IEEE - IAS/PES JTCC March 18-19, 2021 Meeting Minutes

Location: On-Line Meeting: Please do not turn on video unless necessary. Some members may have bandwidth issues.

Times: Thursday, March 18, 10:00am – 5:30pm Eastern, Friday, March 19, 10:00am – 1:30pm Eastern

Attendance: All IEEE - IAS/PES JTCC organizational representatives (ORs) to NFPA are expected to attend and participate and vote unless they must recuse themselves.

All IEEE – IAS/PES JTCC Non-Voting Members are expected to attend and participate in the discussions.

Guests who are neither of the above are welcome to attend the IEEE - IAS/PES JTCC Co-Chairs. Guests may not address the meeting without advance permission from the IEEE - IAS/PES JTCC Co-Chairs.

IEEE – IAS/PES JTCC Organizational Representatives to NFPA

Attendee's Name	**Company**	**Position**	**Attendance**	
			18th	**19th**
Daleep C Mohla	DCM Elect Consulting	IEEE - IAS/PES JTCC Co-Chair CMP-5 Principal NFPA 79 Principal	✓	✓
Paul Myers	NUTRIEN	IEEE - IAS/PES JTCC Secretary CMP-8 Principal	✓	✓
Michael Anthony	Standards Michigan	CMP-15 Alternate	✓	
William Cantor	TPI	CMP-13 Principal NFPA 70B Principal NFPA 855 Principal	✓	✓
Kurt Clemente	RS&H, Inc.	CMP-18 Principal	✓	✓
Matthew Dozier	*i*Design Services	CMP-15 Principal	✓	✓
Nehad El-Sherif	Self-supported	CMP-2 Principal	✓	✓
Mark Gibbs	Consolidated Nuclear Security LLC	CMP-4 Principal	✓	✓
Andy Hernandez	Facebook	CMP-14 Alternate	Excused Absence	
Will McBride	CONAM Construction	CMP-14 Principal	✓	✓
Bill McCoy	Telco Sales, Inc.	CMP-16 Principal	✓	✓
Dennis Nielsen	Lawrence Berkley Nat. Lab.	CMP-6 Principal	✓	✓
Kent Sayler	P2S Engineering	CMP-1 Principal	✓	✓
Arthur J. Smith, III	Waldemar S. Nelson and Co., Inc.	CMP-11 Principal	✓	✓
Paul Sullivan	DuPont	CMP-9 Principal	✓	✓
Bill Szeto	Self-supported	CMP-3 Principal	✓	✓
Steve Townsend	GM Sustainable Workplaces	CMP-10 Principal CMP-11 Alternate	✓	✓
Frank Tyler	DuPont	CMP-1 Alternate	✓	✓
Peter Walsh	Teaticket Technical Associates LLC	CMP 10 Alternate	✓	✓

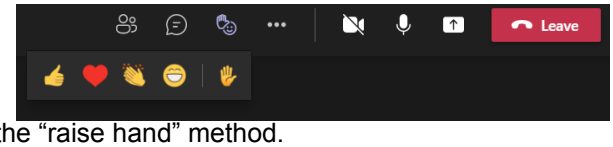
IEEE – IAS/PES JTCC Attendees – other than voting members

Attendee's Name	Company	Member IAS or PES?	Position	Attendance	
				18th	19th
Chris Searles	BAE Batteries	Yes	IEEE - IAS/PES JTCC Co-Chair Non-Voting Member	✓	✓
Paul Dobrowsky	Innovative Technology Services	Yes	Non-Voting Member	✓	✓
Chris Hunter	Cerro Wire	Yes	Non-Voting Member	✓	✓
Dan Neeser	Cooper Bussmann	Yes	Non-Voting Member	✓	✓
Chet Sandberg	C.L. Sandberg & Assoc.	Yes	Non-Voting Member	✓	✓
Marcelo Valdes	ABB	Yes	Non-Voting Member	✓	✓
Keith Waters	Schneider Electric	Yes	Non-Voting Member	✓	✓
Steve Campolo	Leviton Manufacturing Co., Inc.	No	Guest	✓	
Josiah McNulty	Nutrien	No	Guest	✓	
Amy Cronin	AFCI Wiring Device Consortium	No	Guest	✓	
David Tremblay	Hewlett Packard Enterprise	No	Guest	✓	
Chad Jones	Cisco Systems, Inc.	No	Guest	✓	✓

Thursday March 18

Start of Meeting at 1000 Hrs Eastern Welcome Explanation of voting responsibilities ***Conduct of meeting***	Daleep Mohla Chris Searles ***15 minutes***

- The meeting will be conducted in a fashion similar to that of an NFPA technical committee meeting
  1. Request permission to speak by selecting the smiley face with hand and then selecting the "raise hand" icon.



  2. Voting will use the "raise hand" method.
  3. Motions to oppose a panel First Revision must be accompanied by a statement.

- Roberts Rules will be followed as closely as possible.
- A motion to oppose a First Revision may be for one or more reasons:
  1. Technical
  2. Best engineering practice
  3. Field experience

If both Co-Chairs must recuse themselves, the Secretary/Treasurer will temporarily chair the meeting.

Introduction of participants, record of attendance, requests to become a non-voting member, and determination of a quorum. Quorum will be determined by presence of a majority of IEEE-IAS/PES JTCC organizational representatives (ORs) to NFPA. The IEEE – IAS/PES JTCC presently has 18 Principal and Alternate ORs to NFPA, thus, a quorum will be achieved with the attendance of 10 ORs. ***Approval of agenda*** Additions to agenda? Motion to approve: Matt Dozier Second: Nehad Approved unanimously	Paul Myers

2023 NEC First Draft Reports

Each NEC Representative will have a maximum of 45 minutes for their report to be considered and ballot instructions agreed to.

CMP-1, 2023 NEC First Draft Report

Articles 90, 100, 110, Ch. 9 and Annexes A, H, I, J

(Kent Sayler, Principal - Frank Tyler, Alternate)

1) **Noteworthy Panel Actions**

a) *Panel Statistics: 291 PIs; 84 FRs. 11 voting members; 8 final motions had < 8 supporting votes*

b) *Continuing to refine requirements for reconditioned equipment.*

- First Revision No. 8449-NFPA 70-2023 [Article No. 100]
  - *Servicing. The process of following a manufacturer's set of instructions to analyze, adjust, or perform prescribed actions upon equipment with the intention to preserve or restore the operational performance of the equipment.*

    Informational Note: Servicing often encompasses maintenance and repair activities.

    Discussion concerning the addition of Industry Consensus Standards.

    Affirmative Statement to FR 8449: It is recommended to add "or industry consensus standards" after "instructions" in the definition.
- First Revision No. 8577-NFPA 70-2023 [Section No. 110.21(A)(2)]
  - *Clarifies marking of reconditioned equipment*
- First Revision No. 8625-NFPA 70-2023 [New Section No. 110.17]
  - *Distinguishes between reconditioning and servicing activities and maintenance activities*
- First Revision No. 8663-NFPA 70-2023 [New Section No. 110.20]
  - *Clarifies specific types of equipment that can and cannot be reconditioned and the process for approval by an AHJ*

c) *Modified arc flash hazard warning label requirements*

- First Revision No. 8772-NFPA-70-2023 [Section No. 110.16(B)]
  - *Labels now required for feeder equipment in addition to service equipment; Minimum amperage reduced from 1200 to 1000 amps; Prescriptive list of label requirements removed – reader is instead referred to 70E for requirements.*

    Discussion concerning the requirement of date and "acceptable" industry practice and expansion to downstream equipment.

2) **Statements Opposing First Revisions**

FR 8772

The proposed change to the existing text does not directly point to a standard whereas the language in the 2020 NEC was specific and enforceable.

3) **Motion**

Motion to support all First Revisions with the affirmative comment for FR 8449 above except FR 8772 with the following negative comment:

The proposed change to the existing text does not directly point to a standard whereas the language in the 2020 NEC was specific and enforceable.

4) **Vote**

For the Motion 18

Against the Motion 0

Abstentions 0

5) **Direction to IEEE-IAS/PES- JTCC Representative**

JTCC Representative is directed to support all first revisions with a affirmative comment above on FR 8449 with the exception of 8772 with the negative statement provided above

CMP-2, 2023 NEC First Draft Report

Articles 210, 220, and Annex D, Examples D1 through D6

(Nehad El-Sherif, Principal - Alternate Vacant)

Prior to the report: Presentation by Steve Campolo

Speaking against FR directed at expanding use of AFCI's in particular areas. Potential unwanted tripping when using motor operated equipment with AFDs/welders. Proposing that "field experience" provides sufficient evidence for the limitation. FRs 9011, 9003, 9092, 9015, 9006.

1) **Noteworthy Panel Actions**

a) *The scope of article 210 was updated by adding a new information note in section 210.1 to indicate that the requirements for medium voltage (over 1000 Vac and 1500 Vdc) installations that modify or supplement article 210 requirements are in new article 235 (FR-9180)*

Panel Statement:

CMP 2 recognizes scope statements are under the purview of the Correlating Committee. CMP 2 also recommends that the purview for the new medium voltage articles be under a panel be comprised of subject matter experts on medium voltage wiring and equipment installations. Alternatively, existing panels could be expanded to include members with medium-voltage expertise.

b) *Listing of GFCIs was added to the parent text of section 210.8 and all references to "ground-fault circuit-interrupter" was changed to GFCI. The measurement of the 6 ft distance from a receptacle to determine whether GFCI protection is require or not was also clarified (FR-8804).*

Panel Statement:

Listing of GFCIs was added as this provides the ability of the inspector and other agencies including the end user to ensure this technology has had review by and performance tested by a third party agency focused on reviewing the solution for functionality and performance when installed as per the NEC and manufacturer instructions.

In order to add clarity to the requirements concerning measurement, the phrase "of an appliance" is being removed and adding of "power" to identify any power supply cord connected to the receptacle. This text is only used for measurement and does not impact a requirement. Removing appliance puts emphasis on the cord being the measurement

method.

Removing the reference to windows adds clarity and provides language that would ensure receptacles within the measured distance as required here in, even through an interior pass through which could be perceived as a window, is afforded GFCI protection.

All references to Ground-Fault Circuit Interrupters are now using the acronym "GFCI".

c) *The list of areas in first level subdivision 210.8(A) were deleted and GFCI protection of all 125-volt through 250-volt receptacles supplied by single-phase branch circuits rated 150 volts or less to ground was expanded to all areas of dwelling units (FR-8953).*

Panel Statement:

This change recognizes the fact that the residential home provides many areas of vulnerability with regard to shock hazards.

There is a broad distribution of incidents over many products and product categories. National consumer product related electrocution estimates show that based on data collected by the CPSC for a 10-year period the US loses an average of 49 consumer lives every year. Lives are lost each year not just because of proximity to water but due to use of appliances, extension cords and other items that can be plugged into any receptacle outlet within a home. Outside of receptacle outlet examples, lighting examples of loss of life due to shock are also a statistic.

Exception No. 1 is modified to address the fact that the list of areas is no longer present.

Exception No. 2 for permanently installed fire alarm or security systems was expanded to any receptacle, regardless of location as this equipment can be found in more locations than the basement. The informational note was deleted as it is not necessary. In addition, "burglar alarm" was replaced with "security" as security system is the proper terminology currently used.

Exception No. 3 changes add terminology for weight supporting ceiling receptacles and weight supporting attachment fittings. In addition, damp and wet locations are now included in the list of those areas not requiring GFCI protection when these devices are used as per their listing. Note to the correlating committee: The addition of the WSAF and WSCR terms are contingent upon the success of these added new terms not under the purview of CMP 2. If these definitions are not accepted the discrepancy should be reconciled with this first revision.

A new exception No. 4 was added to provide clarity regarding factory installed receptacles internal to exhaust fans while directing the user to follow installation instructions. This receptacle located internal to the exhaust fan is not meant for public use as it is dedicated for the exhaust fan. In addition, this receptacle would not be required to have GFCI protection as per 90.7 due to the fact this is internal to the equipment.

d) *New areas were added to the list of areas in the first level subdivision 210.8(B) for GFCI protection of non-dwelling units including: buffets and aquariums. Additionally, editorial changes were made including renumbering of list items and moving all exceptions to the end of the list items (FR-8954).*

Panel Statement:

All exceptions are moved to the end of the list items to align with the style manual.

Renumbered list items to account for changes.

List item (2) Kitchens: This list item is now dedicated for Kitchens to enhance clarity. The requirement did not change but was divided between two list items instead of including all in one list item.

List item (3) Areas with a sink . . . etc.: A new list item (3) includes what was previously found in list item (2). Creating this new list item will help in clarity and useability of the NEC. In addition, beverage preparation was added to distinguish and include these areas for GFCI protection as similar hazards exist.

List item (4): Added new list item (4) for buffet serving areas as these locations present similar hazards but do not meet any of those items listed in 210.8(B).

List item (7) Sinks: Added language to address fixed or stationary appliances and their proximity to sinks as the hazard exists for faulted appliances and the hazard is not necessarily driven by the location of the receptacle.

List item (8) Indoor damp or wet locations: The new language adds clarity. The indoor locations are either wet or damp not both.

List Item (13): New requirement has been added. A significant shock and electrocution hazard exist in other than dwelling occupancies where aquariums or live bait wells are located near receptacle outlets. This hazard is very similar to receptacles within 6 ft. of a sink, bathtubs or shower stalls which are all required to be GFCI protected.

Exception No. 2 for dedicated electric snow-melting, deicing, etc. removed the reference to items (3) and (4) to make this a general exception regardless of location of those items that are provided with GFPE as per 426.28 and 427.22.

e) *A new list of appliances was added to first level subdivision 210.8(D) including: 1) automotive vacuum machines, 2) drinking water coolers and bottle fill stations, 3) cord-and-plug-connected high-pressure spray washing machines, 4) tire inflation machines, 5) vending machines, 6) sump pump, and 7) dishwashers (FR-8865).*

Panel Statement:

GFCI protection for appliances should not relay on a device installed integral to a supply cord on the appliance such as a vending machine. These devices, in the authors opinion, do not fall under the jurisdiction of the NEC. If the GFCI protection is only required in the branch circuit wiring supplying the appliance ensures the protection is in place and compliant even before the appliance is installed.

Affirmative Statement for FR 8865: Remove “in the authors opinion”, correct ”relay” to “rely”.

f) *A new first level subdivision 210.8(G) was added to required GFCI protection for cord reels (FR-9165).*

Panel Statement:

A new section is being added to address GFCI protection of cord reels which are used in many applications by electrical workers and others in a way whereby their nature they would benefit from GFCI protection. The statistics of shock help support this activity as CMP 2 seeks to reduce the number of lives lost due to the hazard of electrical shock.

g) *GFCI protection for dwelling outdoor outlets in first level subdivision 210.8(F) was expanded to garages, accessory buildings, and boathouses (FR-8896).*

Panel Statement:

The proposed language will require GFCI protection for dwelling outdoor outlets when they are replaced and will increase safety.

This section was modified to expand coverage of GFCI protection for dwelling outdoor outlets. The addition of these outlets address similar safety hazard exposures and should be afforded with the same level of protection as a receptacle outlet on the exterior of a dwelling unit.

An editorial revision was made to move "or less" directly after 150 volts to be consistent with the same language found in Section 210.8(A).

h) *Reorganization of section 210.12 for AFCI protection (FR-9158).*

Panel Statement:

This FR does not include any technical changes and is a straight rewrite of Section 210.12 to be similar to Section 210.8, while keeping the existing code language. The purpose is to add clarity to the code and improve its usability.

The changes made to Section 210.12 are as follows:

1. Changing the title of the existing Section 210.12(A) to "Means of Protection"

2. Moving the requirements for AFCI protection in dwelling units from the existing Section 210.12(A) to Section 210.12(B) and converting the protected areas in dwelling units from a paragraph to a numbered list (similar to Section 210.8)

3. Moving the requirements for AFCI protection in dormitory units from the existing Section 210.12(B) to Section 210.12(C) and converting the protected areas in dormitory units from a paragraph to a numbered list (similar to Section 210.8)

4. Moving the requirements for AFCI protection in guest rooms, guest suites, and patient sleeping rooms in nursing homes and limited-care facilities from existing Section 210.12(C) to Section 210.12(D) and changing the title to "Other Occupancies"

5. Converting the protected occupancies in the existing Section 210.12(C) from a paragraph to a numbered list (similar to Section 210.8)

6. Moving the requirements for AFCI protection for branch circuit Extensions or modifications from the existing Section 210.12(D) to Section 210.12(E) and deleting "Dwelling Units, Dormitory Units, Guest Rooms, and Guest Suites" from the title

7. Updating all the references within 210.12 to match this reorganization

i) *Listing of AFCIs was added to the parent text of section 210.12 and all references to "arc-fault circuit-interrupter" was changed to AFCI. (FR-9168).*

Panel Statement:

The revision clarifies that AFCI devices are required to be listed.

j) *10-ampere branch circuits are required to be AFCI protected (FR-9198).*

Panel Statement:

With the introduction and availability of 10-ampere branch circuits, 10-ampere branch circuits have been added to the list of circuits requiring AFCI protection.

k) *Expansion of AFCI protection to all 120-volt, single-phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling units. The expansion was done by creating multiple ballotable details to add the following locations to the list of protected areas in 210.12(A): garages (FR-9003), basements (FR-9006), attics (FR-9015), and bathrooms (FR-9091).*

Panel Statement:

All three statements stated that the CMP-2 recognizes that the hazards in these areas is similar to the hazard in the rest of the dwelling unit locations listed in 210.12(A). Therefore, these new locations were added to address electrical fires arising from the circuits that are supplying power to these locations.

l) *A new first level subdivision 210.12(E) was added to require AFCI protection for sleeping quarters in fire houses, rescue squads, police departments and similar locations (FR-9167).*

Panel Statement:

This new language addresses the ambiguity regarding these sleeping locations that are not fully defined as a dormitory unit but have the same electrical fire risk. These locations present similar hazards regarding electrical fires on these circuits.

m) *A new first level subdivision 210.12(F) was added to required AFCI protection for detach garages and accessory buildings in one and two family dwellings (FR-9092).*

Panel Statement:

The electrical infrastructure wiring for these applications present the same hazards related to electrical fire as dwelling units.

n) *A new first level subdivision 210.23(A) was added to include 10 A branch circuits in section 210.23 for permissible loads on multi-outlet branch circuits. 10 A branch circuits are only permitted to supply one or more of the following: 1) lighting loads, 2) dwelling unit exhaust fans on bathroom or laundry room lighting circuits, and 3) gas fireplace igniter and fan where the gas fireplace is on an individual branch. 10 A branch circuits are not permitted to supply: 1) receptacle outlets, 2)* fixed appliances except as permitted for individual branch circuits, 3) garage door opener(s), and 4) laundry equipment *(FR-9100).*

Panel Statement:

The application of adopted Energy Code(s) and energy efficiencies in general are bringing forward the possible applications of 10-ampere branch circuits for loads such as LED lighting and specific equipment that are identified. A new 210.23(A) establishes the

loads permitted and not permitted on a 10-ampere branch circuit. Revisions were made to the text for 15- and 20-ampere branch circuit loads to add "lighting outlets" and other editorial changes for clarity.

o) *A new table was added in section 210.24 to summarize the branch circuit requirements for aluminum and copper-clad aluminum conductors (FR-9190).*

Panel Statement:

A note was added to make it clear that receptacle outlets are not permitted on 10-ampere branch circuits.

