

Appendix

B2

Drawing a Bathroom Floorplan

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

- **Draw a Bathroom Floorplan**
- **Draw the Bathroom Walls**
- **Draw and Dimension the Bathroom Door**
- **Add the Bathtub, Toilet and Sink to the Bathroom**
- **Add Overall Dimensions to the Bathroom**

Draw a Bathroom Floorplan

In this project, we will learn how to draw a Bathroom floorplan with a single door, shelves and dimension the plan. We will also add blocks of the bathtub, toilet, and sink. In the tutorial, we will begin by drawing the perimeter of the room and offset that outline to show the width of the wall. The importance of this lesson is to practice our CAD skills without adding the extra complex entities found in intricate architectural drawings of kitchens, staircases, and elevations. After we attain the basic skills and speed in drawing floor plans, we can enhance the complexity of the design.

We will start the session with a sketch that has the required dimensions to create the lines in our CAD drawing. We will be using AutoCAD 2011 in this example.

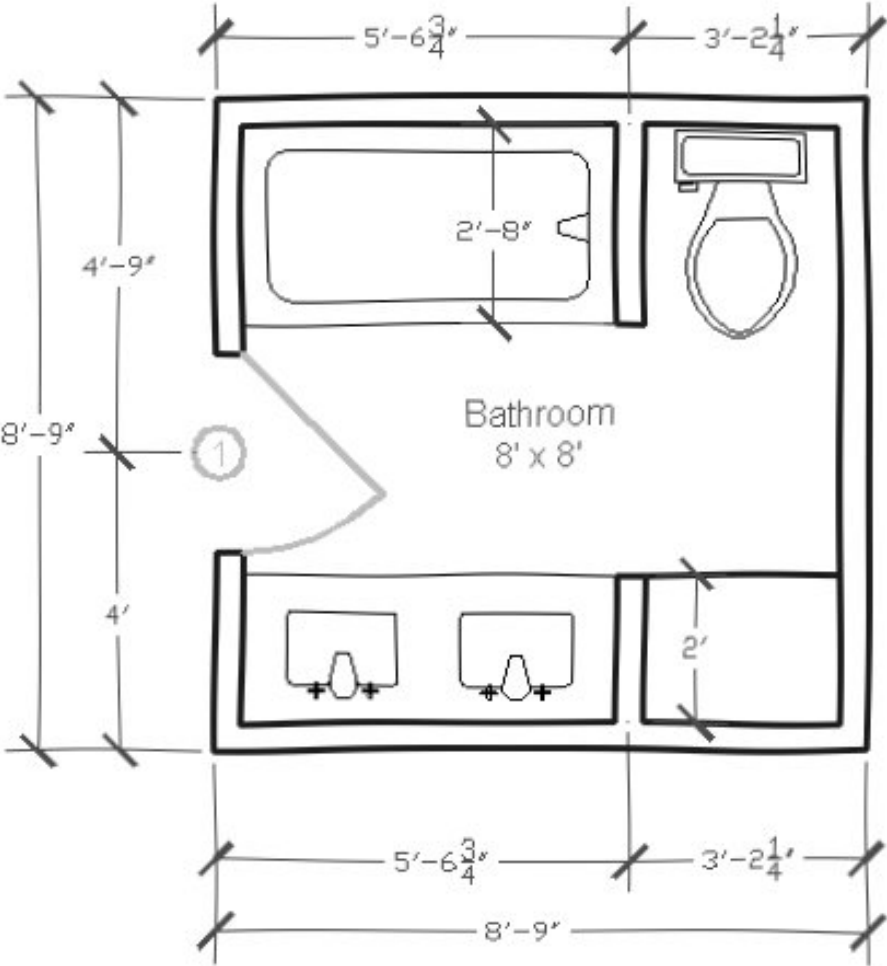


Figure B2.1 – Sketch of the Bathroom

Draw the Bathroom Walls

The first Bathroom we will draw will be 5 feet by 8 feet. Our 32 inch door will open towards the wall, so when the door is fully open, it will rest against the perimeter of the room as to not interfere with traffic. The window will be 32 inches in width and will give daylight to the room. For privacy, we can require frosted glass or we can add a shade.

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 B2.2. 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 8' (feet) at the command line. A single line will appear as shown in Figure B2.3.

