Second Revision No. 8365-NFPA 70-2024 [Global Comment]

[See attached Word document for global revisions for overcurrent protection in CMP-10.]

Supplemental Information

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Committee Statement

Committee Statement: This global second revision provides clarity and accuracy of the term overcurrent protective devices and overcurrent protection in the articles under the purview of CMP-10.

Response Message: SR-8365-NFPA 70-2024

Public Comment No. 1650-NFPA 70-2024 [Global Input]

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215.4(A)(1) Continuous and Noncontinuous Loads.
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 feeder OCPDsovercurrent 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 OCPDovercurrent device shall be permitted to be sized at 100 percent of the continuous and noncontinuous load.

215.5 Overcurrent Protection.
Feeders shall be provided with overcurrent protectionprotected against overcurrent in accordance with Article 240, Part I. Where a feeder supplies continuous loads or any combination of continuous and noncontinuous loads, the rating of the OCPDovercurrent device shall not be less than the noncontinuous load plus 125 percent of the continuous load.

Exception: Where the assembly, including the feeder OCPDsovercurrent devices protecting the feeder(s), is listed for operation at 100 percent of its rating, the ampere rating of the OCPDovercurrent device shall be permitted to be not less than the sum of the continuous load plus the noncontinuous load.

215.18(B) Location.
The SPD shall be installed in or adjacent to distribution equipment, connected to the load side of the feeder, that contains branch circuit OCPDsovercurrent protective device(s) that supply the locations specified in 215.18(A).
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.

225.40 Access to Overcurrent Protective Devices.
Where a feeder OCPDovercurrent device is not readily accessible, branch-circuit OCPDsovercurrent devices shall be installed on the load side, shall be mounted in a readily accessible location, and shall be of a lower ampere rating than the feeder OCPDovercurrent device.

225.42(B) Location.
The SPD shall be installed in or adjacent to the distribution equipment that is connected to the load side of the feeder and contains branch circuit OCPDsovercurrent protective device(s) that supply the location specified in 225.42(A).

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.

230.42(A)(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 OCPDovercurrent device shall be permitted to be sized at 100 percent of the sum of the continuous and noncontinuous load.

Exception No. 2: Conductors shall be permitted to be sized at 100 percent of the sum of the continuous and noncontinuous load if they terminate to an OCPDovercurrent device where both the OCPDovercurrent device and its assembly are listed for operation at 100 percent of their rating.

230.90(A) Ungrounded Conductor.

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Such protection shall be provided by an OCPD~~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 240.4(C) and 240.6 shall be permitted.

Exception No. 3: Two to six circuit breakers or sets of fuses shall be permitted as the OCPD~~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 695.5(B)(2)(a).

Exception No. 5: Overload protection in accordance with the conductor ampacities of 310.12 shall be permitted for single-phase dwelling services.

230.90(B) Not in Grounded Conductor.
No OCPD~~overcurrent device~~ shall be inserted in a grounded service conductor except a circuit breaker that simultaneously opens all conductors of the circuit.

230.91 Location.
The service OCPD~~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 OCPD~~overcurrent device~~, the disconnecting means shall be located ahead of the supply side of the fuses.

230.92 Locked Service Overcurrent Protective Devices.
Where the service OCPDs~~overcurrent devices~~ are locked or sealed or are not readily accessible to the occupant, branch-circuit or feeder OCPDs~~overcurrent devices~~ shall be installed on the load side, shall be mounted in a readily accessible location, and shall be of lower ampere rating than the service OCPD~~overcurrent device~~.

230.93 Protection of Specific Circuits.
Where necessary to prevent tampering, an automatic OCPD~~overcurrent device~~ that protects service conductors supplying only a specific load, such as a water heater, shall be permitted to be locked or sealed where located so as to be accessible.

230.94 Relative Location of Overcurrent Protective Device and Other Service Equipment.
The OCPD~~overcurrent device~~ shall protect all circuits and devices.

Exception No. 1: The service switch shall be permitted on the supply side.

Exception No. 2: High-impedance shunt circuits, surge arresters, Type 1 surge-protective devices, surge-protective capacitors, and instrument transformers (current and voltage) shall be permitted to be connected and installed on the supply side of the service disconnecting means as permitted by 230.82.

Exception No. 3: Circuits for load management devices shall be permitted to be connected on the supply side of the service OCPD~~overcurrent device~~ where separately provided with overcurrent protection.

Exception No. 4: Circuits used only for the operation of fire alarm, other protective signaling systems, or the supply to fire pump equipment shall be permitted to be connected on the supply side of the service OCPD~~overcurrent device~~ where separately provided with overcurrent protection.

Exception No. 5: Meters nominally rated not in excess of 600 volts shall be permitted, provided all metal housings and service enclosures are grounded.

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Exception No. 6: Where service equipment is power operable, the control circuit shall be permitted to be connected ahead of the service equipment if suitable overcurrent protection and disconnecting means are provided.

230.95(A) ac Systems.
GFPE 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 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 the rating of the largest fuse that can be installed or the highest continuous current trip setting for which the actual OCPD~~overcurrent device~~ installed in a circuit breaker is rated or can be adjusted.

Exception: The ground-fault protection requirements 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.

230.95(B) dc Systems.
GFPE shall be provided for solidly grounded dc electric services of more than 150 volts to ground but not exceeding 1500 volts dc line-to-line for each service disconnect rated 1000 amperes or more. The grounded conductor for the solidly grounded dc 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 the rating of the largest fuse that can be installed or the highest continuous current trip setting for which the actual OCPD~~overcurrent device~~ installed in a circuit breaker is rated or can be adjusted.

Exception: The ground-fault protection requirements 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.

240.1 Scope.
Article 240, Parts I through VII, provide the general requirements for overcurrent protection and OCPDs~~overcurrent protective devices~~ not over 1000 volts ac, 1500 volts dc, nominal, and Article 240, Part VIII, covers overcurrent protection for those portions of supervised industrial installations operating at voltages of not over 1000 volts ac, 1500 volts dc, nominal.

Informational Note No. 1: 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.

Informational Note No. 2: See 110.9 for requirements for interrupting ratings and 110.10 for requirements for protection against fault currents.

240.2 Listing Requirements.
The following shall be listed:

(1) O~~Branch-circuit o~~vercurrent protective devices (OCPDs)

(2) Relays and circuit breakers providing ground-fault protection of equipment

(3) Ground-fault circuit interrupter devices

(4) Fuse reducers

240.5 Overcurrent Protection of Flexible Cords, Flexible Cables, and Fixture Wires.
Flexible cord and flexible cable, including tinsel cord and cord sets, and fixture wires shall be provided with~~have~~ overcurrent protection in accordance with 240.5(A).

240.5(A) Ampacities.
Flexible cord and flexible cable shall be provided with overcurrent protection~~protected by an overcurrent device~~ in accordance with their ampacity as specified in Table 400.5(A)(1) and Table 400.5(A)(2). Fixture wire shall be provided with overcurrent protection~~protected against overcurrent~~ in accordance with its ampacity as specified in Table 402.5. Supplementary overcurrent protection, as covered in 240.10, shall be permitted to be an acceptable means for providing this protection.

240.5(B) Branch-Circuit Overcurrent Protective Device.

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Flexible cord shall be protected, where supplied by a branch circuit, in accordance with one of the methods described in 240.5(B)(1), 240.5(B)(3), or 240.5(B)(4). Fixture wire shall be protected, where supplied by a branch circuit, in accordance with 240.5(B)(2).

240.10 Supplementary Overcurrent Protection.
Where supplementary overcurrent protection is used for luminaires, appliances, and other equipment or for internal circuits and components of equipment, it shall not be used as a substitute for required branch-circuit OCPDs~~overcurrent devices~~ or in place of the required branch-circuit protection. Supplementary OCPDs~~overcurrent devices~~ shall not be required to be readily accessible.

240.11 Selective Coordination.
If one or more feeder OCPDs~~overcurrent protective devices~~ are required to be selectively coordinated with a service OCPD~~overcurrent protective device~~ by other requirements in this *Code*, all feeder OCPDs~~overcurrent protective devices~~ supplied directly by the service OCPD~~overcurrent protective device~~ shall be selectively coordinated with the service OCPD~~overcurrent protective device~~.

240.15(A) Overcurrent Protective 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: See Article 430, Parts III, IV, V, and XI, for motor circuits.

240.15(B) Circuit Breaker as Overcurrent Protective Device.
Circuit breakers shall open all ungrounded conductors of the circuit both manually and automatically unless otherwise permitted in 240.15(B)(1), 240.15(B)(2), 240.15(B)(3), and 240.15(B)(4).

240.16 Interrupting Ratings.
OCPDs~~Branch-circuit overcurrent protective devices~~ specified in 240.7 shall have an interrupting rating no less than 5000 amperes.

240.21 Location in Circuit.
Overcurrent protection shall be provided in each ungrounded circuit conductor and shall be located at the point where the conductors receive their supply except as specified in 240.21(A) through 240.21(H). Conductors supplied under 240.21(B) through 240.21(H) shall not supply another conductor except through an OCPD~~overcurrent protective device~~ meeting the requirements of 240.4.

240.21(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 240.21(B)(5). The tap shall be permitted at any point on the load side of the feeder OCPD~~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 OCPDs~~overcurrent device(s)~~ supplied by the tap conductors or not less than the rating of the OCPD~~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 enclosure of a switchboard, switchgear, panelboard, disconnecting means, or control devices they supply.

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(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 a 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 OCPD~~overcurrent device~~ protecting the feeder conductors.

Informational Note: See 408.36 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 OCPD~~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 OCPDs~~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 OCPD~~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 OCPD~~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 in High Bay Manufacturing Buildings.
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 OCPD~~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 OCPD~~overcurrent device~~ shall be permitted to supply any number of additional OCPDs~~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.

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(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 OCPD~~overcurrent device~~ shall be permitted to supply any number of additional OCPDs~~overcurrent devices~~ on its load side.

(3) The OCPD~~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

240.21(C) Transformer Secondary Conductors.
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 240.21(C)(6). Section 240.4(B) shall not be permitted for transformer secondary conductors.
Informational Note: See 450.5 for overcurrent protection requirements for transformers.

240.21(C)(1) Protection by Primary Overcurrent Protective Device.
Conductors supplied by the secondary side of a single-phase transformer having a 2-wire (single-voltage) secondary, or a three-phase, delta-delta connected transformer having a 3-wire (single-voltage) secondary, shall be permitted to be protected by overcurrent protection provided on the primary (supply) side of the transformer, provided this protection is in accordance with 450.5 and does not exceed the value determined by multiplying the secondary conductor ampacity by the secondary-to-primary transformer voltage ratio.

Single-phase (other than 2-wire) and multiphase (other than delta-delta, 3-wire) transformer secondary conductors are not considered to be protected by the primary OCPD~~overcurrent protective device~~.

240.21(C)(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

b. Not less than the rating of the equipment containing an OCPDs~~overcurrent device(s)~~ supplied by the secondary conductors or not less than the rating of the OCPD~~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 enclosure of a 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 a 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 OCPD~~overcurrent device~~ protecting the primary of the transformer.

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Informational Note: See 408.36 for overcurrent protection requirements for panelboards.

240.21(C)(3) Industrial Installation Secondary Conductors Not over 7.5 m (25 ft) Long.
For the supply of switchgear or switchboards in industrial installations only, where the length of the secondary conductors does not exceed 7.5 m (25 ft) and complies with all of the following:

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

(2) The ampacity of the secondary conductors is not less than the secondary current rating of the transformer, and the sum of the ratings of the OCPDs~~overcurrent devices~~ does not exceed the ampacity of the secondary conductors.

(3) All OCPDs~~overcurrent devices~~ are grouped.

(4) The secondary conductors are protected from physical damage by being enclosed in an approved raceway or by other approved means.

240.21(C)(4) Outside Secondary Conductors.
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 conductors are protected from physical damage in an approved manner.

(2) The conductors terminate at a single circuit breaker or a single set of fuses that limit the load to the ampacity of the conductors. This single OCPD~~overcurrent device~~ shall be permitted to supply any number of additional OCPDs~~overcurrent devices~~ on its load side.

(3) The OCPD~~overcurrent device~~ for the conductors is an integral part of a disconnecting means or shall be located immediately adjacent thereto.

(4) The disconnecting means for the 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 conductors

c. Where installed in accordance with 230.6, nearest the point of entrance of the conductors

240.21(C)(6) Secondary Conductors Not over 7.5 m (25 ft) Long.
Where the length of secondary conductor does not exceed 7.5 m (25 ft) and complies with all of the following:

(1) The secondary conductors 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 OCPD~~overcurrent device~~ protecting the primary of the transformer.

(2) 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.

(3) The secondary conductors are protected from physical damage by being enclosed in an approved raceway or by other approved means.

240.21(D) Service Conductors.
Service conductors shall be permitted to be protected by OCPDs~~overcurrent devices~~ in accordance with 230.91.

240.21(E) Busway Taps.
Busways and busway taps shall be permitted to have overcurrent protection~~be protected against overcurrent~~ in accordance with 368.17.

240.21(F) Motor Circuit Taps.
Motor-feeder and branch-circuit conductors shall be permitted to have overcurrent protection~~be protected against overcurrent~~ in accordance with 430.28 and 430.53, respectively.

240.21(G) Conductors from Generator Terminals.
Conductors from generator terminals that meet the size requirement in 445.13 shall be permitted to be protected against overload by the generator overload protective device(s) required by 445.12.

