MODULE 2—ELECTROCUTIONS

Objectives

After completing *Module 2*, participants will be able to:

- Cite facts relating to electrocutions on the job.
- Define the important words that relate to working with electricity.
- Recognize the OSHA regulations that relate to working with electricity.
- Identify practices at their work that protect them from electrical injuries.
- Perform a worksite analysis to find hazards that could cause an electrical injury.
- Describe behaviors at their worksites that could cause an electrical injury.

Resources

- To help you prepare for this module, you may want to spend some time reviewing the OSHA e-tool relating to electrocutions.

  http://osha.gov/SLTC/etools/construction/electrical_incidents/mainpage.html

- The entire OSHA 29 CFR 1926 standard can be found on the OSHA website.

  http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_part_number=1926&p_toc_level=1

- OSHA's general lockout/tagout standard (29 CFR 1910.147) can be found on the OSHA website.

  http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9804&p_table=STANDARDS

- A helpful and informational website is *Safe Electricity*.

  http://www.safeelectricity.org/index.asp

Tips for Customizing this Module to Your Organization

Following are some things you can do to customize this module to your organization. This customization applies whether you are facilitating a class, holding a tailgate session, or coaching an employee. When you see an agenda item number, it refers to the recommended agenda on Page 3 of this Facilitator Guide (for the Classroom Session) or Page 18 (for the Tailgate Session).

1. **Note about emergency response.** This module will emphasize the importance of having an emergency response plan for electrocutions. If your organization has its own plan for responding to electric shock, introduce it in this module in the appropriate places. If your organization does not have its own plan, Page 12 of the Pocket Reference Guide contains a set of procedures you can use.

2. **Classroom Agenda Item #2, Tailgate Agenda Item #1**—Use your OSHA logs and incident investigation reports to determine some of your organization's statistics relating to electrical injuries. Share these numbers along with the information provided in the Participant Guide on Page 3.

3. **Classroom Agenda Item #3, Tailgate Agenda Item #2**—When you present this item, consider bringing some portable GCFI to class for demonstration.

4. **Classroom Agenda Item #4, Tailgate Agenda Item #3**—To prepare for this agenda item, read the OSHA regulations that are referenced on Page 6 of Module 2 of the Participant Guide. You can find the OSHA regulations on the OSHA website. (The OSHA web address is listed on the previous page). As you read the regulations, identify the parts that most apply to your organization. Plan to emphasize these in your discussion. To make this section fun, there is a mini quiz that tests participants on these regulations. Feel free to use the provided quiz, or create your own quiz that is specifically appropriate to your organization.

5. **Classroom Agenda Item #5, Tailgate Agenda Item #4**—To prepare for this item, think of the best practices you expect employees to use when at their construction sites. Be prepared to discuss these practices in class.

6. **Classroom Agenda Item #6, Tailgate Agenda Item #5**—Regarding this item, you will have to do some additional preparation if you are working with people who are unable to read. Rather than giving them the written checklist, discuss orally the things they need to check. After class and over a period of time, you will need to continue to reinforce this "mental checklist" until employees have committed it to memory.

7. Plan to refer to both the OSHA e-tool and the regulations frequently. Use the information to foster continuous improvement. Once you have learned a specific standard and instilled it in your employees, go back to the OSHA regulations, reread them and determine a new standard to learn and instill.

CLASSROOM PRESENTATION TIPS

Time

75 minutes: 10:25 to 11:40 AM
Followed by a 60 minute lunch, 11:40 AM to 12:40 PM

Recommended Agenda for Classroom Training

1. Module Introduction—Presentation and Large group activity (5 minutes)
2. Important Statistics—Discussion (10 minutes)
3. Important Terminology—Discussion (5 minutes)
4. OSHA Requirements—Discussion and Quiz (10 minutes)
5. Best Prevention Practices—Activity (20 minutes)
6. Checklist for Worksite Analysis—Presentation and Case Study (15 minutes)
7. Concerns at Your Worksite—Activity (10 minutes)

RECOMMENDED PROCESS

1. Module Introduction—Presentation and Large Group Activity (5 minutes)

Cues	Content
Power Point (PPT) 2-1	■ Start the program promptly after the break. Show PPT 2-1 as the class returns.
Participant Guide Module 2	■ Refer participants to Module 2, Page 1 of their Participant Guides. Tell participants that they will now be learning about the second of the focus four hazards: electrocutions.
PPT 2-2 and PPT-2-3	■ Show PPT 2-2 and PPT 2-3 to introduce the objectives for this module.
Facilitator Note	■ You can do the following activity in one of two ways. – You can pair participants off to identify the hazards for about a minute, then discuss the answers as a large group, **OR** – You can skip pairing participants and simply identify the hazards as a large group.

