



WORKPLACE SAFETY IS NO LONGER A FOOTNOTE

By Mike Doherty, President of Blue Arc Electrical Safety Technologies Inc.

“The human body is a walking resistor — every blood vessel, every nerve ending can conduct electricity; the vascular system is like a wiring system. The only trouble is that the human body was not designed to withstand direct contact energy and/or the intense heat and pressure of an arc flash/arc blast event.”

This is what I told a group gathered recently at Geliget Gear headquarters in Stellarton, Nova Scotia, delivering the keynote speech on electrical safety, due diligence and potential implications of NFPA 70E/CSA Z462.

As an NFPA 70E Technical Committee Member and currently serving as the Technical Committee Chair of CSA Z462, my specialty is electrical safety in the workplace. I have more than 33 years experience as a licensed industrial electrician, industrial instrumentation technician, electrical skills instructor, utility safety professional — and as an electrical safety trainer delivering the message of electrical workplace safety across North America.

Drawing extensively on the human side of direct contact and arc flash/arc blast incidents events, I try to deliver the message of workplace safety home in a stark and poignant manner, using real life examples and personal stories. Believe me, you do not want to have to deliver the news of the death or serious injury of an employee to their loved ones — besides the accident itself, it is probably the worst experience you could have to face.

HOTTER THAN THE SUN

Arc flash/arc blast events are extremely intense, in terms of heat, noxious vapour and percussion.

The heat can be up to four times hotter than the surface of the sun, accompanied by molten copper, heated to 982 degrees Celsius, pelting into your body and giving off noxious vapour, which is often then directly inhaled into the lungs. The force of the blast is akin to a car accident, characterized by rapid acceleration/deceleration energies. Victims can be

thrown metres away, further increasing the risk of death or injury if thrown into other equipment or from great heights.

Improper, non-standard work wear increases the degree of severity of the injury; one of the worst offenders are polyester or poly blends. Beyond catching fire, this material is an oil-based product that can actually melt into the skin and require extremely painful dermal abrasion procedures to remove the contamination. Unlike polyester, when cotton catches fire it will not melt, but neither fabric is designed to protect in an environment where the risk of arc flash/arc blast is real.

Electrical incidents can result in death, and those that survive may face one or more of a long list of profound traumas including disfigurement and permanent disability, such as loss of limbs, loss of hearing and even neurological damage. Extensive rehabilitation and painful treatments are often required, such as skin grafting, reconstructive surgery, or dermal abrasion to remove contaminants that have burnt into the skin.

I hope that with understanding the true costs of poor hazard assessment companies will find their motivation to create a Culture of Safety. “Good Safety is Good Business” is the motto of Blue Arc Electrical Safety Technologies Inc.

In Canada, the law requires that workers are given the information, knowledge and tools to ensure their safety and help them make informed decisions at work. CSA Z462 is scheduled for release later this year; it is largely guided by NFPA 70E but adapted as much as practicable for the Canadian workplace.

The good news is it is easy to help reduce the risk to workers and oneself. By adopting a simple four-step process into every job, businesses can reduce the risk of incidents.

The first step is to identify the hazard (is there a risk of direct contact or arc flash/arc blast). The next step is to quantify the hazard. Third, select Personal

Protection Equipment (PPE) and tooling based on the comprehensive hazard assessment and finally, document the process — every time. The OH&S Acts in most provinces clearly references the requirement to provide PPE where a hazard of any kind exists.

Shawn Brown, VP of Sales & Marketing for Geliget Gear, spoke of his firm’s experience in developing a new line of flame resistant clothing, which involved two years of research and development into ASTM F 1506, regulations and searching for specialized materials designed to meet the recognized standards.

In that time he was surprised to encounter instances of counterfeit garments and false claims. He shared insights gained from this process in order to make truly safe purchasing decisions when it comes to PPE. He stressed the importance of independent lab results to verify product claims. His own research showed the superiority of Westex’s Indura brand fabric to protect and minimize risk and injury.

The core of my message at the Geliget Gear seminar is that in today’s workplace, safety is no longer a footnote in the training manual of designing and installing electrical systems. In the electricity business, the first line of defense is a comprehensive, leading edge Safety Managed System with a health and safety manual and documented procedures as some of the key components, the last line of defense is PPE.

CSA Z462 will be released in December 2008, but in the meantime I recommend that everyone invest in a copy of NFPA 70E and use it. You are accountable for the safety of your people, the law prescribes the ‘shall’, NFPA 70E / CSA Z462 (pending) is the ‘how’.

Mike Doherty, President of Blue Arc Electrical Safety Technologies Inc, welcomes any questions regarding his column or workplace safety practices. You can email him at: blue.arc@sympatico.ca