

**INTRODUCTION**

Concrete work requires the use of forming tools. They include some hand tools, circular saws, measuring tools, and leveling instruments. Using forming tools properly and safely requires practice. This unit introduces you to basic forming tools and how to use them.

**FOCUS ASSIGNMENTS**

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1. Your instructor will provide you with vendor catalogs from various tool companies.
2. After investigating the products and services offered by the manufacturers, select one item covered in this unit (e.g. hacksaw, torpedo level) and write a brief comparison of the products offered, including pricing, features, etc.



Reading



Critical Thinking



Technology

**UNIT OBJECTIVE**

After completing this unit, you will show the following competencies by mastering the activities on the Job Sheets and by scoring at least 85% on the Written Test.

**SPECIFIC OBJECTIVES**

1. State rules for using and maintaining hand tools.
2. State rules for safe use of portable circular saws.
3. Use a portable electric saw to perform straight, angle, and beveled cut-off operations. (Job Sheet 1)
4. State rules for proper care of leveling instruments.
5. Identify types of leveling instruments.
6. Use a level. (Job Sheet 2)
7. Identify types of hammers.
8. Match types of nails to their recommended uses.



9. Set and drive nails with a nail hammer. (Job Sheet 3)
10. Identify types of saws.
11. Use a crosscut hand-saw. (Job Sheet 4)
12. Use a hacksaw. (Job Sheet 5)
13. Identify types of squares.
14. Use a framing square and rule to lay out a square corner. (Job Sheet 6)
15. Identify types of measuring tools.
16. Identify miscellaneous forming tools and equipment.
17. Use a rebar cutter to cut rebar. (Job Sheet 7)



OBJECTIVE 1

Optional Activities/  
Resources in Instructor's  
Guide

**State rules for using and maintaining hand tools.**

- Use the correct tool for the job.
- Keep tools clean.
- Keep tools dry.
- Keep tools sharp.
- Inspect tools often to make sure they are in good condition.
- Repair broken or damaged tools promptly.
- Dispose of broken tools that cannot be repaired.



**NOTICE:** Do not use broken tools.

- Do not throw tools!
- Protect the cutting edge of tools when carrying and storing them.
- Store tools properly when not in use.

✓ **NOTE:** Do not carry tools in your pockets; do not place tools where they can roll off; protect cutting edges; lightly oil tools before storing; store tools in a dry place.

- Wear safety glasses.
- Stay alert.

**EXAMPLES:** Keep fingers away from cutting edges; work away from your body when using cutting tools; be sure everyone is clear before you swing a sledgehammer.



## OBJECTIVE 2

Optional Activities/  
Resources in Instructor's  
Guide

### State rules for safe use of portable circular saws.

- Inspect the blade for wear or damage and proper installation.
- Only use the right blade for the job.
- Be sure to check the oil level on worm-drive saws.
- Keep electric cords clear of the blade to avoid cutting the cord.
- Be sure the automatic guard is free and retractable.



**CAUTION:** Never lock the automatic guard in the retracted position.

- Check stock for nails and any other metal before cutting.
- Use a good, solid support for stock while cutting.
- Allow the saw to gain maximum speed before starting the cut.

✓ **NOTE:** Never start a saw when the blade is in contact with wood.

- Set the blade only deep enough to cut through stock.
- Lay the saw on its side after finishing the cut.

## OBJECTIVE 3

### Complete Job Sheet 1.

## OBJECTIVE 4

Optional Activities/  
Resources in Instructor's  
Guide

### State rules for proper care of leveling instruments.

✓ **NOTE:** Leveling instruments are sensitive instruments that require extremely careful treatment.

- Protect the instrument from shock and vibration.
- Never force screws or other moving parts of the instrument.
- Loosen leveling screws before returning the instrument to the carrying case.



- Carry the tripod under your arm with the instrument in front of you. (Figure 1)

✓ **NOTE:** Never carry the tripod over your shoulder when the instrument is attached.

FIGURE 1



## OBJECTIVE 5

Optional Activities/  
Resources in Instructor's  
Guide

Identify types of leveling instruments.

### WORDS YOU SHOULD KNOW

<b>grade</b>	given elevation to which forms are set
<b>plumb bob</b>	tool or device attached to a string; used to set and check the vertical or perpendicular of a surface
<b>leveling rod</b>	pole with markings graduated upward from zero; used with leveling instrument to determine elevations



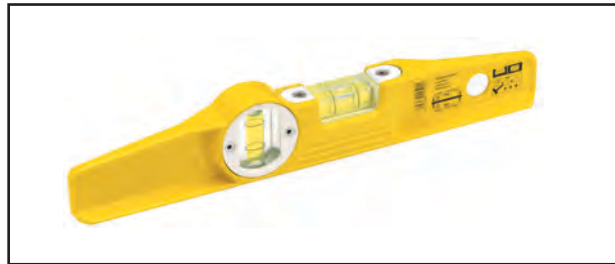
- **Spirit level** — used to level forms and to transfer and check grades

FIGURE 2



- **Torpedo level** — used to check grades of short forms such as step treads

FIGURE 3



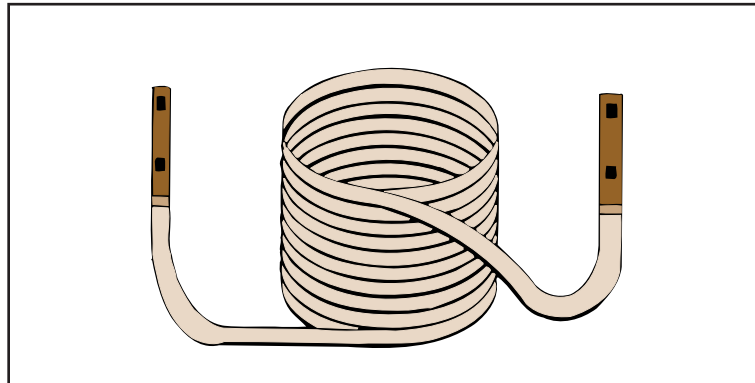
- **Line level** — used to check grades of a dry line

