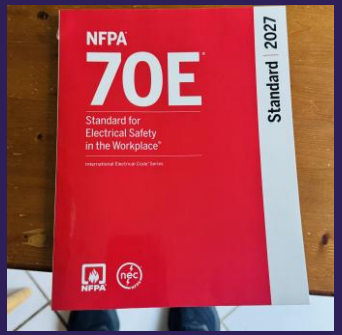
NFPA 70E Standard For Electrical Safety In The Workplace,
Review and Changes For The 2027 Edition



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Philadelphia, PA

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Highlighting in this presentation

- Shaded text is the revised or new text in 2027 edition
- *Text in italics is Presenter's explanation*
- Yellow highlight is for emphasis only

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See 70E, 90.6 for the process for formal interpretations.

What does it mean?

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2. To train personnel or make presentations on NFPA 70E or
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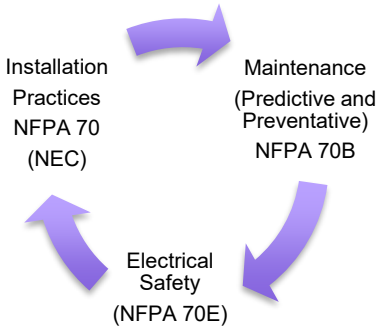
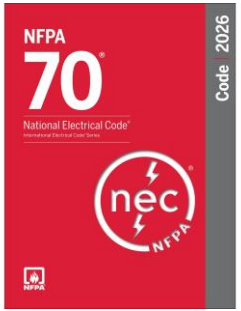
Safety Requires full approach

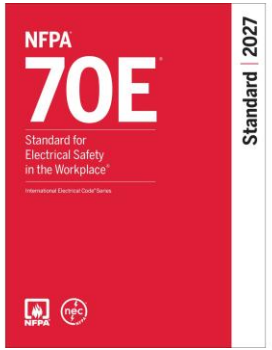
Proper Installation – NFPA 70 (NEC)

Proper Maintenance – NFPA 70B

Proper Safety practices- NFPA 70E







Please Note:

- **This presentation is a condensed review of NFPA 70E and a few changes in 2027 edition.**

- **Attendees are cautioned to understand the published document prior to making any changes to the safety work practices.**

General Information

- A lot of changes in 2027 edition are to comply with Style Manual.
- Text in paragraphs that contain requirements have been converted to a list form.

Article 90 Introduction

90.1 Scope
90.2 Purpose
90.3 Scope of the Standard - (A) Workplaces Covered, (B) Workplaces Not Covered
90.4 Standard Arrangement
90.5 (A) Mandatory Rules, (B) Permissive Rules, (C) Explanatory Material), (D) Informative Annexes
90.6 Formal Interpretations

70E- 2027 Standard Arrangement

- Introduction.
  Chapter 1 Safety Related Work Practices
  Chapter 2 safety-Related maintenance requirements,
  Chapter 3 safety requirements for special equipment.
- Informative Annexes

Chapter 1 Safety-Related Work Practices

Article 100 Definitions
Article 105 Employer/Employee Responsibilities
Article 110 General Requirements for Electrical Safe Work Practices
Article 120 Establishing an Electrical Safe Work Condition
Article 130 Work Involving Electrical Hazards

Chapter 2 Safety-Related Maintenance Requirements

- Covers practical safety related maintenance directly associated with employee safety
- Does not prescribe specific maintenance methods or frequency of maintenance References NFPA 70B, IEEE 3007.2 and ANS/NETA MTS for guidance

Chapter 3 Safety Requirements for Special Equipment

Supplements or modifies the general requirements of Chapter 1

Reorganized to group general hazards, ac hazards and dc hazards

Added New Articles 370, 380, and 390

- Article 370 Safety-Related Work Practices for Electrical Double Layer Capacitors (EDLCs)
- Article 380 Safety-related Work Practices for Photovoltaic Systems
- Article 390 Safety-related Work requirements for Research and Development (R&D) Laboratories

Informative Annexes

- Informative annexes are not part of the requirements of this standard but are included for informational purposes only

Article 100 Definitions

- **Scope: This article contains only those definitions essential to the proper application of this standard. It is not intended to include commonly defined general terms or commonly defined technical terms from related codes and standards. An article number in parentheses following the definition indicates that the definition only applies to that article**

Article 100 Definitions

- **An article number in parentheses following the definition indicates that the definition only applies to that article.**
- **Example:** Authorized Personnel. The person in charge of the premises, or other persons appointed or selected by the person in charge of the premises who performs certain duties associated with stationary storage batteries. (360)

Arc Rating

- Arc Rating.
- The value attributed to materials that describes their performance to exposure to an electrical arc discharge.
- .