A new Table 210.24(B) was created that mirrors the structure of Table 210.24(A) to provide the same summary guidance for aluminum and copper-clad aluminum conductors for 10- to 50-ampere branch circuit loads allowed. A new Note 1 to Table 210.24(B) identifies that 14 AWG copper-clad aluminum is only for 10-ampere branch circuit.

The last row of both tables has been modified to accurately reflect the changes instituted in Section 210.23.

p) *Restructuring of Article 220 for branch-circuit, feeder, and service load* calculations *(FR-9188).*

Panel Statement:

CMP 2 reorganizes Article 220 for usability and clarity (Refer to Public Input 4240). Changes are noted as follows:

a. Section 220.11 is located in "Part II. Branch-Circuit Load Calculations"; however, requirements for floor area apply more generally, so the requirement is relocated to "Part I. General" as 220.5(C).

b. Section 220.12 is located in "Part II. Branch-Circuit Load Calculations"; however, these requirements are related to feeder and service load calculations, so this revision relocates these to "Part III. Feeder and Service Load Calculations". With the relocation of 220.12 to 220.42, existing 220.42 is relocated to 220.45.

c. Sections 220.14(J), 220.14(K), and 220.14(M) are relocated to new Sections 220.41, 220.43, and 220.44, respectively. In all instances, the requirements deal with "loads" and the title to 220.14 is "All Occupancies"; however, sub-sections (J), (K), and (M) are written for specific occupancies and are not a load. Relocating these to a new Section in "Part III. Feeder and Service Load Calculations" is appropriate. Existing Sections 220.42, 220.43, and 220.44 are renumbered as necessary to address the addition of the new Sections. Text is added to introduce 220.14, establishing how the branch circuit load calculation is performed with the requirements in 220.14.

d. Section 220.18 is relocated to Section 220.10, as the requirements are more appropriately located in the Section of "General" requirements for all branch circuits.

e. This first revision only reorganizes the current content of Article 220 and no technical changes are made in this first revision."

q) *A new section 220.46 was added to define demand factors for calculating health care receptacle loads other than those defined in 220.14(H) and (I) to acknowledge the*

uniqueness of health care applications (FR-9186).

Panel Statement:

Data has been provided to the CMP 2 as a result of Public Input-4219 assigned to and acted on by CMP 15, and CMP 2 has chosen to add a new section, 220.46, into Article 220 to provide separate demand factors for receptacles in health care type occupancies. The panel has modified the proposed code text and tables in this public input to address several concerns that were raised.

The concerns raised include the following:

1) The data provided in the PI combines general purpose receptacle loads calculated at 180VA with other data that would traditionally come from dedicated circuits of higher wattages. Combining this data makes it hard to interpret the data in its current form. The data that was submitted to Panel 2 has been normalized using 180VA for all loads. Any equipment that was counted as cord-and-plug connected type was estimated at 180VA to provide a consistent approach in analyzing the data and arriving at the proposed health care demand factors in the new 220.46.

2) We have identified a correlation issue with the Proposed table 517.22(B). This table is to be used only when determining the calculated load for cord-and-plug connected type loads. At the present time there is no definition for cord-and-plug connected loads and the user of the NEC may be confused on when it would be appropriate to use 517.22(A) or 517.22(B) since both tables involve these type connections.

CMP 2 accepts only Table 517.22(A)(which was accepted by CMP-15 for inclusion in Article 517) for relocation into 220.46 but has revised the demand factors based on a thorough review of the data. This table should satisfy the intent of the submitter.

r) *A new list item was added to section 220.53 to exclude electric vehicle supply equipment (EVSE) from applying the 75% demand factor to the nameplate* of four or more appliances rated 1⁄4 hp or greater, or 500 watts or greater, that are fastened in place, and that are served by the same feeder or service in a one-family, two-family, or multifamily dwelling *(FR-9182).*

Panel Statement:

CMP 2 recognizes that EVSE loads can be significant, even in dwelling units and any reduction in load would not be prudent. Article 625 requires that EVSE loads be considered as continuous.

s) *A new section 220.57 was added to specify that EVSE loads are calculated at either 7200 watts (volt-amperes) or the nameplate rating of the equipment, whichever is larger (FR-9170).*

Panel Statement:

A new section is added to address EVSE, and an informational note to refer to the applicable requirements in Section 625.42. The 7200 watt (volt-amperes) minimum requirement is based on a 30 ampere, 240 volt, single-phase circuit.

CMP 2 is not adding demand factors as proposed, as the values proposed were not

substantiated, and the requirements for sizing EVSE loads are in Section 625.42.

t) *A new section 220.70 was added to permit the use of the maximum ampere setpoint of the energy management system (EMS), when an EMS is used to limit the current to a feeder or a service (FR-9172).*

Panel Statement:

Homes and businesses continue to increase the number of loads that must be served from their power distribution systems. Widespread adoption of electric vehicles chargers, conversion of heating and cooling systems to electric heat pumps, and the adoption of onsite power sources such as solar and energy storage continue at a rapid pace. As these loads are added to electrical distribution systems, the distribution capacity becomes a barrier toward this electrification progress. Technologies in energy management systems (EMS) are being developed, listed, and installed to address these challenges. Advanced systems from large microgrids serving multiple buildings to residential systems supplying a single home are being built today with advanced EMS functions to ensure that conductors and distribution equipment are applied within their ratings. Owners of these systems benefit from a more reliable and often more efficient supply of power when it is needed.

Increasingly, newer EMS are adding features to not only limit power flow in different system states (i.e. backup priority), but to also schedule loads (i.e. for time of use), or to configure loads to be non-coincident (i.e. optimize backup capacity). Additionally, EMS are increasingly being used for demand response programs in concert with utilities to support a smart grid. Historically, the Code has provided allowances for alternative equipment sizing where our buildings are built to energy codes (220.12(B)), or when sizing an optional standby system (702.4(B)(2)(b)), or when adding some types of EV chargers (625.42). There is also a recognized category of loads that are "unlikely" to be in use simultaneously (220.60), along with an allowance for power source control, where the output of multiple power sources connected in parallel are controlled to a specified total output limit (705.13).

This revision builds upon those specific allowances to provide a new option for any load connected to a feeder or service conductor where those loads are controlled to an effective maximum current limit that restricts the demand load operated at one time. Providing Code requirements can allow electric distribution systems to be utilized in a safe and effective manner, providing reasonable accommodation for property owners to further pursue system improvements without requiring extensive electrical system equipment upgrades which may be unnecessary. For those cases where loads do not need to be operated at the same time, addition of an EMS, rather than core equipment replacement, may enable cost-benefit upgrade, while mitigating downtime.

To ensure overcurrent during normal operation does not occur, this new provision requires that such a control system be listed and that loads be disconnected as a contingency or default failsafe during any malfunction. To ensure that the setpoints for the EMS are adequately protected against unauthorized adjustment, the same requirements as applies to adjustable-trip circuit breakers are included here. Markings are also required to identify the maximum current setting, date of setting calculations, the loads controlled, and a statement that the EMS shall not be incidentally by-passed for non-concurrent loads.

The current limit of the EMS is treated as continuous for the purposes of conductor sizing to recognize the connection of continuous and non-continuous duty loads is not restricted in this section. If other loads, not controlled by the EMS, are also connected to the same current-constrained feeder or service, this requirement ensures those loads are also included.

2) **Statements Opposing First Revisions**

None

3) **Motion**

Motion to support all First Revisions

4) **Vote**

For the Motion 16

Against the Motion 2 (Matt Dozier, Mike Anthony)

Abstentions 0

5) **Direction to IEEE-IAS/PES- JTCC Representative**

JTCC Representative is directed to support all first revisions and include the affirmative statement provided above for FR 8865.

CMP-3, 2023 NEC First Draft Report

Articles 300,590,720,727,728,760, and Chapter 9, Tables 11(A) and (B), and Tables 12(A) and (B)

(William Szeto, Principal - Alternate Vacant)

1) **Noteworthy Panel Actions**

a. Public Input No. 2775-NFPA 70-2020 [Global Input]

Several sections of Article 725 have been deleted because a new Article has been developed for Class 1 circuits

This public input is submitted on behalf of a CMP 3 Task Group

Statement:

The Class 1 definition was changed and applies only to the power limited circuits. Historically, Class 1 circuits included non-power limited Class 1 and power limited Class 1. The new definition has deleted the load side of the overcurrent device and now only covers the power limited circuits with a maximum 30-volts, 1000-volt amperes.

A new article has been created for Class 1 circuits that are power limited. Since Class 2 and Class 3 circuit are limited to because these circuits are not power limited to 100 VA, as are class 2 and class 3 circuits having them in a separate article adds clarity and usability to the code. Class 2 and Class 3 circuits have a common element of 100VA.and therefore should not be in the same article with class 2 and class 3 circuits. PI Public input 2775 removes the corresponding references to Class 1 circuits from Article 725.

Power limited Class 1 remote-control and signaling circuits have been included in the scope of this new article because they were originally covered in Article 725. Non- power limited RC&S circuits are

not covered by this new article because the installation of these circuits is covered by the first four chapters of the NEC and there are no special conditions associated with these circuits.

The entire Panel 3 needs to look at the applicability of Article 450 to power limited Class 1 circuits. See 724.41 (A), Class 1 Transformers, and Table 450.3(B).

Several sections of Article 725 have been deleted because a new Article has been developed for Class 1 circuits

Statement of Problem and Substantiation for Public Input

This public input is submitted on behalf of a CMP 3 Task Group consisting of Randy Ivans (Chair), Paul Casparro, Shane Clary, Michael Cogbill, Chad Jones, Robert Jones, Ward Judson, Tim Mikloiche, Samuel Rokowski, George Straniero, Ronald Tellas, and George Zimmerman.
A new Article has been developed for Class 1 circuits and all references to Class 1 circuits need to be removed from Article 725.

This proposed new Article combines common cabling requirements currently found in Articles 725, 760, and 770 and also relocates other cabling requirements from those articles into a single article. The proposal also removes the redundancy between the text-based requirements in 725.135, 760.135 and 770.113, and the tabular requirements in Tables 725.154, 760.154 and 770.154 by including most of the requirements only in tabular form. This has been found to be more user-friendly. Some of the text-based requirements do not lend themselves to being represented in tabular form and remain as text in the new Article. In some cases, such as 725.144, the cable requirements are integrated with equipment requirements and were not moved. In the case of 725.144 a pointer was added in the new article for clarity.

Informational notes were added to provide examples of applicable requirements for the listing of cables. The detailed description of PLTC cable was simplified since PLTC cable constructions are covered in great detail in UL 13, Standard for Power-Limited Circuit Cables.
This new Article significantly improves clarity and usability while removing redundant requirements. It is not the intent of this proposal to introduce any technical changes. Some editorial errors were found during this process and fixed within this PI. If this PI is resolved, there are separate PIs submitted to fix those issues. Multiple companion public inputs are submitted throughout the NEC as part of this overall effort.

This new Article combines common cabling requirements found in Articles 725, 760, and 770 of the 2020 NEC and also relocates other cabling requirements from those articles into a single article. The new article also removes the redundancy between the text-based requirements in 725.135, 760.135 and 770.113, and the tabular requirements in Tables 725.154, 760.154 and 770.154 by including most of the requirements only in tabular form. This has been found to be more user-friendly. Some of the text-based requirements do not lend themselves to being represented in tabular form and remain as text in the new Article. In some cases, such as 725.144, the cable requirements are integrated with equipment requirements and were not moved. In the case of 725.144 a pointer was added in the new article for clarity.

Informational notes were added to provide examples of applicable requirements for the listing of cables. The detailed description of PLTC cable was simplified since PLTC cable constructions are covered in great detail in UL 13, Standard for Power-Limited Circuit Cables.

This new Article significantly improves clarity and usability while removing redundant requirements. It is not the intent of this proposal to introduce any technical changes. Some editorial errors were found

during this process and fixed within this public input. If this public input is resolved, there are separate public inputs submitted to fix those issues. Multiple companion public inputs are submitted throughout the NEC as part of this overall effort.

The Panel recommends this new article be numbered after the Class 1,2,3 and 4 articles.

The figure for cable substitutions was not included because the number of cables does not lend itself to a simple drawing. Table 135(B) replaced all "Y*" with "Y" as there were no "Y" entries and therefore no reason to differentiate with the asterisk.

Objection to FR 9582 and FR 9602 based on the idea that the listing requirements for equipment should be within the section applicable to that equipment.

b. Medium or High Voltage

This Public Input is submitted on behalf of a Correlating Committee Long-Range Planning Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, David Temple, Donny Cook, Dean Hunter, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, and Kevin Rogers. This Public Input, along with other companion Public Inputs, was developed with the goal of improving usability and providing a platform to increase the focus on requirements associated with Medium or High Voltage.

Installations, including campus-wide distribution systems, microgrids, alternative energy installations, etc., are covered by the Scope of the NEC®; however, requirements for conductors, equipment, and raceways used in applications operating in systems rated over 1000 volts are treated as an "after-thought" in how they are arranged in the document and covered by Technical Committees. In many cases, the "over 1000 volts" requirements exist in a dedicated "Part" within the Article – such is the case with existing Article 300. In other cases, similar products are handled in two separate Articles, such as with "switchgear", with equipment rated 1000 volts and below addressed in Article 408, and equipment rated over 1000 volts addressed in Article 490. In addition to these two approaches, there are Articles where the "over 1000 volts" is intermingled with the "under 1000 volt" requirements, such as the case with Article 225. In many of these cases, the information for over 1000 volts is very limited (for example, Article 240, has only 3 Sections in the Part dedicated to requirements for over 1000 volts).

This Task Group's initial tasks was to establish a demarcation for what can be referred to as Medium or High Voltage. The recommendation has been to establish this threshold as being equipment rated over 1000 Vac, 1500 Vdc. It is believed that levels below these voltages can be addressed with existing requirements for systems rated 1000 V ac max, and 1500 V dc, as this has been established as an upper limit for photovoltaic applications within Article 690, with requirements noting that those systems are not required to comply with Parts II and III of Article 490.

Using these limits, the Task Group then set out to identify a structure to better align requirements, improve consistency in approach, improve usability, and create the opportunity for a Code Making Panel to have an increased focus on higher voltage applications. Work during the 2020 Code cycle to separate conductor requirements into two Articles (310 and 311) also served as an example of how this could be accomplished; however, conductors and cables present a unique challenge insomuch that the line of demarcation for "general" and "medium" voltages do not conform to the limits established by the task group. While future work may result in these Articles realigning their voltage limits, the discrepancy was not considered by the Task Group to compromise the other changes from being pursued.

c. All changes to Chapter 3 are being submitted as a Global Input, and below is a summary of those changes:

1) Article 300 remains "General Requirements for Wiring Methods and Materials," with requirements specific to installations above 1000 V being relocated to new Article 305.
2) Article 305 is created to cover "Wiring Methods and Materials for Systems Rated Over 1000 Volts ac, 1500 Volts dc, Nominal

a. Table 305.7 provides an overview of those wiring methods that are permitted for use above 1000 Vac, 1500 V dc. Articles where it was practical to relocate requirements to 305 were revised – these are noted in subsequent bullet items in this list. Other Articles, where requirements were written in such a way that the extraction of the material was considered to likely adversely impact usability were not modified. Other Articles, where the wiring methods were agnostic to voltage, were also not modified. Table 305.7 is intended to serve as the single source for identifying what wiring methods shall be permitted for use in applications over 1000 V.

- Article 311 is renumbered to Article 315 (the Task Group's recommendation is to have all "over 1000 volt" Articles have a number that ends in "5").

a) Article 314 is revised to relocate Part IV to Article 305, Part II.
b) Article 368 is revised to relocate Part IV to Article 305, Part III.
c) Article 399 is deleted, with all content for Article 399 being relocated to Article 305, Part IV.

ARTICLE 300 General Requirements for Wiring Methods and Materials
Part I. General Requirements
300.1 Scope.
300.1(A) All Wiring Installations.

This article covers general requirements for wiring methods and materials for all wiring installations unless modified by other articles in Chapter 3.

Article 310 Conductors for General Wiring
Part I. General
310.1 Scope.

This article covers general requirements for conductors rated up to and including 2000 volts and their type designations, insulations, markings, mechanical strengths, ampacity ratings, and uses. These requirements apply to conductors that form an integral part of equipment, such as motors, motor controllers, and similar equipment, or to conductors specifically provided for elsewhere in this *Code*.

Informational Note: For Medium Voltage Conductors and Cable, see Article 315. For flexible cords and cables, see Article 400. For fixture wires, see Article 402.

Article 311 to be renumbered "Article 315"
Revised Article 368:

ARTICLE 368 Busways Rated up to 1000 Volts ac, 1500 Volts dc, Nominal Part I. General Requirements

368.1 Scope.

This article covers service-entrance, feeder, and branch-circuit busways and associated fittings rated up to 1000 volts ac, 1500 volts dc, nominal.

Informational Note: See Article 305, Part III for requirements for busways rated over 1000 volts ac, 1500 volts dc, nominal.

d. Public Input No. 3868-NFPA 70-2020 [Global Input]
Statement of Problem and Substantiation for Public Input
Description

This document incorporates the revisions to Article 725 needed to accommodate the consolidation of requirements and new Article for cables with track changes on and revisions shown.

This document shows what the 725 changes look like with all of the changes accepted.

This public input was developed by a Panel 3 appointed task group to address redundant cabling requirements in Articles 725, 760 and 770. The Panel 3 task group members included TG Chairman Randy Ivans (Panel 3 Principal, Panel 16 Alternate), Robert Jones (Chairman Panel 3), Paul Casparro, Shane Clary, Michael Cogbill, Chad Jones, Ward Judson, Tim Mikloiche, Samuel Rokowski, George Straniero, Ron Tellas, and George Zimmerman. The TG was broad-based and specifically included representation of those with knowledge and experience in electrical safety, installation, code enforcement, and wire and cable.

This proposed new Article combines common cabling requirements currently found in Articles 725, 760, and 770 and also relocates other cabling requirements from those articles into a single article. The proposal also removes the redundancy between the text-based requirements in 725.135, 760.135 and 770.113, and the tabular requirements in Tables 725.154, 760.154 and 770.154 by including most of the requirements only in tabular form. This has been found to be more user-friendly. Some of the text-based requirements do not lend themselves to being represented in tabular form and remain as text in the new Article. In some cases, such as 725.144, the cable requirements are integrated with equipment requirements and were not moved. In the case of 725.144 a pointer was added in the new article for clarity. The new Article is being proposed in Public Input No. 3671.

