

Walls and Windows

Eventually we will import your CAD drawings and you will need well-constructed files which we will then use extrude, loft, and sweep, etc., in Max.

Here is a useful link to explore for later -- AutoCAD drawing tutorials:
<http://www.cadtutor.net/tutorials/autocad/index.php>

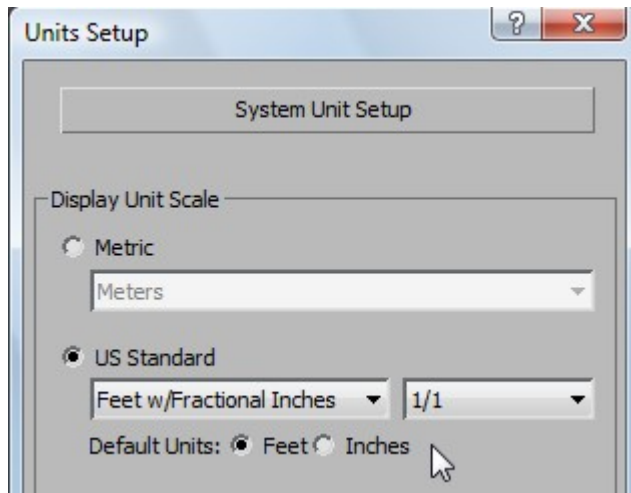
For now, lets explore some construction methods.

Options for drawing walls

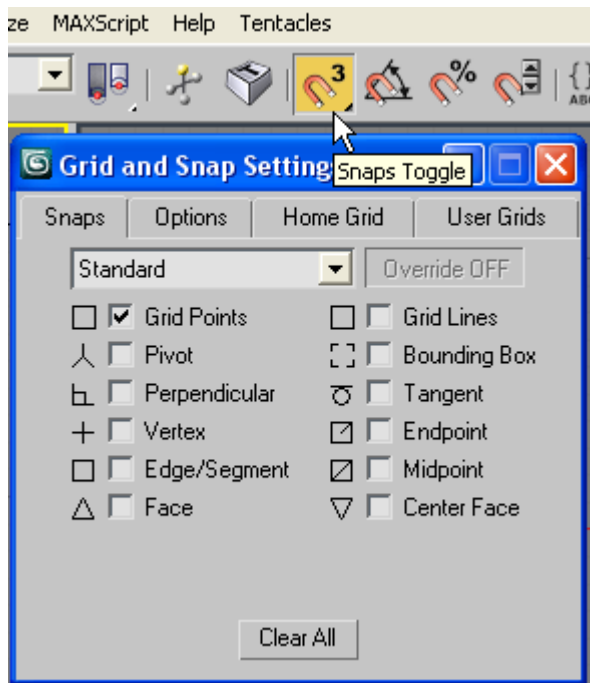
Architects use 1 unit – 1 inch

Civil engineers use 1 unit = 1 ft.

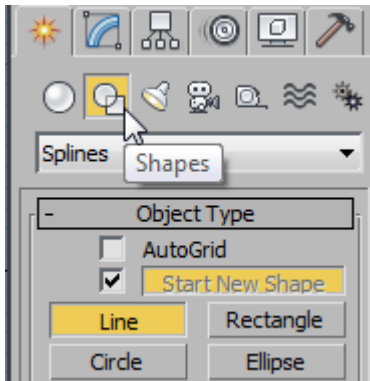
Default units set to feet is most convenient for our use in class.



... turn on Snap and set it up to grid points ... your right click on the snap icon to set it to grid points.



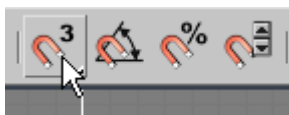
Click on the **top viewport** to activate it.
Set up your **line tool** ... note I am in the **Shapes** group.



