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M E M O R A N D U M

TO: Code-Making Panel 10

FROM: Sarah Caldwell, *Committee Administrator*

DATE: April 15, 2021

SUBJECT: NEC® First Draft Technical Committee FINAL Ballot Results (A22)

According to the final ballot results, all ballot items received the necessary affirmative votes to pass ballot.

14 Members Eligible to Vote
0 Members Not Returned

The attached report shows the number of affirmative, negative, and abstaining votes as well as the explanation of the vote for **each** revision.

To pass ballot, **each** revision requires: (1) a simple majority of those eligible to vote and (2) an affirmative vote of $^{2}/_{3}$ of ballots returned. See Sections 3.3.4.3.(c) and 4.3.10.1 of the ***Regulations Governing the Development of NFPA Standards***.

First Revision No. 7857-NFPA 70-2020 [Global Input]

Move all definitions from 240.2 to Article 100 in alphabetical order. See attached word file for changes.

Supplemental Information

File Name	Description Approved
FR_7857_240.2_move_to_Article_100.docx	For staff use
FR_7857_CMP-10_move_to_Article_100_for_ballot.docx	For ballot

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 21:00:39 EST 2020

Committee Statement

Committee Statement: The definitions in 240.2 for current-limiting overcurrent protective device, supervised industrial installation and tap Conductor conductor are being relocated to Article 100 to comply with the NEC Style Manual. Additional modifications were made to comply with the NEC Style Manual. This also deletes 240.2.

Response Message: FR-7857-NFPA 70-2020

Public Input No. 4149-NFPA 70-2020 [Definition: Tap Conductor.]

Public Input No. 4145-NFPA 70-2020 [Definition: Current-Limiting Overcurrent Protective Device.]

Public Input No. 3350-NFPA 70-2020 [Section No. 240.2]

Public Input No. 4147-NFPA 70-2020 [Definition: Supervised Industrial Installation.]

Public Input No. 3523-NFPA 70-2020 [Section No. 240.2]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
12 Affirmative All
1 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

Affirmative with Comment

Arnold, Kevin S.

The correlating committee usability task force should consider creating some tools for the industry as a short-term bridge to help facilitate moving of these definitions and others throughout the NEC to Article 100.Materials for the handbook and/or annex material could help the industry through this change in the short term.

Negative with Comment

Dollard, Jr., James T.

Relocating all definitions into Article 100 is not user friendly and will most certainly result in misapplication of NEC requirements. The substantiation for this action is simply to comply with changes to the NEC style manual as modified by the NEC CC. Placing an Article number at the end of each relocated definition in Article 100 is simply a waste of ink. That will not be of any value whatsoever with respect to proper application of NEC requirements. NEC users trying to identify definitions that are applicable in a specific Article will be forced to play a game known as "find Waldo." An Annex must be added to identify all definitions that apply only within a given Article. Only then can an acceptable level usability be achieved. This negative ballot and the reference to new Annex material, provides the public with an opportunity to comment on a new Annex for these relocated definitions. A comment to include a new Annex for Article specific definitions will not be new material and can be acted upon in the comment stage for inclusion in the 2023 NEC.

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~~**240.2 Definitions.**~~
~~The definitions in this section shall apply only within this article.~~

~~**Current-Limiting**~~ **Overcurrent Protective Device, Current-Limiting. (Current-Limiting Overcurrent Protective Device)**
A device that, when interrupting currents in its current-limiting range, reduces the current flowing in the faulted circuit to a magnitude substantially less than that obtainable in the same circuit if the device were replaced with a solid conductor having comparable impedance. (240) (CMP-10)

Supervised Industrial Installation.
For the purposes of Part VIII of Article 240, the industrial portions of a facility where all of the following conditions are met:

(1) Conditions of maintenance and engineering supervision ensure that only qualified persons monitor and service the system.

(2) The premises wiring system has 2500 kVA or greater of load used in industrial process(es), manufacturing activities, or both, as calculated in accordance with Article 220.

(3) The premises has at least one service or feeder that is more than 150 volts to ground and more than 300 volts phase-to-phase.

This definition excludes installations in buildings used by the industrial facility for offices, warehouses, garages, machine shops, and recreational facilities that are not an integral part of the industrial plant, substation, or control center. (240) (CMP-10)

Tap Conductor.
A conductor, other than a service conductor, that has overcurrent protection ahead of its point of supply that exceeds the value permitted for similar conductors that are protected as described elsewhere in 240.4. (240) (CMP-10)

First Revision No. 7962-NFPA 70-2020 [Global Input]

Renumber Article 242 as follows:

Section 242.6 is renumbered as 242.12

Section 242.8 is renumbered as 242.6

Section 242.10 is renumbered as 242.8

Section 242.12 is renumbered as 242.13

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Dec 11 13:35:48 EST 2020

Committee Statement

Committee Statement: This first revision requests that NFPA staff editorially renumber Article 242 for correlation with other Articles in this code and for usability.

Response Message: FR-7962-NFPA 70-2020

Public Input No. 699-NFPA 70-2020 [Sections 242.6, 242.8, 242.10, 242.12]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7974-NFPA 70-2020 [Global Input]

See attached Word file to add new Article 231 Electric Power Sources Interconnected with an Electric Utility.

Supplemental Information

File Name	Description	Approved
NEC_NewArticle231_Global_FR7974.docx	For staff use	
NEC_Global_FR-7974_Article_231_NEW.pdf	For ballot	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 19:52:27 EST 2020

Committee Statement

Committee Statement: This First Revision is developed to address issues that have existed for multiple NEC cycles with respect to alternative energy systems and how they connect and interface with service equipment. These issues are well understood by the NEC CC who for cycles attempted to take an approach that would permit individual committees to work out the conflicts. In an effort to provide necessary correlation, CMP-10 has taken the initiative to make the appropriate corrections as seen in this first revision.

This new article recognizes that the interconnection of electric power sources that operate in parallel with the electric utility is tightly coupled with the requirements around services and service-related equipment found in Article 230. In response to a public input seeking attention to these connections, a new article located next to Article 230, specifically Article 231, is developed to help the user of the NEC associate the requirements that must be considered when interconnecting and operating in parallel with the utility.

The base document used in the creation of this article is existing Article 705 which is titled Interconnected Electric Power Production Sources. The title is being adjusted and changes throughout this new Article reflect addressing the fact that energy storage systems are also a key part of this new article as these systems also operate and are interconnected in parallel with utilities.

This new article clearly identifies those conductors that connect to the line side of the service disconnect as service conductors and the equipment directly connected to these conductors from the power production sources or energy storage systems are considered service equipment and should be treated as such.

Connections downstream of service equipment are also addressed but only for those installations that operate in parallel with the utility.

This article does not specify nor address other existing articles in the NEC related to power production equipment and energy storage systems.

Response Message: FR-7974-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.

Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
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Article 231 Electric Power Sources Interconnected with an Electric Utility

Part I. General

231.1 Scope.

This article covers installation of one or more power production equipment or energy storage systems operating in parallel with a utility source. This article does not include on-site electrical power source(s) that do not operate in parallel with the electric utility.

Informational Note: For further information, see IEEE 1547-2018, *IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power System Interfaces*.

231.6 Equipment Approval.

All equipment shall be identified for the intended use. Power production equipment and energy storage systems intended to operate in parallel with electric power production sources shall be listed for interactive function or be evaluated for interactive function and have a field label applied, or both.

Informational Note: Examples of power production sources include interactive inverters, engine generators, and wind turbines.

231.8 System Installation.

Installation of one or more power production equipment or energy storage systems operating in parallel with the electric utility shall be performed only by qualified persons.

231.10 Identification of Power Sources.

A permanent plaque or directory shall be installed at each service equipment location or at an approved readily visible location. The plaque or directory shall denote the location of each power production equipment or energy storage system disconnecting means for the building or structure and be grouped with other plaques or directories for other on-site sources. The plaque or directory shall be marked with the wording CAUTION: MULTIPLE SOURCES OF POWER. Any posted diagrams shall be correctly oriented with respect to the diagram's location. The marking shall comply with 110.21(B).

Exception: Installations with multiple co-located power production sources shall be permitted to be identified as a group(s). The plaque or directory shall not be required to identify each power source individually.

231.11 Supply-Side Service Connections.

Power production equipment and energy storage systems shall be permitted to be connected to the supply side of the service disconnecting means in accordance with 230.82(6) and shall comply with 231.11(A) through (G).

(A) Minimum Size and Ampacity.

The sum of the connected power production equipment and energy storage systems maximum continuous output current, other than those controlled in accordance with

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231.14, shall not exceed the ampacity of the service conductors connecting the service equipment to the service point.

(B) Calculation of Maximum Circuit Current.

Where not elsewhere required or permitted in this *Code*, the maximum current from the power production equipment or energy storage system shall be the sum of the continuous output current ratings of the connected power production equipment and energy storage system.

(C) Conductors.

The service conductors connecting the power production equipment or energy storage system from the point of connection to the first overcurrent protection device shall be sized in accordance with 231.11(C)(1) and (C)(2) and in no case sized smaller than 6 AWG copper or 4 AWG aluminum.

Service conductor wiring methods shall comply with Parts II, III, and IV of Article 230.

Service-entrance conductors shall have an ampacity of not less than the maximum output current calculated in 231.11(B). Conductors shall be sized not less than the largest of 231.11(C)(1) or (C)(2). Ampacity shall be determined from 310.14 and shall comply with 110.14(C). The maximum current of busways shall be that value for which the busway has been listed or labeled.

(1) Supplied From Continuous Power Production Equipment or Energy Storage System.

Where the service-entrance conductors are supplied from continuous power production equipment or energy storage system or any combination of noncontinuous and continuous power production equipment or energy storage system source currents, the minimum service-entrance conductor size shall have an ampacity not less than the sum of the noncontinuous source currents plus 125 percent of continuous source currents.

Exception No. 1: Grounded conductors that are not connected to an overcurrent device shall be permitted to be sized at 100 percent of the sum of the continuous and noncontinuous source current.

Exception No. 2: The sum of the noncontinuous source currents and the continuous source currents if the service-entrance conductors terminate in an overcurrent device where both the overcurrent device and its assembly are listed for operation at 100 percent of their rating shall be permitted.

(2) Minimum Service-Entrance Conductor Ampacity.

The minimum service-entrance conductor size shall have an ampacity not less than the maximum calculated sum of all connected power production equipment or energy storage system source currents after the application of any adjustment or correction factors.

(D) Overcurrent Protection.

Overcurrent protection shall be provided in accordance with Part VII of Article 230.

(E) Connections.

(1) Spliced and Tapped Conductors.

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The connection of service conductors connecting the electric power production sources to the service conductors shall be made in accordance with 230.46.

(2) Modifications.

Any modifications to existing equipment shall be made in accordance with the manufacturer's instructions, or the modification shall be required to be evaluated for the application and have a field label applied.

(3) Meter Socket Connections.

For meter socket enclosures or other equipment under the exclusive control of the electric utility, only connections approved by the electric utility shall be permitted.

(F) Neutral Conductors.

Neutral conductors shall be permitted to be sized in accordance with either 231.11(F)(1) or (F)(2).

(1) Single-Phase Line-to-Neutral Power Sources.

Where not elsewhere required or permitted in this *Code*, the ampacity of a neutral conductor to which a single-phase line-to-neutral power source is connected shall not be smaller than the ampacity in 231.11(C).

(2) Neutral Conductor Used Solely for Instrumentation, Voltage, Detection, or Phase Detection.

A power production equipment neutral conductor used solely for instrumentation, voltage detection, or phase detection shall be permitted to be sized in accordance with 250.102.

(G) Equipment.

The first disconnecting means for the conductors connected to the supply side of a service disconnect, where in a separate enclosure other than the service equipment, shall be in accordance with Parts V and VI of Article 230.

231.12 Load-Side Source Connections.

Feeder conductors connecting the output of power production equipment or energy storage systems shall be permitted to be connected to the load side of the service disconnecting means at any distribution equipment on the premises. Where distribution equipment or feeders are fed simultaneously by an electric utility source and one or more other power sources the interconnected equipment shall comply with 231.12(A) through (F). Where a power control system (PCS) is installed in accordance with 231.14, the setting of the PCS controller shall be considered the power production equipment or energy storage system output current in relation to 231.12(A) through (F).

(A) Dedicated Overcurrent and Disconnect.

Each interconnection of one or more power production equipment or energy storage system installed in one system shall be made at a dedicated circuit breaker or fusible disconnecting means.

(B) Bus Rating.

The power production equipment or energy storage system output circuit current multiplied by 125 percent shall be used in determining the ratings of busbars in accordance with 231.12(B)(1) through (B)(5).

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(1) Output Current Plus Rating of Overcurrent Protective Device.

The sum of 125 percent of the power production equipment and energy storage system output current, and the rating of the overcurrent device protecting the busbar shall not exceed the ampacity of the busbar.

Informational Note: This general rule assumes no limitation in the number of the loads or sources applied to busbars or their locations.

(2) Sources Connected at Opposite Ends of Busbar.

Where two sources, one a primary power source and the other from power production equipment or energy storage system, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power production equipment or energy storage system output current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar. The busbar shall be sized for the loads connected in accordance with Parts I, III, or IV of Article 220. A permanent warning label shall be applied to the distribution equipment adjacent to the back-fed breaker from the power source that displays the following or equivalent wording:

WARNING: POWER SOURCE OUTPUT CONNECTION — DO NOT RELOCATE THIS OVERCURRENT DEVICE. THIS EQUIPMENT FED BY MULTIPLE SOURCES.

The warning sign(s) or label(s) shall comply with 110.21(B).

(3) Sum of Overcurrent Device Ratings.

The sum of the ampere ratings of all overcurrent devices on panelboards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment displaying the following or equivalent wording:

WARNING:
.
THIS EQUIPMENT FED BY MULTIPLE SOURCES.
.
TOTAL RATING OF ALL OVERCURRENT DEVICES
.
EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE
.
SHALL NOT EXCEED AMPACITY OF BUSBAR.

The warning sign(s) or label(s) shall comply with 110.21(B).

(4) Center-Fed Panelboards.

A connection at either end of a center-fed panelboard in dwellings shall be permitted where the sum of 125 percent of the power production equipment and energy storage system output current and the rating of the overcurrent device protecting the busbar does not exceed 120 percent of the current rating of the busbar.

(5) Engineering Supervision.

Connections shall be permitted on switchgear, switchboards, and panelboards in configurations other than those permitted in 231.12(B)(1) through (B)(4) where

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designed under engineering supervision that includes available fault-current and busbar load calculations.

(6) Feed-Through Connections.

Connections shall be permitted on busbars of panelboards that supply lugs connected to feed-through conductors. The feed-through conductors shall be protected in accordance with 231.12(C)(2). Where an overcurrent device is installed at the supply end of the feed-through conductors, the busbar in the supplying panelboard shall be permitted to be sized in accordance with 231.12(B)(1) through (B)(5).

(C) Feeder Connections.

(1) Connection From Power Production Equipment or Energy Storage System.

Where the power production equipment or energy storage system connection is made to a feeder, the conductors from the power production equipment or energy storage system to the point of connection shall be sized based on the larger of 125 percent of all power production and energy storage system source(s) output circuit current(s) or as sized in accordance with 240.21(B).

(2) Connection at Other Than Opposite End of Primary Source Overcurrent Device.

Where the connection is made to a feeder at a location other than the opposite end of the feeder from the primary source overcurrent device, that portion of the feeder from the point of connection to the load shall be protected by one of the following:

(1) The feeder ampacity shall be not less than the sum of the primary source overcurrent device and 125 percent of the power production equipment or energy storage system output circuit current.

(2) An overcurrent protective device at the load side of the power source connection point rated not greater than the ampacity of that portion of the feeder.

(D) Marking.

Equipment containing overcurrent devices in circuits supplying power to a busbar or conductor supplied from multiple sources shall be marked to indicate the presence of all sources.

(E) Suitable for Backfeed.

Fused disconnects, unless otherwise marked, shall be considered suitable for backfeed. Circuit breakers not marked *line* and *load* shall be considered suitable for backfeed. Circuit breakers marked *line* and *load* shall not be considered suitable for backfeed.

(F) Fastening.

Listed plug-in-type circuit breakers back-fed from electric power production equipment or energy storage system that are listed and identified as interactive shall be permitted to omit the additional fastener required by 408.36(D) for such applications.

231.14 Power Control Systems.

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A PCS shall be listed and evaluated to control the output of one or more power production sources, energy storage systems (ESS), and other equipment. The PCS shall limit current and loading on the busbars and conductors supplied by the PCS.

For the circuits connected to a PCS, the PCS shall limit the current to the ampacity of the conductors or the ratings of the busbars to which it is connected in accordance with 231.14(A) through (E).

(A) Monitoring.

The PCS controller shall monitor all currents within the PCS. Any busbar or conductor on the load side of the service disconnecting means that is not monitored by the PCS shall comply with 231.12. Where the PCS is connected in accordance with 231.11, the PCS shall monitor the service conductors and prevent overload of these conductors.

(B) Settings.

The sum of all PCS-controlled currents plus all monitored currents from other sources of supply shall not exceed the ampacity of any busbar or conductor supplied by the power production sources. Where the PCS is connected to an overcurrent device protecting any busbar or conductor not monitored by the PCS, the setting of the PCS controller shall be set within the ratings of that overcurrent device.

(C) Overcurrent Protection.

The PCS shall provide overcurrent protection either by overcurrent devices or by the PCS including the functionality as an overcurrent device in the product listing.

Informational Note: Some PCS are listed to provide overcurrent protection.

(D) Single Power Source Rating.

The rating of the overcurrent device for any single power source controlled by the PCS shall not exceed the rating of the busbar or the ampacity of the conductors to which it is connected.

(E) Access to Settings.

The access to settings of the PCS shall be restricted to qualified personnel in accordance with the requirements of 240.6(C).

231.15 Output Characteristics.

The output of power production equipment or energy storage systems operating in parallel with an electrical supply system shall be compatible with the voltage, wave shape, and frequency of the system to which it is connected. Synchronous generators operating in parallel with an electrical supply system shall be provided with the necessary equipment to establish and maintain a synchronous condition.

Informational Note No.1: The term *compatible* does not necessarily mean matching the primary source wave shape.

Informational Note No.2: Information on the performance of power production equipment when interconnecting with a utility can be found in Chapter 7 of IEEE 1547-2018, *IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces*.

231.16 Interrupting and Short-Circuit Current Rating.

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Consideration shall be given to the contribution of fault currents from all interconnected power sources for the interrupting and short-circuit current ratings of equipment on interactive systems.

231.20 Disconnecting Means, Source.

The disconnecting means shall comply with the following:

(1) Be one of the following types:

a. A manually operable switch or circuit breaker

b. A load-break-rated pull-out switch

c. A power-operated or remote-controlled switch or circuit breaker that is manually operable locally and opens automatically when control power is interrupted

d. A device listed or approved for the intended application

(2) Simultaneously disconnect all ungrounded conductors of the circuit

(3) Be located where readily accessible

(4) Be externally operable without exposed live parts

(5) Enclosures with doors or hinged covers with exposed live parts when open that require a tool to open or are lockable where readily accessible to unqualified persons

(6) Plainly indicate whether in the open (off) or closed (on) position

(7) Have ratings sufficient for the maximum circuit current, available fault current, and voltage that is available at the terminals

(8) Be marked in accordance with the warning in 690.13(B), where the line and load terminals are capable of being energized in the open position

Informational Note: See 404.6(C) Exception for interconnected power sources where equipment, including switches and fuses, could be energized from both directions.

231.32 Ground-Fault Protection.

Where protection is installed in accordance with 230.95, the output of connected power production equipment or energy storage systems shall be connected to the supply side of the ground-fault protection.

Exception: Connection shall be permitted to be made to the load side of ground-fault protection, if there is ground-fault protection for equipment from all ground-fault current sources.

231.40 Loss of Primary Source.

The output of electric power production equipment and energy storage systems shall be automatically disconnected from all ungrounded conductors of the interconnected systems when one or more of the phases to which it is connected opens. The electric power production equipment or energy storage system shall not be reconnected until all the phases of the interconnected system to which it is connected are restored. This requirement shall not be applicable to electric power production equipment or

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energy storage system providing power to an emergency or legally required standby system.

Exception: A listed interactive inverter shall trip or shall be permitted to automatically cease exporting power when one or more of the phases of the interconnected system opens and shall not be required to automatically disconnect all ungrounded conductors from the primary source. A listed interactive inverter shall be permitted to automatically or manually resume exporting power to the interconnected system once all phases of the source to which it is connected are restored.

Interactive power production equipment shall be permitted to operate in island mode to supply loads that have been disconnected from the electric power production and distribution network.

Informational Note No. 1: Risks to personnel and equipment associated with the primary source could occur if an interactive electric power production source can operate as an intentional island. Special detection methods are required to determine that a primary source supply system outage has occurred and whether there should be automatic disconnection. When the primary source supply system is restored, special detection methods are typically required to limit exposure of power production sources to out-of-phase reconnection. Reference Chapter 6, "Response to EPS Abnormal Conditions," of IEEE 1547-2018, *IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces*.

Informational Note No. 2: Induction-generating equipment connected on systems with significant capacitance can become self-excited upon loss of the primary source and experience severe overvoltage as a result.

231.45 Unbalanced Interconnections.

(A) Single Phase Equipment Connected to Three-Phase Systems.

Where single-phase power production equipment or energy storage system sources are connected to three-phase systems in parallel with the utility, unbalanced voltages at the point of interconnection to shall not exceed more than 3 percent.

Informational Note: For interactive power sources, unbalanced voltages can be minimized by the same methods that are used for single-phase loads on a 3-phase power system. See ANSI/C84.1-2020, *Electric Power Systems and Equipment — Voltage Ratings (60 Hertz)*.

(B) Three Phase.

