



# Weekly Safety Meeting

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## Introduction to Arc Flash Safety

Arc Flash is a type of electrical explosion/discharge resulting from a connection through air to ground or another voltage phase in an electrical system (i.e., when a wire contacts a grounding system). The temperatures at the source of an arc flash can reach 20,000 degrees Celsius (36,032 degrees Fahrenheit) – around four times the surface of the sun.

At the same time, air can rapidly expand and material is vaporized from an arc flash, resulting in an arc blast. This produces an explosive force that exceeds a blast pressure (upwards of 2,000 lbs./square feet), causing the propulsion of flying objects (molten metal, including debris and equipment parts traveling a speed of up to 300 meters per second (984.25 feet per second)).

When a people are unfortunate enough to be near this arc flash, they will receive severe burns to the skin, internal burns, respiratory issues from inhaling vaporized metal and gases in elevated temperatures, sound blast (noise level can reach 140 decibels, the sound level of a handgun being fired) resulting in hearing damage, eye damage and blindness from the ultraviolet light of the flash as well as many other devastating injuries and even death.

According to the Electrical Safety Foundation, International Workplace Electrical Injury & Fatality Statistics reports that an electrically induced injury occurs in facilities across Europe and the United States every 30 minutes.

### Arc Flash Can Be Caused by Many Things, Including:

- Unintentional contact between an energized conductor (i.e., a bus bar or wire, with another conductor or an earthed surface;
- Failing equipment;
- Using incorrectly specified instruments;
- Live work on damaged equipment such as cables;
- Loose connections and exposed live parts; and
- Lack of awareness and training.

### Examples of Processes for Establishing and Verifying Safe Work Conditions Include:

- Determine all possible sources of electrical supply to the specific equipment. Check applicable up to date drawings, diagrams, and identification tags;
- De-energize electrical equipment, properly interrupting the load current, opening the disconnecting device(s) for each source;

- Wherever possible, visually verify all blades of the disconnecting devices are fully open or that drawout-type circuit breakers are withdrawn to fully disconnected position;
- Release stored electrical energy;
- Release or block stored mechanical energy;
- Apply lockout/tagout devices in accordance with a documented and established procedure;
- Use an adequately rated portable test instrument to test each phase conductor or circuit part to verify it is de-energized.
  - Test each phase conductor or circuit part both phase-to-phase and phase-to-ground.
  - Before and after each test, determine that the test instrument is operating satisfactorily through verification on any known voltage source; and
- Where the possibility of induced voltages or stored electrical energy exists, ground the phase conductors or circuit parts before touching them.

### Testing and Training:

Facility owners must perform an Arc Flash Risk Assessment (Study) required by the National Fire Protection Association Guidelines (NFPA 70E) prior to allowing a worker or contractor to perform a task on energized equipment.

Workers should be provided with an effective arc flash training program to establish knowledge and understanding of the existence, nature, and causes of arc flash. Furthermore, methods to prevent electrical hazards and reduce workers' risk while working on live exposed parts. This training program should include arc flash awareness, standards, and codes; arc flash quantities; the selection and use of appropriate PPE; reading and following warning signs and labels; assessment; and documentation.

***ARC FLASH IS DESTRUCTIVE...PROTECTION COMES FROM  
RECOGNITION!***

### Safety Meeting Sign-In Sheet

Supervisor:	Subject:
Location:	Date:
Conducted By:	Trainer Signature:

Name (print clearly)	Signature	Comments / Safety Concerns / Training Requests