

## Architectural Basics (Lab 6.0)

Disclaimer: This is a second floor architectural plan but it is being treated like a first floor architectural plan

### Start

1. Download and open [Lab6start.max](#)

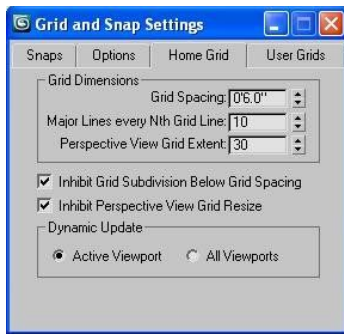


2. Download [floorplan.jpg](#). This is a second floor floorplan.
3. Create a folder called Lab6 and place both files into the folder.
4. Open [Lab6start.max](#)
5. Goto Customize > Units Setup. Set units to feet with decimal inches. Default units set to feet.
6. Goto Customize > Preferences > General. Uncheck "Use Real World Texture Coordinates"
7. Use keyboard entry and create a plane that is 30' x 30' at x=0,y=0,z=-1". The negative unit on Z allows us place the plane below the grid.
8. Open material editor and apply Floorplan texture to plane. Toggle enable show map in viewport.
9. Texture is slightly stretched across surface. We need to fix this. Add a UVW Map modifier to the plane. Click on "Bitmap Fit". Browse to the "Floorplan.JPG" file and open it. The UVW Mapping fixes the stretching.
10. Go back to the Plane in the modifier stack. Click on the Plane
11. Reduce the plane size to "trim" texture off of the plane.

### Snap Setup

We are going to use snapping and the grid to align our walls.

1. Right click on any snapping tool. In Grid and Snap Settings, Goto Home Grid. Please note that you may have to increase the Perspective view extent (7-30) and decrease the Grid size (2") to accommodate your view.



**Grid Spacing:** Controls how big each individual grid square is.

**Major Lines:** Shows a dark line separator every 10 grid boxes or other number if indicated.

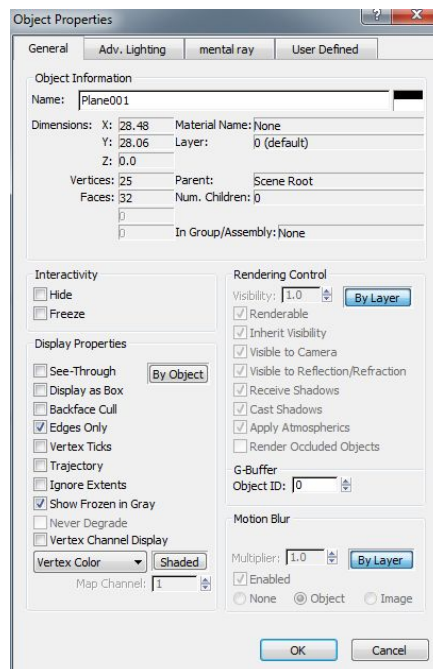
**Perspective View Grid Extent:** controls how far the grid is displayed in the perspective view. Note: This has no bearing on how far the grid actually extends

2. On the Snaps tab, make sure that Grid Points and Vertex are checked.
3. Close Grid and Snap Settings
4. Press "S" on the keyboard. This enables the snaps toggle for Grid Points and Vertices.
5. Press "G" this toggles the grid on and off. The plane should be just below the grid so that it can be referenced and the grid above so that you can snap to the grid.

Right-click the image plane and go to object properties.



The default settings for managing object visibility is "By Layer". Change this to "By Object"



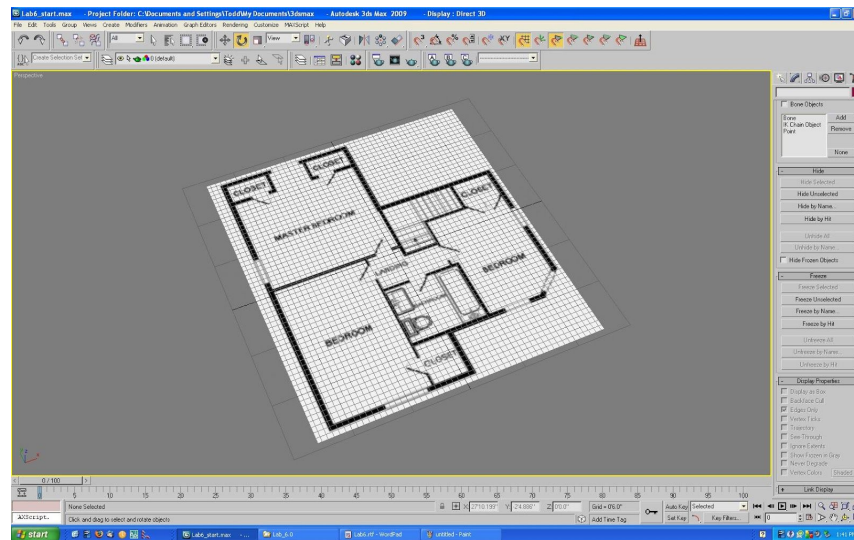
After the change you can now control visibility by object with the Display Tab options.

