



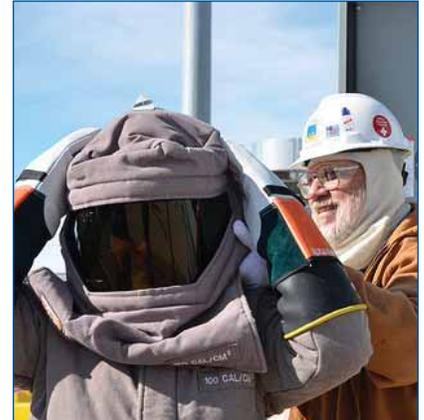
Arc flash is a term used to describe an electrical explosion caused by an arcing fault. The electrical explosion results in a thermal, pressure and sound wave that can cause death, severe injury, and extensive equipment damage.

An arcing fault is caused by the breakdown of the insulating material (usually air in low voltage systems) between energized components and the ground. Arc fault current is usually low, therefore protective devices such as fuses and circuit breakers take a protracted period of time to open to stop the fault. The arcing fault continues until the arc flash occurs.

Arc flash is not the same as electrocution. Most people are familiar with electrocution. Electrocution occurs when a person comes in contact with an energized component. Electrocution can cause significant injuries and death, but typically will not cause extensive equipment damage. Since there is a significant amount of awareness concerning electrocution, people are careful to follow all safety procedures and utilize applicable safety equipment when around energized equipment. Arc flash on the other hand, is a recently recognized electrical hazard. One of the first standards specifically addressing arc flash hazards was the National Fire Protection Association (NFPA) 70E, fifth edition, published in 1995. Industry awareness of arc flash hazards, arc flash mitigation techniques and safety standards are continuing to evolve.

It is important to recognize that arc flash can happen on low voltage as well as high voltage systems. The factors that determine the extent of the hazard are: the amount of energy the power system can deliver,

the time to sense a fault and open a protective device, and the distance a person is from the flash. These factors are evaluated in an arc flash study. The results of an arc flash study aid in the establishment of flash protection boundaries, selection of appropriate personal protective equipment (PPE) and selection of the appropriate arc flash hazard labels.



A recent claim involved an arc flash incident on a high school campus. The arc flash occurred at a 100 amp, 480 volt fused disconnect switch during troubleshooting activities. Personnel were injured, the campus lost power for the day and equipment repair costs totaled approximately \$140,000. If appropriate safety and maintenance practices had been followed, this incident may have been avoided.

For Additional Information

- National Fire Protection Association: www.nfpa.org
- NFPA 70: National Electric Code

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