# Significant Changes

## TO *NFPA 70E®* 2021


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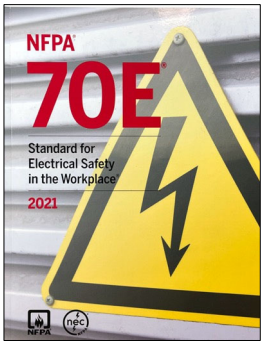
# Significant Changes

## To *NFPA 70E®* 2021

**Foreword (in part)**

- NFPA 70E *Standard for Electrical Safety in the Workplace* is revised on a three-year cycle. This presentation is intended to identify what has changed from the previous edition and how it impacts employers and employees relative to their shared responsibilities in compliance with the contained rules as revised.
- This guide includes many of the most significant revisions in the 2021 70E standard and is intended to assist in updating all safety program components.
- It is additionally written as an extremely useful tool to train employees on the applicable changes impacting their workplace as required in 110.6(A)(3).



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# Learning Objectives

- To identify the major revisions and new requirements in this edition of NFPA 70E.
- To assist in the understanding of revised definitions of words and terms used in the standard.
- To develop an understanding of each revision and the impact on both employers and employees.
- To understand that an Electrically Safe Work Condition is a state wherein all hazardous electrical conductors or circuit parts to which a worker might be exposed are maintained in a de-energized state for the purpose of temporarily eliminating electrical hazards for the period of time for which the state is maintained.



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# Learning Objectives (continued)

- To develop an understanding of the importance of the hierarchy of controls and how it applies specifically to electrical safety requirements covered in NFPA 70E.
- To understand the evolving role of equipment maintenance as it relates to applying the rules in NFPA 70E.
- To assist users in proper application of the Table Method of PPE selection related to revisions in the 2021 edition.



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Revision

# Article 100 Definitions

100 Arc Flash Hazard

### Change Summary

- A new sentence is added to Informational Note No.1 to aid the user of the standard when determining if an arc flash hazard exists.
- The informational notes that follow this definition explain when and where an arc flash hazard exists.
- The first step in the application of section 130.5 Arc Flash Risk Assessment is to “identify arc flash hazards.”



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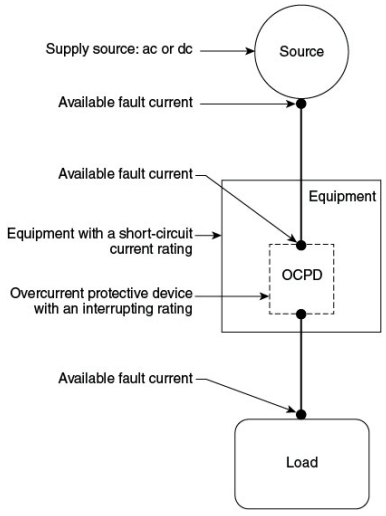
Revision

# Article 100 Definitions

Article 100 Available Fault Current

### Change Summary

- The definition of Available Fault Current is modified with a new Informational Note (IN).
- The new IN clarifies that available fault current varies at different locations within the system due to the location of sources and system impedances.
- The standard uses the term fault current with the modifiers available and maximum, which can be confusing.



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Revision

# Article 100 Definitions

100 Balaclava

### Change Summary

- The term “Sock Hood” is deleted from the definition of Balaclava because it created confusion. A new IN is added for clarity.
- A Balaclava is a head protective fabric that protects the neck and head except for a small portion of the face.
- The previous definition stated that the balaclava did not protect the “eyes and nose.”



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Revision

# Article 100 Definitions

100 Barrier

### Change Summary

- A Barrier is now very clearly defined as a physical obstruction that is intended to prevent contact with equipment or energized electrical conductors and circuit parts.
- This revision helps to clarify the difference between a Barrier and a Barricade.
- A Barricade is different in that it is intended to warn and to limit access.



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Revision

# Article 100 Definitions

## 100 Arc-Resistant Equipment

### Change Summary

- The definition of Switchgear, Arc-Resistant is modified to Equipment Arc-Resistant.
- Arc-resistant designs may include methodology to restrict exposure during an internal arcing fault by using time tested methods such as barriers, insulation and isolation.
- Arc-Resistant Equipment is built to a performance and evaluation guide, not a construction standard.