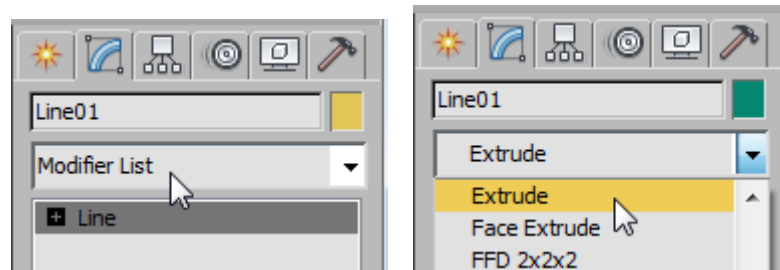
Draw your line in the top viewport like this
(About 10x10 grid boxes)



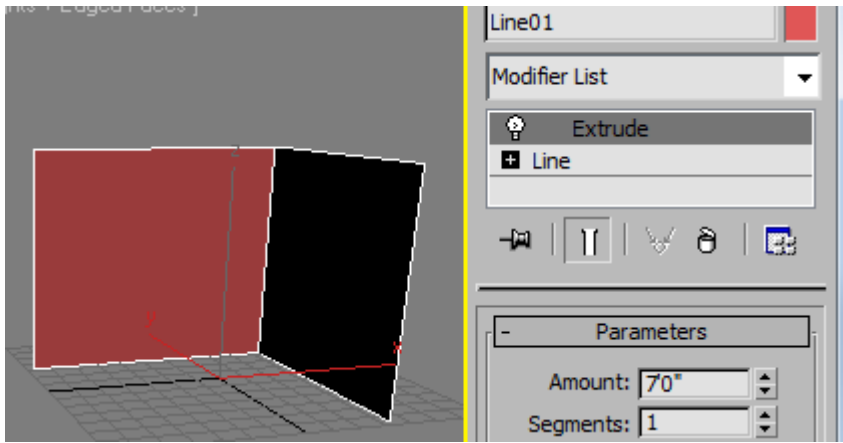
Turn OFF snaps toggle (the shortcut key is **S**)



Drop down the modifier list and select the Extrude modifier.
Drop down the modifier list and hit E until you see Extrude.
Note – extruding a spline is different than extruding and editable poly – here we need the extrude modifier.



Extrude a line up in Amount to 7 feet (it will have no thickness)

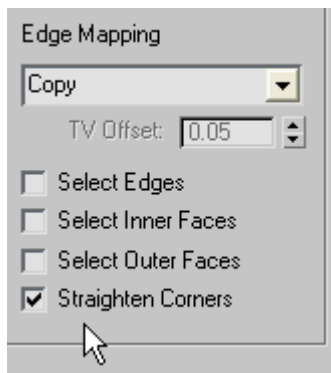
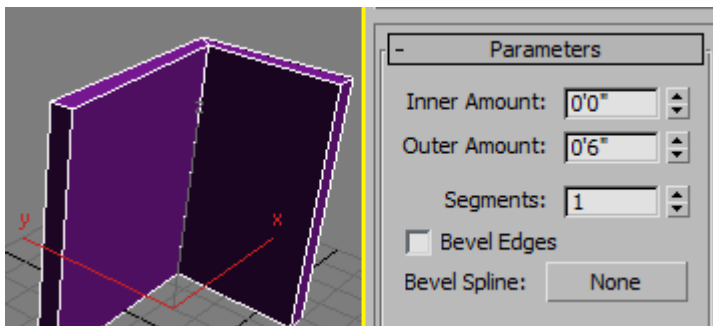


Hit F4 to see edges!

Add **Shell** modifier for thickness

(On top of the Extrude modifier, drop down the **modifier list** and hit **S** until **Shell** appears)

