A

Drawing a Bedroom Floorplan

In this chapter, you will learn the following to World Class standards:

- **Draw a Bedroom Floorplan**
- **Draw the Bedroom Walls**
- **Draw and Dimension the Bedroom Door**
- **Draw and Dimension the Bedroom Window**
- **Add Overall Dimensions to the Bedroom**

Draw a Bedroom Floorplan

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In this project, we will learn how to draw a simple bedroom floorplan with a single door, and a window, and dimension the plan. In the lesson, we will need to make the walls that surround the area and show them with the proper width. The importance of this tutorial is to practice our Computer Aided Design (CAD) skills without adding the extra complexities found in such areas as kitchens, bathrooms, and roofs. Once we acquire the basic skills in drawing floor plans, we can increase the complexity of the design.

We will begin the lesson with a sketch that has the necessary dimensions to create the lines in our CAD drawing. We will be using AutoCAD 2011 in this example.
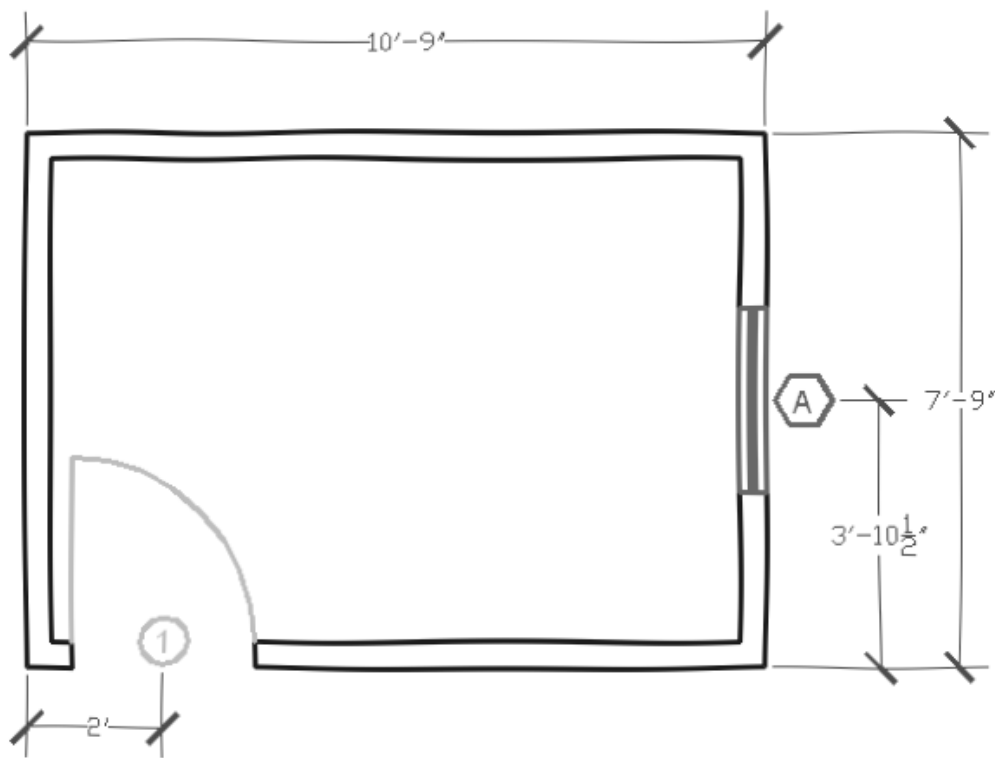

Figure A.1 – Sketch of the Bedroom

Draw the Bedroom Walls

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A bedroom is generally a rectangle and the one we will draw is 10 foot by 7 foot, which will generate a 70 square foot area. That is the smallest bedroom size according to the International Code Council (ICC) 2006 International Residential Code. The door will open into the bedroom and it is located close to the edge of the wall so there will be the smallest footprint of an open door in the room. Bedrooms require two modes of exit in case of an emergency and one of them

can be by the way of the window. The International Residential Code states the width of the window should be a minimum of twenty inches, and the height of the window should be a minimum of twenty-four inches. Both our door and window are 32 inches wide.

To begin the drawing, we open the CAD program and with our architectural template by selecting New and then we choose architectural as shown in figure A.2. The current layer is set at floorplan so we are ready to draw our walls.

