

Optional Information

Name of School:

Date of Inspection:

Vocational
Program/Course/Room:

Signature of Inspector:

**Electrical Components and Equipment for General Use
Self Inspection Checklist**

Guidelines: This checklist covers some of the regulations issued by the U.S. Department of Labor - OSHA under the general industry standards Subpart S - 29 CFR 1910.305 and the construction standards 29 CFR 1926.405 and 1926.441. It also includes regulations issued by the New Jersey Department of Community Affairs under the Uniform Fire Code (N.J.A.C. 5:70). The Uniform Fire Code has adopted the model code of the Building Officials and Code Administrators International, Inc. known as the "BOCA National Fire Prevention Code/1966" by reference. This checklist applies to any electrical use system, but does not cover the following situations: installations in ships, watercraft, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles. This checklist also does not apply to conductors that are an integral part of factory assembled equipment.

The questions that are most likely not the responsibility of the individual teacher are marked with an asterisk (*) next to the number of the question. Questions marked with the symbol (☞) may require the help of an outside expert.

Definitions of terms appearing below in italicized font are provided at the end of the checklist to help you understand some of the questions. Any question marked with the symbol (☹) indicates a history of previous violations in vocational-technical schools.

Regulations dealing with open wiring on insulators; pull and junction boxes for systems over 600 volts; portable cables over 600 volts; transformers; and capacitors have not been addressed in this checklist. If these conditions are encountered, consult the OSHA regulations.

Cabinets, Boxes, and Fittings

Please Circle

- | | |
|--|------------|
| 1. Are conductors entering boxes, cabinets or fittings protected from abrasion? [29 CFR 1910.305(b)(1) and 1926.405(b)(1)] | Y N N/A DK |
| 2. Are openings through which conductors enter effectively closed? [29 CFR 1910.305(b)(1) and 1926.405(b)(1)] | Y N N/A DK |

Note: Unused openings in cabinets, junction boxes and fittings shall be effectively closed.

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|----|---|------------|
| 3. | Are unused openings in cabinets, junction boxes, and fittings effectively closed? [29 CFR 1910.305(b)(1) and 1926.405(b)(1)] | Y N N/A DK |
| 4. | Are pull boxes, junction boxes and fittings provided with covers approved for that purpose?
[29 CFR 1910.305(b)(2), 1926.405(b)(2)] | Y N N/A DK |
| 5. | Are metal covers used grounded?
[29 CFR 1910.305(b)(2), 1926.405(b)(2)] | Y N N/A DK |
| 6. | Does each outlet box have a cover, faceplate, or fixture canopy? [29 CFR 1910.305(b)(2) and 1926.405(b)(2)] | Y N N/A DK |
| 7. | Do covers of outlet boxes having holes through which flexible cord pendants pass have bushings designed for the purpose or have smooth, well-rounded surfaces on which the cords may bare? [29 CFR 1910.305(b)(2), 1926.405(b)(2)] | Y N N/A DK |
| 8. | Time switches, flashers, and similar devices should be of the enclosed type and shall be mounted in cabinets or boxes or equipment enclosures. Energized parts shall be protected by an appropriate barrier to prevent operator exposure when making manual adjustments or switching. (NFPA 70 404.5) | Y N N/A DK |

Comments/Corrective Action:

Switches

- | | | |
|-----|--|------------|
| 9. | Are single-throw knife switches so connected that the blades are dead when the switch is in the open position?
[29 CFR 1910.305(c)(1) and 1926.405(c)]
Note: These types of switches are to be accessible to only qualified persons. | Y N N/A DK |
| 10. | Are single-throw knife switches so placed so that gravity will not tend to close them?
[29 CFR 1910.305(c)(1) and 1926.405(c)] | Y N N/A DK |
| 11. | Do single-throw knife switches, approved for use in the inverted position, have a locking device that will keep the blades remain in the open position when so set?
[29 CFR 1910.305(c)(1) and 1926.405(c)] | Y N N/A DK |
| 12. | Do flush snap switches that are mounted in ungrounded metal boxes and located within reach of conducting surfaces have face plates of non-conducting, non-combustible material?[29 CFR 1910.305(c)(2)] | Y N N/A DK |