FIGURE 4



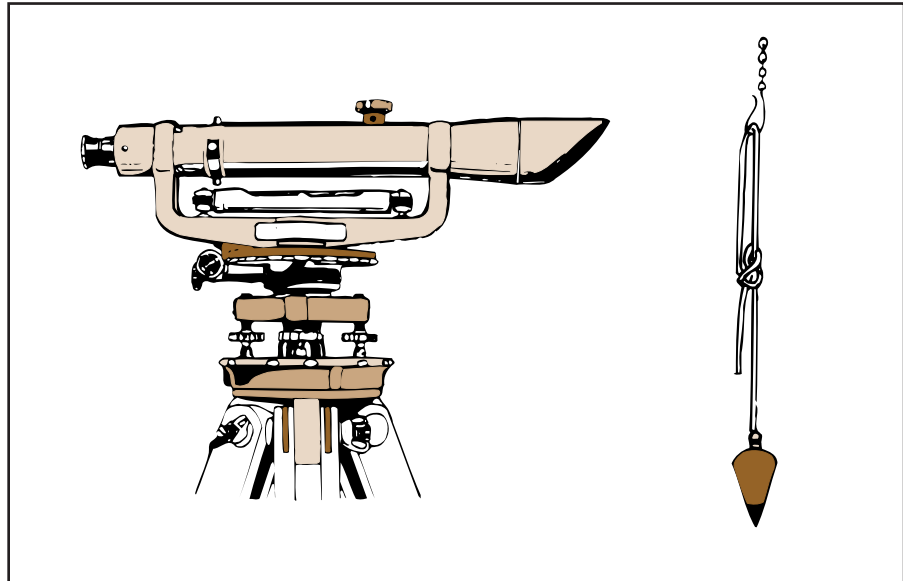
- **Water level** — used to set and check elevations

FIGURE 5



- **Builder's level (with plumb bob)** — used to check elevations and to transfer and check grades

FIGURE 6



- **Total station level** — multifunction laser level that measures angles, distances, and processes and stores data

FIGURE 7



- **Laser-beam level (with leveling rod)** — used to establish and check elevations and to establish, check, and transfer grades

FIGURE 8



## OBJECTIVE 6

**Complete Job Sheet 2.**

## OBJECTIVE 7

**Identify types of hammers.**

Optional Activities/  
Resources in Instructor's  
Guide

✓ **NOTE:** Hammers are available in a variety of weights and sizes.

- **Curved-claw hammer** — used to drive and pull nails

FIGURE 9



- **Straight-claw hammer** — used to drive nails, pull nails, and dismantle

FIGURE 10



- **Sledgehammer** — used to drive stakes and break concrete

✓ **NOTE:** The most commonly used are the 8, 10, or 12 pound.

FIGURE 11

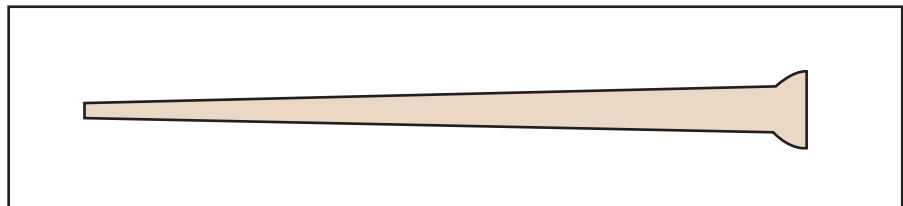


## OBJECTIVE 8

**Match types of nails to their recommended uses.**

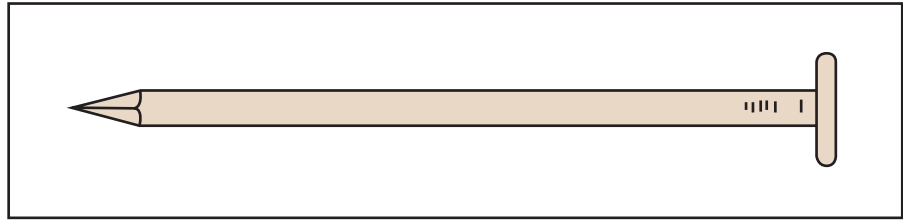
- **Cut nail** — wedge shaped nail with a blunt end; **used in heavy timber or masonry construction**

FIGURE 12



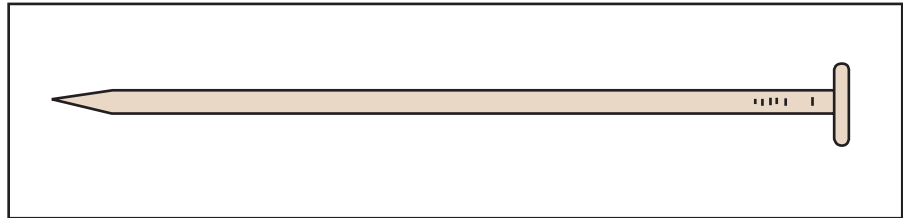
- **Common nail** — broad head, thick shank, **used in general construction**

FIGURE 13



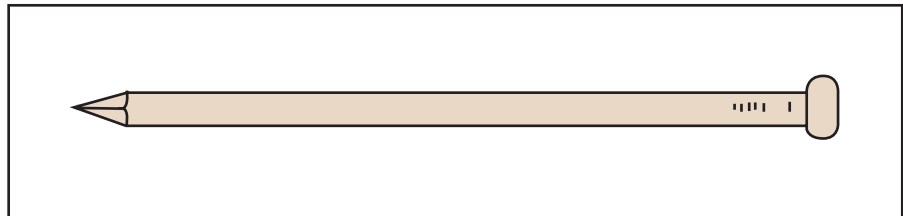
- **Box nail** — thinner and smaller head than common, **rough work**

FIGURE 14



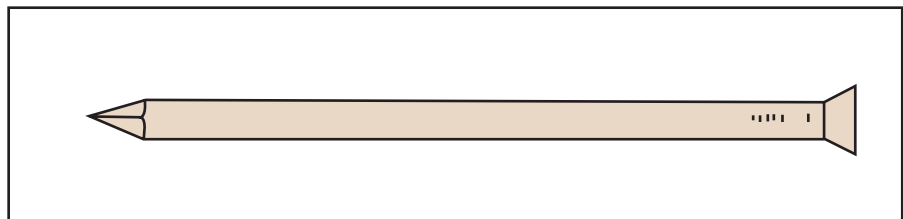
- **Finishing nail** — dimpled head (**for using nail set**), only slightly bigger than shank

FIGURE 15



- **Casing nail** — head tapered, no dimple, made to drive flush, **exterior trim work**

FIGURE 16



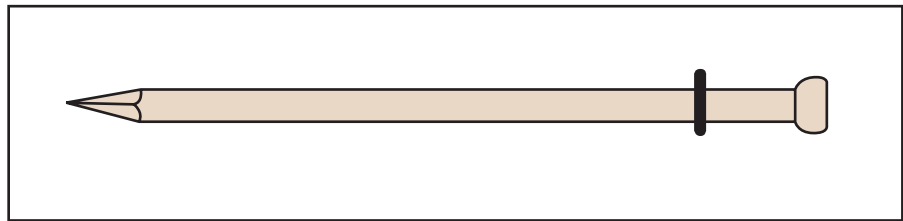
- **Brad** — Practically no head, small and lightweight, **light finish work**

