

## AutoCAD 2010: One Step at a Time

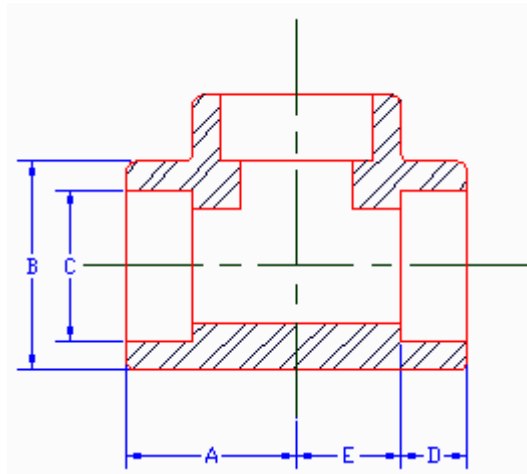
### Lesson 20: Hatching and Grouping

<b>10R20</b>	<b>Exercises</b>
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1. Use the following information to create the Sample Piping Standard detail sheet. Save the drawing as *MyTee* in the C:\Steps\Lesson20 folder.

- 1.1. Layer Information (at right).
- 1.2. Limits: 0,0 to 17,11
- 1.3. Grid spacing = 1/4"
- 1.4. Text sizes = 3/8", 1/4", 3/16", 1/8"
- 1.5. Font: Times New Roman or Calibri
- 1.6. Hatching information
  - 1.6.1. Pattern = ANSI32
  - 1.6.2. Scale = 1"
  - 1.6.3. Angle = 0

LAYER NAME	COLOR	LINETYPE
0	Black	Continuous
Border	blue	Continuous
Cl	green	Center
Dim	blue	Continuous
Hatch	32	Continuous
Marker	212	Continuous
Ob	red	Continuous
Text	12	Continuous



Dimensions (Inches)										
Nominal Pipe Size	1/8	1/4	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
A	7/8	7/8	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3	3 3/8
B	29/32	29/32	1 5/16	1 9/16	1 3/4	2 7/32	2 1/2	3 1/32	3 5/8	4 5/16
C	.420	.555	.850	1.08	1.340	1.680	2	2.406	2.906	3.535
D	7/16	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1 3/8	1 1/8
E	7/16	7/16	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4

