

DC ARC FLASH CALCULATIONS

Arc Flash is Not Just an AC Problem

The arc flash hazard is not limited exclusively to alternating-current (ac) power systems. A significant hazard can also exist with direct-current (dc) systems that have equipment such as dc generators, rectifiers, battery systems, drives, and similar dc sources.

As of the completion of this book, the dc arc flash hazard is about to be introduced in the 2012 Edition *NFPA 70E Standard for Electrical Safety in the Workplace*. Personal Protective Equipment requirements for dc systems will be included as part of the Hazard/Risk Category Classification Tables. In addition, new approach limits for dc including the limited, restricted and prohibited approach boundaries will be added.

Although NFPA 70E will address the dc arc flash hazard, at the present time an official standard for dc arc flash calculations does not exist.

DC Arc Flash Calculations

The majority of ac arc flash calculations use the equations found in IEEE 1584 Standard — *IEEE Guide for Performing Arc-Flash Hazard Calculations* which was first published in 2002. Even before this standard was introduced, many companies were already performing arc flash studies. How could that be? Because prior to 2002, arc flash studies were based on the best available information at the time. This included various bodies of research and theory published in many well known technical papers.

Perhaps you are familiar with the phrase: “History repeats itself”. Well, history is repeating itself again. Similar to performing ac arc flash studies before 2002, dc arc flash studies are also relying on the best available information until a standard is developed.