Arc Rating

- Informational Note No. 1:
- The arc rating is expressed in cal/cm^2 and is derived from the determined value of the arc thermal performance value (ATPV) or energy of breakopen threshold (E_{BT}), should a material system exhibit a breakopen response below the ATPV value. Arc rating is reported as either ATPV or E_{BT}, whichever is the lower value

Automatic

- Performing a function without the necessity of human intervention.

Battery.

- A system consisting of two or more electrochemical cells connected in series or parallel and capable of storing electrical energy received and that can give it back by reconversion. (360)

Battery Effect.

- A voltage that exists on the electrolytic cell line after the power supply is disconnected. (350)
- Informational Note: **Electrolytic cells** can exhibit characteristics similar to an electrical storage battery and an electric shock hazard could exist after the power supply is disconnected from the cell line.

Boundary, Arc Flash (Arc Flash Boundary)

- When an arc flash hazard exists, an approach limit from an arc source at which incident energy equals 1.2 cal/cm^2 (5 J/cm^2).

Boundary, Arc Flash (Arc Flash Boundary)

- Informational Note:
- According to the Stoll skin burn injury model, the onset of a second degree burn on unprotected skin is likely to occur at an exposure of *1.2 cal/cm^2 (5 J/cm^2)* for one second.

Electrically Safe Work Condition

- A state in which an electrical conductor or circuit part has been disconnected from energized parts, locked/tagged in accordance with established standards, tested for the absence of voltage, and, if necessary, temporarily grounded for personnel protection.

Hazard, Electric Shock. (Electric Shock Hazard)

- A source of possible injury or damage to health associated with current through the body caused by contact or approach to exposed energized electrical conductors or circuit parts.

Hazard, Electrical. (Electrical Hazard)

- A source of possible injury or damage to health that can result in electric shock, arc flash burn, contact thermal burn, or arc blast injury.

Incident Energy

- The amount of thermal energy impressed on a surface, a certain distance from the source, generated during an electrical arc event.

- Informational Note:
- Incident energy is typically expressed in calories per square centimeter (cal/cm^2).

Protector

- A glove or mitten designed to be worn over rubber insulating gloves.

- *Presenter's note*
  Protectors are now available in leather and non leather (synthetic material such as Kevlar)

Risk Assessment

- An overall process that identifies hazards, estimates the likelihood of occurrence of injury or damage to health, estimates the potential severity of injury or damage to health, and determines if protective measures are required.
- Informational Note: As used in this standard, arc flash risk assessment and electric shock risk assessment are types of risk assessments

Step Potential

- A ground potential gradient difference that can cause current flow from foot to foot through the body.

Touch Potential.

- A ground potential gradient difference that can cause current flow from hand to hand, hand to foot, or another path, other than foot to foot, through the body.

Working Distance.

- The distance between a person's face and chest area and a prospective arc source.

- Informational Note: See 130.5(G) for further information. Incident energy increases as the distance from the arc source decreases.

Working On (energized electrical conductors or circuit parts).

- Intentionally coming in contact with energized electrical conductors or circuit parts with the hands, feet, or other body parts, with tools, probes, or with test equipment, regardless of the personal protective equipment (PPE) a person is wearing

Article 105- Employer and Employee Responsibilities

- **105.1 Scope** - This article covers employer and employee responsibilities for the application of electrical safety-related work practices and procedures for employees who are exposed to an electrical hazard in workplaces covered in 90.3.

- Informational Note: See Informative Annex K for general categories of electrical hazards.

105.3 Responsibility.

A) Employer Responsibility. The employer shall have the following responsibilities:

- (1) Establish, document, and implement the safety-related work practices and procedures required by this standard.
- (2) Provide and document employee training in the employer's safety-related work practices and procedures.

