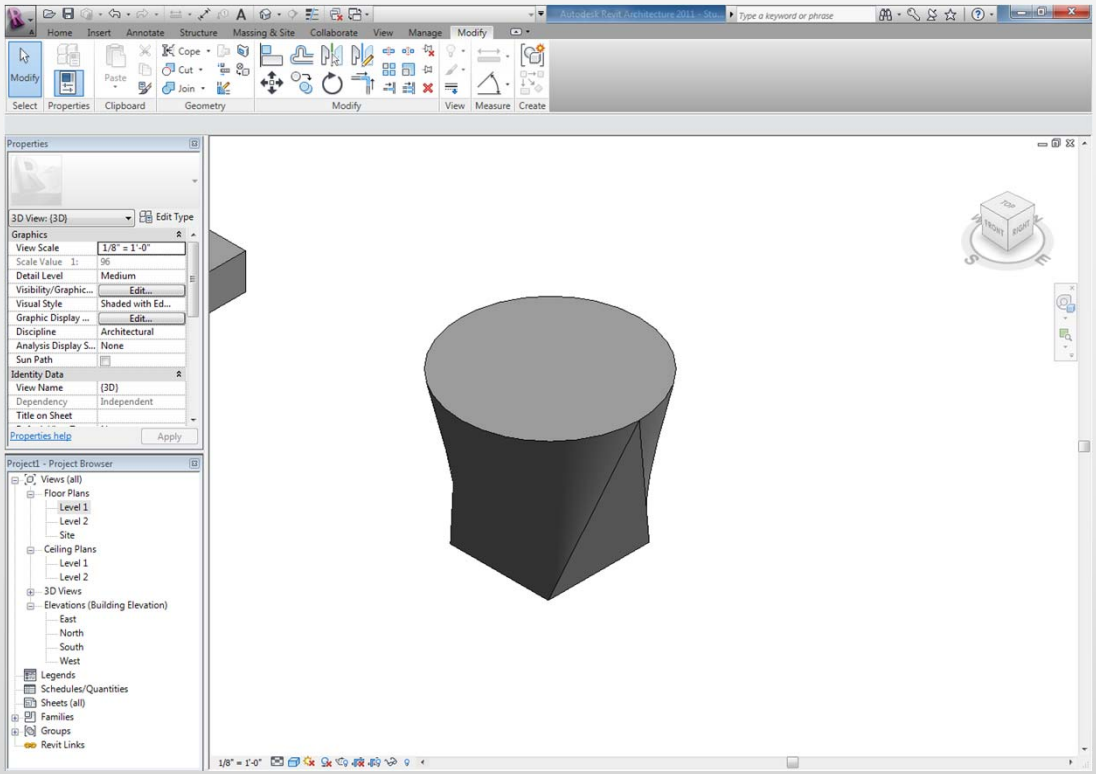
Sketching using extrusion

- Draw the profile and set up parameters, if any



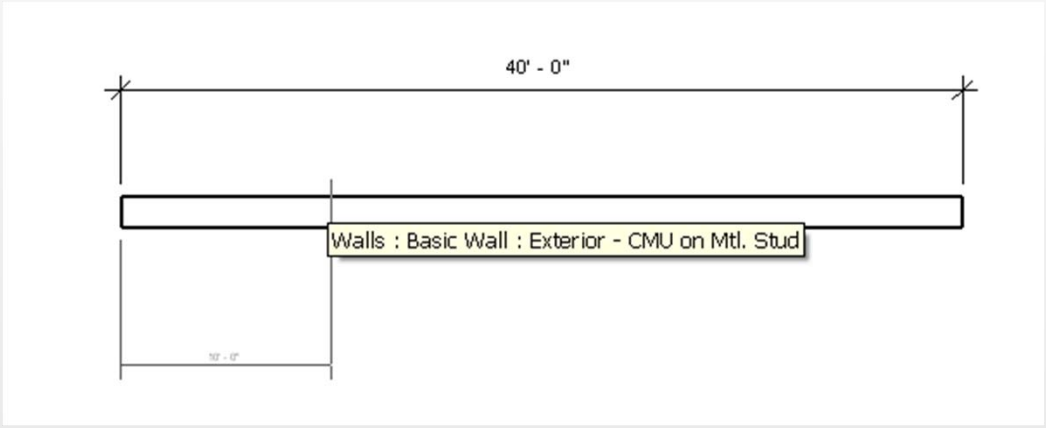
Sketching using Blend
Exercise 2

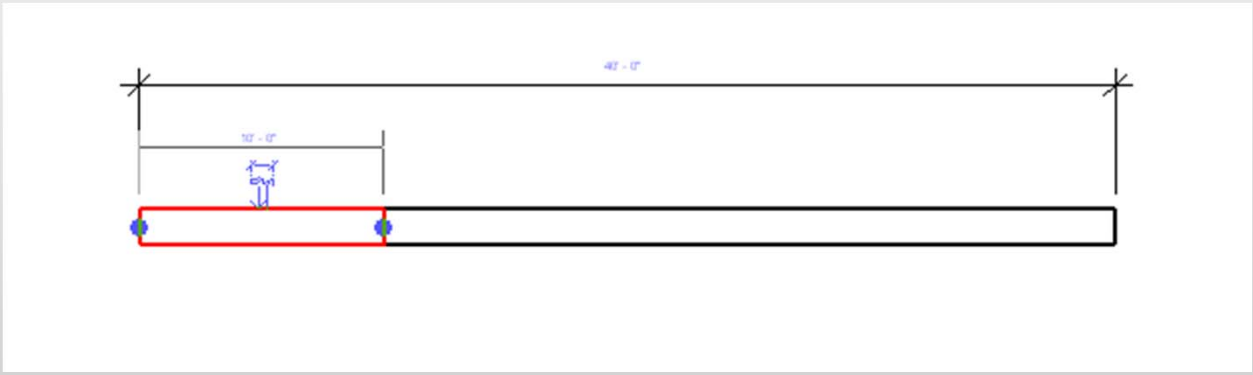
- Create an in-place component using blend.
- Use two different shapes to see the effects



