



POWR-GARD™
SERVICES
TRAINING
CATALOG



Expertise Applied | Answers Delivered



WHO IS LITTELFUSE

POWR-GARD™ Services Offer:

- Electrical Safety Training
- Power & Hazard Analysis
- One-line Drawings
- Arc-Flash & Shock Analysis
- OSHA & NFPA 70E Compliance
- Short Circuit Analysis
- Coordination Studies
- Field Inspection & Data Collection
- Hazard Labeling
- Project Management

Littlefuse. Our name is synonymous with developing circuit protection solutions that meet the unique needs of our customers. As the only company with a complete range of technologies and the expert staff to address virtually any circuit protection challenge—we stand alone as the number one circuit protection brand in the world.

With leading market positions in North America, Europe and Asia, our worldwide team of experts is ready to put our reputation for unbiased advice, unsurpassed solutions, and service to work on your unique needs.

For more than 80 years, Littelfuse has been the company that engineers and plant managers trust to answer their most critical circuit protection questions. Littelfuse POWR-GARD Services (PGS) division is focused on helping companies every step of the way towards OSHA compliance and electrical safety: from identifying Arc-Flash hazards to developing a complete electrical safety program for your facilities.

Don't take chances when it comes to Arc-Flash and electrical safety. For more information visit www.littelfuse.com/services.



TRAINING IS MANDATED BY OSHA



CLASSROOM TRAINING IS THE MOST EFFECTIVE WAY TO EXPLAIN OSHA AND NFPA STANDARDS

About Our Trainers

With over 100 years of combined experience, Littelfuse POWR-GARD™ Services (PGS) Electrical Safety Trainers have trained thousands of electricians, engineers, electrical maintenance supervisors, safety managers, and consultants on electrical safety, NFPA® and OSHA regulations, and safe electrical practices.

Littelfuse PGS trainers are:

- OSHA trained and authorized to teach 10 hour or 30 hour OSHA Standards for General Industry.
- NFPA, IEEE, and e-Hazard trained in electrical safety methods.
- NFPA 70E trained in Arc-Flash and Electrical Hazard Assessments and safety procedures.
- Qualified technical trainers and/or Electrical Engineers with Professional Engineering Licenses.
- Contributors to many leading industry publications and authors of articles and whitepapers on Electrical Safety and Safe Electrical Design.

OSHA regulations call for safe work practices for employees working on electrical equipment, and also mandate training for both Qualified and Unqualified Workers. On-site classroom training is by far the most effective way to comply with OSHA and NFPA standards, and to ensure the safety of workers who install and service electrical systems.

As an expert in circuit protection and a trusted consultant to many of the world's leading companies, Littelfuse has been helping employers comply with safety standards and protect their workers for many years. Our instructors are OSHA and NFPA 70E certified and know what OSHA expects of employers, assuring that the material is practical and up-to-date. We draw upon real world experiences to show employees how to identify and assess electrical hazards, minimize accidents by using the correct tools and protective equipment, and improve safe work procedures. Upon completion of a Littelfuse training course, workers receive a Certificate of Accomplishment that documents compliance with OSHA and NFPA mandated training.



OVERVIEW

Don't Become a Safety Statistic

Did you know that OSHA is using NFPA 70E as evidence of a recognized hazard, and uses this standard as a guide when investigating accidents and citing violations? NFPA 70E has become an accepted method of hazard abatement, and as such, Qualified and Unqualified Workers must receive electrical safety training.

If you are responsible for keeping workers safe and for documenting safety training of your employees, consider these chilling statistics:

- In the 2006 OSHA fiscal year (October 2005 – September 2006), OSHA cited 111,635 violations across all industry segments under federal OSHA jurisdiction, with penalties of over \$87 Million.
- The National Safety Council states that over 1000 people die each year from electrical accidents.
- Work-related injuries can cost businesses over \$30 million per incident in fines*, medical costs, litigation, lost business, and equipment costs.
- Up to 10 Arc-Flash incidents occur each day in the U.S., and over 2000 workers are sent to burn centers each year with severe Arc-Flash burns.
- OSHA states that 80% of electrically related accidents and fatalities among Qualified Workers are caused by Arc-Flash or Arc-Blast.