105.3 Responsibility Continued

- **(B) Employee Responsibility.** The employee shall comply with the safety-related work practices and procedures provided by the employer.

Article 110

General Requirements for Electrical Safety-Related Work Practices

- 110.1 Scope.
- This article covers the general requirements for electrical safety-related work practices.

110.2 Electrically Safe Work Condition.

110.2(A) Policy. An employer shall establish, document, and implement an electrically safe work condition policy that does both of the following:

- (1) Requires hazard elimination to be the first priority in the implementation of safety-related work practices
- (2) Complies with 110.2(B)

110.2 Electrically Safe Work Condition

110.2(B) When Required.

- Energized electrical conductors and circuit parts operating at voltages equal to or greater than 50 volts
- or where an electrical hazard exists shall be put into an electrically safe work condition before an employee performs work if any of the following conditions exist:

- (1) The employee is within the limited approach boundary.
- (2) The employee interacts with equipment where conductors or circuit parts are not exposed but an increased likelihood of injury from an exposure to an arc flash hazard exists.

110.2 Electrically Safe Work Condition

- **110.2(C) Requirements to Establish.**

- Electrical conductors and circuit parts shall not be considered to be in an electrically safe work condition until all of the applicable requirements of 120.2 through 120.6 have been met.

110.3 Electrical Safety Program

- **(A) General.** The employer shall implement and document an overall electrical safety program that directs activity applicable to the risk associated with electrical hazards.

110.3 Electrical Safety Program

- **(B) Inspection.** The electrical safety program shall include elements to verify that newly installed or modified electrical equipment or systems have been inspected to comply with applicable installation codes and standards prior to being placed into service.

110.3 Electrical Safety Program

- **(C) Condition of Maintenance.**
- The electrical safety program shall include elements that consider condition of maintenance of electrical equipment and systems.
- Informational Note: See Informative Annex S for guidance on assessing the condition of maintenance

110.3 Electrical Safety Program

(D) Awareness and Self-Discipline

(1) Provide an awareness of the potential electrical hazards to employees who work in an environment with the presence of electrical hazards.

(2) Provide the required self-discipline for all employees who must perform work that might involve electrical hazards.

(3) Instill safety principles and controls.

110.3 Electrical Safety Program

110.3(H) Risk Assessment Procedure. The electrical safety program assessment shall include a risk assessment procedure and shall comply with 110.3(H)(1) through 110.3(H)(3).

110.3(H)(1) Elements of a Risk Assessment Procedure. The risk assessment procedure shall address employee exposure to electrical hazards and shall identify the process to be used before work is started to carry out the following: (1) Identify hazards (2) Assess risks (3) Implement risk control according to the hierarchy of risk control methods

110.3(H)(2) Human Error. The risk assessment procedure shall address the potential for human error and its negative consequences on people, processes, the work environment, and equipment relative to the electrical hazards in the workplace.

110.3(H)(3) Hierarchy of Risk Control Methods. The risk assessment procedure shall require that preventive and protective risk control methods be implemented in accordance with the Hierarchy of Controls

110.3(I)(1) Job Safety Plan and Job Briefing

Informational Note No. 2:

- An emergency response plan could include actions to be taken during an electrical injury emergency, roles and responsibilities during response efforts, and contingency plans for when equipment is unintentionally de-energized while performing energized work.

110.3 (L) Auditing

- Audits are an important part of Electrical Safety Program.
- The existing text was converted to a list due to style manual requirements.
- Question for attendees – why should you provide audits in your facilities?

110.3(L)(1) Electrical Safety Program Audit

(a)The electrical safety program shall be audited to verify that the principles and procedures of the electrical safety program are in compliance with this standard

(b) Audits shall be performed at intervals not to exceed 3 years.

110.3(L)(2) Work Practices Audit.

Note: Field work was changed to work practices

(a) Employee work practices shall be audited to verify that the requirements contained in the procedures of the employer's electrical safety program are being followed.

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110.3(L)(2) Work Practices Audit Continued

b) When the auditing determines that the principles and procedures of the electrical safety program are not being followed, the training program or the procedures shall be revised to address the deficiencies.

