# Welcome to the Hard Hat Training Series!



Welcome to the Hard Hat Training Series. Today, we will talk about overhead electric utility safety. We will provide tools and information that will expand your knowledge and make you a better, safer worker.

On December 31, 1879, Thomas Edison did his first demonstration of the light bulb. This became the start of a new era, one where you didn't have to go to bed just because it was dark. People all over the world now use electricity in their everyday life. Some would even say that electricity was the greatest discovery ever made.

Image from PBS News Hour

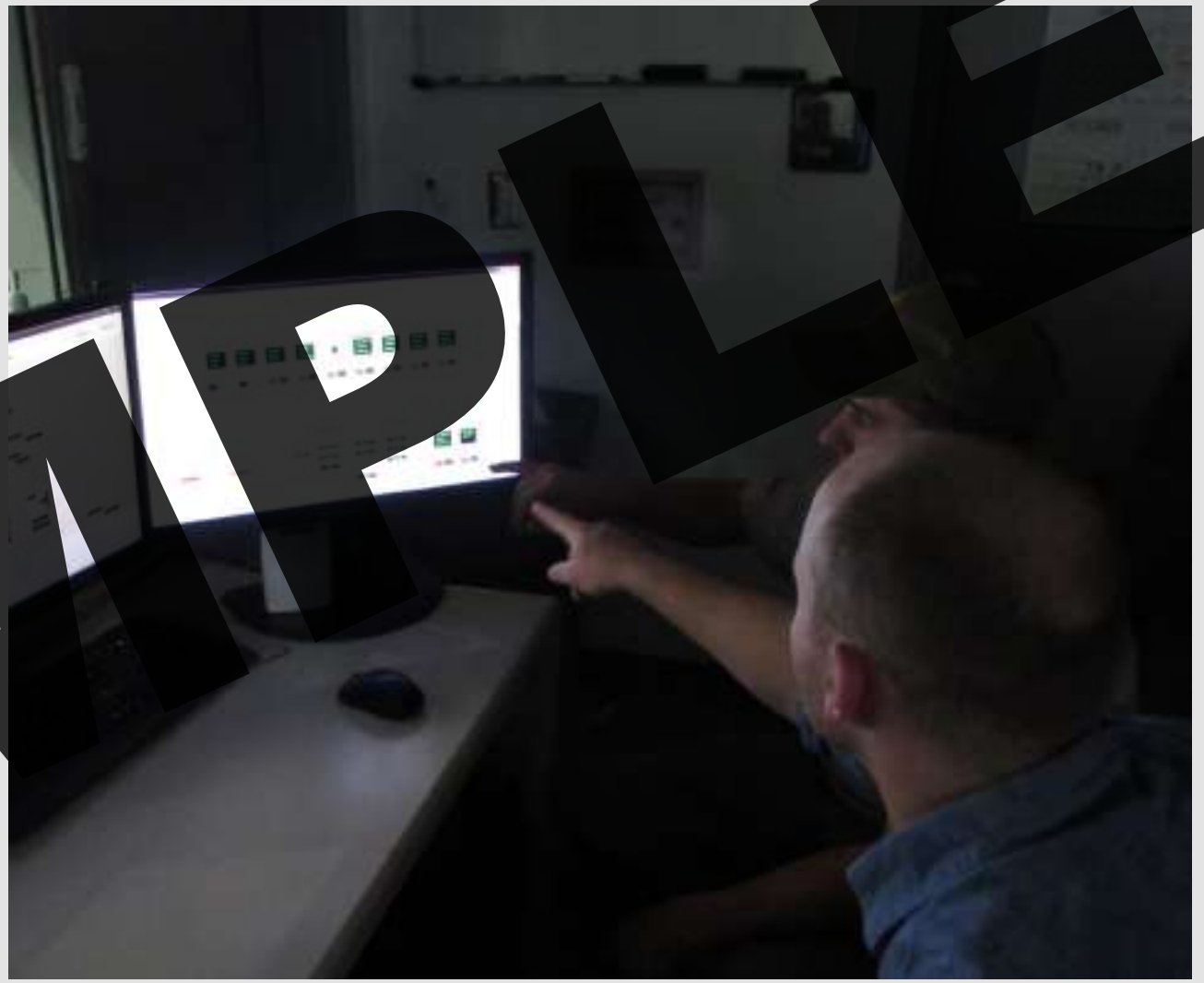

While electricity has been a great tool, when you don't take the necessary precautions, it can be dangerous. Our goal today is to help you understand procedures and standards related to overhead electric utilities so you can develop safe work habits.

Next, we will discuss how to keep yourself and your coworkers safe by properly utilizing grounds. We will discuss how to safely use appropriate equipment on the job. Additionally, we will teach you what kind of PPE your employer should provide.