* Source: National Safety Council.

Deciphering OSHA regulations to set up a training program can be a daunting task. For example, OSHA requires documented training of personnel to perform the following tasks:

- Deenergize equipment
- Eliminate hazards
- Identify and assess equipment rated over 50 volts
- Understand safe working distances and boundaries
- Use proper lock-out and tag-out procedures
- Select, use, and maintain Personal Protective Equipment (PPE)
- Use test instruments and equipment

POWR-GARD™ Services (PGS) division, in conjunction with Littelfuse University, has developed a comprehensive curriculum of training courses. These classes get to the heart of OSHA requirements and extend to proven best practices.

High-quality classroom training is the best investment to ensure a safer workplace and minimize costly accidents. Workers who complete PGS Training courses will receive the proper training to help their company:

- Eliminate or reduce worker injuries
- Comply with OSHA and NFPA standards and regulations
- Improve worker safety and morale
- Increase productivity and reduce downtime
- Minimize safety incidents and their associated costs
 - Medical
 - Insurance
 - OSHA citations
 - Litigation
 - Equipment replacement

Most of our courses are held right at your facility or a nearby location—minimizing employee travel and time away from work. Some courses are also available online. Whether training is on-site or online, we come to you. POWR-GARD Services Training includes the following deliverables:

- Safety Manuals
- Workbooks
- NFPA 70E Standard
- Compliance DVDs and Videos
- PowerPoint presentations
- Personalized Certificates of Accomplishment

Littelfuse University offers a variety of training programs in online, on-site, and webcast formats. In addition to PGS Training Courses, Littelfuse University training topics include Basic Fuseology, product applications, and value-added programs. For our complete training capabilities, or to request customized training, call 800-TEC-FUSE.

PGS COURSE OVERVIEW



POWR-GARD™ Services in conjunction with Littelfuse University offers a broad selection of on-site and online courses to help you meet OSHA and NFPA® standards. PGS training course offerings are described in detail on the following pages.

Course Part Number	Course Description	Course Length	Electricians	Engineers & Electrical Contractors	Maintenance Personnel	Supervisors & Safety Managers	Qualified Workers	Unqualified Workers
PGS101	Introduction to Electrical Safety	1-2 hours	■	■	■	■	■	
PGS201	Introduction to OSHA & NFPA 70E Requirements for Electrical Hazard Assessments (Seminar)	4 hours		■		■		
PGS301	'How To' Workshop for Performing OSHA Compliant Electrical Hazard Assessments (Seminar)	8 hours		■		■		
PGS401	Electrical Hazard Awareness Training	1 hour	■				■	■
PGS402	Pre-Assessment NFPA 70E Training for Qualified Electrical Workers	4 hours	■	■	■	■	■	
PGS403	Post-Assessment NFPA 70E Training for Qualified Electrical Workers	4 hours	■	■	■	■	■	
PGS501	Proper Fuse Selection & Application	1 hour	■	■	■	■	■	
PGS502	Understanding & Increasing Your Panel's SCCR	1.5 hours	■	■		■		

Note: Call 800-TEC-FUSE for customizing course content, combining courses, or providing courses in webcast format.

PGS COURSE OFFERING



COURSE PGS101 Introduction to Electrical Safety

DURATION:
1-2 Hours

LEVEL:
Introductory

ATTENDANCE:
Electricians
Engineers & Electrical Contractors
Maintenance Personnel
Supervisors & Safety Managers
Qualified Workers

DESCRIPTION:

This course is intended for workers and their managers. It provides a brief introduction to Electrical Safety and OSHA and NFPA® safety standards and regulations. Arc-Flash and Shock hazards are introduced along with OSHA and NFPA expectations of employers and employees.

