

Tentative Interim
Amendments, May 2019

TIA's

- Nine TIAs have been submitted:
 - 1426 [600.5(D)(2)]
 - 1438 [725.121(C)]
 - 1442 [210.52(C)(2)]
 - 1444 [725.121(C)]
 - 1451 [240.67(C)]
 - 1452 [240.87(C)]
 - 1453 [210.8]
 - 1455 [Annex D3]
 - 1458 [334.10(2) and (3)]

1426 [600.5(D)(2)]

- **600.5(D)(2) Enclosures as Pull Boxes.**
- Neon Transformer enclosures shall be permitted to be used as pull or junction boxes for conductors supplying other adjacent signs, outline lighting systems, or floodlights that are part of a sign and shall be permitted to contain both branch and secondary circuit conductors, provided the sign disconnecting means de-energizes all current-carrying conductors in these enclosures.
- **Substantiation:** The word "Neon" was lost during the First Revision and not noticed during the second revision until all the changes were reviewed after the panel meeting in San Diego. The lost word was noted in the chairs report and reported to staff.
- **Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process.
- The word "Neon" clarifies the specific enclosure which would allow conductors of different voltages in the same enclosure specific to the neon sign industry. With the omission of the word "Neon" the section could apply to other transformer boxes utilized in a large sign served by primary voltages.

1438 [725.121(C)]

- **725.121(C) Marking.** The power sources for limited power circuits in 725.121(A)(3), limited power circuits for listed audio/video equipment, listed information technology equipment, listed communications equipment, and listed industrial equipment in 725.121(A)(4) shall have a label indicating the maximum voltage and maximum current or maximum voltage and nominal current output per conductor for each connection point on the power source. Where multiple connection points have the same rating, a single label shall be permitted to be used. For equipment with a rated current per conductor less than 0.3 amperes, the effective date shall be January 1, 2021.
- **Substantiation:** CMP-3 removed this exemption in the First Revision for 2020: *“Exception – Marking shall not be required for power sources providing 0.3 amperes nominal current or less per conductor.”* This imposes a new requirement on this equipment. Manufacturers will not be able to instantly comply and therefore, require time to make the appropriate changes to their equipment. The added text intentionally does not include equipment where the rated current exceeds 0.3A per conductor. This requirement was imposed in 2017 with an effective date of January 1, 2018. This equipment should already have this label and therefore is purposely excluded from coverage under this TIA.
- **Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification of the action.
- As the 2020 code sits today, manufacturers will be required to comply on January 1, 2020. Unless they are involved in the revision process, they will not be aware of this new requirement and will not be able to comply on January 1, 2020.

1442 [210.52(C)(2)]

- **210.52(C)(2) Island and Peninsular Countertops and Work Surfaces.** Receptacle outlets shall be installed in accordance with 210.52(C)(2)(a) and (C)(2)(b).
 - (a) At least one receptacle shall be provided for the first 0.84 m² (9 ft²), or fraction thereof, of the countertop or work surface. A receptacle outlet shall be provided for every additional 1.7 m² (18 ft²), or fraction thereof, of the countertop or work surface.
 - (b) At least one receptacle outlet shall be located within 600 mm (2 ft) of the outer end of a peninsular countertop or work surface. Additional required receptacle outlets shall be permitted to be located as determined by the installer, designer, or building owner. The location of the receptacle outlets shall be in accordance with 210.52(C)(3). A peninsular countertop shall be measured from the connected perpendicular wall.
- **Substantiation:** The text regarding how peninsular countertops are measured, which was included in the 2017 NEC as the last sentence in 210.52(C)(3), was inadvertently deleted by FR 7537. The deletion of this text was also overlooked during the second draft meetings. Without this TIA this important text would not be included in the 2020 NEC.
- **Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process. Because the text identifying how peninsula countertops are measured will not be included in the 2020 NEC, there will be confusion relating to measuring and number of receptacle outlets required to serve the peninsula countertop space. Without the overlooked text, some will measure from the connecting perpendicular wall and some from the connecting edge. This text that would be reinstated by this TIA is necessary to prevent varying opinions on making measurements and the number of receptacle outlets required.

1444 [725.121(C)]

- **725.121(C) Marking.** The power sources for limited power circuits in 725.121(A)(3), limited power circuits for listed audio/video equipment, listed information technology equipment, listed communications equipment, and listed industrial equipment in 725.121(A)(4) shall have a label indicating the maximum voltage and rated current output per conductor for each connection point on the power source. Where multiple connection points have the same rating, a single label shall be permitted to be used.

Informational Note No. 1: 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.

Informational Note No. 2: An example of a label is “52V @ 0.433A, 57V MAX” for an IEEE 802.3 compliant Class 8 power source.