Finally, we give an overview of emergency preparedness and response procedures for pole-top situations. This way, you know what to do and how to respond if an accident does occur.

# Qualified Person

A qualified person, as defined by the NFPA and OSHA, is someone who has obtained a recognized degree or certification, along with extensive training and on-the-job experience. They have also demonstrated their ability to initiate programs or procedures, as well as identify and avoid hazards.



A qualified person is someone trained and trusted to work within the restricted work boundary. They are familiar with the pertinent instruments and equipment. The qualified person is familiar with the risks involved while working on energized equipment and has been trained to do so. Furthermore, they can identify hazards and use the necessary control methods to mitigate risks.

Only a qualified person may work on equipment with exposed energized parts. Additionally, only a qualified person may work unsupervised in areas with exposed energized parts of 50 Volts or more.

Every individual within the limited approach boundary must, at a minimum, be trained in the material below according to the NFPA. Hazards will vary from site to site, so familiarize yourself with the list below.

## EMPLOYEES WORKING IN THE LIMITED APPROACH BOUNDARY ARE TRAINED IN:

- Distinguishing exposed energized electrical conductors and circuit parts from other parts.
- Determining the nominal voltage of exposed energized electrical conductors and circuit parts.
- Approach distances and the corresponding voltages to which the qualified person will be exposed
- Decision-making processes necessary to do the following
  - Identify electrical safety hazards
  - Assess the associated risk
  - Perform the job safety planning
  - Select the appropriate risk control methods from the hierarchy of controls including PPE.




These are some of the main standards concerning electric utilities and telecommunications safety. Many states or provinces have additional standards, as do some industries. We have provided these as a guide, but it's your responsibility to know all federal, local, and company rules that apply to your job site.

# NESC & IEEE

The National Electrical Safety Code (NESC) is a standard regarding the safe installation, operation, and maintenance of electric power and communication utility systems including power substations, power and communication overhead lines, and power and communication underground lines. It is published by the Institute of Electrical and Electronics Engineers (IEEE).

Image from Flickr (Mary (CC 2.0))

The NESC is a voluntary standard, but it is usually adopted by individual states and jurisdictions as law in some form or another. While we will reference the NESC and IEEE occasionally, it should be noted that this training has been built specifically to OSHA regulations, which we will discuss more later. As we mentioned earlier, this training is in accordance with OSHA standards, unless otherwise noted.

### Take Note!

Do not confuse the NESC with the NEC, which is the National Electrical Code published by the National Fire Protection Association (NFPA). The NEC covers residential, commercial, and industrial building wiring.

# Standard Operating Procedures

Company policies and standard operating procedures (SOPs) should be established according to these standards, regulations, and guidelines. These should include a company safety program, an HECP, and an emergency action plan (EAP).

