

Insures compliance with

NEC 110.16, OSHA, NFPA

Some Regulations Pertaining to Arc Flash:

OSHA 29 CFR 1910.132(d) requires employers to assess the workplace to determine if hazards are present or likely to be present, and select and have each employee use the types of PPE that will protect them... Verify that the required workplace hazard assessment has been performed through a written certification that identifies the particular workplace evaluated.

NFPA 70E- 2004 Section 400.11 states "Switchboards, panelboards, industrial control panels, and motor control centers that are in other than dwelling occupancies and are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential electric arc flash hazards. The marking shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.



OSHA believes that the NFPA standard offers useful guidance for employers and employees attempting to control electrical hazards. OSHA recommends consulting consensus standards such as NFPA 70E-2004.

Established in 2002, William R. Jennings, Jr. - Consulting Engineering, PC is a professional services company that provides high-quality technology in electrical engineering design for industrial, commercial, municipal, and environmental clientele.

With a staff that has over sixty years of combined design experience, William R. Jennings, Jr., Consulting Engineering, PC is committed to providing services throughout the Commonwealth of Virginia including: Charlottesville, Richmond, Roanoke, Staunton, Blacksburg, and surrounding areas. Located in Forest, Virginia, our proximity allows us to be accessible and responsive to the specific needs of public and private clients.



For more information or estimates contact .

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**ARC
FLASH
STUDY**

**For Safety, Efficiency,
Risk Management and
Compliance with Federal
Regulations**



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What is Arc Flash?

Arc Flash is the result of a rapid release of energy due to an arcing fault between a phase bus bar and another phase bus bar, neutral or a ground. During which the air is the conductor.

The cause of the short normally burns away during the initial flash and the arc fault is then sustained by the establishment



of a highly-conductive plasma. The plasma will conduct as much energy as is available and is only limited by the impedance of the arc. This massive energy discharge burns the bus bars, vaporizing the copper and thus causing an explosive volumetric increase, the arc blast, conservatively estimated, as an expansion of 40,000 to 1. This fiery explosion devastates everything in its path, creating deadly shrapnel as it dissipates.

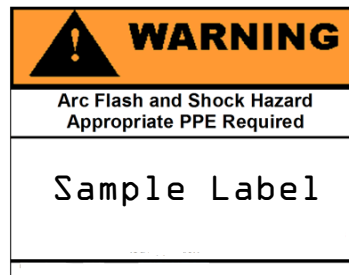
Unless devices have been selected to handle the arc fault condition, they will not trip and the full force of an arc flash will occur. Which could resulting in serious injury, destruction of property, or even death.

What is the Purpose of an Arc Flash study?

The purpose of an Arc Flash Study is to protect personnel and equipment from an Arc Flash Hazard.



- It provides a complete workplace hazard assessment and power systems analysis including recommendations for appropriate Arc Flash protection
- Insures compliance with: NEC 110.16, OSHA, NFPA 70E, and IEEE 1582 standards.
- Improve safety margins with user-definable arcing fault tolerances.
- Avoid potential fines, lost productivity, and increased insurance and litigation costs.



William R. Jennings Jr., PE

Senior Electrical Engineer:

Mr. Jennings has extensive design experience with municipal facilities; healthcare facilities; the Department of Defense; the Commonwealth of Virginia; industrial; institutional; and transportation projects. He has experience in short circuit, circuit breaker and arc flash studies, design of high and low voltage distribution systems; computer networks; exterior, interior, and specialty lighting; lighting protection system; process instrumentation; PLC control systems; control panel design; and fire alarm and security systems. He has performed inspections, performed short circuit and coordination studies; and load studies for new and existing electrical facilities. He is professionally registered in VA, WV, NC, MA, TX (inactive), N Y, MS, PA, AL, GA, MD, LA. SC, WI, and DC.

Mr. Jennings has taken over 60 hours of classroom instruction in Short Circuit, Circuit Breaker Coordination and Arc Flash Studies and utilization of the associated computer software.

Michael Fowler

Electrical Engineer:

Mr. Fowler has extensive experience in engineering. His practice includes experience in industrial facilities with power and process control system design. Mr. Fowler's areas of qualification include power and lighting design, instrument specification, PLC and DC control system specification and selection, manufacturing process controls design specification and selection, facility engineering, and cost estimation.

Mr. Fowler has taken over 30 hours of classroom instruction in Short Circuit, Circuit Breaker Coordination and Arc Flash Studies and utilization of the associated computer software.