Splitting Walls

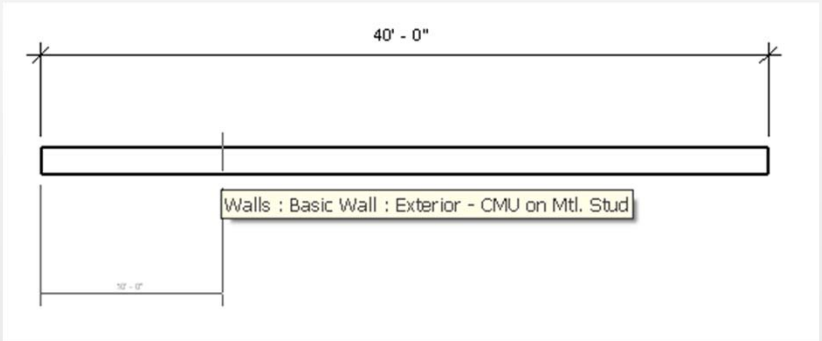
Tools, Split

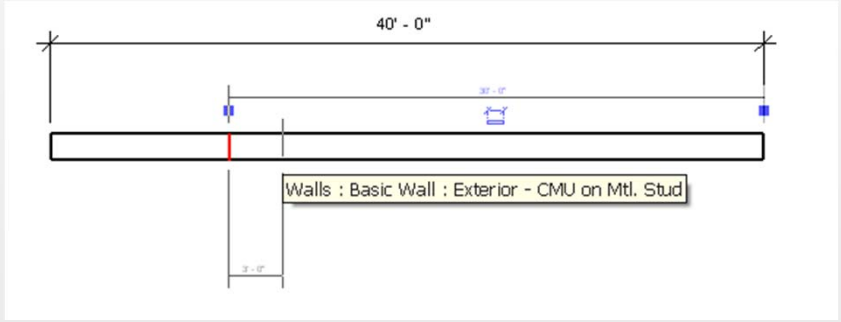


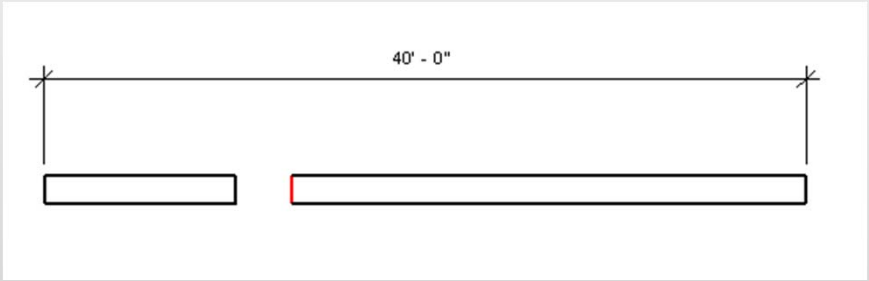


Splitting Walls

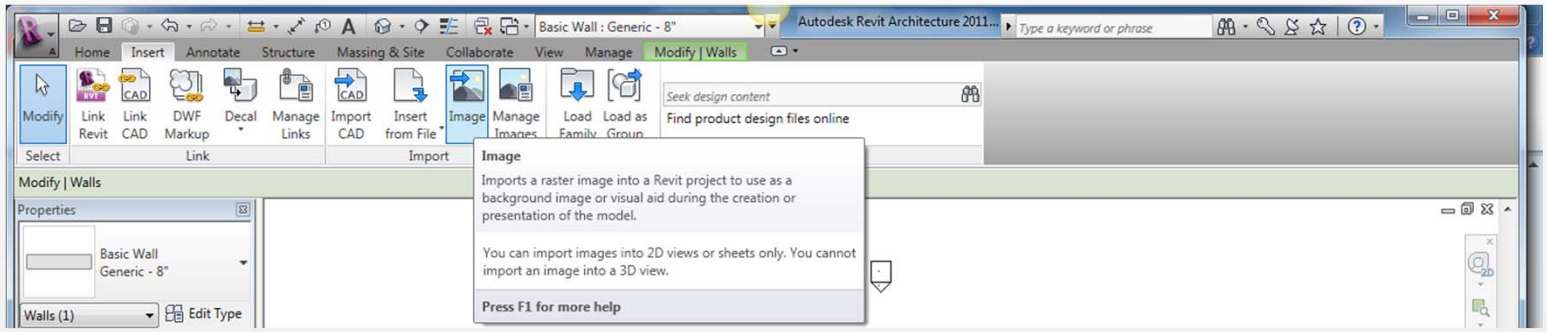
- Openings

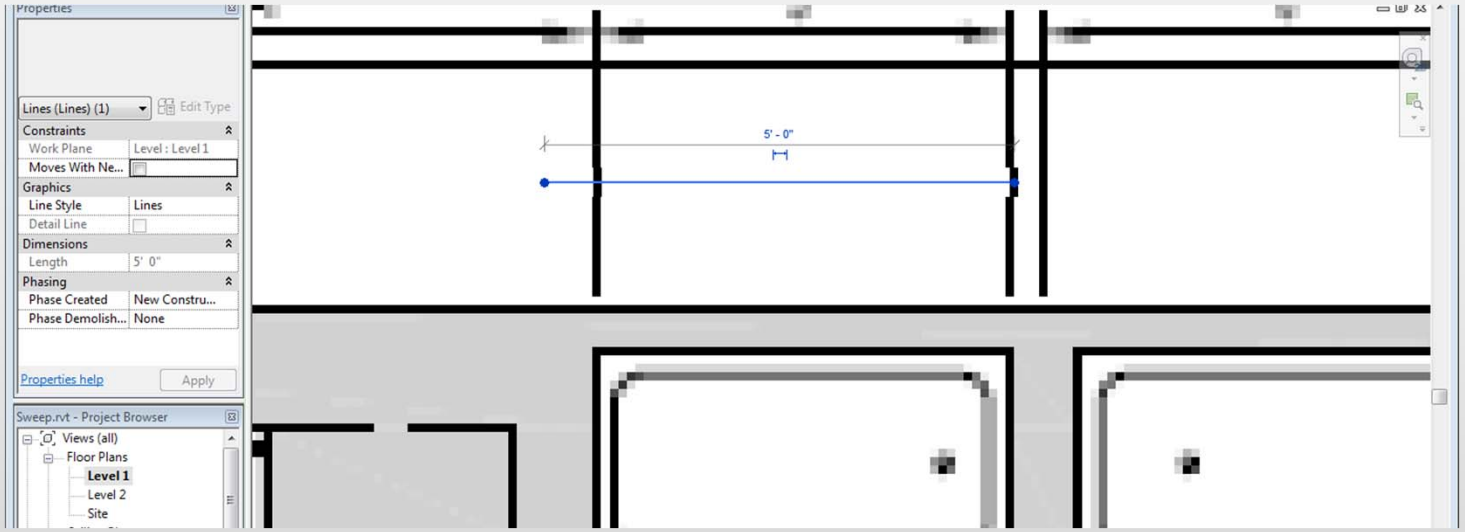






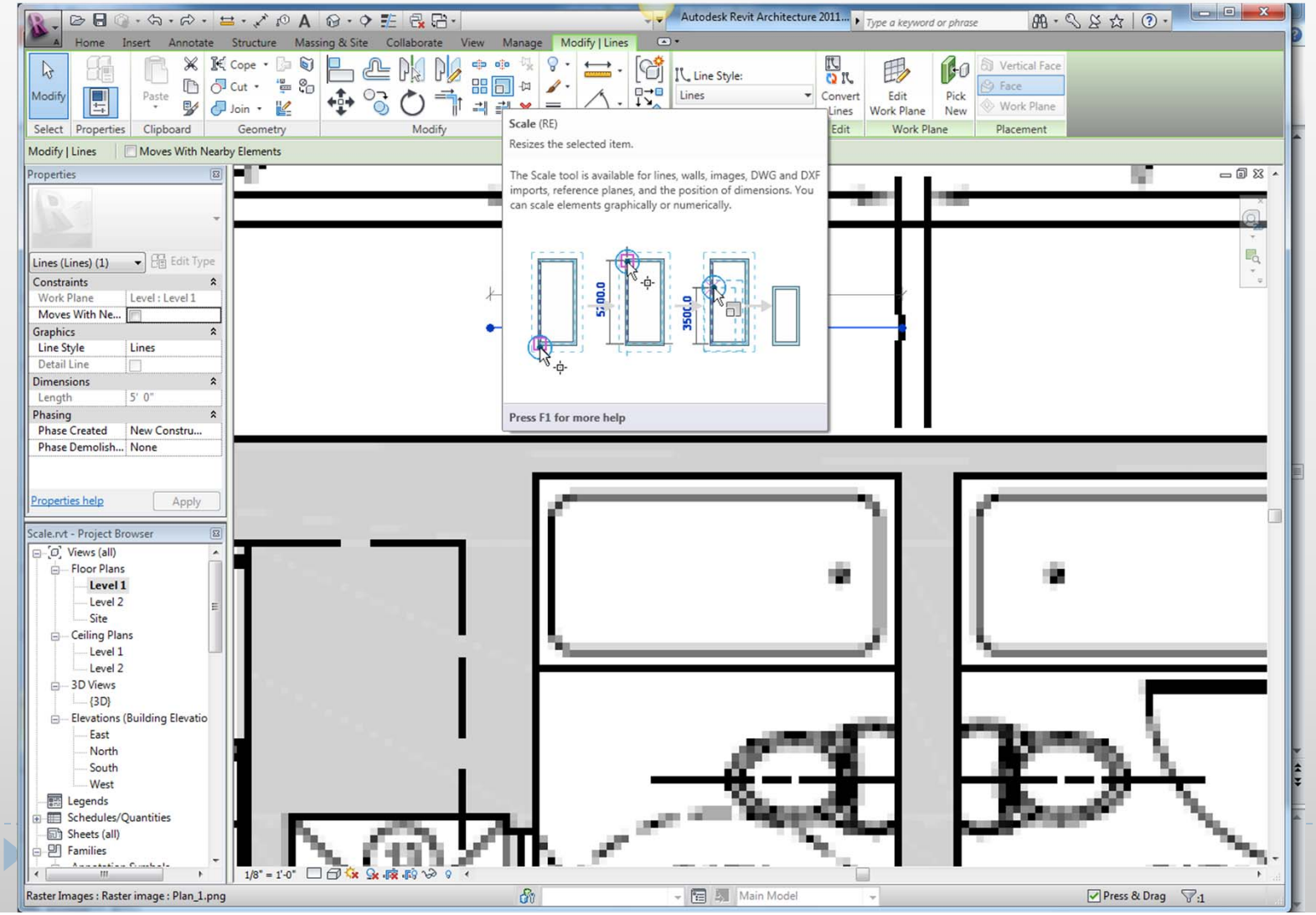
Importing and scaling images:
Insert> Image