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Revision

# Article 100 Definitions

## 100 Electrically Safe Work Condition

### Change Summary

- A new informational note is added to the definition of Electrically Safe Work Condition (ESWC).
- An ESWC is not a procedure. It is a state that equipment is placed into and maintained.
- An ESWC is a deenergized state that is created for the purpose of temporarily eliminating electrical hazards.



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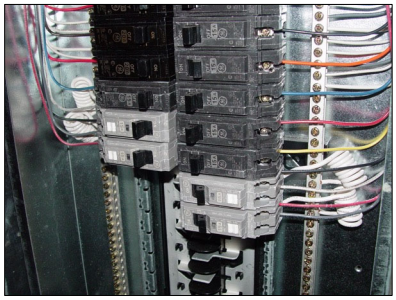
Revision

# Article 100 Definitions

## 100 Shock Hazard

### Change Summary

- The definition of Shock Hazard is modified to clarify that a shock hazard exists only where energized electrical conductors or circuit parts are exposed.
- When applying the requirements for a shock risk assessment in section 130.4, the first step is to identify if a shock hazard exists.
- The definition of Exposed (as applied to energized electrical conductors or circuit parts) now applies.





Revision

# Article 100 Definitions

## 100 Working On

### Change Summary

- The definition of Working On is modified for clarity and usability.
- The addition of “conductors or circuit parts” removes some of the previous confusion.
- There are two categories of Working On: Diagnostic (testing) and Repair.

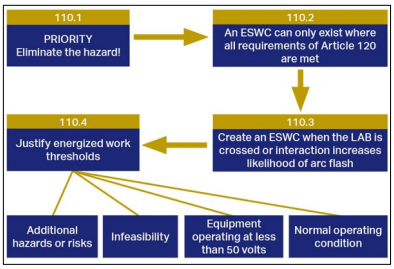
# Article 110 General Requirements for Safety-Related Work Practices

Revision

## 110 General Reorganization of Requirements

### Change Summary

- The 2021 revision cycle of NFPA 70E contains a significant reorganization of requirements.
- While this reorganization seems to be primarily editorial in nature, there is a significant impact on the application of general requirements.
- This is seen in multiple new sections in Article 110 General Requirements for Electrical Safety-Related Work Practices.
- This revision provides clarity and usability relocating requirements into the correct Articles.



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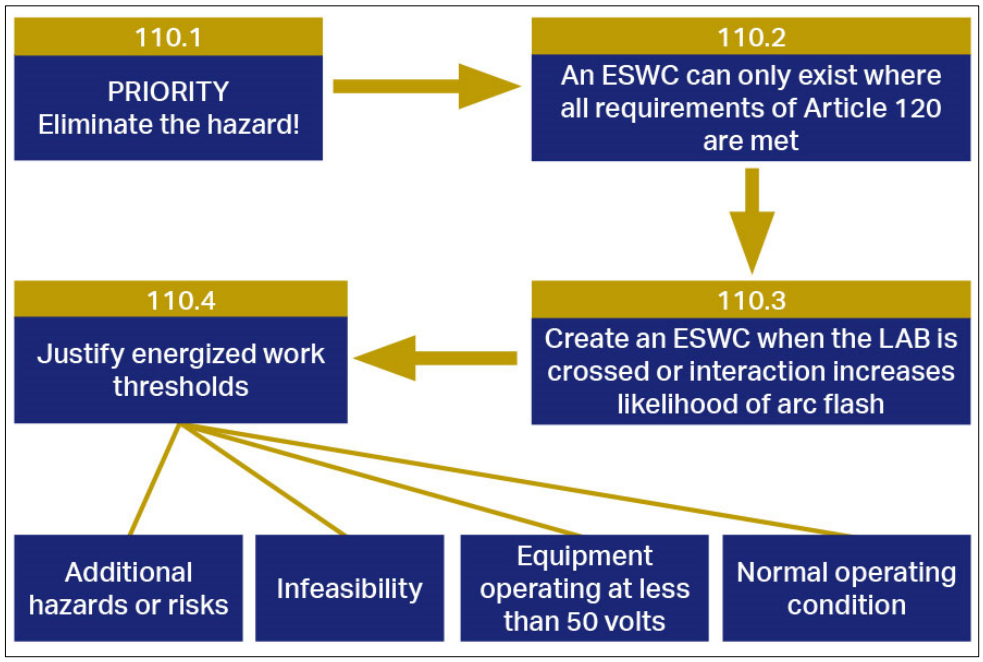


