

Dwg #15 — SITE PLAN

T.E. Lab 347/547 - Computer Assisted Design and Drafting

INTRODUCTION:

This drawing involves the setup of a site plan drawing of a primary residence. The primary residence has a living room, dining room, kitchen, media room, laundry room, and 1/2 bath on the first floor, four bedrooms and 2 baths on the second floor and an attached two car garage. The home is located on an 80' x 196' lot with sewer, utilities, and drainage easements and a building line (setback) restriction.

OBJECTIVES:

Following the completion of this activity, the learner will be able to:

1. Set architectural drawing units and accuracy.
2. Recognize and use the Zoom All tool to adjust the workpage.
3. Set decimal units and precision.
4. Set surveyor's units and precision.
5. Recognize and use the Layer Properties Manager tool to define multiple layers.
6. Locate the lower left corner using the absolute coordinate system.
7. Change the text font to romans.shx.
8. Construct the south, east, and north property lines using the line tool and the polar coordinate system.
9. Choose and use the Start, End, Radius Arc function from the Draw menu to construct the west property line.
10. Set dimension style to decimal using a scale of 1 / 12th.
11. Recognize and use the Aligned Dimension tool to add dimensions to the drawing using the Aligned Dimension tool.
12. Recognize and use the Radius Dimension tool to dimension the west property line.
13. Identify the Break at Point tool in Modify toolbar.
14. Use the Break at point tool in the creation of the north indicator.
15. Recognize and use the Hatch tool to fill the arrowhead of the north indicator.



DIRECTIONS:

Read the specific information regarding this drawing. Attached to this tutorial is the drawing that you are to reproduce. Open a new drawing and save it to your storage media using the initials of your; last name, first name, and middle name, followed by -Dwg15 (i.e.; LFM-Dwg15). Set up the CADD program to the correct setting as indicated below.

After drawing #15 is complete, save it to your storage media, answer the questions about the drawing in the question section of this tutorial, and complete the Drawing #15 section of the Drawings #11-#15 Evaluation sheet.

When due, submit drawings #11-#15 with a title page, hard copy of the drawings #11-#13 on A size paper, drawings #14 and #15 on B size paper (in numeric order), and the Drawings #11-#15 Evaluation sheet stapled together with your storage media containing the finished drawing files.

AutoCAD SETUP:

1. Choose Format>Units..., under Length, set Type: = Architectural, Precision: = 0'-0 1/4", and under Angle, set Type: = Surveyor's Units, Precision: = N 0d00'00.00" E (Figure 1).

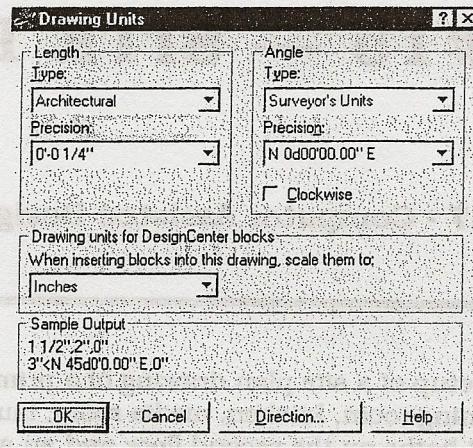


Figure 1 Drawing Units dialog box set for an architectural drawing

2. Choose Format>Drawing Limits, in the command line specify lower left corner = 0'-0",0'-0", and specify upper right corner = 220',100'.
3. Click the Zoom All icon in the Standard toolbar before beginning to draw.
4. Choose Format>Text Style..., Click the New... button and set Style Name = RomanS, under Font, set Font Name: = romans.shx, under Effects, set Width Factor: = 1.00. Click the Apply button and then click the Close button (Figure 2).