We begin to draw the rectangle by choosing Polyline and then we pick a starting point on the lower left side of the graphical display. With the Ortho Mode on, we push the line to the right and type 10' (feet) at the command line. A single line will appear as shown in figure A.3.
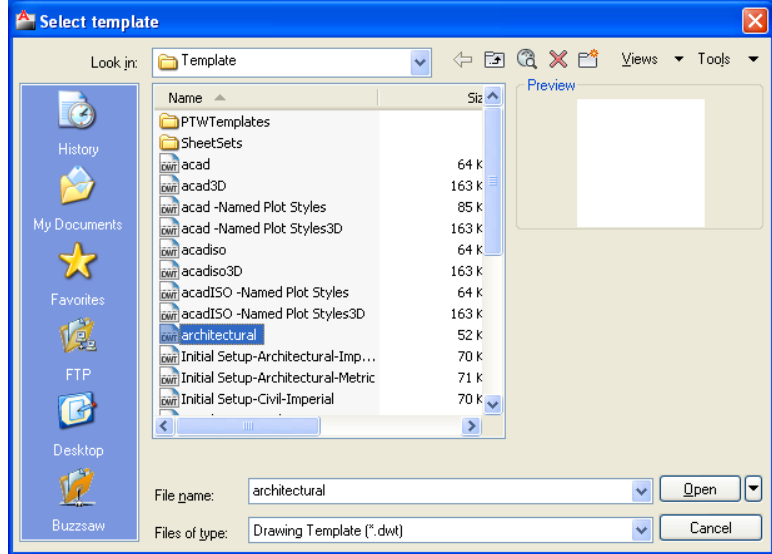

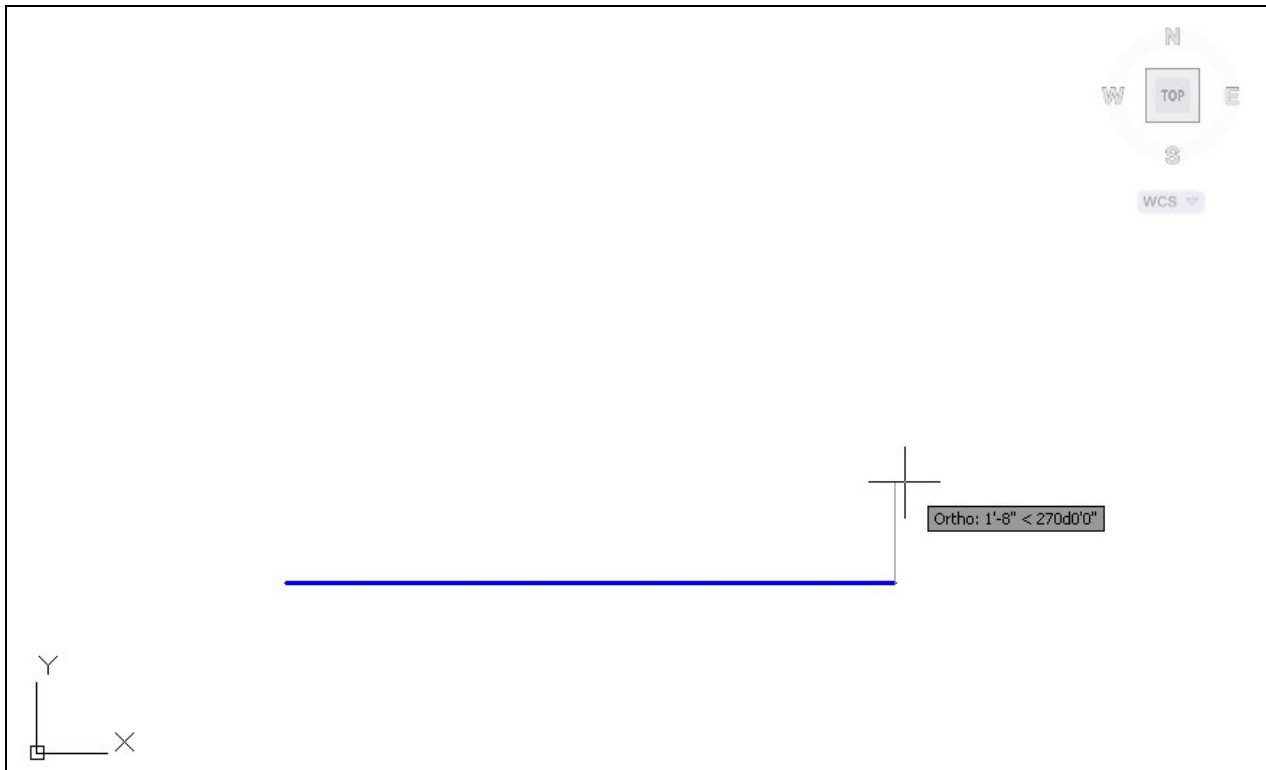**Figure A.2 – The Architectural Template**