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240.21(H) Battery Conductors.
Overcurrent protection shall be permitted to be installed as close as practicable to the storage battery terminals in an unclassified location. Installation of the overcurrent protection within a hazardous (classified) location shall also be permitted.

240.22 Grounded Conductor.
No OCPD~~overcurrent device~~ shall be connected in series with any conductor that is intentionally grounded, unless one of the following two conditions is met:

(1) The OCPD~~overcurrent device~~ opens all conductors of the circuit, including the grounded conductor, and is designed so that no pole can operate independently.

(2) Where required by 430.36 or 430.37 for motor overload protection.

240.24(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 grade, 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 OCPDs~~overcurrent protective devices~~, as described in 225.40 and 230.92.

(4) For OCPDs~~overcurrent protective devices~~ adjacent to utilization equipment that they supply, access by portable means shall be permitted.

Exception: The use of a tool shall be permitted to access OCPDs~~overcurrent protective devices~~ located within listed industrial control panels, within enclosures designed for hazardous (classified) locations or enclosures to protect against environmental conditions. An enclosure within the scope of this exception, and all OCPDs~~overcurrent protective devices~~ within such enclosures as judged with the enclosure open, shall comply with the accessibility requirements of 240.24(A).

240.24(B) Occupancy.
Each occupant shall have ready access to all OCPDs~~overcurrent devices~~ protecting the conductors supplying that occupancy, unless otherwise permitted in 240.24(B)(1) and 240.24(B)(2).

(1) Service and Feeder Overcurrent Protective Devices.
Where electric service and electrical maintenance are provided by the building management and where these are under continuous building management supervision, the service OCPDs~~overcurrent protective devices~~ and feeder OCPDs~~overcurrent protective devices~~ supplying more than one occupancy shall be permitted to be accessible only to authorized management personnel in the following:

(1) Multiple-occupancy buildings

(2) Guest rooms or guest suites

(2) Branch-Circuit Overcurrent Protective 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 OCPDs~~overcurrent protective devices~~ supplying any guest rooms, guest suites, or sleeping rooms in dormitory units without permanent provisions for cooking shall be permitted to be accessible only to authorized management personnel.

240.24(C) Not Exposed to Physical Damage.
OCPDs~~Overcurrent protective devices~~ shall be located where they will not be exposed to physical damage.
Informational Note: See 110.11 for information on deteriorating agents that could cause physical damage.

240.24(D) Not in Vicinity of Easily Ignitible Material.
OCPDs~~Overcurrent protective devices~~ shall not be located in the vicinity of easily ignitible material, such as in clothes closets.

240.24(E) Not Located in Bathrooms.

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OCPDsOvercurrent protective devices, other than supplementary overcurrent protection, shall not be located in bathrooms, showering facilities, or locker rooms with showering facilities.

Exception: OCPDsOvercurrent protective devices shall be permitted to be installed in existing panelboards that were installed in compliance with previous editions of this code that permitted OCPDsovercurrent protective devices to be installed in bathrooms.

240.24(F) Not Located over Steps.
OCPDsOvercurrent protective devices shall not be located over steps of a stairway.

240.30(A) Protection from Physical Damage.
OCPDsOvercurrent devices shall be protected from physical damage by one of the following:

(1) Installation in enclosures, cabinets, cutout boxes, or equipment assemblies

(2) Mounting on open-type switchboards, panelboards, or control boards that are in rooms or enclosures free from dampness and easily ignitible material and are accessible only to qualified personnel

240.32 Damp or Wet Locations.
Enclosures for OCPDsovercurrent devices in damp or wet locations shall comply with 312.4.

240.33 Vertical Position.
Enclosures for OCPDsovercurrent devices shall be mounted in a vertical position. Circuit breaker enclosures shall be permitted to be installed horizontally where the circuit breaker is installed in accordance with 240.81. Listed busway plug-in units shall be permitted to be mounted in orientations corresponding to the busway mounting position.

240.86 Series Ratings.
Where a circuit breaker is used on a circuit having an available fault current higher than the marked interrupting rating by being connected on the load side of an approved OCPDovercurrent protective device having a higher rating, the circuit breaker shall meet the requirements specified in 240.86(A) or 240.86(B), and 240.86(C).

240.86(B) Tested Combinations.
The combination of line-side OCPDovercurrent 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.

240.86(C) Motor Contribution.
Series ratings shall not be used in the following situations:

(1) Where motor circuits are connected between the higher-rated OCPDovercurrent device of a series-rated combination and on the lower-rated circuit breaker

(2) Where the sum of these motor full-load currents exceeds 1 percent of the interrupting rating of the lower-rated circuit breaker

240.87 Arc Energy Reduction.
Where the highest continuous current trip setting for which the actual OCPDovercurrent device installed in a circuit breaker is rated or can be adjusted is 1200 amperes or higher, 240.87(A), 240.87(B), and 240.87(C) shall apply.

240.91(B) Devices Rated Over 800 Amperes.
Where the OCPDovercurrent device is rated over 800 amperes, the ampacity of the conductors it protects shall be equal to or greater than 95 percent of the rating of the OCPDovercurrent device in accordance with the following:

(1) The conductors are protected within recognized time vs. current limits for short-circuit currents

Informational Note: Table 240.92(B) provides time vs. short-circuit current formulas to determine limits for copper and aluminum conductors.

(2) All equipment in which the conductors terminate is listed and marked for the application.

240.92 Location in Circuit.

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An OCPD~~overcurrent device~~ shall be connected in each ungrounded circuit conductor as required in 240.92(A) through 240.92(E).

(A) Feeder and Branch-Circuit Conductors.
Feeder and branch-circuit conductors shall be provided with overcurrent protection~~protected~~ at the point the conductors receive their supply as permitted in 240.21 or as otherwise permitted in 240.92(B), 240.92(C),240.92(D)), or 240.92(E).

240.92(C)(1) Short-Circuit and Ground-Fault Protection.
The conductors shall be protected from short-circuit and ground-fault conditions by complying with one of the following conditions:

(1) The length of the secondary conductors does not exceed 30 m (100 ft), and the transformer primary OCPD~~overcurrent device~~ has a rating or setting that does not exceed 150 percent of the value determined by multiplying the secondary conductor ampacity by the secondary-to-primary transformer voltage ratio.

(2) The conductors are protected by a differential relay with a trip setting equal to or less than the conductor ampacity.

Informational Note: A differential relay is connected to be sensitive only to short-circuit or fault currents within the protected zone and is normally set much lower than the conductor ampacity. The differential relay is connected to trip protective devices that de-energize the protected conductors if a short-circuit condition occurs.

(3) The conductors shall be considered to be protected if calculations, made under engineering supervision, determine that the system OCPDs~~overcurrent devices~~ will protect the conductors within recognized time vs. current limits for all short-circuit and ground-fault conditions.

240.92(C)(2) Overload Protection.
The conductors shall be protected against overload conditions by complying with one of the following:

(1) The conductors terminate in a single OCPD~~overcurrent device~~ that will limit the load to the conductor ampacity.

(2) The sum of the OCPDs~~overcurrent devices~~ at the conductor termination limits the load to the conductor ampacity. The OCPDs~~overcurrent devices~~ shall consist of not more than six circuit breakers or sets of fuses mounted in a single enclosure, in a group of separate enclosures, or in or on a switchboard or switchgear. There shall be no more than six OCPDs~~overcurrent devices~~ grouped in any one location.

(3) Overcurrent relaying is connected [with a current transformer(s), if needed] to sense all of the secondary conductor current and limit the load to the conductor ampacity by opening upstream or downstream devices.

(4) Conductors shall be considered to be protected if calculations, made under engineering supervision, determine that the system OCPDs~~overcurrent devices~~ will protect the conductors from overload conditions.

240.92(D) Outside Feeder Taps.
Outside conductors shall be permitted to be tapped to a feeder or to be connected at a transformer secondary, without overcurrent protection at the tap or connection, where all the following conditions are met:

(1) The conductors are protected from physical damage in an approved manner.

(2) The sum of the OCPDs~~overcurrent devices~~ at the conductor termination limits the load to the conductor ampacity. The OCPDs~~overcurrent devices~~ shall consist of not more than six circuit breakers or sets of fuses mounted in a single enclosure, in a group of separate enclosures, or in or on a switchboard or switchgear. There shall be no more than six OCPDs~~overcurrent devices~~ grouped in any one location.

(3) The tap conductors are installed outdoors of a building or structure except at the point of load termination.

(4) The OCPD~~overcurrent device~~ for the conductors is an integral part of a disconnecting means or is located immediately adjacent thereto.

(5) The disconnecting means for the conductors are installed at a readily accessible location complying with one of the following:

a. Outside of a building or structure

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b. Inside, nearest the point of entrance of the conductors

c. Where installed in accordance with 230.6, nearest the point of entrance of the conductors

240.92(E) Protection by Primary Overcurrent Protective Device.
Conductors supplied by the secondary side of a transformer shall be permitted to be protected by overcurrent protection provided on the primary (supply) side of the transformer, provided the primary device time–current protection characteristic, multiplied by the maximum effective primary-to-secondary transformer voltage ratio, effectively protects the secondary conductors.

242.14(A) Service-Supplied Building or Structure.
Type 2 SPDs shall be connected anywhere on the load side of a service disconnect OCPD~~overcurrent device~~ required in 230.91 unless installed in accordance with 230.82(8).

242.14(B) Feeder-Supplied Building or Structure.
Type 2 SPDs shall be connected at the building or structure anywhere on the load side of the first OCPD~~overcurrent device~~ at the building or structure.

242.14(C) Separately Derived System.
The SPD shall be connected on the load side of the first OCPD~~overcurrent device~~ in a separately derived system.

242.16 Type 3 SPDs.
Type 3 SPDs shall be permitted to be installed on the load side of branch-circuit OCPD~~overcurrent protection~~ up to the equipment served. If included in the manufacturer's instructions, the Type 3 SPD connection shall be a minimum 10 m (30 ft) of conductor distance from the service or separately derived system disconnect.

Informational Note No. 1: See IEEE C62.11-2020, *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.

404.5(B) Used as Raceways.
Enclosures shall not be used as junction boxes, auxiliary gutters, or raceways for conductors feeding through or tapping off to other switches or OCPDs~~overcurrent devices~~, unless the enclosure complies with 312.11.

408.4(A) Circuit Directory or Circuit Description.
Every circuit and circuit modification shall be provided with a legible and permanent description that complies with all of the following conditions as applicable:

(1) Located at each switch or circuit breaker in a switchboard or switchgear

(2) Included in a circuit directory that is located on the face of, inside of, or in an approved location adjacent to the panel door in the case of a panelboard

(3) Clear, evident, and specific to the purpose or use of each circuit including spare positions with an unused OCPD~~overcurrent device~~

(4) Described with a degree of detail and clarity that is unlikely to result in confusion between circuits

(5) Not dependent on transient conditions of occupancy

(6) Clear in explaining abbreviations and symbols when used

408.6 Short-Circuit Current Rating.
Switchboards, switchgear, and panelboards shall have a short-circuit current rating not less than the available fault current. In other than one- and two-family dwellings, switchboards, switchgear and panelboards shall comply with the following, as applicable:

(1) The available fault current at the line terminals and the date the calculation was performed shall be field marked in a readily accessible location on the enclosure at the point of supply.

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(2) The short-circuit current rating of switchboards and panelboards, at nominal circuit voltage, based on the OCPDs~~overcurrent protection devices~~ installed, shall be field marked in a readily accessible location on the enclosure.

(3) The marking required by 408.6(1) and 408.6(2) shall comply with 110.21(B).

(4) The available fault current calculation shall be documented and made available to those authorized to inspect, install, or maintain the installation.

(5) When modifications to the electrical installation occur that affect the available fault current at the line terminals of the equipment, the following shall apply:

a. The available fault current shall be verified or recalculated as necessary to ensure the equipment ratings are sufficient for the available fault current at the line terminals of the equipment.

b. The required field markings in 408.6(1) shall be adjusted to reflect the new level of available fault current.

When OCPDs~~overcurrent protection devices~~ are added or replaced, the interrupting rating of the replacement OCPDs~~devices~~ shall be equal to or greater than the available fault current marked on the equipment in accordance with 408.6(1).

Informational Note: See 110.22 for series combination systems.

408.36 Overcurrent Protection.
In addition to the requirement of 408.14, a panelboard shall be protected by an OCPD~~overcurrent protective device~~ having a rating not greater than that of the panelboard. This OCPD~~overcurrent protective device~~ shall be located within or at any point on the supply side of the panelboard.

Exception No. 1: Individual protection shall not be required for a panelboard protected by two main circuit breakers or two sets of fuses in other than service equipment, having a combined rating not greater than that of the panelboard. A panelboard constructed or wired under this exception shall not contain more than 42 OCPDs~~overcurrent devices~~. For the purposes of determining the maximum of 42 OCPDs~~overcurrent devices~~, a 2-pole or a 3-pole circuit breaker shall be considered as two or three OCPDs~~overcurrent devices~~, respectively.

Exception No. 2: For existing panelboards, individual protection shall not be required for a panelboard used as service equipment for an individual residential occupancy.

408.36(C) Delta Breakers.
A 3-phase disconnect or OCPD~~overcurrent device~~ shall not be connected to the bus of any panelboard that has less than 3-phase buses. Delta breakers shall not be installed in panelboards.

