Content Community Connection

United States
The Electricity Forum Inc.
742 Pre Emption Road
Geneva, NY 14456
Tel 289-387-1025

Canada
The Electricity Forum
1885 Clements Rd, Unit 218
Pickering, ON L1W3V4
Tel 905-686-1040
Fax 905-686-1078
Toll Free 855-824-6131

NFPA 79 Training - Electrical Safety For Industrial Machinery (2024)

View Course Details

COURSE DATES AND TIMES

September 17-18 , 2026

10:00 am - 4:30 pm ET

NFPA 79 Training is the primary electrical safety standard referenced by authorities having jurisdiction for industrial machinery. It governs internal machine wiring, control panels, disconnecting means, grounding and bonding, conductor selection, overcurrent protection, and surge protection. This training explains how NFPA 79 aligns with the NEC, NFPA 70E, NFPA 70B, and OSHA electrical safety expectations, providing participants with a clear framework for applying the standard in real-world manufacturing and maintenance settings.

Why NFPA 79 Training Matters for Compliance and Inspection Readiness

Improper machine wiring, inadequate grounding, unclear disconnecting means, and incorrect SCCR labeling are common findings during inspections and a frequent cause of downtime and electrical incidents. This instruction helps organizations move beyond theory by teaching how to apply the standard to support inspection readiness, reduce compliance risk, and improve operational reliability.

Participants learn how NFPA 79 requirements are evaluated during safety audits and inspections, how OSHA relies on consensus standards to define acceptable electrical safety practices, and how the correct application of NFPA 79 reduces exposure to shock, arc flash, fire, and unexpected equipment failure. The course emphasizes practical compliance outcomes, including reduced rework, fewer nuisance trips, clearer documentation, and safer maintenance conditions.

2024 NFPA 79 Edition Highlights Covered in This Course

This course addresses key changes and clarifications introduced in the 2024 edition of NFPA 79, including SCCR labeling requirements for machines with multiple control panels, expanded surge protection device requirements within safety circuits, updated conductor marking rules for circuits that remain energized during disconnect, strengthened grounding and bonding continuity requirements, and clearer identification of disconnecting means and live circuits. These updates are explained in the context of real machine designs and maintenance scenarios rather than abstract code language.

Who Should Attend and How the Training Applies

This NFPA 79 training is designed for professionals who work directly with industrial machinery and electrical systems and must apply the standard to daily decisions. Controls engineers learn how to incorporate NFPA 79 requirements into machine design and modifications, including SCCR coordination, conductor sizing, and control panel layout. Maintenance electricians and technicians gain practical guidance for troubleshooting recurring faults caused by wiring layout, grounding deficiencies, or improper overcurrent protection. Safety and EHS professionals learn how to evaluate machine electrical compliance, verify documentation, and support inspection readiness. Engineers and machine builders responsible for upgrades or retrofits gain clarity on how to apply current requirements without introducing new hazards.

The course connects these roles to specific compliance tasks such as grounding scheme verification, conductor routing and bend-radius compliance, disconnecting means placement, labeling accuracy, and coordination with lockout and safe work procedures.

What Your Organization Gains from NFPA 79 Training

Organizations that invest in NFPA 79 training benefit from improved inspection readiness across jurisdictions, documented electrical safety training records, reduced risk of machine failure caused by wiring and grounding errors, clearer control panel layouts that improve serviceability, and greater productivity through standardized machine electrical design practices. By aligning maintenance, engineering, and safety teams around a common standard, the course supports consistent compliance and safer long-term operations.

This comprehensive program is designed for professionals responsible for maintaining, modifying, inspecting, or troubleshooting electrical controls and industrial machinery in production environments. It translates the 2024 standard into clear, actionable guidance that supports safety, reliability, and regulatory confidence.

Learning Outcomes

- Reduce downtime by applying correct wiring, grounding, conductor selection, and overcurrent-protection practices.
- Diagnose and correct recurring electrical and control-panel issues rooted in poor wiring layout, insufficient SCCR, or improper grounding and bonding.
- Apply 2024 requirements for conductor sizing, surge protection, panel labeling, disconnecting means, and enclosure-interlock rules.
- Improve equipment longevity through preventive maintenance, machine wiring inspections, and adherence to NFPA 70B maintenance principles.
- This comprehensive and practical program is designed for professionals responsible for maintaining, modifying, or troubleshooting electrical controls and machinery in industrial production environments.

Frequently Asked Questions

What is NFPA 79 training?

This course teaches how to apply the Electrical Standard for Industrial Machinery to machine wiring, control panels, grounding, disconnecting means, SCCR labeling, and electrical safety so machinery operates safely and meets inspection expectations.

Is it required for OSHA compliance?

