



Content
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Arc Flash Training - Certified Electrical Safety Instruction

Contact us Today for a FREE quotation to deliver this course at your company's location.

<https://www.electricityforum.com/onsite-training-rfq>

COURSE DATES AND TIMES

July 14, 2020

10:00 am - 4:30 pm ET

August 12, 2020

10:00 am - 4:30 pm ET

September 9, 2020

10:00 am - 4:30 pm ET

October 21, 2020

10:00 am - 4:30 pm ET

November 18, 2020

10:00 am - 4:30 pm ET

December 9, 2020

10:00 am - 4:30 pm ET

This 6-Hour Instructor-led, Certified Arc Flash and Shock Training course incorporates recent revisions to the latest Edition of CSA Z462 Arc Flash Electrical Safety in the Workplace Standard. This CSA Z462 Training Course Exceeds Canadian Arc Flash Training Requirements

Arc flash electrical safety in the workplace is both the duty of employers and employees when working on energized electrical equipment. This is mandated in OHS legislation, due diligence clauses, electrical safety programs, the CSA Z462 standard and various other legislation.

This workplace electrical safety training course covers electrical safety and discusses topics relating to the following topics:

- the latest changes to arc flash standards
- arc flash protection requirements and duties
- electrical safety programs, safety related maintenance requirements
- lock out tag out procedures, safety requirements for special equipment
- arc flash boundary determination
- hazard mitigation
- shock protection and arc flash ppe requirements
- arc flash hazard labels.

One workplace electrical incident can cost an organization a huge price in terms of injuries, fines, reputation and workers compensation premiums. Employers and supervisors can face personal liability for an injury in their workplace that could result in fines up to \$1,000,000, four years, or more, in jail, or both.

Many workers may not have received arc flash hazard information in their apprenticeship

training and many organizations do not meet current workplace electrical safety standards. This arc flash training certification course identifies what it means to be a “qualified electrical worker” and organizations should be aware that holding a license as a journey person may not be enough to qualify.

The importance of developing safe work procedures, training workers, identifying hazards, evaluating risks, planning and documenting safe work is covered.

This course provides many benefits of an instructor led course including: electrical safety examples, discussion, demonstrations and hands-on protective personal equipment instruction. This provides much more benefit than watching a video. There is no room for error when working with electrical equipment so why compromise on electrical arc flash safety education?

Note: Employers have the legislated obligation to identify hazards, evaluate the risks, select and implement the appropriate controls. This course helps companies to understand their legal requirements and what due diligence is required to avoid conviction under provincial or federal OHS legislation, or the Criminal Code of Canada.

Learn from our instructor and others in the class

Students will learn real-life examples and have their electrical safety questions answered by a safety professional with years of electrical safety experience in the development and implementation of an arc flash safety program.

Class discussion is encouraged and students also have an opportunity to learn from each other. They will understand the hazards of energized electrical work and how the following Top 5 mistakes workers make can lead to a very serious injury, lost production and/or a fatality.

Top 5 mistakes workers make when it comes to electrical safety.

1. Failure to verify the absence of voltage before beginning work.
2. Failure to identify the arc flash hazard, evaluate the risk of arc flash and implement the appropriate controls.
3. Inappropriate selection and/or use of personal protective equipment.
4. Complacency to low voltage hazards (typically 115 to 250 volts).
5. Failure to develop and communicate an emergency response plan.

Our Arc Flash/Electrical Safety Masterclass course will students avoid these mistakes and help students to recover if they already made these kinds of mistakes.

Top 5 Benefits of Instructor-led Training

1. Learn from an instructor who is trained and knowledgeable regarding electrical safety.
2. Students have the opportunity to ask questions which are answered in class while the thoughts are fresh.
3. Students can enter discussion and get feedback from other attendees with examples of best practices.
4. Real life examples and solutions are used to present the information in a meaningful way which helps students relate to their own workplace experiences.
5. All levels of experience and knowledge are accommodated.

Instructor-led classes have the flexibility to cater to all levels of experience and electrical knowledge. Even non-electrical workers will gain an appreciation for the hazards of electrical work.

How will taking our Arc Flash Training course make you safer in your workplace?

Our instructor-led Arc Flash training course, delivered both in person and on our remote live training online, presents students with information they need to evaluate the arc flash and

shock hazards.

This helps to ensure the safety of themselves and other electrical workers that may be in proximity to energized electrical equipment.

Students will understand the value of a comprehensive risk evaluation, the importance of safe work procedures and pre-job planning.

Workers are given the information and workplace best practices in the course but many times are powerless to use the information because the infrastructure is not in place in their organization. Certification will not change that.

This course covers the analytical process of identifying electrical hazards such as shock and arc flash burns, to determine and communicate the appropriate control methods to be used. We explain why complacency can be deadly when working with circuits energized at 120 volts.

This one-day arc flash training course is designed to assist organizations to identify shock and arc flash hazards and prevent injuries and incidents associated with those hazards.

Note: Students will demonstrate understanding of arc flash hazards and PPE protection by passing a proficiency examination at the end of the course.

WHO SHOULD ATTEND

THIS COURSE IS IDEAL FOR:

- Industrial, Commercial, Institutional Electrical Industry Engineering and Maintenance Personnel
- Electrical personnel who work on or near energized and de-energized electrical equipment
- Electrical Safety Managers and Safety Professionals
- Non-Electrical Personnel working in the vicinity of energized systems, or involved in Lock Out/Tag Out of Motor Control Sections
- Electrical Engineers

- Plant Electricians
- Qualified Electrical Workers
- Instrumentation Mechanics
- Electrical Technicians
- Managers & Safety Professionals

STUDENTS RECEIVE

- 100-Page Electrical Safety Handbook - Value \$20 (details below)
- 0.7 Continuing Education Unit (CEU) Credits
- A **FREE** Magazine Subscription (Value \$25)
- **\$100** Coupon toward any future 2019 Electricity Forum event (restrictions apply)
- Course Presentations in Paper Format
- NOTE: This course DOES NOT INCLUDE A CSA Z462* Standard. Copies of the CSA Z462* Standard must be purchased separately from Canadian Standards Association and brought to the course.
- This course comes with an Arc Flash Training Certificate.

COURSE OUTLINE

Electrical Safe Work Practices Training Course Outline

WORKPLACE SAFETY REQUIREMENTS

- OHS legislation
- Right to refuse unsafe work
- Legal requirements relating to safe work practices

ELECTRICAL HAZARDS

- Electrical Shock
- Effects of current on human beings
- Shock Protection Boundaries
- Approach to Energized electrical conductors or circuit parts operating at 50 Volts or more
- Arc Flash/ Arc Blast
- Elements and characteristics of an Arc Flash Event
- Arc Flash Hazard Analysis
- Arc Flash Protection Boundary for voltages between 50 and 600 Volts

Safety Work Related Practices

- Worker Responsibility
- Employer Responsibility
- Electrical Safety Program
- Host and Contract Employers Responsibilities
- Establishing an electrically safe work condition
- Energized Electrical Work Permit

Safety Maintenance Requirements

- General maintenance requirements
- Substation, switchgear assemblies, switchboards, panelboards, motor control centres and disconnect switches
- Control equipment
- Fuses and circuit breakers
- Rotating equipment
- Hazardous Locations
- Batteries and battery rooms
- Portable electric tools and equipment

- Personal safety and Protective Equipment

Safety Requirements For Special Equipment

- General
- Safety related work practices for electrolytic cells
- Safety requirements related to battery rooms or battery room enclosures
- Safety related work practices for use of lasers
- Safety related work practices for power electronic equipment
- Safety related requirements for research and development laboratories

PREPARING TO WORK SAFELY

- Hazard Risk Analysis/ Task Assessment
- Assessment to Lockout or Work Energized
- Overview of Lockout Fundamentals
- Working Energized defined
- Preparing a Job Briefing and Planning Checklist
- How to plan for an Energized Electrical Work Permit
- Elements of an Energized Electrical Work Permit

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ESTABLISHING AN ELECTRICALLY SAFE WORK CONDITION

The most effective way to prevent electrical injury is to completely remove the source of supply. This section will discuss the methods and process of achieving an electrically safe work condition. Including the following:

Working On or Near De-energized Electrical conductors or Circuit Parts That Have Lockout Devices Applied

Principles of Lockout Tagout Execution

- a. Employee Involvement
- b. Training
- c. Plan
- d. Control of Energy
- e. Identification
- f. Voltage
- g. Coordination

Hazardous Electrical Energy Control Procedures

- a. Individual Qualified Employee Control Procedure
- b. Simple Lockout Tagout Procedure
- c. Complex Lockout Tagout Procedure
- d. Coordination
- e. Training and Retraining

Equipment

- a. Lock Application
- b. Lockout Tagout Device

- c. Lock out Device
- d. Tagout Device
- e. Electrical Circuit Interlocks
- f. Control Devices
- g. Procedures
- h. Planning

DETERMINING SAFE APPROACH DISTANCE

- Determining Safe Approach Distance
- Definitions of Boundaries and Spaces
- Limits of Approach
- Shock Hazard Analysis
- Shock Protection Boundaries
- Limited Approach Boundary
- Restricted Approach Boundary
- Prohibited Approach Boundary
- Hazard Boundary

Shock Hazard Boundaries

- Limits of Approach
- Preparation for Approach
- Qualified Persons, Safe Approach Distance
- Electrical Conductors or Circuit Parts for Shock Protection
- Safe Working Distances from Energized Conductors

BASIC METHOD FOR DETERMINING ARC FLASH HAZARD ASSESSMENT

- Breakdown and characteristics of the 4 Hazard Risk Categories - NEW
- Selection of Personal Protective Equipment for Various Tasks
- Hazard/ Risk Category Classification
- Protective Clothing and Personal Protective Equipment (PPE)
- Protective Clothing Characteristics
- Factors in selection of Protective Clothing and Equipment
- Two Category, Flame Resistant (HRC/ Hazard Risk Category) Clothing System - NEW
- Layering Protective Clothing and Total System Arc Rating
- Arc Rating, Arc Thermal Performance Value (ATPV) and Break-open Threshold Energy (EBT)
- Brief overview of applicable ASTM standards for Protective Clothing and PPE

Safety-related Electrical Maintenance

- Introduction
- Frequency of Maintenance Tests
- Maintaining Electrical Drawings
- Maintenance Standards

Electrical Hazard Labels, Arc Flash and Shock Labelling

General

Canadian Electrical Code Rule 2-306 Shock and Arc Flash Warning Label

Arc Flash Label Example

Detailed Arc Flash Hazard Analysis Label - NEW

NEW ANNEX: Prevention of Shock Injuries from Electrostatic Discharges

Prevention of Shock Injuries from Electrostatic Discharges, describes workplace scenarios, such as high-speed network operations, in which potential for shock injury from electrostatic discharge exists. This Annex identifies methods to prevent, control, and protect personnel from injury.

NEW: DC Safety-related Work Practices

The latest edition of CSA Z462 has considerably more information on safety-related practices relating to work on and around DC systems. A new Shock Protection Boundary Table for DC systems and an arc flash energy calculation method for DC systems have been added. Extensive revisions have been made to deal with safety-related practices for batteries, battery rooms and battery enclosures. Both high value for anyone working on or around DC equipment. This new additional information is essential for working on DC systems.

ARC FLASH SOLUTIONS

- Arc Flash Study Analysis and Implementation
- Power System Upgrades
- Arc Resistant Switchgear
- Circuit Breaker Retrofitting
- Remote Breaker Racking
- Regular Maintenance and Testing
- Arc Rated Power Switchgear
- Light Sensing trip breakers
- GE Arc Vault Protection system

CSA Z462 PPE CLOTHING REQUIREMENTS, Arc Rated CLOTHING TESTING STANDARDS, HOW TO ESTABLISH A PPE PROGRAM IN YOUR COMPANY

- The evolution of Arc Resistant (AR or HRC) fabrics
- Changes in Clothing Requirements in Electrical Work - New
- The various types of HRC fabrics that are available in the marketplace
- HRC fabrics and the effects of undergarments
- Review the technology and effectiveness of inherently flame resistant fibers vs chemically treated fabrics
- Developing a PPE Program in Your Company

- Assessing the correct Arc Flash hazard and choosing the right level of protective clothing
- Company training and worker compliance
- Documentation

TEST

A test to ensure student understanding of the days information

COURSE TIMETABLE

Start: 8:00 a.m.

Coffee Break: 10:00 a.m.

Lunch: 12:00 noon

Restart: 1:15 p.m.

Finish: 4:30 p.m.

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