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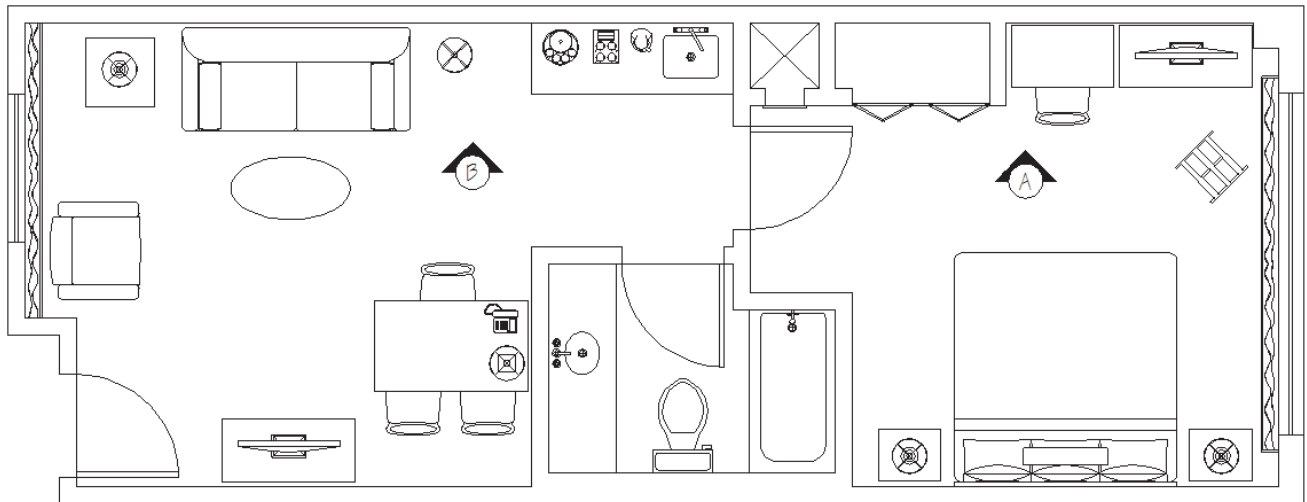
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Chapter 4

Hotel Suite Project – Tutorial 1

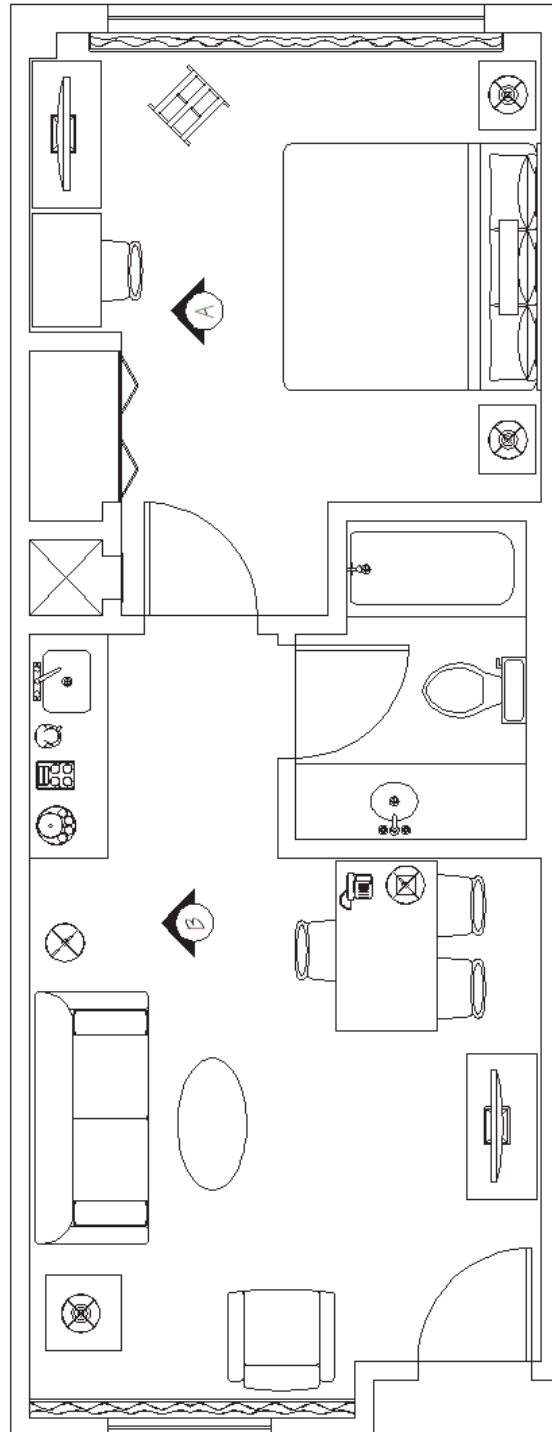


Learning Objectives:

- To create a drawing of a real-world application using AutoCAD
 - Create the plan view of the outside walls of the hotel suite
- To utilize and reinforce the use of the AutoCAD commands learned in the previous chapters

Hotel Suite Project

For our project, we will draw a hotel suite that will include a bedroom, bathroom, and a living room area. This project will utilize the majority of commands that will be covered throughout this book. The project will be broken down into multiple tutorials and each tutorial emphasizes commands covered in the preceding chapter.



The Hotel Suite

This tutorial covers the creation of the plan view of the hotel suite outside walls.

Commands & Techniques:

- Starting a new drawing
- Units
- Zoom - All
- Rectangle
- Offset
- Explode
- Construction Line – Offset
- Trim
- Extend
- Repeating commands by using the ↵ Enter key
- Erase
- Save

To help guide you through these tutorials, the following method is used to represent mouse and keyboard operations:

Font represents a keyboard operation.

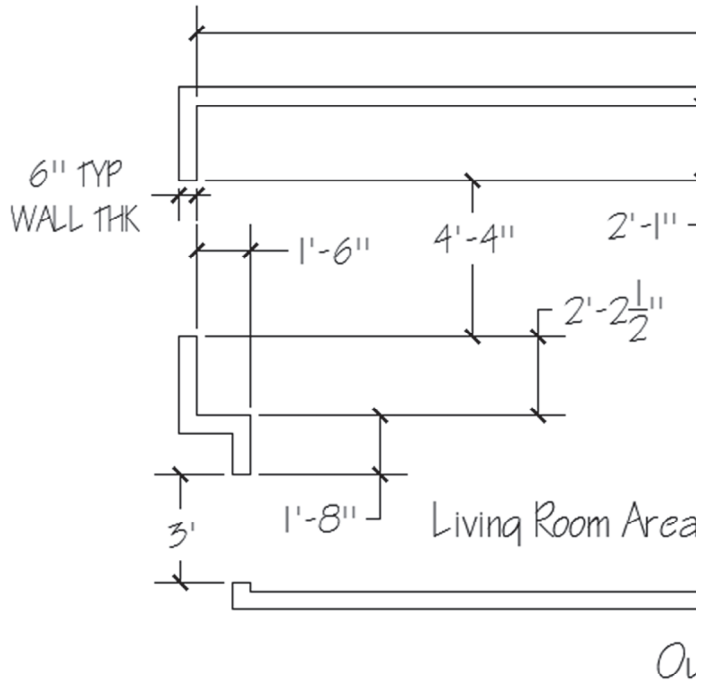
Font in parenthesis represents a mouse operation.

Font represents AutoCAD generated command line text.

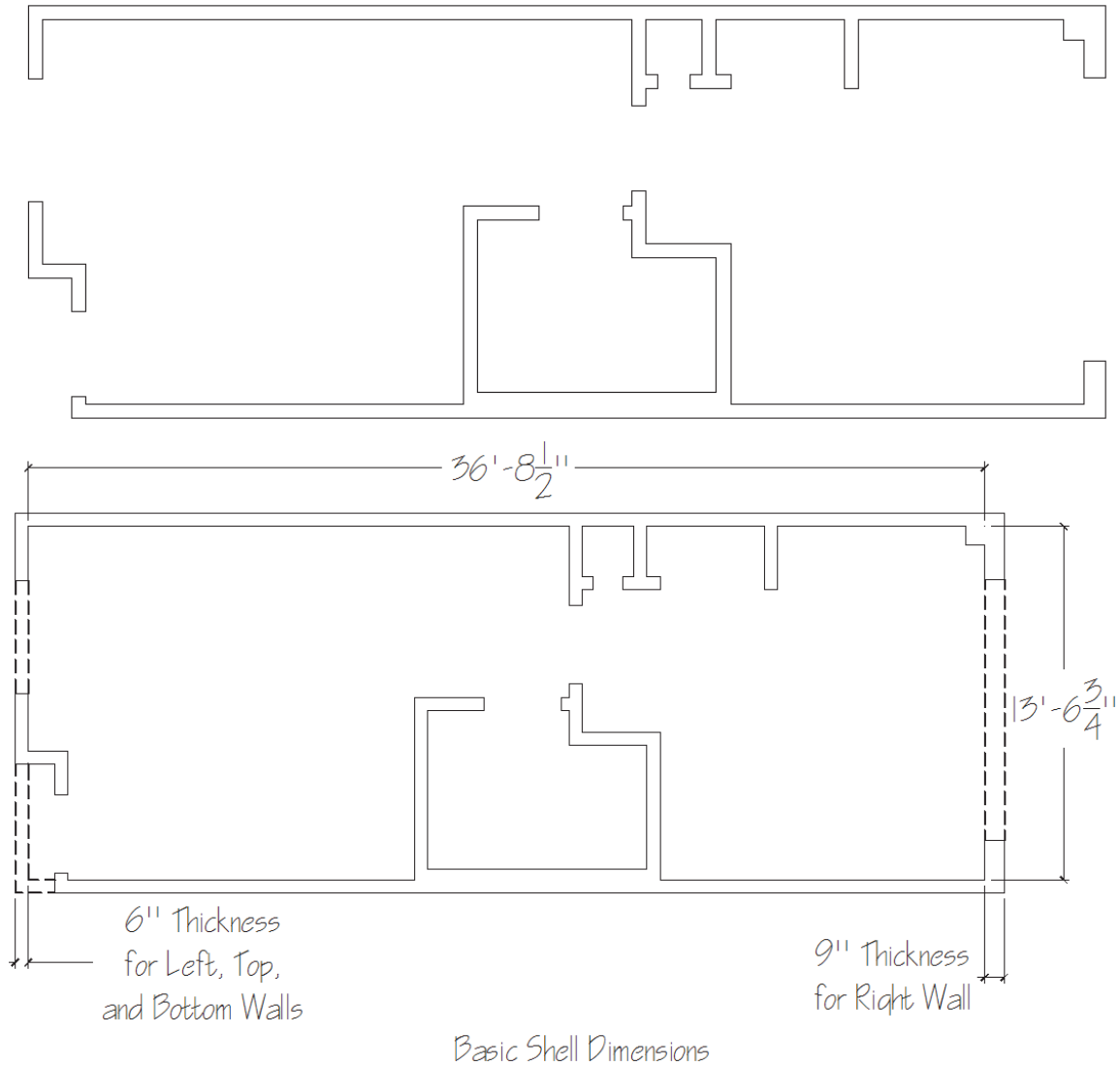
Because the majority of the steps are repetitive, after the first several steps, the tutorial will not repeat every detail and prompt. When a new command is used, then the details will be given.

If you have already set up your mouse for customized right-click, everywhere the tutorial instructs you to press the ↵ Enter key, you can substitute that instruction with “right mouse-click”.

For command options, where the text instructs you to type a letter or letters to use the option, you can use the cursor to select the option instead.



Create the basic shell of the suite



The dashed lines are shown to illustrate that we can start this drawing by using rectangles.

- Before beginning, start up a new drawing, use the Application Menu Browser to select Drawing Utilities, and change the Units to **Architectural**.
 - For Mac users, use the Format pull-down menu to change the Units to **Architectural**.

1. Change the units from decimal to feet-inches:

*(Pick the Application Menu Browser, Pick Drawing Utilities, and Pick Units)
Mac: (Select pull-down menu Format, Units)*

(Change to Architectural Units in the Length Type: (upper left portion) pull-down arrow in the dialog box)

(Pick OK to exit the dialog box)

2. Create the inside walls using Rectangle:

(Pick Rectangle icon)

RECTANG Specify first corner point or [Chamfer/Elevation/Fillet/Thickness/Width]: *(Pick a point on the screen, below and to the left of the center)*

Use the Dimensions option to define the 36'8-1/2" width and the 13'6-3/4" height. AutoCAD uses confusing definition for length and width; "length" = Horizontal direction, "width" = Vertical direction.

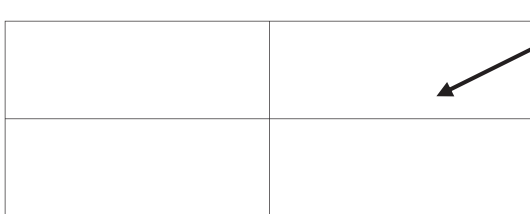
<p><u>Note: when specifying Rectangle dimensions:</u> - Length is the horizontal direction - Width is the vertical direction</p>
--

Specify other corner point or [Area/Dimensions/Rotation]: **d** ↵
(or pick Dimensions with your cursor)

Specify length for rectangles <0'-10">: **36'8-1/2** ↵

Specify width for rectangles <0'-10">: **13'6-3/4** ↵

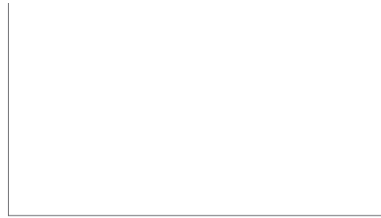
Specify other corner point or [Area/Dimensions/Rotation]: *(Pick to the upper right of the 4 choices given)*



As you move your cursor around the first corner point, four locations are available to choose. Pick the upper right location for the rectangle.