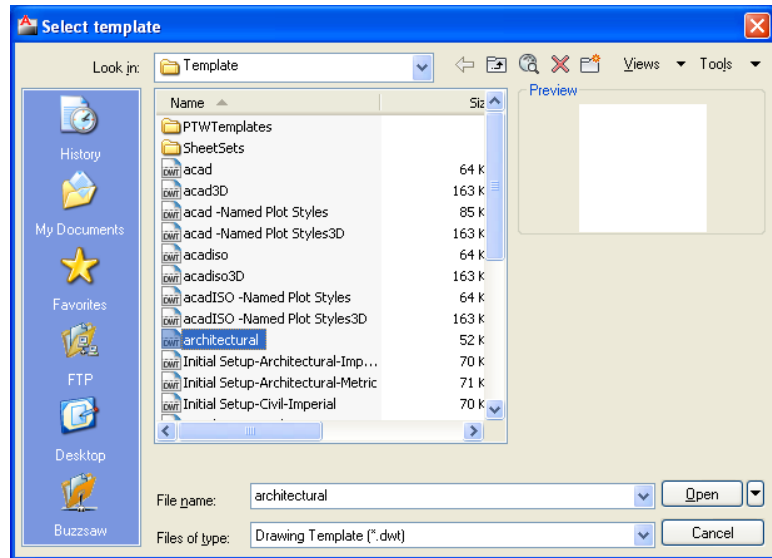


Figure B2.2 – The Architectural Template

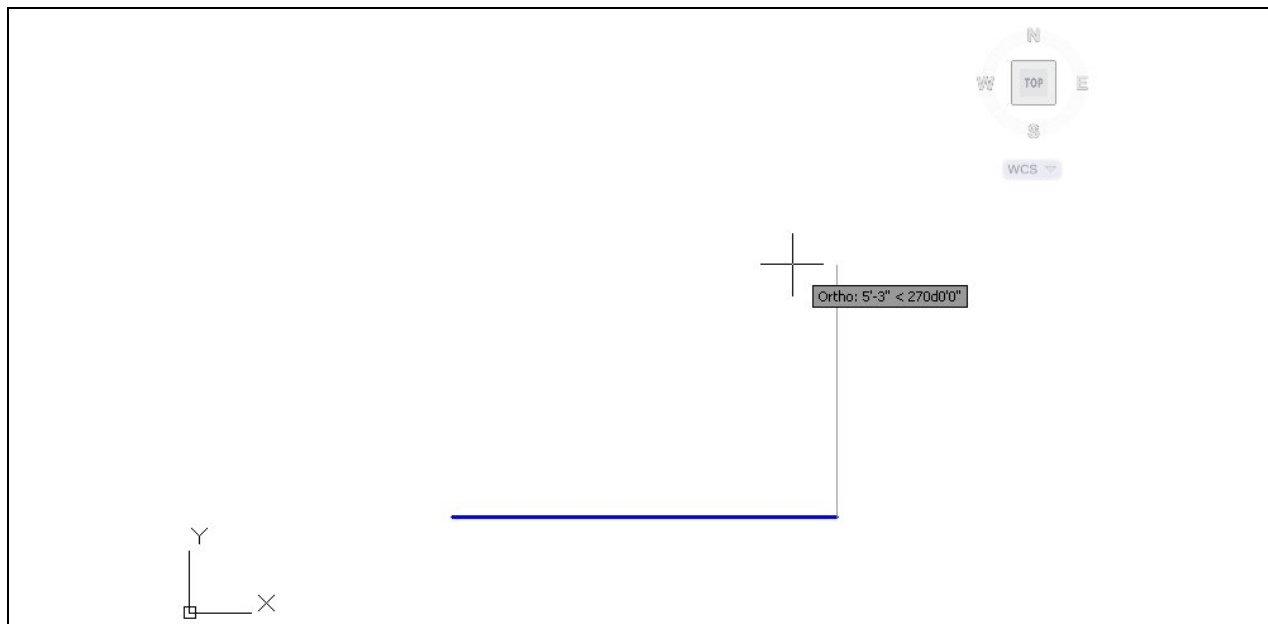


Figure B2.3 – Drawing the First Line in the Bathroom Wall

We continue with the rectangle by drawing the next leg upward by 90 degrees. We type 8' and enter. We draw the third line to the left at 8'. Finally, we will type "C" for close to complete the Polyline.

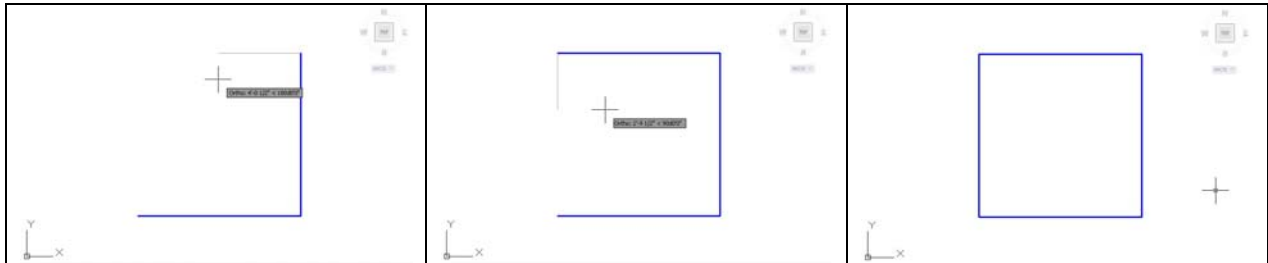


Figure B2.4 – Completing the Rectangular Drawing of the Bathroom Interior Wall

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 a 2 by 4-wall stud measures 1.5 by 3.5 inches. We add a sheet of 1/2-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.

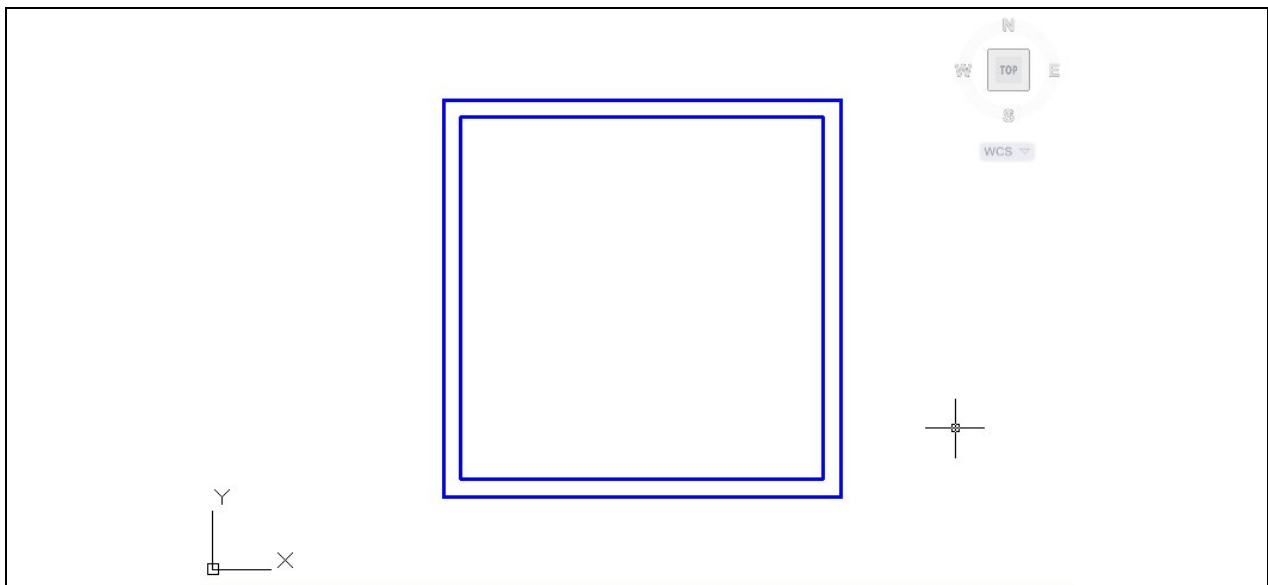


Figure B2.5 – Offset the Bathroom Wall

In the bathroom, we will add a wall between the two-sink vanity and the towel shelf. We will draw a line from the lower left inside of the bathroom wall that extends 24 inches upward. Then, we will move the line 5 feet to the right. When the wall is built, it will go from floor to ceiling and multiple shelves can hold items for individuals using the bathroom.

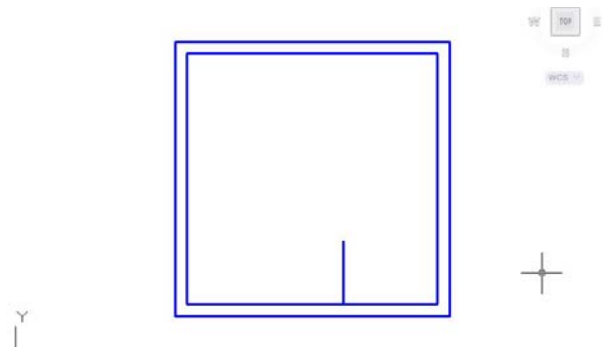


Figure B2.6 – Move the Line to the Right

Next, we copy the 2-foot line to the right by the distance of 4.5 inches as shown in figure B2.7. After that, we will draw line to connect the wall segments.

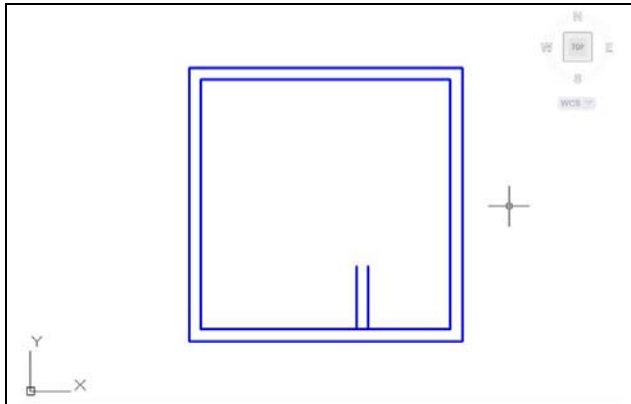


Figure B2.7 – Copy the Line to the Right

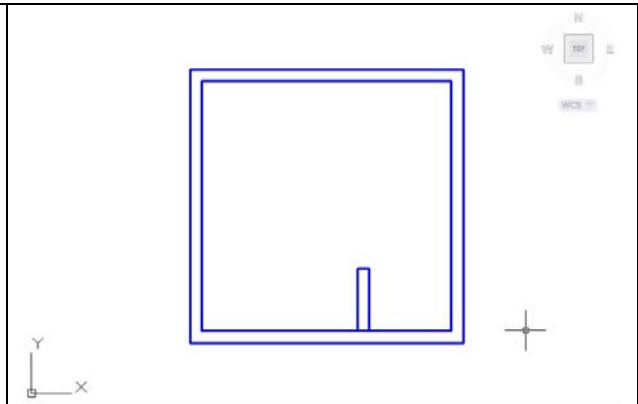


Figure B2.8 – Draw a Line to Connect

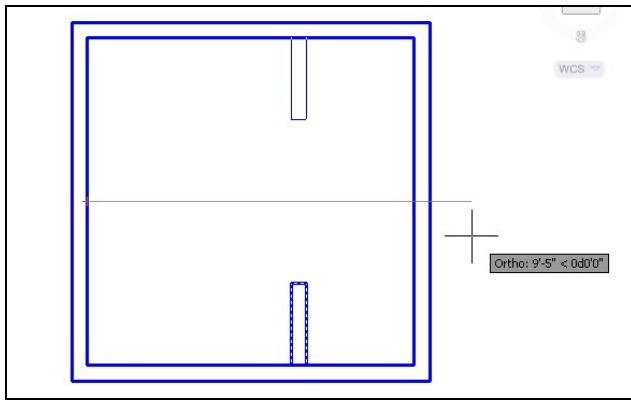


Figure B2.9 – Mirror the Wall

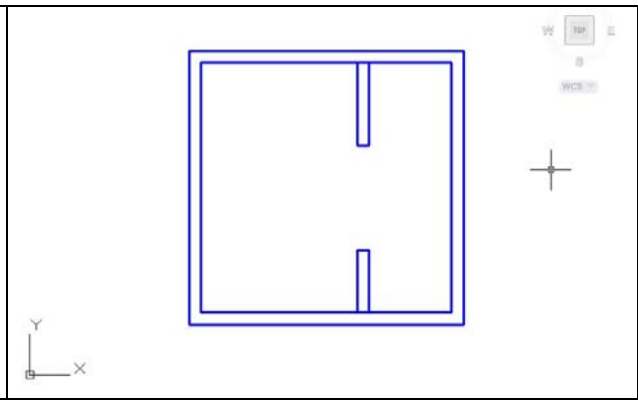


Figure B2.10 – Stretch the Wall

In figure B2.9, we will choose the Mirror command on the Modify toolbar and select the new wall division. When we are prompted to define the mirror line, we pick the midpoint of the bathroom and keeping the Ortho mode on, we select another point to the right. We press the Enter key and another wall segment above the first. We then utilize the Stretch command to extend the top wall division by 8 inches to enclose the bathtub area.

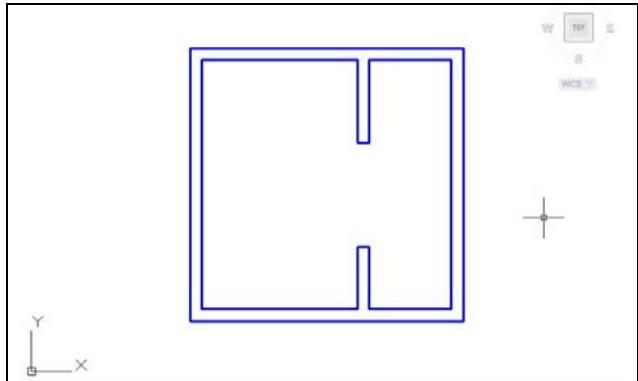


Figure B2.11 – Trim the Wall

Finally, we trim away two line segments, so that the floor plan walls appear as they will extend from floor to ceiling.

Draw and Dimension the Bathroom Door

Next, we will draw a line that will show our door opening. We will draw a 4.5-inch horizontal line from the lower left hand corner of the room. We then move the single line 32 inches upward as shown in Figure B2.12. To make the other side of the opening, we copy the 4.5-inch line segment 32 inches above the first as shown in Figure B2.13.

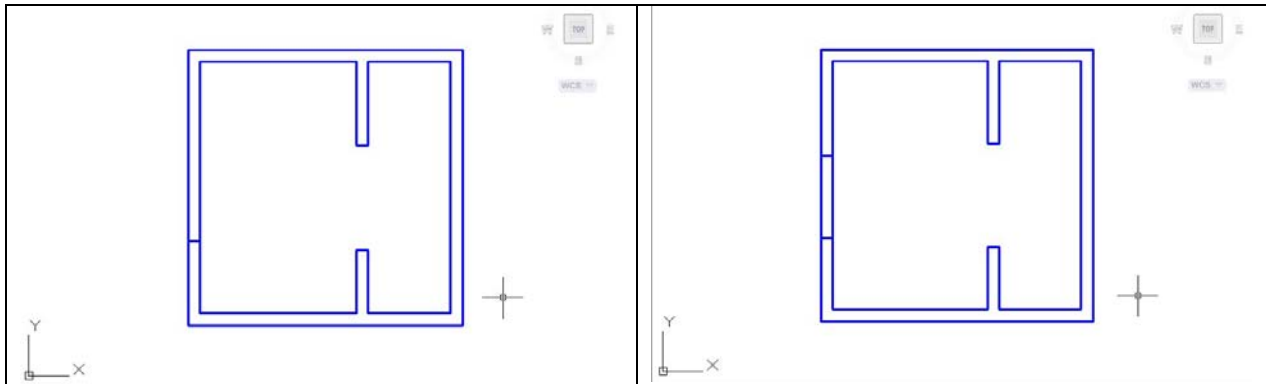


Figure B2.12 – The Right Side of the Opening **Figure B2.13 – The Left Side of the Opening**

Now, we remove the lines from the door opening using the Trim command leaving the drawing as shown in Figure B2.14. We change the current layer to Door and we draw a single line from bottom to the top on the interior of the Bathroom wall as shown in Figure B2.15.

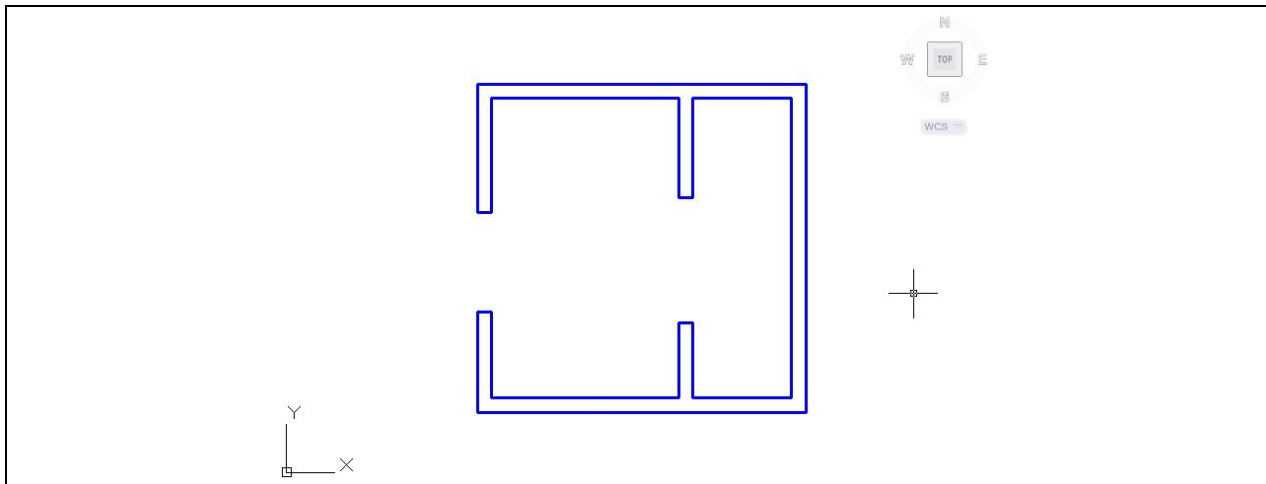


Figure B2.14 – Trim the Door Opening

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 B2.15.

We show doors in the open position, so we use the Rotate command to open the door by 45 degrees as shown in Figure B2.16.

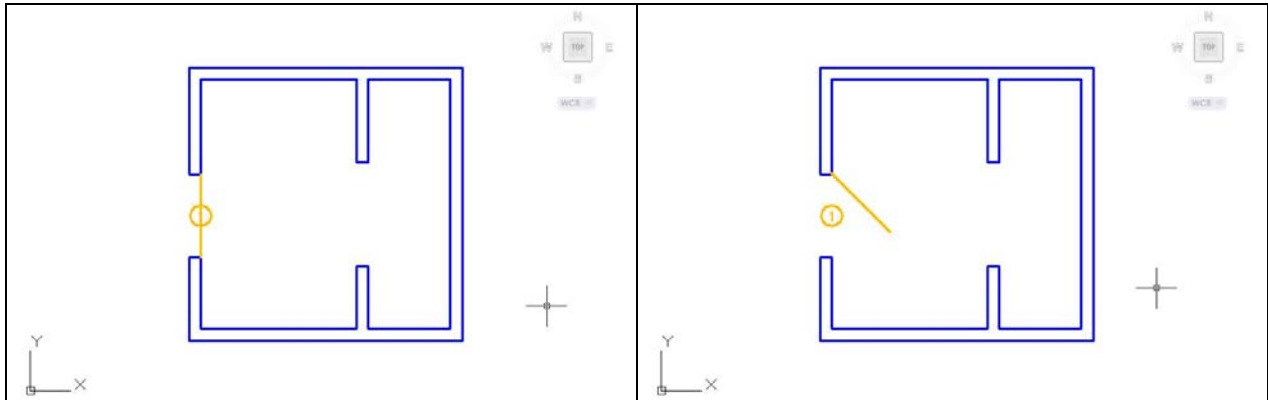


Figure B2.15 – Adding the Door Symbol

Figure B2.16 – Showing the Door as Open

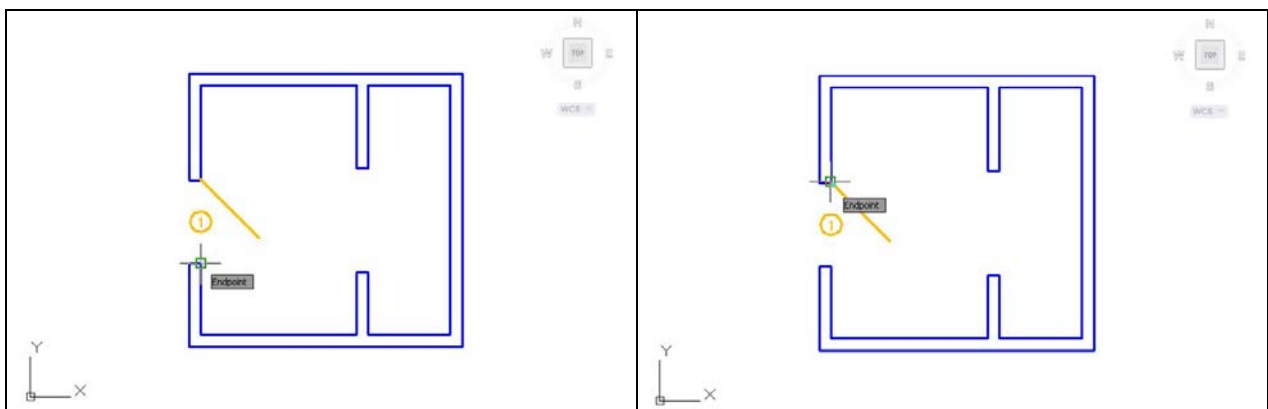


Figure B2.17 – Arc Starting Point

Figure B2.18 – Arc Center Point

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 B2.17. Then, we type “C” for center and pick the center point as shown in Figure B2.18.