FIGURE 17



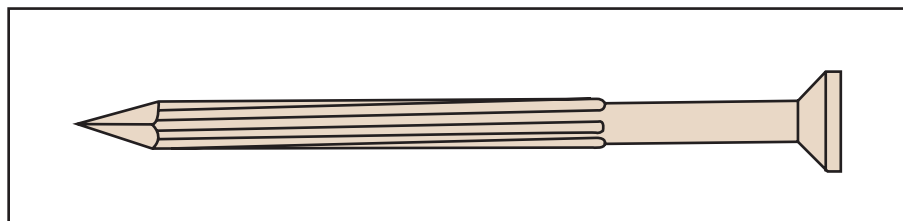
- **Duplex** — **Concrete forms** (for disassembling) **and scaffold**, drive only to first head

FIGURE 18



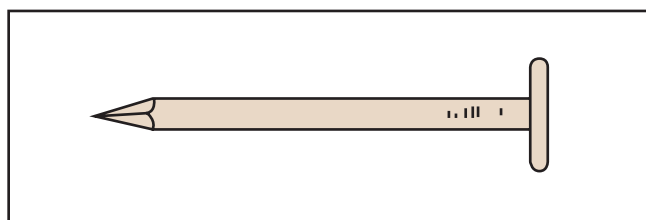
- **Masonry nail** — specially hardened, **concrete or mortar joints**

FIGURE 19



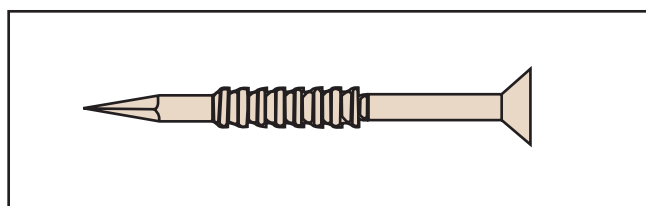
- **Roofing nail** — large head, **hold down shingles and felt**

FIGURE 20



- **Drywall nail** — thin nail with cupped head, **drywall**

FIGURE 21



## OBJECTIVE 9

## OBJECTIVE 10

Optional Activities/  
Resources in Instructor's  
Guide

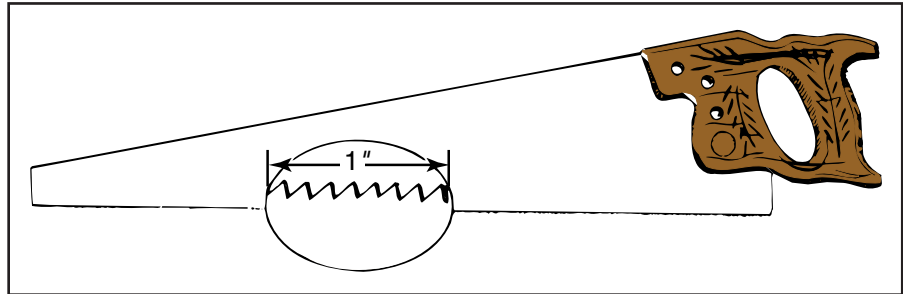
### Complete Job Sheet 3.

#### Identify types of saws.

- **Crosscut handsaw** — used to cut across the grain of wood

✓ **NOTE:** Crosscut saws come in lengths of 20 inches to 26 inches with four to twelve points per inch; teeth are filed at an angle across the face.

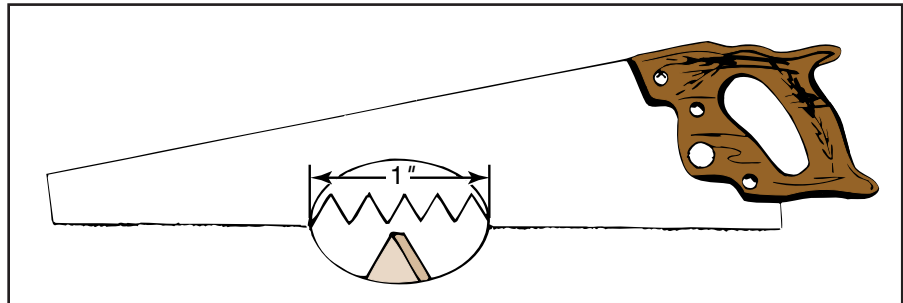
FIGURE 22



- **Rip handsaw** — used to cut with the grain of wood

✓ **NOTE:** Ripsaws come in lengths of 20 inches to 28 inches with five to seven points per inch; teeth are filed square across the face.

FIGURE 23



- **Hacksaw** — used to cut metal

✓ **NOTE:** Hacksaws have U-shaped frames and replaceable blades that come in lengths of 8 inches to 12 inches.

FIGURE 24



- **Portable power circular saws** — used to rip and crosscut form material

FIGURE 25



- **Worm-drive saw** — similar to a circular saw but able to cut through heavier stock material

FIGURE 26



## OBJECTIVE 11

### Complete Job Sheet 4.



## OBJECTIVE 12

Complete Job Sheet 5.

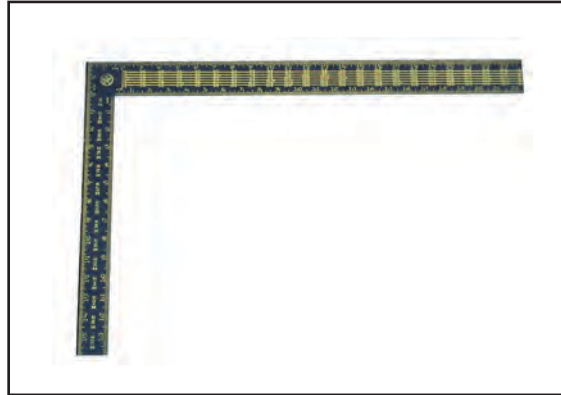
## OBJECTIVE 13

Optional Activities/  
Resources in Instructor's  
Guide

Identify types of squares.

