D.L. STEINER, INC.
ENERGY CONSULTANTS AND ENGINEERS

Arc Flash Hazard Safety Program

For Commercial & Public Facilities

An Effective, Easily Implemented Solution to Protect Your Employees, Contractors, and Customers from Electrical Arc Flash Accidents!

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You *Can* Protect Against Arc Flash Incidents

The electrical system in your commercial or public facility may be small, perhaps nothing more than a transformer, a main distribution panel, and a few subpanels. Certainly, it's not like the large, high-powered electrical systems found in manufacturing facilities. You may think the worst hazard it presents is electrical shock.

In reality, your system contains another electrical danger potentially *worse* than shock—one that can severely injure or prove fatal, even when people aren't in contact with a live electrical conductor! This hazard is known as *arc flash*.

What Is an Arc Flash?

An arc flash is a short circuit occurring via the air space between electrical devices that results in a sudden, explosive, totally uncontrollable electric arc. During an arc flash:

- There is a blinding flash of light.
- The temperature inside the flash soars to as high as 35,000° in a millisecond, creating a self-feeding plasma that continues to grow in intensity.
- A blast wave with dynamite-level force can occur. The accompanying sound often exceeds 160 dB.
- Vaporized metal and shrapnel from disintegrating equipment is expelled at over 700 mph.

For the person—and the company—unprepared for it, an arc flash can be devastating. In addition to the death or serious injury of personnel, facilities are destroyed and operations interrupted. The cost of litigation, insurance claims, and regulatory fines can reach astronomical levels. The emotional toll and damage to a company's good name are incalculable.

Electrical accidents are over 20 times more likely to be fatal than other types of workplace injuries. And while arc flashes aren't as common as shock incidents, they are far more likely to result in death or serious injury. According to statistics by the Institute of Electrical and Electronics Engineers (IEEE), 77% of all recorded electrical injuries during a 10-year period were due to arc flash.

Extent of the Danger

Arc flashes don't just happen in high-voltage industrial electrical systems. Actually, many take place in systems of 240V or lower. Certain conditions can make them more likely to occur:

- Electrical equipment that is improperly rated for the application
- Poorly installed or poorly maintained electrical equipment (e.g., damaged insulation or corroded contacts)
- Worn or damaged insulating material that exposes electrical conductors

In these situations, simple actions such as opening an electrical cabinet door, dropping a tool, or taking a voltage reading can spark an arc flash—and its lethal consequences!

Arc Flash Safety Mandate

In 29 CFR § 1910.333 of its General Industry Standards, OSHA mandates that "Safety-related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits." Here, "other injuries" also means those occurring due to arc flash.

OSHA®
NFPA®

To define what compliance with this mandate means, OSHA relies on *NFPA 70E Standard for Electrical Safety in the Workplace*. *NFPA 70E* specifies that hazard analysis shall be performed on electrical systems to determine their arc flash potential so people can be aware of any dangers they face while working around this equipment. It also lists the practices, clothes, and tools they should use to protect themselves from arc flash incidents (Article 130).

Many people, even some experts, argue that arc flash hazard analysis isn't necessary for electrical systems 240V or less. But in fact, small, non-residential facilities that fail to complete this safety precaution:

- Expose their employees and others working on or nearby the system to the potential of being injured—or worse!—by an arc flash.
- Place themselves at risk of being in noncompliance with OSHA electrical safety mandates, along with all the unpleasant *and expensive* consequences this violation can bring.
- Jeopardize the future of their operations.

Regardless of size, your company *is* responsible for maintaining a safe electrical system—and that includes guarding against the dangers of arc flash.

The D.L. Steiner Arc Flash Safety Solution

Various electrical consultants offer arc flash hazard analysis services but mostly just for facilities with electrical systems rated 480V and above. Where can the commercial facility, with its relatively low-powered, uncomplicated electrical system, go for accurate, professional assistance with this important electrical safety issue?

The answer is D.L. Steiner, Inc. Based on years of experience conducting arc flash hazard analysis for companies of all types and sizes, we've developed a *complete arc flash safety solution* designed especially for the needs of commercial or public facilities like yours. Here are just some of the ways our system benefits you:

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- *Convenience*—You receive a comprehensive, *turnkey* electrical safety solution with minimal time and involvement on your part.
- *Cost effectiveness*—You implement a critical safety program at a very low cost *plus* create the potential for saving even more on such items as insurance premiums, workers' compensation claims, and electrical equipment repairs.

- *Compliance*—You comply with the OSHA mandate to provide an electrically safe workplace for your employees, contractors, and other personnel who work on or around your electrical equipment.
- *Confidence*—You have peace of mind from knowing you've implemented a system that gives people the information they need to stay electrically safe while on the job.

How Our Program Works

With our seven-step process, D.L. Steiner, Inc. makes it easy for you to implement an accurate, professional, safety-standards-compliant arc flash hazard safety program at your commercial facility:

1. You use our Estimating Worksheet to provide us with the information we need for calculating how much your arc flash hazard study will cost.
2. We send you our ***FREE*** Project Proposal plus the resources you need to collect the electrical data we require for our analysis.
3. You review and sign our proposal, authorizing us to complete your study, and return this form to us.
4. You use our Arc Flash Study Data Collection Sheets to collect the data of your electrical system equipment and send these to us.*
5. We use the information on these sheets to complete the arc flash hazard analysis of your electrical system and send you the following:
   - A report of our analysis plus our recommendations for making your system more arc flash resistant and safe
   - UV-resistant vinyl arc flash hazard labels imprinted with the data people need for working safely on or around your electrical equipment,

* Collecting the data of a commercial electrical system is something anyone can do, but we *strongly* suggest using someone with extensive electrical experience (e.g., an electrical contractor) to collect your system's data. This will ensure data accuracy, which is critical for precise arc flash hazard analysis results.

For an additional fee, D.L. Steiner will come to your facility to collect the data of your electrical system.

along with easy-to-follow instructions for installing the labels on your equipment

- An Arc Flash Hazard/Risk Chart and a PPE (personal protective equipment) Chart, listing the operations workers can perform on your equipment and the PPE guidelines they should follow when performing these operations
- D.L. Steiner's comprehensive DVD-based training program, "The Electrically Safe Workplace—the NFPA 70E and You"

6. You install the electrical safety labels on equipment and post the charts in a conspicuous place (e.g., your electrical room) for worker use.
7. You use our DVD to train your employees and others in arc flash hazard awareness and general electrical safety concepts.

At any time during data collection, label installation, or employee training, professional assistance is only a telephone call away. Dial (419) 222-6048 and we'll be glad to answer your questions or provide direction.

How to Get Started

To receive a ***FREE*** arc flash hazard analysis estimate for your facility, just contact D.L. Steiner and request our Estimating Worksheet for Commercial & Public Facilities. We'll send it to you right away in the format you prefer: email, mail, or fax.

With D.L. Steiner's arc flash hazard safety program you *can* protect your company from the tragic consequences of arc flash hazard incidents. Contact D.L. Steiner, Inc. *today!* Let us implement our *complete arc flash safety solution* for your commercial facility.

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