This PI deletes or modifies text in the original Article 725 to accommodate the above consolidation of requirements. Hazardous locations was moved from 725.3 to a new 725.12 to simplify the references. The reference in 725.24 was changed from 300.4(D) to 300.11 since 300.4(D) deals with cables which are being relocated and 300.11 includes equipment. It should be noted that parallel sections 770.24 and 800.24 both already reference 300.11.
The work of the TG also proposes moving Class 1 circuits into a new Article. This is being handled by separate PIs. PI 2775 Gobal Input for deletion of Class 1 from Article 725. PI 2774 for the new New Article for Class 1 circuits.

These changes significantly improve clarity and usability while removing redundant requirements. It is not the intent of these proposals to introduce any technical changes. Some editorial errors were found during this process and fixed within this PI. If this PI is resolved, there are separate PIs submitted to fix those issues. Multiple companion public inputs are submitted throughout the NEC as part of this overall effort.

ARTICLE 760 Fire Alarm Systems
Part I. General

760.1 Scope. This article covers the installation of wiring and equipment of fire alarm systems, including all circuits controlled and powered by the fire alarm system.

Informational Note No. 1: Fire alarm systems include fire detection and alarm notification, guard's tour,

sprinkler waterflow, and sprinkler supervisory systems. Circuits controlled and powered by the fire alarm system include circuits for the control of building systems safety functions, elevator capture, elevator shutdown, door release, smoke doors and damper control, fire doors and damper control and fan shutdown, but only where these circuits are powered by and controlled by the fire alarm system. For further information on the installation and monitoring for integrity requirements for fire alarm systems, refer to the *NFPA 72*-2019, *National Fire Alarm and Signaling Code*. Informational Note No. 2: Class 1, 2, and 3 circuits are defined in Article 725.

e. Public Input No. 701-NFPA 70-2020 [Section No. 300.4]

300.4 Protection Against Physical Damage.
Where subject to physical damage, conductors, raceways, and cables shall be protected. **(A)** Cables and Raceways Through Wood Members.
(1) Bored Holes.

In both exposed and concealed locations, where a cable- or raceway-type wiring method is installed through bored holes in joists, rafters, or wood members, holes shall be bored so to 29 mm (1-1/8 in) diameter and that the edge of the hole is not less than 32 mm (1***1⁄4*** in.) from the nearest edge of the wood member. Where this distance cannot be maintained, the cable or raceway shall be protected 360 degrees from penetration by screws or nails by a insulated steel plate bushing (s) or bushing. In areas that a steel bushing cannot be installed an exception will be to install a steel plate (s), at least 1.6 mm (***1⁄16*** in.) thick, and of appropriate length and width installed to cover the area of the wiring.

Exception No. 1: Steel bushings or plates shall not be required to protect rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, or electrical metallic tubing.

*Exception No. 2: A listed and marked steel plate less than 1.6 mm (**1⁄16** in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.* **(2)** Notches in Wood.

Where there is no objection because of weakening the building structure, in both exposed and concealed locations, cables or raceways shall be permitted to be laid in notches in wood studs, joists, rafters, or other wood members where the cable or raceway at those points is protected against nails or screws by a steel plate at least 1.6 mm (***1⁄16*** in.) thick, and of appropriate length and width, installed to cover the area of the wiring. The steel plate shall be installed before the building finish is applied.

*Exception No. 1: Steel plates shall not be required to protect rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, or electrical metallic tubing. Exception No. 2: A listed and marked steel plate less than 1.6 mm (**1⁄16** in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.*

(B) Nonmetallic-Sheathed Cables and Electrical Nonmetallic Tubing Through Metal Framing Members.
(1) Nonmetallic-Sheathed Cable.

In both exposed and concealed locations where nonmetallic-sheathed cables pass through either factory- or field-punched, cut, or drilled slots or holes in metal members, the cable shall be protected by listed bushings or listed grommets covering all metal edges that are securely fastened in the opening prior to installation of the cable.

(2) Nonmetallic-Sheathed Cable and Electrical Nonmetallic Tubing.
Where nails or screws are likely to penetrate nonmetallic-sheathed cable or electrical nonmetallic tubing, a steel sleeve, steel plate, or steel clip not less than 1.6 mm (***1⁄16*** in.) in thickness shall be used to protect the cable or tubing.

*Exception: A listed and marked steel plate less than 1.6 mm (**1⁄16** in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.* **(C)** Cables Through Spaces Behind Panels Designed to Allow Access.

Cables or raceway-type wiring methods, installed behind panels designed to allow access, shall be supported according to their applicable articles. **(D)** Cables and Raceways Parallel to Framing Members and Furring Strips.

In both exposed and concealed locations, where a cable- or raceway-type wiring method is installed parallel to framing members, such as joists, rafters, or studs, or is installed parallel to furring strips, the cable or raceway shall be installed and supported so that the nearest outside surface of the cable or raceway is not less than 32 mm (1**1⁄4** in.) from the nearest edge of the framing member or furring strips where nails or screws are likely to penetrate. Where this distance cannot be maintained, the cable or raceway shall be protected from penetration by nails or screws by a steel plate, sleeve, or equivalent at least 1.6 mm (**1⁄16** in.) thick.

Exception No. 1: Steel plates, sleeves, or the equivalent shall not be required to protect rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, or electrical metallic tubing.

Exception No. 2: For concealed work in finished buildings, or finished panels for prefabricated buildings where such supporting is impracticable, it shall be permissible to fish the cables between access points.

*Exception No. 3: A listed and marked steel plate less than 1.6 mm (**1⁄16** in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.* **(E)** Cables, Raceways, or Boxes Installed in or Under Roof Decking.

A cable, raceway, or box, installed in exposed or concealed locations under metal-corrugated sheet roof decking, shall be installed and supported so there is not less than 38 mm (1**1⁄2** in.) measured from the lowest surface of the roof decking to the top of the cable, raceway, or box. A cable, raceway, or box shall not be installed in concealed locations in metal-corrugated, sheet decking–type roof.

Informational Note: Roof decking material is often repaired or replaced after the initial raceway or cabling and roofing installation and may be penetrated by the screws or other mechanical devices designed to provide “hold down” strength of the waterproof membrane or roof insulating material.

Exception: Rigid metal conduit and intermediate metal conduit shall not be required to comply with 300.4(E).

(F) Cables and Raceways Installed in Shallow Grooves.
Cable- or raceway-type wiring methods installed in a groove, to be covered by wallboard, siding, paneling, carpeting, or similar finish, shall be protected by 1.6 mm (**1⁄16** in.)

thick steel plate, sleeve, or equivalent or by not less than 32-mm (1**1⁄4**-in.) free space for the full length of the groove in which the cable or raceway is installed. *Exception No. 1: Steel plates, sleeves, or the equivalent shall not be required to protect rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, or*

electrical metallic tubing.
*Exception No. 2: A listed and marked steel plate less than 1.6 mm (**1⁄16** in.) thick that provides equal or better protection against nail or screw penetration shall be permitted.*

(G) Fittings.
Where raceways contain 4 AWG or larger insulated circuit conductors, and these conductors enter a cabinet, a box, an enclosure, or a raceway, the conductors shall be

protected in accordance with any of the following:

(1) An identified fitting providing a smoothly rounded insulating surface
(2) A listed metal fitting that has smoothly rounded edges
(3) Separation from the fitting or raceway using an identified insulating material that is securely fastened in place
(4) Threaded hubs or bosses that are an integral part of a cabinet, box, enclosure, or raceway providing a smoothly rounded or flared entry for conductors

Conduit bushings constructed wholly of insulating material shall not be used to secure a fitting or raceway. The insulating fitting or insulating material shall have a temperature rating not less than the insulation temperature rating of the installed conductors.

(H) Structural Joints.

A listed expansion/deflection fitting or other approved means shall be used where a raceway crosses a structural joint intended for expansion, contraction or deflection, used in buildings, bridges, parking garages, or other structures.

f. Chapter 4 Hangers and Supports

The Chapter in hangers and support were discuss in detail at the meeting.

g. Chapter 11 Duct System Construction

Duct System Construction were discussed in detail during the meeting

h. ARTICLE 7XX Class 1 Circuits

7XX.1 Scope. This article covers Class 1 circuits that are not an integral part of a device or of utilization equipment.

7XX.3 Other Articles. In addition to the requirements of this article, circuits and equipment shall comply with the articles or sections listed in 7XX.3(A) through (J). Only those sections of Article 300 referenced in this article shall apply to Class 1 circuits.

(A) Number and Size of Conductors in Raceway. Installations shall comply with section 300.17.

(B) Spread of Fire or Products of Combustion. Installation of Class 1 circuits shall comply with 300.21.

(C) Ducts, Plenums, and Other Air-Handling Spaces. Class 1 circuits installed in ducts, plenums, or other space used for environmental air shall comply with 300.22.

(D) Hazardous (Classified) Locations. Class 1 circuits shall not be installed in any hazardous (classified) location except as permitted by other articles of this Code.

(E) Cable Trays. Parts I and II of Article 392, where installed in cable tray.

(F) Raceways Exposed to Different Temperatures. Installations shall comply with 300.7(A).

(G) Vertical Support for Fire-Rated Cables and Conductors. Vertical installations of circuit integrity (CI) cables and conductors installed in a raceway or conductors and cables of electrical circuit protective systems shall be installed in accordance with 300.19.

(H) Bushing. A bushing shall be installed where cables emerge from raceway used for mechanical support or protection in accordance with 300.15(C).

(I) Installation of Conductors with Other Systems. Installations shall comply with 300.8. **(J) Identification of Equipment Grounding Conductors.** Equipment grounding conductors shall be identified in accordance with 250.119.

7XX.21 Access to Electrical Equipment Behind Panels Designed to Allow Access. Access to electrical equipment shall not be denied by an accumulation of wires and cables that prevents removal of panels, including suspended ceiling panels.

7XX.24 Mechanical Execution of Work. Class 1 circuits shall be installed in a neat and workmanlike manner. Cables and conductors installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be supported by straps, staples, hangers,

26.121 Power Sources for Class 4 Circuits. The power source shall be a listed Class 4 power transmitter or listed Class 4 power transmitter/ receiver system and shall provide the protections in 726.121(A) and (B). Class 4 circuits shall be supplied from a power source (transmitter) that has a peak voltage output of not more than 450 volts DC line to line or 225 volts DC line to ground.

725.144 Transmission of Power Bundling of 4-Pair Cables Transmitting Power and Data.

Sections 725.144(A) and (B) shall apply to Class 2 and Class 3 circuits that transmit power and data to a powered device over listed 4-pair (8 conductor) cabling. Section 300.11 and Parts I and III of Article 725 shall apply to Class 2 and Class 3 circuits that transmit power and data. The conductors that carry power for the data circuits shall be copper. The current in the power circuit shall not exceed the current limitation of the connectors.

Informational Note No. 1: One example of the use of cables that transmit power and data is the connection of closed-circuit TV cameras (CCTV).

Informational Note No. 2: The 8P8C connector is in widespread use with powered communications systems. IEC 60603-7-2008, *Connectors for electronic equipment — Part 7-1: Detail specification for 8-way, unshielded, free and fixed connectors,* specifies these connectors to have a current-carrying capacity per contact of 1.0 amperes maximum at 60°C (149°F). See IEC 60603-7 for more information on current-carrying capacity at higher and lower temperatures.

Informational Note No. 3: The requirements of Table 725.144 were derived for carrying power and data over 4-pair copper balanced twisted pair cabling. This type of cabling is described in ANSI/TIA 568-C.2-2009, *Commercial Building Telecommunications Cabling Standard — Part 2: Balanced Twisted-Pair Telecommunications Cabling and Components*.

Informational Note No. 4: See TIA-TSB-184-A-2017, *Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling*, for information on installation and management of balanced twisted pair cabling supporting power delivery.

Informational Note No. 5: See ANSI/NEMA C137.3-2017, *American National Standard for Lighting Systems — Minimum Requirements for Installation of Energy Efficient Power over Ethernet (PoE) Lighting Systems*, for information on installation of cables for PoE lighting systems.

Informational Note No. 6: Rated current for power sources covered in 725.144 is the output current per conductor the power source is designed to deliver to an operational load at normal operating conditions, as declared by the manufacturer. In the design of these systems, the actual current in a given conductor might vary from the rated current per conductor by as much as 20 percent. An increase in current in one conductor is offset by a corresponding decrease in current in one or more conductors of the same cable.

Table 725.144 Ampacities of Each Conductor in Amperes in 4-Pair Class 2 or Class 3 Balanced Twisted-Pair Cables Based on Copper Conductors at an Ambient Temperature of 30°C (86°F) with All Conductors in All Cables Carrying Current, 60°C (140°F), 75°C (167°F), and 90°C

(B) Use of Class 2-LP or Class 3-LP Cables to Transmit Power and Data.

Types CL3P-LP, CL2P-LP, CL3R-LP, CL2R-LP, CL3-LP, or CL2-LP shall be permitted to supply power to equipment from a power source with a rated current per conductor up to the marked current limit located immediately following the suffix “-LP” and shall be permitted to transmit data to the equipment. Where the number of bundled LP cables is 192 or less and the selected ampacity of the cables in accordance with Table 725.144 exceeds the marked current limit of the cable, the ampacity determined from the table shall be permitted to be used. For ambient temperatures above 30°C (86°F), the correction factors of Table 310.15(B)(1) or Equation 310.15(B) shall apply. The
Class 2-LP and Class 3-LP cables shall comply with the following, as applicable:

Statement of Problem and Substantiation for Public Input

The revised title more accurately reflects the content of the section. The section relates to bundling of cables and has no requirements specific to carrying data. The fact-finding report provided for inclusion in the 2017 NEC did not include any data transmission in its experiments and was focused entirely on cable heating due to the powering current in 4-pair cables.

The title of Table 725.144, like the data from the fact finding report it was based on, were specific to 4-Pair cabling. The informational note 3 to 725.144 clearly calls out that these requirements were derived for 4-Pair LAN cabling of the type described in TIA-568C.2-2009, which is commonly used for Ethernet systems, including power over Ethernet, and referred to as "Category" cabling. Table 725.144 clearly calls out it is for 4-Pair cabling in its title, leaving the user of the code at a loss for requirements for single-pair or other-than-four-pair cabling.

Additionally, if Table 725.144 were to be applied to single-pair cable, the ampacities in Table 725.144 are inconsistent with other sections and tables in the code, such as Table 522.22 which lists the ampacities of 60C 24 AWG and 22 AWG cables as 2 and 3 Amperes per conductor, respectively, whereas Table 725.144 lists them for 1 to 7 cables as 1.19 and 1.50 Amperes. These differences are likely due to the fact that Table 725.144 is based on the heat generated from 4 times as many conductors carrying current per cable, resulting in about 2 times the allowable current of a single pair cable.

Further, the proposed change improves correlation, by aligning 725.144 with 840.160 as it was revised in the 2020 code, which recognizes that the table and its data considered 4-pair cable only and are only applicable to 4-pair cables.

i. Public Input:
Delete Article 727 and move the requirements as shown in the following:

ARTICLE 727 Instrumentation Tray Cable: Type ITC

727.1 Scope.
This article covers the use, installation, and construction specifications of instrumentation tray cable for application to instrumentation and control circuits operating at 150 volts or less and 5 amperes or less.

727.2 Definition.
The definition in this section shall apply within this article and throughout the *Code*.

Type ITC Instrumentation Tray Cable.
A factory assembly of two or more insulated conductors, with or without an equipment grounding conductor(s), enclosed in a nonmetallic sheath.

727.3 Other Articles.
In addition to the provisions of this article, installation of Type ITC cable shall comply with other applicable articles of this *Code*.

727.4 Uses Permitted.

Type ITC cable shall be permitted to be used as follows in industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons service the installation:

(1) In cable trays. (2) In raceways.

(3) In hazardous locations as permitted in 501.10, 502.10, 503.10, 504.20, 504.30, 504.80, and 505.15.

(4) Enclosed in a smooth metallic sheath, continuous corrugated metallic sheath, or interlocking tape armor applied over the nonmetallic sheath in accordance with 727.6. The cable shall be supported and secured at intervals not exceeding 1.8 m (6 ft).

(5) Cable, without a metallic sheath or armor, that complies with the crush and impact requirements of Type MC cable and is identified for such use with the marking *ITC-ER* shall be permitted to be installed exposed. The cable shall be continuously supported and protected against physical damage using mechanical protection such as dedicated struts, angles, or channels. The cable shall be secured at intervals not exceeding 1.8 m (6 ft).

The following list provides other locations in the code where Article 727 is referenced. The task group asks the correlating committee to forward to the appropriate CMP for review. PI's were submitted to each code panel for their review.

Other NEC® Code Articles affected:

Table 240.4G Reference Art. 727 and 727.9
Table 392.10A Reference Art. 727
Art. 501.10 A (1) (4) Reference Art. 727.4
Art. 501.10 B (1) #4 Reference Art. 727.4
Art. 502.10 A (1) #5 Reference Art. 727.4
Art. 502.10 B (1) #6 Reference Art. 727.4
Art. 503.10 A (1) #3 Reference Art. 727.4
Art. 505.15 B (1) #3 Reference Art. 727.4 and 727.5 Art. 505.15 C (1) #3 Reference Art. 727.4

Art. 506.15 A #4 Reference Art. 727.4 Art. 506.15 C #6 Reference Art. 727.4 Art. 511.7 A (1) Reference Art. 727 Art. 515.7 A Reference Art. 727.4
Art. 725.3 G Reference Art. 727.1, 727.4 and 727.9 Annex A references Art. 727

760.1 Scope.
This article covers the installation of wiring and equipment of fire alarm systems, including all circuits controlled and powered by the fire alarm system.

Informational Note No. 1: Fire alarm systems include fire detection and alarm notification, guard's tour, sprinkler waterflow, and sprinkler supervisory systems. Circuits controlled and powered by the fire alarm system include circuits for the control of building systems safety functions, elevator capture, elevator shutdown, door release, smoke doors and damper control, fire doors and damper control and fan shutdown, but only where these circuits are powered by and controlled by the fire alarm system. For further information on the installation and monitoring for integrity requirements for fire alarm systems, refer to the *NFPA 72*-2019, *National Fire Alarm and Signaling Code*.

Informational Note No. 2: Smoke detectors (alarms) are installed in single-family dwellings to provide early warning of a fire. Their installation is required by International Residential Code, International Building Code and by the International Fire Code and enforced in many states', municipalities' by building and fire officials. National Fire Protection Association *(NFPA) 72*, the *National Fire Alarm Code*, provides guidance for the proper selection, installation, operation, testing and maintenance of smoke detector (alarm) systems.

Class 1, 2, and 3 circuits are defined in Article 725.

Statement of Problem and Substantiation for Public Input

This input is being submitted on behalf of the Minnesota Department of Labor and Industry. The Department's 15 office/field staff, and 65 plus contract electrical inspectors complete over 150,000 electrical inspections annually and are involved in the daily enforcement and interpretation of the National Electrical Code.

It is imperative that installers understand where the requirements for the installation, and the operation of the listed fire alarm equipment is found. Previously, the installation of smoke detectors was not addressed by the NEC and installers may not know where to find the requirements. The importance of the proper installation of residential smoke detectors is a very important task to help safeguard families from the ravages of fire.

