

Electrical Safety Awareness

Basics of Electrical Workplace Safety



Presentation by:

International Association of Electrical Inspectors



Program Objectives

- Increase electrical safety awareness
 - Establish understanding of electrical workplace safety
 - Review the problems and concerns
 - Tools and protective equipment that can be used
 - Implement immediate work habit adjustments
 - Review applicable codes and standards (law)
 - Understand the role of *IAEI*
- Note: This program references electrical safety standards and is not intended to be inclusive of all electrical safety training requirements.*



Why is Electricity Hazardous?

- One of the most powerful forces on earth, it can be very useful and beneficial and also very destructive
- The hazards of electricity arise from:
 - Fire ignition
 - Electric shock
 - Arc flash – (not well understood)
 - Arc blast – (not well understood)



Definition of Qualified Person

- NFPA 70 – 2005 *NEC*
- **Qualified Person.** One who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training on the hazards involved.
- FPN: Refer to NFPA 70E-2004, *Standard for Electrical Safety in the Workplace*, for electrical safety training requirements.



Injury Statistics

- An example of electrical injury cost is as follows:
 - \$650,000 initial major medical (five surgeries)
 - \$250,000 for reconstructive surgery
 - \$250,000 for five years of rehabilitation (over 100 visits)
 - The company had an additional \$350,000 of related expenses

Effects of Electricity on Humans

1000 milliamperes or 1 ampere



It doesn't take much current to cause injury or to cause death.

milliamperes

1000

Will light a 100-watt bulb

900

Severe burns

300

Breathing stops

200

100

Heart stops beating

90

60

30

Suffocation possible

20

Muscle contraction

10

Cannot let go

5

GFCI will trip

2

Mild shock

1

Threshold of sensation





Thermal Injuries (Burns)

Degree of the burn:

- 1st degree burn
- 2nd degree burn
- 3rd degree burn

- Curable burns
- Burns that are not curable