1. Module Introduction—Presentation and Large Group Activity (5 minutes)—continued

Cues	Content
	■ Make your choice based on which you feel will provide the best group dynamic.
	■ Regardless of your choice, the following instructions are based on the first option—pairing the groups.
Question	■ Ask participants: How many of you felt good at how well you identified hazards relating to falls?
	■ Get a show of hands, then tell participants that now they will have a chance to identify hazards that relate to electricity.
PPT 2-4	■ Refer participants to Page 2. Show PPT 2-4 as you explain the following. – Just as in the previous module, there is a picture both in your book and on the screen. – This time, work with your partner to find the electrical hazards.
	■ Allow about a minute, then call the large group together and ask participants to share the hazards they identified.
	■ Encourage participants to take notes in the space provided on Page 2.
	■ Following is a summary of what they should identify.
PPT 2-4	■ PPT 2-4—Find the electricity-related hazards – Uninsulated wiring. – Electrical tape is not a substitute for insulation. – Cover off of junction box. – Wires unsupported. ■ Tell participants that, in addition to the hazards in this photo, they will learn about other electrical hazards in this module.

2. Important Statistics—Discussion (10 minutes)

Cues	Content
	■ Refer participants to Page 3 in their Participant Guides. Tell them that just as there were some interesting statistics relating to falls, there are also some striking numbers relating to electrical injuries.
PPT 2-5	■ Show PPT 2-5 and review the information on that slide.
Your Organization's Statistics	■ Share the statistics from your own organization related to electrical injuries. Discuss where the most electrical incidents have occurred.
PPT 2-6	■ Show PPT 2-6 and review the information on that slide.
Question	■ Ask participants: Why do you think the construction industry has so many more electrocutions than other industries? ■ Get some participant responses. Some ideas that may come up are: – Construction workers are around electricity more than other workers and are therefore exposed to it more. – Construction workers are often working with electricity as a part of their job.
PPT 2-6	■ Emphasize the second point on PPT 2-6. ALL construction workers work around electricity, therefore ALL construction workers need to practice electrical safety.
PPT 2-6	■ Call attention to the third point on PPT 2-6. Ask participants how many of them know the organization's emergency response plan. ■ Point out that emergency response procedures will be covered later in this module. For now, simply congratulate the participants who knew about the procedures.
PPT 2-7	■ Show PPT 2-7 and review the information on that slide.

2. Important Statistics—Discussion (10 minutes)—continued

Cues	Content
	■ If your construction employees frequently operate machinery around overhead power lines, be sure to emphasize the points on this slide.
Pocket Reference Guide	■ Refer participants to Page 10 of their Pocket Reference Guides and make the following points. – We've talked about maintaining proper clearances when you operate equipment around power lines. – It's important for you to know what these clearances are when you are at your job site. – This chart summarizes the OSHA standard and is a handy reference for you.
PPT 2-8	■ Refer participants to Page 4. Show PPT 2-8 as you review the effects of AC currents on humans. ■ Emphasize that even small levels of amperage can cause serious injuries by affecting the electrical system of the body and by affecting the heart's rhythm.
Pocket Reference Guide	■ Tell participants that to help them remember the effects of AC currents, this chart is reprinted on Page 11 of their Pocket Reference Guides. ■ Close the discussion of electricity-related statistics by making one of the following points depending on your organization's situation. – So far, our organization has done a great job of operating without serious incidents or injuries. That's why we are completing this training: to ensure that our good record continues into the future. – We have had some electricity-related incidents in the past, so we are completing this training to ensure that every worker stays safe and uninjured in the future.