Exception to (5): Where not subject to physical damage, Type ITC-ER shall be permitted to transition between cable trays and between cable trays and utilization equipment or devices for a distance not to exceed 1.8 m (6 ft) without continuous support. The cable shall be mechanically supported where exiting the cable tray to ensure that the minimum bending radius is not exceeded.

2) Statements Opposing First Revisions

None

3) Motion

Motion to support all First Revisions

4) Vote

For the Motion ***11***

Against the Motion ***6***

Abstentions 0

5) Direction to IEEE-IAS/PES- JTCC Representative

JTCC Representative is directed to support all first revisions

CMP-4, 2023 NEC First Draft Report

Articles 690, 691, 692, 694, & 705

(Mark Gibbs, Principal - Alternate Vacant)

1) Noteworthy Panel Actions

Global FRs 3013, 3141, 3329, & 3331; Definitions under the purview of CMP-4 have been moved to Article 100.

***2)* Statements Opposing First Revisions**

First Revision No. FR-9329 [Section No. 694.7]

694.7 Construction and Maintenance

The construction and maintenance, associated wiring, and interconnections shall be performed only by qualified persons.

IEEE-IAS/PES JTCC statement opposing the First Revision: FR-9329

This is outside of the scope of the NEC. The scope of the NEC per Section 90.2 covers the installation and removal of electrical conductors, equipment, and raceways; signaling and communications conductors, equipment, and raceways; and optical fiber cables and raceways for the covered items listed in this section. The new requirement for maintenance is not enforceable as the AHJ will only be present for the installation inspection.

The maintenance of electrical equipment is covered by NFPA 70E Section 205.1 Qualified Persons.

205.1 Qualified Persons. Employees who perform maintenance on electrical equipment and installations shall be qualified persons as required in Chapter 1 and shall be trained in, and familiar with, the specific maintenance procedures and tests required.

3) Motion

Motion to support all First Revisions except FR 9329 with the above negative statement opposing the first revision

4) Vote

For the Motion 18

Against the Motion 0

Abstentions 0

5) Direction to IEEE-IAS/PES- JTCC Representative

JTCC Representative is directed to support all first revisions with the exception of FR 9329 with the negative statement provided above

CMP-5, 2023 NEC First Draft Report

Articles 200, 250

(Daleep Mohla, Principal - Alternate Vacant)

JTCC Chair temporarily stepped down as chair. Paul Myers chaired the discussions on CMP 5

1) Noteworthy Panel Actions

1) General:

a. Number of Public Inputs (PIs) acted upon- 259
b. First Revisions (FRs)issued - 166

A majority of FRs were editorial to remove unenforceable and ambiguous terms such as satisfactory, satisfactory, good, changing "where" to "if", and "as required" changed to "in accordance with" etc.

a) There were nearly 20 PIs for addition of Copper clad steel and copper clad aluminum by Bimetallic Association. Most were resolved except a few for addition of Copper clad aluminum.

Copper-clad steel was not accepted because no technical substantiation was provided to ensure that under expected conditions of use the copper layer will not delaminate, that the steel core stiffness and strength is sufficient to prevent failure, and that it can be bent and installed without stressing terminations within equipment.

b) There were multiple definitions added, modified, or revised to add acronyms
c) There were seven (7) FRs to add Cable armor to the title and text
d) CMP 5 recommendation to CC to be included in Chair's report

CMP 5 recommends creating a TG comprised of members from CMP 4, 5 & 10 to review PI 4287 in greater detail to provide better clarity for grounding and bonding requirements on the supply side of the service. CMP 5 recommends three members from each CMP.

CMP 5 requests the opportunity to review any First Revisions created by other CMPs where grounding and/or bonding text changes are proposed. Specifically, any references to equipment grounding conductor, ground or grounded

2) Changes with FRs

FR #	Section	changes
8280	Global	Add Acronym GFPE, GEC, EBJ, SSBJ, MBJ, SBJ etc.to definitions. **Bonding Conductor or Jumper (BJ)**. -A reliable conductor to ensure that ensures the required electrical conductivity between metal parts that are required to be electrically connected.
8079	250.64	Copper Clad aluminum was added to 250.64
8214	Art 100 – new definition	Grounded System, Impedance **(Impedance Grounded System**). An electrical system that is grounded by intentionally connecting the system neutral point to ground through an impedance device.
8216	Art 100 – new	Grounding Conductor, **Impedance (Impedance Grounding Conductor**). A conductor that connects the system neutral point to the impedance device in an

	definition	impedance grounded system.
8245	Art 100 new definition	– Likely to Become Energized. Conductive material that could become energized because of electrical insulation or electrical spacing failure.
7985/8247	250.1	Table 250.3 was relocated to 250.1. 205.3 was deleted in FR 8247
8158	250.22	250.22 Circuits not be grounded was deleted
8235	250.36	Extensive revisions to clarify terms, Title changed to ~~High~~ Impedance Grounded ~~Neutral~~ Systems - 480 volts to 1000 Volts. No substantial technical change in requirements -just new names of the terms
8281	250.122	250.122 Size of Wire Type Equipment Grounding Conductors. (A) General. Copper, aluminum, or copper-clad aluminum equipment grounding conductors of the wire type shall not be smaller than shown in Table 250.122. The equipment grounding conductor shall not be required to be larger than ~~the circuit conductors~~ largest circuit conductor, **or sum of the circular mil area for parallel conductors,** supplying the equipment. If a cable tray, a raceway, or a cable armor or sheath is used as the equipment grounding conductor, as provided in 250.118 and 250.134(1), it shall comply with 250.4(A)(5) or (B)(4). Equipment grounding conductors shall be permitted to be sectioned within a multiconductor cable, provided the combined circular mil area complies with Table 250.122 (B) Increased in Size. If ungrounded conductors are increased in size for any reason other than as required in 310.15(B) or 310.15(C), wire-type equipment grounding conductors, if installed, shall be increased in size proportionately to the increase in circular mil area of the ungrounded conductors. Exception: Equipment grounding conductors shall be permitted to be sized under engineering supervision or by a qualified person ~~to provide an effective ground-fault current path in accordance with~~ using industry practices to meet the performance objectives of 250.4(A)(5) or (B)(4). Documentation of the method used and the equipment grounding conductor size shall be made available to the authority having jurisdiction upon request.
8227	250.187	250.187 Impedance Grounded Systems Terminology changes similar to 250.136 without any technical changes. An exception to allow bare impedance grounding conductor was added in (B) (B) Insulated. The grounded impedance grounding conductor shall be insulated for the maximum neutral voltage. **Exception: A bare impedance grounding conductor shall be permitted if the bare portion of the grounding impedance device and conductor are not in a readily accessible location and securely separated from the ungrounded conductors.** Informational Note: The maximum neutral voltage in a 3-phase wye system is 57.7 percent of the phase-to-phase voltage.

3) *Affirmative Statement to First Revision No. 8235- [Section No. 250.36]*

The entire text of this section is the proposed affirmative comment.

a. 250.36 (E)- Equipment Bonding Jumper

Change the term Equipment Bonding Jumper in 250.36 (E) to Impedance grounding bonding jumper in the title and text to be consistent with title and text in 250.36 (B) and (D). This will eliminate the incompatibility with term bonding jumper used elsewhere in the code. See proposed revised text below

(**E) ~~Equipment~~ Impedance Grounding Bonding Jumper**.
The ~~equipment~~ impedance grounding bonding jumper (the connection between the equipment grounding conductors and the grounding impedance device) shall be an unspliced conductor run from the first system disconnecting means or overcurrent device to the grounded side of the grounding impedance device.

b. 250.36 (G) Equipment Bonding Jumper Size

Change the term Equipment bonding jumper to Impedance grounding bonding jumper size in the title and text to be consistent with the title and text in 250.36 (B) and (D) and new proposed change to 250.36 (E). See proposed revised text below

(G) ~~Equipment~~ Impedance grounding Bonding Jumper Size.
The ~~equipment~~ impedance grounding bonding jumper shall be sized in accordance with (1) or (2) as follows:
(1) If the grounding electrode conductor connection is made at the grounding impedance device, the ~~equipment~~t impedance grounding bonding jumper shall be sized in accordance with 250.66, based on the size of the service entrance conductors for a service or the derived phase conductors for a separately derived system.
(2) If the grounding electrode conductor is connected at the first system disconnecting means or overcurrent device, the ~~equipment~~ impedance grounding bonding jumper shall be sized the same as the neutral impedance grounding conductor in 250.36(B

4) *Affirmative Statement to First Revision No. 8281-NFPA 70-2020 [Section No. 250.122]*

Background

250.122 Size of Wire Type Equipment Grounding Conductors.
(A) General.
Copper, aluminum, or copper-clad aluminum equipment grounding conductors of the wire type shall not be smaller than shown in Table 250.122. The equipment grounding conductor shall not be required to be larger than the circuit conductors largest circuit conductor, or sum of the circular mil area for parallel conductors, supplying the equipment. If a cable tray, a raceway, or a cable armor or sheath is used as the equipment grounding conductor, as provided in 250.118 and 250.134(1), it shall comply with 250.4(A)(5) or (B)(4). Equipment grounding conductors shall be permitted to be sectioned within a multiconductor cable, provided the combined circular mil area complies with Table 250.122

Statement

There is no technical justification for the new text added requiring that the EGC shall not

be required to be larger than sum of circular mill area for parallel conductors. This can result in an EGC larger than the circuit conductors. The largest size of EGC should not be required to be larger than the largest circuit conductors.

A properly sized equipment grounding conductor (EGC) is to provide a ground fault current return path to permit circuit protective device used to clear a fault and to do so without extensive damage to the electrical equipment of the circuit as stipulated in NEC 2020 – 110.10

250.122 (A) is based on the premise that the wire type equipment grounding conductors (EGC) in parallel will not share ground fault current. This premise is technically is not defensible.

If we rely on multiple conductors to provide the desired ampacity for ungrounded and grounded conductors, why is the same rationale and engineering principle not valid for the wire type equipment grounding conductors?

250.102 (C)(2) permits supply side bonding jumper to be sized based on size of ungrounded conductors in each raceway and cable. The same approach should be valid for 250.122, The EGC in parallel raceways should not be required to be larger than the size of circuit conductors in each raceway or cable.

Connectors used for grounding are tested and listed according to UL 467 Standard for Safety Grounding and Bonding Equipment. The current and time used for this testing are listed in Table 5. of UL 467. I understand that pass fail criteria from the UL467 Short Time Current test is electrical continuity after current test.

Test current values are derived from the formula listed in Annex C of IEEE Standard 837 and is based on 1083°C for melting point of copper and 657°C for aluminum. The formula can be used to calculate fusing current at other values of current and clearing time than table 5 specifies.

Using formulas in Annex C of IEEE Std 837-2002 and taking into account the thermal characteristics of the material carrying the current the short-time current value was calculated. The formula yields the fusing current for the conductors and materials for which material constants are known. In short, Table 5 identifies the test time which is also the fusing current for the conductor.

Correlating committee is requested to consider have testing done by NFPA Research Foundation to establish and document that the ground fault current will be shared by multiple equipment grounding conductors in parallel same as ungrounded and grounded conductors and it is not necessary to oversize EGC for proper protection of electrical equipment.

2) **Statements Opposing First Revisions**

None

3) Motion

Motion to support all First Revisions with the affirmative statements provided above for FR 8235 and FR 8281

4) **Vote (Paul Myers assumed temporary Chair for this vote)**

For the Motion	***18***
Against the Motion	***0***
Abstentions	***0***

5) **Direction to IEEE-IAS/PES- JTCC Representative**
JTCC Representative is directed to support all first revisions and include the statements provided above for FR 8235 and FR 8281

Lunch Break (~1:00 Eastern)	***45 minutes***

CMP-6, 2023 NEC First Draft Report

Articles 310, 311, 320, 322, 324, 326, 328, 330, 332, 334, 336, 337, 338, 340, 382, 394, 396, 398, 399, 400, 402, Chapter 9, Tables 5 through 9, Annex B and E and Examples D7

(Dennis Nielsen, Principal - Alternate Vacant)

1) **Noteworthy Panel Actions**

a) *FR 8614: Article 337 Type P Cable: title change from Type P cable to Drilling Rig Cable: Type P. Sections for jacket and armor were updated with more requirements specific to construction of the cable.*

b) *FR8465: New addition for new part IV added to Article 400:* ***Part IV. Portable Power Feeder Cables Over 2000 Volts, Nominal.*** *This adds several new requirements, tables for temperature, ampacity, usage, and cable types; Types G, SHD-PCG, SH, SHD, SHD-GC, and SHD-CGC beginning with section 400.40.*

c) *FR 8613: Article 336 Tray Cable: Type TC: For ungrounded, grounded, and equipment grounding conductors, the conductor sizes shall be 16 AWG through 1000 kcmil copper, 14 AWG through 1000 kcmil copper-clad aluminum, nickel, or nickel-coated copper , or 12 AWG through 1000 kcmil aluminum. Insulation types shall be one of the types listed in Table 310.4(A) or Table 310.4(B) that is suitable for branch circuit and feeder circuits or one that is identified for such use.*

Potential conflict with 250.122 which requires a minimum EGC of 14 AWG. Also in NM / NMC.

Affirmative Statement to FR 8613: Note that Table 250.122 requires that the minimum size for EGC (copper) is #14.

d) *FR 8420: Article 330 Metal-Clad Cable: Type MC has the minimum conductor size changes as per FR 8613 per (c) above.*

Affirmative Statement to FR 8420: Note that Table 250.122 requires that the minimum size for EGC (copper) is #14.

e) *FR 8435: Article 334 Nonmetallic Sheathed Cable: Types NM and NMC cable the minimum conductor size changes as noted in FR 8613 per (c) above.*

Affirmative Statement to FR 8435: Note that Table 250.122 requires that the minimum size for EGC (copper) is #14.

f) *FR 8616: Article 311 Medium Voltage Conductors and Cable. The article is being*

renumbered throughout to 315. The Title of Article 311/315 now will include the words Cable Joints and Terminations: Article 315 Medium Voltage Conductors, Cable, Cable Joints and Cable Terminations.

Other changes are as follows:

The new terms including MV cable connectors are being added to provide for complete system installation.

The listing requirement in 311/315.6 was expanded to include these additional items with a future effective date to allow the industry time to exhaust inventory of unlisted inventory and to comply with the listing requirement.

New section 311/315.17 was added detailing the application of these connectors and markings.

Section 311/315.30 was revised to require qualified personnel to complete the installation including cable joints and terminations.

The Direct Current Voltage rating is being limited to 2500 Volts due to industry experience. Higher voltages are being investigated for their effect on extruded insulation materials.

The most current edition of the standard was updated to 2020 in 311/315.30 information note.

The shielding for cables is not suitable for clearing ground fault events unless sized properly.

The note in 311/315.60(D)4 gives users guidance on conductor ampacities and considering terminations.

Information notes were added to refer to industry standards:

Informational Note No. 2: See IEEE-404, IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5kV to 500kV for more information on cable joints. Cable joints are often referred to as splices. However, the term splice includes many other applications not included in the definition of a cable joint.

Informational Note No. 3: See IEEE-48, IEEE Standard for Test Procedures and Requirements for Alternating-Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV, for information on terminations. Type MV Cable Terminations include terminations used to connect directly to equipment or insulators.

Informational Note No. 4: See IEEE-386, IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5kV through 35 kV, and IEEE-1215, IEEE Guide for the Application of Separable Insulated Connectors, for more information on separable insulated connectors. Type MV Cable Terminations also include separable insulated connectors, which are a type of pluggable cable termination and may be used for connection to equipment such as, switchgear or transformers. A separable connector has a matching interface that the separable connector plugs into on the equipment such as, switchgear or transformers. Separable connectors may also be ganged together to form a distribution junction using specialized junction brackets.

g) *FR 8304: Moved all definitions per Chapter 3 Article under CMP6 purview to Article 100.*

h) *FR8605: Article 338 Service-Entrance Cable; Types SE and USE Service Bends in Types USE and SE cable shall be so made that the cable will not be damaged. The radius of the curve of the inner edge of any bend, during or after installation, shall not be less than five times the diameter of the cable. For flat cables, the major diameter dimension of the cable shall be used to determine the bending radius.*

i) *FR8608 and FR 8606: Article 340 Underground Feeder and Branch Circuit Cable: Type UF. Changes included bend radius diameter changes same as FR 8605 per (h) above and minimum conductor size per FR 8613 per (c) above respectively.*

Affirmative Statement to FR 8608 and FR 8606: Note that Table 250.122 requires that the minimum size for EGC (copper) is #14.

2) Statements Opposing First Revisions

None

3) Motion

Motion to support all First Revisions with affirmative statements provided above for FR 8613, FR 8420, FR 8435, FR 8606, and FR 8608.

4) Vote

For the Motion	***18***
Against the Motion	***0***
Abstentions	***0***

5) Direction to IEEE-IAS/PES- JTCC Representative

JTCC Representative is directed to support all first revisions and include the statements provided above for FR 8613, FR 8420, FR 8435, FR 8606, and FR 8608.

CMP-7, 2023 NEC First Draft Report

NO REPRESENTATION

CMP-8, 2023 NEC First Draft Report

Articles 342, 344, 348, 350, 352, 353, 354, 355, 356, 358, 360, 362, 366, 368, 369(new) 370, 371(new) 372, 374, 376, 378, 380, 384, 386, 388, 390, 392, Chapter 9, Tables 1 through 4, Example D13, and Annex C

(Paul Myers, Principal - Alternate Vacant)

1) Noteworthy Panel Actions

1) RESOLVE

Public Input No. 4111-NFPA 70-2020 [New Section after 392.20(C)]
Public Input No. 4143-NFPA 70-2020 [New Section after 392.20(C)]
Public Input No. 4395-NFPA 70-2020 [New Section after 392.20(C)]
Public Input No. 4148-NFPA 70-2020 [Section No. 392.20(C)]
Public Input No. 4400-NFPA 70-2020 [Section No. 392.20(C)]

Submitter: ***Charles Darnell, Talon Products***
James Hughes, CMP Products Texas Inc

Statement of issue PI's are addressing:

All of the above PI's are related to the securement of cables run in cable trays. The gist of the proposals (as I understand them – using some of the language of one of the PIs) is to require that all sets of multi-phase single conductors that are installed together in tray be secured together and fixed to the cable support system with a listed cable restraining device, capable of withstanding the maximum potential electromechanical force generated under short circuit fault conditions. Included in one of the PIs was a suggested formula for estimating these forces.

Typical Committee Statement:

The submitter's Public Input has not provided a technical substantiation and requirements to add additional securement requirements for maximum available fault-current. In addition, securing and support is addressed in 392.30. Cable securement is determined during the engineering design of the system.

2) First Revision No. 7620-NFPA 70-2020 [Global Input] [New Article 369]

Action:

This first revision added a new Article 369 defining and listing the requirements for Insulated Pipe Bus.

3) First Revision No. 7621-NFPA 70-2020 [Global Input] [New Article 371]

Action:

This first revision added a new Article 371 defining and listing the requirements for Flexible Bus Systems.