(AutoCAD will automatically end the Rectangle command)

When done, you will be left with only one rectangle, however it will not be seen in its entirety. That is because it is too big for the size of the view.



3. Change the screen zoom so that the entire drawing space is on the screen:

> **_z** ↵

ZOOM

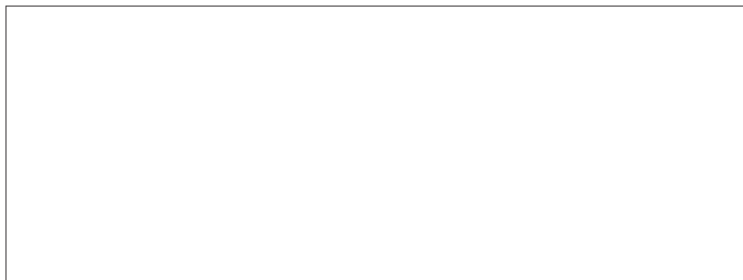
Specify corner of window, enter a scale factor (nX or nXP), or

ZOOM [All/Center/Dynamic/Extents/Previous/Scale/Window/Object] <real time>: **a** ↵

Regenerating model.

(AutoCAD will automatically end the Zoom command)

When done, you will now be able to see the entire rectangle on your screen.



4. Use the Mouse Wheel to zoom out even further.

Your rectangle will appear even smaller. This will allow us to view more drawing space for when we offset the walls toward the outside.

5. Use the offset command to draw the outside walls:

(Pick Offset icon)

OFFSET Current settings: Erase source=No Layer=Source OFFSETGAPTYPE=0

*Specify offset distance or [Through] <Through>: **6** ↵*

*Specify point on side to offset or [Exit/Multiple/Undo] <Exit>: **(Pick the rectangle)***

*Select object to offset or [Exit/Undo] <Exit>: **(Pick to the outside of the rectangle)***

Since no more offset lines are required, pressing the ↵ Enter key will end the Offset command.

Select object to offset or <exit>: ↵

When completed, your drawing will look like this.



In Step 6b, we will erase this line

6. Draw the 9" outside wall on the right side:

Our plan is to explode the rectangles first so that they become individual lines that we can work with. We will then be able to construct the thicker right wall.

6a. Prepare to draw the right outside wall by using the Explode command to convert the rectangles to lines:

(Pick the Explode icon)

EXPLODE Select objects: *(Pick one of the rectangles) 1 found:*
Select objects: *(Pick the other rectangle) 1 found, 2 total*

Since no more objects are to be exploded, pressing the ↵ Enter key will end the Explode command.

Select objects: ↵

6b. Erase the furthest right vertical line:

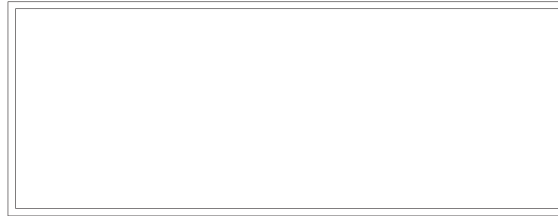
(Pick the Erase icon)

ERASE Select objects: *(Pick the right vertical line) 1 found*

Since no more objects are being erased, pressing the ↵ Enter key will end the Erase command.

Select objects: ↵

When completed,
your drawing will
look like this.



In step 6c, we will
create a construction
line offset from this
vertical line

6c. Construct the new right outside wall line for the 9" thick wall:

(Pick the Construction Line icon)

XLINE Specify a point or [Hor/Ver/Ang/Bisect/Offset]: **o** ↵

(or pick *Offset* with your cursor)

Specify offset distance or [Through] <0'-6">: **9** ↵

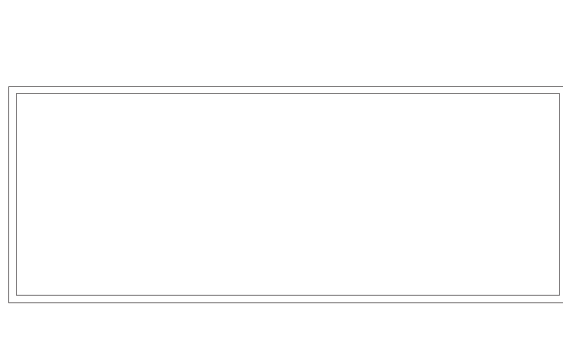
Select a line object: **(Pick the right vertical line)**

Specify side to offset: **(Pick anywhere to the right of the line you just selected)**

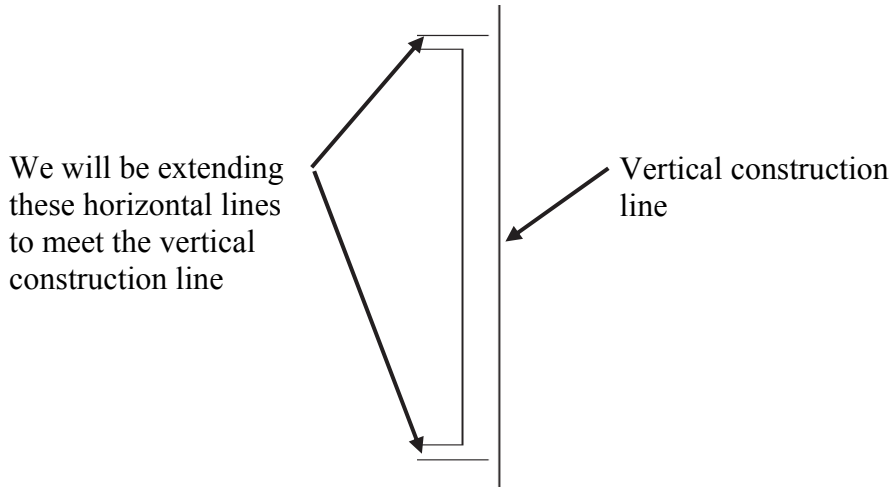
Since no more offset construction lines are required, pressing the ↵ Enter key will end the Offset command.

Select a line object: ↵

When you are done, your drawing should now look like this:



6d. Extend the horizontal lines to the new wall:



Remember that the Extend command is a two-part command; for the first part you pick the object (or objects) that you plan to extend to, for the second part you pick the objects to be extended.

(Pick the Extend icon)

Current settings: Projection=UCS, Edge=Extend

Select boundary edges ...

EXTEND *Select objects or <select all>: (Pick the vertical construction line) 1 found*

Since there are no more boundary lines, pressing the ↵ Enter key will get you to the second part of the command.