DELIVERABLES:

- PowerPoint presentation
- Handout materials
- Other resources for further study

COURSE PGS201 Introduction to OSHA and NFPA 70E Requirements For Electrical Hazard Assessments

DURATION:
4 Hours

LEVEL:
Intermediate

ATTENDANCE:
Engineers & Electrical Contractors
Supervisors & Safety Managers

DESCRIPTION:

This course is an introduction to OSHA and NFPA 70E Electrical Safety Standards and Regulations for Qualified workers and supervisors that may work on energized equipment. It introduces how to assess the workplace for Arc-Flash and other Electrical Hazards, and discusses how to select Personal Protective Equipment (PPE) for electrical workers. The course analyzes the methods used to identify and reduce electrical hazards, and discusses how to begin an Electrical Hazard Assessment.

DELIVERABLES:

- PowerPoint presentation
- Handout materials
- Participants may receive Littelfuse CEU credit after passing a Safety Quiz at the completion of the course



COURSE PGS301
"How-to" Workshop For
Performing OSHA Compliant
Electrical Hazard Assessments

DURATION:
8 Hours

LEVEL:
Advanced

ATTENDANCE:
Engineers & Electrical Contractors
Supervisors & Safety Managers

DESCRIPTION:

This workshop provides "hands-on" examples for engineers, supervisors, and Qualified workers that want to learn how to perform an Arc-Flash and Electrical Hazard Assessment of their plant or facility. OSHA, NFPA 70E, NEC®, and IEEE methods of identifying, assessing, and minimizing electrical hazards are discussed and analyzed. Participants will learn how to assess the workplace for hazards to protect Qualified and Unqualified workers.

TOPICS INCLUDE:

- How to establish Hazard Risk Categories and Protection Boundaries
- How to select and use Personal Protective Equipment (PPE)
- How to use Energized Electrical Work Permits
- How to prepare NEC® Arc-Flash warning labels

DELIVERABLES:

- PowerPoint presentation
- Workbook and Video Presentations
- A copy of NFPA 70E and all materials necessary to perform an Electrical Hazard Assessment
- Participants may receive Littelfuse CEU credit after successfully passing a Safety Quiz at the completion of the course

COURSE PGS401
Electrical Hazard
Awareness Training

DURATION:
1 Hour

LEVEL:
Introductory

ATTENDANCE:
Electricians
Qualified Workers
Unqualified Workers

DESCRIPTION:

This course is designed specifically for workers who may work near energized equipment, or who may use portable electric power tools or equipment. OSHA 1910 Subpart S standards are addressed, and workers are trained to recognize Electrical Shock and Arc-Flash hazards and understand why an Electrical Hazard Assessment is necessary or has been completed. Workers learn the duties and expectations of Qualified and Unqualified workers.

TOPICS INCLUDE:

- Basic OSHA Electrical Safety
- Lockout/Tagout requirements
- Understanding Protection Boundaries

DELIVERABLES:

- PowerPoint presentation
- Handout materials



PGS COURSE OFFERING

COURSE PGS402

**Pre-Assessment NFPA 70E
Training For Qualified Electrical
Workers**

DURATION:
4 Hours

LEVEL:
Intermediate

ATTENDANCE:
Electricians
Engineers & Electrical Contractors
Maintenance Personnel
Supervisors & Safety Managers
Qualified Workers

DESCRIPTION:

This course is for Qualified workers who may work on energized equipment before a detailed Arc-Flash or Electrical Hazard Assessment is performed. Workers are trained to recognize Electrical Shock and Arc-Flash hazards, and utilize safe work practices, IEEE methods, and NFPA 70E Tables to select Personal Protection Equipment (PPE).

TOPICS INCLUDE:

- How to establish an Electrically Safe Work Condition
- How to use NFPA 70E tables to establish Hazard Risk Categories
- How to verify and maintain NFPA 70E Table requirements

DELIVERABLES:

- PowerPoint and Video Presentation
- Handout materials
- Safety Handbook
- Participants may receive Littelfuse CEU credit after successfully passing a Safety Quiz at the completion of the course

COURSE PGS403

**Post-Assessment NFPA 70E
Training For Qualified Electrical
Workers**

DURATION:
4 Hours

LEVEL:
Advanced

ATTENDANCE:
Electricians
Engineers & Electrical Contractors
Maintenance Personnel
Supervisors & Safety Managers
Qualified Workers

DESCRIPTION:

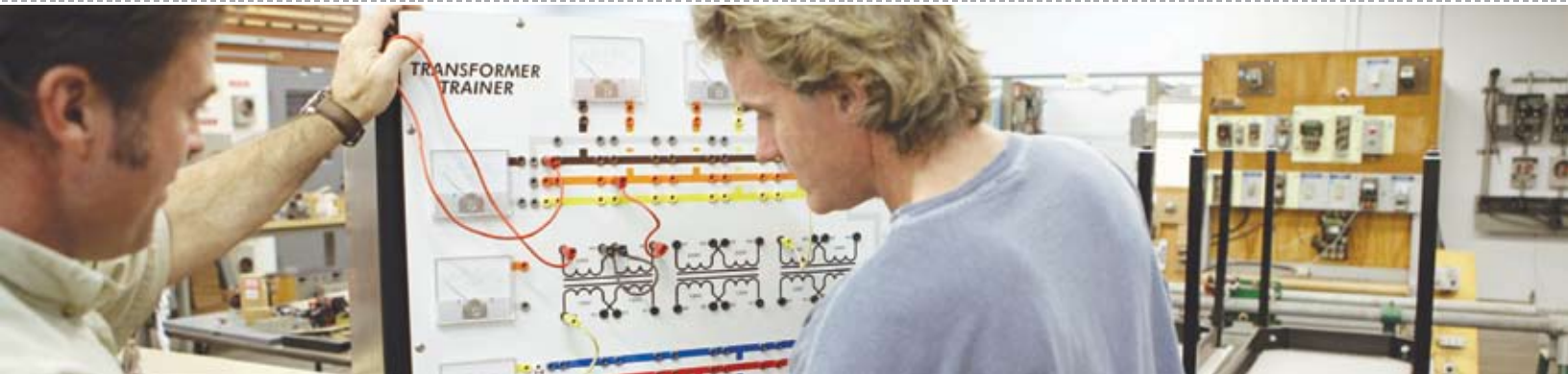
This course is for Qualified workers that work on energized equipment after an Arc-Flash or Electrical Hazard Assessment has been performed. Workers are trained to recognize Electrical Shock and Arc-Flash hazards, and understand Hazard Risk Categories and Protection Boundaries. Workers learn why the Electrical Hazard Assessment was performed, how to reduce hazards, and how to select and properly use PPE.

TOPICS INCLUDE:

- Use of Energized Work Permits
- How to read and interpret NFPA Arc-Flash and Shock Warning labels
- Protection Boundaries
- How to select, use, and care for Personal Protective Equipment

DELIVERABLES:

- PowerPoint and Video Presentation
- Safety Handbook
- Participants may receive Littelfuse CEU credit after successfully passing a Safety Quiz at the completion of the course
- Handout Materials



COURSE PGS501
Proper Fuse Selection
and Application

DURATION:
1 Hour

LEVEL:
Intermediate

ATTENDANCE:
Electricians
Engineers & Electrical Contractors
Maintenance Personnel
Supervisors & Safety Managers
Qualified Workers

DESCRIPTION:

Learn basic fuseology principles, including properly selecting and applying current limiting fuses for increasing the safety and reliability of overcurrent circuit protection.

TOPICS INCLUDE:

- Fuse and fuseholder selection considerations
- UL fuse classes and typical applications
- Fuse characteristic curves and Selective Coordination
- Recommended fuse sizing for motors and transformers

DELIVERABLES:

- PowerPoint Presentation
- Handout materials

COURSE PGS502
Understanding and Increasing
Your Panel's SCCR

DURATION:
1.5 Hours

LEVEL:
Intermediate

ATTENDANCE:
Electricians
Engineers & Electrical Contractors
Supervisors & Safety Managers

DESCRIPTION:

Learn how to determine the Short Circuit Current Rating (SCCR) of industrial control panels, and increase the SCCR of the entire panel.