NFPA 79 training is not mandated by name, but it strongly supports compliance. OSHA relies on consensus standards to define acceptable electrical safety practices, and NFPA 79 is commonly used by inspectors and authorities having jurisdiction for industrial machinery.

Who should take NFPA 79 training?

The course is intended for electricians, controls engineers, maintenance technicians, machine builders, and safety professionals who design, modify, maintain, or inspect electrical systems of industrial machinery.

Related Courses

- NFPA 70E Arc Flash Training
- CSA Z462 Arc Flash Training
- Arc Flash Training
- Electrical Safety For EHS Managers
- Electrical Safety Program Development
- Lockout Tagout Training
- Electrical Safety For Non-Electrical Workers

WHO SHOULD ATTEND

Our course is designed for workers who are responsible for repairing and maintaining the electrical components of industrial machines:

- Safety directors
- Electrical contractors
- Electricians
- Maintenance electricians
- HVAC Maintenance and Repair
- Machine Builders
- Engineers making modifications to existing machinery
- Technicians
- Plant & facility maintenance technicians
- Electrical engineers

STUDENTS RECEIVE

NFPA 79 Training Certificate of Course Completion

- 1.2 Continuing Education Unit (CEU) Credits (12 Professional Development Hours)
- FREE 100-Page Digital Electrical Safety Handbook (Value $20)
- $100 Coupon Toward Any Future Electricity Forum Event (Restrictions Apply)
- FREE Magazine Subscription (Value $25.00)
- Course Materials In PDF Format

COURSE OUTLINE

NFPA 79 Training Course Outline

DAY ONE

1. INTRODUCTION TO NFPA 79 (2024 Edition)

- Overview of NFPA 79 and its relationship with NFPA 70, 70B, 70E, and NEC
- Machine history and evolution of standards
- Importance of instruction and standardized electrical safety
- Major changes in the 2024 edition:
    - SCCR labeling clarification for machines with multiple panels
    - Marking of machine supply circuit disconnecting means
    - Acceptance of IPxxB for control panel access without tools

- Orange/blue-striped DC conductor requirement for circuits live during disconnect
- Surge protective devices (SPDs) in safety circuits
- Emphasis on cybersecurity in control systems

2. MODERN MACHINE TOOL ELECTRICAL EQUIPMENT

- Practical implications of NFPA 79 vs. NFPA 70 and 70E
- Electrical safety philosophy and real-world examples

3. DEFINITIONS AND KEY TERMINOLOGY

- NFPA official terms
- Industry-recognized interpretations

4. GENERAL REQUIREMENTS AND OPERATING CONDITIONS

- Voltage supply standards and allowable variations
- Environmental limits: temperature, humidity, altitude

5. DISCONNECTING MEANS

- Termination and handle requirements
- Proper labeling and identification under 2024 update

6. PROTECTION FROM ELECTRICAL HAZARDS

- Basic and fault protection
- Use of PELV systems
- Managing residual voltage

7. GROUNDING AND EQUIPMENT PROTECTION

- Grounding techniques and standards
- Overcurrent protection and proper fuse sizing

8. CONTROL CIRCUITS, OPERATOR INTERFACES, AND PANEL DESIGN

- Panel arrangement and color coding
- Control function safety and ergonomic layout

DAY TWO

9. CONTROL PANEL DESIGN AND ENCLOSURE MOUNTING

- Updated cabinet spacing rules
- Enclosure construction and compliance

10. CONDUCTORS, CABLES, AND FLEXIBLE CORDS

- Sizing, insulation types, and correction factors

- Special 2024 update: orange/blue-striped conductors

11. WIRING PRACTICES AND INSTALLATION

- Conduit material choices
- Wiring color conventions
- Best practices for safety and serviceability

12. ELECTRIC MOTORS

- Installation, protection, and compliance with 2024 rules

13. LIGHTING AND MACHINE ACCESSORIES

- Requirements for safety lighting and indicators

14. MARKING, LABELING, AND SAFETY SIGNAGE

- Placement, format, and permanence

15. TECHNICAL DOCUMENTATION

- Mandatory and optional documentation types

16. TESTING, VERIFICATION, AND COMPLIANCE

- Pre-startup and maintenance testing methods
- SPD testing practices

17. SERVO DRIVES AND MOTORS

- Specialized requirements for modern motion systems

18. CYBERSECURITY FOR INDUSTRIAL MACHINERY

- Overview of new 2024 guidance
- Practical approaches to securing control systems

19. REAL-WORLD APPLICATIONS AND CASE STUDIES

- Troubleshooting scenarios
- Preventative maintenance planning
- Case study walkthrough of 2024-compliant installations

COURSE SCHEDULE

Start: 10 a.m. Eastern Time
Finish: 4:30 p.m. Eastern Time