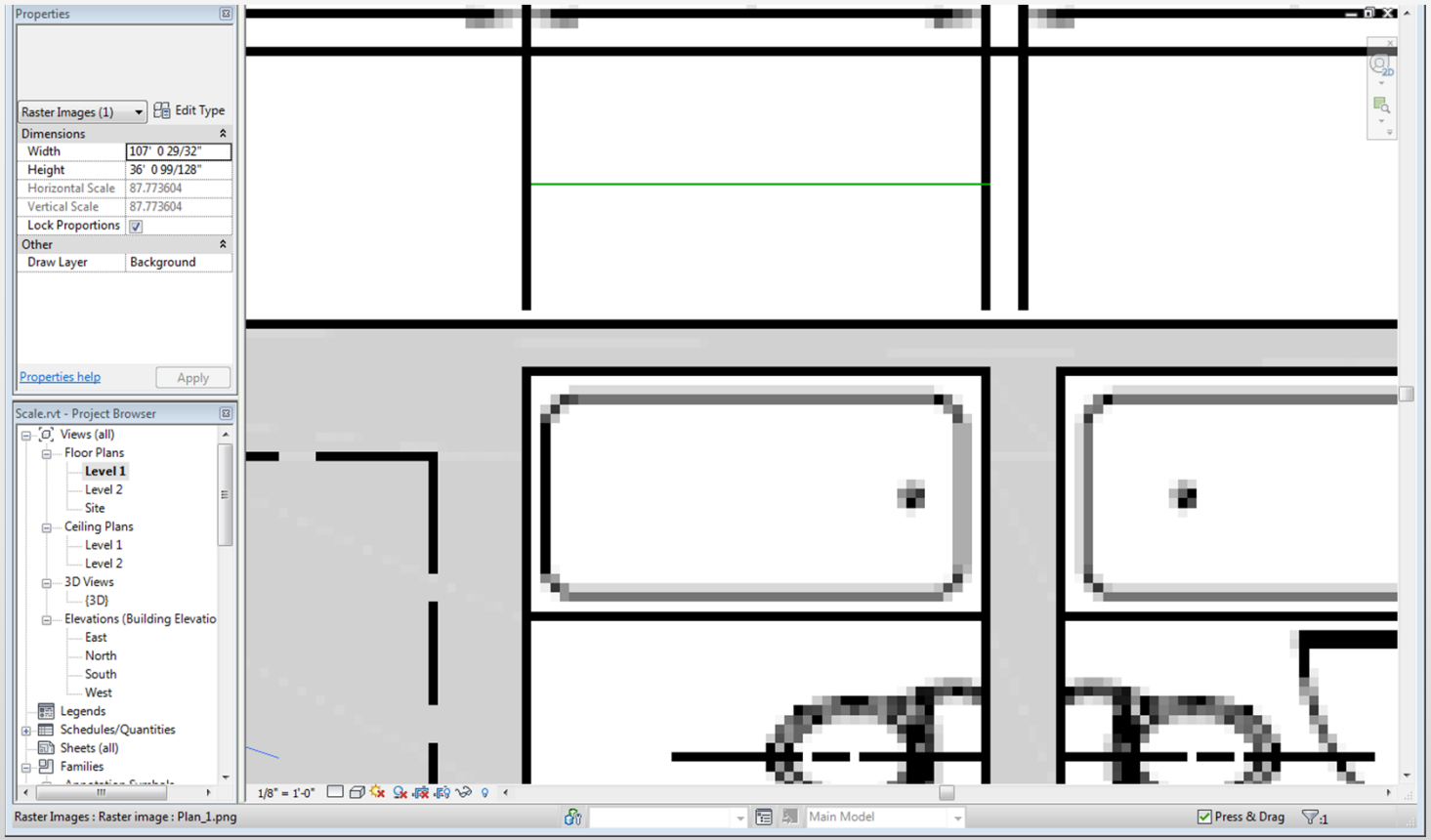


Importing and scaling images

- Modify> Scale

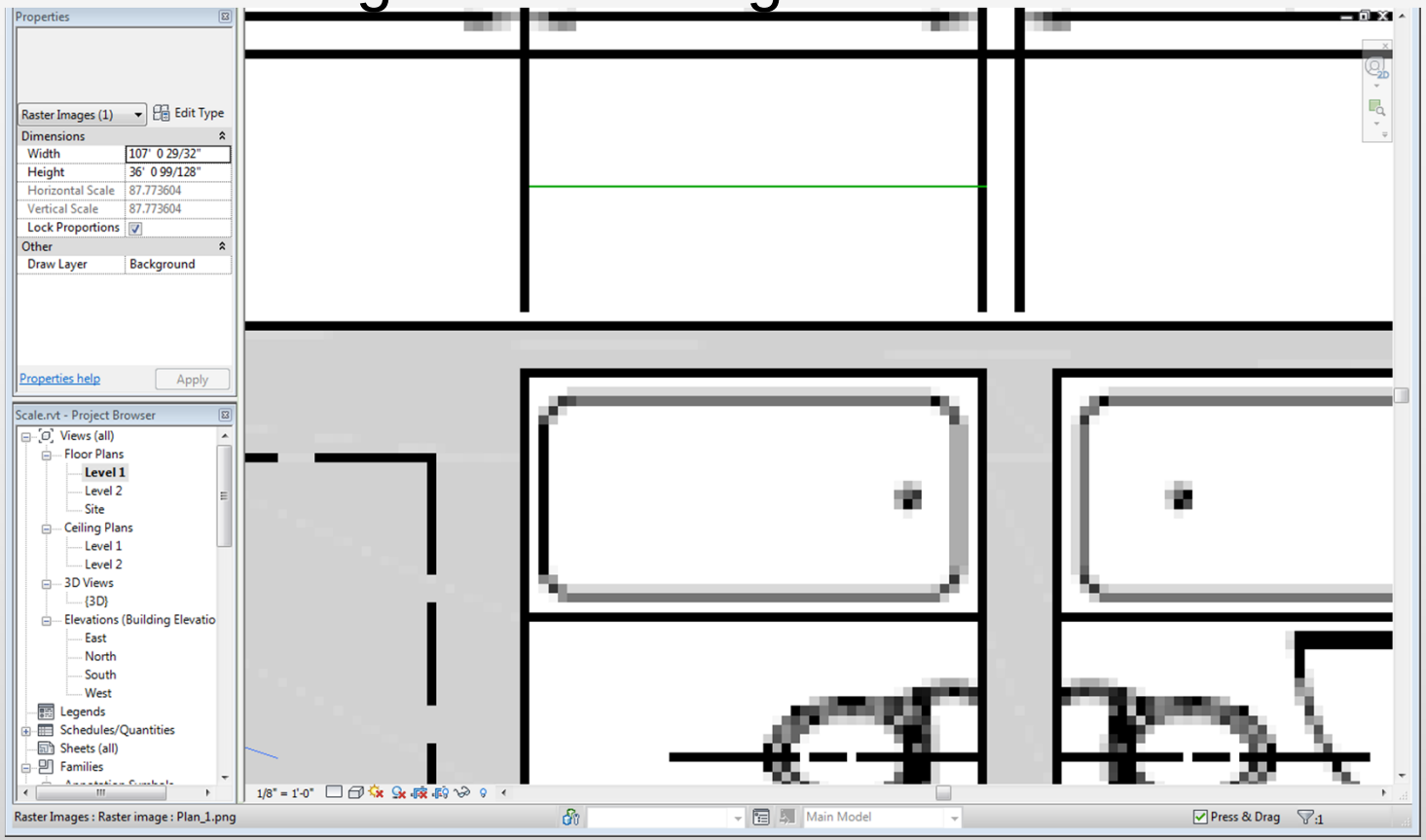


Importing and scaling images



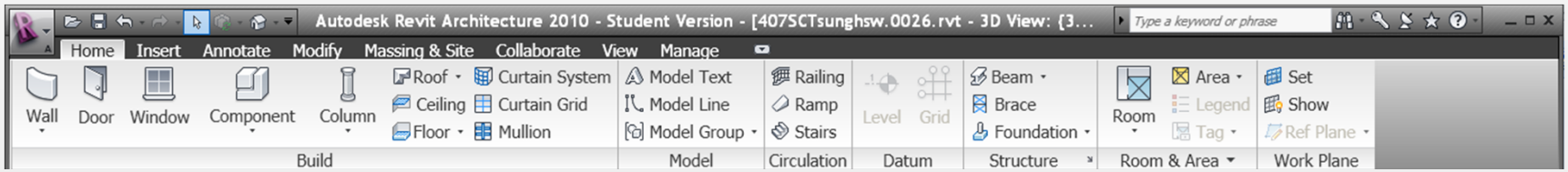
Importing and scaling images
Exercise 3

- Import image from black board
- Scale the image for drawing



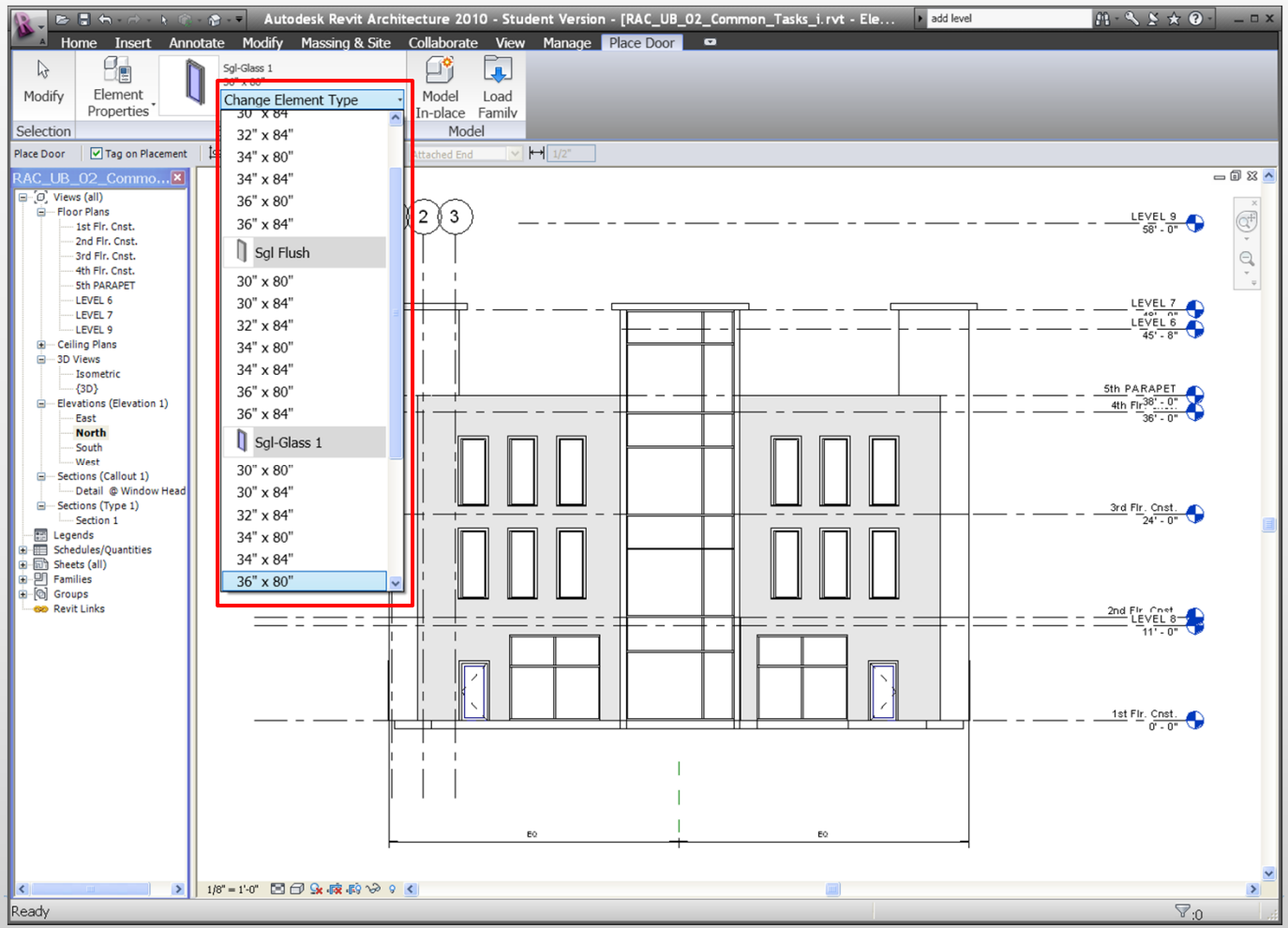
Doors and windows

- Doors and windows can be placed by choosing Door/Window from the Home Tab