Figure A.3 – Drawing the First Line in the Bedroom Wall

We continue with the rectangle by drawing the next leg upward by 90 degrees. We type 7' and enter. We draw the third line to the left at 10' and we will type "C" for close to complete the Polyline.
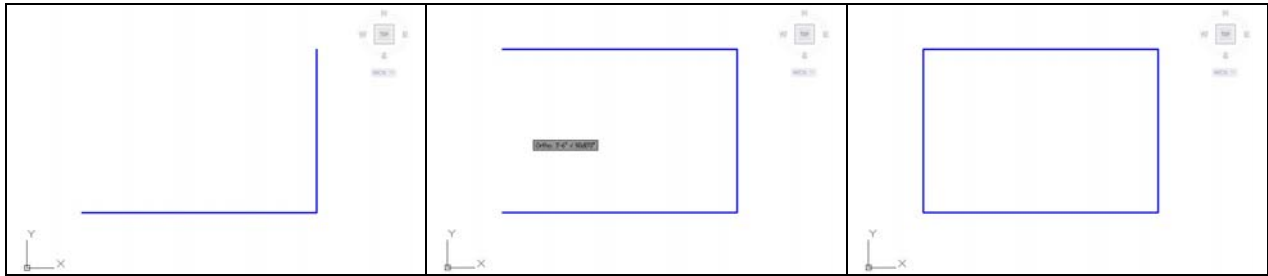

Figure A.4 – Completing the Rectangular Drawing of the Bedroom Interior Wall

Our next step is to offset the interior boundary of the wall 4.5 inches outward using the Offset command. We computed our walls at 4.5 inches since the 2 by 4-wall studs measure 1.5 by 3.5 inches. We add a sheet of ½-inch drywall on either side of the 3.5 inch width to add up to 4.5 inches. In order to modify the eight lines, we will Explode the two Polyline entities.
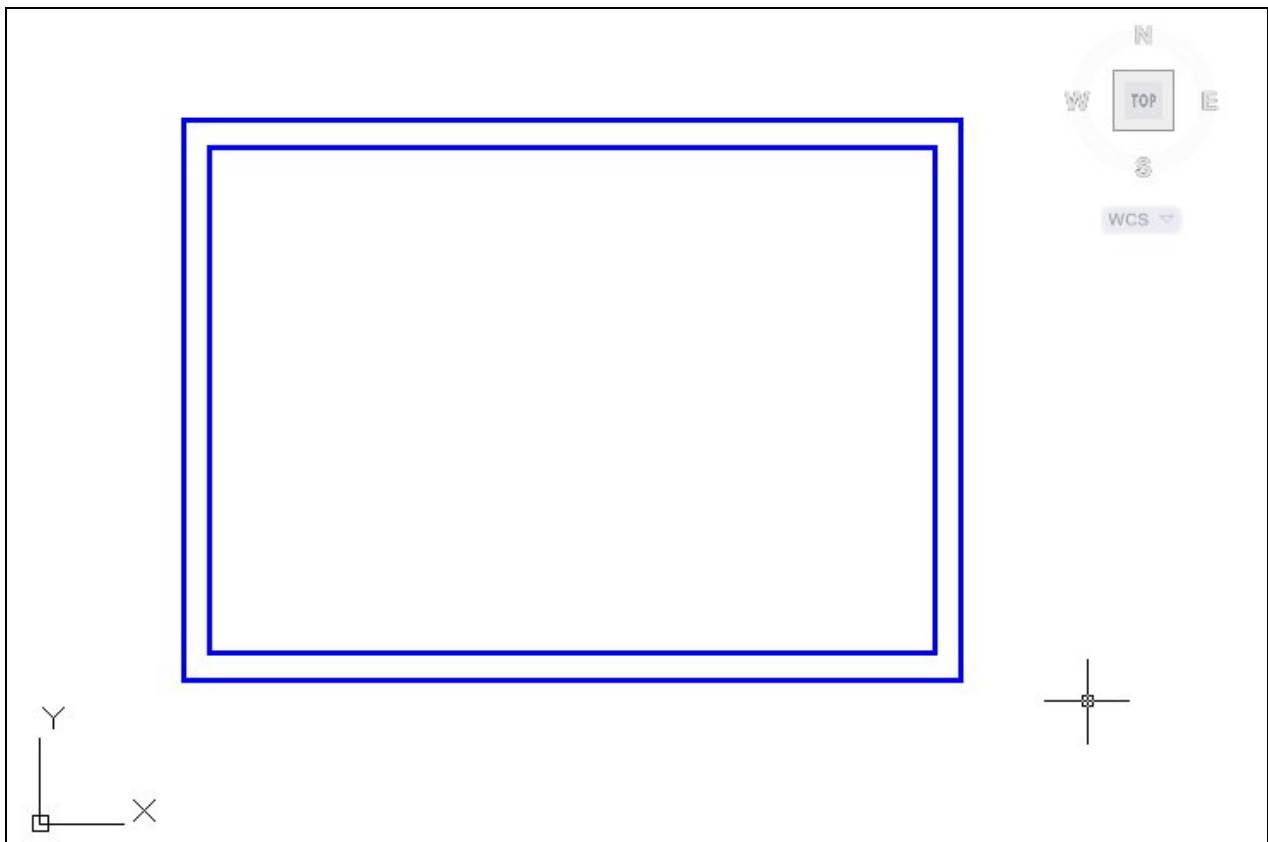