Select objects: ↵

Select object to extend or shift-select to trim or

[Fence/Crossing/Project/Edge/Undo]: (Pick the top horizontal line)

Select object to extend or shift-select to trim or

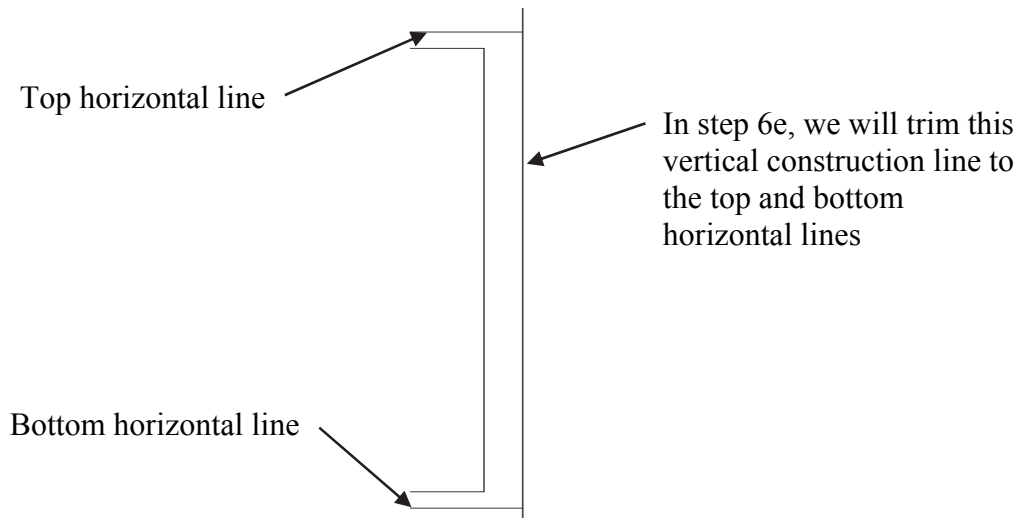
[Fence/Crossing/Project/Edge/Undo]: (Pick the bottom horizontal line)

Note: the order in which you pick the lines to extend does not matter.
--

Since there are no more lines that need to be extended, pressing the ↵ Enter key will end the Extend command.

*Select object to extend or shift-select to trim or
[Fence/Crossing/Project/Edge/Undo]: ↵*

When done, this portion of your drawing should look like this:



6e. Trim the vertical construction line of the new wall to the top and bottom walls:

Remember that the Trim command is a two-part command (just as it was for the Extend command); for the first part you pick the object (or objects) that you plan to trim to (as if they were cutting knives), for the second part you pick the objects to be trimmed.

Since we just used the Extend command, the icon for the Extend command is now shown in the panel, and to access the Trim command, the pull-down arrow must be selected.

(Pick the Trim icon)

Current settings: Projection=UCS, Edge=Extend

Select cutting edges...

TRIM *Select objects or <select all>: (Pick the top horizontal line) 1 found*

Select objects: (Pick the bottom horizontal line) 1 found, 2 total

Note: the order in which you pick the cutting edges does not matter.

Since there are no more cutting edges, pressing the ↵ Enter key will get you to the second part of the command.

Select objects: ↵

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]: **(Pick the construction line in a location above the top horizontal line)**

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]: **(Pick the construction line in a location below the bottom horizontal line)**

Note: the order in which you pick the location or lines to trim does not matter.
--

Since no more trimming is required, pressing the ↵ Enter key will end the Trim command.

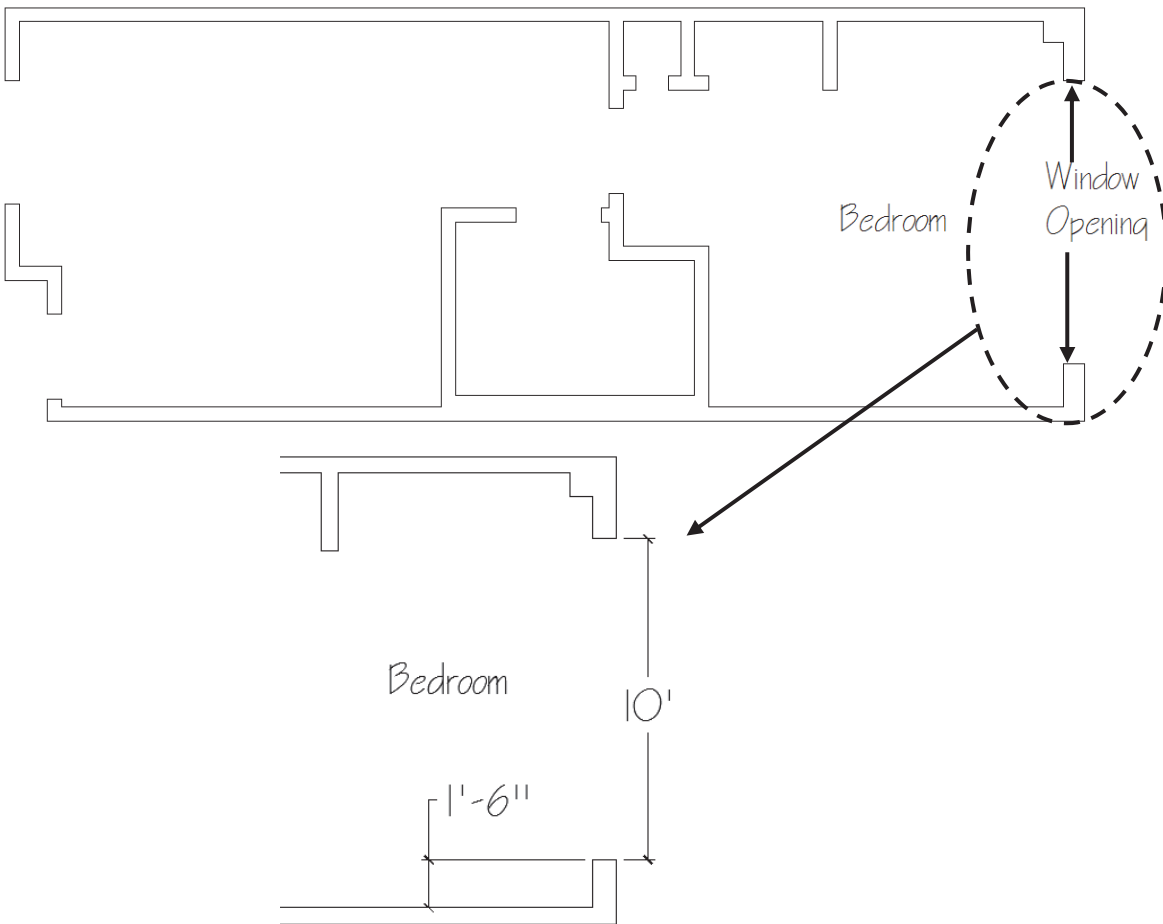
Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]: ↵

When you are done, your drawing should look like this:

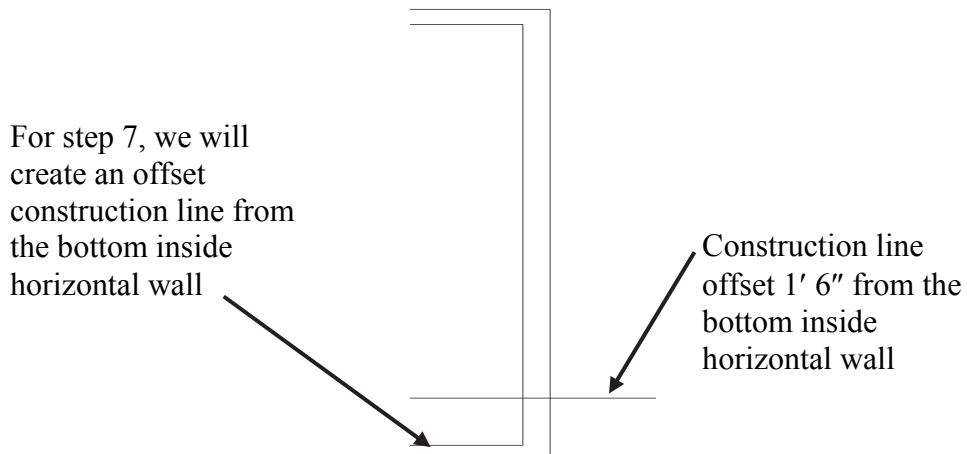


7. Create the window opening in the bedroom



Our plan is to use both the **Construction Line – Offset** command and the **Offset** command to define the window opening. We will then trim the lines (and construction lines) to complete the window opening.

7a. Create a construction line offset from the bottom inside horizontal wall:



(Pick the Construction Line icon)

XLINE Specify a point or [Hor/Ver/Ang/Bisect/Offset]: 0↵

(or pick Offset with your cursor)

Specify offset distance or [Through] <Through>: 1'6↵

Select a line object: (Pick the bottom inside horizontal line)

Specify side to offset: (Pick a location above the line you just selected)

Since we are not offsetting any more construction lines this distance, pressing the ↵ Enter key will end the command.

Select a line object: ↵

Command:

7b. Offset the new construction line to define the window size

(Pick the Offset icon)

Current settings: Erase source=No Layer=Source OFFSETGAPTYPE=0

OFFSET Specify offset distance or [Through/Erase/Layer] <1'-6">: 10'↵

Note that the default value for the offset distance is the last value used for either the Offset command or the Construction Line Offset command

Select object to offset or [Exit/Undo] <Exit>: (Pick the horizontal construction line that you just created in step 7a)

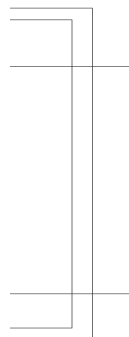
Specify point on side to offset or [Exit/Multiple/Undo] <Exit>: (Pick a point anywhere above the horizontal construction line)

Since there are no more objects that we plan to offset, pressing the ↵ Enter key will end the command.

Select object to offset or [Exit/Undo] <Exit>: ↵

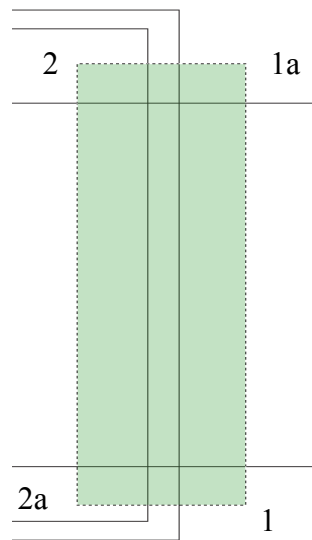
When you are done, your drawing should look like this:

In step 7c, we will trim the lines and construction lines to create the window opening



7c. Use the Trim command to trim the lines and construction lines:

Using a crossing window will allow us to select multiple cutting edges with only two mouse clicks



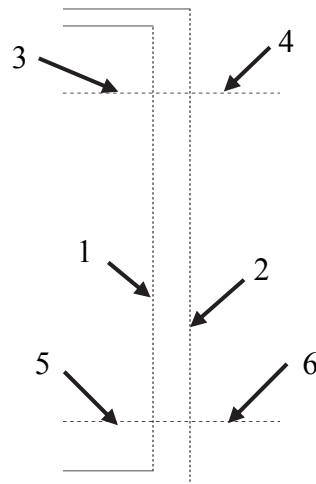
Remember: a crossing window goes from right to left, and any object that “crosses” that window, or is completely inside that window, is selected

(Pick the Trim icon)

Current settings: Projection=UCS, Edge=Extend

Select cutting edges ...

TRIM Select objects or <select all>: *(Pick point at either location 1 or 1a)* Specify opposite corner *(Pick a point at either location 2 or 2a)* 4 found

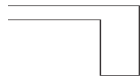


Since there are no more cutting edges, pressing the ↵ Enter key will get you to the second part of the command.

In the second part of the command, select the objects to be trimmed in the approximate locations shown (1-6). Note that the order in which you select the objects to be trimmed does not matter.

Select object to trim or shift-select to extend or [Fence/Crossing/Project/Edge/eRase/Undo]: ↵

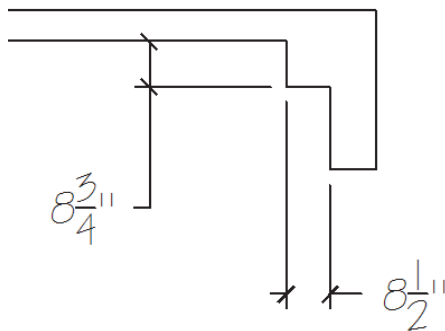
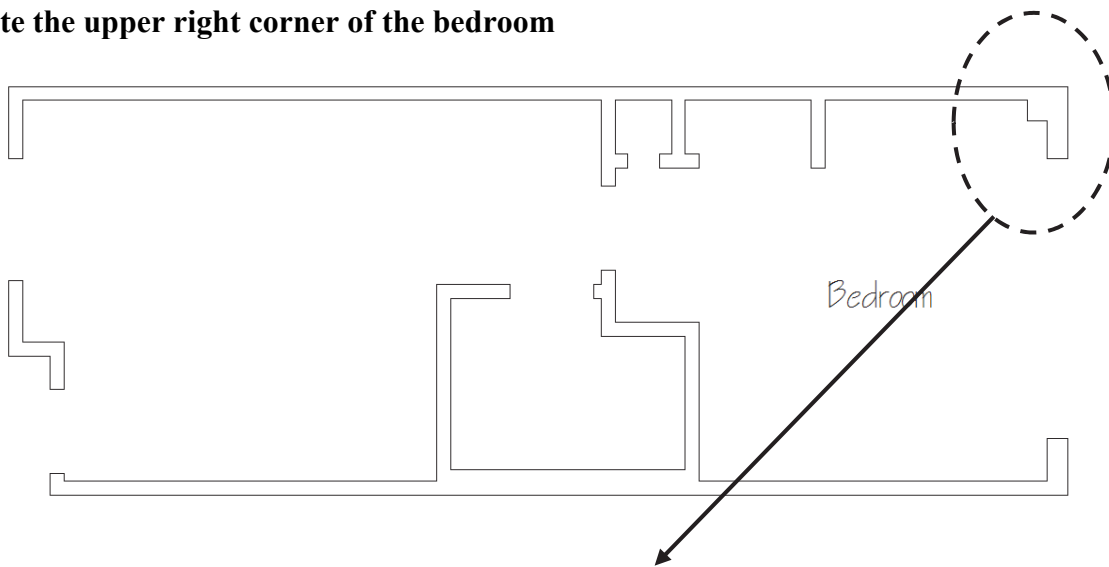
The select object prompt will repeat until you press the ↵ Enter key to end the command