Make sure straighten corners is on

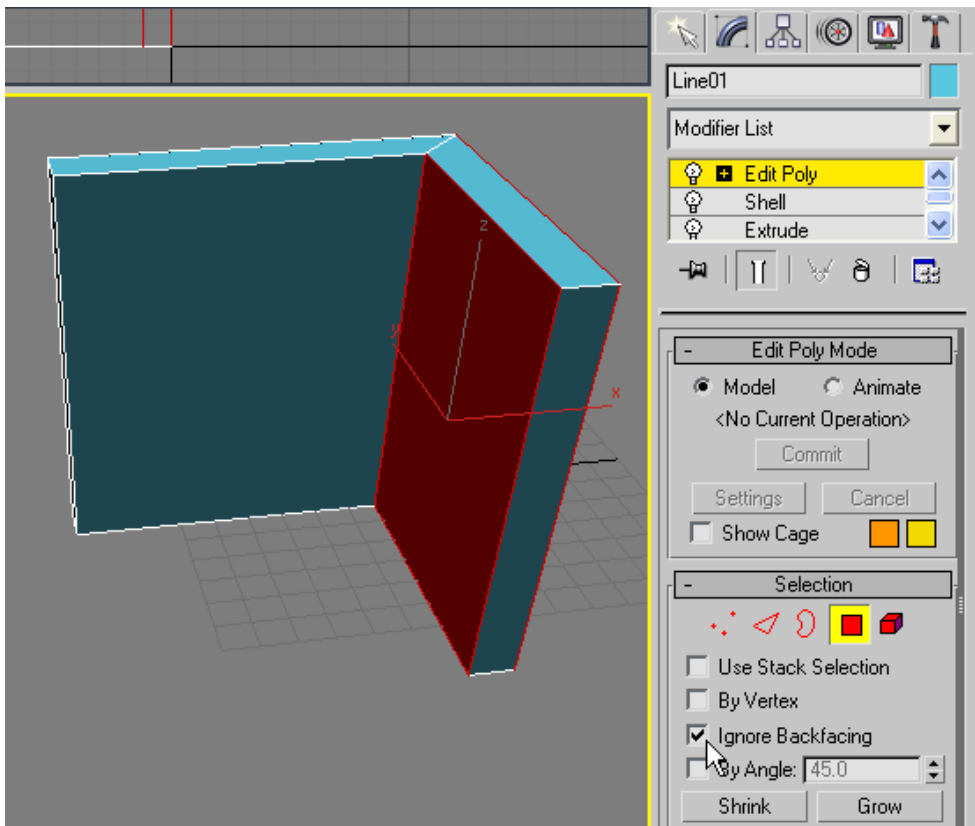


Add an **edit poly modifier**

Go to **poly subobject**

Turn **on** ignore backfacing (this lets you select one side without accidentally deselecting it later)

Ctrl click **BOTH sides of a wall** – this is essential, to have both sides selected.



Use **slice plane** to cut windows.

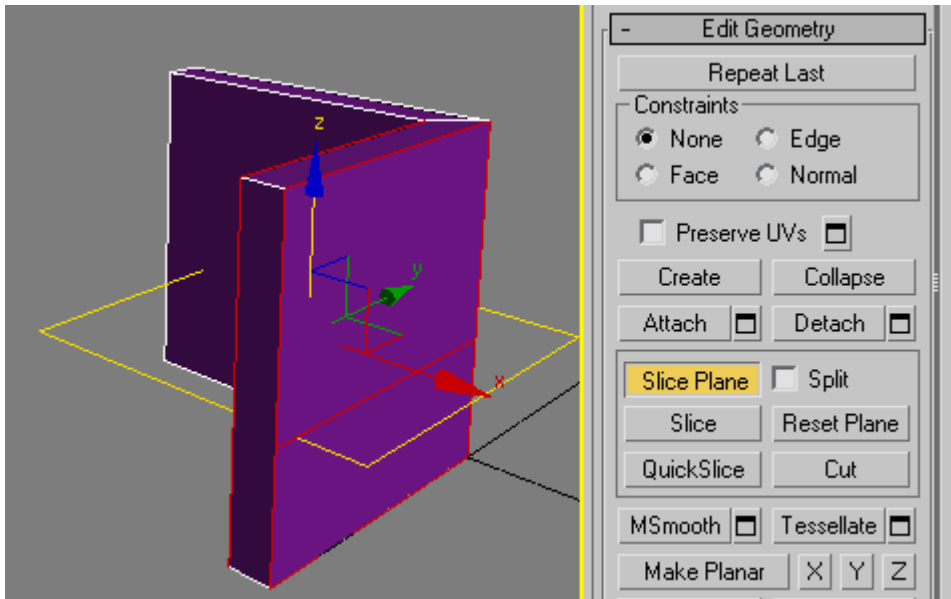
Tips: You must have polygons **selected** for slice plane to work.