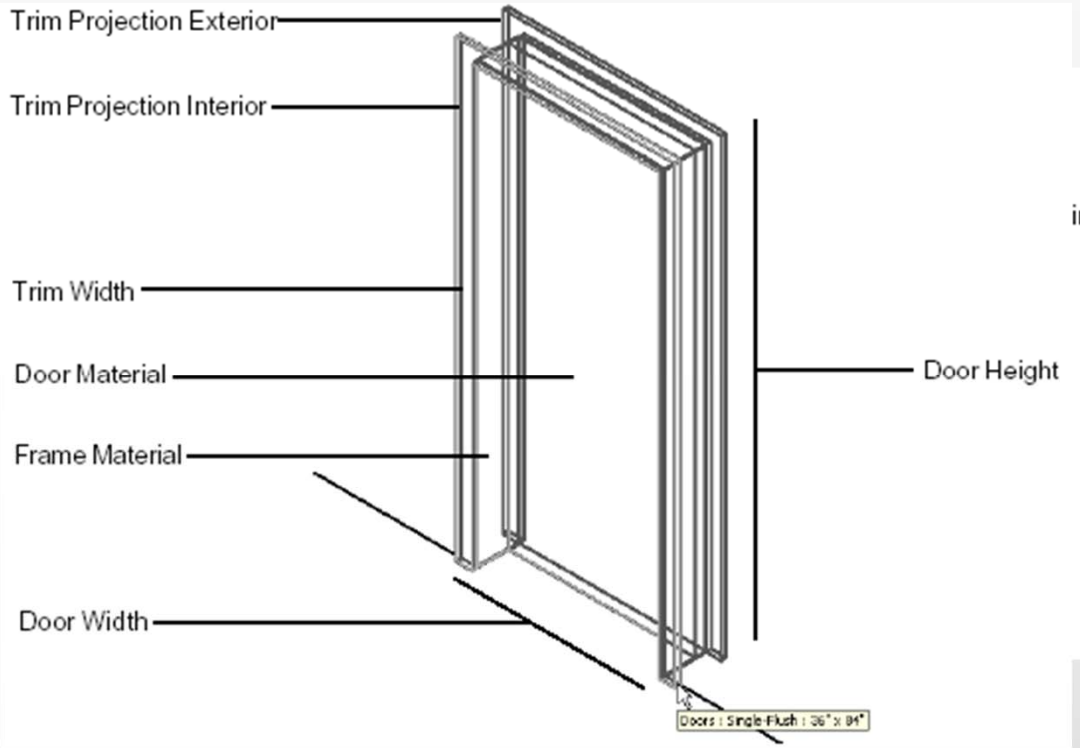


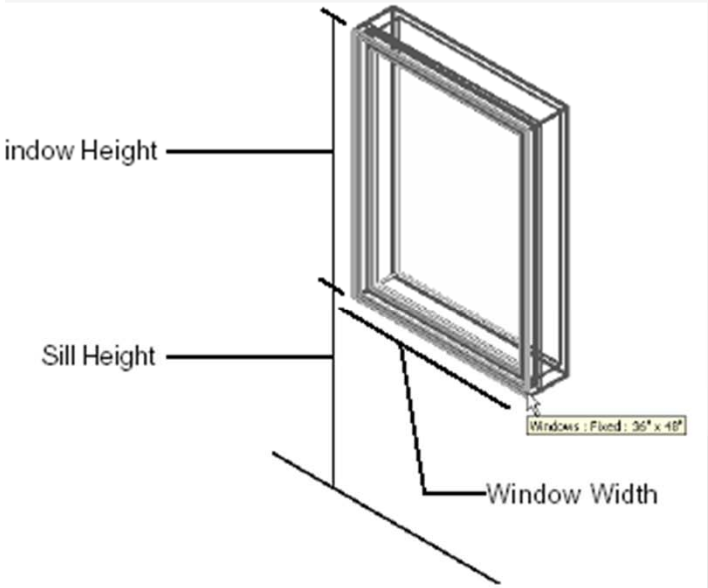
Doors and windows

- Doors and window types can be selected



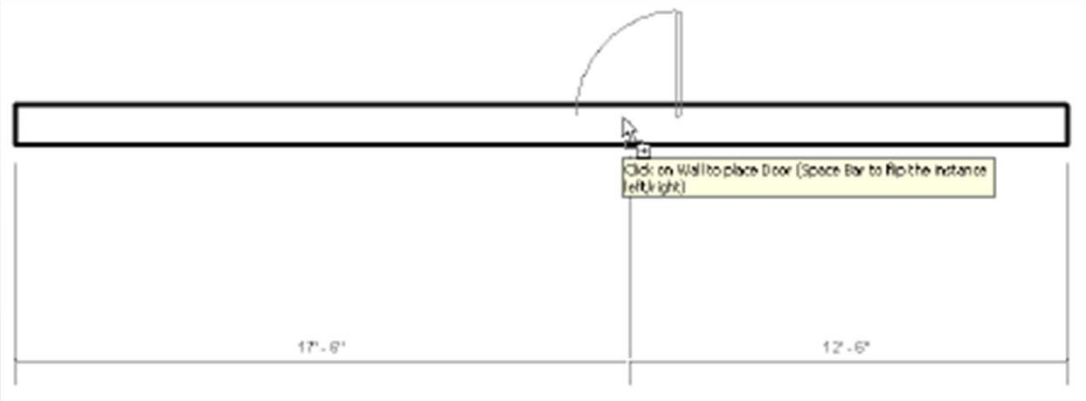
Door and window Properties



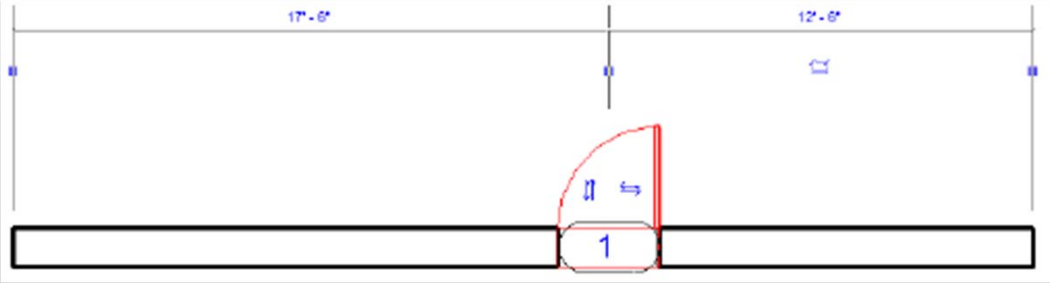


Adding Doors and windows

- Doors can be added to a building model in the plan, section, elevation or a 3D view, by clicking at the desired