408.36(D) Back-Fed Devices.
Plug-in-type OCPDs~~overcurrent protection devices~~ or plug-in type main lug assemblies that are backfed and used to terminate field-installed ungrounded supply conductors shall be secured in place by an additional fastener that requires other than a pull to release the device from the mounting means on the panelboard.

408.52 Protection of Instrument Circuits.
Instruments, pilot lights, voltage (potential) transformers, and other switchboard or switchgear devices with potential coils shall be supplied by a circuit that is protected by standard OCPDs~~overcurrent devices~~ rated 15 amperes or less.
Exception No. 1: OCPDs~~Overcurrent devices~~ rated more than 15 amperes shall be permitted where the interruption of the circuit could create a hazard. Short-circuit protection shall be provided.
Exception No. 2: For ratings of 2 amperes or less, special types of enclosed fuses shall be permitted.

408.54 Maximum Number of Overcurrent Protective Devices.
A panelboard shall be provided with physical means to prevent the installation of more OCPDs~~overcurrent devices~~ than that number for which the panelboard was designed, rated, and listed.
For the purposes of this section, a 2-pole circuit breaker or fusible switch shall be considered two OCPDs~~overcurrent devices~~; a 3-pole circuit breaker or fusible switch shall be considered three OCPDs~~overcurrent devices~~.

408.55(A) Top and Bottom Wire-Bending Space.

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The enclosure for a panelboard shall have the top and bottom wire-bending space sized in accordance with Table 312.9(B)(2) for the largest conductor entering or leaving the enclosure.
Exception No. 1: Either the top or bottom wire-bending space shall be permitted to be sized in accordance with Table 312.9(A) for a panelboard rated 225 amperes or less and designed to contain not over 42 OCPDs ~~overcurrent devices~~. For the purposes of this exception, a 2-pole or a 3-pole circuit breaker shall be considered as two or three OCPDs ~~overcurrent devices~~, respectively.

Exception No. 2: Either the top or bottom wire-bending space for any panelboard shall be permitted to be sized in accordance with Table 312.9(A) where at least one side wire-bending space is sized in accordance with Table 312.9(B)(2) for the largest conductor to be terminated in any side wire-bending space.

Exception No. 3: The top and bottom wire-bending space shall be permitted to be sized in accordance with Table 312.9(A) spacings if the panelboard is designed and constructed for wiring using only a single 90-degree bend for each conductor, including the grounded circuit conductor, and the wiring diagram shows and specifies the method of wiring that shall be used.

Exception No. 4: Either the top or the bottom wire-bending space, but not both, shall be permitted to be sized in accordance with Table 312.9(A) where there are no conductors terminated in that space.

Second Revision No. 8377-NFPA 70-2024 [Global Comment]

[See attached Word document for revisions to 240.4.]

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8377_440.4.docx		
70_CMP-10_SR8377_440.4.docx	For prod use	
70_CMP-10_SR8377_440.4_Global_for_ballot.docx	For ballot	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 13:36:28 EDT 2024

Committee Statement

Committee Statement: Revise 240.4 Title “Protection of Conductors” to “Overcurrent Protection of Conductors”

Revise 240.4. “protected against overcurrent” to “provided with overcurrent protection”

Revise 240.4(B) Title. "Overcurrent Devices Rated 800 Amperes or Less” to Overcurrent Protective Devices Rated 800 Amperes or Less”

Revise 240.4(B). “overcurrent device” to “OCPD” and “overcurrent protective device” to “OCPD”

Revise 240.4(C) Title. "Overcurrent Devices Rated over 800 Amperes” to Overcurrent Protective Devices Rated over 800 Amperes”

Revise 240.4(C). “overcurrent device” to “OCPD” (2 Times)

Revise 240.4(D)(1)(2)a. “Branch-circuit-rated circuit breakers listed and” to “OCPDs in accordance with 240.7 shall be” and Delete 240.4(D)(1)(2)b

Revise 240.4(D)(2)(2)a. “Branch-circuit-rated circuit breakers listed and” to “OCPDs in accordance with 240.7 shall be” and Delete 240.4(D)(2)(2)b

Revise 240.4(D)(3)(2) Deleted the text of (2) and insert “OCPDs in accordance with 240.7 shall be marked for use with 14 AWG Copper-Clad Aluminum conductor

Revise 240.4(E). “be protected against overcurrent” to “have overcurrent protection”

Revise 240.4(F). “overcurrent protective device” to “OCPD”

Revise 240.4(H). “protected against overcurrent at the ampacity values in” to “provided with overcurrent protection in accordance with”

	Additional revisions are made to 240.4(D) to comply with the NEC Style Manual. The revision improves usability and accuracy of requirements associated with the terminology related to the new definitions of overcurrent protection and overcurrent protective device (OCPD). Additional revisions are made to 240.4(D) to comply with the NEC Style Manual. These revisions align with the proposed changes in PC-1650.
Response Message:	SR-8377-NFPA 70-2024

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240.4 Overcurrent Protection of Conductors.
Conductors, other than flexible cords, flexible cables, and fixture wires, shall be provided with overcurrent protection~~protected against overcurrent~~ in accordance with their ampacities specified in 310.14, unless otherwise permitted or required in 240.4(A) through 240.4(H).
Informational Note: See ICEA P-32-382-2018, *Short Circuit Characteristics of Insulated Cables*, for information on allowable short-circuit currents for insulated copper and aluminum conductors.

240.4(B) Overcurrent Protective Devices Rated 800 Amperes or Less.
The next higher standard OCPD~~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.

If the OCPD~~overcurrent protective device~~ is an adjustable trip device installed in accordance with 240.4(B)(1), 240.4(B)(2), and 240.4(B)(3), 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.

240.4(C) Overcurrent Protective Devices Rated over 800 Amperes.
Where the OCPD~~overcurrent device~~ is rated over 800 amperes, the ampacity of the conductors it protects shall be equal to or greater than the rating of the OCPD~~overcurrent device~~ defined in 240.6.

240.4(D) Small Conductors.
Unless specifically permitted in 240.4(E) or 240.4(G), the overcurrent protection shall not exceed that required by ~~240.4(D)(1) through 240.4(D)(8)~~ the following after any correction factors for ambient temperature and number of conductors have been applied.

(1) 18 AWG copper: ~~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. OCPDs specified in 240.7 shall be~~Branch-circuit-rated circuit breakers listed and~~ marked for use with 18 AWG copper conductor
b. ~~Branch-circuit-rated fuses listed and marked for use with 18 AWG copper conductor~~
~~c.~~ Class CC, Class CF, Class J, or Class T fuses

(2) 16 AWG copper: ~~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. OCPDs specified in 240.7 shall be~~Branch-circuit-rated circuit breakers listed and~~ marked for use with 16 AWG copper conductor
b. ~~Branch-circuit-rated fuses listed and marked for use with 16 AWG copper conductor~~
~~c.~~ Class CC, Class CF, Class J, or Class T fuses

(3) 14 AWG copper-clad aluminum: ~~Copper-Clad Aluminum.~~10 amperes, provided all the following conditions are met:

(1) Continuous loads do not exceed 8 amperes

(2) OCPDs specified in 240.7 shall be marked for use with 14 AWG copper-clad aluminum conductor~~vercurrent protection is provided by one of the following:~~
~~a. Branch-circuit-rated circuit breakers are listed and marked for use with 14 AWG copper-clad aluminum conductor.~~

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~~b. Branch-circuit-rated fuses are listed and marked for use with 14 AWG copper-clad aluminum conductor.~~

(4) 14 AWG copper: ~~Copper.~~15 amperes

(5) 12 AWG aluminum and copper-clad aluminum: ~~Aluminum and Copper-Clad Aluminum.~~15 amperes

(6) 12 AWG copper: ~~Copper.~~20 amperes

(7) 10 AWG aluminum and copper-clad aluminum: ~~Aluminum and Copper-Clad Aluminum.~~25 amperes

(8) 10 AWG copper: ~~Copper.~~30 amperes

240.4(E) Tap Conductors.
Tap conductors shall be permitted to have overcurrent protection~~be protected against overcurrent~~ in accordance with the following:

(1) 210.19(C) and 210.19(D), Household Ranges and Cooking Appliances and Other Loads

(2) 240.5(B)(2), Fixture Wire

(3) 240.21, Location in Circuit

(4) 368.17(B), Reduction in Ampacity Size of Busway

(5) 368.17(C), Feeder or Branch Circuits (busway taps)

(6) 430.53(D), Single Motor Taps

240.4(F) Transformer Secondary Conductors.
Single-phase (other than 2-wire) and multiphase (other than delta-delta, 3-wire) transformer secondary conductors shall not be considered to be protected by the primary OCPD~~overcurrent protective device~~. Conductors supplied by the secondary side of a single-phase transformer having a 2-wire (single-voltage) secondary, or a three-phase, delta-delta connected transformer having a 3-wire (single-voltage) secondary, shall be permitted to be protected by overcurrent protection provided on the primary (supply) side of the transformer, provided this protection is in accordance with 450.5 and does not exceed the value determined by multiplying the secondary conductor ampacity by the secondary-to-primary transformer voltage ratio.

240.4(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~~ provided with overcurrent protection at the ampacity values in 310.12.

Second Revision No. 8613-NFPA 70-2024 [Global Comment]

[See attached Word document for revisions related to transformer secondary conductor in Article 240.]

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8613_Global.docx		
70_CMP-10_SR8613_Global_for_ballot.docx	For ballot	

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Wed Oct 30 11:55:30 EDT 2024

Committee Statement

Committee Statement: These sections have been updated for appropriate use of the term “transformer secondary conductors.”
Response Message: SR-8613-NFPA 70-2024

Public Comment No. 503-NFPA 70-2024 [Definition: Transformer Secondary Conductor.]

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240.4(F) Transformer Secondary Conductors.
Single-phase (other than 2-wire) and multiphase (other than delta-delta, 3-wire) transformer secondary conductors shall not be considered to be protected by the primary overcurrent protective device. ~~Conductors supplied by the secondary side~~Transformer secondary conductors of a single-phase transformer having a 2-wire (single-voltage) secondary, or a three-phase, delta-delta connected transformer having a 3-wire (single-voltage) secondary, shall be permitted to be protected by overcurrent protection provided on the primary (supply) side of the transformer, provided this protection is in accordance with 450.5 and does not exceed the value determined by multiplying the transformer secondary conductor ampacity by the secondary-to-primary transformer voltage ratio.

240.21(B)(3)

(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~~transformer secondary conductors 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 conductor 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.

240.21(C)(3) Industrial Installation of Transformer Secondary Conductors Not over 7.5 m (25 ft) Long.
For the supply of switchgear or switchboards in industrial installations only, where the length of the secondary conductors does not exceed 7.5 m (25 ft) and complies with all of the following:

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

(2) The ampacity of the secondary conductors is not less than the secondary current rating of the transformer, and the sum of the ratings of the overcurrent devices does not exceed the ampacity of the secondary conductors.

(3) All overcurrent devices are grouped.

(4) The secondary conductors are protected from physical damage by being enclosed in an approved raceway or by other approved means.

240.21(C)(4) Outside Transformer Secondary Conductors.
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 conductors are protected from physical damage in an approved manner.

(2) The conductors terminate at a single circuit breaker or a single set of fuses that limit the load to the ampacity of the 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 conductors is an integral part of a disconnecting means or shall be located immediately adjacent thereto.

(4) The disconnecting means for the 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 conductors

c. Where installed in accordance with 230.6, nearest the point of entrance of the conductors

240.21(C)(5) Transformer Secondary Conductors from a Feeder Tapped Transformer.

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Transformer secondary conductors installed in accordance with 240.21(B)(3) shall be permitted to have overcurrent protection as specified in that section.

240.21(C)(6) Transformer Secondary Conductors Not over 7.5 m (25 ft) Long.

Where the length of secondary conductor does not exceed 7.5 m (25 ft) and complies with all of the following:

(1) The secondary conductors 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 primary of the transformer.

(2) 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.

(3) The secondary conductors are protected from physical damage by being enclosed in an approved raceway or by other approved means.

240.92(E) Protection by Primary Overcurrent Device.

~~Conductors supplied by the secondary side of a transformer~~ Transformer secondary conductors shall be permitted to be protected by overcurrent protection provided on the primary (supply) side of the transformer, provided the primary device time–current protection characteristic, multiplied by the maximum effective primary-to-secondary transformer voltage ratio, effectively protects the secondary conductors.

Second Revision No. 8462-NFPA 70-2024 [Detail]

[This revision adds an exception to 230.68.]

Exception: Meter sockets for fire pump circuits shall have a rating not less than that of the fire pump circuits.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 20:16:10 EDT 2024

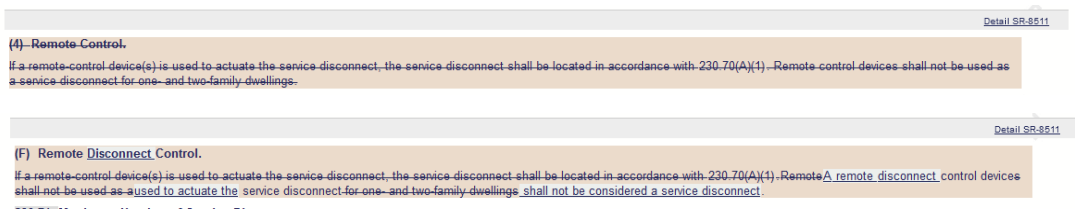
Committee Statement

Committee Statement: Fire pump circuits require oversizing, so an exception was added to properly size meter sockets for fire pump circuits.