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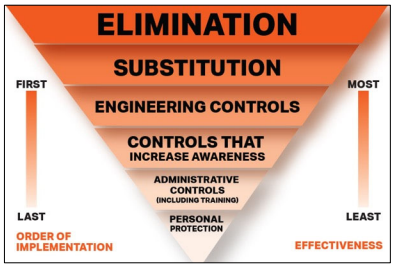
# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.1 Priority

## Change Summary

- The requirement mandating that hazard elimination is always the first priority in the implementation of safety-related work practices is relocated as the first section in Article 110.
- This revision provides significant clarity by making hazard elimination the very first general requirement in the standard.
- This requirement was previously misplaced in Article 105 which contains administrative requirements.



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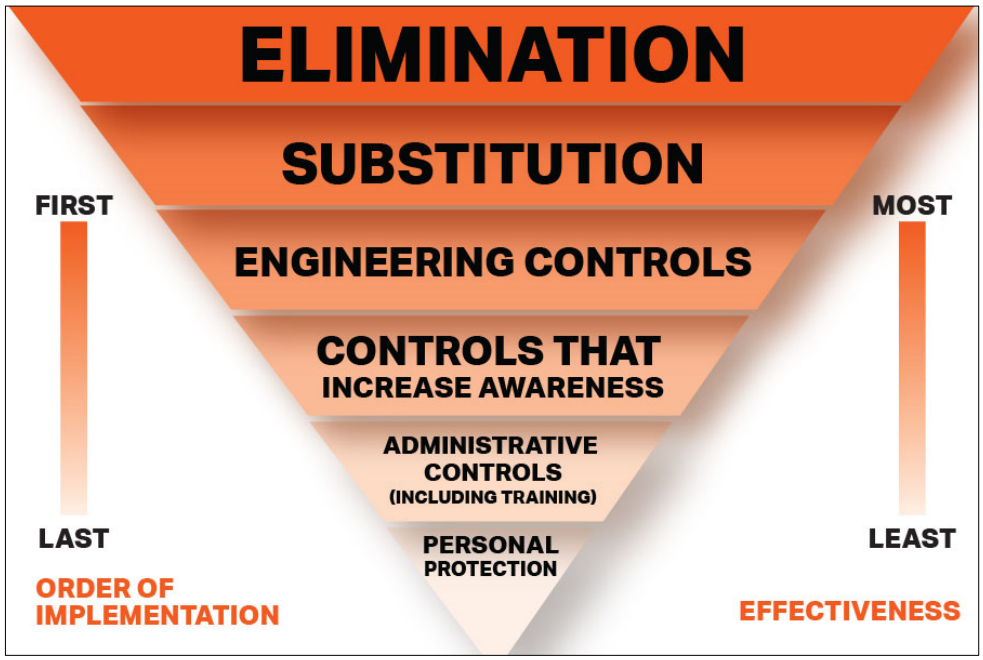


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# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.2 General (reqs. for electrical safety-related work practices)

**Change Summary**

- The general requirement in 120.2(A) is relocated as a new section 110.2.
- This revision relocates the requirement that electrical conductors and circuit parts are not considered to be in an Electrically Safe Work Condition until all the requirements of Article 120 have been met.
- This requirement immediately follows the requirement making hazard elimination the first priority in the implementation of safety-related work practices.



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# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.3 Electrically Safe Work Condition

**Change Summary**

- The general rule for the creation of an Electrically Safe Work Condition (ESWC) is relocated to the front of Article 110.
- This is now a stand-alone section and does not address energized work (the thresholds for justified energized work).
- This requirement was previously located in 130.2.
- General requirements belong in Article 110.



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# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.4 Energized Work

**Change Summary**

- The justification thresholds for energized work are relocated from 130.2 into new section 110.4.
- This general requirement is relocated into four first-level subdivisions following new section 110.3 that mandates the general rule is to create an Electrically Safe Work Condition.
- Sections 110.1 through 110.4 now clearly mandate elimination as the first choice (priority) and the thresholds for justified energized work.



