

# ELIMINATE & REDUCE EMPLOYEES' RISK OF EXPOSURE TO LOW VOLTAGE ARC FLASH & SHOCK HAZARDS



**TW BECKER**  
ELECTRICAL SAFETY CONSULTING

## 1 DAY LOW VOLTAGE ARC FLASH & SHOCK TRAINING COURSE

This 1 Day Low Voltage ( $\leq 1000V$ ) Arc Flash & Shock Training Course is unlike others because of the in-depth and interactive discussions students have with their instructor - Terry Becker, P.Eng., CEM, IEEE Senior Member.

It is these conversations and engaging exercises that ensure participants gain a solid understanding of the material, feel confident on the job site and go on to become electrical safety mentors within your workplace.

The course is based on the requirements of the CSA Z462 Workplace Electrical Safety Standard. Attendees will receive appropriate knowledge to identify when they may be exposed to the electrical hazards of arc flash and/or shock and the actions they can take to eliminate exposure or reduce risk to as low as reasonably practicable.

This training course is compliant and defensible as due diligence to OH&S regulations.

## INQUIRE & REGISTER NOW

[TRAINING@TWBESC.CA](mailto:TRAINING@TWBESC.CA)

1-587-433-3777

Compliant 8-hour training session

Training certificates issued upon successful completion of final exam (70% required)

Training valid for 3 years from date of certification

Customized course content available upon request

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## MODULE 1 - INTRODUCTION

Includes: History; Evolution in Canada, Arc Flash & Shock Equipment Labels; Electrical Incident Statistics; Electrical Equipment; Work Task Based; Risk Assessment; Myths & Miss Information; Energized Electrical Job Planning Work Flow

## MODULE 2 - OH&S REGULATIONS & ELECTRICAL SAFETY-RELATED STANDARDS

Includes: OH&S Act, Code & Regulations; Application of Standards to Arc Flash & Shock Hazard Management; CE Code Part I; CSA Z462 Workplace Electrical Safety Standard; CSA Z460 Control of Hazardous Energy – Lockout & Other; CSA Z463 Maintenance of Electrical Systems; CSA Z1000 Occupational Health & Safety Management; CSA Z1002 Occupational Health and Safety – Hazard Identification, Elimination, Risk Assessment & Risk Control; Electrical Safety Trifecta

## MODULE 3 - ELECTRICAL HAZARD IDENTIFICATION & RISK ASSESSMENT

Includes: Energized Electrical Job Planning Work Flow; CSA Z462 Clause 3 Definitions; Electrical Job Assigned; Discrete Energized Work Tasks Identified; Electrical Hazard Identification, Shock & Electrocutation; Arc Flash, Arc Blast; Introduction to Risk Assessment; Hierarchy of Risk Control Methods; Exercise

## MODULE 4 - CSA Z462 CLAUSE 4 SAFETY RELATED WORK PRACTICES & CLAUSE 4.1 GENERAL REQUIREMENTS FOR ELECTRICAL SAFETY RELATED WORK PRACTICES & PROCEDURES

Includes: Energized Electrical Job Planning Work Flow; General Requirements; Electrical Safety Program; Risk Assessment Procedure; hierarchy or Risk Control Methods; Job Safety Planning; Job Planning & Job Briefing Checklist; Qualified Person & Unqualified Person; Training Requirements; Host & Contractor Requirements; Test Instruments & Test Equipment; Portable Cord-&-Plug-Connected Electrical Equipment; GFCLs

## MODULE 5 - CSA Z462 CLAUSE 4.2 ESTABLISHING AN ELECTRICALLY SAFE WORK CONDITION

Includes: Lockout Program; General; Electrical Drawing Examples e.g. Single Line Diagrams; Simple Lockout; Group Lockout; Complex Group Lockout; Process for Establishing and Verifying an Electrically Safe Work Condition