Hit **F2** to see what you are doing better.

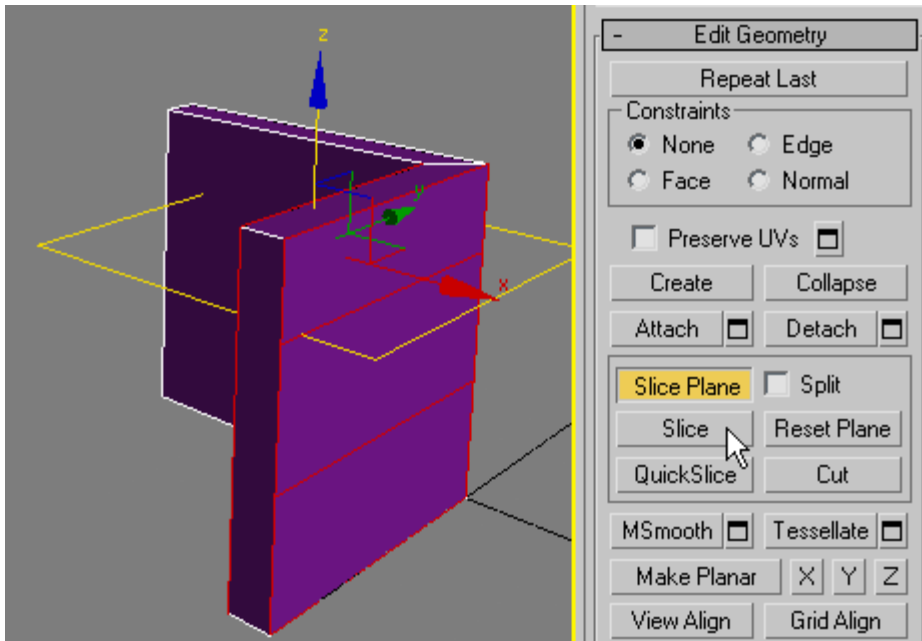
The yellow button indicates the tool is active.

You must position the line, then hit the **SLICE** button (**below** the yellow button) each time you want to make a cut.

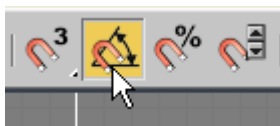
You will need 4 cuts for a window.



2 cuts ...



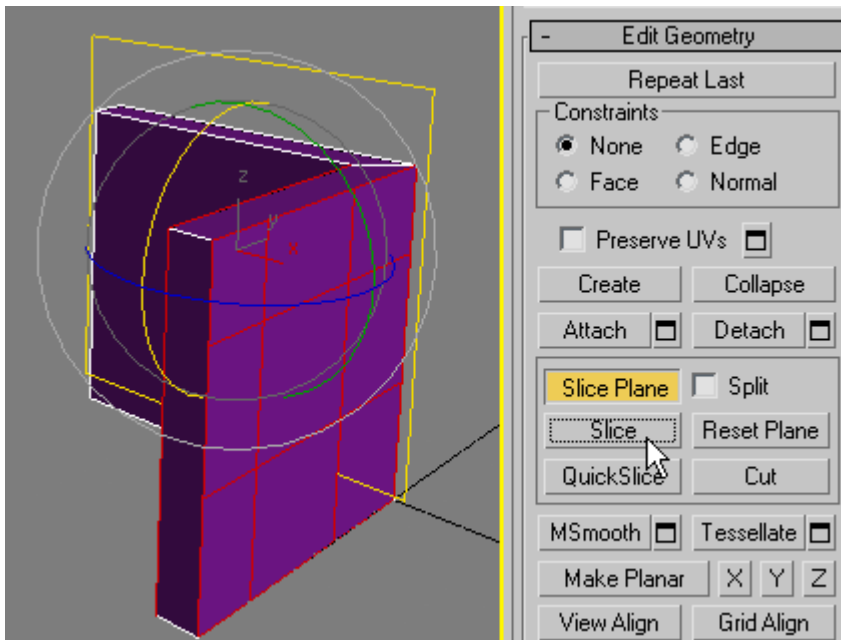
Now turn **angle snap** on:



Use the **rotate** tool and rotate Slice Plane 90 degrees:



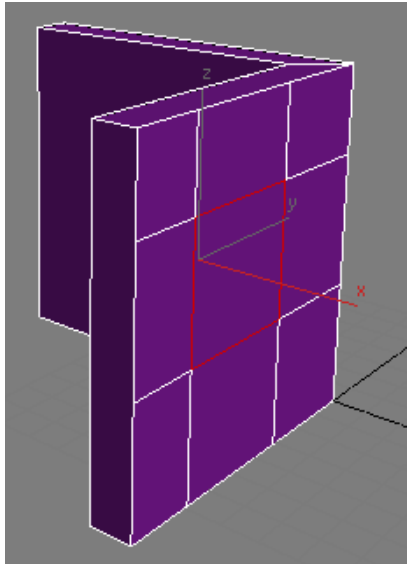
After you rotate, hit slice, then use the move tool and slice again.



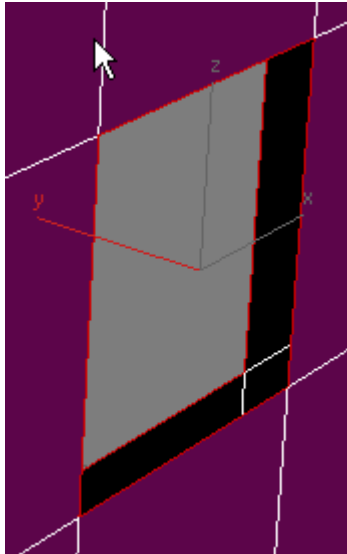
Exit the slice tool by making the yellow button gray:



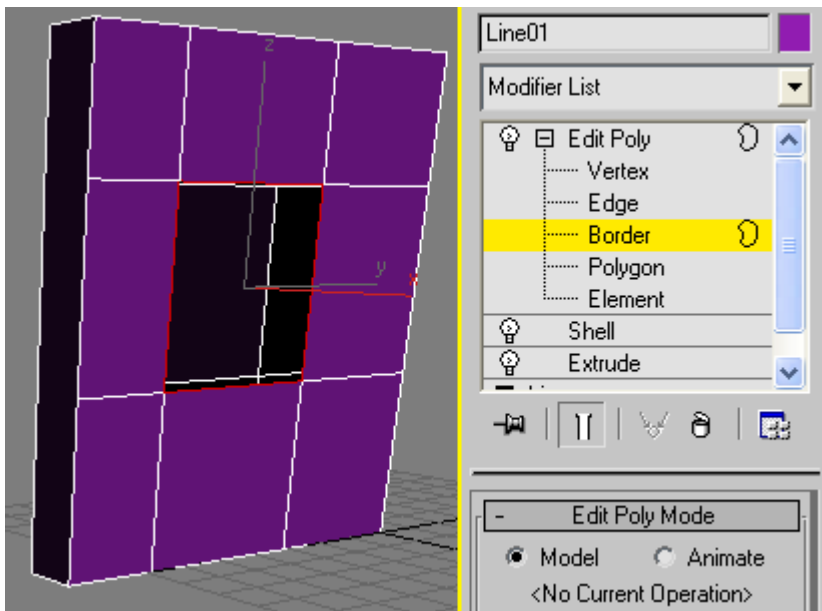
Select the window polygons on each side of the wall ...