2)

Statements Opposing First Revisions

None

3) Motion

Motion to support all First Revisions

4) Vote

For the Motion	***18***
Against the Motion	***0***
Abstentions	***0***

5) JTCC Direction to IEEE-ER

JTCC Representative is directed to support all first revisions

CMP-9, 2023 NEC First Draft Report

Articles 312, 314, 404, 408, 450, 490

(Paul Sullivan, Principal - Alternate Vacant)

1) Noteworthy Panel Actions

1. *First Revision No. 7940-NFPA 70-2020 [Global Input]*

   Intent is to group overcurrent and overvoltage protection for systems rated over 1000 Volts AC or 1500 Volts DC into one section to make the NEC more user friendly. Based on recommendation from Medium Voltage Task Group that was formed to study the NEC and organization relative to medium voltage systems. No requirement changes based on this PI.

   Action:

   This first revision added a new Article 245 titled *Overcurrent and Overvoltage Protection for Systems Rated Over 1000 Volts AC, 1500 Volts DC*.

- Overcurrent Protection requirements in Part IX of Article 240 (Overcurrent Protection over 1000 Volts, Nominal), and Overvoltage Protection requirements in Part III of Article 242 (Surge Arresters, Over 1000 Volts) are relocated to a new Article 245, “Overcurrent and Overvoltage Protection for Systems Rated Over 1000 VAC, 1500 VDC. In addition, requirements from Article 490 that are specific to overcurrent protection are relocated to the new Article 245.

2. *First Revision No. 7941-NFPA 70-2020 [Global Input]*

   Intent is to group overcurrent and overvoltage protection for systems rated over 1000 Volts AC or 1500 Volts DC into one section to make the NEC more user friendly. Based on recommendation from Medium Voltage Task Group that was formed to study the NEC and organization relative to medium voltage systems. No requirement changes based on this PI.

   Action:

   Article 490 renumbered to Article 495 with 10 parts.

- Parts I –V are existing 490 text relocated and renumbered to “New” Article 495.
- Part VI consists of relocated materials from Article 430 Part XI “Over 1000 Volts, Nominal,” with Sections 430.221 - 430.227 relocated to Sections 495.80 - 495.86. The over 1000 Volts portions of tables 430.249 and 430.250, including notes, have also been relocated o Part VI.
- Part VII contains the requirements from Article 450 regarding Transformers, Over 1000 Volts, including requirements for liquid-filled transformers. While liquid-filled transformers (including “less flammable,” “nonflammable,” “askarel-insulated”) may be used in any installation, they are more common in installations over 1000 volts. While these requirements are relocated to Article 495, a new section 450.23 notes that the requirements in Part VII of 495 apply.
- Part VIII contains requirements from Article 450 Part III, Transformer Vaults. While transformer vaults may be used in any installation, they are more common in installations over 1000 volts. While these requirements are relocated to Article 495, a new section 450.40 notes that the requirements in Part VIII of 495 apply.
- Changes to Article 450 will be necessary when requirements are relocated. The attached document shows how these changes will impact Article 450 (based on the 2020 Code text).
- Part IX contains the Requirements from Article 460 Part II, Capacitors, Over 1000 volts, nominal, (previously numbered 460.24 - 460.28).
- Part X contains the requirements from Article 470 (Resistors and Reactors), Part II Over 1000 volts, Nominal (previously numbered 470.18 - 470.20).

3. *Numerous FRs*

Action:

Several FRs completed to address NEC Style Manual updates, including moving definitions to Article 100.

4. *First Revision No. 8279-NFPA 70-2020*

Action:

Added informational note in definition of high voltage to state that circuits and equipment rated over 1000 Volts to 52 kV is commonly referred to as medium voltage.

- Did not attempt to modify terms in the rest of the NEC based on high voltage or medium voltage descriptions.

5. *First Revision No. 7946-NFPA 70-2020*

Action:

Added in the definition of panelboard the use of a panelboard within a floor-mounted commercial appliance center.

- These are panelboard in special floor-flush mounted enclosures that are often used in convention centers. Previously they were not permitted in the NEC but were regularly used.

6. *First Revision No. 7820-NFPA 70-2020*

Action:

Added new section 312.10 titled Screws or Other Fasteners. The new section addresses the types of screws and fasteners that can be used to attach covers, devices, or labels.

- Use fasteners specified by manufacturer for covers or devices.
- Screws of fasteners installed in the field and that enter the wiring space must have blunt ends and enter into the enclosure by no more than ¼" unless the end is protected.

7. *First Revision No. 7711-NFPA 70-2020*

Action:

Added section 312.102 to require a door or cover to be provided for all cabinets, cutout boxes, and meter socket enclosures.

- This requirement ensures a properly designed cover is provided with the equipment.

8. *First Revision No. 7821-NFPA 70-2020*

Action:

Added new section 314.5 titled Screws or Other Fasteners. The new section addresses the types of screws and fasteners that can be used to attach covers, devices, or labels.

- Similar concept as additional of section 312.10.

9. *First Revision No. 7731-NFPA 70-2020*

Action:

Removing cable clamp assembly which would have included a cable termination.

- The product line this paragraph intended to cover never came to market.

10. *First Revision No. 7889-NFPA 70-2020*

Action:

Added statement that the scope of Article 404 does not include wireless control equipment to which circuit conductors are not connected.

- Some personnel were attempting to make the requirements of Article 404 apply to items such as a fan/light remote-control device.

11. *First Revision No. 7861-NFPA 70-2020*

Action:

Added section 404.30 to require switch enclosures with doors to require a tool or other means be required to open the door if opening the door would expose a person to uninsulated live parts.

- Vast majority of these devices have this feature today.

12. *First Revision No. 7895-NFPA 70-2020*

Action:

Modified section 408.4 (applies to switchgear, switchboards, and panelboards):

- Changed title from “Field Identification” to “Descriptions Required”.
- Changed description from “legibly identified” to “legibly and permanently described” for its purpose or use.
- Added requirement to indicate that source of supply description include a physical location.

13. *First Revision No. 7951-NFPA 70-2020*

Action:

Modified section 408.8 (applies to switchgear, switchboards, and panelboards):

- Added requirement that reconditioned equipment be listed or field labeled as reconditioned.
- Add reference to section 110.21(A)(2) for marking requirements.
- Removed requirement to remove previously applied listing marks for switchboards and switchgear.

14. *First Revision No. 7950-NFPA 70-2020*

Action:

Modified section 408.38 to require a panelboard and enclosure combination be evaluated for the application if the available fault current is greater than 10,000 amperes.

15. *First Revision No. 7944-NFPA 70-2020*

Action:

Modified section 408.43 to not allow a panelboard to be installed in a face-down position.

- Mounting in a face-up position was already prohibited.
- Main concern being addressed is working space requirements.

16. *First Revision No. 7791-NFPA 70-2020*

Action:

Modified section 450.43 to require personnel doors to vaults be able to be opened at least 90 degrees.

17. *First Revision No. 7966-NFPA 70-2020*

Action:

Modified section 490.49 (applies to switchgear):

- Add reference to section 110.21(A)(2) for marking requirements.
- Removed requirement to remove previously applied listing marks for switchboards and switchgear.

2) **Statements Opposing First Revisions**

None

3) Motion

Motion to support all First Revisions

4) Vote

For the Motion	***18***
Against the Motion	***0***
Abstentions	***0***

5) Direction to IEEE-IAS/PES- JTCC Representative

JTCC Representative is directed to support all first revisions

CMP-10, 2023 NEC First Draft Report

Articles 215, 225, 230, 240, 280 and 285

(Steve Townsend, Principal - Peter Walsh, Alternate)

Panel statistics:
Number of Public Inputs/Comments acted upon: 129
Number of First/Second Revisions Created: 124

1) Noteworthy Panel Actions

a) First Revision No. 7778-NFPA 70-2020 [Section No. 230.91(A)]

Submitter: Chad Kennedy, Schneider Electric (PI No. 4261)

230.91 Location.

(A) General.

The service overcurrent device shall be an integral part of the service disconnecting means or shall be located immediately adjacent thereto. Where fuses are used as the service overcurrent device, the disconnecting means shall be located ahead of the supply side of the fuses.

(B) Separate Enclosure.

Services over 150 volts to ground and not over 1000 volts phase-to-phase that include fuses rated 1600 amperes or higher, or circuit breakers where the highest continuous current trip setting for which the actual overcurrent device installed in a circuit breaker is rated or can be adjusted is 1600 amperes or higher, the service disconnecting means and overcurrent device shall be located in a separate enclosure from feeder or branch circuit overcurrent devices.

Statement of the Problem:

For most installations, the line side of the service equipment is the location with the highest incident energy exposure for electrical workers. This public input is submitted to address hazards where justified energized work must be performed in service equipment. In the last NEC cycle, requirements for barriers to prevent inadvertent contact in service equipment were expanded. However, this requirement provides a degree of electric shock protection only and does not address the severity of arc flash hazards in service equipment. According to NFPA 70E, an arc flash hazard exists (1) where exposed energized conductors or circuit parts exist and, (2) or where a person is interacting with the equipment in a manner that increases the likelihood of an arc flash incident. Both of those situations exist when work must be performed within service equipment. The inability to determine the clearing time of a line side fault makes the completion of arc flash risk assessment difficult. The arc-flash hazard due to these energy levels limits the ability to service and maintain the equipment as necessary for continued safe operation. System designers are adapting to address this issue with the implementation of remote mains, arc resistant equipment ratings, and other safety by design approaches that are tested for arcing performance and worker incident energy exposure. This proposal introduces requirements to address installations where the risk typically warrants additional protection methods.

Committee Statement:

This revision expands the safety driven concept in 230.62(C) to require isolation through separation on larger services.

Affirmative Statement to FR 7778: Change "separate enclosure" to "separate enclosure or separate barriered vertical section". Inadvertent contact is avoided through both separate enclosures and/or separate vertical sections.

b) First Revision No. 8196-NFPA 70-2020 [New Section after 230.95]

Submitter: James Dollard, IBEW Local Union 98 (PI No. 3352)

230.95 Ground-Fault Protection of Equipment.

*Ground-fault protection of equipment shall be provided for solidly grounded wye electric services of more than 150 volts to ground but not exceeding 1000 volts phase-to-phase for ~~service disconnecting means installed in accordance with 230.71 where the individual or combined ampere rating of service disconnects is 800A~~ each service disconnect rated **800**~~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*

Statement of the Problem:

The requirements for GFPE protection in 230.95 have existed for many, many years without revision or even a look at new technologies. The reason for this requirement is simple, this exists to protect equipment. The questions that I have been asking myself for years are: (1) why haven't we looked at new technology with respect to GFPE of service equipment, (2) why is this limited to disconnects rated 1000 amps and higher, (3) are smaller 480/277 volt services immune to arc duration?, (4) can the NEC provide other options?

This public input introduces answers to these questions in the form of a revised requirement. We need to look to new technology and embrace it where we can ensure equal or superior protection. We need to delete the requirement for disconnects rated at 1000 amps or more and protect all services that lend themselves well to arc duration. Any service at any ampacity, any disconnect rating, supplied at 480/277 represents significant arc flash hazards, the potential for arc duration and the possible complete destruction of the service equipment. The NEC can and should provide additional options for protection of service equipment supplied at over 150 volts to ground and not over 1000 volts phase to phase. None of the methods suggested in this PI are new. All of them exist in 240.67 & 240.87 and are proven to protect even better than standard GFPE. New technology makes it more feasible to protect smaller services.

Committee Statement:

The original substantiation for ground fault protection found in the preprint for the 1971 NEC revision cycle discusses the need for ground fault protection starting at 800 A and above acknowledging the "equipment burndowns" on 480/277 volt and higher services in larger capacity ranges that resulted from let-through levels that would not open the overcurrent device.

The language is revised to reduce the current level from 1000A to 800A.

Negative Statement to FR 8196: This change reduces or eliminates selective coordination within the system causing wider scale outages. This decreases system reliability. An increased outage potential can result in a degradation of safety. There is no technical substantiation provided for reducing the current level from 1000A to 800A.

c) First Revision No. 7805-NFPA 70-2020 [New Section after 240.6]
Submitter: Danish Zia, UL LLC (PI 3364)

240.7 Listing Requirements.

Branch-circuit overcurrent protective devices shall be listed.

Statement of the Problem:

This public input requires listing of "branch-circuit overcurrent protective devices" defined in Article 100.

Overcurrent protection devices protecting branch, feeder or service circuits are safety critical devices that have long been required by AHJs to be listed by third party laboratories. Requiring branch-circuit overcurrent protective devices in the National

Electrical Code to be listed provides a basis for Authority Having Jurisdiction to approve the overcurrent protective devices. When electrical equipment is not listed, AHJ's must examine the electrical equipment in accordance with Section 110.3(A) as a basis for approval. Due to the inherent design and complexity of these devices, AHJ's do not have the expertise and test equipment to examine non-listed equipment for suitability.

There are many sections of the Code requiring listing already. Examples include:

- *Section 240.4(D) requiring branch-circuit fuses and circuit breakers to be listed and marked for use with 18 AWG or 16 AWG copper wire.*
- *Section 240.8 requiring fuses or circuit breakers used in parallel to be factory assembled in parallel and listed as a unit.*
- *Section 240.83 (D) requiring circuit breakers used as switches for 120V or 277V fluorescent lighting circuit to be listed and marked for SWD or HID, as applicable.*
- *Section 690.9(B) requiring overcurrent devices used in dc circuits to be listed for use in PV systems.*

These examples and others through the NEC already require listing for specific applications.

Additionally, Section 240.88 requires reconditioned equipment to be listed as "reconditioned". If reconditioned equipment is required to be listed, then new equipment should also be listed.

This new section solidifies a long understood practice in the code and the field.

Committee Statement:

Overcurrent protection devices protecting branch, feeder or service conductors are safety critical devices that have long been required by AHJs to be listed by third party laboratories. Requiring branch-circuit overcurrent protective devices in the National Electrical Code to be listed provides a basis for the Authority Having Jurisdiction to approve the overcurrent protective devices. When electrical equipment is not listed, AHJ's must examine the electrical equipment in accordance with Section 110.3(A) as a basis for approval. Due to the inherent design and complexity of these devices, AHJ's do not have the expertise and test equipment to examine non-listed equipment for suitability.

CMP-10 requests that CMP-1 add UL 1066 to Annex A. CMP-10 requests that the NEC-CC review and correlate this action.

First Revision No. 7947-NFPA 70-2020 [New Section after 240.6 (C)]

Submitter: John Kovacik, UL LLC c(PI 4026)

240.6 Standard Ampere Ratings.

(D) Remotely Accessible Adjustable-Trip Circuit Breakers.

A circuit breaker(s) that is remotely accessible and has password protected

access to the adjusting means shall be permitted to have an ampere rating(s) that is equal to the adjusted current setting (long-time pickup setting). Remote access shall be achieved by one of the following methods:

1) Connected directly through a local nonnetworked interface.

2) Connected through a networked interface complying with one of the following methods:

a. The circuit breaker and associated software for adjusting the settings is identified as being evaluated for cybersecurity.

b. A cybersecurity assessment of the network is completed. Documentation of the assessment and certification shall be made available to those authorized to inspect, operate, and maintain the system.

Informational Note (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 (2): Examples of the commissioning certification used to demonstrate the system has been investigated for cybersecurity vulnerabilities could be one of the following:

(1) The ISA Security Compliance Institute (ISCI) conformity assessment program

(2) Certification of compliance by a nationally recognized test laboratory

(3) Manufacturer certification for the specific type and brand of system provided

Statement of the Problem:

SMART devices are becoming more commonplace, especially with regards to industrial and life-safety equipment such as circuit breakers. Along with this technology, comes the increased threat of cyberattacks. These attacks cost millions of dollars and could potentially affect the way life-safety equipment and critical systems are supposed to operate. A cybersecurity plan for these types of devices should be considered to ensure all critical systems quality attributes, such as integrity and availability are maintained. The concern is around the safety related security of these devices and not concerns about privacy or data protection.

Section 240.6(C) allows a circuit breaker to be rated based on the adjusted setting if considered to have restricted access. Restricted access is achieved where the circuit breaker is located behind a physical barrier, such as a sealable cover over the adjusting knobs or locked door with access only to qualified personnel, or is password protected where the password is accessible only to qualified personnel. These means are effective only when the adjustable setting is accessible only from the circuit breaker. There are circuit breakers available on the market where the setting may also be configured by remote access through another interface device, such as an accessory interface module, computer or a smartphone/tablet. These devices communicate with the circuit breaker through unsecured networks which are subject to cyber threats. Intentional or unintentional tampering of the adjustable setting through remote access

could result in damage to property and/or loss of life, and would defeat the purpose of 240.6(C).

This public input clarifies Section 240.6(C) to allow circuit breakers to be considered as having restricted access per 240.6(C)(1), (2), (3) or (4) if the adjustment means is accessible only on the circuit breaker. In installations where the adjustment means may be remote, an exception is added for both the remote and local interfaces to be in compliance with 240.6(C)(1), (2), (3) or (4), and additionally require evaluation of the device and associated software for cybersecurity.

Committee Statement:

SMART devices are becoming more commonplace, especially with regards to industrial and life-safety equipment such as circuit breakers. Along with this technology, comes the increased threat of cyberattacks.

These revisions are safety-driven and address the safety related security of these devices and not concerns about privacy or data protection.

This revision clarifies Section 240.6(C) which allows circuit breakers that are "not remotely accessible" to be considered as having restricted access per 240.6(C)(1), (2), (3) or (4) if the adjustment means is accessible only on the circuit breaker.

In installations where the adjustment means may be remote, a new first level subdivision (D) is added to require an evaluation of the device and associated software for cybersecurity.

d) First Revision No. 7834-NFPA 70-2020 [New Section after 240.67]
Submitter: Thomas Domitrovich, Eaton Corporation (PI No. 317)

240.67 Arc Energy Reduction.

*Where fuses rated **1000** ~~1200~~ A or higher are installed, 240.67(A)**,** ~~and~~ (B) **and (C)** shall apply. ~~This requirement shall become effective January 1, 2020.~~*

Statement of the Problem:

40.87 is now separated into three first level sub-divisions including (A), (B) and (C). The parent text of this section should reflect this fact.

The effective date is no longer required.

Committee Statement:

This revision editorially deletes the delayed implementation date and adds a reference to first level subdivision (C) in the parent text.

Arc energy reduction requirements for circuit breakers rated at 1200 amps have been in the NEC since the 2011 edition. Means, methods and technologies to provide arc energy reduction for circuit breakers and fuses rated 1200 amps or more have increased significantly. Therefore, the level of protection is increased by reducing the value to protect all to 1000 amp installations.

Affirmative Statement to FR 7834: Delete "and C" in the first sentence. Add a new

sentence: "240.67(C) shall apply if one of the methods specified in 240.67(B)(1) through (5) is used as a method to reduce clearing time." Performance testing as specified in 240.67(C) is not required for fuses with a clearing time of 0.07 seconds or less at the available arcing current.

e) First Revision No. 7815-NFPA 70-2020 [Section No. 240.67(B)]

Submitter: NEC-P10 (PI No. 3094)

240.67 Arc Energy Reduction.

(B) Method to Reduce Clearing Time.