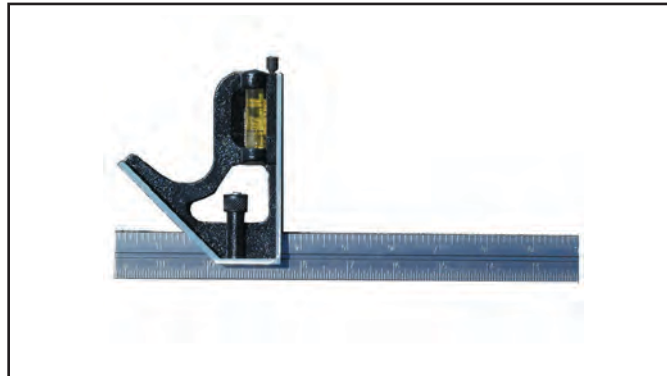
- **Framing square** — used to square corners, check squareness, and lay out 90-degree angles

FIGURE 27



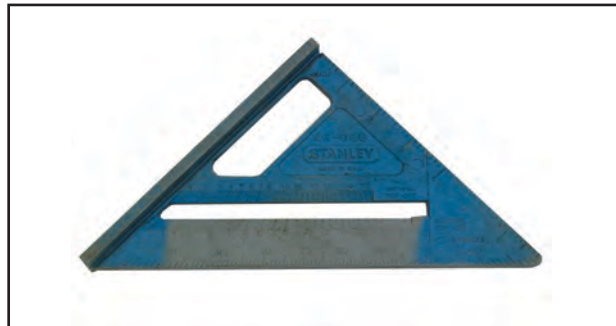
- **Combination square** — used to check squareness and to lay out 45 degree angles

FIGURE 28



- **Speed square** — used to square corners, check squareness, and lay out multiple angles.

FIGURE 29



## OBJECTIVE 14

### Complete Job Sheet 6.

## OBJECTIVE 15

### Identify types of measuring tools.

Optional Activities/  
Resources in Instructor's  
Guide

- **Flexible steel tape** — used to measure irregular as well as regular shapes and to make accurate inside and outside measurements

✓ **NOTE:** Flexible steel tapes slide into a metal case. Most short tapes come in 6-foot to 30-foot lengths; long tapes come in 50-foot to 100-foot lengths. Both types of flexible steel tapes have a hook or loop on the end adjusted to true zero.

FIGURE 30

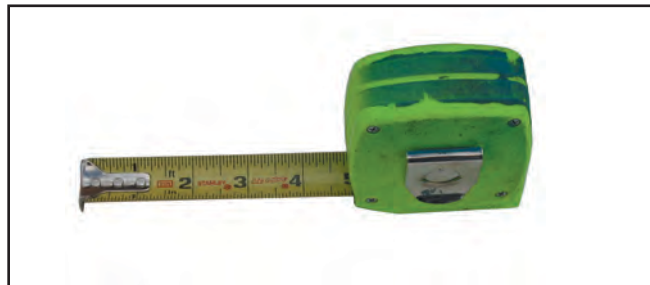


FIGURE 31



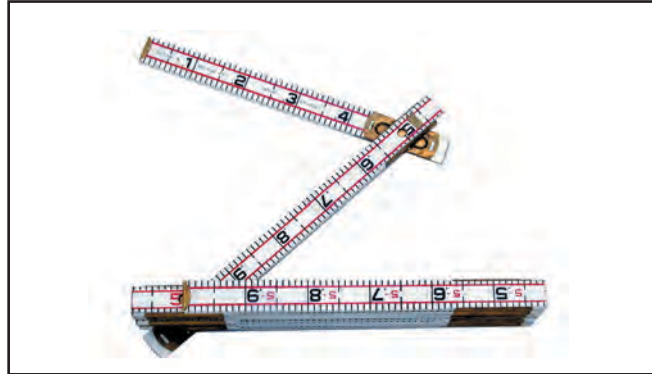
- **Folding rule (zigzag rule)** — used to make accurate inside and outside measurements for laying out forms, laying out joints, and checking for square

FIGURE 32



- **Engineer's rule** — measures in tenths and hundredths of a foot

FIGURE 33



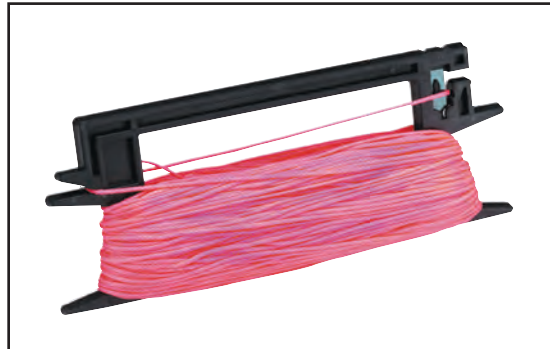
## OBJECTIVE 16

Optional Activities/  
Resources in Instructor's  
Guide

**Identify miscellaneous forming tools and equipment.**

- **Line (string line; dry line)** — used as a guide to set stakes and forms straight and accurately

FIGURE 34



- **Ripping bar, flatbar, cats paw (wrecking bar)** — used to pull nails, to pry, and to remove forms

FIGURE 35



- **Chalk box and line** — used to lay out work on concrete, to lay out cut lines on lumber, and to mark joints in concrete

FIGURE 36



- **Magnetic nail driver** — used to drive short masonry nails through expansion material and into masonry wall when setting expansion material

FIGURE 37



- **Utility knife** — used to cut expansion material

FIGURE 38



- **Side-cut pliers** — used to cut and twist wires on reinforcing steel and on forms

FIGURE 39



- **Tool bag or bucket** — used to store and transport tools

FIGURE 40



- **Sawhorse (sawbuck)** — used to support lumber while cutting

FIGURE 41



## OBJECTIVE 17

**Complete Job Sheet 7.**



Name \_\_\_\_\_ Score \_\_\_\_\_

OBJECTIVE 3

Use a portable electric saw to perform straight, angle, and beveled cut-off operations.

BASIC SKILLS



Reading



Mathematics



Employability

EQUIPMENT AND SUPPLIES

- Safety goggles
- Portable circular saw
- Adjustable circular saw protector
- Folding rule or steel tape
- Combination square
- Pencil
- Extension cord
- Sawhorse
- One piece of 2 x 4 about 4 feet long
- Personal protective equipment

✓ **NOTE:** Refer to C.F.R. 1926 Sub Part E in regard to personal protective equipment.

PROCEDURE

**Straight Cut**

**Yes No**

1. Check to see that all safety devices are in place and the saw is disconnected from the power source.
2. Check to see that the automatic blade guard is free and retractable.
3. Check the blade to be sure it is sharp and not damaged.
4. Adjust the blade so that it is slightly lower than the thickness of the material being cut.
5. Measure and mark the 2 x 4 at the proper length (given by your instructor).