# North Harris College

## Sample Piping Standard: Socket Weld Tee

Drawn By: T. Jefferson

Checked By: B. Franklin

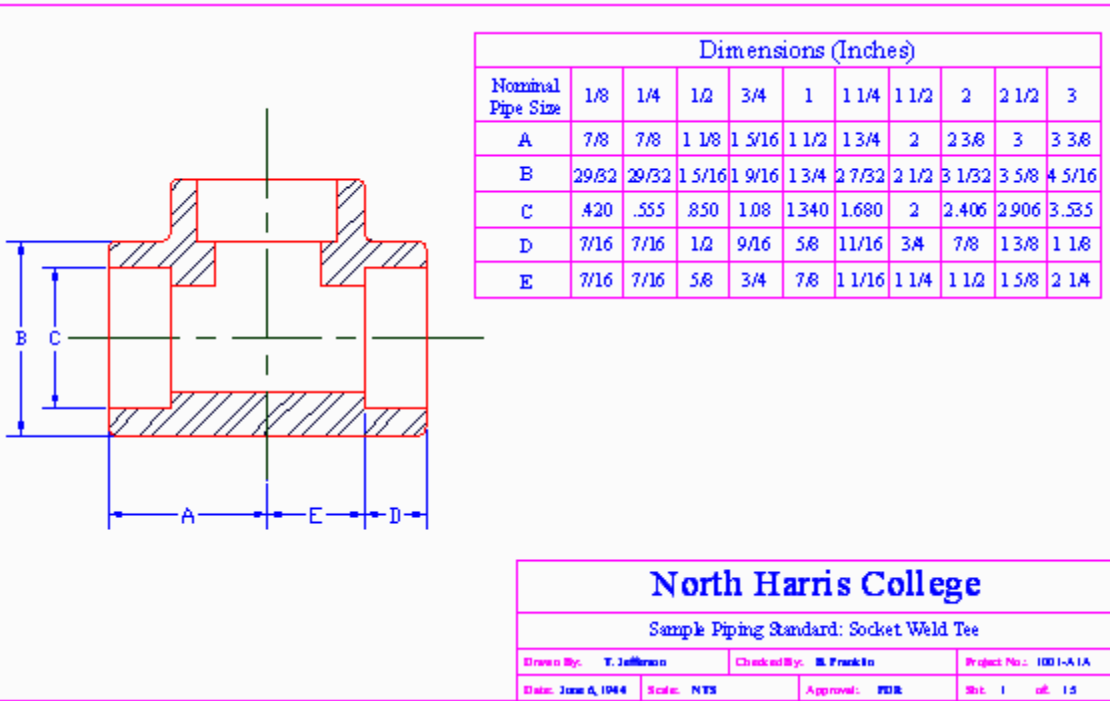
Project No.: 1001-A1A

Date: June 6, 1944

Scale: NTS

Approval: FDR

Sh: 1 of 15



2. Start a new drawing from scratch.

2.1. Create the following setup:

2.1.1. Use a 1½"=1'-0" scale on an A-size sheet of paper (8½x11)

2.1.2. Grid: 1" (snap as needed)

2.1.3. The layers in the table.

2.2. Use this information for the Grade hatching:

Pattern: EARTH

Scale: 8.0000

Angle: 45

2.3. Use this information for the sand hatching:

Pattern: AR-SAND

Scale: 0.5000

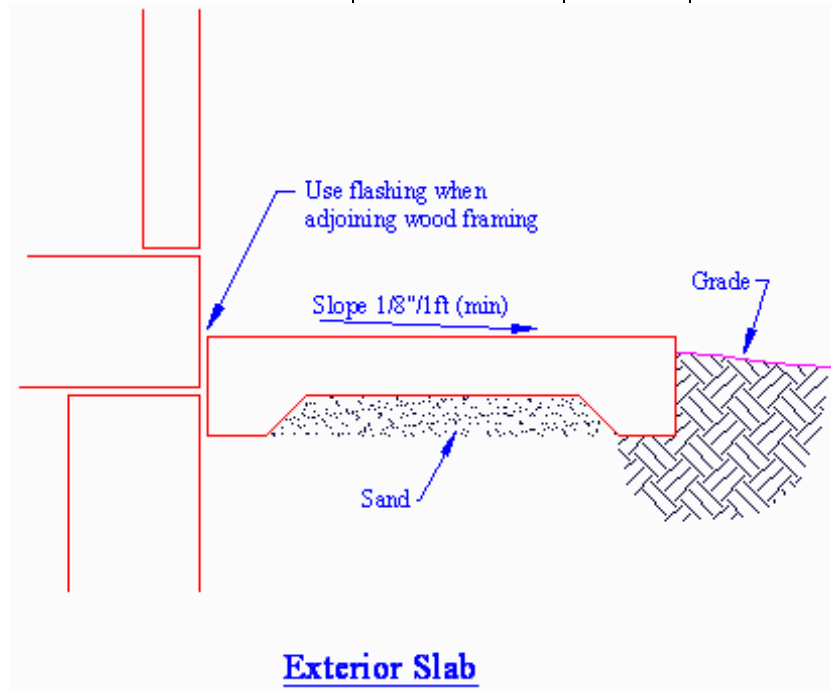
Angle: 0

2.4. Use the Times

New Roman font.  
Large text should plot at ¼"; small text should plot at 1/8".

2.5. Create the Exterior Slab drawing. Save it as *MySlab* in the C:\Steps\Lesson20 folder.

LAYER NAME	COLOR	LINETYPE
0	black	Continuous
Border	blue	Continuous
Cl	212	Center2
Dim	12	Continuous
Const	red	Continuous
Hidden	42	Hidden
Obj1	blue	Continuous
Obj2	green	Continuous
Obj3	red	Continuous
Obj4	212	Continuous
Text	12	Continuous



3. Start a new drawing from scratch. Using the same information you used in the *Exterior Slab* drawing in Exercise 2, create the *Concrete Pier Footing* drawing in Figure 18.031.