3. Important Terminology—Discussion (5 minutes)

Cues	Content
	■ Refer participants to Page 5. Tell them that, just as there was specific terminology related to falls, there is also terminology related to working around electricity.
PPT 2-9	■ Show PPT 2-9 as you review the terms on this page.
	■ Introduce the terms *ground fault* and *grounding*. Emphasize that when they work around electricity, it is important for them to protect themselves from ground faults.
	■ Introduce the term *insulation*. Emphasize that all of their tools and power cords should be properly insulated.
	■ Introduce the term *GFCI*, which means ground fault circuit interrupter.
	■ Point out that a GFCI is a critical safety tool and they must always use one when they are using portable power tools.
Question	■ Ask participants: What if your construction site doesn't have built-in wall GFCIs like the one in the picture?
	■ Get some responses. The answer you are looking for is that there are several different portable GFCIs and they should use one.
Facilitator Note	■ If you brought some portable GFCIs to class, take time now to introduce them and have participants share their experience in using the various types.
	■ Introduce the term *circuit breaker*, which is overcurrent protection designed to protect equipment and wiring.
	■ Introduce the term *lockout/tagout*. Review your organization's lockout/tagout procedures at this time.
	■ Close the discussion by emphasizing that you will use these terms as you introduce them to electrical safety.

4. OSHA Requirements—Discussion and Quiz (10 minutes)

Cues	Content
	■ Tell participants that, just as OSHA has regulations pertaining to falls, it also has regulations relating to electricity. ■ Refer participants to Page 6. Review the four OSHA categories that pertain to working around electricity. – **29 CFR 1910.147** is the part of the general OSHA standard that deals with lockout/tagout. – **29 CFR 1926 Subpart I** addresses the safe use of power tools. – **29 CFR 1926 Subpart K** addresses electrical safety in the construction industry. – **29 CFR 1926 Subpart N** addresses safe operation of cranes and derricks. ■ Ask participants if they are ready for another OSHA quiz. ■ Refer participants to Page 7. Tell them that, once again, you will be reviewing this quiz as a class and that they can use this page to take notes.
PPT 2-10	■ Show PPT 2-10 and read the statement on the slide. Ask participants to stand up if they think the statement is true and to remain seated if they think the statement is false. ■ Before giving the answer, call on one or two participants to get their rationale for why they believe the statement is true or false.
PPT 2-11	■ Once you've had some good discussion, show PPT 2-11 to provide the answer and the rationale. Encourage participants to write the OSHA reference numbers in the appropriate spaces on Page 7.

4. OSHA Requirements—Discussion and Quiz (10 minutes)—continued

Cues	Content
PPT 2-11	– **Answer to Quiz Question #1 and Rationale**: False. OSHA 29 CFR 1926.403(b)(2) says that equipment must be installed and used in accordance with instructions included in the listing, labeling, or certification.
PPT 2-12 through PPT 2-19	■ Repeat the above process with Quiz Questions #2 through #5. Show PPT 2-12 through PPT 2-19 at the appropriate times.
PPT 2-13	– **Answer to Quiz Question #2 and Rationale**: True. OSHA 29 CFR 1926.403(i)(2)(i) states that live parts of equipment operating at 50 volts or more shall be guarded against accidental contact. The section also discusses types of guarding.
PPT 2-15	– **Answer to Quiz Question #3 and Rationale**: False. OSHA 29 CFR 1926.404(b)(1)(ii) states that all 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the structure, shall have approved ground-fault circuit interrupters.
PPT 2-17	– **Answer to Quiz Question #4 and Rationale**: False. OSHA 29 CFR 1926.405(e)(2) states that all switches in wet locations must have weatherproof enclosures.
PPT 2-19	– **Answer to Quiz Question #5 and Rationale**: False. OSHA 29 CFR 1926.405(g)(1)(iii)(A) states that flexible cords and cables shall not be used as a substitute for the fixed wiring of a structure.
	■ After reviewing all five of the above statements, encourage participants to learn more about the OSHA standards by continually referring to them and discussing them with their supervisor or foreman.

5. Best Prevention Practices—Activity (20 minutes)

Facilitator Note: The following instructions are set up so that participants work in small groups, and each group identifies the best practices in all three of the areas listed on Page 8. If you prefer (or if you are short of time), you can divide the class into thirds, then assign each third one best practice area. Encourage participants to work in smaller groups of four to six people each.