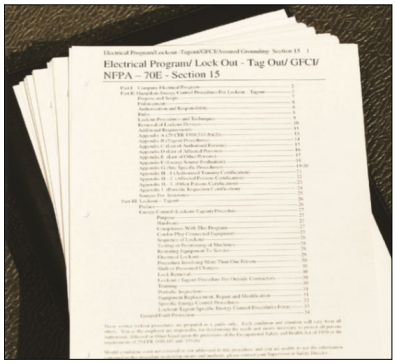
# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.5 Electrical Safety Program

**Change Summary**

- The requirement for the development and implementation of an Electrical Safety Program is relocated to 110.5.
- The references in Informational Notes to standards that address safety management systems are deleted and relocated into Informational Annex material.
- This relocation from 110.1 to 110.5 does not in any way diminish or make secondary the need for an Electrical Safety Program.



# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.5(H) Risk Assessment Procedure

**Change Summary**

- The informational notes (INs) addressing when a second person is required and the IN pointer to Informative Annex F are relocated.
- The evaluation of the potential for human error in the risk assessment process must be relative to the electrical hazards.
- The IN reference to safety management systems is deleted to eliminate confusion.



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# Article 110 General Requirements for Safety-Related Work Practices

NEW

110.5(K) Electrically Safe Work Condition Policy

**Change Summary**

- A new requirement is added to require the electrical safety program to include an Electrically Safe Work Condition (ESWC) policy.
- This ESWC policy must comply with the requirements of 110.3.
- Section 110.3 is the general requirement mandating that an ESWC be created if an employee crosses the limited approach boundary or interacts in a manner increasing the likelihood of an arc flash.

NECA STANDING POLICY 19
Safety and Health

*...NECA concludes that to achieve zero injuries in the workplace, contractors must strive for elimination of the hazards (establishing zero energy work environments) as the first priority and normal and best practice, whenever achievable.*



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NECA STANDING POLICY 19
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*...NECA concludes that to achieve zero injuries in the workplace, contractors must strive for elimination of the hazards (establishing zero energy work environments) as the first priority and normal and best practice, whenever achievable.*

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# Article 110 General Requirements for Safety-Related Work Practices

NEW

110.5(L) Lockout/Tagout Program

**Change Summary**

- A new requirement is added to require the Electrical Safety Program (ESP) to include a Lockout/Tagout (LOTO) Program.
- This LOTO Program must be in accordance with 120.1(A) or must reference a LOTO program established in accordance with 120.1(A).
- The requirement for a LOTO program is not new. See Section 120.1(A).
- This revision mandates the ESP contain those elements.



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# Article 110 General Requirements for Safety-Related Work Practices

NEW

110.6(A)(4) Training Requirements, Type of Training

**Change Summary**

- Electrical safety training requirements are editorially relocated to 110.6. A new informational note (IN) is added to follow 110.6(A)(4) *Type of Training*.
- This new IN explains that classroom training can include interactive electronic or interactive web-based training components.
- Interactive electronic or interactive web-based training components can be used to supplement the required training in 110.6.



# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.6(B)(1) LOTO Procedure Training, Initial Training

**Change Summary**

- Only employees involved in the LOTO procedures required by 120.2(B) are required to be trained in those requirements.
- The initial training required by 110.6(B)(1) applies only to employees that may be exposed directly or indirectly to a source of electrical energy.
- The initial LOTO training requirement in 110.6(B) is correlated with the requirements of 120.2.

# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.7(C) Host and Contract Employers' Responsibilities

**Change Summary**

- A new IN is added to apply to all of Section 110.7 for Host and Contract Employers' Responsibilities.
- This IN explains that on multi-employer work sites (in all industry sectors), more than one employer can be responsible for identifying hazardous conditions and creating safe work practices.
- OSHA recognizes four types of employers on multi-employer work sites: creating, controlling, exposing, and correcting.



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# Article 110 General Requirements for Safety-Related Work Practices

Revision

110.8 Test Instruments

**Change Summary**

- The requirements for qualified persons using test instruments are modified significantly.
- This revision now mandates that where an electrical hazard exists, only qualified persons shall perform tasks such as testing, troubleshooting and voltage measuring.
- The previous requirement referenced only equipment operating at voltages equal to or greater than 50 volts.



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# Article 110 General Requirements for Safety-Related Work Practices

NEW

110.12 Equipment Use

## Change Summary

- A new Section 110.12 is added requiring all equipment to be used in accordance with the manufacturer's instructions.
- Equipment as defined in Article 100 is a general term, including fittings, devices, appliances, luminaires, apparatus, machinery and the like, used as a part of, or in connection with, an electrical installation.
- This is in addition to multiple specific requirements for following manufacturer's instructions.



