FREQUENTLY ASKED QUESTIONS

Q: My employees have all had training. How does this program help me?

A: Implementing the requirements of NFPA 70E is more than just providing arc flash & shock training to your Qualified Electrical Workers and Task Qualified Workers. Moving the knowledge gained from the training to field application requires an Electrical Safety Program to be developed and implemented. Without documented policies, practices, and procedural requirements the knowledge gained will not be applied in the field and the money invested will be wasted.

Q: Why should I invest in my Electrical Safety Program?

A: OSHA studies and published information estimates a $4 return for every dollar invested in safety programs. A well-defined Electrical Safety Program will greatly help facilities to either avoid or minimize incidents while enhancing worker productivity and safety at scale.

Q: Why do I need and an Electrical Program Safety Manager?

A: An Electrical Safety Program Manager will act as a single point of ownership for development, implementation and maintenance of the ESP. This individual will have complete visibility to all aspects of the Electrical Safety Program from its inception to implementation, including revisions and regular updates. Further, this role will work closely with the facility's OHS/EHS manager to integrate the program within your overall occupational health & safety management system.

Q: How long does implementing an Electrical Safety Program through the Expert Network take?

A: It would take anywhere between 3 - 6 months based on the size of the company, existing policies, practices, procedural requirements, complexity, number of workers involved, and type of electrical equipment used and its condition. Additionally, a successful program implementation requires full support from the organizational leadership and stakeholders involved.

Q: We have never had any problems or been fined by OSHA. How would we know whether or not we are complying?

A: Not having problems with your current practices, and not being fined by OSHA in the past doesn't mean that you are in compliance. An audit by a third-party consultant will help you to evaluate your current practices and procedures and identify gaps in performance and training.

Q: Our facility has unique needs when it comes to an Electrical Safety Program. Is this a one-size-fits all solution?

A: The Expert Network Electrical Safety Program is provided as a licensed templated document package that is fully customizable to your company's specific requirements. This would include integration with your overall occupational health and safety management system. A defined Energized Electrical Job Work Flow is reviewed and customized to align with your overall CMMS process and overall OHSMS requirements (e.g. completion of a Field Level Hazard Assessment (FLHA)).

Q: How do I know when there are changes to NFPA 70E?

A: NFPA 70E is revised and updated at three-year intervals. 70E is currently in its 2021 edition. As a subscriber to the Electrical Safety Program by our Expert Network, you will get notified on the updates and your licence can be upgraded for a nominal fee at the renewal.

Q: Other than consulting and training, what else can the Expert Network Program offer?

A: We will be able to help you with any unique challenges that you face with regards to your Electrical Safety Program, questions on regulatory and compliance, and networking opportunities with equipment manufacturers and suppliers in electrical safety, maintenance, and reliability.

Q: What are the benefits of going beyond OSHA compliance in our Electrical Safety Program?

A: Increased productivity, reduced incidents, greater employee morale, and more effective managemnet of costs.

FOR MORE INFORMATION VISIT GRACEPORT.COM OR CALL 1.800.280.9517

GRACE ENGINEERED PRODUCTS, INC

GT-EXN-DS-EN 2301

GRACE TECHNOLOGIES

EXPERT NETWORK

Develop and implement an Electrical Safety Program that will save lives, ensure confidence and consistency across your enterprise.

BRING CLARITY. INSTILL CONFIDENCE.

ELECTRICAL SAFETY PROGRAM HIGHLIGHTS:

- Provide necessary tools and resources to develop and implement a compliant and fully defendable Electrical Safety Program
- Reduce regulatory risks and manage liability to instill employee confidence and safeguard your company's reputation
- Create scalable efficiencies and ensure sustainable and measurable results to enhance productivity, maximize safety, and minimize risks
- Develop and tailor an Electrical Safety Program aligned with your organization's overall Occupational Health and Safety Management System.

FOR MORE INFORMATION VISIT GRACEPORT.COM OR CALL 1.800.280.9517

OVERVIEW

As a leader in driving workplace productivity and safety through our innovative products and solutions for over two and half decades, Grace Technologies is venturing into the provision of an expert consulting practice in the space of electrical safety, maintenance, and reliability. Through our Expert Network, Grace can provide consulting services, products, resources, training, and guidance to your safety and maintenance teams to either enhance your current safety and maintenance programs, or to bring your program to compliance, as mandated by the regulations, codes, and standards.

Our team of renowned consultants and subject matter experts with extensive industry experience will be handpicked and matched to suit your unique needs. The team of consultants will work with you from the initial discovery process through Electrical Safety Program development and implementation. We will work with your electrical safety committee, and other stakeholders (e.g: HSE, Electrical Maintenance, engineering, and operations) through a defined project execution plan.