Three-phase power production equipment and energy storage systems in interactive systems shall have all phases automatically de-energized upon loss of, or unbalance of, voltage in one or more phases unless the interconnected system is designed so that significant unbalanced voltages will not result.

Part II. AC Microgrid Systems

231.50 System Operation.

AC microgrid systems shall be permitted to disconnect from the primary source of power or other interconnected electric power production sources and operate in island mode.

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231.60 Primary Power Source Connection.

AC microgrid connections to a utility source shall comply with 231.11 or 231.12.

231.65 Reconnection to Primary Power Source.

AC microgrid systems that reconnect to a utility source shall be provided with the necessary equipment to establish a synchronous transition.

231.70 Microgrid Interconnect Devices (MID).

AC microgrid interconnect devices shall comply with the following:

(1) Be required for any connection between an AC microgrid system and a utility

(2) Be evaluated for the application and have a field label applied or be listed for the application

(3) Have a sufficient number of overcurrent protective devices located to provide overcurrent protection from all sources

Informational Note: MID functionality is often incorporated in an interactive or multimode inverter, energy storage system, or similar device identified for interactive operation.

First Revision No. 7759-NFPA 70-2020 [Detail]

Changes to 230.71(B)(3).

(3) Switchboard(s) where there is only one service disconnect in each separate vertical section~~where there are barriers separating each vertical section~~. Barriers shall be provided between each vertical section to maintain the inadvertent contact protection required in 230.62 based on access from the adjacent section(s).

Supplemental Information

File Name	Description	Approved
NEC_230.71_B_Detail_FR7759_PI2300.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 12:01:08 EST 2020

Committee Statement

Committee Statement: This change references 230.62 which defines the intent of a service barrier while maintaining the one service disconnect in each vertical section and the barrier requirement.
Response Message: FR-7759-NFPA 70-2020

Public Input No. 2300-NFPA 70-2020 [Section No. 230.71(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7798-NFPA 70-2020 [Detail]

See changes to 230.71(B) item 4 and Informational Notes 2 and 3.

(4) Service disconnects in switchgear, transfer switches, or metering centers where each disconnect is located in a separate compartment.

Informational Note No. 2: Examples of separate enclosures with a main service disconnecting means in each enclosure include but are not limited to motor control centers, fused disconnects, and circuit breaker enclosures. ~~, and transfer switches that are suitable for use as service equipment.~~

Informational Note No. 3: Transfer switches may have one service disconnect or may have multiple service disconnects for multiple services. Transfer switches with multiple disconnects will have a separate compartment for each service disconnect.

Supplemental Information

File Name	Description	Approved
NEC_230.71_B_Detail_FR7798_PI1971_2262.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 19:11:48 EST 2020

Committee Statement

Committee Statement: Transfer switches are added to clarify that transfer switches must be compartmentalized. A new informational note is provided to explain typical construction of transfer switches identified as service equipment.

Response Message: FR-7798-NFPA 70-2020

Public Input No. 1971-NFPA 70-2020 [Section No. 230.71(B)]

Public Input No. 2262-NFPA 70-2020 [Section No. 230.71(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.

Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7799-NFPA 70-2020 [Detail]

Add new Exception to 230.71(B).

Exception to (2), (3), (4), (5), and (6): Existing service equipment, installed in compliance with previous editions of this Code that permitted multiple service disconnecting means in a single enclosure, section, or compartment, shall be permitted to contain a maximum of six service disconnecting means.

Supplemental Information

File Name	Description	Approved
NEC_230.71_B_Detail_FR7799_PI298_4590_894.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 19:20:48 EST 2020

Committee Statement

Committee Statement: This exception provides the AHJ with the ability to permit the installation of up to six disconnects in a single enclosure in equipment installed in compliance with editions prior to the 2020 NEC.

Response Message: FR-7799-NFPA 70-2020

Public Input No. 4590-NFPA 70-2020 [Section No. 230.71(B)]

Public Input No. 298-NFPA 70-2020 [Section No. 230.71(B)]

Public Input No. 894-NFPA 70-2020 [Section No. 230.71(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7800-NFPA 70-2020 [Detail]

Add new item (6) to 230.71(B).

(6) Motor control center(s) where there is only one service disconnect in a motor control center unit and a maximum of two service disconnects provided in a single motor control center. Barriers shall be provided between each motor control center unit or compartment containing a service disconnect to maintain the inadvertent contact protection required in 230.62 based on access from adjacent motor control center unit(s) or compartment(s).

Supplemental Information

File Name	Description	Approved
NEC_230.71_B_Detail_FR7800_PI3619.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 19:42:08 EST 2020

Committee Statement

Committee Statement: This revision adds a new list item to address motor control centers with more than one service disconnect as presently permitted in 430.95. A limitation of up to two service disconnects in a single motor control unit with barriers between units is added to align with the expected protection provided by other list items in 230.71(B).

A correlating public input has been submitted to delete an exception to 430.95. CMP-10 requests the NEC-CC review the action on that public input for correlation.

Response Message: FR-7800-NFPA 70-2020

Public Input No. 3619-NFPA 70-2020 [Section No. 230.71(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.

Zia, Danish

First Revision No. 7801-NFPA 70-2020 [Detail]

Add new item (5) to 230.71(B).

(5) Metering centers with a main service disconnecting means in each metering center.

Supplemental Information

File Name	Description	Approved
NEC_230.71_B_Detail_FR7801_PI4540.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 20:30:56 EST 2020

Committee Statement

Committee Statement: While 230.71(B)(1) permits meter centers with a single disconnecting means, a new list item is added for clarity.
Response Message: FR-7801-NFPA 70-2020

Public Input No. 4540-NFPA 70-2020 [Section No. 230.71(B)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7831-NFPA 70-2020 [Detail]

[Add new section after 240.13]

240.14 Ground-Fault Circuit-Interrupter Protection.

(A) Listing.

Ground-fault circuit interrupters shall be listed.

(B) Reconditioned Equipment.

Ground-fault circuit interrupters shall not be permitted to be reconditioned.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 15:16:21 EST 2020

Committee Statement

Committee Statement: New Section 240.14 provides requirements that a GFCI be listed and shall not be reconditioned. By locating this requirement in Article 240 it establishes the fact that these requirements are important regardless of whether or not they are installed in a branch circuit (Article 210) or in a feeder (Article 215) or other location.

Response Message: FR-7831-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The terminology in 240.14(B) appears to be mandatory/permissive language. Shall not be permitted to be.... It should be changed to "shall not be reconditioned"

First Revision No. 7901-NFPA 70-2020 [Detail]

Relocate "Part I. General" prior to the first section of Article 225.

Supplemental Information

File Name	Description	Approved
NEC_225PartI_Detail_FR7901.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 16:13:33 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. Part I. General, shall be located prior to the first section of the article and before the Scope in the XXX.1, per Section 2.2.1 of the NEC Style Manual.

Response Message: FR-7901-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7902-NFPA 70-2020 [Detail]

Relocate "Part I. General" prior to the first section of Article 230.

Supplemental Information

File Name	Description	Approved
NEC_230_Global_FR7902_PI3522.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 16:18:13 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. Part I. General, shall be located prior to the first section of the article and before the Scope in the XXX.1, per Section 2.2.1 of the NEC Style Manual.

Response Message: FR-7902-NFPA 70-2020

Public Input No. 3522-NFPA 70-2020 [Part I.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7907-NFPA 70-2020 [Detail]

See changes to 225.60(C) Informational Note.

~~For additional information, see~~See ANSI/IEEE C2-2017, *National Electrical Safety Code*, for additional information.

Supplemental Information

File Name	Description	Approved
NEC_225.60_C_Detail_FR7907.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 16:43:03 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7907-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7908-NFPA 70-2020 [Detail]

See changes to 225.61(B) Informational Note.

Informational Note: ~~For additional information,~~ ~~see~~See ANSI/IEEE C2-2017, *National Electrical Safety Code*, for additional information.

Supplemental Information

File Name	Description	Approved
NEC_225.61_B_Detail_FR7908.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 16:47:04 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7908-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The IEEE standard title does not reference ANSI. It is IEEE C2-2017

First Revision No. 7920-NFPA 70-2020 [Detail]

See changes to 240.4 Informational Note, See ICEA P-32-382-~~2007 (R2013)~~2018, *Short Circuit Characteristics of Insulated Cables*, for information on allowable short-circuit currents for insulated copper and aluminum conductors.

and 240.4(A) Informational Note, See NFPA 20-~~2013~~2019, *Standard for the Installation of Stationary Pumps for Fire Protection*.

Supplemental Information

File Name	Description	Approved
NEC_240.4_Detail_FR7920.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 18:01:52 EST 2020

Committee Statement

Committee Statement: The reference standard edition date was updated.
Response Message: FR-7920-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7938-NFPA 70-2020 [Detail]

See the addition of item 12 on 230.82 .

(12) Control power circuits for protective relays where installed as part of listed equipment, if overcurrent protection and disconnecting means are provided.

Supplemental Information

File Name	Description	Approved
NEC_230.82_Item12_FR7938_PI3052.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 20:16:28 EST 2020

Committee Statement

Committee Statement: It is important for control power circuits for protective relays to maintain power and be active when the service disconnect is open. This is necessary to eliminate the 10 to 100 millisecond start-up delay that the typical protective relay requires to transition from unpowered to active. Should there be a fault upon closing the service disconnect, the protection must act immediately to clear the fault to increase the likelihood of protecting workers.

Response Message: FR-7938-NFPA 70-2020

Public Input No. 3052-NFPA 70-2020 [Section No. 230.82]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.

Affirmative with Comment

Zia, Danish

The new text in item 12 should be revised by adding the word "suitable" in front of "overcurrent protection" so the text reads as follows: "Control power circuits for protective relays where installed as part of listed equipment, if suitable overcurrent protection and disconnecting means are provided." This provides for alignment with existing item (7).

First Revision No. 7952-NFPA 70-2020 [Detail]

THESE INFORMATIONAL NOTE ARE BALLOTABLE DETAIL. THE NOTES GO TO 240.42 REVSISED UNDER FR8283.

Informational Note No. 1: ~~For further information on surge arresters,~~ ~~see~~See IEEE C62.11-~~2012~~2020, *Standard for Metal-Oxide Surge Arresters for Alternating-Current Power Circuits (>1 kV)*, and IEEE C62.22-2009, *Guide for the Application of Metal-Oxide Surge Arresters for Alternating-Current Systems*, for further information on surge arresters.

Informational Note No. 2: The selection of a properly rated metal oxide arrester is based on considerations of maximum continuous operating voltage and the magnitude and duration of overvoltages at the arrester location as affected by phase-to-ground faults, system grounding techniques, switching surges, and other causes. See the manufacturer's application rules for selection of the specific arrester to be used at a particular location.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 12:50:30 EST 2020

Committee Statement

Committee Statement: The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

The reference standard edition date for C62.11 was updated to 2020.

Response Message: FR-7952-NFPA 70-2020

Public Input No. 3089-NFPA 70-2020 [Section No. 242.42(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8298-NFPA 70-2020 [Detail]

See attached detail for revisions to Article 100 Fuse defintions.

Supplemental Information

File Name	Description	Approved
NEC_Art100_PartII_FR8298_PI158.docx	For staff use	
NEC_Art100_PartII_FR8298_PI158.CMP-10_for_ballot.docx	For ballot	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Sun Dec 27 15:09:18 EST 2020

Committee Statement

Committee Statement: The definitions of expulsion fuse unit, nonvented power fuse, power fuse unit and vented power fuse have been modified to comply with the Style Manual. These terms are listed under the main term of fuse. The sub-headings are renamed in accordance with the Style Manual.

The Part II definitions for electronically actuated fuse, controlled vented power fuse and multiple fuse are deleted because they are no longer used.

CMP 10 recommends that this action be sent to CMP 9 for information, coordination and consistent use of terms.

Response Message: FR-8298-NFPA 70-2020

Public Input No. 158-NFPA 70-2019 [Definition: Fuse.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

TerraView does not show the work of the Task Group as listed in the attached file for the definitions under the sub-set of Fuse.

[Article 100, Part II. Over 1000 Volts, Nominal]

~~**Electronically Actuated Fuse.**~~

~~An overcurrent protective device that generally consists of a control module that provides current sensing, electronically derived time-current characteristics, energy to initiate tripping, and an interrupting module that interrupts current when an overcurrent occurs. Electronically actuated fuses may or may not operate in a current-limiting fashion, depending on the type of control selected. (CMP-10)~~

Fuse.

An overcurrent protective device with a circuit-opening fusible part that is heated and severed by the passage of overcurrent through it. (CMP-10)

Informational Note: A fuse comprises all the parts that form a unit capable of performing the prescribed functions. It may or may not be the complete device necessary to connect it into an electrical circuit.

~~*Controlled Vented Power Fuse.*~~

~~A fuse with provision for controlling discharge circuit interruption such that no solid material may be exhausted into the surrounding atmosphere.~~

~~Informational Note: The fuse is designed so that discharged gases will not ignite or damage insulation in the path of the discharge or propagate a flashover to or between grounded members or conduction members in the path of the discharge where the distance between the vent and such insulation or conduction members conforms to manufacturer's recommendations.~~

Fuse, Expulsion ~~Fuse Unit~~ (Expulsion Fuse).

A vented fuse unit in which the expulsion effect of gases produced by the arc and lining of the fuseholder, either alone or aided by a spring, extinguishes the arc. (CMP-10)

Fuse, Nonvented Power ~~Fuse~~ (Nonvented Power Fuse).

A fuse without intentional provision for the escape of arc gases, liquids, or solid particles to the atmosphere during circuit interruption. (CMP-10)

Fuse, Power ~~Fuse Unit~~ (Power Fuse).

A vented, nonvented, or controlled vented fuse unit in which the arc is extinguished by being drawn through solid material, granular material, or liquid, either alone or aided by a spring. (CMP-10)

Fuse, Vented Power ~~Fuse~~ (Vented Power Fuse).

A fuse with provision for the escape of arc gases, liquids, or solid particles to the surrounding atmosphere during circuit interruption. (CMP-10)

~~**Multiple Fuse.**~~

~~An assembly of two or more single-pole fuses. (CMP-10)~~

First Revision No. 8299-NFPA 70-2020 [Detail]

ballotable detail for 230.67 (main FR 7739)

(E) Ratings.

SPDs shall have a nominal discharge current rating (In) of not less than 10kA.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Sun Dec 27 15:13:12 EST 2020

Committee Statement

Committee Statement: The present requirement provides no lower limit to the nominal surge rating (In) of the SPD. It is necessary to provide a lower limit for this rating to ensure that the SPD is suitable for the electrical environment which is expected at the service entrance.

Response Message: FR-8299-NFPA 70-2020

Public Input No. 3722-NFPA 70-2020 [New Section after 230.67]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
0 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

Negative with Comment

Koepke, Ed

Adding OCP in front of an SPD does not always provide safety protection to meet a 10kA rating. Are we eliminating SPD products that are currently on the market that currently approved to meet UL standards?

First Revision No. 8300-NFPA 70-2020 [Detail]

230.85 [new section]

(B) Disconnects.

Each disconnect shall be one of the following:

(1) Service disconnect

(2) A meter disconnect integral to the meter mounting equipment not marked as suitable only for use as service equipment installed in accordance with 230.82(3)

(3) Other listed disconnect switch or circuit breaker that is marked suitable for use as service equipment, but not marked as suitable only for use as service equipment, installed on the supply side of each service disconnect

Informational Note 1: Conductors between the emergency disconnect and the service disconnect in 230.85(2) and 230.85(3) are service conductors.

Informational Note 2: Equipment marked "Suitable only for use as service equipment" is not appropriate for use as the emergency disconnect in 230.85(B)(3), because it would require the equipment to be modified after leaving the factory, by removing the factory marking "Service Disconnect," and perhaps removing the factory installed bonding jumper, which may be nonremovable.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Sun Dec 27 15:14:01 EST 2020

Committee Statement

Committee Statement: This revision provides clarity on the use of equipment marked "suitable for use as service equipment" and "suitable only for use as service equipment", installed on the supply side of the service disconnect.

Additionally, this revision provides clarity in stating that conductors on the load side of (B)(2) and (B)(3) are service conductors.

Response Message: FR-8300-NFPA 70-2020

Public Input No. 3366-NFPA 70-2020 [Section No. 230.85]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
11 Affirmative All
3 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Vance, Christopher R.

Affirmative with Comment

Dollar, Randy

NEMA recommends a revision to the language in 230.85(B)(3) in order to recognize that equipment marked “suitable only for use as service equipment” can be used as a disconnect ahead of the meter. The marking does not indicate the location where the product can be installed but rather indicates that the neutral is bonded at the factory. The neutral in “suitable only for use as service equipment” products is not intended to be unbonded in the field. The words “but not” should be replaced by “or”. The revised language in 230.85(B) should read as follows: “marked suitable for use as service equipment or suitable only for use as service equipment”. Legislative text for clarity: Other listed disconnect switch or circuit breaker that is marked suitable for use as service equipment, (but not) *or* marked as suitable only for use as service equipment, installed on the supply side of each service disconnect.

Williams, David A.

Section 230.85 continues to cause much confusion on how an emergency disconnect can be installed, what types of disconnects can be used, and how grounding and bonding must occur in the disconnect. Most of the confusion and issues could be remedied by simply requiring the service disconnect(s) for a one-and two-family dwelling to be on the outside of the dwelling. This would greatly simplify what type of equipment can be installed and exactly how the grounding and bonding in the service equipment needs to be connected.

Zia, Danish

The references in the informational note have not been updated to reflect the new sub-section B. The references in Informational Note 1 and 2 need to be updated to 230.85(B)(2) and 230.85(B)(3) accordingly.

First Revision No. 8301-NFPA 70-2020 [Detail]

Ballot detail for 230.85(C).

(C) Replacement.

Where service equipment is replaced, all of the requirements of this section shall apply.

Exception to (C): Where only meter sockets or service entrance conductors are replaced, the requirements of this section shall not apply.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Sun Dec 27 15:27:44 EST 2020

Committee Statement

Committee Statement: This revision clarifies the intent of this section by specifically identifying requirements for “replacements.”
Response Message: FR-8301-NFPA 70-2020

Public Input No. 2883-NFPA 70-2020 [Section No. 230.85]
Public Input No. 3455-NFPA 70-2020 [Section No. 230.85]
Public Input No. 112-NFPA 70-2019 [Section No. 230.85]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8302-NFPA 70-2020 [Detail]

ballot detail for 230.85(D)

(D) Identification of Other Emergency Disconnects.

Where emergency disconnects are installed for other systems that are not located adjacent to the emergency disconnect required by this section, a plaque or directory identifying the location of all emergency disconnects shall be located adjacent to the disconnecting means required by this section.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Sun Dec 27 15:28:33 EST 2020

Committee Statement

Committee Statement: This revision provides correlation with other emergency disconnect requirements in this code. First responders may not be aware of the location of other emergency disconnects not co-located with the emergency disconnect at the service.

CMP-10 requests that the NEC-CC correlate emergency disconnect marking requirements throughout the NEC.

Response Message: FR-8302-NFPA 70-2020

Public Input No. 1973-NFPA 70-2020 [New Section after 230.85]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8303-NFPA 70-2020 [Detail]

ballot detail for 230.85(E)

(E) Marking.

The disconnecting means shall marked as follows:

(1) Service disconnect

EMERGENCY DISCONNECT,

SERVICE DISCONNECT

(2) Meter disconnects installed in accordance with 230.82(3) and marked as follows:

EMERGENCY DISCONNECT,

METER DISCONNECT,

NOT SERVICE EQUIPMENT

(3) Other listed disconnect switches or circuit breakers on the supply side of each service disconnect that are marked suitable for use as service equipment and marked as follows:

EMERGENCY DISCONNECT,

.

NOT SERVICE EQUIPMENT

Markings shall comply with 110.21(B) and both of the following:

(1) The marking or labels shall be located on the outside front of the disconnect enclosure with red background and white text.

(2) The letters shall be at least 13 mm (1/2 in.) high.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Sun Dec 27 15:29:20 EST 2020

Committee Statement

Committee Statement: This revision editorially relocates individual marking requirements. Additional requirements are added for location, color and font.

Response Message: FR-8303-NFPA 70-2020

Public Input No. 2020-NFPA 70-2020 [Section No. 230.85]

Public Input No. 3109-NFPA 70-2020 [Section No. 230.85]

Public Input No. 3093-NFPA 70-2020 [Section No. 230.85]

Public Input No. 3142-NFPA 70-2020 [Section No. 230.85]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8284-NFPA 70-2020 [Definition: Adjustable (as applied to circuit breakers).]

Circuit Breaker, Adjustable. **(~~as applied to circuit breakers~~ Adjustable Circuit Breaker).**

A qualifying term indicating that the circuit breaker can be set to trip at various values of current, time, or both, within a predetermined range. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:17:22 EST 2020

Committee Statement

Committee Statement: The definition is modified to comply with the NEC Style Manual.
Response Message: FR-8284-NFPA 70-2020

Public Input No. 4506-NFPA 70-2020 [Definition: Adjustable (as applied to circuit breakers).]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7852-NFPA 70-2020 [Definition: Electronically Actuated Fuse.]

Fuse, Electronically Actuated. (Electronically Actuated Fuse)

An overcurrent protective device that generally consists of a control module that provides current-sensing, electronically derived time–current characteristics, energy to initiate tripping, and an interrupting module that interrupts current when an overcurrent occurs. Such fuses may or may not operate in a current-limiting fashion, depending on the type of control selected. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 19:09:12 EST 2020

Committee Statement

Committee Statement: This revision modifies the term electronically actuated fuse to comply with the NEC Style Manual. The revised term will be fuse, electronically actuated followed by the searchable term in parenthesis, (electronically actuated fuse). The definition remains unchanged. The same term that is defined in Part II was deleted.

Response Message: FR-7852-NFPA 70-2020 Response to PI 159: The term fuse in Part II has been retained along with the informational note.