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# Article 120 Establishing an Electrically Safe Work Condition

Revision

120.2(A) & (B) Employee Involvement, LOTO Procedure

## Change Summary

- Each person who could be exposed directly or indirectly to a source of electrical energy must be involved in the LOTO procedure.
- LOTO procedures must comply with applicable codes, standards and regulations for lockout and tagging of electrical sources.
- A procedure is a prescribed way of undertaking a process or part of a process.



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# Article 120 Establishing an Electrically Safe Work Condition

Revision

120.3(C)(3) LOTO Equipment, LOTO Devices

**Change Summary**

- Requirements in 120.3(C) (3) are modified to include concepts in 1910.333(b)(2)(iii)(E).
- Only one circuit or piece of equipment may be involved and the LOTO cannot extend beyond the work shift.
- When this is applied, employees exposed to the hazards associated with re-energizing the circuit or equipment must be familiar with this procedure.




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# Article 120 Establishing an Electrically Safe Work Condition

Revision

120.5(3) & (5) Process for Establishing and Verifying an ESWC

**Change Summary**

- Section 120.5(3) is modified to recognize that the verification of draw-out-type circuit breakers to the fully open position can include the test or fully disconnected positions.
- Section 120.5(5) is modified to correlate with the OSHA general industry requirement in 1910.333(b)(2)(ii)(D).
- Stored non-electrical energy in devices that could reenergize electric circuit parts must be blocked or relieved.



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# Article 120 Establishing and Electrically Safe Work Condition

Revision

120.5(7) & (8) Process for Establishing and Verifying and ESWC

**Change Summary**

- Section 120.5(7) is modified to clarify that this requirement is not to verify it is deenergized; it is to test for the absence of voltage.
- Exception No.2 to 120.5(7) is modified to permit noncontact capacitive test instruments to test each phase conductor on electrical systems over 1000 volts.
- Section 120.5(8) is modified to require grounding of all circuit conductors, not just the phase conductors.



# Article 130 Work Involving Electrical Hazards

Revision

130.1 General Requirements

**Change Summary**

- The general requirement to create an ESWC is relocated from 130.1 to 110.4 for clarity.
- The requirements of 130.3 are relocated into 130.1 and are revised into a user-friendly format.
- Four list items are added to clarify the required safety-related work practices for situations where an ESWC is not created.

# Article 130 Work Involving Electrical Hazards

Revision

130.4 Shock Risk Assessment

**Change Summary**

- A new first-level subdivision 130.4(B) is added to require an estimate of the likelihood and severity of shock hazards.
- Clarity is provided for requirements to keep unqualified persons from crossing the limited approach boundary.
- The shock protection boundary tables are editorially renumbered as Table 130.4(E)(a) for AC and Table 130.4(E)(b) for DC.



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# Article 130 Work Involving Electrical Hazards

Revision

Table 130.5(C) Estimate of the Likelihood of Occurrence of an Arc Flash Incident for AC and DC Systems

**Change Summary**

- A new task is added into the likelihood table for operation of a CB or switch the first time after installation or completion of maintenance in the equipment.
- This task is identified as having a likelihood of an arc flash occurrence.
- Tasks involving arc resistant equipment are clarified and recognize all equipment evaluated against IEEE Std C37.20.7.



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# Article 130 Work Involving Electrical Hazards

Revision

## Table 130.5(C) Estimate of the Likelihood of Occurrence of an Arc Flash Incident for AC and DC Systems

**Change Summary**

- The Table note has been revised to clearly state that the likelihood of occurrence must always be combined with the potential severity of an arcing incident.
- A Table note is added to address “normal operating condition” with a reference to 110.4(D).
- The references to “voltage testing” are correctly revised as “electrical testing.”




# Article 130 Work Involving Electrical Hazards

Revision

## Table 130.5(G) Selection of Arc-Rated Clothing and Other PPE When the Incident Energy Analysis Method Is Used

**Change Summary**

- Editorial revisions are made to require “arc rated” apparel.
- The optional list of apparel that includes arc-rated outerwear such as a jacket, parka, rainwear or hard hat liner is supplemented with the addition of “high-visibility apparel.”
- A table note is added to recognize footwear other than leather or dielectric that will not ignite, melt or drip at the estimated incident energy exposure.

