

Creating a Foundation Multiline

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

- **Draw a Drawing a Foundation or Basement Footer**
- **Create a Custom Multiline Style**
- **Test a Custom Multiline Style**

Draw a Basement or Foundation Footer

Before we begin to draw a basement or foundation plan, we will learn how to draw a typical footer and wall. The foundation of our first house will set on an 8-inch thick concrete or concrete block wall. The wall will sit upon a 16-inch wide footer that can be 12 inches deep or thicker. Although we will build on different types of foundations, the 8 inch concrete or concrete block wall with 16 inch wide footer can be typical.

Concrete blocks are made in a factory and they measure $7\frac{5}{8}$ inches wide by $15\frac{5}{8}$ inches long and $7\frac{5}{8}$ inches tall. We can purchase many variations of the block for special purposes. The most common are regular 8 x 8 x 16 used in straight sections of the wall, 8 x 8 x 16 corner blocks used at ends, and Knockout Lintel blocks used with lintels at doors and windows.

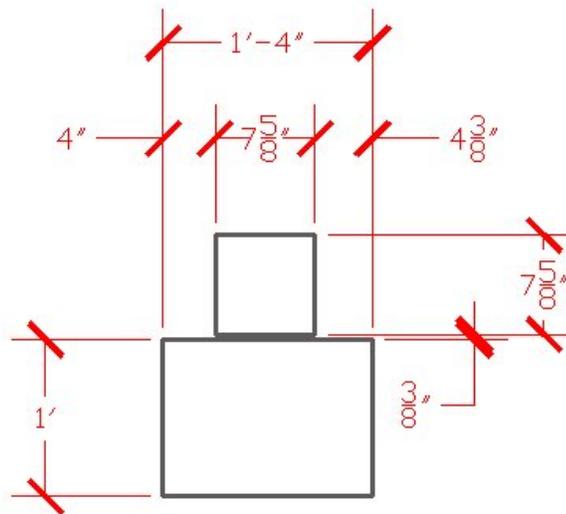


Figure E.1 – Footer and a Concrete Block

Footers are typically twice the width of the concrete block. They can sit on 6 inches of compacted gravel that is deep in the ground. When we compute the depth of the hole, we add the measurement of the frost line in our region plus six inches for the gravel and the depth of the footer. Therefore, in our example, we would add 32" for our region plus 6" for the gravel plus 10" for the footer depth that will add up to 48 inches.

Creating a Custom Multiline Style

When we were drawing the different walls in earlier chapters and appendices, we constructed a Polyline perimeter of the room and then we used the Offset command to make the addition line. When we draw a foundation wall and footer, we will show at least four lines, of which two of them having a different linetype.

In figure E.2, we can see the footer and wall segment as we would see them on a foundation or basement plan. The basement wall has two continuous lines that are $7\frac{5}{8}$ inches apart and the footer is shown as a hidden line that is 16 inches away from each other. If we were pouring an 8-inch concrete wall, the continuous lines would be 8 inches distant. In many cases, designers just draw the walls at 8 inches even though the blocks are $7\frac{5}{8}$ inches wide.

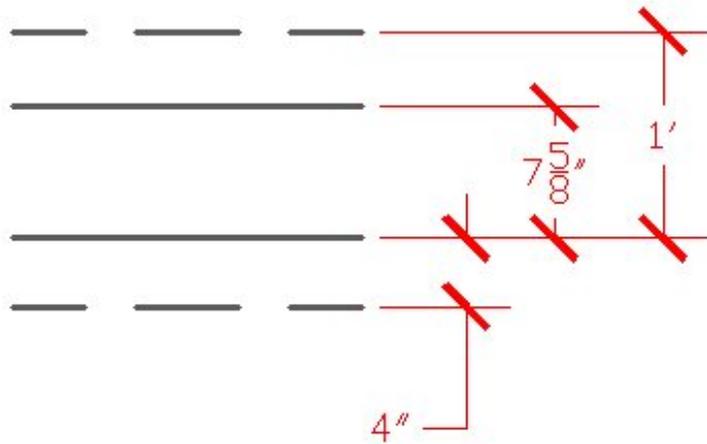


Figure E.2 – Foundation Footer and Wall Lines

We begin by opening a new drawing using the Architectural template. To format a custom Multiline, we choose Format on the Menu Bar and then we pick Multiline Style from the popup menu.

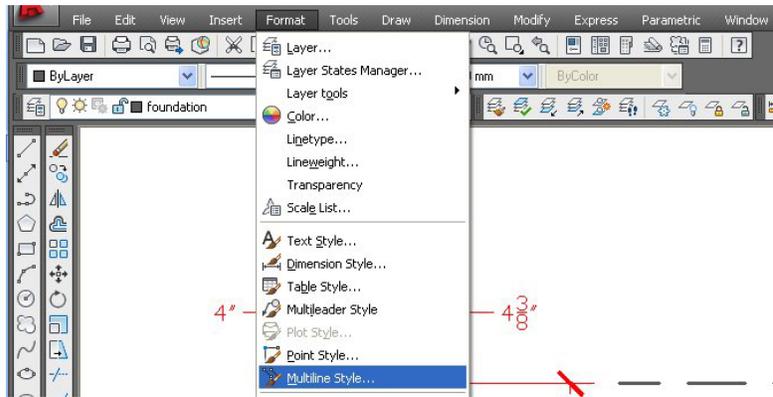


Figure E.3 – Launching the Multiline Style Window

The Multiline Style Window has a standard line already set, but this double line is not too efficient for the trouble of running the command. However, if we create a custom set of lines to draw the foundation wall and footer, we would have a tool that can save us time. To begin the process, we choose the New button.

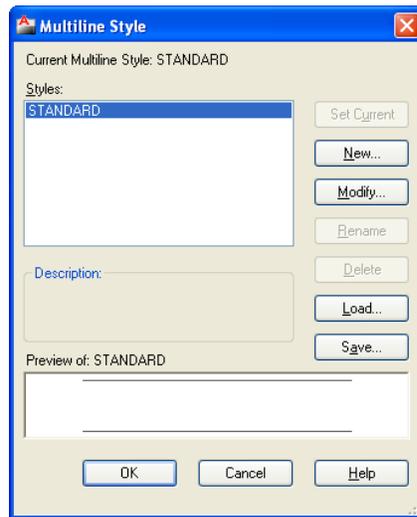


Figure E.4 – The Multiline Style Window

The Create New Multiline Style window will appear on our graphical display and we have the opportunity to name our new style with a good description. We will call the multiline style, “8 inch block foundation wall.” The name cannot contain spaces.

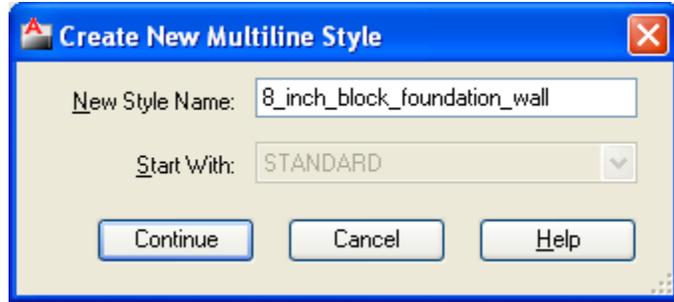


Figure E.5 – The Create New Multiline Style Window

The New Multiline Style window will become visible. There are two lines that currently in the Elements list box that are ½-inch offset from the origin.