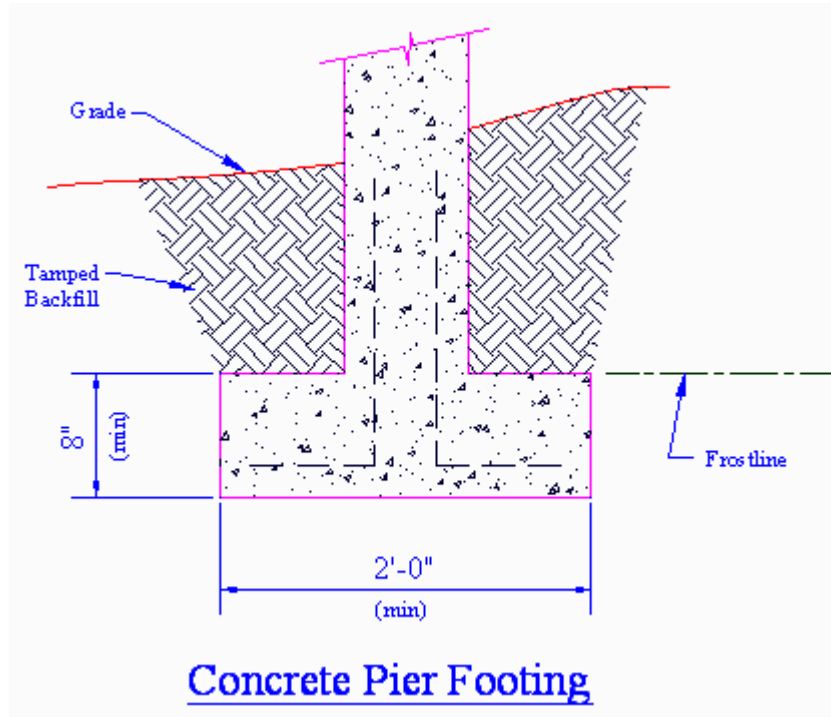
- 3.1. Use this information to hatch the concrete:

Pattern: AR-  
CONC

Scale: 0.5000

Angle: 0

- 3.2. Save the drawing as *MyFooting* in the C:\Steps\  
Lesson20 folder.



4. Open the *Cabin-hatch* file in the C:\Steps\Lesson20 folder. Use the following information to complete the drawing. The completed elevations are shown. (See if you can add a chimney on your own.)

4.1. Create the additional layers shown.

4.2. Hatching information:

<u>LAYER NAME</u>	<u>COLOR</u>	<u>LINETYPE</u>
Hatch1	85	Continuous
Hatch2	22	Continuous
Hatch3	44	Center
Hatch4	214	Continuous

▪ Doors:

Pattern: AR-RROOF

Scale = 1/4"

Angle = 90°

Layer = Hatch3

▪ Roof:

Pattern: AR-RSHKE

Scale = 1/16"

Angle = 0°

Layer = Hatch3

Layer = Hatch3

▪ Facade:

Pattern: AR-BRELM

Scale = 1/8"

Angle = 0°

Layer = Hatch2

▪ Curtains:

Pattern: STARS

Scale = 1"

Angle = 90°

Layer = Hatch4

▪ Gables:

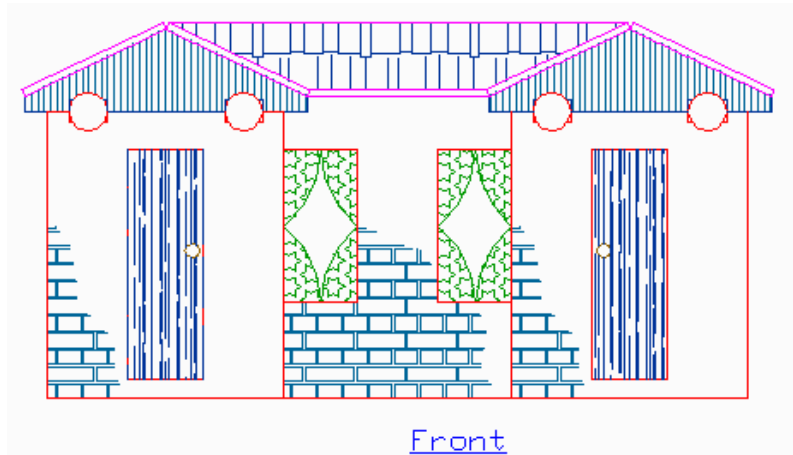
Pattern: ANSI31

Scale = 1"

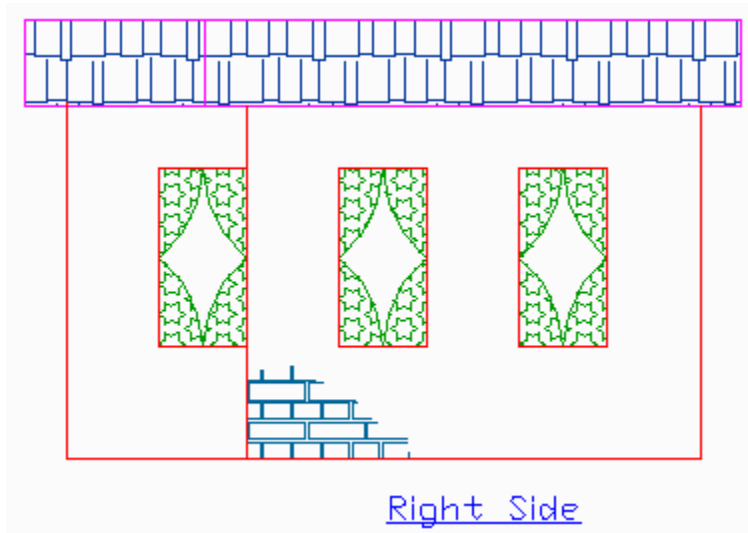
Angle = 45°

Layer = Hatch2

▪ Doorknobs are on the Hatch1 layer.

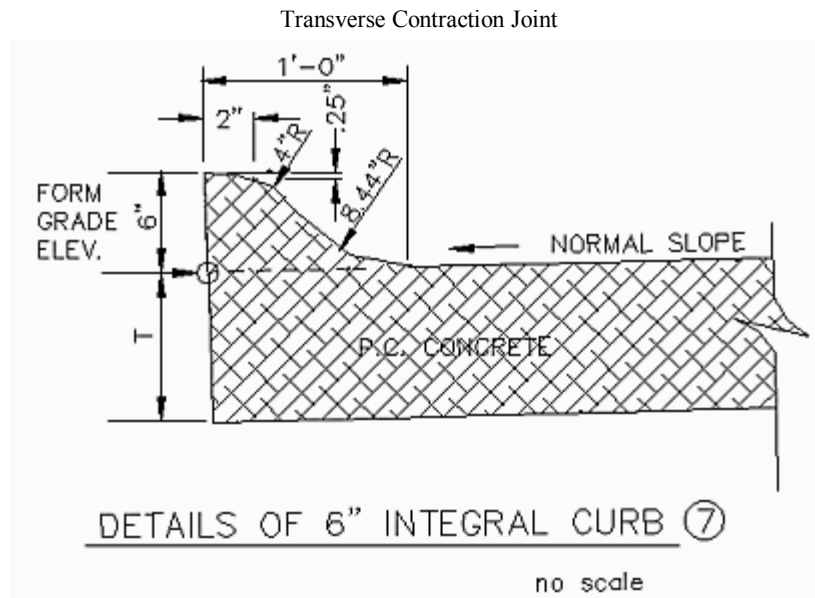
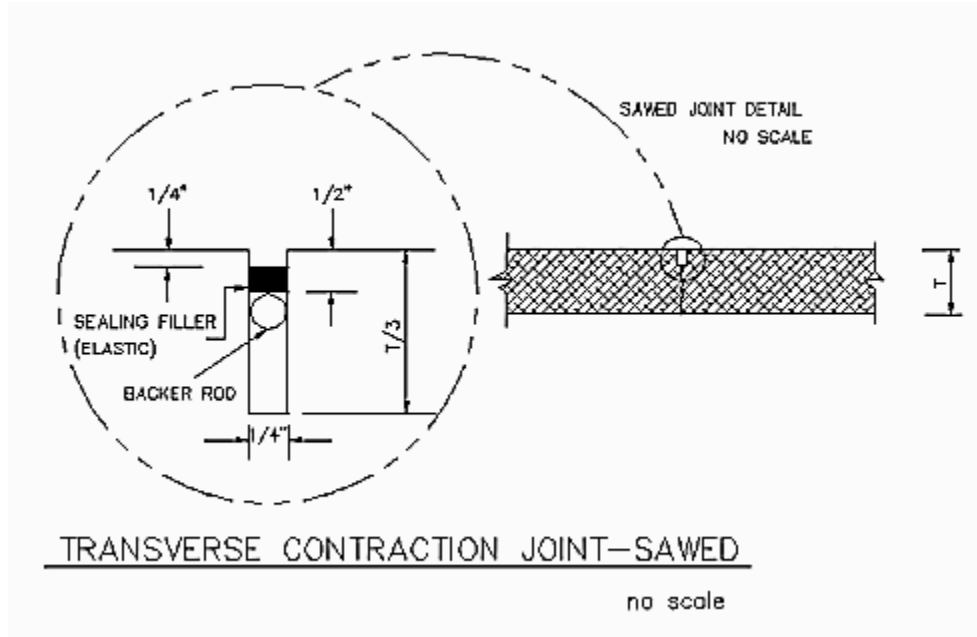