Implementing a **safety & health program** can help employers **avoid indirect costs** that result from **workplace incidents** such as:

Time Lost due to work stoppages and investigations

Training and other costs associated with replacing injured workers

Loss or Damage to material, machinery, and property

These indirect costs have been estimated to be at least **2.7x the direct costs**

THE PROCESS

Discovery

Our Expert Network Consultants will meet with you initially to evaluate your existing electrical safety documentation, policies, practices and procedures, and the hierarchy of risk control methods you may have implemented. This initial discussion will generate a gap analysis based on NFPA 70E/CSA Z462 standards and proposed next steps.

Tailored Plan Created by Our Experts

Grace Technologies will offer a well-defined and licensed Electrical Safety Program that includes a robust framework, associated appendices, forms, flow charts, checklists, infographics, and an electrical hazard risk assessment matrix/risk register table as templated documentation. This Electrical Safety Program will be provided as a licensed product that is in alignment with occupational health and safety management system standards such as OSHA's OHSMS/VPP, ISO 45001, ANSI Z10, CSA Z45001, and Canadian Certificate or Recognition (COR) requirements.

Implementation & Training

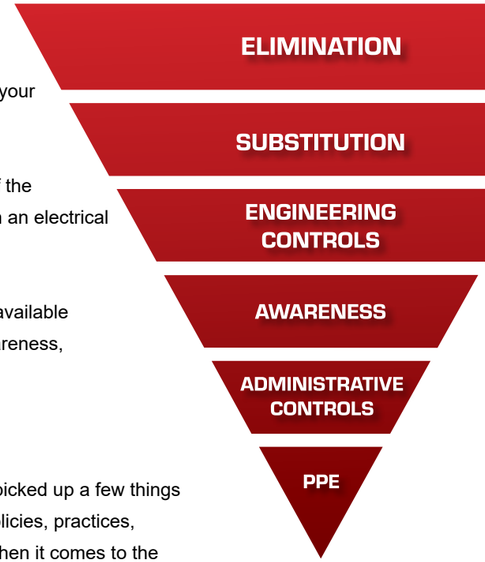
After management approval, your company will transition the Electric Safety Program into field application by implementing the Energized Electrical Job Work Flow. Our Expert Network can provide Electrical Safety Program Orientation Roll Out Training and additional consulting support. We can also provide generic NFPA 70E or CSA Z462 Arc Flash & Shock Training.

OUR SAFETY-BY-DESIGN PHILOSOPHY

Electrical safety-by-design goes beyond legislation and compliance. An environment that is highly productive and efficient is a culture where employees are safe, secure, and confident. Our Expert Network team of consultants will work with you to expand your knowledge and expertise in electrical safety.

By ensuring workers apply the arc flash and shock training through the application of the Electrical Safety Program at the workplace, you will enhance productivity to establish an electrical safety culture based on worker confidence and competence at its core.

A compliant Electrical Safety Program is offered that considers the application of all available hierarchy or risk control methods: eliminating, substituting, engineering controls, awareness, administrative controls, and Personal Protective Equipment in the order presented.



WHY CONSIDER GRACE TECHNOLOGIES?

With decades of experience and leadership in the electrical safety sphere, we have picked up a few things and made a few friends along the way. What we found is a huge gap between the policies, practices, and procedures implemented by our clients. A reoccurring theme we discovered is when it comes to the implementation of safety and maintenance management systems, the end goal is simply compliance.

However, we have also found that many companies do not have any policies in place, or when they do, they are out of date and no longer compliant. This got us talking with electrical safety experts we have known for years. There are so many people out there just flying under the radar, thinking they are in compliance with regulations when there are actually gaps in their current program. With the Expert Network, we have assembled a team of licensed electrical safety experts who will help you implement an Electrical Safety Program that you will have complete confidence in.

ADDITIONAL SERVICES OFFERED

- External Electrical Safety Audit
- NFPA 70E & CSA Z462 Arc Flash and Shock Training
- Implementation Consulting Support
- Formal Electrical Safety Program Gap Analysis
- Internal Electrical Safety Audit Training
- Arc Flash and Shock PPE Assessment
- Arc Flash Hazard Incident Energy Analysis (IEEE 1584)
- Electrical Equipment Maintenance Consulting

FOR MORE INFORMATION VISIT GRACEPORT.COM OR CALL 1.800.280.9517

© Grace Technologies All rights reserved. Specifications are subject to change with/without notice.

GRACE TECHNOLOGIES

CONSULTING PACKAGES

Bronze

- Simplified Project Execution Plan (PEP) process. Do not use the formal PEP document and project Phases (1 to 4).
- No formal Electrical Safety Committee constituted, work one on one with client Project Manager/Electrical Safety Program Manager with more self-directed development.