Cues	Content
	■ Refer participants to Page 8. Remind them once again that it's one thing to know the OSHA standards and another to be able to apply them.
	■ Tell them that they are now going to identify some of the best safety practices that they use on the job.
	■ Divide the class into small groups of 4 to 6 participants. Tell them they have 10 minutes to identify the best practices they use in each of the three categories listed on Page 8.
PPT 2-20	■ Show PPT 2-20 to review the categories they will be addressing. – What safety practices do they use when operate power tools? – What safety practices do they use when they work around electricity? – What safety practices do they use when they operate equipment around high electric wires?
	■ Tell participants to write their group's ideas in the space provided on Page 8.
Facilitator Note	■ If your organization doesn't generally operate equipment around high wires, you can have participants skip the third box on Page 8.
	■ As participants work, walk around the room to see if they have any questions.

5. Best Prevention Practices—Activity (20 minutes)—continued

Cues	Content

- At the end of 10 minutes, call the small group back together and lead a 10 minute debriefing.
- Ask the groups to share the *best practices* they identified.
- When the groups have shared their responses, add any that you feel are necessary. Some of the typical responses you will get are below.
- Use of power tools
  - Always use GFCI.
  - Use the tools only as they were intended to be used.
  - Take proper care of tools.
  - Avoid carrying portable tools around by their cords.
  - Avoid removing the third prong from plugs.
  - Make sure tools are properly insulated.
- Working around electricity
  - De-energize and ground lines when working near them.
  - Use non-conductive wood or fiberglass ladders around electricity.
  - Use proper lockout/tagout methods.
  - Use proper guarding and barriers around electricity.
  - Use proper insulated protective gear, such as gloves.

5. Best Prevention Practices—Activity (20 minutes)—continued

Cues	Content
	■ Operating equipment around high electric wires – Contact utilities for buried power line locations. – De-energize and ground lines when working near them. – If lines can't be de-energized, place warning signs near high electric wires. – Use a spotter. – Stay proper distances away from overhead power lines. – Know and practice emergency response procedures in the event that they are necessary.
Pocket Reference Guide	■ Refer participants to Page 12 of their Pocket Reference Guides and say the following. – This page contains some emergency response procedures in the event that someone at your construction site suffers from electric shock.
Question	■ Ask participants: Why is it important not to touch the person in contact with the electric source? – Get some participant responses, then summarize by saying that if the shocked person is still connected to the electricity source, s/he is a conductor and will shock anyone who touches him/her. – That's why it's important first to shut down the source of electricity. – By doing so, you could possibly save two lives: the life of the injured person and your own. ■ Congratulate participants for doing a good job of identifying best practices.

6. Checklist for Worksite Analysis—Presentation and Case Study (15 minutes)

Note on the time allocation: Spend about 5 minutes introducing the checklist on Pages 9 through 14 and reviewing the worksite analysis process. Spend the remaining 10 minutes on identifying the hazards in the slides. The following instructions tell you to divide the class into small groups to identify the hazards on the slides, then discuss their findings as a large group. If you prefer (or if you are short of time), you can simply discuss the hazards in the slides as a large group.

Cues	Content
	■ Tell participants that once again they will use a checklist to identify some hazards. ■ Ask participants to envision their own workplaces. ■ Ask them to think about the typical electrical hazards they have to be aware of on their jobs. ■ Refer participants to Pages 9 through 14. ■ Tell them that this is the checklist they can use to help them find electrical hazards. ■ Review this checklist by doing the following. – Review the five major categories on the checklist: General Electrical Safety, Power Tool Safety, Extension and Flexible Cord Safety, Ground Fault Protection and Working Around Power Lines. – Emphasize that this list is derived from the OSHA standards, which are referenced at the end of the list. – Point out that this list is only a <u>small</u> part of the OSHA standards, but it represents items that, for the most part, they can control. ■ Ask participants to review the items on Pages 9 through 14 and place an "X" by those that may pose a hazard at their worksites.

6. Checklist for Worksite Analysis—Presentation and Case Study (15 minutes)—continued

Cues	Content
Facilitator Note	■ Participants won't have time to review the entire checklist. Simply encourage them to review as much as they can in the allotted time. ■ After participants have had some time to review the list, ask if they have any questions. ■ Point out that this checklist can be used when they perform a worksite analysis.
Question	■ Ask participants: Once again, let's see if you remember the four steps to worksite analysis? What are the four steps?
PPT 2-21	■ Get participant responses, then review the four steps using PPT 2-21. ■ Refer participants to Page 15. Tell them that you are now going to give them practice in doing a worksite analysis. ■ Divide the class into small groups of four to six participants each, then tell them the following. – I'm going to show you some slides. – Your job is to work in your group and use your checklist to identify the hazards in each slide.
PPT 2-22	■ Show PPT 2-22, which is Case #1. Allow the groups one minute to identify the hazards in the slide.
PPT 2-23 through PPT 2-25	■ Repeat the above process with PPT 2-23 through PPT 2-25, which are Cases #2 through #4. ■ Once you have shown all four cases, call the small groups back together as a large group.