Figure A.5 – Offset the Bedroom Wall

Draw and Dimension the Bedroom Door

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Next, we will draw a line that will show our door opening. We will draw a 4.5-inch vertical line from the lower left hand corner of the room. We then move the single line 8 inches to the right as shown in figure A.6. To make the other side of the opening, we copy the 4.5-inch line segment 32 inches to the right.
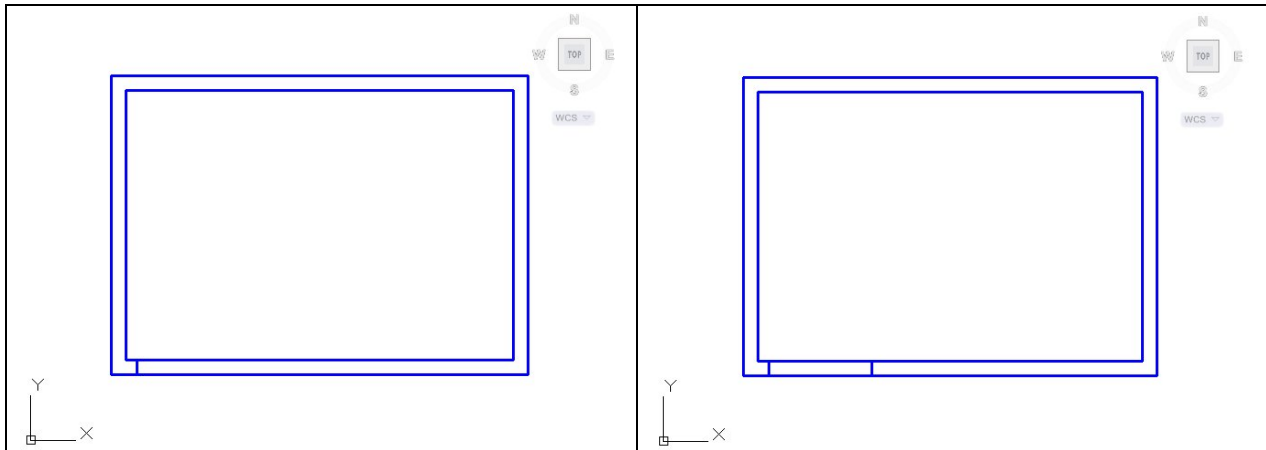

Figure A.6 – The Left Side of the Opening   Figure A.7 – The Right Side of the Opening

Now, we remove the lines from the door opening using the Trim command leaving the drawing as shown in Figure A.8. We change the current layer to Door and we draw a single line from left to right on the interior of the bedroom wall as shown in Figure A.9.
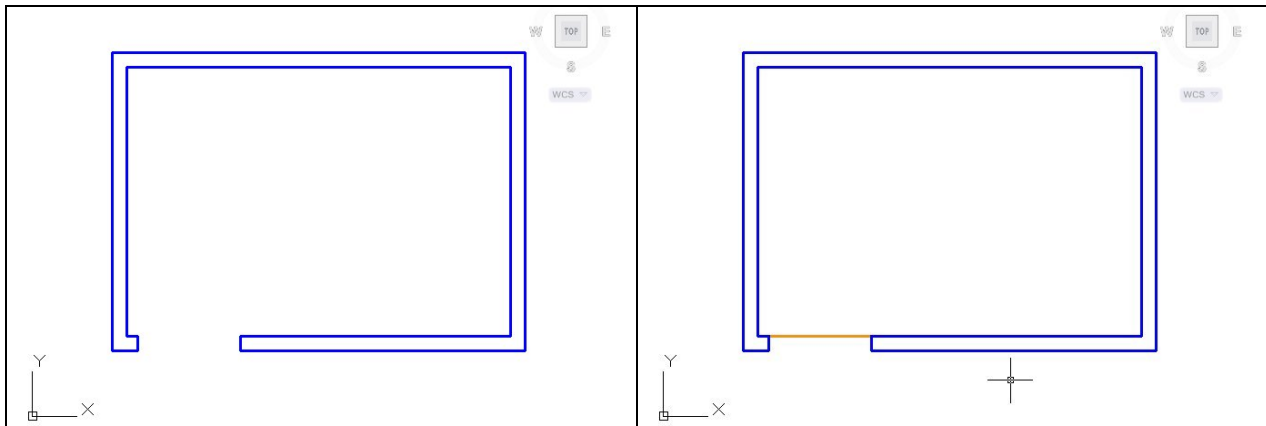

Figure A.8 – The Left Side of the Opening   Figure A.9 – The Right Side of the Opening

When we show a door on an architectural floorplan, we use a number inside a circle to denote the type of door and we can match the description of the door by reading the same number on the door schedule in the plan set.