A fuse shall have a clearing time of 0.07 seconds or less at the available arcing current, or one of the following means shall be provided and shall be set to operate at less than the available arcing current:

(1) Differential relaying

(2) Energy-reducing maintenance switching with local status indicator

(3) Energy-reducing active arc-flash mitigation system

(4) Current-limiting, electronically actuated fuses

(5) An approved equivalent means

*Informational Note No. 1: An energy-reducing maintenance switch allows a worker to set a disconnect switch to reduce the clearing time while the worker is working within an arc-flash boundary as defined in NFPA 70E-20**21**~~18~~, Standard for Electrical Safety in the Workplace, and then to set the disconnect switch back to a normal setting after the potentially hazardous work is complete.*

*Informational Note No. 2: An energy-reducing active arc-flash mitigation system helps in reducing arcing duration in the electrical distribution system. No change in the disconnect switch or the settings of other devices is required during maintenance when a worker is working within an arc-flash boundary as defined in NFPA 70E-~~2018~~**2021**, Standard for Electrical Safety in the Workplace.*

Committee Statement:

The references to IEEE 1584 and NFPA 70E are modified to recognize the current standards.

The structure of the Informational Note No. 3 was revised to comply with Section 3.1.3.1 and 4.1.3 of the NEC Style Manual

f) Public Input No. 555-NFPA 70-2020 [Section No. 240.67(C)]

Submitter: CMP-10

240.67(c).

(C) Performance Testing.

The arc energy reduction protection system shall be performance tested by primary current injection testing or another approved method when first installed

on site. This testing shall be conducted by a qualified person(s) in accordance with the manufacturer's instructions.

A written record of this testing shall be made and shall be available to the authority having jurisdiction.

Committee Statement:

CMP-10 reaffirms TIA 20-4 as written in the 2020 NEC. The language established in the Second Draft of the 2020 NEC in SR 8020 recognized the need to performance test the system for providing energy reduction for electrical worker safety, however it only required primary current injection testing of "instantaneous elements of the protective device." Not ALL energy reduction systems will utilize the instantaneous functionality of the overcurrent protective device to meet the main requirement to reduce arc energy. Therefore, the language was revised by the TIA to reference the manufacturer's instructions that will ensure the system is properly performance tested without: 1) performing unnecessary tests, 2) damaging the equipment, or 3) omitting necessary performance testing for the specific technology. The informational note alerts the reader of potential equipment damage and that other means of compliance may be necessary in accordance with the manufacturer's instruction to conduct the performance test to comply with 240.67(C).

g) Public Input No. 556-NFPA 70-2020 [Section No. 240.87(C)]
Submitter: CMP-10

240.67(c).

(C) Performance Testing.

The arc energy reduction protection system shall be performance tested by primary current injection testing or another approved method when first installed on site. This testing shall be conducted by a qualified person(s) in accordance with the manufacturer's instructions.

A written record of this testing shall be made and shall be available to the authority having jurisdiction.

Committee Statement:

CMP-10 reaffirms TIA 20-4 as written in the 2020 NEC. The language established in the Second Draft of the 2020 NEC in SR 8020 recognized the need to performance test the system for providing energy reduction for electrical worker safety, however it only required only primary current injection testing of "instantaneous elements of the protective device." Not ALL energy reduction systems will utilize the instantaneous functionality of the overcurrent protective device to meet the main requirement to reduce arc energy. Therefore, the language was revised by the TIA to reference the manufacturer's instructions that will ensure the system is properly performance tested without: 1) performing unnecessary tests, 2) damaging the equipment, or 3) omitting necessary performance testing for the specific technology. The informational note alerts the reader of potential equipment damage and that other means of compliance may be necessary in accordance with the manufacturer's instruction to conduct the performance test to comply with 240.87(C).

h) First Revision No. 7818-NFPA 70-2020 [New Section after 240.87 Excluding sub-sections]

Submitter: James Dollard, IBEW IBEW Local Union 98 (PI No. 2867), Thomas Domitrovich, Eaton Corporation (PI No. 316); John Cowans (Siemens) (PI 1890).

240.67. Arc Energy Reduction

Where the highest continuous current trip setting for which the actual overcurrent device installed in a circuit breaker is rated or can be adjusted is 10001200 A or higher, 240.87(A), and (B) and (C) shall apply. ~~Effective January 1, 2026, where the highest continuous current trip setting for which the actual overcurrent device installed in a circuit breaker is rated or can be adjusted is 800 A or higher, 240.87(A), (B) and (C) shall apply.~~

Statement of the Problem:

Arc energy reduction requirements for circuit breakers rated at 1200 amps have been in the NEC since the 2011 edition. Means, methods and technologies to provide arc energy reduction for circuit breakers and fuses rated at 1200 amps or more have increased significantly. There is no practical reason not to expand this level of protection to 1000 amp feeders.

Committee Statement:

This revision editorially deletes the delayed implementation date and adds a reference to first level subdivision (C) in the parent text.

Arc energy reduction requirements for circuit breakers rated at 1200 amps have been in the NEC since the 2011 edition. Means, methods and technologies to provide arc energy reduction for circuit breakers and fuses rated 1200 amps or more have increased significantly. Therefore, the level of protection is increased by reducing the value to protect all to 1000 amp installations.

i) First Revision No. 7819-NFPA 70-2020 [Section No. 240.87(A)]

Submitter: NEC-P10 (PI No. 7819)

240.87 Arc Energy Reduction.

(B) Method to Reduce Clearing Time.

(1) Zone-selective interlocking

(2) Differential relaying

(3) Energy-reducing maintenance switching with local status indicator

(4) Energy-reducing active arc flash mitigation system

(5) An instantaneous trip setting. Temporary adjustment of the instantaneous trip setting to achieve arc energy reduction shall not be permitted.

(6) An instantaneous override

(7) An approved equivalent means

*Informational Note No. 1: An energy-reducing maintenance switch allows a worker to set a circuit breaker trip unit to "no intentional delay" to reduce the clearing time while the worker is working within an arc-flash boundary as defined in NFPA 70E-~~**2018**~~ **2021** , Standard for Electrical Safety in the Workplace, and then to set the trip unit back to a normal setting after the potentially hazardous work is complete.*

*Informational Note No. 2: An energy-reducing active arc-flash mitigation system helps in reducing arcing duration in the electrical distribution system. No change in the circuit breaker or the settings of other devices is required during maintenance when a worker is working within an arc-flash boundary as defined in NFPA 70E-~~**2018**~~ **2021**, Standard for Electrical Safety in the Workplace.*

Informational Note No. 3: An instantaneous trip is a function that causes a circuit breaker to trip with no intentional delay when currents exceed the instantaneous trip setting or current level. If arcing currents are above the instantaneous trip level, the circuit breaker will trip in the minimum possible time.

*Informational Note No. 4: IEEE 1584-~~**2002**~~**2018**, IEEE Guide for Performing Arc Flash Hazard Calculations, is one of the available methods that provide guidance in determining arcing current.*

Committee Statement:

The references to IEEE 1584 and NFPA 70E are modified to recognize the current standards.

2) **Statements Opposing First Revisions**

Negative Statement to FR 8196: This change reduces or eliminates selective coordination within the system causing wider scale outages. This decreases system reliability. An increased outage potential can result in a degradation of safety. There is no technical substantiation provided for reducing the current level from 1000A to 800A.

3) Motion

Motion to support all First Revisions with affirmative comments above for FR 7834 and FR 7778 except for FR 8196 with the negative statement above.

4) Vote

For the Motion	***18***
Against the Motion	***0***
Abstentions	***0***

5) JTCC Direction to IEEE-ER

JTCC Representative is directed to support all first revisions and include the affirmative statements provided above for FR 7834 and FR 7778 with the exception of FR 8196 with the negative statement provided above

Bio Break	***15 minutes***

CMP-11, 2023 NEC First Draft Report

Articles 409, 430, 440, 460, 470 and Annex D, Examples D8

(*Arthur J. Smith, III, Principal - Steven Townsend, Alternate*)

1) Noteworthy Panel Actions

a. RESOLVE Public Input No. 3297-NFPA 70-2020 [Section No. 409.1]
Submitter: Michael Anthony, Standards Michigan, IEEE Education & Healthcare Facility Electrotechnology Committee

409.1 Scope.

This article covers industrial control panels intended for general use and operating at 1000 volts or less.

*Informational Note **1**: ANSI/UL 508A, Standard for Industrial Control Panels, is a safety standard for industrial control panels.*

Informational Note 2: See IEEE 3001.11 Recommended Practice for Application of Controllers and Automation to Industrial and Commercial Power Systems

Statement of the Problem:

This is another slice of updated content from the legacy "Red Book" IEEE 141 and "Gray Book: IEEE 241 into the new IEEE 3000 Standards Collection. From the project prospectus:

"The selection and application of controllers and automation to industrial and commercial power systems is covered by this recommended practice. It is likely to be of greatest value to the power-oriented engineer with limited experience with this equipment. It can also be an aid to all engineers responsible for the electrical design of industrial and commercial power systems."

Committee Statement:

The proposed informational note does not improve the usability of the NEC.

b. First Revision No. 3386-NFPA 70-2020 [New Section after 409.60]
Submitter: Donald Iverson Schneider

409.70 Surge Protection.

Industrial Control Panels with safety circuits shall have surge protection installed in accordance with Part II of Article 242

Statement of the Problem:

The study, "Data Assessment for Electrical Surge Protective Devices" commissioned by the Fire Protection Research Foundation, 1 Batterymarch Park, Quincy, MA 02169-7471, provides results of a 2013 and 2014 survey of facility managers concerning surge damage. It shows that 26% had damage to safety interlocking systems on machines due to surges. These safety-interlocking systems are in place to protect workers from interactions with the machinery. There were 50% of the respondents had issues related to surge damage in other areas where industrial control panels may be used for Security, Fire, and other systems. Injuries were stated in 11% of the responses. This report led to a number of proposals that were rejected at the time, but many have been accepted since as the continued voltage surge damages

"Surge Protection More than Accessory" Survey & report conducted by the Electrical Safety Foundation, Inc. (EFSI) in December 2017 provided the following information for industrial facilities. There is additional data found in the full report that expands on these results.

1) *Industrial facilities experienced voltage surges significant enough to cause equipment damage:*

- ***a)*** *23.6% Daily*
- ***b)*** *29.1% Weekly*

c) *23.6% Monthly*
d) *20.9% Annually*
e) *2.7% Less than once a year*

2) *Industrial facilities experience voltage surges significant enough to cause injury or death:*

a) *17.3% Daily*
b) *18.2% Weekly*
c) *12.7% Monthly*
d) *27.3% Annually*
e) *24.5% Less than once a year*

3) *What causes surge protection to be installed in a specific building?*

a) *Surge protection required by code 28.9%*
b) *Customer Specified Surge Protection 25.7%*
c) *Protect expensive equipment from damage 28.9%*
d) *Reduced downtime 16.2%*
e) *Other 0.2%*

4) *• Conditions that lead to voltage surges:*

a) *Faulty/damaged wiring 24.4%*
b) *Electrical equipment turning on/off 16.1%*
c) *Magnetic coupling 11.9%*
d) *Lightning strike 21.5%*
e) *Static electricity discharge 15.0%*
f) *Grid anomalies 11.9%*

The conditions list shows that 40% of the conditions which cause surges within an Industrial facility occur within the facility.

Committee Statement:

This first revision to require surge protective devices addresses a documented safety issue that has been reported by the Electrical Safety Foundation. This language provides consistency with requirements for industrial machinery in Article 670.

c. ***First Revision No. 1357-NFPA 70-2020 [Section No. 409.60]***
Submitter: Mike Holt Mike Holt Enterprises Inc.

409.60 Equipment Grounding Conductor.

Multisection industrial control panels shall be bonded together with an equipment grounding conductor or an equivalent equipment grounding bus sized in accordance with Table 250.122. Equipment grounding conductors shall be connected to this equipment grounding bus or to an equipment grounding termination point provided in a single-section industrial control panel.

Statement of the Problem:

According to the NFPA Style Manual, the Section Title needs to reflect the content of the rule. The rule is about the equipment grounding conductor, not about 'Grounding.'

Committee Statement:

Section 409.60 (including the title) is revised to reflect the intent that sections of industrial control panels be bonded together.

d. ***First Revision No. 2390 and 3332-NFPA 70-2020 [Section No. 409.110]***
Submitter: Barry Freiner Rogers Schmidt Engineering CO., P.C.

409.110 Marking.

An industrial control panel shall be marked with ~~the following information~~ ***a permanent nameplate attached to the outside of the enclosure*** *that is ~~plainly~~ visible after installation. The nameplate shall include the following information:*

(1) Manufacturer's name, trademark, or other descriptive marking by which the organization responsible for the product can be identified.

(2) Supply voltage, number of phases, frequency, and full-load current for each incoming supply circuit.

(3) Industrial control panels supplied by more than one electrical source where more than one disconnecting means is required to disconnect all circuits 50-volts or more within the control panel shall be marked to indicate that more than one disconnecting means is required to deenergize the equipment. The location of the means necessary to disconnect all circuits 50-volts or more shall be documented and available.

(4) Short-circuit current rating of the industrial control panel based on one of the following:

(a) Short-circuit current rating of a listed and labeled assembly

(b) Short-circuit current rating established utilizing an approved method

Informational Note: ANSI/UL 508A, Standard for Industrial Control Panels, Supplement SB, is an example of an approved method.

Exception to (4): Short-circuit current rating markings are not required for industrial control panels containing only control circuit components.

(5) If the industrial control panel is intended as service equipment, it shall be marked to identify it as being suitable for use as service equipment.

(6) Electrical wiring diagram or the identification number of a separate electrical wiring diagram or a designation referenced in a separate wiring diagram.

(7) An enclosure type number shall be marked on the industrial control panel enclosure.

Statement of the Problem:

The term "plainly visible" is not defined and creates confusion as to the location of the nameplate marking. Industrial machinery is required to have this marking located on the outside of the control equipment enclosure or on the machine immediately adjacent to the enclosure per NFPA 79 16.4.1. There is no reason why industrial control panels should require the nameplate marking location to be different than industrial machinery, since it contains critical application information. Additionally, this will support ease of inspection for the critical safety related equipment ratings, such as short-circuit current ratings.

Committee Statement:

The requirements in 409.110 are being revised such that the marking be done with a permanent nameplate of sufficient durability for the environment and not be handwritten, to be consistent with other areas of the code.

e.

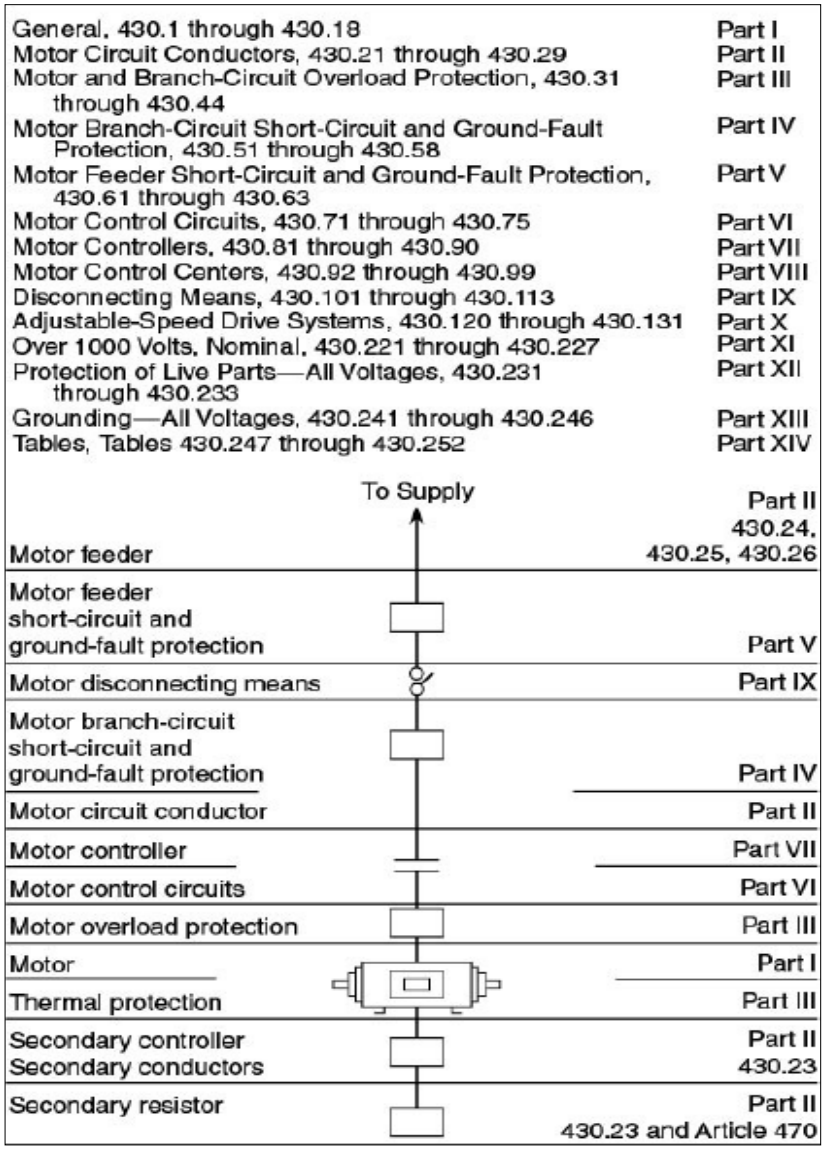
RESOLVE Public Input No. 3146-NFPA 70-2020 [Section No. 430.1]

Submitter: ***Michael Anthony, Standards Michigan, IEEE Education & Healthcare Facility Electrotechnology Committee***

430.1 Scope.

This article covers motors, motor branch-circuit and feeder conductors and their protection, motor overload protection, motor control circuits, motor controllers, and motor control centers.

Figure 430.1 Article 430 Contents.



Informational Note No. 1: Installation requirements for motor control centers are covered in 110.26(E). Air-conditioning and refrigerating equipment are covered in Article 440.

Informational Note No. 2: Figure 430.1 is for information only.

Informational Note No. 3: Additional guidance on motor supply circuits may be found in IEEE 3004.8-2016 - Recommended Practice for Motor Protection in Industrial and Commercial Power Systems.

Statement of the Problem:

This is another slice of updated content from the legacy "Red Book" IEEE 141 mapped into the new IEEE 3000 Standards Collection. From the project prospectus:

"The protection of motors used in industrial and commercial power systems is covered. It is likely to be of greatest value to the power-oriented engineer with limited experience in the area of protection and control. It can also be an aid to all engineers responsible for the electrical design of industrial and commercial power systems."

This content might also be appropriately located at the head of Part III Motor and Branch Circuit Overload Protection.