Silver

- Use Project Execution Plan process.
- Simplify delivery as best possible, minimize contact hours with client during formal meetings.
- Electrical Safety Committee is constituted, and meetings are held, facilitated by the Grace Expert Network Electrical Safety Specialist.
- Follow all project Phases, 1 to 4.
- Plan for six (6), 2-hour formal meetings.
- Maximize contact hours with the client in-between formal Electrical Safety Committee meetings.

Gold

- Full scope Project Execution Plan process.
- Detailed gap analysis completed.
- Follow all project Phases, 1 to 4.
- Electrical Safety Committee constituted, and formal meetings held.
- Plan for eight (8), 2-hour formal meetings.
- Maximize contact hours with the client in-between formal Electrical Safety Committee meetings.

BRING CLARITY TO ENERGIZED ELECTRICAL WORK THROUGH

RISK ASSESSMENT PROCEDURE

- ! We need to Establish An Electrically Safe Work Condition.
- ! Arc flash & shock PPE is required when…
- ! We need an energized electrical work permit because…
- ! This work task could cause a second degree burn because…
- ! That's actually a myth! I'm safe to perform this because…

WHAT IS

HUMAN PERFORMANCE?

A worker's ability to manage factors that may interfere with the effectiveness of risk controls.

- ! Workplace Culture
- ! Mental Health Issues & Concerns
- ! Distractions
- ! Information Overload
- ! Training & Competency
- ! Errors, Mistakes & Lapses
- ! Complacency
- ! Time Pressure
- ! Violations

LICENSING OPTIONS

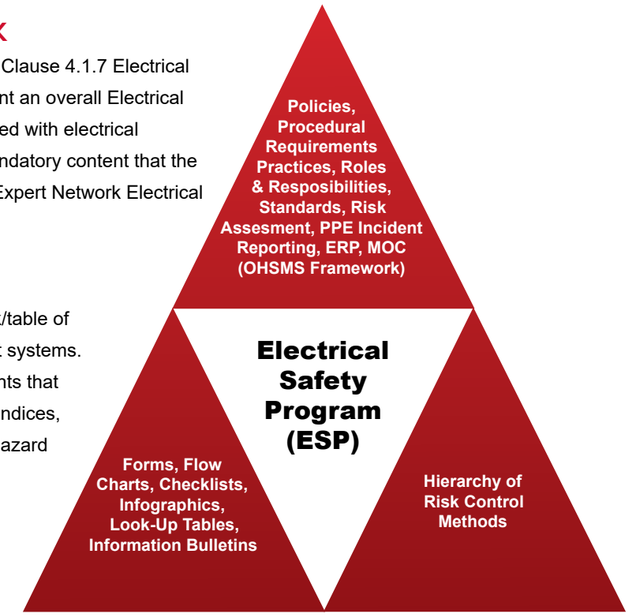
Small	Less than 20 workers protected in a single facility.
Medium	21 - 50 Workers protected. Single or multiple facilities.
Large	51 or Greater workers protected. Enterprise wide, multiple facilities, divisions. Large scale industrial, commercial, or institutional client.

ELECTRICAL SAFETY PROGRAM FRAMEWORK

NFPA 70E, Article 110.5 Electrical Safety Program and CSA Z462, Clause 4.1.7 Electrical Safety Program require than an employer "implement and document an overall Electrical Safety Program that directs activity appropriate to the risk associated with electrical hazards." Both NFPA 70E and CSA Z462 then provide a list of mandatory content that the Electrical Safety Program shall include. The Grace Technologies Expert Network Electrical Safety Program is compliant to the requirements outlined.

What Will You Receive?

The licensed Electrical Safety Program is built around a framework/table of contents consistent with occupational health & safety management systems. You will receive a file set of MS Word, MS Excel and PDF documents that comprise the Electrical Safety Program (e.g. main document, appendices, forms, flow charts, checklist, infographics, and a 3 X 3 Electrical Hazard Risk Assessment matrix with completed risk register table.