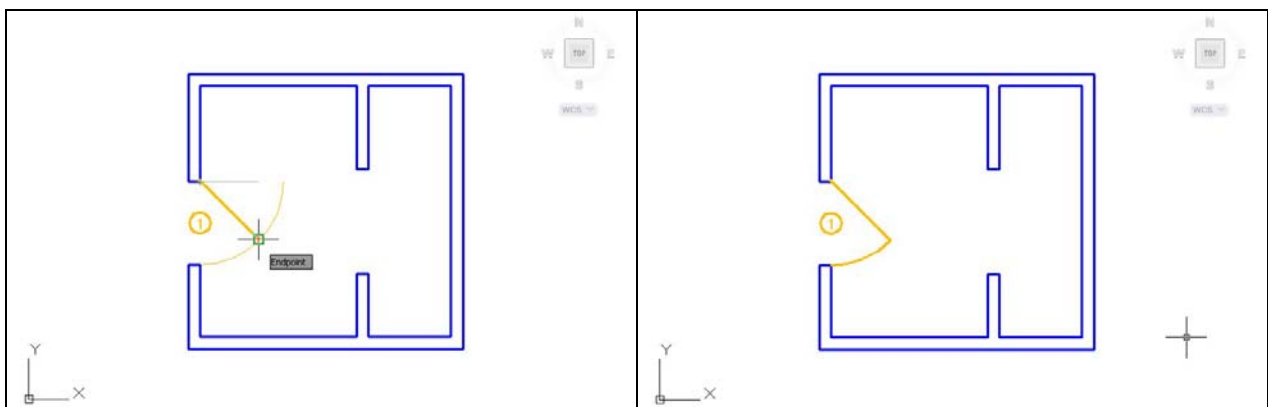


Figure B2.19 – Arc End Point

Figure B2.20– Final Arc

We finally select the endpoint and we can see the faint imprint of the arc as shown in Figure B2.19. The final arc is shown in Figure B2.20.

The last step in describing the Bathroom 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 B2.21.

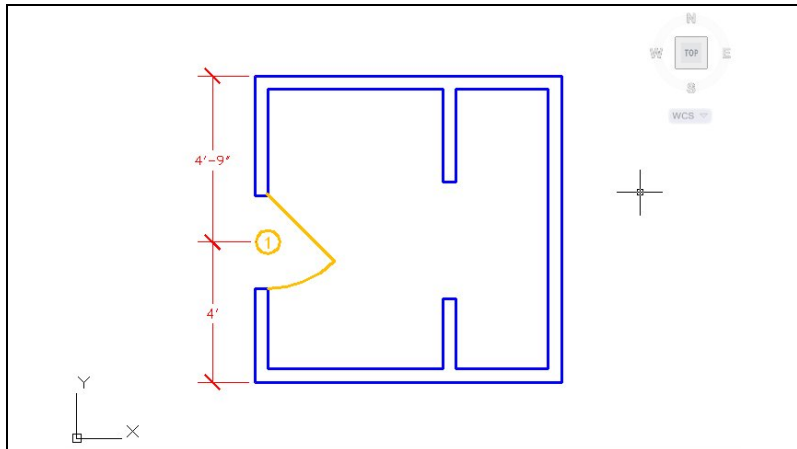


Figure B2.21 – Dimensioning the Door’s Location

Add the Bathtub, Toilet and Sink Blocks

In the section of the lesson, we will insert the 32”x60” bathtub, the toilet, and the sink. We can download the three blocks off the World Class CAD website at:

http://www.worldclasscad.com/residential_architectural.htm

After we copy the zip folder containing the three blocks onto our computer, we then will type Insert at the command line. The Insert window will appear. We then will select the Browse button and choose the Bathtub file from the unzipped folder. We choose the Open button and we then return to the Insert window and “bathtub” is listed in the Name textbox.

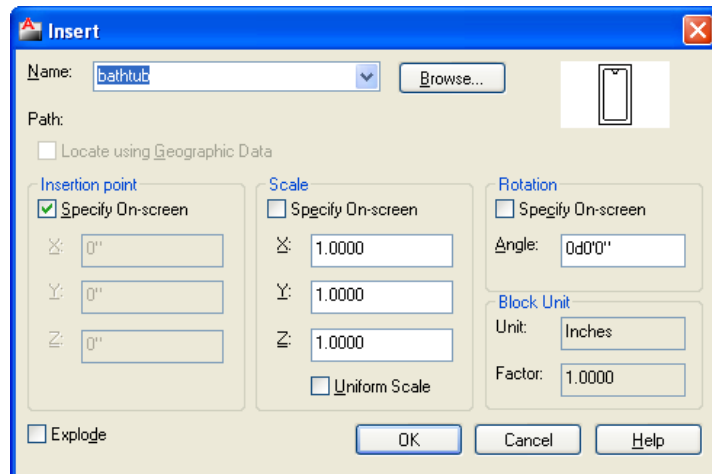


Figure B2.22 – Adding the Bathtub Block

We press the OK button and then will insert the bathtub as shown in Figure B2.23. The bathtub is rotated 90 degrees from its original orientation.