When your are done trimming, your window opening will be complete



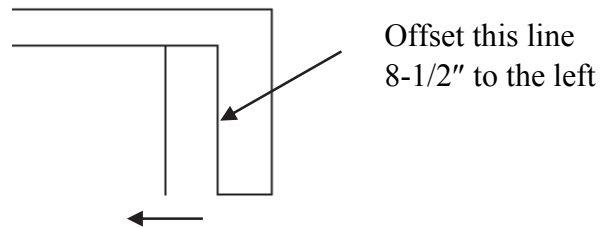
8. Create the upper right corner of the bedroom



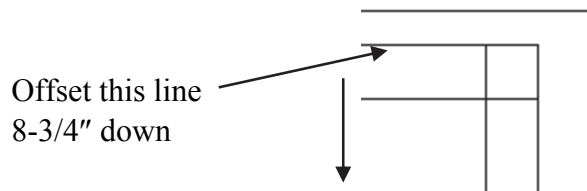
The upper right corner of the bedroom has a bump-out into the room because there is a structural column supporting the outside wall of the building. Our plan is to draw this bump-out by using the Offset and Trim commands.

Before beginning, you may want to use Zoom and Pan (using your mouse-wheel) to get a larger view of the upper right corner.

8a. Use the Offset command to offset the right inside wall line.

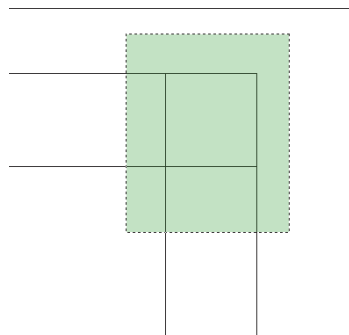


8b. Press the ↵ Enter key to repeat the Offset command to offset the top inside wall line.

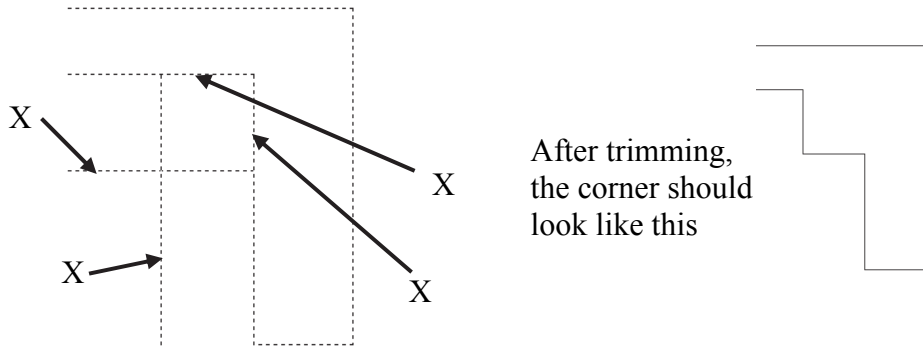


8c. Use the trim command to complete the corner

Use a crossing window to select the cutting edges:



Select the lines to be trimmed at the locations shown:

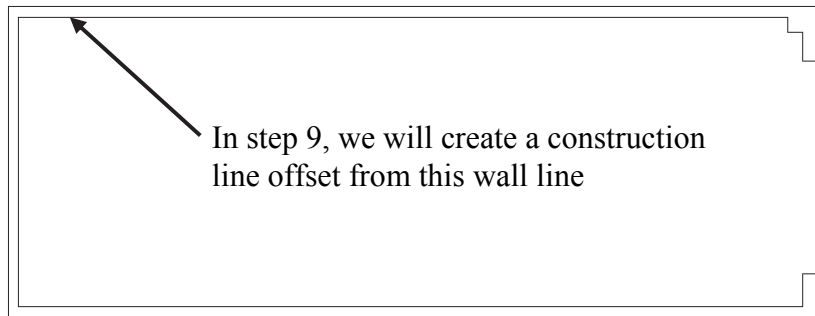


8d. Use Zoom with the Extents option to view all your objects:

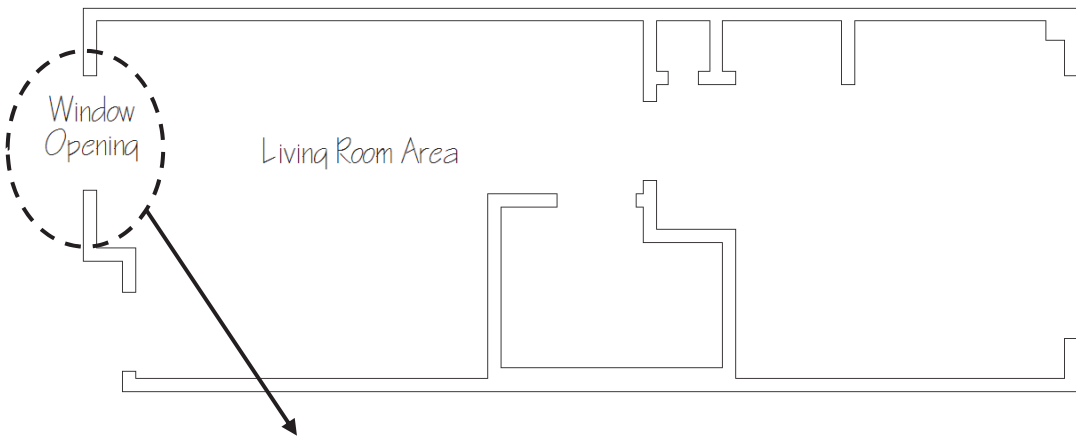
> **_z** ↵
ZOOM

Specify corner of window, enter a scale factor (nX or nXP), or

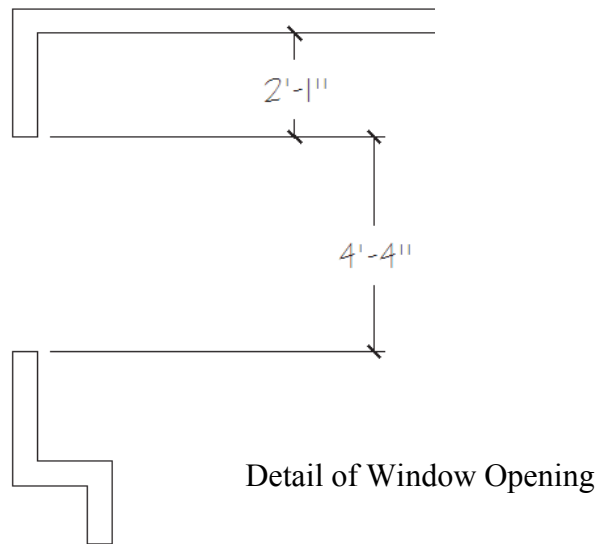
ZOOM [All/Center/Dynamic/Extents/Previous/Scale/Window/Object] <real time>: **e** ↵



9. Create the window opening in the living room area



See detail of Window
Opening on the next page



The steps required to create this window opening are very similar to the steps needed to create the bedroom window opening of step 7.