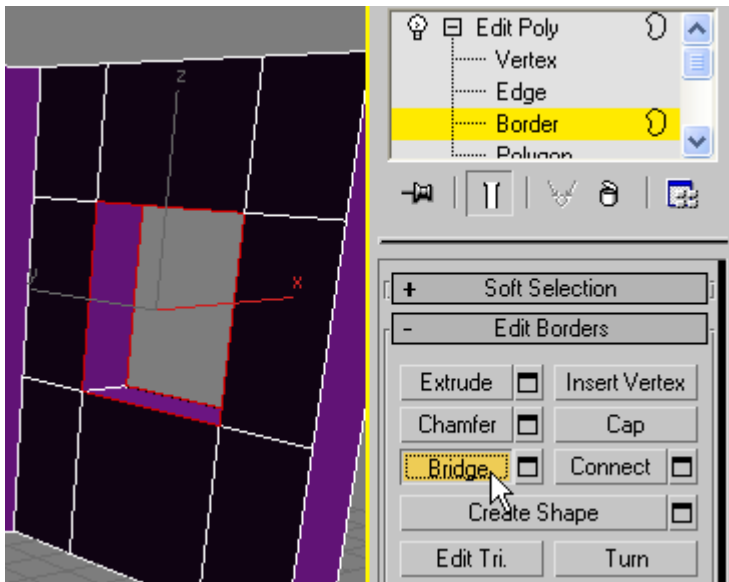
Hit the delete key on your keyboard:



Go to the **border** level and select the window hole on each side
Use the Ctrl key to make multiple selections.

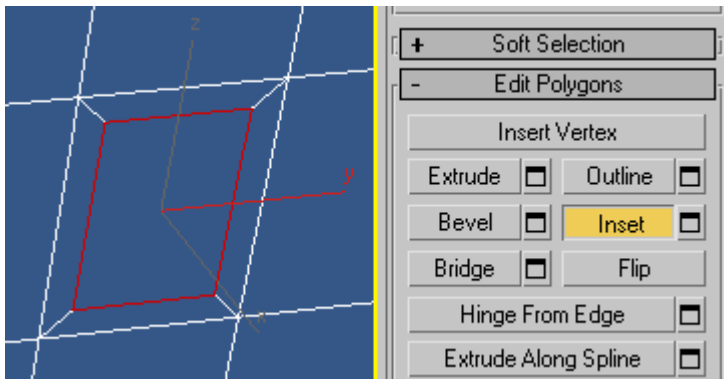


Bridge will make the inner walls where you delete polygons
 Tip: you must have 2 selections (in this case, each side of the window) for Bridge to work.

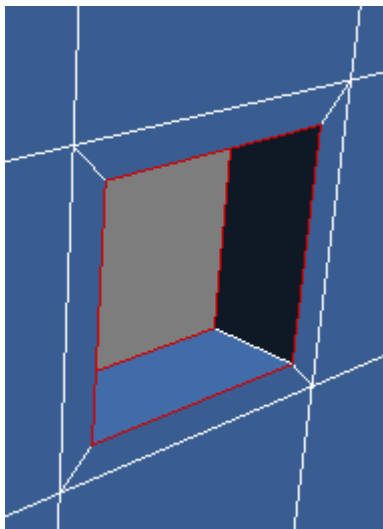


Windows with frames

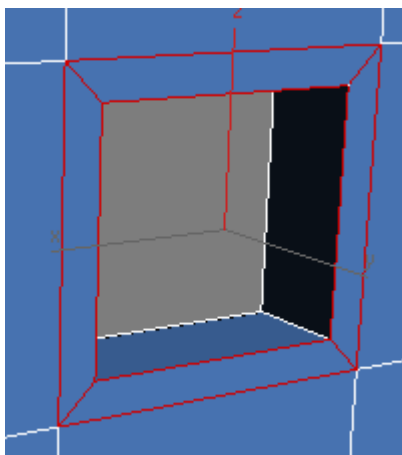
Make another window on the other wall using slice, but this time, **do not delete the polygons yet**.
 Use the **inset tool** as shown here to create frames.
 Note - make sure to select both the back and the front of the wall.



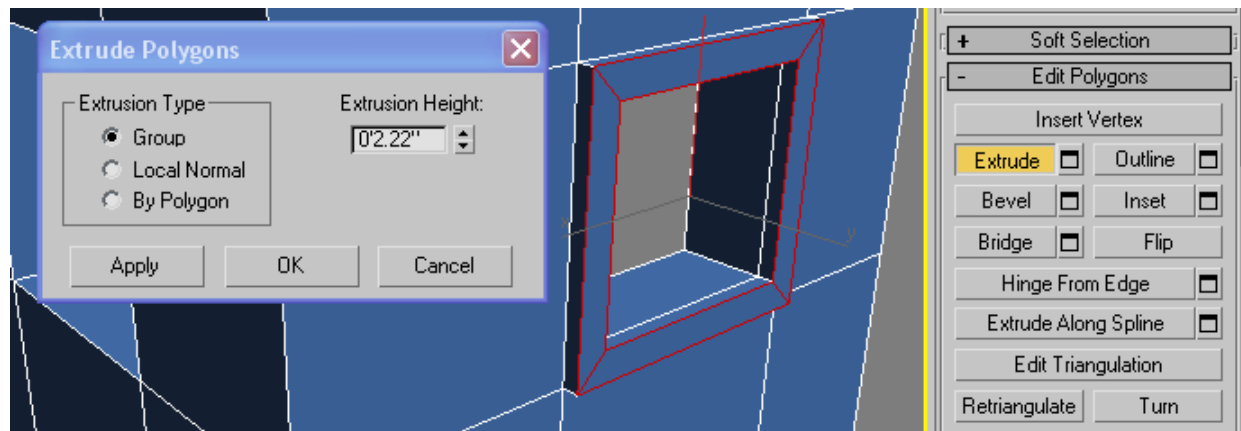
Now, after using inset, delete the polygons and use bridge the same as on the previous window. Your window with a frame should look like this:



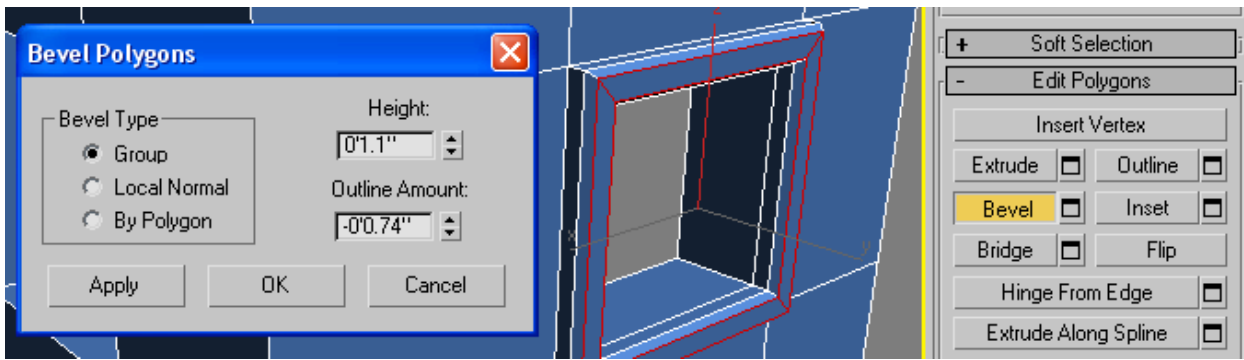
Select these 4 polygons that will make our frame.
(You only need to do this on the outside side of the wall.)



Extrude , to raise up the frame surface ... (your numbers might be different)



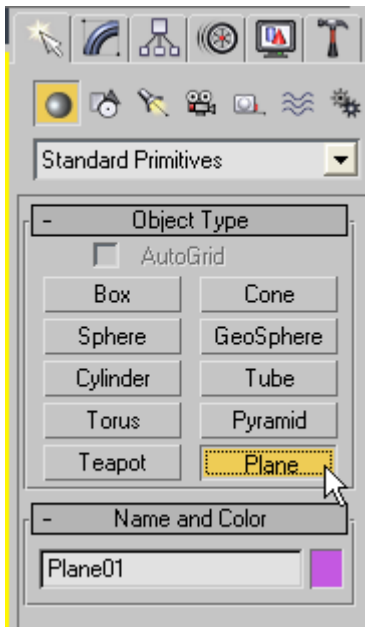
then use the bevel tool to bevel them in a little (note the minus number, used to bevel inwards)



Exit the subobject layer by hitting the poly subobject level – it will be in yellow.
 If you do not exit, you will not be able to move ahead.