Response Message: SR-8462-NFPA 70-2024

Second Revision No. 8511-NFPA 70-2024 [Detail]

Relocate 230.70(A)(4) to new 230.70(F) with changes seen below.



Detail SR-8511

~~(4) Remote Control.~~

~~If a remote-control device(s) is used to actuate the service disconnect, the service disconnect shall be located in accordance with 230.70(A)(1). Remote control devices shall not be used as a service disconnect for one- and two-family dwellings.~~

Detail SR-8511

(F) Remote Disconnect Control.

~~If a remote-control device(s) is used to actuate the service disconnect, the service disconnect shall be located in accordance with 230.70(A)(1). Remote~~A remote disconnect control devices ~~shall not be used as a~~used to actuate the service disconnect ~~for one- and two-family dwellings~~ shall not be considered a service disconnect.

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8511_230.70_A_4_.docx		
70_CMP-10_SR8511_230.70_A_4.docx	For prod use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 12:51:21 EDT 2024

Committee Statement

Committee Statement: This revision moves 230.70(A)(4) to align with revisions made to the language which no longer applies to location for remote disconnect control.

Response Message: SR-8511-NFPA 70-2024

Second Revision No. 8534-NFPA 70-2024 [Detail]

[Add listed item to appear after 230.82(x) based on action taken on 230.82.]

230.82(8)

(8) Power distribution blocks, pressure connectors, and devices for splices and taps in accordance with 230.46

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 14:30:39 EDT 2024

Committee Statement

Committee Statement: Power distribution blocks, pressure connectors, and devices for splices and taps have been added as these are permitted to be installed on the line side of the service disconnect per 230.46.

Response Message: SR-8534-NFPA 70-2024

Second Revision No. 8536-NFPA 70-2024 [Detail]

[Add listed item to appear after 230.82(x) based on action taken on 230.82.]

230.82(12)

(12) Permanently mounted absence of voltage testers, if labeled as suitable for use on the line side of the service disconnecting means

Informational Note: See UL 1436, *Outlet Circuit Testers and Similar Indicating Devices*, and NFPA 70E, *Standard for Electrical Safety in the Workplace*, 120.6(7), Exception No. 1.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 14:42:35 EDT 2024

Committee Statement

Committee Statement: Permanently mounted absence of voltage testers have been added as allowable on the line side of the service disconnect when listed and labeled for the application. These devices are able to provide value in testing for the absence of voltage. Other devices not listed to UL 1436 have not been included. An informational note has been provided for the relevant product safety standard and proper application of these devices.

Response Message: SR-8536-NFPA 70-2024

Second Revision No. 8571-NFPA 70-2024 [Definition: Industrial Installation, Supervised. (Supervise...]

Industrial Installation, Supervised. (Supervised Industrial Installation)

The industrial portions of a facility where all of the following conditions ~~are met~~ exist :

(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 processes, manufacturing activities, or both, as calculated in accordance with Article 120~~,~~ Parts II, III, IV, or V.

(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)

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 11:36:32 EDT 2024

Committee Statement

Committee Statement: For the definition of “supervised industrial installation,” the words “are met” have been replaced with the word “exist” to come into compliance with Section 2.1.2.5 of the NEC Style Manual.

Response Message: SR-8571-NFPA 70-2024

Public Comment No. 490-NFPA 70-2024 [Definition: Industrial Installation, Supervised. (Supervise...]

Second Revision No. 8359-NFPA 70-2024 [Definition: Overcurrent Protective Device, Branch-Circuit. ...]

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

A device capable of providing protection ~~for service, feeder, and branch circuits and equipment~~ over the full range of ~~overcurrents~~ overcurrent between its rated current and its interrupting rating. (CMP-10)

Informational Note No. 1: In prior editions of this code, the term *branch-circuit overcurrent protective device* included devices suitable for providing protection for service, feeder, and branch circuits. The term has been revised to a more generalized *overcurrent protective device (OCPD)* . The specific requirements using this term can include modifiers (e.g., branch OCPD, feeder OCPD, service OCPD) to specify location or application of the OCPD, or to specify variations (e.g., supplementary OCPD).

Informational Note No. 2: See 240.7 for a list of OCPDs suitable for providing protection for service, feeder, branch circuits, and equipment.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 11:57:55 EDT 2024

Committee Statement

Committee Statement: The term “Branch-Circuit Overcurrent Protective Device” is revised to the term “Overcurrent Protective Device (OCPD)” to reduce the confusion over the use of the term branch-circuit. Information note 1 was added to assimilate the use of the new term as it relates to past definitions of the Code. Additionally, informational note 2 was added to reference the new 240.7 where those devices specifically suitable for protecting branch, feeder and service conductors and equipment are now identified.

Service overcurrent protective devices provide overload protection for service conductors and provide overcurrent protection downstream of the service OCPD.

Response Message: SR-8359-NFPA 70-2024

Public Comment No. 866-NFPA 70-2024 [Definition: Overcurrent Protective Device, Branch-Circuit. ...]

Public Comment No. 1636-NFPA 70-2024 [Definition: Overcurrent Protective Device, Branch-Circuit. ...]

Public Comment No. 1220-NFPA 70-2024 [Definition: Overcurrent Protective Device, Branch-Circuit. ...]

Second Revision No. 8357-NFPA 70-2024 [Definition: Overcurrent Protective Device, Current-Limiting...]

Current-Limiting (as applied to overcurrent ~~protection~~ protective devices).

The ability to, when interrupting currents in its current-limiting range, reduce 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. (CMP-10)

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 11:52:46 EDT 2024

Committee Statement

Committee Statement: The definition of Current-Limiting is revised to “(as applied to overcurrent protective devices)”. The terms “substantially” and “comparable” have been retained as they are considered necessary for providing an accurate definition.

Response Message: SR-8357-NFPA 70-2024

Public Comment No. 486-NFPA 70-2024 [Definition: Current-Limiting (as applied to overcurrent pro...]

Second Revision No. 8361-NFPA 70-2024 [Definition: Overcurrent Protective Device, Supplementary. (...]

Overcurrent Protective Device, Supplementary (Supplementary OCPD) . (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~~ required overcurrent protective device (OCPD) for the branch circuit . (CMP-10)

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 12:05:29 EDT 2024

Committee Statement

Committee Statement: The alternate term “(Supplementary OCPD)” is added for searchability in the document. The definition has been revised to align with the revised definitions related to overcurrent protection. The informational note was not accepted because it was determined it was redundant.

Response Message: SR-8361-NFPA 70-2024

Public Comment No. 1638-NFPA 70-2024 [Definition: Overcurrent Protective Device, Supplementary. (...]

Second Revision No. 8547-NFPA 70-2024 [Definition: Service Disconnect (Service Disconnecting Means...]

~~**Service Disconnect (Service Disconnecting Means).**~~

~~A device that is connected to service conductors and disconnects the premises wiring system or equipment from the service conductors. (CMP-10)~~

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 16:26:50 EDT 2024

Committee Statement

Committee Statement: The definition for service disconnect which has been deleted. The term was defined at the first draft meeting, to provide clarification to the user. However, the definition conflicts with how service disconnects are addressed in other sections of the Code, product standards, and existing equipment.

Response Message: SR-8547-NFPA 70-2024

Second Revision No. 8364-NFPA 70-2024 [New Definition after Definition: Overcurrent.]

Overcurrent Protection.

Automatic interruption of one or more types of overcurrent. (CMP-10)

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 12:07:07 EDT 2024

Committee Statement

Committee Statement: The term "overcurrent protection" is used over 400 times in the document. This new definition will provide clarity and correlation throughout the document

Response Message: SR-8364-NFPA 70-2024

Public Comment No. 1639-NFPA 70-2024 [New Definition after Definition: Overcurrent.]

Second Revision No. 8380-NFPA 70-2024 [Section No. 215.1]

215.1 Scope.

This article covers the installation requirements, overcurrent protection requirements, minimum size, and ampacity of conductors for feeders not over 1000 volts ac or 1500 volts dc, nominal.

Informational Note: See Article 266 ~~265 , Part III,~~ for feeders over 1000 volts ac or 1500 volts dc.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 13:45:53 EDT 2024

Committee Statement

Committee Statement: Informational Note: See Article 265, Part III, for 266 for feeders over 1000 volts ac or 1500 volts dc

The reference in the Informational Note is corrected to reflect the appropriate Article. The NEC Style Manual in 4.1.4 identifies that the entire Article can be referenced when necessary. Here Article 266 is needed to be referenced in total referencing of every applicable requirement in Article 266 would be too extensive.

Response Message: SR-8380-NFPA 70-2024

Public Comment No. 68-NFPA 70-2024 [Section No. 215.1]

Public Comment No. 534-NFPA 70-2024 [Section No. 215.1]

Second Revision No. 8605-NFPA 70-2024 [Section No. 215.12(C)]

(C) Identification of Ungrounded Conductors.

Ungrounded conductors shall be identified in accordance with ~~215.12(C)(2)~~ 215.12(C)(1) ~~or~~ through 215.12(C)(3), as applicable.

(1) Feeders Supplied from One Nominal Voltage System.

Where the premises wiring system has feeders supplied from one nominal voltage system, feeder ungrounded conductors shall be identified in accordance with 310.6(C).

(2) Feeders Supplied from More Than One Nominal Voltage System.

Where the premises wiring system has feeders supplied from more than one nominal voltage system, each ungrounded conductor of a feeder shall be identified by phase or line and nominal voltage system at all termination, connection, and splice points in compliance with 215.12(C)(2)(a) and 215.12(C)(2)(b).

(a) *Means of Identification.* The means of identification shall be permitted to be by separate color coding, marking tape, tagging, or other approved means.

(b) *Posting of Identification Means.* The method used for conductors originating from each panelboard or similar distribution equipment shall be documented in a manner that is readily available or be permanently posted at each panelboard or similar distribution equipment.

(3) Feeders Supplied from Direct-Current (dc) Systems.

Where a feeder is supplied from a dc system operating at more than 60 volts, identification shall comply with the following:

(1) Each ungrounded conductor of 4 AWG or larger shall be identified by polarity at all termination, connection, and splice points by marking tape, tagging, or other approved means.

(2) The identification methods used for conductors originating from each panelboard or similar distribution equipment shall be documented in a manner that is readily available or be permanently posted at each panelboard or similar distribution equipment.

(3) Each ungrounded conductor of 6 AWG or smaller shall be identified by polarity at all termination, connection, and splice points in compliance with 215.12(C)(3)(a) and 215.12(C)(3)(b).

(a) *Positive Polarity, Sizes 6 AWG or Smaller.* Where the positive polarity of a dc system does not serve as the connection for the grounded conductor, each positive ungrounded conductor shall be identified by one of the following means:

(1) A continuous red outer finish

(2) A continuous red stripe durably marked along the conductor's entire length on insulation of a color other than green, white, gray, or black

(3) Imprinted plus signs (+) or the word POSITIVE or POS durably marked on insulation of a color other than green, white, gray, or black, and repeated at intervals not exceeding 610 mm (24 in.) in accordance with 310.8(B)

(4) An approved permanent marking means such as sleeving or shrink-tubing that is suitable for the conductor size, with imprinted plus signs (+) or the word POSITIVE or POS durably marked on insulation of a color other than green, white, gray, or black

(b) *Negative Polarity, Sizes 6 AWG or Smaller.* Where the negative polarity of a dc system does not serve as the connection for the grounded conductor, each negative ungrounded conductor shall be identified by one of the following means:

(1) A continuous black outer finish

(2) A continuous black stripe durably marked along the conductor's entire length on insulation of a color other than green, white, gray, or red

(3) Imprinted minus signs (–) or the word NEGATIVE or NEG durably marked on insulation of a color other than green, white, gray, or red, and repeated at intervals not exceeding 610 mm (24 in.) in accordance with 310.8(B)

(4) An approved permanent marking means such as sleeving or shrink-tubing that is suitable for the conductor size, with imprinted minus signs (–) or the word NEGATIVE or NEG durably marked on insulation of a color other than green, white, gray, or red

Supplemental Information

File Name	Description	Approved
NEC_CMP-10_SR-8605_215.12_C_.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Tue Oct 29 11:38:03 EDT 2024

Committee Statement

Committee Statement:	Language has been added to align identification requirement with 210.5(C)(1). The section has been reordered to correct the numbering. List items (2) and (3) are reordered so the list item that refers to the third-level subdivisions (a) and (b) appears directly above those subdivisions.
Response Message:	SR-8605-NFPA 70-2024

Public Comment No. 325-NFPA 70-2024 [Section No. 215.12(C)(2)]

Public Comment No. 1242-NFPA 70-2024 [Section No. 215.12(C)]

Second Revision No. 8403-NFPA 70-2024 [Section No. 225.1]

225.1 Scope.

This article covers requirements for outside branch circuits and feeders not over 1000 volts ac or 1500 volts dc, nominal, 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 No. 1: See Article ~~265 , Part IV,~~ 267 for outside branch circuits and feeders over 1000 volts ac or 1500 volts dc.

Informational Note No. 2: See Article 210 and Article 215 for the general requirements for branch circuits and feeders. The requirements in Article 225 are in addition to the requirements in Article 210 and Article 215 , as applicable.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 16:00:52 EDT 2024

Committee Statement

Committee Statement: The reference in Informational Note No. 1 is corrected to reflect the appropriate Article. Informational Note NO. 2 is added to clarify the relationship with 210 and 215. The NEC Style Manual in 4.1.4 identifies that the entire Article can be referenced when necessary. Here Article 210, 215, 225, and 267 are needed to be referenced in total referencing of every applicable requirement in Article 210, 215, 225, and 267 would be too extensive.