EVALUATING YOUR RISK LEVEL

	Potential Severity of Injury or Damage to Health			Likelihood of Occurence		
Residual Risk Level	Shock	Arc Flash	Severity	L1	L2	L3
HIGH - Risk Unacceptable. STOP! Additional rist controls need to be applied to reduce risk. Review required. Fatal injury.	Electrocution	3rd Degree/ 4th Degree burn injury. Fatality.	S3	High	High	High
MEDIUM - Risk is acceptebale, repairable injury, ensure all required rist controls are implemented in the field	Pain, Muscle Cntraction, Breathing Difficulty, Heart Fibrillation	50% Probability of 2nd Degree burn injury. Repairable physical trauma. Other repairable injury.	S2	Low	Medium	Medium
LOW - Risk is accepteable, ensure all risk controls are implemented in the field	No Current Flow Through Body	No burn injury, 1st degree burn injury. Minor brusing. No effect due to UV/ IR, noise, toxic vapour, molten metal.	S1	Low	Low	Medium
				Improbable	Likely	Possible

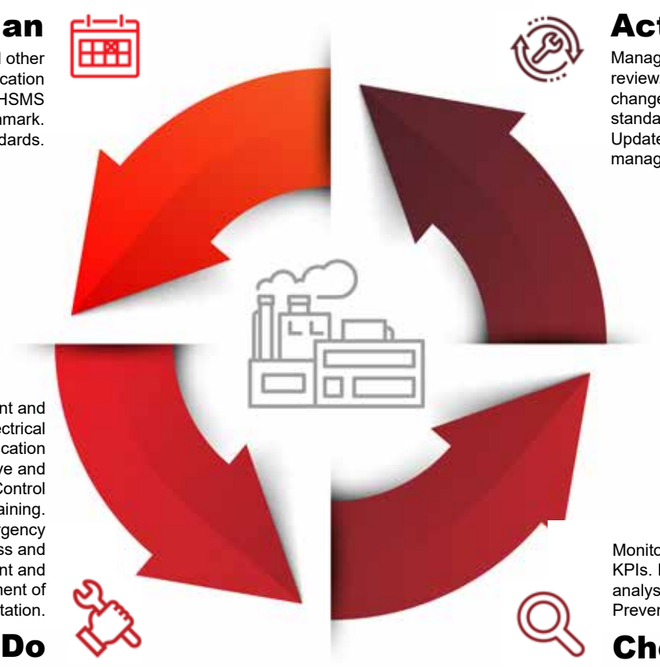
L1	Improbabile	Not likely to occur. Low frequency expected.
L2	Likely	Could happen, frequency increased.
L3	Possible	Very lkely to happen, higher frequency expected.

FOR MORE INFORMATION VISIT GRACEPORT.COM OR CALL 1.800.280.9517

BUILD YOUR SAFETY CULTURE

1 Plan

Regulatory, legal and other requirements. Hazard identification and risk assessment. OHSMS Objectives and targets. Benchmark. Use Industry Standards.



Act 4

Management, HSE and supervisor review. Budget allocation. Track changes to regulations and standartds. Continiuos improvement. Update documentation. Effectively manage change.

OHSMS Development and Implementation with Electrical Safety Program. Communication and awareness. Preventive and protective Hierarchy or Risk Control Methods. Competency and training. Incident reporting. Emergency prevention, preparedness and response. Procurement and contracting. Management of change. Documentation.

2 Do

Monitoring and measurement. KPIs. Incident Investigation and analysis. Internal and external audits. Prevention and corrective action.

Check 3

COMMON ESP GAPS

- Documented principles, policies, practices and procedural requirements.
- No internal or external electrical safety audits, including field work. Audits, including field work.
- No risk assessment procedure implemented and used by employer to identify hazards, assess risks and implement the hierarchy or risk control methods.
- No defined Energized Electrical Job Work Flow.
- Need to include consideration for the condition and maintenance of electrical equipment.
- Field level documentation (e.g. Energized Electrical Job Safety Planning form, Energized Electrical Work Permit).

MEET THE EXPERT NETWORK

Terry Becker, *P.Eng. CESCP, IEEE Senior Member, TW Becker Electrical Safety Consulting Inc.*

Terry Becker has nearly three decades of experience as an Electrical Engineer, with over a decade specifically devoted to electrical safety. Terry is currently a CSA Z462 Technical Committee Voting Member and working group leader for Clause 4.1 and the Annexes. 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 and the USA in all industry sectors.

Terry delivers engaging presentations on electrical safety at industry conferences and workshops - he has been seen 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.

Charles Miller, *NEC Expert, Master Electrician, Business Owner, Author, Educator and Talk Show Host*

Charles R. Miller is a master electrician, business owner, author, educator, and talk-show host. Based out of Lebanon, TN, Charles spent eighteen years as a successful business owner and electrical contractor. Since then, he has focused his time and energy on writing and teaching to promote knowledge and proficiency among engineers, electricians, and tradespeople in the field. As an author and illustrator, he has an extensive list of electrical-related publications to his credit, including some published by the National Fire Protection Association (NFPA). Miller also sits on two NFPA committees, including the committee for the NFPA 70E standard.

FOR MORE INFORMATION VISIT GRACEPORT.COM OR CALL 1.800.280.9517

© Grace Technologies All rights reserved. Specifications are subject to change with/without notice.