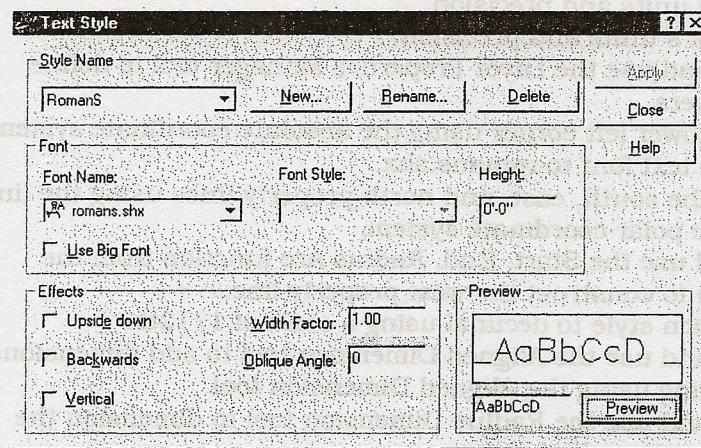


Figure 2 Text Style dialog box set for the romans.shx font

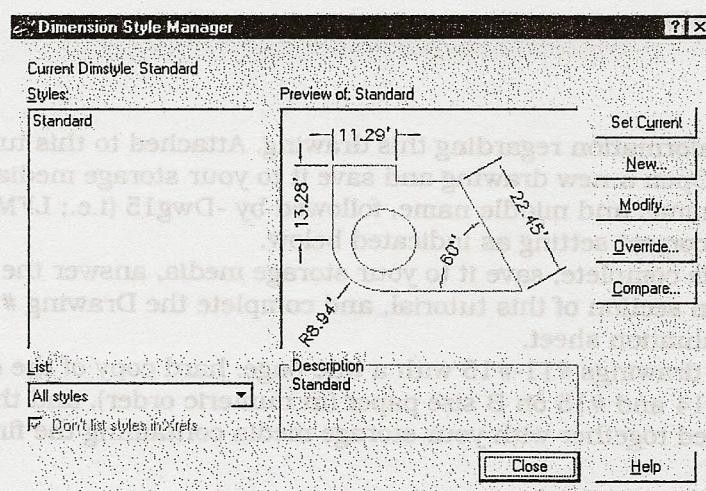


Figure 3 Dimension Style Manager dialog box

5. Choose Dimension>Style..., Click the Modify... button (Figure 3):

A. Click the Lines and Arrows tab, under Extension Lines, set Extend beyond dim lines: = 1', set Offset from origin: = 1', under Arrowheads, set Arrow Size: = 2' and under Center Marks for Circles, set Type: = None (Figure 4).

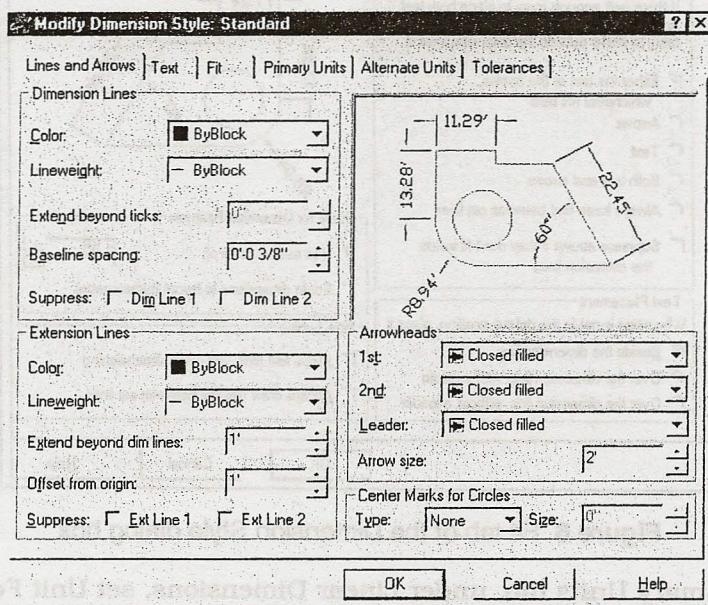


Figure 4 Lines and Arrows tab of the Dimension Style dialog box

B. Click the Text tab, under Text Appearance, set Text style: = RomanS, set Text height: = 2', under Text Placement, set Vertical: and Horizontal: = Centered, set Offset from dim line: = 1', and under Text Alignment, select Aligned with dimension line (Figure 5).