Public Input No. 4691-NFPA 70-2020 [Definition: Electronically Actuated Fuse.]
Public Input No. 159-NFPA 70-2019 [Definition: Electronically Actuated Fuse.]
Public Input No. 4687-NFPA 70-2020 [Definition: Electronically Actuated Fuse.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8285-NFPA 70-2020 [Definition: Instantaneous Trip (as applied to circuit break...]

Circuit Breaker, Instantaneous Trip. (~~as applied to circuit breakers~~ Instantaneous Trip Circuit Breaker).

A qualifying term indicating that no delay is purposely introduced in the tripping action of the circuit breaker. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:20:24 EST 2020

Committee Statement

Committee Statement: The definition is modified to comply with the NEC Style Manual.
Response Message: FR-8285-NFPA 70-2020

Public Input No. 4532-NFPA 70-2020 [Definition: Instantaneous Trip (as applied to circuit break...]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8286-NFPA 70-2020 [Definition: Inverse Time (as applied to circuit breakers).]

Circuit Breaker, Inverse Time. (~~as applied to circuit breakers~~ Inverse Time Circuit Breaker).

A qualifying term indicating that there is a delay purposely introduced ~~a delay~~ in the tripping action of the circuit breaker, ~~which~~ and the delay decreases as the magnitude of the current increases. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:22:15 EST 2020

Committee Statement

Committee Statement: The definition is modified to comply with the NEC Style Manual.
Response Message: FR-8286-NFPA 70-2020

Public Input No. 4537-NFPA 70-2020 [Definition: Inverse Time (as applied to circuit breakers).]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8287-NFPA 70-2020 [Definition: Nonadjustable (as applied to circuit breakers).]

Circuit Breaker, Nonadjustable. (~~as applied to circuit breakers~~ Nonadjustable Circuit Breaker).

A qualifying term indicating that the circuit breaker does not have any adjustment to alter the value of the current at which it will trip or the time required for its operation. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:23:52 EST 2020

Committee Statement

Committee Statement: The definition is modified to comply with the NEC Style Manual.
Response Message: FR-8287-NFPA 70-2020

Public Input No. 4542-NFPA 70-2020 [Definition: Nonadjustable (as applied to circuit breakers).]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8289-NFPA 70-2020 [Definition: Overcurrent Protective Device, Branch-Circuit.]

Overcurrent Protective Device, Branch-Circuit. (Branch-Circuit Overcurrent Protective Device)

A device capable of providing protection for service, feeder, and branch circuits and equipment over the full range of overcurrents between its rated current and its interrupting rating. Such devices are provided with interrupting ratings appropriate for the intended use but no less than 5000 amperes. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:38:33 EST 2020

Committee Statement

Committee Statement: The definition was modified to comply with Section 2.2.2.3 of the NEC Style Manual.
Response Message: FR-8289-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
11 Affirmative All
2 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Chandler, Joseph R.

The Correlating Committee should consider moving the purview of the definition to CMP 1 or CMP 2. The only place it appears is in Article 210 and may be better if revised and not specific only to branch circuits. It is not specific to Article 240 as currently written.

Williams, David A.

The definition for Branch-Circuit Overcurrent Protective Device was added in the 2008 NEC by CMP-4. It is difficult to explain to someone how a Branch-Circuit Overcurrent Protective Device provides protection for services, feeders and branch circuits as the definition states. The words "Branch-Circuit" should be removed. The addition of an acronym of (OCPD) for this definition would be a benefit for the industry. The Style Manual in Section 2.2.2.2 does not permit requirements to be located in definitions. The following words need to be removed: "but no less than 5000 amperes"

Negative with Comment

Philips, Nathan

The term, Branch Circuit Overcurrent Protective Device, is confusing and inaccurate because it applies to a device that can also protect

equipment as well as service and feeder conductors in addition to branch circuit conductors. Consideration should be given to changing the name of this device to Overcurrent Protective Device, with companion definitions for OCPD, Current-limiting and OCPD, Supplementary.

First Revision No. 8290-NFPA 70-2020 [Definition: Overcurrent Protective Device, Supplementary.]

Overcurrent Protective Device, Supplementary. (Supplementary Overcurrent Protective Device)

A device intended to provide limited overcurrent protection for specific applications and utilization equipment such as luminaires and appliances. This limited protection is in addition to the protection provided in the required branch circuit by the branch-circuit overcurrent protective device. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:40:08 EST 2020

Committee Statement

Committee Statement: The definition was modified to comply with Section 2.2.2.3 of the NEC Style Manual.
Response Message: FR-8290-NFPA 70-2020

Public Input No. 4559-NFPA 70-2020 [Definition: Overcurrent Protective Device, Supplementary.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8291-NFPA 70-2020 [Definition: Service Conductors, Overhead.]

Service Conductors, Overhead. (Overhead Service Conductors)

The overhead conductors between the service point and the first point of connection to the service-entrance conductors at the building or other structure. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:42:16 EST 2020

Committee Statement

Committee Statement: The definition was modified by adding the searchable term to comply with Section 2.2.2.3.1 of the NEC Style Manual.
Response Message: FR-8291-NFPA 70-2020

Public Input No. 4583-NFPA 70-2020 [Definition: Service Conductors, Overhead.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8292-NFPA 70-2020 [Definition: Service Conductors, Underground.]

Service Conductors, Underground. (Underground Service Conductors)

The underground conductors between the service point and the first point of connection to the service-entrance conductors in a terminal box, meter, or other enclosure, inside or outside the building wall. (CMP-10)

Informational Note: Where there is no terminal box, meter, or other enclosure, the point of connection is considered to be the point of entrance of the service conductors into the building.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 24 14:45:02 EST 2020

Committee Statement

Committee Statement: The definition was modified by adding the searchable term to comply with Section 2.2.2.3.1 of the NEC Style Manual.
Response Message: FR-8292-NFPA 70-2020

Public Input No. 4592-NFPA 70-2020 [Definition: Service Conductors, Underground.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7850-NFPA 70-2020 [Definition: Setting (of circuit breakers).]

~~**Setting (of circuit breakers).**~~

~~The value of current, time, or both, at which an adjustable circuit breaker is set to trip.~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 17:04:40 EST 2020

Committee Statement

Committee Statement: This revision deletes the definition, Setting, (Of Circuit Breakers). The language is not necessary since the wording is included in the adjustable circuit breaker definition.

Response Message: FR-7850-NFPA 70-2020

Public Input No. 4553-NFPA 70-2020 [Definition: Setting (of circuit breakers).]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7856-NFPA 70-2020 [Definition: Surge-Protective Device (SPD).]

Surge-Protective Device (SPD).

A protective device for limiting transient voltages by diverting or limiting surge current; it also prevents continued flow of follow current while remaining capable of repeating these functions and is designated as follows:

(1) Type 1: Permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service disconnect overcurrent device~~.~~

(2) Type 2: Permanently connected SPDs intended for installation on the load side of the service disconnect overcurrent device, including SPDs located at the branch panel~~.~~

(3) Type 3: Point of utilization SPDs~~.~~

(4) Type 4: Component SPDs, including discrete components, as well as assemblies. (CMP-10)

Informational Note: ~~For~~ See UL 1449, *Standard for Surge Protective Devices* , for further information on ~~Type 1, Type 2, Type 3, and Type 4~~ SPDs~~, see UL 1449, *Standard for Surge Protective Devices*~~ .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 20:41:36 EST 2020

Committee Statement

Committee Statement: The existing list was numbered per Section 2.1.5.1 of the NEC Style Manual. The informational note was modified to comply with Section 3.1.3.1 of the NEC Style Manual.

Response Message: FR-7856-NFPA 70-2020

Public Input No. 4671-NFPA 70-2020 [Definition: Surge-Protective Device (SPD).]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7845-NFPA 70-2020 [New Definition after Definition: Service Point.]

Short Circuit.

An abnormal connection (including an arc) of relatively low impedance, whether made accidentally or intentionally, between two or more points of different potential. (CMP-10)

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 16:49:16 EST 2020

Committee Statement

Committee Statement: The definition is added to improve the usability of the code. The words “or more” were added to recognize that more than two conductors could be involved in a short circuit. The Informational Note is not included because it does not increase usability.

Response Message: FR-7845-NFPA 70-2020

Public Input No. 3349-NFPA 70-2020 [New Definition after Definition: Service Point.]

Public Input No. 3356-NFPA 70-2020 [New Definition after Definition: Service Point.]

Public Input No. 4269-NFPA 70-2020 [New Article after 100]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7894-NFPA 70-2020 [Section No. 215.1]

215.1 Scope.

This article covers the installation requirements, overcurrent protection requirements, minimum size, and ampacity of conductors for feeders.

Exception: ~~Feeders~~ This article does not apply to feeders for electrolytic cells as covered in 668.3(C)(1) and (C)(4).

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 15:41:02 EST 2020

Committee Statement

Committee Statement: The following words were added at the beginning of the sentence: “This article does not apply to” to create a complete sentence. This change is to comply with Section 3.1.4.1 of the NEC Style Manual.

Response Message: FR-7894-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The NEC Style Manual in Section 3.1.4 states that exceptions shall be used sparingly. The Scope should be written without having an exception. 215.1 Scope. This article provides the requirements for installation, protection and sizing of feeders. This article does not apply to feeders supplying electrolytic cells covered in 668.3(C)(1) and (C)(4).

First Revision No. 7684-NFPA 70-2020 [Section No. 215.2(A)(1)]

(1) General.

Feeder conductors shall have an ampacity not less than the larger of 215.2(A)(1)(a) or (A)(1)(b) and shall comply with 110.14(C).

(a) Where a feeder supplies continuous loads or any combination of continuous and noncontinuous loads, the minimum feeder conductor size shall have an ampacity not less than the noncontinuous load plus 125 percent of the continuous load.

Exception No. 1: If the assembly, including the overcurrent devices protecting the feeder(s), is listed for operation at 100 percent of its rating, the ampacity of the feeder conductors shall be permitted to be not less than the sum of the continuous load plus the noncontinuous load.

Exception No. 2: Where a portion of a feeder is connected at both its supply and load ends to separately installed pressure connections as covered in 110.14(C)(2), it shall be permitted to have an ampacity not less than the sum of the continuous load plus the noncontinuous load. No portion of a feeder installed under this exception shall extend into an enclosure containing either the feeder supply or the feeder load terminations, as covered in 110.14(C)(1).

Exception No. 3: Grounded conductors that are not connected to an overcurrent device shall be permitted to be sized at 100 percent of the continuous and noncontinuous load.

(b) The minimum feeder conductor size shall have an ampacity not less than the maximum load to be served after the application of any adjustment or correction factors in accordance with 310.14.

Informational Note No. 1: See Examples D1 through D11 in Informative Annex D.

Informational Note No. 2: Conductors for feeders, as defined in Article 100, sized to prevent a voltage drop exceeding 3 percent at the farthest outlet of power, heating, and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest outlet does not exceed 5 percent, will provide reasonable efficiency of operation.

Informational Note No. 3: See 210.19(B), Informational Note No. 4 3 , for voltage drop for branch circuits.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 10:40:07 EST 2020

Committee Statement

Committee Statement: This revision makes an editorial correction.
Response Message: FR-7684-NFPA 70-2020

Public Input No. 250-NFPA 70-2020 [Section No. 215.2(A)(1)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan

Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7685-NFPA 70-2020 [Section No. 215.2(A)(2)]

(2) Grounded Conductor.

The size of the feeder circuit grounded conductor shall not be smaller than ~~that~~ the equipment grounding conductor size required by 250.122, except that 250.122(F) shall not apply where grounded conductors are run in parallel.

Additional minimum sizes shall be as specified in 215.2(A)(3) under the conditions stipulated.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 10:45:25 EST 2020

Committee Statement

Committee Statement: This revision editorially adds clarity.
Response Message: FR-7685-NFPA 70-2020

Public Input No. 581-NFPA 70-2020 [Section No. 215.2(A)(2)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7686-NFPA 70-2020 [Section No. 215.9]

215.9 Ground-Fault Circuit-Interrupter Protection for Personnel.

Feeders shall be permitted to be protected by a listed ground-fault circuit interrupter installed in a readily accessible location in lieu of the provisions for such interrupters as specified in 210.8 and 590.6(A).

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 10:51:35 EST 2020

Committee Statement

Committee Statement: This revision mandates that GFCI protection be listed.
Response Message: FR-7686-NFPA 70-2020

Public Input No. 2209-NFPA 70-2020 [Section No. 215.9]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7687-NFPA 70-2020 [Section No. 215.10]

215.10 Ground-Fault Protection of Equipment.

Each feeder disconnect rated 1000 amperes or more and installed on solidly grounded wye electrical systems of more than 150 volts to ground, but not exceeding ~~600~~ 1000 volts phase-to-phase, shall be provided with ground-fault protection of equipment in accordance with 230.95.

Informational Note: ~~For~~ See 517.17 for buildings that contain health care occupancies. ~~, see 517.17 .~~

Exception No. 1: This section shall not apply to a disconnecting means for a continuous industrial process where a nonorderly shutdown will introduce additional or increased hazards.

Exception No. 2: This section shall not apply if ground-fault protection of equipment is provided on the supply side of the feeder and on the load side of any transformer supplying the feeder.

Exception No. 3: If temporary feeder conductors are used to connect a generator to a facility for repair, maintenance, or emergencies, ground-fault protection of equipment shall not be required. Temporary feeders without ground-fault protection shall be permitted for the time period necessary but shall not exceed 90 days.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 10:57:55 EST 2020

Committee Statement

Committee Statement: These revisions are editorial in nature, provide clarity and correlation with other requirements in this code.
Response Message: FR-7687-NFPA 70-2020

Public Input No. 3556-NFPA 70-2020 [Section No. 215.10]
Public Input No. 4703-NFPA 70-2020 [Section No. 215.10]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All
Anderson, Richard
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

Affirmative with Comment
Arnold, Kevin S.

This GFPE protection will have to be correlated with the move from 1000A to 800A as part of FR 8196.

First Revision No. 7688-NFPA 70-2020 [New Section after 215.12]

215.15 Barriers.

Barriers shall be placed such that no uninsulated, ungrounded busbar or terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations in panelboards, switchboards, switchgear, or motor control centers supplied by feeder taps in 240.21(B) or transformer secondary conductors in 240.21(C) with the disconnecting device, to which the tap conductors are terminated, in the open position.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Mon Dec 07 11:12:21 EST 2020

Committee Statement

Committee Statement: This revision adds a new section to reduce the hazards that exist when creating an electrically safe work condition in equipment supplied by tap conductors. The new requirement for barriers to provide protection against inadvertent contact mirrors the requirements in 230.62(C). This requirement is limited to panelboards, switchboards, switchgear, or motor control centers supplied by feeder taps in 240.21(B) or transformer secondary conductors in 240.21(C). Where the tap rules are applied, it is unlikely that the source of supply to the OCPD can be deenergized during maintenance and other tasks. This revision ensures the exposed energized parts on the line side of the OCPD are protected against inadvertent contact. When the disconnecting device to which the tap conductors are terminated is in the open position, the likelihood of contact with energized parts is significantly reduced.

Response Message: FR-7688-NFPA 70-2020

Public Input No. 2878-NFPA 70-2020 [New Section after 215.12]

Public Input No. 3346-NFPA 70-2020 [Section No. 215.11]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7689-NFPA 70-2020 [New Section after 215.12]

215.18 Surge Protection.

(A) Surge-Protective Device.

Where a feeder supplies any of the following, a surge-protective device (SPD) shall be installed:

(1) Dwelling units

(2) Dormitory units

(3) Guest rooms and guest suites of hotels and motels

(4) Areas of nursing homes and limited-care facilities used exclusively as patient sleeping rooms

(B) Location.

An SPD shall be installed in or adjacent to the distribution equipment containing branch circuit overcurrent protective device(s) that supply the location specified in 215.18(A).

Exception: An SPD shall not be required in distribution equipment that is supplied by a feeder originating in the distribution equipment containing an SPD as required in 215.18(A) and (B).

Informational Note: Surge protection is most effective when closest to the branch circuit. Surges can be generated from multiple sources including, but not limited to, lightning, the electric utility, or utilization equipment.

(C) Type.

The SPD shall be a Type 1 or Type 2 SPD.

(D) Replacement.

Where the distribution equipment supplied by the feeder is replaced, all of the requirements of this section shall apply.

(E) Ratings.

SPDs shall have a nominal discharge current rating (In) of not less than 10kA.

Informational Note: Lead lengths of conductors to the SPD should be kept as short as possible to reduce let-through voltages.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Mon Dec 07 11:23:47 EST 2020

Committee Statement

Committee Statement: Surge protection was included in the 2020 NEC to address the recognized need for surge protection to protect the sensitive electronics and systems found in most modern appliances, safety devices (such as AFCI, GFCI and smoke alarms) and equipment used in dwellings. Surges can enter through lightning, the utility or surges can be generated from internal utilization equipment. The addition of surge protection to 215.18 addresses the proper protection of areas served by feeders that are extended distances away from services that can result in limited surge protection.

Response Message: FR-7689-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
2 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Arnold, Kevin S.

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Williams, David A.

Zia, Danish

Negative with Comment

Koepke, Ed

SPD protection is important at the point of connection for the equipment. If the equipment has an SPD internally or is connected to an SPD strip for all electronic equipment, does the exception then apply so no dwellings or buildings would require this SPD be installed?

Vance, Christopher R.

Surge suppression for consumer equipment protection is an economic decision. Placement does not guarantee protection of all equipment listed, such as smoke detectors. Concerns with panel listing and device compatibility exist, as well as maintenance, long term performance and unrecognized failure of surge device protection. If protection devices such as AFCI and GFCI equipment and fire alarm systems is of concern, these concerns should rest in the product standards. Existing GFCI receptacles already come with a test feature to determine operation status.

First Revision No. 7899-NFPA 70-2020 [Section No. 225.1]

225.1 Scope.

This article covers requirements for outside branch circuits and feeders run on or between buildings, structures, or poles on the premises; and electrical equipment and wiring for the supply of utilization equipment that is located on or attached to the outside of buildings, structures, or poles.

Informational Note: ~~For additional information on wiring over 1000 volts, see~~ See ANSI/IEEE C2-2017, *National Electrical Safety Code*, for additional information on wiring over 1000 volts .

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 16:08:26 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7899-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7691-NFPA 70-2020 [Section No. 225.3]

225.3 Other Articles.

Application of other articles, including additional requirements to specific cases of equipment and conductors, is shown in Table 225.3.

Table 225.3 Other Articles

Equipment/Conductors	Article
Branch circuits	210
Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits	725
~~Communications circuits~~	~~805~~
~~Community antenna television and radio distribution systems~~	~~820~~
Conductors for general wiring	310
Electrically driven or controlled irrigation machines	675
Electric signs and outline lighting	600
Feeders	215
Fire alarm systems	760
Fixed outdoor electric deicing and snow-melting equipment	426
~~Floating buildings~~	~~553~~
Grounding and bonding	250
Hazardous (classified) locations	500
Hazardous (classified) locations — specific	510
Marinas and boatyards	555
Medium-voltage conductors and cable	311
Messenger-supported wiring	396
Mobile homes, manufactured homes, and mobile home parks	550
Open wiring on insulators	398
Over 1000 volts, general	490
Overcurrent protection	240
~~Radio and television equipment~~	~~810~~
Services	230
Solar photovoltaic systems	690
Swimming pools, fountains, and similar installations	680
Use and identification of grounded conductors	200

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 13:19:54 EST 2020

Committee Statement

Committee Statement: Editorial revisions are made to correlate with previous changes in the code. Chapter 8 is not impacted by the requirements of Article 225. CMP-10 requests that the NEC CC review redundant references throughout the NEC.
Response Message: FR-7691-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Arnold, Kevin S.

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.

Koepke, Ed

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Vance, Christopher R.

Williams, David A.

Zia, Danish

First Revision No. 7692-NFPA 70-2020 [Section No. 225.4]

225.4 Conductor ~~Covering~~ Insulation .

Where within 3.0 m (10 ft) of any building or structure other than supporting poles or towers, open individual (aerial) overhead conductors shall be insulated for the nominal voltage. The insulation of conductors in cables or raceways, except Type MI cable, shall be of thermoset or thermoplastic type and, in wet locations, shall comply with 310.10(C). The insulation of conductors for festoon lighting shall be of the thermoset or thermoplastic type.

Exception: Equipment grounding conductors and grounded circuit conductors shall be permitted to be bare or covered as specifically permitted elsewhere in this Code.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 13:37:49 EST 2020

Committee Statement

Committee Statement: The section title is editorially retitled to match the requirement.

Response Message: FR-7692-NFPA 70-2020

Public Input No. 755-NFPA 70-2020 [Section No. 225.4]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7693-NFPA 70-2020 [Section No. 225.5]

~~**225.5** Size of Conductors 1000 Volts, Nominal, or Less.~~

~~The ampacity of outdoor branch-circuit and feeder conductors shall be in accordance with 310.14 based on loads as determined under 220.10 and Part III of Article 220 .~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 13:44:36 EST 2020

Committee Statement

Committee Statement: This section is redundant and unnecessary because these requirements already exist in Articles 210 and 215.
Response Message: FR-7693-NFPA 70-2020

Public Input No. 1902-NFPA 70-2020 [Section No. 225.5]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7694-NFPA 70-2020 [Section No. 225.7]

~~**225.7** Lighting Equipment Installed Outdoors.~~

~~**(A)** General.~~

~~For the supply of lighting equipment installed outdoors, the branch circuits shall comply with Article 210 and 225.7(B) through (D).~~

~~**(B)** Common Neutral.~~

~~The ampacity of the neutral conductor shall not be less than the maximum net calculated load current between the neutral conductor and all ungrounded conductors connected to any one phase of the circuit.~~

~~**(C)** 277 Volts to Ground.~~

~~Circuits exceeding 120 volts, nominal, between conductors and not exceeding 277 volts, nominal, to ground shall be permitted to supply luminaires for illumination of outdoor areas of industrial establishments, office buildings, schools, stores, and other commercial or public buildings.~~

~~**(D)** 1000 Volts Between Conductors.~~

~~Circuits exceeding 277 volts, nominal, to ground and not exceeding 1000 volts, nominal, between conductors shall be permitted to supply the auxiliary equipment of electric-discharge lamps in accordance with 210.6(D) (1).~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 13:49:15 EST 2020

Committee Statement

Committee Statement: This section is redundant and unnecessary because these requirements already exist in Articles 210 and 220.
Response Message: FR-7694-NFPA 70-2020

Public Input No. 1901-NFPA 70-2020 [Section No. 225.7]

Public Input No. 3752-NFPA 70-2020 [Section No. 225.7(A)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.