6. Make sure that the object properties, display properties are set to "By Object".



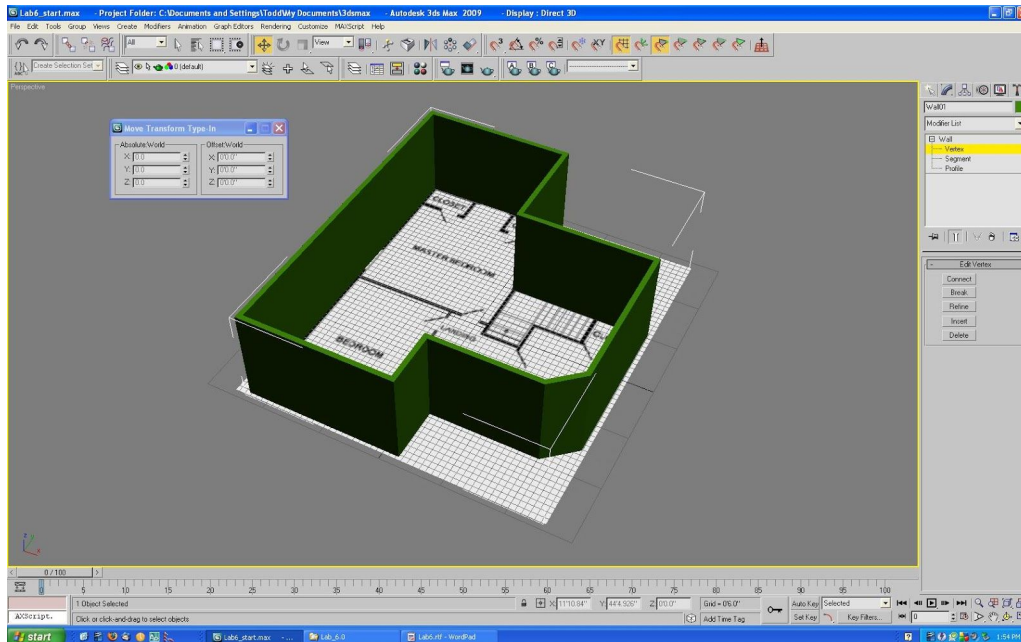
7. Switch over to the Display Tab . Select the plane. Under Display Properties uncheck Show Frozen in Gray. Under Freeze rollout. Click Freeze Selected.

*This freezes the reference image plane so that you cannot select it but also keeps it visible with the reference texture, by default freezing an object turns it grey.*



## Create the Walls

1. Create > AEC Extended (drop down) > Wall
2. Set your outside wall width to 6" and leave the height set to 8' before you click in the viewport.
3. Begin by left clicking to create the wall. At each corner click to add a turn.
4. Use the snapping to keep the walls straight. Go all the way around the plan.