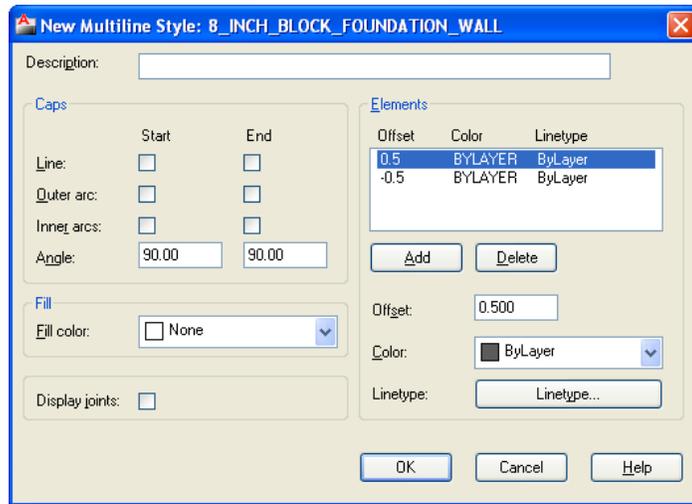


Figure E.6 – The Create New Multiline Style Window

We will type the same name in the Description textbox. Then, we will highlight the first element as shown in figure E.6 and change the offset to 0. We will keep the color Bylayer and the Linetype we will change to continuous. We will then highlight the second element and delete it.

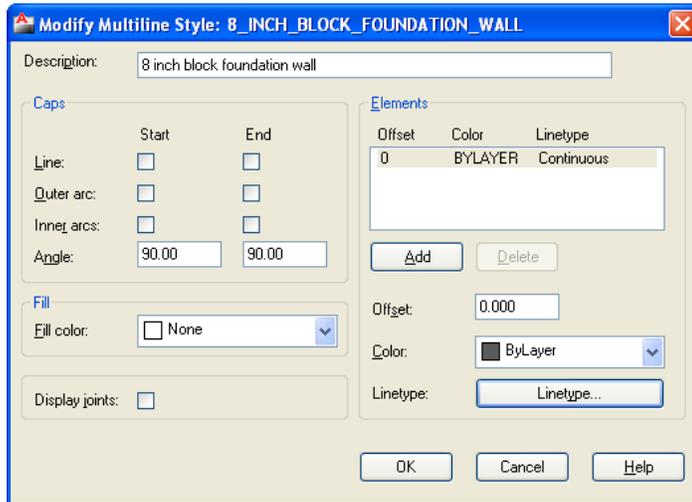


Figure E.7 – The Create New Multiline Style Window

To make the second element that is the opposite side of the concrete block wall, we select the Add button and when the entity is added to the list, we will change the offset to 7.625 and the linetype to continuous.

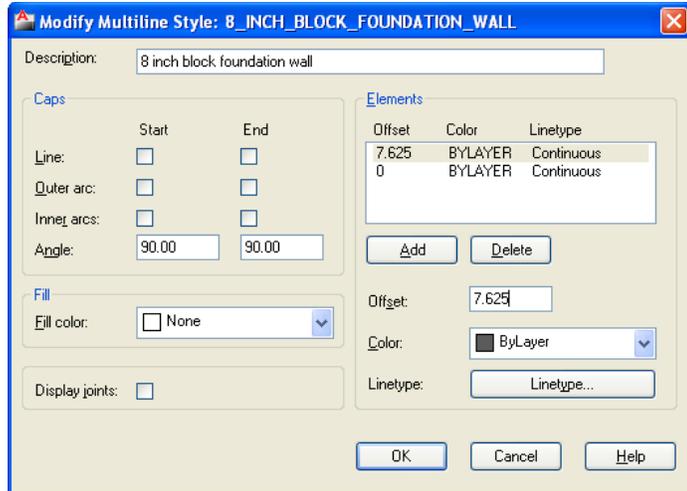


Figure E.8 – Adding a Second Element

To make the third element, which is the first line of the footer, we select the Add button and when the entity is added to the list, we will change the offset to 12 and the linetype to hidden.

