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<b>NFPA 70E &amp; Electrical Safety</b>			Revision Date: 4/10/2019
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When you misuse electricity, you can get burned, shocked, or electrocuted. Keep in mind that electrocution is one of the “Fatal Four” – falls, struck by object, electrocutions, caught-in/between – electrocution is one of the four leading causes of worker deaths on construction sites. The NFPA 70E standard aims to reduce on-the-job exposure to shock, arc flash, and arc blast. The 2018 edition of NFPA 70E went into effect in August; the following is a brief overview of some key elements.

## Hierarchy of Controls

The revised standard highlights the Hierarchy of Controls, emphasizing the acts of risk identification and mitigation before the job begins. The hierarchy is as follows, with the most effective controls first – elimination, substitution, engineering controls, administrative controls, and personal protective equipment. As construction work often faces exposure to overhead power lines, it is suggested to reassess site planning methods before beginning work. Consider the location of receiving areas, routes that trucks, cranes, forklifts, or other vehicles may take, as well as any additional ways to eliminate exposure to risk areas.

## Arc Flash PPE Table

During an arc flash event, an electric current leaves its intended path –either travelling to the ground or passing by air from one conductor to another. Arc flash temperatures can reach 35,000° F – roughly three times hotter than the surface of the sun. A new arc flash table provides a quick reference guide in the NFPA 70E standard.

For incident energy exposures of 1.2cal/cm<sup>2</sup> to 12 cal/cm<sup>2</sup>, the standard requires the use of hard hats, hearing protection, and leather footwear, as well as one item from each of these groups:

- Long-sleeved shirt and pants, coverall, or arc flash suit
- Arc-rated face shield, arc-rated balaclava, or arc flash suit hood
- Heavy-duty leather gloves, arc-rated gloves, or rubber-insulating gloves with leather protectors

Incident energy exposures of 12 cal/cm<sup>2</sup> or greater require the use of an arc-rated flash suite hood, hard hat, hearing protection, and leather footwear. Workers must also select one item from the following groups:

- Long-sleeved shirt and pants, coverall, or arc flash suit
- Arc-rated gloves, or rubber-insulating gloves with leather protectors
- Safety glasses or safety goggles

## Accounting for Human Performance

The revised NFPA 70E introduces the idea of human performance and explores tools to address human error. The annex states, “The basic principle of human performance is that humans are fallible – event he best-intentioned person errs... The objective of human performance is to identify and address human error and its negative consequences on people, programs, processes, work environment, equipment, or an organization”.

Some human performance tools include pre-job briefings, jobsite reviews, post-job reviews, procedure use and adherence, self-check with verbalization, three-way communication, and stop work authority.