(c) Audits shall be performed at intervals not to exceed 1 year.

110.3(L)(3) Lockout/Tagout Program Audit.

(a) The lockout/tagout program shall be audited to verify that the principles of the lockout/tagout program are in compliance with this standard.

(b) Audits shall be performed at intervals not to exceed 3 years

110.3(L)(4) Lockout/Tagout Procedure Audit

(a) The lockout/tagout procedures required by 120.2 through 120.6 shall be audited by a qualified person at intervals not to exceed 1 year.

(b) The audit shall cover at least one lockout/tagout in progress.

(c) The audit shall be designed to identify and correct deficiencies in the following:

(1) The lockout/tagout procedures

(2) The lockout/tagout training

(3) Worker execution of the lockout/tagout procedure

110.4 Training Requirements

110.4(A) Electrical Safety Training. The training requirements contained in 110.4(A) shall apply to employees exposed to an electrical hazard when the risk associated with that hazard is not reduced to a safe level by the applicable electrical installation requirements.

110.4(A)(1) Training Requirements

Such employees shall be trained as follows:

(1) To understand the specific hazards associated with electrical energy

(2) In safety-related work practices and procedural requirements, as necessary, to provide protection from the electrical hazards associated with their respective job or task assignments

110.4(A)(1) Training Requirements Continued

(3) To identify and understand the relationship between electrical hazards and possible injury

110.4 Training Requirements

110.4(A)(2) Qualified person. A qualified person shall be trained and knowledgeable in the construction and operation of equipment or a specific work method and be trained to identify and avoid the electrical hazards that might be present with respect to that equipment or work method.

110.4 Training Requirements

- 110.4(A)(2)(a) Such persons shall also be familiar with the proper use of applicable precautionary techniques, electrical policies, procedures, PPE, Insulating materials, shielding materials, and insulated tools and test equipment.

110.4 Training Requirements

110.4(A)(2)(b) - A person shall be permitted to be considered qualified with respect to certain equipment and tasks, but unqualified for others.

- **Question to attendees?**
  What does it mean?

110.4(A)(2)(e)Training Requirements

(e) Where employees use each test instrument, they shall be trained on the following:

(1) How to select a test instrument that is rated for the application

- (2)The correct use of the test instrument
- (3)The limitations of the test instrument

110.4(A)(2)(f)Training Requirements

(f) The training required by 110.4(A)(2)(e) shall include a demonstration by the employee on how to use the test instrument to test for the absence of voltage, including interpreting indications provided by the device

Training Requirements 110.4(A)(2)(g) no change but rarely implemented

(g) The employer shall determine through regular supervision or through inspections conducted on at least an annual basis that **each employee** is complying with the safety-related work practices required by this standard

What is your practice?

Training Requirements 110.4(A)(3)

Unqualified Persons. Unqualified persons shall be trained in, and be familiar with, any electrical safety-related practices necessary for their safety.

Questions to attendees

1. Do you provide this training for unqualified persons? If so when?

2. Do you require safety-related training to help unqualified electrical workers recognize electrical hazards that might exist?

3. Do they understand the electrical safety-related practices required before start of work in the area where electrical hazards might exist?

NFPA 70E - 90.3(A) Information

This standard includes safe work practices for employees performing other work activities that can expose them to electrical hazards as well as safe work practices for the following:

90.3(A) Continued

(1) Installations of conductors and equipment that connect to the supply of electricity

(2) Installations used by the electric utility, such as office buildings, warehouses, garages, machine shops, and recreational buildings that are not an integral part of a generating plant, substation, or control center

90.3(A) Continued

(3) Installations used by the communications utility, such as office buildings, warehouses, garages, machine shops, and recreational buildings that are not an integral part of communications equipment associated with the network infrastructure

110.4 (A)(4),(5) and (6)

- Text changed to a list format
- (4) Additional Training and Retraining.
- (5) Type of Training.
- (6) Electrical Safety Training Documentation.

110.4(B) Lockout/Tagout Procedure Training

- ***Note: 110.4 (B) covers***

- ***1. Initial Training and Retraining for Lockout/Tagout Procedure***
- ***Training and***

- ***2. Lockout/Tagout Training Documentation***

110.4(C) Emergency Response Training.