**Yes No**

- 6. Plug the saw into a power source, making sure the saw is grounded.
- 7. Put on safety goggles.
- 8. Hold the 2 x 4 securely on the sawhorse and align the saw blade properly with the mark on the 2 x 4. (Figure 1)

**FIGURE 1**



- 9. Check with your instructor for approval before starting the saw.
- 10. Check to be sure the blade is clear of stock before starting the saw.
- 11. Start the saw and let it gain maximum speed.
- 12. Hold the 2 x 4 securely as you advance the saw blade into the work slowly but firmly. (Figure 2)



FIGURE 2



**Yes No**

- 13. Turn off the saw immediately after the cut is made.
- 14. Be sure the blade guard has returned to its proper position.
- 15. After the blade has stopped turning, lay the saw on its side.
- 16. Discard the scrap in the proper receptacle.
- 17. Unplug the saw from the power source.

✓ **NOTE:** If an angle cut is to be made immediately, it will not be necessary to unplug the saw source or to repeat Steps 1 through 4 under straight cut procedures.

**Angle Cut**

- 1. Measure and mark the angle on the 2 x 4 at the proper length (angle and length given by your instructor).
- 2. Put on safety goggles.



**Yes No**

3. Hold the 2 x 4 securely on the sawhorse and align the saw blade properly with the mark on the 2 x 4 (Figure 3).

**FIGURE 3**



4. Check with your instructor for approval before starting the saw.
5. Check to be sure the blade is clear of stock before starting the saw.
6. Start the saw and let it gain maximum speed.
7. Hold the 2 x 4 securely as you advance the saw blade into the work slowly but firmly.
8. Turn off the saw immediately after the cut is made.
9. Be sure that the blade guard has returned to its proper position.
10. After the blade has stopped turning, lay the saw on its side.
11. Discard the scrap in the proper receptacle.
12. Unplug the saw from the power source.



Yes No

- 13. Remove safety goggles.
- 14. Clean up the area and properly store tools and equipment.

### SKILL TEST RECORD

**PRODUCT EVALUATION**

**Evaluator note:** Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of “3” or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:

Safety	4	3	2	1
Cuts were accurate	4	3	2	1

**AVERAGE RATING**

**Evaluator note:** To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

**KEY**

- 4 Skilled** — Can perform job with no additional training
- 3 Moderately Skilled** — Has performed job during training program; limited additional training may be required
- 2 Limited Skill** — Has performed job during training program; additional training is required to develop skill
- 1 Unskilled** — Is familiar with process, but is unable to perform job

**EVALUATOR'S COMMENTS**





Name \_\_\_\_\_ Score \_\_\_\_\_

OBJECTIVE 6

Use a level.

BASIC SKILLS



Reading



Mathematics



Employability

EQUIPMENT AND SUPPLIES

- 4-foot spirit level
- Vertical and horizontal work surfaces
- Pencil
- Tape
- Straightedge
- Personal protective equipment

✓ **NOTE:** Refer to C.F.R. 1926 Sub Part E in regard to personal protective equipment.

PROCEDURE

Check level for accuracy.

✓ **NOTE:** Levels are very delicate instruments and must be handled carefully to ensure accuracy. Levels should be checked for accuracy before use, especially if the instrument has been dropped or jarred.

Yes No

1. Set the base of the level on a flat, horizontal surface.
2. Check the bubble position in the horizontal vial.
3. Adjust the surface or location of the level until the bubble is centered; mark the position on the surface. (Figure 1)

✓ **NOTE:** On a level surface, the bubble will lie evenly positioned between the lines on the vial.



FIGURE 1



Yes No

4. Rotate the level end-for-end and position it on the exact location of the bubble-centered reading.

FIGURE 2



**Yes No**

5. Check the bubble position in the the horizontal vial.

✓ **NOTE:** The bubble will be centered from this side also if the level is accurate.

6. Replace or repair the level as necessary.

✓ **NOTE:** Some levels may be repaired on site. Use care when adjusting the vial of an inaccurate level.

**Level a surface.**

1. Visually check the surface for irregularities and foreign matter such as dirt.

✓ **NOTE:** Even small surface irregularities or particles can cause inaccurate readings.

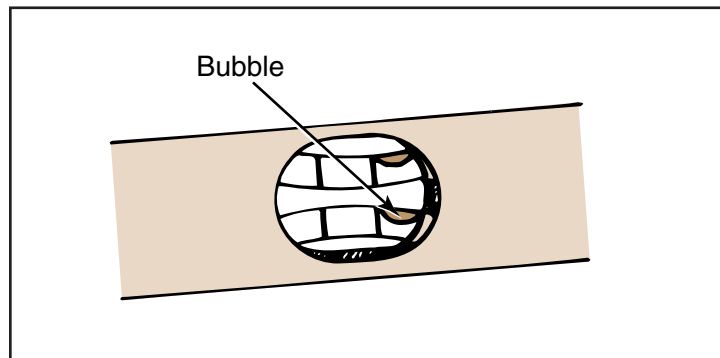
2. Clean or replace the surface as necessary.

3. Set the base of the level carefully and squarely on the surface.

4. Check the bubble position. (Figure 3)

✓ **NOTE:** The bubble will be displaced toward the high end of the level.

FIGURE 3



5. Adjust the surface as necessary.

6. Take additional readings to level the surface as required.

✓ **NOTE:** Many factors, such as the type of surface and the material being used, affect the number of readings that are required.



## Plumbing

### Check level for accuracy.

Yes No

- 1. Place the base of the level against a flat, vertical surface.
- 2. Check the bubble position in the upper horizontal vial.
- 3. Adjust the surface or location of the level until the bubble is centered; mark the position on the surface.
- 4. Rotate the level end for end and position it on the exact location as that of the bubble-centered reading. (Figures 4 and 5)

FIGURE 4

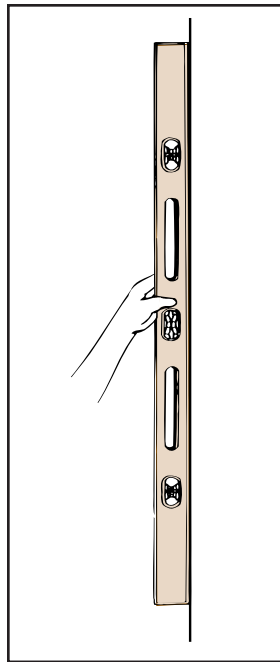
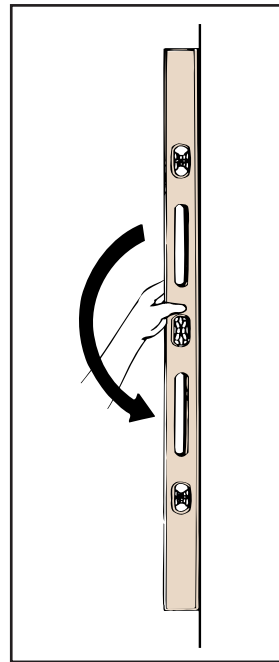


FIGURE 5



- 5. Check the bubble position in the upper horizontal vial.

