



**COURSE: Electrical Shock and Contact Release Training Overview; 4HRs class time.**

Ref: NFPA 70E-2021 edition "Electrical Safety in the Workplace" OSHA 1910 Subpart S *Electrical*  
OSHA 1910.137 *Personal Protective Equipment*

OSHA 1926 Safety and Health Regulations for Construction Subpart K *Electrical*

**Course Overview:** This course explains the concept of "contact release" as part of the emergency response training. Risk Management within the workplace is addressed along with the methods used to identify those shock '*hazards*' & '*risks*' associated with electrical energy. Risk Assessment processes are reviewed and procedures of '*contact release*' are demonstrated. In addition, updates to the NFPA 70E- 2021 edition are reviewed within the presentation.

Attendees receive a hard copy workbook that follows the presentation and allows room to take notes. The workbook also includes attachments addressing *Approach Boundaries, Shock/Arc-Flash Labels explained, Protective Rubber Equipment and Protective Clothing used, and Electrical Blankets and Matting*. A student group proficiency exam is given at class end and certificates are provided to those students completing the training. The end customer also receives documentation, along with the student roster, for file to meet employer record keeping requirements for employee(s) training as required by OSHA.

I. Review of Electrical Hazards and Electrical Injury Statistics.

- A. Shock, Arc Flash and Arc Blast
- B. Bureau of Labor Statics (BLS) for electrical work injuries of past 25 years

II. Clarifying Energized Work

- A. Operating Electrical Equipment; Diagnostics & Troubleshooting; Repair and Alteration; Energized Isolation Work Tasks
- B. Normal Conditions and Abnormal Conditions

### III. Shock

- A. Exposure to shock; Definition
- B. Touch and Step Potential
- C. Additional Hazards or Increased Risk
  - 1. Interruption of life support equipment
  - 2. Deactivation of emergency alarm systems
  - 3. Shutdown of hazardous location ventilation equipment
- D. Infeasibility
  - 1. Diagnostics and testing that can only be done with the circuit energized
  - 2. Work on circuits that form integral part of a continuous process
- C. Level of current flow through the human body and resulting effects

### IV. Risk Management

- A. Unsafe acts and/or Behaviors
- B. High risk, Low frequency
- C. Low risk, High frequency
- D. At risk behavior: I've done it a 1000 times and have never gotten hurt; It will only take a second; Just get it done
- E. Elements of a risk assessment procedure: Identify the hazard(s); Assess risks; Implement risk control according to the 'hierarchy of risk controls'
- F. Human error

### V. Risk Assessments

- A. Shock: What are the shock hazards; The voltage to which personnel will be exposed; The boundary requirements; Personal and other protective equipment
- B. Arc-Flash: Identify arc flash hazards; Estimate likelihood of occurrence of injury or damage to health & potential severity of injury or damage to health
- C. Equipment design and operating condition
- D. Documentation of risk assessments
- E. Review of approach boundaries
- F. Equipment label layout
- G. Electrical Rubber Glove Class

### VI. Emergency Response & Contact Release

- A. Contact Release: Know location of circuit disconnect
- B. General first aid, emergency response, and resuscitation
- C. Do Not approach or touch a worker in contact with an electrical voltage source
- D. Muscle clamping

E. First responder actions: Wear voltage protective equipment to ensure responder is electrically insulated from worker victim:

1. Rescue hook, Insulated stick, cotton rope harness
2. Rubber blankets or dielectric matting
3. Electrical gloves and leather protectors; Dielectric boots

F. Basics of Electric Rescue

## VII. Summary Contact Release

A. Practical Exercise to demonstrate dislodging a worker from suspected shock condition.

1. Each attendee to recognize those 'hazards' present when a worker is involved in an energized electrical situation

2. Each attendee to use site provided non-conductive dislodging equipment

B. Job Hazard Analysis (JHA) and job briefing prior to 'start work'

C. Contact release kit

D. Each attendee completes a written practical

exam E . Questions and training close out

discussion