So, we add the number 1 at the midpoint of the line representing the door using Dtext and Middle for the text insertion point. We draw a circle at the same midpoint that has a radius of 4" as shown in Figure A.10.

We show doors in the open position, so we use the Rotate command to open the door by 90 degrees as shown in Figure A.11.
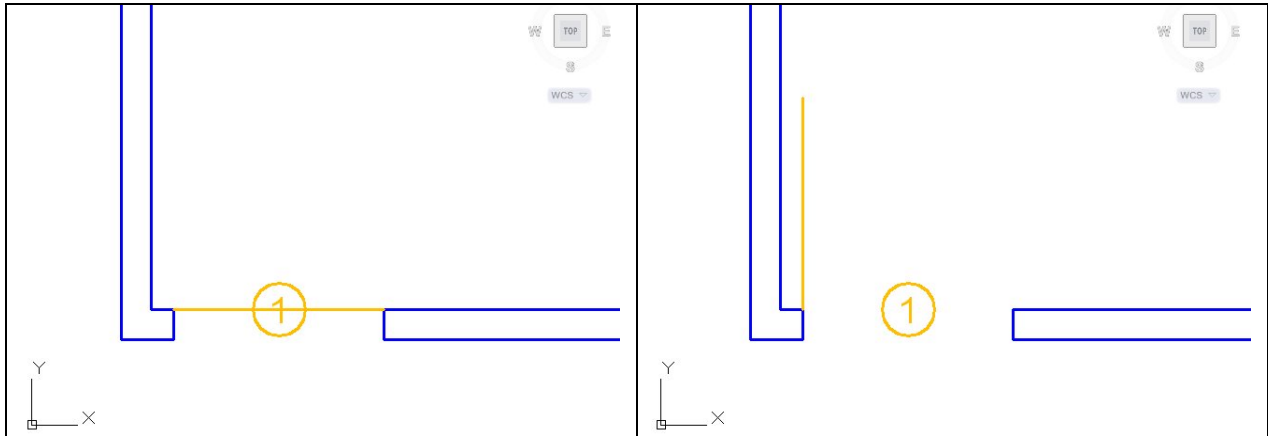

Figure A.10 – Adding the Door Symbol   **Figure A.11 – Showing the Door as Open**

We need to draw an arc to show the direction of the door opening. When we use the Arc command, we pick the start point as shown in Figure A.12. Then, we type "C" for center and pick the center point as shown in Figure A.13.
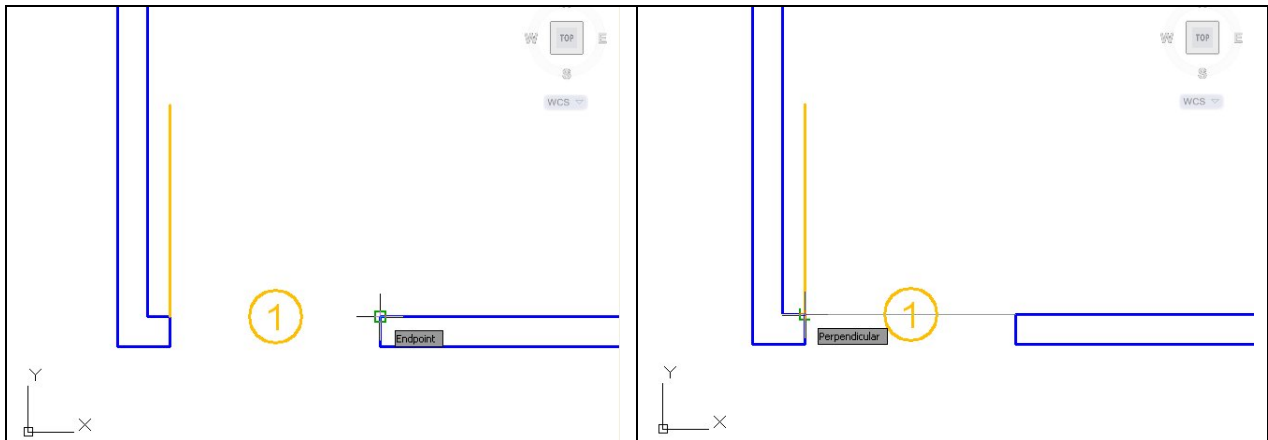