Committee Statement:

Submitter does not provide statement on how this PI will improve safety or usability. The change would not improve clarity or readability. The arrow is shown to indicate the location of the power supply not the direction of power flow.

f. First Revision No. 3096-NFPA 70-2020 [Section No. 430.7]
Submitter: Megan Hayes NEMA

430.7 Marking on Motors and Multimotor Equipment.

(9) Design letter for design A, B, C, or D motors.

Informational Note: Motor design letter definitions are found in ANSI/NEMA MG1-~~1993~~ 2016, Motors and Generators, Part 1, Definitions, and in IEEE 100-1996, ~~Standard Dictionary of Electrical and Electronic Terms~~.

Statement of the Problem:

This proposal harmonizes with the marking requirements in ANSI/NEMA MG 1-2016. The design A marking communicates that, among other things, there is no maximum value of locked-rotor current specified in ANSI/NEMA MG 1-2016 and that this maximum value must instead be determined from the manufacturer supplied marking of code letter or locked-rotor amperes that is required by 430.7(A)(8). IEEE 100-1996 is proposed to be removed from the Informational Note since that standard has been withdrawn.

Committee Statement:

*Revisions made to add motor design letter A to the nameplate to increase the information to the user. Informational note revised to reference the most current revision of NEMA MG1 ~~and the withdrawal of IEEE 100 since it is no longer active~~. **IEEE 100 available but revise date to 2000***

g. RESOLVE Public Input No. 2721-NFPA 70-2020 [Section No. 430.51]
Submitter: Michael Anthony, Standards Michigan, IEEE Education & Healthcare Facility Electrotechnology Committee

409.1 General.

Part IV specifies devices intended to protect the motor branch-circuit conductors, the motor control apparatus, and the motors against overcurrent due to short circuits or ground faults. These rules add to or amend Article 240. The devices specified in Part IV do not include the types of devices required by 210.8, 230.95, and 590.6.

*Informational Note **1**: See Informative Annex D, Example D8.*

Informational Note 2: See IEEE 3004.8 Recommended Practice for Motor Protection in Industrial and Commercial Power Systems

Informational Note 3: See IEEE 3002.7 Recommended Practice for Conducting Motor-Starting Studies and Analysis of Industrial and Commercial Power Systems

Part IV shall not apply to motor circuits rated over 1000 volts, nominal.

Informational Note: For over 1000 volts, nominal, see Part XI.

Statement of the Problem:

Content that formerly existed in the legacy Color Books (Red Book Std. 141 and Gray Book Std. 241) have been mapped into smaller titles such as these two. IEEE Color Books have

been in the process of this transformation for at least two NEC cycles now. The transformation into smaller blocks of content is similar to the IEC best practice titles and aligns with the scope of this section of the NEC.

3002.7 2018: Activities related to motor-starting studies including design considerations for new systems, analytical studies for existing systems, as well as operational and model-validation considerations for industrial and commercial power systems are described. Motor-starting analysis includes evaluation of motor-starting current and voltage drop. Accuracy of calculation results primarily relies on system modeling assumptions and methods used. The use of computer-aided analysis software, with a list of desirable capabilities recommended to conduct a modern motor-starting study, is emphasized. Examples of system data requirements and result-analysis techniques are presented. Benefits obtained from motor-starting studies are discussed, and various types of computer-aided motor-starting studies are examined. Data or information required for these studies, as well as the expected results of a motor-starting study effort, are also reviewed.

Committee Statement:

While the reference documents may be useful, the substantiation does not provide details on how they would be useful in the code.

h. First Revision No. TG1-17-NFPA 70-2020 [New Section after 430.83E]
Submitter: CMP11

430.83 (F) Short-Circuit Current Rating.

A motor controller shall not be installed where the available fault current exceeds the motor controller's short-circuit current rating.

Informational Note: The short-circuit current rating may be marked on the device or may be a rating for a tested combination specified in the motor controller's technical manual or instruction sheet.

Statement of the Problem:

Short-circuit current rating can be overlooked by the user

Committee Statement:

This PI is related to PI 393. The text has been added to require the motor controller short-circuit current rating to be adequate for the available fault current similar to requirements for other types of equipment. The short-circuit current rating can be overlooked by the user and this provides an important reminder to the user to consider the available fault current and the motor controller short-circuit current rating when selecting and installing motor control equipment.

i. First Revision No. 2058-NFPA 70-2020 [Section No. 430.224]
Submitter: Paul Barnhart UL LLC

430.224 Size of Conductors.

The ampacities of conductors supplying equipment rated over 1000 V, nominal, shall be determined based on 311.60, and 430.224(A) and (B):

(A) *Conductors supplying motors shall have an ampacity not less than the current at which the motor overload protective device(s) is selected to trip.*

(B) For an adjustable speed drive system, the ampacity of the conductors supplying the power conversion equipment shall have an ampacity not less than 125 percent of the rated input current to the power conversion equipment.

Statement of the Problem:

Section 430.224 provides guidance for sizing conductors supplying motors, but does not provide further guidance for determining ampacity of medium voltage conductors. Since there is no other guidance in Part XI of Article 430, the user would default to the general requirements in Part I, but 430.6 only provides guidance for low voltage conductors. The references to Article 310 are not appropriate for medium voltage cables. Furthermore, 430.224 only addresses conductors supplying motors. When an adjustable speed drive is used, guidance for sizing of the input conductors to the drive is needed. This public input provides the necessary references to determine the correct ampacity for conductors in medium voltage motor circuits.

Committee Statement:

The panel is providing the addition of MV VFD information and is an important update to the code. The addition of requirements on sizing conductors for the input of MV VFD's is needed.

Affirmative Statement to FR 2058: The scope of Article 311covers medium voltage cable defined as 2001V to 35,000V.

j. First Revision No. 2057-NFPA 70-2020 [Section No. 430.225(A)]
Submitter: Paul Barnhart UL LLC

430.225(A) General

Each motor circuit shall include coordinated protection to automatically interrupt overload and fault currents in the motor, the motor-circuit conductors, and the motor control apparatus. ***Adjustable speed drive systems with input or output voltage ratings over 1000 V nominal shall comply with 430.124 and 430.126. All other motor circuits shall comply with 430.225(B) through (C).***

Exception: Where a motor is critical to an operation and the motor should operate to failure if necessary to prevent a greater hazard to persons, the sensing device(s) shall be permitted to be connected to a supervised annunciator or alarm instead of interrupting the motor circuit.

Statement of the Problem:

Section 430.225 provides requirements for motor-circuit overcurrent protection, but does not provide sufficient information for protection of motor circuits in adjustable speed drive systems. Including the reference to the appropriate clauses in Part X make it clear that section 430.225 does not amend the requirements for protection in adjustable speed drive systems, including motor overtemperature requirements.

Committee Statement:

The panel is providing the addition of MV VFD information as an important update to the code. The addition will improve usability of this section.

k. First Revision No. 2056-NFPA 70-2020 [Section No. 430.227]
Submitter: Paul Barnhart UL LLC

430.227 Disconnecting Means.

The controller disconnecting means shall ***be a switch or circuit breaker having a voltage rating no less than that of the circuit involved, and shall be*** *lockable in accordance with 110.25.* ***The disconnecting means shall have an ampere rating not less than 115 percent of the full-load current rating of the motor. For adjustable speed drive systems, the disconnecting means shall have an ampere rating not less than 115 percent of the rated input current of the power conversion equipment.***

Statement of the Problem:

The single sentence in 430.227 is insufficient to describe the requirements for the disconnect switch in circuits over 1000 V, nominal. Without additional text, the user might assume that 430.109 and 430.110 are applicable to equipment over 1000 V, which is not correct. The disconnect types identified in 430.109 are specifically low voltage type devices, and are not suitable for medium voltage circuits. In addition to specifying the type of device and the required current rating, the text regarding adjustable speed drive systems was added, since it might be assumed that 430.227 contains all the requirements and replaces 430.128 entirely.

Committee Statement:

This FR will improve the usability by providing the proper voltage and current ratings for MV disconnecting means.

l. First Revision No. 8063-NFPA 70-2020 [Section No. 440.11]
Submitter: CMP-11

440.11 General.

Where disconnecting means are readily accessible to unqualified persons, any enclosure door or hinged cover that exposes live parts when open shall be locked or require a tool to open.

Part II is intended to require disconnecting means capable of disconnecting air-conditioning and refrigerating equipment, including motor-compressors and controllers from the circuit conductors.

Statement of the Problem:

The placement of disconnect switches in dwellings, in locations that are accessible by other than qualified personnel, particularly by children, is a potential hazard. Knife blade disconnect switches are the ONLY widely used piece of electrical equipment that does not require a tool to access the live components inside, thus they have no child safeguards. The disconnect enclosures can often be easily opened exposing potentially life-threatening voltages and current levels if contacted by personnel. The disconnect equipment often is being installed on accessible external and internal surfaces of dwellings, in garages, and in almost any room except bathrooms in dwellings. An opened disconnect enclosure contains wiring and terminals that can be touched with tools, probes or hands. There is a need to require, that they be locked, or require a tool to physically open these enclosures.

Committee Statement:

The first revision will enhance the protection of unqualified persons in the vicinity of this equipment

Section 440.14 already addresses location See NEC 705 and 690 for similar language

2) Statements Opposing First Revisions

None

3) Motion

Motion to support all First Revisions

4) Vote

For the Motion	***18***
Against the Motion	***0***
Abstentions	***0***

5) JTCC Direction to IEEE-ER

JTCC Representative is directed to support all first revisions with affirmative comment above on First Revision No. 8045.

CMP-12, 2023 NEC First Draft Report

NO REPRESENTATION

CMP-13, 2023 NEC First Draft Report

Articles 445, 455, 480, 695, 700, 701, 702, 706, 708, 712, 750 and Annex F and G

(William Cantor, Principal, - Alternate Vacant)

1) Noteworthy Panel Actions

1) *FR 9029, 9051,9030, 9059, 9056, 9062, 9063, 9064, 9069, 9074, 9081, 9086. Changes were made to distinguish article 480 and 706.*

The title of article 480 was changed from 'Storage Batteries' to 'Stationary Standby Batteries'. A new definition was created: Battery, Stationary Standby (Stationary Standby Battery) - A battery that spends the majority of the time on continuous float charge or in a high state of charge, in readiness for a discharge event. (CMP-13)

Informational Note: Uninterruptible Power Supply (UPS) batteries are an example that falls under this definition.

The scope of article 480 was changed to: This article applies to all installations of stationary standby batteries composed of lead-acid or nickel-cadmium cells. Informational note no 1: See Article 706 for installations that do not meet the definition of stationary standby batteries or are composed of cells other than lead-acid or nickel-cadmium.

Several other changes were made in article 480 to change the terminology from 'battery system' to 'stationary standby battery'

In the scope of article 706, informational note No. 2 was changed to: See Article 480 for installations that meet the definition of stationary standby batteries and are composed of lead-acid or nickel-cadmium cells. For all other chemistries and for lead-acid and nickel-cadmium stored energy systems that do not fall under the definition of stationary standby batteries, this article applies

There were several changes to article 706.15 Disconnecting means. There was a fair amount of discussion concerning the emergency disconnect requirement for dwellings. A distinction was made between a disconnect for the ESS and a disconnect for an ESS battery. See FR 9086 for details

2) **Statements Opposing First Revisions**

None

3) Motion

Motion to support all First Revisions

4) Vote

For the Motion ***18*** ***Against the Motion*** ***0*** ***Abstentions*** ***0*** **5) Direction to IEEE-IAS/PES- JTCC Representative** ***JTCC Representative is directed to support all first revisions***	
Close by Co-Chairs	Daleep Mohla Chris Searles
Adjourn for the day	

Friday March 19

CMP-14, 2023 NEC First Draft Report

Articles 500, 501, 502, 503, 504, 505, 506, 510, 512, 513, 514, 515, 516

(Will E. McBride, Principal - Andrew Hernandez, Alternate)

1) **Noteworthy Panel Actions**

New NEC Article: Text of new Article 512 added to cover cannabis oil equipment and systems using flammable materials.

Text: Does IEEE Support this new NEC Section?

Discussion indicated that this is necessary on a technical basis.

2) **Statements Opposing First Revisions**

None

3) **Motion**

Motion to support all First Revisions

4) **Vote**

For the Motion	***16***
Against the Motion	***0***
Abstentions	***0***

5) **Direction to IEEE-IAS/PES- JTCC Representative**

JTCC Representative is directed to support all first revisions

CMP-15, 2023 NEC First Draft Report

Articles 517, 518, 520, 522, 525, 530, 540

(Matt Dozier, Principal – Michael Anthony, Alternate)

1) **Noteworthy Panel Actions**

a) Panel addressed 167 Public Inputs (PI's). 10 PI's were found not applicable to CMP-15 and addressed by other CMP's; Panel Resolved 53 PI's and voted to make a First Revision for 104 PI's.

b) Panel addressed Public Inputs to Article 517 to introduce demand factor calculations for hospital loads. Two PI's of note were submitted by Panel members with supporting documentation to justify the addition of demand calculations for receptacle and individual branch circuits. The intent is to address excessive oversizing of related portions of hospital distribution systems.

c) Panel addressed PI's to introduce Microgrid applications for Article 517.

d) Committee Input included a rewriting of two significant sections. First, Art. 517, Part V. X-RAY Installation was completely rewritten and updated to reflect modern use Diagnostic Imaging and Treatment Equipment. This is a much-needed update. Much of the previous section is out of date and inapplicable as a result of advancements in technology.

e) The second section completely revised through committee input is Art. 530. The article has not been updated to reflect industry improved practices and technological advances in

studio production.

2) **Statements Opposing First Revisions**

None

3) **Motion**

Motion to support all First Revisions

4) **Vote**

For the Motion	***16***
Against the Motion	***0***
Abstentions	***0***

5) **Direction to IEEE-IAS/PES- JTCC Representative**

JTCC Representative is directed to support all first revisions

CMP-16, 2023 NEC First Draft Report

Articles 770, 800, 810, 820, 830, and 840

(William J. McCoy, Principal - Alternate Vacant)

1. **Noteworthy Panel Actions**

- ***A number of the PIs for which a First Revision was created are***

  - Editorial changes to comply with the new NEC® Style Manual.
  - Moving definitions from Article 770 and Chapter 8 to Article 100.
  - Moving duplicate Sections from Articles 805, 810, 820, 830, and 840 to the new General Article 800.

- ***A Global Public Input 3671***
  This was submitted by a Task Group formed by the NFPA Correlating Committee to review the new technology of Packet Energy Transfer (PET). The main intent of the PI is to create a new Article in Chapter 7 to defined Class 4 type powering circuits. However, this PI also wants to pull the listing requirements from Article 770 and put them in this new proposed Article. CMP-16 rejected this PI because the Panel felt that the listing requirements of optical fiber cable should remain in Article 770.

- ***Global PI 3234***
  This was requested to relocate all listing and installation requirements for wires, cables, cable routing assemblies and communication raceways to the new Article in Chapter 7 being developed for Power limited Cables, specifically section 800.113 and 800.179, 800.154, and the Tables to 800.154. Then, combine Table 800.154 with a similar Table in the new Article being developed for Power limited Cables and relocate all substitution cable charts to new Article. This PI was rejected by CMP-16 because the Panel felt that the listing requirements should remain in Chapter 8 where the application requirements were provided.

- ***PI 1504***
  This was submitted by a Task Group formed by the Correlating Committee which proposed changing the definition in Section 800.2 for Communications Service Provider as shown with the underlined words.

  An organization, business, or individual that offers communications service to others, <u>interconnecting more than a single premises network</u>.

CMP-16 rejected this PI based on the fact that a Communications Service Provider doesn't have to provide more than a single premises network.

- ***PIs 1765 and 1764***
  These were submitted by a Task Group formed by the Correlating Committee to add the following new definition to Section 800.2 and insert the term in Section 800.44.

  Communications Service Point. The point of connection between the communications service provider's network (OutsidePlant) and the premises wiring (Inside Plant).

  CMP-16 rejected these two PIs based on the fact that the term was incorrect and did not improve the usability of the NEC®.

- ***PIs 2491, 2493, and 2512***
  These PIs wanted to add the term Copper-Clad Steel to Sections 770.100(A)(2), 770.100(D), and 770.106(B). CMP-16 rejected these three PIs because the Sections already state "copper or other equivalent corrosion resistant material" which would be inclusive of copper-clad steel.

- ***PI 3947 (FR# 8800) added to Section 800.3 the following requirement.***

  (H) Bonding and Grounding of Communication Cable Shields.

  The requirements defined in 250.4 shall apply to all shielded communications cabling as applicable.

  This added requirement addresses potential shock and fire issues should the non-current carrying metal shielding of communications cables become energized.

- ***PI 645 (FR# 9071) added the following wording to Section 800.113.***

  (A) Listing.
  ~~Wires, c~~ Cables used for communications circuits, ~~cables~~ communications wires, cable routing assemblies, and communications raceways installed in buildings shall be listed and installed in accordance with the limitations of the listing.

  Exception: Cables installed in compliance with 800.48 ~~805.48 or 820.48~~ shall not be required to be listed.

  (B) Ducts Specifically Fabricated for Environmental Air. Installations of cables used for communications circuits, communications wires, cable routing assemblies and communications raceways, in ducts specifically fabricated for environmental air shall be in accordance with 800.113(B)(1) and 800.113(B)(2).

  (B)(1) Uses Permitted. The following ~~wires and~~ cables shall be permitted in ducts specifically fabricated for environmental air as described in 300.22(B) if they are directly associated with the air distribution system:

  (1) Plenum cables up to 1.22 m (4 ft) in length
  (2) Plenum ~~cables~~, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables installed in raceways that are installed in compliance with 300.22(B)

  (B)(2) Uses Not Permitted. The following cables, wires, cable routing assemblies, and communications raceways shall not be permitted in ducts specifically fabricated for environmental air as described in 300.22(B)

(1) Plenum, riser and general-purpose communications raceways
(2) Plenum, riser and general-purpose cable routing assemblies
(3) Riser, general-purpose and limited-use cables
(4) Type CMUC cables and wires
(5) Types BMU and BLU cables
(6) Communications wires
(7) Hybrid power and communications cables

Informational Note: ~~For information on fire protection of wiring installed in fabricated ducts~~ See NFPA 90A-2021, *Standard for the Installation of Air-Conditioning and Ventilating Systems* for information on fire protection of wiring installed in fabricated ducts.

(C) Other Spaces Used for Environmental Air (Plenums). Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in other spaces used for environmental air (plenums) shall be in accordance with 800.113(C)(1) and 800.113(C)(2).

