



## Safety Services - Arc Flash Study & Analysis

### *Flash & Burn - Don't Let it Happen To You!*

Every year many workers are treated in burn centres with severe arc flash injuries. The flash is immediate, but the results can cause severe injuries that last months, years - even a lifetime. In some cases, they may cause death. Fortunately, arc flash hazards can be reduced by following safety precautions and using recommended personal protective equipment.



#### **What is an Arc Flash and what are the potential hazards?**

Think of an arc flash as a short circuit through the air. In an arc flash incident, an enormous amount of concentrated radiant energy, hot gases and molten metal explodes outward from electrical equipment.

The explosion creates a high-intensity flash and a superheated ball of gas (20,000 deg C) that can severely burn a worker's body and damage their eyesight and lungs. The intense flash also creates pressure waves (2000lb / ft<sup>2</sup>) and sound waves (160dB) that can damage a person's hearing, cause memory loss or even brain damage. In addition, molten metal and shrapnel can be ejected at high velocity that can cause other physical injuries

#### **Where do Arc Flash Hazards occur and What are the Impacts of an Arc Flash Incident?**

A hazardous arc flash can occur in any electrical device in which the energy is high enough to sustain an arc. These include: Panel Boards, Switchboards, Motor Control Centres, Metal Clad Switch Gear, Transformers, Motor Starters and Drive Cabinets, Fused Disconnects or any place that can have equipment failure.

Treatment can require years of skin grafting and rehabilitation. The individual may never return to work or retain the same quality of life. In terms of cost this is simply not quantifiable, however, other direct costs may include:

- Litigation Fees, Fines and Imprisonment
- Asset Replacement
- Production Loss
- Insurance Fees



#### **What is the Law and Responsibilities under the Codes?**

Arc Flash Analysis has been addressed legislatively at both Provincial and Federal levels. All workers exposed to energized electrical equipment must be trained and equipped to be protected against Arc Flash Hazards. Companies are expected to:

- Conduct an Arc Flash Analysis of the Electrical Power System
- Establish Shock and Protection Boundaries and Determine Incident Energy Levels
- Affix the Appropriate Warning Labels on Equipment
- Implement Qualified and General Worker Training
- Provide Necessary Personal Protective Equipment (PPE)

#### **At Can-Technologies we can provide the following services:**

- A Review of your existing Electrical Equipment Safety Program
- Assessment and Data Collection of Equipment in the Electrical Power System (Assets)
- The Calculation of the Shock and Flash Protection Boundaries, Incident Energy Levels & Risk Hazard Categories
- Recommendation and Procurement of appropriate Personal Protective Equipment (PPE)
- Creation and Presentation of the Arc Flash Analysis Report and the Generation/Application of appropriate Arc Flash Labels
- Implementation of Qualified and General Worker Arc Flash Safety Training
- Creation/Modification of the Single Line Diagram containing Analysis Data
- A Coordination Study of Protective Devices
- Development of an Arc Flash Mitigation Program, Safety Policies, and Work Request and Approval Permits