Our plan is to use both the Construction Line – Offset command and the Offset command to define the window opening. We will then trim the lines (and construction lines) to complete the window opening.

Before beginning, use the wheel mouse to zoom and pan to get a closer view of the window opening area that we will be working on.

9a. Create a Construction Line Offset 2'1" from the upper inside wall

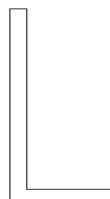
9b. Offset the construction line of step 9a 4'4" down

9c. Use the Trim command to complete the window opening

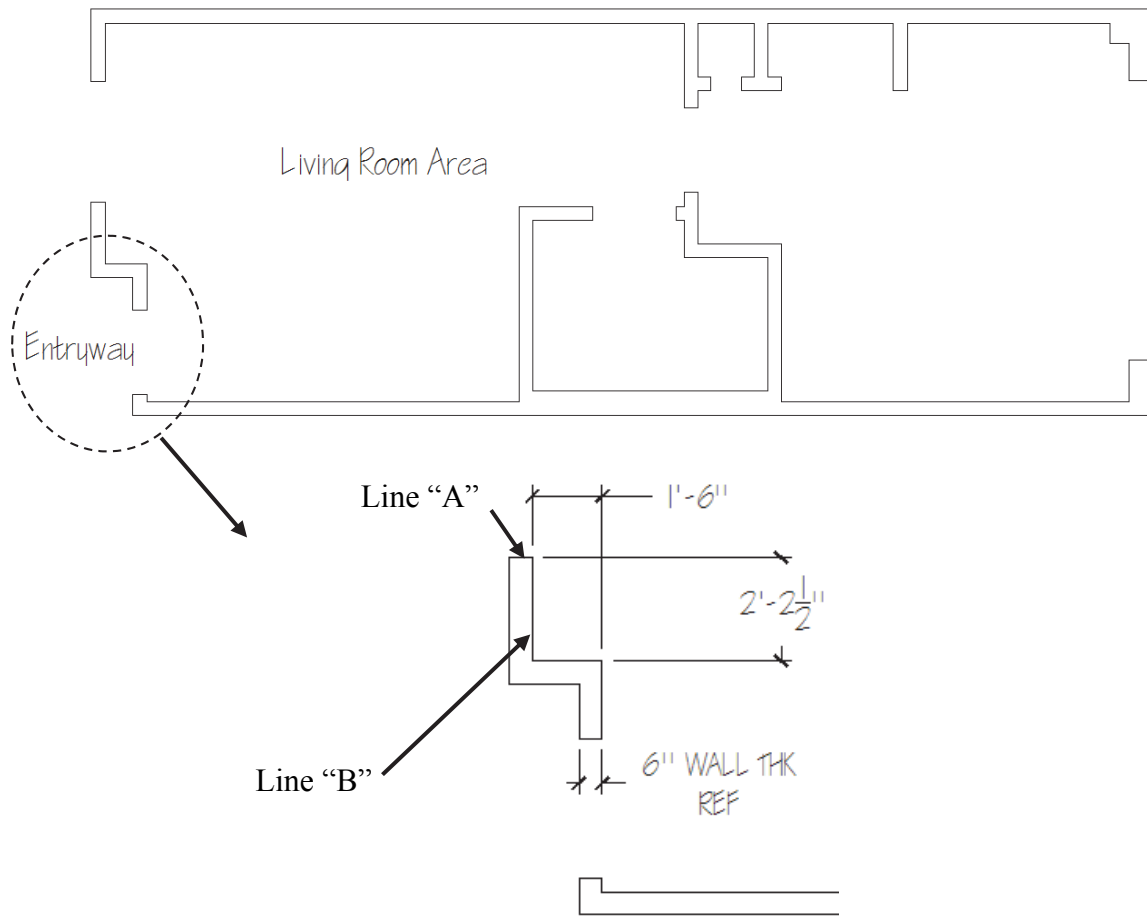
Use the crossing window method to select the cutting edges, just like we did in step 7.



When you are done
trimming, your window
will be complete

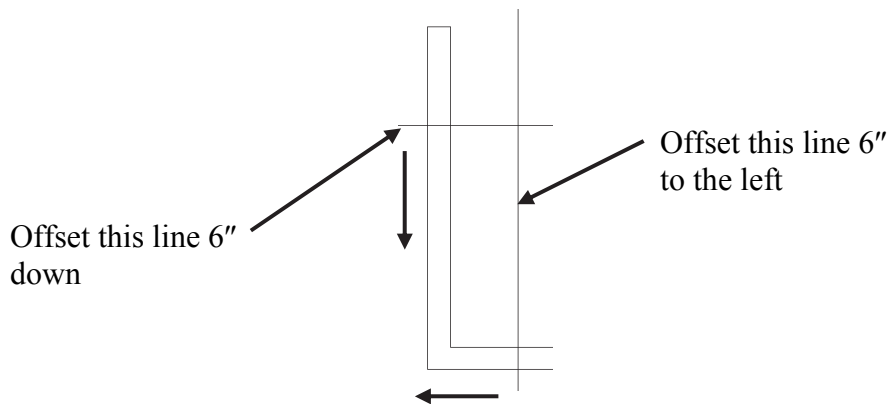


10. Create the entryway indentation into the living room area



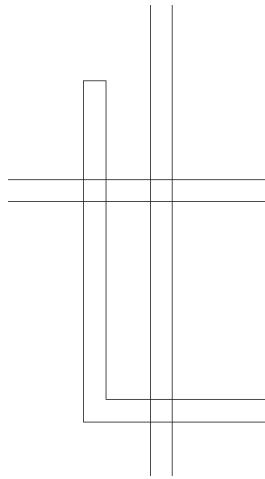
10a. Create a Construction Line Offset 2'2-1/2" down from line "A"

10b. Create a Construction Line Offset 1'6" to the right of line "B"