TOPICS INCLUDE:

- UL 508A methods and NEC® 409 requirements
- Approved methods for determining SCCR of components and entire panels
- How to use fuses to increase a panel's SCCR

DELIVERABLES:

- PowerPoint Presentation
- Handout materials



REFERENCE MATERIALS

OSHA & NFPA® COMPLIANCE

Form No. PF341
Form No. PF948
Form No. PF949
Form No. PF985
AF-LABEL
N / A

The 9 Steps to OSHA Electrical Safety
OSHA Requirements for Electrical Hazards
OSHA's Top Violations
OSHA / NFPA Overview
Arc-Flash Warning Label
Engineering Specification (PDF Version only)

ARTICLE REPRINTS

Form No. PF972
Form No. PF973
Form No. PF974
Form No. PF975

Electrical Hazard Assessment: First Step in Meeting OSHA Standards
Should You Outsource Electrical Hazard Assessments?
Five Misconceptions About Arc-Flash Compliance
Identify the 'Right' Limit on Selective Coordination

SAFETY VIDEOS

AFVIDEO-DVD
AFVIDEO-VHS

Arc-Flash Safety Video (DVD version)
Arc-Flash Safety Video (VHS version)

ELECTRICAL SAFETY LITERATURE

Form No. PF338
Form No. PF339
Form No. PF340
Form No. PF830
Form No. PF993

Electrical Safety Hazards Overview (4-page)
Electrical Safety Hazards Handbook (75-page)
MRO*plus* Program Electrical Safety Overview
Collector Cards set (Quick Reference Guide)
Misconceptions About Arc-Flash Hazard Assessments

TECHNICAL PAPERS

Form No. PF980
Form No. PF981
Form No. PF984
Form No. PF990
Form No. PF992

Form No. PF994

Arc-Flash Can Kill or Maim: Know the Facts
Arc-Flash Hazards and Personal Protection Equipment
Contractors Required to Provide Warning Labels
Arc-Flash White Paper
Using Current-Limiting Fuses to Increase Short Circuit Current Ratings of Industrial Control Panels Arc-Flash
Power Distribution Block Short Circuit Current Ratings

CERTIFICATES

Customized Certificate of Accomplishment available upon successful completion of Training Courses.

POWR-GARD™ SERVICES



POWR-GARD Services (PGS) is an extensive package of services, offered nationally, that specializes in power studies, electrical hazard assessments, electrical safety “compliance” and worker training.

ELECTRICAL SAFETY TRAINING

Our certified instructors can train your employees how to identify, assess, and minimize electrical hazards, and how to improve equipment design, procedures and work practices.

POWER & HAZARDS ANALYSIS

Our team of safety engineers will inspect your electrical system and identify all potential hazards that your workers are exposed to. We will also calculate Arc-Flash incident energy levels, Shock and Arc-Flash protection boundaries, Hazard Risk Categories and required PPE.

ONE-LINE DRAWINGS, SHORT-CIRCUIT ANALYSIS & COORDINATION STUDIES

PGS Safety experts can review or develop your facility one-line diagrams complete with all power sources, electrical components, and electrical equipment. We also offer Short Circuit and Coordination Studies to assess the hazards of your facility.

OSHA & NFPA 70E COMPLIANCE

POWR-GARD Services can help you understand OSHA requirements to become compliant. We offer Arc-Flash and safety consulting services to help you understand electrical hazards and improve the safety of your workers.

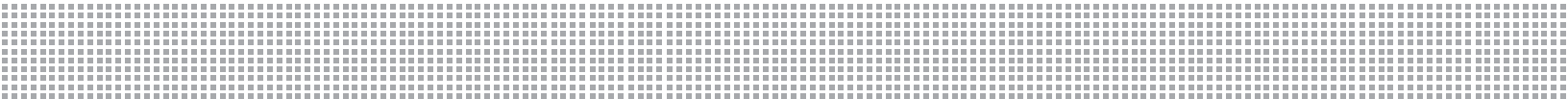
ELECTRICAL SAFETY PROGRAM AUDIT AND DEVELOPMENT

Our electrical design and safety engineers can review your existing safety program or develop one that meets the requirements of OSHA, NFPA and all other enforced codes and standards.

HAZARD LABELING

Our labels not only meet the requirements for NEC® 110.16, but provide all the information needed to better protect your workers and be in compliance with OSHA.





Contact us today for more information.

www.littelfuse.com/services

1-800-TEC-FUSE