✓ **NOTE:** The bubble will be centered at this end also if the level is accurate.

- 6. Replace or repair the level as necessary.



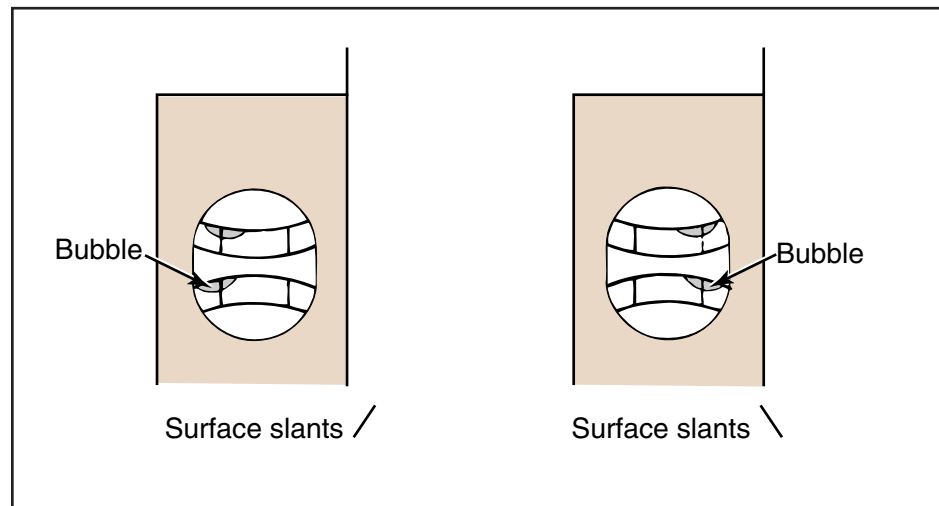
## Plumb a surface.

Yes No

- 1. Visually check the surface for irregularities and foreign matter such as dirt.
- 2. Clean or replace the surface as necessary.
- 3. Place the base of the level carefully and squarely against the surface.
- 4. Check the bubble position in the upper vial. (Figure 6)

✓ **NOTE:** The bubble will move toward one end of the vial if the surface is not plumb. To plumb the surface, you must adjust it in the direction of bubble displacement.

FIGURE 6



- 5. Adjust the surface as necessary.
- 6. Take additional readings to plumb as required.
- 7. Clean the work area, and properly store equipment and materials.



## SKILL TEST RECORD

### PRODUCT EVALUATION

**Evaluator note:** Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of “3” or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:

Safety	4	3	2	1
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Use of tools	4	3	2	1
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General appearance	4	3	2	1
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Overall performance	4	3	2	1
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### AVERAGE RATING

**Evaluator note:** To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

### KEY

- 4 Skilled** — Can perform job with no additional training
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- 1 Unskilled** — Is familiar with process, but is unable to perform job

### EVALUATOR'S COMMENTS



Name \_\_\_\_\_ Score \_\_\_\_\_

OBJECTIVE 9

Set and drive nails with a nail hammer.

BASIC SKILLS



EQUIPMENT AND SUPPLIES

- Nail hammer (curved-claw or straight-claw hammer)
- Nails
- Two pieces of wood
- Firm, steady work surface
- Personal protective equipment

✓ **NOTE:** Refer to C.F.R. 1926 Sub Part E in regard to personal protective equipment.

PROCEDURE

Yes No

- |                          |                          |                                                                                      |
|--------------------------|--------------------------|--------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Check the hammer to be sure that it is in good condition and the handle is tight. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Place two pieces of wood, one on top of the other, on the work surface.           |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Hold a nail upright on the top piece of wood with one hand.                       |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Set the nail, using the following guidelines. (Figures 1 and 2)                   |
|                          |                          | A. Grasp the hammer firmly near the end of the handle.                               |
|                          |                          | B. Rest the face of the hammer on the nailhead.                                      |
|                          |                          | C. Lift the hammer and then give the nail a light tap.                               |



FIGURE 1



FIGURE 2



**Yes No**

- 5. Drive the nail, using the following guidelines.
  - A. Strike the nail squarely with a firm, smooth swing of the hammer.  
  
**✓ NOTE:** Deliver blows smoothly and evenly, using wrist, elbow and/or shoulder—one or all are brought into action depending on the required force of the blow to be struck.
  - B. Avoid marring the wood or bending the nail.
  - C. If the nail bends, pull it out and start again.
  - D. Continue driving the nail until it penetrates the piece of wood, but stop before it enters the bottom piece of wood.
- 6. Following the procedures in Steps 4 and 5, continue practicing until you can set and drive nails without bending them.
- 7. Clean the work area, and properly store tools and equipment.

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**SKILL TEST RECORD**

**PRODUCT  
EVALUATION**

**Evaluator note:** Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of “3” or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:

Safety	4	3	2	1
Use of tools	4	3	2	1
General appearance	4	3	2	1
Overall performance	4	3	2	1



**AVERAGE RATING**

**Evaluator note:** To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

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**EVALUATOR'S COMMENTS**



Name \_\_\_\_\_ Score \_\_\_\_\_

OBJECTIVE 11

Use a crosscut hand-saw.

BASIC SKILLS



Reading



Mathematics



Employability

EQUIPMENT AND SUPPLIES

- Crosscut handsaw
- Square
- Pencil
- Piece of wood
- Sawhorse
- Personal protective equipment

✓ **NOTE:** Refer to C.F.R. 1926 Sub Part E in regard to personal protective equipment.

PROCEDURE

Yes No

1. Check the saw to be sure it is sharp and in good condition.
2. Square and mark a pencil line across the wood near one end.
3. Lay the wood on a sawhorse so the pencil mark extends past the end of the sawhorse.
4. Secure the wood firmly in place on the sawhorse; grasp the saw in one hand. (Figure 1)



FIGURE 1



Yes No

5. Start and complete the cut, using the following guidelines.
- A. Place the saw on the leading edge of the wood at the pencil mark.
  - B. Slide your thumb next to the blade to steady the blade and hold it on the pencil mark.
  - C. Draw the saw backward and then push the saw forward to start the cut, holding the saw at about a 45-degree angle from the surface of the wood. (Figure 2)
  - D. Draw the saw backward, holding the blade square to the piece of wood.
  - E. Continue forward-and-backward motions until the wood is cut through.