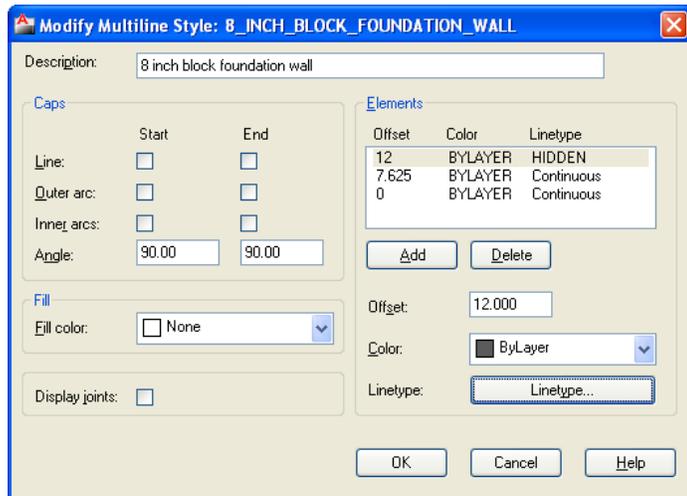


Figure E.9 – Adding a Third Element

To make the fourth element, which is the second line of the footer, we select the Add button and when the entity is added to the list, we will change the offset to -4 and the linetype to hidden.

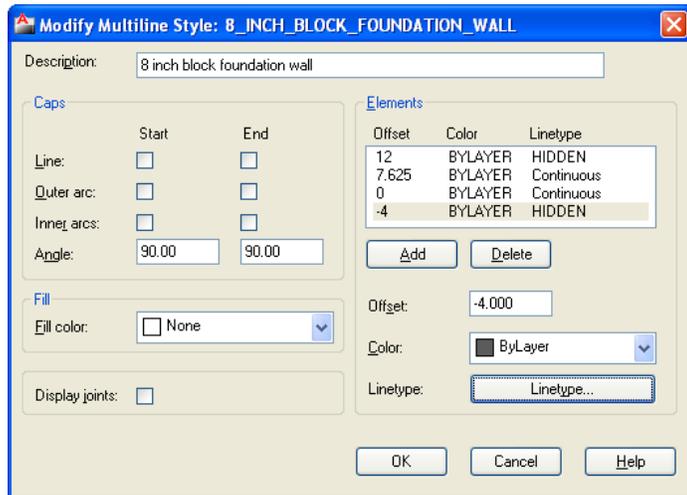


Figure E.9 – Adding a Fourth Element

We now press the OK button, and we return to the Multiline Style Window that now shows our new custom “8 inch block foundation wall” style. We press the Set Current command button to make our new style the default. We depress the OK button to return to the drawing. Custom multiline styles should be added to our architectural templates, so we can use them in whatever drawing we are creating.

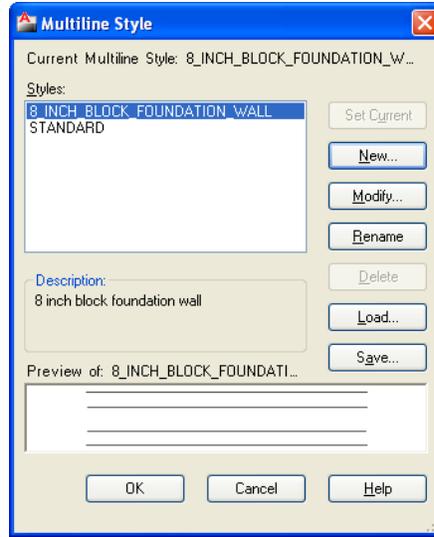


Figure E.10 – Making a Current Multiline Style

Test a Custom Multiline Style

We should set the current layer to Foundation. The Multiline command is not on our Draw toolbar, so we will choose Draw on the Menu Bar and select Multiline from the popup menu. We will want to type “J” for justification and “Z” for zero, so we will be drawing our foundation to the outside wall dimension.