Zia, Danish

First Revision No. 7695-NFPA 70-2020 [Section No. 225.11]

225.11 Feeder and Branch-Circuit Conductors Entering, Exiting, or Attached to Buildings or Structures.

Feeder and branch-circuit conductors entering or exiting buildings or structures shall be installed in accordance with ~~the requirements of~~ 230.52. Overhead branch circuits and feeders attached to buildings or structures shall be installed in accordance with ~~the requirements of~~ 230.54.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 13:56:20 EST 2020

Committee Statement

Committee Statement: The words "the requirements of" are deleted to simplify the sentence.
Response Message: FR-7695-NFPA 70-2020

Public Input No. 4051-NFPA 70-2020 [Section No. 225.11]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7716-NFPA 70-2020 [Section No. 225.19(A)]

(A) Above Roofs.

Overhead spans of open conductors and open multiconductor cables shall have a vertical clearance of not less than ~~2.7~~ 2.6 m (8 ft 6 in.) above the roof surface. The vertical clearance above the roof level shall be maintained for a distance not less than 900 mm (3 ft) in all directions from the edge of the roof.

Exception No. 1: The area above a roof surface subject to pedestrian or vehicular traffic shall have a vertical clearance from the roof surface in accordance with the clearance requirements of 225.18.

Exception No. 2: Where the voltage between conductors does not exceed 300, and the roof has a slope of 100 mm in 300 mm (4 in. in 12 in.) or greater, a reduction in clearance to 900 mm (3 ft) shall be permitted.

Exception No. 3: Where the voltage between conductors does not exceed 300, a reduction in clearance above only the overhanging portion of the roof to not less than 450 mm (18 in.) shall be permitted if (1) not more than 1.8 m (6 ft) of the conductors, 1.2 m (4 ft) horizontally, pass above the roof overhang, and (2) they are terminated at a through-the-roof raceway or approved support.

Exception No. 4: The requirement for maintaining the vertical clearance 900 mm (3 ft) from the edge of the roof shall not apply to the final conductor span where the conductors are attached to the side of a building.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 16:59:48 EST 2020

Committee Statement

Committee Statement: The measurement in 225.19(A) is revised from 2.7 to 2.6 m to be consistent with 230.24(A).
Response Message: FR-7716-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7696-NFPA 70-2020 [Section No. 225.27]

225.27 Raceway Seal.

Where a raceway enters a building or structure from outside, it shall be sealed in accordance with 300.5(G) and 300.7(A). Spare or unused raceways shall also be sealed. Sealants shall be identified for use with cable insulation, conductor insulation, bare conductor, shield, or other components.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 14:03:29 EST 2020

Committee Statement

Committee Statement: This revision provides necessary clarity, and correlates with 230.8.
Response Message: FR-7696-NFPA 70-2020

Public Input No. 1840-NFPA 70-2020 [Section No. 225.27]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7698-NFPA 70-2020 [Section No. 225.30(A)]

(A) Special Conditions.

Additional feeders or branch circuits shall be permitted to supply the following:

(1) Fire pumps
(2) Emergency systems
(3) Legally required standby systems
(4) Optional standby systems
(5) Parallel power production systems
(6) Systems designed for connection to multiple sources of supply for the purpose of enhanced reliability
(7) Electric vehicle ~~charging~~ power transfer systems listed, labeled, and identified for more than a single branch circuit or feeder
(8) Docking facilities and piers

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 14:10:38 EST 2020

Committee Statement

Committee Statement: The language is revised in 225.30(A) to align the title revision of Article 625.
Response Message: FR-7698-NFPA 70-2020

Public Input No. 1858-NFPA 70-2020 [Section No. 225.30(A)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7699-NFPA 70-2020 [Section No. 225.30(F)]

(F) Documented Switching Procedures.

Additional feeders or branch circuits shall be permitted to supply installations under single management where documented safe switching procedures are established and maintained. ~~for disconnection.~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 14:36:15 EST 2020

Committee Statement

Committee Statement: The words “for disconnection” are removed because they do not enhance the clarity of the requirement.
Response Message: FR-7699-NFPA 70-2020

Public Input No. 3153-NFPA 70-2020 [Section No. 225.30(F)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7703-NFPA 70-2020 [Section No. 225.31]

225.31 Disconnecting Means.

~~Means shall be provided for disconnecting all ungrounded conductors that supply or pass through the building or structure.~~

(A) General.

Means shall be provided for disconnecting all ungrounded conductors that supply or pass through the building or structure.

(B) Location.

The disconnecting means shall be installed either inside or outside of the building or structure served or where the conductors pass through the building or structure. The disconnecting means shall be at a readily accessible location nearest the point of entrance of the conductors. For the purposes of this section, the requirements in 230.6 shall ~~be utilized~~ apply .

Exception No. 1: For installations under single management, where documented safe switching procedures are established and maintained ~~for disconnection~~ , and where the installation is monitored by qualified individuals, the disconnecting means shall be permitted to be located elsewhere on the premises.

Exception No. 2: For buildings or other structures qualifying under ~~Article 685~~ 685.1, the disconnecting means shall be permitted to be located elsewhere on the premises.

Exception No. 3: For towers or poles used as lighting standards, the disconnecting means shall be permitted to be located elsewhere on the premises.

Exception No. 4: For poles or similar structures used only for support of signs installed in accordance with ~~Article 600~~ 600.1, the disconnecting means shall be permitted to be located elsewhere on the premises.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Mon Dec 07 15:08:26 EST 2020

Committee Statement

Committee Statement: This revision is editorial and provides clarity.

The words “for disconnection” are removed because they do not enhance the clarity of the requirement. Revisions are made to conform with the NEC style manual and references to entire articles.

This editorial revision to the last sentence in 225.32 was revised for clarity. The change replaces the words “be utilized” with the word “apply”.

Response Message: FR-7703-NFPA 70-2020

Public Input No. 3788-NFPA 70-2020 [Section No. 225.32]

Public Input No. 3154-NFPA 70-2020 [Section No. 225.32]

Public Input No. 2043-NFPA 70-2020 [Sections 225.31, 225.32]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Arnold, Kevin S.

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7905-NFPA 70-2020 [Section No. 225.36]

225.36 Type of Disconnecting Means.

The disconnecting means specified in 225.31 shall be ~~comprised of~~ a circuit breaker, molded case switch, general-use switch, snap switch, or other approved means. Where applied in accordance with 250.32(B), Exception No. 1, the disconnecting means shall be suitable for use as service equipment.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 16:32:31 EST 2020

Committee Statement

Committee Statement: This editorial revision to the sentence was for clarity. The change deletes the words “comprised of”.
Response Message: FR-7905-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7706-NFPA 70-2020 [New Section after 225.40]

225.41 Emergency Disconnects.

For one-and two-family dwelling units, an emergency disconnecting means shall be installed.

(A) General.

(1) Location.

The disconnecting means shall be installed in a readily accessible outdoor location on or within sight of the dwelling unit.

(2) Rating.

The disconnecting means shall have a short-circuit current rating equal to or greater than the available fault current.

(3) Grouping.

If more than one disconnecting means is provided, they shall be grouped.

(B) Identification of Other Emergency Disconnects.

Where emergency disconnects are installed for other systems that are not located adjacent to the emergency disconnect required by this section, a plaque or directory identifying the location of all emergency disconnects shall be located adjacent to the disconnecting means required by this section.

(C) Marking.

The disconnecting means shall be marked as EMERGENCY DISCONNECT.

Markings shall comply with 110.21(B) and all of the following:

(1) The marking or labels shall be located on the outside front of the disconnect enclosure with red background and white text.

(2) The letters shall be least 13 mm (½ in.) high.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 16:10:52 EST 2020

Committee Statement

Committee Statement: This revision correlates with existing requirements for service supplied dwelling units and the revisions in 230.85. First responders will need the ability to disconnect the power to the dwelling without regard to whether it is feeder or service supplied.

Response Message: FR-7706-NFPA 70-2020

Public Input No. 2913-NFPA 70-2020 [Section No. 225.31]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.

Koepke, Ed

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Vance, Christopher R.

Zia, Danish

Affirmative with Comment

Williams, David A.

FR7906 text and Terra reference the standard edition as ANSI/NETA ATS-2013. The Panel statement states that we updated the edition to 2017. The NETA website references the current edition as ANSI/NETA ATS-2021

First Revision No. 7707-NFPA 70-2020 [New Section after 225.40]

225.42 Surge Protection.

(A) Surge-Protective Device.

Where a feeder supplies any of the following, a surge-protective device (SPD) shall be installed:

(1) Dwelling units

(2) Dormitory units

(3) Guest rooms and guest suites of hotels and motels

(4) Areas of nursing homes and limited-care facilities used exclusively as patient sleeping rooms

(B) Location.

An SPD shall be installed in or adjacent to the distribution equipment containing branch circuit overcurrent protective device(s) that supply the location specified in 225.42(A).

Exception: An SPD shall not be required in distribution equipment that is supplied by a feeder originating in the distribution equipment containing an SPD as required in 225.42(A) and (B).

Informational Note: Surge protection is most effective when closest to the branch circuit. Surges can be generated from multiple sources including, but not limited to, lightning, the electric utility, or utilization equipment.

(C) Type.

The SPD shall be a Type 1 or Type 2 SPD.

(D) Replacement.

Where the distribution equipment supplied by the feeder is replaced, all of the requirements of this section shall apply.

(E) Ratings.

SPDs shall have a nominal discharge current rating (I_n) of not less than 10kA.

Informational Note: Lead lengths of conductors to the SPD should be kept as short as possible to reduce let-through voltages.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Mon Dec 07 16:14:44 EST 2020

Committee Statement

Committee Statement: Surge protection was included in the 2020 NEC to address the recognized need for surge protection to protect the sensitive electronics and systems found in most modern appliances, safety devices (such as AFCI, GFCI and smoke alarms) and equipment used in dwellings. Surges can enter through lightning, the utility or surges can be generated from internal utilization equipment. The addition of surge protection to 225.42 addresses the proper protection of areas served by outdoor feeders that are extended distances away from services that can result in limited surge protection.

Response Message: FR-7707-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
2 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Arnold, Kevin S.

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Williams, David A.

Zia, Danish

Negative with Comment

Koepke, Ed

SPD protection is important at the point of connection for the equipment. If the equipment has an SPD internally or is connected to an SPD strip for all electronic equipment, does the exception then apply so no dwellings or buildings would require this SPD be installed?

Vance, Christopher R.

Surge suppression for consumer equipment protection is an economic decision. Placement does not guarantee protection of all equipment listed, such as smoke detectors. Concerns with panel listing and device compatibility exist, as well as maintenance, long term performance and unrecognized failure of surge device protection. If protection devices such as AFCI and GFCI equipment and fire alarm systems is of concern, these concerns should rest in the product standards. Existing GFCI receptacles already come with a test feature to determine operation status.

First Revision No. 7906-NFPA 70-2020 [Section No. 225.56(B)]

(B) Test Report.

A test report covering the results of the tests required in 225.56(A) shall be delivered to the authority having jurisdiction prior to energization.

Informational Note: ~~For an example of acceptance specifications, see~~ See ANSI/NETA ATS-2013, *Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems*, ~~published by the InterNational Electrical Testing Association~~ for an example of acceptance specifications .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 16:35:00 EST 2020

Committee Statement

Committee Statement: The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual. The publishers name of the referenced standard was deleted. The document edition date was updated to 2017.

Response Message: FR-7906-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7710-NFPA 70-2020 [Section No. 225.60]

225.60 Clearances over Roadways, Walkways, Rail, Water, and Open Land.

(A) 22 kV~~, Nominal,~~ or Less to Ground ~~or Less~~ .

The clearances over roadways, walkways, rail, water, and open land for conductors and live parts up to 22 kV~~, nominal,~~ or less to ground ~~or less~~ shall be not less than the values shown in Table 225.60(A).

Table 225.60(A) Clearances over Roadways, Walkways, Rail, Water, and Open Land

-	Clearance	
Location	m	ft
Open land subject to vehicles, cultivation, or grazing	5.6	18.5
Roadways, driveways, parking lots, and alleys	5.6	18.5
Walkways	4.1	13.5
Rails	8.1	26.5
Spaces and ways for pedestrians and restricted traffic	4.4	14.5
Water areas not suitable for boating	5.2	17.0

(B) ~~Over~~ More Than 22 kV ~~Nominal~~ to Ground.

Clearances for the categories shown in Table 225.60(A) shall be increased by 10 mm (0.4 in.) per kV ~~above 22,000 volts~~ , or major fraction thereof, more than 22 kV .

Detail FR-7907

(C) Special Cases.

For special cases, such as where crossings will be made over lakes, rivers, or areas using large vehicles such as mining operations, specific designs shall be engineered considering the special circumstances and shall be approved by the authority having jurisdiction.

~~For additional information, see~~ See ANSI/IEEE C2-2017, *National Electrical Safety Code*, for additional information.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 16:29:47 EST 2020

Committee Statement

Committee Statement: This revision makes editorial corrections for clarity and clarifies “major fraction thereof.”
Response Message: FR-7710-NFPA 70-2020

Public Input No. 2068-NFPA 70-2020 [Section No. 225.60]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.

Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The IEEE standard title does not reference ANSI. It is IEEE C2-2017

First Revision No. 7712-NFPA 70-2020 [Section No. 225.61]

225.61 Clearances over Buildings and Other Structures.

(A) 22 kV ~~Nominal~~ or Less to Ground ~~or Less~~.

The clearances over buildings and other structures for conductors and live parts up to 22 kV~~, nominal,~~ or less to ground ~~or less~~ shall be not less than the values shown in Table 225.61(A).

Table 225.61(A) Clearances over Buildings and Other Structures

Clearance from Conductors or Live Parts from:	Horizontal		Vertical	
	m	ft	m	ft
Building walls, projections, and windows	2.3	7.5	—	—
Balconies, catwalks, and similar areas accessible to people	2.3	7.5	4.1	13.5
Over or under roofs or projections not readily accessible to people	—	—	3.8	12.5
Over roofs accessible to vehicles but not trucks	—	—	4.1	13.5
Over roofs accessible to trucks	—	—	5.6	18.5
Other structures	2.3	7.5	—	—

Detail FR-7908

(B) ~~Over~~More Than 22 kV ~~Nominal~~ to Ground.

Clearances for the categories shown in Table 225.61(A) shall be increased by 10 mm (0.4 in.) per kV ~~above 22,000 volts~~, or major fraction thereof, more than 22 kV.

Informational Note: ~~For additional information, see~~See ANSI/IEEE C2-2017, *National Electrical Safety Code*, for additional information.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 16:45:05 EST 2020

Committee Statement

Committee Statement: This revision makes editorial corrections for clarity and clarifies “major fraction thereof.”
Response Message: FR-7712-NFPA 70-2020

Public Input No. 2069-NFPA 70-2020 [Section No. 225.61]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick

Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The IEEE standard title does not reference ANSI. It is IEEE C2-2017

First Revision No. 7719-NFPA 70-2020 [Section No. 230.2(A)]

(A) Special Conditions.

Additional services shall be permitted to supply the following:

(1) Fire pumps

(2) Emergency systems

(3) Legally required standby systems

(4) Optional standby systems

(5) ~~Parallel~~ Interconnected electric power production ~~systems~~ sources

(6) Systems designed for connection to multiple sources of supply for the purpose of enhanced reliability

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Mon Dec 07 17:12:56 EST 2020

Committee Statement

Committee Statement: The revised text correlates the permission for an additional service in Article 230 with Article 705 Interconnected Electric Power Production Sources.

Response Message: FR-7719-NFPA 70-2020

Public Input No. 3358-NFPA 70-2020 [Section No. 230.2(A)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7720-NFPA 70-2020 [Section No. 230.6]

230.6 Conductors Considered Outside the Building.

Conductors shall be considered outside of a building or other structure under any of the following conditions:

(1) Where installed under not less than 50 mm (2 in.) of concrete beneath a building or other structure

(2) Where installed within a building or other structure in a raceway that is encased in concrete or brick not less than 50 mm (2 in.) thick

(3) Where installed in any vault that meets the construction requirements of Part III of Article 450~~, Part III~~

(4) Where installed in conduit and under not less than 450 mm (18 in.) of earth beneath a building or other structure

(5) Where installed within rigid metal conduit (Type RMC) or intermediate metal conduit (Type IMC) used to accommodate the clearance requirements in 230.24 and routed directly through an eave but not a wall of a building

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 17:28:01 EST 2020

Committee Statement

Committee Statement: The text is revised to provide consistency where a reference to a Part of another Article appears in Article 230.
Response Message: FR-7720-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7721-NFPA 70-2020 [Section No. 230.7]

230.7 Other Conductors. ~~in Raceway or Cable.~~

Conductors other than service conductors shall not be installed in the same service raceway, ~~or~~ service cable, handholes, or underground boxes in which the service conductors are installed.

Exception No. 1: Grounding electrode conductors or supply side bonding jumpers or conductors shall be permitted within service raceways.

Exception No. 2: Load management control conductors having overcurrent protection shall be permitted within service raceways.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 17:33:52 EST 2020

Committee Statement

Committee Statement: The revised language prohibits feeder and branch circuit conductors from being installed in handholes and underground boxes with service conductors in order to limit the exposure to unprotected service conductors.
Response Message: FR-7721-NFPA 70-2020

Public Input No. 1261-NFPA 70-2020 [Section No. 230.7]
Public Input No. 2005-NFPA 70-2020 [Section No. 230.7]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7722-NFPA 70-2020 [Section No. 230.8]

230.8 Raceway Seal.

Where a service raceway enters a building or structure, ~~from an underground distribution system,~~ it shall be sealed in accordance with 300.5(G) and 300.7(A) . Spare or unused raceways shall also be sealed. Sealants shall be identified for use with the cable insulation, conductor insulation, bare conductor, shield, or other components.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 17:51:44 EST 2020

Committee Statement

Committee Statement: This revision correlates this section with the requirements of Section 225.27.
Response Message: FR-7722-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7723-NFPA 70-2020 [Section No. 230.23(A)]

(A) General.

Conductors shall have sufficient ampacity to carry the current for the load as calculated in accordance with Parts II through V of Article 220 and shall have adequate mechanical strength.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 18:10:56 EST 2020

Committee Statement

Committee Statement: The general reference to Article 220 is modified to comply with the NEC Style Manual.
Response Message: FR-7723-NFPA 70-2020

Public Input No. 3791-NFPA 70-2020 [Section No. 230.23(A)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7724-NFPA 70-2020 [Section No. 230.24(A)]

(A) Above Roofs.

Conductors shall have a vertical clearance of not less than ~~2.5~~ 2.6 m (8 ft 6 in.) above the roof surface. The vertical clearance above the roof level shall be maintained for a distance of not less than 900 mm (3 ft) in all directions from the edge of the roof.

Exception No. 1: The area above a roof surface subject to pedestrian or vehicular traffic shall have a vertical clearance from the roof surface in accordance with the clearance requirements of 230.24(B).

Exception No. 2: Where the voltage between conductors does not exceed 300 and the roof has a slope of 100 mm in 300 mm (4 in. in 12 in.) or greater, a reduction in clearance to 900 mm (3 ft) shall be permitted.

Exception No. 3: Where the voltage between conductors does not exceed 300, a reduction in clearance above only the overhanging portion of the roof to not less than 450 mm (18 in.) shall be permitted if (1) not more than 1.8 m (6 ft) of overhead service conductors, 1.2 m (4 ft) horizontally, pass above the roof overhang, and (2) they are terminated at a through-the-roof raceway or approved support.

Informational Note: See 230.28 for mast supports.

Exception No. 4: The requirement for maintaining the vertical clearance 900 mm (3 ft) from the edge of the roof shall not apply to the final conductor span where the service drop or overhead service conductors are attached to the side of a building.

Exception No. 5: Where the voltage between conductors does not exceed 300 and the roof area is guarded or isolated, a reduction in clearance to 900 mm (3 ft) shall be permitted.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 18:14:52 EST 2020

Committee Statement

Committee Statement: The revised language correlates the vertical clearance above roofs between 230.24 and 225.19. The metric reference was corrected.
Response Message: FR-7724-NFPA 70-2020

Public Input No. 612-NFPA 70-2020 [Section No. 230.24(A)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.

Zia, Danish

First Revision No. 7909-NFPA 70-2020 [Section No. 230.24(C)]

(C) Clearance from Building Openings.

~~See~~ Clearances from building openings shall comply with ~~230.9~~ 230.9(C) .

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 16:50:56 EST 2020

Committee Statement

Committee Statement: The section was revised for clarity to provide a complete sentence.
Response Message: FR-7909-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7910-NFPA 70-2020 [Section No. 230.24(D)]

(D) Clearance from Swimming Pools, Fountains, and Similar Installations .

~~See~~ Clearances from swimming pools, fountains, and similar installations shall comply with 680.9.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 16:52:12 EST 2020

Committee Statement

Committee Statement: The title and section were revised for clarity to provide a complete sentence.
Response Message: FR-7910-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7725-NFPA 70-2020 [Section No. 230.30(B)]

(B) Wiring Methods.