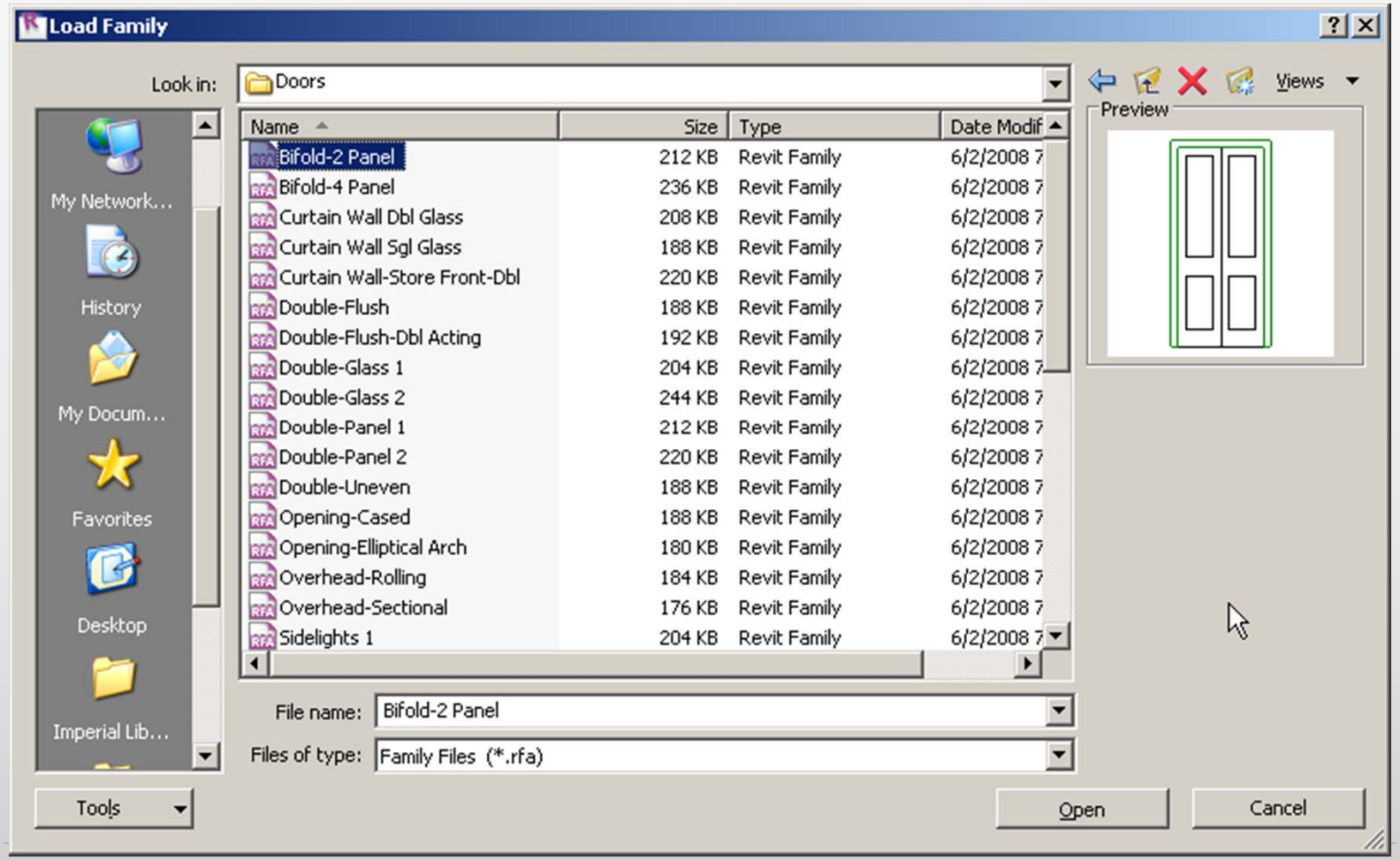
Adding a door to an existing wall



An added door and its controls

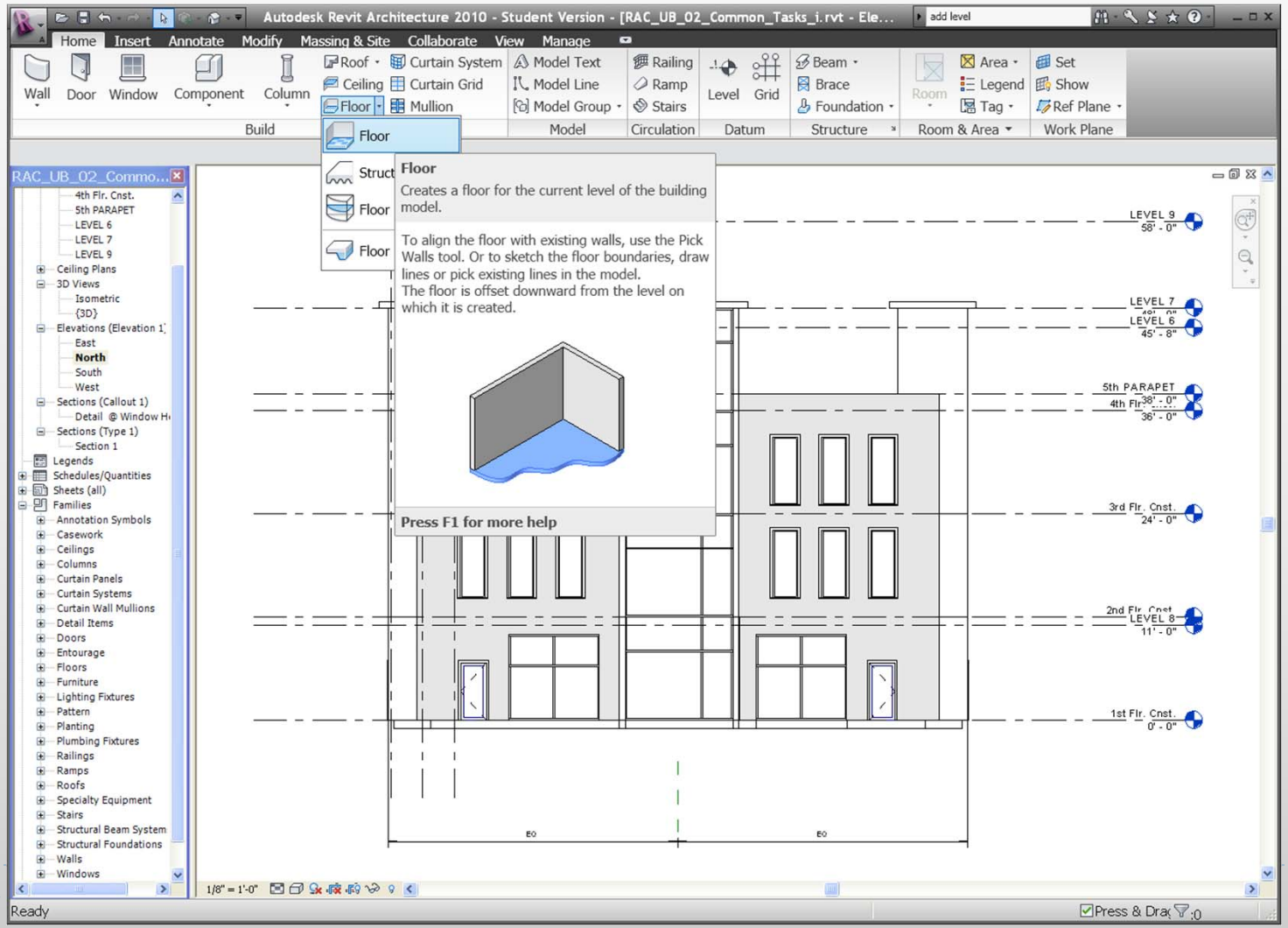
Additional Door and window types

- Doors can be added by loading from Family

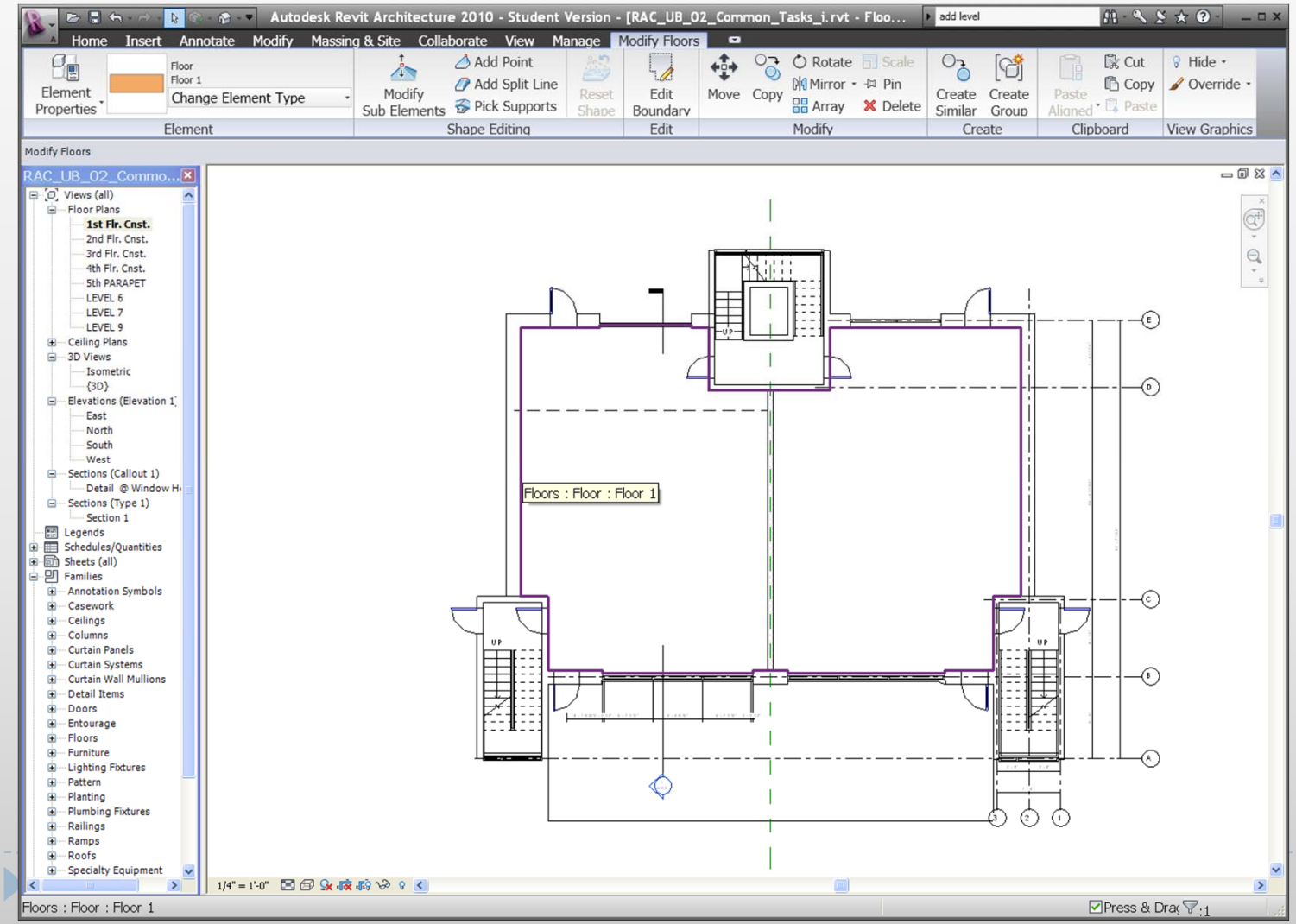


Floor

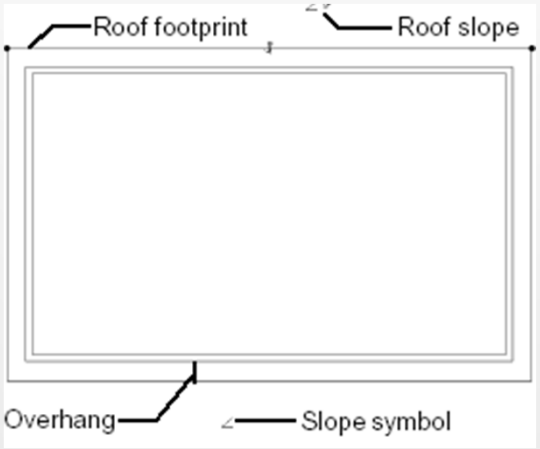
- Floor has to be sketched based on lines, walls

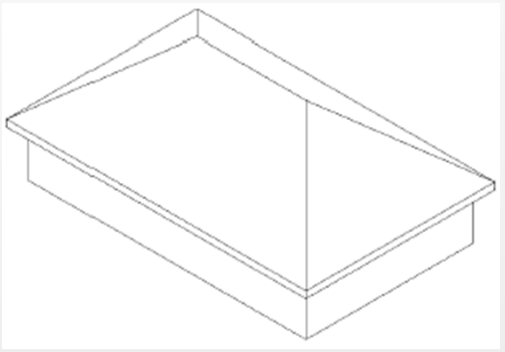


Floor

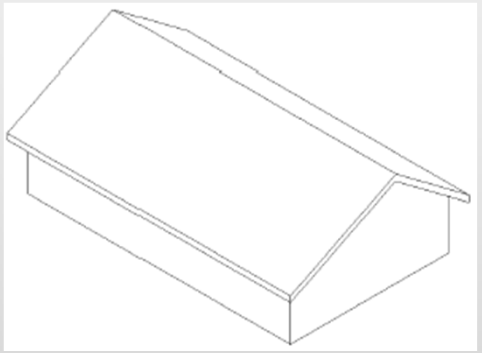

Autodesk Revit Architecture 2010 - Student Version - [RAC_UB_02_Common_Tasks_i.rvt - Floo...
Home
Insert
Annotate
Modify
Massing & Site
Collaborate
View
Manage
Modify Floors
Element Properties
Floor
Floor 1
Change Element Type
Element
Modify Sub Elements
Add Point
Add Split Line
Pick Supports
Reset Shape
Shape Editing
Edit Boundary
Edit
Move
Copy
Rotate
Mirror
Array
Scale
Pin
Delete
Modify
Create Similar
Create Group
Create
Paste Aligned
Cut
Copy
Paste
Clipboard
Hide
Override
View Graphics
Modify Floors
RAC_UB_02_Commo...
Views (all)
Floor Plans
1st Flr. Cnst.
2nd Flr. Cnst.
3rd Flr. Cnst.
4th Flr. Cnst.
5th PARAPET
LEVEL 6
LEVEL 7
LEVEL 9
Ceiling Plans
3D Views
Isometric
{3D}
Elevations (Elevation 1)
East
North
South
West
Sections (Callout 1)
Sections (Type 1)
Section 1
Legends
Schedules/Quantities
Sheets (all)
Families
Annotation Symbols
Casework
Ceilings
Columns
Curtain Panels
Curtain Systems
Curtain Wall Mullions
Detail Items
Doors
Entourage
Floors
Furniture
Lighting Fixtures
Pattern
Planting
Plumbing Fixtures
Railings
Ramps
Roofs
Specialty Equipment
Floors : Floor : Floor 1
1/4" = 1'-0"
Floors : Floor : Floor 1
Press & Dra