# Article 130 Work Involving Electrical Hazards

Revision

130.7(C)(1) Personal Protective Equipment (PPE), General

**Change Summary**

- Section 130.7(C)(1) requires all parts of the body inside an arc flash boundary be protected in accordance with 130.5.
- A new IN is added providing examples of risk reduction methods where PPE is not commercially available for an exposure when testing for the absence of voltage.
- This IN includes references to noncontact proximity test instrument(s), increasing working distance, system design options and more.



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# Article 130 Work Involving Electrical Hazards

NEW

130.7(C)(7)(a) Maximum Use Voltage for Rubber Insulating Gloves

**Change Summary**

- A new table is added into section 130.7(C)(7) to provide requirements for the maximum use voltage of rubber insulating gloves.
- This table also includes minimum distances between the gauntlet (leather protector) and the cuff of the rubber insulating gloves.
- Class 00 through 4 rubber insulating gloves are listed with the maximum use voltages for both AC and DC systems.

TABLE 130.7(C)(7)(a) MAXIMUM USE VOLTAGE FOR RUBBER INSULATED GLOVES

| Class Designation of Glove or Sleeve | Maximum ac Use Voltage rms, volts | Maximum dc Use Voltage rms, volts | Distance Between Gauntlet and Cuff, minimum |
|---|---|---|---|
| 00 | 500 | 750 | 13 mm (0.5in.) |
| 0 | 1,000 | 1,500 | 13 mm (0.5in.) |
| 1 | 7,500 | 11,250 | 25 mm (1 in.) |
| 2 | 17,000 | 25,500 | 51 mm (2 in.) |
| 3 | 26,500 | 39,750 | 76 mm (3 in.) |
| 4 | 36,000 | 54,000 | 102 mm (4 in.) |




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TABLE 130.7(C)(7)(a) MAXIMUM USE VOLTAGE FOR RUBBER INSULATED GLOVES

| Class Designation of Glove or Sleeve | Maximum ac Use Voltage rms, volts | Maximum dc Use Voltage rms, volts | Distance Between Gauntlet and Cuff, minimum |
|---|---|---|---|
| 00 | 500 | 750 | 13 mm (0.5in.) |
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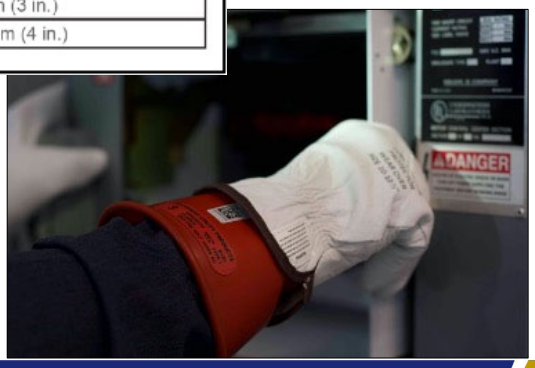




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# Article 130 Work Involving Electrical Hazards

Revision

130.7(C)(9)(b) Outer Layers

## Change Summary

- New text is added to address outer layers as protection from weather or for other safety purposes that are not used as part of a layered system.
- This includes, but is not limited to, high-visibility apparel.
- These outer layers are not required to be equal to or greater than the estimated incident energy exposure.



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# Article 130 Work Involving Electrical Hazards

Revision

130.7(C)(10)(e) Arc Flash Protective Equipment, Foot Protection

**Change Summary**

- Section 130.7(C)(10)(e) requires that in all exposures greater than 4 cal/cm$^2$, leather or dielectric footwear be worn.
- This revision provides an alternative to leather or dielectric materials to protect the feet from arc flash.
- This permits footwear that has been tested and demonstrates that it will not ignite, melt or drip at the estimated exposure to arc flash.



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# Article 130 Work Involving Electrical Hazards

Revision

130.7(C)(15) Arc Flash PPE Category Method

**Change Summary**

- The phrase “for the task” is deleted. The arc flash PPE category method is not based upon the task being performed.
- A new sentence is added in 130.7(C)(15)(c) to permit the use of PPE other than or in addition to the PPE listed in Table 130.7(C)(15)(c) provided that it meets the requirements of 130.7(C)(7).
- Editorial revisions are made to refer to 130.5(G).