✓ **NOTE:** Do not force, twist, or bend the saw, as this will damage the blade.



FIGURE 2



Yes No

6. Clean the work area, and properly store tools and equipment.

**PRODUCT  
EVALUATION**

**SKILL TEST RECORD**

**Evaluator note:** Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of “3” or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:

Safety	4	3	2	1
Use of tools	4	3	2	1
General appearance	4	3	2	1
Overall performance	4	3	2	1



**AVERAGE RATING**

**Evaluator note:** To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

**KEY**

- 4 Skilled** — Can perform job with no additional training
- 3 Moderately Skilled** — Has performed job during training program; limited additional training may be required
- 2 Limited Skill** — Has performed job during training program; additional training is required to develop skill
- 1 Unskilled** — Is familiar with process, but is unable to perform job

**EVALUATOR'S COMMENTS**



Name \_\_\_\_\_ Score \_\_\_\_\_

OBJECTIVE 12

Use a hacksaw.

BASIC SKILLS



EQUIPMENT AND SUPPLIES

- Steel tape or folding rule
- Soapstone
- Bench vise with soft jaws
- Hacksaw
- 1-inch reinforcing rod, 36 inches long
- File
- Personal protective equipment

✓ **NOTE:** Refer to C.F.R. 1926 Sub Part E in regard to personal protective equipment.

PROCEDURE

Yes No

1. Clamp the reinforcing rod in the bench vise so that about 6 inches extend past the edge of the bench. (Figure 1)

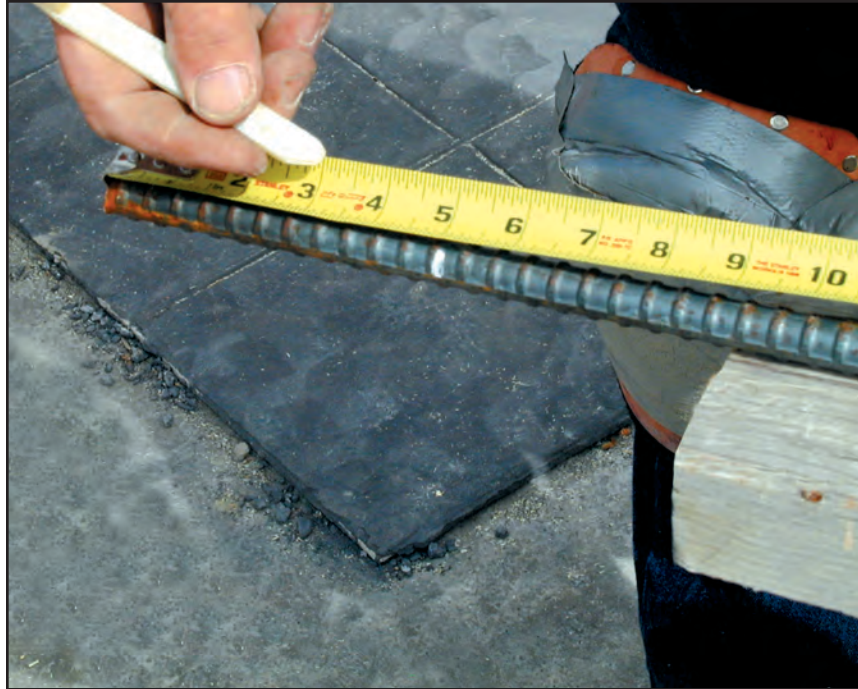
FIGURE 1



Yes No

2. Using either tape or a rule and soapstone, measure and then mark the rod at the 5-inch point. (Figure 2)

FIGURE 2



3. Check the hacksaw to make sure the blade is tight, and the teeth are sharp and going in the right direction. (Figure 3)

✓ **NOTE:** For most general-purpose work, use a blade that has twelve teeth per inch; however, a fine-toothed blade should be used to cut thin metal. When selecting saw blades, keep in mind the three-tooth rule—at least three teeth in contact with your work.



FIGURE 3



**Yes No**

- 4. Put the saw blade on the soapstone mark.
- 5. Hold the saw firmly by the handle and the front of the frame.
- 6. Cut with a forward-and-backward movement, making about forty strokes per minute; apply pressure on forward strokes, and lift the saw slightly on return strokes. Cut on the forward movement only, and use the entire length of the blade.



**CAUTION:** When the saw is about to cut through the stock, ease up on the pressure. Otherwise, you may push your hand into the sharp edge of the piece still held in the vise.

- 7. Use the file to deburr the cut end of both pieces of the reinforcing rod.
- 8. Clean the work area, and properly store tools and equipment.



## SKILL TEST RECORD

### PRODUCT EVALUATION

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Criteria:

Safety	4	3	2	1
Use of tools	4	3	2	1
General appearance	4	3	2	1
Overall performance	4	3	2	1

### AVERAGE RATING

**Evaluator note:** To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

### KEY

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### EVALUATOR'S COMMENTS



Name \_\_\_\_\_ Score \_\_\_\_\_

OBJECTIVE 13

Use a framing square and rule to lay out a square corner.

BASIC SKILLS



Reading



Mathematics



Employability

EQUIPMENT AND SUPPLIES

- Framing square
- Pencil
- Rule
- Chalk line
- Personal protective equipment

✓ **NOTE:** Refer to C.F.R. 1926 Sub Part E in regard to personal protective equipment.

PROCEDURE

Yes No

1. Place the framing square on Point C to square off a line.

✓ **NOTE:** Your instructor will establish Point C.

