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WELCOME!

Welcome to the Hard Hat Training Series. Today we will talk about arc flash safety principles. We will provide the tools and information you need to increase your knowledge and understanding to make you a better, safer operator.

An arc flash can occur anywhere that there is an electrical current, making it a growing hazard that is becoming more common in most industries. Our goal today is to help you understand procedures and standards as they relate to arc flashes, thus encouraging safe work habits when operating with or around electrical hazards.



On average, there are 30,000 arc flash incidents each year, 400 of which result in fatalities. This displays the need for more training and a better understanding when it comes to work on or around potential arc flash hazards.



Arc Flash and Shock Hazard Present

Appropriate PPE Required

Arc Flash Boundary	1.0 ft	Level A Minimum PPE Requirements Protective clothing, nonmelting (in accordance with ASTM F 1506) or untreated natural fiber for long sleeve shirt and pants/coverall, Face shield for projectile protection, Safety glasses, Hearing protection and Heavy-duty leather gloves.
Incident Energy in cal/cm ²	0.7	
Working Distance	18 in	
Shock Hazard Exposure	208 V	
Insulating Gloves Class	00	
Shock Hazard when covers removed		
Limited Approach Boundary	3.5 ft	
Restricted Approach Boundary	1.0 ft	



We will begin by defining some common terms associated with arc flash safety. We will also discuss what causes an arc flash and where they are most likely to occur.

SAMPLE



We will then breakdown and discuss the different elements in the hierarchy of controls. Within these controls, we will discuss the importance of creating and following an electrical safety program, performing a risk analysis, and posting warning signs and labels.





Next, we will discuss the procedures and tools required to safely work around energized and de-energized electrical equipment. These practices include selecting the right tools, keeping a safe distance, and wearing PPE.



Finally, we will discuss the different types of hazards that can lead to arc flashes and give an overview of emergency response procedures that you should follow if an accident does occur.



Throughout this training, we will look at real, investigated accident profiles. In some cases, two or three similar accidents have been combined for the purpose of illustrating key safety principles. They will show just how quickly things can go wrong when safety procedures are ignored, resulting in injuries or fatalities.

SAMPLE

STANDARDS

These are some of the main standards concerning today's topic. 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.



NFPA 70E - Standard for Electrical Safety in the workplace

NEC Article 110.16 - Arc Flash Hazard Warning

Article 240.87 Arc Energy Reduction


29 CFR 1910.269 Subpart R – Special Industries

Subpart S – Electrical, General Industry

29 CFR 1926 Subpart V – Electric Power Transmission & Distribution

ANSI Z535 - Safety Signs and Tags






No matter the situation, it's important to ask, "Where do I stand?" While experience is deemed "qualified" in some situations, 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.

WHY TRAINING?

INITIAL TRAINING and REFRESHER TRAINING, as well as any WRITTEN AND PRACTICAL EVALUATIONS, must be documented and filed. At the very least, employers need to show 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.





However, 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.

Employees **MUST** receive **REFRESHER TRAINING** in the following instances...

1

There are changes in their assigned duties



2

There are changes regarding potential exposure hazards, for which the employee has not received training



3



Any deficiency has been noted in an employee's work performance that is related to the safety and health of themselves or other workers

4

An accident has occurred, or an employee has been injured (or nearly injured) during operations



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 prove continued competency.



Definitions



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