Underground service conductors shall be installed in accordance with the applicable requirements of this *Code* covering the type of wiring method used and shall be limited to the following methods:

(1) Type RMC conduit
(2) Type IMC conduit
(3) Type NUCC conduit
(4) Type HDPE conduit
(5) Type PVC conduit
(6) Type RTRC conduit
(7) Type IGS cable
(8) Type USE conductors or cables
(9) Type MV or Type MC cable identified for direct burial applications
(10) Type MI cable~~,~~ where suitably protected against physical damage and corrosive conditions
(11) Type TC-ER cable where identified for service entrance use and direct burial applications

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 18:23:31 EST 2020

Committee Statement

Committee Statement: Type TC-ER cable was added as an acceptable service entrance conductor in Part IV Service Entrance Conductors of the 2020 NEC. This revision adds Type TC-ER where identified for direct burial into 230.30(B).

Response Message: FR-7725-NFPA 70-2020

Public Input No. 610-NFPA 70-2020 [Section No. 230.30(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick

Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7728-NFPA 70-2020 [Section No. 230.31]

230.31 Size and Ampacity.

(A) General.

Underground service conductors shall have sufficient ampacity to carry the current for the load as calculated in accordance with Parts II through V of Article 220. ~~and shall have adequate mechanical strength.~~

(B) Minimum Size.

The conductors shall not be smaller than 8 AWG copper or 6 AWG aluminum or copper-clad aluminum.

Exception: Conductors supplying only limited loads of a single branch circuit — such as small polyphase power, controlled water heaters, and similar loads — shall not be smaller than 12 AWG copper or 10 AWG aluminum or copper-clad aluminum.

(C) Grounded Conductors.

The grounded conductor shall not be less than the minimum size required by 250.24(D).

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 19:28:29 EST 2020

Committee Statement

Committee Statement: The general reference to Article 220 is modified to comply with the NEC Style Manual and the subjective language "shall have adequate mechanical strength" is also deleted.

Response Message: FR-7728-NFPA 70-2020

Public Input No. 1444-NFPA 70-2020 [Section No. 230.31]

Public Input No. 3793-NFPA 70-2020 [Section No. 230.31(A)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7729-NFPA 70-2020 [Section No. 230.33]

230.33 Spliced Conductors.

Service conductors shall be permitted to be spliced or tapped in accordance with 110.14, 230.46 , 300.5(E), 300.13, and 300.15.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 19:31:52 EST 2020

Committee Statement

Committee Statement: The reference to 230.46 is being added to provide further detail on splicing service conductors.
Response Message: FR-7729-NFPA 70-2020

Public Input No. 598-NFPA 70-2020 [Section No. 230.33]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
13 Affirmative All
0 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Williams, David A.
Zia, Danish

Negative with Comment

Vance, Christopher R.

Surge suppression for consumer equipment protection is an economic decision. Placement does not guarantee protection of all equipment listed, such as smoke detectors. Concerns with panel listing and device compatibility exist, as well as maintenance, long term performance and unrecognized failure of surge device protection. If protection devices such as AFCI and GFCI equipment and fire alarm systems is of concern, these concerns should rest in the product standards. Existing GFCI receptacles already come with a test feature to determine operation status.

First Revision No. 7730-NFPA 70-2020 [Section No. 230.40]

230.40 Number of Service-Entrance Conductor Sets.

Each service drop, set of overhead service conductors, set of underground service conductors, or service lateral shall supply only one set of service-entrance conductors.

Exception No. 1: A building with more than one occupancy shall be permitted to have one set of service-entrance conductors for each service, as permitted in 230.2, run to each occupancy or group of occupancies. If the number of service disconnect locations for any given classification of service does not exceed six, the requirements of 230.2(E) shall apply at each location. If the number of service disconnect locations exceeds six for any given supply classification, ~~all~~ the following conditions shall apply: ~~service disconnect locations for all supply characteristics, together with any branch circuit or feeder supply sources, if applicable, shall be clearly described using graphics or text, or both, on one or more plaques located in an approved, readily accessible location(s) on the building or structure served and as near as practicable to the point(s) of attachment or entry(ies) for each service drop or service lateral and for each set of overhead or underground service conductors.~~

(1) All service disconnect locations for all supply characteristics, together with any branch circuit or feeder supply sources, if ~~applicable,~~ shall be clearly described using graphics or text, or both, on one or more plaques

(2) The plaques shall be located in an approved, readily accessible location(s) on the building or structure served and as near as practicable to the point(s) of attachment or entry(ies) for each service drop or service lateral and for each set of overhead or underground service conductors.

Exception No. 2: Where two to six service disconnecting means in separate enclosures are grouped at one location and supply separate loads from one service drop, set of overhead service conductors, set of underground service conductors, or service lateral, one set of service-entrance conductors shall be permitted to supply each or several such service equipment enclosures.

Exception No. 3: A one-family dwelling unit and its accessory structures shall be permitted to have one set of service-entrance conductors run to each from a single service drop, set of overhead service conductors, set of underground service conductors, or service lateral.

Exception No. 4: Two-family dwellings, multifamily dwellings, and multiple occupancy buildings shall be permitted to have one set of service-entrance conductors installed to supply the circuits covered in 210.25.

Exception No. 5: One set of service-entrance conductors connected to the supply side of the normal service disconnecting means shall be permitted to supply each or several systems covered by 230.82(5) or 230.82(6).

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 19:34:37 EST 2020

Committee Statement

Committee Statement: The language is revised into two list items in order to improve readability.
Response Message: FR-7730-NFPA 70-2020

Public Input No. 3355-NFPA 70-2020 [Section No. 230.40]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.

Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7914-NFPA 70-2020 [Section No. 230.42(A)]

(A) General.

Service-entrance conductors shall have an ampacity of not less than the maximum load to be served. Conductors shall be sized not less than the largest of 230.42(A)(1) or (A)(2). Loads shall be determined in accordance with Part III, IV, or V of Article 220, as applicable. Ampacity shall be determined from 310.14 and shall comply with 110.14(C). The maximum current of busways shall be that value for which the busway has been listed or labeled.

Informational Note: ~~For information on busways, see~~ See UL 857, *Standard for Safety for Busways*, for information on busways .

(1) Continuous and Noncontinuous Loads.

Where the service-entrance conductors supply continuous loads or any combination of noncontinuous and continuous loads, the minimum service-entrance conductor size shall have an ampacity not less than the sum of the noncontinuous loads plus 125 percent of continuous loads.

Exception No. 1: Grounded conductors that are not connected to an overcurrent device shall be permitted to be sized at 100 percent of the sum of the continuous and noncontinuous load.

Exception No. 2: The sum of the noncontinuous load and the continuous load if the service-entrance conductors terminate in an overcurrent device where both the overcurrent device and its assembly are listed for operation at 100 percent of their rating shall be permitted.

(2) Application of Adjustment or Correction Factors.

The minimum service-entrance conductor size shall have an ampacity not less than the maximum load to be served after the application of any adjustment or correction factors.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 17:44:24 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.
Response Message: FR-7914-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.

Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7732-NFPA 70-2020 [Section No. 230.43]

230.43 Wiring Methods for 1000 Volts, Nominal, or Less.

Service-entrance conductors shall be installed in accordance with the applicable requirements of this *Code* covering the type of wiring method used and shall be limited to the following methods:

(1) Open wiring on insulators
(2) Type IGS cable
(3) Rigid metal conduit (RMC)
(4) Intermediate metal conduit (IMC)
(5) Electrical metallic tubing (EMT)
(6) Electrical nonmetallic tubing
(7) Service-entrance cables
(8) Wireways
(9) Busways
(10) Auxiliary gutters
(11) Rigid polyvinyl chloride conduit (PVC)
(12) Cablebus
(13) Type MC cable
(14) Mineral-insulated, metal-sheathed cable, Type MI
(15) Flexible metal conduit (FMC) not over 1.8 m (6 ft) long or liquidtight flexible metal conduit (LFMC) not over 1.8 m (6 ft) long between a raceway, or between a raceway and service equipment, with a supply-side bonding jumper routed with the flexible metal conduit (FMC) or the liquidtight flexible metal conduit (LFMC) according to 250.102(A), (B), (C), and (E)
(16) Liquidtight flexible nonmetallic conduit (LFNC)
(17) High density polyethylene conduit (HDPE)
(18) Nonmetallic underground conduit with conductors (NUCC)
(19) Reinforced thermosetting resin conduit (RTRC)
(20) Type TC-ER cable where identified for use as service entrance conductors

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 19:48:45 EST 2020

Committee Statement

Committee Statement: TC-ER must be identified being suitable for use as service entrance conductors.
Response Message: FR-7732-NFPA 70-2020

Public Input No. 4325-NFPA 70-2020 [Section No. 230.43]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.

Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7733-NFPA 70-2020 [Section No. 230.44]

230.44 Cable Trays.

Cable tray systems shall be permitted to support service-entrance conductors. Cable trays used to support service-entrance conductors shall contain only service-entrance conductors and shall be limited to the following methods:

(1) Type SE cable

(2) Type MC cable

(3) Type MI cable

(4) Type IGS cable

(5) Single conductors 1/0 and larger that are listed for use in cable tray

(6) Type TC-ER cable

Such cable trays shall be identified with permanently affixed labels with the wording “Service-Entrance Conductors.” The labels shall be located so as to be visible after installation with a spacing not to exceed 3 m (10 ft) so that the service-entrance conductors are able to be readily traced through the entire length of the cable tray.

Exception: Conductors, other than service-entrance conductors, shall be permitted to be installed in a cable tray with service-entrance conductors, provided a solid fixed barrier ~~of a material compatible with~~ identified for use with the cable tray is installed to separate the service-entrance conductors from other conductors installed in the cable tray.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Mon Dec 07 19:57:39 EST 2020

Committee Statement

Committee Statement: The words “material compatible with” are deleted as it is subjective. Cable tray manufacturers provide barriers that are identified for the use.

Response Message: FR-7733-NFPA 70-2020

Public Input No. 326-NFPA 70-2020 [Section No. 230.44]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.

Williams, David A.

Zia, Danish

First Revision No. 8148-NFPA 70-2020 [Section No. 230.46]

230.46 Spliced and Tapped Conductors.

Service-entrance conductors shall be permitted to be spliced or tapped in accordance with 110.14, 300.5(E), 300.13, and 300.15. Power distribution blocks, pressure connectors, and devices for splices and taps shall be listed. Power distribution blocks installed on service conductors shall be marked “suitable for use on the line side of the service equipment” or equivalent.

~~Effective January 1, 2023, pressure~~ Pressure connectors and devices for splices and taps installed on service conductors shall be marked “suitable for use on the line side of the service equipment” or equivalent.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 16 12:06:34 EST 2020

Committee Statement

Committee Statement: The effective date for this requirement is removed because the date will no longer be necessary for the 2023 NEC.
Response Message: FR-8148-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.

Affirmative with Comment

Zia, Danish

In keeping with the NEC® Style Manual, I vote affirmative to remove the effective date. However, I question the need for pressure connectors and devices for splices and taps installed on service conductors to be marked "suitable for use on the line side of the service equipment". These types of connectors have been used for over a century, and no evidence of an issue in the field was presented for the change. It is based solely on a single demonstration of a test commonly known as a “3 cycle short-circuit test”. This test is conducted without any fuse or circuit breaker limiting the fault current, as it is based on the assumption that the downstream service overcurrent protection will not provide any protection under fault conditions. However, other equipment also considered suitable for use on the line side of the service overcurrent protective device, such as meter sockets, power distribution blocks (marked as such), emergency disconnects and service disconnect switches, are typically tested with the downstream service overcurrent protection operating under fault conditions. The test method for the demonstration that the requirement is based upon was unnecessarily severe. As evidence of a

failure in the field has not been presented, and the testing video shown does not use a test method typical of other equipment evaluated for the same conditions, the requirement should be reconsidered.

First Revision No. 7736-NFPA 70-2020 [Section No. 230.62(C)]

(C) Barriers.

Barriers shall be placed in service equipment such that no uninsulated, ungrounded service busbar or service terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations with the service disconnect in the open position .

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 20:31:35 EST 2020

Committee Statement

Committee Statement: This revision clarifies that the intent of this section is to provide protection for exposed service conductors and circuit parts on the line side of the service OCPD or disconnect.
Response Message: FR-7736-NFPA 70-2020

Public Input No. 3621-NFPA 70-2020 [Section No. 230.62(C)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7739-NFPA 70-2020 [Section No. 230.67]

230.67 Surge Protection.

(A) Surge-Protective Device.

All services supplying ~~dwelling units~~ the following occupancies shall be provided with a surge-protective device (SPD)~~.~~ :

(1) Dwelling units

(2) Dormitory units

(3) Guest rooms and guest suites of hotels and motels

(4) Areas of nursing homes and limited-care facilities used exclusively as patient sleeping rooms

Informational Note: See 517.10(B)(2) .

(B) Location.

The SPD shall be an integral part of the service equipment or shall be located immediately adjacent thereto.

Exception: The SPD shall not be required to be located in the service equipment as required in 230.67(B) ~~(B)~~ if located at each next level distribution equipment downstream toward the load.

(C) Type.

The SPD shall be a Type 1 or Type 2 SPD.

(D) Replacement.

Where service equipment is replaced, all of the requirements of this section shall apply.

Detail FR-8299

(E) Ratings.

SPDs shall have a nominal discharge current rating (In) of not less than 10kA.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 20:39:12 EST 2020

Committee Statement

Committee Statement: Electronic life-saving equipment such as fire alarm systems, IDCI's, GFCI's, AFCI's and smoke alarms, may be damaged when a surge occurs due to lightning, internal local switching as well as external utility switching. Egress equipment such as emergency lighting, smoke control systems, occupant evacuation elevator may also be damaged when subjected to surge. In many cases, electronic devices and equipment can be damaged and rendered inoperable by a surge and yet this damage is undetected by the owner. It is practical to require a SPD to provide a general level of protection.

Response Message: FR-7739-NFPA 70-2020

Public Input No. 1295-NFPA 70-2020 [Section No. 230.67]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
11 Affirmative All
1 Affirmative with Comments
2 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Zia, Danish

Affirmative with Comment

Williams, David A.

The proposed informational note under 230.67(A)(4) provides a reference to 517.10(B)(2). However, such reference does not help provide clarity concerning item #4 of 230.67(A) and does not comply with Section 3.1.3 of the NEC Style Manual.

Negative with Comment

Koepke, Ed

SPD protection is important at the point of connection for the equipment. If the equipment has an SPD internally or is connected to an SPD strip for all electronic equipment, does the exception then apply so no dwellings or buildings would require this SPD be installed?

Vance, Christopher R.

Surge suppression for consumer equipment protection is an economic decision. Placement does not guarantee protection of all equipment listed, such as smoke detectors. Concerns with panel listing and device compatibility exist, as well as maintenance, long term performance and unrecognized failure of surge device protection. If protection devices such as AFCI and GFCI equipment and fire alarm systems is of concern, these concerns should rest in the product standards. Existing GFCI receptacles already come with a test feature to determine operation status.

First Revision No. 7740-NFPA 70-2020 [Section No. 230.70(C)]

(C) Suitable for Use.

Each service disconnecting means shall be suitable for the prevailing conditions. Service equipment installed in hazardous (classified) locations shall comply with the hazardous location requirements. ~~of Articles~~ ~~500~~ ~~through~~ ~~517~~ .

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 20:43:11 EST 2020

Committee Statement

Committee Statement: This revision is editorial in nature to comply with the NEC style manual.
Response Message: FR-7740-NFPA 70-2020

Public Input No. 3796-NFPA 70-2020 [Section No. 230.70(C)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7916-NFPA 70-2020 [Section No. 230.71(B)]

Detail FR-7759

Detail FR-7798

Detail FR-7801

Detail FR-7800

Detail FR-7799

(B) Two to Six Service Disconnecting Means.

Two to six service disconnects shall be permitted for each service permitted by 230.2 or for each set of service-entrance conductors permitted by 230.40, Exception No. 1, 3, 4, or 5. The two to six service disconnecting means shall be permitted to consist of a combination of any of the following:

(1) Separate enclosures with a main service disconnecting means in each enclosure.

(2) Panelboards with a main service disconnecting means in each panelboard enclosure.

(3) Switchboard(s) where there is only one service disconnect in each separate vertical section ~~where there are barriers separating each vertical section~~. Barriers shall be provided between each vertical section to maintain the inadvertent contact protection required in 230.62 based on access from the adjacent section(s).

(4) Service disconnects in switchgear, transfer switches, or metering centers where each disconnect is located in a separate compartment.

(5) Metering centers with a main service disconnecting means in each metering center.

(6) Motor control center(s) where there is only one service disconnect in a motor control center unit and a maximum of two service disconnects provided in a single motor control center. Barriers shall be provided between each motor control center unit or compartment containing a service disconnect to maintain the inadvertent contact protection required in 230.62 based on access from adjacent motor control center unit(s) or compartment(s).

Exception to (2), (3), (4), (5), and (6): Existing service equipment, installed in compliance with previous editions of this Code that permitted multiple service disconnecting means in a single enclosure, section, or compartment, shall be permitted to contain a maximum of six service disconnecting means.

Informational Note No. 1: ~~Metering centers are addressed in~~See UL 67, *Standard for Panelboards*, for information on metering centers.

Informational Note No. 2: Examples of separate enclosures with a main service disconnecting means in each enclosure include but are not limited to motor control centers, fused disconnects, and circuit breaker enclosures. ~~, and transfer switches that are suitable for use as service equipment.~~

Informational Note No. 3: Transfer switches may have one service disconnect or may have multiple service disconnects for multiple services. Transfer switches with multiple disconnects will have a separate compartment for each service disconnect.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 17:47:33 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7916-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Arnold, Kevin S.

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.

Koepke, Ed

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Vance, Christopher R.

Williams, David A.

Zia, Danish

First Revision No. 7741-NFPA 70-2020 [Section No. 230.75]

230.75 Disconnection of Grounded Conductor.

Where the service disconnecting means does not disconnect the grounded conductor from the premises wiring, other means shall be provided for this purpose in the service equipment. A terminal or bus to which all grounded conductors can be attached by means of pressure connectors shall be permitted for this purpose. In a multisection switchboard or switchgear, disconnects for the grounded conductor shall be permitted to be in any section of the switchboard or switchgear, if the switchboard or switchgear section is marked to indicate a grounded conductor disconnect is located within .

Informational Note: In switchgear or multisection switchboards, the disconnecting means provided for the grounded conductor is typically identified as a neutral disconnect link and is typically located in the bus to which the service grounded conductor is connected.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Mon Dec 07 20:49:31 EST 2020

Committee Statement

Committee Statement: This revision replaces text that was inadvertently removed in the 2020 NEC cycle.
Response Message: FR-7741-NFPA 70-2020

Public Input No. 2975-NFPA 70-2020 [Section No. 230.75]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 8282-NFPA 70-2020 [Section No. 230.82]

Detail FR-7938

230.82 Equipment Connected to the Supply Side of Service Disconnect.

Only the following equipment shall be permitted to be connected to the supply side of the service disconnecting means:

(1) Cable limiters.

(2) Meters and meter sockets nominally rated not in excess of 1000 volts, if all metal housings and service enclosures are grounded in accordance with Part VII and bonded in accordance with Part V of Article 250.

(3) Meter disconnect switches nominally rated not in excess of 1000 volts that have a short-circuit current rating equal to or greater than the available fault current, if all metal housings and service enclosures are grounded in accordance with Part VII and bonded in accordance with Part V of Article 250. A meter disconnect switch shall be capable of interrupting the load served. A meter disconnect shall be legibly field marked on its exterior in a manner suitable for the environment as follows:

METER DISCONNECT

NOT SERVICE EQUIPMENT

(4) Instrument transformers (current and voltage), impedance shunts, load management devices, surge arresters, and Type 1 surge-protective devices.

(5) Conductors used to supply load management devices, circuits for standby power systems, fire pump equipment, and fire and sprinkler alarms, if provided with service equipment and installed in accordance with requirements for service-entrance conductors.

(6) Solar photovoltaic systems, fuel cell systems, wind electric systems, energy storage systems, or interconnected electric power production sources, if provided with a disconnecting means listed as suitable for use as service equipment, and overcurrent protection as specified in Part VII of Article 230.

(7) Control circuits for power-operable service disconnecting means, if suitable overcurrent protection and disconnecting means are provided.

(8) Ground-fault protection systems or Type 2 surge-protective devices, where installed as part of listed equipment, if suitable overcurrent protection and disconnecting means are provided.

(9) Connections used only to supply listed communications equipment under the exclusive control of the serving electric utility, if suitable overcurrent protection and disconnecting means are provided. For installations of equipment by the serving electric utility, a disconnecting means is not required if the supply is installed as part of a meter socket, such that access can only be gained with the meter removed.

(10) Emergency disconnects in accordance with 230.85(B)(2) and (B)(3) , if all metal housings and ~~service~~ enclosures are grounded in accordance with Part VII and bonded in accordance with Part V of Article 250.

(11) Meter-mounted transfer switches nominally rated not in excess of 1000 volts that have a short-circuit current rating equal to or greater than the available fault current. A meter-mounted transfer switch shall be listed and be capable of transferring the load served. A meter-mounted transfer switch shall be marked on its exterior with both of the following:

a. Meter-mounted transfer switch

b. Not service equipment

(12) Control power circuits for protective relays where installed as part of listed equipment, if overcurrent protection and disconnecting means are provided.

Supplemental Information

File Name	Description	Approved
NEC_230.82_Item10_FR8282_PI1817.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 24 13:44:51 EST 2020

Committee Statement

Committee Statement: This revision provides clarity by identifying the disconnects with specific references to 230.85(B)(2) and (B)(3).