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Switchboards and *Panelboards*

Y N N/A DK

13. Are *panel boards* mounted in cabinets, *cutout boxes*, or enclosures approved for the purpose and of the *dead front* type? [29 CFR 1910.305(d) and 1926.405(d)]

14. In switchboards and panel boards, load terminals for field wiring, including grounded circuit conductor load terminals and connections to the equipment grounding conductor bus for load equipment grounding conductors, these shall be so located so it is not necessary to reach across or beyond an uninsulated, ungrounded line bus to make connections. (NFPA 408.3(D))

Y N N/A DK

Comments/Corrective Action:

Enclosures for Damp or Wet Locations

15. Are cabinets, *cutout boxes*, fittings, boxes, and *panel board* enclosures in damp locations installed to prevent moisture from entering and accumulating within enclosures? [29 CFR 1910.305(e)(1) and 1926.405(e)(1)]

Y N N/A DK

16. Are switches, circuit breakers, and switchboards installed in wet locations enclosed in weatherproof enclosures? [29 CFR 1910.305(e)(2) and 1926.405(e)(2)]

Y N N/A DK

Conductors for General Wiring

17. Are conductors used for general wiring insulated? [29 CFR 1910.305(f) and 1926.405(f)]

Y N N/A DK

18. Is the insulation approved for the voltage, operating temperature, and location of use? [29 CFR 1910.305(f) and 1926.405(f)]

Y N N/A DK

19. Is the insulated conductor distinguished by appropriate color or other suitable means as being the grounded conductor, ungrounded conductor, or equipment grounding conductors? [29 CFR 1910.305(f) and 1926.405(f)]

Y N N/A DK

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Flexible Cords and Cables

20. Are flexible cords and cables prohibited from being used as a substitute for fixed wiring of a structure where they are (a) attached to building surfaces; (b) concealed; (c) run through holes in walls, ceilings, or floors; or (d) run through doorways, windows or similar openings? [29 CFR 1910.305(g)(1)(ii); 1926.405(g)(1)(iii); and N.J.A.C. 5:703.2(a)1{F-310.5}]
- Y N N/A DK

Note: Extension cords and flexible cords may not be affixed to structures; extended through walls, ceilings or floors; or under doors or floor coverings. Flexible cords and cables may be used only for the following: pendants; wiring of fixtures; connection of portable lamps or appliances; elevator cables; wiring of cranes and hoists; connection of stationary equipment to facilitate their frequent interchange; prevention of the transmission of noise or vibration; appliances where the fastening means and mechanical connections are designed to permit removal for maintenance and repair; or data processing cables approved as a part of the data processing system.

21. Are flexible cords used only in continuous lengths without splices or tap? [29 CFR 1910.305(g)(2)(ii) and 1926.405(g)(2)(iii)]
- Y N N/A DK

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22. Are flexible cords connected to devices and fittings so that the strain relief is provided to prevent pull from being directly transmitted to joints or terminal screws? [29 CFR 1910.305(g)(2)(iii) and 1926.405(g)(2)(iv)] Y N N/A DK

23. Flexible cords and cables shall be protected by bushings or fittings when passing through holes in covers, outlet boxes, or similar enclosures. (NFPA 400.14) Y N N/A DK

Comments/Corrective Action:

Equipment for General Use Lighting Fixtures, Lampholders, Lamps, and Receptacles

24. Are fixtures lamp holders, lamps, rosettes and receptacles so designed and maintained that no live parts can expose individuals to contact? [29 CFR 1910.305(j)(1)(i) and 1926.405(j)(1)(i)] Y N N/A DK

25. Are portable hand lamps supplied through flexible cords equipped with a handle of molded composition or other material approved for the purpose and a substantial guard attached to the lamp holder or the handle? [29 CFR 1910.305(j)(1)(ii) and 1926.405(j)(1)(iii)] Y N N/A DK

