



Tool Box Talk

Arc Flash Hazards and Prevention



Special points of interest:

- **Arc flashes** occur when an electric current passes through air between ungrounded conductors or between ungrounded conductors and grounded conductors.
- **Arc Flash** - kills two workers a day, every day, year in and year out



- Be aware of the safe working practices, PPE, and approach distances established by NFPA 70E.

To solve problems related to Arc Flash Hazards we need to ask the (5-W's & H) **Who, What, Where, Why, When, & How.**

Who: We naturally assume that electricians are the ones that will encounter all the risk associated with Arc Flash dangers but anyone working on or around the source can be effected by the arc event. As construction laborers, you may find yourself working with the electrical crew so you need to be aware of the potential for hazards.

What: An Arc Event is a dangerous situation where the pressure (blast) and temperature (flash) can cause traumatic injury or death for anyone who is within the Arc Blast radius. Arch Flash is described by the National Fire Protection Association or NFPA as “a dangerous condition associated with the release of energy caused by an electric arc.” This sudden release of energy often results in an explosion, exposing workers to extremely high temperature levels, flying shrapnel or debris, and molten metal being thrown from the source of the arc. Arc temperatures can get as high as 35,000 degrees which is many times hotter than the sun, and the rapid expansion of air, copper, and other materials involved in the event can create pressure waves that can throw a worker several feet and deafen them from the resulting boom.

Where: You can be exposed to arc flash dangers any place that you remove or install circuit breakers, where you take voltage reading, areas where you throw a circuit breaker, areas where you operate disconnect switches, or when working on control circuits. Just to name a few.

Why: **Fire Engineering Magazine** said Arc Flash, “kills two workers a day, every day, year in and year out” and often these accidents “may occur when you perform routine maintenance.” Arc flash training will help you to understand and identify the hazards associated with working with electricity. Training on NFPA 70E: Electrical Safety in the Workplace, will also help you to understand what PPE is needed to safely perform the work, and how to setup and control safe boundaries for protecting others from the hazards of working in areas where the is a potential for an arc event.

When: According to (electricityforum.com) arc incidents typically occur in applications above 120V and can occur when electrical equipment is being serviced or inspected. In fact, some incidents occur when a worker is removing a cover or trim from a piece equipment. Many service companies recommend that electrical equipment be de-energized before any work is commenced, although this is not always possible.

How: Protection begins with the understanding of the hazards and the safeguards necessary to avoid or control the hazards. Inspect your PPE to assure that it is in good working order. Inspect the area around the work to identify hazards and escape routes. Establish safe working boundaries and keep unnecessary personnel out of the danger zone. Be familiar with the safe working practices identified in NFPA 70E and remember to de-energize the circuit prior to beginning work whenever feasible.



Attendance Record

Company: _____

Topic: _____

Trainer: _____

Date: _____

	Signature		Signature
1.		18.	
2.		19.	
3.		20.	
4.		21.	
5.		22.	
6.		23.	
7.		24.	
8.		25.	
9.		26.	
10.		27.	
11.		28.	
12.		29.	
13.		30.	
14.		31.	
15.		32.	
16.		33.	
17.		34.	

Comments: