

# NFPA 70e / CSA Z462

## 1-Day Arc Flash Awareness Tutorial

To see the extended course outline please visit:  
[http://www.electricityforum.com/forums/arc\\_flash.html](http://www.electricityforum.com/forums/arc_flash.html)

January 14, 2008 Yellowknife, NT	January 21, 2008 Thunder Bay, ON
January 15, 2008 Fort McMurray, AB	January 22, 2008 Sudbury, ON
January 16, 2008 Kamloops, BC	January 23, 2008 Windsor, ON
January 17, 2008 Regina, SK	January 24, 2008 Halifax, NS
January 18, 2008 Brandon, MB	January 25, 2008 St. John's, NL

Our 2008 Training NFPA 70e Arc Flash Awareness tutorials will focus on the existing NFPA 70e Arc Flash Standard as well as the development and introduction of Canadian Standards Association's upcoming "CSA Z462" and legislation that will be released in 2008.

This One-Day Awareness Course will also present an in-depth review of the development of CSA's Z462 Arc Flash standard. CSA Z462 is now being developed by a Canadian technical committee of Arc Flash and Electrical Safety experts that are writing a standard that will act as the Canadian version of NFPA 70e.

*Wes Procyshyn, Electrical Safety Consultant  
The Electricity Forum  
8:00 a.m. - 3:00 p.m.*

### ELECTRICAL HAZARDS

- Five Main Factors in Electrical Accidents

### EXISTING AND PROPOSED STANDARDS

- NFPA 70E-2004
- CSA Z462 "Update"
- IEEE 1584-2002

### PREPARING TO WORK SAFELY

- Detailed Description of a "Job Briefing"
- How to Prepare an "Energized Work Permit" as per NFPA 70E

### 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 NFPA 70E Tables

### DETERMINING ARC HAZARD RISK CATEGORY

- Using NFPA 70E Tables

### FAULT CURRENT CALCULATIONS

- Power System Short Circuits
- Bolted Faults
- Calculating Prospective Short-Circuit Current

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



### DETERMINATION OF ARCING FAULT CLEARING TIME

- Time Current Curves
- Coordination Studies

### BOUNDARY CALCULATIONS

- Detailed Examples and Exercises

### DETERMINING ARC FLASH HAZARD RISK CATEGORY

- Detailed Examples and Exercises
- Simplified Table Approach
- Matrix Table Approach
- Single Line Diagram
- Short Circuit Study report
- Coordination Study Report

### INCIDENT ENERGY EXPOSURE CALCULATIONS

- NFPA 70E Calculation Method
- IEEE 1584 Method
- Demonstration of Various Software Packages

*Bill Murphy, AGO*

*3:00 p.m. - 4:00 p.m. (approx)*

### NFPA 70E 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

### INCIDENT ENERGY EXPOSURE CALCULATIONS

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

### NOTE ABOUT COMMERCIAL CONTENT

Don't be fooled by other training experiences available in the marketplace presented by manufacturers and service companies, where electrical safety information sessions are really intended to sell equipment and services. The Electricity Forum strives to present technical non-commercial training that benefits the student - all you receive is credible, commercially-unbiased education. The Electricity Forum does not endorse or promote any company's products or services. We respect that your time and money are invested in your education.

# NFPA 70e/CSA Z462

## 2 Day - Arc Flash/Electrical Safety Forum

To see the extended course outline please visit:

<http://www.electricityforum.com/forums/advanced-electrical-safety.html>

January 21-22, 2008 Toronto, ON

January 29-30, 2008 Calgary, AB

January 23-24, 2008 Ottawa, ON

January 31-Feb 1, 2008 Vancouver, BC

January 28-29, 2008 Edmonton, AB

### Are You Ready For CSA Z462??

This 2-Day Arc Flash Training course is best suited for those individuals who want a more in-depth look at NFPA 70e, an in-depth look at how to perform arc flash calculations and an in-depth review of the development of CSA Z462 - the scope of the standard, what the CSA committee has accomplished to date and a forecast of what it will look like when completed later this year.


#### Day 1

7:15 a.m. - 8:00 a.m. - Complimentary Continental Breakfast - Sponsored By ESA Inc. 