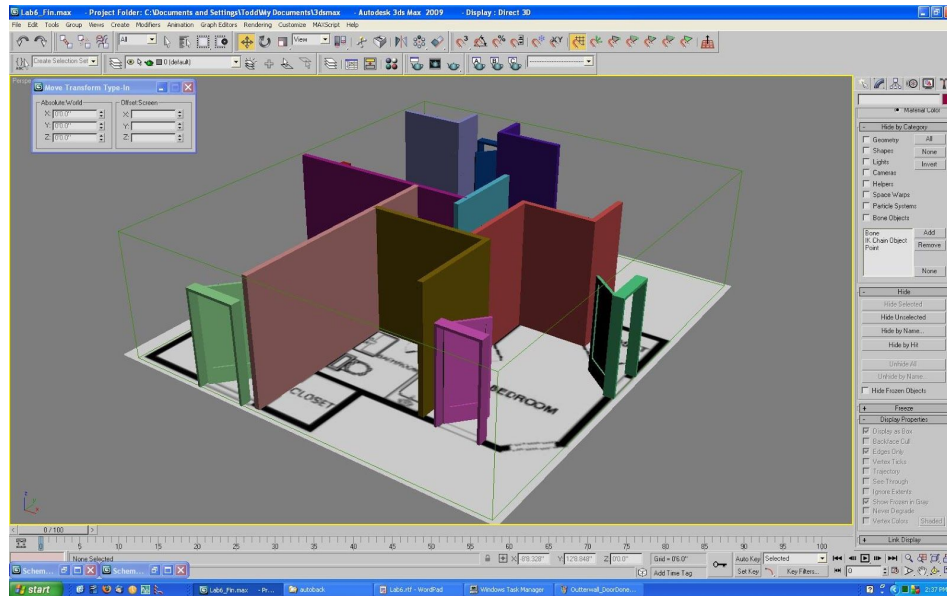


## Straighten Walls

5. Switch to the Top view and look at your walls. If they are not straight, go to the wall object inside of the modify tab. Click the + and go to the vertex sub object.
6. The vertex controls the wall object, just like the vertex sub object controls a line shape, the vertex also controls the wall. Right click on the Move Transform dialog. Select one vertex, copy the X or Y value, select the other vertex to be aligned and paste the value into its property.

## Create Inner Walls

Using the same technique for the outer wall, create the inner walls. There will not be a continuous wall however. Instead there will be short individual walls at a 4" thickness. You may want to turn off snapping to vertex for the inner walls so the inner walls don't snap to existing geometry. See the following image for a reference as to how to create the inner walls.



## Create Inner Doors

1. Before you begin
2. Select the outer wall
3. Press alt+x to make opaque, or go to the display tab and make see through
4. Goto the displays tab
5. Click display as box
6. This lets you see the outer wall as only a wireframe box. The outer wall will still render fine but now you will be able to work within the room.

Follow the same guidelines for creating doors as you did for the outer walls. Except for the following changes:

Match the swing plane of the door to match the plan.  
For the closet doors they will need to be "Double Doors"

## Door Settings:

### Door Settings:

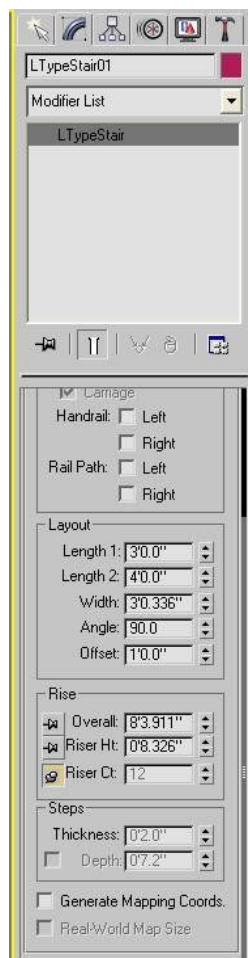
Door height:  
6'

Door width:  
2'6"

Door depth:  
4"

Create staircase

Create > Stairs > LTypeStair



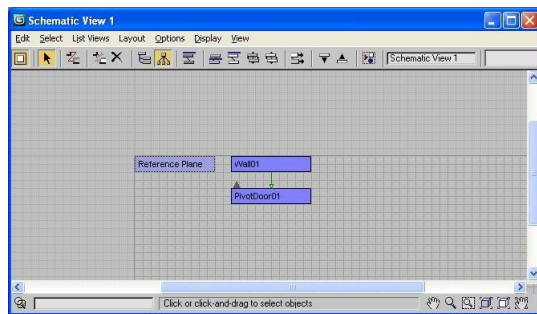
### Create Doors

1. Select your wall
2. Press F3 make it wireframe and see-through. Now we can see the plan beneath.
3. Goto Create > Door (drop down). Choose Pivot Door
4. The default creation method is to click and drag a width, then depth then height. Similar to creating a box primitive. Pay attention to the creation method and follow the steps.

1. Turn snapping on (s).
2. Create a door for the corner bedroom. These are special objects. When you create a door on a wall the door will automatically make a hole in the wall for you.

### Connecting doors/windows to wall

1. When you draw the door on the wall it is supposed to link the door to the wall. Child (door) > Parent (wall) relationship. If they are not linked, no hole will be made for the door. This can be checked via the Schematic view and fixed with the select and link tool.



### Open the door

1. Click on the door.
2. Goto modify. Change the value on open to 50 degrees.
3. If there is an opening in the wall when you open the door- it worked, if not- it is easy to fix. You can correct it with the schematic view.
4. Open the schematic view and link the door to the wall. See image.
5. All objects linked to the wall as children will automatically cut holes in the wall. This includes windows and doors.
6. If the door still doesn't cut an opening, the door is probably not as deep as the wall. Try making the door deeper than the wall and or moving the door around. Also try straightening the door by using the rotate tool.

Continue placing doors around the outside of the plan. Switch to the Top view to ensure the doors are centered within the walls.

### Deliverables:

Render a 1024 x 768 .jpg file, matching the perspective view below. Please upload the .max file

as well the completed render for credit. **Includes doors and windows and interior walls.**