- **(1) Contact Release.**
- (a) Employees exposed to electric shock hazards and those responsible for the safe release of victims from contact with energized electrical conductors or circuit parts shall be trained in methods of safe release.
- (b) Refresher training shall occur annually.
- *Converted to a list format*

110.5 Host and Contract Employers' responsibilities

- No substantial change.
- Text rewritten in a list format to meet Style Manual

Article 120
Establishing an Electrically Safe Work Condition

. 120.1 Scope

- This article covers requirements for establishing an electrically safe work condition

120.2(A) Lockout/Tagout Program.

- (A) General.
- Each employer shall establish, document, and implement a lockout/tagout program that complies with the following:

- Rest of the text has been reformatted to comply with Style Manual

120.2(B) Lockout/Tagout Program.

- (**B) Employer Responsibilities**. The employer shall be responsible for the following:

- (1) Providing the equipment necessary to execute Lockout/Tagout procedures

- (2) Providing Lockout/Tagout training to workers in accordance with 110.4(B)

120.2(B) Continued

- (3) Auditing the Lockout/Tagout program in accordance with 110.3(L)(4)
- (4) Auditing execution of the Lockout/Tagout procedures in accordance with 110.3(L)(4)
- Note: See informational Annex G for an example of a Lockout/Tagout program.

120.3 Lockout/Tagout Principles.

- **120.3(C) Control of Energy.**
- All sources of electrical energy shall be controlled in such a way as to eliminate or minimize employee exposure to electrical hazards.

- Presenter's note
- *Elimination of hazard is the first priority*

120.3(E) Lockout/Tagout Principles

- **(E) Circuit Disconnecting Means.**
- Locks/tags shall be installed only on circuit disconnecting means.

- New requirement

120.5 Lockout/Tagout Procedures

120.5(B)(6)Testing

(6) Additional methods of testing if the testing for the absence of voltage alone does not confirm that electrical conductors and equipment are de-energized

- Informational Note to (6): An example of an additional method includes testing for the absence of current in current-driven circuits.

120.5 Lockout/Tagout Procedures

120.5(B)(7) Temporary Protective Grounding Requirements

New title more accurately describes the purpose.

Remaining text reformatted due to Style Manual Requirements

120.6 Process for Establishing and Verifying an Electrically Safe Work Condition

Establishing and verifying an electrically safe work condition shall include all of the following steps, performed in the order presented to the extent possible:

120.6(1) Determine all possible sources of electrical supply to the specific equipment including, but not limited to, checking applicable up-to-date drawings, diagrams, and identification tags.

120.6(2) After properly interrupting the load current, open the disconnecting device(s) for each source.

120.6(3) Visually verify that all blades of the disconnecting devices are fully open or that drawout-type circuit breakers are withdrawn to the test or fully disconnected position.

If feasible replaced by visually

120.6(4) Release stored electrical energy.

120.6(5) Block or relieve stored nonelectrical energy in devices to the extent the circuit parts cannot be unintentionally energized by such devices.

120.6(6) Apply Lockout/Tagout devices in accordance with a documented and established procedure.

120.6(7) Test for the absence of voltage as follows:

a. Use a portable test instrument that is rated for the application to test for the absence of voltage of each phase conductor or circuit part at each point of work, phase to phase and phase to ground.

b. Before and after testing, determine that the test instrument is operating correctly through verification on any known voltage source.

- 120.6(7) Continued - Exception No. 2 to 7:
- On electrical systems over 1000 volts, noncontact capacitive test instruments rated for the application shall be permitted to be used to test for the absence of detectable voltage at each phase conductor in lieu of using a contact test instrument for testing for absence of voltage both phase to phase and phase to ground

- 120.6(7) Exception 2 to 7 - Informational Note No. 3: Noncontact capacitive test instruments require a minimum voltage to operate and are therefore not suitable to test for the absence of voltage.

- 120.6(7) Continued - Exception No. 3 to 7 If the testing for absence of voltage alone does not confirm that electrical conductors and equipment are deenergized, then additional methods of testing shall be required.

- Informational Note to Exception No. 3:
- An example of additional methods include testing for the absence of current in current-driven circuits.

120.6 Process for Establishing and Verifying an Electrically Safe Work Condition

- 120.6(8)Temporary protective grounding equipment shall be applied to electrical conductors and circuit parts before touching them where the following conditions exist:

a. Where there is the possibility of induced voltage or stored electrical energy exists, all circuit conductors and circuit parts shall be grounded before touching them.

b. Where it could be reasonably anticipated that the conductors or circuit parts being de-energized could contact other exposed energized conductors or circuit parts, temporary protective grounding equipment shall be applied.

120.6 Process for Establishing and Verifying an Electrically Safe Work Condition

- 120.6(9) If required by 120.6(8), temporary protective grounding equipment shall be installed in accordance with the following:
- *Remaining text in 120.6(9)(a) has been reformatted in a list format to comply with Style Manual*
- Question - What are the requirements for temporary protective grounding equipment?

Article 130
Work Involving Electrical Hazards

. 130.1 Scope

- This article covers requirements for work involving electrical hazards such as the electrical safety-related work practices, assessments, precautions, and procedures when an electrical safe work condition cannot be established.

130.2 Work Involving Electrical Hazards

- Safety-related work practices shall be used to safeguard employees from injury while they are exposed to electrical hazards from electrical conductors or circuit parts that are or can become energized.

130.2(A)(1) Energized Work in Accordance with 110.2(B).

- When energized electrical conductors and circuit parts operating at voltages equal to or greater than 50 volts are not put into an electrically safe work condition, and work is performed as permitted in accordance with 110.2(B), all of the following requirements shall apply:

- Rest of text has been reformatted to comply with Style Manual

130.2(A)(2) Additional Person

- If an energized electrical work permit is required in accordance with 130.3, and the energized electrical work permit specifies the use of electric shock or arc flash PPE, or both, in accordance with 130.3(B)(5)d. and 130.3(B) (6)b., at least one additional person meeting the emergency response training requirements of 110.4(C) (1) shall be present at, but outside of, either the limited approach boundary or arc flash boundary, whichever is greater.

130.2(B) Application of Requirements

- All requirements of Article 130 shall apply whether an incident energy analysis is completed or if Table 130.7(C) (15) (a), Table 130.7(C) (15) (b), and Table 130.7(C) (15) (c) are used in lieu of an incident energy analysis.

130.3 Energized Electrical Work Permit

- 130.3(B)(9)The following wording was revised:
- Energized work approval signature or signatures such as by authorizing or responsible management, safety officer, or owner

130.4(C) Additional Protective Measures

- **130.4(C)(1) Selection.** If additional protective measures are required, they shall be selected and implemented according to the hierarchy of risk control identified in 110.3(H)(3)

130.4(F)(3) Entering the limited Approach Boundary
130.5(B) Estimate of Likelihood and Severity
130.5(G) Incident Energy Analysis Method

- Some text has been reformatted to comply with Style Manual

130.7 Personal and Other Protective equipment

- Some text has been reformatted to comply with Style Manual

130.7(14)(b) Conformity Assessment

- All suppliers or manufacturers of PPE shall demonstrate conformity with an applicable product standard by using one of the following methods:
  - (1) Self-declaration under a registered quality management system and product testing by an accredited laboratory and a Supplier's Declaration of Conformity
  - (2) Certification by an accredited independent third-party certification organization

130.7(14)(b) Conformity Assessment Continued

- Exception: PPE that has been marked with a supplier or manufacturer's self-declared level of conformity prior to the effective date of this edition shall be permitted.

130.8 Other Precautions

A number of style manual requirement changes exist in 130.8.

Paragraphs that contained requirements were changed to a list format.

Wording that did not include a requirement was moved to an Informational Note

130.8(H) Clear Spaces

(1) Storage. Working space required by other codes and standards shall not be used for storage.

(2) Operation and Maintenance. The space referenced in 130.8(H) (1) shall be kept clear to permit safe operation and maintenance of electrical equipment.

130.8(L) Routine Opening and Closing of Circuits

(1) Load-Break Type. Load-rated switches, circuit breakers, or other devices specifically designed as disconnecting means shall be used for the opening, reversing, or closing of circuits under load conditions.