2. Mark Line CD along the edge of the framing square to establish a square corner. (Figures 1 and 2)

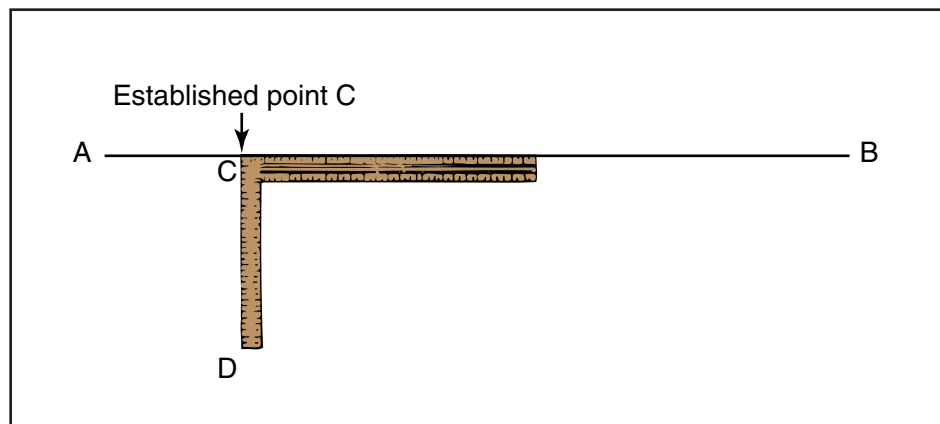
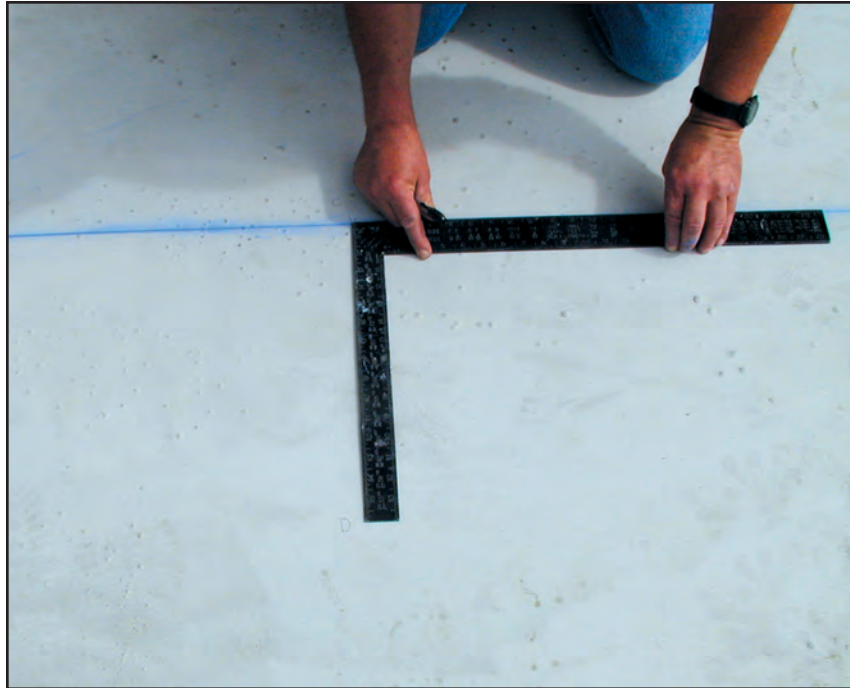


FIGURE 2

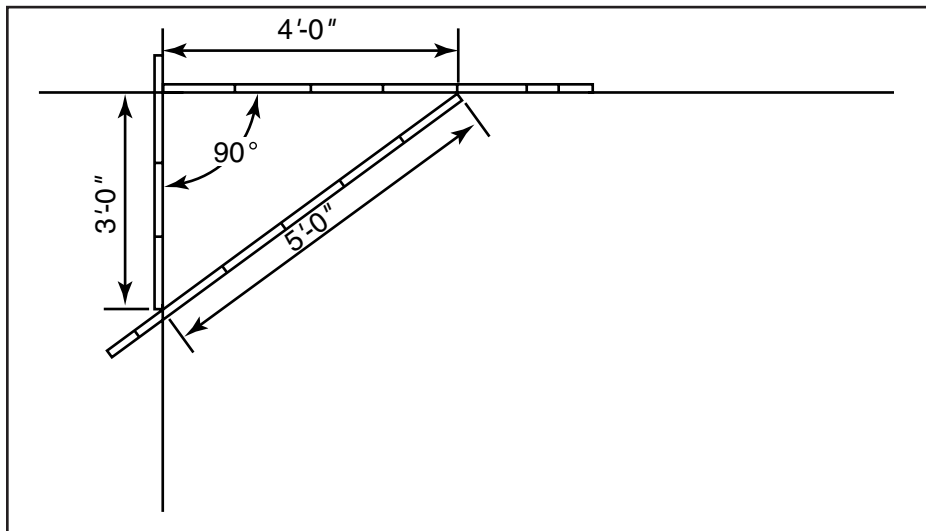


Yes No

- 3. Snap a chalk line from Point C along Line CD to extend several feet past Point D.
- 4. Use a rule and the 3-4-5 method to check the square of the corner. (Figure 3)

✓ **NOTE:** When reading a diagonal measurement it is important to read from the side of the tape or rule.

FIGURE 3



- 5. Recheck your work.



- 6. Clean the work area, and properly store equipment and materials.

### SKILL TEST RECORD

#### PRODUCT EVALUATION

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Criteria:

Safety	4	3	2	1
Use of tools	4	3	2	1
General appearance	4	3	2	1
Overall performance	4	3	2	1

#### AVERAGE RATING

**Evaluator note:** To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

#### KEY

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#### EVALUATOR'S COMMENTS





Name \_\_\_\_\_ Score \_\_\_\_\_

OBJECTIVE 17

Use a rebar cutter to cut rebar.

BASIC SKILLS



Reading



Mathematics



Employability

EQUIPMENT AND SUPPLIES

- Tape measure
- Soap stone or keel
- Rebar cutter/bender
- #4 (1/2") rebar
- Personal protective equipment

✓ **NOTE:** Refer to C.F.R. 1926 Sub Part E in regard to personal protective equipment.

PROCEDURE

Yes No

1. Mark the rebar to the specified length.
2. Undo the wingnuts holding the handle.
3. Insert the rebar into the cutter to where the measurement lines up with the jaws. (Figure 1)



FIGURE 1



**Yes No**

4. Position yourself so you are well balanced while cutting rebar. To cut the rebar you must depress the handle until the rebar is thoroughly cut.

FIGURE 2



Yes No

5. Remove the rebar from the cutter.

✓ **NOTE:** Caution must be used when cutting rebar, because when the cut is complete there is no resistance and you may lose your balance or crush your fingers.

FIGURE 3



6. Clean the work area, and properly store equipment and materials.

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### SKILL TEST RECORD

### PRODUCT EVALUATION

**Evaluator note:** Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of “3” or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.



Criteria:

Safety	4	3	2	1
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Use of tools	4	3	2	1
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General appearance	4	3	2	1
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Overall performance	4	3	2	1
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**AVERAGE RATING**

**Evaluator note:** To obtain an average rating for the Profile of Training Mastery, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

**KEY**

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**EVALUATOR'S COMMENTS**