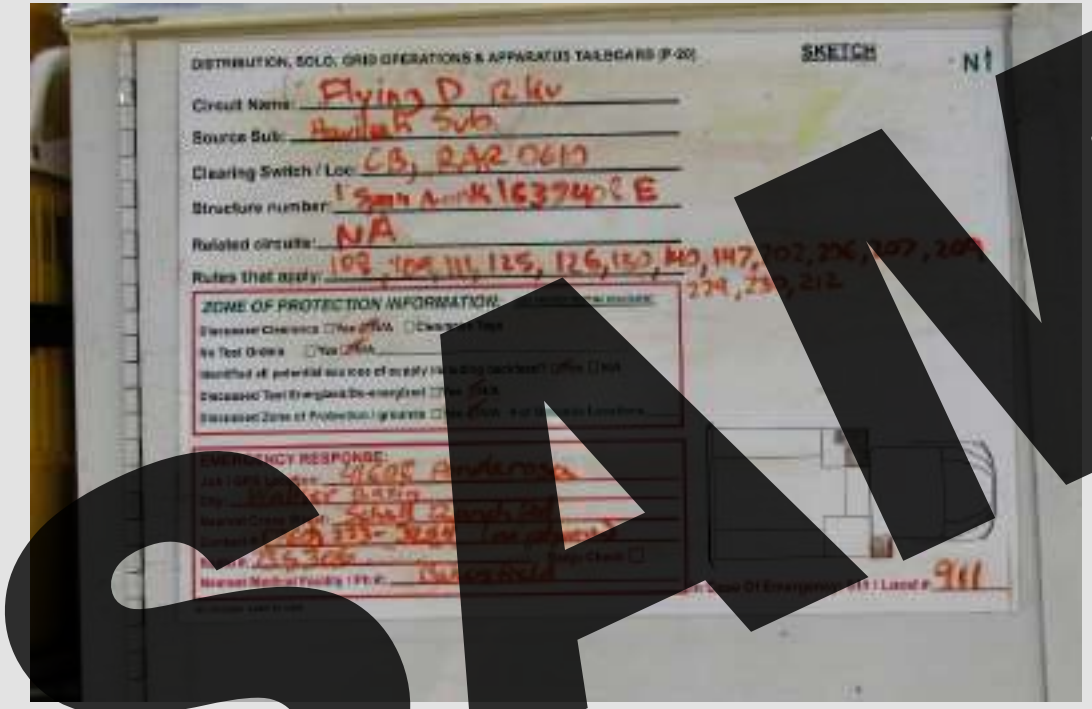
# Job Hazard Analysis

Before working on energized equipment, qualified workers create and perform job hazard analysis (JHA), which identifies risks and hazards as well as ways to eliminate or control them before they occur. A JHA is one of the best ways to develop and establish proper work procedures. If uncontrolled hazards are found during the JHA, take steps to eliminate or reduce them to an acceptable risk level.

# Job Briefings

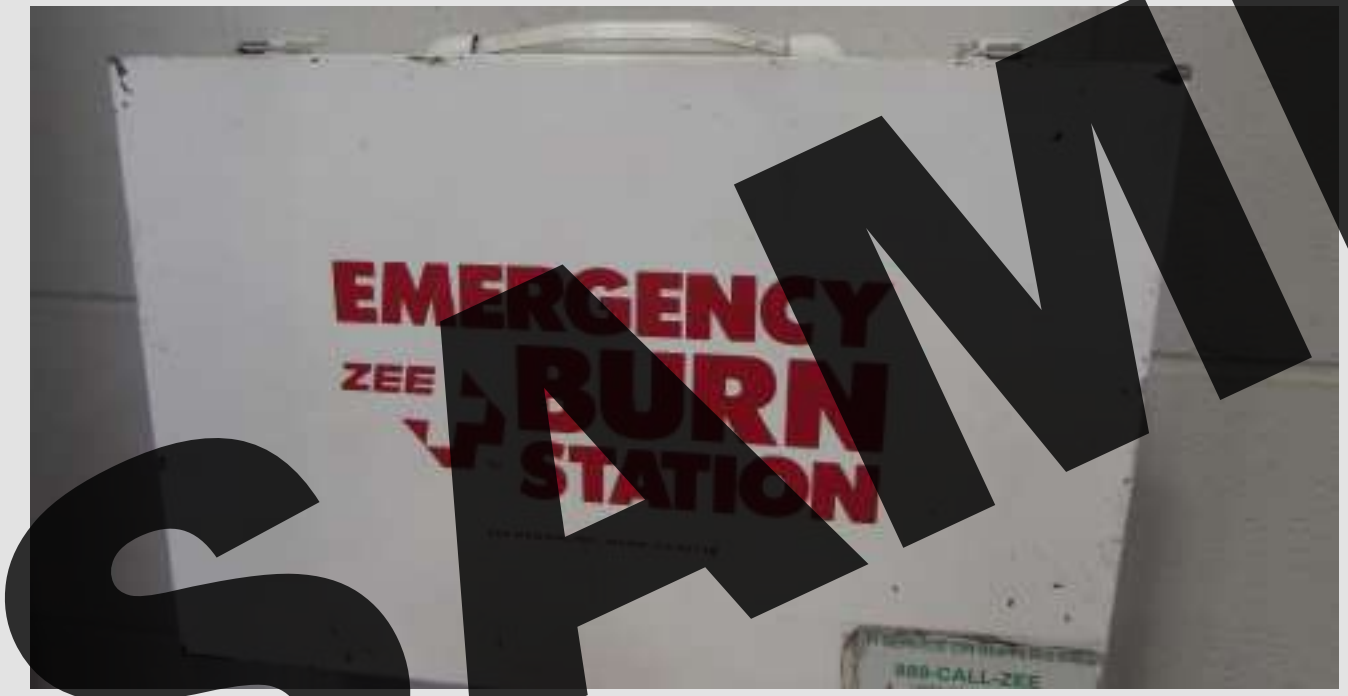
A job briefing must be performed and documented prior to work beginning on the job. This will educate employees about hazards found during the JHA, as well as their specific tasks and responsibilities they are assigned to perform during operations.

Other items in the job briefing will vary from job to job but can include identification of hazards, describing the anatomy of the equipment being worked on, and mentioning the qualified persons and their job. A plan for safe work operations must be mentioned as well as an explanation of how to implement them.