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# Article 130 Work Involving Electrical Hazards

Revision

130.7(C)(15)(a) and (b) Arc Flash PPE Categories for AC and DC Systems

**Change Summary**

- The first Table Note in 130.7(C)(15)(a) is modified to recognize current limiting molded case circuit breakers.
- The INs following 130.7(C)(15)(a) are editorially modified along with the reference to IEEE C37.20.7. A new IN No. 4 is added to reference Informative Annex O (O.2.4(9)) for information on arc-resistant equipment.
- The IN reference to “arc in a box” following Table 130.7(C)(15)(b) is deleted.



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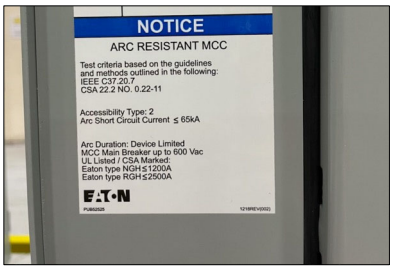
# Article 130 Work Involving Electrical Hazards

Revision

Table 130.7(C)(15)(a) Arc Flash PPE Categories for AC Systems

**Change Summary**

- The previous equipment identification for “arc resistant switchgear” is deleted and two general “arc resistant equipment” categories are added.
- IEEE C37.20.7 contains procedures for testing and evaluating the performance of switchgear and other equipment for internal arcing faults.
- There are multiple methods to achieve an arc-resistant rating—not all this equipment is built like an M1 tank.



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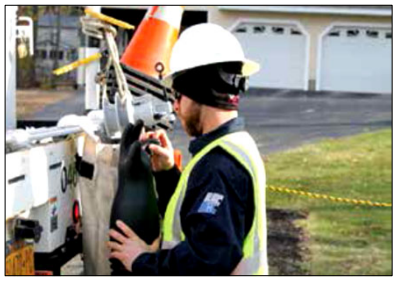
# Article 130 Work Involving Electrical Hazards

Revision

Table 130.7(C)(15)(c) Personal Protective Equipment (PPE)

**Change Summary**

- Table 130.7(C)(15)(c) is modified to recognize arc-rated high-visibility apparel as needed in all four PPE categories and a new IN.
- The reference to rubber insulating gloves and leather protectors is moved from the Table Note into each arc flash PPE category along with a new IN.
- A new Table Note is added to address footwear other than dielectric or leather.





# Article 130 Work Involving Electrical Hazards

Revision

Table 130.7(D)(2) Barriers

**Change Summary**

- Section 130.7(D) Other Protective Equipment is modified to provide clarity for barrier requirements as barricades are addressed in 130.7(E)(2).
- This requirement is separated into second level subdivisions for (D)(1) *Insulated Tools and Equipment* and (D)(2) *Barriers.*
- A barrier is intended to prevent unintentional contact while an employee is inside the RAB.

# Article 130 Work Involving Electrical Hazards

Revision | RELOCATION

Table 130.8 Other Precautions for Personnel Activities

**Change Summary**

- Requirements for Other Precautions for Personnel Activities are relocated from 130.6 in 2018 to 130.8 in the 2021 edition of NFPA 70E.
- Editorial revisions are made throughout this section for clarity and usability.
- The result is that all the requirements for other precautions for personnel activities apply where and when an electrical hazard exists.



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# Article 130 Work Involving Electrical Hazards

Revision | RELOCATION

130.12 Cutting, Removing, or Rerouting of Conductors

**Change Summary**

- Requirements for cutting, removing, or rerouting of conductors are relocated from a first-level subdivision into new section 130.12 for clarity and style manual issues.
- Requirements for cutting, removing, or rerouting of conductors are not an *Alerting Technique*.
- Multiple revisions are made in 130.12 and the associated IN to clearly convey the application of this requirement.



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NEW

# Article 360 Safety-Related Requirements for Capacitors

360 Safety-Related Requirements for Capacitors

## Change Summary

- A new Article 360 *Safety-Related Requirements for Capacitors* is added into Chapter 3.
- Chapter 3 of NFPA 70E contains safety requirements for special equipment and modifies the general requirements of Chapter 1.
- This new Article is supplemented with a new Informative Annex R *Working with Capacitors*.