Lattice

Make a **plane** the size of the window:



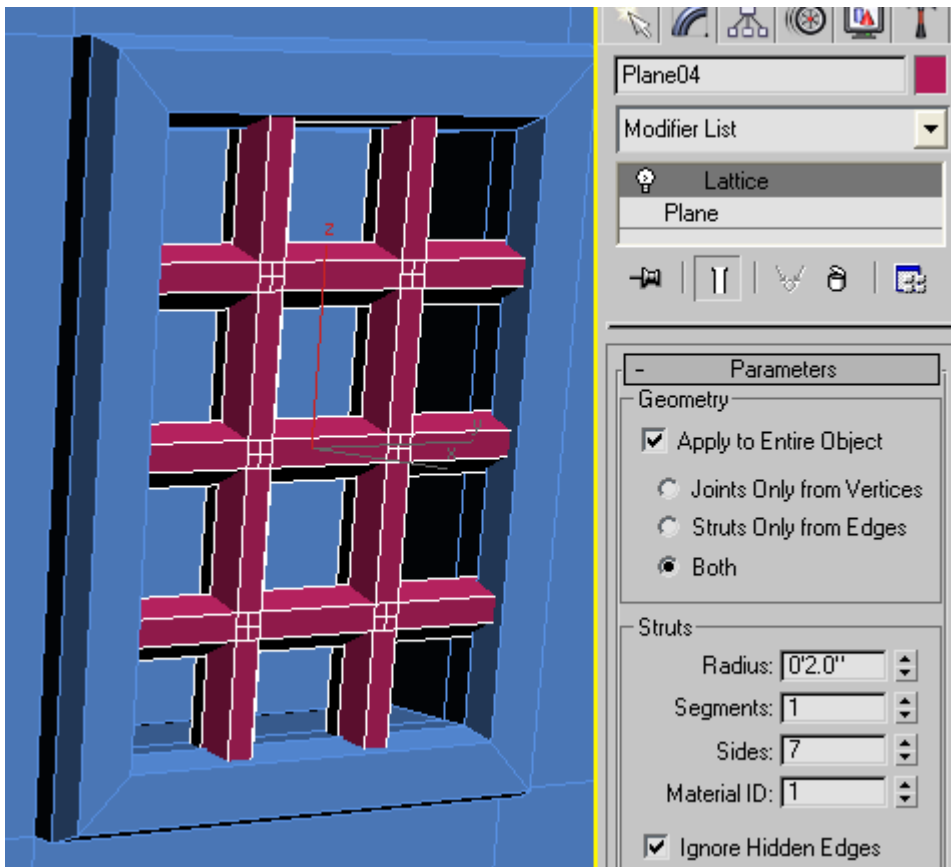
Rotate and move it into position; set the segments to 3, 3, or 3, 4, whatever looks good for a window lattice.
 (Take a look ahead in the tutorial to help you judge this.)

Tip – draw it in the front viewport, turn on vertex snap, and snap it into place.

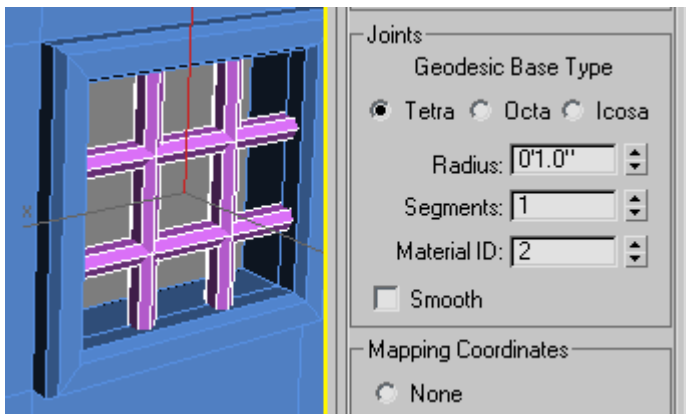
Add a **lattice** modifier.

Play with the settings to get something like this.

Note – your numbers might not be exactly the same, but look at the parameters in the screen shots and play with them to get a visual result like this (see next page.)



These numbers at the bottom are important too.
 If the intersections of the lattice (joints) look "knobby" turn down the radius for joints as shown here:



This concludes a preliminary exploration on walls and windows.
 Render a good view with a white background.
 Print with your name in Photoshop.