Response Message: FR-8282-NFPA 70-2020

Public Input No. 1817-NFPA 70-2020 [Section No. 230.82]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7770-NFPA 70-2020 [Section No. 230.85]

230.85 Emergency Disconnects.

For one- and two-family dwelling units, ~~all service conductors shall terminate in disconnecting means having a short-circuit current rating equal to or greater than the available fault current, installed in a readily accessible outdoor location. If more than one disconnect is provided, they shall be grouped. Each disconnect shall be one of the following:~~ an emergency disconnecting means shall be installed.

(0) ~~Service disconnects marked as follows:~~
~~EMERGENCY DISCONNECT,~~
~~SERVICE DISCONNECT~~

(0) ~~Meter disconnects installed per 230.82 (3) and marked as follows:~~
~~EMERGENCY DISCONNECT,~~
~~METER DISCONNECT,~~
~~NOT SERVICE EQUIPMENT~~

(0) ~~Other listed disconnect switches or circuit breakers on the supply side of each service disconnect that are suitable for use as service equipment and marked as follows:~~
~~EMERGENCY DISCONNECT,~~
~~NOT SERVICE EQUIPMENT~~

~~Markings shall comply with 110.21(B) .~~

(A) General.

(1) Location.

The disconnecting means shall be installed in a readily accessible outdoor location on or within sight of the dwelling unit.

Exception: Where the requirements of 225.41 are met, this section shall not apply.

(2) Rating.

The disconnecting means shall have a short-circuit current rating equal to or greater than the available fault current.

(3) Grouping.

If more than one disconnecting means is provided, they shall be grouped.

Detail FR-8300

(B) Disconnects.

Each disconnect shall be one of the following:

(1) Service disconnect

(2) A meter disconnect integral to the meter mounting equipment not marked as suitable only for use as service equipment installed in accordance with 230.82(3)

(3) Other listed disconnect switch or circuit breaker that is marked suitable for use as service equipment, but not marked as suitable only for use as service equipment, installed on the supply side of each service disconnect

Informational Note 1: Conductors between the emergency disconnect and the service disconnect in 230.85(2) and 230.85(3) are service conductors.

Informational Note 2: Equipment marked “Suitable only for use as service equipment” is not appropriate for use as the emergency disconnect in 230.85(B)(3), because it would require the equipment to be modified after leaving the factory, by removing the factory marking “Service Disconnect,” and perhaps removing the factory installed bonding jumper, which may be nonremovable.

Detail FR-8301

(C) Replacement.

Where service equipment is replaced, all of the requirements of this section shall apply.

Exception to (C): Where only meter sockets or service entrance conductors are replaced, the requirements of this section shall not apply.

Detail FR-8302

(D) Identification of Other Emergency Disconnects.

Where emergency disconnects are installed for other systems that are not located adjacent to the emergency disconnect required by this section, a plaque or directory identifying the location of all emergency disconnects shall be located adjacent to the disconnecting means required by this section.

Detail FR-8303

(E) Marking.

The disconnecting means shall marked as follows:

(1) Service disconnect

EMERGENCY DISCONNECT,
SERVICE DISCONNECT

(2) Meter disconnects installed in accordance with 230.82(3) and marked as follows:

EMERGENCY DISCONNECT,
METER DISCONNECT,
NOT SERVICE EQUIPMENT

(3) Other listed disconnect switches or circuit breakers on the supply side of each service disconnect that are marked suitable for use as service equipment and marked as follows:

EMERGENCY DISCONNECT,
NOT SERVICE EQUIPMENT

Markings shall comply with 110.21(B) and both of the following:

(1) The marking or labels shall be located on the outside front of the disconnect enclosure with red background and white text.

(2) The letters shall be at least 13 mm (1/2 in.) high.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 13:57:05 EST 2020

Committee Statement

Committee Statement: This revision editorially relocates requirements in the parent text as new second level subdivisions. The exception was added to address new Section 225.41.

Response Message: FR-7770-NFPA 70-2020 RESPONSE TO 3108: See other revisions for 230.85 which address additional concerns.

Public Input No. 2019-NFPA 70-2020 [Section No. 230.85]
Public Input No. 4016-NFPA 70-2020 [Section No. 230.85]
Public Input No. 1818-NFPA 70-2020 [Section No. 230.85]
Public Input No. 3108-NFPA 70-2020 [Section No. 230.82]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.

Vance, Christopher R.

Zia, Danish

Affirmative with Comment

Williams, David A.

Section 230.85 continues to cause much confusion on how an emergency disconnect can be installed, what types of disconnects can be used, and how grounding and bonding must occur in the disconnect. Most of the confusion and issues could be remedied by simply requiring the service disconnect(s) for a one-and two-family dwelling to be on the outside of the dwelling. This would greatly simplify what type of equipment can be installed and exactly how the grounding and bonding in the service equipment needs to be connected.

First Revision No. 7773-NFPA 70-2020 [Section No. 230.90]

230.90 Where Required.

Each ungrounded service conductor shall have overload protection.

(A) Ungrounded Conductor.

Such protection shall be provided by an overcurrent device in series with each ungrounded service conductor that has a rating or setting not higher than the ampacity of the conductor. A set of fuses shall be considered all the fuses required to protect all the ungrounded conductors of a circuit. Single-pole circuit breakers, grouped in accordance with 230.71(B), shall be considered as one protective device.

Exception No. 1: For motor-starting currents, ratings that comply with 430.52, 430.62, and 430.63 shall be permitted.

Exception No. 2: Fuses and circuit breakers with a rating or setting that complies with 240.4(B) or (C) and 240.6 shall be permitted.

Exception No. 3: Two to six circuit breakers or sets of fuses shall be permitted as the overcurrent device to provide the overload protection. The sum of the ratings of the circuit breakers or fuses shall be permitted to exceed the ampacity of the service conductors, provided the calculated load does not exceed the ampacity of the service conductors.

Exception No. 4: Overload protection for fire pump supply conductors shall comply with 695.4(B)(2)(a).

Exception No. 5: Overload protection ~~for 120/240-volt, 3-wire, single-phase dwelling services shall be permitted~~ in accordance with the ~~requirements of~~ conductor ampacities of 310.12 shall be permitted for single-phase dwelling services .

(B) Not in Grounded Conductor.

No overcurrent device shall be inserted in a grounded service conductor except a circuit breaker that simultaneously opens all conductors of the circuit.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 14:23:47 EST 2020

Committee Statement

Committee Statement: This revision correlates the exception with the permissive requirements in 310.12.
Response Message: FR-7773-NFPA 70-2020

Public Input No. 1745-NFPA 70-2020 [Section No. 230.90]

Public Input No. 397-NFPA 70-2020 [Section No. 230.90(A)]

Public Input No. 4054-NFPA 70-2020 [Section No. 230.90(A)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan

Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7778-NFPA 70-2020 [Section No. 230.91]

230.91 Location.

(A) General.

The service overcurrent device shall be an integral part of the service disconnecting means or shall be located immediately adjacent thereto. Where fuses are used as the service overcurrent device, the disconnecting means shall be located ahead of the supply side of the fuses.

(B) Separate Enclosure.

Services over 150 volts to ground and not over 1000 volts phase-to-phase that include fuses rated 1600 amperes or higher, or circuit breakers where the highest continuous current trip setting for which the actual overcurrent device installed in a circuit breaker is rated or can be adjusted is 1600 amperes or higher, the service disconnecting means and overcurrent device shall be located in a separate enclosure from feeder or branch circuit overcurrent devices.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 14:54:00 EST 2020

Committee Statement

Committee Statement: This revision expands the safety driven concept in 230.62(C) to require isolation through separation on larger services.

Response Message: FR-7778-NFPA 70-2020 CMP-10 considered adding prescriptive elements to reference incident energy, arc flash boundary and other 70E concepts but these are outside the purview of the NEC.

Public Input No. 4261-NFPA 70-2020 [Section No. 230.91]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
11 Affirmative All
1 Affirmative with Comments
2 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Robey, Derrick
Sparks, III, Roy K.
Williams, David A.
Zia, Danish

Affirmative with Comment

Townsend, Steven E.

Affirmative Statement to FR 7778: Change “separate enclosure” to “separate enclosure or separate barriered vertical section”. Inadvertent contact is avoided through both separate enclosures and/or separate vertical sections.

Negative with Comment

Philips, Nathan

No substantiation was provided to require the main disconnecting means to be in a separate enclosure. Providing a 1600A service disconnect in a separate enclosure is not just an additional cost. Often the electrical room/real estate does not have space for an additional disconnect of this size. No field evidence was provided to demonstrate that the existing provisions have led to accidents or injured workers.

Vance, Christopher R.

Expanding of barrier concept may have unintended impacts for specific applications, while this seems to unnecessarily expand separation of higher ampacity services due to arc flash hazard which will still be present with separations.

First Revision No. 8196-NFPA 70-2020 [Section No. 230.95 [Excluding any Sub-Sections]]

Ground-fault protection of equipment shall be provided for solidly grounded wye electric services of more than 150 volts to ground but not exceeding 1000 volts phase-to-phase for each service disconnect rated ~~1000~~ 800 amperes or more. The grounded conductor for the solidly grounded wye system shall be connected directly to ground through a grounding electrode system, as specified in 250.50, without inserting any resistor or impedance device.

The rating of the service disconnect shall be considered to be the rating of the largest fuse that can be installed or the highest continuous current trip setting for which the actual overcurrent device installed in a circuit breaker is rated or can be adjusted.

Exception: The ground-fault protection provisions of this section shall not apply to a service disconnect for a continuous industrial process where a nonorderly shutdown will introduce additional or increased hazards.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 17 12:30:54 EST 2020

Committee Statement

Committee Statement: The language is revised to reduce the current level from 1000A to 800A.
Response Message: FR-8196-NFPA 70-2020

Public Input No. 3352-NFPA 70-2020 [Section No. 230.95]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
10 Affirmative All
1 Affirmative with Comments
3 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Robey, Derrick
Sparks, III, Roy K.
Williams, David A.
Zia, Danish

Affirmative with Comment

Arnold, Kevin S.

With the move from1000A to 800A, this first revision did not account for the setting of the GFPE which is currently at1200A. CMP 10 should review maximum setting of the ground-fault protection for equipment rated800A. Does a maximum trip value of1200A make sense for 800Aequipment? The committee should also consider the definition of GFPE. The last sentence of that definition says "This protection is provided at current levels less than those required to protect conductors from damage through the operation of a supply circuit overcurrent device". The committee should discuss what the GFPE maximum setting should be for an 800A circuit breaker.

Negative with Comment

Philips, Nathan

No technical substantiation was provided to reduce the the threshold for the requirement for GFPE on solidly grounded wye services of

more that 150 volts to ground. No field evidence was provided to demonstrate that the existing provisions have led to accidents, equipment failures, or injured workers.

Townsend, Steven E.

Negative Statement to FR 8196: This change reduces or eliminates selective coordination within the system causing wider scale outages. This decreases system reliability. An increased outage potential can result in a degradation of safety. There is no technical substantiation provided for reducing the current level from 1000A to 800A.

Vance, Christopher R.

No data was submitted to communicate benefits of changing amperage requirements.

First Revision No. 7918-NFPA 70-2020 [Section No. 230.200]

230.200 General.

Service conductors and equipment used on circuits exceeding 1000 volts, nominal, shall comply with all the applicable preceding sections of this article and with the following sections that supplement or modify the preceding sections. In no case shall the provisions of Part VIII apply to equipment on the supply side of the service point.

Informational Note: ~~For clearances of conductors of over 1000 volts, nominal, see~~ See ANSI/IEEE C2-2017, *National Electrical Safety Code*, for clearances of conductors of over 1000 volts, nominal .

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 17:53:47 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.
Response Message: FR-7918-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7781-NFPA 70-2020 [Section No. 230.209]

230.209 Surge Arresters.

Surge arresters installed in accordance with the requirements of Parts II and III of Article 242 shall be permitted on each ungrounded overhead service conductor.

Informational Note: Surge arresters may be referred to as lightning arresters in older documents.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 15:26:04 EST 2020

Committee Statement

Committee Statement: The reference to Article 242 is modified to conform with the NEC Style Manual.
Response Message: FR-7781-NFPA 70-2020

Public Input No. 3800-NFPA 70-2020 [Section No. 230.209]
Public Input No. 4055-NFPA 70-2020 [Section No. 230.209]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7783-NFPA 70-2020 [Section No. 230.210]

230.210 Service Equipment — General. ~~Provisions.~~

Service equipment, including instrument transformers, shall conform to Part I of Article 490. ~~, Part I.~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 15:29:09 EST 2020

Committee Statement

Committee Statement: Section 230.210 is modified to conform with the NEC Style Manual.
Response Message: FR-7783-NFPA 70-2020

Public Input No. 1167-NFPA 70-2020 [Section No. 230.210]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7919-NFPA 70-2020 [Section No. 240.1]

240.1 Scope.

Parts I through VII of this article provide the general requirements for overcurrent protection and overcurrent protective devices not more than 1000 volts, nominal. Part VIII covers overcurrent protection for those portions of supervised industrial installations operating at voltages of not more than 1000 volts, nominal. Part IX covers overcurrent protection over 1000 volts, nominal.

Informational Note: Overcurrent protection for conductors and equipment is provided to open the circuit if the current reaches a value that will cause an excessive or dangerous temperature in conductors or conductor insulation. See ~~also~~ 110.9 for requirements for interrupting ratings and 110.10 for requirements for protection against fault currents.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 17:57:11 EST 2020

Committee Statement

Committee Statement: The information note was revised by deleting the word “also” in the last sentence.
Response Message: FR-7919-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7802-NFPA 70-2020 [Section No. 240.4(B)]

(B) Overcurrent Devices Rated 800 Amperes or Less.

The next higher standard overcurrent device rating (above the ampacity of the conductors being protected) shall be permitted to be used, provided all of the following conditions are met:

(1) The conductors being protected are not part of a branch circuit supplying more than one receptacle for cord-and-plug-connected portable loads.

(2) The ampacity of the conductors does not correspond with the standard ampere rating of a fuse or a circuit breaker without overload trip adjustments above its rating (but that shall be permitted to have other trip or rating adjustments).

(3) The next higher standard rating selected does not exceed 800 amperes.

Where the overcurrent protective device is an adjustable trip device, it shall be permitted to be set to a value that does not exceed the next higher standard value above the ampacity of the conductors being protected as shown in Table 240.6(A) where restricted access in accordance with 240.6(C) is provided.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 22:54:12 EST 2020

Committee Statement

Committee Statement: This revision recognizes and permits an adjustable overcurrent protective device, such as a circuit breaker to be used provided the protection does not exceed the next higher standard overcurrent device rating.

Response Message: FR-7802-NFPA 70-2020

Public Input No. 807-NFPA 70-2020 [Section No. 240.4(B)]

Public Input No. 2023-NFPA 70-2020 [Section No. 240.4(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
0 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

Negative with Comment

Dollar, Randy

Based on the location, the newly added sentence can easily be misinterpreted as an exception to all of the conditions and in direct conflict with 240.4(B)(2). NEMA recommends adding the new sentence to 240.4(B)(2) as follows: The ampacity of the conductors does not correspond with the standard ampere rating of a fuse or a circuit breaker without overload trip adjustments above its rating (but that shall be permitted to have other trip or rating adjustments). Where the overcurrent protective device is an adjustable trip device, it shall be permitted to be set to a value that does not exceed the next higher standard value above the ampacity of the conductors being protected as shown in Table 240.6 where restricted access in accordance with 240.6(C) is provided.

First Revision No. 7827-NFPA 70-2020 [Section No. 240.4(D)(1)]

(1) 18 AWG Copper.

7 amperes, provided all the following conditions are met:

(1) Continuous loads do not exceed 5.6 amperes.

(2) Overcurrent protection is provided by one of the following:

a. Branch-circuit-rated circuit breakers listed and marked for use with 18 AWG copper ~~wire~~ conductor

b. Branch-circuit-rated fuses listed and marked for use with 18 AWG copper ~~wire~~ conductor

c. Class CC, Class CF, Class J, or Class T fuses

(2) 16 AWG Copper.

10 amperes, provided all the following conditions are met:

(1) Continuous loads do not exceed 8 amperes.

(2) Overcurrent protection is provided by one of the following:

a. Branch-circuit-rated circuit breakers listed and marked for use with 16 AWG copper ~~wire~~ conductor

b. Branch-circuit-rated fuses listed and marked for use with 16 AWG copper ~~wire~~ conductor

c. Class CC, Class CF, Class J, or Class T fuses

Supplemental Information

File Name	Description	Approved
NEC_240.4_D_1_240.4_D_2_FR7827_PI1565.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 14:03:13 EST 2020

Committee Statement

Committee Statement: The term wire has been updated to conductor to align with the NEC Style Manual.

Class CF fuses are added as an option to 240.4(D)(1)(2)(c) and 240.4(D)(2)(2)(c). Class CF fuses have let-through values equivalent to Class J fuses and would provide equivalent protection. This also aligns the NEC with product standards such as UL 508A, the Standard for Safety for Industrial Control Panels that allow Class CF fuses for 16 AWG or 18 AWG copper conductors.

Response Message: FR-7827-NFPA 70-2020 The present text concerning 240.4(D)(1)(b) and 240.4(D)(2)(b) provides option for a fuse Class other than Class CC, J or T if listed and marked specifically for use with 18 AWG or 16 AWG copper conductors. The proposed revisions do not provide additional clarity.

Public Input No. 1565-NFPA 70-2020 [Sections 240.4(D)(1), 240.4(D)(2)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.

Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7803-NFPA 70-2020 [New Section after 240.4(G)]

(H) Dwelling Unit Service and Feeder Conductors.

Dwelling unit service and feeder conductors shall be permitted to be protected against overcurrent at the ampacity values in 310.12 .

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 23:22:47 EST 2020

Committee Statement

Committee Statement: This first revision recognizes the permissive requirements of Section 310.12. A new first level subdivision is added to correlate with the general requirements of 240.4.

Response Message: FR-7803-NFPA 70-2020

Public Input No. 2022-NFPA 70-2020 [New Section after 240.4(F)]

Public Input No. 398-NFPA 70-2020 [Section No. 240.4(G)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7804-NFPA 70-2020 [Section No. 240.4(G)]

(G) Overcurrent Protection for Specific Conductor Applications.

Overcurrent protection for the specific conductors shall be permitted to be provided as referenced in Table 240.4(G).

Table 240.4(G) Specific Conductor Applications

Conductor	Article	Section
Air-conditioning and refrigeration equipment circuit conductors	440, Parts III, IV, VI	
Capacitor circuit conductors	460	460.8(B) and 460.25
Control and instrumentation circuit conductors (Type ITC)	727	727.9
Electric welder circuit conductors	630	630.12 and 630.32
Fire alarm system circuit conductors	760	760.43, 760.45, 760.121, and Chapter 9, Tables 12(A) and 12(B)
Motor-operated appliance circuit conductors	422, Part II	
Motor and motor-control circuit conductors	430, Parts II, III, IV, V, VI, VII	
Phase converter supply conductors	455	455.7
Remote-control, signaling, and power-limited circuit conductors	725	725.43, 725.45, 725.121, and Chapter 9, Tables 11(A) and 11(B)
Secondary tie conductors	450	450.6

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 23:27:31 EST 2020

Committee Statement

Committee Statement: This revision editorially adds Part IV of Article 440 which applies to branch circuit conductors.
Response Message: FR-7804-NFPA 70-2020

Public Input No. 2024-NFPA 70-2020 [Section No. 240.4(G)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.

Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7805-NFPA 70-2020 [New Section after 240.6]

240.7 Listing Requirements.

Branch-circuit overcurrent protective devices shall be listed.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Tue Dec 08 23:37:32 EST 2020

Committee Statement

Committee Statement: Overcurrent protection devices protecting branch, feeder or service conductors are safety critical devices that have long been required by AHJs to be listed by third party laboratories. Requiring branch-circuit overcurrent protective devices in the National Electrical Code to be listed provides a basis for the Authority Having Jurisdiction to approve the overcurrent protective devices. When electrical equipment is not listed, AHJ's must examine the electrical equipment in accordance with Section 110.3(A) as a basis for approval. Due to the inherent design and complexity of these devices, AHJ's do not have the expertise and test equipment to examine non-listed equipment for suitability.

CMP-10 requests that CMP-1 add UL 1066 to Annex A. CMP-10 requests that the NEC-CC review and correlate this action.

Response Message: FR-7805-NFPA 70-2020

Public Input No. 3364-NFPA 70-2020 [New Section after 240.6]

Public Input No. 3106-NFPA 70-2020 [New Part after VII.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7828-NFPA 70-2020 [Section No. 240.6(A)]

(A) Fuses and Fixed-Trip Circuit Breakers.

The standard ampere ratings for fuses and inverse time circuit breakers shall be considered as shown in Table 240.6(A). Additional standard ampere ratings for fuses shall be 1, 3, 6, ~~10,~~ and 601. The use of fuses and inverse time circuit breakers with nonstandard ampere ratings shall be permitted.

~~Table 240.6(A)(a) Standard Ampere Ratings for Fuses and Inverse Time Circuit Breakers~~

~~Standard Ampere Ratings~~				
~~15~~	~~20~~	~~25~~	~~30~~	~~35~~
~~40~~	~~45~~	~~50~~	~~60~~	~~70~~
~~80~~	~~90~~	~~100~~	~~110~~	~~125~~
~~150~~	~~175~~	~~200~~	~~225~~	~~250~~
~~300~~	~~350~~	~~400~~	~~450~~	~~500~~
~~600~~	~~700~~	~~800~~	~~1000~~	~~1200~~
~~1600~~	~~2000~~	~~2500~~	~~3000~~	~~4000~~
~~5000~~	~~6000~~	~~—~~	~~—~~	~~—~~

Table 240.6(A) Standard Ampere Ratings for Fuses and Inverse Time Circuit Breakers

Standard Ampere Ratings				
10	15	20	25	30
35	40	45	50	60
70	80	90	100	110
125	150	175	200	225
250	300	350	400	450
500	600	700	800	1000
1200	1600	2000	2500	3000
4000	5000	6000	—	—

Supplemental Information

File Name	Description	Approved
NEC_240.6_A_FR7828_PI3239.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 14:49:53 EST 2020

Committee Statement

Committee Statement: This revision only adds a new 10 amp standard rating for circuit breakers. 10 amp fuses are permitted and circuit breakers rated at 10 amps are available and should also be permitted.