(C)(1) Uses Permitted. The following ~~wires,~~ cables, wires, cable routing assemblies, and communications raceways shall be permitted in other spaces used for environmental air as described in 300.22(C):

(1) Plenum cables
(2) Plenum communications raceways
(3) Plenum cable routing assemblies
(4) Plenum cables installed in plenum communications raceways
(5) Plenum cables installed in plenum cable routing assemblies
(6) Plenum cables and plenum communications raceways supported by open metal cable tray systems
(7) Plenum cables, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables; and communications wires installed in raceways that are installed in compliance with 300.22(C)
(8) Plenum ~~cables~~, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables; and plenum ~~communications raceways~~, riser ~~communications raceways~~, and general-purpose communications raceways supported by solid bottom metal cable trays with solid metal covers in other spaces used for environmental air (plenums) as described in 300.22(C)
(9) Plenum, riser, general-purpose, and limited-use cables, installed in plenum , riser , and general-purpose communications raceways supported by solid bottom metal cable trays with solid metal covers in other spaces used for environmental air (plenums) as described in 300.22(C)

(C)(2) Uses Not Permitted. The following cables, wires, cable routing assemblies, and communications raceways shall not be permitted in other spaces used for environmental air as described in 300.22(C):

(1) Riser, general-purpose and limited-use cables
(2) Riser and general-purpose communications raceways
(3) Riser and general-purpose cable routing assemblies
(4) Type CMUC cables and wires
(5) Types BMR, BM, BMU and BLU cables
(6) Communications wires
(7) Hybrid power and communications cables

Informational Note: ~~For information on fire protection of wiring installed other spaces used for environmental air, see~~ See NFPA 90A-2021, *Standard for the Installation of Air-Conditioning and Ventilating Systems* for information on fire protection of wiring installed in other spaces used for environmental air.

(D) Risers — Cables, Cable Routing Assemblies, and Communications Raceways in Vertical Runs. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in risers shall be in accordance with 800.113(D)(1) and 800.113(D)(2).

(D)(1) Uses Permitted. The following cables, cable routing assemblies, and communications raceways shall be permitted in vertical runs penetrating one or more floors and in vertical runs in a shaft:

(1) Plenum and riser cables
(2) Plenum and riser communications raceways
(3) Plenum and riser cable routing assemblies
(4) Plenum and riser cables installed in:
    (a) Plenum communications raceways
    (b) Riser communications raceways
    (c) Plenum cable routing assemblies
    (d) Riser cable routing assemblies

(D)(2) Uses Not Permitted. The following cables, wires, cable routing assemblies, and communications raceways shall not be permitted in risers:

(1) General-purpose and limited-use cables
(2) General-purpose communications raceways
(3) General-purpose cable routing assemblies
(4) Type CMUC cables and wires
(5) Types BMR, BM, BMU and BLU cables
(6) Communications wires
(7) Hybrid power and communications cables

Informational Note: See 800.26 for firestop requirements for floor penetrations.

(E) Risers — Cables and Innerducts in Metal Raceways. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in metal raceways in a riser shall be in accordance with 800.113(E)(1) and 800.113(E)(2).

(E)(1) Uses Permitted. The following cables and innerducts shall be permitted in metal raceways in a riser having firestops at each floor:

(1) Plenum ~~cables~~, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables
(2) Plenum, riser, and general-purpose communications raceways
(3) Plenum ~~cables~~, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables installed in:
    (a) Plenum communications raceways (innerduct)
    (b) Riser communications raceways (innerduct)
    (c) General-purpose communications raceways (innerduct)

(E)(2) Uses Not Permitted. The following cables, wires, cable routing assemblies, and communications raceways shall not be permitted in metal raceways in risers:

(1) Plenum, riser and general-purpose cable routing assemblies
(2) Type CMUC cables and wires
(3) Types BMR, BM, BMU and BLU cables
(4) Communications wires
(5) Hybrid power and communications cables

(F) Risers — Cables, Cable Routing Assemblies, and Communications Raceways in Fireproof Shafts. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in fireproof riser shafts shall be in accordance with 800.113(F)(1) and 800.113(F)(2).

(F)(1) Uses Permitted. The following cables, cable routing assemblies, and communications raceways shall be permitted to be installed in fireproof riser shafts having firestops at each floor:

(1) Plenum, riser, general-purpose, and limited-use cables
(2) Plenum, riser, and general-purpose communications raceways
(3) Plenum, riser, and general-purpose cable routing assemblies
(4) Plenum, riser, general-purpose, and limited-use cables installed in:
    (a) Plenum communications raceways
    (b) Riser communications raceways
    (c) General-purpose communications raceways
    (d) Plenum cable routing assemblies
    (e) Riser cable routing assemblies
    (f) General-purpose cable routing assemblies

(F)(2) Uses Not Permitted. The following cables, wires, cable routing assemblies, and communications raceways shall not be permitted in metal raceways in risers:

(1) Type CMUC cables and wires
(2) Type BMU and BLU cables
(3) Communications wires
(4) Hybrid power and communications cables

Informational Note: See 800.26 for firestop requirements for floor penetrations.

(G) Risers — One- and Two-Family Dwellings. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in risers in one- and two-family dwellings shafts shall be in accordance with 800.113(G)(1) and 800.113(G)(2).

(G)(1) Uses Permitted. The following cables, cable routing assemblies, and communications raceways shall be permitted in one- and two-family dwellings:

(1) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables
(2) Limited-use cables less than 6 mm (0.25 in.) in diameter
(3) Plenum, riser, and general-purpose communications raceways
(4) Plenum, riser, and general-purpose cable routing assemblies
(5) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables installed in:
    (a) Plenum communications raceways
    (b) Riser communications raceways
    (c) General-purpose communications raceways
    (d) Plenum cable routing assemblies
    (e) Riser cable routing assemblies
    (f) General-purpose cable routing assemblies

(G)(2) Uses Not Permitted. The following cables and wires shall not be permitted in risers in one- and two-family dwellings:

(1) Type CMUC cables and wires
(2) Type BMU and BLU cables

(3) Communications wires
(4) Hybrid power and communications cables

(H) Cable Trays. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, supported by cable trays shall be in accordance with 800.113(H)(1) and 800.113(H)(2).

(H)(1) Uses Permitted. The following wires, cables, and communications raceways shall be permitted to be supported by cable trays:

(1) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables
(2) Plenum, riser, and general-purpose communications raceways
(3) Communications wires, plenum ~~cables,~~ riser cables, and general-purpose cables installed in:
    (a) Plenum communications raceways
    (b) Riser communications raceways
    (c) General-purpose communications raceways

(H)(2) Uses Not Permitted. The following cables and wires shall not be permitted to be supported by cable trays:

(1) Limited-use cables
(2 Type CMUC cables and wires
(3) Type BMU and BLU cables
(4) Communications wires
(5) Hybrid power and communications cables

(I) Distributing Frames and Cross-Connect Arrays. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in distributing frames and cross-connect arrays shall be in accordance with 800.113(I)(1) and 800.113(I)(2).

(I)(1) Uses Permitted. The following wires, cables, cable routing assemblies, and communications raceways shall be permitted to be installed in distributing frames and cross-connect arrays:

(1) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables, and communications wires
(2) Plenum, riser, and general-purpose communications raceways
(3) Plenum, riser, and general-purpose cable routing assemblies
(4) Communications wires, plenum ~~cables~~, riser ~~cables~~, and general-purpose cables installed in:
    (a) Plenum communications raceways
    (b) Riser communications raceways
    (c) General-purpose communications raceways
    (d) Plenum cable routing assemblies
    (e) Riser cable routing assemblies
    (f) General-purpose cable routing assemblies

(I)(2) Uses Not Permitted. The following cables and wires shall not be permitted to be installed in distributing frames and cross-connect arrays:

(1) Types BMR, BM, BMU and BLU cables
(2) Limited-use cables
(3) Type CMUC cables and wires
(4) Communications wires

(5) Hybrid power and communications cables

(J) Other Building Locations. Installations of cables used for communications circuits, cable communications wires, routing assemblies, and communications raceways, in building locations other than the locations covered in 800.113(B) through (I) shall be in accordance with 800.113(J)(1) and 800.113(J)(2).

(J)(1) Uses Permitted. The following wires, cables, cable routing assemblies, and communications raceways shall be permitted to be installed in building locations other than the locations covered in 800.113(B) through (I):

(1) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables
(2) Limited-use cables with a maximum of 3 m (10 ft) of exposed length in nonconcealed spaces
(3) Plenum, riser, and general-purpose communications raceways
(4) Plenum, riser, and general-purpose cable routing assemblies
(5) Communications wires, plenum ~~cables~~, riser ~~cables~~, and general-purpose cables installed in the following:
    (a) Plenum communications raceways
    (b) Riser communications raceways
    (c) General-purpose communications raceways
(6) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables installed in the following:
    (a) Plenum cable routing assemblies
    (b) Riser cable routing assemblies
    (c) General-purpose cable routing assemblies
(7) Communications wires, plenum ~~cables~~, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables installed in raceways recognized in Chapter 3
(8) Type CMUC under-carpet communications wires and cables installed under carpet, modular flooring, and planks

(J)(2) Uses Not Permitted. The following cables, wires, cable routing assemblies, and communications raceways shall not be permitted to be installed in building locations other than the locations covered in 800.113(B) through (I):

(1) Types BMU and BLU cables
(2) Communications wires
(3) Hybrid power and communications cables

(K) Multifamily Dwellings. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in multifamily dwellings shall be in accordance with 800.113(K)(1) and 800.113(K)(2).

(K)(1) Uses Permitted. The following cables, cable routing assemblies, and communications raceways shall be permitted to be installed in multifamily dwellings in locations other than the locations covered in 800.113(B) through (G):

(1) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables
(2) Limited-use cables less than 6 mm (0.25 in.) in diameter in nonconcealed spaces
(3) Plenum, riser, and general-purpose communications raceways
(4) Plenum, riser, and general-purpose cable routing assemblies
(5) Communications wires, plenum ~~cables~~, riser ~~cables~~, and general-purpose cables installed in the following:
    (a) Plenum communications raceways
    (b) Riser communications raceways
    (c) General-purpose communications raceways

(6) Plenum, riser, and general-purpose cables installed in the following:
(a) Plenum cable routing assemblies
(b) Riser cable routing assemblies
(c) General-purpose cable routing assemblies
(7) Communications wires, plenum ~~cables~~, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables installed in raceways recognized in Chapter 3
(8) Type CMUC under-carpet communications wires and cables installed under carpet, modular flooring, and planks

(K)(2) Uses Not Permitted. The following cables, cable routing assemblies, and communications raceways shall not be permitted to be installed in multifamily dwellings in locations other than the locations covered in 800.113(B) through (G):

(1) Types BMU and BLU cables
(2) Communications wires
(3) Hybrid power and communications cables

(L) One- and Two-Family Dwellings. Installations of cables used for communications circuits, communications wires, cable routing assemblies, and communications raceways, in one- and two-family dwellings in locations other than the locations covered in 800.113(B) through (F) shall be in accordance with 800.113(L)(1) and 800.113(L)(2).

(L)(1) Uses Permitted. The following wires, cables, cable routing assemblies, and communications raceways shall be permitted to be installed in one- and two-family dwellings in locations other than the locations covered in 800.113(B) through (F):

(1) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables
(2) Limited-use cables less than 6 mm (0.25 in.) in diameter
(3) Plenum, riser, and general-purpose communications raceways
(4) Plenum, riser, and general-purpose cable routing assemblies
(5) Communications wires, plenum ~~cables~~, riser ~~cables~~, and general-purpose cables installed in the following:
(a) Plenum communications raceways
(b) Riser communications raceways
(c) General-purpose communications raceways
(6) Plenum ~~cables~~, riser ~~cables~~, and general-purpose cables installed in the following:
(a) Plenum cable routing assemblies
(b) Riser cable routing assemblies
(c) General-purpose cable routing assemblies
(7) Communications wires, plenum ~~cables~~, riser ~~cables~~, general-purpose ~~cables~~, and limited-use cables installed in raceways recognized in Chapter 3
(8) Type CMUC under-carpet communications wires and cables installed under carpet, modular flooring, and planks
(9) Hybrid power and communications cable listed in accordance with 805.179(F)

(L)(2) Uses Not Permitted. The following cables, wires, cable routing assemblies, and communications raceways shall not be permitted to be installed in one- and two-family dwellings in locations other than the locations covered in 800.113(B) through (F):

(1) Types BMU and BLU cables
(2) Communications wires

Basically, the wording that was added PI 645 (FR# 9071) Section 800.113 describes for the user what should be implied in the Table 800.154(a). Similar wording was added to Section 770.113 by PI 2554 (FR# 9065) for Table 770.154(a).

- ***Public Input 3897 (FR 8783)***
  This FR establishes a definition for Communications Utility and is written as follows:

  100, Communications Utility.
  An organization, either designated by or recognized by public service commissions or public utility commissions, or recognized as such under federal, state, or local law, that installs, operates, and maintains communication systems such as, but not limited to, telephone, wireless, VoIP, CATV, internet, satellite, or data service. (CMP-16).

  I recommend opposing this FR with the following statement:

  The words "wireless" and "satellite" need to be removed. These services are non-regulated and not considered a public utility. There is also concern that allowing any entity that is recognized as a communications utility under federal, state, or local law (with or without Commission oversight) to utilize the Code exclusions, e.g. NEC §90.2(B)(4), could easily result in unqualified persons performing communications equipment and wiring installations without Code (e.g. NEC Chapter 8 or Article 725) compliance or enforcement.

2. **Statements Opposing First Revisions**

   FR 8783 (Public Input 3897)

   Negative Statement to FR 8783: The words "wireless" and "satellite" need to be removed. These services are non-regulated and not considered a public utility. There is also concern that allowing any entity that is recognized as a communications utility under federal, state, or local law (with or without Commission oversight) to utilize the Code exclusions, e.g. NEC Section 90.2(B)(4), could easily result in unqualified persons performing communications equipment and wiring installations without Code (e.g. NEC Chapter 8 or Article 725) compliance or enforcement.

3. **Motion**

   Motion to support all First Revisions except FR 8783 with the above statement.

4. **Vote**

For the Motion	***17***
Against the Motion	***0***
Abstentions	***0***

5. **Direction to IEEE-IAS/PES- JTCC Representative**

   JTCC Representative is directed to support all first revisions with the exception of FR 8783 with the negative statements provided above

CMP-17, 2023 NEC First Draft Report

NO REPRESENTATION

CMP-18, 2023 NEC First Draft Report

Articles 393, 406, 410, 411, 600, 605

(Kurt Clemente, Principal – Alternate Vacant)

1) **Noteworthy Panel Actions**

a. *997 exterior light pole handhole should be lockable. The industry has noted a rise in copper theft*

from street poles, and many electric utilities are already doing this. The lights are 50% deenergized during the day by panelboard contactor, but 50% energized with local photocell. Electrocutions have occurred. For info only - CMP-18 resolved.

b. *1081 food court GFCI. Receptacles in the floors of areas considered food courts (even if dry location) shall have GFCI protection to protect from drink spills.*

c. *1258 no-receptacle zone around bathtubs is further modified, to clarify the zone extends below the rim of the tub in the bathroom.*

d. *1333 tamper-resistant receptacles now required in Institutional occupancies such as assisted living centers.*

e. *1701 extra-low voltage (drop ceilings for tiles). For info only - CMP-18 resolved because no definition presently exists and agreement on a definition is non-trivial.*

f. *2148 expansion of requirement for TR (tamper-resistant) receptacles. Locations previously including "places awaiting transportation" expanded to include skating rinks, gymnasiums, and auditoriums.*

g. *2408 powered faceplates. This is an emerging issue, products are selling now for users to snap on receptacle faceplates with power connections – tabs reach around installed receptacle to contact terminals for power. One manufacturer made a detailed presentation of product safety. The manufacturer noted the devices are UL listed (which is true), however the present UL listing does not include drawing power. CMP-18 adopted the change, which essentially prohibits the use of powered faceplates.*

h. *2483 copper-clad aluminum permitted as bonding conductor in Article 600 electrified signs.*

i. *2674 combine Articles 410 Luminaires/Lighting Fixtures and 411 Low-Voltage Lighting. For info only - CMP-18 resolved. While much overlap exists, it is not 100%. We recommended a task group be formed.*

j. *2691 definition of attachment fitting. This is the issue of the user-disconnectable ceiling fan – the outlet is both a receptacle and a means of support. This issue is taking several Code cycles to fully implement. The manufacturer is working with NEMA to develop a standardized attachment in WD-6 (like NEMA 5-20 and twist-lock L6-20). CMP-18 made a first revision to adopt the language for the attachment fitting.*

2) **Statements Opposing First Revisions**

None

3) Motion

Motion to support all First Revisions

4) Vote

For the Motion	***17***
Against the Motion	***0***
Abstentions	***0***

5) Direction to IEEE-IAS/PES- JTCC Representative

JTCC Representative is directed to support all first revisions

Lunch Break (~12:45 Eastern)	***45 minutes***

Other NFPA Reports

Each ER will have a maximum of 15 minutes for his status and timeline report - may use PowerPoint if desired

NFPA 1

NO REPRESENTATION

NFPA 70B

(Bill Cantor, Principal –Alternate Vacant)

Previous Edition 2019
Upgraded form Rp to Std – cycle moves out to 2024?
Entire document will be rewritten.
Meetings start this quarter.

NFPA 70E

(Daleep Mohla, Principal – Paul Dobrowsky, Alternate) pending

NFPA 70E- Standard for Electrical Safety in the Workplace

Current Edition: 2021

Approval Date by NFPA Standards Council (SC): June 1, 2020

Effective Date: June 21, 2020

Next Edition: 2024

Public Input Closing date: June 1, 2021

First Draft Report Posting Date: March 22, 2022

Previous JTCC (SCC 18) Representatives
Daleep Mohla and Paul Dobrowsky

Current JTCC Representatives;
None- Applications on hold due to balance
Application on the agenda of NFPA SC at April SC meeting

NFPA 73

NO REPRESENTATION

NFPA 79

(Daleep Mohla, Principal – Alternate Vacant)

NFPA 79 - Electrical Standard for Industrial Machinery

Current Edition: 2021

Approval Date by NFPA Standards Council (SC): Oct 5, 2020

Effective Date: October 23, 2020

Next Edition: 2024

PI closing date: January 5 2022

NFPA 855

(Bill Cantor, Principal – Alternate Vacant)

Next Edition: 2023
Ballot coming out mid-April? Will need a committee to consider direction.

New business

Daleep Mohla
Chris Searles

1. A reminder for ***all*** IEEE-IAS/PES JTCC Committee members to share these meeting minutes with their other interested committees, if known.
2. Proposals to IEEE-IAS/PES JTCC for 2023 NEC IEEE-IAS/PES JTCC comments due no later than 60 days prior to the NFPA Public Comment Closing Date of August 19h, 2021.
3. Vacant positions
    a. NFPA 70
        - CMP2 Alternate
        - CMP3 Alternate
        - CMP4 Alternate
        - CMP5 Alternate
        - CMP6 Alternate
        - **CMP7 Principal**
        - CMP7 Alternate
        - CMP8 Alternate
        - CMP9 Alternate
        - **CMP12 Principal**
        - CMP12 Alternate
        - **CMP17 Principle**
        - CMP17 Alternate
        - CMP18 Alternate
    b. **NFPA 1 Principal** and Alternate
    c. NFPA 70B Alternate
    d. **NFPA 73 Principal** and Alternate
    e. NFPA 79 Alternate
    f. NFPA 855 Alternate

Chet Sandberg presented the work that was done on CMP17

Adjourn Moved by everyone, seconded by everyone 12:17 Eastern