Figure A.12 – Arc Starting Point   **Figure A.13 – Arc Center Point**
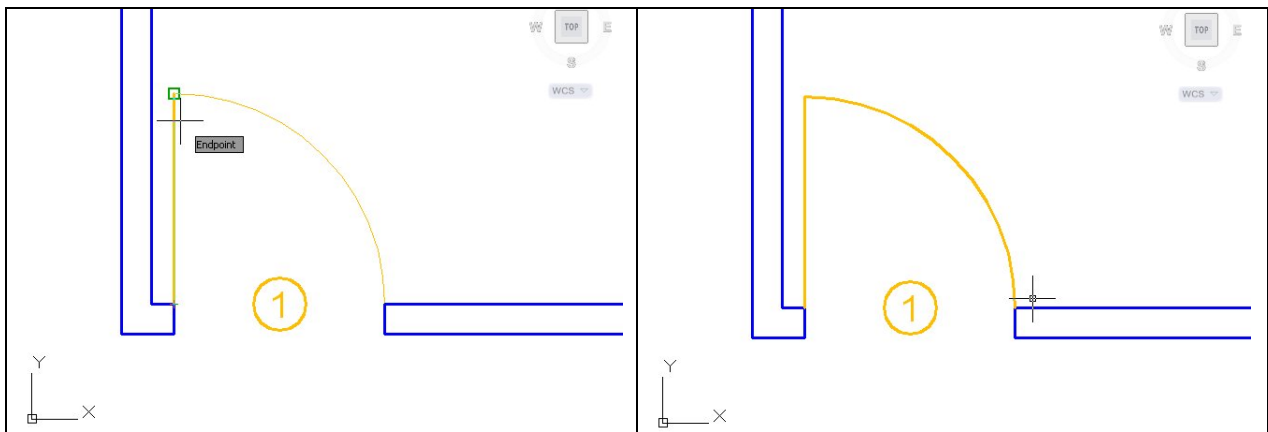

Figure A.14 – Arc End Point   **Figure A.15 – Final Arc**

We finally select the endpoint and we can see the faint imprint of the arc as shown in Figure A.14. The final arc is shown in Figure A.15.

The last step in describing the bedroom door is to dimension the location of the door from the wall. Typically, we would dimension the door from its center to the center of the wall, but we will take the measurement from the outside of the wall to the center of the door. We set the current layer to dimension and place the Linear Dimension as shown in Figure A.16.
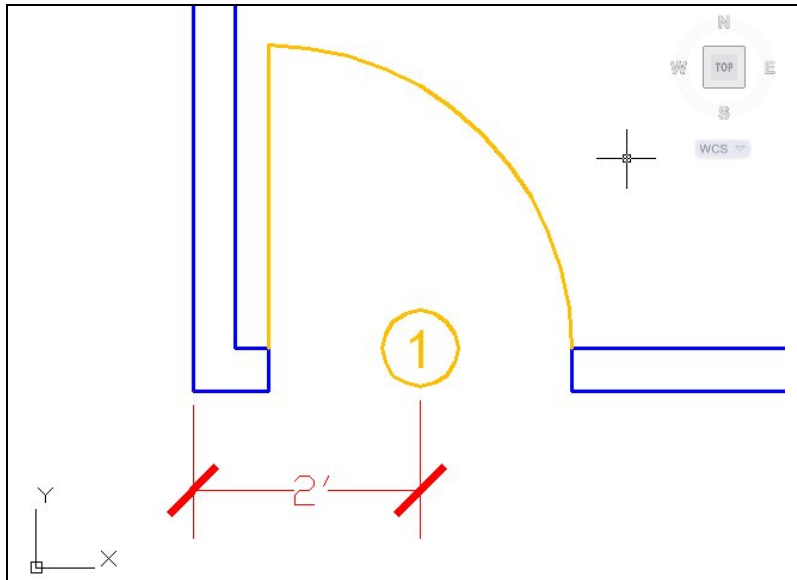

Figure A.16 – Dimensioning the Door's Location

Draw and Dimension the Bedroom Window

To add a window to the bedroom, we will change the current layer to window and draw a line from the midpoint of the interior portion (Figure A.17) of the bedroom wall to the exterior boundary. We then use the Offset command copy the 4.5-inch line 16 inches above and below the midline as shown in Figure A.18.
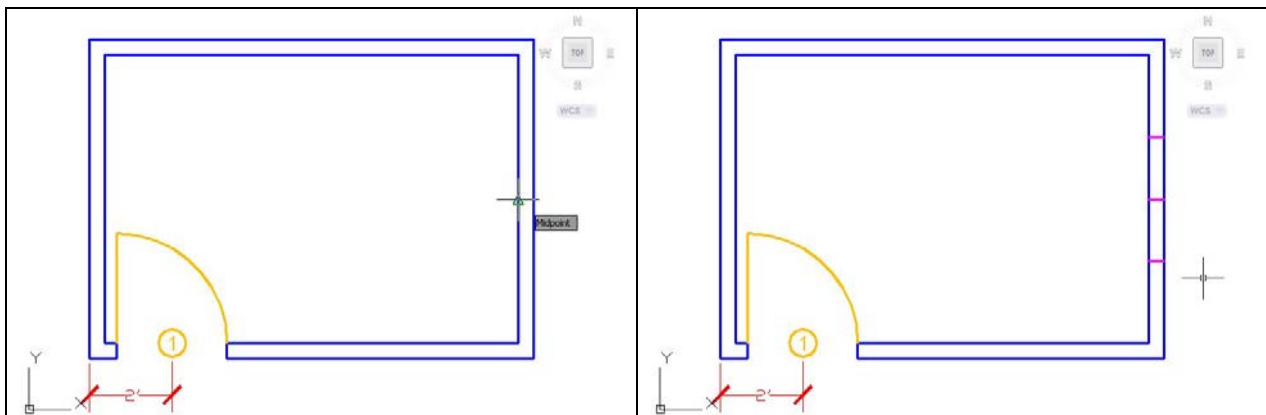