# Emergency Response Plan

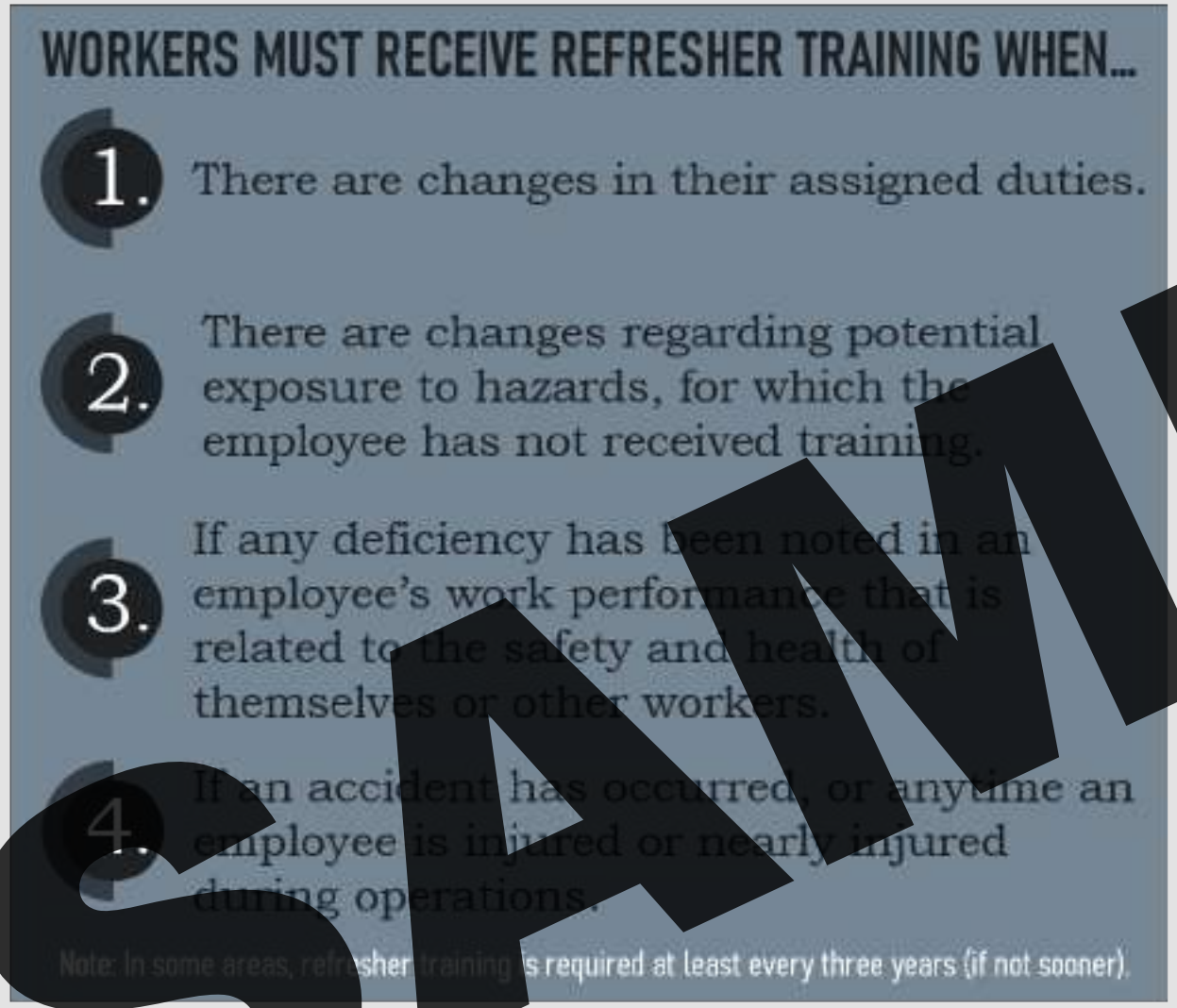
An emergency response plan outlines what to do in the case of an arc flash and is vital to the job briefing. A response plan should include information on which employees know CPR, who has been trained in emergency response, and who to notify in the case of an emergency.




# Training

No matter the situation, it is common to hear workers and even employers ask, “Where does it state we need to be trained?” Can’t a worker also be deemed “qualified” based on experience? The answer is “no.” Experience helps, yes, but regulations are very clear that employees must be trained (no matter how long they’ve been on the job) and that it is the employer who is responsible for overseeing that safety training, ensuring employees have the understanding, knowledge, and skills needed to operate safely.


Initial training and refresher training, as well as any written and practical evaluations, must be documented and filed. At the very least, employers need proof of proper and consistent training (in the way of training outlines, class lists, training goals, tests, certificates, and so on.) These documents should include the name of the person who taught the class or conducted the evaluation.




Training is not just a one-and-done occurrence; it is on-going. In fact, training should take place whenever there is a demonstrated need for it. We have listed several instances when refresher training would be required. Can you think of any others?

The extent of training will be determined by the employer, but at the very least it should include classroom instruction followed by a written and practical examination that proves continued competency.

# Grounding