Roof Types


Roof footprint
Roof slope
Overhang
Slope symbol

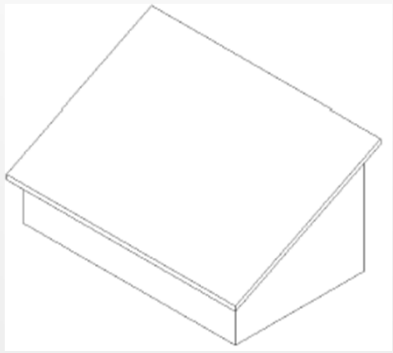



Sloping side
Sloping side



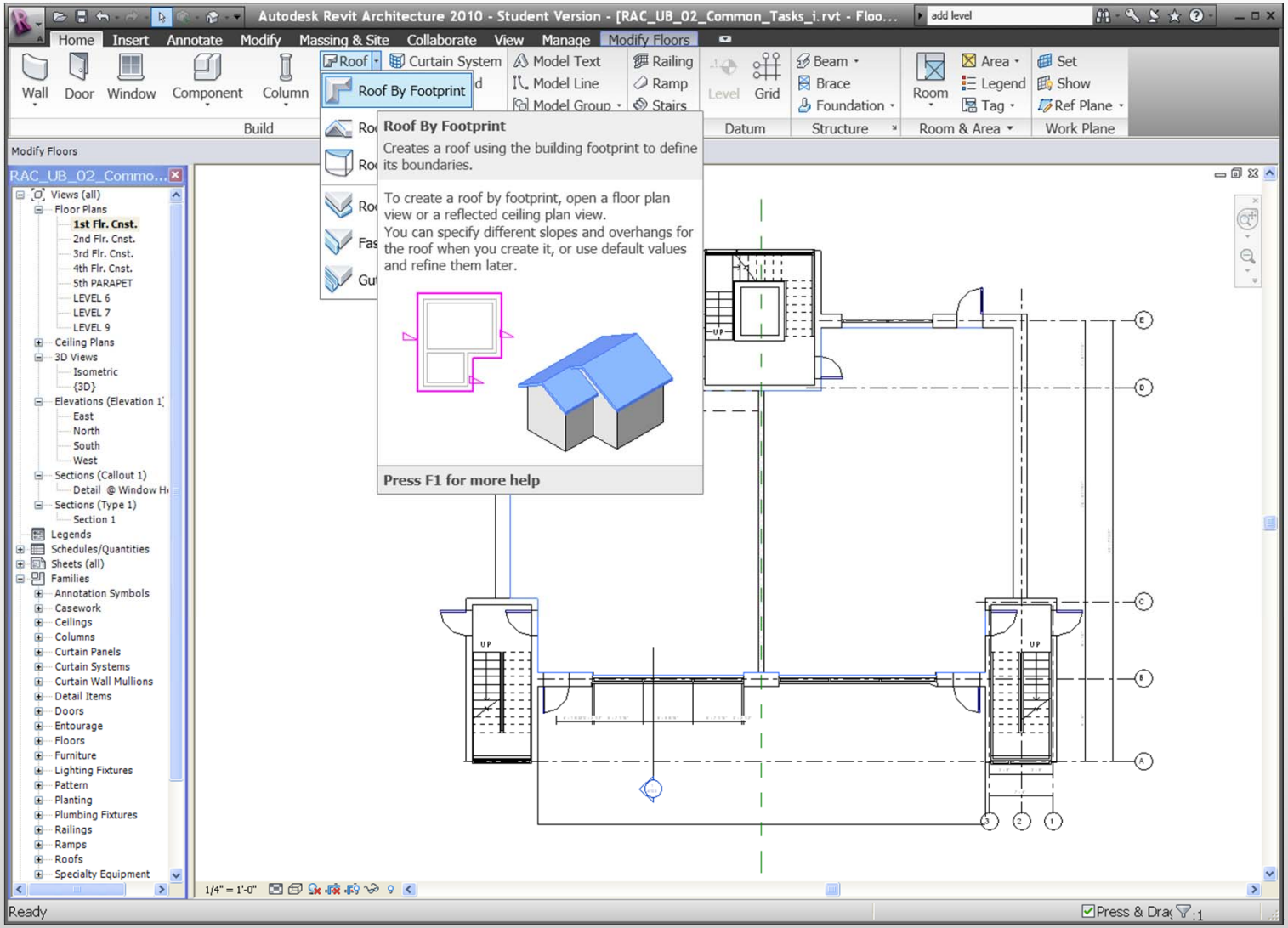
Roof Types

Specifying the sloping side

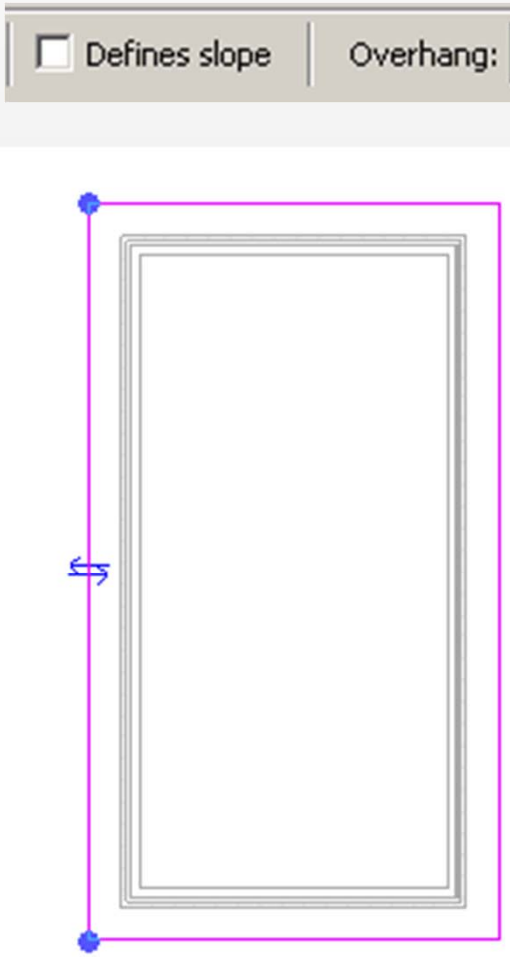


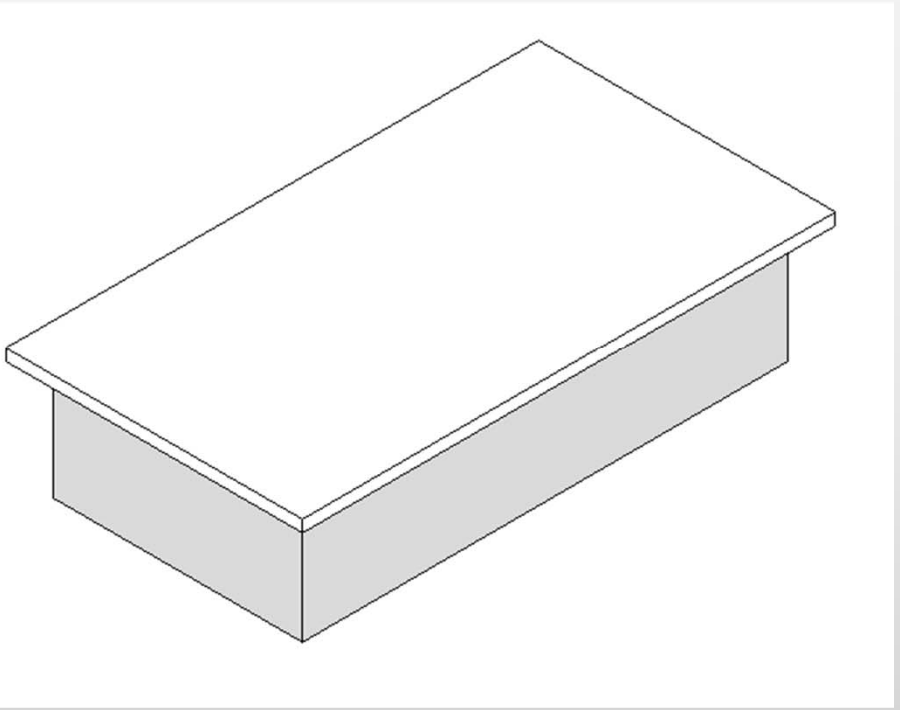
Shed roof

Roof by Footprint

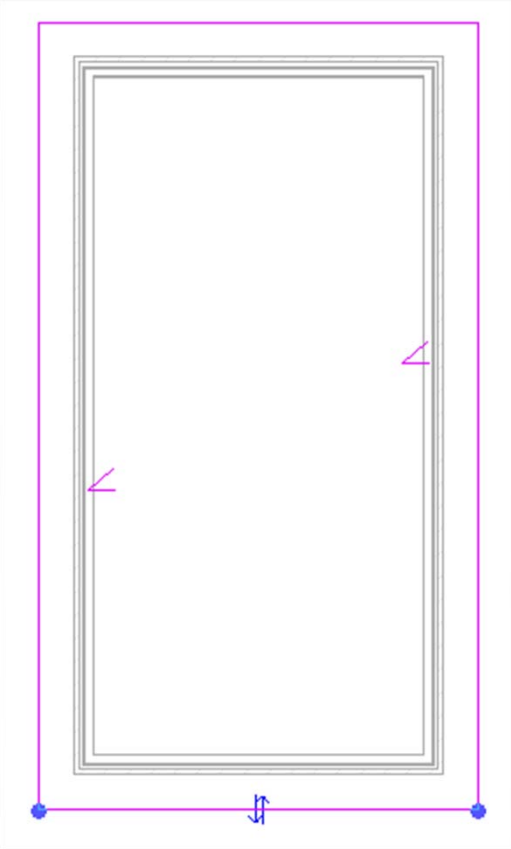


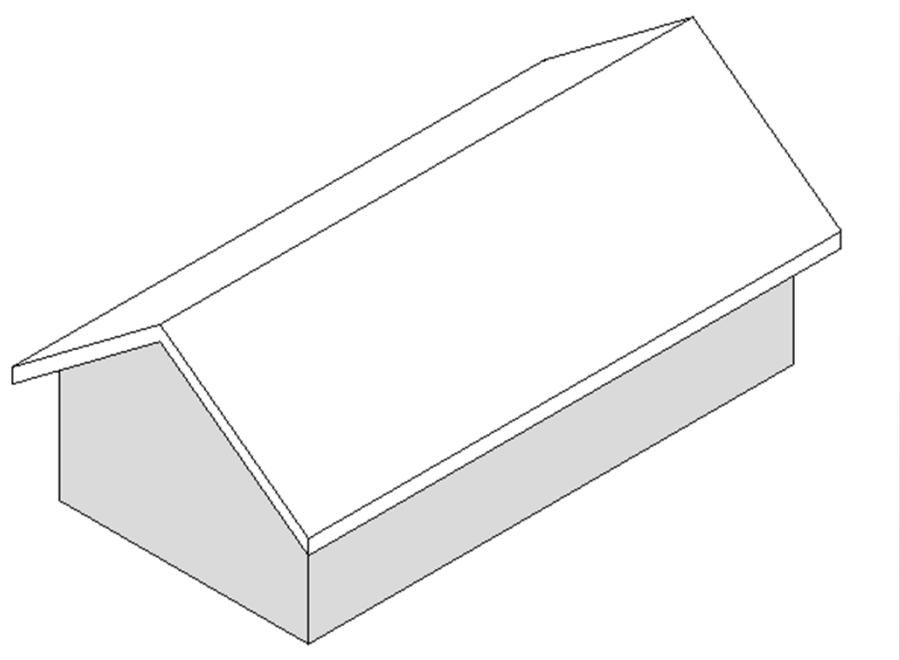
Roof by Footprint (Flat)



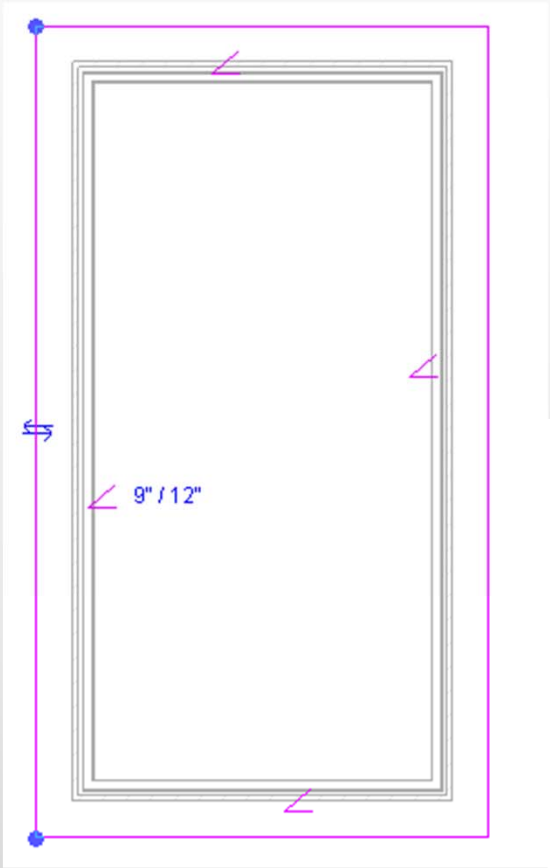


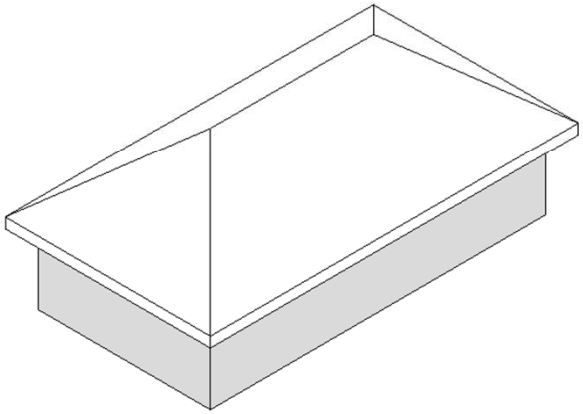
Roof by Footprint (Gable)

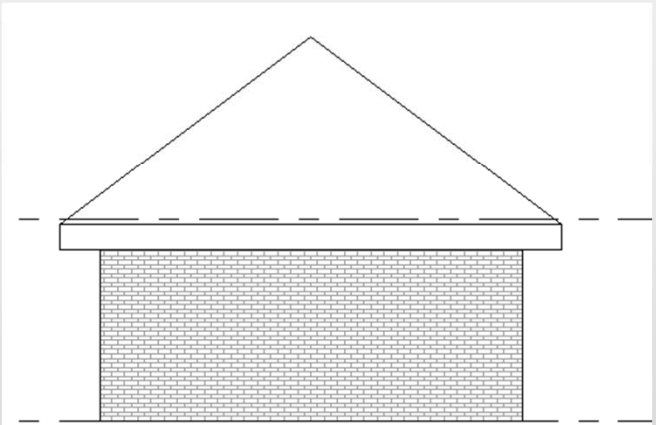




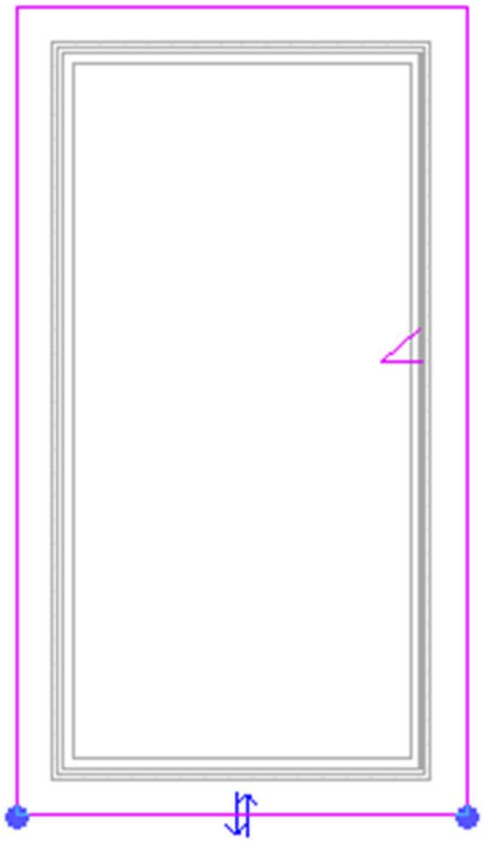
Roof by Footprint (Hip)