Figure A.17 – Adding a Window   **Figure A.18 – Showing the Window's Edge**

We can erase the middle line we used to begin to draw the window and then we will utilize the Trim command to remove the blue wall lines. After that, we will draw the two lines for the window as shown in Figure A.20. To get the two lines that represent the glazing, we offset the

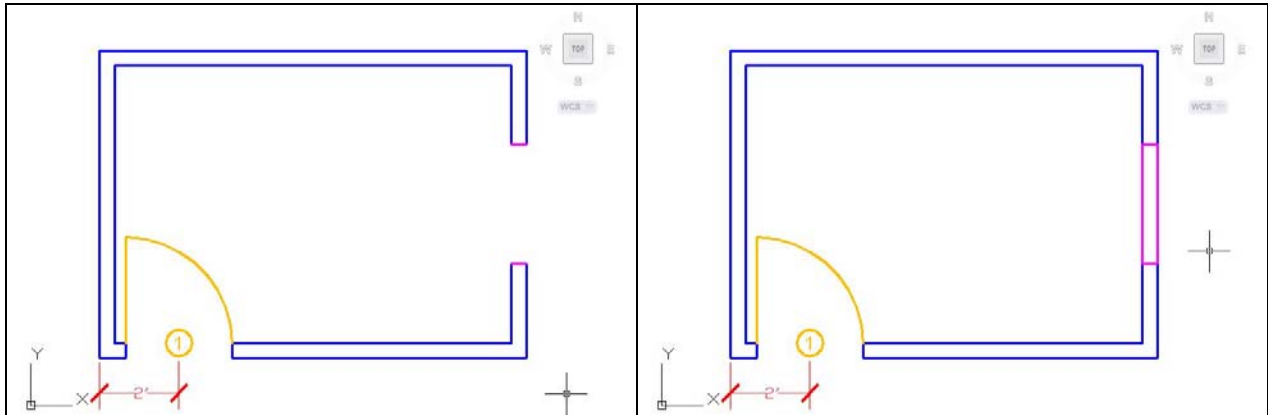last two lines 1.5 inches to the inside as shown in Figure A.21.

Figure A.19 – Trimming the Window   **Figure A.20 – Adding Window Lines**
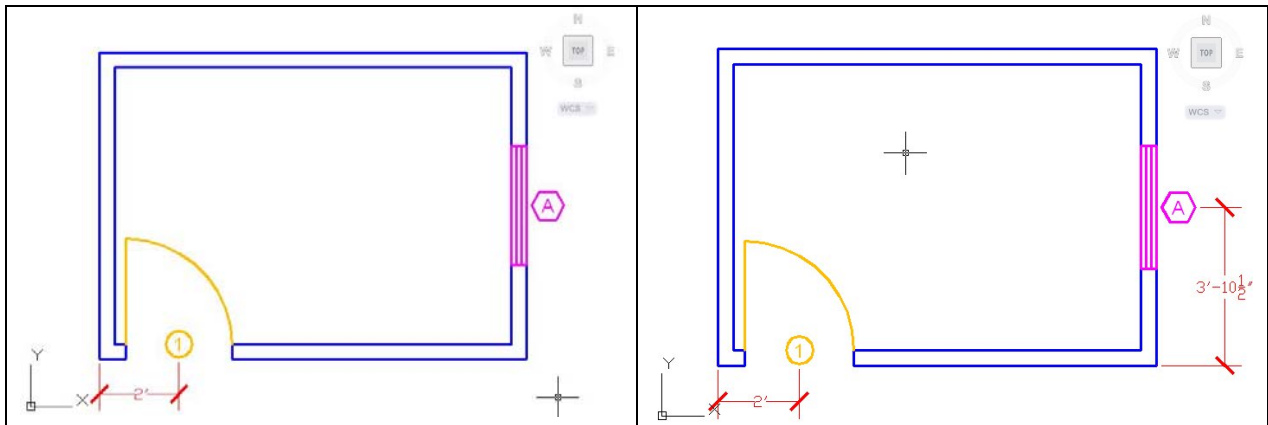

Figure A.21 – Adding Lines and Symbol   **Figure A.22 – Adding Window Dimension**

When we show a window on an architectural floorplan, we use a letter inside a hexagon to denote the type of window and we can match the description of the window by reading the same letter on the window schedule in the plan set.