Front Elevation

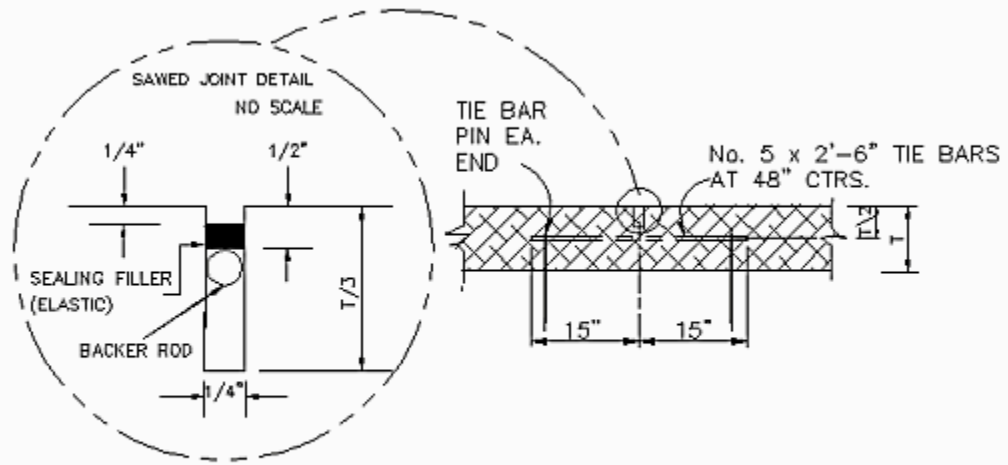


Side Elevation

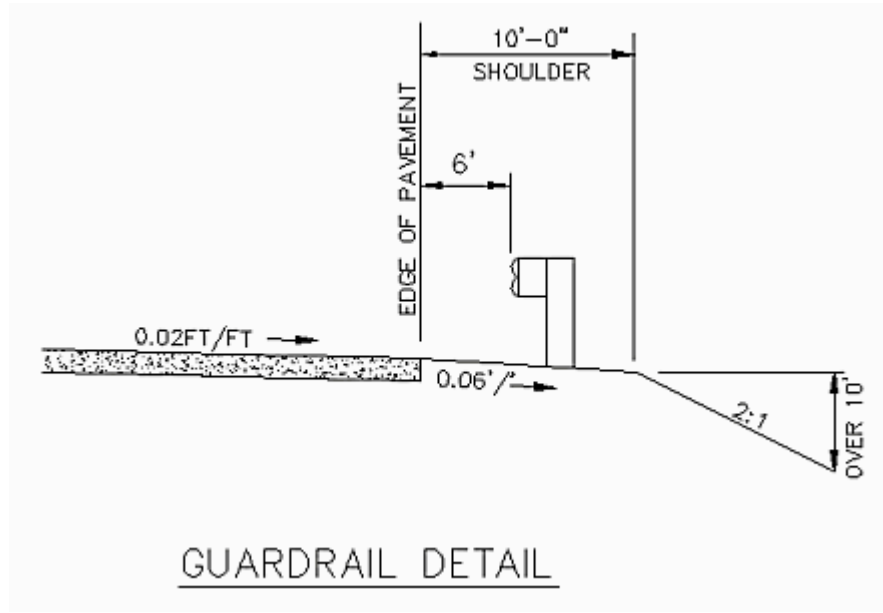
5. Using what you've learned, create the following drawings. The grid, where shown, is 2".



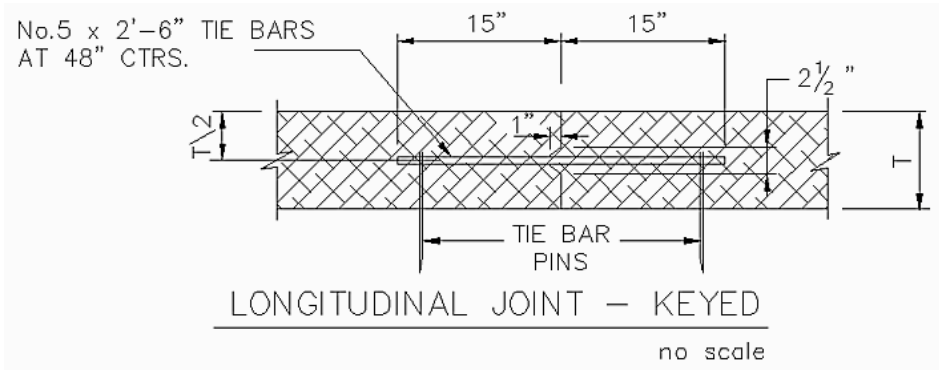
Integral Curb



LONGITUDINAL JOINT — SAWED ③  
no scale



GUARDRAIL DETAIL



LONGITUDINAL JOINT — KEYED  
no scale



Write your answers on a separate sheet of paper.

1. Section lines are created as a style of \_\_\_\_\_.
2. The \_\_\_\_\_ hatch pattern will present the same results as the Solid command.

The User Defined option of the hatch command allows the user to create a hatch pattern by defining the (3) and (4) of hatch lines.

- 3.
- 4.
5. (T or F) A hatch angle of  $0^\circ$  will always draw the hatch lines horizontally.
6. (T or F) You can adjust a brick hatch pattern so that the “first” brick lies at a specified location.

The three AutoCAD hatch styles include: (7) which recognizes multiple objects and hatches every other one; (8) which hatches only between the outer two boundaries; and (9) which ignores all but the outermost boundary.

7. \_\_\_\_\_ 9.
- 8.
10. (T or F) It's necessary that all hatch boundaries be completely closed for the hatching to work properly.
11. Pick on the \_\_\_\_\_ button in the Hatch and Gradient dialog box to see the Hatch Pattern Palette.
12. The Iso Pen Width option is only available when the user selects to use an \_\_\_\_\_ pattern.
13. \_\_\_\_\_ hatching means that the hatching will automatically update when the boundary changes.
14. Use the \_\_\_\_\_ button to match an existing hatch style.
15. Using the \_\_\_\_\_ button on the Hatch and Gradient dialog box enables the user to simply pick a point within a boundary where hatching is required.
16. A boundary within a boundary is called an \_\_\_\_\_.
17. Use the \_\_\_\_\_ command to modify existing hatching.
18. What can the user do to turn classroom-acquired skills into actual knowledge?
19. (T or F) Filling an area with lines or symbols to illustrate a particular condition is called hatching.
20. (T or F) In AutoCAD, section lines are a form of hatch pattern.
21. (T or F) AutoCAD's Normal style of hatching will recognize individual parts or islands in a drawing and not hatch them.

