

ZEB BUS SAFETY

ZEB Bus Safety:

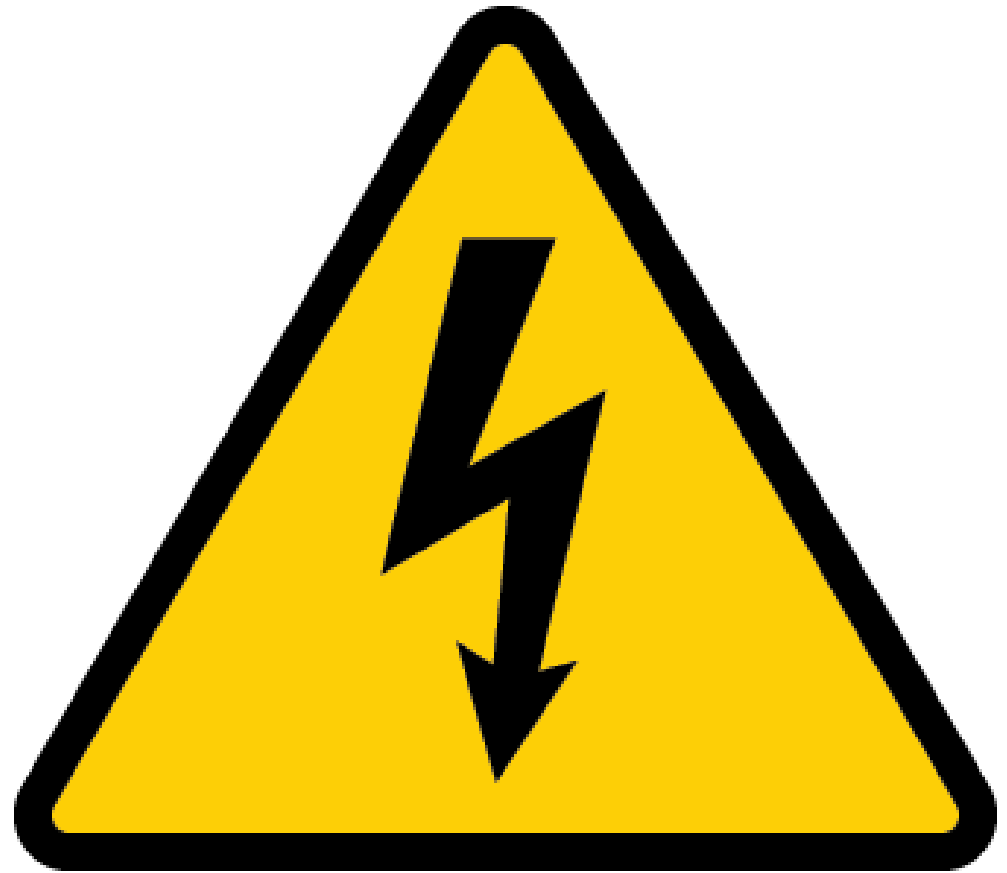
- What is High Voltage
- Effects of Electric Shock
- OSHA and NFPA
- Authorized and Qualified
- Putting It All Together



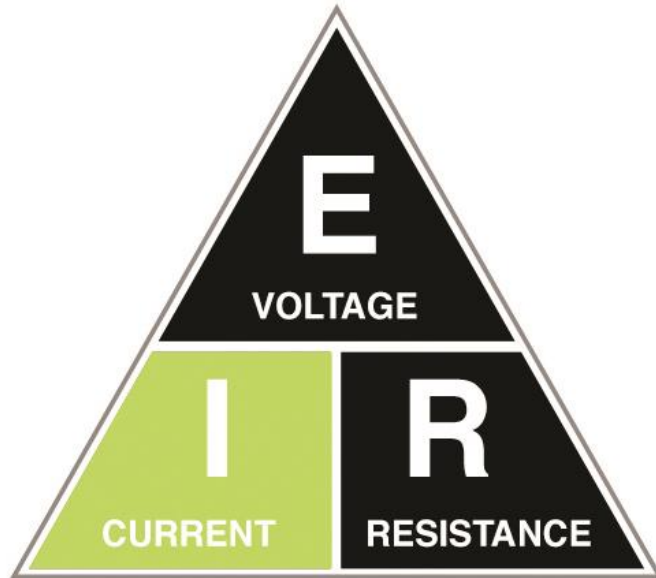
WHAT IS HIGH VOLTAGE

May Differ by Industry:

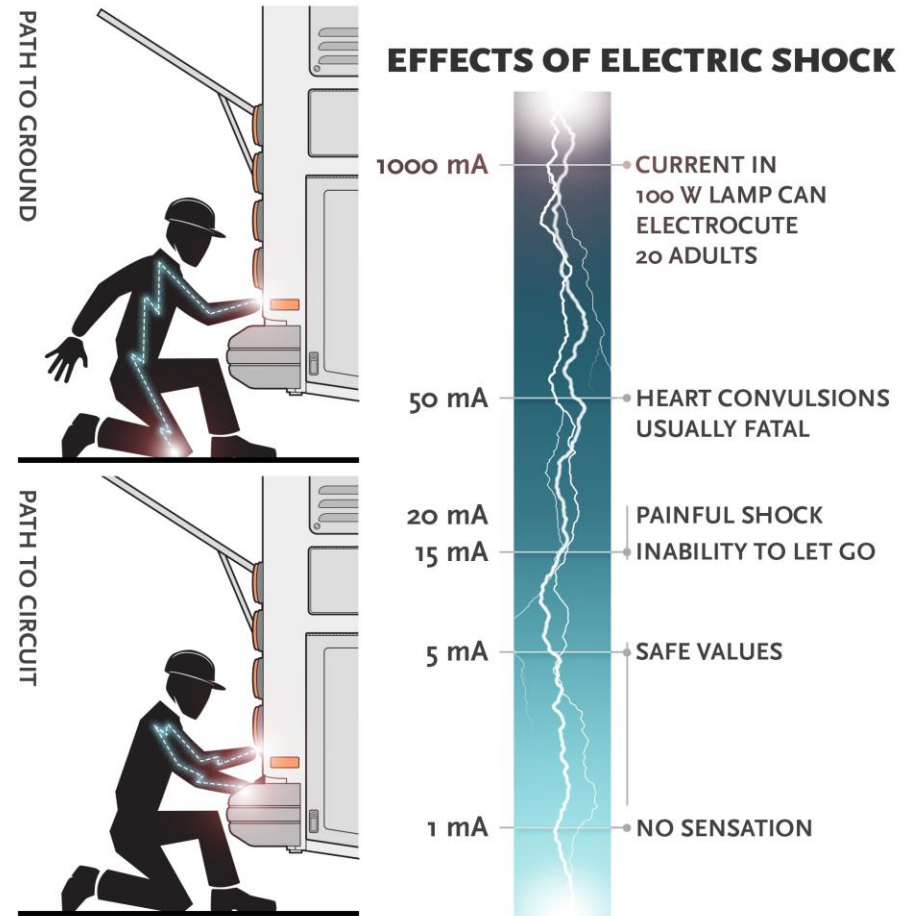
- OSHA – 50V
- Automotive Industry – 30 Vac or 60 Vdc



EFFECTS OF ELECTRIC SHOCK



$$I = E \div R$$



PRINCIPALS FROM OSHA AND NFPA

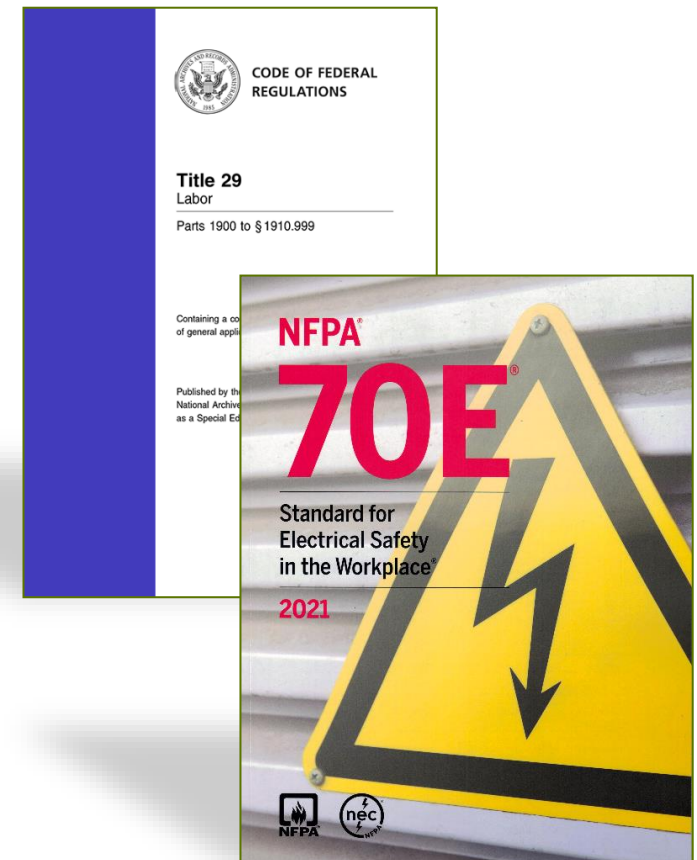
Two agencies assist you to create a safe workplace:

Occupational Safety and Health Administration (OSHA):

- United States regulatory agency
- Ensures safe and healthful work conditions
- Sets and enforces electrical safety standards

National Fire Protection Association (NFPA):

- Focuses on fire safety and loss prevention
- Created the NFPA 70E document at the request of OSHA
- NFPA 70E explains safe work practices to avoid injuries due to electric shock, arc flash, and arc blast



NFPA QUALIFIED

- Article 100 Definitions

One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify the hazards and reduce the associated risk.

- 205.1 Qualified Persons. Employees who perform maintenance on electrical equipment and installations shall be qualified persons as required in Chapter 1 and shall be trained in, and familiar with, the specific maintenance procedures and tests required.

PUTTING IT ALL TOGETHER

- Currently there is no certification program
- Bus OEM's do not qualify your ZEB Technicians – But... are an integral part of the process
- “After complying with regulations and providing employees with training, you have a qualified employee”.