We add the letter A at the midpoint of the outside line representing the window using Dtext and Middle for the text insertion point. We draw a hexagon at the same midpoint that has a radius of 4" as shown in Figure A.21. We move the letter and hexagon 6.5 inches to the right.

In figure A.22, we can see the dimension that measures the distance from the edge of the bedroom to the center of the window.

Add Overall Dimensions to the Bedroom
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In figure A.23, we show the overall dimensions to the exterior of the room. We can practice drawing this same bedroom floorplan or we can change the dimensions as we begin to improve in our technique.
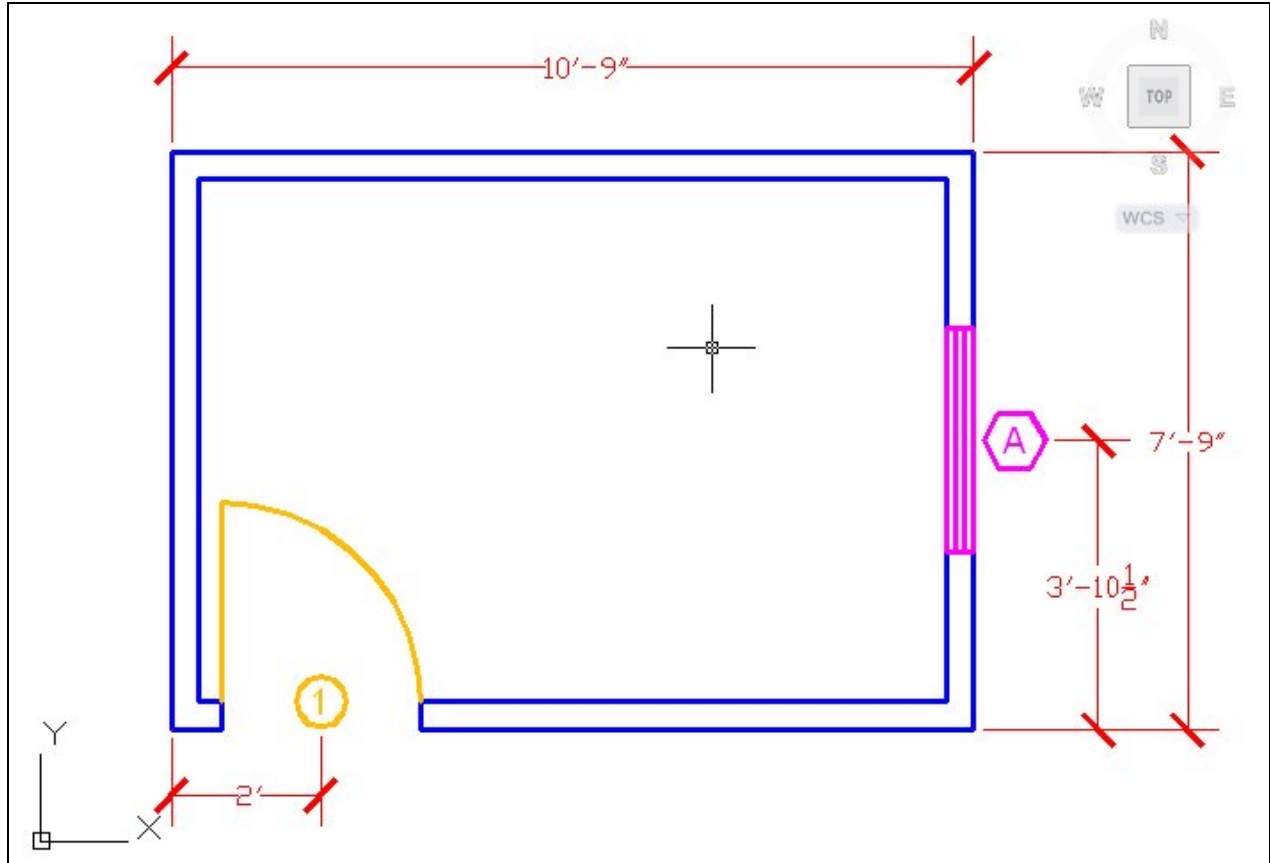
Figure A.23 – Adding Outside Dimensions

* World Class CAD Challenge * - Open a new file in your CAD program with the architectural template. Draw the wall, door, and window of the bedroom showing dimensions in 15 minutes.

Continue this drill multiple times using the steps we have learned, each time completing the drawing under 15 minutes to maintain your World Class ranking