Response Message: FR-7828-NFPA 70-2020

Public Input No. 3239-NFPA 70-2020 [Section No. 240.6(A)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Arnold, Kevin S.

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.

Koepke, Ed

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Vance, Christopher R.

Williams, David A.

Zia, Danish

First Revision No. 7947-NFPA 70-2020 [Section No. 240.6(C)]

(C) Local Restricted Access Adjustable-Trip Circuit Breakers.

A circuit breaker(s) that has restricted access to the adjusting means shall be permitted to have an ampere rating(s) that is equal to the adjusted current setting (long-time pickup setting). Restricted access shall be achieved by one of the following methods:

(1) Located behind removable and sealable covers over the adjusting means

(2) Located behind bolted equipment enclosure doors

(3) Located behind locked doors accessible only to qualified personnel

(4) Password protected, with password accessible only to qualified personnel

(D) Remotely Accessible Adjustable-Trip Circuit Breakers.

A circuit breaker(s) that is remotely accessible and has password protected access to the adjusting means shall be permitted to have an ampere rating(s) that is equal to the adjusted current setting (long-time pickup setting). Remote access shall be achieved by one of the following methods:

(1) Connected directly through a local nonnetworked interface.

(2) Connected through a networked interface complying with one of the following methods:

a. The circuit breaker and associated software for adjusting the settings are identified as being evaluated for cybersecurity.

b. A cybersecurity assessment of the network is completed. Documentation of the assessment and certification shall be made available to those authorized to inspect, operate, and maintain the system.

Informational Note No. 1: See ANSI/ISA 62443, *Cybersecurity Standards series* , UL 2900 *Cybersecurity Standard series* , or the NIST *Framework for Improving Critical Infrastructure Cybersecurity* , Version 1.1 for assessment requirements.

Informational Note No. 2: Examples of the commissioning certification used to demonstrate the system has been investigated for cybersecurity vulnerabilities could be one of the following:

(1) The ISA Security Compliance Institute (ISCI) conformity assessment program

(2) Certification of compliance by a nationally recognized test laboratory

(3) Manufacturer certification for the specific type and brand of system provided

Supplemental Information

File Name	Description	Approved
NEC_240.6_C_FR7947_PI4026.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Dec 11 11:36:12 EST 2020

Committee Statement

Committee Statement: SMART devices are becoming more commonplace, especially with regards to industrial and life-safety equipment such as circuit breakers. Along with this technology, comes the increased threat of cyberattacks.

These revisions are safety-driven and address the safety related security of these devices and not concerns about privacy or data protection.

This revision clarifies section Section 240.6(C) which allows circuit breakers that are “not remotely accessible” to be considered as having restricted access per 240.6(C)(1), (2), (3) or (4) if the adjustment means is accessible only on the circuit breaker.

In installations where the adjustment means may be remote, a new first level subdivision (D) is added to require an evaluation of the device and associated software for cybersecurity

Response Message: FR-7947-NFPA 70-2020

Public Input No. 4026-NFPA 70-2020 [Section No. 240.6(C)]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
12 Affirmative All
2 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy

Dollard, Jr., James T.

Koepke, Ed

Philips, Nathan

Robey, Derrick

Sparks, III, Roy K.

Townsend, Steven E.

Vance, Christopher R.

Zia, Danish

Affirmative with Comment

Arnold, Kevin S.

This is a necessary step towards cybersecurity for circuit breakers that are remotely accessible. However, the current language states “that is remotely accessible and has password protected access” creates a scenario where the user could disable the “password protected access” mode thus negating the requirement since it states “remotely accessible AND has password protected access”. Furthermore, limiting the requirement only to “Adjustable-Trip Circuit Breakers” would exclude those “Fixed-Trip Circuit Breakers” that have the capability to be remotely accessible for monitoring or disconnecting that currently exist.

Williams, David A.

Informational Note No. 1 references ANSI/ISA 62443. ISA lists the standard as ISA/IEC 62443.

First Revision No. 7807-NFPA 70-2020 [New Section after 240.10]

240.11 Selective Coordination.

If one or more feeder overcurrent protective devices are required to be selectively coordinated with a service overcurrent protective device by other requirements in this *Code* , all feeder overcurrent protective devices supplied directly by the service overcurrent protective device shall be selectively coordinated with the service overcurrent protective device.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 08:18:10 EST 2020

Committee Statement

Committee Statement: The existing NEC allows an overcurrent condition on one of the feeders that are not required to selectively coordinated with the service device, to open the service overcurrent device. This revision assures that the service overcurrent protective device is less likely to open due to an overcurrent condition on a feeder that is not currently required to selectively coordinate with the service overcurrent protective device.

Response Message: FR-7807-NFPA 70-2020

Public Input No. 691-NFPA 70-2020 [New Section after 240.10]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
0 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

Negative with Comment

Philips, Nathan

No technical substantiation was provided to support requiring every feeder to be selectively coordinated when there is an emergency power source. Note that 700.32 does not require coordination of the feeders unrelated to the emergency system. Furthermore, Article 517.26 (4) no longer requires health care facilities to coordinate the life safety branch at all. These requirements already exist in relevant sections where an emergency power source is not required, such as 620.62.

First Revision No. 7809-NFPA 70-2020 [Section No. 240.12]

240.12 ~~Electrical System Coordination~~ Orderly Shutdown .

Where an orderly shutdown is required to minimize the hazard(s) to personnel ~~and~~ or equipment, a system of coordination based on the following two conditions shall be permitted:

(1) Coordinated short-circuit protection

(2) Overload indication based on monitoring systems or devices

Informational Note: The monitoring system may cause the condition to go to alarm, allowing corrective action or an orderly shutdown, thereby minimizing personnel hazard and equipment damage.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 08:30:59 EST 2020

Committee Statement

Committee Statement: The section title is modified to more clearly address the requirement. This addresses installations where an orderly shutdown is required for personnel or equipment.

Response Message: FR-7809-NFPA 70-2020

Public Input No. 692-NFPA 70-2020 [Section No. 240.12]

Public Input No. 2288-NFPA 70-2020 [Section No. 240.12]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7829-NFPA 70-2020 [Section No. 240.13]

240.13 Ground-Fault Protection of Equipment.

(A) General.

Ground-fault protection of equipment shall be provided in accordance with 230.95 for solidly grounded wye electrical systems of more than 150 volts to ground but not exceeding 1000 volts phase-to-phase for each individual device used as a building or structure main disconnecting means rated 1000 amperes or more.

This section shall not apply to the disconnecting means for the following:

(1) Continuous industrial processes where a nonorderly shutdown will introduce additional or increased hazards

(2) Installations where ground-fault protection is provided by other requirements for services or feeders

(3) Fire pumps

(B) Reconditioned Equipment.

Equipment providing ground-fault protection of equipment shall not be permitted to be reconditioned.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 15:03:58 EST 2020

Committee Statement

Committee Statement: Reconditioning GFPE is not dependent upon where these devices are installed. This section is being revised to establish the general requirement for all equipment that provides GFPE not to be reconditioned and all equipment that provides GFPE to be listed.

Response Message: FR-7829-NFPA 70-2020

Public Input No. 3611-NFPA 70-2020 [New Section after 215.7]

Public Input No. 3612-NFPA 70-2020 [New Section after 230.67]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
10 Affirmative All
4 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.

Affirmative with Comment

Arnold, Kevin S.

The committee also acted to require Ground-Fault Protection of Equipment to be listed. This appears to have been lost in the first draft report and will have to be addressed during the second draft work. This section should also be correlated with FR 8196 and move 1000A to 800A.

Dollard, Jr., James T.

This action is missing a listing requirement that was added during our meeting.

Williams, David A.

A Listing requirement for GFPE was discussed and appears in the panel statement but not in the Terra, TG Word Report, or in this First Revision. The terminology in 240.13(B) appears to be mandatory/permissive language. Shall not be permitted to be.... It should be changed to "shall not be reconditioned"

Zia, Danish

The requirement for GFPE to be listed as per the committee statement is missing from the First Revision, and needs to be added as a new sub-section (C) under 240.13

First Revision No. 7921-NFPA 70-2020 [Section No. 240.15(A)]

(A) Overcurrent Device Required.

A fuse or an overcurrent trip unit of a circuit breaker shall be connected in series with each ungrounded conductor. A combination of a current transformer and overcurrent relay shall be considered equivalent to an overcurrent trip unit.

Informational Note: ~~For motor circuits, see~~ See Parts III, IV, V, and XI of Article 430 for motor circuits .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 18:04:32 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7921-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7922-NFPA 70-2020 [Section No. 240.21(B)]

(B) Feeder Taps.

Conductors shall be permitted to be tapped, without overcurrent protection at the tap, to a feeder as specified in 240.21(B)(1) through (B)(5). The tap shall be permitted at any point on the load side of the feeder overcurrent protective device. Section 240.4(B) shall not be permitted for tap conductors.

(1) Taps Not over 3 m (10 ft) Long.

If the length of the tap conductors does not exceed 3 m (10 ft) and the tap conductors comply with all of the following:

(1) The ampacity of the tap conductors is as follows:

a. Not less than the combined calculated loads on the circuits supplied by the tap conductors

b. Not less than the rating of the equipment containing an overcurrent device(s) supplied by the tap conductors or not less than the rating of the overcurrent protective device at the termination of the tap conductors

Exception to b: Where listed equipment, such as a surge-protective device(s) [SPD(s)], is provided with specific instructions on minimum conductor sizing, the ampacity of the tap conductors supplying that equipment shall be permitted to be determined based on the manufacturer's instructions.

(2) The tap conductors do not extend beyond the switchboard, switchgear, panelboard, disconnecting means, or control devices they supply.

(3) Except at the point of connection to the feeder, the tap conductors are enclosed in a raceway, which extends from the tap to the enclosure of an enclosed switchboard, switchgear, a panelboard, or control devices, or to the back of an open switchboard.

(4) For field installations, if the tap conductors leave the enclosure or vault in which the tap is made, the ampacity of the tap conductors is not less than one-tenth of the rating of the overcurrent device protecting the feeder conductors.

Informational Note: ~~, see~~ See 408.36F~~or~~ for overcurrent protection requirements for panelboards.

(2) Taps Not over 7.5 m (25 ft) Long.

Where the length of the tap conductors does not exceed 7.5 m (25 ft) and the tap conductors comply with all the following:

(1) The ampacity of the tap conductors is not less than one-third of the rating of the overcurrent device protecting the feeder conductors.

(2) The tap conductors terminate in a single circuit breaker or a single set of fuses that limit the load to the ampacity of the tap conductors. This device shall be permitted to supply any number of additional overcurrent devices on its load side.

(3) The tap conductors are protected from physical damage by being enclosed in an approved raceway or by other approved means.

(3) Taps Supplying a Transformer [Primary Plus Secondary Not over 7.5 m (25 ft) Long].

Where the tap conductors supply a transformer and comply with all the following conditions:

(1) The conductors supplying the primary of a transformer have an ampacity at least one-third the rating of the overcurrent device protecting the feeder conductors.

(2) The conductors supplied by the secondary of the transformer shall have an ampacity that is not less than the value of the primary-to-secondary voltage ratio multiplied by one-third of the rating of the overcurrent device protecting the feeder conductors.

(3) The total length of one primary plus one secondary conductor, excluding any portion of the primary conductor that is protected at its ampacity, is not over 7.5 m (25 ft).

(4) The primary and secondary conductors are protected from physical damage by being enclosed in an approved raceway or by other approved means.

(5) The secondary conductors terminate in a single circuit breaker or set of fuses that limit the load current to not more than the conductor ampacity that is permitted by 310.14.

(4) Taps over 7.5 m (25 ft) Long.

Where the feeder is in a high bay manufacturing building over 11 m (35 ft) high at walls and the installation complies with all the following conditions:

(1) Conditions of maintenance and supervision ensure that only qualified persons service the systems.

(2) The tap conductors are not over 7.5 m (25 ft) long horizontally and not over 30 m (100 ft) total length.

(3) The ampacity of the tap conductors is not less than one-third the rating of the overcurrent device protecting the feeder conductors.

(4) The tap conductors terminate at a single circuit breaker or a single set of fuses that limit the load to the ampacity of the tap conductors. This single overcurrent device shall be permitted to supply any number of additional overcurrent devices on its load side.

(5) The tap conductors are protected from physical damage by being enclosed in an approved raceway or by other approved means.

(6) The tap conductors are continuous from end-to-end and contain no splices.

(7) The tap conductors are sized 6 AWG copper or 4 AWG aluminum or larger.

(8) The tap conductors do not penetrate walls, floors, or ceilings.

(9) The tap is made no less than 9 m (30 ft) from the floor.

(5) Outside Taps of Unlimited Length.

Where the conductors are located outside of a building or structure, except at the point of load termination, and comply with all of the following conditions:

(1) The tap conductors are protected from physical damage in an approved manner.

(2) The tap conductors terminate at a single circuit breaker or a single set of fuses that limits the load to the ampacity of the tap conductors. This single overcurrent device shall be permitted to supply any number of additional overcurrent devices on its load side.

(3) The overcurrent device for the tap conductors is an integral part of a disconnecting means or shall be located immediately adjacent thereto.

(4) The disconnecting means for the tap conductors is installed at a readily accessible location complying with one of the following:

a. Outside of a building or structure

b. Inside, nearest the point of entrance of the tap conductors

c. Where installed in accordance with 230.6, nearest the point of entrance of the tap conductors

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 18:06:43 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7922-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard

Arnold, Kevin S.

Blizard, Scott A.

Chandler, Joseph R.

Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7810-NFPA 70-2020 [Section No. 240.21(C)(2)]

(2) Transformer Secondary Conductors Not over 3 m (10 ft) Long.

If the length of secondary conductor does not exceed 3 m (10 ft) and complies with all of the following:

(1) The ampacity of the secondary conductors is as follows:

a. Not less than the combined calculated loads on the circuits supplied by the secondary conductors~~, and~~

b. Not less than the rating of the equipment containing an overcurrent device(s) supplied by the secondary conductors or not less than the rating of the overcurrent protective device at the termination of the secondary conductors~~.~~

Exception: Where listed equipment, such as a surge protective device(s) [SPD(s)], is provided with specific instructions on minimum conductor sizing, the ampacity of the tap conductors supplying that equipment shall be permitted to be determined based on the manufacturer's instructions.

(2) The secondary conductors do not extend beyond the switchboard, switchgear, panelboard, disconnecting means, or control devices they supply.

(3) The secondary conductors are enclosed in a raceway, which shall extend from the transformer to the enclosure of an enclosed switchboard, switchgear, a panelboard, or control devices or to the back of an open switchboard.

(4) For field installations where the secondary conductors leave the enclosure or vault in which the supply connection is made, the secondary conductors shall have an ampacity that is not less than the value of the primary-to-secondary voltage ratio multiplied by one-tenth of the rating of the overcurrent device protecting the primary of the transformer. ~~, multiplied by the primary to secondary transformer voltage ratio, shall not exceed 10 times the ampacity of the secondary conductor.~~

Informational Note: ~~, see~~ See 408.36~~F or~~ for overcurrent protection requirements for panelboards.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 08:58:03 EST 2020

Committee Statement

Committee Statement: This revision is editorial in nature and provides clarity by correlating with similar text in 240.21(C)(6). Editorial revision to the informational note was to comply with the NEC Style Manual.

Response Message: FR-7810-NFPA 70-2020

Public Input No. 2250-NFPA 70-2020 [Section No. 240.21(C)(2)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.

Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7923-NFPA 70-2020 [Section No. 240.21(C) [Excluding any Sub-Sections]]

A set of conductors feeding a single load, or each set of conductors feeding separate loads, shall be permitted to be connected to a transformer secondary, without overcurrent protection at the secondary, as specified in 240.21(C)(1) through (C)(6). Section 240.4(B) shall not be permitted for transformer secondary conductors.

Informational Note: ~~, see~~ See 450.3~~For~~ for overcurrent protection requirements for transformers.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 18:09:30 EST 2020

Committee Statement

Committee Statement: This revision is editorial only to comply with the NEC Style Manual. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7923-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7811-NFPA 70-2020 [Section No. 240.24(A)]

(A) Accessibility.

Circuit breakers and switches containing fuses shall be readily accessible and installed so that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, is not more than 2.0 m (6 ft 7 in.) above the floor or working platform, unless one of the following applies:

(1) For busways, as provided in 368.17(C).

(2) For supplementary overcurrent protection, as described in 240.10.

(3) For overcurrent devices, as described in 225.40 and 230.92.

(4) For overcurrent devices adjacent to utilization equipment that they supply, access shall be permitted to be by portable means.

Exception: The use of a tool shall be permitted to access overcurrent devices located within listed industrial control panels, ~~or similar enclosures~~ within enclosures designed for hazardous (classified) locations or enclosures to protect against environmental conditions. An enclosure within the scope of this exception, and all overcurrent device(s) within such enclosures as judged with the enclosure open, shall comply with the accessibility provisions of 240.24(A) .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 09:17:46 EST 2020

Committee Statement

Committee Statement: This revision addresses two issues.

"Similar enclosures" is vague and would not address many legitimate applications. For example, many NEMA 4X stainless steel panels with bolted covers are designed with a series of bolts around the perimeter; these enclosures are not industrial control panels, nor are they very similar enclosures. The same comment applies to hazardous location equipment.

Secondly, it is necessary to clarify that where this exception is used, the general requirements in this section apply.

Response Message: FR-7811-NFPA 70-2020

Public Input No. 4296-NFPA 70-2020 [Section No. 240.24(A)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick

Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.

Affirmative with Comment

Zia, Danish

A comma needs to be added following "industrial control panels" in the Exception.

First Revision No. 7812-NFPA 70-2020 [Section No. 240.24(B)(2)]

(2) Branch-Circuit Overcurrent Devices.

Where electric service and electrical maintenance are provided by the building management and where these are under continuous building management supervision, the branch-circuit overcurrent devices supplying any guest rooms, ~~or~~ guest suites, or sleeping rooms in dormitory units without permanent provisions for cooking shall be permitted to be accessible only to authorized management personnel.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 09:30:03 EST 2020

Committee Statement

Committee Statement: Sleeping rooms in dormitories are added to this requirement to correlate with 210.60.
Response Message: FR-7812-NFPA 70-2020

Public Input No. 3120-NFPA 70-2020 [Section No. 240.24(B)(2)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7924-NFPA 70-2020 [Section No. 240.24(C)]

(C) Not Exposed to Physical Damage.

Overcurrent devices shall be located where they will not be exposed to physical damage.

Informational Note: See 110.11~~, Deteriorating Agents~~ for information on deteriorating agents that could cause physical damage .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 10 18:24:57 EST 2020

Committee Statement

Committee Statement: This revision provides a complete sentence and adds clarity. The structure of the informational note was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual.

Response Message: FR-7924-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The terminology in 240.88(A),(B)and (C) appears to be mandatory/permissive language. Shall not be permitted to be.... It should be changed to "shall not be reconditioned" FR7824, Section 240.88 and FR7825, 240.102 are similar except this section has a requirement in the parent text that is already covered in 110.21(A)(2) and is not necessary.

First Revision No. 7813-NFPA 70-2020 [Section No. 240.24(E)]

(E) Not Located in Bathrooms.

~~In dwelling units, dormitory units, and guest rooms or guest suites, overcurrent~~ Overcurrent devices, other than supplementary overcurrent protection, shall not be located in bathrooms, showering facilities, or locker rooms with showering facilities .

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 09:34:59 EST 2020

Committee Statement

Committee Statement: This revision prohibits overcurrent protective devices in all bathrooms. Also overcurrent protective devices are prohibited in showering facilities, or locker rooms with showering facilities as they represent similar hazards. This revision recognizes the difficulty of accessing occupied bathrooms. There is no practical reason to continue with this permissive requirement.

Response Message: FR-7813-NFPA 70-2020

Public Input No. 799-NFPA 70-2020 [Section No. 240.24(E)]

Public Input No. 1033-NFPA 70-2020 [Section No. 240.24(E)]

Public Input No. 3468-NFPA 70-2020 [Section No. 240.24(E)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
0 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

Negative with Comment

Philips, Nathan

The prohibition against installing overcurrent devices in bathrooms was expanded to all bathrooms with no technical substantiation. Panelboards can be safely installed in large restrooms found in many occupancies such as airports, big box retail, malls, etc. No field evidence was provided to demonstrate that the existing provisions have led to accidents or injured workers.

First Revision No. 7814-NFPA 70-2020 [New Section after 240.60(D)]

(E) Fuse Reducers.

Fuse reducers shall be listed.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 09:43:19 EST 2020

Committee Statement

Committee Statement: This section is added to require fuse reducers to be listed. The use of listed products helps ensure that the reducers will not be likely to create poor connections.

Response Message: FR-7814-NFPA 70-2020

Public Input No. 390-NFPA 70-2020 [New Section after 240.60]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7815-NFPA 70-2020 [Section No. 240.67(B)]

(B) Method to Reduce Clearing Time.

A fuse shall have a clearing time of 0.07 seconds or less at the available arcing current, or one of the following means shall be provided and shall be set to operate at less than the available arcing current:

(1) Differential relaying

(2) Energy-reducing maintenance switching with local status indicator

(3) Energy-reducing active arc-flash mitigation system

(4) Current-limiting, electronically actuated fuses

(5) An approved equivalent means

Informational Note No. 1: An energy-reducing maintenance switch allows a worker to set a disconnect switch to reduce the clearing time while the worker is working within an arc-flash boundary as defined in *NFPA 70E* ~~2018~~ 2021 , *Standard for Electrical Safety in the Workplace*, and then to set the disconnect switch back to a normal setting after the potentially hazardous work is complete.