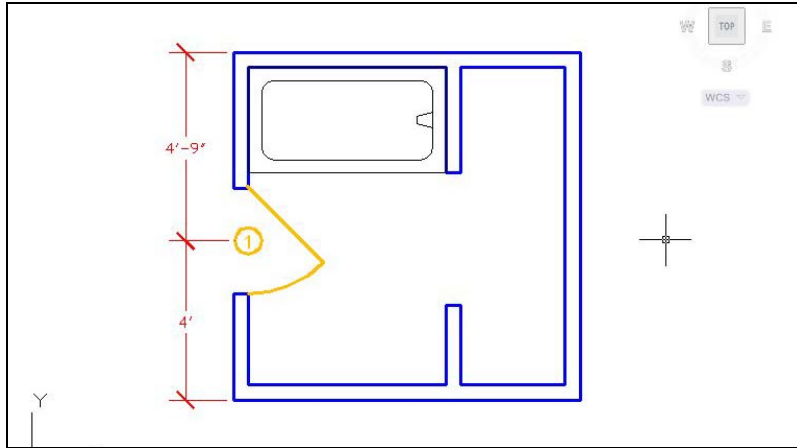


Figure B2.23 – Adding the Bathtub Block

The next block we will insert into the bathroom floorplan is the toilet. The drawing is called “toilet-top.” We follow the same procedure as the bathtub. We place the block using the midpoint Osnap.

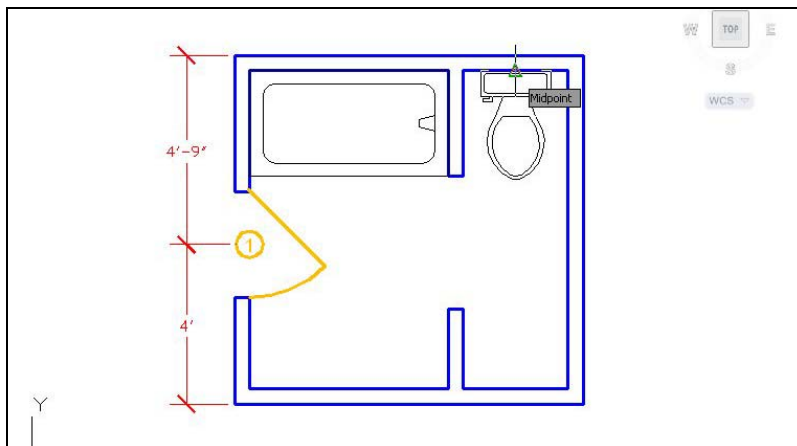


Figure B2.24 – Adding the Toilet Block

The last symbol we will insert is the double sink vanity. We type Insert at the command line, and insert the vanity in the lower inside corner of the bathroom floorplan. As we can see in Figure B2.25, the vanity fits between the outside wall and the new wall segment.

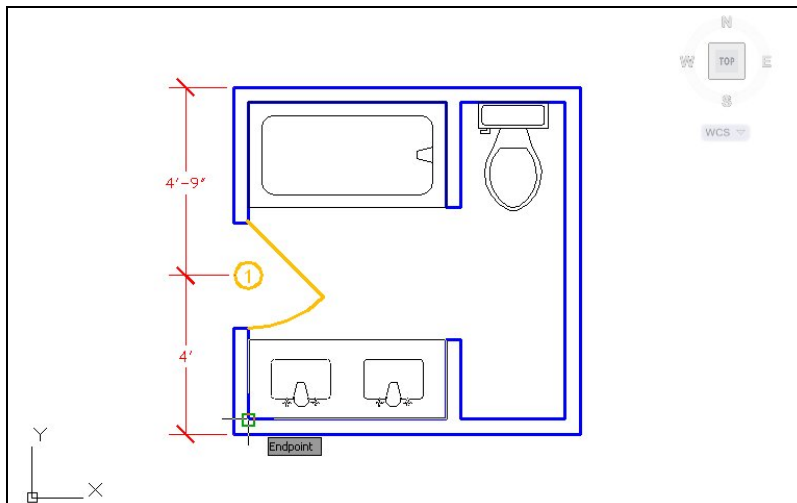


Figure B2.25 – Adding the Sink Block

The last entity to draw is the single line representing the shelves as shown in figure B2.26.