Len Cicero, Lenco Electrical Training Services (Toronto, Ottawa)  
David Windley, Wintek Engineering (Edmonton, Calgary, Vancouver)  
8:00 a.m. - 3:00 p.m.

(See Page Left For Expanded Day One Tutorial Content)

- ELECTRICAL HAZARDS
- EXISTING AND PROPOSED STANDARDS
- PREPARING TO WORK SAFELY
- DETERMINING SAFE APPROACH DISTANCE
- DETERMINING ARC HAZARD RISK CATEGORY
- FAULT CURRENT CALCULATIONS

12:00 noon - 1:00 p.m. - Complimentary Lunch - Sponsored By Dupont Canada 

Normex:

- DETERMINATION OF ARCING FAULT CLEARING TIME
- BOUNDARY CALCULATIONS
- DETERMINING ARC FLASH HAZARD RISK CATEGORY
- INCIDENT ENERGY EXPOSURE CALCULATIONS

Carolyn Black, Dupont Canada  
Committee Member, CSA Z462 Technical Committee  
3:00 p.m. - 4:00 p.m. (approx)

#### CSA Z462: WORKING TOWARD A CANADIAN ARC FLASH STANDARD

CSA-Z462, Canada's very own "Arc Flash Standard," is being developed in parallel with the 2009 Edition of NFPA 70E for Canadian workplaces and will be released later this year. This presentation will cover the mandate of the CSA committee developing this standard, the scope of work being done, and what the standard will contain.

4:00 p.m. - 5:00 p.m. - Complimentary Hospitality Reception - Sponsored By Flir Systems Canada 

#### Day 2

David Windley, Wintek Engineering  
8:00 a.m. - 10:00 a.m.

#### WORKING WITH ARC FLASH CALCULATIONS TO REDUCE ARC FLASH HAZARDS

This presentation is designed to outline the necessary steps and information required for calculation of incident energy levels, safe approach boundaries, and selection of the correct PPE for access to energized electrical equipment. The instructor will utilize manual, tabular, and software methods using practical examples in demonstrating the above.

James Fraser (Toronto) and Kurt Budau (Ottawa), Ontario Electrical Safety Authority

Dan Niven, Electrical Safety Services, Government of Alberta  
Lew Rogers and Stephen Hinde, BC Electrical Safety Authority  
10:00 a.m. - 11:00 a.m.


#### PROVINCIAL ELECTRICAL SAFETY REGULATIONS & INDUSTRIAL FACILITIES

In each forum location, a representative of the provincial electrical safety authority will make a presentation on that province's electrical safety code and how it applies to industrial, commercial and institutional facilities.

Andy Kerr, Electrical & Utilities Safety Association  
11:00 a.m. - 12:00 p.m.

#### ELECTRICAL SAFETY PROGRAM AUDITING (TORONTO AND OTTAWA)

Would your company's electrical safety program withstand an audit? This presentation will explain what comprises an electrical safety audit and how companies can make certain their program is up to date, compliant and "safe".

12:00 noon - 1:00 p.m. - Complimentary Lunch - Sponsored By Salisbury 

Bill Murphy, AGO Industries  
1:00 p.m. - 2:00 p.m.

#### NFPA 70E 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
- Kinectrics Laboratories video presentation of arc flash garment testing
- Review of garment labelling standards

#### 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

Greg Bork, Flir Systems Canada  
2:00 p.m. - 3:00 p.m.

#### INFRARED THERMOGRAPHY AND ELECTRICAL SAFETY

Infrared thermography testing has emerged as a powerful, versatile, and highly accurate diagnostic tool for uncovering a wide range of problems in electrical systems. It also has important Arc Flash prevention applications, which will be demonstrated.

Bob Corcoran, Utilities Sales Manager, Canada, Salisbury Inc.  
2:00 p.m. - 3:00 p.m.

#### ELECTRICAL SAFETY PROTECTIVE EQUIPMENT STANDARDS, INSPECTION AND USE

ASTM, OSHA, NFPA Regulations and standards regarding the specification use and care of:

- Proper use, inspections & tests of various PPE
- Rubber insulating gloves standards, testing procedures, care and usage
- Electrical insulating equipment
- Arc Flash protection equipment
- Insulated/insulating hand tools
- Proper selection and care of insulated equipment

4:30 p.m. (approx.) - ADJOURNMENT