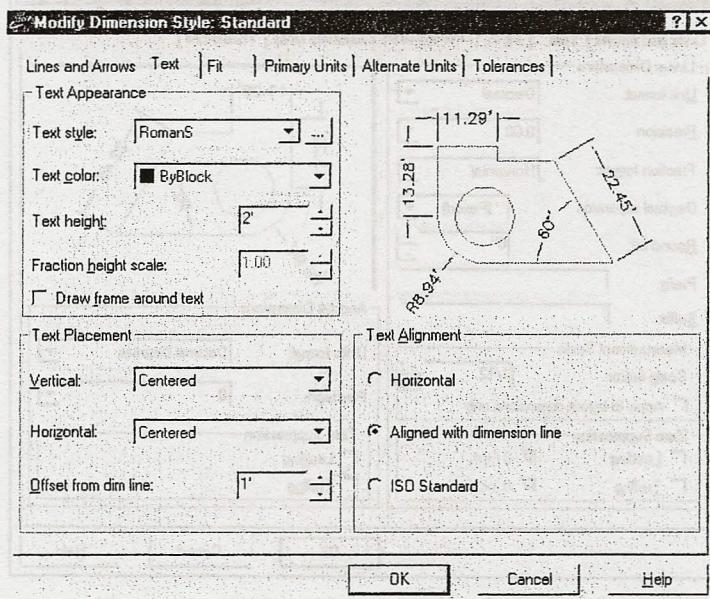


Figure 5 Text tab of the Dimension Style dialog box

C. Click the Fit tab, under Fit Options, select Either the text or the arrows, whichever fits best, under Text Placement, select Beside the dimension line, under Scale for Dimension Features, select Use overall scale of: = 1.00, and under Fine Tuning, select neither (Figure 6).

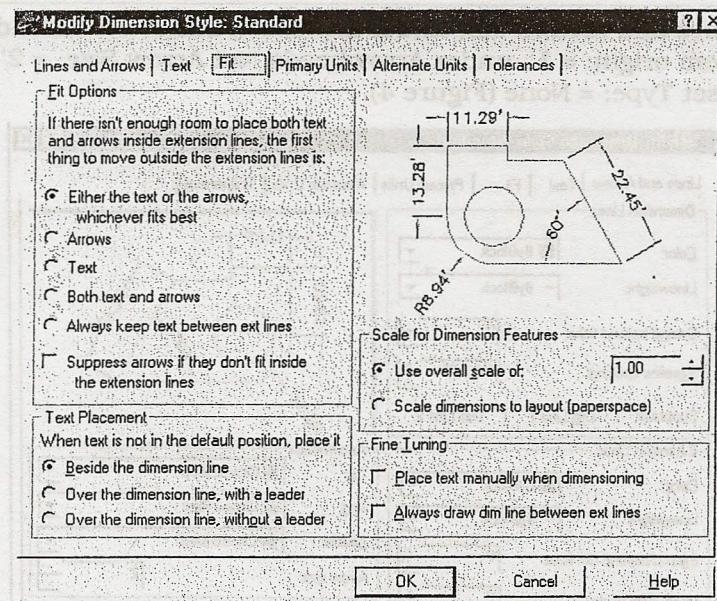


Figure 6 Fit tab of the Dimension Style dialog box

D. Click the Primary Units tab, under Linear Dimensions, set Unit Format = Decimal, set Precision = 0.00, set Suffix: = ' (foot mark), under Measurement Scale, set Scale factor: = 1/12, under Angular Dimensions, set Units format: = Decimal Degrees, and set Precision: = 0 (Figure 7).

Note: Do not enter the scale factor as a decimal, let AutoCAD convert it for you, which increases the dimensional accuracy.