(2) Not of the Load-Break Type. Cable connectors not of the load-break type, fuses, terminal lugs, and cable splice connections shall not be permitted to be used for such purposes, except in an emergency.

130.8(P) Look-Alike Equipment

Where work performed on equipment that is de-energized and placed in an electrically safe condition exists in a work area with other energized equipment that is similar in size, shape, and construction, one or more of the alerting methods in 130.8(o) shall be employed to prevent the employee from entering look-alike equipment.

What is your practice when working around look-alike equipment?

130.9 Work Within the Limited Approach Boundary or Arc Flash Boundary of Overhead Lines.

130.9(A) Uninsulated and Energized.

(1) **Not Guarded or Isolated**. Where work is performed in locations containing uninsulated energized overhead lines that are not guarded or isolated, precautions shall be taken to prevent employees from contacting such lines directly with any unguarded parts of their body or indirectly through conductive materials, tools, or equipment.

130.9(A) Uninsulated and Energized Continued

2) Possible Contact. Where the work to be performed is such that contact with uninsulated energized overhead lines is possible, the lines shall be de-energized and visibly grounded at the point of work or suitably guarded.

130.9(D) Guarding, Isolating, or Insulation

(D) Guarding, Isolating, or Insulation. If arrangements are made to use protective measures, such as guarding, isolating, or insulation, these precautions shall prevent each employee from contacting such lines directly with any part of his or her body or indirectly through conductive materials, tools, or equipment.

130.9(E) Employer and Employee Responsibility

(E) Employer and Employee Responsibility.

(1) Joint Responsibility. The employer and employee shall be responsible for ensuring that guards or protective measures are satisfactory for the conditions.

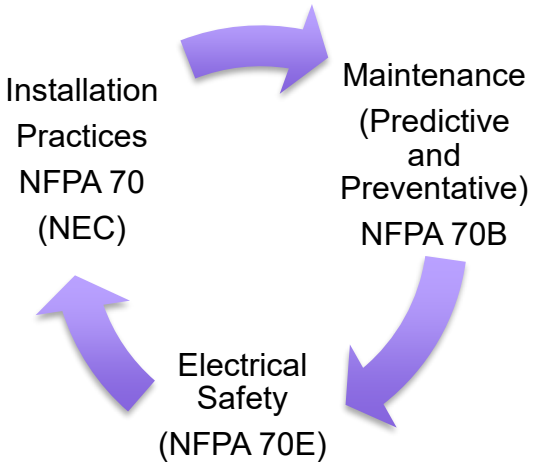
(2) Employee Responsibility. Employees shall comply with established work methods and the use of protective equipment.

NFPA 70E-2027

Table 130.4(E)(a)
Table 130.4(E)(b)
Table 130.7(C)(15)(a)
Table 130.7(C)(15)(b)

Open Discussion

- **What role does NFPA 70 (NEC) and NFPA 70B play in electrical safety?**



Chapter 2

Safety-Related Maintenance Requirements

Articles 200 through 250

Revisions in articles 200 are not covered in this presentation.

The following information is shown for information only.

Article 200
Introduction

200.1 Scope

- Chapter 2 addresses the requirements that follow.
-
- (1) Chapter 2 covers practical safety-related maintenance requirements for electrical equipment and installations in workplaces as included in 90.3(A). These requirements identify only that maintenance directly associated with employee safety.

Article 205 General

- This article covers general safety-related maintenance requirements for electrical equipment.

Article 210 Substations, Switchgear Assemblies, Switchboards, Panelboards, Motor Control Centers, and Disconnect Switches.

Article 215 Premises Wiring

Article 220 Controller Equipment

Article 225 Fuses and Circuit Breakers

Article 230 Rotating Equipment

Article 235 Hazardous (Classified) Locations

Article 240 Batteries and Battery Rooms

Article 245 Portable Electric Tools and Equipment

Article 250 Personal Safety and Protective Equipment

Chapter 3

Safety Requirements for Special Equipment

Articles 300 Through 390

Revisions in articles 300 are not covered in this presentation.

The following information is shown for information only.