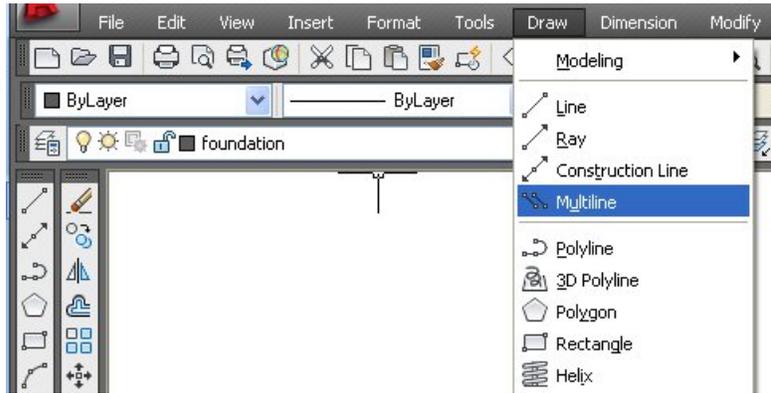


Figure E.11 – Starting the Multiline Command

We pick a starting point on the lower left side of the graphical display and draw a 40’ multiline to the right. Then with the Ortho mode on, we draw a 24’ segment upward.

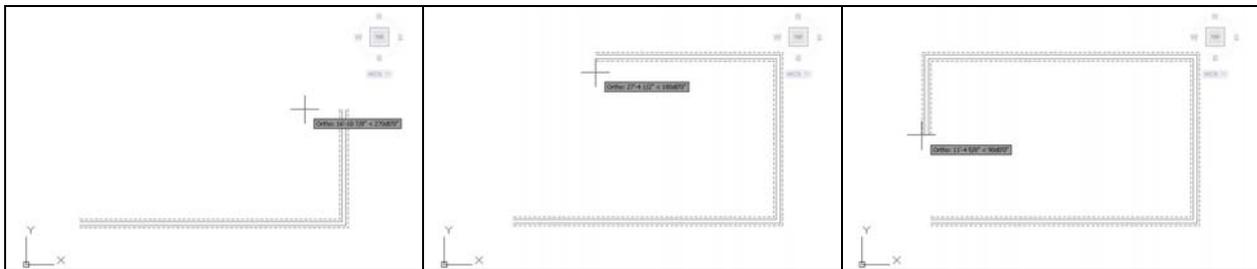


Figure E.12 – Drawing a 40’ x 24’ Foundation

We draw a third segment 40' to the left and we type "C" on the keyboard and press Enter to close the foundation.