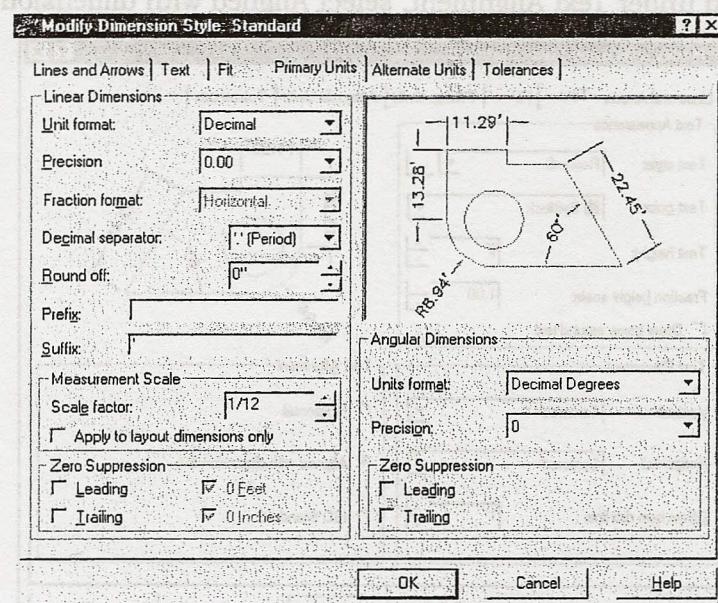


Figure 7 Primary Units tab of the Dimension Style dialog box

6. Select the Layer Properties Manager tool in the Object Properties toolbar:
 - Click the New button; change name Layer1 = Dimension, set Color = Blue, set Linetype = Continuous.
 - Click the New button, change name Layer1 = PropertyLine, set Color = White, set Linetype = ACAD_ISO09W100 (an ISO long-dash double-short-dash line).
 - Click the New button; change name Layer1 = Easement, set Color = Green, set Linetype = DASHEDX2.
7. Locate the southwest corner of the lot at X = 5' and Y = 15'.
8. Draw the south, east, and north property lines using the polar coordinate system. The south property line is drawn using: @195.95'<s88d30'00"e.

9. Draw the west property line using the Arc (Start, End, Radius) function (answer questions 1 and 2).
10. Set the Linetype scale of all property lines to 6.00 using the Properties function.
11. Draw the drainage, sanitary sewer, electric/telephone/cable easements, and building line using the offset tool.
12. Extend and trim the easement and building lines as necessary, then adjust their linetype scale using the Properties tool as follows:
 - A. Drainage easement 300.00
 - B. Sanitary Sewer easement 300.00
 - C. Utilities (Electric, etc.) easement 100.00
 - D. Building line 200.00
13. Construct the primary residence with its northwest corner 36' from the west property line and 14' from the north property line (Figure 8).

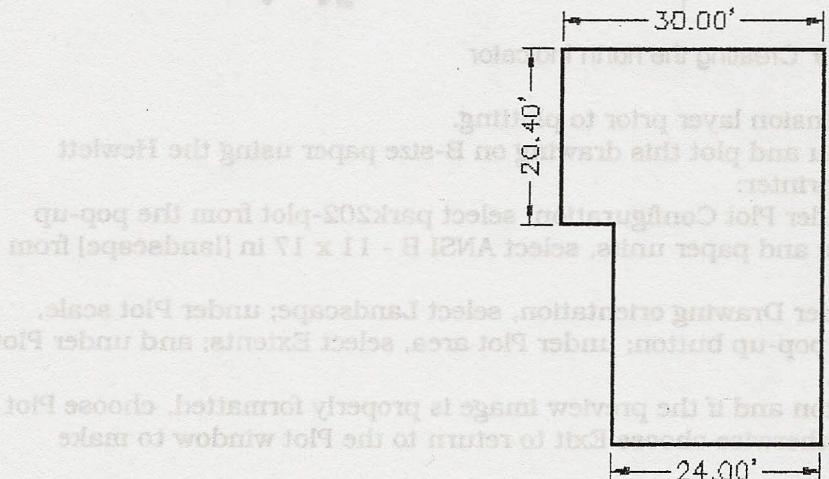


Figure 8 Drawing of the primary residence

Note: Construct the primary residence as though the rear wall is positioned due north.