10c. Use the Offset command to Offset both construction lines 6" each

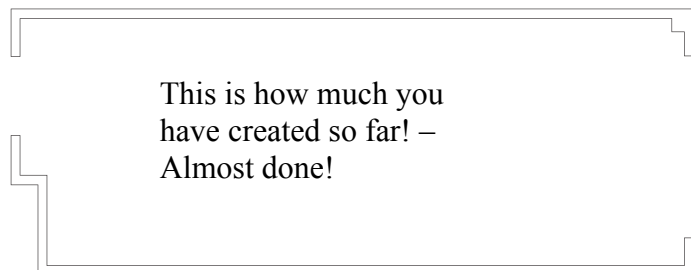
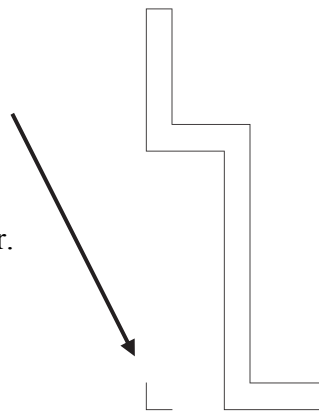
After this step, this part of your drawing should look like this:



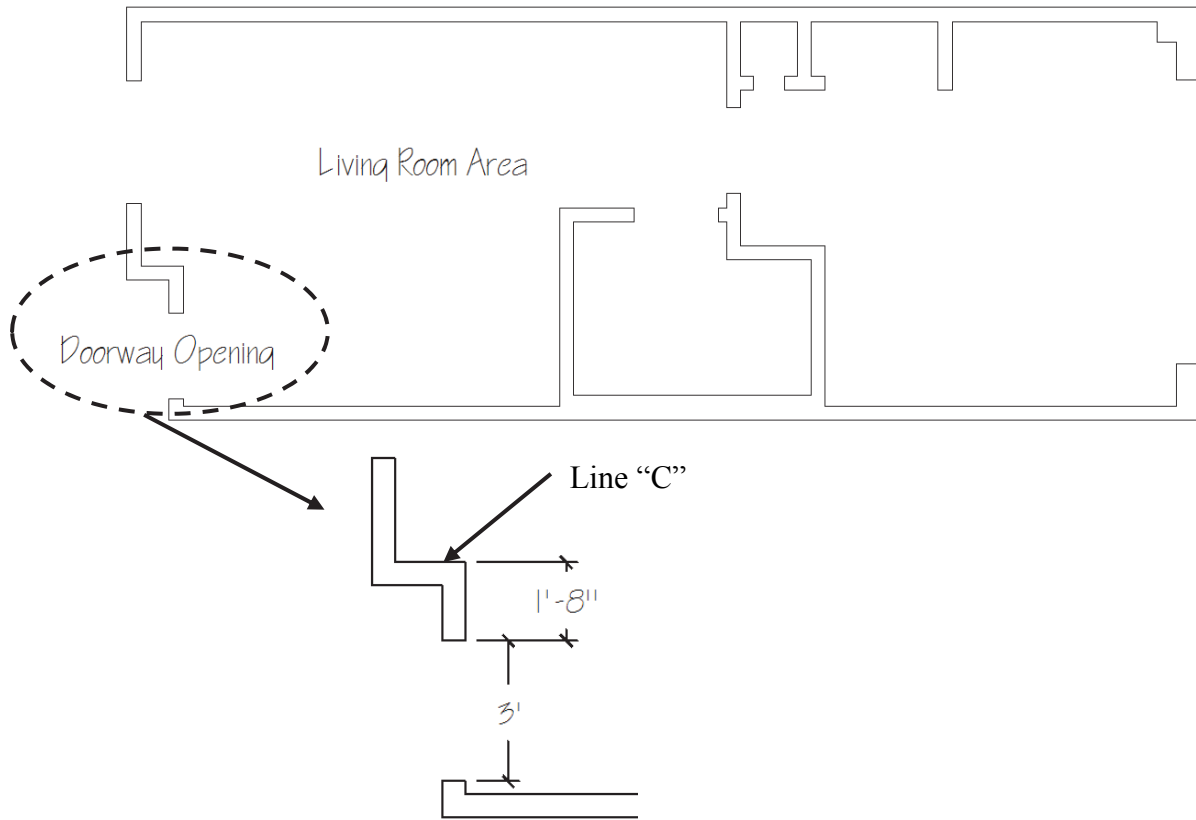
10d. Use the Trim command to trim construction lines

10e. Use the Erase command (if needed) to eliminate any extra lines

Depending on the order and location of the lines you picked during trimming, you may have some extra lines left over. Use the Erase command to eliminate them.



11. Create the doorway opening into the living room area



11a. Offset line "C" 1'8" down

11b. Offset the line created in step 11a 3' down

11c. Use the Trim command to complete the doorway opening

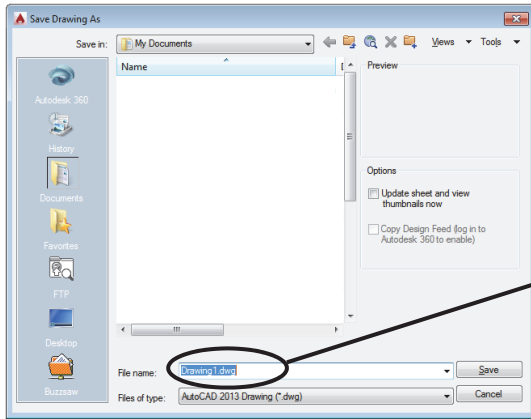
Congratulations! You have now completed the basic shell of the hotel suite outside walls. Make sure to save your drawing so all that hard work won't be wasted!



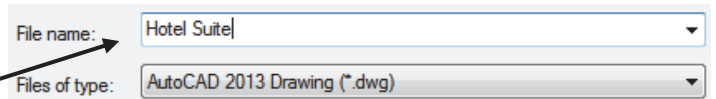
12. Save the drawing

(Pick the Save icon)

After picking the Save icon, a dialog box will appear. If this is the first time saving, it will look similar to this:



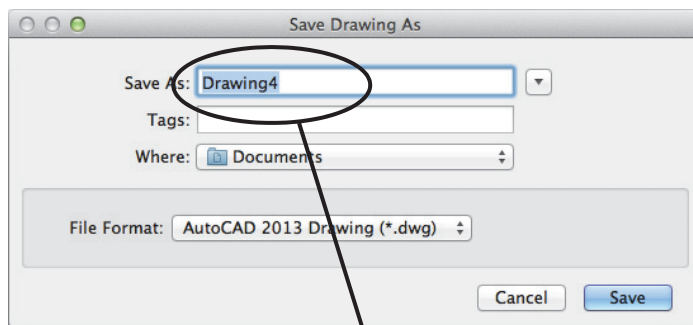
Name your drawing “Hotel Suite”
and pick the Save button



Mac:

(Use the pull-down menu File and pick Save)

After picking Save, a dialog box will appear. If this is the first time saving, it will look similar to this:



Name your drawing “Hotel Suite”
and pick the Save button