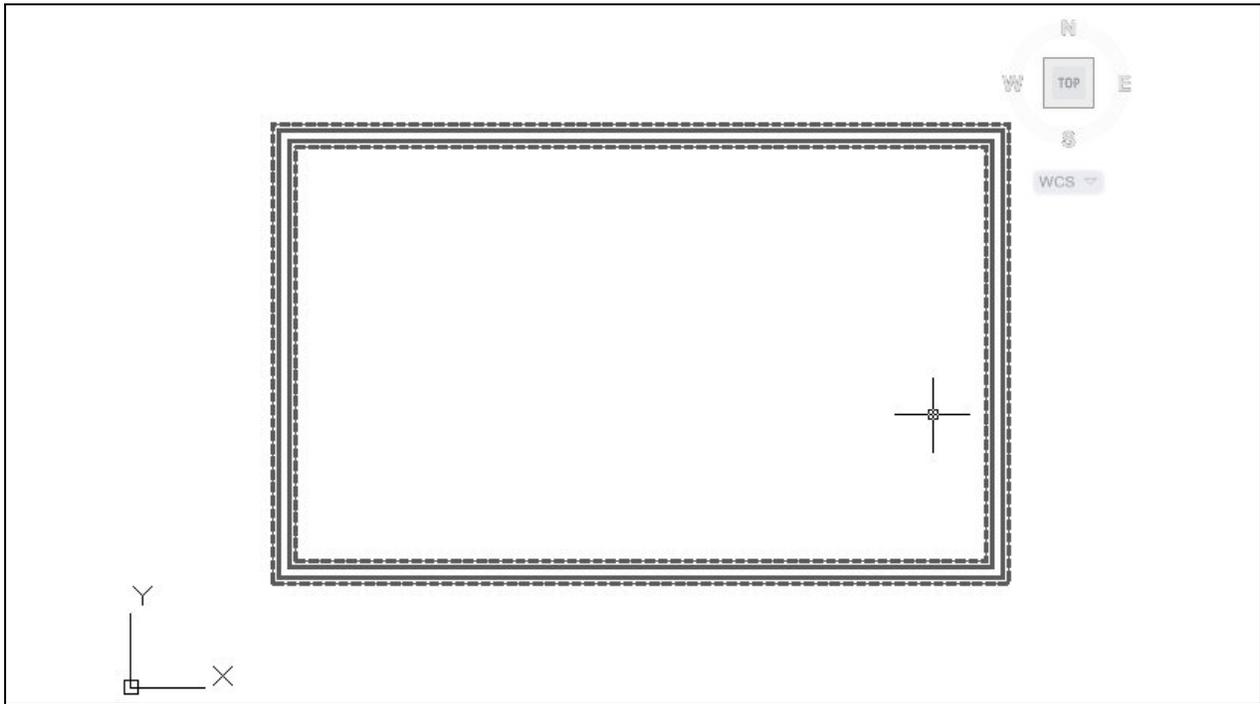


Figure E.13 – Drawing a 40' x 24' Foundation

We can dimension the foundation, the wall thickness, and the footer width as shown in figure E.14.

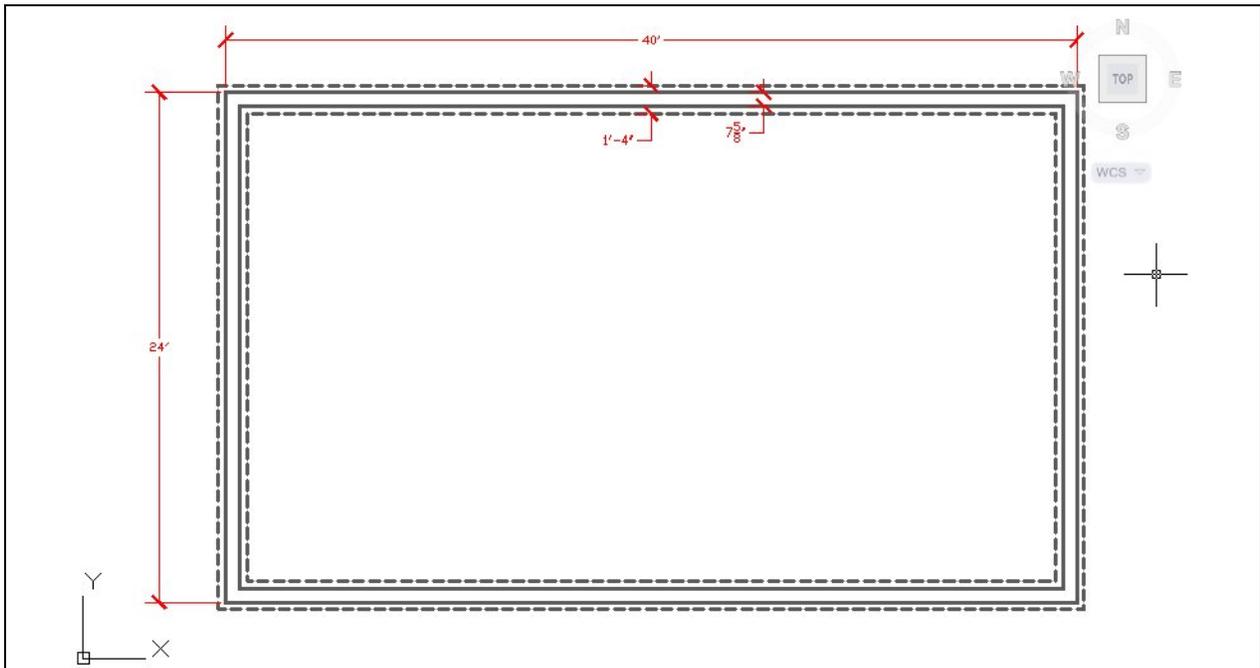


Figure E.34 – Adding Dimensions

*** World Class CAD Challenge * - Open a new file in your CAD program with the architectural template. Create a custom multiline style for the 8-inch concrete block wall. Draw a 40' by 24' foundation 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