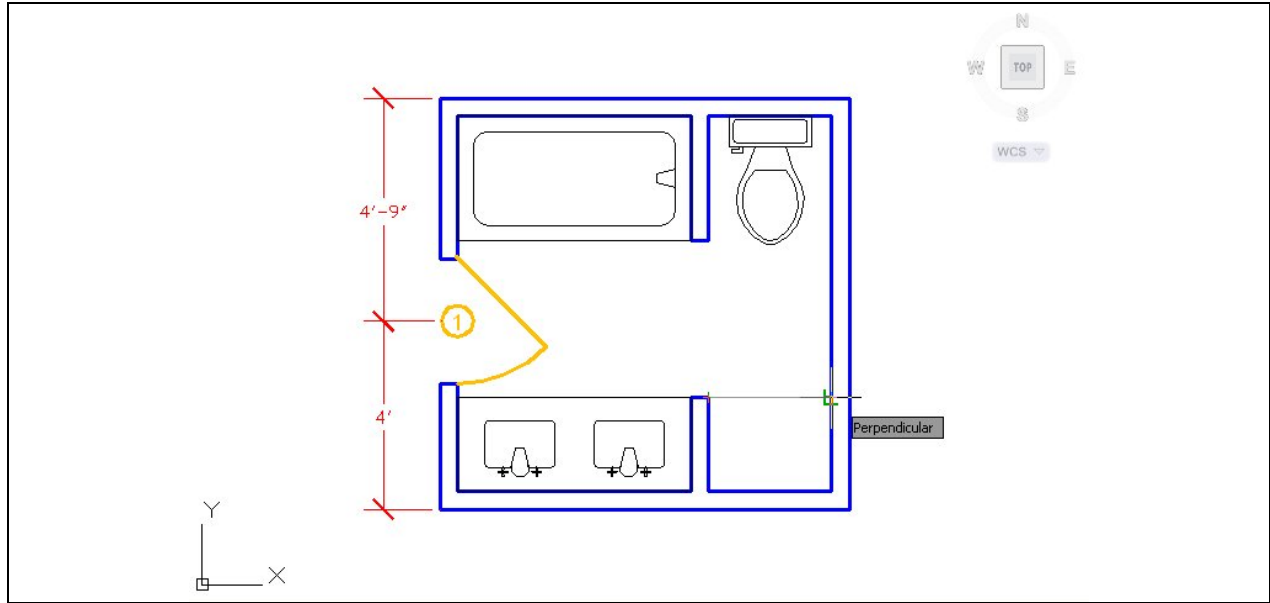


Figure B2.26 – Adding the Line for the Shelves

Add Overall Dimensions to the Bathroom

In Figure B2.27, we show the overall dimensions to the exterior of the room. The 8'9" dimension is on the left and the 8'9" dimension goes across the bottom. We can practice drawing this same Bathroom floorplan or we can change the dimensions as we begin to improve in our technique.

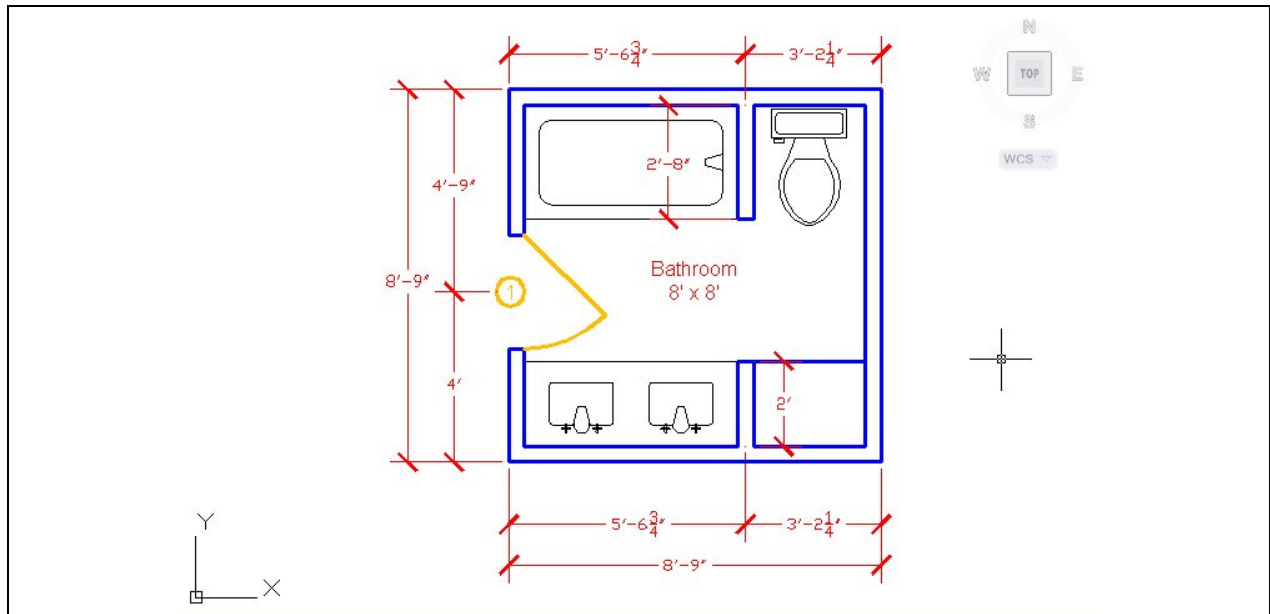


Figure B2.27 – Adding Outside Dimensions

*** World Class CAD Challenge * - Open a new file in your CAD program with the architectural template. Draw the walls, door, and insert three blocks into the Bathroom while 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