

DISCOUNT PROGRAM PRICING
Details Page 4

Who Should Attend

Designed for "qualified" electricians, technicians, engineers, supervisors and personnel that work on/near energized equipment in low-, medium- and high-voltage ranges.

ALL NEW CONTENT!



CSA Z462 Arc Flash/Electrical Safety Awareness

Complete Program Details www.electricityforum.com/forums/one-day-csa-z462.html

RICHMOND, BC - January 18, 2010
KAMLOOPS, BC - January 19, 2010
EDMONTON, AB - January 20, 2010

WINNIPEG, MB - January 25, 2010
TORONTO, ON - January 25, 2010
OTTAWA, ON - January 27, 2010

1-day course
\$399

Arc Flash/High Voltage Electrical Safety Training

Complete Program Details www.electricityforum.com/forums/high-voltage-electrical-safety.html

RICHMOND, BC - January 19-20, 2010
EDMONTON, AB - January 21-22, 2010

TORONTO, ON - January 26-27, 2010
OTTAWA, ON - January 28-29, 2010

2-day course
\$599


Combined CSA Z462 Arc Flash Awareness AND Arc Flash/High Voltage Electrical Safety Training

Complete Program Details www.electricityforum.com/forums/electrical-safety-january-2009.html

RICHMOND, BC - January 18-20, 2010
EDMONTON, AB - January 20-22, 2010

TORONTO, ON - January 25-27, 2010
OTTAWA, ON - January 27-29, 2010

3-day course
\$799

 Earn Continuing Education Units (CEUs)

DELEGATES RECEIVE:



- Our latest Electrical Safety and Arc Flash Handbook Volume 6 (Value \$35.00)
- \$100 Coupon Toward any Future 2010 Electricity Forum Event (Restrictions Apply)
- Continuing Education Unit (CEU) Credits
- FREE Magazine Subscription (Value \$50.00)
- Forum Presentations in Paper Format
- Register Three, Get One FREE (Details Page 4)

CORPORATE SPONSORS



PARTICIPATING ORGANIZATIONS



More than 25,000 Satisfied Students

ON-SITE TRAINING
available
"We'll Come To You"
FREE QUOTATION

Details on Page 4

CSA Z462 Arc Flash/Electrical Safety Awareness 1-Day Course

To see complete program content please visit: www.electricityforum.com/forums/one-day-csa-z462.html

FULL DAY CSA Z462 Arc Flash/Electrical Safety Awareness

*Jim Anderson, Electrical Safety Consultant
The Electricity Forum*

*Wes Procyshyn, Electrical Safety Consultant
The Electricity Forum*

Bill Murphy, AGO Industries



**12:00 noon - 1:00 p.m. - Complimentary Lunch -
Sponsored By AGO Industries**

8:00 a.m. - 4:00 p.m.

UNDERSTANDING ELECTRIC POWER SYSTEMS

- Basic Electrical Theory and Definitions
- Electrical Drawings
- Ground Fault Systems
- Time-Current Curves & Power System Studies
- Electrical Arc Characteristics

PREPARING TO WORK SAFELY

- Hazard Risk Analysis/Task Assessment
- Annex F Hazard/Risk Evaluation/Assessment
- Assessment to Lockout or Work Energized
- Overview of Lockout Fundamentals and CSA Z460
- Working Energized defined
- Annex I Job Briefing and Planning Checklist
- Energized Electrical Work Permit Flow Chart Annex J2
- Elements of an Energized Electrical Work Permit and Preparing for Annex J1

ELECTRICAL HAZARDS

- Electrical Shock
- Effects of Current on Human Beings Based on IEC 60479-1
- Shock Hazard Analysis Table 1
- 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

DETERMINING SAFE APPROACH DISTANCE

- Determining Safe Approach Distance
- Definitions of Boundaries and Spaces
- Limits of Approach
- Shock Hazard Analysis
- Shock Protection Boundaries
- Understanding and Applying CSA Z462 Tables
- Limited Approach Boundary
- Restricted Approach Boundary
- Prohibited Approach Boundary
- Hazard Boundary

Bill Murphy, AGO Industries

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

- The Evolution of Flame Resistant (FR) fabrics
- The Various Types of FR Fabrics that are Available in the Marketplace
- The Problems with Off Shore FR Fabrics
- FR 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

SHOCK HAZARD ASSESSMENT (UTILIZING TABLE METHOD IN CSA-Z462)

- Annex C - Limits of Approach
- Preparation for Approach
- Qualified Persons, Safe Approach Distance
- Basis for Distance Values in Table 1 - Approach Boundaries to Energized
- Electrical Conductors or Circuit Parts for Shock Protection
- Specific Distance Columns in Table 1

BASIC METHOD FOR DETERMINING ARC FLASH HAZARD ASSESSMENT

- Breakdown and Characteristics of the 5 Hazard Risk Categories
- Selection of Personal Protective Equipment for Various Tasks
- Table 4 - Hazard/ Risk Category Classification
- Table 5 Protective Clothing and Personal Protective Equipment (PPE)
- Table 6 Protective Clothing Characteristics
- Factors in Selection of Protective Clothing and Equipment
- Annex H Simplified- Two Category, Flame Resistant (FR) Clothing System
- Annex M Layering Protective Clothing and Total System Arc Rating
- Annex N - Arc Rating, Arc Thermal Performance Value (ATPV) and Breakopen Threshold Energy (EBT)
- Brief Overview of Applicable ASTM Standards for Protective Clothing and PPE- Tables 2 and 3

CSA Z462 ANNEX B - SAFETY-RELATED ELECTRICAL MAINTENANCE

- Introduction
- Risk Categories and Maintenance Justification
- Reliability Centered Maintenance (RCM)
- Frequency of Maintenance Tests
- Maintaining Electrical Drawings
- Maintenance Standards

CSA Z462 ANNEX Q - 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

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

ADVANCED CSA Z462 ARC FLASH WORKSHOP SESSIONS

Students will divide into groups and be given the opportunity to complete the following exercises (using CSA Z462):

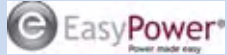
- Exercise #1 - Job Hazard Analysis Checklist as Per Annex
- Exercise #2 - Preparing A Job Briefing and Planning Checklist As Per Annex I
- Exercise #3 - Preparing A Hazard Risk Evaluation As Per CSA Z462 Annex F
- Exercise #4 - Preparing An Energized Electrical Work Permit As Per CSA Z462 Annex J

Arc Flash/High Voltage Electrical Safety 2-Day Course

To see complete program content please visit: www.electricityforum.com/forums/high-voltage-electrical-safety.html

Day 1

John Robin, Electrical Safety Consultant,
The Electricity Forum
8:00 a.m. - 4:00 p.m.



12:00 noon - 1:00 p.m. - Complimentary
Lunch Days 2 & 3 - Sponsored By ESA Inc.

RECOGNIZING HIGH-VOLTAGE ELECTRICAL SAFETY HAZARDS - WHERE DO THEY EXIST?

A detailed review of critical electrical safety hazards created by energized electrical equipment:

- Insulation
- Power Cables
- Power Transformers
- Instrument Transformers
- Dealing With Fault Currents
- Disconnect Switches
- Switchgear
- Circuit Breakers
- Fuses
- Electrical Relays
- Motor Starters
- AC/DC Motors
- Capacitors
- Emergency UPS Systems

RESOLVING HIGH-VOLTAGE ELECTRICAL SAFETY HAZARDS

Objective: Determine the controls used to protect workers from all energy sources created in the work place. Benefits of a safe workplace include fewer injuries, lower worker compensation costs, reduced service interruptions, greater protection of capital investment, and increased uptime. This section will provide you with a detailed blueprint that maximizes electrical safety and all the benefits it generates.

- Management Control
- Legislation
- Electrical Code
- Purchasing Controls
- Engineering Controls
- Training
- Safety Documentation
- Rules
- Safe Work Practices
- Safe Work Procedures
- Codes of Practice
- Operating Procedures
- Permits & Clearances
- Switching Procedures
- Physical Equipment
- Personal Protective Equipment
- Safety Equipment
- Signs and Barriers
- Equipment Protection
- Interlock
- Grounding
- Field Control
- Inspections
- Job Planning
- Pre-job Meeting
- Hazard Identification
- Hazard Reporting
- Work Methods
- Limits of Approach
- Switching Practices

REVIEW: CSA Z462 WORKPLACE ELECTRICAL SAFETY

This is a short review of CSA Z462-08 Workplace Electrical Safety as it relates to high voltage electrical equipment and work practices.

- Limits of approach for electrical shock and flash hazards
- Arc flash parameters
- Determine curable burn distance during a short circuit
- Determine energy released during a short circuit
- Techniques for reducing arc flash energy
- Selection of proper personal protective equipment (PPE)
- Review the three types of electrical hazards: electrocution, arc flash, and arc blast
- Describe conditions required for each to occur
- Describe procedures to reduce these hazards
- Describe the impact of voltage, amperage and time on the level of electrocu-

tion and flash hazard

- Describe fault current available
- Review calculation methods for a supply transformer
- Describe the impact of fault current on the level of electrical hazard

HIGH-VOLTAGE SWITCHING

This section of the course will instruct how to interpret and use a single line diagram to write a switching sequence to safely isolate an electrical device for work. Validate existing operating orders and switching procedures.

Develop and maintain mandated documentation for all electrical equipment isolation and maintenance work.

- Single Line Diagrams
- Using Prints
- Electrical System Drawings
- Safety Documentation
- Isolation
- Lockout/Isolation
- Switching Workshop

Day 2

HIGH-VOLTAGE GROUNDING

Students will learn the dangers of present in poor grounding and how induced currents and ground gradients are produced and how to safely select, install and maintain temporary grounds for protection of the worker.

- Describe potential gradients as they relate to ground faults describe how & where step, touch, mesh, and transferred potentials may appear during a ground fault
- Induced Voltages
- Safe Grounding Procedures
- Grounding and dissipation of residual energy
- Temporary Grounds

JOB PLANNING

Students will learn how to carry out Hazard/Risk Analysis in determining the degree and extent of hazards for performing maintenance tasks on all electrical equipment.

- Necessity of job planning to safely perform task
- Hazard Control Workshop
- Job Planning Worksheet

GENERAL ELECTRICAL SAFETY REQUIREMENTS

- Review of Standards and OH&S Regulations
- HV electrical qualifications
- Poles and structures
- Obstructions on poles
- Properly informing electrical workers
- Working in service rooms
- Space around equipment
- Working with HV test equipment
- Insulated aerial devices

WORKING ON HIGH VOLTAGE ELECTRICAL EQUIPMENT

- Isolation and lockout
- Warning signs

WORKING ON DE-ENERGIZED HIGH VOLTAGE POWER SYSTEMS

- Isolation and lockout
- Person in charge
- Switching sequences
- Isolating devices
- Grounding and blocking
- Working with multiple authorities

WORKING CLOSE TO ENERGIZED HIGH VOLTAGE EQUIPMENT AND CONDUCTORS

- Minimum clearances
- General limits of approach
- Assurance in writing
- Assurance not practicable
- When is a worker specially trained and qualified
- Adjusted limits of approach
- Emergency work procedures
- Authorization by owner to perform work

REGISTRATION

Act Now! Limited Seating! Register Today!

REGISTRATION FEES

The registration fee to attend the one-day Basic Arc Flash course is \$399.00 + \$19.95 GST. The registration fee includes: course documentation, Electrical Safety and Arc Flash Handbook Volume 6, magazine subscription, Electricity Forum \$100 coupon towards any future 2010 Electricity Forum event (Restrictions Apply), refreshments, and lunch.

The registration fee to attend the two-day High Voltage Electrical Safety Training course is \$599.00 + \$29.95 GST. The registration fee includes: course documentation, Electrical Safety and Arc Flash Handbook Volume 6, magazine subscription, Electricity Forum \$100 coupon towards any future 2010 Electricity Forum event (Restrictions Apply), refreshments, and lunch.

The registration fee to attend the three-day Combined CSA Z462 Arc Flash Awareness AND Arc Flash/High Voltage Electrical Safety Training course is \$799.00 + \$39.95 GST. The registration fee includes: course documentation, Electrical Safety and Arc Flash Handbook Volume 6, magazine subscription, Electricity Forum \$100 coupon towards any future 2010 Electricity Forum event (Restrictions Apply), refreshments, and lunch. (GST #R105219976).

Save \$50 ▶

Register and prepay 14 days prior to course date and receive an early bird registration fee of \$349 + taxes for the one-day, \$549 + taxes for the two-day training and \$749 + taxes for the two-day training.



Register 3 Delegates At Full Price, THE 4TH REGISTRATION IS FREE

WHEN AND WHERE

(Please check the dates/location where you want to attend the course)

CSA Z462 Arc Flash/Electrical Safety Awareness Training 1-day Course

- Richmond, BC - January 18, 2010**
Best Western Abercorn Inn, 9260 Bridgeport Road, Tel: 604-270-7576
- Kamloops, BC - January 19, 2010**
Four Points Sheraton Kamloops, 1175 Rogers Way, Tel: 250-374-4144
- Edmonton, AB - January 20, 2010**
Radisson Hotel Edmonton South, 4440 Gateway Blvd., Tel: 780-437-6010
- Winnipeg, MB - January 25, 2010**
Holiday Inn Winnipeg-Airport West, 2520 Portage Ave., Tel: 204-885-4478
- Toronto, ON - January 25, 2010**
Crowne Plaza Toronto Airport Hotel, 33 Carlson Court, Tel: 416-675-1234
- Ottawa, ON - January 27, 2010**
Chimo Hotel, 1199 Joseph Cyr Street, Ottawa, Tel: 613-744-1060

ON-SITE TRAINING AVAILABLE

Why not request a FREE CSA Z462 Arc Flash Training On-Site Training Course quotation directly for our company?? <http://www.electricityforum.com/on-site-training-feedback.htm>

Our on-site training courses are tailored to meet your company's specific requirements and conducted on your own premises for your employees. Save the cost of travel and hotels and save on our regular public enrollment registration fees. Plus, our instructors can work with you in advance to determine the level of electrical training and experience of your employees and the specific applications that you would like covered. Electrical on-site training courses are best because they are delivered using the equipment your electrical technicians use every day. This maximizes the educational value of your electrical training investment. For more information, contact: Randy Hurst, President, The Electricity Forum randy@electricityforum.com

Ways to register



PHONE : (905) 686-1040



FAX: (905) 686-1078



MAIL:
The Canadian Electricity Forum
Unit 215, 1885 Clements Rd.
Pickering, ON L1W 3V4



ON-LINE:

- www.electricityforum.com/forums/one-day-csa-z462.html
- www.electricityforum.com/forums/high-voltage-electrical-safety.html
- www.electricityforum.com/forums/electrical-safety-january-2009.html

High Voltage Electrical Safety Training 2-day Course

- Richmond, BC - January 19-20, 2010**
Best Western Abercorn Inn, 9260 Bridgeport Road, Tel: 604-270-7576
- Edmonton, AB - January 21-22, 2010**
Radisson Hotel Edmonton South, 4440 Gateway Blvd., Tel: 780-437-6010
- Toronto, ON - January 26-27, 2010**
Crowne Plaza Toronto Airport Hotel, 33 Carlson Court, Tel: 416-675-1234
- Ottawa, ON - January 28-29, 2010**
Chimo Hotel, 1199 Joseph Cyr Street, Ottawa, Tel: 613-744-1060

Combined CSA Z462 Arc Flash Awareness AND Arc Flash/High Voltage Electrical Safety Training 3-day Course

- Richmond, BC - January 18-20, 2010**
Best Western Abercorn Inn, 9260 Bridgeport Road, Tel: 604-270-7576
- Edmonton, AB - January 20-22, 2010**
Radisson Hotel Edmonton South, 4440 Gateway Blvd., Tel: 780-437-6010
- Toronto, ON - January 25-27, 2010**
Crowne Plaza Toronto Airport Hotel, 33 Carlson Court, Tel: 416-675-1234
- Ottawa, ON - January 27-29, 2010**
Chimo Hotel, 1199 Joseph Cyr Street, Ottawa, Tel: 613-744-1060

To receive registration fee discounts, you must **REGISTER AND PREPAY** prior to the course date.

ATTENDEE INFORMATION	METHOD OF PAYMENT
Name _____	<input type="checkbox"/> Bill my credit card:
Title _____	<input type="checkbox"/> AMEX <input type="checkbox"/> VISA <input type="checkbox"/> MasterCard
Company _____	Card # _____
Address _____	Exp. Date _____
City _____ Province _____ Postal Code _____	Signature _____
E-mail _____	Card Holder name _____
Tel: () _____ Fax: () _____	(if not registrant)

CANCELLATION AND REFUND POLICY: Registration fees are refundable only upon receipt of written notification 10 days prior to the conference date, less a 10 per cent service charge. Substitution of participants is permissible up to and including the day of the forum. The Canadian Electricity Forum reserves the right to cancel any conference it deems necessary and will, in such event, make a full refund of the registration fees.