22. (T or F) Use the Hatch command to access the Hatch and Gradient dialog box.
23. (T or F) The Add: Pick Points button in the Hatch and Gradient dialog box is too confusing to be of much use.
24. (T or F) AutoCAD does not permit the user to view the hatch application before it is completed.
25. (T or F) When using the Add: Pick Points button on the Hatch and Gradient dialog box, AutoCAD requires that the user select an object to hatch.
26. (T or F) If you pick an associative hatch pattern created via the Hatch and Gradient dialog box, then the Hatch Edit option will appear on the cursor menu.
27. (T or F) The operator can change an associative hatch pattern by selecting a new one in the Pattern control box of the Hatch Edit dialog box.
28. (T or F) You can set up hatching to automatically rescale with changes in the drawing's Annotation scale.
29. (T or F) The ADC provides quick and easy methods to hatch parts of your drawing.
30. (T or F) You can also use Tool palettes to hatch objects, and you can customize the patterns you find in them.
31. Access the Object Grouping dialog box by typing \_\_\_\_\_ at the command prompt.
32. \_\_\_\_\_ simply means that a group can be manipulated as a single object.
33. To change one of the objects within a group, change the selectable setting to \_\_\_\_\_.
34. (T or F) Once a group is defined, the user cannot add or remove objects from it.
35. Pick the \_\_\_\_\_ button to see which objects are in a group.
36. Use the \_\_\_\_\_ button to change a temporary group name to something more appropriate.
37. The \_\_\_\_\_ button will remove the definition of the group from the drawing's database.
38. The \_\_\_\_\_ button is a toggle for treating a group as a group or suspending the group definition while you modify one or more of the objects within the group.
39. (T or F) Groups can be nested but objects can only belong to one group.
40. (T or F) Group use is limited to a single drawing.
41. (T or F) The group definition is permanently lost once the group is exploded or erased from a drawing.
42. (T or F) A Group consists of objects which can be manipulated as a group, or individually.
43. (T or F) To move the individual objects of a group, the group must be exploded like a polyline.
44. (T or F) If a group is selectable, it can be manipulated as a single object within the drawing.

45. (T or F) Begin the Group command by typing “group” or “g” at the command prompt. There is no Group button on the ribbon's Draw or Modify panels.
46. Using the Object Grouping dialog box, you can
- a) move the objects in a group
  - b) erase the objects in a group
  - c) explode a group.
47. (T or F) An exploded Group loses all group definition.
48. (T or F) A group is specific to the drawing in which it was created and can not be used in any other drawing.

## Answers

- |                        |                |
|------------------------|----------------|
| 1. Hatch Pattern       | 25. F          |
| 2. Solid               | 26. T          |
| 3. Angle               | 27. T          |
| 4. Spacing             | 28. T          |
| 5. F                   | 29. T          |
| 6. T                   | 30. T          |
| 7. Normal              | 31. Group      |
| 8. Outer               | 32. Selectable |
| 9. Ignore              | 33. No         |
| 10. F                  | 34. F          |
| 11. Pattern            | 35. Highlight  |
| 12. ISO                | 36. Rename     |
| 13. Associative        | 37. Explode    |
| 14. Inherit Properties | 38. Selectable |
| 15. Add: Pick Points   | 39. F          |
| 16. Island             | 40. T          |
| 17. Hatchedit          | 41. T          |
| 18. Practice           | 42. T          |
| 19. T                  | 43. F          |
| 20. T                  | 44. T          |
| 21. T                  | 45. T          |
| 22. T                  | 46. c          |
| 23. F                  | 47. T          |
| 24. F                  | 48. T          |