Article 300 Introduction

- 300.1 Scope

- Chapter 3 covers special electrical equipment in the workplace and modifies the general requirements of chapter 1

Article 310 Direct Current (dc) Electrical Hazards

Article 320 Capacitor Electrical Hazards

Article 330 Electrical Hazards 1 Hz to 110 MHz Excluding dc and 50/60 Hz

Article 340 Electrical Hazards for Mixed Frequencies (Reserved)

Article 350 Safety-related Work practices for Electrolytic Cells

Article 360 Safety-Related Requirements for Batteries

Article 370 Safety-Related Work Practices for Electrical Double Layer Capacitors (EDLCs)

Article 380 Safety-related Work Practices for Photovoltaic Systems

Article 390 Safety-related Work requirements for Research and Development (R&D) Laboratories

Informative Annexes

Revisions to Annex A through T are not covered in this presentation

The following information is shown for information only.

Informative Annex A Informative Publications

Informative Annex B Reserved

Informative Annex C Limits of Approach

Informative Annex D Incident Energy and Arc Flash Boundary Calculation Methods

Informative Annex E Electrical Safety Program

Informative Annex F Risk Assessment and Risk Control

Informative Annex G Sample Lockout/Tagout Program

Informative Annex H Guidance on Selection of Protective Clothing and Other Personal Protective Equipment (PPE)

Informative Annex I Job Briefing and Job Safety Planning Checklist

Informative Annex J Energized Electrical Work Permit

Informative Annex K General Categories of Electrical Hazards

About 98% of fatal occupational injuries are electrical shock injuries. An average of at least eight arc burn injuries occur each year, leading to 12 nonfatal injuries and two fatalities per year.

Electrical incidents involve a large share of non-electrical workers, approximately one-half of incidents involving workers from outside electrical crafts.

Over 40 percent of all electrical fatalities in the US involved overhead power line contact.

Seventy percent of electrocutions occurred while the worker was performing a constructing, repairing, or cleaning activity.

Informative Annex L Typical Application of Safeguards in the Cell Line Working Zone

Informative Annex M Layering of Protective Clothing and Total System Arc Rating

Informative Annex N Example Industrial Procedures and Policies for Working Near Overhead Electrical Lines and Equipment

Informative Annex O Employee Safety-Related Design Concepts

Informative Annex P Aligning Implementation of This Standard with Occupational Health and Safety Management Standards

Informative Annex Q Human Performance and Workplace Electrical Safety

Informative Annex R Working with Capacitors

Informative Annex S Assessing the Condition of Maintenance

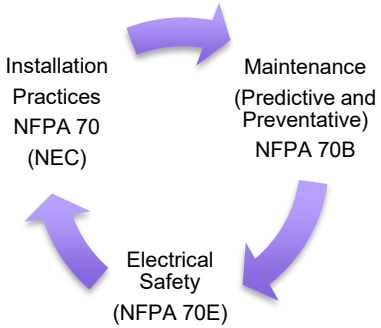
Informative Annex T Electrical Double Layer Capacitor (EDLC) Characteristics

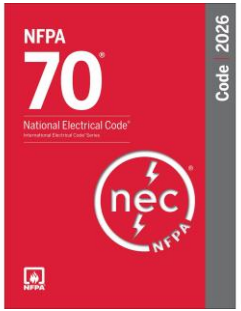
Remember Safety Requires full approach

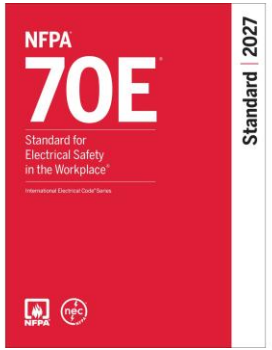
Proper Installation – NFPA 70 (NEC)

Proper Maintenance – NFPA 70B

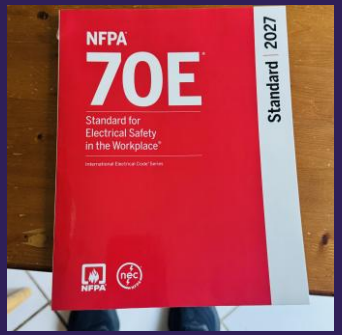
Proper Safety practices- NFPA 70E







NFPA 70E Standard For Electrical Safety In The Workplace,
Review and Changes For The 2027 Edition



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