14. Rotate the residence -17.25° using the northwest corner as the pivot point (answer question 3).
15. Convert the property lines to a polyline with a width of 3.
16. Convert the wall of the residence to a polyline with a width of 2.
17. Place the drawing label (Site Plan - Lot 347) in the proper location using Multiline Text (MTEXT is a shortcut) with a height of 6 feet.
18. Align the distance/angle property line information with each of the south, east, and north property lines using Multiline Text with the following settings:
 - A. Style = RomanS.
 - B. Height = 2'.
 - C. Justification = Middle Center.
 - D. Line Spacing = 1.5 lines.
19. Select the Multiline Text tool and snap the first corner to the mid point of the desired property line, type **h** for height and enter 2', type **r** for Rotation and snap the right end of the property line. Enter the necessary text and adjust the above settings and click the OK button. Using grips, move the text box by snapping its center to the mid point of the property line.
20. Construct the north indicator using the Line tool as follows (Figure 9):
 - A. Length of the vertical line (A) = 30' at an angle of N.
 - B. Length of the longer diagonal line (B) = 21' at an angle of S $9d25'0''$ E.
 - C. Length of shorter diagonal line (C) = 6' (answer question 4).
 - D. Break the vertical line (A) at the intersection of the 6' diagonal line (C) using the Break at Point tool.
 - E. Move the lower vertical line segment (D) 6" to the right and set its width to 1'.
 - F. Fill the arrowhead using a solid hatch.
 - G. Place the letter "N" using TechnicBold, set to 6' tall near the bottom right of the moved line.

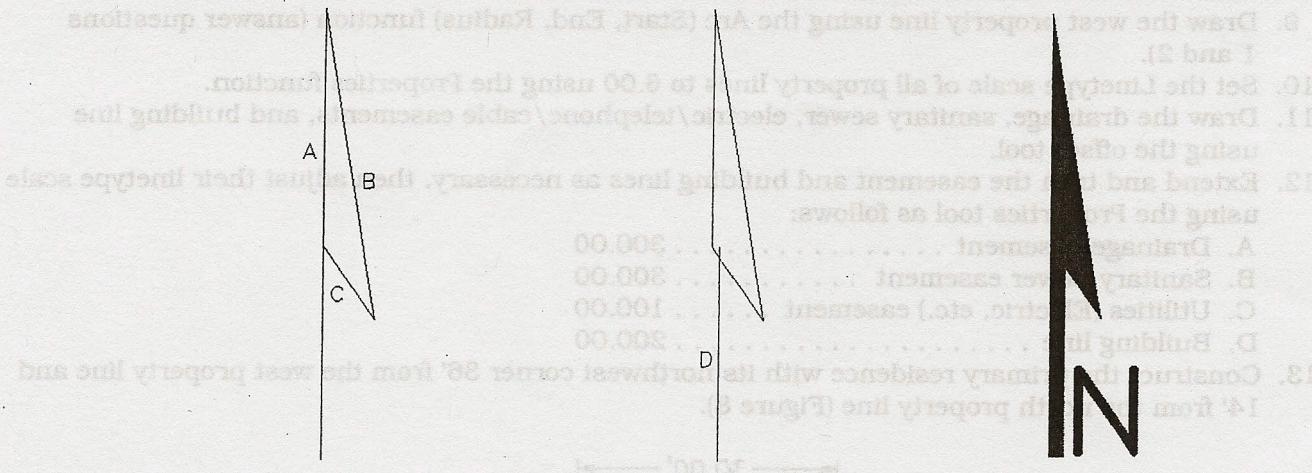


Figure 9 Creating the north Indicator

21. Place all dimensions in the dimension layer prior to plotting.
22. Choose Plot... from the File menu and plot this drawing on B-size paper using the Hewlett Packard Designjet large format printer:
 - A. Click the Plot Device tab: under Plot Configuration, select park202-plot from the pop-up button, and under Paper size and paper units, select ANSI B - 11 x 17 in [landscape] from the pop-up button.
 - B. Click the Plot Setup tab: under Drawing orientation, select Landscape; under Plot scale, select Scaled to Fit from the pop-up button; under Plot area, select Extents; and under Plot offset, select Center the plot.
 - C. Click the Full Preview... button and if the preview image is properly formatted, choose Plot from the contextual menu, otherwise choose Exit to return to the Plot window to make further adjustments.

QUESTIONS:

Measure the distances, length, and area as requested by the following questions.

Question 1: Measure the diagonal distance between the southwest and northeast corners of the lot (Precision, 4 decimal places) 211' 7 3/4"

Question 2: Measure the arc length of the west property line (Precision, 4 decimal places) 89' 2 3/4"

Question 3: Measure the distance from the southeast corner of the residence perpendicularly to the south property line (Precision, 4 decimal places) 131' 7"

Question 4: Measure the area of the arrowhead (Precision, 4 decimal places) 27,140.51 FT²

Site Plan - Lot #347