Response Message: SR-8403-NFPA 70-2024

Public Comment No. 69-NFPA 70-2024 [Section No. 225.1]

Public Comment No. 535-NFPA 70-2024 [Section No. 225.1]

Second Revision No. 8404-NFPA 70-2024 [Section No. 225.10]

225.10 Wiring on Buildings (or Other Structures).

The installation of outside wiring on surfaces of buildings (or other structures) shall ~~be permitted to~~ be any of the following:

(1) Auxiliary gutters
(2) Busways
(3) Cable trays
(4) Cablebus
(5) Electrical metallic tubing (EMT)
(6) Flexible metal conduit (FMC)
(7) Intermediate metal conduit (IMC)
(8) Liquidtight flexible metal conduit (LFMC)
(9) Liquidtight flexible nonmetallic conduit (LFNC)
(10) Messenger-supported wiring
(11) Open wiring on insulators
(12) Reinforced thermosetting resin conduit (RTRC)
(13) Rigid metal conduit (RMC)
(14) Rigid polyvinyl chloride conduit (PVC)
(15) Type MC cable
(16) Type MI cable
(17) Type SE cable
(18) Type TC-ER cable
(19) Type UF cable
(20) Wireways

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Thu Oct 24 16:21:04 EDT 2024

Committee Statement

Committee Statement: The language is revised to clarify the wiring methods that are required to be used outside on the surfaces of buildings.
Response Message: SR-8404-NFPA 70-2024

Public Comment No. 1243-NFPA 70-2024 [Section No. 225.10]

Second Revision No. 8405-NFPA 70-2024 [Section No. 225.39]

225.39 Rating of Disconnect.

The disconnecting means specified in 225.31 shall have a rating of not less than the calculated load to be supplied~~, determined in accordance with Article 120 , Parts I and II, for branch circuits; Article 120 , Part III or IV, for feeders; or Article 120 , Part V, for farm loads~~ . If the branch circuit or feeder disconnecting means consists of more than one switch or circuit breaker, as permitted by 225.33, combining the ratings of all the switches or circuit breakers for determining the rating of the disconnecting means shall be permitted. ~~In no case shall the rating be lower than~~ The rating of the disconnect shall not be less than specified in 225.39(A), 225.39(B), 225.39(C), or 225.39(D).

Informational Note: See Article 120 for calculating the load supplied by the disconnecting means.

(A) One-Circuit Installation.

For installations to supply only limited loads of a single branch circuit, the branch- circuit disconnecting means shall have a rating of not less than 15 amperes.

(B) Two-Circuit Installations.

For installations consisting of not more than two 2-wire branch circuits, the feeder or branch-circuit disconnecting means shall have a rating of not less than 30 amperes.

(C) One-Family Dwelling.

For a one-family dwelling, the feeder disconnecting means shall have a rating of not less than 100 amperes, 3-wire.

(D) All Others.

For all other installations, the feeder or branch-circuit disconnecting means shall have a rating of not less than 60 amperes.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 16:23:31 EDT 2024

Committee Statement

Committee Statement: The language is revised to enhance usability and consistency across the NEC. The reference to Article 120 has been moved to an informational note to assist the user in knowing where to find the appropriate calculations.

Response Message: SR-8405-NFPA 70-2024

Public Comment No. 326-NFPA 70-2024 [Section No. 225.39]

Second Revision No. 8606-NFPA 70-2024 [Section No. 225.41(A)(1)]

(1) Location.

The disconnecting means shall be installed in a readily accessible outdoor location ~~on or within sight of the dwelling unit.~~ in accordance with one of the following:

(1) On the dwelling unit

(2) Within sight of the dwelling in accordance with 110.29

Exception: If the service disconnecting means complies with ~~230.70(A)(2)~~ 230.70(A)(1) or the disconnecting means in accordance with 225.31 is in a readily accessible outdoor location, on or within sight of the one- and two-family dwelling unit, an additional emergency disconnect shall not be required.

Supplemental Information

File Name	Description	Approved
NEC_CMP-10_SR-8606_225.41_A_1_.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Tue Oct 29 13:34:46 EDT 2024

Committee Statement

Committee Statement: The cross-reference to 110.29 has been added to align with the definition for “within sight” having been moved to a requirement in 110.29. This section has been revised to appear in listed form to align with the NEC Style Manual. The proposed revisions of the public comments have not been adopted due to concerns with the unlimited length that would be permitted. Further challenges exist over time with “visibility” being impacted by obstructions when the distance is unlimited and over 50ft. “Visible” is also undefined and unenforceable.

Response Message: SR-8606-NFPA 70-2024

Public Comment No. 1490-NFPA 70-2024 [Section No. 225.41(A)(1)]

Public Comment No. 1501-NFPA 70-2024 [Section No. 225.41(A)(1)]

Second Revision No. 8412-NFPA 70-2024 [Section No. 225.42]

~~**225.42** Surge Protection.~~

~~**(A)** Surge-Protective Device.~~

~~If feeders supply any of the following, surge-protective devices (SPDs) shall be installed:~~

(0) ~~Dwelling units~~

(0) ~~Dormitories~~

(0) ~~Guest rooms and guest suites of hotels, motels, and dormitories~~

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

(0) ~~Areas designed for use exclusively as sleeping quarters in fire stations, police stations, ambulance stations, rescue stations, ranger stations, and similar locations~~

~~**(B)** Location.~~

~~The SPD shall be installed in or adjacent to the distribution equipment that is connected to the load side of the feeder and contains branch circuit overcurrent protective device(s) that supply the location specified in 225.42(A) .~~

~~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: See 242.24 for routing of conductors for SPDs.~~

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 16:57:45 EDT 2024

Committee Statement

Committee Statement: The committee has reviewed the scope of NEC Article 215 and NEC Article 225. NEC 225.42 has been deleted.. These provisions are addressed in NEC Article 215, which applies to all feeders. and it is not necessary to repeat those provisions in NEC Article 225.

Response Message: SR-8412-NFPA 70-2024

Public Comment No. 1168-NFPA 70-2024 [Section No. 225.42]

Public Comment No. 1244-NFPA 70-2024 [Section No. 225.42]

Public Comment No. 1931-NFPA 70-2024 [Section No. 225.42(E)]

Public Comment No. 1933-NFPA 70-2024 [Section No. 225.42(E)]

Second Revision No. 8414-NFPA 70-2024 [Section No. 230.2]

230.2 Listing Requirements.

~~All service equipment shall be listed or field evaluated.~~

(A) Listed.

The following equipment shall be listed:

(1) Meter sockets, unless supplied by and under the exclusive control of an electric utility

(2) Meter-mounted transfer switches

(3) Power distribution blocks

(4) Pressure connectors

(5) Devices for splices and taps

(6) Permanently mounted absence of voltage testers

(B) Listed or Field Evaluated.

Service equipment other than that specified in 230.2(A) shall be listed or field evaluated.

Supplemental Information

File Name	Description	Approved
NEC_CMP-10_SR-8414_230.2.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 17:33:27 EDT 2024

Committee Statement

Committee Statement: The language is revised to pull all listing requirements from 230.46, 230.66, and 230.82 into the listing requirements in 230.2. Requirement for listing of permanently mounted absence of voltage testers has been added to correlate to 230.82.

Response Message: SR-8414-NFPA 70-2024

Public Comment No. 324-NFPA 70-2024 [Section No. 230.2]

Public Comment No. 637-NFPA 70-2024 [Section No. 230.2]

Second Revision No. 8493-NFPA 70-2024 [Section No. 230.9(C)]

(C) Building Openings.

Overhead service conductors shall not be installed beneath openings through which materials ~~may~~ could be moved, such as ~~openings~~ those in farm and commercial buildings, ~~and shall not be installed~~ or where they obstruct entrance to these building openings.

Submitter Information Verification

Committee: NEC-P10
Submittal Date: Fri Oct 25 11:28:59 EDT 2024

Committee Statement

Committee Statement: The language has been revised to align with 225.19(D)(3).
Response Message: SR-8493-NFPA 70-2024

Public Comment No. 323-NFPA 70-2024 [Section No. 230.9(C)]

Second Revision No. 8421-NFPA 70-2024 [Section No. 230.23(A)]

(A) General.

Conductors shall have ~~sufficient ampacity to carry the current for the load as calculated in accordance with Article~~ 120 ~~, Parts II through V, and have adequate mechanical strength~~ an ampacity not less than the calculated load .

Informational Note: See Article 120 for calculating the load supplied by the conductors.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 17:58:59 EDT 2024

Committee Statement

Committee Statement: The terms “sufficient” and “adequate” have been removed to comply with the NEC Style Manual 3.2.1. ”Mechanical strength” has been removed since it is not correct to address it in a section on s

Response Message: SR-8421-NFPA 70-2024

Public Comment No. 2000-NFPA 70-2024 [Section No. 230.23(A)]

Public Comment No. 328-NFPA 70-2024 [Section No. 230.23(A)]

Second Revision No. 8426-NFPA 70-2024 [Section No. 230.31(A)]

(A) General.

Underground service conductors shall have ~~sufficient ampacity to carry the current for the load as calculated in accordance with Article 120 , Parts II through V~~ an ampacity not less than the calculated load .

Informational Note: See Article 120 for calculating the load supplied by the conductors.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 18:13:46 EDT 2024

Committee Statement

Committee Statement: The word “sufficient” is removed because it is unnecessary and to comply with the NEC Style manual 3.2.1. The reference to Article 120 has been moved to an informational note to assist the user in knowing where to find the appropriate calculations.

Response Message: SR-8426-NFPA 70-2024

Public Comment No. 330-NFPA 70-2024 [Section No. 230.31(A)]

Public Comment No. 1999-NFPA 70-2024 [Section No. 230.31(A)]

Second Revision No. 8538-NFPA 70-2024 [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 230.4, 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 230.4(E) shall apply at each location. If the number of service disconnect locations exceeds six for any given supply classification, the following conditions shall apply:

(1) All service disconnect locations for all supply characteristics, together with any branch-circuit or feeder supply sources, 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)~~ 230.82(16) , 230.82(18) , 230.82(19) , 230.82(20) , or 230.82(21) .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 14:52:39 EDT 2024

Committee Statement

Committee Statement: The references to 230.82 in Exception No. 5 have been updated to correlate with changes to 230.82.

Response Message: SR-8538-NFPA 70-2024

Second Revision No. 8428-NFPA 70-2024 [Section No. 230.42(A) [Excluding any Sub-Sections]]

Service-entrance conductors shall have an ampacity ~~of~~ not less than the maximum calculated load to be served. Conductors shall be sized not less than the larger conductor of 230.42(A)(1) or 230.42(A)(2). ~~Loads shall be determined in accordance with Article 120 , Part III, IV, or V, as applicable.~~ Ampacity shall be determined in accordance with 310.14 and comply with 110.14(C). The maximum current of busways shall be that value for which the busways have been listed or labeled.

Informational Note No. 1: See UL 857-2021, *Standard for Safety for Busways*, for information on busways.

Informational Note No. 2: See Article 120 for calculating the load supplied by the conductors.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 18:19:18 EDT 2024

Committee Statement

Committee Statement: The reference to Article 120 has been moved to an informational note to assist the user in knowing where to find the appropriate calculations

Response Message: SR-8428-NFPA 70-2024

Public Comment No. 1967-NFPA 70-2024 [Section No. 230.42(A) [Excluding any Sub-Sections]]

Second Revision No. 8448-NFPA 70-2024 [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, 300.7(E), 300.15, and 300.17.

The following equipment installed on service conductors shall be ~~listed and be~~ marked or identified as “suitable for use on the line side of the service equipment” or equivalent:

(1) Power distribution blocks

(2) Pressure connectors

(3) Devices for splices and taps

Informational Note: The marking “SVC” is an industry identification that is considered equivalent to “suitable for use on the line side of service equipment.”

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 19:23:19 EDT 2024

Committee Statement

Committee Statement: The listing requirement has moved to 230.2 to comply with the NEC Style Manual.

Response Message: SR-8448-NFPA 70-2024

Public Comment No. 331-NFPA 70-2024 [Section No. 230.46]

Public Comment No. 638-NFPA 70-2024 [Section No. 230.46]

Second Revision No. 8450-NFPA 70-2024 [Section No. 230.56]

~~**230.56** Service Conductor with the Higher Voltage to Ground.~~

~~On a 4-wire, delta-connected service where the midpoint of one phase winding is grounded, the service conductor having the higher phase voltage to ground shall be durably and permanently marked by an outer finish that is orange in color, or by other effective means, at each termination or junction point.~~

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 19:29:09 EDT 2024

Committee Statement

Committee Statement: This requirement is already addressed in110.15 and has been removed due avoid redundancy.

Response Message: SR-8450-NFPA 70-2024

Public Comment No. 971-NFPA 70-2024 [Section No. 230.56]

Second Revision No. 8451-NFPA 70-2024 [Section No. 230.62(C)]

(C) Barriers.

~~Barriers~~ Identified barriers shall be placed in service equipment such that no energized~~,~~ and 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: Thu Oct 24 19:31:11 EDT 2024

Committee Statement

Committee Statement: The proposed informational note is focused on a single product standards and barriers are addressed in other products and will be included or identified for use in listed products. The language has been revised to require identification of barriers that are placed in the service equipment.