- **Substantiation:** There is concern about how PoE systems will be inspected to comply with the NEC. A consistent label format will greatly ease the inspector burden, making it easy to confirm an install complies with 840.160 or 725.144 with a glance. This was overlooked by the CMP. Time is of the essence; if this isn't added to the 2020 code, waiting until 2023 will be too late. This timing issue is why this is being submitted as a TIA instead of waiting for the next revision cycle.
- **Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process. Labeling PoE ports for NEC compliance was introduced in the 2017 code, but only for devices that hadn't yet started shipping in volume. The 2020 code will make a label mandatory for all new PSEs. The intention of the TIA is to get all the manufacturers to label their systems the same way, making it easy for anyone to quickly find the information required to confirm compliance.

1451 [240.67(C)]

- **240.67(C) Performance Testing.** ~~Where a method to reduce clearing time is required in 240.67(B), the~~ 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. Performance testing of an instantaneous element of the protective device shall be conducted by a qualified person(s) using a test process of primary current injection and the manufacturer's recommended test procedures.
A written record of this testing shall be made and shall be available to the authority having jurisdiction.

Informational Note: Some energy reduction protection systems cannot be tested using a test process of primary current injection due to either the protection method being damaged such as with the use of fuse technology or because current is not the primary method of arc detection.

- **Substantiation:** The language established by CMP-10 in the Second Draft of the 2020 NEC in SR 8020 recognizes the need to performance test the system for providing energy reduction for electrical worker safety, however it currently requires 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 must be revised 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 is also added to this new requirement to alert 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).
- **Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action. The performance testing requirement for energy reduction is new for the 2020 NEC. Numerous voting comments supported performance testing of the energy reduction system with similar concerns about omission of testing on certain technology and requiring unnecessary testing on other systems.

1452 [240.87(C)]

- **240.87(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.
~~Performance testing of an instantaneous element of the protective device shall be conducted by a qualified person(s) using a test process of primary current injection and the manufacturer's recommended test procedures.~~
A written record of this testing shall be made and shall be available to the authority having jurisdiction.

Informational Note: Some energy reduction protection systems cannot be tested using a test process of primary current injection due to either the protection method being damaged such as with the use of fuse technology or because current is not the primary method of arc detection.

- **Substantiation:** The language established by CMP-10 in the Second Draft of the 2020 NEC in SR 8030 recognizes the need to performance test the system for providing energy reduction for electrical worker safety, however it currently requires 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 must be revised 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 is also added to this new requirement to alert 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).
- **Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action.

1453 [210.8]

- **210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.** Ground-fault circuit- interrupter protection for personnel shall be provided as required in 210.8(A) through (F). The ground-fault circuit interrupter shall be installed in a readily accessible location.
- Informational Note No. 1: See 215.9 for ground-fault circuit-interrupter protection for personnel on feeders.
Informational Note No. 2: See 422.5(A) for GFCI requirements for appliances.
- For the purposes of this section, when determining the distance from receptacles the distance shall be measured as the shortest path that the supply cord of an appliance connected to the receptacle would follow without piercing a floor, wall, ceiling, or without fixed barrier, or passing through a ~~door, doorway, or~~ window.

Informational Note No. 3: See 400.12 for the requirements covering uses not permitted for flexible cords and cables.

- **Substantiation:** In 2017 *NEC*[®] 210.8, the MEASUREMENT METHOD from sinks [for 210.8(A)(7) and 210.8(B)(5)] and for bathtubs + shower stalls [for 210.8(A)(9)] was intended to be clarified by adding a NEW final paragraph (below) to the charging text. Part of that MEASUREMENT METHOD requirement entailed the use of a flexible cord length (< 6 feet) that would not pass through windows. During First Draft stage, because there may have been concerns by some CMP-2 Members that this wording might be misconstrued as implicit permission to run ACTUAL power supply and extension cords themselves through doorways, where cords could be pinched and damaged by closing doors, the requirement wording was consequently revised to "... without ... passing through a door, doorway, or window" to placate those concerns. A better approach might have been a clarifying Informative Note, such as proposed above, to improve Code readability.
- **Emergency Nature:** The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation. The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification of the action.

1455 [Annex D3]

- **Example D3 Store Building**

- A store ~~5080~~ ft by 60 ft, or ~~3000~~ 4,800 ft², has 30 ft of show window. There are a total of 80 duplex receptacles. The service is 120/240 V, single phase 3-wire service. Actual connected lighting load is ~~8500~~ 7,000 VA, all of which for this example is considered continuous. All calculations are rounded up or down as permitted in 220.5(B). *{...there is MUCH more, truncated}*
- **Substantiation:** Because revisions to Article 220 were finalized late in the Second Draft meeting, there was not enough time to correctly revise the Example. This TIA will revise the necessary part of example to coordinate with the changes made to Article 220. The square foot values used for the store size were changed in order to preserve the original intent of Example D3 which was for the calculated load to be less than the required connected load.
- **Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process.