6. Checklist for Worksite Analysis—Presentation and Case Study (15 minutes)—continued

Cues	Content
PPT 2-22	■ Go back to PPT 2-22 and have the groups share the hazards they identified. ■ Once all the groups have shared their hazards, add any that were not mentioned.
PPT 2-23 through PPT 2-25	■ Repeat the above process with PPT 2-23 through PPT 2-25. Following is a summary of the hazards on each slide.
PPT 2-22	■ Electricity-related hazards—Case #1 – No protective gloves – Improper tool – Man is grounded (path is through the man)—one hand needs to be kept away from electricity source – Lockout/tagout procedures followed? – Man standing on insulated mat?
PPT 2-23	■ Electricity-related hazards—Case #2 – The primary insulation is cut – Inner wires exposed—there is very little insulation on the inside wires – If someone touches the bare wires, that person could get an electric shock – Standard of repair for this cord should be the garbage, however many people will do a quick wrap with electrical tape, which does not provide enough insulation

6. Checklist for Worksite Analysis—Presentation and Case Study (15 minutes)—continued

Cues	Content
PPT 2-24	■ Electricity-related hazards—Case #3 – Wiring must be protected in a closed box – Electric shock could come from loose wire nuts or from exposed conductors – Fire potential could come from arcing or sparking
PPT 2-25	■ Electricity-related hazards—Case #4 – Distance between the crane and wires is less than ten feet – Boom is metal—If boom gets close enough to the lines, the electricity will arc over – If line is snapped, it could wrap electricity around the building
Pocket Reference Guide	■ Refer participants to Pages 13 through 18 of their Pocket Reference Guides. Tell them that the checklist they have just reviewed is located here so that they can use it any time they do a worksite analysis. ■ Close this activity by congratulating participants on being so good at identifying hazards relating to conditions at the worksite.

7. Concerns at Your Worksite—Activity (10 minutes)

Cues	Content
	■ Begin this segment by telling participants it's time to take a look at people's behavior around electricity. ■ Refer participants to Page 16. Ask them to form back into their small groups. ■ Give participants 5 minutes to answer the questions in their groups.
PPT 2-26	■ While participants are working, show PPT 2-26. ■ When time is up, call the participants back together as a large group and have groups share their answers to the questions. ■ Thank participants for their thoughtful answers and tell them that they will continue this issue in other modules because it is so important. ■ Also, at the end of the day, they will have a chance to identify some things they can do to change the at-risk behavior.
60 Minute Lunch	Take a 60 minute lunch.

TAILGATE OR COACHING PRESENTATION TIPS

Recommended Agenda for the Tailgate or Coaching Session

Module 2—Electrocutions can be taught in a 90-minute tailgate or coaching session.

1. Important Statistics—Discussion (10 minutes)
2. Important Terminology—Discussion (5 minutes)
3. OSHA Requirements—Discussion and Quiz (10 minutes)
4. Best Prevention Practices—Activity (20 minutes)
5. Checklist for Worksite Analysis—Activity (35 minutes)
6. Concerns at Your Worksite—Activity (10 minutes)

Facilitator Note: The following facilitator notes are designed to be presented at a tailgate meeting at the construction site. For their hazard identification exercise, employees will be asked to do a worksite analysis of the actual construction site. If you are facilitating the tailgate session in a meeting room or classroom, follow the facilitator notes for the classroom session.

1. Important Statistics—Discussion (10 minutes)

Cues	Content
	■ Begin the tailgate session by handing out the Participant Guide for Module 2.
	■ Refer employees to Page 1. Tell them that they will now be learning about the second of the focus four hazards: electrocutions.
	■ Review the objectives on this page.
Skip Page 2	■ Instruct employees to skip Page 2.
	■ Refer employees to Page 3. Tell them that just as there were some interesting statistics relating to falls, there are also some striking numbers relating to electrical injuries.
	■ Review the first two statistics on Page 3.
Your Organization's Statistics	■ Share the statistics from your own organization related to electrical injuries. Discuss where the most electrical incidents have occurred.