Equipment for General Use Receptacles, Cord Connectors, and Attachment Plugs (caps)

26. Are receptacles, cord connectors and attachment plugs so constructed so that no receptacle or cord connector will accept an attachment plug with a different voltage or current rating than that for which the device is intended? [29 CFR 1910.305(j)(2) and 1926.405(j)(2)(i)] Y N N/A DK

27. Are receptacles installed in wet or damp locations suitable for that location? Any 15- and 20-ampere, 125-, and 250-volt receptacles installed in a wet location shall have a weatherproof enclosure whether or not the attachment plug cap is inserted. Any 15- and 20-ampere, 125- and 250-volt non-locking receptacles shall be listed under a weather-resistant type. [29 CFR 1910.305(j)(2)(ii) and 1926.405(j)(2)(ii) NFPA 406.8(B)(1)] Y N N/A DK

Note: Ground-fault circuit interrupters are recommended in locations near water

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Equipment for General Use Appliances

28. Are appliances so designed and maintained that they have no exposed live parts? [29 CFR 1910.305(j)(3)(i) and 1926.405(j)(3)(i)] Y N N/A DK
29. Are means provided to disconnect each appliance? [29 CFR 1910.305(j)(3)(ii) and 1926.405(j)(3)(ii)] Y N N/A DK
30. Is each appliance marked with its rating in volts and amperes or volts and watts? [29 CFR 1910.305(j)(3)(iii) and 1926.405(j)(3)(iii)] Y N N/A DK

Equipment for General Use Motors

- 31.* Is the disconnecting means within view from the *controller* location? [29 CFR 1910.305(j)(4)(ii)(A) and 1926.405(j)(4)(ii)(A)] Y N N/A DK
Note: If a motor and the driven machinery are not within view from the controller location, consult the OSHA regulations.
- 32.*☞ Does the disconnecting means disconnect the motor and the *controller* from all ungrounded supply conductors, and is it so designed that no pole can be operated independently? [29 CFR 1910.305(j)(4)(ii)(B) and 1926.405(j)(4)(ii)(B)] Y N N/A DK
- 33.*☞ Are motors, motor control apparatus and motor branch-circuit conductors protected against overheating due to motor overload or failure to start, and against short-circuits or ground faults? [29 CFR 1910.305(j)(4)(iii) and 1926.405(j)(4)(iii)] Y N N/A DK
34. Are exposed live parts of motors and controllers operating at 50 volts or more between terminals guarded against contact? [29 CFR 1910.305(j)(4)(iv)(A) and 1926.405(j)(4)(iv)(A)] Y N N/A DK

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Storage Batteries

35. Is sufficient diffusion and ventilation provided to storage batteries to prevent the accumulation of explosive mixtures? [29 CFR 1910.305(j)(7) and 1926.441(a)(1) and (2)] Y N N/A DK

Photovoltaic Systems

36. Have you developed a comprehensive maintenance plan including: [NFPA 70B 33.2.2] Y N N/A DK
- (1) Energy monitoring
 - (2) Visual inspection
 - (3) Array cleaning
 - (4) Emergency response

Note: Photovoltaic systems typically generate voltages in the 400 V DC to 1000 V DC range. Only qualified persons should perform maintenance on photovoltaic systems due to the unique hazards associated with the arrays always producing electrical energy.

37. Have proper signage and markings been installed to identify the location of rooftop panels and provide appropriate warning and guidance for those working around and isolating the solar electric system? [NFPA 70B 33.3] Y N N/A DK

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Definitions (NFPA 70):

Controller means a device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected.

Cutout Box means an enclosure designed for surface mounting and having swinging doors or covers secured directly to and telescoping with the walls of the box proper.

Dead Front means without live parts exposed to a person on the operating side of the equipment.

Panel board means a single or group of panel units designed for assembly in the form of a single panel; including buses, automatic overcurrent devices, and with or without switches for the control of light, heat, or power circuits; designed to be placed in a cabinet or *cutout* box placed in or against a wall and accessible only from the front.

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