1458 [334.10(2) and (3)]

334.10 Uses Permitted. Type NM and Type NMC cables shall be permitted to be used in the following, except as prohibited in 334.12:

- (1) One- and two-family dwellings and their attached or detached garages, and their storage buildings.
- (2) Multi-family dwellings permitted to be of Types III, IV, and V construction that are 4 stories or fewer.
- (3) Other structures permitted to be of Types III, IV, and V construction that are 4 stories or fewer. Cables shall be concealed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.

Substantiation: The 2002 NEC removed a 3-story limit for NM Cable in Section 334.10, replacing the requirement with a reference to building construction type, limiting the use of NM cable to Types III, IV, and V. The effect was to effectively allow NM Cable in buildings up to 4- stories. For the 2021 code changes to the International Building Code, there were 14 proposals to add Mass Timber Buildings into the IBC, increasing the allowable height of wood structures up to 18 stories. The International Code Council membership voted to add new categories of type IV buildings (mass timber) to include buildings up to 18 stories in Table 505.4. See proposal G80-18 at <http://media.iccsafe.org/code-development/2018-Complete-ICC-Public-Comment-Agenda-compressed.pdf>. An unintended consequence of this action is to drastically increase the number of floors where NM cable can be installed without the impact of these changes being able to be reviewed by the public. A review of the documentation submitted to ICC revealed detailed analysis of fire control and egress requirements, but no recognition of the impact on wiring methods.

In deliberations for the 2002 Edition of the NEC®, Proposal 7-135 was initially rejected by CMP-7, but by the end of the process was accepted into the 2002 Edition, which recognized the Type III, IV, and V construction types where NM Cable could be installed. Inherent in those deliberations was the recognition that the prevailing limit on such buildings was 4-stories (with a few rare allowances for 5 and 6 stories). As such, the concept of NM Cable in buildings of 18 stories was never discussed or considered. There were certainly safety concerns with the limited increase in height at the time, and those concerns are still relevant today.

In order to preserve the integrity of NFPA's ANSI approved code development process, this TIA is critical. The technical merits of allowing NM cable in buildings higher than 4-stories should be fully discussed and vetted through the regular process at the 2023 NEC code-change process. The alternative will be to allow a different code, developed through a different process, to drastically alter the provisions of the National Electrical Code®. Acceptance of this TIA will insure that the NEC® development and change process works as intended.

Emergency Nature: The proposed TIA intends to accomplish a recognition of an advance in the art of safeguarding property or life where an alternative method is not in current use or is unavailable to the public.

The safe use of Type NM Cable in structures above 3 stories in height was questionable in the 2002 code cycle. This is of an emergency nature because, without it, the NEC® is effectively and drastically altered without public input or deliberation by the electrical experts on CMP-6, and will allow installations of unknown safety. The TIA is critical in maintaining the current code requirements as approved through the NFPA process.

SCC18 Ad Hoc recommended response to 1438

- IEEE 802.3 requests that IEEE SCC18 take a position of support on TIA 1438 for both technical merits and emergency nature.
 - IEEE 802.3 requests a vote of approve for the technical merit with the comment: “Manufacturers of IEEE 802.3 based equipment will be negatively impacted with an immediate requirement for labeling of all PSE ports. A grace period is required to allow time for compliance. These ports are exempt in 725.121(C) in the 2017 NEC, and therefore this TIA will extend this exemption for an additional year.”
 - IEEE 802.3 requests a vote of approve for the emergency nature with the comment: “Manufacturers of IEEE 802.3 based equipment will be negatively impacted with an immediate requirement for labeling of all PoE ports. A grace period is required to allow time for compliance.”

SCC18 Ad Hoc recommended response to 1444

- IEEE 802.3 requests that IEEE SCC18 take a position of support on TIA 1444 for both technical merits and emergency nature.
 - IEEE 802.3 requests a vote of approve for the technical merit with the comment: “Suggesting a consistent label will improve usability.”
 - IEEE 802.3 requests a vote of approve for the emergency nature with the comment: “This TIA gives an example label suggesting a standard format which will reduce the chance for misinterpretation during installation and inspection. If this isn’t added in the 2020 code, manufacturers may choose different formats, which could increase confusion. IEEE supports this TIA as it would ease an inspectors burden. ”