1. Important Statistics—Discussion (10 minutes)—continued

Cues	Content
	■ Review the third bullet on Page 3. ■ Ask employees why they think the construction industry has so many more electrocutions than other industries. ■ Get some responses. Some ideas that may come up are: – Construction workers are around electricity more than other workers and are therefore exposed to it more. – Construction workers are often working with electricity as a part of their job. ■ Emphasize the fourth point on Page 3. ALL construction workers work around electricity, therefore ALL construction workers need to practice electrical safety. ■ Call attention to the fifth point on Page 3. Ask employees if they know about the organization's emergency response plan. ■ Point out that emergency response procedures will be covered later in the tailgate session. ■ Discuss the final two points on Page 3. Emphasize these points if your employees frequently operate machinery near overhead power lines.
Pocket Reference Guide	■ Refer employees to Page 10 of their Pocket Reference Guides and make the following points. – We've talked about maintaining proper clearances when you operate equipment around power lines. – It's important for you to know what these clearances are when you are at your job site. – This chart summarizes the OSHA standard and is a handy reference for you.

1. Important Statistics—Discussion (10 minutes)—continued

Cues	Content
	■ Refer employees to Page 4. Review the effects of AC currents on humans. ■ Emphasize that even small levels of amperage can cause serious injuries by affecting the electrical system of the body and by affecting the heart's rhythm.
Pocket Reference Guide	■ Tell employees that to help them remember the effects of AC currents, this chart is reprinted on Page 11 of their Pocket Reference Guides. ■ Close the discussion of electricity-related statistics by making one of the following points depending on your organization's situation. – So far, our organization has done a great job of operating without serious incidents or injuries. That's why we are completing this training: to ensure that our good record continues into the future. – We have had some electricity-related incidents in the past, so we are completing this training to ensure that every worker stays safe and uninjured in the future.

2. Important Terminology—Discussion (5 minutes)

Cues	Content
	■ Refer employees to Page 5. Tell them that, just as there was specific terminology related to falls, there is also terminology related to working around electricity.
	■ Introduce the terms *ground fault* and *grounding*. Emphasize that when they work around electricity, it is important for them to protect themselves from ground faults.
	■ Introduce the term *insulation*. Emphasize that all of their tools and power cords should be properly insulated.
	■ Introduce the term *GFCI*, which means ground fault circuit interrupter.
	■ Point out that a GFCI is a critical safety tool and they must always use a one when they are using portable power tools.
Question	■ Ask employees: What if your construction site doesn't have built-in wall GFCIs like the one in the picture?
	■ Get some responses. The answer you are looking for is that there are several different portable GFCIs and they should use one.
Facilitator Note	■ If you brought some portable GFCIs to class, take time now to introduce them and have participants share their experience in using the various types.
	■ Introduce the term *circuit breaker*, which is overcurrent protection designed to protect equipment and wiring.
	■ Introduce the term *lockout/tagout*. Review your organization's lockout/tagout procedures at this time.
	■ Close the discussion by emphasizing that you will use these terms as you introduce them to electrical safety.

3. OSHA Requirements—Discussion and Quiz (10 minutes)

Cues	Content

- Tell employees that, just as OSHA has regulations pertaining to falls, it also has regulations relating to electricity.
- Refer employees to Page 6. Review the four categories that pertain to working around electricity.
  - **29 CFR 1910.147** is the part of the general OSHA standard that deals with lockout/tagout.
  - **29 CFR 1926 Subpart I** addresses the safe use of power tools.
  - **29 CFR 1926 Subpart K** addresses electrical safety in the construction industry.
  - **29 CFR 1926 Subpart N** addresses safe operation of cranes and derricks.
- Ask employees if they are ready for another OSHA quiz.
- Refer employees to Page 7. Tell them that you will be reviewing this quiz as a group and that they can use this page to take notes.
- Read each of the True/False statements and have employees respond by standing to your left if they think the statement is true and standing to your right if they think the statement is false.
- Before giving the answer to each statement, ask one or two employees to give their rationale for why they believe the statement is true or false.

3. OSHA Requirements—Discussion and Quiz (10 minutes)—continued

Cues	Content

- Once several employees have responded, review the answers.

- When you give the quiz answers, encourage employees to write the OSHA reference numbers in the appropriate spaces on Page 7.