Response Message: SR-8451-NFPA 70-2024

Public Comment No. 1739-NFPA 70-2024 [Section No. 230.62(C)]

Second Revision No. 8452-NFPA 70-2024 [Section No. 230.66]

230.66 Marking.

Service equipment shall be marked to identify it as being suitable for use as service equipment~~,~~ or suitable for use only as service equipment .

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

~~Service equipment shall be marked to identify it as being suitable for use as service equipment.~~

~~**(B)** Meter Sockets.~~

~~Meter sockets shall not be considered service equipment but shall be listed and rated for the voltage and current rating of the service.~~

~~*Exception:* Meter sockets supplied by and under the exclusive control of an electric utility shall not be required to be listed.~~

Supplemental Information

File Name	Description	Approved
NEC_CMP-10_SR-8452_230.66.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 19:32:40 EDT 2024

Committee Statement

Committee Statement: The listing requirements have been relocated to 230.2 and the rating requirements for meter sockets have been moved to a new section after 230.66.

Response Message: SR-8452-NFPA 70-2024

Public Comment No. 808-NFPA 70-2024 [Section No. 230.66]

Public Comment No. 639-NFPA 70-2024 [Section No. 230.66]

Second Revision No. 8455-NFPA 70-2024 [New Section after 230.67]

Detail SR-8462

230.68 Meter Sockets.

Meters sockets shall comply with both of the following:

(1) They shall not be considered service equipment.

(2) They shall be rated for the voltage and current rating of the service.

Exception: Meter sockets for fire pump circuits shall have a rating not less than that of the fire pump circuits.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 19:42:05 EDT 2024

Committee Statement

Committee Statement: The rating requirements for meter sockets are moved from the marking section to a new section after 230.66 and revised to structurally align with the NEC Style Manual.

Response Message: SR-8455-NFPA 70-2024

Public Comment No. 640-NFPA 70-2024 [New Section after 230.66]

Second Revision No. 8609-NFPA 70-2024 [Section No. 230.67(A)]

(A) Surge-Protective Device.

All services supplying the following ~~occupancies~~ shall be provided with a surge-protective device (SPD):

(1) Dwelling units

(2) Dormitories

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

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

(5) Areas designed for use exclusively as sleeping quarters in fire stations, police stations, ambulance stations, rescue stations, ranger stations, and similar locations

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Tue Oct 29 14:47:22 EDT 2024

Committee Statement

Committee Statement: The term "occupancy" has been deleted to address the list that includes occupancies and areas.

Response Message: SR-8609-NFPA 70-2024

Public Comment No. 365-NFPA 70-2024 [Section No. 230.67(A)]

Second Revision No. 8486-NFPA 70-2024 [Section No. 230.67(B)]

(B) Location.

The SPD shall be an integral part of the service equipment or shall be located immediately adjacent thereto.

Exception: ~~The~~ If the service supplies only feeders, the SPD shall not be required to be located at the service ~~equipment as required in 230.67(B) if located at each next level distribution equipment downstream toward the load~~ if an SPD is located at the load side of each feeder .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 11:05:15 EDT 2024

Committee Statement

Committee Statement: Item (A) establishes the specific occupancies requiring SPDs. The location of the SPD is established in Item (B). The exception is properly located in Item(B). The exception language has been clarified.

Response Message: SR-8486-NFPA 70-2024

Public Comment No. 254-NFPA 70-2024 [Section No. 230.67]

Public Comment No. 289-NFPA 70-2024 [Section No. 230.67(B)]

Second Revision No. 8496-NFPA 70-2024 [Section No. 230.70(A)]

(A) Service Disconnect Location.

Service disconnects shall be installed in accordance with 230.70(A)(1) through 230.70(A)(3) . ~~230.70(A)(1) , 230.70(A)(2) , 230.70(A)(3) , and 230.70(A)(4) .~~

(1) ~~Readily Accessible Location~~ One- and Two-Family Dwellings .

Service disconnects shall be installed ~~at~~ in a readily accessible outdoor location ~~either outside of a building or structure or inside nearest the point of entrance of the service conductors.~~ in accordance with one of the following:

(1) On the dwelling unit

(2) Within sight of the dwelling unit in accordance with 110.29

Exception: The service disconnect shall not be required to be installed on or within sight of the dwelling unit when an emergency disconnect is installed in accordance with 225.41 .

(2) Other than One- and Two-Family Dwellings.

Service disconnects shall be installed in a readily accessible ~~outdoor~~ location ~~on or within sight of the one- or two-family dwelling unit~~ either outside of a building or structure or inside nearest the point of entrance of the service conductors .

(3) Bathrooms.

Service disconnecting means shall not be installed in bathrooms.

Detail SR-8511

~~**(4)** Remote Control.~~

~~If a remote-control device(s) is used to actuate the service disconnect, the service disconnect shall be located in accordance with 230.70(A)(1) . Remote control devices shall not be used as a service disconnect for one- and two-family dwellings.~~

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8496_230.70_A_.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 11:31:48 EDT 2024

Committee Statement

Committee Statement: The charging statement in 230.70(A) was clarified to remove a potential contradiction in meeting both 230.70(A)(1) and (2). 230.70(A)(1) and (2) were revised for additional clarification and consistency in language. A reference was added to 110.29 concerning “within sight of” as the defined term was deleted.

An exception was added for service disconnects for one and two family dwellings to not require installation on or within sight of the unit if an outdoor feeder emergency disconnect is provided in accordance with 225.41. This would reduce the need for

redundant emergency disconnects and allow for service disconnects where the residence is significantly set back from the road and served by a feeder.

The language has been revised to clarify that the remote disconnecting control device actuating the service disconnect is not the service disconnect. Additionally, the term “remote control” was revised to “remote disconnect control” to clarify that it pertains to the disconnect device.

Response Message: SR-8496-NFPA 70-2024

Public Comment No. 1349-NFPA 70-2024 [Section No. 230.70(A)(2)]

Public Comment No. 1040-NFPA 70-2024 [Section No. 230.70(A) [Excluding any Sub-Sections]]

Public Comment No. 1176-NFPA 70-2024 [Section No. 230.70(A)(4)]

Public Comment No. 1110-NFPA 70-2024 [Section No. 230.70(A)]

Second Revision No. 8610-NFPA 70-2024 [Section No. 230.70(B)]

(B) Service Disconnect Marking.

Service disconnects shall be marked in accordance with 230.70(B)(1) and 230.70(B)(2).

(1) Marking.

Service disconnects shall be marked ~~as~~ "SERVICE DISCONNECT." The marking shall be on or adjacent to the service disconnect and ~~the marking shall~~ comply with 110.21(B).

(2) One- and Two-Family Dwellings.

~~Service~~ Enclosures of disconnects for one- and two-family dwellings shall be marked ~~as follows:~~ "EMERGENCY DISCONNECT."

~~EMERGENCY DISCONNECT, SERVICE DISCONNECT~~

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

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

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

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Tue Oct 29 15:21:29 EDT 2024

Committee Statement

Committee Statement: Section 230.70(B) has been clarified that the emergency disconnect marking is on the front of the enclosure. The service disconnect marking is to be on or adjacent to the service disconnect, as there may be more than one disconnect in the service equipment enclosure or the switch may be inside the enclosure behind the door.

Response Message: SR-8610-NFPA 70-2024

Public Comment No. 1879-NFPA 70-2024 [Section No. 230.70(B)]

Public Comment No. 1831-NFPA 70-2024 [Section No. 230.70(B)(1)]

Second Revision No. 8539-NFPA 70-2024 [Section No. 230.79]

230.79 Rating of Service Disconnecting Means.

The service disconnecting means shall have a rating not less than the calculated load ~~to be carried, determined in accordance with Article~~ 120 ~~, Part III, IV, or V, as applicable. In no case shall the rating be lower~~ and not less than specified in 230.79(A)~~,~~ ~~230.79(B)~~ ~~,~~ ~~230.79(C)~~ ~~,~~ ~~or~~ through 230.79(D).

Informational Note: See Article 120 for calculating the load supplied by the disconnecting means.

(A) One-Circuit Installations.

For installations to supply only limited loads of a single branch circuit, the service disconnecting means shall have a rating ~~of~~ not less than 15 amperes.

(B) Two-Circuit Installations.

For installations consisting of not more than two 2-wire branch circuits, the service disconnecting means shall have a rating ~~of~~ not less than 30 amperes.

(C) One-Family Dwellings.

For a one-family dwelling, the service disconnecting means shall have a rating ~~of~~ not less than 100 amperes.

(D) All Others.

For all other installations, the service disconnecting means shall have a rating ~~of~~ not less than 60 amperes.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 14:57:04 EDT 2024

Committee Statement

Committee Statement: The language is revised to enhance usability and consistency across the NEC. The reference to Article 120 has been moved to an informational note to assist the user in knowing where to find the appropriate calculations

Response Message: SR-8539-NFPA 70-2024

Second Revision No. 8515-NFPA 70-2024 [Section No. 230.82]

Detail SR-8536

Detail SR-8534

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~~., if all metal housings and service enclosures are grounded in accordance with Article 250, Part VII, and bonded in accordance with Article 250, Part V.~~

(3) Meter disconnect switches 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 Article 250, Part VII and bonded in accordance with Article 250, Part V, as follows~~comply with the following:

a. Have a short-circuit current rating equal to or greater than the available fault current

b. ~~The meter disconnect switch is capable of interrupting~~Have capability to interrupt the load served~~.~~

c. ~~The meter disconnect is~~Are in equipment legibly field marked on ~~its~~the exterior in a manner suitable for the environment as follows:

METER DISCONNECT NOT SERVICE EQUIPMENT

(4) Meter-mounted transfer switches that have a short-circuit current rating equal to or greater than the available fault current, as follows:

a. Have a short-circuit current rating equal to or greater than the available fault current

b. ~~The meter-mounted transfer switch is listed and capable~~Have capability of transferring the load served~~.~~

c. ~~The meter-mounted transfer switch is~~Are marked on ~~its~~the exterior as follows:

METER-MOUNTED TRANSFER SWITCH

NOT SERVICE EQUIPMENT

(5) Instrument transformers (current and voltage)~~, impedance shunts, load management devices, surge arresters, and Type 1 surge-protective devices.~~

(6) Impedance shunts

(7) Load management devices

(8) Power distribution blocks, pressure connectors, and devices for splices and taps in accordance with 230.46

(9) Surge arresters

(10) Type 1 surge-protective devices

(11) Type 2 surge-protective devices, where installed as part of listed equipment, if provided with suitable overcurrent protection and disconnecting means

(12) Permanently mounted absence of voltage testers, if labeled as suitable for use on the line side of the service disconnecting means

Informational Note: See UL 1436, *Outlet Circuit Testers and Similar Indicating Devices*, and NFPA *70E*, *Standard for Electrical Safety in the Workplace*, 120.6(7), Exception No. 1.

(13) Control circuits for power-operable service disconnecting means, if suitable overcurrent protection and disconnecting means are provided

(14) Ground-fault protection systems, if installed as part of listed equipment and provided with suitable overcurrent protection and disconnecting means

(15) Control power circuits for protective relays, if installed as part of listed equipment and provided with overcurrent protection and disconnecting means

(16) Conductors used to supply energy management systems, ~~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~~.~~

(17) Conductors used to supply circuits for standby power systems, if provided with service equipment and installed in accordance with requirements for service-entrance conductors

(18) Conductors used to supply fire pump equipment, if provided with service equipment and installed in accordance with requirements for service-entrance conductors

(19) Conductors used to supply fire and sprinkler alarms, if provided with service equipment and installed in accordance with requirements for service-entrance conductors

(20) ~~Solar photovoltaic systems, fuel cell systems, wind electric systems, energy storage systems, or interconnected~~Interconnected electric power production sources, if provided with a service disconnecting means in equipment listed ~~as suitable for use~~ as service equipment~~,~~ and overcurrent protection as specified in Article 230~~,~~ Part VII~~.~~

(20) ~~Control circuits for power-operable service disconnecting means, if suitable overcurrent protection and disconnecting means are provided.~~

(20) ~~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.~~

(21) Connections used only to supply listed communications equipment under the exclusive control of the serving electric utility, if provided with 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.

(21) ~~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
70_CMP-10_SR8515_230.82.docx		
NEC_CMP-10_SR-8515_230.82.docx	For prod use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 13:15:35 EDT 2024

Committee Statement

Committee Statement: The general requirements in items 230.82(2) and 230.82(3) concerning grounding and bonding are considered redundant with 250.25 and have been removed. Items 230.82(3) and 230.82(10) have been revised to list the requirements for clarity. Additionally, item 230.82(10) has been moved to item 230.82(4).

Equipment previously grouped into a single item have been separated in accordance with the NEC Style Manual cl. 2.1.8. The list has been re-organized to place similar items (such as SPDs) adjacent to each other.

Solar photovoltaic systems, fuel cell systems, wind electric systems and energy storage

systems have been deleted from the list as they are considered interconnected electric power production sources.

Other list items which may require service disconnects have not been removed from 230.82 as removal of these items at this time may cause confusion.

