

## Chapter 2 Reading Electrical Working Drawings- Entry Level

1. If more than one symbol is located immediately adjacent to another, it usually means that a multigang box for multiple wiring devices and \_\_\_\_ are to be installed.
- a. multiple covers
  - b. two covers
  - c. duplicate covers
  - d. a single cover

*ANSWER:* d

*POINTS:* 1

*REFERENCES:* Electrical Symbols

2. A dashed line with an “S” designates a(n) \_\_\_\_.
- a. underfloor signal raceway
  - b. sturdy raceway system
  - c. solid raceway
  - d. signal raceway

*ANSWER:* a

*POINTS:* 1

*REFERENCES:* Electrical Symbols

3. When concealed raceways are drawn on plans, they usually are shown as \_\_\_\_.
- a. curved lines
  - b. straight lines
  - c. circles
  - d. right angles

*ANSWER:* a

*POINTS:* 1

*REFERENCES:* Electrical Symbols

4. When raceways are installed vertically in the building, from one floor to another, the vertical direction may be represented by the arrow symbol inside a(n) \_\_\_\_.
- a. triangle
  - b. square
  - c. circle
  - d. oval

*ANSWER:* c

*POINTS:* 1

*REFERENCES:* Electrical Symbols

5. If the raceway is for use of the \_\_\_\_ system, the line will be broken and an uppercase T will be inserted.
- a. transportation
  - b. telephone
  - c. tunnel
  - d. timing

*ANSWER:* b

*POINTS:* 1

*REFERENCES:* Electrical Symbols

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6. The symbol for \_\_\_\_ consist of two parallel lines inside, and sometimes extending out of, a circle.
- a. pressure switches
  - b. float switches
  - c. duplex convenience receptacles
  - d. lighting outlets

*ANSWER:* c

*POINTS:* 1

*REFERENCES:* Electrical Symbols

7. The typical outlet notation “H” designates a \_\_\_\_ outlet.
- a. hollow
  - b. high mounted
  - c. hung
  - d. horizontally mounted

*ANSWER:* d

*POINTS:* 1

*REFERENCES:* Electrical Symbols

8. A switch symbol without a number beneath the horizontal line means that a \_\_\_\_ switch should be installed.
- a. single-pole
  - b. float
  - c. three-way
  - d. four-way

*ANSWER:* a

*POINTS:* 1

*REFERENCES:* Electrical Symbols

9. \_\_\_\_ are not usually permitted on the hinged side of the door but are required to be located on the strike side.
- a. Outlets
  - b. Switches
  - c. Circuits
  - d. Floats

*ANSWER:* b

*POINTS:* 1

*REFERENCES:* Electrical Symbols

10. \_\_\_\_ schedules are typically provided to detail the circuits and overcurrent protection required for distribution equipment.
- a. Branch-circuit
  - b. Outlet
  - c. Switch
  - d. Panelboard

*ANSWER:* d

*POINTS:* 1

*REFERENCES:* Electrical Symbols

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11. \_\_\_\_ are distribution points for electrical circuits.

- a. Panelboards
- b. Receptacle outlets
- c. Surface raceways
- d. Lighting outlets

*ANSWER:* a

*POINTS:* 1

*REFERENCES:* Electrical Symbols

12. A rectangle with parallel diagonal lines as the fill pattern represents a \_\_\_\_.

- a. switch
- b. lighting outlet
- c. receptacle outlet
- d. distribution panel

*ANSWER:* d

*POINTS:* 1

*REFERENCES:* Electrical Symbols

13. The term \_\_\_\_ means not connected to ground or a conductive body that extends the ground connection.

- a. neutral conductor
- b. ungrounded
- c. neutral point
- d. white conductor

*ANSWER:* b

*POINTS:* 1

*REFERENCES:* Electrical Symbols

14. The switches used in the low-voltage remote-control system operate on \_\_\_\_ volts.

- a. 12
- b. 24
- c. 60
- d. 120

*ANSWER:* b

*POINTS:* 1

*REFERENCES:* The Drugstore

15. One type of illumination system consists of rows of strip fluorescents and a ceiling that will transmit light. For this system to be efficient, the surfaces above the luminous ceiling must be \_\_\_\_.

- a. installed by the electrician
- b. metallic
- c. black
- d. highly reflective (white)

*ANSWER:* d

*POINTS:* 1

*REFERENCES:* The Drugstore

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16. Describe the placement of electrical equipment in electrical plans.

**ANSWER:** Graphic symbols indicate only the approximate locations of electrical equipment such as switches and receptacles and are not drawn to scale. Details are provided in the specifications or on the plans that will give mounting heights, dimensions above countertops, distances from doors, height above the floor, and so forth, for accurate locations of receptacles, luminaires, and other equipment.

**POINTS:** 1

**REFERENCES:** Electrical Symbols

17. How are hash marks useful in marking raceways?

**ANSWER:** Hash marks drawn across raceway or cable lines indicate the *number* and *use* of the installed conductors. There are different acceptable ways of using hash marks. One way is to use full slashes to indicate “hot” (or switch leg) conductor(s), and half slashes to indicate grounded neutral conductor(s). No slashes indicate one “hot” and one grounded conductor. A dot(s) indicates an equipment grounding conductor(s). The letters “IG” are added near the dot to indicate an isolated-insulated grounding conductor(s). Another way is to use long hash marks to indicate a neutral (white) conductor and short hash marks to indicate “hot” ungrounded conductors.

**POINTS:** 1

**REFERENCES:** Electrical Symbols

18. How are location and types of luminaires often identified in drawings and specifications?

**ANSWER:** The location of luminaires (often referred to in trade jargon as “fixtures”) is often specifically identified on the construction drawings. The specific type of luminaire to be installed as well as the manufacturer and model is often identified in the specifications or in a luminaire schedule. Luminaires must be designed and installed to be appropriate with all environmental conditions where the luminaire is installed.

**POINTS:** 1

**REFERENCES:** Electrical Symbols

19. What are panelboards? Describe the major types.

**ANSWER:** Panelboards are distribution points for electrical circuits. They contain circuit protective devices. *NEC*<sup>®</sup> *Article 100* contains the official definition. The previous two basic classes of panelboards, power and lighting and appliance, have been deleted. Panelboards are available to accommodate from 2 to 84 branch circuits and from 30 to several hundred amperes rating. The requirements for construction and application of panelboards are set forth in *NEC*<sup>®</sup> *Article 408*.

**POINTS:** 1

**REFERENCES:** Electrical Symbols

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20. What advantages does a low-voltage remote-control system offer, and why isn't it more popular?

*ANSWER:* The low-voltage remote-control system offers control flexibility that is not available in the traditional control system. The switches used in this system operate on 24 volts, and the power wiring, at 120 volts, goes directly to the electrical load. This reduces branch-circuit length and voltage drop. A switching schedule gives details on the system operation, and a wiring diagram provides valuable information to the installer. One of the reasons for the low popularity of this system is the scarcity of electricians who are prepared to install a low-voltage control system.

*POINTS:* 1

*REFERENCES:* The Drugstore