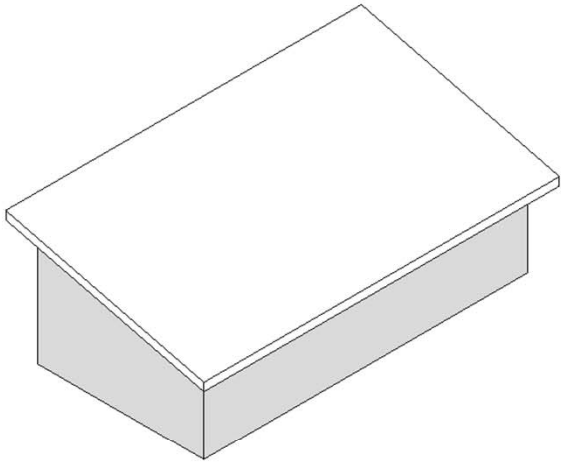


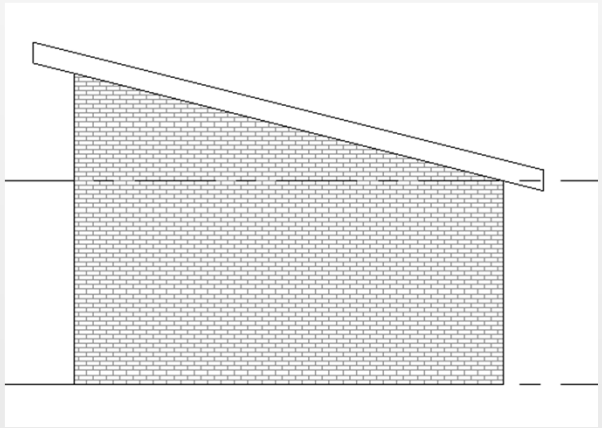




Roof by Footprint (Shed)







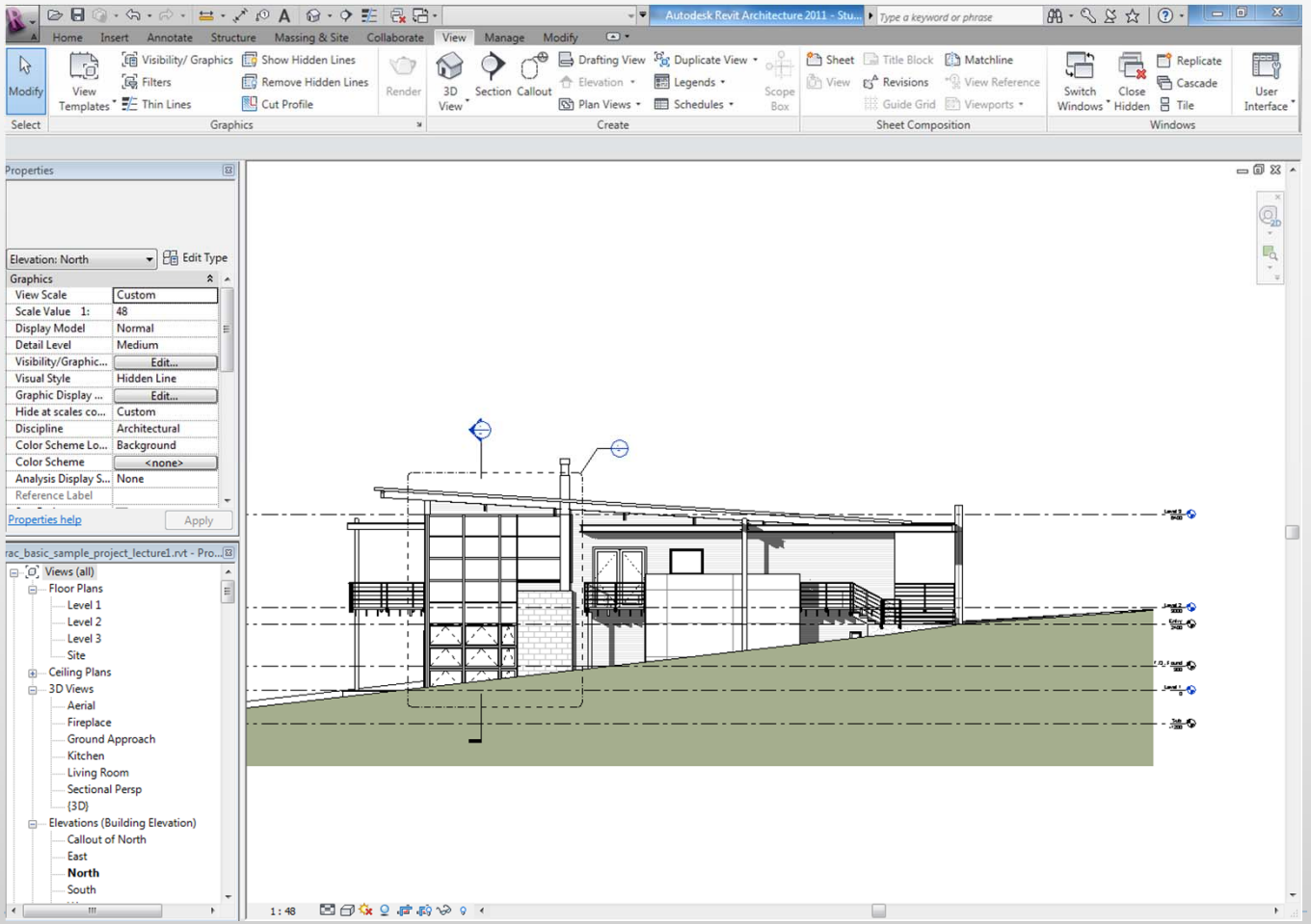
The wall properties need to be set to unconnected to extend to the slope

Adding Levels
Exercise 4

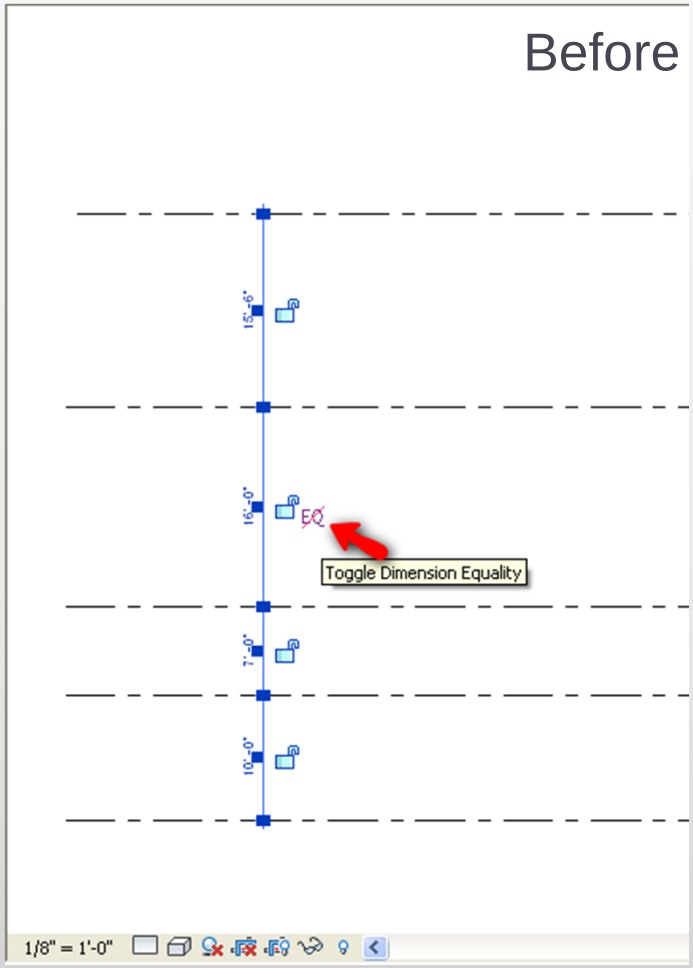
- Create roof on a simple project
- Create an overhang of 3’

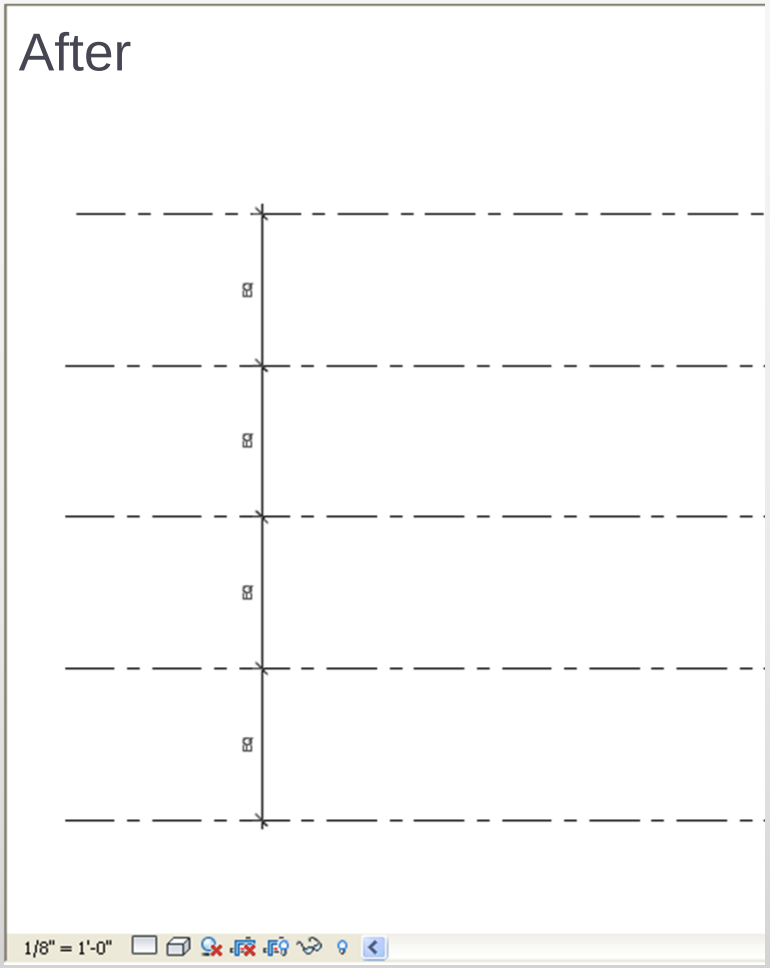
Adding Levels

- Home>Datum>Levels



Revit tips:
Dimension tool (Equality Constraint)

