

*Sample Lesson Plan
Construction Training Program (10-hour)*

Topic: Electrical

Overview of OSHA Standard

Electricity is accepted as a source of power without much thought about the hazards encountered. Some employees work with electricity directly during construction. This is the case with engineers, electronic technicians and power line workers. Others, such as office workers and salespeople, work with it indirectly.

OSHA's electrical standards address this serious workplace hazard. Employees are exposed to dangers such as electric shock, electrocution, burns, fires and explosions. The objective of the standard is to minimize the potential hazard by specifying design characteristics of safety when installing and using electrical equipment and systems.

Step 1: Planning the Lesson

• Instructional Materials.

1. PowerPoint presentation.
2. Instructor notes.
3. Other materials.

• Instructional Objectives.

1. Complete the required topics for the OSHA 10-hour course.
2. Complete the following optional topics:
 - a.
 - b.
 - c.
3. Present *Electrical* to [number] participants.
4. Incorporate active participation in each lesson.
5. Provide a quiz or short evaluation at the end of the course.
6. Ensure feedback from participants at various points in the training.

• Guest Speakers/Presenters and Topics/Responsibilities.

Step 2: Presenting the Lesson

• Lesson Introduction.

Introductory remarks or transition from previous lesson.

• Learning Objectives/Outcomes.

Upon completion of the lesson, participants will be able to:

• **Learning Objectives/Outcomes. (Continued)**

1. Describe four types of injuries that may result from contact with electricity.

Possible responses.

- electrocution or death due to electrical shock
- electrical shock
- burns
- falls

2. Name at least three warning signs or clues an electrical hazard exists.

Possible responses.

- A GFCI that shuts off a circuit
- Tripped circuit breakers or blown fuses
- Warm tools, wires, cords or connection boxes
- Worn or frayed insulation around a wire or connector
- Water or dampness near electrical circuits, wires, outlets or power tools

3. List at least five electrical hazards that may be present at a construction site.

Possible responses.

- inadequate wiring
- exposed electrical parts
- wires with bad insulation
- ungrounded electrical systems or tools
- overloaded circuits
- damaged power tools and equipment
- using wrong PPE or tools
- overhead power lines
- wet conditions

4. Discuss at least three methods of protection from electrical hazards.

Possible responses.

- use proper grounding
- use proper sized circuit breakers and GFCI's
- guard live electrical parts
- lockout/tagout
- proper use of flexible cords
- close electrical panels
- de-energize overhead power lines

• **Planned Activities, Discussion, or Participant Interaction**

Step 3: Evaluating Student Learning and Instruction

- **Lesson Evaluation and Comments.**

References

OSHA Standard: 29 CFR 1926 Subpart K - Electrical (1926.400 to 1926.449)

- www.osha-slc.gov/OshStd_toc/OSHA_Std_toc_1926_SUBPART_K.html

OSHA Publications

- www.osha-slc.gov/OshDoc/Additional.html
- 3007 Ground Fault Protection On Construction Sites
- 3075 Controlling Electrical Hazards

OSHA References/Resources

- ELCOSH - Safety Hazards - Electrical
 - www.cdc.gov/niosh/elcosh/docs/hazard/safety.html
- Electronic Library of Construction Occupational Safety and Health (ELCOSH) - Electrical Worker
 - www.cdc.gov/niosh/elcosh/docs/trade/electrical.html
- OSHA Construction eCAT - Electrical Incidents
 - www.osha-slc.gov/SLTC/construction_ecat/electrical_incidents/mainpage.html
- OSHA Technical Links - Construction: Electrical
 - www.osha-slc.gov/SLTC/constructionelectrical/index.html
- OSHA Videos - Ground Fault Protection on Construction Sites
 - www.osha-slc.gov/SLTC/multimedia.html