  – **Quiz Question #1**: It is acceptable <u>not</u> to comply with the manufacturer's instructions when installing electrical equipment as long as a qualified person does the work.

  – **Answer to Quiz Question #1 and Rationale**: False. OSHA 29 CFR 1926.403(b)(2) says that equipment must be installed and used in accordance with instructions included in the listing, labeling, or certification.

  – **Quiz Question #2**: Live parts of electrical equipment operating at 50 volts or more must be guarded.

  – **Answer to Quiz Question #2 and Rationale**: True. OSHA 29 CFR 1926.403(i)(2)(i) states that live parts of equipment operating at 50 volts or more shall be guarded against accidental contact. The section also discusses types of guarding.

  – **Quiz Question #3**: A temporary worksite has a 120-volt single phase 15-ampere receptacle outlet that's not a permanent part of the building under construction. Because it is temporary, it is not necessary to use a ground-fault circuit interrupter in that outlet.

  – **Answer to Quiz Question #3 and Rationale**: False. OSHA 29 CFR 1926.404(b)(1)(ii) states that all 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters.

3. OSHA Requirements—Discussion and Quiz (10 minutes)—continued

Cues	Content
	– **Quiz Question #4**: If a switch is installed in a wet location, it doesn't need a weather-proof enclosure as long as people using the switch wear insulated gloves. – **Answer to Quiz Question #4 and Rationale**: False. OSHA 29 CFR 1926.405(e)(2) states that all switches in wet locations must have weatherproof enclosures. – **Quiz Question #5**: It is acceptable to use a flexible cord as a substitute for the fixed wiring of a structure. – **Answer to Quiz Question #5 and Rationale**: False. OSHA 29 CFR 1926.405(g)(1)(iii)(A) states that flexible cords and cables shall not be used as a substitute for the fixed wiring of a structure. ■ After reviewing all five of the above quiz questions, encourage employees to learn more about the OSHA standards by continually referring to them and discussing them with their supervisor or foreman.

4. Best Prevention Practices—Activity (20 minutes)

Cues	Content
	■ Refer employees to Page 8. Remind them once again that it's one thing to know the OSHA standards and another to be able to apply them. ■ Tell them that they are now going to identify some of the best safety practices that they use on the job. ■ Divide employees into two small groups. ■ Tell them they have 10 minutes to identify the best practices they use in each of the three categories listed on Page 8. – What safety practices do they use when operate power tools? – What safety practices do they use when they work around electricity? – What safety practices do they use when they operate equipment around high electric wires?
Facilitator Note	■ If your organization doesn't generally operate equipment around high wires, you can have employees skip the third box on Page 8. ■ Tell that if they want to walk around the site to get ideas, that is fine. ■ Encourage them to write their group's ideas in the space provided on Page 8. ■ At the end of 10 minutes, bring the groups back together and lead a 10 minute debriefing. ■ Ask the groups to share the *best practices* they identified. ■ When the groups have shared their responses, add any that you feel are necessary.

4. Best Prevention Practices—Activity (20 minutes)—continued

Cues	Content

- Some of the typical responses you will get are below:
- Use of power tools
  - Always use GFCI.
  - Use the tools only as they were intended to be used.
  - Take proper care of tools.
  - Avoid carrying portable tools around by their cords.
  - Avoid removing the third prong from plugs.
  - Make sure tools are properly insulated.
- Working around electricity
  - De-energize and ground lines when working near them.
  - Use non-conductive wood or fiberglass ladders around electricity.
  - Use proper lockout/tagout methods.
  - Use proper guarding and barriers around electricity.
  - Use proper insulated protective gear, such as gloves.
- Operating equipment around high electric wires
  - Contact utilities for buried power line locations.
  - De-energize and ground lines when working near them.
  - If lines can't be de-energized, place warning signs near high electric wires.

4. Best Prevention Practices—Activity (20 minutes)—continued

Cues	Content
	– Stay the proper distance from overhead power lines. – Know and practice emergency response procedures in the event that they are necessary.
Pocket Reference Guide	■ Refer employees to Page 12 of their Pocket Reference Guides and say the following. – This page contains some emergency response procedures in the event that someone at your construction site suffers from electric shock.
Question	■ Ask employees: Why is it important not to touch the person in contact with the electric source? – Get some employee responses, then summarize by saying that if the shocked person is still connected to the electricity source, s/he is a conductor and will shock anyone who touches him/her. – That's why it's important first to shut down the source of electricity. – By doing so, you could possibly save two lives: the life of the injured person and your own. ■ Congratulate employees for recognizing and using safe work practices.