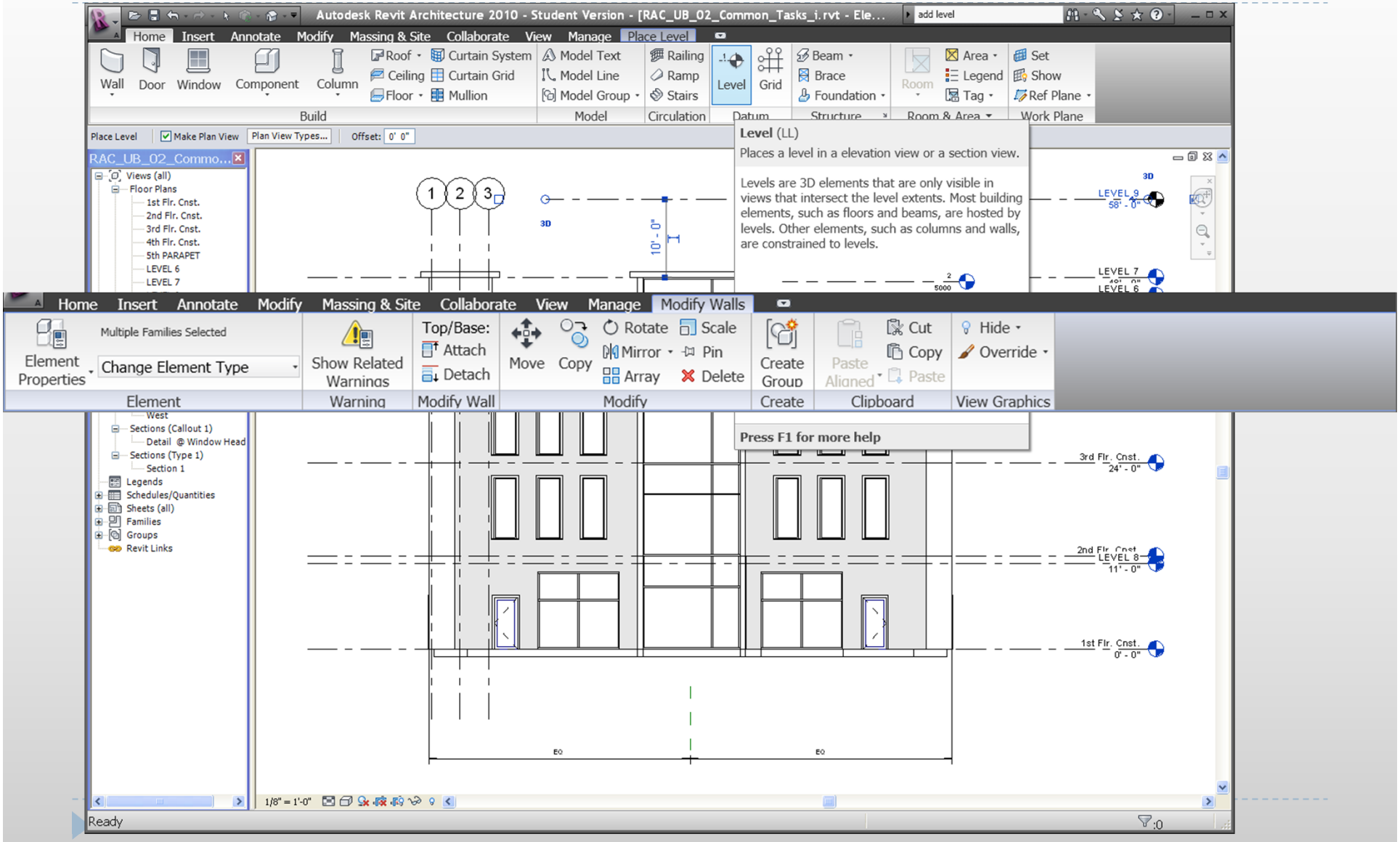




Adding Levels
Exercise 5

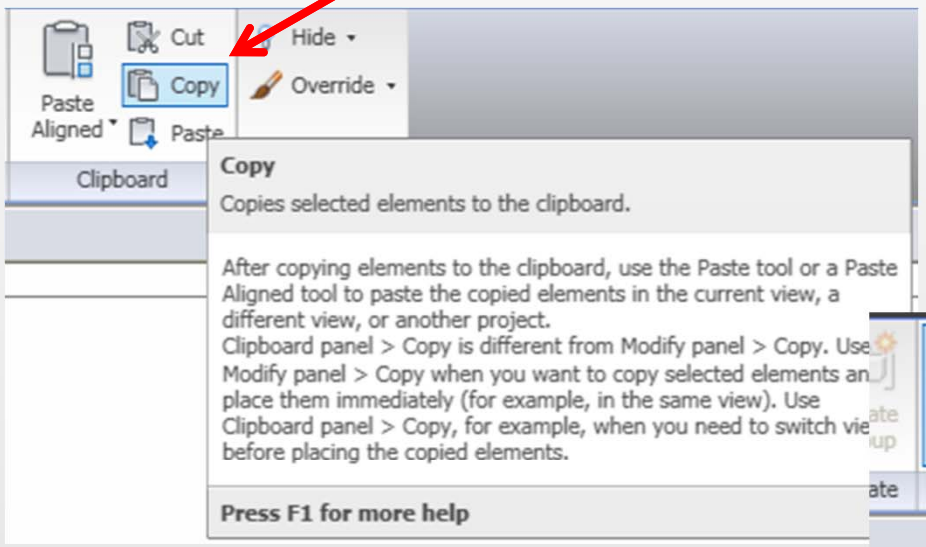
- Make levels visible in the sample project
- Add Levels to your project
- Add dimensions

Editing (copy, move, others)

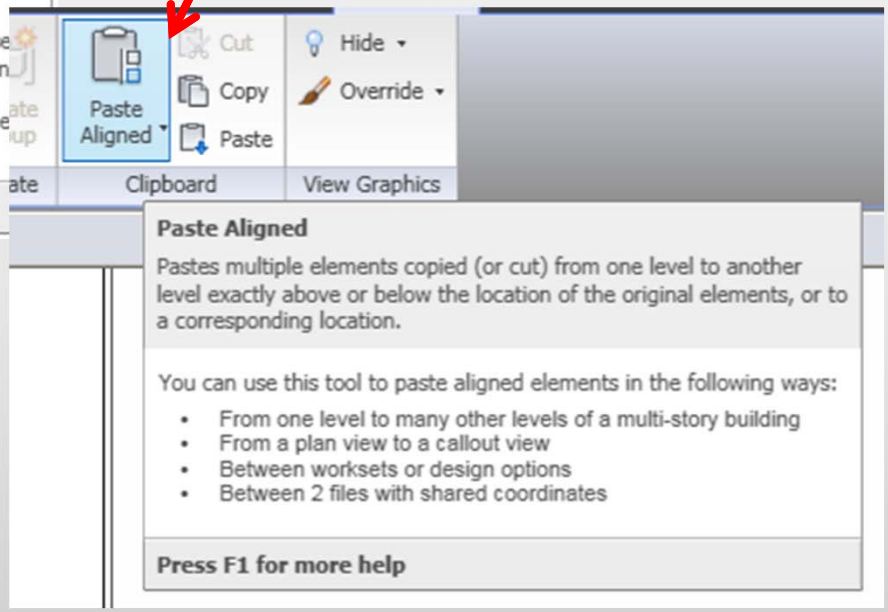


Revit tips:
Copy 2 Clipboard & Paste Aligned-1

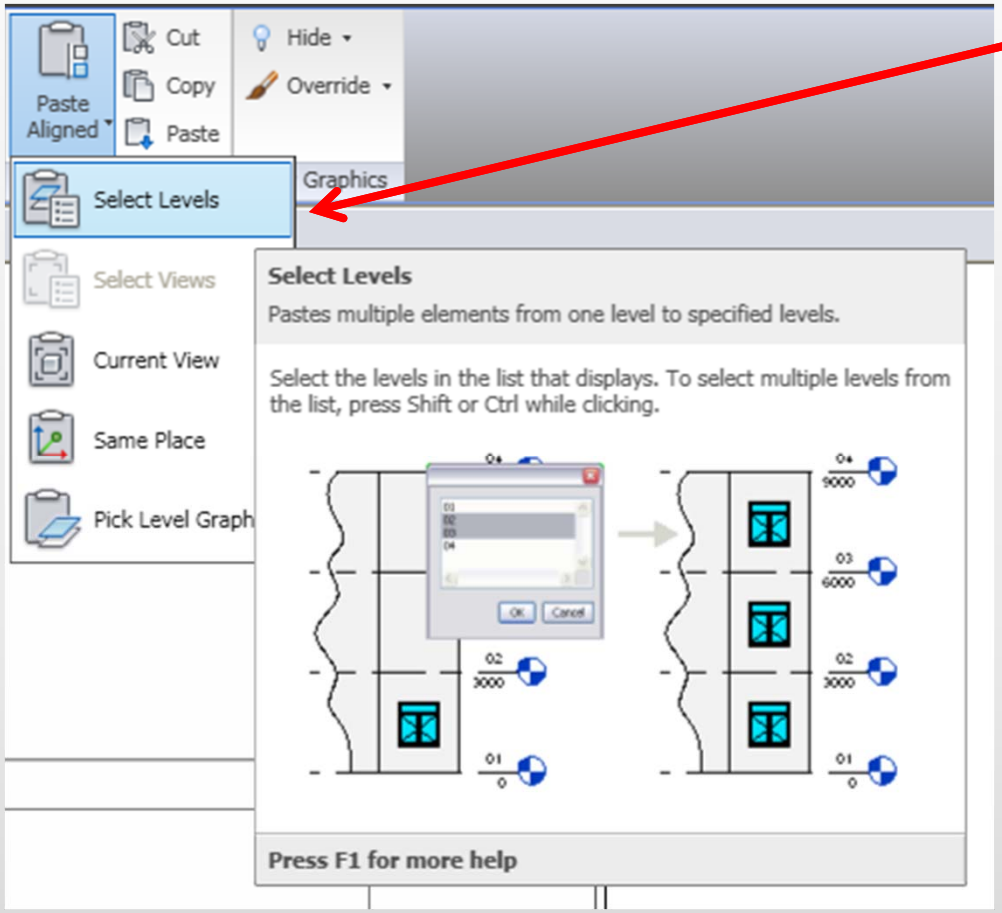
Modify→Clipboard→Copy



After clicking Copy, choose Paste Aligned



Revit tips:
Copy 2 Clipboard & Paste Aligned-2



Choose various types of alignments from the drop-down menu. For instance, by choosing “select Levels” another window opens up with currently available levels to pick from.