Response Message: SR-8515-NFPA 70-2024

Public Comment No. 366-NFPA 70-2024 [Section No. 230.82]

Public Comment No. 2024-NFPA 70-2024 [Section No. 230.82]

Public Comment No. 2059-NFPA 70-2024 [Section No. 230.82]

Public Comment No. 1178-NFPA 70-2024 [Section No. 230.82]

Public Comment No. 964-NFPA 70-2024 [Section No. 230.82]

Second Revision No. 8549-NFPA 70-2024 [New Section after 230.95]

Part VIII. Service Conductors Connecting Power Production Sources

230.100 Size and Ampacity.

Ampacity of service conductors connected to a power source service disconnecting means shall comply with the following:

(1) Ampacity is determined in accordance with 310.14 and complies with 110.14(C) .

(2) Ampacity is not less than that determined in accordance with 705.28(B) .

(3) Service conductors are not smaller than 6 AWG copper or 4 AWG aluminum or copper-clad aluminum.

230.104 Overcurrent Protection.

Service conductors connected to a service disconnecting means for a power production source shall be provided with overcurrent protection in accordance with 705.30 .

230.108 Service Connections in Buildings.

Power production sources shall be permitted to be connected to existing service conductors located within buildings when all of the following are met:

(1) Service conductors are protected from physical damage in accordance with 230.50(B)(1) .

(2) Service conductor connections comply with 230.46 .

(3) Service conductor length is limited to one of the following:

a. In dwelling units, with an overcurrent protective device located within 3 m (10 ft) of conductor length from the point of connection to the existing service conductors

b. In other than one- and two- family dwelling units, with an OCPD located within 5 m (16.5 ft.) of conductor length from the point of connection to the existing service conductors

(4) Any modifications to existing equipment are made in accordance with the manufacturer's instructions or are field evaluated for the application and field labeled.

Supplemental Information

File Name	Description	Approved
SR-8549_on_New_section_after_230.95.docx	SR-8549 on new section after 230.95	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 16:30:26 EDT 2024

Committee Statement

Committee Statement: The requirements for conductor lengths tapped from service conductors is the purview of Panel 10 and is being relocated to this new Part in Article 230. The language for 230.108

is taken from similar language in Article 705. The allowance for 66 foot length of conductors with cable limiters is removed since technical substantiation has not been provided on the use of cable limiters to provide protection to service conductors. The 10 foot length of conductors aligns with “nearest the point of entrance” in 230.70 for one- and two- family dwellings. The greater length for other than one- and two- family dwellings was added to accommodate the needs of larger equipment. Requirements concerning GFPE have not been added as these are already addressed by 230.95.

Response Message: SR-8549-NFPA 70-2024

Public Comment No. 1351-NFPA 70-2024 [New Section after 230.95]

Second Revision No. 8611-NFPA 70-2024 [Section No. 240.3]

240.3 Reconditioned Equipment.

(A) Permitted ~~to be Installed~~ .

The following reconditioned equipment shall be permitted ~~to be installed~~ :

(1) Low-voltage power circuit breakers

(2) Electromechanical protective relays and current transformers

(B) Not Permitted ~~to be Installed~~ .

The following reconditioned equipment shall not be ~~installed~~ permitted :

(1) Equipment providing ground-fault protection of equipment

(2) Ground-fault circuit interrupters

(3) Low-voltage fuseholders and low-voltage nonrenewable fuses

(4) Molded-case circuit breakers

(5) Low-voltage power circuit breaker electronic trip units

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Oct 30 10:45:07 EDT 2024

Committee Statement

Committee Statement: The language in 240.3(A) and 240.3(B) has been updated to align with the recommended wording regarding reconditioning. The reference to installation has been removed to address reconditioning in place.

Response Message: SR-8611-NFPA 70-2024

Public Comment No. 1469-NFPA 70-2024 [Section No. 240.3]

Public Comment No. 367-NFPA 70-2024 [Section No. 240.2]

Second Revision No. 8575-NFPA 70-2024 [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~~	Article/ Section
Air-conditioning and refrigeration equipment circuit conductors	~~440, Parts III, IV, VI~~	440 Parts III, IV, VI
Capacitor circuit conductors	~~460~~	460.9 and 460.25
Control and instrumentation circuit conductors (Type ITC)	~~335~~	335.90
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~~	422 Part II
Motor and motor-control circuit conductors	~~430, Parts II, III, IV, V, VI, VII~~	430 Parts II, III, IV, V, VI, VII
Phase converter supply conductors	~~455~~	455.7
Remote-control, signaling, and power-limited circuit conductors	~~721 and 724~~	721.30, 724.43, 724.45, ~~792.30,~~ and Chapter 9~~,~~ Tables 11(A) and 11(B)
Secondary tie conductors	~~450~~	450.8

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8575_Table_240.4_G_.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 12:17:42 EDT 2024

Committee Statement

Committee Statement: Changes were made to Table 240.4(G) for proper cross references.

Response Message: SR-8575-NFPA 70-2024

Second Revision No. 8556-NFPA 70-2024 [Section No. 240.5]

Global SR-8365

240.5 Overcurrent Protection of Flexible Cords, Flexible Cables, and Fixture Wires.

Flexible cord and flexible cable, including tinsel cord and cord sets, and fixture wires shall ~~have~~ be provided with overcurrent protection in accordance with 240.5(A) and 240.5(B).

(A) Ampacities.

Flexible cord and flexible cable shall be ~~protected by an overcurrent device~~provided with overcurrent protection in accordance with their ampacity as specified in Table 400.5(A)(1) and Table 400.5(A)(2). Fixture wire shall be ~~protected against overcurrent~~provided with overcurrent protection in accordance with its ampacity as specified in Table 402.5. Supplementary overcurrent protection, as covered in 240.10, shall be permitted to be an acceptable means for providing this protection.

(B) Branch-Circuit Overcurrent Protective Device.

Flexible cord shall be protected, where supplied by a branch circuit, in accordance with one of the methods described in 240.5(B)(1), 240.5(B)(3), or 240.5(B)(4). Fixture wire shall be protected, where supplied by a branch circuit, in accordance with 240.5(B)(2).

(1) Supply Cord of Listed Appliance or Luminaire.

Where flexible cord or tinsel cord is approved for and used with a specific listed appliance or luminaire, it shall be considered to be protected when applied within the appliance or luminaire listing requirements. For the purposes of this section, a luminaire ~~may~~can be either portable or permanent.

(2) Fixture Wire.

Fixture wire shall be permitted to be tapped to the branch-circuit conductor of a branch circuit in accordance with the following:

(1) 15- or 20-ampere circuits — 18 AWG, up to 15 m (50 ft) of run length

(2) 15- or 20-ampere circuits — 16 AWG, up to 30 m (100 ft) of run length

(3) 20-ampere circuits — 14 AWG and larger

(4) 30-ampere circuits — 14 AWG and larger

(5) 40-ampere circuits — 12 AWG and larger

(6) 50-ampere circuits — 12 AWG and larger

(3) Extension Cord Sets.

Flexible cord used in listed extension cord sets shall be considered to be protected when applied within the extension cord listing requirements.

(4) Field Assembled Extension Cord Sets.

Flexible cord used in extension cords made with separately listed and installed components shall be permitted to be supplied by a branch circuit in accordance with the following:

20-ampere circuits — 16 AWG and larger

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 17:51:53 EDT 2024

Committee Statement

Committee Statement:	The reference to 240.5(B) was inadvertently deleted at the first draft meeting and is now restored.
Response Message:	SR-8556-NFPA 70-2024

Public Comment No. 368-NFPA 70-2024 [Section No. 240.5]

Second Revision No. 8368-NFPA 70-2024 [New Section after 240.6]

240.7 Overcurrent Protective Devices.

Unless permitted elsewhere in the code, OCPDs for protecting branch-circuit, feeder, and service conductors and equipment shall be one of the following:

(1) Molded-case circuit breakers

(2) Low-voltage power circuit breakers

(3) Solid-state or solid-state hybrid circuit breakers

(4) Class C, Class CA, Class CB, Class CC, Class CF, Class G, Class H, Class J, Class K, Class L, Class R, or Class T fuses

(5) Edison base, Type C or Type S fuses

(6) Other fuses or circuit breakers labeled as suitable for the application

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8368_240.7.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 12:33:03 EDT 2024

Committee Statement

Committee Statement: This revision clarifies what types of overcurrent protection devices are permitted for protecting branch-circuits, feeders, service conductors, and equipment.

Response Message: SR-8368-NFPA 70-2024

Public Comment No. 1640-NFPA 70-2024 [New Section after 240.8]

Second Revision No. 8557-NFPA 70-2024 [Section No. 240.6(D)]

(D) Remotely Accessible Adjustable-Trip Circuit Breakers.

Circuit breakers that can be adjusted remotely to modify the current setting (long-time pickup setting) shall be permitted to have an ampere rating(s) that is equal to the adjusted current setting (long-time pickup setting) only when local restricted access to the circuit breaker is achieved by 240.6(C)(1), 240.6(C)(2), 240.6(C)(3), or 240.6(C)(4), and remote access is 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 risk assessment of the network is completed and documentation of the assessment and certification is 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 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

Informational Note No. 3: Cybersecurity is a specialized field requiring constant, vigilant attention to security vulnerabilities that could arise due to software defects, system configuration changes, or user interactions. Installation of devices that can be secured is an important first step but not sufficient to guarantee a secure system.

Informational Note No. 4: See NEMA CY70001-2023, *Cybersecurity Implementation Guidance for Connected Electrical Infrastructure*, for recommendations on how to meet this requirement.

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8557_240.6_D_2_b.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 17:55:17 EDT 2024

Committee Statement

Committee Statement: The term “cybersecurity assessment” has been revised to “cybersecurity risk assessment” to use a term that aligns with industry standards and practices.

Response Message: SR-8557-NFPA 70-2024

Public Comment No. 1464-NFPA 70-2024 [Section No. 240.6(D)]

Second Revision No. 8558-NFPA 70-2024 [Section No. 240.15(B)(1)]

(1) Multiwire Branch Circuits.

Individual single-pole circuit breakers, with identified handle ties, shall be permitted as the protection for each ungrounded conductor of multiwire branch circuits that serve only dc line-to-neutral loads or single-phase ac line-to-neutral loads.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 18:34:51 EDT 2024

Committee Statement

Committee Statement: The multiwire branch circuit configuration covered by 240.15(B)(1) could also be applicable to DC circuits serving DC line-to-neutral loads. The revised language makes the requirement apply to such DC circuits as well.

Response Message: SR-8558-NFPA 70-2024

Public Comment No. 1893-NFPA 70-2024 [Section No. 240.15(B)(1)]

Second Revision No. 8560-NFPA 70-2024 [Section No. 240.67 [Excluding any Sub-Sections]]

Where fuses rated 1200 amperes or higher are installed or where circuits exceed 8 cal/cm^2, the requirements of 240.67(A), 240.67(B), and 240.67(C) shall apply.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 19:03:44 EDT 2024

Committee Statement

Committee Statement: The addition of 8cal/cm2 to this section of the code gets to the point of “Arc Energy Reduction” and is a logical and meaningful additional trigger event to incorporate the methods of achieving Arc Energy Reduction listed in 240.67. Many installations are being identified and marked in accordance with Article 110.16 and many of those installations are in excess of 8cal/cm2 .

Response Message: SR-8560-NFPA 70-2024

Public Comment No. 2023-NFPA 70-2024 [Section No. 240.67 [Excluding any Sub-Sections]]

Second Revision No. 8561-NFPA 70-2024 [Section No. 240.87 [Excluding any Sub-Sections]]

Where the highest continuous current trip setting for which the actual ~~overcurrent device~~ OCPD installed in a circuit breaker is rated or can be adjusted is 1200 amperes or higher, or where circuits exceed 8 cal/cm^2 , the requirements of 240.87(A), 240.87(B), and 240.87(C) shall apply.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 19:24:58 EDT 2024

Committee Statement

Committee Statement: The addition of 8cal/cm2 to this section of the code gets to the point of “arc energy reduction” and is a logical and meaningful additional trigger event to incorporate the methods of achieving arc energy reduction listed in 240.87. Many installations are being identified and marked in accordance with Article 110.16 and many of those installations are in excess of 8cal/cm2 .

Response Message: SR-8561-NFPA 70-2024

Public Comment No. 2028-NFPA 70-2024 [Section No. 240.87 [Excluding any Sub-Sections]]

Second Revision No. 8399-NFPA 70-2024 [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 over 1000 volts ac, 1500 volts dc, nominal, while Part III covers surge arresters permanently installed on premises wiring systems over 1000 volts, nominal.

Informational Note: See IEEE C62.41.2-2002, *Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits* , for guidance on selecting SPDs.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Thu Oct 24 14:38:58 EDT 2024

Committee Statement

Committee Statement: An informational note referencing IEEE C62.41.2 is added in 242.1 to provide users with guidance on selection of SPDs.

Response Message: SR-8399-NFPA 70-2024

Public Comment No. 2051-NFPA 70-2024 [Section No. 242.13]

Public Comment No. 2047-NFPA 70-2024 [Section No. 242.13 [Excluding any Sub-Sections]]

Second Revision No. 8562-NFPA 70-2024 [Section No. 242.3]

242.3 Reconditioned Equipment.

~~Reconditioned SPDs and surge arresters shall not be installed.~~

(A) Permitted to be Installed. (Reserved)

(B) Not Permitted to be Installed.

The following reconditioned equipment shall not be permitted:

(1) SPDs

(2) Surge arresters

Supplemental Information

File Name	Description	Approved
NEC_CMP-10_SR-8562_242.3.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Fri Oct 25 19:48:31 EDT 2024

Committee Statement

Committee Statement: The titles of 242.3(A) and 242.3(B) are in accordance with the NEC Style Manual (cl. 2.2.1.1). The language in 242.3 has been updated to align with the recommended wording regarding reconditioning.