Informational Note No. 2: An energy-reducing active arc-flash mitigation system helps in reducing arcing duration in the electrical distribution system. No change in the disconnect switch or the settings of other devices is required during maintenance when a worker is working within an arc-flash boundary as defined in *NFPA 70E* ~~2019~~ 2021 , *Standard for Electrical Safety in the Workplace*.

Informational Note No. 3: IEEE 1584 ~~2002~~ 2018 , *IEEE Guide for Performing Arc Flash Hazard Calculations*, ~~is one of the available methods that~~ provides guidance in determining arcing current.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 10:07:45 EST 2020

Committee Statement

Committee Statement: The references to IEEE 1584 and NFPA 70E are modified to recognize the current standards.

The structure of the Informational Note No. 3 was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual

Response Message: FR-7815-NFPA 70-2020

Public Input No. 3094-NFPA 70-2020 [Section No. 240.67(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick

Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7834-NFPA 70-2020 [Section No. 240.67 [Excluding any Sub-Sections]]

Where fuses rated ~~1200 A~~ 1000 amperes or higher are installed, 240.67(A), ~~and~~ (B), and (C) shall apply. ~~This requirement shall become effective January 1, 2020.~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 15:48:47 EST 2020

Committee Statement

Committee Statement: This revision editorially deletes the delayed implementation date and adds a reference to first level subdivision (C) in the parent text.

Arc energy reduction requirements for circuit breakers rated at 1200 amps have been in the NEC since the 2011 edition. Means, methods and technologies to provide arc energy reduction for circuit breakers and fuses rated 1200 amps or more have increased significantly. Therefore, the level of protection is increased by reducing the value to protect all to 1000 amp installations.

Response Message: FR-7834-NFPA 70-2020

Public Input No. 1889-NFPA 70-2020 [Section No. 240.67 [Excluding any Sub-Sections]]

Public Input No. 2886-NFPA 70-2020 [Section No. 240.67 [Excluding any Sub-Sections]]

Public Input No. 317-NFPA 70-2020 [Section No. 240.67]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
11 Affirmative All
1 Affirmative with Comments
2 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Robey, Derrick
Sparks, III, Roy K.
Williams, David A.
Zia, Danish

Affirmative with Comment

Townsend, Steven E.

Affirmative Statement to FR 7834: Delete “and C” in the first sentence. Add a new sentence: “240.67(C) shall apply if one of the methods specified in 240.67(B)(1) through (5) is used as a method to reduce clearing time.” Performance testing as specified in 240.67(C) is not required for fuses with a clearing time of 0.07 seconds or less at the available arcing current.

Negative with Comment

Philips, Nathan

No technical substantiation was provided to reduce the threshold for the requirement for Arc Energy Reduction methods where fuses are installed from 1200 amps to 1000 amps. No field evidence was provided to demonstrate that the existing provisions have led to accidents, equipment failures, or injured workers.

Vance, Christopher R.

No data was submitted to communicate benefits of changing amperage requirements.

First Revision No. 7927-NFPA 70-2020 [Section No. 240.86(A)]

(A) Selected Under Engineering Supervision in Existing Installations.

The series rated combination devices shall be selected by a licensed professional engineer engaged primarily in the design or maintenance of electrical installations. The selection shall be documented and stamped by the professional engineer. This documentation shall be available to those authorized to design, install, inspect, maintain, and operate the system. This series combination rating, including identification of the upstream device, shall be field marked on the end use equipment.

For calculated applications, the engineer shall ensure that the downstream circuit breaker(s) that are part of the series combination remain passive during the interruption period of the line side fully rated, current-limiting device.

Informational Note: See 110.22 for marking of series combination systems.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 18:32:54 EST 2020

Committee Statement

Committee Statement: This informational note was added to this location. It was previously after 240.86(B) and applying to this section.
Response Message: FR-7927-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7928-NFPA 70-2020 [Section No. 240.86(B)]

(B) Tested Combinations.

The combination of line-side overcurrent device and load-side circuit breaker(s) is tested and marked on the end use equipment, such as switchboards and panelboards.

Informational Note: See 110.22 for marking of series combination systems.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 18:34:20 EST 2020

Committee Statement

Committee Statement: This informational note was revised to only apply to this section.
Response Message: FR-7928-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7819-NFPA 70-2020 [Section No. 240.87(B)]

(B) Method to Reduce Clearing Time.

One of the following means shall be provided and shall be set to operate at less than the available arcing current:

(1) Zone-selective interlocking

(2) Differential relaying

(3) Energy-reducing maintenance switching with local status indicator

(4) Energy-reducing active arc flash mitigation system

(5) An instantaneous trip setting. Temporary adjustment of the instantaneous trip setting to achieve arc energy reduction shall not be permitted.

(6) An instantaneous override

(7) An approved equivalent means

Informational Note No. 1: An energy-reducing maintenance switch allows a worker to set a circuit breaker trip unit to "no intentional delay" to reduce the clearing time while the worker is working within an arc-flash boundary as defined in *NFPA 70E* ~~2018~~ 2021 , *Standard for Electrical Safety in the Workplace*, and then to set the trip unit back to a normal setting after the potentially hazardous work is complete.

Informational Note No. 2: An energy-reducing active arc-flash mitigation system helps in reducing arcing duration in the electrical distribution system. No change in the circuit breaker or the settings of other devices is required during maintenance when a worker is working within an arc-flash boundary as defined in *NFPA 70E* ~~2018~~ 2021 , *Standard for Electrical Safety in the Workplace*.

Informational Note No. 3: An instantaneous trip is a function that causes a circuit breaker to trip with no intentional delay when currents exceed the instantaneous trip setting or current level. If arcing currents are above the instantaneous trip level, the circuit breaker will trip in the minimum possible time.

Informational Note No. 4: See IEEE 1584-~~2002~~ 2018 , *IEEE Guide for Performing Arc Flash Hazard Calculations*, ~~is one of the available methods that provide~~ for guidance in determining arcing current.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 11:11:28 EST 2020

Committee Statement

Committee Statement: The references to IEEE 1584 and NFPA 70E are modified to recognize the current standards. Informational Note No. 4 was revised for clarity.

Response Message: FR-7819-NFPA 70-2020

Public Input No. 1999-NFPA 70-2020 [Section No. 240.87(B)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy

Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7818-NFPA 70-2020 [Section No. 240.87 [Excluding any Sub-Sections]]

Where the highest continuous current trip setting for which the actual overcurrent device installed in a circuit breaker is rated or can be adjusted is ~~1200 A~~ 1000 amperes or higher, 240.87(A), ~~and~~ (B), and (C) shall apply.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Dec 09 11:03:43 EST 2020

Committee Statement

Committee Statement: This revision editorially deletes the delayed implementation date and adds a reference to first level subdivision (C) in the parent text.

Arc energy reduction requirements for circuit breakers rated at 1200 amps have been in the NEC since the 2011 edition. Means, methods and technologies to provide arc energy reduction for circuit breakers and fuses rated 1200 amps or more have increased significantly. Therefore, the level of protection is increased by reducing the value to protect all to 1000 amp installations.

Response Message: FR-7818-NFPA 70-2020

Public Input No. 316-NFPA 70-2020 [Section No. 240.87]

Public Input No. 1890-NFPA 70-2020 [Section No. 240.87 [Excluding any Sub-Sections]]

Public Input No. 2867-NFPA 70-2020 [Section No. 240.87 [Excluding any Sub-Sections]]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
2 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Williams, David A.
Zia, Danish

Negative with Comment

Philips, Nathan

No technical substantiation was provided to reduce the threshold for the requirement for Arc Energy Reduction methods where circuit breakers are installed from 1200 amps to 1000 amps. No field evidence was provided to demonstrate that the existing provisions have led to accidents, equipment failures, or injured workers.

Vance, Christopher R.

No data was submitted to communicate benefits of changing amperage requirements.

First Revision No. 7824-NFPA 70-2020 [Section No. 240.88]

240.88 Reconditioned Equipment.

Reconditioned equipment shall be listed as "*reconditioned*" and the original listing mark removed.

(A) Molded Case Circuit Breakers.

~~The use of reconditioned circuit breakers shall comply with (1) through (3):~~ Molded-case circuit breakers shall not be permitted to be reconditioned.

(0) ~~Molded-case circuit breakers shall not be permitted to be reconditioned.~~

(0) ~~Low- and medium-voltage power circuit breakers shall be permitted to be reconditioned.~~

(0) ~~High-voltage circuit breakers shall be permitted to be reconditioned.~~

(B) Low-Voltage Power Circuit Breakers.

~~Low- and medium-voltage~~ Low-voltage power circuit breakers shall be permitted to be reconditioned. Low-voltage power circuit breaker electronic trip units shall not be permitted to be reconditioned.

(C) Components.

The use of reconditioned trip units, protective relays, and current transformers shall comply with ~~(1) and (2)~~ the following :

(1) Low-voltage power circuit breaker electronic trip units shall not be permitted to be reconditioned.

(2) Electromechanical protective relays and current transformers shall be permitted to be reconditioned.

Supplemental Information

File Name	Description	Approved
Word_File_for_FR_7824_-_Staff_use_only.docx	For Staff Use Only	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 12:18:05 EST 2020

Committee Statement

Committee Statement: This revision removed requirements for medium and high voltage circuit breakers and an additional FR creates new subdivisions in 240.102 in Part IX.

Editorial revisions are made to the remaining text.

Response Message: FR-7824-NFPA 70-2020

Public Input No. 583-NFPA 70-2020 [New Part after IX.]

Public Input No. 582-NFPA 70-2020 [Section No. 240.88]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
0 Affirmative with Comments
1 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.

Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Williams, David A.
Zia, Danish

Negative with Comment

Vance, Christopher R.

A comprehensive plan would be needed to make these changes without significant impacts and unintended consequences.

First Revision No. 7817-NFPA 70-2020 [New Section after 240.88(B)]

240.89 Replacement Trip Units.

Replacement trip units shall be listed for use with the circuit breaker type in which it is installed.

Informational Note: The replacement trip unit can be a listed unit identical to the original or a different trip unit listed for use with the specific circuit breaker.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 10:53:51 EST 2020

Committee Statement

Committee Statement: Trip units generally accept inputs from protective relays and/or current transformers to sense faults and output signals to the mechanical operating mechanism to clear faults based on design parameters of the circuit breaker. Generally, engineers design trip units to account for special performance characteristics of the sensing and tripping components within the circuit breaker. Mismatching any of these components could cause the breaker assembly to function outside of the

design parameters which could compromise safety and other protective functions. To ensure safety, replacement components for circuit breakers that are critical to performance should be listed for use with the circuit breaker type in which they are installed.

Response Message: FR-7817-NFPA 70-2020

Public Input No. 3361-NFPA 70-2020 [New Section after 240.88]

Public Input No. 3054-NFPA 70-2020 [New Section after 240.88]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7825-NFPA 70-2020 [Section No. 240.102]

240.102 Reconditioned Equipment.

~~Medium-voltage fuseholders and medium-voltage nonrenewable fuses shall not be permitted to be reconditioned.~~

(A) Medium-Voltage Fuseholders.

Medium-voltage fuseholders and medium-voltage nonrenewable fuses shall not be permitted to be reconditioned.

(B) Medium-Voltage Power Circuit Breakers.

Medium-voltage power circuit breakers shall be permitted to be reconditioned.

(C) High-Voltage Circuit Breakers.

High-voltage circuit breakers shall be permitted to be reconditioned.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Dec 09 12:34:45 EST 2020

Committee Statement

Committee Statement: This revision editorially restructures this section and relocates requirements previously located in 240.88 to 240.102 which addresses medium and high voltage.
Response Message: FR-7825-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The terminology in 240.102(A) appears to be mandatory/permissive language. Shall not be permitted to be.... It should be changed to "shall not be reconditioned"

First Revision No. 7948-NFPA 70-2020 [Section No. 242.1]

242.1 Scope.

This article provides the general requirements, installation requirements, and connection requirements for overvoltage protection and overvoltage protective devices. Part II covers surge-protective devices (SPDs) permanently installed on premises wiring systems of not more than 1000 volts, nominal, while Part III covers surge arresters permanently installed on premises wiring systems over 1000 volts, nominal.

Informational Note: ~~Article~~ ~~242~~ This article combines and replaces Articles 280 and 285 in *NFPA 70*-2017.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 12:18:35 EST 2020

Committee Statement

Committee Statement: The reference to Article 242 is modified for compliance with the NEC Style Manual.
Response Message: FR-7948-NFPA 70-2020

Public Input No. 3802-NFPA 70-2020 [Section No. 242.1]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7956-NFPA 70-2020 [New Section after 242.6]

242.7 Reconditioned Equipment.

SPDs shall not be permitted to be reconditioned.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 13:18:40 EST 2020

Committee Statement

Committee Statement: A new 242.7 is established to address reconditioned equipment.
Response Message: FR-7956-NFPA 70-2020

Public Input No. 3084-NFPA 70-2020 [New Section after 242.6]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The terminology in 242.9 appears to be mandatory/permissive language. Shall not be permitted to be.... It should be changed to "shall not be reconditioned"

First Revision No. 7957-NFPA 70-2020 [New Section after 242.8]

242.9 Indicating.

An SPD shall provide indication that it is functioning properly.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 13:20:37 EST 2020

Committee Statement

Committee Statement: This revision requires that an SPD provide an indication to the occupant that it is in working order. This is necessary to ensure that the desired level of protection continues to exist and if the SPD should fail, the occupant can identify a non-operative SPD.

Response Message: FR-7957-NFPA 70-2020

Public Input No. 3470-NFPA 70-2020 [New Section after 242.8]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7933-NFPA 70-2020 [Section No. 242.24]

242.24 Routing of ~~Connections~~ Conductors .

The conductors used to connect the SPD to the line or bus and to ground shall not be any longer than necessary and shall avoid unnecessary bends.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 19:30:10 EST 2020

Committee Statement

Committee Statement: This revision corrects the title to match the wording in the section.
Response Message: FR-7933-NFPA 70-2020

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7949-NFPA 70-2020 [Section No. 242.26]

~~**242.26** Connection.~~

~~Where an SPD device is installed, it shall comply with 242.12 , 242.14 , 242.16 , 242.28 , and 242.30 .~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 12:25:50 EST 2020

Committee Statement

Committee Statement: This section is not necessary.
Response Message: FR-7949-NFPA 70-2020

Public Input No. 2284-NFPA 70-2020 [Section No. 242.26]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7934-NFPA 70-2020 [Section No. 242.28]

242.28 Conductor Size.

Line conductors and ~~grounding~~ conductors to ground shall not be smaller than 14 AWG copper or 12 AWG aluminum.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Dec 10 19:54:41 EST 2020

Committee Statement

Committee Statement: The section was revised for accuracy and clarity by adding the word “conductors” after line and the words “to ground” after conductors.
Response Message: FR-7934-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7958-NFPA 70-2020 [New Section after 242.40]

242.41 Reconditioned Equipment.

Surge arresters shall not be permitted to be reconditioned.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 13:22:38 EST 2020

Committee Statement

Committee Statement: This revision prohibits the reconditioning of surge arresters. These devices are not suitable for re-conditioning.
Response Message: FR-7958-NFPA 70-2020

Public Input No. 3049-NFPA 70-2020 [New Section after 242.40]

Ballot Results

This item has passed ballot

14 Eligible Voters
0 Not Returned
13 Affirmative All
1 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Zia, Danish

Affirmative with Comment

Williams, David A.

The terminology in 242.41 appears to be mandatory/permissive language. Shall not be permitted to be.... It should be changed to "shall not be reconditioned"

First Revision No. 8283-NFPA 70-2020 [Section No. 242.42]

Detail FR-7952

242.42 Surge Arrester ~~Selection~~Rating.

~~The surge arresters shall comply with~~ 242.42(A) ~~and (B).~~ The duty cycle rating of a surge arrester shall be ~~equal to or greater than the maximum continuous operating~~ not less than 125 percent of the maximum system voltage available at the point of application.

~~The~~ For solidly grounded systems, the maximum continuous operating voltage shall be the phase-to-ground voltage of the system.

~~The~~ For impedance or ungrounded systems, the maximum continuous operating voltage shall be the phase-to-phase voltage of the system.

Informational Note No. 1: ~~For further information on surge arresters, see~~ See IEEE C62.11-~~2012~~ 2020 , *Standard for Metal-Oxide Surge Arresters for Alternating-Current Power Circuits (>1 kV)*, and IEEE C62.22-2009, *Guide for the Application of Metal-Oxide Surge Arresters for Alternating-Current Systems*, for further information on surge arresters .

Informational Note No. 2: The selection of a properly rated metal oxide arrester is based on considerations of maximum continuous operating voltage and the magnitude and duration of overvoltages at the arrester location as affected by phase-to-ground faults, system grounding techniques, switching surges, and other causes. See the manufacturer's application rules for selection of the specific arrester to be used at a particular location.

~~**(A)** Rating.~~

~~The rating of a surge arrester shall be equal to or greater than the maximum continuous operating voltage available at the point of application.~~

~~**(1)** Solidly Grounded Systems.~~

~~The maximum continuous operating voltage shall be the phase-to-ground voltage of the system.~~

~~**(2)** Impedance or Ungrounded System.~~

~~The maximum continuous operating voltage shall be the phase-to-phase voltage of the system.~~

~~**(A)** Silicon Carbide Types.~~

~~The rating of a silicon carbide-type surge arrester shall be not less than 125 percent of the rating specified in 242.42(A) .~~

Supplemental Information

File Name	Description	Approved
NEC_242.42_FR8283.docx	For staff use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Dec 24 14:04:04 EST 2020

Committee Statement

Committee Statement: The duty cycle rating of a surge arrester is a short-term temporary overvoltage the arrester can withstand based on the maximum system voltage present and should not be less than 125% of the maximum system voltage. The current rating requirements are inadequate and do not properly reflect the industry standards for surge arrester duty cycle ratings.

Section 242.42(B) applied to a product that is no longer manufactured nor has a valid industry standard and is therefore deleted.

This section is logically reformatted to conform with the NEC Style Manual.

Response Message: FR-8283-NFPA 70-2020

Public Input No. 3088-NFPA 70-2020 [Section No. 242.42(A)]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All

0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7953-NFPA 70-2020 [Section No. 242.54]

242.54 Interconnections.

The surge arrester protecting a transformer that supplies a secondary distribution system shall be interconnected as specified in 242.54(A), (B), or (C).

(A) Metal Interconnections.

A metal interconnection shall be made to the secondary grounded circuit conductor or the secondary circuit grounding electrode conductor, if, in addition to the direct grounding connection at the surge arrester, the connection complies with 242.54(A)(1) or (A)(2).

(1) Additional Grounding Connection.

The grounded conductor of the secondary has a grounding connection elsewhere to a continuous metal underground water piping system. In urban water-pipe areas where there are at least four water-pipe connections on the neutral conductor and not fewer than four such connections in each mile of neutral conductor, the metal interconnection shall be permitted to be made to the secondary neutral conductor with omission of the direct grounding connection at the surge arrester.

(2) Multigrounded Neutral System Connection.

The grounded conductor of the secondary system is part of a multigrounded neutral system or static wire of which the primary neutral conductor or static wire has at least four grounding connections in each 1.6 km (1 mile) of line in addition to a grounding connection at each service.

(B) Through Spark Gap or Device.

Where the surge arrester grounding electrode conductor is not connected as in 242.54(A), or where the secondary is not grounded as in 242.54(A) but is otherwise grounded as in 250.52, an interconnection shall be made through a spark gap or listed device as required by 242.54(B)(1) or (B)(2).

(1) Ungrounded or Unigrounded Primary System.

For ungrounded or unigrounded primary systems, the spark gap ~~for~~ or a listed device shall have a 60-Hz breakdown voltage of at least twice the primary circuit voltage but not necessarily more than 10 kV, and there shall be at least one other ground on the grounded conductor of the secondary that is not less than 6.0 m (20 ft) distant from the surge-arrester grounding electrode.

(2) Multigrounded Neutral Primary System.

For multigrounded neutral primary systems, the spark gap or listed device shall have a 60-Hz breakdown of not more than 3 kV, and there shall be at least one other ground on the grounded conductor of the secondary that is not less than 6.0 m (20 ft) distant from the surge-arrester grounding electrode.

(C) By Special Permission.

An interconnection of the surge-arrester ground and the secondary neutral conductor, other than as provided in 242.54(A) or (B), shall be permitted to be made only by special permission.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 13:12:20 EST 2020

Committee Statement

Committee Statement: The language “spark gap or listed device” has not changed in the NEC, however, it does point out the need to revise an error in the 2020 NEC 242.54(B)(1) that was incorrectly transferred from the 2017 NEC 280.24(B)(1).
Response Message: FR-7953-NFPA 70-2020

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
Koepke, Ed
Philips, Nathan
Robey, Derrick
Sparks, III, Roy K.
Townsend, Steven E.
Vance, Christopher R.
Williams, David A.
Zia, Danish

First Revision No. 7955-NFPA 70-2020 [Part II.]

Part II. Surgery-Protective Devices (SPDs), 1000 Volts or Less

~~Informational Note: Surge arresters 1000 volts or less are also known as Type 1 SPDs.~~

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Dec 11 13:14:31 EST 2020

Committee Statement

Committee Statement: The existing informational note is deleted because it is no longer valid nor serves any useful purpose. Surge arresters 1000 volts or less are not considered or known as Type 1 SPDs so this note is incorrect and confusing for the users of the code.

Response Message: FR-7955-NFPA 70-2020

Public Input No. 3090-NFPA 70-2020 [Part II.]

Ballot Results

✔ **This item has passed ballot**

14 Eligible Voters
0 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Anderson, Richard
Arnold, Kevin S.
Blizard, Scott A.
Chandler, Joseph R.
Dollar, Randy
Dollard, Jr., James T.
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