## MODULE 6 - CSA Z462 CLAUSE 4.3 WORK INVOLVING ELECTRICAL HAZARDS

Includes: General; Justification For Energized Electrical Work; Normal Operating Condition; Energized Electrical Work Permit (EEWP); Shock Risk Assessment & Additional Protective Measures; Arc Flash Risk Assessment & Additional Protective Measures; Other Precautions for Personal Activities; Personal Protective Equipment

## MODULE 7 - ELECTRICAL SPECIFIC PPE, TOOLS & EQUIPMENT

Includes: Specification; Procurement; Inventory Management; Issued "Individually or Shared"; Selection; Performance; Management Care, Use & Maintenance; Pre-Use Inspection & Checks; Frequency of Testing

## MODULE 8 - SUMMARY & CONCLUSION

Includes: Review Of Materials Covered; Group Discussion & Any Final Questions; Course Feedback Sheet; Final Exam

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# BUILD YOUR CULTURE GIVE THEM CONFIDENCE

- ✓ BE AWARE OF MINIMUM REQUIREMENTS OF OH&S ACT, CODES & REGULATIONS & INDUSTRY STANDARDS RELATED TO ARC FLASH & SHOCK
- ✓ IDENTIFY WHEN A WORKER IS EXPOSED TO ARC FLASH & SHOCK HAZARDS
- ✓ DEFINE THE DIFFERENCE BETWEEN OPERATING ENERGIZED ELECTRICAL EQUIPMENT AND WORKING ON IT
- ✓ GAIN FAMILIARITY WITH RISK ASSESSMENT PROCEDURES
- ✓ KNOW HOW TO APPLY THE HIERARCHY OR RISK CONTROL METHODS TO REDUCE RISK
- ✓ LEARN HOW TO ESTABLISH AN ELECTRICALLY SAFE WORK CONDITION
- ✓ UNDERSTAND THE JUSTIFICATION FOR ENERGIZED ELECTRICAL WORK TASKS
- ✓ KNOW WHEN AN ENERGIZED ELECTRICAL WORK PERMIT (EEWP) IS REQUIRED
- ✓ UNDERSTAND HOW TO COMPLETE A SHOCK & ARC FLASH RISK ASSESSMENT FOR A DISCRETE ENERGIZED ELECTRICAL WORK TASK
- ✓ DRAFT AN ELECTRICAL SAFE WORK PROCEDURE FOR AN ELECTRICAL JOB
- ✓ TRAINING ON SPECIFICATION, SELECTION, CARE, USE AND MAINTENANCE OF ARC FLASH & SHOCK PPE, TOOLS & EQUIPMENT

**Terry Becker**, P.Eng., CEM, IEEE Senior Member, is the Electrical Safety Subject Matter Expert who developed this training course and delivers it. Terry has over 28 years of experience as an Electrical Engineer, with 12 years specifically devoted to electrical safety. Terry is the First Past Vice-Chair of the CSA Z462 Workplace electrical safety Standard, a founding Voting Member from 2006. Terry is also a founding member and Voting Member of the CSA Z463 Maintenance of electrical systems Standard. Terry is a Voting Member on the IEEE 1584 Guide for Performing Arc-Flash Hazard Calculations Technical Committee. Terry has provided electrical safety consulting and arc flash and shock training across Canada in all industry sectors. Terry has presented at industry conferences and workshops on electrical safety across Canada, in the USA, Australia and India.

Terry created ESPS Electrical Safety Program Solutions Inc. in 2007 where he pioneered electrical safety consulting and arc flash and shock training both instructor led and e-Learning. Terry's company *TW Becker Electrical Safety Consulting Inc.* provides Electrical Safety Program development, Electrical Safety Program Training, Electrical Hazard Risk Assessments/External Electrical Safety Audits, and 1 Day Low Voltage and 2 Day Low & High Voltage Arc Flash & Shock Training.



## IDEAL TRAINING FOR:

**Journeyman Electricians  
Instrumentation Technicians  
Overhead Door & Crane Mechanics  
Elevator Mechanics  
Fire Alarm Technicians  
Power Engineers  
Cathodic Protection Technicians  
Electrical Engineers  
Electrical Technologists  
Safety Professionals  
Managers  
Supervisors**



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