Response Message: SR-8562-NFPA 70-2024

Public Comment No. 1716-NFPA 70-2024 [Section No. 242.3]

Public Comment No. 370-NFPA 70-2024 [Section No. 242.3]

Second Revision No. 8612-NFPA 70-2024 [Section No. 242.6]

242.2 Listing Requirements .

~~An~~ SPDs rated not over 1000 volts ac, 1500 volts dc, shall be ~~a~~ listed ~~device~~ .

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Wed Oct 30 11:24:59 EDT 2024

Committee Statement

Committee Statement: Section 242.6 has been moved to 242.2 with revised language to align with the NEC Style Manual, cl.2.2.1.

Response Message: SR-8612-NFPA 70-2024

Second Revision No. 8576-NFPA 70-2024 [Section No. 404.1(A)]

(A) Covered.

This article covers the installation of general-use switches, motor-circuit switches, isolating switches, pullout switches, circuit breakers used as switches, and molded- case switches operating at voltages not over 1000 volts ac, 1500 volts dc, nominal.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 12:23:45 EDT 2024

Committee Statement

Committee Statement: Pullout switches manufactured in accordance with UL 1429 are commonly used but lack installation requirements in the NEC. The newly configured Article 404 is the appropriate location for pullout switches, so they have been added to the scope for ease of use.

Response Message: SR-8576-NFPA 70-2024

Public Comment No. 1790-NFPA 70-2024 [Section No. 404.1(A)]

Second Revision No. 8579-NFPA 70-2024 [Section No. 404.3]

404.3 Reconditioned Equipment.

(A) Permitted to be Installed.

~~Reconditioned knife switches, switches with butt contacts, and bolted pressure contact switches shall be permitted to be installed. If equipment has been damaged by fire, products of combustion, corrosive influences, or water, it shall be specifically evaluated by its manufacturer or a qualified testing laboratory prior to being returned to service.~~ The installation of the following reconditioned equipment shall be permitted:

(1) Knife switches

(2) Switches with butt contacts

(3) Bolted pressure contact switches

(B) Not Permitted to be Installed.

The installation of the following reconditioned equipment shall not be ~~installed~~ permitted :

(1) Lighting, dimmer, and electronics control switches that are not wiring devices

(1) ~~Snap switches of any type~~

(2) Molded-case switches

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8579_404.3.docx		
NEC_CMP-10_SR-8579_404.3.docx	For prod use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 12:34:34 EDT 2024

Committee Statement

Committee Statement: The language was updated to be in accordance with 2.2.1 of the Style Manual. Snap switches was removed from 404.3(B) as such devices are wiring devices and not within the scope of Article 404. In 404.3(B)(1), the words “that are not wiring devices” have been added as the scope of Article 404 states that wiring devices are not covered by this article.

The existing language regarding damage of equipment by fire, products of combustion, corrosive influences or water has been moved to after the list of reconditioned items that are permitted.

Response Message: SR-8579-NFPA 70-2024

Public Comment No. 312-NFPA 70-2024 [Article 404]

Public Comment No. 1721-NFPA 70-2024 [Section No. 404.3]

Public Comment No. 696-NFPA 70-2024 [Section No. 404.3]

Public Comment No. 550-NFPA 70-2024 [Section No. 404.3(B)]

Second Revision No. 8580-NFPA 70-2024 [Section No. 404.5(A)]

(A) General.

Switches and circuit breakers shall be of the externally operable type mounted in an enclosure listed for the intended use. The minimum wire-bending space at terminals and minimum gutter space provided in switch enclosures shall be as required in 312.9.

Exception No. 1: ~~Pendant- and surface-type snap switches and knife switches~~ Knife switches mounted on an open-face switchboard or panelboard shall be permitted without enclosures.

Exception No. 2: Switches and circuit breakers installed in accordance with 110.27(A)(1), 110.27(A)(2), 110.27(A)(3), or 110.27(A)(4) shall be permitted without enclosures.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 13:12:39 EDT 2024

Committee Statement

Committee Statement: The language was removed since pendant and surface-type snap switches are wiring devices and are outside the scope of Article 404.

Response Message: SR-8580-NFPA 70-2024

Public Comment No. 551-NFPA 70-2024 [Section No. 404.5(A)]

Second Revision No. 8581-NFPA 70-2024 [Section No. 404.30]

404.30 Switch Enclosures with Doors or Hinged Covers .

Switches ~~mechanisms~~ mounted within enclosures with doors ~~that, when opened, expose uninsulated live parts shall be constructed so that~~ or hinged covers shall be dead-front, unless access to the ~~switch~~ interior ~~is restricted when the switch is in the closed position. Access to the interior with the switch in the closed position shall require the~~ requires the use of a tool. ~~or an approved design that provides equivalent protection from access by unqualified persons.~~

Supplemental Information

File Name	Description	Approved
SR-8581_on_404.30.docx	SR-8581 on 404.30	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 13:13:56 EDT 2024

Committee Statement

Committee Statement: The revision increases the safety of switches by requiring a dead-front when the switch can be opened without the use of a tool.

Response Message: SR-8581-NFPA 70-2024

Public Comment No. 1127-NFPA 70-2024 [Section No. 404.30]

Public Comment No. 1758-NFPA 70-2024 [Section No. 404.30]

Second Revision No. 8585-NFPA 70-2024 [Section No. 408.3]

408.3 Reconditioned Equipment.

~~The use of reconditioned equipment within the scope of this article shall be limited as described in 408.3(A) and 408.3(B) . If equipment has been damaged by fire, products of combustion, corrosive influences, or water, it shall be specifically evaluated by its manufacturer or a qualified testing laboratory prior to being returned to service.~~

(A) Permitted ~~to be Installed~~ .

~~Reconditioned switchboards and switchgear, or sections of switchboards or switchgear, shall be permitted to be installed.~~ The following reconditioned equipment shall be permitted:

(1) Switchboards

(2) Switchgear

(3) Sections of switchboards

(4) Sections of switchgear

If equipment has been damaged by fire, products of combustion, corrosive influences, or water, it shall be specifically evaluated by its manufacturer or a qualified testing laboratory prior to being returned to service.

(B) Not Permitted ~~to be Installed~~ .

Reconditioned panelboards shall not be ~~installed~~ permitted .

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8585_408.3.docx		
NEC_CMP-10_SR-8585_408.3.docx	For prod use	

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 13:57:00 EDT 2024

Committee Statement

Committee Statement: The language was updated to be in accordance with 2.2.1 of the Style Manual.

Response Message: SR-8585-NFPA 70-2024

Public Comment No. 1447-NFPA 70-2024 [Section No. 408.3]

Second Revision No. 8588-NFPA 70-2024 [Section No. 408.6]

408.6 Short-Circuit Current Rating.

Switchboards, switchgear, and panelboards shall have a short-circuit current rating not less than the available fault current. In other than one- and two-family dwellings, switchboards, switchgear, and panelboards shall comply with the following, as applicable:

(1) The available fault current at the line terminals and the date the calculation was performed shall be field marked in a readily accessible location on the enclosure at the point of supply.

(2) The short-circuit current rating of switchboards and panelboards, at nominal circuit voltage, based on the ~~overcurrent protection devices~~ OCPDs installed, shall be field marked in a readily accessible location on the enclosure.

(3) The marking required by 408.6(1) and 408.6(2) shall comply with 110.21(B).

(4) The available fault current calculation shall be documented and made available to those authorized to inspect, install, or maintain the installation.

(5) When modifications to the electrical installation occur that affect the available fault current at the line terminals of the equipment, the following shall apply:

a. The available fault current shall be verified or recalculated as necessary to ensure the equipment ratings are ~~sufficient for~~ not less than the available fault current at the line terminals of the equipment.

b. The required field markings in 408.6(1) shall be adjusted to reflect the new level of available fault current.

When ~~overcurrent protection devices~~ OCPDs are added or replaced, the interrupting rating of the replacement ~~devices~~ OCPDs shall be equal to or greater than the available fault current marked on the equipment in accordance with 408.6(1).

Informational Note: See 110.22 for series combination systems.

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8588_408.6.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 14:14:50 EDT 2024

Committee Statement

Committee Statement: The term “sufficient” has been replaced with “not less than” to avoid the use of unenforceable terms.

Response Message: SR-8588-NFPA 70-2024

Public Comment No. 371-NFPA 70-2024 [Section No. 408.6]

Second Revision No. 8590-NFPA 70-2024 [Section No. 408.10(C)]

(C) Used as Service Equipment.

Each switchboard, switchgear, or panelboard, if used as service equipment, shall be provided with a main bonding jumper sized in accordance with 250.28(D) or the equivalent placed within the panelboard or one of the sections of the switchboard or switchgear for connecting the grounded service conductor on its supply side to the switchboard, switchgear, or panelboard frame. All sections of a switchboard or switchgear shall be bonded together using an equipment bonding jumper or a supply-side bonding jumper sized in accordance with 250.122 or 250.102(C)(1) as applicable.

Exception: Switchboards, switchgear, and panelboards used as service equipment on ~~high-~~ impedance grounded ~~neutral~~ systems in accordance with 250.36 shall not be required to be provided with a main bonding jumper.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 14:41:06 EDT 2024

Committee Statement

Committee Statement: The words “high” and “neutral” have been removed from section 408.10(C) for consistency with revisions in Article 250.

Response Message: SR-8590-NFPA 70-2024

Second Revision No. 8589-NFPA 70-2024 [Section No. 408.10(F)]

(F) Switchboard, Switchgear, or Panelboard Identification.

Caution signs or labels provided in accordance with 408.10(F)(1) through 408.10(F)(5) shall comply with 110.21(B) and be at a readily accessible location on the front of the enclosure .

(1) High-Leg Identification.

A switchboard, switchgear, or panelboard containing a 4-wire, delta-connected system where the midpoint of one phase winding is grounded ~~shall be legibly and permanently field marked in a location visible while servicing the equipment~~ shall be marked as follows:

CAUTION _____ PHASE HAS _____ VOLTS TO GROUND

(2) Ungrounded ac Systems.

A switchboard, switchgear, or panelboard containing an ungrounded ac electrical system as permitted in 250.21~~shall be legibly and permanently field marked in a location visible while servicing the equipment~~ shall be marked as follows:

CAUTION UNGROUNDED SYSTEM OPERATING — _____ VOLTS BETWEEN CONDUCTORS

(3) ~~High-~~ Impedance Grounded ~~Neutral ac~~ Systems.

A switchboard, switchgear, or panelboard containing ~~a~~ an ~~high-~~ impedance grounded ~~neutral ac~~ system in accordance with 250.36~~shall be legibly and permanently field marked in a location visible while servicing the equipment~~ shall be marked as follows:

CAUTION: ~~HIGH-~~ IMPEDANCE GROUNDED ~~NEUTRAL AC~~ SYSTEM OPERATING — _____ VOLTS BETWEEN CONDUCTORS AND MAY OPERATE — _____ VOLTS TO GROUND FOR INDEFINITE PERIODS UNDER FAULT CONDITIONS

(4) Ungrounded dc Systems.

A switchboard, switchgear, or panelboard containing an ungrounded dc electrical system in accordance with 250.169~~shall be legibly and permanently field marked in a location visible while servicing the equipment~~ shall be marked as follows:

CAUTION: UNGROUNDED DC SYSTEM OPERATING — _____ VOLTS BETWEEN CONDUCTORS

(5) Resistively Grounded dc Systems.

A switchboard, switchgear, or panelboard containing a resistive connection between current-carrying conductors and the grounding system to stabilize voltage to ground ~~shall be legibly and permanently field marked in a location visible while servicing the equipment~~ shall be marked as follows:

CAUTION: DC SYSTEM OPERATING — _____ VOLTS BETWEEN CONDUCTORS AND MAY OPERATE — _____ VOLTS TO GROUND FOR INDEFINITE PERIODS UNDER FAULT CONDITIONS

Supplemental Information

File Name	Description	Approved
70_CMP-10_SR8589_408.10_F_.docx		

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 14:34:44 EDT 2024

Committee Statement

Committee Statement: The language is revised to clarify requirements concerning locations of markings. Deletions are also made to improve useability and avoid redundant language. Also, 408.10(F)(3) was updated to reflect proper reference to impedance grounded systems.

Response Message: SR-8589-NFPA 70-2024

Public Comment No. 845-NFPA 70-2024 [Section No. 408.10(F)]

Public Comment No. 1988-NFPA 70-2024 [Section No. 408.10(F)]

Public Comment No. 1359-NFPA 70-2024 [Section No. 408.10(F)(3)]

Public Comment No. 750-NFPA 70-2024 [Section No. 408.10(F)]

Second Revision No. 8591-NFPA 70-2024 [Section No. 408.14]

408.14 Equipment Ratings.

All switchgear, switchboards, and panelboards shall have a current rating not less than the minimum ~~load calculated in accordance with Article 120 , Part III, IV, or V, as applicable~~ calculated load .

Informational Note: See Article 120 for calculating the load.

Submitter Information Verification

Committee: NEC-P10

Submittal Date: Sat Oct 26 14:43:40 EDT 2024

Committee Statement

Committee Statement: The reference to Article 120 has been moved to an informational note to assist the user in knowing where to find the appropriate calculations.

Response Message: SR-8591-NFPA 70-2024