5. Checklist for Worksite Analysis—Activity (35 minutes)

Note on the time allocation: Spend about 5 minutes introducing the checklist and reviewing the worksite analysis process, then allow employees about 15 minutes to go around the worksite with the checklist, and finally spend 15 minutes debriefing what they discovered.

Cues	Content
	■ Tell employees that once again they will use a checklist to identify some hazards.
	■ Refer employees to Pages 9 through 14.
	■ Tell them that this is the checklist they can use to help them find electrical hazards.
	■ Review this checklist by doing the following.
	– Review the five major categories on the checklist: General Electrical Safety, Power Tool Safety, Extension and Flexible Cord Safety, Ground Fault Protection and Working Around Power Lines.
	– Emphasize that this list is derived from the OSHA standards, which are referenced at the end of the list.
	– Point out that this list is only a <u>small</u> part of the OSHA standards, but it represents items that, for the most part, they can control.
	■ Ask employees to review the items on Pages 9 through 14 and place an "X" by items that may pose a hazard at their worksites.
Facilitator Note	■ Employees won't have time to review the entire checklist. Simply encourage them to review as much as they can in the allotted time.
	■ After employees have had some time to review the list, ask them if they think this list will help them to identify electricity-related hazards at this worksite.

5. Checklist for Worksite Analysis—Activity (35 minutes)—continued

Cues	Content
	■ Get some responses, then point out that this checklist can be used when they perform a worksite analysis.
Question	■ Ask employees: Once again, let's see if you remember the four steps to worksite analysis? What are the four steps?
	■ Get employee responses, then review the four steps: – 1. Identify the space where you will be working. – 2. Look for hazards that might cause injuries. – 3. Use a checklist to help you identify hazards. – 4. Discuss problems and corrections with your supervisor.
Pocket Reference Guide	■ Refer employees to Pages 13 through 18 of their Pocket Reference Guides. Tell them that the checklist they have just reviewed is located here so that they can use it any time they do a worksite analysis.
	■ Tell them that you are now going to do a worksite analysis just as they did in the last tailgate session.
	■ Divide the group in half, then tell them the following. – Using this checklist, you are now going to perform a worksite analysis. – Your job is to work in your group and use your checklist to identify the hazards (or potential hazards) you see. – Concentrate only on electricity-related hazards. That is, concentrate only on the items on this checklist.
	■ Allow employees about 15 minutes to go around the worksite with their checklists.

5. Checklist for Worksite Analysis—Activity (35 minutes)—continued

Cues	Content
	■ If they are hesitant to get started, walk with them and go through the first several items on the checklist to give them an idea of what to do. ■ As employees work, walk from one group to the other to get an idea of how they are doing and to answer any questions they have. ■ When time is up, bring the two groups together and spend 15 minutes discussing what they've found. ■ When employees discuss a hazard they've found, ask them to give some ideas for corrective action. ■ If it is within their authority, encourage employees to take the corrective action. Otherwise, make a commitment yourself to take the corrective action. ■ Close this activity by congratulating employees on being so good at identifying the electricity-related hazards at this worksite. ■ Emphasize that you want them to be open about identifying hazards so that they can be corrected.

6. Concerns at Your Worksite—Activity (10 minutes)

Cues	Content
	■ Begin this segment by telling employees it's time to take a look at people's behavior around electricity.
Skip Page 15	■ Instruct employees to skip Page 15.
	■ Refer employees to Page 16. Ask them to form back into their two separate groups.
	■ Give employees 5 minutes to answer the questions in their groups.
	■ When time is up, bring the employees back together as one group and have them share their answers to the questions.
	■ Once employees have shared their answers, ask them what they think they should do or say when they see other employees ignoring safe work practices.
	■ Get some responses from the group, then ask them what they expect their supervisors to do or say when they know employees are ignoring safe work practices.
	■ Thank them for their thoughtful answers and tell them that in upcoming tailgate sessions, you will revisit this issue because it is so important.
End of Session	Thank employees for attending the tailgate session. Remind them to bring their Pocket Reference Guides to the next tailgate meeting.