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Revision

# Informative Annex D

Informative Annex D Incident Energy and Arc Flash Boundary Calculation Methods

## Change Summary

- Informative Annex D is modified to recognize a new edition of the IEEE 1584 standard that was published in 2018.
- Table D.1 is revised to contain the new limitations and parameters of the 2018 IEEE 1584 standard.
- This revision does not impact incident energy calculations performed using the previous standard of IEEE 1584.




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NEW

# Informative Annex F

Informative Annex F, Section F.7 Risk Assessment and Risk Control

### Change Summary

- A new section F.7 is added into Informative Annex F Risk Assessment and Risk Control.
- This new section provides guidance when performing risk assessments that involve batteries as a source of energy.
- Multiple hazards exist when dealing with batteries including, but not limited to, shock, arc flash, chemical and thermal hazards.



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NEW

# Informative Annex I

Informative Annex I, Section I.2 Job Briefing and Job Safety Checklist

### Change Summary

- A new section I.2 is added into Informative Annex I to include a job safety planning checklist.
- This new checklist includes six sections for the user to review in a yes/no format.
- The addition of this checklist supplements changes made during the 2018 70E revision cycle to differentiate between job briefing and planning.



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NEW

# Informative Annex M

Informative Annex M, Sections M1.1 & M.1.2 Layering of Protective Clothing

### Change Summary

- Informative Annex M is modified to provide clarity where an employee may wear multiple arc-rated garments.
- Where arc-rated clothing is layered, there is an increased level of protection. However, the combined arc rating can only be determined through testing.
- Layering arc-rated clothing over natural fiber underlayers is addressed in M.2.




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NEW

# Informative Annex O

Informative Annex O.2.3(5) Safety-Related Design Requirements

### Change Summary

- A new means to reduce incident energy is added to section O.2.3 in Informative Annex O.
- This new method is actually a means to isolate energy on the line side of a circuit breaker or switch.
- This is extremely useful where line side propagation of an arcing fault will increase the incident energy released in an event.




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NEW

# Informative Annex R

Informative Annex R Working with Capacitors

**Change Summary**

- A new Informative Annex R *Working with Capacitors* is added to provide guidance and to correlate with new Article 360.
- This informative annex covers a very wide range of safety-related information related to working with capacitors.
- Informative Annex R provides detailed guidance on how to properly assess the risk in working with capacitors and implement suitable controls.



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# Significant Changes

To *NFPA 70E*® 2021

1. The arc rating of outer layers worn over arc-rated clothing as protection from the elements or for other safety purposes that are not used as part of a layered system:

a. must be fully rated for the incident energy or arc flash PPE category.
b. must exceed the estimated exposure.
c. are permitted for exposures not exceeding 12 cal/cm$^2$.
d. are not required to be equal to or greater than the estimated incident energy exposure.



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# Significant Changes

To *NFPA 70E*® 2021

2. A balaclava is an arc rated protective fabric worn on the head that protects the neck and the head except for:

a. a small portion of the facial area.
b. the eyes and nose.
c. the eyes.
d. the eyes, nose and mouth.



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# Significant Changes

To *NFPA 70E*® 2021

3. LOTO procedures must be:

a. developed based on up-to-date drawings and diagrams.
b. available to all employees.
c. in compliance with all applicable codes, standards and regulations.
d. all of the above.



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# Significant Changes

To *NFPA 70E*® 2021

4. Where an unqualified person or persons are working close to the limited approach boundary:

a. they must wear the same protective clothing and equipment as the qualified person inside the limited approach boundary.
b. the alerting techniques in 130.7(E) must be applied.
c. they can approach no closer than the restricted approach boundary.
d. they must be removed from the immediate area.



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# Significant Changes

To *NFPA 70E*® 2021

5. Where conductors are placed in an ESWC in order to cut and remove them, but the conductor terminations are not within sight from the point of work, additional steps to verify absence of voltage or identify the conductors must be performed. One example is:

a. remotely cutting the conductors.
b. wearing double the PPE.
c. consulting as built drawings.
d. none of the above.



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# Significant Changes

To *NFPA 70E*® 2021

6. The note to Table 130.5(C) provides clarity by stating that the likelihood of an arc flash occurrence must always be combined with the _____ of the arcing incident.

a. arc flash PPE category.
b. equipment manufacturer involved in.
c. potential severity.
d. conductor material (aluminum or copper).



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# Significant Changes

TO *NFPA 70E*® 2021


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